

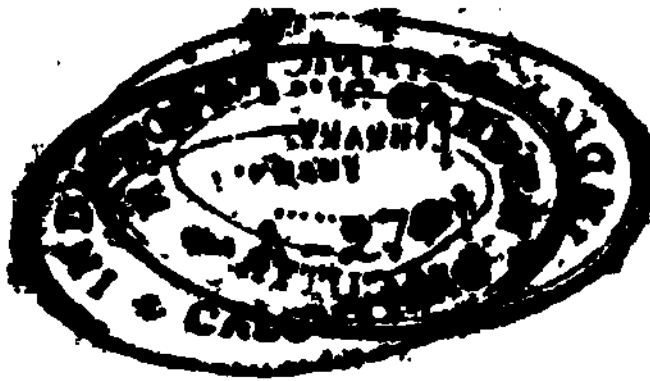
DE CANDOLLE

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**PRODROMUS**  
**SYSTEMATIS UNIVERSALIS**  
**REGNI VEGETABILIS**

PARS XVI

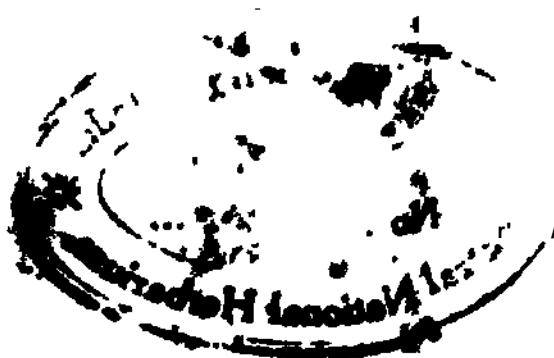
SECTIO POSTERIOR. — FASC. I.



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PARISIIS. — E TYPIS C. LAURE  
Via dicta de Fleurus, 9

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DE CANDOLLE

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**PRODROMUS**

**SYSTEMATIS NATURALIS**

**REGNI VEGETABILIS**

SIVE

ENUMERATIO CONTRACTA

ORDINUM, GENERUM, SPECIERUMQUE PLANTARUM

HUC USQUE COGNITARUM, JUXTA METHODI NATURALIS NORMAS DIGESTA

EDITORE ET PRO PARTE

AUCTORE

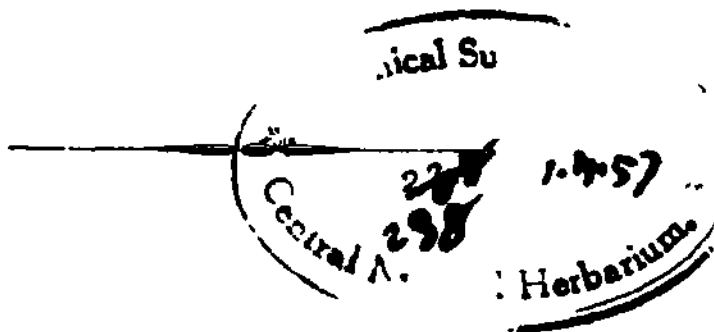
ALPHONSO DE CANDOLLE

PARS DECIMA SEXTA

SECTIO POSTERIOR

Fasc. I.

Sistens Cupuliferas, etc.,



PARISIIS

SUMPTIBUS VICTORIS MASSON ET FILII

FURO DICTO DE L'ECOLE-DE-MEDECINE

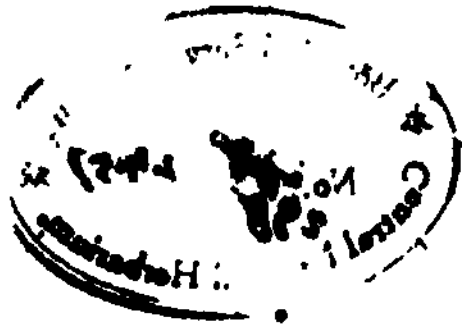
VENTIQUE APUD EOSDEM, LIPSIE, PROCURNATE F. WAGNER

NOV. M DCCC LXIV



## SIGNORUM PRODROMI EXPLICATION

- O Planta monocarpica duratione ignotâ. .  
(D) Planta monocarpica annua.  
(2) Planta monocarpica biennis.  
^ Planta rbizocarpica, <eu perennb herbacea.  
*fr* Planta lignosa, cujus magnitudo est ignota.  
5 Suftrutex, nempe planta lignosa cujus altitudo ad summum bipedalis.  
j Frutez, nempe planti lignosa, a basi raraosa, plus quam bipedalis.  
5 Arbuscula, nempe plan la ligcosa, trunco donata et infra 25 ped. altitudinis.  
^ Arbor, nempe planta lignosa, trunco donata et 25 ped. superans.  
(j) Scandens.  
f/ Planta seu flos masculus.  
9 Planta seu flos femineus.  
^ Planta seu flos hermaphroditus.  
ooxNumerus indefinitus, sic ovula oo, id est plurima non numero defnito.  
? Signum dubitationis.  
f In synonymiâ aut loco natali indicat specimen ab auctore ipso, aut viatore inscriptum.  
v. s. c. Visa sicca culta.  
v. s. sp. aut v. s. ViEa sicca spontanea.  
v. v. sp. aut v. v. Visa viva spontanea.  
Y. y. c. Visa viva culta.  
v. in h. Vfca in herbario%



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# PRODROMUS

## SYSTEMATIS UNIVERSALIS

### REGNI VEGETABILIS.

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Ordo GXG. CUPULIFERJE (1). — Amentacearum genera *Linn, phil. p. 28.* — Gastaneae, sect, i, *Allans, fam. 2, p. 366 (exclusis gen.)* — Amentaceae, sect, in, *Juss. gen. p. 409 (exclusis gen.)* — Cupuliferaj *Bich. anal. fr. p. 33,92 (excl. gen.)* — Gorylaceae, sect. i, *Mirb. elem. phys. 2 p. 906 (non sect, n, ubi Corylus).* — Amentacearum Gupulifera) (pars) *Ag. class, p. 9.* — Quercineae *Juss. dict.sc.nal 2, suppl. p. 12 (ubi nomen solum).* — Quercineae et Fagineae *Dumort. anal. p. 12.* — Gupuliferarum pars *Lindl. inlr. p. 97.* — Amentaceae Fagineae *Reichb. consp. p. 82 (excl. gen.)*. — Gupuliferarum trib. Quercineae et Fagineae *Meissn. gen. p. 346 et 257.* — Fagineae *Dull In Flora 1842, p. 725.* — Gupuliferarum pars *Endl. gen. p. 274, suppl. 4, part. 2, p. 22.* — Gorylacearum pars *Lindl. Veg. Kingd. p. 290.* — Xylophyta, Fagineae *Doll z. ErkL Laubkn. Ament. (1848)^. 22.* — Gupuliferae verae *Schacht Beitr. (1854) p. 53.* — Fagineae *Doll Fl. Bad. 2, p. 540.*

Flores inoici, spicali, spicis plerumque unisexualibus, nunc basi femineis, supra inasculis. Flores MASC. in amento solitarii aut glomerati, bracteali vel ebracteati. Perigonium lobis saepe inaequalibus. Stamina e fundo perigonii 5-20, libera, filamentis gracilibus, antheris bilocularibus. Rudimentum ovarii liberi praesens aut nullum. Pollen (immersum) globosum, laeve, 3-porosum. FL. FEM. singuli vel pauci in cupula (famus abbreviatus) immersi, cupulae basi bractea, squamis et prole interdum aculeis vel laciniis tarde crescentibus ornata. Perigonium regulare, saepius 6-lobum. Ovarium inferum, 1- et placentis prominentibus plus minus 3-rarius 4-7- locale. Ovula in singulo loculo gemina, e basi erecta vel ex apice pendentia, atriata, in tegumento duplici donata. Stylus lot. quot loculi, iis superpositi, indivisi, sursum stigmatosi. Fructus ex involu-

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(1) Auctore Alph. Lindl.

cro seu cupulA accrete et nuculis (nucēs, glandes dictis) cōn-  
stans, cupulA interdum fissil Semen plerumtjue in singuld nuce  
vel glande abortu unicurp7 <mi(\$ aljortivjs \$itu pristino adstan-  
tibus. Albumen nu|lun}. | m p 0 p ra(Aicul4 pa?v4 superA, cotyle-  
donibus plerumque cjarnosis, facie nunc sinuate vel plicatA ad-  
pressis et interdum subconnatis, dorso convexis, nunc sinuosis,  
radicul& longtoribus.—Arbores, rarius frtrtjcps, ubique terrarum  
exceptft Africa tropicali et australi indigeni, ftrfife alternis, pen-  
ninerviis, stipulaceis; spicis masculis (amentis) et partemascuW  
androgynum caflqcis; Gptylec[99]bp \$ farinosis pirnc edulibus.

Devernatione confer praesertim ad Döll, zurftrkr<sup>1</sup>. d. Laubkn.  
Ament. br. 8% 1848; de verA cupul® naturA et distinction ab affi-  
nibus Gorylaceis, ad ejusdenā Wör. Bad. v. 2; tandem de totA  
organogenesi vide Schacht Lehrb. 2, t. 8, sive der Baum, t. 3.

I. QUERCUS Linn. gen. ed. 1, p. 726; Gxrta. kuet. 1, t. 37; Secundat, *Mém.*  
*surl'hist.\*at. du. cW.*, ««Jb» 1735; 5#htToiM». t. 301, a. b; *Jfthk.*  
*Hist. nat. Cfen. tiAmer.in-jpl* 1801; 4. JftrSl. qrp- Amr. isil i. 2: *Wpme*  
*fi. Jav. fasc. 13, 14, et Bus. Lugd. bat. 4. 1; toei Sen. fl. germ. fasc. uEM.*  
*Wpme. Jftr.*, uppl. 4, part, f, p. 44; *SpUh hist. veg. phan.* 11, p. 145:  
*Webb it. hisp. p. 10. Gay in Ann. 16. nat. ser. 4, V- 6, p. 222, Bull. seé.*  
*hot. Fr. 1857, p. 446, 501': Scto&i Beitr. i, p. 36, 1AJ' fffttoftPWi \*-3;*  
*Kotschy Eichen Eur&m. ynd Orient. in-M. Wien, lwS-1862, et exsxxk\*. div.*  
*(quorum una series revisio dicta): Brehde\* the tru. rtotftkn. p. 20-47; AVph.*  
*DC. in Seem. jour. kfbot. jun. 1868, p. 182; Mtq. Ann. Mus. Lugd. bath*  
*(1853), p. 108 toIQ pa/fie). - Quercus, Ho>ur &uber et lie\* (pvtu&J C. Dash.*  
*mm. p. 420, £24. - Quercus, Ilex et Suber Jofrn. inst. p. 583. — synædry*  
*Lindl nat. sytt. ed. i, p. 441. — Lincæus J Wme Xijir. p. 526.*

Flores masculi iaamento solitarii, rarius ternati, plerumque bntefest  
caduc\* in plerisque ^tipuli^ Orba^ s^ipfti. Perigoniujn regulariter aut  
irregulariter 4-7 wapiusS. ^Upb^tu^, Stamina pumero varta&ii, Ipjiornm  
perigonn plerumque supenore ve\ duplici; sramenta-gracilia. exserta-  
antheraB biloculares, filamenibmulto Brevioreâ, sapius mu^ic<.>p)arqmaue  
glabr®. PistilhrudimentumsaBpiusnullum, nuncglebosumjliberum, fr-  
sutum. Flores feminei plerumque in cupul4 (invol.) singula solitarii nunc  
cupulis connexis appoiimatf. Perigoniumiapioe 3-8 saBpius 6-lôbum  
nunc obsolete denticulatap. Ovarium inferum, supeme uniloculare ia?  
ferneplacentis in centra vis coalitis, 3-loculare, kotdis biovulatis. Ovtila  
an^ulis ipterioribu? loculorum nune t>m, nunc supra basin, mgm pvopa  
apicem inserta, fn omnibus ^ursum beiniâna^opa, Styli (s&pe stigmata  
in despr. auctorum) 3, rarj) 3-^, Ibculjs subjgrpoliti, uno bracteam. ^  
tante, saffphls ligulati crassi pa^entes, nuhc^pneares erecfti. Fructus e  
pulâ mtfati, scruamosi vel zonatâ, nriqbam' acu)e)s omisU et k  
plus minus libëra, eisertâyel inelusfc oonstatts. Stitten abafu xtr  
Ovula abortiva nunc circa inferiorem mmo circa superioifem partto  
minis cum vestigiia parietum persisteatia. Testa membratifea. €  
dones crassae, sabpius plano-convexae et mtegj©, dowo fraoaautai  
lata, rarius sinuato-lobats. Radioula supena, ya^a basir  
inclusa. — Arbojds in hepnispaBriO borgajj e^intey trôj;  
sempervirente^ auj pro |empore apiyllffl, stipulis fu  
vernatione longitudinaitef plIStis; gemmb stipulaceis. *scnâmosis (con*  
Döll 1. c. fa- 23, Henry Knospensbild. in Nqv. act. nat. cur 22. pars 1, p. 337f,  
t 22, et Mohl morph. Unters. Ob. Eiche, in-4° Cassel 1862); pifisnoveUorum

stellatis sive fasciculatis, adjunctis interdum aliquot solitariis, plerumque serius retractis aut caducis; amentis pendulis aut erectis, saepius masculis, raro androgynis (fl. femineis inferne sitis), ex axillis inferioribus vel saepius e gemmis lateralibus pauperioribus aphyllis vel paucifoliatis nascentibus; pedunculis femineis ex axillis sequentibus aut e gemmis terminalibus, paucifloris, nunc minimis, flore terminali (Gay J. c.) aliisque fl. plerumque abortientibus, paucis maturescentibus, singulo flore cupulâ involucreto; fructus maturatione annuâ aut bienni. Glans junior pubescens, matura plus minus glabrata.—Flores femineos subhermaphroditos vidi in Q. Robore, ubi stamina solitaria passim inter dentes perigonii interjecta. — Characteres admodum in eadem specie, etiam in eadem arbore variabiles sunt: longitudo petioli, forma generalis, lobi et dentes foliorum, forma bractearum in amento, numerus loborum perigonii et staminum, mucro brevis vel brevissimus antherarum, longitudo pedunculorum fructiferum, numerus fructuum, convexitas dorsalis squamarum cupulae, magnitudo glandis erga cupulam (Alph. DC. Etude sur les pechs, in Bibl. univ. nov. 1862, iter. in Ann. sc. nat. ser. k v. vol. 18) (1). Squamae cupulae post florem generatas, consistentes, formae, pube frequenter squamis (stipularibus) gemmarum in singula specie subsimilibus ut observavit cl. Gay J. c. — Situs ovulorum abortientium erga semen (Alph. DC. Note sur un nouv. caract. in Bibl. univ., oct. 1862, et Ann. sc. nat. ser. 4 v. 18.) ab insertione ovulorum pendere videtur, sed evolutionem ovarii in paucis speciebus observare mihi contigit. In Quercu Robore, ubi ovula *infera*, id est sub semine maturo in inferiori parte glandis remanent, omnia ovula juniora in inferiori parte loculorum ascendente vidi, septis tunc superne initio discretis. In Q. Subere, ubi ovula abortiva *infera* vel (rarius?) secus latera seminis, inter basin et mediam partem altitudine diversa adsunt, ovula omnia juniora paulo altius quam in Q. Robore insident, parietibus similiter superne discretis. In § 2 et 3 sectionis primae et in aliis sectionibus ubi ovula abortiva *superiora*, id est semini superposita, ovula juniora omnia supra mediam vel in superiori parte, septis ibi perfectis, infra saepius discretis (Q. acutifolia) adsunt, ex div. sp. a me observatis et ex tabulis col. Blume. Situs ovulorum constans; tamen ex aspectu fructus non dijudicandus.

Sectioni i. LEPIDOBALANUS Endl. gen. suppl. k parl. 2 p. 24, Alph. DC. U. cc. niq. Ann. Mus. Lugd-bat. p. 108.—Gen. Quercus, Ilex et Suber Tourn. insi. p. 582 — Genus Quercus Linn. ed. 1 n. 726.—Sect. Robur, Cerroides, Erythrobalanos, Gallifera, Suber, Goccifera Spach hist. Veg. phan. v. 11 p. 18 et seq. — Quercus divis. Esculus et Ilex Gay in Ann. sc. nat. ser. 4 v. G.

Cupula squamis imbricatis tecta, ore aperta. Flores masc. in fundo pilosi absque rudimento manifesto pistilli. — Amenta gracilia, pendentia. Uractae sub singulo flore aut fasciculo florum unico nunc terminali nullae. Perigonium saepius irregulariter divisum. Stamina plerumque erga lobos perigonii non manifeste symmetrica.

(1) Variationibus specierum caute in praesenti ordine observatis (Alph. DC. Etude sur les pechs in Bibl. univ. Arch. sc. 1862, sive in Ann. sc. nat. ser. 4 v. 18), sensum uefinitum *who vel* in phrasi cuiusve speciei tribui, non in partibus in eodem ramo observatae. Ubi nonnulli Uiveisaj in illius arboribus etiam in div. ramiis in herbario servatis, verbii *nunc*, aut adhibui. Exompli gratia: foliis basi cordatis vel obtusis vel acutis, significat in foliis ipsius rami hasce variationes a me visas fuisse; basi nunc cordatis, nunc obtusis, acuiis aut obtusis, est in diversis ramis, forsitan in diversis arboribus.

§ 1. *Ovula abortiva infera, id est sub glande videnda* (1). *Mativratio fructus annua, sive fructus maturi ligno ami inserti* (2).

\* Species foliis pro tempore orbatae (3).

A. *Gerontogex.*

1. Q. ROBUR (Linn. sp. p. 1414.), foliis obovatis vel rarius oblongis ellipticisve basi cordatis vel rarius obtusis vel acutis varie lobatis vel rarius sinuato-lobatis lobis muticis plerumque obtusis, junioribus subtus saepius pilis stellatis et partim simplicibus pubescentibus raro glabris, adultis saepe glabratis, bracteis fl. masc. linearibus, perigonii laciniis 6-7 basi inaequaliter connatis pilosis, cupulas hemisphaericae squamis adpressis extus cinereo-pubescentibus inferioribus ovatis mediis et supremis ovatis vel e basi ovata dorso convexa mucronato-lanceolatis obtusiusculis, glande ovoideo-ellipsoidea varie exserta. 5 rarius 5 vel 3. In Europa et Asia occid. temperata sylvas vastissimas plerumque formans. — Desf. cat. h. par. ed. 1, St-Moulin aiss. in Comm. bot. Lugd. bat. 4° 1841 p. 6, Webb it. hisp. p. 10, Benth. hand. brit. fl. p. 473. Divellenda in innumeras species male definitas, aut praeunte ill. Inne, unica species polymorpha. Transitus inter subspecies I et II nunc in diversis arboribus nunc in eadem observaverunt Leman et Turpin ex Chaum. Fl. med. 2. p. 222, Zucc. in Florâ 1831 p. 161, Gay in Bull. Soc. bot. 1. c. et praesertim Grev. in Trans. Edimb. bot. soc. 1 p. 651. 4, 6, et Klingaraff in Bot. Zeit. 1652p. 172; Conf. n. p. 1840. *tiu. var. A.\*\*\** *et periculis quibus longitudinalibus petiolorum, fastigiatam, ambiguum, Tenorei, Buhseanam quod ad pedunculos, et diss. meam : « Etude sur l'espèce » in Bibl. univ. (Archiv. sc.) nov. 1862 sive in Ann. sc. nat. v. 18 (4). Folia autumnò exsiccata plus minus perstant pro anno et arbore.*

Subspecies I, *PednoculaUi*, petiolis plus minus abbreviatis, pedunculis fructiferis plerumque elongatis petiolo nempe longioribus.

*α, vulgaris, ramis foliisque junioribus subtus parce pilosis nunc glabris, adultis glabris. §. In Europâ, a Sierra Cintra Lusitaniae (Webb. 1 in h. Webb). Sardinia centrali (Mor. p. 514) usque Neapolitana (Ten.!), Peloponeso (Exped. Mor. p. 273), Cons antinopoli (h. Webb!) forsanne a provinciis transcaucasicis (ex auct. sed specimen fructif. certum non vidi), usque ad lat. 58° in Scotia (Wats. Cyb. p. 275), 61°-62° in Norwegia (Hartm. Skand. fl. p. 201.) et Suffcia (Fries fl. Geval. p. 31), 60° versus Petropolim (Ledeb. fl. ross.), 58° a Viatka (G. A. Mey. fl., in Rupr. Beitr. p. 30.) et circiter 56° in Ural merid. (Traulv. ectest. Kiew, in mappâ). Hemens Oal. hist. 1. p. 4 c. ic. opt. Quercus cum longo pediculo*

(1) Ovula abortiva observavi in sp. n. 1, 4, 13, 19, 21, 22, 23, 24, 25, 2ft 32, 34, 38, 39, 44, 49, 54, 67, 58, 61, 63, 68, 70, 75, 76.

(2) Duratio fructus in eadem specie admodum constans, sed in speciebus coterum simillimis differt.

(3) Character propter defectum aliorum hie adhibitus, et enim : 1\* variat in quibusdam speciebus (Q. humilis, Q. Lusitanica, conf. Webb it. Hisp. p. 13); 2° transitiones praebet (folia plus minus ante frondescentiam novam cadunt, arborem per plures menses aut aliquot dies anhyllam linquentia, nunc, in Q. Robore, Q. albâ, Q. imbricariâ ex Brendel 1. c. f. siccata minus perstant); 3° ex speciminibus herbariorum raro perspicitur, praesertim in spec, ubi vetusta folia cito post frondescentiam cadunt. Inde plurimiffi species § 1, *vii&* inter sempervirentes et non sempervirentesU

(4) De hisce non curaverunt auctores (jui diversitates gemmarum et foUortun, *pedunculata* et *sessiliflora* in unica provinciâ Germaniae aut GalHae attendit observarunt, innumeris aliis varietatibus et subvarietatibus europwlş vel asiaticis



C. Bauh pin p 420 (ex DC qui plant herb Bauh udit) Q Robur p Linn 1 c 0 Tdcmosa Lam diet 1 p 71") (exel \ar), DC 11 fi 3 p 109, Duhara arb ed nouv v 7 t 7 Q Robur pedimculata Maityn fl rust t 10 (fide bm ) Q pedunculata Ehr ' arb , Hull but fl p 212, Willd sp 4 p 450, Woodw med hot t 126, Sm Jngl hot 1342, Nouv Duliaxn t >4, Loudon aiboi t 69 v 3p 17 H i 1567, 1568, encycl. trees p 849 c ic , Heyne Arzn gew 6 t 36, Reichb ic t 648, Hartig Foist t 12, Nees pi off c ic , Kotschy Ticsn t 27 0 hjbnda Becbstein in S>l\an(ex Iim bot Zeit 1847 p 580 0 nedunculatd velmelius bie\ipctu>latd Doll lhein H 275 0 fi uc Upend uU Scluank 0 malacoplilla Scun (Estr bot Zeit 1860 (fide Null Mcliti Milj p 77) 0 pendulina Kit? (ex Nedr lb) 0 pedimculata glalii i Godi fl Lori 2 p 2S> Q Biutia len ' fl nap >p 259 t 197 (puhmcuhs in icone 3 4 Im longis, e\ descu sesquipollic ) Q paleacea Des\ jenun 3 p 48 \*> (ex patna, nam descnptio fere nulla) Q germanica Lasch in Bot Zeit 18J7 p 413 Q. longipes (e piov tianscaucasicis) btev Vcrz tauu Halbins p 306? Q euuccfoha ejusd lb \* Petioh in eodem ramo fere nulli vel 1 3 lin \el 3 lin longi, nunc (in pioximo tamo, aut in ahâ aibore?) etiam 7 lin Limbi 2 5 poll longi, sappius semipinnatifidi, pilis rans plcnsqnc simpheibus, dtmum utiactis nee caducis Pedunculi 1-3 nolbc , nunc bieviores, imo (ex Doll 1 c ) Intordiim nulli et tune rneigit In subsp II, nee nisi longitudine petioli (chanctcic inrialuli) distmcta ( upula k 5 lin longa, 6-7 lm lata blans 9 1 > lin longa (v v et s )

P, *Thomasn*, ramis fohisque juniouhiis subtus pilosulis, adultis glabns fructu majore ,5 1<sup>R</sup> Calabriâ (len '), prope Neapolim ad Astrone (Holdrl), circa Bosphorum (Webb' in h Hoi), «al Konstantmowska (Bess I) et in launâ (Stev ') Q pedunculata macrocaipa Bess' in h DC Q Ihomisu len ' fl nap 5p 2o91 198 lx spcciminibus Tenoiei squamce Remmarum pilosulae., petioli 3 5 lin longi, limbi jun ad neivos passim piiosi, lobi lime inde dentati (ut in ^ar vulgan), sinus obtusi, pedunculi J 15 lin longi, cupula 6 8 lin longa, 9-12 lin lata, glande 9 18 lin longil Spccimma adsunt in h Webb'n 0 Brutia a cl Iuiore vocata inter praesentem et vulgaicm magnitudine fiuctus media (v s )

Y, *Haas*, ramis sub\elutinis aut glabns, folns grosse et obtuse lobatis sub- tus etiam adultis pilis slellatis l)ieMssimis undique pubescentibus, cupulâ pkiuniquc magna. 5 Freqnens m montibus a Bulgar Dtigh (Kolschj ' it (ilic 374), ad lacum Van Kuidistaniae (Kotschj ' it 1850 n 407, 408, 423, 431, 435, 436, 437, 438, 551, 55>), ad portas Cilicicis (Ba lansa' 638 in h Boiss et (aesiircam id ' 636), in Asiâ minon loc non design (lclnbatch ' J858), prope Irape/um (Bourgeiu ' 1862 n 644, 646, 648), circa Belgrad nrope H)/intium (h Webb'), ad fl Melas prope Io\adia (h I'oiss ' et Webb') Q Hias Kotschj Eich t 2 Petioli 2 6 lin longi Accedit saepo ad \ar Thoma^u magnit fructus, ex gi in specimi- nibus Bahnsifii Media cacterum intci var \ulgarcm et apennmam Diflert a priori pubescentia. fol subtus non e\anescenter a posteriori st iturâ majore, pubescentia ioliorum minus copiosa Vanat lamis glabns vel breviter velutinis Pedunculi saepius monocarpi (v s )

o, *Armeniaca*, folns longe petiolatis, junionbus ., adultis feie glabratis, sinubus non piofundis — In Armeni.l et Ponto (Kotschy' Bouigeau' 1862 n 642) Q Aimeniaca Kotschy Eich t 26. 0 Lisistan Kotschy' fcmS 46 m h Boiss Ramuli purpuiescentes, glabns Petiol 6 9 1m longi, limbi j -, pon longi, basi obtusi ^el corditi, adulti subtus ad norvos passim pihs simpheibus donati cseterum pilis leliactis glabrati, lobis paium productis nregilaiibus obtusis vel subicutis Floicsmisc ignoti. Pedunculi fiuctif et fructus omnino Q Roboiiis pedunculate ^ulga^Is, ubi folia similia interdum adsunt Vix a uilgaii distinguenda (\ s )

e, *peholam*, Tolns longe petiolatis, junionbus , adultis glabiatis, sinubus profundis, lobis oblongis — In basalticis Nimrod Dagb ad lacum Van alt 6000 p (Kotschy i it 1859 n 565) Petioli in eod lamo 4-9 lin , nunc 6-12lin longi, limbi pinnatifidi, lobis utunquo o 7 apice callous Pedun

- culi 15-18 lin. longi. Squajnae cUjtala loófcusculab. ftami et gemmae glabra. Transitus vensimifiter adsunt quoad lobos foliorum inter prasentem et praecedentem, ut in vár. vulgari, sed in herbario desunt. (v. s.)
- i, *microcarpa*, glande minore. — In sylvis Syrmii. Q, pedunculata microbalanos Heuffel! in h. DC, Folia parum lobata, pallida, glabrata, ut in plunbus forma vulgaris. Petioh 2 lin., peduneuli H poll, longi. Glans 8-10 lin. longa, 4 lin. lata, cupulA 3<sup>o</sup>-5<sup>o</sup> longior. Forma depauperata, forsán non constans? (v. s.)
- 11, *fastigiata* (Lam. diet. 1, p. 725). oyma et ramis erectis pyramidalis. In sylvis Calabri\* (Ten.), in Galhaústro-occidentali, sed ibi prope domos, et passim in Galliciá (Cdlm. et Bout, examen encinas, p. 15). Q. fastigiata DG.1 fl. fr.suptpLp.3Sl. Lois, in hoiiv. Duhám.7p. 176, t. 55, Ten.fl.Napol. 5 p. 268, Loud, arbor. 3, p. 1731, t. 282, enc. f: 1543. Q. p<sup>\*</sup>pyramidalis tort., Bosc mem. p. 17. Folia brevipetiolata, puree jfflosa, raro sessilia, oito eadentia. Glandes 9-15 lin. long<sup>o</sup>. Forma noil semper htereditaria (ex Alman: du bon Jard.); e 30 satis. 12 formam fastigiatam preBtferunt (MathleHj fl. forest, ed. 2, p. 237). Specimen pedlinculo abbreviate Bubnullo inter *mtlflorat* colloearit pater in herb, nostro (v. s.j,
- 0, *purpurdicens* (DC. fl.fr. suppl p. 351], npvellis purpureis, faliis purpurentibus. — In sylvá Maule prope Le Mans (DC herb. I) et in hortis. Q. purpurea Lodd. cat. 0. pedunculata purpurea Loud. arb. 3, p. 1735. (v. s.)
- 1, *Jfodginni* (Loud, 1, a), fdllis multo minqribus. — In hortis angl. Q. Hodginsii Lodd. cat. 1836. *kiffm*, subfastigiala,
- x, *pendula* (Loud, arbor. I p. 1782), ramis pendentibus. — In hortis anglicis. Forma sppius heereditaria (Loud. 1. e.). Q. pendula Lodd. cat. 1836, Diver&e varietates verisim. in hortis naaos pewntes sunwat. Specimina vidi in h. Webb, (sine fl. et fr.) uii fbUa subtui tomentosa. (t. s.)
- X, Ittctmata, foliis elbngatls suW^tW^ris r^lrrti^uteriter lacDiato-lobatis lobis acuminatis aciltis obtuiisve. In Anmlft paslfini (LouáJ et in hortis anglicis. Q. laciniata Loád. cat. Q. filicifolia noft. \*Q. fenntesi hort. Q. pedunculata heterophylla Lpud. arb. 8, p. 1782, f. 1569, 1570, 1571, eneyel. oi trees, p. 860^ f. 1544. O. peduacujata? filicifolia Lam. ill. hort, 1854, D. ic. Fruutus ignotus. (v. s.)
- u, *variegatd* (Endl. gen. snjpl, 4, p. 24). foliis ex albo et ptirpureo variegatis. — In hortis. Q, v\$negata Lodd. cat. (v. s.)
- v, *Apennina*, minor, novejlis inoane-tomeatosis, foliis mxbtus etiftmaduliiis pallide tomentos^s supra glabrjusstUa demum glabris. 7- }n siccis Apenninorum (Mim. Ten. syll^p. 470), girilia (Guss, sya), &\$\*\* merid. ad Pic dp Saint Lpup (Godr. fl, fr, 3, p. 117), orientalm {Neipr! in h. DC., Godr, (1. J\*orr. Kirscejil fl. Als. 2\* P-BO)i et pirea Parisios (Fauché inh. BoissJ Loisel), Q. Apennina Xam-^diot, 1, p. 726. -DC, 1 fl. fr. 6, p. 352. Loisel, in npuv. pubam»a7..p. 177, t. 53. Q. tomentosa, Bhrh.! 148 (specim. sine fr. in h. Dp.), .Q. Aftowiiftia yar. Apeonia Go4r. fl. Lorr. 2, p. 285. 0. pubescens Lodd. car. (npu WilldJ. Q. pedunculata pubescens Lotfd. arb. 3, p. 1731. 0. tonplifolfá Guss. rfyn. 1. sic. 'eS. <, v. jLp. 607? Q. Toza Griseb. spicll. Hum. 2, p. 937 k tots. div. Ut forskri flierenda? 0- vimlnalis Bose 1 in h. Webb, (ton iil h. tie. et in int^m; p. 12). Rarior videtur quain paraliela varietds Robbris sessiliflbi^ lthigiiOMt. dicta, a qu& Idhgittidine tfeduncolorum solum áiversá. PeWoli f-6 lin\* rongi. PedHfauli 3-J2 lin. longi, non crassi. (v. s.) <

Subspecies tl, toottfilitattit, petiolis plu^ |i|ñus eiotigidUs. W(fetf^ls fructifens plertimque dfofeviatis (petiolo nempet vulgb DrévioriSus) sfitriullis, rarius petiolum asquantibus — Non riimusTariat quai v 0Qbspeiltel."Mbuleuli saBpius crassiores. Forme a, p, traasitiis ad praBeedentes *docmi* ^edv(ttdfl> praebent, ut vat. Y? ^\* ^> prioris, quoad longitadiriem tJetiöumtah ,'

a, *ambigud*, ramulis velútum's, foliis supra passim stUhtti-pilosls subtus

tomentosis, peduncuhs petiolura aequantilms crassis velutinis.— In Calabria (Thomas' in h DC), Gallit piope Lugdunum (Q Apennina Aunier» m li DC) Phagus Dal hist p 5? Ut \anetas Tenorci media quod ad petiolum et pedunculum inter *pedunculatas* et *sessihflora*\*, imo pubescentia fohorum inter *pedunculatas apenninas* et *sessihflorai lanuginosas* Foima fohorura, longitudo petioh et peduncuh ommno ut in Aar Iconorei, lobi tamen folioium snepius ad foimam acute dentatam iconum Dalechampu accedentes Folia aduita descupsi, subtus valde tomentosa, juniora vensim utunque pubescentia Squamae cupuUr ljifinores ovitae, sup lanceolitefi subicut t, doiso |i| iiflctide, sed in hisce chai \anant omnes feie Aauetites In specimine Thomasii petioli 6 lm longi, peduncuh 2 lm. vel (in eodem lamo) 7 lin, ideo petiolo nunc sublongiores. In omnibus peduncuh ciassioies quam m *pedunculaUs* (v s)

P, *Tenorei*, lamuhs velutinis, folns supra glabns subtus pilosiuscuhs., pcduneuhs ci assis velutinis petiolum aequantinus — In regno neapolitano (Ion ') et Syimio Slavoniae (Hcufel') 0 Daleelnmpii Ten ind sem. hoit neap 18)0, syll p 469 (exel var C), 11 nap 's, p 260 Phagus Dal hist p 5? O Budaiana Habeil fide Heuff' in h DC (media inter \ar praesentem et lanuginosam) Q Esculus Gnseb spic Rum 2, p 336 (non L) Lx spccimine a cl Jenoe comm rami fulvo-velutini pube brevissimâ, folia obovata, irregulariter pinnatifido sinuata, lobis obtusis passim dentatis, aduita supia gl.abtinma, subtus ad neivos passim pdosa, in parenchymate pilis bicvissimis sdepe stellitis ad lentom ronspoisi, petioh !6 hn longi, glabnusculi, peduncuh 3 6 lin longi, iruc tilcii crassi, pube ramoium \tlutini, glandes mediocres, cupuU tinuco JUILS cenlc. tigurae Dalechimpan differunt folioium loins acute dentatis, m errone pittons? [ors n ^ai ambigide potius tnbuendae Proximi \ai 'inuginosae, ulu mteidum peduncuh bieves adsunt in ipso ramo ubi glandes pleittque sessiles (v s)

Y, *lirgiliana* (Ten syll p 469), iamuh> velutinis, folns sa^pius imphs net piofunde lobatis supia glabns subtus pubciuhs demum ^lbis, peduncuhs fuertifens nullis aut bievisibus, glande eduh 5 Cucane ipolim (len), in ins Ischia (Guss ') et in Sicihi (Guss) Q Robui Vn^ilunâ Jen sjll 0 Vngihana Ten fl nap 5, p 262 Guss 'en plant In mm p 307 Q CupiiijidGuss syn fl sic 2, p 60b, en plant Inaiim p 30H Q pcduneulUa lulcis Loudon aib 3, p. 1715 Cl Gussone, anno 1857, speirnini communicavit e\ ins Isehia, sub nommibus eit, qua mhi similliin i videntui toima folioium in Rohoie scssihlloi \ fiequens impl> obo\ iti, bisiobtusa, lobis non magi)is liia^qualibus obtusis Petioh 4 6 hn longi, glabnuscuh Pih sub limbo ad nervos longiuscuh demum evaneseentes, in paienchymate bievisissimi saepms stelhti ad lentem vi (lundi Peduncuh m tnbus speeim imlli ex len mteiduni breves, ex Guss Intudum 1 veil 7 poll longi, undc Adi tiansit ad Aar *ambtquam* et *Tenorei* Squamae mediae et sup lanceolat<e Glans majuscula, ex lm edulis Sulnanetas dieenda est Quereus e nemonbus J-ucani.fi, a el Gdisparnni sub n 12, cum cl Gay comm et ah eo mceum divisi, ubi petioh 8 12 hn longi, fiuctus sessiles, glans polhcem longa, inde ad \ai pedunculatae lhomasii et Haas accedens (v s)

5, *Buhseana*, i lmuhs glabns, foliis longc petiolilis liasi saopius cuneatis supia ghbus subtus ad nervos soluni pilis longis sohtanis ranç instiuc ~~Wp~~ <sup>pe J</sup> <sup>funculis</sup> pttiolo breyionbus pubciuhs non ciassis f In Persia' ad Acnewhr (Bubse' in h Boiss) Ramuli petioh et neivi subtus puipuras centes Petioh 5 9 hn longi glabn, hmbi 3 poll longi, 1 \ poll, lati, obovati, obtuse lobati, basi saipms aeti, nunc subcordati Peduncuh 'j 6 hn longi, non crassi, liuetu saepius unico Cupula vulgans, squ imis obtuse lanceolatisutscKpe in communi Glms scnnpolireans, eupul\ uleo parum longioi, subpubeseens Una i\ innumeiis mtei 0 puluneulatim et sessihlouun auctoium (A S.)

w, *mcspihfoha* (Walh i sched ent p 494), glabra, foliis obovato oblongis basi in petiolum cuneatis A el longe angustatis apiee obtusis vel subaetis

margine integris passim undulatis, fructu.... In Thuringiâ. Rami juniores, gemmas et petioli glabri atque rubescentes. Folia 2-6 poll, longa, 6-20 lin. lata. Flores et fr. ignoti. (v. s. comm. a cl. auct.)

C, *communis*, ramulis glabris vel glabriusculis, foliis ssepius amplis nee profunde lobatis parce pubescentibus. § In Europâ et Asiâ occid. nempe ab Hispaniâ centrali (Colin, apunt. Cast. p. 134), Sardinia (Moris el. p. 2. p. 9), regno Neapolitano (Ten. fl. Nap. 5, p. 262), Graedâ Kotschyf revis. 71), Ciliciâ (Kotschy! 375), pro?. Musch (Kotschy! anno 1859, n. 556, 562, 567), lacum Van (id. I 550), Karduchiam id. I 564), in monte Bimgoe! (id. I 426), Ghilan (Aucher! 5333 in h. Boiss. et Webb), Anatolia sept. (Kotschy! 385, b., revis. 37) et Tauriâ (Stev. I inh. DC), usque ad Sergievsk prope 54<sup>th</sup> lat. versus Ural merid. ftiaus in Rupr. Beitr. 8, p. 147), Pensam (Ledeb. fl.), Mosmiam (H. Mart, fl.), Lithuanfam (Eichw. Ledeb.) et 59° latit. in Scandinaviâ (Wahl, Hatfm. fl.) et Scotia (Wats. Cyb. 2, p. 376). Ouercus latifolia mas qua brevi pediculo est c. Bauh. pin. p. 418 (ex DC. qui specimen auth. vidit). Q. Robur 0. Lian. fl. suec. ea. 2. p. 340. Chftne mâle Secondat hist. nat. Chen. t. 4. Chdne Rfeure a large feuille Lam. diet. 1, p. 717. Q. Robur var. sessilisiffartyn fl. rust. t. 11. Q. sessilis Ehr. I arb. Q. sessiliflora Sal. prodr. p. 392, Sm. Engl. hot. t. 1845, Loudon arbor, t. 69, v. 3, p. 1736, f. 1572. Q. Robur Willd. sp. 4, p. 450, Hartig forst. t. 11, Schkuhr Handb. t. 301, b. Duham. arb. nouv. ed. 7 t. 7, Nees pi. off. c. ic. Heyne Arzgew. 6, t. 35, Reichb. ic. t. 644. 0- conglomerate Pers. syn. 2, p. 570? Reichb. ic. t. 645 (var. lanuginosae forsân propior?). Q. intermedia D. Don, Bab. man. ed. 2, p. 301. 0, iberica Bieb. fl. Cauc. p. 1913 (partim?). Q. Robur Iberica Ledeb. fl. ross. 3, p. 590 partim. Q. coriacea et 6. decipiens Bechstein in Sylvan Jahrb. 1814 et 1816 (ex Irmisch hot. Zeit. 1847, p. 681). 0- viminals Boscl mem. p. 12, et in h. DC. (non in h. Webb). Q. microcarpa La Peyr. hist. Pyr. p. 582 (fide Clos rev. h. La Peyr. p. 178). Q. abietum Kotschy! pi. Cilic. 375 in h. Boiss. Q. condensata Schur (Estr. bot. 1857 (fide Neir. Nachtr. Maly, p. 77). Q. sublobata Kit. in Schult. (Estr. 1, 619 (fide Neir. ib.). Q. paUida Heuffel! inh. DC. Q. aurea Kotschy t Eich. t. 4. Q. mannifera Kotschyl revis. n. 36 in h. Boiss. Q. intermedia Kotschy! rey. n. 37, 41. 0. Iamprophyllos C. Koch in Linn. 22, p. 327. Piu foliorum r&ri. simplices vel steflati. demum distantes adpressi nee evanescentes (Irmisch). yariat ut var. vulgaris subspec. I magnitudine foliorum et petioli (sgpius semipoll. in n. 564 Kotschy 2-6 lin. in eod. ramo), sinubus varie profundis (saepius non profundis), basi cordata vel obtusa vel rarius cuneatft, pilfs plus minus raris, nervis nunc flavescens, foliis siccis nunc perstantibus, pedunculis (in eod. ramo) petiolo brevioribus velaequalibus, velsublongioribus (556 Kotschyl), sspius brevioribus, magnit. glandis. Inde specimina ssepe ad sequentes var. transunt. (v. v. et s.)

v), *bullata*, ramis junioribus foliisque glabris, foliis saepius amplis nee profunde lobatis, squamis inferioribus et mediis cupulee dorsovalde convexis. § In A\*ia minore prope Trapastum. Q. mannifera var. Kotschy I revis. n. 36 (in h. Boiss.). 0- pseudotscharukensis Kotschy I ib. n. 38. An O. mannifera Lindl. in bot. reg. 1840 app. n. 72, cujus flores et fr. ignok et ubi folia « subtus pubescentia » ? In prosentia folia evoluta ampla, omnino Roboris sessiliflore communis, ad nervum subtus interdum remote pilosula. sspius undique glaberrima. Squamn magis dorso inflata quam in plerisque, sed in hoc caractere variant specimina omnium fere varietatum Roboris. In altero specimine sub n. 36 ad communem relato folia glabra et squamae subconvexae. (v. s.)

0, *Cedrorum*, ramulis velutinis rarius glabriusculis, foliis non amplis saepius apice angustatis supra sparsim subtus crebre stellato-pilosiB pinnatifidis aut rarius subpinnatifidis. In Tauro Ciliciae (Kotschyl 377), in Karduchiâ (Kotschy, it. 1859 n. 548, 550), prov. Musch (id. I 660) et prope Trapezum (Bourgeaul 1862, n. 645). Q. Cedrorum Kotschy! num. cit. Q. sessiliflora Kotschy Eich. t. 32 (loco nat. speciminii Bg. non dicto).

**Q. Ibcis** Kotschj ' \*70 in h Boiss *Q* suhalpina Kotschy' pi Ciliz 33") (sinefi) 0 pmnatilobaC Koch in Linn 22, p 120^ Kotschy it 18=% n .VS4 (uln lohi fol 1-2 lohati ^el mtegi) 0 maniufera Kotschy' 18S9, n fit() 500 (confer M\ ^U p"iaeccd ) **Foli**i palliria, in cod lamo o\au >el elliptica A el obotala, pctiolo 3 > **lin** longo Tructus sessiles Glans Stepius 7 lin lonfca Folia minqtiam expansa ut in \ai commni solitum, tamen «i quibiisdam specim «i\*-**iatcis** \ai communis degie difleit Accedit ad 0 Lusitanicam sed sinus fol piofundioics (v s)

- v, *Dshorochemsi* ramulis lohisque adultis glahcmmis, folus ohlongis par\is — In Asia minoio piope Liap/um 0 Dshoiochensis ( Koch in Linn 22, p J28, Kotschj licli t ,10 0 longifolia C Koch il) p 127\* (alfinis Mdctui, et equiulem Q Robons \aiiotas) 0 Dshoiochensis \ai nnuo-ph\lla Kotschj ' io\is ii 40 in h Boiss Pctioli I u lin lonpri, limbi 1-2 poll **lon^i** 0 12 lin lati, subtis (in sicco) fla^escentos, sonupinn itifidi \el pinnatifidi, loins obtusis Pedunculi (quando adsiint) pctiolo siibbioioies, w\ puhscntes Fruclns in spociminc maturi sed Impoilcdi Cupola VG lin lata, squamis pubescntinus, medus el nif dorso comexis ut sa?pc in specie acculit Glans cupulam aequans, imperfecta (v s)
- t, *Szoutzii*, lamulis ^lahns, folns longe petiolatis supia petiolotjuc plabnusculis suhtus paico pulusconlibus, lobis o\ads mniicis mine ciobns cl lon^ioiibus, llor masc \tzi\ , fiuctibus bu \lc i poduncularis, glande pihscntc cupul\ \i\ duplo lonprioic — In SJMS monlium pio\ Kaia-bajfh onentahs 0 Kobui S/OMIZ ' «i cl Fisch ot Mey comrn tiansium pi.rbot mtor Roborem sessihfloiam et Q in iciantheiam, undo hercce lun^enda foisan mm <u Innumeicis 0 Robons Potioli in uno ramo 3 6 lin lonRi, in alteio A-12 lin , basi mm uassiores Limbi 2-4 poll lonffi, 1 J-3 poll lati, basi obtusi, lobis IIIKMIK lateio in uno lamo 3-6 non piofundis, in alteio "S 8 longionbus et tune ionn\ 0 macianthor.r l\*ih subtus ad nervos saipius simpliccs, alibi stollati bie\ioies GominT o\oi-deae, snbacutae, pilosulae Slipulac cito cadontcs l'edumuh J-4 lin longi Fnictus 1-2 Cupula squamis adpiessis ut m l'oboie Glans Q maciantheia (v s)
- >, *anrca*, r.imis glahns \el subpuboscentibus, folns oblongis profunde pmanalifidis \cl pinnatifidis \cl lanus undulato lobatis lobis obtusis s,rpnis integns supi i ghbns sulilus puboscontibus demum plabroscentibus — In Ban 11 ii (Wicib ') el l'cdomontio (( olla) 0 anic i Wioi/bicki' txs n IM/I in h Webb (non Kotschj) 0 Pidcmontana ( olla beib l'edem '>, P 185, t )l Q Lsculus Linn sp p 1414 (non mau! necGiiseb), Soc. hortie Loml (tide heib Webb') 0 stieimn HeuffoM in h IK (uimis nubestr ad \,u l.muginosam accodit). In specimmc Wieib petioli (> 7 lin longi, limlu I ^-3-1 poll lonr'i, in oodun lamo sjiipius pmniitihdi, lobis utiinque S-7, Minis undulato siihlnhati, fiuctus sessdc s In icono cl (olla folia omnia piofunde pinnatifida, pedunculus fiuililei 7 lin lon^us (in desenpt fiuctus sessdis dicitui) () Lsculus L sp reiteO Robons scssillorcC ex descr in Rees (ycl etLoud *fah* 3, J) 184") \ide tur, sod plimbiis forsaii \anetatibus lespondet, 0 Lsculus mantissd est 0 Cerns (v s)
- H, *pinnatifida*, aibuscula ^cl fiutex, **itbvellis** incano-tomentosis, folus pan is pinnatifnlis snpia demum glabns subtus pallidc tomenlosis lobis sublobatis — in ditionC Badensi (diuel Specim Biaun), Galli\ cntiah (Bor) y pinnatilida Gmel II bid 4, n 07 J 0 aspeia Hose! mom. R 24 i^ as' pciatal\*eis sijn p ")71 0 pubescens \,u pmnitilida Spenn 11 huh Doll lhein pi p 270 0 sessilifloia licimosa Boi fl centi Ir.ed 2 i) 5G8 (bCnc non in pio\ Q\o\c\, J), » boib luilia in eao\* aiboro lobata ^el pmnata (loud 1 1701) i obi icgulaies, siibline.ies (ox Gmel), in nostns mcgulaies, o\ali, mh ltium .uuli No\kli nibii GlandospaiNtE, sessiles Iransil ad ^ar lamigmosam sinubus lolioiuin in eodem lamo s\apo minus profundis, pubc copiosa IMi sillati paguuT supenons adspectum supeidciei aspicij pijjbent, undo nomen Boscu (v s)

- v, *leptobalanoi*, foliis supra glabris subtus cinereo-pubescenti-villosis, glandibus cylindraceis angustis cupulâ conicâ 4<sup>s</sup>-5<sup>o</sup> longioribus. — In nemoribus siccis mont. Madonie et in Calabria ad Aspromonte ubi *Quercia Aomita* vocatur. Q. leptobalana Guss. syn. fl. sic. ed. 2, T. 2, n. 608. Folia obovato-oblonga, basi subcordata, sinuato-lobata, lobis brevibus obtusis integris. Fructus sessiles, solitarii glomeratique. Habitus foliorum omnino Q. pubescentis (id est var. lauginosae nob.) a qua differt singulari formâ glandium; istae enim 7-11 lin. longae, diametro ad summum 3 lin., cylindricae Tel aliquando BOH nolo ac corniformes. — Ex specim. a Todaro nuncupato, in h. Webb, nihil a Tar. lamiginosa differt nisi fructus minores. Cupula basi subconica. (v. s.)
- ξ, *microbalanps* (freq. fl. centr. Fr. ed. 3, p. 588J/ arbuscula vel frutex, foliis junioribus subtus tomentosis, ~~glandibus minibus~~ ~~in siccis Galliae~~ centr. (Bor. I et in Lucania prope Castelgrande (Gasparr. n. 14, a cl. Gay cpm.). ParaUela inter sessilifloras varietati f. In pedunculatis. Glans in specim. Gasparr. 6-7 lid. longa, nunc minor ex schedula. (v. s.)
- o, *polycarpa*, foliis supra glabris subtus oasescentibus, fructibus numerosis densissime aggregatis. — In castanetis prope Hermannstadt imp. austr. Q. polycarpa Schur Verhandl. 1851, p. 174, Andrae in Bot. Zeit. 1856, p. 49. Q. axillaris Schur (Estr. bot. 1857 (fide Neilr. Nachtr. Maly, P. 77). Petioli f. longitudinis folii, piosuti. Jmbi obovati, sinuato-lobati, subtus tenuiter stellato-pubescentes, lobis brevibus rotundatis integris vel submarginatis. Fructus sessiles. An forma constans? An solum var. lanuginosa?
- π > ~~π y i p l i a~~ minor, glabriuscula, foliis minoribus pinnatifida lobis ovatis passim sinuato dentatis submucronatis. — In siccis et montosis Galliae (Lam. h. DC!). Lorey et Durey fl. Cde-d'Or 2, p. 822) et Anglitt (Bree in Loud). Q. ~~platyphyllos femina Dal. hist. p. 2, c. ic. 0. Bauh. pin. p. 419. Q. Robur laciniata Lam. diet. II, p. 717, DC. fl. fr. 3, p. 310. Q. sessiliflora var. Loud. arb. f. 1577. 0. sessiliflora lacinea oR fl. centr. ed. 2, p. 588. Novelli rubri. Petioli 2-4 lin. longi. Limbi utrinque 7-8-lobi, 1-3 poll. longi, 6-15 lin. lati, subtus ad nervos pilosuli, lobis subregularibus, multime laciniatis (unde nomen mutandum), sinibus plerumquid obtusis. Glandes Jiarvs, raro solitariae, saepius 8-4-glomeratae. (v. s.)~~
- p, *lanuginosa*, minus elata, ramis incano-tomentosis, foliis saepius pinnatifidis supra sparsim pilosis demum glabra subtus pallide tomentosis. 5 vel 3, nunc (ex Wilki.) 4, in Europa praesertim australi et Asia occid., nempe ab Hispania centr. (Colm. apunt. Castil. p. 135), Sardinia (Q. sessiliflora Moris in h. D0!) Siciliâ (Sim. syn. Todaro! in h. Webb); Peloponneso (Exped. Mor.) et Parnasso (Heldr. 27, 81, Orphan. 418), Creta (Roulin 738 in h. Boiss. 1), Anatolia sept. (Heldr. 2529, C. Koch in Linn. 16, p. 15), forsitan a prov. Transcaucasica (ex auct. sed specimina non vi<sup>a</sup>), usque ad Galliam sept. (Graves cat. Oise, p. 121), magn. due. Badensem (Koch syn. ed. 2, v. 2, p. 757j, Bohemiam (id.) et Podoliam (Led. fl. ross. 3, p. 590). Q. Robur Martynfl. rust. 1.12 (fide auct.). Q. Bobur lanuginosa Lam. diet. 1, p. 717, ftofccl Banat, p. 78, t. 38, f. 79. 6. pubescens Wüld. sp. 4, p. 450 (excl. s/n. Seconaât)\* Abbild. t. i411f (de auct.), Koch syn. ed. 2, p. 737, Hdftfg fbrst. t. 13 (mediocV.). Reichb. cent. t. 547, Kotsch<sup>^</sup>. Blich, J, 34, Q. lanuginosa Thuil fl. Par. p. 502. 0- fagineaBoht et MaiJf-4iaHr. p. 210 (fide Koch). Q. sessiliflora pubescens Loud. arb. 3, p. 1736, f. 1573. fc. crispata Stev. Verz. Taur. p. 30\$ Q. Auzin Bosc ideni. p. 16? Q. Cerrif Pall fl. rds. 2. p. J4 (noli alior.). Q. collina Schleich. 1 97 lu h. DC 6. Iberica Stev. ? ia Eifckw. pi. nov. Casp. Cauc. p. et t. 38? (fructu carenti. Q. congesta Presl del. Prag. p. 32, Guss. syn. 2, p. 607 (saltem in a et p). Q. ufidulata<sup>1</sup> Kit. in *tiply* rel. Kii P. HO (nori allotJ; frmeritior in sterilibus et sej)ibus. Pibes stellata m novellis, ^ t W j A I > P ^ n a int- folii copiosa, in folio adulto plus minus in minuU. Folia nan ampla, nunc subsinuata, nunc pinnata, lobis saepe undulato-lobatis, interdum

(praesertim m fol **jun**) subacutis Petioh m cod iamo 2"), 3-7 lin longi Biactde fl masc mine lineares mine ohovato oblongaj Pedunculi milli \el breves Fiuctus non IIIA^III Ianicn m speumin neapolitanis, sub iium 29 a daspan cum cl day (.omni, in ejus et in meo heil) videndis, glans quam m \ai Virgihanā non minor (v s)

9, *brachyphylla*, ramulis pulverulento \elnūnis, folus obtuse paucilobis utiinque pallide et crelre stellato pilosis, — Prope Smyiniun au Coidilio (Balansa'J, in (rctd (Kailin' 737, Kotschy) ct KUIOLA (id), m Giacia, (\ Boiss), Q pubescens Balansa' pi oi aim 18^4, n 284 Q. biachjphylli Kotschy Licb t 9 0 brevifolia Kotschy ohm m e\ s Syi 109, a, a revis40, 50, S1, 60 Kami jumoies, potioli ct limbi subtus pulc flftescnte hievi tecti Pelioli 3 8 lin longi 1 inibi nhovati, 1^ 20 lui loitfi, 6 18 lin lati, siiuato fissi, loins utimque 3 8 obtusis passim sinuato dentatis, sinubus obtusis Bractaeae obovato lmeaies, dorso et pr«scrtim marline seiicere Fl masc lacinus 6, basi bievider cniinatis, piiosis Stamina subexsei la ductus sapius solilain, scssiles Camilla 5 6 lm longa lataque, squamis arcle adpressis doiso mflalis et puhescentibus Olans 15 lin longa, 7 lm laU Spccimiiiiii vidi m b Webb o Moimpclio et Hetrunā qu»B folus simillima, sed luctu mmoie (v b)

T, *run eat a* (Ten fl nap S, p 250), ramulis ^clulinis, folus in petiolum Ionium basi angustatis junionbus utimque pubLstntilnis dLimun ^libiads — In CalabnA ultcuon ad Spadala (Qinicus sp nov iThomas in li DC ') et m Bandtu (Q aurea cuneiloha Wieib 1 id h Boiss) 0 Ddlbchampii \ai C Ten syll p 469 0 Appenna var cuneata len fl 1 c Lx sptcimmibus liomJLSM hirmi fiiiioies, petioli tt cupulu fulvo pubecCtiitls, petioh 8 ^) lm lon^i, limbi bisi acuti \i lon^ius an^usluis, loim< cojctium vul^an, pilis bic\ibus pluisque stellatis, luiolus SLSSiles vel bievisimo pedunculati, sohtau, gciniuu luime, 8 9 lin longi, bquans ovatis ct linceolatis minus quam is alns var adpiessis tamen milexis rbaiatci basis foboium ^aihibihs in spccim 2')28 Heldieich in h Webb ad \ai lanu^inosam leldto, folia cjusdem rami longc basi attenuata vcl obtusa el imo coidata (v s)

2 0 FARNFTTO (Ten cat h nap 1819, p 65, nbi cir tjp Fr.uicltto), i inns junionbus puboscentibus, folus olio\atis siibsessililms basi coidatis tiebie pm-ii Itifflis lobis obtusis muticis s,cpius sinualo lobitis supra glibrahs subtus spusirn stellato-pilosis petiolo basi mtrassito, stipuhs lincanlms c\lus miosis taido cadentibus, flonbus masc , fuclibus 2 4 ipiiL i uniili sossilibus, cupulap bomispbiiccT squamis adpiessis cxtus pubescentibus infer ovatis» jup lanccolatis obtusis, glande cupnA 2°-3° lonpioie ellipsoideA tarde gla biLscnte ^) In falabnā (Thomas, len ) et Gracia occid (Kotschy' re\ id et6J in h Boiss) —len sjll p 470 (c\cl (J), fl nap =>, p 260 Kami recti, secundo anno f?labn Folia \k poll loitfa, IS poll li»a, sup i "emum ^labi i nitula, pilis subtus ad nenos sinvphulms, alibi sttlhlis, lobis J«ioMic lateie 7-9, plus minus a medio limbi distantibCs, sinubus obtusis. ^iipih 5 6 h l, p minus a medio limbi d l u a, dd ^p longioros Gcmnn ovoide.p, sericeae Petioh f) "> Jin lon^i, si pms 0 I f.npt A o\m, sc IK^n Flut t, v»» dKKiegati, stipuhs velii^is plus minus unUi, a nciug Hol)ons\ulgaus nondiveisi Cl day ad U Roboicra ictuht (Ann sc "tM, ^ H, A b» I J, ij(J) H^lml" ^ tamen diveisus, loim fol numeiosioies, stipiaie minus caduccL, squarne sublongioies, ulamoits, maturje laxiores y lo/j piopioi, pidPseitim ex fiuctu, sed fohd bic\ms petiolata, subtus non dense tomentosa, lobis paucionbus (v s)

P, *conferta*, lobis fohiura muticis \el sappuis brevitei mucronulatis, sti-pulis, angustsobo\ato oblongis — In Bandtu y con/eita Kit (med ^), Rcicli) ic fl go<sub>1m</sub> n, t 046 Wier/ ' evs n 1040, Kotschy Licb I. 14 U hsculus HeuiTcP in h meo Jlx icone lloies masc us Q Robons <sup>simi</sup> 1?h, v i<sup>tu</sup> » K<sup>lai</sup> «Jes ttuuU npllo majoies, ellipsoidcap Lx spccim HcuTeh fl mdsc majoies (v s)

• Q VLLCVNICV (Boiss ct Heidi • herb, Kotschy Eich t 18), idmis junionbus

cito glabrat, foliis obovatis oblongisve<sup>o</sup> pinnatifidis lobatisve lobis obtusis muticis supra glabris aut sparse stellato-pilosis subtus pilis sparsis saepius stellatis pubescentibus, fl. masc. secus rachim sparsis, perigonio profunde 6-fido, laciniis extus pilosis acuminatis, fl. fem. apice ramoium congestis sessilibus, squamis cupula junioris laxe adpressis externe pubescentibus inferioribus ovato-acutis mediis et supr. lanceolatis, fructu mature... In Lycaoniae monte Karadagh alt. 4000 p. (Heldr. 1). Rami validi, juniores et petioli rubescentes, pilis stellulatis aut distinctis brevibus cito evanescentibus. Folia 3-6 poll, longa, lf-3 poll. lata, coriacea, petiolo 2-8 tin. longo, limbo basi obtuso vel cuneato, lobis utroque latere 4-6, in eadem arbore et eodem folio variantibus, nunc profundis nunc fere nullis. Stipula circa flores fern, adhuc adstantes, lineares, 4-6 lin. longa, subulate, pubescentes. Flores masc. ex ic. Kotschyi descripti. Anthera glabrae. (v. s.)

4. Q. TOZA (Bosc in Journ. hist. nat. 2, p. 155, t. 32, f. 3), radicibus stoloniferis, foliis obovatis oblongisve varie pinnatifidis supra stellato-pilosis subtus densissime pilis stellatis mfo-tomentosis, lobis ovatis oblongisve ootusis muticis, stipulis, <sup>o</sup>learibus pilosis, rachi fl. masc. bracteisque linearibus pilosis, pengoruj. & ciniis 6-7 pilosis basi irregulariter connatis, fructibus sessilibus aut breviter pedunculatis, cupula hemispharica squamis laxe adpressis extus pubescens inferioribus ovatis, mediis lanceolatis obtusis, superioribus angustioribus acutiusculis, fflande cupuli vix aut 2°-4° longiore ovato-ellipsoidea cito glabrescente. ^ vel saepius \$. In Europa, austro-occidentali, <sup>o</sup>cupis & uvis. uictis Saranis au pyrenaeis, in montosis hispaniae bor. (du Rieu! 239), Sierra de Yeste (Bourg! 876), circa Matritum (h. Webb!) in Guadarrama (Boiss!) Sierra Nevada, <sup>o</sup>cupis & uvis. Lusitania mont. (h. Webb!), fors in Libano (ex 336 Kotschy pi. Syr. anni 1855, in nerh. Boiss. specimen fr. nimis junioribus). Q. crinitavar. t. Lam. diet. 1, p. 718. Q. Cerris DC. fl. fr. 3, p. 311. Q. Toza Bosc mem. p. 17, DC. rapp. voy. j, p. 19, fl. f. 5 p<sup>c</sup> 362i Ch<sup>o</sup>ne no<sup>o</sup>r Secondat Chen, t. 5. 0. nigra Thore chl. Land. p. 381 (non L.). Q. pyrenaica Willd. sp. 4, p. 451, Lam. ill. t. 779, Loisel. in nouv. Duham. 7, p. 178, t. 56. Q. Tauzin Pers. encn. 2, p. 571. Q. stolonifera Lapeyr. abr. 582. Q. pubescens Brot. Ramuli pubescentes, demum glabrati. Folia 2-4 poll, longa, 6-20 lin. lata, petiolo 2-6 lin. longo pubescente, limbo saepius basi obtuso vel subcordato nunc cuneato, lobis utrinque 4-7 saepe oppositis ovatis vel ovato-oblongis passim sinuato-dentatis vel integris, pagini sup. folii crebre stellato-pilosa, adulta atro-virente asperata glabrescente, infenore densissime et constanter fulvo-Dilosa. Variant folia lobis plus minus profundis et segregatis, saepius pinnatifida, nunc semipinnatifida vel subpinnatisecta, transitionibus adeo frequentibus ut varietates difficile distinguenda. Pedunculi in eodem ramo saepe variantes, saepius 3-6 lin. longi; nunc nulli aut 1-2 poll, longi, unde unitas Q. Robons firmatur. Anthera glabra. Fructus 1-4 in pedunculo. Cupula 4-6 lin. longa, 5-7 lin. lata, nunc ore subclausa, squamis mediis apice truncato-#btusis. Differt a Q. Roboris var. pubescentibus radice stolonifera, folio magis elongato<sup>m</sup> supra asperato, intensius colorato, lobis magis distinctis, pube subtus magis persistente densiore; squamis cupula longioribus, minus adpressis, mediis obtusioribus. (v. s.)

p, *humilis*, saepius 1-3-pedalis. j vel S.-In planitiebus Gallia austro-occidentalis. Q. *humilis* DC.! fl. fr. 3, p. 312 (non Lam). Q. Toza var. ejusd. 5, p. 352. Q. Brossa Bosc, p. 15. Caulis nunc altior ad vulgarem transit. Pedunculi similiter variant nunc breves, nunc nulli. (v. s.)

5. Q. SYSPIRENSIS (C. Koch in Linn. 22, p. 328), ramis junioribus pilis brevibus retrorsis fulvo-tomentosis, foliis ellipticis obovatisve lobato-crenatis lobis <sup>o</sup>cupis & uvis. uictis Saranis au pyrenaeis, in montosis hispaniae bor. (du Rieu! 239), Sierra de Yeste (Bourg! 876), circa Matritum (h. Webb!) in Guadarrama (Boiss!) Sierra Nevada, <sup>o</sup>cupis & uvis. linearibus pilosis petiolo sublongioribus, fl. masc..., fructibus solitariis paucisve aggregatis sessilibus, cupulae basi obtusae squamis pubescentibus laxe adpressis planiusculis inferioribus mediisque ovato-lanceolatis obtusis superioribus lanceolatis acutiusculis. \$ vel 5. In Asia minor!, «ept. ad 6aue Sber (C. Koch), prope Trapezum (Kotschy! rev. n. 44, in h. Boiss.). Descripsi specimen sub dicto nomine Kochii a cl. Kotschy comm. Rami vetustiores



glabn Folia firma, 2-3 poll longa, 1-2 poll lata, petiolo 3-6 hn longo demiiin glabialo, lobis utro(jiie latere saepius 6, non piofundis, ad cneas extremitdte tianseuntibus, pube subthus spusA stellulata, pihs solitanis in nevo centiah Slipula3 fugaces, cnca gemmis ovoideas solum obsenatai Fiuctus m speum impeifetti, glande mlia cupulam 4 5 hn latam oie constnctam, in peifectis foisan cxserta. Squam<e subcEquales, lineam longae, margemprdeseitimpubescentes An a seq diveisa? (\ s)

- b 0 MACRANTHERA (Fiscli ' el Mey e\ Hohen en Talysch p 29), rarais junionbus petiobs foliisque subthus ful\o tomentosis, folus obovatis petiolatis ciebie cieiiato piumtilKlis lubis obtusis muticis pilis plensque stellatis supia lans, stipuhs hneaiibus \el oblongo obo\atis o\tus pilosis lude cadentibus, amentis densiflons, peiigonii fl raasc lacinnis G-7 lanceolatis extus pilosis basi megulantei connatis, anthers acutiuscuhs filamenta longionbus non exseitis, fmetibus 2-4 apice lamulorum congestis sessililms aut subsessibbus, cupulae abbiawato-liemisphaeiicae squamis laxe adpressis extus pubescentibus infeioiibus ovatis medns et sup hnceolalis obtusiuscuhs glande cupulà duplo longioie 5 In syhis Geogiae caucisic o (Gusob 1), Ienkoian et 'ldljscli (Hohen ), Kaiabagir(Fisch <sup>f</sup>) et Ndkitschiwai\* (S/outs! in b DC et 547 in b Boiss , Ledeb fl loss 5, p 591). Q pubescens S/ovits' in h meo, Ledeb 1 c (partim) p 591 Pill lamorum patentes, densi A Q Fainetto diffetit solum antbens duplo feie longioiibus (lineam longis), lobis lol pie i unique minus piofundis, petiolatis, squamis cupulje minus adpiessis Petioh (in eod lamo) 2 <sup>f</sup>> lin longi, basi paulo nicrassati Lobi utroque lateie 7-9, saepius ovati mteggii, nunc ut in Fainetto ovato-oblongi passim lobato sinuati, laio submuonati Stipula3 4 G lin longae, pei maluiationem iuctus adbut \idendd3, cnca gemmas teiminales numerosde Gii]uld 6-9 lm lata, 4-6 lin longa Glaus 8-9 lin longi, ellipsoidea, pilis adpiessis longis rans, demum glabia Lonfei ad vai. Szovitsn Q Robons sessiliflout (\ s)

7. Q DENTATA (Iliunb fl jap p 177), ramis junioilbus dense fulvo tomentosis, fob is subsessihbus obo\atis \el obovato-onlongis utimque obtusis sinuatis lobatisve lobis obtusis bieivissime rauc^onatis, junionbus utrinque stellato-pilosis, adultis supia glabialis, stipuhs elongatis e basi anguste lmeaii ohlongis dorso senceis, t\ mast secus lachim sparsis vel condensatis, braceis nulhs aut o\atis mmimis extus pilosis, pengonio piofunde b lido extus piloso licinus angustis, anlbeis pilosis peduntulis biuissimis pauciflons, iructibus , § In laponia (Iliunb , herb Lugd bat ') — Blume Mus Lugd <sup>at</sup> 1, p 297 Folia 3-10 poll longa, 2 b poll lata petiolo 2-3 lm longo, lobis cieins\ e magnit vanantibus, folium tamen lobatum nee pinnatiidum, tomento fulvo Stipul<e 7 <sup>l</sup>) lin long<c, infeioies rami latiores, oblongo-obovatoi, cetera\* angustp hneaies, apice subdilatao? Amenta 1-j poll s^e puis longa, densiflora, Bractea in 11 inferionbus dcificientes, in sup squamiformes, dorso pilosae, intus glabrai, flore multo bre\iores Peiigonium lacmiis inaequahbus hneaubus. btamma 8-9, filam brevissimis, anthers oblongis muticis, 2 lntenonbus saepe stenbbus (v s)

p, *Wnghtii*, lobis fohorum u\ mucionulatis, amentis basi laxiflois, braceis longe et anguste lineaiibus. floie longionbus, anlberis minonbus p In Japonia (Wnght i exped amei sub nom *o* dentate comm) *E* loins et stipuhs eadem \idetur species, in hisce chir \alde afhnis U maci intheidi Floies masc adeo difluuut ut di\eisas species certe tiixeiun nisi quod flores speciminis supia desciipti heib Lugd bat. monstrosi suit in plunbus An status praesentis noimalis? An duae species? Fiuctus ignoti (v s)

- 8 Q OBOVATA (Bunge en pi Chin p 62), folus obo\atis subsessihbus grosse sinuatis, lobis iotundatis integerrimis supia punctato-scabnuscuhis subthus lamisque junionbus tomentosis, fiuctibus terminahbus aggiegatis sessihbus, cupulce squamis exteinis ovato-oblongis obtusis senceis liiternis elongatis hneaubus acutis reflexis glandem subglobosam supeiantibus ^ In montosis Chmae boi prope Pekinuni t pi ope lahewhan Manchouii39 mend (Canu- theis in louin Linn soc G, p J2, sine dtsu ) Hanc simdem 0 dentata?

Thunb. ait cl. Miq. Ann. Mus. Lugd. bat. 1, p. 105, fide specimims authenticici; num fructus ambarum babuit nescio.

9. Q. MAG CORNICKII (Carruthers in Journ. Linn. soc. 6, p. 32), foliis breviter petiolatis ovatis, basi lobata, a medio ad basin cuneato-attenuatis sinuato-lobatis, lobis sursum versis rotundato-ovatis rotundis a medio utrinque decrescentibus, sinibus acutioribus, subtus glaucis, glabris vel raris subtus ad venas pilis raris obsitis, cupulss squamis obovatis triangulatis sericeis, interms membranaceis linearilanceolatis margine et apice ciliatis cupulam valde excedentibus, nucē rotundata cupulss apicibus vix excedente styh basi apiculata. — In sinu Tghdwhan Itenchouriafe write. (Daniell.). Diversity foliotan a 0. Mongolici adēf ltfvis ut somm ex fructu diversa species, loco squamarum dense imbricarum (compact scales) Q. Mongolic ctpiila jpotius Q. obovatis, squamis tamen densius imbricatis (more compact) brevioribus magis erectis. — Haec omnia auctoris
10. Q. FLOWKWA (Fisch. I in Turcz. pi. Baik. n. 1066), ramis glabris, foliis breviter petiolatis obovatis a medio versus basin subcuneatis angustatis ipsa basi coriatis subsinuato-lobatis lobis obtusis muticis pilis ad nervos subtus longis raris, fittip e basi ovata anguste linearibus pilosis, fl. masc. secus rachim remote pilosam sparsis, perigonio 6-partito lobis linearibus acutis pilosis, fructibus apice rami sessilibus solitariis paucisve, cupulae late nemisphaericse squamis imbricatis adpressis dorso sericeis inferioribus ovatis, superioribus ovato-lanceolatis apice truncatis, glande cupula 2°-3° majore. § In Panuria ad fl. Argun et Amur (auct. Git.) et in sinu Manchouriae Taliwhan (Carruthers in Journ. Linn. soc. 6, p. 32, sine descr.). — Ledeb. fl. ross. 3, p. 509, Turcz. in Bull. Mosc. 1854 v. p. 409. Q. Robur Pall. fl. ross. 2, p. 3 (quo ad stirp. danur.). Petioli 1-4 lin. longi, ut nervi subtus pilis raris adpersi vel glabri; limbi 4-6 poll. longi, superne 3-3 poll. lati, adulti extra nervos subtus glabri, supra glaberrimi, lobis utroque latere 7-9 ad erenas apice transeuntibus. Stipulae 14 lin. longae, caducae. Gemmae ovoideae, squamis margine solum subpubescentibus. Amenta masc. gracilia, primo adpectu glabra, pilis raris longis bracteis anguste lineares. pilosa. Laciniae perigoni lineares breviores. Stamina 7-8, exserta, antheris glabris. Pedunculi nulli aut petiolo breviores. Cupula 4 lin. longa, 6 lin. lata. squamis mf. et mediis dorso convexis. Glans glabriuscula, ellipsoidea. (v. s.)
11. Q. GWARTHU (Hook. f. et Thorns. I ined.), ramis junioribus petiolatis glabriusculis, foliis ovatis vel obovato-oblongis (rarius petiolatis basi obtusis vel acutis apice acutis dentato-serratis dentibus obliquis muticis, junioribus..., adultis supra glabris subtus tomentosis minutis stellatis pubescentibus, stipulis linearibus exsertis, ft. masc..., fructibus apice rami 2-3 sessilibus, cupulae heipisnang squamis valde adpressis sericeis inferioribus ovatis obtusis superioribus lanceolatis obtusis acutis, cupulae cupulss duplo fonsente. — In Indiae V. Ithasia, alt. 5600 5. Rami vetus, tor. Jamif. in specimine abbreviati, autu fere glabri. Gemmae pingue ovoideae, obtusa, squamis ovatis sericeis. Stipulae circa gemmas paucae, vetustae, 2-3 lin. longae. folia 3-6 poll. longi, 1-2 poll. lata, petiolo 2-3 lin. longo, chartacea, basi (in eodem ramo) ciliata, obtusa vel acuta, dentibus ad apicem versis sed emundatis e crenis non magnis surgentibus. Cupulae 7 lin. lata, 4-5 lin. longa, squamis convexis non inflatis, imis haem, mediis 1 i lin., superius haem longis. (v. s. in h. Joiv.),
12. Q. AUENA (Biome Mus. Lugd. bat. I, p. 296), ramulis glabris, foliis obovatis vel obovato-oblongis basi plerumque angustatis rarissime obtusis grosse sinuato-dentatis (dentibus inaequalibus obtusis vel rotundatis rarissime acutis, cum mucronibus chartaceis supra glabris subtus induratis canaliculatis, amantibus brevibus spicatis paucifloris. — In Japonia et China (Simpson Uj. l. l.), Ea dicta mm alia (v. sp.) in berl. Lugd. bat. Q. Nara h. Lugd. bat. I Q. hirsutula Blume Mus. Lugd. bat. p. 266 holosericea et Q. humosa Guod. ib. (verisimiliter folia unius arboris in eadem chaita ter. jig. Mit serrata, et p. ien. s. sp. forma, ex Miq. Ann. Wus. II. B. 1, p. 104). Folia (ex Blume) 3-8 poll. J. W. ga, 1-2 poll.

lata, petiolo MO Im loirfo IIPIMS ldtidlibus ulunque 9 13 ciabsis 'palui  
 tibub Nihil de fl iem iut IULIU Specimen nicuni uptime cum phiasi ill  
 auctons quadiat Pubes folioium oculo undo non isihilis, sub lente minima  
 stelltda palhda, pilib aliquot solitarns lon^ionbus in ncnis Flores fern bes  
 siles aut pedunculo petiolo breu )ic msidcutes, sohtain vel pauci, pedunculo  
 puberulo, squamis jun incams Affinib e\ folio Q Giiffithn (v 's comni i  
 Mus L b )

P, *pellucida* (Blume ! 1 c ), folus adultis utnnque glabrib venis extiemis  
 magis pellucidis — In Japonia (v folium a Mub L b comm )

13 <sup>9</sup>Q sEMrcAHPi?on\ (Sm inRcescjcl 29, n 20), umis junionbus spusim  
 stellato pubescentibus, folus elhpticis oblongisve cordatis obtusib unduktis  
 mtegnis vel spmoso dentatis conaceis, juiiionbiis stellato pubescentibus, adul  
 tis supra piaesertim Rlabratis, amctis 1 mflons, rachi pubescentc, biicteis  
 ovato-acutis flore duplo bievionbus, pengonio brevitei >G lobo subpiloso,  
 antnens glabns mucionulatis, iructibus apice peduncuh brevisbimi solitarns  
 geminis teinisve, cupula hcmisphaenca, squamib lanceolatis subaequalibus  
 puDescentibiib adpressis demum subdneigentibiib, glande cupulam dimubo  
 siipoiante . \$ In Nepalia (Him Wall i) et Kamion (Wall. 277G, a) — Wall'  
 plant lai as 2, p 56, t 174, list n 2770 (mm Hook f ctlh) Q obtusi  
 folia Don piodr fl Nep p 56? Q Gissura Don lb <sup>9</sup> (ex Hook f in htt)  
 An scmpcmiens? Rimi ^etustOles toituobi, lugosi Folia batpius J poll  
 longi, r> 18 lm hta. petiolo 2 J lin lougo, annul, nevis subtata emmen  
 tibus ultimis icticulatis, in aiboie junioie plub niinub spinoso-dentata, in eod  
 ramo integia vel spinobo dcntiti (Bentb in htt) Stipulae oblong, 3 lm  
 longac, extus pubciulse Amcti folio bie\ioia, flonbub paucis distantibus  
 Biactec o\atae, utnnque pilosuhc Pngoniuni misc 1 j lin Ionium, late  
 Infundibulifoinie, utinque spusim pilosum stamina ) 10 AntheidL hneam  
 feie longe, fihmento MX brevioieb Pedunuih fiuct 1 3 lin longi Matuiatio  
 annua Cupuli 6 lin latd, bqumib acutis \el obtubis (v s.)

\$, *Hooker tana*, folus elliptius vel obo\ato elhpticis, amentis densiflons,  
 biacteib ovatib \el obo\atis floie subbievionbus, sijuamis cupulae mfenon  
 bus ovatis supei oblongis pellucidis — In Himilaya boi otcid alt  
 8-10000 p (Hook f etlh) Pih fol jun quam in a longioies, sohtani  
 vel stellati Pais mteini cupula; magis sencta Speciem distiiiLtam pnmo  
 existimivi, sed cl Bentlnm (LX htt) plunbus exemplanlms h angl  
 obseivatis unicam lifiimat in toto Emodo fiequentem (\ b )

14 Q. CANFSCINS (Blumei Mub Lugd bit J, p 20b), ramib junionbus adpisse  
 seuceo puliuscentibus, loins subsesbihbus e basi sdepius obtusa oblongib vel  
 ouovato-oblongiso\alibusve atutib vel oblusconihs ghnduloso senatib supia  
 spaisim subtus cicbie pilib longis adpioissis pubescentibus, t\ masc , iucti  
 »us axiiiuihus sobtuns \el conglomeiatis besbilibiis, cupula ovoideo globosa,  
 squamis dongitis densib linem subiihtis patctibus \el ldpieissis ^ In Tapo  
 »a lumi imiioies tenues, dense fohosi, seuindo hnno glihi lti ct iphylli  
 gemmap ovoideo oblongai, obtuse, ghbnusculap Fohn <) 20 lm lon<sub>n</sub>./, 12  
 m<sub>n</sub> lila )etlol() feie n<sub>n</sub>ll o, \*d maximum hneam longo, (lentibus e bisi laU  
 »evitei ^UCIOIIIItis . mucione ipso obtusiusculo, nervis lateiahbus utnnque 8,  
 »pignā 1, 0 0 16 ^ "cei pihs omnibus? solitarns sed ciebnis Stipnl do fugaceb,  
 »obovato obl<sub>o</sub>Ugae, Imbeilllai 2 lin 10 «ff« enca gemmas angustioies (v s  
 sine fl vel li i Mus L b comm )

15 ? Q CRISPULA (Blume l Mus Lu & d Iwt 1, p 298), ramulis gemmisque gla  
 bnis, folus subsessilibus e b^l obtusi %el'subcoidata eU.ptico-vel obovato  
 oblongis SI rosse in{E^all tei beiatolobatis loblb<sub>o</sub>^ato acutis sub  
 »dentatis xq<sub>n</sub> m<sub>n</sub> ib<sup>s</sup>u<sup>n</sup>l<sup>r</sup>. US Utllnqile I>to"U8Culis<sub>r</sub> adultis supia ,n neno centiah  
 N., (n) Fdi 19. 7 fi ? /leiVOS rf<sub>m</sub>ote pLlosl<sub>o</sub> ^ Gt<sub>n</sub>fl \* In J\*Pom \* insula  
 K., (n) 1 s<sub>t</sub> tonga, 9 hn uhquaad Ji. noil laU, petiolo subnullo aut  
 liiiLuu io"6o. !>ubmembianacea, neivib laleiahbub utnnqye 9 14, niuiihie  
 (in sicco) ciibpatulo Gemmae ovoideo acutae, sijii<sub>mjs</sub> . ss muirme sub  
 »pubeuhb, cetenim «hbeni<sub>m</sub> b Rami secundi annj S f f l l m m  
 l P^ in a X s<sub>l</sub>q<sub>l</sub> / V'' ble Uat<sub>l</sub> m altCli III n solltai » Confei ad  
 beq (v s a Mus L nat comm )

16. *Q. GROSSESERRATA* (Blume Mus. Lugd. bat. 1, p. 306), ramis junioribus glabris, foliis subsessilibus e basi obtusâ obovato-oblongis acuminatis membranaceis in nervo raedio et nervis lateralibus utrinque subpubescentibus. — In Japoniâ, ubi Midsu nara vocatur. *Q. crispula* (J Miq. Ann. Mus. Lugd. bat. 1, p. 104 (synonymon fructibus ignotis non certum). Folia 4 j-7 poll, longa, 2-2 i poll, lata, 6-12 lin. longa, serraturis leviter incurvis acutis apice sphacelatis infimis parvis obtusis, nervis lateralibus utrinque 11-17. Specimina sub hoc nomine accepi \* Wrightio (exped. amer.) in Japoniâ lecta, ubi rami et folia cum descript. congruunt. Rami 2i anni aphylli. Lobi ovato-acuti, apice ipso mutici contundati; majores in mediofolii hinc (inferne) unidentati, alii minores integri, omnes versus extremitatem folii paulo veti. Pili solitarii, Jongiusculi, secus nervos et passim extra nervos in paging inferiore, rariores et breviores in superiore. Stipulae oblongs, basi angustiores, extus pilosae. Flores ign. Cupula subvelutina, squamis<sup>1</sup> ^nhadpressis, infer, ovatis, super, lanceolatis. Glans ign. (v. s. spec, imperf.)
17. *Q. URticaeFOLIA* (Blume! Mus. Lugd. bat. 1, p. 296), ramis junioribus adpresse sericeo-puberulis, foliis e basi acutâ obovatis vel obovato-oblongis acutis vel breviter cuspidatis grosse serrato-dentatis membranaceis supra parce pilosis subtus pilis aapressis simplicibus et stellatis pubescentibus, amentis solitariis filiformibus pendulis laxis, spicis femindfc petiolo brevioribus pubescentibus apice paucifloris, fructibus solitariis geminisye, cupulâ hemisphericâ, squamis longis densis linean-subulatis apice patentibus. i>In Chinâ (Bl.) et Japonic (Bl. 1). *Q. canescens* var. *urticaefolia* Miq. Ann. Mus. L. B. 1, p. 105. Ramuli graciles, cito glabrati. Rami secundi anni aphylli in specim. nostria. Folia 2-4^ poll, longa, 15-30 lin. lata, petiolo 4-6 lin. longo, basi plus minus et nunc inaequaliter acuta. dentibus e basi latâ acuminatis, acumine ipso obtusiusculo nervis utroque latere 7-12, pilis supra simplicibus extra nervos rarissimis, subtus in nervis simplicibus elongatis alibi stellatis brevioribus cum quibusdam simplicibus elongatis. Stipulae hneares, graciles, petiolo breviores. Bractea fl. fern, ovato-lanceolata, pubesceos, flore brevior (v. s. fern. jun. comm. a Mus. L. B.)
- p, *brevipetiolata*, foliis brevius petiolatis basi acutis vel obtusis dentibus brevioribus.— In Chinâ (Bl.) et Japoniâ (h. Lugd. bat. I) *Q. urticaefolia* p. Blume! 1. c. Petioli in eod. ramo 1-3 lin. longi, pedunculis femineis ideo breviores, sed in hisce, variant pleraeque species, et caeterum pili, nervi, etc., simillima. Praesens var. transitum efficit ad *Q. canescentem* Bl. et inde coadunatio ambarum specierum a Cl. Miquel propos. 9fi-similis videtur; tamen specimina herb, mei a cl. Blume comm. magnitudine foliorum et prsesertim absentia petioli in *Q. canescente* distant, (v. s. e Mus. L. B.)
18. *Q. HimiLis* (Lam. diet. enc. 1, p. 719), fntex vel suffrutex^pube brevissimâ stellatâ perstante, foliis nunc persistentibus breviter petiola^ps ovatis ellipticis obovatisve irregulariter acute vel obtuse tlenatis supra sparsim puberalis subtus incanis, perigonii mafic, extus pilosi profunde 5-7-lobi lobis oblongo-lanceolatis antttôris exsertis, fructibus sessihbus aut breviter pedunculatis, **cupulâ abbreviatâ late cyathiformi, squamis adpressis cinereo-pubescentibus longitudine subaequalibus infer. ovatis mediis et sup. ovato-lanceolatis, glande cupulam plus minus superante. § vel §** In Lusitaniâ mediâ et merid. (Webb ! it. hisp. p. 11, Welw ! 11 et 329), Hispaniâ merid. prope fretum Herculeum (Boiss. et Reut.! Webb I Bourgeau! 2032) et circa f ingidem (Webb I Boiss. et Reut. 1). Robur V. Clus Hisp. p. 24, c. IC. Robur VII. Qus. hist. 1, p. 19, c. ic. *Q. fruticosa* Brot. Lusit. 2, p. 31. Gaffas globosas interdum fer^A In sterilibus suffrutex pedas, alibi frutex 3-12-ped. Polia subperennia, 1-1 Iff poll, longa, 6-12 lin. lata, petiolo J-2 lin. longo, supra nitida et oculo armato remote et brevissime pubescentia, subtus crebre et breviss. velutina, pallida. Stipulae fugaces; lineari-obovat®. Perigonium minimum. Anthers filamentis duplo breviores. Pedunculi saepius 2-4 Tin. longi. in ramo specimrnis ex horto Webbii a cl. Gay comm. 3-12 tin. longi. Cupula 4 lin. longa, 6-8 lin. lata, squamis mediis dorso inflatis vel planis. Pedunculi 0-6 lin. longi. Glans amara, glabrescens, 5-6 lin. longa. A *Q. Lusitanicâ* differt solum statdrft mi •

noie, folns saepius persistentibus, cupuU hiewoie, squama minus adpressis  
(\* s)

p, *prasma*, glabiuscula, petiohs subkmgionbus Q piasuid Bosc mem p 26, ISouv Duham t 44 0 glauca Bosc' Culta ohm in h pans et vensimihteí (ex specim meo et alus herb Webb) ad piacentem sp refe- lenda, sed ahae species sub eodem nomine coluntur, ex gr Q prasma Bosc iu h pai anno 1841 oiat Q spssihfloia, ex Loudon gdrd mag 1841, p J97 Petioh 2 4 hn longi Fiuctus ignotus (\ s)

1<sup>6</sup>) 0 IUSITANICA (Webb ' it Hisp p 11), novelhs \elutmis, folns mine per- sistentibus o\atis oblongis obo\atis\el basi obtusis vel lanus acutis apice saepius acutis.vane dentatis \el sublobdtis ^el ranus integns nunquam pinna- tindis, lobis dentibus\el ol)tusis \el acutis mutius ^el mucionitis, fl raasc peiik'onio extus piloso 4 7-fido, lobis obtusis \el acutis, fiuctilmfc sessihbus aut i>ie\itei pedunwilatis solitams paucisve, cupula hemisphseica \el saepius eioiiftato-nemisphaencA oie subconstiittA cmeio \elutiiid squamis adpressis- simis irais ovatis medus ovato lanceolatis doiso tomexis \el subconvexis supiemis lanceolatis mmimis, glando 2°-4° cupuldm supeianle 5 ^ Cvrca maie Meditenaneum Species pohmorma, minus tamen quam Q Robui Ilaeunte cl Webb, et e\ 200 speclmimlnis div loc obsenata, tiansitus mtei pluies foimas piaebet Folia saepms \eie ante fiondescientiam novam cadunt, sed (ex Webb it Hisp p H) mteidum post lenovationem Gallae ramis late- laies globosae, sparsim tubeicuhs nunc acutis aucta., Dieviter stipitatae saepe adsunt Pih fohorum plenque stellati, cum ahis solitams mteidum secus neivum centralem migis noisistentibus ut m Q Rolxne Cupula fere 0 Robo- ns, sed squamis ma^is ulpicssis minonbus, foimasjppc magis elongata, mi- nus hemisphaencd

Subspecies I, **Fnyinea**, aiJmscula \el arbor, pube biew stellal«\ in iamuhs et pagina infeioic iohoiium peisistente > Q Lusitanica a Webb 1 c Racbis II masc pdosa Biactea anguste lineales, pengonio longiores

«, *Clusii*, folns legulanter crenato-seiratis vel ranus mtegnis, dentibus saepe in mucronem al>euntibus 5 Ciescit 1°, m montosi\* penirtsulse ibenc\* (Webbf Boiss ' Welw ' Lange\* 134, Willk ' 411, Bomgeau 877) ubi vulgo Queijito \ocatui, 2° in Pamphylifl (Heidi ' in h DC ) et Isau- na (Q mfectoria «u \* aiboi 1 > 20 pe\ Heidi ' ib ) Robui 111 et IV, (his Hisp p 22et2ic it, Robur IV et V (lus hist 1, p 18 ft 1<sup>1</sup> U Iusitanici Lam diet 1, p 71 <) 0 figinea Lam ib p 72<sup>n</sup>) 0 austialis Link (ex Webb I c) 0 (ananonsis Willd en p 975 (ex eod qui spe cimeiiMditet intiodua affmrat Cdiains) 0 Tuinen Willd en p 97<sup>n</sup>>? ejusd Udiimz p HO, ! i i ' 2? (ubi solum lamus junions arb^ris e libel dicta\*, cujus folium \idi, ab ill Biaun cum cl Gay comm , ubi pih nunc Jasciculati nunc sohtain passim in neivis adsunt, paienthymate adulto lere omnino glabio ut mteidum in vulgan Aiboi m hoi to bci nondum jloiuit, ejus foha pihs minus lans Milgan piopioia sunt) 0 a p:\lopifolia «oiss i ohm mss (non Peis) Petioh 2 "> hn longi Limbi sjepius polh- cem, nunc 1 x poll lon^i Stipulae fugaces, linean subuliti, petiolo bie \iores IeduncuhOMin longi Glaus elhpsioidea, nuncacutiusuila (v. s)

**β, brevipetio\atp<sup>et</sup>** >olis minimii, \ \ hn longis, glande inclusa' (an abortu ?) CncaTangei (Salzm « m h DC) Limbi I I poll longi (v s)

**γ, Valentina** r o l n s in egulanter acute dentatis vel lanus mtegnis —In in h oi al)mis » peninsula ibenca (Welw ' Boiss ' Willk i Blanco I v n v i i t i e u n a C a v i c 2 p 25 t 129 Q alpestris Boiss ! elenth 178, i - j i ? T i F s s (< J u T M d n i n a s c m e d i o c ) , K o t s c h j E i c h w l i b 7 . 4 . e / r f e ^ P m a c r o l e p i s \ o c a t u r ) 0 L u s i t a m c a v a i B a e t i c a W i l k ! P X S 4 | 2 a Q h y l m d d B 1 0 t f l j u s 2 ? , , 3 , > W e U t m h f i o J S S m i o i i i n n n . l o n g i L i m b i a d m o d u m ^ a l l e l b l k s , 1 - 2 p o l l , j u n c 2 3 p o l l l o n g i , d e n t i b u s a c u t i s m n o t i s \ e l n u l h s , b a s i a c u t i s v e l o b t u s i s . s p e c i m i n a p l u n m a m h W e b b i n t e r a e t γ a m k i g u a d d s u n t P e d u n c u h 2 - 8 h n l o n g i ( \ s ) T M

5, *breviculata*, folns obtuse vel subacute crenatis subtus pilis minimis incanis, cupulâ abbreviate basi obtusissimâ. 5 In horto parif. loco proprio Quercuum, sub nom. Q. Turneri, nee arbor loco veleris scholae sub eod. nomine de quâ confer ad Q. pseudosuberem. Prasens ab accurat. J. Gay observata fructibus annuis ab alterâ differt. Folia ut frequenter in Q. Lusitanicâ, tamen subtus densius tomentosa, pube brevisskni persistente. Cupulse sessiles vel subsessiles, 4-6 lin. longae, 5-6 lin. lats, ore subconstrictæ, squamis imis et mediU dorso subinflatis. (v. 8. oomm. a ol. Gay.)

SuSpecies II, Orla «t\*IU| frutex Vel rarius arbor, pube in ramulis et paginâ inferiori foliorum variante fere nullâ vel pilis steliatis minimis demum retractis vix sub tafcte perspicuis\* vel longioribus stellatis caducis prope nervum in flocculps acarvatis pilisque in nervo passim solitariis persistejitibus — In Orient\*. Fplta non W\*j<sup>ora</sup> quam in subsp. I, plerumque regulariter serrata vel crenata-serrata, nunc profundius dentato-lobata (specim. Hfilcjr. e Byzantip US? in h. Boiss., 2183.2184,2185, Q Smyrno aliaque) et tune a Q. Roboris se^ilwfcff\* var. lanuginosk difficile distincta. Dentes tamen acutiores, cupula Wai mfnus Qbtuaa. Folia juniora nunc glabriuscula, nuno passim utrinque pilis stellatis vel solitariis vestitâ, qus in subsp. I subtus semper incano-tomentosa. Qallas in commercio usitatas prffbet. varietates seq. potius subvarietates tffwrim nisi ex symmetric in dispol. typographicA,

a, *infectoria*, petiolis 1-5 lin. longis, pube foliorum raro floccosâ, rachi fl. rnasos pilosf, pedunculis fructiferis petiolo brevioribus aut nullis. In Thraciâ (Griseb.), Anatoliâ totâ (Aucher I 2898 in h. Boiss. et Webb, Hel4r-1 supr. cit., Kotschyl 362, 363, 366, 370. it. Syr. 533, revisio 57, 86, 87, Ba&nsat 290, 637 (qua arbor), G. Koch! in h. Boiss.), ins. Gypri (Kotschyl 371), Syriae (Labi 11. Blanche! 876), Musch et Karduchiâ (Kotschy I 1859. 433, 557, 563, 566, 567. 569). Q. infectpria Oliv.! voy. 1, p. 253.1.14,15. Nouv. Duham. 71. 49, f. %, Griseb. spicil. p. 335, Hayne Azrngew! %, t. 45. Q. Lusitanica Webb! it. p. 12, ef Boiss. 11. c. quoad plantas orient. Q. rlgida G. Koch! in h. Boiss. I et in Linn. 19, p. 15 (non WiUd.)\* Q. undulata id. i!)f toon Torr. nee Ung.) Q. Thirkeana id. I bUL Q. polycarpus Kotschy 1 n. 370. Q. inermis Ehrenb, ex Kotschy! r#vU. 67, 86 in h. Boiss. (etiam ad var. Syriacam refer.), it 1855 n. 126 pro parte. Pubes sub Ibllo flocoosa vel partim floccosa adest in specim. Archer 2198, Gpqueb. 1551±et Labill. herbarii Webb, 876 Blanche in h. Boiss.. 533 Kotschy ib., 869 Kotschy ip b. DC., 362 id. ib. etc. Folia nunc hntgra. (v. s.)

p, *Boittieri*, petiolis 3-6 lin. longis, pube foliorum raro floccosA, rachi fl. Biase...., pedunoulis fructiferis plerumque petiolo longioribus. In Syriae monte Cassio (Boiss.), in libano occid. (Kotschyl pi. syr. 1855, n. 126, partim), supra Beyrout (Kotschy I revis. 54), in prov. Musch et Karduchiâ (Kotschyl 1859, n. 564, 568), ad mont. Bîngoel (id. I 424). Q. Boissieri Reyt. in Boiss. diagn. ser. 1, rase. 12, p. 119 (ubi folia errore glaberrima dicuntur). Vix ao ne vix a var. « distinctâ. Pedunculi 3-12 lin. longi, Imo interdum (in 126 et 564 Kotschy) petiolo breviores et fere nulli, in eod. ramo n. 568 lin. 4-8 longi. Folia oblonga raro integra, saepius regulat et grouse orenato-serrata, lobis obtusis vel subaeutis. (v. s.)

Y, *Uptocarpa*, novelli\* oïto glabratis, petiolis 2-6 lin. longis, ^uetibus subsessilibus, glande anguste cylindratl. 3 In pUnltie Cilicicâ ad fl. Pyramum (^otschyl it Cil. 372 in h. DC. et 3oiss.). 0- )rachycarpa Kotschy! exs. 1. 0. Folia Jweviter crenato-dentata. Gland (ex unico exemplo) 10 lin. longa, 3 lin. lata. AJX forma constansT An non potius transitona, f ro loco et anoe? (v. s.)

5, *bratkywpm*, varietati 9. siiailii, glaode solum eupuk\* vix euperante aut non supertntsv ^ Prope Byzantium (Auchfir! 2884 in fe. Webb et Boias.), in monte Olympo (Goquimrt 1 in h. Webb) el v#ri\*to> in Syria (Labill. 1 in h. WeU>). Folia ut in a variant. PIUMS in «it. speicimine <eaduca, ilocoseV Forma vix memoranda, in pleriaque ipeciws casu accidens. (v. s.)

bb 4 12 lm k>itf<<sup>s</sup>, IIIII<sup>1</sup> ls phi unique paucKientatis \el  
 ,K ^IH fl misc pdosuld (mint glib\*\*) In hpio (Kotjch) i  
 m b' Buss) Uni (I>uid' h Bo.ss ) ad po.Us Cil.ci.s ct in laino  
 Ciliu i (K^tsLhx! } } it 18^ » 2\MJDinsi<n>0et(,ninh Bo.ss  
 11> iihUC (,141b ), m wile ( jdm (Kotschj • it I, bc 18\*3, n )GJ,  
 Jfifi V7 168 i69) mpiov Sell., wan (Kotschy' 18>9, n ",70), in Kai  
 dūēbī\ (id • 18.0 n o>6 "o8 -id)) Q pctiohm Boiss d.agn set 2,  
 n 12 n 120 (non Benth) Q Pflffingen Kotsch\ « lich t 2\* Q\*tau  
 ncola kotschj ' .l) t 10 Q Cum Kobchj ' in h Bo.ss tolii sa.pju>  
 iulic biew cMiicscente nuus loiiKioic Jloccosa (ex gr in .M, 5f>»,  
 Kotschj) IUcbis in special Pinard p.losa, in abis non vidonda, ex  
 Kats.t)tb t IOglabu, sed MX ciulo (\ s)

C, *Syriaca* petiolo 4 0 Lm longis, ffUnde miximl In Tauio (Kotschy 1 862  
 in b Bo.s, Bdlansal 03> ib ), in Syria (kotschy» it Syr 12b b, e| 364  
 in h Bo.ss) Vniationes pubescentiae ut in o Maus I<sup>r</sup>) 18 lm<sup>lon</sup>ga,  
 mtn cuimlim 6 8 lin longam \rlwi MX a praeced va. d.htmguonaa  
 (N S)

Subspecies III **Bietlea**, aihor, pubc i . u et piffins infeioris. foliorum  
 stellati tidiicl fhecosa pdisque in neivopissim solitmis peisibtentius. folius  
 UlemmqL ampboiibus ol>tusc \tl snbacute crenato-bLnatis \Ql denU<sup>is</sup> —  
 Jn liibpania mend et oia sept Auce

a, Jfirbrellfi, pedunculis fructiferis petiolo brevionibus aut foro nullis --  
 Viopc Algcu is (Bo.ss t), Si, i K. juc (b Webb' ^ .> 11^ V) 1 " ' ^  
 (su, m t) et in Algci fdl frmuns pidesetim voisub onenttm 0 I u i tan...  
 Biliciasal/mSiiiiiani Wolilit it H>n p 12 Q Mubtoki<sup>t</sup> Da Ru u<sup>t</sup>  
 in Duch Hcv bot 2, p 42b Vulgo ai ibis /en Hami cito gli bi iti folia  
 laio basi acuta, bxpius obovati vel elliptici obtu.x jcl icuti, s, lpe  
 J poll luled, et 1 I-2 pill lata, limui in eod ramo 1<sup>t</sup>, \ l>> longa  
 et<) 24 lui lata, petiolo 2 8 liu lou^o, eienib sspms TM/SA^\* obtusis,  
 nunc (in cod lamo) in denies bicves aeuto;, mutatis mi m m macea vel  
 coriaced, intei lum ve.c iundum dclipsa', floecis piloium ul Umluribus  
 ahiswi supiaut bed copious Polonium extus Imurfin isim, hssum  
 potiusfiuim partiturn, sed in hisce wuaiit floies pi.orum Iiuctu-, non  
 differjit Spct.m.n iquojdmi, Inspmica h Webb ot mu mtw prdscutem  
 et bubspccic<> II d.ffe.lo collocantur ^ s>)

p, *pedunculata*, peduneulis fmotif ppliolo duplo Uiploxo j longioribus —  
 Speeimen uiuenin sineloeo nitili m h Bois. x.di Pelnli d 12 lm longi  
 Lirabi J poll lougi, 1 i 2 poll lati, pube caduea P 1 m >" > i P<sup>oli-</sup>  
 cares An iorma constaiib ? (v s)

**B Species Amertcanw**

**1° Extra-tropicalis (folns plerumque grosse et inaequalrtp lobatis)**

20 Q MBirv(Wdt Q Gaiol p 2Ji) rami. , folns luovitei pet.ohtis e las  
 eiinciU ^ol iblusiustuU oblonRs vol oblongo obov ah inerfiiliitii lolul's  
 pimidiifudi I) i aib lulus olitusis vel subaculis, immnibus idullis gUbns  
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 pdaeusolitini^c, cupuU depiesso globos\ U nuiU i vc lulin\ s<n iru.s.inln ica<sup>ts</sup>  
 ovalo lancouUts racdns tandem duisu valde uilUtis gile.f)rmibus, ulmuo  
 mclusA vel bubmcluba \* In CaioUVI, Georgia (Michx, 111 ), UoiidA -or  
 «flich»)ttLouisidiiA (Cooper, in Smiths rep 18iS, p 2i> (Hutia in h WebbU,  
 ) itis liiudati-, — Michx<sup>-</sup> ai |> 2, t i C ben t h I ilia J'u poll lon^a, } r\*  
 poll lata, petiohs2 > liu loiuib, lo) e> mlerim lcmotis idmodum ^J I s> ^  
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 basi pi iniuscuh, squamis ihus obtu>is, dlus acutiuspulis, modus o>"<sup>t</sup> 101s0 in>  
 flitisdcmn iinnitis (\ s)

21. Q. MACROCARPA (Michx Chen. t. 2 et 3), ramis junioribus pilosis, foliis e basi cuneata vel rarius obtusa oblongis vel obovato-oblongis obtusis vel acutis grosse et irregulariter lobato-pinnatifidis nunc lyratis lobis obtusis junioribus utrinque adultis subtus stellato-pilosis, amentis pilosis, bracteis fugacibus? perigonii laciniis linearibus extus pilosis, antheris vix exsertis, fructibus apice pedunculorum paucis vel solitanis maximis, cupula hemispharico-globosa yehitinâ squamis infer, et mediis adpressis ovato-acutis supremis plerumque in\*aciniis lineares diffusas elongatis nunc muticis, glande late ellipsoideâ obtusâ cupulam paulo superante. § In America sept. a Virginia et Texas (Cooper in Smith. rep. 1858, p. 255), ad Vermont (Oakes in Emerson), Ohio (h. Boice et Missouri (Engelm. I) — Michx arb. Am. t. 2, Emerson rep. trees Mass. jp. 132, t. 2. Folia 4-15 poll, longa, 2-4 poll, lata, petiolo (in eod. ramo) 4-12 fl\*. longo, nunc 15 lin. longo, sspius basi acuta, in eod. ramo h. Webb acuta vel rotundata, subtus (juniora praesertim) incana. Stipulae lineares, 4 lin. longae, sericeae. Amenta sparsiflora vel floribus apice condensatis. BracteaR nulls (delapsae? in specim.). Perigonium sspius 5-partitum. Pedunculi fructiferi in div. speciminibus variantes, 3-12 lin. lon<sup>fl</sup>. Cupula cinerea, 15-18 lin. longa, 16-20 lin. lata, squamis junior, et imis maturis dorso planis, mediis maturis dorso convexis nunc carinatis, supremis in laciniis 4G lin. lon<sup>is</sup> extensis, nunc (in sylvis densioribus vel aestate frigidiore ex Michx) muticis. (v. s.)

p, *abbreviata*, cupula brevior (pollicem longâ, 16 lin. latâ), squamis superioribus muticis. — Prope Saint-Louis (Engelm. I). An forma constans in eadem arbore f (v. s.)

.*minor*, fructu minore (cupula 9-10 longâ, 10-12 lin. latâ) — Circa Saint-Chuis (Engelm. I). An constans in eadem arbore T (v. s.)

22. Q. OLIVAFORKIS (Michx f. arb. Am. 2, t. 2), ramis adultis glabris, foliis e basi atteriata oblongis pinnatisectis lobis irregularibus ovatis oblongisve integris vel dentato-lobatis subtus stellato-tomentosis, amentis..., fructibus solitariis pedunculo abbreviato insertis, cupula elongato-obovoideâ basi angustata cinereo-velutinâ squamis infer, et mediis adpressis ovato-acutis supremis in laciniis filiformes erectas desinentibus, glande ellipsoideo-elongatâ cupulam vix superante. § Prope fl. Hudson, circa Albany (Michx f.), et in Pennsylvania et Virginia (Pursh fl. 2, p. 632, an eadem sp.?). Q. macrocarpa var. olivaeformis A. Gray man. bot. ed. 2, p. 404. Folia vidi in h. Webb (a Desf. cum specimine Michx. compar.) quae foliis Q. macrocarpa similia, sinibus solum profundioribus. Cupula (ex ic.) pollicem longa, 7 lin. lata. Eadem ait cl. A. Gray quam Q. macrocarpa fructu immaturo vel imperfecto, firmatque raritas in herbariis, sed formas cupularum adeo diversas in aliis speciebus non vidi. An status macrocarpa et praesentis in eadem arbore adsunt? (v. s.)

23. Q. BICOLOR (Willd. nov. act. berol. 3, p. 396, fp. 4, p. 440), ramis junioribus cito glabratis, foliis e basi acuta vel obtusa obovatis vel oblongo-obovatis acutis vel obtusis grosse crenato-lobatis supra cito glabratis subtus stellato-pilosis plus minus incanis, amentis pilosis, bracteis nullis? pedunculis fructiferis petiolo multo longioribus 1-2-carpis, cupula hemispharicâ squamis sericeis aut velutinis infer, ovatis mediis ovato-lanceolatis super, lanceolatis nunc apice elongatis, glande ellipsoidea cupulam« duplo superante. § In America sept. a Carolina merid. (h. Engelm. I) imp Florida or. (Nutt.), ad Maine (Emerson rep.)\*, Wisconsin (ioV) et Illinois (Engelm. I) — Emerson rep. trees Mass. p. 135, t. 4. Q. Prinus tomentosa Michx Chen. t. 9, t. 1 (ubi fol. solum). Q. Prinus discolor Michx f. arb. Am. 2, U 6. Brendel oaks Illin. t. 33. 0 Michauxii Nutt. gen. am. 2, p. 215. Omnia Q. rini var. a, sed folia subtus incana et praesertim pedunculi 1-3-pollicares, petiolo majores et saepe triplo quadruplo majores. Differt ideo a Q. Prino solum ut varietates Q. Rodoris pedunculatae at aliis, sed transitiones desunt aut nondum observatae fuerunt et ideo distinctam sp. servare debent. Unicorn specimen in herb. Webb, transitum forsitan praeferet, quum pedunculus petiolo non longior et squama cupulae passim apice elongata et dorso inflata 0-bicoloris potius videantur, sed transitus in eadem arbore non certus\* Squamae in praesenti



\anant (in cad cupulá), saepius dorso phiise, mine convtxa? niedns et supremis inteidum apice linoanbus, sed srepius cupula oranino Q Prim, a Folia juniora subtut. semper incana, senus mcana vel subconcolora, et inde transit ad \ai &eq (\ s)

P, *platanoides*, folns subtus toniutoi pubescentibus non incanis Cultra Pansns ex America sept 0 Pimiis plat moidci Lam diet 1, p 720 Q velu tma h Lh(i '0 pannosi Bosc in h D( Q mollis Nutt gen 2 p 215 > ct ideo 0 filifoimis Muhlonb cat in Nutt cit ?

i\* 0 PRINIS (Linn sp p 1413), ramis junionbus cito glabiatís folns c basi acutA \cl obtusA oboMtis \cl oblongo-obovatis auitis \el obtusis giosse ciPnato-lobatis \el undid ito-cienatis supia cito glabntis subtus stclhto-pilosis, amontis pilosis, hi ictcis nullis (fuguihus\*), perigonio s<ppms Vfido, petiunculis fructifcns pctiolo non longionbus 1-2-caipis uipulA hemisphaerica, squamis senceis aut \plutinis infer o\atis modus o\ato hncopolatis super lanceolitis glande elhpsoideA cupuhm iliipln svpius superantc \$ In Amend sopt i Hondá (Michx i ), (aioW (id Hugol' A (ray ') et Louisiana (Coopor in Smiths lep 18')8, j) 2V> id Ohio (h Wobl') et Missouri («oop I c), in paludosis rt inunditis— Willd sp 4, p h W Q Prinus palustus Michx Clun t 6, Michx 1 lb Amoi 2, t 7 (optimi) 0 montana Lmerson ipp tncs Mass t (> (non toxtus) tolu ^-8 poll longi, 1-4 poll iita, pctiolo 1-2 lm longo mombianacci, lobis CIPHIS/P submucionatis vel potius callosis, subtus pillidis Cupul« b-12 lin lat\*c, ^-6 lm longer squamis dorso plaimiscuhs mloi et medns obtusib Specimma fiuctilms minonbus ad var soq tianseunt Folns Q lusitamcae \ar Baiticaj similhma (v s)

P, *acummala* iolns longo potioliatis J]< uniHiue acummatls raro fcutis, loins phiumqiu subacutis CIPHISM submuonitis, uipulM minoip snpius bisi icitiiiiil it\ mine sulncuU 5 In mont Alkghiincs (Michx), noc non planitipbus a Maine (LIIPIS) et West Chestei (Dail fl) ad Missouri (Engelm ' dpyei') d Aikansas (h Lngplm ' 1170) 0 Oistinea Muhl in liov act beiol Willd sp 4 p 441, l meison up tipes Mass U7 t ^> 0 Trinus acuminata Muhx (hen t 8, Michx f lib Am 2, t ^) Q montina Lmoison, ibid p 1J8 (non icon), Bicndcl oaks Him t 35 Folia \*>ipp subtus pillidion quim in a Pptioli (in eod specimme) M2 hn ^>"gi, sdpm 0 12 lm Loin in eod sppuminc vamntes, sappius giossi, nunc (TPnae potuis \ocm<b, muciono cxiguo magis tjuam in a tonstanto Cnpuk 3-4 fin longa, ^>7 lin lati, plonimquo bisi obtusa, in speciromp h Wpbb (fobis acute IOIKUIS) basi acutiuscula (v s)

Y. *monUcola* (Michx fhon t 7, aib Am 2 t 8), cupulá minoie subtui-bmata nempc acutiusculá noc iolundit\ ') In hiccis (t nipestnbus a Caiolin\ ad Veimont pt New HnnpshiiP (Micln) 0 Pnnus loins nbo-yatisctc Wangenh p \ \ t 8 0 inontmi Willd sp 4, p 4iO D\il I (Psti pd j, p 2u> Kx lconilms pt descí inillo modo folns, llonbus :i>st pcdunculis 1 y Puno \ulgni dilTpit IVtioli in Mich (hpn t ^, Hexes, N4 lm i ongl) m ]C All) Am io,,pr, qieS, b-9 lm , in spprim Ji weiiii 12-1 > lm long! Foima cupula) elm icitel satis const ins m gpnprc, ergo lorsdn sppcips dicendi Unicum specimen (c Maryhnd, in h Webb) jciPcuin ic comcnipitem lepeni I\ IIIIcupulB gcninan, ^> lm long©, ^> lm liti, bisi sulututiL, ghd(s impcillaaj? non e\snra\ quae m " \ »ldp exseitae (v s)

o, *Chincap* (Michx f arl) 2> 1 10), nana, folus nunoiiibus, fructibus crebris, PSSÍ Hlms, cu I IIIU I>asi () IIIU's^ 5 •» slPiihhus, passim, a montibw rniSI m w, "14, ' Rho(1p Island et Albany (Michx), in Missouri altiore (Ni-w:tw ^> m h lr>>ffelm ') et Kansas (bendl ' 127 ibid) Q pimoides wild in no\ act i)Pro] ^ p m Q p, mus vumiji Ml(hx n j) or Mh 2 t p n p (llon 0 I mmi'a Michx l> o I>II>>>S pumili Michx he. M C C ! (SllIP ») ») fi 1)01 am 0 p 196 0 IMinus Glncapm Michx f. aib Am o. t 10 (ubi Imctiis) 0 rhinquapin Pursh II 2, p. o« Vix 3-pedalis' stppius 1 '-2 pedes alta, an proptei ston-lilatcm Jocoium? toha nunc acute, nunc obtubc (t 10 ^lichx aib),

lobato-crenata, petiolo mediocri. Ex foliis et fructu a *P. Prino* fructibus parvis non differt. Gupula 4 lin. longa, 5-6 lin. lata (v. s. a cl. Gray comm.)

25. 0- STELLATA (Wangenh. Amer. p. 78, t. 6, f. 15), ramis foliisque junioribus pilis stellatis flavis pubescentibus, foliis e basi acuta vel obtusis oblongis obovatisve varie et irrregulariter paucilobatis nunc lyratis, lobis obtusis muticis ovatis vel obovatis, adultis supra glabratis subtus stellato-puberulis, amentis rachi pubescente, bracteis bblongis minimis fugacibus, perigonio piloso irregulariter 5-6-fido, antheris pubescentibus, fructibus sessilibus vel breviter pedunculatis cupula hemisphaerica cinereo-pubescente squamis adpressis ovato-lanceolatis infer, obtusis, glande ovoideâ cupulam dimidio superante, § In America sept, a Florida (Michx, Cooper in Smiths, rep. 1858) et Texas (Lwdh. in h. Engelm. Berland. 2498 ibid, et 1696 in h. Boiss. Matthes! 188 in h. Boiss.), ad Rhode Island (Coop., l. c.) et Saskatchewan (id.), frequens in Missouri (RiehJ, 305). — Emere. rep. Mass. n. 133, t. 3. *Q. obtusiloba* Michx. Chen. t. 1, arbr. Am. ? p. 36. Brendel oak. llin. t. 31. *Q. villosa* Walt. Car. p. 235? (ex Ell. fk. G. et C). Arbor minus elata quam *Q. alba*. Folia 4-6 poll, longa. 1-4 poll, lata, petiolo 3-9 lin. longo, in eod, ramo longe cuneata vel obtusissima, lobis utrinque 1-3 nunc sinuatis obtusissimis, adulta saepius rubescentia. Stipulae lineares, 3-4 lin. longae, pilosulae. Amenta 14-3 poll, longa. Fructus saepe gemini, pedunculo nullo vel 3-4 lin. longo. Cupula 5-7 lin. lata, 5 lin. alta. (v. s.)

(3, *Floridana*, petiolis longioribus. — In Florida. *Q. Florida* Hartw. in plant, exs. Riigel. Petioli 6-12 lin. longi. Limbi basi longe obovati vel obtusiusculi. Fructus ign. (v. s. in h. DC. et Boiss.)

y, *depressa* (Nutt. gen. 2, p. 215), nana, 1-3-pedalis. — In Missouri collibus prope fl. Platte.

t, *Vtahensis*, fmiex vel arbtiscuia. squamis cupulae medio medio plus minus inflatis. — Inter Salt Lake et d. Nevada, libi unica *Quercus* (h. Engelm.). Folia et antherae pubescentia omnino *Q. stellata*. Squamis cupulae in fructibus, vulgaris stellata interdum subconvexae, et in nostra *Q. Robore* variant similiter. (v. s.)

26. *Q. AIBA* (Linn. sp. p. 1414), ramis cito glabratis, foliis e basi cuheatâ oblongis vel obovatis varie lobatis saepius pinnatifidis lobis muticis obtusis, junioribus utrinque incano-tomentosi\* adultis glabratis subtus pallidis, amentis gracilibus, rachi Rlabrescente, bracteis minimis fugacibus, perigonio piloso irregulariter 5-6-fido, antheris glabriusculis, fructibus apice pedunculi petidit brevioris aut longioris, cupula late hemisphaerica cinereo-puberula squamis ovato-lanceolatis infer, obtusis, glande ovoideâ cupulam dimidio duplo triplove longiore. § In America sept. a Florida (h. Boiss.) et Texas (Lindh. in h. Engelm.) ad Maine sub lat. 46, 201 (Michx.) et lacum Winnipeg (Hook. fl. bor. am.). — Michx. arb. Am. 2, p. 13, t. 1 (squamis cupulae male fig.), id. Chen. t. 5 (opt.), Emere. rep. trees Mass. p. 127, t. 1, Brendel oak. Him. t. 29. U. da Virginia u. wir. 1, p. 21, i. 21 (mi nisi rolum). Folia adulta 3-6 poll, longa, 1-3 poll, lata, petiolo 2-9 lin. longo, lobis paucis saepius oppositis. Stipulae 4 lin. longae, lineares, basi angustate, pilosulae. Amenta 1-3 poll, longa. Pedunculi fructif. (ex specimine 340 Rieh. h. Boiss.) 6-10 lin. longi in eod. ramo, nunc 3-1 lin. att fere nulli. Fructus 3-1, Cupula 6-10 lin. lata, 4 lin. alta, matura squamis dorso inflatis diiris asperata. Glandes 9-15 lin. longae. Uti *Q. Robore* varjat petiolorum et pedunculorum, foliisque plus minus lobatis sed variatopnes minus extremae et laepius in eadem arbore adstantes unde varietates nttm vk constituendae, nisi ibrsan sequentes. (v. s.)

§, *repaiida* (Michx. Chen. t. 5, f. 2), foliis irrefregulariter sinuatis aut sinuato-lobatis. — In Virginia aliisque locis Americae bor. — Loud, arbor, p. 863, f. 1569 et 1570. *Q. alba* Guimp. et Hayn. Holz. t. 130. (v. s.)

v. *microcarya*, fructibus minimis — Prope Saint-Louis, in sterilibus (Engelm.). Cupula 3-6 lin. lata, 3-4 lin. alta. Glandes 6-9 lin. longae. Antherae constans? (v. s.)

27 0 UNULATA (Toirey account pi Rocky Mount in Ann of Lyo. 1827, p 248, t 4), iuticosa, lamosissima, lamis incano-puhscentibus, folns c Dasi acutâ vel obtusâ oblongis smuato-lobatis vel pinnatifidis lobis ovatis ol)tusis vel acutis supra stellato-pubescentibus deniuni glbdiatis, subtus pili-s stolhtis peibistontibus mcano-flavidi&,amentoium lachi pilosâ, biacteis anguste lineanfcus lloiesublongionbus, pciigomi loins 5 acutis extuspilosis, anthens glabus muticis, lructibus solitam\el gemims pedunculo pptiolo breviorE inseitis, cupulâ hemisphaericd squanns o\ato-acutis, glando o\oidPo-oblong<Y cupulam plus (jiiam dimulio supeiante J In AmeucA sept ad Rocky Mountains ct JoutPs uvi Canadian (loney) et mNo\o Mexico ad Santa FP (Fendl « 805 ct 806 in b Ihigelm ) Q >endlpu I lebm Lgeisl p 12 Ex scheduUin beib. fingplm n 805 et 807 Fendl = Q undulata Torr fide Torrey Petioh 2-3 lhi longi, bmbi 1 J-2 poll longi, 6-12 lin lati Stipule anguste lineaiies, petiolo squales, lugaces Amenta in specim abbie\iata Peduncuh fl fern nulli vel 1-2 hn longi Stigmata obtusissima Cupub ((\ IC ) 4-5 lm longa, 7 lin hta, squamis Insi htis apicp acutis (untie a Q Douglasn et plpusque lar Q Robous difkne \idetui) doiso MX comexis Glans ultia cupulam 7-8 lm. longa Nurn 800 ex liebm est 809 et 810 simibs, sed in h Engelm 805 sirailioi Peduncuh similiteti abbieviati, petioh sublongioies (v s)

P, *obtubifolia*, fohis obclusionibus ellmpticis obovatis\e undulato-lobatis \$ In no\o Mexico (Fendl ' 807 in h Engelm ) Hunc numeium \idit cl Liebman in h Hook et ad praesentem speciem (0 tendlen Liebman) iciprt. An loima lolioium in spcimme Engelm mea \auatio, ut in pluribus speciebus? Fendler 807 et 805 similes dicit in schedula (v s sin fi)

y, *pedunculata*, lobis folioium leutis sapp mucionatis, peduncuhs 11 fpm petiolo longioubiis 5 I' montibus NOM MPXICI piope Smta-Fc (FPIUH » 808 m b Tngplm )' Similem suo num 805 ait cl Fendl m schedule! IMioli, toinentum, foimi lolioium, fl masculi, cquulctn simiha, scd ppduncuh lorn petiolo duplo tnplo\e longioies, 9-12 lm longi An chactei v.mnabilis lit in 0 Douglasn B alnsque? Rimum uincum vidi Fiuctus ignotus Valde affnus Q Robon var Apenninae (v s)

28 Q DOUGLASII (Hook et Am bot Beech \oy p 394), ramis fuho-tomentosi-, fohis P basi acutâ vel obtusâ oblongo-o\ahlis vel oblongo-obovatis sinuato-pinnatihdis lol is obtusidscuhs mnticis supia spaisim stpllrilo-pilosis glabrescpntibus subtus stpllato-tonipntosis fulvescentibus, ampntis giacihlms, brarleis , ppngonu "> fidi lobis o\ Uo acutis cihatis, ahthens 5-G glabus muticis, huctibiis spsililms sohtuiis binis\p,cupul<\ hPhnsphaeiicA, S(jianns adpiessib cineieo-\elutims e basi o\atA convex A hnceolatis mleiiioi ilms obtusis sup acutis, glande (noideA cupulam tnplo suppiante 5 ^n CahlorniA (Douglas' lay pt Collie —Hook ic t 382 et 383 Folia 2-4 poll longi, 1-1 poll, lata, pptiolo 4-h lin ,chaitacipa, lobis obtusis denticulo ininimo tainpn acutmscuhs, pilis ppisistpntibus Rimus floulPi in ic S82 dppicttis non ceitp ad sp ppi-tniLt, (jus ampul i 10-12 lm longi, ppu^onmm patens, P\ IC iPgulaic, glabium, diitheidenon txseilae sunt Cupula 5-6 lin longa 7 9hn 1 ltd, cum glande vanetatibus lanugmosy, ambxqusc et praeseitim b.achyphyllr Q Robons admodum simihs Suuamae medias ut in var hi achy ph> Il e basi ovata doisoplus minus convexA ahmupte angustata et elongate p\itiPinititeol)tusa In cideni cupulA ant in cupulis pjusdem lami pms externi squmidium aut sub-comexa aut \aldp inflati, ut in 0 Roboie alnsque accuht An Q Douglasn, cum omnibus suis Miiptatibus, 0 lobata, 0 Gauyana, imo Q undulatat foimap tantum Ampucanae 0 Robous? Ex defpetu spcimmum in heibarns characters et tiansitiones miln non satis cogniti, spd char diffciantiales \eie specifiici me fugiunt Flores masc 0 Douglasii hie ex ic desenhuntur, scd ex var P,Y,et in Q undulata et Gairyana cmeisitatem frustra qu<fisivi a Roboio (\ s)

p^ *Gambekii* petiohs paulo brevionbus lobis obtusis mine acutis, squamis cupulae sa;pius doiso inflatis Secus Rio vel Noite (Gamb ), secus fl Luni (Woodeh in Ion ) et in moite San-Francisci (id) Q Gambeln Nutt pi Gamb in Jouin acad jc Philacl n sci \ i, p 179 roir in Rep exped. Scatgreaves, p 172, t 18 Flores masc ignoti, et ideo foisan

species hec varietas. Nuttall fructus sessiles ait; Torrey pedunculo vix lineam longo figuravit. Petioli in ic. 2-4 lin. longi. Squamae ibi dorso inflatæ ut interdum in a. (v. s.)

Y, *Novomexicana*, frutex, foliis oblongis profunde pinnatifidis lobis saepe 1-2-dentatis obtusis vel acutis, pedunculis femineis subnullis vel petiolo brevioribus vel longioribus, cupulas squamis dorso inflatis. 3 In. Novo Mexico ad Santa-Fe (Fendl. I 809, 810 et 810, b, in h. Engelm. et Boiss.) Q. Gambellii Liebm. Egersl. p. 11. Pedunculi fern, in eisdem ramis 0-2 lin., 2-6 lin., 1-9 lin. variantes. Petioli 3-8 lin. longi, saeptus 4-5 lin. Cupulae in specimine steriles, squamis valde basi convexis; alias immature. Amenta filiformia, 1-3 poll. longa, pilosula, floribus plerumque sparsis. Bractea filiformes, flore saepius longiores, fugaces. Perigonium patens, 5-partitum vel 5-fidum, extus pilosum, lobis acutis, latit. inaequalibus, nunc bilobis. Anthers 8-11, glabrae, muticae. (v. s.)

0, ? *Newi*, cupulâ valde abbreviate, glande cupulam quadruple\* quintuplove superante. In California (Liebm. Hartw. 1965). Q. Nesei Liebm. Egesl. p. 15. Q. Douglasii Benth. p. 337. Transitiones forsân vidit cl. Bentham, sed in specim. n. B. in h. meo et Boiss. (ut ex Liebm.) cupula 3 lin. solum alta, 7-9 lin. lata; glans 12-14 lin. longa, 9-11 lata, et inde potius species distincta videtur. Flores masc. adhuc ignoti. (v. s.)

29. 0- LOBATA (Nee! in Anal. cienc. et in Keen, et Sims Ann. of bot. 2, p. 111), ramis junioribus fulvo-tomentosis, foliis e basi acutâ vel obtusâ oblongis ellipticis vel obovato-oblongis inaequaliter varie pinnatifidis lobis undulatis obtusis muticis vel passim callosomucronulatis supra sparsim stellato-pilosis subtus pilis persistentibus stellato-tomentosis pallidis, amentis.... fructibus sessilibus aut subsessilibus solitariis paucis, cupulâ hemisphaericâ crassâ squamis adpressis cinereo-velutinis inferioribus et mediis e basi ovatâ valde convexâ in mucronem ovatum obtusum brevem desinentibus supremis ovato-lanceolatis acutiusculis vix basi inflatis, glande oblongâ angustâ cupulam 3<sup>d</sup>-4<sup>d</sup> superante. J In California (Hartw. 1964, "Wisliz.!" in h. Engelm. etc.) — Liebm. Egesl. p. 14. Q. Hindsii Benth. bot. Sulf. p. 55 (ex ipso Benth. p. Hartw. p. 337). Folia 3-4 poll. longa, 1 4-2 poll. lata, petiolo 3-6 lin., in eodem ramo plus minus profunde lobata. Cupula 8 lin. longa, totidem lata, basi et medio ex squamis convexis grosser tuberculata, orem versus paulo angustior et vix tuberculata. Glans ex Liebm. pollicaris, ex specim. Hartw. et Wisliz. 1 1/2-pollic. ex Liebm. 1-1 1/2 pollic., ex nostris 15-16 lin. longa, 5-6 lin. solum, lata. Folia equidem plurium var. & K. Itdboris, quoad formam, sed pube subtus brevissimâ et persistente; cupulâ de subconstricta, squamis medus et inferioribus magis inflatis aequam in ullâ var. Q. Roboris, et glande angustiore, unâ ab una nunc ab alterâ var. Roboris differt. Specimen Neae in h.

<sup>1</sup> Matrit. floribus et fruct. caret. Folia pubescentia (nee glabra ut dixit Nee) subtus vix pallidiora, unde ab omnibus hie descriptis diversa, sed eadem species tamen videtur. (v. s.)

30. 0- GABRYANA (poolj. fl. bor. amer. 2, p. 159), ramis junioribus fulvo-tomentosis, foliis e basi saepius obtusâ obovatis obtusis sinuato-pinnatis lobis inaequalibus integris lobatisve obtusis vel brevissime mucronulatis supra sparsim subtus dense stellato-pubescentibus, amentis gracilibus rachi subpubescente, bracteis.... perigonii 5-7-partiti lobis inaequalibus dorso pilosis acutis vel acuminatis. antheris glabris, fructibus sessilibus, cupulâ perbrevi-hemisphaericâ squamis densis ovato-acuminatis pubescentibus, glande ovoideâ. J In Oregon, Fort Vancouver, Puget Sound (Menzies, Douglas, in h. Hook.) et in California (bot. Beechey, voy. p. 391). Ex specimine Hookeri in h. Webb, folia 2 poll. longa, pollicem lata, petiolo 3-6 lin. longo, supra (in sicco) nigricantia, subtus fulvo-tomentosa, lobis ovatis, contundatis, saepe denticulo minimo submucronatis. Stipulae 4-5 lin. longae, oblongae, basi

conferta, diffusa, 1-1 1/2 poll. longa. Bractea nulla vel delapsa? Stamina 6-8, exserta. Fructus ex Hookeri descriptione. (v. s.)

31. Q. DRUMMONDII (Liebm. Egesl. p. 12), foliis confertis e basi late cuneatâ

latfssime obo\atis ol)tusis membranaceis undulatis piofiinde sinuato-pinnati-  
Mjs lobis\latis oblongis obtusibinns \el obovatis plus minus smuato-incisis  
marine cartilagmpo lecuivo supia glabus subttus dense oli\acco-tomentosis  
in \etusu'inbus glabrescentibus niseis, petiolis mox glabrescentibus, fiuctibus  
sessibbus gēmiins \el solitams, cupula hpmisphffiiicA, glande oblongo- o\oi-  
deA In Texas ad San-Felipe (Diumm 342 et 561 in h Hook ) Folia 3-4 poll  
longa, 2-3 poll lata, petiolo 2-6 hn longo Cupula 6 bn alta, 7 lata Gldns  
10-11 bn alta, 5 lin lata — Vensimihte i una e piaecedentibus

2° Species Meccano? et Centro-ameiican<e (iobis vane dentatis, nunc mtc-  
gns, nunquam lobatis, duiatione fiuctus non satis cognitA in plunbds)

32 0 coRRUGVTv(Hook ic t 403), ramis glabns, ramubs gemmisque pilosis,  
loins petioldtis e basi .icutA lanccolatis dcumiiidtis serrato-dentatis dqntibus  
obtusiuscubs >el callo bie\i subacutis utiinque glibns amentis folio multo  
bicvionbus spaisiflons, flonbus , cupula sohtanA subspssib magna bemis-  
spbaiiico-tuibinata squamis ddpieissis««xelutinis inlenoiibus o\atis medns  
oxato-dcutis doiso intldtis vel obtuse enstatis apice inflexis supiemis o\ato-  
lanccolatis, glande semise\seitA late ellipsoidcA cnca apiteni subdcpieissâ  
> In montibus GuatimaKr (Skinnci in Hook , Wais/ 1 n 11 et 38 in b Boiss )  
Rdnmli ov it Ptpxspeciniubussimill Wdis/ewic/n p;labii,gnimissoluinpu-  
bescentibus Folia (ex specim Waisz ) loisan subpeiennia Iptioli in ic 4-%  
in plantA Wdis/ 7-1"> lin longi, limbi 3-0 poll longi, 1-1 i poll lati, sub-  
nipmbianacei, nevis latorabbuf utiinque circitei 14, teitiains tidns\eis  
Hoips masc ex ic tdiitum noti Fiuctus (e\ sj)ecini W.USL ) in a\ilhs folio-  
nim .linn, podiuiLiilo 2-1 bn longo, at ramus fine anni ciasso insidentos  
fupula 0-10 lin longd, 14-1"> lin lata, subcinpiea, dura, s(liiamis ml pt  
modus inaMjudbci doiso \dlde mllftls cdimdtis Cotjledones ut di\it Bontli  
maetiales, doiso subsinuata? non lumuidUe Pnmo adspectu Vdlde, Q Skin-  
neri) affinis, sed matuiatio et semen diveisa (v s)

W Q INSCINIS (Maitens et Gdl in Bull Biu\ 10, u 3, sp 25j, lamulis potio-  
bsquc dense ful\o-hnsutis pibs iefle\is, folns bieMpetiolatis obo\ato-lanceo-  
latis acutis dentibus callosis sinuoso-dentatis iitnnque pilosiiiscubs, nervis  
tians\ (Msabbus appio\imatis fulxo-pilosis demum supia glabr<itis, fructibus  
subspssibbus solitams magnis, cupula homisphiTiicA mtci sijuamas dense  
luho-lanata, squamis la\e Mjuanoso-imbicatis patulis o\ato-laiic(olatis \il-  
losis, glande o\oideâ i exseitA J) In Mxici monte On/aba alt 7-)>00 ped ct  
ad Pelado de San Andies piv Oaxaca (Gal 123, 124, 125) Deest in b Mai-  
tjns Affinis ox auct Q coinigatrc, ct PX Liebm foisan cadem quam sua 0  
ootuj)a (0 \VaiscewiC7ii), scd dneisissima scjuamis laxis patulis Spccim  
flonbus et fiuctu carentia, e S Butolome (t Matlalaca, cl I lebm in h  
fopenh 0 msignem \ocaMt Pt mouim tomm , quaj lanfis U folus AQ  
Wais/owiczii, non diffpinnt, fiuctus xeio sroisim senati ad Q sliombocar-  
pam magis qu un coi i ugat mi accodunt Cupul.r loi mā vai lant dua? dpji) oss<c,  
Mili^iAtciroinifs, <-)!) lin loiigu, 18-20 lin latan, basi abrupto angustadj,  
teitia heimsphdiico tuibin.it.-i, 14 lin longa, 25 bn lati O.nnes fuho toraen-  
tosa3 ]racsrtim mUi squamas, squ imis inf et modus ovatis la\e imbneatis  
2 lin longis, 1 J-2 lm latis apico nifloMs, supiemis lanceolatis longionbus  
eiectis crebns Glans \ix e\seita, acuta vel obtusa, dm xelutma (\ s)

34 0 STnoMDorxnPA (Liebm ' EgcsI p 18), iamis unionibis pptiobscfUe bre-  
vibus lulxo-tomentosis, folns e l)asio btusAvolsubcoidatJloboxato-oblongis vel  
obovato-clbpticis brpMter acutis \el obtusmsculis a modio undulato-dentatis  
vel cienato-dontatis dentibus obtuse callosis, supia in neixo tonuit^rvelutims,  
subttus in nonis piaesortim stellato-pilosus unionibus fuhis deinde glabies-  
oentibus, flonbus , fiuctibus solitams subsessilibus \ol bievisissime peduncu-  
latis, cupula late tmbmatft volutinf t squirms la\e lmbncatis obtusiiibculis  
imis late o\ato-lanc(olatis (tTens lancpolitis modus dtmum piLentilms,  
gldnde semiexsoitâ tx umbouc maximo conxoxo O\UUIPO acutA nitidA S) III  
Mexico mtei Jalapd et Huatusco, a't 4500 p Kami fiuctifen bieves, dense  
luho-\elutini, crassi Potioh 3-7 bn longi Limbi 3-6 poll longi, 1J 3 poll  
ldti, non COLULLCI, sed ngidi modo Tastaneac MilRans, nevis latciabbus utim-

que 15-19 subtus eminentibus, tertiariis transversis distinctis, junifribus subtus non dense sed manifeste stellato-pilosis adultis in nervis aut pilosis. Pedunculi ex axilla folii, 0-2 lin. longi. Cupula 9-15 lin. longa, 15-18 lin. lata, squamis mediis 3 lin. longis, supremis linearibus et lineam latis, omnibus extremitate in flex <1 potius uam re flex a. Cotyledones dorso convexae, non ruminate, (v. s. In h. Gopenn.)

- 35.? 0- GALEOTTII (Martens! in Bull. Brúx. 10, n. ^ sp. n. 26), ramulis geminisque glabriusculis, foliis brevipetiolatis e basi acuta obovato-oblongis acutis vel acuminatis serrato-dentatis dentibus parvis obtusiusculis apice callosis supra hinc glabratis subtus cito glabratis, fructibus subsessilibus solitariis, cupula hemisphaerica molliter tomentosa-squamis lanceolatis laxe imbricatis, glande ovato-rotundata obtusa semiexserta. § In sylvis Mexici prope Santiago de Huatusco, alt. 2500-5500 ped. (Gal.! 126) et prope San Bartolomeo (Liobm.! in h. Copenh.). Ex specimine fl. et fr. destituto in h. Martens folia non nisi petiolo saepius brevifera a Q. corrugata differunt. Petioli 2-4 lin. longi, cum nervo centrali supra tenuiter stellato-velutini; limbi 4-6 poll, longi, 1-2 lin. lati, chartacei, juniores subtus stellato-pilosi adulti ad nervum pilos simplices passim cum aliis stellatis raris in parenchymate subtus praebentes, quod in Q. corrugata cum dentibus callosis simile. Fructus a cl. auct. descripti: insertio et ideo duratio ignota, cupula diametro subsesquipollicari, flans diametro pollicari. Affinem dicit 0- insipidum— Specimina (Lindl.)m. quae foliis cum Martensii conveniunt, mense februano lecta folia persistentia praebent, basi acuta vel obtusa; stipulae caducae, anguste lineares, extus pubescentes, 4 lin. longae; fructus (seorsim segregati) 0- Waracewiczii subsimiles, cupula hemisphaerico-turbinata, pedunculo 1-5 lin. longo non crasso inserta, 8-9 lin. longa, 12-15 lin. lata. Inter squamas praesertim fulvo-tomentosa, squamis laxiuscule imbricatis, imis ovatis obtusis dorso inflatis, gradatim lanceolatis angustioribus, supremis acutiusculis, maximis in medio 2 lin. longis; glande 12-15 lin. longa, 9-12 lin. lata, umbone subconvexo. (v. s.)
36. L. CIRCINATA (Nees! in Anal, cienc. nat 3 p, 272 et in Sims et Koen. Ann. of bot. 2 p. 106, ex. vy.), ramis petiolisque ferrugineis pulverulento-velutinis, foliis brevipetiolatis obovatis vel rarius ovalibus basi angustata obtusis vel subacutis apice angustatis obtusis vel contundatis obtusioribus undulato-crenatis crenis medio callosis, supra glabratis nervo pulverulento velutino, subtus reticulatis crebre et brevissime stellato-velutinis, floribus..., fructibus brevissime pedunculatis, cupula (imperfecta) subglobosa, squamis albo-velutinis adpressis inferioribus late ovatis, interis magis ac magis lanceolatis, glande subexserta. § In Mexico inter Tixtala et Chilpancingo, aprili fructus gerens. Fragmentum attulit Pavon (h. Boiss.) cum 0- obtusata mixtum. fex specimine authentico unico herb. Matrit. pubei rami petiolorum et nervorum pi-aecipuorum flava, tenuissima (unde a Q. obtusata et praesertim Q. tomentosa facile distincta); petioli 2-3 lin. longi; limbi 5 poll, longi, 2-3 poll. lati, coriacei, adulti subtus fusciscentes callis obtusis; pedunculi minimi, 1-2 micis imperfectos gerentes; cupula major 4 lin. lata, subclausa, squamis nunc dorso convexis; flans imperfecta. var. a Nees memorata est Q. tomentosa. (v. s.)
37. Q. MAGNOLLEFOLIA (Nees! in Anal, cienc. nat. 3. n. 268, et Sims et Keen. Ann. of bot. 2 p. 103), ramis glabratis, foliis breviter et crasse petiolatis obovato-oblongis basi angustata inaequaliter obtusis subcordatisve apice attenuate obtusiusculis subcoriaceis subintegris extremitate nervorum subcallosis et fimbriatis supra nervo pulverulento-velutinis effiterum glabratis subtus crebre reticulatis tenuiter stellato-velutinis, floribus..., pedunculis fructiferis petiolo longioribus folio multo brevioribus, cupula (juniorum subglobosa velutina) squamis adpressis ovatis et supremis ovato-lanceolatis obtusis. § In Mexico inter Chilpancingo et Tixtala, nee non prope fl. Azul, aprili fructus jun. gerens ex axillis fol. superiorum. Ramus ultimus (in herb. unicus) jam glabratus. Petioli 3-4 lin. longi, 1/2 lin. basi crassi, sunt crassiores quam in affinis, adhuc passim stellato-pilosus; limbi 5-6 poll, longi, 2-21 poll, lati, supra nitidi, pilis tauten minimis prope nervum adhuc puberulis, rete subtus pallido, pilis brevissimis in nervis et extra sitis. Pedunculus

li poll, longus, puberulus. Fructus junior 4 lin. latus, glando subinclusa (v. s. a Mus. Matr. comm.)

P, *lutea*, foliis elliptico-oblongis. Cum a crescit. Q. lutea forsan var. magnoliaefoliae Nee! 1. c. 0- flava Nee, ex Spreng. syst. 3 p. 857. Folia 6-7 poll, longa, 2-2 fc poll, lata, ex descriptione subtus ochracea, sed in nerbario colore in nervis pallido intra nervos fusciscente omnino Q. magnoliifoliae, nee non pube, consistentia, callis minimis in simibus apice nervorum secus marginem limbi simillima. Fructus unus perfectior cupula 4 lin. lata, hemisphaerica. Nomen Q. flava Nee deest in Nee Anal. cienc. et in h. Matr. (v. s. comm. a Mus. Matrit.)

Y? *macrophylla*, foliis amplis obovatis bbtusissimis. In Mexico propo Tixtala et in monte Omiapa (Nee!), in Sierra Madre Mexici occid. (Seem.! herb. n. 1972, sine fl. nec fr.) Q. macrophylla Nee! in Anal. cienc. nat. 3 p. 438, et in Ann. of bot. 1. c. Willd. sp. 4 p. 438. Q. resinosa tiebm. ex Seem.! in Bonpl. 3 p. 39, in bot. Herald p. 333 Liebm. in Egesl. p. 24. Folia cuneato-obovata, basin cordatam versus augustata, pedalia (ex Nee), 8 poll, longa, 5-6 poll, lata flex specimine authent. sine fl. et fr. in h. matrit.). Petioli in eodem pingues, 3 lin. longi, cum ramo glabrescentes. Nervi, pubes, calla marginis subintegra omnino presentis speciei, unde var. soluin videtur. Flores et fructus ign. (v. s.)

38. Q. OBTUSATA (Huml.) et Bonn.! pi. sequin. 2. p. 26 t. 76), ramis junioribus breviter stellato-pilosis cito glabratis, foliis e basi obtusata saepe inaequali oblongis vel obovato-oblongis obtusis margine undulatis et extremitate nervis callosis supra glabratis ad nervum centricum tenuioribus velulatis, subtus raliculatis pilis stellatis luculentis puberulis, rachi fl. nase. passim pilosa, iloribus sparsis perigonio patente obtusis piloso..., pedunculis ructiforis folio brevioribus petiolo longioribus, cupula velutina, squamis adpressis ovatis vel ovato-lanceolatis obtusis dorso subconvexis vel inlatis, lande inclusis (imperfectis? § In sylvis Mexici propo Ario (H. et B.), Mirador (Liebm.! in h. Copenh. et DC) — Kunth in H. et B. nov. gen. 2. p. 14. 0- affinis Martens et Gal. bull. Bnrx. 10 n. 3, Gal. herb. n. 00 in h. Deffess. Liebm.! in h. Copenh. Kx specimine unico authentico Mus. par. petioli 3-6 lin. longi; limbi 4-0 poll, longi, 5-20 lin. lati, minus quam in Q. tomentosa coriacei, pilis brevioribus, callis in margine raris vix perspicuis, pagina super, adnervum tenuiter stellato-velutina; amenta gracilia, vix pollicem longa, jam yentusia, antheris paucis glabris; pedunculus 20 lin. longus; cupula major, (> lin. lata (abortionis vel nondum matura), subclausa, squamis in illa aliisque minime retrorsis (invito cl. auct.), sed ul in affinihus erectis adpressis. Glauc abortiens, in specimine inclufa. (v. s.)

P, *pandurata*, petiolis longioribus, limbis obovato-oblongis — Eodem loco. — Q. pandurata Humb. et Bonpl.! 1. c. p. 28 t. 77, Kunthl. c. p. 13. Kx specimibus duobus authenticis Mus. par. folia longioribus, consistentia, Tiervatione et pubescentia Q. obtusatae, 1/2 poll, lata, < obtusa vel subcupula, callis paulo magis distinctis, petiolum versus interdum abrupte angustatum (nee vere pandurata), petiolis in eod. ramo 5-9 lin. longis; pedunculis sesquipollic., cupula (perfecta) hemisphaerica, ore constricta, 4 lin. longa, 7 lata, squamis ut in a glande exserta. (v. s.)

Y, *liartwegi*, foliis e basi cordata vel rarius acuta obovatis vel obovato-oblongis manifesto undulato-dentatis vel crenatis crenis nunc callose mucronulatis, squamis cupulae dorso vix convexis vel inflatis. ^ In Mexico, OCCKI versus Anganguio (Hartw.! 432 in h. Boiss et Webb), in Mexico (Payon! ibid. Berland. 2131, sine fl. nec fr.), in monte Guchilaque (Berland.! 1147 in h. DC. et Webb), ad Cerro del Pftul (Seem.! 1457). Q. amlngua Humb. et Bonpl.! pi. equin. 2 p. 51 t. 93 (non Mich.), filia ~~specim. Mus. par. Q. Bonpl. Sweet ex Steud. nom. Q. Hartwegi Benth. ! pl. Hartw. p. 56. Q. nudinervis Liebm. in Seem. ! bot. Herald p. 334 et in Egesl. p. 24 (ex specimine h. Seem. sine fl. nec fr. sed foliis simill.).~~ Petioli 3-5 lin. longi. Limbi 1 1/2-5 poll. longi, 1-3 poll. lati, crenis magis quam in a distinctis,

sed ciilla, icticulatio, pubes simillima Cupula nunc imperf depresso-globosa, glandem tenens, nunc perfecta\*4 6 lin longa, 6-91 lata, squamis infcrion bus ovato-triangularibus obtusis, alns gradatim magis lanceolatis et Acutis oie subconstncta, glande obovoideâ vel subglobosâ, semiexsertâ vel brovioie In cupulis abortientibus squamas saepius dorso in tuberculum auctae Forma vulgarior videtur quam a et p, saltern ex herbarns mehus cognita (v s)

30 0 POLY^ORPHA (Cham et Schl in Linn 1830^ 78), ramis folisque junioribus utunque tomento floccoso stellato fulvo caduco vestitis, foil is longius tunc optiolatis e basi subcordatâ vel obtusâ vel inaequaliter subacutâ elbpticis \el ovato- vel obovato-ellipticis obtusis integns vel rarius a medio undulato-dentatis adultis supra glabns subtus crebre reticulatis tarde glabratis, amentis tomentosus ebracteatis T pengonio 5-fldo extus piloso, anthers muticis, pedunculis petiolo multo brevionbus vei subaequalibus nunc sublongionbus 1-2 carpis, cupuhl hemisphaenc\*â ciuereo-velutina squamis adpressis infer mediisque ovatis obtusis dorso convexis supremis lanceolatis minonbus crebns, glande plus minus exsertâ obtusâ \$ In Mexico (Pav ' h Boiss), in prov Oaxaca et ad Muador (Liebm ' h Copenh ), dd Hacienda de la Laguna (Schiede et Deppe), prope Zucuasan et Mirador (Gal ' 92), Bolano§ (Hartw ! 420 in h Boiss et Webb), in Sierra Madre Mexici occid (Seem ' 1970) — Planch hort Donat p 40 0 petiolans Benth pi Hartw p 5 (quam senus p 348 ad polymorpham refert) 0 vanans Martens' et Gal in Bull Brux 10 n 3 0 tul)rculdta Liebm in Seem ' bot Hei p 332 et in Fgesl p 23 Descripsi specimma h (openh us Hartw simillima sed perfectiora et cum descriptione in I mnaeâ concordantia Petioh in eod ramo 3 6, 6-1D, 7-12 lin longi ffiaciles Limbi 2-5 poll longi, 1 \ poll lati, nervis quaterWus subtus distinctis, margine cartildgmeo, dentibus ubi adsunt obtusis latis apice callosis, subtus etiam tomento delapso vestigia pubis sub lente minimis praebentes Nullum specimen (etiam martio florens) folium persistens ostendit Stipulae anguste lineares? fcgaces, 3-4 lin longs Amenta bipolhcana, gracilia, braetis forsan delapjgis? Lobi pengonu ovato-acuti Stamina pauca, parum exserta Pedunculi fructifen in eod ramo 1-6 lin longi, in duobus ramis simulletish Topenh^aprov Oaxaca) 8-12 lin longi Cupula 3-6 lin longa, "> 7 lin lata, squamis medus dorso plus minus inflatis Glans nunc vix exserta' nunc dimidio, nunc ultra Confer ad 0 germanam in sp dub (v s)

40 0 OMISSA, lamis junioribus \elutinis, folns obovatis obtusis basi subcordatis conaceis a medio cnciter undulato-crenatis et extremitate nervorum mucronatis, juiiioubus , adultis supra glabns subtus pilis brevissimis steldtis densis mtano tomentosus nervis praecipuis glabratis, flonbus , pedunculis fiuctiferi3 petiolo sublongionbus, cupulâ hemisphaencâ vel turbinatâ pallfde velutmâ squamis adpressis ovatis obtusis margine attenuatis, glande subexsertâ ,5 In Mexici Sierra Madre (Seem ! n 1969 m h suo sine num in h Copenh aty h Hook ) Rami vetustiores glabrati, in speciminibus aphylli sed longe nost fiondescantiam lecti Folia in ramis anni approximata, sub maturatione fructas conacea, petiolo 2-3 lin longo, velutino, limbo \i-1{ poll longo, 10 16 lin lato, margine revoluto, nervis lateralibus utnnque 6-7, tertianis subtus tomento persistente tectis, mucronibus#i-j lin longis Peduncuh 3-5 lin longi, dicarpi (an semper') Cupula 3 4 fin longa, 4 6 lin lata, squamis margine glabratis Omissa in Botany of Herald et a Liebm (v s)

41 ? 0 LAXA (Liebm I in Bonpl 3 p 38, et m Seem bot Her p 333, Egesl p 23), ramuhs tomento flavescente dense vestitis, folns obovatis apice rotundatis basi attenuatis plus minus cordatis renandis nervis saepe callo brevi terminatis supra stellato pilosis subtus reticulatis et densius flavo tomentosus, pengonio masc piloso, anthers apice pilosis, peduncuhs fructifens folio brevionbus, cupulâ cyathiformi squamis imbricatis ovatis et late lanceolatis obtusis adpresse pubescegtibus, glande semiexsertâ — In Mexici Sierra Madre (Seem f, 1967 in h Hook et indie in h Copenh 1) Q callosa Martens! herb (non Benth ) Folia 3-4 poll longa, 1 }-2 poll lata, »petiolo 3 5 lin longo, subtonacea Stipulse lineares, extus adpresse pilosae Am'enta pdllicana Pedunculii fiuctifen 1 3/ poll Jongi, dense cano-flavescenti-tomentosi Cupula 3 lin



- alta, G lin. lata. Glans f)-6 lin. longa. Flores masc. ex descriptione cit. Lieb-  
 IKIILIII. Specimen 19G7 herb. Seem, pedunculos annuos, 1-2 poll, longos  
 jiti'bK, fructum iimim perfectum ahosque unperfectos gerpHtes. Cupula lbi  
 heinisphairica, 4 lin. longa, 5 hn. lata, squainis inf. ovatis. (v. s.)
42. Q. LETA (Liebm.! Egesl. p. 21), ramis junioribus fulvo-velutinis, folus e basi  
 cordatâ oblongis acutis\e obtusis conaceis grosse undulato-crenatis crenis  
 medio callosis, supra sparsim pt hrcviter mitio stellato puherulis doin gla-  
 bns, subtus pilis stellatis tomentosis, ilonbus..., peduncuhs folio dimidio bre-  
 vionbus fructus paucosgerentibus, cupulâ hemisphaerico\*patelliformi squamis  
 adpressis ovatis obtusis subeovxhis smerco-velutinis basin glandis ovoidea?  
 amplectente. \$ In Mexico bor. occid. ad El Grande (Hartw.! 419) et Sierra  
 Madre (Seem. 1) — Seem, in Bonpl. 3 p. 38, et in bot. Herald p. 332. 0- obtu-  
 sataxar. Bentli. pi. Hartw. sine descr. (non Humb. Pt Bonpl) Q heta e\  
 Beiith. 1 c p 348 Kami utoglabrati, validi Folia 3 poll longa, poll lata,petiolo  
 1-2, lin. longo, ncnis subtus ptiam tertianis emmpitibus reliciilatis. Podun-  
 culi puboscentes, apice vel medio fructiferi. Cupula 2 lin. longa, G lin. lata.  
 Glans :-> hn longa, obtusa cum mucrone coniiiniini Descripsi specimen opti-  
 mum Hartw. in h. Boiss. Specimen n. 1971, folia intpgra VPI paucicrpnata  
 pra'bpt, deinum subtus glabrescentia, sed ccrteejusd. spcciei: flonbus fiuctu-  
 que caret. (\. s.)
43. 0- BERTH AMI, ramis tomento fla\o pubescentibus, folus longiuscule petio-  
 latis e l)dsi acutâ xel subacutâ o\ato \P! obovato\el sublanopolato-oblongis  
 acutp acuminatis mtegris undiilalis (in sicco) membranaceis, junionbus flo-  
 coso-tomentosis, adullis supra glabris subtus ad nervum centram et in  
 axillis nervorum tomento llaxo stelhilo dm nubpscentibus, fionbus..., fructi-  
 »us sessihbus vel bre\iter pedunculatis, ciipulâ hemisj)ha'ncâ l'ulvo tomentosA  
 s<iuamis lmis ovatis alns oxato lanceolatis adpressis ontusm, glando dpresso-  
 globosft vix exserta tomentosa. t ^ In Mexico ]>ro)e Santa Maria (Hartw.l JG3  
 »» h. Boiss.). Q. iindulalaBenth. pi. Hartw. p. 81 (non Torr). Rami tertioanno  
 solum gLibrati. Folia 3poll, long.i, polhcem lat.i, petiolo 4(J hn. longo tomen-  
 toso, nervissecundanis subtus eininpntibus, tertiarns iiiiniinis,parcnchymale  
 non pellucido nee conaceo. Fructus mine pedunculo 3 lin. longo inserti.  
 (Aipula G-7 hn longa, 9-10 lin. lata, squamis margine membranaceis. Valde\*  
 arims 0 Tlapuxahiiensi, sed fructus duplo major,glans suhglobosa nee ovoide.i,  
 lolia nervis secundarns magis prominentihus. (v. s.)
44. Q. TLAPUXAHUENSIS, ramis citoglabratis, folns longiuscule petiolatis e basi  
 obtusâ \el rarius subacutâ ovato-vel oblongo •lanceolatis acuminatis integris  
 mpnibranaceis adullis supra glabris subtus glabrescentibus fascicuhs pilorum  
 in axilhs nervorum dm acervatis, flonbus..., pedunculis petiolo brevjonbis  
 vel subnullis saepms monocarpis, cupulA hpmisj)h<i'ic!\ ore siibconstnclA ,  
 squamis ovatis obtusis adpressis dorso senccis maigne membranaceis, gl.uule  
 semiPxsortâ. t 5 i\_n Mexico prope Tlapuxalma (Haitw ! 430) 0 salicifolia  
 «onth ]l Hartw. p. 5G, non Nee. Rami \ahdi. Petioli 6-7 lin. l»ngi, glabrati..  
 \*Jiia J-, poll. i(jngaj 10-15 hn lala> supr;i IIII(la) neiTls tertianis subtus te-  
 nuipi M sicco rcticulata, acumime saepms arutissimo, fascicuhs nilorum SPCUS  
 npruim centram in Axillis dm subtus videndis. Pcilunciili axillares, \- l\_in.  
 longi (jiipuia 4 lin. longa, r> hn. lata; squamis ut in affin. margine fuhis cla-  
 Dimsciiis. ùvula abortna (ex unica h'glande obs.) .sub medio, nee ips.l basi  
 scmims. (v. s. n h. Boiss, ^ Florent)
45. 0. CORTESII (Liebm.! Egesl. p. 17), ramis cito glabratis, folus bVevipetio-  
 latis angihre lanceolatis utnnciue acunnatis basi except,! remote setaceo den-  
 tatis membranaceis supra glabris subtus in axilhs nenorum dm stellato-to-  
 mentosis, lionbus..., fructibus junionbus axillanbus subspssihbus solitarns  
 nuncgomms elhpsoidcis, vjuamis adpressis pubescentibus ovatis obtusis mar-  
 Kinc glabrato tenuionbus, glande. .. 5 In Mexici prov. Vera Cruz et Puebla.  
 Rami secundo anno aphyll, p\_ol\_ia\_4\_fi\_jj)n. longa, 9-i> h\_n. lata, anstato-acu-  
 mmata, in petiolum 2 ' hn. longum sensim basi angustata, prope medium  
 vel ultra usque ad apicem irregulariter setaceo-dentata, setis 2-3 hn hmgis  
 xersiis apiceni hinbi paulo floxis, nems later. utiin(luc 14-K; Mibtus promi-

mentibus, tertiariis reticulatis minimis. Fructuajuniores in specimine 3 lin. longi, inter folia approximata anni latentes, verisimiliter annui? (v. s. in h. Copenh.)

46. Q. SARTOHII (Liebm. l Egesl. p. 19), ramis junioribus cito glabratis^ foliis longe petiolatis e basi acutâ vel obtusâ saepe inaequali oblongo vel rarius ovato-lanceolatis acuminatis membranaceis basi exceptâ remote et regulariter aristato-dentatis supra glabris subtus glabrescentibus tomento stellari in axillis nervorum diu persistente, floribus.... peduncalis fructiferis petiolo brevioribus vel nullis P2-carpis, cupula fiemisphaerico-turbinatâ squamis arete adprefcis fulvo-pubescentibus ovatis bbtusis glande ovoideo-globosâ semi-exsertâ. fi In Mexici prov. Vera Cruz, prope Totutla et Alpatlahua (alt. 4-7000 p.). Rami omnes in speciminibus secundo anno foliis orbati, fructibus tunc in axillis foliorum anrn. sed forsâ folia juniora et vetusta simul pro tempore adsunt. Petioli 9-18 lin. loo^i, juniores pubescentes. Limbi 3-5 poll. longi, 12-20 lin. lati, aristis versus apicem flexis e peripheriâ subintegrâ vel undulato-crenatâ extremitate nervorum exeuntibus 1-2 lin. longis. Pedunculi 0-8 lin. lojigi. Fructus parvi. Cupula 3-4 lin. longa, 4-5 lin. lata, squamis margine attenuatis coloratis. Glans in eod. ramo plus minus exserta. An var. dentata Q. Tlapuxahuensis, ut adsunt in Q. acutifoliâ (simillima species, fructu 'bienni!); transitus siye mixtura foliorum integrorum et non integrorum nondum cogniti ex 7 specim. Q. Sartorii et unico Q. Tlapuxahuensis. (v. s. comm. ab h. reg. Gopenh.)
47. Q. SALIGIFOLIA (Nee! in Anal. cienc.nat. 3. p. 265 sive in Koen. et Sims Ann. offbot. 2 p. 101, non Benth.), ramis junioribus virgatis tenuiter velutinis cito glabratis, foliis brevissime petiolatis e basi obtusâ vel subacutâ oblongo-lanceolatis a/sutissime acuminatis integerrimis membranaceis supra glabratis subtus pilis stellatis cito caducis in axillis nervorum diu acervatis tomentosus, florifcus..., fructibus saepe geminis subsessilibus, cupul^ hemisphaericâ cinereo-^ubescente, squamis adpressis ovatis obtusis, glande subglobosct. semi-exsertâ. ^ In Mexico occid. prope Acapulco. Folia (ex specimine Neesi in h. Matrit.) Subpersi\$entia, petiolo 1-2 lin. longo, 4-4 £ poll. longa, 9-11 lin. lata, nervis tertiariis in si ceo supra reticulatis subtus vix perspicuis, tomento in axillis nervorum secus nervum centalem subtus copioso deterso, fasciculis in parenchymate tunc raris minimis. Peditinculus fructifer 2 lin. longus, ex axillâ folii in ramo extremo fructu carens. Ex figurâ alterius speciminis Neaei in h. Gav. a cl. Lange del. et mecum humane commun. cupula 4 lin. longa, & lin. lata. Folia ibi glabrata. Differt a Q. acutifoliae var. integrifoliâ fructu annuo. (v. s.)
48. Q. SKBMANNI (Liebm.! in Seem. Bonpl. d%. 52, bot. Herald p. 251 et in Egesl p. 30), ramis fine anni glabratis, foliis Drevipetiolatis e basi obtusâ vel acutâ ovato vel oblongo-lanceolatis acutissime acuminatis vel rarius obtusis integerrimis membranaceis supra glabratis subtus pilis stellatis caducis iuxta nervum centalem diu acervatis tpmmentosus, floribus..., pedunculis fructiferis **axillaribus petiolo longioribus 2-3-carpis cupulâ hemisphaericâ cinereo-pubescente squamis adpressis ovatis obtusis, glande subglobosâ vix exsertâ. ^ In Americâ mediâ, ad montem Chiriqui, Veraguas (Seem. ! 1228). Pili ramorum sieiliati, caduci. reuon i t-o mi. iuu(\$i. luimm \*|-ik pou. IODKI, y-iô nn. iauT margine cartilagineo, nervis extremis reticulatis in sleep utrmque perspicuis, fasciculis pilorum supra in folio adulto rara, subtus in axillis nervorum copiosis fulvis. Pedunculi 4-15 lin. longi, glabrescentes, erecti, ngidL nunc ultra fructus<sup>7</sup> inferiores elongati tenuiores. Gupula 3-4 lin. longa, 4-5 lin. lata. squamis margine glabratis tenuioribus. Glans imperfecta videtur. Differt a Q. salicifolia longitudine pedunculorum. An varietas? sed transitus non vidi. (v. s. comm. a cl. Seem.)**
49. Q. GHIgpbjEGTî\*(Martins! et /Gal. in Bull. Brux. 10, n. 9, ff. n. 10), ramis junioribus petiolisque tomento flpeccosp caduco fulvo vestitji, fqlü? petioplatis e basi obtusâ vel rarius subacutâ ovato-lanceolatis acute vel acutissime acuminatis membranaceis integriâ supra glabratis ad costam diu velutinis subtus glabratis socus norvum centalem pilis hrevibus stellatis diu velutinis, flo-

**nbus**, peduncubs **fiuctilens petiolo subaequahbus, cupulâ e basi acutius-**culd late cjathifoimi squamis adpiessis ovatis obtusis cineico-pubcscentibus, glandeexseiU y In Mexico sems monteni On/i1)«e alt 7-8000 p (h Maitions' n 128), et piope lotutja (Liebm ' in li (openli ) Pctioh 3-4 **lin** longi Limbi J-J-^ poll longi, 9-11 lin lati, nenis tertiams supra in sioco reticuUtis subtus M\ pcispiciHs Pili nci\o centrah subtus in folio adulto peisistentes, undo diffeit a Q salicifohA Pedunculus unus adest tomentosus, 6 lin longus, fiuctum geiens, alterum emittens pedicollum giacilem glabnuscum 8 lin longum apice fructum unuin peifectum et unum aboitivum iidebens (upuli 3 lm longa, 5 lin lata Glans deest Hsec e sppcimine uiicio li Maicens, SLd tua optima siinilhma in h Copenh udi unclc loha annua, petioh 3-6 lin longi, hmibi 2-4 poll longi, 6-18 lin lati, pedunculi 3-5 lm longi 1-2-caipi, sunphces vel adjuncto pedicello giacih glabnuscum 1-3 lm longo elongati, cupuld 3 lm longa, 5-6 lin ldti, patentissima nee bis rotunddta (quod dl) difiuiibus diveisum), glins elhpsoidea, \dlde exserta, 6 lm longd Diffeit a Q sahciolia lon^iludine petioli el ptducuh, ioima cupuld (v s)

50 Q BVRDINERvis (Benth pi HaiLw p 56), ramis junionbus stellato-pubcscentibus densj foliosis, loins bieupetiotalis e basi cunoaU \el obtusâ obo\i-to-oblongis oblongisve acutis pissim a medio spinoso-dentatis vel submtegris ngidis, junionbus , adultis supia glabns subtus gidbiatis in anguhs nervoruin plus minus tomentosus, flonbus , fiuctibus subsessdibus solitanis gennnisve, cupuld hemisplidenc3P subsnoeâ s^udmis adpressis iniieioiibus o\atis dins ovato-lanceolilis obtusis glindo o\oideo-acutâ semiexseita 5 In Mexico id Real del Monte (Haitw • 4i7 Rami fusci, secundo anno glabn et aph>lh Petioli 1-3 lin longi, pubiscuitos Limbi l\$-6\ poll longi, 7-lo lm lati, chaitiuci, denlibus utiinque 0-3 e lobo ovito vel e maigine undulaU mucioinlorimbus Pducuh m lamulis an in petiolo bic\ ion bus vel Jeie nulli Cupuld 3-4 lin longi et laid, squamis valde adpressis (1 Benthdin (ib p 348) Q luniiinn esse suspicatu, sed ex &pecim dutbenticis ceite diffcit (\ s in h Boiss)

51 Q GLAUGOIDES (Maicens et Oal in Bull Biux 10 n 3, sp 2), ramulis angulatis cito gldbiatis, loins bieivissime pctiolatis e basi cordatâ ellipticis obtusis niobidiidceis intpgis, junionbus pihs stelhtis supra rans subtus don-sis floccosis tomentosus, ddullis demu in glibemniis, amentis bieviibus pilosis, pedueubs fem folio bicvionbus, cupulis (junior) globosis paivis leiru^i-neo-tomentosi& squamis adpiessis ovatis obtusis 5 In Mexici mont Misteta Alta et Sieira dOaxaca, alt 7-9000 ped (Gal 103), ad Gerros "S Felipe (Liebm ') Q elhptica Liebm in b h (openh fol 103-106 Rami secundo anno teittes, non vilidi Folia in lamis anni, 1 J-2 poll longa, 9-12 lm ldti, petiolo lintam longo, paienchymate pellucido, nems teituins et etiani qudtenidiiis subtus disinctis, toniLiuto sul)tus iulo edduco Pedunculi Um in axillis folioium anni, 6-12Jhn longi Dcsuipsi specimen Mditensn, LH b-nidnidrid similhma folns 1-3 poll longis, fl masc delapsis tolid ibi mttidum unduldt (\ s)

### Sempeivnentes.

#### A *Americans* (pler<fique intertropicalis)

52 Q HLBOLDTHI (Bonpl » m H ct B pi equm 2 p 155 t 130), ramis junionbus tomento floccoso citissimo oibdtis, folns pctiolatis oblongo M o\o^ ilo\ldiceolatis bdsijunionbuslonge an^ustatis deinde subarutis dut obtusis dpicc^ <icumminatis vel lanus acutis nitigiis supra (etiam junionbus) glabns subtus junionbus floccos-o-tomentosis adultis neno prjescitum m axillis ncnonim literdlium dm tomentosus, amentis gidcilibus sparsiflons pilosis, brae ttis nullis' pLii^onio sessih campuuldto obtuse 4-fa-lobo mdigine intus pilo^o, diitliens 6-7 muticis, cuptila subsessili Ute hfcinisphaencâ pilis adpressis luho-senceâ, squamis adpressis obtusis o\dtis et sup ov-ito-linceolatis, glmdo semiexseit.I ovoidefl /f In ditione Bogotensi mtei Mcum Ascensionis ct Id V( ga de S Loien/o (H i), Popdydn (Hditw 139) in h Boiss , liuind^), Novo-

- bianatae (Goudot) Antioquw. (Tnana<sup>1</sup>). Nosellid tomento floccoso stellatofuho undique vestita, in pa<sup>^</sup>mâ sup folu primo deterso deinde in ramis Folia perenna, petiolo <sup>r</sup>>7 lin longo, demum glabro, limbo juniore basi longe angustato apice subulato, secundo anno basi subacuto, 5-6 poll longo, 1-3 poll lato, subchartaceo, nervis lateralibus utnque 14-15, tertiams parvis reticulatis Stipulae linearis, caducae, 4 lin <sup>r</sup>longa, dorso senceae Amenta extra-axillana, soli tana, 2 poll longa Cupula 6 lin longa, 10-12 lin lata, squamis margine glabruscuhs attenuatis (v s in h Mus par, D C., Ina nd, Boiss)
- 53 0 **TRIFOLU** (Liebm ' Egesl p 29), ramis novellis et folns junionbus utnque spaisim fasciculato-pilosis cito glabratis, foil is petiolatis oblongis vel ellipticis junioribus basi acutis apice subulatis, adultis basi obtusis vel subacutis apice acummatibus acutis sel obtusis integris, amentis (junionbus) densifloribus rachi stellato pilosâ, bracteis nullis, pengonio sessih campanulato, extus glabro ore <sup>r</sup>j-lobo barbato, anthers paucis muticis, fructu <sup>^</sup> In Costa-Ricae monte ignivomo Irasu, alt 9000 p ((Ersted • 1 c) An a Q Humboldt diversa<sup>9</sup> Plurain duabus ignorantur Pubes m folis novellis present is ranoi, non floccosa sed sparsa, in folns adultis plerumque nulla (non nisi in folis 2-3 ex pluribus in axillis nenomm subtus, invito cl Liebman) Petioli 3-4 lin longi limbi 2-4 poll longi, 9-18 lin lati secundo anno rigidi supra nitidi, nec is tertian is vix distinctis Stipulae lineares, caducæ, 4 lin longae, dorso pilosulæ Amenta junioia 7-8 lin longa Flores masc -J lin longi Lobi pengonu breves, ovati, obtusi (v s Comm a cl (Erst))
- 54 P **COSTARICENSIS** (Liebm Egesl p 26), ramis validis cito glabratis, folns breviter petiolatis e basi cordatâ obtusâ vel obtusiusculâ obovatis ellipticisve obtusis conaceis integris, pihs supra raris et cito delapsis, subtus crebris stellatis fulvis floccosis caducis, lion bus, fructibus solitaris \el geminis sessilibus \el pedunculo folio bievioie insidentibus, cupulâ hemisphaencâ squamis adpressis membranaceis pubescentibus demum glabratis et nitidis m fenolibus ovatis obtusis sup lanceolate obtusiusculis, glande ovoideâ vel subglobosâ dimidio vel ultra exsertâ \$ In Costarica? et ficutimalae montibus (Warsz ' ')), monto Irasualt 8-10000 p (CEsted) Rami apice fructifen Joha 2-3 poll longa, 1-1 ] poll lata, petiolo 1-1 1/2 lin longo, admodum conacea, margine subrecuna, passim undulata, supra mtida, nervis tertiaris subtus parum distinctis, tomento secundo anno non nisi prope nervum centralem videndo Amenta 1-1 1/2 poll longa, rachi passim pilosâ, bracteis ovato-lanceolatis flore dequalibus <sup>^</sup> extus pilosis, pengonio 5-fido, anthers glabris muticis Pedunculus in eod raro 1-12 lin longi Cupula 5-7 lin longa, 6-9 lin (imo 12 lin ex Liebman) lata Glans 7-12 lin longa umbone parvo Cotyledones (in s ceo) nigrosae Ovula abortiva (ex umcâ glande a Wancw coll) sub medio, nec ipsi basi seminis (v s)
- 55 0 **LINDENI**, ramis junionbus parce pubescentibus, folns sessilibus vel brevissime petiolatis ellipticis vel sunlanceolatis bam obtusum vel Hiih cordatis aput acuiiH vol acuiiHiniirt uit <K<sup>r</sup> conocom mipm cito <luImitiH Hiihlus HOCUS net vum et in axillis neivorum diu stellato toraentosjs, amentis folio brevionibus pilosis, flonbus sessilibus, fructu sessih solitano, cupula hemisphaenco-turbmat. i cinereo tomentosa squamis adpressis ovatis et supenonibus ovato-lanceolatis obtusis, glande ,1 In No\ap Gianadae provincia Tunja (Linden' 184?, n 1325 in h. Webb et Boiss) Hanc cl Kotschy Q Humboldt vocavit in h Boiss, jsed folia sessilia et pubes cupulae minus adpressa Petiolus nullus, vel raro iineau longus Limbus 2-3 poll longus, 9-16 lin latus Stipulae lineares, dorso adpresse senceae, 5-6 lin long\* Floies m ramulo speciminis fructifen h Webbo (nunc Florent) statu mediocnobservandi, m racm gracili sparsim pilosâ mserti, sessiles vel subsessiles; pengonio campanulato saepius <sup>^</sup>) 5-lobo, extus piloso, antherjs breviter exsertis, glabns, submucronatis \el muticis Fructus glande inclusa imperfectâ Ex insertione maturatio annua Cupula 6 lin longa, 8 lata (v s)
- 56 Q **IOLIMENSIS** (Humb et Bonpl I pi equa 2 p 153 t 129), ramis junionibus glabus <sup>^</sup> foliis bievipetiolatis ellipticis basi angustioie obtusis apice

acutis integris supra junionibus remote stellato-pilosis cito glabiatibus subtus Uide secus neivum centialem piaesertim in dxillis nervorum laterahuni dm floccoso-tomentosis, amantis elongatis gncilibus hpaisiflons, radii sparsim pilo&d bracteis nullis, flonbus pcdicello gncili glabio sustensis, pengonio campanulato obtuse et irregulariter 4 rj-lobo intus piloso, anthers muticis, fiuctu 5 In Novae.Gianatae piov Pamplona, alt 9000 p (Funck et Schhml n 1U), b DC), et\eusimilitei prope Guidas (Goudot h Boiss), el balto (id h Webb') et monte Quindiu (Humb et Bonpl). Specimen Bonpl in b Mus pai ilonbus et fiuctu caret, e\ specinune Funck et Scblim bic descnpto, novella non floccosa Stipulag lineais, ciducde, 6 lin longa e\tus adpresse sei ice<e Petioh 2-3 lin longi, limbi 4- J poll longi, 18-20 Im lati, consistent^, tomento, nci\is omnino Q Huniboltn Amenta bipollicana Pedicelli J-1 lin longi tolia in speciminibus non flonf supia citatis sinllima, acuminata (\ s)

57 0 TOMENTOSA (Willd sp 4 p 437) lamisjunioiibus flavo-tomentosis, folns bievisse petiolatis e bisi obtusâ vel subcoidat\ oblongo elbpticis siibacutis crenlto-dentatis cienis mine callose mucionulatis coiuccis, supia glabi ltis, subtus dense fuho-lanugmosis rtticulitis, pedunculis fiuctifens' folio bievionbus, fiuctibus paucis, cupulâ hemispluencA fulvo-tomentosâ squamis adpiessis mf o\atis obtusis sup lanceolatis obtusiuscuhs — A Mexico ad Acapulco (Nee; Q pedunculais Nee in Anal cienc nat 3p 270 0 pedunculati Neel in h Ilubiud, nunc DG (non Luiopa?or) 0 callosa Benth 1) Haitw p 616 p 91 (fide Liebm ibid p 3^1) Lam ramomm ex Nee **nibicunda**, in boib fenuginea, in pagin\ **nif** folioniin fuh i \el subincina tolid e\ Nee 5 poll longa, MX 2 poll lata, e\ specim Hub et h Matnt J-4 poll longd, 1-1 j poll lata, pctiolo 1-2 lin , pilis subtus stellatis longis, puencliym ite inter pilos glabio pdlhdo punctulato Pedunculi 1-4 poll longi Cupula in sppLim a Nee collectis h matnt impeiecta, ghndern (abortivam') continens ex nostio specimine Neaei 4 lin lita, s(juamis extus non convexis Nomen piistmum piopei vanabiles pedunculos inteidum feie falsum (v s)

a, *communis*, aiboi, folus pjenunque obo\atis et obtusis f) In Mexico boi occid piope Gomitan (Haitw 'S64 in h Boiss "Webb ) prope Mnadoi et Consoquitla (Liebm ' in b Copenb ), in Guatimala (Waiseew 17, 18, in b Boiss I) Q tomentosa Benth \* in pi Hartw n %4 Folia \-^ poll longa, j-2 j toll lata, petiolo 1-3 lin longo, lanâ subtus minutâ parenchynnte gliuco, ev speciminibus h Boiss et Mus pai peionnia, sed frequentei in lierbmis folia anni soluni adsunt Cupula 4 lin longa, G 8 bn lata Glaus ellipsoidea, cupulâ duplo longioi ut in seq vai (v s)

P, *bullata*, arboi, squamis cupula. extus basi convexis plus minus inflatis 5 In Guatimala (Warzs f lo in h Boiss), in Mexico or ad Muadoies (Lmdtn 1 20 ibid ) toha saepius obovata obtusi, ut in proceed var (v s)

Y, *ditorsifoha*, fiutex 10-14 ped altus, folns ol>longis \el olli)ticis Sin MIXKIIIIIIU pim>s ( h lima d Sunt i Itosi O <li)t isiloli i Noo I in Anil tn in mil | p ^70 < i in K in it suns inn c 1 II >L I | IO » I v \*\*> ci-mim N< LI folni-j poll longi, 0-U lin lata pctiolo 2 lm longo, in eodem lamo cienato-dentata vel subintegid **Pedunculus bipolhc Fiuctus impoifectus vel junioi 4 hn solum latus Vix vanetas (v s a Mus Matnt cumin )**

ò, *abbreviate*, diboi, pedunculis fiuctifens abbreviatibus petiolo puuralongionbus A In Guatimala \el (ostuica (Waizs f 43\*m h Boiss) Folia obo\ato-oblonga Pedunculi r>b hn long!, petiolo 2 hn longo duplo longiores Cupuli valde pubescens, cinerea potius quam fulva, ut inteidum (aetate?) in dins vdr (v s)

38 Q RFTICOLATA (Humb et Bonpl I pi .Bqiih 2 p 40 t 86), ramis junionibus ild\o-tomentosis, folns biewpetioldtis vel subsessibus bdsi subcorddta vel cordatâ obovatis apice lotundatis demum coiidccis dmbitu muciondtis vel crenlto-denticulatis vel subintpgns supi i gl ibiescentibus subtus fulvo-tomentosis rtticulatis, flonbus pedunculis 4puctilens folio bievionbus vel ae(iualibub nunc etiam longionbus, tupulâ benusph e n d pubesconte, squadrns dicte

et demum fexiuscule adpressis ovatis vel ovato-lanceolatis obtusis vel acutis, glande semiexsertâ. § In Mexici temperatis (Pavon! h. Boiss.), ad Cerro de las Nabujas (H. et B! 1), inter Guanaxuato et Santa Rosa (id.!), ad Tlapuxahua (Hartw.f 429), Yavesia (Liebm.! h. Gopenh. et h. DC.) et mont. Orizaba (Q. spicata Liebm.! h. Copenh.), in Cuesta de S. Juan del Estado (id. 1 n. herb. 153). Q. spicata Humb. et Bonpl.! pi. aequin, 2 p. 46 t. 89, Benth. pi. Hartw. n. 429 (non Smith). Q. decipiens Martens et Gall, in Bull. Brux. v. 10, n. 3, Gal. in h. Deless.! n. 131. Rami cito glabrati. Folia ex plerisque specitn. annua videntur, sed ex n. 198 et 200 h. Copenh. mense sept. lectis, certe persistentia, 2-4 Doll, longa, 1^-3 poll, lata, petiolo 1-4 lin. longo, mucronibus abrupte e pèrphaeria surgentibus semilineam longis vel (in eod. ramo) e projecturis marginis undulato-dentati, fasciculis caducis pilorum subtus minus quam in Q. tomentosâ approximates, parenchymate inter eoa visibili nee oblecto ut in tomentosâ. Pedunculi varie elongati, pubescentes. di-polycari. Cupula 2-4 lin. longa, 4-7 lin. lata. Q. reticulata deest in h. Mus. par. sed ex icone eadem videtur. An mixta in herb, cum Of: spicata? Porsan duae varietates djstinguendae, una (reticulata) foliis subcordatis, pedunculis folio' non longioribus, squamis maturis raro laxis; altera (spicata) foliis cordatis, pedunculis saepe folio longioribus et ^nc fructus plurimos 10-18, perfectos vel imperfectos gerentibus, squamis maturitate laxis; sed forms mediae frequenter atlsunt in herbariis, pruserim in h. Gopenh. (y. s.)

§, *Greggii*, foliis integris vel unico mugrone prater terminalem subintegrissubtus (etiam secundo anno) ferrugineo-tomentosis. § In Mexico prope Saltillo (Gregg! 380 in h. Boiss.). Folia in specimine persistentia, elliptica, 1-2 ½ poll. longa, mense augusto 2<sup>o</sup> anni supra glabrescentia, subtus tomentosa. (v. s.)

59. Q. PULCHRELLA (Jtamb. et \$onpl.! pi. equin. 2 p. 44. t. 88), ramis junioribus tenuiter velutinis, foliisoblongis vel obovato-oblongis basi cordatis vel obtusis a medio et apice acute dentatiâ supra {glabrescentibus subtus minute incanotomentosis, florilms..., pedunculis fructiferis petiolo brevioribus subaequalibus, fructibus "subsolitariis, cupulfi(glandfe imperf. ?) globoso-turbinatâ, squarais adpressis oval i bus obtusis margine scariosis eitus sub pubescent i bus, glando- ovoideâ vix exsertâ. J In Mexico inter Guanajuato et Santa Rosa. — Kunth inH. et B. nov. ffen. 2 p. 11. Frutex 2-3-orgyalis. Folia li-2-poll. caria, 7-9 lin. lata, petiolo 4-6 lio. longo gracili, coriacea, basi undulata, a medio dentata, dentibus e ldbo brevi ovato vel ex ipsâ margine surgentibus acuminatis lineam lbnngis. Pedunculi tenues, 3-6 lin? longi, fructus 1,2 gerentes. Gupula junior? vel abortiens? 3-4 lin. longa lâtaque. Valde affinis Q. Sideroxylo, sed petioli longiores, folia margine non revoluta, dentibus debillioribus, et maturatio certe annua. (v. s» in h. Mus. par.)

60. Q. GLABRESCENS (Bent^i. pi, Hartw. p. 55 et 348, excl. syn« Neaei, non Seem.), ramis foUidque subtus junioribus pflis stellatis sparsis longiusculis caducis vestitis demum glabris. faliis brevipetiolatis e basi obtusâ velrarius subacuta oblbngis vel obovato-oblongis saepius obtusis rigidis margine revoluitiset medio crenato-dentatis vel rarius undulato-subdentatjs dentflnis obtusis apice callosis nervis tertiariis subtus reticulatis emjntentib^is", rsichi masc. pilosa, perlgonio campaimlato ore lohato exttiS piloso. anthers DIUCS muticis, fructibus sessHil>us vel subsessilibus nunc peduhcutatis 'sofitariis KemimavB, cupulflu lat^ hemisphsericâ cinereo-puljescentA squamis adpressis c kat't ovata, nujic vconvexâ obtuse lanceolatis, glande ovoideâ semiexsertâ. J Iu Hexicl^ont© Orizaba, alt. 8-9000;ped., Chlnantla, Cuesta de L'achopa etCerral^eon (^iebm..' in h. Copenh. fol. 156-1G4)<sup>1</sup>, prope 'Real dñK monte (Hartw. I 428, sine fl. nee fr. in h. Boiss.). 0. splendens ifee, 'quftcam junxit cl. Benth., diffe^jpetjblo, natgrâ pubis, tomento denso rampruni., etc. Specimen Hartw. (in\*fttBoi9s. convenit cum ite LiehmannL sed^TMbirianiiiiiaia, perieca et completa descripti. e pntiqus nra in ngru secumt cum uel- cientia; tam n ex specimine 428 h. Boiss. persistentia i petoli in eod. ramo 2-5 lin., saepius 3 lin. longi. Limbi 1 ½-3 poll. longi, 6-15 lin. lati, supra nervo stellato - piloso glabrescente, pilis subtus longioribus in jun. sparsis

edducis, secus nei\um diu videndis Stipulae anguste ltheares, acuminata\ oxtus pilosaj, 3J- hn longae, caducae Amentum vetustum mense no\emh fohis multo firo\ms Fiuctus in lamisanni autumnno matuicscentes Pedunculi J--4 IIII longi (m spccinnno minus ccmto Hailw in li. Doiss 5 lin longi) (upuia 3 lm longa, G hn lata, marginc tenuis Glas 3-7 hn longa (\ s in h Copenh et ah eo comm )

S. *intenrifolia* (Liebm ! h Copenh fol. 165-167), folus integns vel propo  
' ' «i]H(cni undulato-dentatis, cupulā glabrusculā In Monte Oizabci, alt 8-10 000 p lv s)

- 61 O GRISEA (Liebm Epesl p 13) ramis fulvo-nomentosis, folns ellipticis l)isi saepius coidatis vel lainis obtiisis apice obtusis intcgiiis \cl sparsim mucionato-dentatis supia sparsim subtus uebie stellato-pubescentibus, flonbus , peduncuhs fiuctiieus petiolo longionbus 1-2-carpis, cupulā hemisphae-nU emereu-tomentosa\*, squamis adpiessib e basi ovata subcomexa..vel convexā obtuse cuspidatis supremis angustionbus lanceol.itis, glando ellipsoido.l cupulain dimulio supciante ^) In No\o Mexico (Wngbll 005 iu n DCetBoiss,n I8b(> coll 1851-V2 m h Boiss) Ranu secuudo anno et semis tomentosi Folia 15-18 hn longa, 7-10 hn laU, peliolo 1^-3 lin longo, in sicco )alnda, fuhescentia, apice calloso-submucionuUta, nci\is sccondanis iitimqup 8-0,teitiams icticulatis, pul>e peisistente Pcduncuh fiucti! s,vpius 3 lin lonKi, sed admodum vanantes, in specimme 18<b WngM m \ Boiss mine nulli, nunc polhcares' Cupulae in specim h Bcjis\*. jierptf<p 4-f lm longiP, 8 iin latas, in specim moo multo minores, sed a lamo sppiPRata\* cl inilo panlo dubice Glansl8B\w, glabi ita Difflbil aQ oblongifoliA Ion pube manifestft, fnictu pedunculate: a Q iepand<\folus lationbus coidatis, tomento pilhdioip minus donso, cupulā majoie basi obtusiore Fiuctus in apice lami, ideo annuus, fine septemb matuius Folia in ramis anm, foisdii veio subpe-rennid? Afhnis Q llici (v s)
- 62 Q BPPANDA (Humb et Bonpl I plant equ.n 2 p .11 I 79 ,non Bcnth ), lamisiunionbus flavo-tomentosi^ folus bicupetiolatis oljo\atis vel oblon^is basi obti»is\el ranus acutis apic6jolundatis vel subacutis callpso-mucionu Uis\cl muliciscioiiceis maigme ie\oluto undulatis\el lepando siiDcienaUs supia piniorilms sparsim stellato-puboscentibus pilis e\aiiesLPiitilnis sulrtiis donso stellato-tomentosis fulws, ppngonio masc piloso Lite cam) niulaUi (>.7-l>bo, fructilms , A In oditioiilms Mexici inlci Real dpi Munto rt Mm an tolia per floiationem sccondu .inn" ppisistontid, demilc ulo cidenlia J'ptmli 1-^ lm longi, tomentosi Limbi 9-24 lm long., 5-n hn liti, consislontia pu-ginoicnuam in Q microph\HA et piaetica supra glabiescenn.i nitida, m i 's nngis (hst.nctis, mucione minoie vel inllo, marginc s,cpe repando donlaio. Floicsmasc eb!actcati? Antheiae 7-12, glabrae, muticai I-iuctub lit \idctui WMC jam decst (v s in h Mus par)
- 63 O MICROPITLLA(Nee< in Anal c.enc nat. 3 p. 264, siye in Keen, et.Sims Ann. of bot 2 p 100), frutex vel fruticulus, lamis jumonbus ciiiereo-tomeii tosis, folus p.u\is l)ip\ipcti>latisol>loiiKis iitunque s<LJ>ms olituis apicp inovissime mucionatis mtecrismaicine lCAoloutoundulaliscoiiaPis sup^i spaisim stellato-p.loms p.bs poi\$HiPniilms subtus dense Mtpllato-tomontos.s luho-cmo. -tv mmp\uiis"> min\*. pp SI<SIPmum's Mipum'u>H-> dnculo lhrH' mspitit' sohiiins^A.H. 1. rois, flioihus , fiiit-films spsililms \el pedunoulo mri' mspitit' sohUnis \H ^ominis, cupiila hpriiispba i icft luibosc nto squ imis idprrrsis m i tis ( t sup. onus ovatolancpohitis obtiisis glando ovoidea somiovsiofft. .5 ^> J» In c dilionibus Mexiti (Pa\ i m Ji JOISS et FJoient), prone (luanaxualo (Nee'), Real Monte (Hailw 1 425), Cosiquiacbi (Wish/ ! 234 in h. Boiss ) Q ipn mda Bcnth )l Haitw ' 42">, non Bonpl Ex specimme NCSEI m h Mati folla in lamulis conleita, 6-12 hn longa, 3-5 hn Uta, peliolo 1-1 \ hn longo utnn-quo ohtusi \Q/ iaio subacufa, iuctus ibi jnillns, e\ dehn cl Lingo alto-lius specim Noon mihi ipnoti alus spccinnnibus citatis siraihs Spocinun.i ahoium siniilhnw fohis u\U idum utniique dciitmsiuh, sempci muuonulatis In spccim Hutw putioh 2 lm k<>^>»<sup>lim'</sup> » 1<H^> hn longi, A> hn lati, sed pubes, consistentia, fiuctu\* simiha IX div spcciminibus foba m m hgno secundi anui non vidi, sed forsan VPIP culunt ( upula 3- in hm^u

3-6 la la, pedunculo 1 3 lm longa inserta — Specimen adest in h Mus par  
i Donpland circa Moian lectum, sine nomine servatum, quod ad praesentem  
referendum udttui folis omnibus junionbus cum flonbus editis, amentis  
folio biouonbus densiflons, richn pilosA, bracteis oblongis vel obovatis  
extus pilosis ppugomo late campanul ito extus piloso obtuse breviter 5-6-lobo,  
anthonis cncitoi 6 <i medio \ersus apicern mulicum passim pilosis Ignoto  
fructu ct flonbus in alns specimmibus non cognitis, Identitas speciei non  
certa (v s)

/3, *cnsपाला*, ramis incanis folns enspatis utrmque incano tomentosis apice  
muuonulatis vel muticis 5 <sup>Loco</sup> praehi Buena vista (Gregg' 296 in h  
Boiss) Fruticulus depaupeiatus, folns 4 9 hn longis, pallide fulvis  
iv s)

04 0 OBLONGIFOLIA (loir in Sitgreaves exped Zuni p 173, t 19), ramis gla-  
bns(ex ic ), folns oblongo ellipticis utimque obtusis muticis integeinmis gla-  
bus, fructibus ipicp lamoium solitarns sessilibus, cupulâ hemisphaencâ tui  
kumatâ squamis adpressis ovatis convexis, glande ovoideâ cupulain tnplo  
superante f In no\o Mexico Folia fere Q gnseac, sed ex ic et descr glabra,  
apicc mi in me cillosa ex icone 12 Him longa, 5 6 lin lata, petiolo 1 -J-2 hn  
longo, pcicnnantia ex descuptione, sed in icone lamis anni inserta Cupula  
(ex ic ) J 4 lm louga, 4 6 lm lata, basi obtusa

05 Q I UNOLNS (I lIm Igesl p 1J), iamis junionbus tenuiter stellato veluti-  
iui), folns elliplius \el oblongis basisubcoidatis vel obtusis vel subacutis apice  
obtuso subc illosis maigine undulato-dentatis junionbus utnnque puberu-  
hs adultis supn glabtis subtus idpiesse mmutissime stellato-tomentosis,  
amentis pilosuhs, bracteis lineanbus pengonio sublongionbus, pengonio  
sxpius^ bpaitito lacinnis lineanbus, anthens 6 7 glabns, fructibus soli tan is  
geimnisve sessilibus vel pedunculo bievi inseitis, cupulA. hemisphaencâ,  
squamis ovato-lanceolatis adpiessis dorso conyexis et cinereo-velutims apice  
obtuso glabnusculis, glande ovoideâ cunulam dimidio supeiante — In No\o  
Mexico (Wright'664) et Californiâ (DougUlobb ex Liebm ) Fiutex aut arbus  
cula ? Folia subperenma, 9-18 lin longa, 4 1/2 I hn lata, petiolo 1 -2 li% longo, co-  
nacea, maigino cartilagineo sparsim calloso-dentata\el potius angulata, t>ube  
subtus pallidâ, oculo aimato difficile in adultis videndâ bed peisistente Flores  
masc (e specim Dougl) in amentis 6 U lin longis, minuti, passim pilosi  
Peduncuhfructif 0-6 hn longi LupulaJlm longa, 6 hn lata Glandes6hn  
long\* (ev Liebm ), in specim meis aboitiva? (\ s)

M Q DEHLRIDIFOLU (Iiebra Egesl p 14), iamis junionbus fulvo velutims,  
folns ellipticis basi obtusis \el subcoidatis apice maigineque cartilagineo  
mucionato denticulatis, junionbus utiinquestellato-pubescentibus, adultis su-  
pn glibratis subtus minute pubescentibus, flonbus , fructibus sessilibus vel  
apice peduncuh bievis solitains geminis/e, cupulae depresso hemisphaencae  
squamis adpiessis ovatis cinereo tomentosis, glande In Californiâ et Rocky  
Mountains (Liebm et (oulter et Fremont in h Hook ), in Novo Mexico  
(Wright! 1851-52, n 1868 in h Boiss et ex ltm 2° Fiemont n 458  
in h Boiss ') Frutex? Folia ex Liebm 11-14 hn longa, 5-10 hn lata  
netioh 1 1 ± lin , ex specim h Boiss subperenma, 4 7 lin longa, 3-5 hn'  
lata, petioh hn longi, ex Liebm subtus prumoso-glaucescencia, ex  
h Boiss fulvo-pubescentid Cupula (ex Liebm ) 3 hn alta, 7 hn latâ in  
specim h Boiss Imraatura, squamis obtusissimis Folns accedit ad Q plin-  
gentem et agufoham, sed squamis cupuls ab ultimâ differt (v s)

67 Q HASTATA (Liebm Egesl p 13), ramuhs incano-tomentosis, folns e basi  
subcordatâ lanceolatis acutis margine undulatis \el passim breviter dentatis  
conaceis junionbus utnnque stellato velutinis adultis glabratis, amentis ,  
fructibus solitams gemmme sessilibus vel brevi pedunculo msertis, cupulae  
hemisphaencae syuamis adpressis ovatis obtusis dorso pubescentibus, glande  
ovoideâ b In Novo Mexico (Wright' 1851-52, n 1865) Descnpsi plantam in  
h Boiss cum phrasi incomplete Liebm satis conveniens, sed petiolo fol  
adulorum incano velutmo nee (ut dicitur) glabro Cl auctor num 666  
Wrightn, mihi Ignotum, citat Specimen Boiss folia m ramis anni inserta



- H 20 lin longa, 4-6 lm lata, petiolo 1-2 lin longo pi.ebpt, denticulis rans v, uie sitis niodo mucionis .icutis ngidis TupuliT interiluni podunculo 2 lin longo insoitip, 3 lin long\*, 4 lin lata?, glande 6 lin longa, o\oidco-acutA, mine aboitiente feie uclusA (\ s)
- 68 0 AGRIFOLIA (Noel in Anal cicne n.it 3 p 271, transl in Kern et Sims Ann of hot 2 p 10(>), I amis j union bus pubp\*cpntibus, foluslateovatis \elovalibus basi subcoidatis chaitaceis ipniote dentato spinosis adultis glahratis, fasciculis pilouim in amllis nciwnum subtus dm acenatis anicnUs folio longio-nlius, floiibiisK IO.mdus fiuchbus sessilibus solitams geniuus\G<sub>r</sub> cupula\* tiiliiiiitiC squamis adpiessis oxatis obtusis iucmbiiinateis extus glabnusculis mugine plus minus nliatis, glande ovoidco oblongA exserta<sup>^</sup> acutA ^ In AmencA bor occid t uca Nook a(Nee), in( d ifonAu(N eeI c, Douglas' Hartw ' 1963, Ion ) et in Mexico, loco non dicto (Pav ! in h Boiss ) Hex folis Agrifoli Americana Pluk phyt t 196 (sine fl nec fr ) Q agrifolia Hook ut t 377, Benth in pt Hartw p 337, Nutt in Journ hortie soc J ond (> p 1,7 L ic opt Q oxyadoma Ion icp exp /ui/i p 17 J, t 17 (squamis inmis acutis in fig , ex desti obtusis) Aiboi (ex ISutt) Folia 1 [ 2 poll longa, 7-18 lin lata, petiolo .1-4 lin longo, nevis lateialibus utunque J 4, teitiams \ix distinctis, tomento caduto in axilbs subtus topioso longius-tulo Flores ex \utt descii Cupula 4 lm longa, (> lin lata, squamis in specimine Neaei xalde ciliatis Glaus 8-1."i lin longa (\ s)
- 60 0 CHITYSOIEPIS (I lebm Kgesl p 1"i), lamulis tenuitei fuifmaceo-tomen-tellis, folns oxalis \el cliipticis mucionulatis foasi obtusis mtegnis (in lamis slPiililms dentitulatis) tonaceis junioiibiis supi i bi(\issine stpllito-pubpiulis tito glabiatissubtus tenuissimp lepidotr>\elutmispillidis .inientis , luulibus soliiains gpminis\c sessilibus ^eL bicivissime peduntulatis, tupula late benu splidiiLA flaxido tomentosâ suuainis adpiessis ovatis obtuse tuspidadis, glando oblongâ cupulam dimidio \el ultia supeiante \$ In (alifonuA, piope Mon-1(Mey (Haitw ' 1962), Ncncl (alilonuA (soc Oieg Edinb ') — Benth ' pi Hartw p UO 0 agnf(»lia \,i) soc Oieg exs ' Ail)or sempeniens, 30-40 ped Ioha9 24 lm longa, 4 10 Tin (in eod lamo) lat i, petiolo 1<sup>r</sup>> lm longq, maigme levoluta, plpiumqum m lamis liutlil inKgia, mine (in IUIKO lolio sppcinuiiis soc Oieg ) l dentata, paientliNinatP subtus lepidoto, squamubs miiiiiins initio maigine pilosis feie ut in Q Miente Pedunculi iiiiftif o J lm longi Cupula 4 lm longa, 7 lm lata, squamis non intUiUs, •in te .idprossis (\ s)
- 70 0 vini\s(Ait h Kew ed 1, \ 3, p 356), ramis junionbus breussime stellato ^elutlnls incams, folusbieMtei petiolatis oblongis vel obovato oblongis basi acutis \el obtusis lpice obtusis nun< mucionulatis conaceis supeinc gla-biatis subtus tenuissime lepidoto xelutinis pallidis mtegnis vel (pucseitun m MHUIIS jiiii ) megulaiitei lobato-dentatis, amentis pilosulis, biacteis oblongis ppiigomo biPMonbus, pengonio ^ (> fido camp mulalo, lobis lnnceolatis sirne J. \ i<sup>ro</sup> ifUILPolrUls ol)tus s • int b (111s > 0 piibesctniibiismiK lomil itis, ppdunculi\*\* lolio bievionbusfiuctus 1 .} geientibus, cupula tuibmatâ mine hpmisphaeiico-tuihinata, stjuamis adpiessis subvelutinis infer e basi owitA lanctolatis spe q\ato.laiueolatis obtusis sup ldnceolatis acutiusculis, glande oblongA cupulam ilmiNlio \el ultia supeiante, colxledonilms in niassam unicam coalilis • j In austialionbus AmeiKcP sept a Noifolk VuRimae (Michxf), pciIcxas (Lindh » 15<sup>1</sup> : 3 12 wBer<sup>11111</sup>(i<sup>108</sup>(i<sup>1</sup> ^H Pt sine fi v fl 2M), 2414, 1400, i0S6 1 )06, 1<27, 1020, 192J, 2417,2473, 2470 Mitthes' 104), et Homlam (Rugcl'), ad Mexici piov Veiauuz (I inden 1 10 et 24 in b Boiss Pt Webb, mmc Floi ) ciica Jalipa ct Miiadoi alt 2300 4000 ped (Gal » 94,Liebm i), in Ouatimala vel fostaica ( Waiscewit/ 52 in h Boiss ), fostanca alt 7000 p ((Kist ') et ciica Havanam (R de id S agiaf z,18 in h DC ct Webb ) - Micbx Chen t 10 et 11, Micbx f aili Amei 2,11 (squamis cup nimis obtusis) Q sempen liens folns oblongis, etc , Cat Cai It 17 (fi pessime de] ) 0 Phellos (i Linn sp p 1412 Q Virginiana Mill diet n lo o sempei-\irensWalt (ar n 234 0 oleoides ".ham et Schlecht in Linn 1830, p 74, Mart » etGal Bull Buix 10, n 3, sp n 1 0 retusa Liebm 1 Egersl p 29 (fide h CLrst ubi sp conditaj Folia feie Q Ihcis, 1-3 poll, longa, 6-15 lm

a

lata, netiolo 1-3 lin., mine per plures annos persistentia, pilis minimis stellatis supra raris fugacibus subtus crebris persistentibus brevissimis. Pedunculi fructif. 3-18 lin. longi. Cupula 5-8 lin. longa, 6-8 lin. lata, cinerea. Invito plur. auct. maturatio annua, id est fructus maturi in ultimis ramis insidentes. Absque flor. vel fruct. a 0- cinerea in herbariis non differt, nisi forsitan pube brevior. Q. Ilici (gerontogae) propior. Variationes foliorum similes. Pubes foliorum e stellis planis albis minimis, quam in 0- Uice triplo minoribus. Diversitas specifica constans non alia. Aade insuper bracteas fl. masc. in praesenti saepius angustiores, perigonium intus basi minus hispidum, cupula plerumque turbinata (in Q. Ilice saepius hemisphaerica), squamae apice obtusiore magis adpressae. (v. s.)

71. 0. LUTESCENS (Martens! et Gal. in Bull. Brux. 10, n. 3, sp. 24), ramulis stellato-velutinis flavis, foliis brevissime petiolatis e basi acuta vel rarius obtusa obovatis obtusis remote undulato-dentatis dentibus callosis supra cito clabrescentibus subcoriaceis subtus pilis stellatis majoribus et inter eos minoribus pubescentibus luteis, floribus..., pedunculis fructiferis petiolo longioribus folio multo brevioribus oligocarpis, cupulis (junioribus) obovoideis fuscis velutinis, squamis adpressis infer, ovatis sup. lanceolatis. 5 vel 6 In Mexico, circa Miradqr et Zacuapan (Gal! 91, Linden, n. 24 fido Martens in h. suo). Folia 1-1½ poll, longa, 9-15 lin. lata, petiolo 1-1½ lin. longo, dentibus paucis variantibus (in cod. ramo fere nullis, mucroniformibus vel ovatis et lineam longis), pilis subtus praecequis centro flavis, majoribus quam 0- virentibus aliis minoribus adpressis sublepidotis. Pedunculus in specimine pollicaris, tenuis, pubescens. Cupula junior; ex cl. auct. parva, ovoidea, glande inclusa (scilicet imperf.). Folia certe perennia; fructificatio attente observ. in specimine annua. (v. s. comm. a cl. Martens).

#### B. Gerontogee.

72. Q. BALOOT (Griffith! in h. Boiss.-), ramulis stellato-velutinis, foliis ovalibus basi obtusis vel subcordatis apice obtusis vel rarius breviter acutis integris coriaceis supra junioribus stellato-pilosis dein glabris subtus tenuissimis lepidoto-velutinis albidis, fl. masc. bracteis oblongis obtusis perigonio subbrevioribus puberulis. perigonii extus pilosi lobis 5-6 obtusis, antheris superne pilosis, fructibus.... 6 In Afghanistan (Griff! ). Folia sempervirentia, 15-20 lin. longa\* 8-12 lin. lata, petiolo 2-3 lin. longo, ut in Q. Ilici. — Flores similes, sed fructus ignoti, et pubescentia foliorum diversa, et enim stellae planae, parenchyma sub limbo tegentes, iis Q. Ilicis triplo minores, puncto centrali magis distincto, radiis gracilioribus et multo brevioribus. In hisce similis Q. virenti, antherae muticae vel submuticae. (v. s.).

fl ? *glabra*, foliis aculeato-dentatis vel rarius integris, adultis utrinque glaberrimis. — Cum typo lecta. (Griff!., ab h. Kew sub n. 4448 comm.)

Diversitas foliorum e congeneribus non miranda, sed flores et fructus ignoti, unde specimen valde dubium. (v. s.)

73. Q. ILEX (Linn. sp. p. 1412), ramulis foliisque subtus stellato-velutinis incanis, foliis ellipticis oblongis ovatis lanceolatisve acute deritans vel integris coriaceis supra glabris, bracteis fl. masc. extus pilosis obtuse obovatis vel ellipticis vel ovato-acutis perigonio acuantibus, perigonii extus praesertim pilosi 5-6-fidi lobis obtusis, antheris glabris aut remote pilosis saepius mucronulatis, fructibus solitariis paucisve pedunculo insertis aut sessilibus, cupula hemisphaerica vel rarius turbinata, squamis velutinis erectis plus minus adpressis ovato-lanceolatis acutis superioribus minoribus, glande copula duplo saepius majore. A. In Europa australi usque ad Quimper Britanniae (Hanoi Bull. Soc. hot., 1863, p. 191), hinc in (lep. Ssirthc (h. DC! ), Orange (Req. ib! ), Gpmo (Comoli prodr. fl. Com.), Istriam (Muller! Fleischer!), Graeciam (h. DC! Heldr! 2570), Albaniam (Griseb. spic), in Africa bor. (Bov6D, et per totam reff. Mediterraneam a Lusitania (Welft in h. Webb et Hispania (Bourgeau! 873, 874, 346, 349, Lange! 153, Wink. 309), au Cretam (Kotschy! 204 et rev. 33, Raulin! 735 in h. Boiss. Heldr! in h. DC.), Syriam (Kotschy!), Cos (Auch! 2880 in h. Webb) et Pontum ad Samsoun (Kotschy! rev.

-1 in ii Roiss<sup>^</sup>-Wats duidi t<sup>o</sup> Reichb ic fl geim 12 t 642 (mucronibus  
<sup>uth</sup>  
n 880, f 1607 1611, Nouv Duham 7, t 4 \ (ub» pedunujii longiorLS quam  
lulcS<sup>tt</sup> 1 44 f 2, Kotschy Eich t 38 (in textu enoie fructus biennes di  
cuntur) Subci angustrfoliim nou son Hum Dulum arb 2 p 291, ti  
Q i . n i P o . 1 diet sul)» 2 p 217 0 exnansaid ib Ilex n 1 o Du  
h . m i n i n t . 1 ft 3 0 Al/nn Lipcu ibr Pyi n 584 0 Ilex Vis  
fl Dalm 1 T> 208 Q Oidimwti i Linn sp p 14H, Loudon enc p 882, 1 1614,  
1016 (spcc. miniplur udi c luco Giamont<sup>us</sup> coitellius). 0 KnulisLange.  
in h Boiss (folia ulimjue angustatasubmtegia) 0 Subei. Ionun is exs i  
1630 Bouigciu' plant hisp 1853 Aiboies juinoies folw \a-lde ilintatq ple-  
imunic pirfbont qiiL sci HIS dcnUta \el integii, ut in Ilia AquiloLio 1 Uioli  
J 12 lin longi limln sa-pius 1, -2 poll longi i>uiimae cupulaium snepm>  
tiect-L, mo iptc siibpiluliles pidescitum m \ u 3 Iiniuiiu is \ UIPUCIS  
distin\ciunt quidam luttoics (len byll p 572, Dulum 1 t lit.) scu -ox  
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ex clui ictcubus foisan vabdionbub vnictates diocndae

β agnfnha folns spinos.s obscure Mrentibus utnnqw f<sup>^</sup> entibus  
CiildMmippiium(Haffnol),iiiSiuliâMss lodaro') Dalmati<sup>^</sup> (Vis<sup>l c</sup>),  
AUia(Hddi »2o69iph Boiss) (v s)

γ Hallota, folus bas. sa-pius mtunditis Sentatis vel <sup>tegris su</sup> <sup>^</sup> <sup>1</sup> <sup>s</sup> <sup>le</sup>  
intmis mthens scropei muticis, s((uamis cupulr sppnib <sup>^</sup> M<sup>-i</sup> f m  
, In AIRPiii ficquons (Dcsf «), HispaniA mend (Boiss I Willk I 410  
411 Bouirfcaui 8\*2, 875, 1487 in b Boiss) et in <sup>^</sup> <sup>^</sup> is nRiis piopo  
MitMtum(h Boiss'Webb) lie \ mnoi Clus H.sp ic p 32 Q lotnnd  
foil i Lam diet p 723 (excl syn 0 Giamuntia), Bosc' mem p JO  
(hCnc nsliUin Bosc mom p 24? Q Caslelluu Pon diet...suppl 2  
p 226? Q BilloU Dcsf in Act Acad pans 1790 C ><sup>C</sup> <sup>F</sup> <sup>1</sup> <sup>A</sup> \*  
p> {0, Webb' it H.sp , p 14,Bo.ss I voy Esp 2, ) 578 Loud< n olie  
ticcs p 882 f 1612 Ib13 Vul<sup>o</sup> BallotL \cl Bnlloti Hispinis M<sup>ln</sup> >.x  
\ mctas Q Ilius et emm folus minimo a plmibus specim Uicis dA H<sup>l</sup> L  
uilboi-e sipius glaludts liunc piloMil\* ut in Illice muticsB Q<sup>TM</sup> <sup>1</sup> <sup>n</sup> <sup>1</sup> \* TM  
m lbce, gUns dulcis quod zepe in Illico chaiactei denique squamarum  
\anat in ipso lamo Ballotae ut >idi in beib Boiss (v s)

74 o PHYLiRoiDws(A Gnylbot mem p 406) 'a<sup>^</sup>s junicibus pilis stel  
lilis bi ubus riifcscentibu; folus ell.ptiois ^o\ obovato oblo<sup>iff</sup> <sup>ts</sup> <sup>hast</sup> <sup>obtusis</sup>  
ipicc aLuluscilils iiiiGKiis vel apicem ^eius senatis w<sup>^s</sup> P<sup>TM</sup> <sup>nevo</sup>  
que cent, ib utnnque iuhu velutinis pa.enchymate cito g<sup>^</sup>hi U<sup>j</sup> <sup>aluquot</sup>  
smipliLilius«iassim (m noi\o piffisertim) dm persistentibus, 1<sup>l</sup> mist <sup>Inactas</sup>  
obloiiRis <sup>U7PIUIS</sup> iKii<sup>^</sup>mio suhaqiul.lus <sup>Kiigom.</sup> ut.in iic pilosili lohis  
, oltusis<sup>1</sup> uilhmsKliliiisnmlusNcl uni.s submutu iulitis <sup>^</sup>edmJLuhs  
leimncis ptuolo sub qrn.hi us, iwuufions cupiilA en lenloimi ahâto-  
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Japoina prone Simoda Rami scuindo inno niKiu-antes, uipuo velutini, )u  
molts uiKiilos i tolia peitnmi 15 Ib lin longd, i 7 lin ata laio obtusa  
pleiumque ipicc ovato acuu dontiuihs ubi ulsunt piuus brevibus, mugim  
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LMia sup idult\ pissim pdis nnninis vrstiRii pulKiiU stipuli liman-  
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tubd., j/ldbicc PoriKonn nmscub lobi plus minus segrogHi, sajpnisbie\cs mine  
sinuuno piofundmu divisi stimnia 4 i Anthcn pengonnim suptrnaies  
biuctusex Guy descn<sup>^</sup>tus An var Q Ibcis<sup>9</sup> HOKS masc ct fem siniimrai  
sedfoha gUbidti, pills paitim simplicibus (\ s floi )

75. *Q. SUBER* (Linn. sp. ed. 2, p. 1413), cortice suberoso, ramulis foliisque subtus stellato-velutinis incanis, foliis ovatis ovalibus oblongisve acute aentatis vel rarius integris supra glabratis, flor. masc. bracteis lineari-lanceolatis vel lineari-obovatis extus pilosis perigonium aequantibus, perigonii extus praesertim hispidi 6-fidi lobis obtusis, antheris pilosis, fructibus saepius solitariis pedunculo insertis aut sessilibus, cupulâ obovato-hemisphaericâ basi obconicâ vel rarius obtusâ, squamis velutinis e basi ovatâ adpressâ subpatentibus vel erectis infer, ovato-lanceolatis sup. lineari-lanceolatis longioribus, glande cupulam dimidio saepius superante. § In Galliâ austro-oriental! (Gay!), Hispaniâ (Boiss. I Webb!), Algeriâ, praesertim versus Philippeville (h. DC!), Sardinia (Moris!), Corsicâ (Thomas!), Siciliâ (Todaro! h. Webb), Italiâ maritimâ (Bertol. fl., Webb! herb.) et Istriâ (Tommas. 1639 in h. Boiss.) — Nouv. Duham. 7, t. 45 (mala), Nees plant. off. suppl. (ic. mala), Hayne Arzn. Gew. 12, t. 43 (pessima), Reichb. ic. 12, t. 7, t. 641, Wats, dendr. t. 80 (mala). *Suber hispanicum latifolium* Clus. *Hisp.* p. 27 c. ic. opt. *Q. Ilex* var. *suberosa* Vis. fl. *Dalm.* 1, p. 208. *Q. Ilex Bourgeaul* fl. *Canar.* 986 in h. Webb. Confer ad *Q. occidentalem* Gay (n. 81) quâcum diu confusa. De modo tractandi ad suberem commercii obtinendum confer ad Jajffrt de Passa in Mem. soc. agric. Seine, anno 1837. et Willk. in Jahrb. Thafipd, v. 13. De formatione ana torn icâ subcris conf. ad Cas. DC. in Mem. soc. pflys. genev. v. 15. Folia saepius 1-2 poll, longa, 6-15 lin. lata, petiolo 2-6 hn. longo, caeterum ut in affin. miro modo formâ et dentibus variabilia. Duratio ultra initium secundi anni, deinde varians. Stipulae fugaces, lineari-obovatae, extus pilosae. Bractee fl. masc. saepius angustae, apice plerumque? acutae. Perigonium intus pilosum vel (basi exceptâ) glabrum. Antherae muticae, unde a 0- Hice: ut et cortice suberoso differt. Flores fern, sessiles, aut saepius secus pedunculum 1-12 lin. longum dispositi, bractea cujusve ovato-acuta. Cupulae 6-9 lin. longae et superne latae, basi plerumque conicae, nunc obtusae, squamis quoad longitudinem variantibus, praeterea plus minus erectis, interdum (mediis et sup. praesertim) subpatentibus, extremitate tamen inflexa nee reflexa. Glandes amarae (Clus.), saepius dulces (DC. fl. fr. 6, p. 355), gustu mediocri (Colm. y Bout. exam, enemas, p. 8), in eadem arbore ter ab autumno ad januarium in Hispania maturantes (Colm. et Bout. ib.). Specimen possideo Algeriense ubi cupulae in eod. ramo basi obconicae vel rotundatae. — Ovula abortiva saepius in spiram sub medio seminis disposita, nunc omnia prope basim. Variationes folii, pedunculorum et squamarum frequenter transeunt, imo in eadem arbore, nee ideo varietates firmas distinguendae mihi videntur. *Q. suber* Kotschy est *Q. occidentalis*, (v. v. et s.)
76. *Q. ALNIFOLIA* (Poech enum. pi. Cypri, p. 12), frutex arborescens, ramis foliisque subtus pube stellatâ brevis fulvo-velutinis, foliis ovalibus aut subrotundis basi integris a medio breviter dentatis superne glabratis scabriusculis, amentis raris, perigonio masc. 5-fido utrinque piloso, antheris pilosis, fructibus solitariis binisve sessilibus aut breviter pedunculatis, cupulae hemisphaericae squamis velutinis, inferioribus ovatis adpressis, mediis lanceolatis et superioribus linearibus uncinato-recurvis, glande obovoideo-oblongâ cupulam bis-quater superante. 5<sup>in</sup> montosis Cypri (Poech, Kotschy! 409, cat. J. 62, n. 756, Auch. 2881, forma glande subabortiva). — Kotschy Eich. U 0-Cypria Jaub. et Sp. ill. pi. or. 1, t. 56 (forma glande semtabortivâ), non Kotschy, coll. 1862. Folia ultra 2<sup>ura</sup> annum perennantia (ex Kotschy), potius tarde secundo anno cadentia? (ex speciminibus obs.). Fructus annul ex el. Gay, biennes ex Kotschy; pluribus obseryatis annuos existimo, tarde cadentes et ideo latere rami jam yetuli inserti. Affinitas ex foliis cum *Q. ilice*. Folia 1-1} poll, longa, 9-12 lin. lata, petiolo tomentoso 2-3 lin. longo, coriacea, paucinervia, supra nitida pilis. raris sero vix persjicuis, subtus initio flava demum fusco-tomentosa, dentibus minimis mucroniformibus. Flores masc. ex Kotschyio descripti, antheris subhastatis, bracteis squamiformibus. Cupulae 4-5 lin. longae, 6-7 lin. latae, squamis crassiusculis, mediis longioribus 3 lin. longis. Glans (in ead. arbore) 6-15 lin. longa, laevis; in specim. Auch. in Jaub. turgatis abortientes et tunc ut vulgo squamae longiores. (v. s.)
77. *Q. GLANDULIFERA* (Blume! Mus. Lugd. bat. 1, p. 295), ramis junioribus

adpess pilosis, folus e basi obtusa rarus acutâ ellipticis vel obovatis vel lanceolatis dcutis \o\ acuminatis i<inus obtusis glanduloso-seiratis junionbus •ulprojise henceis ddultis supra glibus, amentia fililoimibus laxis pcnduhs }racteis , perigomo , spicis Tern petiolo longionbus vel brcuonbus pauciflons pubescenlibus, cupulâ nemisphaenca, squanfls ddpieissis puberuhs obtuse Unceolatis, glande ovoideA \pl ellipsoideA cupulam duplo tnplo\e supeidntc ,5 In Japoniâ (Blume, Wnght' e\pod amei ) Folia pcisistentia '2-5 poll longa, ^-2 poll lata, l)dsi HI eo<Jem larao et piacseitim in di\eis \anantia (unde cl Bl \anetates le\es distiirvit), saepius obtusa, nunc i\iae-çliiilatoia, anice pleiunique dcuta, petiolo m eodem idmo \- \P1 j 6 lin longo, dcntibus non cipbns bdsi foln ldiis obtusis Stipulae oblong\*, 2 lm longer, fugdces Floies lom incano-pubcscentes, bidclpâ o\ato-lancw>ldta pubpscente } lin longâ sti\ati Stjh 3, patontes, obtusi, J\ldni Fructus>oliddin Ael pauci in pnlunculo gld\ndto, pnmo anno matuii? Cupulae 5 8 lin latae Affmitas potius Q Lusitanicae, sed semperviens (\ s)

78 0 DiiATATv(Iindl in Wall'list n 2785),ramisjunioribusglabriusculis,foliis oblongis aut ollopticis ]>asi saepius obtusis apico acutissimis vel lanus acutis c\it obtusis nitegiis \el lernote spinoso-sciatis junionbus glabnusculis adultis glabiis, amentis gificilibus, biactois fl masc o\ato acutis, pongonio dpico sublobdto passim piloso, antbons glabns MX muuonulatis, podunculis liuttifens I 2-caipis petiolo sublongionlnis, cupulcT bpmispheencaj gnseo-Iubescentis squamis adpiessis lanwolatis, gUnde o\oideA cupulam dunidio supeidnte ,5 In Himalayd occid ad Siimui (Wall list n 278"i) et Kamaon 0« ' n 277 J, Hook f i et Ih ) — Rojlo ill Hmial p J4(>, sine descr t 84 (ubi enoie Q dealbata scnpa) Q flunbuuda Lindl in Wall list n 2773 Cl Hook f in bit ldcntitatem ambaium aiboium me monuit Ex specimnibus flonfens Wall 2773 et Hook f et Ih lami junioies saepius glabiI ^etustloles lenticellis lotundis eminentibus rugosi, iolia ceito porrnna, 13 poll longa, '> 20 lm lata, petiolo I } lin longo, junioia tonuia, pills minimis solitams spaisim punctata, adulta chailacea glaboninn ^pnls t\tic-mis lotitulata, in eodem idmo mtegiawl spinosa, sa>]ius acunne acutissimo tPinmiati, stipulap lanceolatde, exteine J\ilosul,p, 2-3 lm long.p, amenta dil-lusa, simj)licia, 12 f> lin longa, potius laxifloia, biactedc J lin longic, uliata<sup>1</sup>, floie duplo biPMorps, ppiigonium (xtus basi pilosum, ca tPium pilis rans doiidium, stamina 7-8, iilaimntis IIKMSSHTHS anthciis apicp p\seitis Ex figui.l aibois liuctiieicp in Rojle 1 c Iolia foimA et donlibus simiha spd dm itioup ignotA, fiuttus supia dpscupti pnmo anno matini, mpula D lm longa, 7-8 lm lata, glandp 9-10 lin longA Pbiasis mpa P specimmib>s flonf quoad folia, e figuiA fiuctifeium quoad huctus (\ s ilonl )

S 2. *Ovula abortiva infera* (1). *Maturatio fructus biennis (sive fructus maturi ligno anni priors inserli.)*

\* Species fob is pro tempoie orbata (2) — Geiontoega

70 0 CERBIS (Linn sp p *IMb*), ramis junionbus pubescentibus, folus oblongis ono\dtisvp vanp sinuito-dpntatis \P1 sa^pius piniititfldis lobis obtusis \pl acutis sappius muLionulatis pihs utimqup biPMssimis sldhtis supia lano-iibus, stjmiis angustp linpibus pilosis, aim ntis pubescptibus, ppngonio fl masc cnmpanulato 2 Vhdo, lobis obtusis, anthens pilosis, lructibus solitams gdninisvp l)ipvitpi pedunculatis aut sessilibus, cupul\* hpmis\hdiTicae ccbinatae squamis elongatis pubescentibus, infenonbus lanceolatis ]>atentibus, medns lanceolato-lmeanbus patenti-ieflexis, sup lnicanbus augustis dm

J O <sup>1</sup> ^ 1 , V ^ , T 1 , Q > 80, 81, 84, 85, 86, o2, v<sup>94</sup>, 10<sup>1</sup> >> 104, 105, 106, 108, 109 — Quila inpidum sub medio semnns, mtpi basim et medium, altitudinp diversa, fjecus spiram adsunt

(2) Duratio foboium in plunbus sp non satis constans et m herb obscuria, ut supra dixi (in notâ, p 4)

erectis demum patentibus vel reflexis, glande cupulam dimidio superante glabrescente. 5 In Oriente et passim in Europa austrah, locis ibi disjunctis, nempe . 1° in Libano (Kotschy' 328 in h. Boiss), monte Cassio Synae (h. Boiss.), Tauro CiU#& (Kotschy' 385, 386, 388, et ex schedulâ, 384), Cariâ (Pinaid'), Tmolo opcid. (Balansa'), Phrygiâ (Webb' herb.), Pamphylia (Heldr.' 1083, 975, 1220), prope Tarsoun (Balansa' 1152 in h. Boiss.), in Macedonia, Serbiâ, Albania (Griseb. spic. Rum. p. 334), Bosniâ (Sendl.' 209), Banatu (Heuffel'), Hungana prbpe Eysenstadt et Bude (Dorner!) Austria infer\* (Neilr. fl. p. 241) et Moraviâ prope Lomnitz et Muschau (Neilr. Nachtr. Malys, p. 78)°, 2° in Sicilia (Todaro in h. Webb! Guss. syn. sub div. nom.), Calabriâ (h. DC. I) et per Apenninos, Pedemontium usque (All. n. 1906, Colla herb. ped. 5, p. 183), in prov. Vicetina (Poll. fl. Veron. 3, p. 127), Istnâ (Fleischer' in h. DC.) et Dalmatiâ (Vis. fl. 1, p. 208); 3° ultra Alpes et Jurassura piope Bisontium, in sylva Villars Saint-George (Gren' fl. ir. et exs. fl. Gall. 727); 4° in Gallia occid. circa flumen Ligens (ex omnib. auct.) et usque ad Vannes (Gren. in h. DC), Sarthe (DC.); 5° in sylvis villae legiae Pardo prope Ifatntum (Webb') ubi forsitan non indigena ex Reut. in h. Webb).— Wats. Dendr. 2, t. 92, Lois, in Nouv. Duham\*!, p. 182, t. 57, Hart. Forst. p. 142, 578, t. 14, Hayne Arzn. Gew- 12, t. 48, Loudonarb. 3, p. 1846-1860, c. div. fig., enc. of trees, p. 854, c. div. fig. Reichb. IC fl. germ. 12, t. 650. Q. austriaca Willd. sp. 4, p. 454, Kotschy Eich. t. 20, Guss. syn. fl. sic. 2, p. 605. Q. coccinea Lam. diet. 1, p. 718, Ohv. voy. t. 12. Q. yftgilops Scop. Cam. 2, p. 241, Bon. Nann. 102 (non. L.). Q. haliphlaeos Lam. Bosc. mem. Chen. Q. Tournefortii WiUd. sp. 4, p. 454. Q. Jroncosa Mill, diet. ed. 5 (fide Loud). Q. cana et Q. Ragnal Load, cat. ohm. 0. Esculus Linn, mant. (non sp. pi.). Pubes brevissima, in novellis plus minus cinerea. Folia in eodem mmo saepe vana (conf. Loud. enc. f. 1566) adeo utvanetates constantes frustra inquirends. Stipulae 3-6 lm. longae, tarde cadentes, anguste hneares. Petioh 3-9 lin. longi. Limbi basi cordati vel (in cod. ramo) acuti, lobis irregularibus, nunc dentati, sspius pixmatifidi, nunc profunde pinnatifidi, nervis et nervulis subtus semper eminentibus stellatim pilosis. Siipulae circa gemmam parvam csebrs. Amenta 1-3 poll. longa, medium usque laxiflora. Bractee hneares angustae, perig. aequantes. Pengonium 1-2-3-4-fissum, saepius bifidum lobis 4. Anthers j lm. longae, filamento subaequales. Flores feminei secus pedunculum brevem 2-5, bracteis extenonibus 2-3 lineariibus cincti^ squamis usque ad initium secundi anni ovato-lanceolatis oblongisve inflexis adpreffis obtusis^ junio vel juho secundi anni subito elongdUs 0, diveigentibus (h. Webb' ic. cit. Reichb.). Cupula pollicem saepius ldu, lacmns iructu maturo 2-5 hn. longia, infenonibus brevioribus. Gkns cylindracea, 9-15 lin. longa. Vanetates hortenses msigniores, raro heieditdnai, sunt sequentes.

p, *laciniata* (Loud, enc. trees, p. 856, f. 1558), folns subpinnatisectis angustis, lobis acuminatis — In hortis bnt. Forms spontanes angustifolns ad prajsonem saefe accedunt Q. asplenifolia horti Noisette 1818, et Q. hoteiophylla hoit. Parmentier, in herb. meo, hie referenda Tidentui, proptei folia elongata pnnatifida et secta, lacinnis angustis acuminatis. Pubes in hisce deest, ut sspe in formis inpnstr. cultis. (v. s.)

Y, *variegata* (Lodd. cat. 1836, Loudon 1. c), folns vanegatig — In hortis bnt. (v. s. in h. Webb)

8, *pendula*, Neil in Lauder Gilpin 1, p. 73, Loud. ertc. trees, p. 856, f. 1557, arb. 3, p. 1847, f. 1707), ramis longe pendentibus vel prostratis, folns angustis profunde lobatis, lobis obtusis vel subacutis. — In hortis bnt belgic. etc.

e, *subperenns*, folns \*fre solum cadentibus — Arbores in hortis bnt a centum feie ami is oinamenti causâ insertione propagats, Q. pseudosuberi nimis affineb, hydndce interdum existimatae inter Q. CerrimetQ. Suberem et sub div. nomibus pro origine et habitu divulgat^e; Q. Fulhamensis hort. (Q. Ceirjs FuUjamensis Loud. arb. ?, f. 1710, 1711, enc. trees, f. 1561, Q. dentata Wats. dendr. t. 93, ex Loud.); Q. Lucumbeana Lucumbc in Phil. trans. 1772 (Q. Gerns Lucumbeana Loud. arb. 3,

p 1851, t 1112, 1713, cnc ti i 1562, 0 Exoniensis Lodd cat <1 18J(>  
Vanat coitico magis suberoso, folns \diial)ihbus, mine incis, mine  
enspis, dc quibus egicgie suipsit Loudon 11 cc Folia sub tempeidta  
hyeme Angliae Miidia peiblm et voic solum caduM Squama\* cupiilac  
inteidum ovade la\ e eietze (Q Cenis Lucumbeana, m loud cue  
1 1562), liybnditateni Hi mautcs (v s c\ hoito Mill in h "Webb)

\*\* Scmporvirentes

A *OerontogecB* (1)

80 o PSEUDOSUDIUM (Santi viag Tosc 1 p 156 t 3), coitice suberoso, r<imis  
MibfastiRidtis, pubo lamuloium et ioborum brevissimā stellatA, fnlus o basi  
olitus\ \el atuld o\atis oblongisve dentibus crenisve niucronatis supia spajsim  
subtus ciobie et albidc pubescentibus, pengonio mast tdm)dnuldto (> lido  
cxtus piloso lobis o\ itis, diithens pilosis nuno (ianu&) glDbns, liuctibns  
brovitPi pcdunculdtis vel subsessibus, cupuld nunc homispluencA nuno  
obovoidco-turbinatA, squamis Lincio-pubesotntibus, mi ovdto-ldiiceoldlis  
dt mum patentibus, modus bncan lanceolatis demum iefle\is, supiemis dngusle  
line <i ibusdiu eicells domuni pat§ntibus \cl icflevis, gldndo tupula duplo stpius  
longioic 5 !» syl\is Vigour oncntdlis (Cosson<sup>1</sup> mlid cit), in SILJIA (Guss '  
mlid tit), Cdldbna (Icn fl ndp 'j } 2">7), tuca Uoniam in s\va MatUua <i  
Mitt (h W(bb' 18")2), in Hctruii <p s>l\ Aiculosso (Sdnti, Wobb'), (ircd Voio-  
uim (Htilol 11 it 10 p 210), Inlstra (unic. idiboie cogn Kolschy Eieb t .K>),  
piopi Sdi/anani (id ) (t lanssinia pi ope Giassc in Gdlloprovinuā (Duvalot G.iy  
in Bull soc hot Fi 18")9, p 44') et Ficjus (b Dolcss ') — Curt ^piong  
mti (uit kit t 1 (Santio mutuata), Nouv Duliam 7, p 174 t 48 1 2 Noes  
pi olfit suppl IC sine mini Kotschy' Fich t 3<sup>5</sup>) 0 'luni(ii boil pai »  
ai loii \ (tcnsscholac, Atid locum pi op Quicicuin, nco altcid do quA umci ad  
Q Lusitdintam\di bievicupulutam, monontecl Gay) Q cicMiatdLam diet 1  
p 724? (ommo dubui) Q Fontdiiesn Guss ' in a DC (ex spcennino Iructu  
iinpciliLto glol)oso, ut in ng doUiA iconic Kotschyj), ind scm boili Boco  
'282>, s^n 11 MC p 60S Q cdstancffilulia Cosson<sup>1</sup> exs Gay' in Bull sot  
bol Fi 8p 4\*22 (sod in lit 18(2) sentontuini ips( concxit) Subei medioio  
non utih bo\ui post liondescntiam no\ un culna (an simpci?), '2 ^-J poll  
longa, 1-i poll laid, pctiolo 2-> 1m longo, subtus intani, liiuoiiibus den-  
tium iaio<sup>d</sup> (hficientibus. Stipulae auguste bneaios, pubescentes, petiolo bic-  
vioies Ampiita mdui numoiosa, 2 poll longa Poiigonium limam longum,  
lobis obtusiusculis AntboirC cxsoita, in spewm Santi inteidum glabra3  
Bi LL(L lino LIPS, diigustce, pongonio sublongious Floics iominej SOLUS pe-  
dunculum 1-blin longum spaisi, apice appioximati Biactoe cuique Hou IKS,  
bnei-lancoolatdp, cxtus imboscentos, extenoio m.iijoio florcm supciantc  
Stigmata 3-5, hnediia, lcflexi ruictuspduu Cupuli 0-12 lm longa, 7-12 lin  
lata, ,qu, imis infoi 1 2 lin, modus, et supti 3-4 lm longis, angustis Ovul i  
aboitvd nileia, uno (an sempoi') veisus modiam i)irtem sominis Uanslato  
(ox paucis ii obs) In speuiunibus h Wobb (ci cadom syl\A ubi Santi dc-  
textit) cupula polbcom longa, apicc lie quoiLor fissa, glmdem ultra modium  
tegnps, scjidiuuh dissitis (migis qium in it Sintn ot alys spcim obs), su-  
picmis cicctis, mcdus leflexis bquainai diu ovato laieoldtae, taido scundo  
diino ubngdtp, ut in Q Gem, angustioies qudm in Q uisUncdLoliA (qua-  
tum aibor dl^pnnsis nupoi conlusa) ^gio floiibus mast (t hutta a  
0 Teni distingmtui, scd loin noii piolmnc lobila, subtus incana, squamaj  
lions lominei bicvioies, lruttus niatun magis nguluitoi reflexl, durdtio fo-  
lioiuin longior (\ s c RomA floni, ex HctrunA fiuctil)

(J, (russonei, lobis obtuse lobdtis, lobis \ix nuicioiidlib, liuctu majore i In  
h<sup>o</sup>tdP nemonbus demissis Q h ihphlcos Guss • syn fl sit ed 2 v 2

(I) Folia in pnonbus numerosionbus veie post liondescntiam cadiva, in ul-  
timis magis peisistontia bcjuandj cupulaj iictuentoi elongatoj et patentcs vcl  
tellexæ

p 605 (non Lam). Ex specimine fructif. Gussonei in h. Webb Q. pseudosuber videtur, sed flores masc. desiderantur. Lobi foliorum vel crenae interdum fere muticae adsunt in var a (v. s)

Y, *glabriuscula*, fohis parce stellato-pilosis subtus non incanis. In horto Kew anno 1853, legit cl. Webb. Fructus ut in ic. Santi, sed minor, (v. s. m h. Flor.)

0, *aegylopiifolia*, cupuU abbreviatê, s In horto Trianon olim et nunc, arbor unica <Lam. Gay<sup>1</sup>). Q. hispanica var. *aegylopiifolia* Lam. diet. 1 p. 723, Gay' 1. c. L. *aegylopiioha* Hers. syn. 2 p. 570. In Hispaniâ non cognita. Fovma forsan imperiectd, cujus tamen glandes maturae. Cupula 4-5 lin. longa, 7 lm. lata, hemisphaenca, squamis diffusis ex specimine a cl. Gay comm, paulo major et squamis retroflexis in altero specimine ohm a patre servato, sine loco nat., forsan ex horto quodam parisiensi (v. s).

• JC, *Gibraltarica*, cupulâ abbreviate squamis crebris adpressis supenonbus demum laxis erecto-divergentibus. 5 In horto Trianon, altera arbor, ohm et nunc praesens (Lher.' in h. DC, Webb 'Gay') Q. Hispanica var. *Gibraltarica* Lam 1. c. Gay\* 1. c. In Hispaniâ nondum cognita, ideo nomen iorsan muUndum Gupula 3-4 lin. longa, 5-6 lin. lata, hemisphaenca, glande paulo exsertâ, squamis ut in pmo anno Q. pseudosubens, an delectu arbons cultae? (v. s)

I, *Tlemsenensis*, dentibus foliorum vix mucronatis, anthers saepe glabris, fiuctu . . \$. In Algeriâ, prope Tlemsen. Q. pseudosuber Desf.' fl. Atl. 2 p. 348. Gupula ex cl. auctore squamis apice laxiusculis echinata, sed fructus non attulit, saltern in herb. pans., nee in meo, nee apud Webb erant, unde dubium. Ex specimine meo authentic\*) antherae glabrae vel ranssime paucipilosae, quod vix in alns Desf. Folia ex cl. auctore profun de smuatd et serrata in jus. arbore (v. s. flor.)

81. 0 OCCIDENTALIS (Gay ^m Bull. soc. hot. Fr. mai 185i\*et in Ann. sc. nat. ser. 4 v. 6 p. 243), corfice suberoso, ramis folnsqile subtus stellato-velutims incanis, folns 0 vat is ovahbus obtyngisve acute dentatis integrisve supra glabratis, bracteis fl. masc. anguste hneanbus linean-lanceolatis vel obovatis lineanbus extus pilosis pengomo brevionbus, pengonn extus praesertim hispidi 6l-fidi lobis obtusis, anthers pilosis, fructibus solitarns gemimsve pedunculo msertis aut paoyibus, cupulâ nunc obconicâ nunc hemisphaençâ, squamis velutinis infer, ^vatis adpressis cuspidè bievi patente, supenonbus ovdtis vel lineanbus obtusiusculis erectis, glande cupulam dimidio saepius superante. 5 In Galhâ austro-occidentah (Clus. DC' Gay') et Lusitaniâ — (Welw.<sup>1</sup> 66 in h. Webb); culta m h. Trianon 1 alusque. Suber aquitanicum Clus. Hisp p. 27. Suber Duham arbr 2 p. 294 c. ic. Q. Suber Kotschy Eich. t. 33. Ante cl. Gay cum Q. Subere contusa. Diflert folns ultra annum vix perstantibus et maturatione *bienni*; characteribus bractearum fl. masc. et cupulae minus perspicuis et paulo vanantibus. Cupulae (ex specimmibus a cl. Gay comm. in h. meo et Boiss.) basi nunc rotundatae, nunc attenuatae. Folia pleraque vere cadunt, paucis subpersistentibus ante maturationem fructus delapsis. (Gay 1. c.); species ideo physiologica potiusquam morphologica, levitatem characterum ad sectiones adhibet a plunbus monstrans. Antherae mucronulatae (an semjer<sup>9</sup>); in Subere muticae. Squamae breviores quam in plensque Q. Subens, 1-2 lin. longae. Ovula abortiva omnja mferâ vel uno interdum breviter stipitato nee inter inf. et-mediam partem ut frequenter in Q. Subeie secus spiram provecta. Cl. Gay 1. c. et in h. DC. formas glande minore et plus minus serotinas observav^t. (v. s.)

82. 0 ITHABURENSIS (Decsne in Ann. sc. nat. ser. 2 v. 4 p. 348), ramis petiohsque tomento brevissimo pubescentibus, folus ellipticis ovatisve saepius cordatis acute dentatis nervis lateralibus paucis superne glabratis nitidis subtus stellato-pubescentibus, pengomo masc. profunde 6-fido cihato, anthers pilosis, fructibus solitarns sessilibus, cupulae turbinatae squamis pubescentibus laxis mfenoribus ovatis medns et sup. gradatim longionbus magis ac magis recurvatis, glande oblongâ cupulam ter superante glabrâtâ. ^ In monte Ithaburum, vulgo Thabor, Palaestmae (Bov6! 493, in Decsne errore 495, Boiss.), in Tha-



bor et Caimel (Kotschy'336, a)—Kotschy' Eich t 12 Folia veie decidua, conacea, 2 4 poll longa, bullata, margine saepe recuna, petiolo 3 9 lm longo, basi coidata, obtusa\pl i mus mgustita, apice saepius obtusa, dentibus nieguaiiitPi sitis acutis, pilis stellatis supia cito evanescentibus, subtus erebns Cupulas abortivas collegit Bove, ex specim Kotschy'i maturae fertiles \ poll latae, squamis super ^aldc revolutis, 5-7 lm longis, J lm latis, neivo centrah supra plus nnnu\* distihcto Glaus amaia, 2 2^ poll longa (v s) (1)

- 83 Q PYRVMI (Kotschy<sup>1</sup> Eichen t 3), lamis petiohsque cinereo-velutinis, folns tarde cadentibus ovahbus \el ovatis vel oblongis vane (in eodem ramo) sinuatis dentatis lobatis\e, dentibus mucronulatis, supra spaisim subtus ciebre pilis bieivissimis stellatis pubescentibus, fl masc pengonio 6 fido eiliato, anthers pilosis, fiuctibus spsilihus sohtams gemimsve, cupulde cjathifoimis squamn pubtscptntibus, inns o\atis adpiessis, medns o\ato laneeolatis ciassis apice patpnti recuivis, supiemis hneanbus longionbus lecuivis, glande elhpsoidēa cupulabistei longioie J In planitie CihcieApiope Adana, secus fl Pyiaraum (Kotschy'it Cilie 39 5 in h Boiss ), ad ostiaPyiami (Kotschy ' it 18i9, n 20) 0 hypoleuca Kotschy' it 183<sup>e</sup>> n 99, in h Boiss sine fr ncc fl ideo dubia (non 0 hpolcuca Miq ) Folia nntio veiis2amu cadentia ex Kotschy, mine seliusev specim Kotscliy in h Boiss), 1J-3 poll longa, 1 2 poll lata, petiolo 2^4 lin longo, basi coidati, obtusa vel aeuta, subtus cmeieo-tonientosa, in eodem lamoadmodum \anantia, sinuata, vel dentata, vel lyiata, vel sinubus paucis pinnatifida, lobis tune dentatis Flores masc e Kotschy descī Cupulae squamis imis et medns 2-3 lm longis subacutis, supiemis 3-4 lin longis Glandesedules, 18 lin longcE, intra cupulam 7 9 lm longam, 12 lin latam (v s)
- 84 Q MA(ROLFPIS (Kotschy' Eichen t 161, pilis stellatis brevissimis palhde pubescens, loins osatis ovalmus oblongis\e basi obtusis \el conlatis giosse et maequahte dentato seiratis dentibus mucionatis A el acuminatis fl masc pengonio extus piloso obtuse lobato late Cfimpanulato, anthers pilosis, fiuctibus solitarns gemmis teinisve,subsessihbus cupulae hemisphaei leae squamis ligulatis laxc supepositis nunc taiAe patentibus, infeiiioibus l^te ovatis, medns oblongis eiectis vel subpatentibus longionbus apice evcurvis, supenonbus hneanoblongis eiectis apice subincmws, glmde inclusa^A el cupulam paulosupeiante apice depressa etpilosula f In Attica^ (Duiv ' Orphan ' e\ s 301 in h 13oiss ), Cretil (Kotschy' exs 18") n 309, a in h Boiss SIPI) ' sine num ), foisan m AsiAminoie (e\ ic lclnhat)<sup>0</sup> 0 A.gilops I sp p 141<sup>\*9</sup> (pio paite, exel syn et patnd), Mill Diet t 2lo (ic medioci fiuctu uondum matuio?), Kotschy' revis 6> in h Boiss , Ohv vo\ t 13 (in Nouv Duham 7 t 51 et in Hayne Ami Gew t 47 iterata), Louā arboi t 69 (err typ 49) et ejusd enc trees P 861 f 156) (medioci ) Q latifoha magno liuctu, calice tubpicuhs obsito fouin • ni h Juss sine loc nat Q jEgilops Linn ean i Tchihat As iafti 1 41 Q Giaeca Kotschy Lich t 30 (non ejusd levis in h Boiss ) Ramuh et iolia subtus pube minutl jjallide lulva Folia 2-3 poll longa petiolo 3 8 lm longo, basi sajpius coidata dtntibus lobisve plus minus distinctly acutis vel acuminatis Cupulae matuiae (2° anno), 1^2 poll latje, senceje, squamis la\issimis, imis 2 3 lin longis, medns et sup 7-9 lin longis, medus 3 lm super 1-2 lm latis, omnibus non ciassisunde species a vulgan asiaticā sequente diffeit (v s)
- 85 0 VALLONEA (Kotschy' Tichen, t 7), pilis stellatis brevissimis palhde pubescens, loins basi obtusis vel conlatis ovatis ovahbus oblongis\p giosse et ueequaliter dentato-senatis dentibus acuminate mucionatis\c fl masc lachi hnsuta pengonio e\tus piloso obtuse lobato late eampanulato, anthers pilosis, fiuctibus sohtams sessilibus, cupulde subgloboscE squamis crassiusculis in coipus ciassum imā basi connatis, mfeiiionbus lateo\atis extus saepe plains medns sublongionbus o\oideo oblongis patentissimis iecur\is, supenonbus linean-oblongis plus minus iecunatis, glande cupulam aequante \el paulo superante apice depicss.l et pilosuia J In Tauro iKotschy' e\ s Cihc 390, 387, 391, 394, Balansa' 832 et 1133) Fructus sub nom Velany

(1) Cl Hook f in Trans Linn soc 23 p 384 t 38, species hie sub num 82, 83, 84, 8'), 87, 88, 89 enumeratas imam et camdem diut

aut Vallonca commercio (ut et 0- macrolipsis) traduntur. Q. *Egilops* Linn. sp. p. 1414 (pro parte et excl. patria), non Oliv. nec Griseb. Q. *Egilops oliveriana* Tchihatch. As. min. 2 p. 470, t. 42 (icon dubia, fructu nondum maturo? ex patria hic potius relata). Q. *Ungeri* Kotschy! Eich. t. 13 (quae olim Q. *Trojana* ejusd. exs. 390, non Webb). Ramuli et folia omnino Q. *macrolepis*; cupula crassior. magis clausa, squamis non ligulatis (imis solum planiusculis) sed pinguibus, mediis et sup<sup>us</sup> plus minus externe recurvis. Fricus 12-15 lin. latus. Squamae inf. 2 lin. longae, obtusae, mine mucronulatae; mediae 3-5 lin. longae, 3-1 lin. latae; sup<sup>us</sup> 4-6 lin. longae, 2-1 lin. latifoliae; mediae et sup<sup>us</sup> in diversis specim. plus minus recurvae, glande mine exserta, sed characteres específicos div. frustra quaesivi. Cupulae commercii interdum (ex coll. meâ carpologica) 1 4 poll, latae, crassissimae, squamis rigidis sectione triangulari, mediis divergentibus frictione truncatis, primo adnectu a cupulis Kotschy diversissimis, sed forsitan omnino mature, aut varietas quaedam? Cupulae caeterum variant in diversis speciminibus herbariorum, nempe : 1<sup>o</sup> fere clausa) et squamis angustioribus, quando glandes abortiunt (Kotschy 394 in h. Boiss., 391 in h. DC.); 2<sup>o</sup> minores et squamis vix pinguibus plehsque crectis, quando imperfectae vel nondum maturae (Heldr. 973, parlim, in h. Boiss.); 3<sup>o</sup> clausae et stiumis brevioribus, mediis inter se dissitis reflexis (Kotschy 390 in h. Boiss. non in h. DC.), (v. s.)

P, *Gcedelii*, squamis non crassis, mediis linearibus elongatis reflexis. apicem uncinatis superius ut in a. — In Tauro Cilicio. Q. *Gcedelii* Kotschy! 387 in h. DC. (sed specimen in h. Boiss. var. « simile). Fructus raaturus, forsitan imperfectus, ut saepe in omnibus spec. (v. s.)

Y > *brevicrenata*, foliis apice saepius obtusis regulariter et brevius crenatis, crenis ut in a mucronatis, squamis cupulae crassis brevioribus. Ad portas Cilicias (Balansat 832), in Palastina ad Naprcth (Gaillardot 2240 in h. Boiss., 2241 ibid, ad var. 3 accedens longitudine squamamm), in prov. Hisan Karduchice (Kotschy! U. 165d. n. 553 in h. DC, ubi ramus hic referendus, alter squamis mediis adpressis plantis Q. *Brantii* potius pertinet). Q. *Gcedelii* Balana! 1153 in h. Boiss. Folia plerumque elliptica, 2-3 poll, longa, 1-1 1/2 poll. lata, petiolo 3-5 lin. longo, semper cordata. (v. s.)

86. Q. *BRANTII* (Lindl. bot. reg. 1840, append. 74? Kotschy! it. 1859, n. 560, 561, Eich. t. 31), pilis stellatis brevissimis pallide pubescens, foliis e basi saepe plus cordata ovatis oblongisve crenis mucronatis vel dentibus acuminatis plus minusve crenato-dentatis, floribus masc. pedicellatis, bracteis..., perigonio 4-fido lobis ovatis margine pilosis, antheris paucis pilosis, fractibus solitariis sessilibus, cupula hemisphaerica squamis infer, ovato-acutis adpressis, mediis ovato-lanceolatis laxe adpressis extremitate subinflexa, superioribus longioribus erectis vel uncinato-reflexis, glande cupulam paulo superante apice depressa puberula. J In Kurdistan (Lindl. sed ex specimen sine fructu, inde dubio), in prov. Schirwan (Kotschy! 552, 560 et 661). Petioli 4-7 lin. longi. Limbi 3-4 poll, longi, 1-2 poll, lati, acuti, subtus magis purtoscantes quam in affinis. Pyrami excepta, juniores dentato-serrati, scrius dentati vel crenati, apiculo vel mucrone lineâ brevior. Cupula cinereo-velutina, 15 lin. longa et superne lata, squamis imis et mediis 1 1/2-2 lin. longis, in eadem cupula adpressis vel paulo divergentibus; superioribus longioribus. Descripsi specimina n. 560 h. mei et h. Boiss., quibuscum cupulae segregatae minores adsunt, ubi squamae mediae nunc patent. Flores masc. ex icona solum mihi cogniti. In specimen 561 folia similia, fructus raaturus squamis miro modo ad Q. *oophoram* accedit. (v. s.)

87. Q. *EHRENBERGII* (Kotschy! pl. exs. Cilic. 393), pilis stellatis brevissimis albidopubescens, foliis ovalibus oblongisve dentato-lobatis lobis crenisve inaequalibus mucronatis, stipulis anguste linearibus, perigonio masc..., fructu solitario sessili, cupulae subglobose squamis laxis erectis dorso planis apice subincurvis, inferioribus ovatis mucronatis, mediis longioribus oblongis mucronatis obtusisve, superioribus lanceolatis longioribus acutiusculis, glande cupulam paulo superante glabrescente. J In Libano (Ehrenb.), in Tauri Bulgar Dagh (Kotschy!). Rami et folia Q. *Egilops*; folia similiter nunc subin-

legra «t dontata, mine pinualifida. Fruclus 15 lin. latus, formá sphrcrm supeme truncate, squama? non patontes, potius infloxa), !axa» Urrrefn; inferiores A lin. longæ, 2 lin. latae, ut media! majores mucronatai, mucrone subinflexo; superiores !Hi li<sub>n</sub>. lungae; omnes ut in Q. jEgilope cinereo-pubescentes intus inflata. (v. s.)

88. 0. TROJANA (Webb! in London gird, mag. ex Jaub. et Sp. ill. pi. or. 1, t. f>7), ramulis glabriusculis foliis oblongis vel ovato-oblongis acute' dentato-serratis supra nitidis cito glabratis subtus tenuissime stellato-pilosulis, fl. masc..., fructibus solitariis sessilibus aut pedunculo brevi lignoso insertis, cupulae obovato-campanulatae squamis tenuiter velutinis crassiusculis, imis ovatis cuspidate libera uncinata, mediis e basi ovata adpressa lanceolatis et uncinatis, suprapinis linearilanceolatis erectis vel subrecurvis, glande cupulam dimidio superante apice subdepressa pilosula. § In Phrygia merid. et Mysia rariuscule (Webb! herb.). Arbor et arbuscula. An varietas Q. Vallonea (ex sched. Webb). Rami 2<sup>i</sup> anni aphylli, cinerei, glabri; juniores tenuissime pubescentes. Folia 1 1/4 - 2 1/2 poll. longa, 6-12 lin. lata basi saepius cordata, apice acutiuscula, petiolo 1/2 lin. longo, supra nitida et jun. Vix sub lento passim pilosula, subtus primo ad aspectu labra, tamen stollatim pilosula, pilis nervi centralis non stellatis nee adeo minutis, martrine nunc utriusque, utentibus regularibus mucronatis. Squamæ fugaces. Fructus secus lignum 2<sup>i</sup> anni, sessiles vel pedunculo 2 lin. longo 3 lin. lato inserti. Cupula pollicem longa, 9-10 lin. lata, squamis inf. 2 lin. super. 3-4 lin. longis. Color foliorum et cupularum ut in Q. Look, in sicco non pallidus, et inde ab afflinibus differuit. (v. s.)

89. Q. LOOK (Itotschy! Eichen, t. 21), ramulis petiolisque pube minutissima velutinis, foliis oblongis aut ovalibus grosso crenatis dentatisve crenis mucronatis supra labrescentibus subtus crobre stellato-pilosis, fl. masc. perigonio fido jubenilo marline et intus basi longe piloso lobis ovatis, antheris pilosis, cupulae squamis fusco-tomentosis, imis ovatis subadpressis, mediis e basi adpressa ovata ovato-lanceolatis subadpressis apice vero inflexo, summis longioribus linearibus demum uncinato-reflexis, glande saepius abbreviata obtusissima. § vel § In Antilibano et mont. Hauran, Syriae (Kotschy! revis. 53 in h. d. m. s. > l'ys. > 'A'IU 'in'), roua sicus z pon. longa, 11-12 lin. lata, us U. Vallonea; subsimilia, lamen non pallida, crenis vel serraturis in eodem ramo diversis. Flores ex Kotschy descripti. Fructus sessiles aut subsessiles, saepe in specim. steriles, cupulae tunc clausa, 9 lin. lata, 10-11 lin. longa. Squamæ inf. 1-2 lin. longæ, mediae 2 lin., sup. dissimiles 3 lin. longæ, angustae, initio inflexae, demum reflexae. Glans ex ic. cupulam vix superans, an semper? An satis a Q. Trojana differt? (v. s.)

KK Q. OOPHORA (Kotschy! Eich. t. 2G), pilis stellatis brevissimis pallide pubescentis, loliis ovatis ovalibus oblongisve basi obtusis regulariter crenato-serratis crenis aculeato-setaceis, fl. masc. perigonio extus piloso lobis acutiusculis late campanulato, antheris pilosis, fructibus solitariis sessilibus, cupulae obovoidea aut ellipsoidea glandem fere totam tenente pallide velutina, squamis infer. ovato-acutis adpressis, mediis ovato-lanceolatis erectis vel subpatentibus extremitate inflexa, supremis linearibus erectis vel saepius reflexis. § In Karduchia (Kotschy! it. 1859, n. 554). Petioli 5-6 lin. longi. Limbi 2 1/2 - 5 poll. longi, 1 1/4 - 2 1/4 poll. lati, acuti, basi subcordati, nervis lateralibus utrinque 9-13, crenis non profundis, mucrone 1-1 1/2 lin. longo terminatis. Amenta (ex Kotschy) 1 1/2 - 2 poll. longa. Perigonium profunde fissidum. Cupula 15-17 lin. longa, 15-16 lin. prope aperturam lata, basi subangustata, squamis inf. et mediis rigidis 3-3 1/2 lin. longis. Glans ellipsoidea, subvelutina. Ex foliis accedit ad Q. Libani, ex fructu ad Q. Look, (v. s.)

91. PERSICA (Jaub. et spach ill. pi. or. 1, t. 55), ramulis petiolisque minute velutinis, foliis ovatis vel oblongis vel ovato-lanceolatis basi obtusis KIOSSC vel ropaiH!e crenato-serratis donibus mucronatis supra sparsim subtus crebro stollato-pilosis, stipulis immaribus oxtorno pilosis, fl. masc. porigonio exlus piloso patrilormi fi-7-linK), antheris passim pilosis, fructibus solitariis subsessilibus, cupulae miumlibuliforinis cinereo-velutini squamis inferioribus

adnatis ofligis, medns etluper ovato-lanceolatis apice recurvo hbens, glande cupulam draudio superante glabruusculâ. \$ ID Persiae mend monte Pirezend (Auch I D 5331), inter Abushir et Schiraz (Kotschy! pi. Pers austr 115), in Kurdistania (Kotschy' pi Alep Kurd J94) Pubes ramorum jumorum, petioh et foln subtus pallide fulva Folia 2-4 poll longa, 1 2 poll longa, petiolo 4 6 lin longo Stipulae fugaces, 3 lin longae Perigomum fl masc 2-2 £ lin latum, breviter lobatum Antherae 5-7, filamentis breviores, pilis bicvibus paucib Cupula 8-12 lin. longa, ore 8-9 lin 4ata, squamis brevibus infuonbus 2, supenonbus 3-4 lin longis Glans 9-20 lin longa, oblonga, nunc subacuta (v s)

P, *Belangeri*, squamissupenonbus cupulae longionbus —InPersiâ (Belang I n 639, in hrFlorent). Folia simillhma Squamae super 4-6 lin longae, longe lanceolatae, apice vane flexae Glans ovato-acuta, cupulâ brevior aut dimidio longior (v. s)

92 0 VESCA (Kotschy I it 1859, n 555, Eichen, t 36), ramuhs petiolisque minute et pallide velutims, folns oblongis vel ovato vel obovato-oblongis atutis basi cordatis vel raio obtusis acutisve crenato-dentatis dentibus acum mat is pube minuta supra vix perspicua subtus copiosa pallida, flonbus, fructibus solitaius sessihbus aut subsessihbus, cupulâ hemisphaencâ velutini unieia, squamis adpressis infer et medus ovato-lanceolatis obtus usculis, supromis linean-lanceolatis paulo longionbus erectis vel vane flexis, glande ellipsoideâ apice depressâ glabrescente cupulâ dimidio fere superante \$ In prov Shirwan, alt 4300 p Petioh 4-8 (in eod ramo) lin longi Limbi 2-4 poll longi, 9-18 lin lati, ncrvis lateralibus utnnque 9-13, mucronibus dentium / lin longis Cupula basi obtusissima, 8-10 lin longa, 11-12 lin lata, squamis inf et medus non crebris, supremis 2 lin. longis. Glans 10-12 lin longa, ex nomine veris dulcis (v s)

93 0 TCHIH/TCHEPPII (Kotschy<sup>1</sup> in h Tchihat), ramis junionbus petiohsque tenuiter et pallide velutims, folus lanceolatis acutis basi obtusis crebre et grosse crenato-dentatis dentibus apice calloso-acutis supra sparsim subtus crebre pilis minimis stellatis pubescentibus, flonbus, fructibus bievisime pedunculatis soli tarns geminisve. cupula hemisphaencâ ore patente cinereo-velutinâ, squamis infer et means adpressis late ovato-quauranguhs, superi lorbis ovato-oblongis obtusis patentibus, supremis extus recurvatis, glande ellipsoideâ cupulam dimidio supetante glabrata 5 In Galatiâ. Q Tchihatciewi Kotschy in Tchihat. As rain 2 p 468 (sine desc.) t 40, f 1(fructu juniore, folns nimis subulato-dentatis) Petioh 2-5 lm. longi Limbi 1-1J poll longi, 4-8 lin lati, dentibus utniKjue 10-13, profundionbus quam in icone, et obtusmscule nee subulato-mucionatis Fructus in specimine delapsi, ex flonbus jun et iconebiennes Gupua matura 7-9 hn longa, polhcem lata, squamis omnibus 1<sup>^</sup>-2 lin. longis, prope verticem magis ac magis patentibus, su< pAmis reflexis paulo brevionbus (v s.)

94 Q REGIA (Lindl bot reg append, n 73? folns tantum cognitiss, Kotschy 1 Eich t 11), ramis junionbus puberulis vel glabns folns ovato-acutis vel ovato-lanceolatis vel oblongo-acutis basi cordatis vel obtusis vel acutis grosse rticiso-dentatis dentibus subulatis, junionbus supra pilis solitarns subtus in nervo pilis solitarns alibi stellatis brevionbus pubescentibus, adultis glabratis, folns iamorum stenilium similibus vel profunae et irregulariter lobatis lyratisve, flonbus, fructibus solitarus geminisve subsessilibus vel breviter pedunculatis, cupulâ subgloboseâ gnseo-subvelutinâ, squamis adpressis crebris, infenonbus ovatis, medns ovato-lanceolatis, supremis subsessilibus minonbus inflexis, glande inclusa aut vix exsertft puberulâ \$ in Kurdistan (Brant), prope Musch (Kotschy<sup>1</sup> it 1859, n 432), in monte Kara Kurdistan (Kotschy<sup>1</sup> it 1841, n 340, in h Boiss et praesertim in h Florent), in Tauro (Kotschy<sup>1</sup> it Cilic n 383, in h Boiss), in Antitauro (id<sup>1</sup> 1851, n 594, in h Boiss) Specimina sine fr vel folns pnnatis segre a Q Libani differunt Petioh 3-6 lin longi Limbi 3-8 poll longi, f 4 poll lati, intense vmdes, membranacei, nunc in eod ramo strangulati, pinnati, lobis tune acuminatii et interdum aterahter dentatis Gupulae pedunculo 0-7 lin longo insertse, ore constnetae,

glande imperfecta subclausae, 4 7 lin longi, 7 12 Inflata Difleita Q libani onsoitini loins majonbus saepe proindius dontatis, nunc pinoatis liuctu minoie globoso, squamis breuoribus \i\ quadrangulis, sed ex quituisdam spetiminibus modus vanetas nonnunquam udetur Specimon adost in h Ichihatch n 661, 0 Libani a cl Kotschy vocatum, folns \oraē Q Libini, sed flonlerum et antliens glabns, dum in Q Libani anthorae pilosne suit e\ Kotschy An Q regidi tnbucndum, ubi antheiae sic di\ersae essent? sed liuctus ignotus (v s)

0"t 0 IIBVNI (Ohv voy t 32), ramulis petiolisquo glabnusculis, folns ovato-lanceolatis acutis basi obtusis \el aculis giosse crenato-serratis dentibus acuminatis supia ghbns subtus junionbus minutissime stellato-pubons glbdiatis et ad nonos et tuum axillis pilosulis, fl mast perigomo Vfido extus pilosu, antliens pilosis, fiuctibus soliUms subsossihbus, cupulā campanula^, squamis adpiessis citbus cinoreo-velutims, infononbus et medns o\ato-4-angulis,suj)remisorectis linoan-lancool itis obtusis saepius minonbus, glande late eiiipsoidea glabnusculā apice depioss.^ tupulam paulo \el duplo supor-«inte > In montibus Sjiuc (Ohv ' Labill ' in h Webb, mine Flor ), in Tauro (Kotschy i pi exs Cilic J80, 381, 382, J84, 389, Balansa' 8h, 1146), Phiyffii ot Ponto mend (rchihatch As mm 2, p 470), Karduchiā (Kotschy' **it 18,9** n **ni>il>** )()Λ **nu** NouΛ **Dul>**am 7; P 167, t 49 f 1 Q Libani vai cāiicaipos Kotschy ' Eich t S Q Caiduchorum Kotschy ' it 18<sup>9</sup>, n S62, Ichmatch As mm part bot 2, p 478, i 40, f 2 Pilijan, simplicos in nmulis et petiolis, nunc nulli Folia **Iu i** poll longa, 8-1) lin lata, potiolo \* / lin longo, nitula pilis subtus sub lenlc uduidis in paronchymato minmiis stolluis, in i\illis et ad noivos longiusculis soliUms \ol stollatis, (Hiihbiis e basi o\at.\ abruptly acuminatis Flores masc ex ic Kotschy d(scnpti ( iipul«p 9 12 lin longoi, 12 1 > lin laten, ore nunc constncto, squamis (in pad •jjboic) obtusissimis vel aj)ice abiuapte angustahs obtusiusculis, supromis 1<sup>2</sup>-2} lin longis Squamje mler et mediae saepius dorso planae, mteidu in (n 562 partim in h DC ) cr«ussiores et torulosae (v s)

% 0 PONTICA (C Koch in Linn 22, p ^19), ramulis glabernmis, folna elhpticis grosso serratis subtus glaucescentibus, stipulis filiformibus ciliatis petiolo duplo tn plo longionbus, fl masc , cupulae squamis tuangulanbus aut ovato-lancoolatis 3 In montibus Ponli Sectionis fprns Spach, (X cl auctore Folia **r>**(\* poll lonjfa, \*2i i poll lata, serrulata, sorns tnangulan-lanceolitis3-4 hn longis HUMS socundains J> 18 ennnontibus, pptiolo \ 4 lin longo Gpmmae lohindtdc Allmis (\ auctore Q Peisicae, ubi tamen lami pilosi et folia basi coidata

97 0 CASTANEM I-OLIA (( A Moy Vov7 pi Cauc p 44, non Cosson, anno 1801), rdmulis petiolisque minute \elutmis, folns oblongis vel oblongo-lanceolatis «asi acutis vol obtusis grossp vol sinuato dontihs dontibus mucionatis supra spaisun sul)tus ubi<luo stollato pilosis, slipulis hnrinbiis pilosis, lioiibus **n^ASc** JOM B omo Pubscscnte, antliens pilosis, liuctibus solitarns \Q\ gf minis stssiiiDus aut pedunculo brevi ciasso nisei Us, cupula? hemisphaencae scrumis M riceis Inlorionbus ovato cuspidatis modus et sup gradatim longionbus et angustionbus modijspnmo d( in omnibus in fructu poilocto iPtioflous, glande **cu^pila**, **m iibis-I** **im** **oln**, ^"Porantp ,5 In syKis moiiiuini Gooigia? (aucasicae (HolHii !),ldl}sUi (C A Moy '), Ghilan (Audi '>HJ) PPSIJB bnr (Buhsei in h uoiss ;, iipl tamen Chnidi, nam specimina do quib Gay in Bull soc i)Ot >, p 421, locutus est, diversae sp \identur, ex launs suie lr et fl (a 1l Gay comm) non dijudicandas — Tichw pi Casp p 1, Jaub et SD ill M 2' J'n<sup>1</sup> **n^ASc** T<sup>u</sup> **am** s junior ? male fig), Lodob fl ross 3, p 591, Kotschy Lich t 40 Q castanoaelola h hil (SLhlocht bot Zeit 18S7, p 890) diffort Iructu annuo, sed milu ignola sp Folu I (, poll longd, 9 24 lin lata, petiolo 2 9 hn longo, r.g.da, Uarde dccidia nfivis'sublus ennnpnubus nihs^utn-que brpviss.m.s, supra rans, dentibus pleiumquo rogulanbus' acutissim.s nunc subnullis 7lores masc non satis cogniti, ex spocim certionbus anthens pilosis Cupulae saepissunp stenles aui glando spmiihoitivA, tune i/lobosa-, lerliles (ut iit ic Lichw ) 9 hn latffi, glanc'o y, \m l o n g ^ g i d b r c b c o n t e

Squam# tarde reflexae, super. 3-4 lin. longae. De arbore africand Cossonis, confer ad Q. pseudosuberem. (v. s.)

P, *glabriuscula*, foliis utrinque parce pilosis — In monte Talysch et Alburs (Buhse! in h. Boiss.). Q. castaneaefolia foliis subtus glabris Boiss. 1 Aufz. pi. Buhs p. 200. Pili sub longe apparent, (v. s.)

98. Q. MAGEDONICA, ramulis petiolisque vix pilosulis, foliis oblongis vel ovato-oblongis utrinque acutis vel obtusis sinuato-dentatis dentibus lobisve mucronatis utrinque minutissimae et sparsim puberulis, florum masc. perigonio piloso, antheris glabris, fructibus solitariis geminis ternisve pedunculo brevissimo crasso poltesicente insertis, cupulae squamis sericeis, inferioribus late ovatis adpressis, mediis lanceolatis uncinato-recurvis, supremis lanceolatis inflexis, glande inclusa at breviter exsert\*. \$ In sylvis Macedonia (Griseb. f) et Albania (id.) sparsim. Q. ^gilops Griseb. I spicil. fl. Rum. p. 333, excl. syn. (non Linn. J. Specimen Macedonicum yidi in h. Boiss. a cl. Griseb. comm. unde sine dubio sp. diversa a Q. macrolepide et Vallonea. Rami non validi primo anno (suh lente) tenuiter pubescentes. Folia 2-3 poll, longa, 9-12 lin. lata, petiolo 1-2 lin. longo, tenuia, primo ad spectu glabra, pilis vero minutissimis subtus praesertim stellatis minimis et solitariis majoribus, margine undulato-dentatis vel crenatis cum mucrone brev. Stipulae lineares, fugaces. Gemmae ovoideae, obtusae, puberulae. Pructus (initio secundi anni nondum maturi) 4-5 lin. lati globosi^ ex Griseb. 6-12 lin. lati, squamis majoribus (mediis) 1 | lin. longis. (v. s.)
99. Q. CHINENSIS (Bunge! enum. pi. Chin, pv 61), ramulis glabris, foliis ovato-oblongis acutis vel acuminatis basi obtusis margine subundulatis et remote acute mucronatis supra glabris subtus pilis minutissimis stellatis incanescentibus, fl. masc..., fern, subsessilibus soli tar i is geminisve, squamis cupulae cinereo-velutinis lanceolatis mediis recurvatis, glande subglobosa cupulam superante. \$ In raontOBis Chinae sept. Petioli adulti glabri 1 & lin. longi, basi crassiusculi. Limbi adulti ft^6 poll, longi, 2-2^ poll, lati, nervis hfterslibus utrinque 15-16, totidem mucronibus acutis 1-1-J lin. longis in peripheria terminatis, modo folii Castaneae. Stipulae delapsae. Cupulas initio secundi anni immaturi subglobosi, 3 lin. lati, squamis utrinque subveutinis, superioribus tunc inflexis, nervis veto excurvis. Glans a funge\* descr. (V, s.)
100. Q. VARIABILIS (Blume Mas. Lugd. bat. 1, p, 297), ramulis junioribus partim stellato-tomentosis, foliis breviter petiolatis et basi obtusis vel subcordatis oblongis vel superne passim latioribus et subpanduraeformibus acutis vel obtusis cum mucrone cuspidato-serratis vel repande cuspidato-serratis subtus canescenti-tomentosis, floribus..., fructibus subsolitariis sessilibus, cupula heraisuhaerentibus, squamis longis densis subulatis, glande subglobosa semiimmersa — In Japonia. Folia subcoriacea, 3H ^poll. longa, 1f2 ipoll. lata, petiolo 3-4 lin. longo, nervis lateralibus utrinque 15-22. Foliis breviter petiolatis, saepe obtusis et superne dilatatis a Q. Chincensi Bunge, cui valde annis, differt.
101. Q. SERRATA (Thunb. fl. jap. p. 176), ramis junioribus seticeo-pubescentibus, foliis e basi obtusis vel rarius acutis oblongis lanceolatisve acuminatis vel rarius obtusis crenato-serratis dentibus fonge setaceis, junioribus supra sparsim subtus ad nervos et marginem praesertim adpressis sericeis, adultis flandratis, amentis laxifloris, bracteis late ovatis extus puberulis, perigonio 4-lobo extus puberulo, antheris globosis glabris, fibrillis fern, in axillis solitariis vel geminis praesertim pedunculatis, cupula hemisphaerica, squamis cinereo-velutinis imi^ ovato-oblongis mediis et sup. gradatim longioribus lanceolato-linearibus oblongis vel omnibus dentatis varie patentibus, 3 In Japonia (Thunb. Wright! h. Lu^d. bat.!) et Manchouria merid. ad Taliwhan (Q. serrata Carruthers in Journ. Linn. soc. 6, p. 32, sirt\* descr.). 0. acutissima Carruthers 1. c. p. 337 (ubi descriptio a sp. japonica non differt), tamen fere Q. Libani, \*% P# longa, 7-26 lin. tertia; petiolo 4-12 lin. longo, juniore tomentoso, demum glabrato; nervis. Mtefanims utrinque 9-20, seta 1-2 lin. longa, ex dente brevi terminatis; pbertceis adpressis inter nervos folii junioris brevibus, in nervis longioribus. \*kiir<' fWt maturi

\*aenepilos# Stinulae 4 lin lortgae, anguste Imeares, nunc apiee latorps, PTUIS spncpaj AmrnU nenilula, 1-2 pott longa Lobi pmgonii obtusi, plus mums bisi disLincti Tedunculi lom Hi<sup>lin</sup> 1<sup>0</sup>n<sup>f</sup> \* upula 7 12 lin lata, squamis a basi ad apicem s«epe indjoiibus, xdiiditibus, & upinnis 2 7 1m longis, tdrde plus minus patentibus, nunc Ill ead cupula paitim vix recte divergentibus partim patentibus imo patpnti-recurvis Glans cllinsioidea, cupulam vix suppians VdiictUs ex loins anguslionibus, saepius obtusis, aut mmonibus, distinguit cl Blume in Mus L B 1, p 297, quas ex spe lminibus authent \iv eiiuniciandas existinio Pctioh mterdum 2-3 lin longi, limbi 1 j<sup>o</sup> poll (v s)

f3, *Rorburghi* stipulis 1 itioiibiw, flonbus masc rmioiibus 5<sup>m</sup> Sillet (KOXU) Khasia Pt Sikkim (Hook f'), NppaliA (Wall ' 2771) 0 serraU Koxli fl ind pd 1KJ2, v 3, p 641, Hook f ot 1 horns hprb ' Q Ro\ burglni Endl suppl 4, p 28, sine descr Q polyantha Lindl in Wall ' list 11 2771 (ex specimme meo folia annua vidpntur, (lores spmipleni). Folid junioia et adulta omnino ut Ill a Stipulae (ex uno lanio jun) oblongne, basi anguslatae, 4 lin longae, lineam latae aut ciica K<sup>p</sup>nim<is angu-tiores, non veio angustissimae ut in a FIOIPS 1 \ lin cncicr lati, 110c ut in a linpam, antbpris paulo inijonbus FIOIP^ lem similps (upu\IP us Japoniae minonhus similes, squimis lmis ovatis, medus et sup 1, & lin longis, ohlongis, obtusis vel acutis, vane divergentibus dut in ead cupula recarvatib (v &)

102 0 iANDomosA (Don prodr fl Nepal p 57), folna c basi acutA vel obtusa o\dh-oblongis acutis dentato-serratis utnnqur raraulisque lanosis supra dcin nudis, iructibus axillanbus spssilibus, oupulffi sqmmis imhritatis, glandp ovata umbonaU ^ lu NepiliA (Ham Will) Q Banga Him mss (Banga vel Buija noiucii vulgdic plunum sp dffinium videtur) Adpiaeseutpm tbupiiida vpiisim specimina Walliolni anno 1821 sine nomine comm ubi lami jiin. Uenv flavo-torrentosi, ioha ellipticd, oblong 1 |e\ o\ata, utnnqur obtusd xel ucuta, cftiidced, dpntato-seiata, 1^3 poll longd, G 18 lin lata petiolo 3 0 lin l^ngo, juinoid utnmiue flavo tompntosa, scuus supid gldbn, subtus albo-tomonto^d, irtio s(cundi aurn cadentia htipulae oblongai, 4 lin longae, lineam latae, dorso mpdio pilosae, amenta 9-24 lin longi, racln dlbo-huiuginosa, Dra< teae sub flore singulae ovatae \cl Dbo\at\*, extus pilosae, Intus gldbnuscuae, floipm .pqudiites, ppirfonium ni.isc 5 fidum, extus pilosum, mtus basi excepta vix pubescens, antbcise elhpsoidese, blabiai, subtxseiU, apitc Quinioies) submucronatae vel obtusae (v s)

103 0 INGANA (Roxb hort Beng p 113), lamis Junionbus incano-\elutini9, folns ovato-lanceolatis oblongis\e basi obtusis apice acuminatis Jjdsi (xcppia remote senatis conaccis supra mitio stellato-pulKiulis cLo glauratis, sumus tomenlo minuto splllalo incanis, amenlis giacilibus, uchi incdii.i. j»d(iois late ovatis lloiem <<mautibus cxtus pilosis, perirfoino biovitci o-lqJjq (\tus piloso, .inthens mucionulatis subglabns, peduncuhs fiuttifciis petiolo lnevio-nhus, liuctibus solitanib gpminis ternisvc, cupulde (jumoijs) Mmamis ovatis .iilpipssispubescentibus 5 In Kamaon (Roxb Hook 1 et riioms ') et NPPa-liA'(O ImataSm) - Hudw Ill As IPS G, p 374 (fide Uo\b), Ro\b fl nd Pd 1832, v 1, p (42 0 dpalbata Wall list 2769, fido Hook 1 mini (non Hook f et rh) Q Ian ita Sm in RPPS cycl 2% p 27j (qua? (x nom \ulg Banja et patnA esset potius Q lanugmosa Don, spd in h.icce tompituum jjiinms fcip auipum, nee album, Pt folia minus senata) Folia ex specim Hook 1-\ poll longa, 15-20 lin latd, ex Roxb 3-G poll longa, 1-2 poll lata, in prioic basi obtusa, in altpro cordata, sod in PO char \ inant conge-nprps Stipulas lmoan-lancool itae, extus puhpseentes Amuiti saepius pollicpm longa Fiuctus ex sppum Hook seuundo anno matun Glaus PX Rotb cupulam dimidio suppians, ovoideo-oblonga An cum prjeced jungenrfa' (\ s comm a cl Hook f)

S, *Vepaulensis*, folns obovatis elliptuisve obtusis vel acutis non acummatis  
'>5 L Nepalift intiod in hoyt. angl et Ill li pans (h Webb' ct D(' cum  
ii |un) Q NepaulpnMb Dcsl • cat li pir ed 1820, p 414 0 1 mata

Loud enc trees, p 888, f 16J3, Gay\* not Nouv Chen, p 24 Folia etiam juniora subtus albide tomentosa ut in *a* Anthers simiher paululum pilosae (v s ex h par)

104 0 COCCIFERA. (Linn sp p 1413), ramulis stellato-pubescentibus, foliis ellipticis vel oblongis basi cordatis vel obtusis vel rarius acutis sparsim spinoso-dentatis vel mucronato-serratis vel rarius integris rigidis junioribus passim stellato-pilosis adultis cito glabratis conaceis, fl masculis bracteis lanceolatis vel oblongis vel obovatis extus pubescentibus, pediculis 6-2-fido plus minus piloso lobis obtusis, antheris mucronulatis vel rarius muticis, fructibus pedunculo brevi crasso insertis nunc subsessilibus geminis vel soli ternis, cupula hemisphaerica squamis velutinis ab innis ad supremas longitudine subaequalibus sed gradatim angustioribus, limbo et supremis finem usque adpressis erectis, medius demum patentibus vel reflexis vel rarius erectis, glande plus minus exserta raro inclusa et rarius <y Circa mare Mediterraneum Q cocciifera et pseudococcifera Webb it hisp p 15 Petioh 1\*2 hn longi Limbi 9-18 saepius 10-12 lm longi, pili rari brevissimi, aculeis hinc longis vel rarioribus et lineam longis, pinnis tenuioribus versus apicem flexis, antheris praesertim in foliis vetustioribus limbo perpendicularibus Stipulae lineares, fugaces, pilosae, petiolo subbreviores Galliae infrequentes, rubrae, pinniformes Gand hist 2, t 53bis), Kermes praebent Amenta 9-18 lin longa Flores masculae non satis in div var e luctu desumptis observati Pedunculi 1-6 lm longi Squamae cupulae 2 lineis breviores, crassitip, nervis, et curvatione aut delectu, curvationis interdum in eodem ramo, nec non eadem cupulae variantes Ubi squamae mediae patentes extremitas ipsa saepius sursum paulo inflexa Fructus frequenter imperfecti, squamis tunc secundo anno ut in priore adpressis, glande brevioribus transitus inter varietates et hinc ad species sequere fere insensibilis

*a, vera*, cupulae squamis tunc lanceolatis acutis, medius glande patentibus nunc recurvatis, alius erectis aut tarde subpatentibus vel patentibus omnibus nunc basi approximate nunc (cupulae maiore) basi distatis § Circa Alger (Jamin ' 206 in h Boiss ), in tota peninsula iberica (Welw ' Boiss Webb i Bourgeau' etc ), Galia austro-orientalis I Italia (ex auct div sed specimina certa in herb non vidi), Dalmatia (Petter\* in h Boiss), Zacintho (Margot! 192), Graecia (Kotschy' revis 48, 69, 70, in h Boiss Heldr • 568 ibid), in Creta (Raulin' 731 in h Boiss), circa Byzantium (Tardent! Beaupre! h DC) 0 cocciifera Nouv DuhAm 7, t 46, Hayne! Arzn Gew 12, t 44 (omissis aliis tab <ibi fructus dei St aut nimis iuniores aut male fig), Cosson' m Bourg pi hisp 1853, n 2033 Q pseudococcifera Boiss • voy Esp p 578, t 165 (fl masculae male fig), Kotschy' revis n 70 in h Boiss Jamm' 1 c (non Desf) Q Graeca Kotschy^ revis 69 in h Boiss (non ejusd Eichen) 0 Sibthorpn var microphylla Kotschy revis n 48 in h Boiss (ubi squamae cupulae nunc omnes erectae ad var unbricatam accedunt) Frutex, raro arbuscula Folia plerumque basi obtusa, saepius spinosa, nunc mucronibus apicem versus flexis potius serrato-spinosa Cupula 5-6 lin longa, 6-9 hn lata, ore nunc constrieta squamis basi inter se vane distantibus, medius maturo semper patentibus aut reflexis, 1)-1± 1^ longis, basi crassis vel subcrassis, nervosis vel enerviis Glans perfecta 9-10 lin longa, sed saepe brevior ty s )

*P, Westo*, parce pubescens, foliis basi plerumque acutis saepe integris, cupulae var *a*, glande abbreviate, jj In montibus Hispaniae meridionalis (Haenseler, Clemente, Bourgeau' 91 in h Boiss) et circa Ulyssiponem (Welw ' in h Boiss) Q Mesto Boiss « voy bot Esp p 579, t 166 Ex specimine vetusto Welw in Boiss figurato folia interdum (in eodem ramo) basi obtusa, quod frequentius in specim Bourgeau Glans cupulam non superat sed omnes species fructus imperfectos abbreviatis similiter praebent Squamae mediae patentes vel recurvae, aliae erectae, ut in var *a* Squamae dorso nervo donatae vel in eadem cupula enerviae Media inter hanc et «, sunt specimina Welw 27 in h Webb, sub nom Q pseudococciferae, ubi folia pleraque basi obtusa, fructus abortivi, squamis secundo anno valde revolutis (v s)

*Y, pseudococcifera*, cupulae squamis abbreviatis planiusculis, inferioribus



ovatis adpressis mednis ovato-lanceolatis acutis demum phis minus partibus nihiKiudm leflpxis, supiemisl mu ohlis aetis eiectis j aut 5 In Algecil (DPS! ' in h DC ), prope Pihppville (nupcr accepi), Sardinia (MOMS') et Sjna' (Auchi ' 2883 in h Boiss ) 0 pspudococeiferd Desf fl All 2, p 3^9, Moris' fl Sdid 3, p 517, Labill le dec 5, t b, f 2, p specimine Desf (non ahorum) Folia ^al a Squamae mediae vix hnea lon^ioies, e basi adprps\ in cuspidem paulo diveigentem dbpentes f upuh tot<i m.igis qinm in a cincieo-velutma Glans ppifpcta, 9-18 lin longi, scpe breMOi Unus P 2 lamis h Webb inflorescentiam fem anodmUm prtebet, peduneuhs 12-15 hn\* longis, fructus 3 dlternos gerentibus (v s in h meo et Webb)

δ, *imbncata*, squdinis eupulde imbricatis usque dd matuntatem perfectam adpiessis doiso eonvexiuseuhs ab irais grddatim magis ac magis lanceolatis — In Baeticd (Webb<sup>1</sup> Bouigeau<sup>1</sup> anno 18>J), Lusitdiiid versus Cmtia (Webb' in h Flor et DC ) et ioisdii ad letudii (Webb' lb sed speeiin imprrf) Q pseudocoeieilea Webb' pditim, Cosson in Bouigpau, quotum pdis ad 0 calhpunos biaehybalanos ioisan pertmet — Folia vdi a fupula ore constnetd, glande in speciminibus abbieviatâ impel feetd? Squamae finpui usqup suppositae, sublongioies mediae 1-f-l-J lin longd3, doiso eneividi, tandem laxe imbricate nee patentees Numeius Bouigedu 878, dimo 18)0, medius est intei prdesentem et vdi o, squamis m eod iamo aut in div specim ereetis vel patienti-leflevis Muctus sub n 447 et 448, e Tduio, commurucdvit Kotsehy ubi in Pdd diboie ut videtur squdmae nunc erectae, nunc mediae patentees, nunc mediae leflexae, quoium pdis ad 0 cdllipiinos bidehybalanos forsā peitinet Confer etiam dd vdi a, obs de n 48 Kotsehyi (v s)

s, *Auzandn*, fiuctu minoie, eupulae squamis ciebie imbiicatis lmis ovato-laneeolatis, ilns lancpolatis, omnibus ddpressis dorso subconvexis matuus laxiuseule supcpositis mininip patpniibus <\$ Cued lcloncm (Grpn et Godr, Blaise in h Boiss ), et Massiam (Blaisp et Roux in h Boiss )  
\*  
f Q Au/andn Gien et Godi fl h 3, p 119 Polia non glbba sed modo affinium passim mitio stllato-pilosa Cupula 4-5 hn longa, 5-6 hn lata Squama? media? vix lineâ longiores, magis quam in alns cineieo-elutincfi, pihs bie\issimis plpnsque letioisis An foima imperfpeta, glans enim mclusa aut sohim ")< Im longa in speciminibus h Boiss Lx speciminibus sub \ai vera, *imbncata* et *Cilicid*, squamae in eodem ramo intejduin \anaut, non reflexe, quando fiuctus imperfecti vel immatuii (v s)

2l, *Cilınca* (Kotsehy' in h Boiss ), cupula? squamis ciebre imbricatis, imis ovatis obtuse muciondtis adprcssis, medus grddatim magis lanceoldtis et aetis rnatuiis l iis VPI evcuivatis intus eonvp\is e\tus plains supremis bipvionibus hnedu ldnceoldtis eiectis, gldnde cupulâ sublongioie 5 E lauio (Bdlansa' sine num in h Boiss et sub n 1148 in h DC) Anthprae mueionatae Squ imae mediae \/ hn longae, fiequentei in eodem uuno et iuetibus peifeetis eieetae laxiusculae \el s(mnceuivata3, id est a medio exeuivatae, extiemitdte ipsa tamen ut in alns pleiumque inflexâ Fructus secundo anno impeifecti squamas eiectas seivant Alfinij, Q calhpimos vahdae (\ s)

l) • *toiruntosa* ramuhs et folns adultis supra spaisim subtus ciebie pihs stellatis lupvibus pubescptibus, flor et ir In monte Dersa piope Te-tuan (Webb') Q CallipMnos (speeim loci dicti) Webb' it Hisp p 15 Adsunt speemina Webbn in h floienlino sed cum ahis glabnuseuhs vulgdiiis eocelerde simihbus, et abscjue flonbus vel fiuctu etidm jumore tx patud vauetas piaesentis Mdetui An Q Auchein hie luntrend<sup>7</sup> iv b)

6, *dasyantha*, pongomo fl masculi villosa 2 Vfirto, nunc 2-p<utito lobis 2-3-ndls 5^ In syhaticis Scogli<sup>n</sup>lti builiae Q pseudococufera Huet<sup>1</sup> pi sic n 180 Rami videntur arbusculae vel fiuticis elati Folia Q coccl-ferae vulgans, 6 9 hn saepms longa, basi in eod iamo obtusa vel cor-

data, integra vel spinosa. Perigonium masc. villis longis albis inargine praesertim donatum, quo ad divisiones variaos ut gape in aliis speciebus ohs. AntheraB aaeplus mutic\*. Fructus ign. (v. s.)

105. Q. CALLIPRINOS (Webb! it. Hisp. p. 15), ramulis stellato-pubescentibus, foliis obloagis vel ellipticis vel obovatis basi cordatis vel obtusis breviter mucronato-serratis vel rarjus spiooso-dentatis vel raro subintegris junioribus passim stellate-pitosis adultis cito glabratis coriaceis, fl. masc.... bracteis extus pubescentiW, perigonio 5-fc-fldo plus minus piloso lobis obtusis, antherjs muticis vel mucronulatis, fructibus pedunculo brevi crasso inscrtis nunc subsessilibus solitariis vel geminis, cupolâ hemisphaericâ squamis sericeo-velutinis crebre imbricatis saepius clongatis imis ovatis adpressis, mediis lanceolatis longioribus adpressis vel gemipatentibite vel patentibus vel reflexis, supremii lioeari-lanceolatis erectis vel patentibus vel tarde reftetiis, glande inclusâ aut subexsertl. Interdum ^ (Hook.! t. 36), saepe e,rarius3 In orientali regione maris Mediterranei. Q. pseudococcifera Hook. f. ia Trans. Linn. soc. 23 p. 381, t. 36 et 37 (excl. syn. Q. Aucheri et FeazlU), nonDesf. PeUoli 1-3 lin. loogi. Bractee ut ia Q. coccifei? sed flores mttcidi nandum satii cogniti. Extremitates squamarum patentium plerumque iniUxae, ut in OTcocciferâ. Differre videtur ab eâ ataturâ pleruinque majore, foliis rariug spinosodentatis basi nunquam acutis, antheris minus mucronatis? cupulA saepius majore, squamis saepius longioribus mediis nempe plerumque 2 liiieas oxccdentibus, squamarum pilis magis adpressis et nitidis, glande vulgo obtusioru nunquam cupulâ multoties longiore, sed variationes (in eodem ramo) sub-similes et transitiones varieUtum catenam fere continuam inter hasce species constituunt. Equidem non nisi in herbariis pauperibus vel botanicis qui regionem uoicam peragrant fbrmae varietatum distincUc et stabilis apparent, et duæ species nullo cl^aractre omnibus varietatibus cujusvc communi distiDj^uotur. Priores vanetates htc enumeratas Q. cocciferae propiores.

a, *pvMgetu* (KoUchyl it Cilic. 400 et 80, h), foliis spinogo-deRUTis p.irvis, fructu pgrvo (ioaperfecto), squamis acuminatis mediU uncioaUs patentibus Njpremis inflexis. j In Ciliciffi regione montana Guilek, locis arid is. Habitus et folia oiunioo Q. cocciferae versa in siccU observatae. Folia 6-12 lin. longa, dentibus ^-1 lin. longis, obliquifl v<l perpendicularibus, hgidis. Glan\* abortieog infra cupulam echinataA 7 lin. iatam. Differt a 0. cocciferi squamis inediis 24-3 lin, longis, iBremil quoque longioribuf. (v. 0.)

p, *parvifolia* Ly foliis 4-8 lin. longis spfnoso-dentatis, fructu parvo, gla'ndc inclusil, squamis den so imbricatis mediis lanceolatis laxe adpressis, supie-Oiis erectiB. j Circa Byzantium (Noé! 233 in h, Boiss.). Fructus in sne-ciruinc ujiiicus, sessjU. Cupula 5 lie longa, 7 lin. lata, squamis mediis 2 lin. longis., 3eopeis. Vix varietas, oam iolia in aliis varietatibus ex loco natali *Bierih* ioierdum minora fit fquuuao Vfirisimiliter eirect\$ vel patentcs *Ifi* div, cupulis, (y. s.)

Y, *inopt*, fructu parvo sept imf>erfecta, glande abortiente vil'^upulam vix superante, squamis abbreviatis latioribus saepe obtusis maturitate omnibus adpressis supremis inflexis. 5 In Libano <Kotechy!), prope Latakieh (Boiss.!), in Creta,(ftaulin! inh. Boiss.) 'etZacintho {h. Webb!). ~~Q. inops Kotschy! it. 1899 et 1897. h. 89 in h. Boiss. Q. brachybotanos id. 441, a, ibid. Q. pseudococcifera? Kotschy! it. Cilic. p. 265 in h. Boiss. Q. Cretica Raulin! 732 l. c. Folia dentibus obliquis ut in seq. Cupulae 5-7 lin. latae. Squamae mediae 1 1/2-2 lin. longae, saepius obtusae, nunc in iisdem numeris Kotschy longiores. (v. 3.)~~

I, *contobrina*, squamis abbreviatis, mediis semi patentibus, gupremis linearibus erectig vel recurvatis. 5 In Libano prope Beirut. Q. conso^rina Kotschyl 442, C, in h. Boiss. Cupula 8-9 lin. longa et lata. Squamae mediae 1J lin. Conges, acutaej supremae 2 lin, longas. Olanş exserta (v. a.)

~~valida~~, fructu majore, squamis breviuicuija validis, imU.oytlis adpressis, mediis inferioribus pateniibus subexcurvis aliis scmpftteniibus, supremis

diu ereclis dtmium saepe unciualo-iercurvis, glande crussa obtusa longitu-  
ciini' cupulffl vH dimidio (ere longibre. 5 lu Tauro Ciliciaa (Balansa!  
1149,1154) it Libano (KoUchy! So, Gaillardoll '2462). 0- valid'a Kotschy!  
revis. in h. Boise. Q. echinau Kotschy 1 ib. n. &5. Sanepluries a Q. coo-  
(iff'ia ad calliprinw iransiuli. Folia m specimine Gailkrdot late ovalia  
9 I. Un. |oaga., \$-12 li)- lata, spinoso-deitatala vel rariua serrato-mucro-  
oata ui |uljiu in oalliprine. Alia specimina folija in calliprino vulgatio-  
ribus similia. Flores masc. (a\* specinj. Balaus.j braceis late ovato-acutis  
ve] ianceolatis in eod. anaento, perigonjo inaBqualiler 54G1»( pUis intus  
baai longis, antheria manifeste mucronatis. Cupula 9-12 lin. longa et  
lain. Sfjuamae mediae 1 j - 2 | in long\*, »uprema Itaeiea ttngu&tiores.  
G 11 es uiaftrae apice inagis imau vulgo pitosae. (v. s.)

7, *bradnjbaianns*, fruclu parvo saepe iinperfecto, glaadfl ihoitiftnte vel  
cupuiain vix tu)erante, squamifi aobreviata laiioribus, jnnliis toaturitate  
laia adpresais vel semipateptibus raro subuncinaiis, mpremia erectis.  
5 nunc ? hi Syiia versus Beyrout (Kolscliyl! 44J, a, b, C, d.) in mont.  
SyriaB vi) Palausihm- (Bovi I 1^2), in uionin Canod (fiailuraotl 2239  
in h. IJui.ss.), et prope Byzaalnfm Boiss. | specim. s-iauii.-. mediis vix  
divergentibuffi sed br&viorioui quam in |;n: eucaillipruiox}. Q. brachyba-  
lanus Kutscliyl! it Cilie. a. 441, c. Q. Cfaainaiepia ia. 441, b. et d. Julia  
in in pleriaqua varicialibus et in pluribai Q. ctfecifera\* seiato-ijin OSB ,  
id est umcroiibus v<rsus ajicRin limbi obliqui ^ V^3 f\*• I»UKi\* Cupula  
(i-7lin. longaet lata. Sqtiamffi media 2-24 lin. lqng»j acutse ve) obtusse.  
{axe ado vessa vel pate nles , suprenife 2 lin. ltrngaj; glamle b  
ublusa.. (v. s.J

7, *leptoUpis*, fi-nciu inrdinrii, squamU inedijs an^uste lanceolalja su-  
premiatque linean-Janoelolais tnaturitate omnibus patent i bus inninaiis,  
glande cupulam paulo superaate. — InTauroadBuJ gar i'ag'<•<• tsc hyl) et  
Cret. (id- B.300. a). 0. eallipnuiis miert^hyiia itoUchy! it Cilic a. U90  
in b. JJuiss. [sed spe mini in li. DC, ex squamis omnibus erect-^ a&l var.  
praoeed. potnu pertinet). (J. dipeacina. Kotschyl 1855, a. 200, a. i'olia  
priori\* BI aucalliprinas, mm minon quam iu plcrisqui, unde uomen  
\u [rums 0- callipruios raicrophylla Koisdij in icheauia JKHl m  
dum. Cii)mta H tin. lata. Sijuamse medue el Utj 3 lin. lou  
Kraciliorai ijuara iu aliis, unde DOtaen. Spccinieu 2<K> a, dijETertaquamia  
brevioribus, supremia ereclis, ted mirvauo in spocic vaiiabilis. (v. ^)

6, *eucailliprinot*, Bquamia dense imbricatts, mediia longa lanceolatis su-  
pruoi«qae linwj-i-lanceolatis er ectis vel laxe adpreuu vd pateatibus vel  
reflex is, planda ceafl inelusa VPI subexsertA. 6 In Ubano (LaJ>UL I  
Blanche! «;<> K19 in b. BoiM. ii) ia h. DC. StillardotJ 2244, Kotechy!  
it. Cilic. 44\*, a, 442, i>) et Tauro (BalansL! 1147, Koischyl 397, 401).  
0. j pseudococcif.ia laldll. is. dec. 5 p. i), t. 6, f. 1 (iiou ftef.J. U- cal-  
liprii'w Weblit L c. (excl. specim. Zacintlii var. inops pi Teluan dnbid.)  
— Jauli. et «p. ill. pl. or. 1, tt. &7, B (ct-ti. iissd. specunibua), Blanche!  
exs., Kois-iiy! exs. Q. dispw Kofachyl<6&5, n. 1443, »• Q- acWnita id.  
n. \*4, b. in it Boiss. |... .;). [cones Lubiil. 01 fau o. (e speci mine au-  
i h i Lbjll- niuc in h.florentiao) accurawe, niil iju od squamæ nimis  
acutae, s' aiunnon fr«quentem (isifjnluit ubi sqiaaia; lunni s <i> \* t. i. >[!!-  
cimi na plura li, Uoiss. iransiins |u|r| )ent a squamis erecti I &l raoutvatas,  
tntelligo frequenter in fmetibus pjsdera rami tnni. ftecurvatio in qui-  
bus lam^amisaaquai nis supnanis, in aliis a m«Ui> incjpit. Squama Be-  
dise'i'-ii lin.Ion-/,.-!. (vr 6\_j

t, *pachijhalnox*, gquamis mediia ovalo Lnceolal i« ailpressis autplua ininns  
patentibus, supremis lineari-lanceol. is t urde apice excurvatw, glande  
crassa obtusissima cupulam paulosuperante — In moni Carmel etfhabor  
(fiailardot! 2243, 2146, in h. Bows.). Cupula 8-3 |m. |É,UK,IT j-u n h\_n  
law, squaxnia oon simillimis in di. ramie wib eodem numeno conwinui-  
calis, vix 2 lin. longioribus, basi lafioribus quau in aliis varietatibus,  
nuiw crassis ut in Q. coccifera saepe ace id it. (v. >.)

- x, *rtgda*, folns subtus glaucis vel subglaucis 5 In rauja (Kotschy < it Cilic 403,404) Q ngida Willd sp 4 p 404 (fide Kotschy, S/\*scty Lichen, t 8, non C Koch. Folia omnino aliarum, et vanantia ft. in Q coccifera et 0 calliprmos basi obtusa vel cordata, dentibus perpendicularibus vel obliquis Specimen meum sub 403 folia minus quam 404 glauca praebet Pilli stellati in folns jun non desunt Fructus omnino Q calliprinos eucalliprinos, et in specimine sine numero glande abortivâ vanetatis brachybalanos Squama mediae reflexae 1|-21m longis, supremae erectae vel in Ilex ae Folia interdum glauca in afnm Q coccifera (v s)
- X, *arcunfa* squamis lmis paucis ovatis obtusis, medus anguste lanceolatis omniboa ancsmato-reflexis, sup re mis linearibus erectis vel uncmato patentibus. 5 In Palaestina (Boiss ! Kotschyl it 1855, n 442, florif et inde dub ), monte Thabor (Gaillardot! 2242 in h Boiss ), Tauro (Balansa' bine num et 1151 in h Boiss), Cretâ (HeWr ! in h DC et 16S3 in h Boiss ), et circa Constantinopohm (Beaupr6) 0 calliprmos Heldr et Balansa in schedulis Q Palaestma Kotschyl Eich t 19^ Q. arciata Kotschy<sup>1</sup> in h Boiss Q recurvans id/flnd (excl specim ad GCteiferam pertra ) Cl Kotschy fructus annuos dicit, sed ex ejus icone et specfminibuVm h meoetBoiss certe biennes sunt Cupula 7-9 hn longa, 8-9 hn lata, glande abortiente aut subexsertâ Squamae rigide uncmatae et retrorsae lmis et suprpmis solum exceptis, T i - 2 lin longae acutae, extremitate ipsâ non inflexâ I<sup>1</sup> lores masc saepius 4-lobi, an the us muticis vel mucronulatis (v s)
- 106 0 FENZLII (Kotschyl Eich t 24), iamulis stellato pubescentibus, folns ellipticis oblongisve sparsim aiuk< ito uentatis vel ran us integris jumonbus remote stollato-pilosis demum glabratis conaceisque, fl matf bracteis , pengomo 4 fido puberulo lobis obtusis, anthens glabris mucronatis, fiuctibus SQbtarns gemimsve sessihbus aut pedunculo brevi insert is, cupulae pubesceHtis basi obtusaB squamis crebns imis ovatis, medus vix longionbus ovato-acutis et ovato-lanceolatis, supremis brevionbus linearibus, omnibus erectis edpressis dorso subconvexis, glande cupulam paulo superantc 5 vel '> In Jauro cihcico frequens (Kotschy exs 1853, n 397! 398! Balansa' 1856, sine QUID ) Habitus, folia omnino 0 cocciferae Flores masc mihi fere ignoti, ex Kotachy paucilom (utui var dasyantha cocciferae). extus basi, margine et intns pilosi/anthens vame, mucronatis Vructus glande nunc cupulam duplo superaalfc, saepius abbreviate, squamis crebns, imis et medns 1 -1 \ lin Ion-gis, linani latis, finem usque adpressis, supremis verticillatis brevionbus angustionVus sat discrepantibuff (v s)
- »t07. 0 AucfeERir (Jaub. et Sp I ill pi or 1 p 113 t. 58), ramisjunionbus fulvo-velutinis. Mils ellipticis vel ovatis basi subcordatii vel obtusis spinoso-dentatis vel uitegns ngidis supra tenuitef«teUAto-pubescentibus glabrescentibus subtus|ulis stellatis adpressis persistentiDUGXinereo-pubescentibus, fl masc , fructibus sessihbus solitarns, cupulae turbinatae cinereo velutmae squamis lmbncatis infenoribus ovatis obtusis supenonbus gradatim angustionbus et minus obtusis infenoiibus mednsque extremitate excurvis subpatentibus, glande vix exseitâ & In msulâ Goi (Auch n 1879 ex h mus par ), piope Byzantium (Auch 1 2879 in h Webb. nunc Florent errore vens numen et loci nat. sed specimen iconi simill) Singuh rami folia inferiora mtegra, supenora dentata modo 0 cocciferae, petiolo 1-3 lin longo, 4-8 lin lato, stellis pilorum subtus multipilosis in vetustionbus squamuhs subsimilibus Fructus ligno anni pnonns insidentes, nunc (in spec Webb) ramuhs anni pnonns non accretis adhuo folufens Cupula 8-9 fin longa, 9-10 hn lata, squamis 1^2 hn longis, mfenonbus extus planis, caetens subconvexis Glans ellip-soidea (v s)

B *Ammcanx*

- 108 0 CRASSIFOLIA (Humb et Bonpl ! pi equum 2 p 491 91, non Benth ), ramis jumonbus dense fulvo^tomentosis, folus breviter petiolatis obovatis basi cordatis apice saepius obtusis conaceis undulato-dentatis dentibus linearibus mucromformibus supra glabratis subtus dense fujyillanuginosis, flonbus ,

pedunculis fructifens notiolo bipwonbus\clrrqualibus, cupula hemisphaenco-  
luibmalA taif(Jpi4 KldWilA squ.iraiss adpissis o\atis oltusis glande ovoideo  
subcxseità > In MEXICO JH\U nnpancingo (H ct B), monte Oiiiz.ib<c (Gal  
114 in h MaiUMis'), Pt in Guatemala ot Costanea (Waisc » 41, 42, in b.  
Boiss) Q lugosa Nee in Ann CIPIC nat 3 p 27'>\* (P\ specim unico Ne<ei.  
inheib mus Matnt sine fl pt ubi Nee geiimas pio fructus sumpsit) 0 spi-  
nulosa Mai tens' et Gal in Bull Biu\ \ 10 n 3, sp n 23 Folia subpeisisten-  
tia, .i-5 poll longa, 1 3 poll lata petiolo 4 6 lm longobisin, veisus angustad  
et lbi laio dntata, dntibus P ppiiphenà ^el c\ angulis suigntibus Inicioni-  
fonnibus ipctis noil ligidis 1-1J lin longis Pcduneuli niuuii e ligno anni  
mions 1-J lin longi, huctus paucos g(lpntes ( upula k ^> lm longa, 5 h  
lm lata Glaus pai\A Afiiis 0 stipulanot (loins) () iPlieulat<e, srd tompiito  
dpnsiore, mucionibus longionbus, loins subpeisistentibus Specimen dubium  
Ne^i tolia ppsislptia piibet, unde a Q leticulata dilteit, sed pulKscntid  
sub lolio non \aldp topics\* huicpiimo adspetu piopior videtui h\ deteCtu  
floi etli xteino OIIMO tiadenduni udetui (\ s)

109 0 spLrNDLNS (Nee' in Anal cienc nat. 3 i> 275 ct in Ann ol bot  
2 p. 100), lamis )unioiibus lulvo tomentosus, folns i)ie\ipetiolaris e basi ob-  
tusa\pl toidat^ obovatis \P1 oblongis vel lanus ovatis s<epius aLUTistoriaceis"  
reraotp anipdio spnatis dentibus s<Lpius subulatis denium \pl jumoiibus con-  
timdalis supia juiuoibus tornento idiuginoo stdlato p\aiicspiitp vclslitis  
subtus Ptiam <idultis dense lul\o-toin< ntosis, stijjilis liipaii-acuminalis doiso  
pilosus Uide culivis ilonbus , litiUibus a\illanbus solitains gr iunus\c so^j  
mlibiis VPI subs(ssilibus i upula (jiihioio) globosa s<iu<inns ,ulj)iossis ovatis  
tenuitpr pubpsu nlibus maiginc •itu miatis /) In MOVILU piopp I ixtala (Nee ') et  
LosOigahos de Attopan (H et Bonpl ) pi entuin 2 p 47 t ^)0) Aibuscula (ex  
Nee), aibor ^0 ped (ex Uonpl ) IMnasis pt d(scnplicu P sppcimnbiis magis  
complUis Bonpl in b Mus pai , s(dsp(cinipn (SHIP fl net liuctu) NP<CI in  
b Mus Matut siinilliiriuin Rami \,i\uh Folia ppsistentia, pnmo anno sul-  
spssilia \cl )Ptiolo 1-2 lin longo utiinqup kiiu^mea, SOLundo anno (onatPa  
et sup.i nitida, pptiolo IUIK J> lm longo limbo 1 ^ \ poll lonrfo, ^)-18 lin  
lato, lomrnto subtus ipre lanuginoso Ubicino, supi i bu \1010 L uluco Denies  
iol in eod lamopt pad ditate vanantos, m spotimino Nisei subuldti vpl ob-  
tusi, nujons o\ati 3 lin longi vel multo mnioi^s, in spi»um. Bonpl liouquon-  
tius subuUti, mucionn otuim linoam lon^o, num lunimid.iti ot **ioie iihlh.**  
Stipula^ 3 lm , in spPLimino NCM 4 lm lon^jr Podunuili 1-3 hn longi, se-  
cundo anno uassi Fiuttus matuius doest DifToit a 0 tiassiioliV loins diu-  
tius ppsistptibus? lunbo basi mtegio, dentibus ad extiemitatem flexis nee  
poipendiculanbus, mucroiubus dentps seu lobulos teiminantibus nee c pen-  
plu LLI abiuptc sui gentibus, tomento loin jun bievioie (v s.)

p, *palhdior*, folns nnjoibiis giossp dpntatis, tonunto iamoiuin (t fphoium  
TdUidiop ^5 In Mexico cue i Heal dpi MouK (Haitw ' 424 42b) 0 cias-  
siloha Bentb pi Jlut\^v (sine dosci ), non Huiiib (t Bonpl E\ num  
42<> foli i epite peiennia, petiolo 3 b lin longo , Jimbo 2 3 poll longo,  
1 2^poll lato, basi e\eeptA grosse dentato-spnata dpntibus pbasi tiian-  
gulan o\au\ aeunnalis SlipuldL J-4 lin Inigffi, pnmo anno ppsistentps.  
Fiuctus seeundo anno m Hun , pedunculo axillan \-''> lin longo mseiti,  
gpmim tprnative ( upula bcmisphdMua 3 lm longi, 4 (>lin lata, squa-  
mis adipssis ovatis maigmp temii glabnonbus Glausovoulea, ^emipxseid  
DifIPita 0 ciassiiohd dpntibus obhquis majonbus diversis a setisabiupto  
e peiipiaia sui gentibus (v. s in h. Boiss )

HO? Q SGYTOPHYLLA (Liebm > Fgesl p 22), lamis petiohsque jiiinionbus pul-  
\erulento \elutims cito glabiatiss, loins P basi saepe macquali o^at< ^pl eunēatā  
ellipticis vel obo\atis ^el laiius ovatis acummatis vcl acutis conacPis mtegiib  
vel d mediogiossc vel bieviteiacuminato dentatis supra glabiatiss subtus dense  
dlbido-tonipitosis, ampiuis giaeilibus pbi idealist p\_f ugonio cimpinulato  
extus piJosulo obluso lobato, anthens apiec subcallosis imctibus spssilibus VPI  
brevissime pedunculatis solitains v^l gemiins, eupuU abbipuato lipmisphe-  
ncâtenuiter pubeseente squamis adpiessis o\dtis obtusis, glandp semiexseita  
ovoideo-aculd j ^ n ^P\ICI montibus ecnti Odxacanis, alt 6- 8000 p ad San

Pedro do Nolano, Castresana, Guesta de Loofcopa. Specimina plurima mense jupio legit cl. Iaebm. undò frondescenfla singularis appareU quae forsàn in aliis spec. Mexicànis simili modo progreditur. Ramus sub IL 146 folia ve-tuata et simul folia nascentia praebet; fructus qui annui videntur ubi folia juaiora desunt (n. 144, 145), observatis fructibus junioribus n. 146 initio secundi anni matureficunt, Species *Q. calophylla* et *Q. sideroxylo* affinis (v. s.)

HI.? *Q. SIDEROXTLA* (Humb. et Bonpl. pi. ©q. p. 39, t. 85), ramis junioribus tenuiter velutinis, foliis breviter petiolatis subcuneato-oblongis vel oolongis basi obtusis a medio dentato-spinosis supra glabrescentibus subtus pube minutâ incanis, floribus..., pedunculis petiolo sequalibus vel brevioribus 1-2-carpis, cupulâ globoso-cyathiformi, squamis adpressis ovatis obtusis exteme pulveru-fento-pubescentibus margine scariosis, giande ovoideâ semiexsertâ. § In Mexici temperatis aridis prope Villalpando et Santa Rosa—Kunth in H. et B. nov. gen. 2 p. 11. Arbor vaide excessa. Folia 18-24 lin. longa, 7-10 lin. lata, petiolo 2-3 lin. longo, coriacea^ dentibus paucis e lobo brevi ovato vel ex ipsâ margine undulato et revoluVy acuminatis. Pediculi 1-4 lin. longi. Cupula (imprf.) 4 lin. longa, 4-5 liff. Tata, mense septempVI Bonpl.) secundo anno matura. Hoc tamen ex uno specimine h. par. manifestum, ex altero dubium. Ramulus ibi fructiger non ultra divisus est, sed interdum ramus secundo anno abortivus aetatem non probat, Species valde affinis *Q. pulchellae*, ubi fructus annui. (v. s.)

12. *Q. LAURINA* (Humb. et Bonpl. pi. aeq. 2 p. 32 t. 80), ramis junioribus pilis stellatis brevissimis puberulis cito glabraus, foliis ovato vel elliptico vel obovato-oblongis acuminatis vel acutis vel rarius obtusis basi acutis vel obtusis secus petiolum paulo decurrentibus integris vel rarius prope apicem paucidentatis junioribus supra in nervo centrali tenuissime stellato-puberulis subtus in axillis nervorum stellato-tomentosis, adultis glabris, floribus..., pedunculis fructiferis petiolo brevioribus vel subnullis, cupulâ (imperfecta) subeloboM squamis adpressis ovatis obtusis tenuiter pubescentibus, giande.... § In temperatis Mexici prope Moran^ mont. de las Nabajas (Bonpl. f in h. par.). Petioli 3-6 lin. longi Juniores cum ramulo fulvo-velutini. Limbi 2-3 lin. longi. 9-18 lin. lati, juniores in parenchymate fere omnino ^labri, adulti supra lucidi demum utrinque ^abri, nervis latet. subtus eminentibus obliquis erga nervum centra-lem, tertiariis parum eminentibus, dentibus ubi adsunt acutis. Pedunculus unns adest 6 lin. longus, basi 2 apice 1 fructum gerens, sed plerumque fructus solitarii subsessiles in axillis foriorum persistentes secundo anno maturescunt. Cupulae Juniorcs 3 lin. latfi. *Q. caryophylla* et *Q. Quizabae*, in sp. tubiis forsàn Wejiragente. (v. f. in h. Mu3. pat)

£ 8. *Ovula abortiva tupera* (\), id est cirtia verticem seminis adpres-  
sa; matwatio fructus seewndo anno (nempe fructus maturi ligno  
vetuspo iwrlif) f - ^ Otnnts americanw.

\* Foliis pro tempore orbatas (2).

113. *Q. FALCATA* (Michx. Chen. t. 28), arbor, ramis junioribus tenuiter cinereo-ve-lutinis, foliis basi obtusis vel acutis ovato-oblongis grosse et irregulariter 5-vel rarius 3-7-lobatis lobis varie pat^ntibus mine falcatis ovatis lanceolatisve mucrone subulatis supra glabrescentibus subtus tenuiter dense fulvo-velutinis, ararentis gracilibus pilosis, bracteis fugacibus linearibus perigonii 2-5-partiti lobis ovatis evtus pilosis, antheris 4-5 mucronulatis, fructibus solitariis geminisve pedunculo brevissimo insertis, cupulâ hemisphaerico-turbinatâ squamis

(1) Character observatus in «p. n. 113, 114, 116, 117, 119, 123, 124, 125, 127, 138, 129, (31, 133, 139/142, 145.

(2) Folia grosso ~~multis~~ MUBIU1B aut spinota. Bractea A. »\*sc- ~~scop~~ nullæ.  
Stamina pauca.

adpicissis senccis o\alo loncqflcitis obtusis glande cupulam dimidio saepius superante } In Amend sopt a Flonda (Michx, A Gray in h Boiss ') of Texas (BciUnd < 169J smc fi ), dd New J( iscy (Michx. f. Giecn in h DC) of Kentucky (Ridd fl w. st p 29) — Michx 1 dib Am 2 t 21 0 elongdLi Willd sp 4 p 444 U discolori Ait liort how ed 1 v. 3 j) J58<sup>9</sup> Q discolori var folidld Spdch \og phdn \ II p 10 J Aifims 0 lliciolia?, scd folns nidgis lobatis, sul>lu\* iiiiMs Itoliusqudui albidis, cupulā »on stipiutā, minorc Folid J.'J poll loijtfd, 2-J poll ldttd, lobis inlei nidjonbus, supu icmotisunde folia inteiduin j>ubJ>idtd Puiolj 9 15 lin longj. Anicjita 2 J poll longa Cupuld6 lin lata, .J-4lin dlu, hasi subconiw vel subobtusa, nunc subbtipitdtd (ic. Miohx f) GUns 4-C lin longa (v e)

;3, *Ludovicmna*, anthons muticis, cupulā majorc patento ^ In Louisianā 0 fakati A Gr.ij' hcib P'olia ommno Q ialtatae Vestigium mucronis in anthens quibusdam ( upula 8 9 hn lata, 3 4 lin alta, basi planmscula, unibono coinexo non stipitdtd. An foima constans? An h\bnda quitedam? (N.S)

Y, *tnloba*, folns ol)ovato-cuneatis apice trilobis, lobis abbreviatis obtusis mucronatis, potiolis biCMonbus \*> A Geoipid ad No\am An^likm (Michx ) 0 iimpriid, loins etc Wan^ aib 1 14. 0 tnlohi Michx Chen 1 2>. 0 talcatae \anatio Michn 1 ail) Am '2 p 10b Foliapossidio <s ( aiolinā, a Fiaser nuncupata, quae milu 0 ialcatae JKituhqucim ingiw pioptoi toinentum pdsistens \idontui. Petioh J-0 lin longi, ox ic Mich J-4 lin. Folid suiculorunijun exiconeMich cljptied7-9-lobd, lobis dcnUtis (v s )

114 0 incuoiia (Wdiigcnh Forstw n 79 f 17), humilis, ramis junionbus tpnuitpr incdno-volutinis, loins obovifis gross? f>-lobatis VPI lanus J-7-lohatis supoinc glalnatis subtus tenuitPi ptdonso albido-\clutims, loins apico ot passim niaiKino subuhto niucronatis, bracteis fl masc oblongis fupacibus floio sublongmribus, poi l'0III 2 "j-pdititi lobis o\dtis extus pilosis, anthons 4-'i brevissiuup mucronulatis muticis\o, liuctilms soliUm? fforamis\o pedunculo bicvissino juscritis, cujtuld supi 1 stipitoim piopimni bixonu squimic onustuni lojuisph, in i sfjudims adipissis scnceis u\dto-ldiiuolUis obUisis, ^lande cupulam dimidio superante } In mont Virginia (A Gray in h Boiss ), in Pennsylvaniā (Michx Engelm '), New Jersey (Michx), New York (id Engelm '), Connecticut (A Gray), Ohio (Hart & W Ch) et Massachusetts (Merrison reptrees Mass. n 100 "f'cunm' at p. 100 abhld t 54 (florens), Emers l e t 9 Q Bdinstpji Michx Chen t 27, Michx 1 dib Amu t 10 Fnjtex 3-10-peddhs Folia 2-G poll longa, 1 )-k poll laU, peliolo Vi:> lin. longo, junioia bupid sUlhto-])ilosuld, subtus dense stclUlo-tomentosd, lokb ovdtis o IPI\O xuiiuoiuLis Stipulae 2 hn longd), linedics Peduiuuh imctil 1-4 lin longi Stipes cujus\c cupuld3 1 J lin , aubcyhndi icus Cupuld .J-4 hn luyzi, 5-7 hn ldttd, squanns obtusis vel subacutis (v s)

U5 0 CATEsLfi (Michx Chen t 29 et 30), lamis junionbus glabns, folns bioyitci petioUlib basi cuacitis oblongis giosso J 5-lidib lobis iuuqiiilibiis sa po iilcitis \cl pdtntibus ovdto-dcumiatas apice et passim nidigino sulmldtoniucionatis (enliali sa^pius 3-lobo junioiiLus pubescentibus adult is ^libns, biacteis uullis"? peiigomi subglobosi srpius 4 lidJ lobis o\alis, antlipus nmicioiidtis, fiuctilms pdlunculo bioM inseitis solitams gtminisxo, (upulā hemihpliJ.liiu) luibuidtA, squimis adipissis ovatis obtusis subsonuis, glande ellipsoldeA diniidiocxseitā tf In Auicucasept a Flonda (A Giay' Rilgcl' in h BOJSS) ad fdiolnidin sopt (Michx Olney et MUciltfSS ») - Michx f dib Am 2 p 101 t 20,111 sk Cai 2 p 003 Quoicus Lsculi duisuia, etc fat Car 1, t 2J (mih quo id fmcl ) 0 laeus Wilt ? (o\ HI) Aibiistula Folia4-7 poll longd, ex lonKiiudine loboium 6-6 poll ldttd, mci lobos angustj nunc maigiuihus )didll(hs Jias i\_n peiuiolum 2 b hn longuin ingusuta, lobjs infononbus ubi J Mqiunhhu^ ubi r> lonptmbus mUgiis \ ( 1 2 3 dentatih Gemma' beiKOCb, dLCimii it 1 l'Hbos j\_oj jin, siiJ^ldndulosd, Ailvesceus, m axiilih dm peisistens Podunculi ducur 4-0 lin iongi Upula C-8 lin longd, 9 lin lata, oie subconstiicti, basi piu< minus in btipitein coDicum '-2 hn longum angusUU vel couvexd (v s >

lib 0 RUDRA (I inn sp p 1413), lamis junctibus glabruis, foliis longe petiolatis ovatis vel saepius oblongis ellipticis oblongisve grosse lobato-pinnatifidis lobis ovatis vel acuminatis apice et passim margine subulato-dentatis junctibus utrinque pilis stellatis minimis caducis pubescentibus, adultis glabris, amens pilosis, bracteis fugacibus (nullisve<sup>9</sup>), pennis sessilibus vel brevissime pedicellato 4-5-lobis, lobis ovatis obtusis pilosis, antheris 4-5 glabris fructibus subsessilibus solitariis geminisve, cupula late cupuliformi depressa feie scutiformi vix stipitata squamis adpressis ovatis glabrescentibus Rhodae ellipsoideae valde exserta<sup>5</sup> In America septentrionali a Georgia (Michx) et Texas (Lindh H3 in h Engelm) ad Lacum Huron et Saskatchewan (Hook 11 bor am 2, p 1<sup>^</sup>8), a mari Atlantico ad Iowa (Coop 1 c) et Missouri (Engelm) — Wangenh Foist f 7 (fructu male fig), Michx Chen t 3<sup>'</sup>) et 36, Michx f arb am 2, p 126 t 26, Emers rep trees Mass p 148, t 10, Biendel oaks Illin t 9 0 coccinea var > rubra Spach veg phan 11. p 165 0 nigra Regel pi exs faiol in h Boiss' (non L.) Species non fobis, sed cupula depressa ab affinis distincta, unde tab Catesby et Pluk fructu non depresso aut malo del non citanda Petioli 1-2-pollic, limbi saepius 3-4-poll longi, 1 i poll lati, aut turn non rubri (cupula 9-12 lin lala, 3-4 lin alta. in pedunculo mine sessilibus nunc in stipitem squamosum lineam longam abrupte basi angustata, minime conica Specimen postmodum a cl Gray comm ubi cupulae gemmae adsunt, una stipitata, altera vix ac ne vix attenuata Folia adulta saepe tomentum subtus in axillis nervorum continent, ut in Q palustris (v s)

(J, *runctnata*, fructu minore cupula basi breviter subturbinata vel lanus convexa<sup>'</sup>) Unica in piope Saint-Louis, in solo pingui, cum Q rubra, palustris, imbricata mixta (Engelm'), Folia omnino 0 rubrae Cupula 7-8 lin lala, J lin alta, magnitudine ideo et forma basi ad 0 palustrem potius quam Q rubra atcedens An hybrida<sup>9</sup> ex Engelm Specimen nunci misit cl Engelm quod a vulgari Q rubra non distinguere possum (v s)

117 Q PALUSTRIS (Du Roi Haibk Baumz 2, p 268, t 5, f 4, ubi fol solum), ramis junctibus glabruis, foliis longe petiolatis ovatis vel obtusis ellipticis oblongisve profunde lobato-pinnatifidis vel raris grosse lobato-subpinnatis lobis ovatis vel acuminatis apice et passim margine subulato-dentatis, junctibus utrinque pilis stellatis minimis caducis pubescentibus, adultis glabris utrinque virentibus, amentis pilosis, bracteis fugacibus (nullisve\*), pennis sessilibus lobis 4-5 ovatis obtusis pilosis, antheris 4-5 glabris, fructibus subsessilibus soli tanis geminisve, cupula late cupuliformi fere scutiformi in stipitem brevem squamosum basi saepius angustata squamis adpressis ovatis glabrescentibus, glande ellipsoideae multo breviora<sup>^</sup> In palustribus Americae septentrionalis a Massachusetts (Michx f, deest tamen in Lmers rep trees Mds), Ohio et Missouri (Engelm), ad Texas (Cooper in Smiths rep 1858 p 215)<sup>Pt</sup> Georgiae montes (id), aut solum usque ad Virginiam (Michx p et f) — Michx Chen t 36 et 34, Michx f arb Am 2, p 123 t 2<sup>'</sup>), Drendel oaks Illin t 10 0 rubra ramosissima Marshall arb Am p! 1-04 Q rubra dissecta Lam Diet 1, p 721 Lx herbams vanetatem 0 rubra<sup>^</sup>B fructu minore, foliis plerumque magis dissectis dixerunt, sed omnes fere auctores americani distinxerunt et rami interiores intricati, inflorescentes pendentes, folia saepius minora et utrinque virentia habitum diversum ex Michx f praebent Diversitas foliorum in eadem arbore (ut in Q rubra) maxima (h Engelm!) Cupulae 6-8 lin longae, 2-3 lin altae, forma fere 0 rubrae, stipite raro dehiscente, magis conico, ubi adest cl Engelm mecum comm cupulas 10 lin lalas basi convexas non stipitatas, ideo Q rubrae, ex arbore quam foliis Q palustris dicit (v s)

118 0 GEORGIANA (A Curtis in Amer Journ 1849, p 408, et bot Zeit 1850, p 530), humilis, ramis junctibus glabris, foliis plerumque longe petiolatis ovatis vel cuneatis oblongis saepius pinnatifidis raris sinuato-lobatis lobis 5 vel raris 3 ovatis vel triangulatis acutis apice subulatis, junctibus supra subtus tomento stellato caduco pubescentibus, adultis supra lucidis glaberrimis subtus ad axillas nervorum demum tomentosis, amentis fructibus pedunculo brevissimo insectis solitariis geminisve, cupula hemisphaerica non stipitata



tata squamis adpressis o\atific. subsensibus glandem o\oideo-globosam terliâ circiter parte amplctente J In Georgia Allitudine (-8 ped Folia 1 \A poll longa, 8-24 lm lata, turn petiolo saepius (>12 lm longo, nunc (in spcimme b Nngelm ) 2") bn longo Ppdunculi iuctifpii in r.imis donudatis secundi anni, 1-3 lm longi Cupul\* pai\ae, 4-0 lm lat.e, 2-J lin altaj, squamis obtusis ut in omnibus affnibus (v s in h Kngelm et Boiss )

110 0 COCCINFA (Wantpñih Anpfl noidam Hoi/ p 44, f 9 ) ramis junionibus Klahnusculis, folns lung( pptiol i is p basi )l(i unique ubtusA ollipticis obovatis o\atis\e giosso lobatis vol pinnatifidis loins ovato-auritis apicp d passim marline subulato-dontatis, junionibus utnquo stellato-pilosis, adultis glabns, ampntis pilosis, bñiLtPis liiKanbus llore sublongionibus futfaubus, ppngomo spssili NPI SIIISPSSIII lobis J-4-> o\atis obtusis j)ilosis, antlipns 4-0 glabns, fructibiis siibsfssililiis cupula tuibinata plus minus basi in stipitom squamosum Looiicuin angustata squamis la\e adpiessis ovatis pt ovato-lanepolatis obtiMs velutmis, glandp plhpsoidpa dimidio cnutPi expita' ') In Anipncil sppt 0 rubra a Linn sp Ml i Folia JH poll longa, 2-> poll lata, pptiolo 1-2-pollican, in suculis juuioiibiis (morio sp affinium) ampla, non profunde lobata, petiolo brp\ioip, in aibonbus clatis scetpius 5-loba, sinubu^ latis, lobis flontdtis inaequalibus Pulies sub limbo (ut in affinibus) in axillis nenoium dm )Pisistpns ( oloi autumnalis (vx I II^PIII in lilt) pio loco ot .tistatP admoduin vanans CupuUe fuinn constans, ov innumciis spouniibus a cl 1 ngelin missis, ut in tab 22, 21 Pt 24 Mich\ f appaiet, diffpil a 0 rubra basi conita npe rotundata. SquamE piirtpipa maigino tPiunorps, supipm\e laxiorps, s<Ipp tians\pisp apice rugos>p Magmtudo \<inat 7-10 lm latitud et 5-7 lm altitudinis Sine fiuctn, in IK ibains a plunbus spciminibus^Q ilibrae non distmguo, vul^o tamen lobi magis palentes et sinus latioips (v s)

a, *coccinea*, cortice pxtus cinprpo mtus inbro, folns plorumqum pinnatifidis autumnno s.ppius rubns, tupula intpino (t camp glandis all)idis |o| luteis — AHondA (A Giay' b Boiss ) et lpxas (Matthps' 47 i ib Wnght! in b Ingolm ), ad Missouri (hngelm \*) pt Mwsacbusstps (A biay<sup>1</sup> Micbx Empis), Pt imo ad Novam Scotiam (0 ambijjua Muhx f} 0 coccinea Michx Chen t 31 Pt 32, Micbx f aib Am 2, p 110, t 23, Lmpis ipp tipps Mass p 144 t 'i (ulu pp:ippa dissipit) 0 ambigua Michx 1 aib Am p 120, t 24 Q boioalis Muli\ ft am sjlv n 98 (in Loud ent p 870 tit) Folia in Q ambigua Michv f fpre 0 rubric, spd in vulgan coccinpa accidit, et fructus omnmo coccineje (v s)

P, *rugrescenSy* cortice extus fuscpscentp lugosioie mtus cum pürtp intPinA cupulai pt tflidiis intpnsu auiantiacis pt ma^is quain in a amans, folns s#pp amplionbus et minus lobatis autumnno \diIC coloratis \$ Lx (ooppi (Smiths rpp 18)8, p 2") a montibus tiporgue cUAikansas id Iowa pt Maine, px Michx (aib 2, p 110) a GpoigiA ad limitps ipid Maine, utioqup latorp Allpghanips, spd cl r.n^plm (in litt) Pi Bicndel (oaks Mm ) unican spcicm in Missouri Pt Illinois admittunt, qu.r milu cociiipa a \idptui, aut saltern tiansitus intPi a Pt p pi.vbpt Q tinctona sinuosa Michx flipn t 2") 0 discolor Willd sp 4, p 444? Q tinctona Michx f aib Am 2 t 22, Emerson rpp trees Mass p 141/1 7 Pt 8 Vulgo *black oah* Himi) unioips punct ito-glandulosi (I mpison) Folia lunioia stililus punct ilo-tflandulosa (Michx f) AIM li.ii.ii.tr IPS (onstantps et m a dpficirntps^ Quietus loimâ siinillmil r<>ba auuiinio lla\o-brunna VPI obscuip puipupa \P1 iul)FO-aii inliaca Maiioipm paitem mateiies tmctoricfi gallicp *quercitron* dietse vensinnlitpi pidibet (v s)

y, *tinctona*, folns quam in a amponbus pt minus lobatis pube subtus minus caduct, cupula hemisphapiid MX basi in stipitpm angustata 5 In montibus Virginia Pt CarolnicE (Michx), in PPnnsjWanrt (Portpr in h IiiRolin ! ) 0 tinctona Baiti tiav (fide Michx) Q tinctona angulosa Michx Chen t 24 in Hayne Ar/ngpw 12 t 4o itoi ita Q \plutma Lam diet 2 p 721 Folia in ICOIP implp obovita, MX lobata, ut s-ppe in arboribiis junionbus pnoium accidit Pagina mf pubescpns (PX Muh\), an finpm usqum anni\* Cupula ba^l obtusa (PX IC ), subscutpllat.i (ex dpser ), nee tamen lata dppipssa et basi planmscula ut m Q „ubi<l Sppcimma

plura in Bois de Boulogne Pansiis a Michx f sub nomine 0 tinctorne introducta in herb Webb adsunt, uli folia nunc sublobata, nunc pinnatifidi, juniora oculo nudo subtus puncta'o-glandulosa, oculo armato stellato-pilosa, seio glabia Cupula ut m IC Micht sed transits adsunt cum pnonbus var et squamae semper simillhmae Specimma e Pennsylvania h 1 ngelm folia profunde lobata, glabrata, fructus obtosos praebent (v s)

8, *Rugeht*, folns profunde pinnatifidis longe petiolatis, fructu mmore, cupulâ obovatoideo-hemisphaericâ squamis supremis subacutis non laxrusculis 5 In Carolinâ sept Q palustris (an potius coccinea) Regel in h Boiss ' Petiolis 12-18 lin longis hmbi 3-4 poll longis adultis glabrescentes nurrpurascentea cupulae 6 hn longae, 5 lin latae, formâ Q coccineae nee palustns (v s)

120 Q SONOMEIISIS (Benth, fide Kotschy m h Boiss), ramis junionbus glabns'', folns ellipticis vel obovato-elhpticis basi obtusis vel ranus subacutis grosse lobato-pinnatihdis lobis ovatis passim dentatis apice dentibusque setaceo-mucronatis junionbus utnnque stellato-pilosis subtus inter pilos fulvo-glandulosis, adultis supra praesertim glabratis, amentis, fructibus pedunculo petiolo hreviore libertis saepius soli tarns, cupulâ hemisphaencâ squamis ovatis adpiessis obtusis subsonceis, glande ellhpsoidêâ cupulam dimidio suporante J<sup>in</sup> California circa Sonoma (Hartw ' 1966) 0 rubra Benth I in Hirlw pi Calif p 3\*7 Petioli 7-15 lm longi, hmbi 2-4 poll longi, 1^-j poll hiti, saepius 7 lobi, lobis apice et margine saepius versus basin folns vel utioque lattr 1-dentatis, chartaceis Fructus majores quam in Q rubrâ vel 0 coccineâ, formâ prions, sed squamis posterions, pedunculo 1-6 hn longo insertis Cupula minime nasi attenuata, 6-8 lin longa, 8-11 hn lata, ore ut in affinibus paulo constucta, squamis margine membranaceis, super non laxis (v s)

121 Q LEANA (Nutt^x auct amer), ramis junionbus glabns, folns e basi p^ruraque obtusâ onBngis vel ovato-oblongis vel ranus oBovato-oblongis cicutis margine undulatis (vel irregulariter Ipaucilobatis apice et extremitate lorum mucronato-setaceis conaceis adultis supra glabris subtus stellato-pilosis demum glabris, amentis, fructibus in pedunculo brevissimo solitarus gemi^isve, cupulâ hemisphaericâ in stipitem brevem squamosum abrupte angustatâ smiamis adpressis ovatis obtusis subsenceis, glande cupulâ duplo tn-plove majoie ellipsoideâ 4 Rara, forsan hybnda, prope Cincinnati (Lei<sup>1</sup> in h Engelm ), in Illinois (Mead \*) Hybnda ex Engelm in herb Q imbcana<sup>1</sup> et tinctoritp (id est coccineae) ? Folia 3-6 poll longa, 1&-4 poll lata, petiolo 9-15 lm longo, formâ generali potius Q imbcariae, sed majora, tomento ca duco et frequentei lobata mucroata, in eodem ramo undulata vel lobita, nunc uno latere tantum 1-2-lobata, lobia ovatis, sinibus parum mcwis tiuctus 0 coccinede Cupula 4 hn longa (mcluaosUpite), 6-7 hn lata Folia non magis variant quam in affinibus, fructus constans Hybnditas non certa (v s)

122 0, TOTOTLE^SIS, ramis petiohsque jumonbus stellato-tomentosis cito glabratis. fohis obovato-oblongis vel oblongis obtusis muticis basi cuneatis vel obtusis margine mtegro cartilagineis subundulatis tenuibus nenns tertiant\* vix distinctis junionbus passim pihs stellatis vel sohtarns conspersis adultis glabns, amentis gracihbus parce pilosis ebracteatis? pengonio masc campanulato sessih vel subpedicellato 4-5-lobo glabrmsculo, anthers oblongis muticis, peduncuhs fern petiolo subbreuionbus, styhs elongatis hnean clavi-formibus, cupulis geminis solitarnsvê hemisphaencis squamis ovatis adpressis tenuiter puberhuhs, glande subexsertâ 6<sup>9</sup> In Mexico prope Totutla (Lieam '), mense apnh florens et fructus anni praetenti in hgnô aphylo maturescens Folia parva, petiolo 2-4 lm longo, limbo 1 2 poll longo, 4-9 lin lato, nervis seeundarns tenuibus, tertian is et quatemanis mimmis reticulatis vix oculo nudo videndis Stipulae hneares, fugâces Amenta 11 poll longa, ftonbus sparsis Pengonium hneam longum, lobis maequahbus erectis ovatis brevibus Antherae glabrae Styh 3, patenti-revoluti, glabn, | lm longi Peduncuh fructif 4 hn longi Cupulae 3 lm longae, 4 hn latae, sed vix perfectae subclausae glande acutâ Locus in subdiv genens paulo dubms Species enim hisce Ame-

ricae bor parum arfinis, habitu potius specierum n 48-50, sed maturatio fructus mitio secundi anni (v s in h. Copenh et ab eo specim accepi)

- 123 0 PHEILOS (Linn, sp p 1412), ramis junionbus stollito-puberulis cito glabratis, folns p basi acutl VPI obtusl longe lino.in ohlongis seticeo-acuminatis \fl cuspidatis intogomms \d imdulitis 'uric glabns mine junionbus tenuitci pubciulis pilis MibtusdensioiibusaduUis toraenlo dcraso utimqueglabns, amentis giahbus, rachi paicp pubesconte, bi.ictcis , ppngonn pilosi sappius 4-fidi lobis ovato acutis, anthpns 4 5 glabns, fiuctibus solitarns scssilil)us vel brevissime pedunculatis, cupuU hpmisplneiico-tuibinata squamis ovatis .ldpiossis obtusis SPHCPIS, glande cupulam dimidio saepius supeunte ,5 In humidis et inundatis a Louisiana (A Gia\ '), Geogiã ot pi.Tseitim Carolin.^ (MI A diay '), ad Philadplham (Michx ) Pt Long Island ((ooper yi Smiths inst rep 18'8, p III), intei maie et montes Alleghenys, in Aikansas (Engelm 1167)Pt le\as (Engelm ' herb) Q Pheilos sjlvatica Mithx Chen t 12 0 PIIPIOS Michxf aib Amer 2p 74, t 12, Ell sk GPOI 2, p fr)l, Loud enc trees p lbO2 Queicus, etc , Cat Car 1,t 16 Rami glabnusuih. Folia, jujiuua angusia, adulta 2-4 poll, lojiga, 3-6 lin lata, petiolo 1 4 lin longo, in aiboie junioic utioque lateie umlobata (Michx Chen t 12, f 2, in Loudon eilL ltrata), ceitp dptidua et tunu nto detc Isibih Slipulae anguste lmeaies, 4 lin long<e,pilosulae Amenta fohis duplo bie\ioia^ biaccae lugates<sup>9</sup> Gupuld J lin dltd,4 b lin lata (v. s)

[i, *subimhncai la*, folns chpticis utnnque obtusis muticis intpgm *fi* In New Yeisey (A Giay ' sub nom 0 imbiicariaj) Folia 2 ^-J poll.Jonga, 10 14 lin lata, petiolo 3 hn lon<sub>n</sub>'o, latioia et obtusiora qiam vulgo in 0 Phollos, sod tompnto paginae mf caduco a Q imbiicaiia diffprt. An hybndi? Folia non ppisistpntia, undo Pheilos et Q IrabiioanaaQ aquatica, cinciei, etc differunt (v. s)

- 124 0. IMMICAM (Michx Chen t 15), iamis junionbus stellato pubemlis, folnse basi acuta VPI obtus\ plhplcis ohlongisv\* sptaceo-acuminatis vel cupulatis intpgns, junionlms supi i spnsim subtus donso incino-tomentosis, adultis supra glabiatibus subtus tompnto pcisistpntc, pilis stellatis non hip vissimis, amentis gratilibus pilosis, biacteis , ppn^onii 2 4 parliti pilosi lobis ovato-acutis, anthons 4-5 ghlms fiuclibus solitauis sessihlms \el biP-vissimo pedunculatis, cupull heinisplijiiito tuibinata squamis ovatis adpressis obtusis spncpis, glande cupulam dimidio sTpms siil)crantp f) A montibus Geogij? (Coop in Rep Smiths mst 18^8, p 2T) et (aiohn.ne (Kll sk Geoig 2, p '98) ad NPW Yeise\ (Coop lb ) et Ransis (id) Michx f aib Am 2, t. n Q Phdlosp Spath\cg plun 11, p 160 Foluceito dpcidua, 3 4 poll longa, 12 poll lata, petiolo 2-7-linean, adulta supia nitida Stipulae 4 hn. longae, lineaiet., sciiceae Amenta 1-IJ, poll lon^a Cupuloj J-4 lin longge,5-7 hn latae Glaus o\oideo-globosa Diffleit a Q Pheilos folio ntiorc, tompnto subtus peisistente longioie (v s)

P, ?pmuZo?o, folns passim maigine subuhto-spinosis Prope Sl-Iouis (Engelm ! herb.).

- ir> 0 NIGIU (rinn sp p. 14H, var fl), larais folnsqup novdhs tomentobio-vissimostollito incaiiis, f<li<sub>s</sub> e bisi acuta vel obtusft |r| subcouhtA obnvitis modiiim jsquo cunp.itis saepius intpgns a nudio «impli.itis tnlobis vel intoftris lobis mnuonp filifoinn s,ppiu, tpnnin.itis ulultis sujna ghbiatis subtus tompnto stplato albo ciduco in avillis npixoiim acPi\ato id|imctis pilis adprpssis minimis fuhis magis peisistpntilnis coloiatis, biactpis lanepolatis fugacibus nore sublongionbus, ppiigonii 2-4-paititi lobis o\atis extus pilosulis, fructihus subsf ssilibus solihnis gemmisvp, cupuU tuibunto lipmisphaenca squanns adpipssis ovatis obtusis scuds glande (upulam dimidio supeiante \$ In Amenca sppt a lexis (Wnght' Beiland ' 2570, 1 ^72, Matllus! 189) et raiolina rnpud (A c,iaiy ,, h Bo.ss Fiasei ' in h DC) usque dd Missoim (Englm ' RiPhl' 2T,) et New Yeisey (Mich\), etiam long Ishnd (Torr! in h Boiss) - Wangpnh foist p 77 t U(m.ih), Michx (hen t 22 ot 23, Loud, enc trees p R7<,f 1W3, JV)4 0 foniiKim IMILIIY i «nb Am, 2, p <)2l t 18. 0 Maijhdii.i, Ptc , (at Cn 1, t I<sup>1</sup>) (pnssinw) Q mbia Rugel exs<sup>m</sup>

e Carolina in h Boiss ' \*olia aiboium juniorum magis vaiiant, mterdum (in eod Idmo) obovdta vol olliptica, sxpo mtegra, in arbonbus adultis saepius (C, poll IOIK i, ultia medium J-4 poll 1 it i, potiolo (in div ramis) 1-8 lin lorigo, pubesuntia nunquam subtus omnino evanescente pilis aut materie pihfoimi mitantibus<sup>9</sup> fulvisvel fuscis inter pilosstellatosdiu persistentibusco- loiem Ubaunum praebentibus Aculeis in margine fohorum velapice loborum lai is elongatis nuncnullis aut cadentibus Cupula5 lin longa, 7 lin lata (v s)

p, *qumqucloba*, foil is lateraliter paucilobatis citius glabAtis. ffetiolis elon- gitis § Prope St-Louis (I ngelm I) An formi in eadera arbore constans? PotioIT G F> Im longi Pars lateral is limbi non cuneata et Integra, sed utnnque 1 2 lobata vel mttgra, quod in vulgari interdum accidit Fiuctus etil simillimi Lobi in alteio specimineh Engelm dentato-lobati (v. s)

r, *tndentata*, folns ellipticis obovatis oblongisve apice 3-lobis vel a media 4->>lohm vel integns lobis obtusis non profundis, mucronibus filtfod- mibus apice loboium vel passim m margme,^)etiolis saepius elongatis ^ Aiboi unica, nunc dejecta, in Missouri prope St-Louis Q tridentatd, in hybnda 0 nigrae et imbncaiiiae (Engelm ' herb) Petioh in eod rimo, | 7 vel 4-10 lm longi, saepius 8-10 lin Tomentum album sub folio caducum Fructus 0 nigrai tolia fere similia possideo arboris ohm cifftae<sup>9</sup> a patre Q tnloba senptd, ubi tomentum caducum aQ tri- lobâ Mich (0 lalcatae var) diicit (v s)

126 0 SKINNERI (Benth pi Hartw n Gf, p 96), ramisjunionbusglabns, fo- liidongppetiolarisovdtotel subldnceoldto omongis basi acutis vel obtusis apice acumiutis maigmc ctapicc scetaeo-dentatis dentibus e basi lanceolata longe h- i lean bus supi t junionbus tenuissimae puberulis adultis glabns subtus junion- busstollato-i)ilosus adultis in axillis noivorum dm tomentosis demum glabns, dincntis pufescentibus, pmgonio campanulato 5-(>)-dentato, anthens mu- cronulatis, huctibus maxirais subsessilibus, cunula plano-patelliformi squamis adprossis ovato-delf^jdeis subvelutinis, glande globoso-ovoidea basi solum inclusa intus dissepimentis mcorapletis irregulariter ruminata ^ ^n dech- vibus Mexici versus mare Pacificum (Hartw ' 615 in h Boiss Webb), in duatimala (Skinner, Warsc ' 40 in h Boiss) — Lindl gard chron 1841, p 110 c IC (fide auct cit), veg Kingd p 291 c IC Hoofc^ ic t 402 (icmmae tomentosje Folia omnino Q Xalapensis Flores masc ex specim iraporf Warsc observati non diversi Fructus vero valde dictinctus, magnus7 pedunculo 2-0 lin insertus Cupula 15-18 lm lata, margine excepta plana, squamis acutiussculis vel obtusis Glans 1-1J poll alta et basi lata, endo- cdrpio vduc prominente ad species asiaticas genus Synaedrys a Lindl voca- tas decedens, sed plunbus ah is affinis (v s)

127 Q XALAPENSIS (Humb et Bonpl ' pi equin 2 p 24, t 75), novellis spai- sim et Drevitei stellato-pilosulis, ramis cito glabratis, folus longe petioldtis ovato vel o>dh-lanceolatis acuminatis basi longe vel breviter cuneatis regula- nter longe setaeo-dentatis adultis supra glabns subtus in axillis nervorum diu stellato-tomentosis, amentis sparsiflons ebracteatis<sup>9</sup> pengonio turbinato extus piloso nrogulanter<sup>1</sup>)-fido lobis obtusis, anthens apice subcallosis, pe- dunculis fructifens petiolo multo brevionbus ^-2-carpis, cupulâ depresso ve- ~~subelongato nemispnærica squamis cupressis obtusis exius tenuiter pubes-~~ centibusimis ovatis alns ovato-elongatis, glande semiexsertâ § In Mexico or- ~~prope Aaiapam monpi ij, Mexedat v^atum t h (^ancuhj, in monte unzaire~~ (Martens et Gal 1 c sp n 18) et in Gpatimala aut Costa Rica (Warsz « 10 et44 in h Boiss ) Petioh 12-18 lm longi, ghbrati Limbi juniores utnnque passim stellato-pilosuh, adulti glabrati 3-6 poll longi, 16-24 lin lati, mem- branacei, lobis faterabbus utnnque 6-7 ad mucron^m gracilem 2-4 lm Ion- gum vel lobulum setfl simili terminatum tendentibus Bractaeae amenti forsan delapsae in specim obs Flores fem styhs elongatis lineanbus patenti-recur- vis Pedunculi fructif 3-9 lm longi Cupula in fructibus conne\is 5 9 lin lata, basi obtusissima vel paulo elongata, 4-6 lin longa Glans ovoidea vel globosa Cotyledones extus convexae, ut vulgo, nec ut in affni Q Skinneri ruminatae (v s)

128 0 WABSCFWIC7II (Liebm in Seem, bot Her 'p 252 et in Egesl p. 29), lamis juiiiorihis pilis stellatis fulvis saepe retrorsis tomentosis, folns apice i imoium congestis bipussirue petiolatis (longato-obovatis Jnsi obtusis a)jice auiiiiinalis a medio lepande dentatis meinbidiiaceis supia glabrescentibus costâ lusco-tomentosa\*â subtus ad costani neivosqup praesertini piln, stellatis lusco-tomentosis, flonbus , fructibus sobtarus pedunculatis, cupulâ magnâ liemispliTricA squamis adpressis e basi plus minusxe dilatate lanceolatis acutis In mis nndfeo-w lutiuis, glindc oxidtâ vel suhglohosA semiexseità \$ In fill ltim ill et (ostiiid (Waisi ' '0 in h Boiss , \*U a, in h ber ex Liptini ), Vei itfuas (Seem ' 1210,1572 > in b Hook ) 0 glabrescens Seem bot Herald, p 2 )2 (saltern n 12 JO') Q ocaipa Liebm Lgesl p 2fa (fide descr et ejusd million Waisc cit.iti) Folia (>10 poll longa, 3-4 poll lata, petiolo 2-3 lm Imi^o d( nsp iulvo-tomontoso, dentibus latis bieivibus apice callosis Stipule 4 lin tonga<sup>1</sup>, lineues, doiso pubescentes Inseitio Iructus non descnpta, liuctus in IT Boiss segregati, indevensimilitei annul Pedunculus 2 poll longus (ex Seem ). ( upula (>\*) lin longa 12-1 > lm lata, ciassa, squ mils doiso non cnstalis nee intlatis DiiiP adsunt cupulae in h Boiss quarum major 1") lm lata, squamis medus 2-J-3 lin longis, e basi ovata 2 lin latâ abiupte angustalis, altera minor, squamis medus lanceolatis, basi t-1) bn latis, 2 lm longis, mixtis quihusdam pnon similibus Glaus 12-14 lin longa (v s)

129 0 CALOPHYLLIA (Cham et Schl in I inn 18 JO, p 79), lamis junioiibus luho^velutinis, loins ellipticis vel subelhj)ticis basi obtusis vel ranus subcordatis acutis\ e apice acutis basi cxtcpLâ aiistato-d( ntatis supia unionbus adpiessp iuho-tomentosis adullis glabratis subtus j)ibs stellatis densis bieivibus peisistentibus nuaiis vel fl i\icandbus, arritntis elongitis pubeiulis spaisiflons, biacteis lanceolatis oblongisvp (\tus pilosis ppngoniim tunntibus, pGiigomo ctimpinulato cxtus pilo^o oie obtuse et iiiogulantci lobalo, anlhoiis submucionul ins, pedunculis Iructilens p»Liolo plprifhique broMonbus vel leie uullis, uipiila bemisphdeicA pubescente squamis adpresus obtusis inns ovatis alnso\ato-lanc(olatis, glande semiexseità ,5 In Mexici montanis nrope Jala-1 \*p<iiii (Sdne de et Deppe) Huisca (Haitw 42J), Mnadoi, Totutli (Liebm' HI b ( oppnh ), Guchil ip i (Be il iuid ' 10 tl) SienaS Pedro Nohsco, Tale i (Jur-Knsen '721 el 082 in h Webb), Daxaca (Iicbm ' Franco in I) Boiss'), moiit On/aba (Gal ' H2) Q Alamo Benth pi Haitw ' p 56 et 348 0 mtei-media Mai tens' ct Gal in Bull Biux, 10, n 3, sp n 33 Q acuimnali Maitens ct Gal ib sp n 20 (non Ro\b ) fide deser et loci nat. nam deest in h Mailens Facile a^noscenda loins subtus candicantibus Petioh in eod lamo 4-12 lin longi I mibi 4-> (ex Schl C 40) poll lonp, 2-3 (ex Schl 2 S) poll liti membianacei, mucionibus neivos lateiales leiminantibus e penphena (yeuntibusad|ctis inteidum alus modus (unde foil iduphcato-dcntata in Cham q<sup>1</sup> Sciv, ^' «PIVIS suhtus minus quain pan nchyma pubescentibus In lamis non uolentibus, loli i frosse anstato d< ntata, anstis lohulos ovato-tnan^ul.ires U-  
~~monantibus~~ Amenta 2-3 poll longa Pdigoiiium lineam longiim Pedunculi 0 )  
~~lin longa~~, ciassi Gupula >-U lm lomra. G-10 lin lata, squamis maigine attenuatis (v s)

\* Semprvirentes (1)

HO Q. GR\NDIS (Lipbm Lgesl p 25), ramis unionbus pubeiulis, loins o\ato-\el obovato-lanceolatis basi secus petiolum bieveni loiige \cl abiupte decui^ lentibus apice acutis spaisim dentatis dentibus lanceol ito-setaceis niemlnan.v KIS junioiibus uliUKjiiio strllalo-pilosis\*uppinciiU) ^labiatis sufotiis ad axillas ncMoium dm loiiKiitosis, flonbus , pedunculis petiolo bieivionbus 1-2-car-lns, cupul.^ depresso-tuihmatA oieconstncta cinereo MbUin<lsfjuamisadpiessis obtusis Inleiiionbus ovatis supionus ovato lanceolatis, glande depiesso-globosA subexsertft %<sup>r</sup>)<sup>ln</sup> Ouatimalâ (Waisc ' n 20 m h Boiss ) Folia 4-8 poll longa, 1 ' -2 \ poll lata, petiolo 4-8 lin longo, prope petiolum integra, d< ntibus III«P- (jiiabus 1 Uin longis Gupula 6-7 lm<sup>r</sup> longa, 10-11 lin lata DifleitaQ Xa-

(I) Folia in plensque vix post frondescentiam novam vulenda, »n uliimissp 1 «mon magis persistentia

lapensi (5 folns subperennibus, petiohs brevionbus, dentibus foln subbrevis  
nbus minus regulanbus, cupulâ turbinatâ potius quam hemisphaencâ ( \ s )

131 0 AcoiiPOLiA (Nee' in Anal cienc nat 3p 265et,inKo3n et Sims Ann  
of hot 2 p 102), ramis junionbus tenuiter puberulis cito glabratis, folns lon#  
vel breviter petiolatis e basi aequah vel maequah obtusâ vel acutâ ovato-vel clip  
tico vel obovato-lanceolatis acuminatis grosse et longe setaceotiMitetis, junio  
nbus , adultis petiolo et supra in nervo tenuiter pubescentuQPdffium gla  
bratis subtus in axillis nervorum dm stellato tomentosus alibi cito glabratis,  
bracteis fl masc anguste hneanbus pubescentibus flore brevionbus, pern  
gonio extus piloso irregulariter et obtuse paucilobato, anthers apice brevite  
callosis, pedunculis petiolo brevionbus 1-4-carpis, cupulâ hemisphaencâ oio  
subconstntâ cinereo. Tmbescente squamis adpressis obtusis infer ovatis sup  
ovato-elongatis, glande gemiexserta \$ Inter Mexico et Acapulco (Nee'JZad  
Orizaba prov Vera Cruz (Botten 1 952 in h DC et Boiss), Yavesia pro\*  
Oaxaca alt 7500 p (Liebm ' h Copenh ), Cuesta de S Juan del Estado (id '),  
in Guatemala frequens (ex copia specim a Warsc ' 2, 21, 22, 23, 26, 27, 28,  
29, 33, 34 in h Boiss.^ 0 Sartorn Botten ' in sched (non Liebm ) Q Gri  
hami h Copenh ' et mde in h DC (non Benth ) Q furfuracea Liebm ' Egesl  
p 31 (e Chinantla, mh Copenh et DC loins maio adhuc pube mmutâ sublus  
in parenchymate vestitis, fructibus anni praeced nondum matuns et Imper  
lectis subclausis, squamis ideo lationbus) Specimen Naei m h Matnjt fructu  
maturo caret sed ex folii-> et fructu juniore caetens similhmum Ejus petioh  
9 12 hn longi, limbi 4-5 poll loni, 1-2 poll lati, basi truncato-obtusi et  
regulares, lobis vel dentibus subulflis ab inferioribus semipollicanbus ad su  
penores setiformes decrescentibus, nervis laterahbus non semper omnibus  
dente terminatis (unde species a Q Xalapensi, fructu oacterum annuo diffeit)  
Vestigia adsunt pubis sjellatae sub folio extra nervum et pubis mmons m paren  
chymate utriusque paginae cito evdnescentis Petioh variant in eodem ramo  
specimims 34 Warsc hn 3 9, in num 22 hneis 2-4, in num 29 hn 6-9, etc  
Limbi saepius 3 5 poll longi, 1-2 poll lati, memDranacei, nervis tertiams  
crebre reticulatis Peduncuh lructif 1-12 lin longi, in eod ramo Botten 3-12  
lin Folia apice ramulorum conferta in ligno vetustiore saepius aphylo  
Cupula hgnosd, 3-5 lin longa, 5 7 hn lata Glins ovoidea, 5-9 hn lon,n  
(v s)

\$, *Bonplandi*, folns adultis subtus m parenchymate et supra versus nervum  
centralem matenâ resinosa? tabacinâ inter fasciculos pilorum et vestigia  
pubis brevion-. coloratis £ Inter Mexico et Acapulco (Bonpl • h n. 3917)  
Q acutifoha Humb et Bonpl pi equm 2, p 55, t 95 Folia tft frequenter in  
a petiolo 4-10 hn longo, limbo 5-6 poll longo, 2-2i poll lato, grosse den  
tato-subuldto Flores dehneati in herbano Mus par non certe repenuntur,  
fragmentum anthers acute mucronulatis a flonbus h Copenh differt, et  
pubes copiosa rachis florumque a figurâ Bonpl citatâ, &d\*pictor pu  
bescentidm fohorum praeternt Fructus ignotus Vestigia matenae resi  
nosae? in speciminibus a mterdum vidi An exsudatipne folii\* vel caus  
ahena? (v s)

Y, *angustifolia*, limbo angustiore basi, longe cuneato —In Mexico (0 feu  
tifoha Thibaud» in h DC vensim a Nee comm ) et Guatimal& (Warsc »  
6 in h Boiss) Petioh 9-12 hn longi, cum ramo et parenchymate limbi  
adulti glabn, limbi 5-6 poll longi, 12-18 hn lati. setis ut vulgo 2 lin  
longis, sed vix bdsi ovata mse/tis, tocnento m axillis jam parco, matene  
resinosa nullâ, dentibus ut in a Fructus juniores adsunt in specim Thib  
ligno pnons anni inserti, folns lbi delapsis, pedunculis 1-3 hn longis,  
apice 2-3-carpis, cupuhs globosis 3 hn latis clausis velutinis, squamis  
ovatis obtusis arete adpressis Ex specim Warsc cupula matura dun  
hemisphaenco-obconica, 4 hn lQnga, 6 hn lata, squamis ovatis glabratis  
gldnde semiexsertâ (v s)

3, *conspersa*, folns mtegn, vel ranus in eodem ramo dentatis fi In Mexici  
montibus Las Casillas (Hartw 617), Michoacan alt 4-5000 ped (Gal '  
121, mil Mutrns), ot Gnatimala (W irsc ' 1, 5, 7, 31, 32, 35, 39, m h

**QUERCUS** *Q. conspersa* Benth pi Hutw p 91 (fide descriptions et Liebni in sched h Boiss) *Q. intul i Mditens'* Pt Cril in Bull Biu\ 10 n \*, sp n b (( speciniint Gil 121 cunstit ) In spfcinnibus Waisc 7 et 3S III h Boiss iohd bimul ligno anni piaecedentis et pidesentis adsunt, in ains omnibus et alnrum \anetatam \etustioia jam dehpsa Folia typi, sod pkiumjue integia in n 3o Waisc pracsertim niUgra vel giosse setacp) dcntati Hues i^n Fiuctus ut in typo pleiumque delapsi, sed in spcciminc 39 pedunculo 3 lin longo ligno mill pnoii idhuc mserti (upula saepius mugine muassata et taide nigncuis, squamis nuncbasi convexis, ut in typo Provima Q sahcifohae sed fiuctu bienni (v s )

e *longijolm*, folns mtegnis vel ranus paucidentatis peduncuhs fractifens 3-12 lin longis, cupula submajore ore saepius tenui squamis sublongionibus -j In Mexico >4i pro\ Oaxaca (Ghiesbr ' 124) et Guatimala (Warsc ' 46 48) 0 longifoha Liebm Egesl p 27 (e mini 47 et 48 Warsc constit) Folia non longiord videntur, m 46 mine dentata Cupulae basi rotundUre vel subtuibmatae, in specim non ingncantes margine tenues vel crassae ct ubi tenues squamis supei non mflexis, 4-6 lin longae, 5-8 lin latae (\ s)

£, *microcaipa*, folns mtegnis, fiuctu minimo \$ In Guatimala (Warsc ' 25 m h Boiss) Cupula 3 4 hn longi latique, ore mine ciassiuscula, nuno ttnuis Glans 5-b lin longa, 2-2\ lin litd (v s )

1 *M 0 WISLIZENI* iamis lunioiibuspoti >lis [uc tenuitei stellato-volutmis, folns o basi o\ata vdiarius subacutl clliptiois ipice muonatis margme mtegnis vel p issim vel crebre ntiuronulitis chirtaceis parvis nervis distmctis p irum eminentibus juiiiioribus ldultis subtus in nervo et passim piopp ner\um sUllitopubescentibus flonbus , fiuotibus gemmis sul)->e>silibus cupula ob >nicl s({uimis crebie imbricdtis nnis ovatis medns et sup lancpolatis et acutis pu be rulis membianaceis gland<sup>o</sup> elongato-o\oidel semiexserta subacuta — In montibus mexicanis id occid Glnhuahuae prope Cosiquinachi, alt 7000 p Wish/tnus' m h Enp'elm ) Ex ramis sppciem humilem mjntanam suspicoi Gemmae o\ )ideo-iLutae 3 liu longTe smimis obtusis \A\i> minus cilutis 1^ )lia ( v specim annua, sed mtumno (ex fiu tu) lecti ct inde dui itn dubia Affinitas piopior Mdetur Q nitenti quam ulh praesentis § sed squimae ab omnibus distinctae PeLioh 2 et saepius 3 lin longi teietes Limbi lo 24 hn 1 IIM 8 12 lin lati in eod rdmo mucionibus ddmmodum \anmtes mucrone tei mill ill | lin lengo alus mmonbus nervis teitidrnns leticulatis utnnque in sicco \isihilibus tiuctus in li^no anni ji) ec(dpntis pe lunculo communi lnicam longo Cupula 4 o hn longa, ^ 6 hn superne lata squamis niatuns in sicco biunmis angulatis, medns non arete adpiessis Glans in specimin< unica 7 hn longa, 3 / hn lata (\ s comm d cl Lngelm )

H3 0 AQU\TICA (Walt fl Gar p 234), ramh junionbus glabnuscuhis, folns p )lymorphis in petiolum brevissimum basi cuneatis ob n itis vel obo\ itoobl( ngis \el nnus oblongis obtusis \el acutis mucronatis nitegnis \el irrp^ulinUi sinuitis lobitise lobis plerumqum mucionatit> gl ibus \el subtus in lxilhsnervoiim stell Uo-pilosis br^cteis lineuibus pilosis floie sublongionlms iu\_nMcibus pon^r^nio 4 fido extus pilos) anthpus 4 5 glabns fmctibus in pp-duncul) bievi 1-2 ( upuh h mispliaencA. squimis oMtis idpipssis obtusis SPnceis, glmde cupul im dimidio sEpius supei mtp 5 I<sup>1</sup> piludosis \ Florid I (Michxl Giay'), Icxas (Imdh i in h Ln^plin BeU<md ' lb8 > num no\ 40> ibid) et Arkansas (h Ingelm ') usqum ad Maiyland (Michx ) —Ait li Kew ed 1 v 3 p 3V7, Michx Chpn t 19 20 21 Michx f arb Am 2, p 89 t 17, Loud enc tiees p 87J (cum fig Mich\ mut) Quorcus folio etc CU Cir t 20 (mill) Q uigrilini sp p HIU(p\icoit Cat) Q uh\_n^inosa folns etc Wangenh f IS (ubi fol solum ) PIHlos muitim i Michx (hpn t 13 i 3 ? Q mantim i Will I sp 4 p 42\* (pnptei Tolu ppicn-lll) I oil l (ex Michx) Ill arh>p jun di\eis]ssima et equidera in ramis herbanioium pohmorphautsupi l descnpsi 1-4poll longa b-2-t hn lata pp-tmlo saepius 1-2 Im 1 nius \l\_m lon\_n'o m^mbi mvei, noi\ is subtus eminent-

tibus Cupuld basi obtusa, caet ut in Phello Arbor folns deciduis ex Michx folns IIIIL deciduis nuic per diinos 2-3 persistentibus ex Michx f (v s)

[i]f *laurifoha*, folns obovato-oblongis oblongisve acutis vel obtusis iitogns vel ranus lobo uno alteroveductis ^ In umbrosis et mantimis Carolinae merid (Michx), Georgiae (Michx, Rngel! in h DC etBoiss aShuttlew tomm) et Louisidnae (A Gray!) Q laurifolid Michx Chen t 17 et 18, Ell sk Geor 2 p 597 0 hemisphaenca Bartr trav p 320(fide Ell) ExFlhottdrbon sjunion s sempervirentes, vctustiores mense martio folnscaent Specimina Rugeln, ubi folia quaedampaucilobala, transeuntad vulgarem Q aquaticam Ex hisce folia ndscentia puboscentia (ut saepe in 0 dquitica), cito gldbrdta, pilis in dxillis nervorum mdgis por>istentibus, amenta 1-1^ poll longa, rachis pilosula, bractee fugaces, lineares, pilosulae, pengonio sublongiores, pengonium saepius 4-fidum, lobis ovato-acutis extus superne pubescentibus, anthers saepius 4, vix exsertae, glabrae, miKicae (v s)

Y, *heterophyllidj* folns oblongis acuminatis irregulariter lobatis lobis setaceo-mucronatis ^ Unica arbor ohm in fundo Bartrami prope Piladelphiam, undo in hortos mtroducta Anhybndd? Q heterophylla Michx f arb Am 2t 16 Petioh ex icono 6-7 lm longi, hmbi J-4 poll longi, pollicem ldti Specimen vidi ex h Desf in IT Webb «Q heterophylla Mich 1. fide horb » dictum, iconi fcie simile, sed folns m eodem lamo lob its \el mtogr, petiolis in altero ramo 2-7 lin longis Similiter variant sppumma hort Herrnhausen in herb Engelm et meo e seminibus arbonsBdrtdim educatd, sed in hisce folia saepius Integra Ideo mera forma Q launfoliae id est aquatiCcT (v s)

8, *stipitata*, cupula supia stipitem propnum squamnlonu^tum cylmdncum abbreviatum late heruisphapncâ —In Louisiana Q aquatica(ar A Bray I Folia ut niteidum in vulgan oblonga vel obovato-oblonga, Integra vel lobdta, glabra, fructus suosessilis, cupula ipsa stipite 2 lm longo (ut III 0 lhcifolia) insidens, raajuscula, 4 lin alta, 9-10 lm lata Specimuid cum hisce mixta stipite carent (v s)

E, *dentata*, arbuscula, folns angustis irregulariter dentatis \$ In areuism mdiitimis Georgian et Flondae (Michx) Q aquatica vdr Michx Chen t 20 f 2 0 dentata Bartr trav p. 14,20cU20, fide Michx (conf supid ,, ddvdr B) Q ndna Willd 4p 443<sup>9</sup>

g<sup>9</sup> *myrtifolia*, folns percnnantibus oblongis pollicem et ultra longis utrnrfio acutis bieviter petiolatis integernmis con ace is supra mtidis subtus glabns opacis, fl etfr ign —In Carolina (Willd JetFlondâ (Nutt) Q myrtifolid Willd sp 4 p 424, Nutt gen 2 p 215? (qui plant Willd non cognovit) 0 Phellos var Chapm south fl p 420, cum dubio Problema iunqutum solvendum, ndm ipso Willd (lores et ft ignoti

114 Q NITFNS (Marten<sup>of</sup> et Gal in Bull Brux 10 n 3, spec a 10), ramisgracihbusjunioibusstellato-puberulis persistentibus, folns brevitei petiolatis anguste lanceolatis acuminatis apice et margine remote subulato-dentatis superne cito glabntis et mtidis subtus ad aillas nervorum pube sero cadente tomentdlis caeterum glabratis, flonbus , pedunculis fructifens petiolo brevionbus vel sublongionbus oligocarpis, cupula hemisphaenco-obovoideâ cinereo-puberulâ squdmis adpressis ovatis obtusis dorso basi convexis, glande subexsertâ ovoideo-acutâ ^ In sylvisMxcici prope Real del Monte alt 7000ped (Gal 'n 11<sup>r</sup>), circa Totonihô (Berland I 410, sine tl nee fr) et in prov. Vera-Cruz (Linden! 21 in h Webb sine fl nee fr) Q commutatd Liebm Egesl p 19, pro parte Q affinis Scheidw hort beige, oct 18371 17 (ex Mart. etGal dubitatum) Folia inspecimine authentico Mertensn secundo anno usque ad matuntatem fiuctus persistentia, basi plus minus acute angustata (m specim Berland. basi acuta vel obtusa ut in seq var), rigida, non conacea, 2-3 poll longa, 0-9 lin lata, petiolo 2-5 lm longo, nervissjMindariisparuin distinctis tertiaris <upra in sicco reticulatis subtus vix perspicendis, unde a Q. lanceolatâ differt In specim. Berland (minus certo) folia ejusd rami aculeato-dentata vel mtegrd. Cupula (in specim. Mai tens) 4 lin lon^a lataque, pedunculo 2-7 lin



mserta, in specimne vensim. non perfectissima et mdebase angustata, eligno anni pnois, nunc in axilla foln. (v s)

p, *podocarpa*, folns subpersistentibus integriis vel passim setacco dentatis, nedunuihs liuctileiis pleiumque petiolo longionibus et polydipis, cupula hemisphaeica \cl obovoidea — In MPYICI montibus prov Pueblae et Oaxaca (Liebm ' in h Cupenh ubi provi^oneV Q lanccolata vocavit) 0 commutata Liebm Fgesl p 19, pro parte Petioh liequenter uweod lamō 2-2<sup>1</sup> lin longi Limbi sdepius 1 J poll longi, 6-8 hn lati, passim 2-2<sup>1</sup> poll longi, poll lati Peduncuh e ligno setundi anni aphylo, 3-12 lin longi, 1 3-caipi in quibusdam lamis sinnil lectis 2-3 lin longi, ot tune wiietds in a vel y meigit (upulae 4-0 lm latae, luteulum impci-  
~~lect~~ tune obovoideae, multo mi no res (v s)

Y, *ocotexfoha*, loins subpersistentibus intpgiis, pedunculis fiuctifpiis petiolo biCMonbus vel aequalibus \el longionibus, cupula hemisphaeica — In Mexici sxlus cued Talea, Laguna, pio\ Oaxaca, alt 4-000 p 0 Oloeaefolia Liebm ' Egesl p 18 In eodem lamo petioh 4-5 lin longi, hmbi ovato-vel oblongo vel obovato-lanceolati, peduncuh tandem 2-3-9 lin longi Squamae doiso non infatae (v. s m h Gopcnh)

6, *mayr*, folns subpcisistentibus, plensque giossc setaceo-dentatis petiolo sublongiore, fiuctu majusculo, cupula heniNphdeica — Ad radices montis On/dhcC, loco Alpatlabua dicto, alt 7-00 p (Liebm ' in h Copenb sub nom piovis Q baibincivi dlfinis) Potioli 4-8 lin longi Limbi 2i-^poll longi, 9-12 lin lati Peduntuli 3-8 lin longi, saepius 2-3-caipi Gupuld cineiea, 4 lin longa, 0-8 lm lata, squamis doiso non infltdis Longitudine pctioli et magnit cupulo<sup>1</sup> proxima 0 acutilolia?, sed diffeit nevis tertiams subtus vi\ peispicuis, pubc e\tia axillas nei\orum nulla (vensim etiam m juiioiluis), liutlibusniagis peisistentibus bpecimina PJUM! loci, a cl Liebm locla, cum hisce giossc dentatis mixta, ioisan ex eadem aiboie, lolia nixbcnl mtpgia vel parce et biexitei seta c< o-dentata, )etiolo 4-0 hn longo, cupulam J-4 hn longam, 4 6 hn latam, unde ad a, et ad var subintegiam tianseunt (v s)

e, *subintegra*, folns subpersistentibus integns vel passim setaceo-dentatis adultis glabemmis, huctu paulo majoie, cupula bemisphaeica In Moxico >d /aiualtipan (Hartw ' 422 m h Boiss ) Q lancifoha Bentb pi Ilulw |» V> (non (ham et bchl ) 0 commnitata liebm Fg(sl p 19 (quoad n 422 Hartw ), Dentil pi HaiLw (sonus) ji 148 Folia hgno secundi nun non adsunt in spoimino Potioh 1-Mm longi I linu 1V24 lm longi, 4-9 hn lati, in lodcm lamo Stepius mtegu, ianu\*> lime 1 denUti, \ol pludentati, dentibus sive mucionibus e pcnpluiid suigditibus ^ bn longis Pedunculi 1-3 hn longi, monocaipi ( upula J hn longi, 3-0 lin lata, squamis valde adressis, doiso subconvexis (\ s)

l»» 0 i v\croi ATA (Humb ct Bonpl ' pi apquin 2p 'J4 t 81), ramis jumoiibus vi petiohs tenuitfi stollalo-volutius, loins c bisi acuta ^ol obtusd elhpti co-laiHcolatis sctaceo-acummatis vel dcutis \ol obtusis mtegnis \ol lime don-tatisadnoivumutiinque toinuterstollulato-pubeiuhsadullism axilhs nrrvoium subtus diu < llaio-loinc ntosis, flonbus , liiictibus sscpr g< minis subscsihbus \ol brevifM p< duncuLilis, ( upuia hPinisphdcnci\ (impril^til siibgloluM) squamis adpicssis lau ovatis doiso plus minus convovis ghbipscontibus, glande somiPVspiU ,> In Mexico mtei Moran ot ^inta «os.i Folia in i jinulis anni solum adstanha(cx -> sppcimm } w\ persisU ntia, undo a simillimis Q nitente ct lmiina dilTert Petioh in cod lamo 2-0 hn longi, tdiues Limbi 2-3 poll longi, 7-12 hn lati, marginp (in sicto) undulati, non cunacr i, potms inenibrancei, nomsUiiiauis uinnque Msibihbus, stolhs mimns )ilonim in juinonbas exli.ineivum cpntialcm lans aut nullis, dente uln (lcsi mutronalo lompiitum m avilhs \auat in loins ejusd lann Fiuctus h^no secundi anni **peduiKuhs 1-3 hn longis ciassis inserti Cupuld 4 lm longa, 5 hn lata, squamis supcpositis minime. reilexis (invito Bonpland qui male obs ) in proximis cupuhs planis \pl compxis Nimis 0 nitenti alfnus, ibrsdn Jungenda, >ed folia ranus acuminata, potius acutd, neiMb tertjauis magis subtus dis-**

tmetis, pubc in loto junioie minus deficiente, squamis cupulae rarus dor&o convexis (v s in h Mus par)

p, *wdulato-dentata*, folns margine undulatis\elundulato-dentatis, lobuhs paucis nregulanbus mucronem tenucm gerentibus — In monte Orizaba all 8000 p et piov Oaxaca ad Pico de Felddo alt 9000 p Q launna Liebman • in b Copenh (non H et B) Folia omnino a, sed frequentius . margine mucronato-dentata, in eodem ramo undulata subintegra \el "utroque latere 1-2-dentata Fructus squamae minus dorso convexae, sed juniores Differt (ut «} a Q. launna nervis later magis patentibus (v s)

\*

136 Q DEPRESSA (Humb et Bonpl! » pi equm 2 p 50 X 92), fruticulus sem-pervirens, rdmulis pulverulento-velutinis, folns brevipetiolatis ovatis ovalibus oblongisve basi saepius obtusis apice acutis vel obtusis conaceis mtegnis vel spaisim wreguldrjter acute dentatis junionbus glabnuscuis vel ad nervum pise-sertim pulverulento-puberulis adultis glabns vel in anguis nervoium sdepe stellato-tomentOMs, dmentislongitudme ioliorum, bracteis nulhs (an sempei v), pengonio piloso irregul 4-5-10DO, anthens. submucionatis, fructibus solitarns pedunculo bieviss»imo mseitis, cupula depresso-hemisphsencsk, squamis adpres-s»is obtusis extus pubescentibus lmis ovatis caetens ovato-elongatis, glande subexserta. J In montibus Mexici, frequeniius juxta Moran (Bonpl '), in Pe-lado Serranid de Oaxaca, dlt 10000 p (Liebm ' h Copenh) Q lauruid ° Mai-tens' et Gdl Bull Brux. 10 n 3, sp n 5, herb n 106, 107 (saltern speci-mina fruticosa montmm elatiorum) Num 106 in h Maitens, flor fructuque carens, convenit cum specimibus Bonplandi h Mus par Ev hisce folia con-fertd, certeperennia, 1-2 poll longd, 4-9 lin lata, petiolo t-2 lm longo, nei-vi s tertian is vix distinctis, laterahbus magis quam m Q launnd patentibus, pube secus nervum centram subtus vdriante, nunc fere nullâ Pengonium he-misphaenco-turbinatum Stamina 6-7 In specimibus Bonpl fructus umcus junior adest, sed in simillimis h Copenh plures observavi et ex hisce phrdsim scnpsi Pedunculi ligno anni pnons jam aphyllh (m specim Bonpl mterdum folnf) msident, 2-3 lm longi, ciassj Cupula 3-4 lm longa, 5-6 lin lata, glande globosa vix exseita (v s)

137 O GRANULATA (Liebm ' Egesl p 28), lamis junionbus paice pulverulento-pubescentibus, loins breviter petoldtis e basi obtusâ vel acutâ oblongis ^el oblongo-lanceolalis v(1 rarus obovatis dcutis vel obtusis margine integro un-dulato subrevolutis junionbus glabnusLulis adultis glaborumis, et chartau is, stipulis longe hneaiibus potiolo multo longionbus extus adpie^se pilosis fuwa-ilius, iinontis spiisidons lolio \*>u)E(Udlibus, lachi passim stelldo-piJosA, floibus bicvitci pedicellatis ex axilla biactee fugacissimae lineans piloso,, pengonio cdmanulato irregulariter 4-6 fido lobis ovatis ciliato lanugino^s, nthms mulicis, iuctu j? In Costa-RiLae monte ignivomo Iiasu (Oist ' 1 L) PUDPS stplldta in novellis sj)drsd, cito cadiva Folia peiennia, petiolo 1 } lm longo, limbo 1-2 poll longo, 5-10 lm ldto, ^[tremidte in novellis Hunt subulatd, in ddulus acutiuscule vel obtuse attenuate vel obtusa, nervis teitiams non distinctis. Stipulae 3 i lin longae Amenta in bast ramulorum dxillana \el e\tiaaxillana, 1]-2 poll longa Pengonium lineam longum, pedicello ideo tnplo quddiuplove longius, exceptis apitibus loboium glabnus-culum An a Q depiessA dillert? Floies masculi in hacce sessiies Fructus in praesente ignoti (v J> comm a cl (List)

138 O UNGUEFOLIA (Liebm ' Egesl p 22), ramis junionbus folnsque novellis utnnque tomento fulvo stellato caduco vtstitis, folns brevissime petiolatis basi cordatâ vel obtusâ ellipticis oblongisve obtusis vel acutis conaceis mtegnis margine revolutis pi ope nervum centram subtus dm tomentosis, amentis grdcihbus, rachi pilosâ, bracteis nulhs, pengonio inaequaliter 4-fido lobis obtusis extus et basi mtus piloso, anthens paucis muticis^ peduncuis folio multo bievionbus j-2-caipis, cupu!4 hemisphdencâ cuaereo-pubescente, snuamis adpressis ovatis obtusis, glande sukexserU ovoideo-acutl. 5 Iu montibus Mexici prov Oaxacae alt 5-6000 p , ad Cuesta de Lachopa. Folia in duobus ramis e 4 mense junio lectis peibjstentid. Petioli CK&BI, 1-2 Jim

longi, velutim. Liinbi 2-4 poll longi, 9-20 lin lati, m eodem ramo apicc roturiddti vel obtuse dngustati vel acutissimi, demum glldbn, neivis lateiahbus Mibtus emmenlibus prope marginemconnexis, tertiams vi\ distinctis Amenta bipolhcaria, medium usque sparsiflora Pengonium hinc partitum vel fssum, lobis nunc lobatis Peduncuh e\ axillis fol anni piaetenti, 8-9 lin longi Cupula in specimine 3 hn longa, 4-5 hn lata, oie constncta, non periecta (v. s in h Copenh et ab eo comm )

- 139 Q ELLIPTICA (Nee' in Anal cienc nat 3 et in Koen et Sims Ann of bot 2 p 111, non Liebm h Cop ), ramis junionbus fuho-tomentosis, loins brevising petioldtis obo\atis vel saepius obovdto-oblongis vel oblongis obtusissimis basi obtusis vel subcorddtis mtegnis maigine subre\olutis supra pidPtei nervum centralem fulvo-velutinum glabratis subtus nervo centiah et circa nervum stellato-pilosis caeteium gibratis, rachi sparsim stellato pilosa, bidcteis nulhs?, pengonio campanula^ 4 5-fido margine villosulo lobis» obtusis, iructibus bieutei pedunculdtis, cupuli late hemisphaeiicâ bdsi subangustatft. tenuiter velutnid squamis dicte ddpresis ovato-elhpticis obtusis, glande ovoideâ valde cxseitA ^ .In tempeiatis Mexici piope (imapdn et lixtala (Nee'), m monte Orizaba alt 4-G000 p (Gal ' 134), piov Vera Cruz (Linden' 1052 in b Boiss ct Webb), in Siena Madie (Seem ' 1975) Folia ex specim Linden et Seem peieniuâ Petiob 1-2 hn longi, in iamo stenh h Seem 2-4 lin longi Limbi 2-5 poll longi, 1-11 poll lati, chaitacei, junioies interdum bdsi subacuti, noivis lateidlibus subtus eminentibus, pube etiam m junionbus parcâ stellulâtâ, m adultis supra m nervo m<igis quam \ulgo peisistente Flores masc. ex specim Seem de^cnpti, anthens mulicis glabns paucis Inseitio et duratio iructus ign Cupula (ex specim Mai tens ) pejlunculo 4 lin longo tenui suffulta, 3 lin. longa, 5 lata Glans 7 lin. longa (v s).

13, *microcarpa*, folns obtusis vel ranus acutis petiolo paulo longioie, fiuctu minoie ^ In Guatimala (Warsc ' n 8, m h Boiss), m prov. Vera-Ciuz Mexui (Q peise<Efolia Liebm ) Q *microcarpa* Liebm Egesl. p 26, ubi num "Warsc citatus Q *perseaoid* Liebm ' Egesl. p 30 in b Copenh folns acutis sine fl et fr (ideo nunquam ceito defimenda) Folia peiennidut in v, petiolo 2 lin longo, caeteium simillima, unum e\ plunbus in ramo apicc acutum mucronulatum Fructus e bgno pi ions anni, pedunculo nullo vel (ex Liobm ) 1-3 lin longo Cupula 2 hn longa, 3 4 hn lata. Glans 4-5 hn Jonga, 3-4 lm lata (v s in h Boiss)

- 140 Q NECTANDU\*FOLIA (I jcbm ! Fffpsl p 17), lamis junioiibus *lulvo-tom* n-tosis, Joins biovissiine petiolatis olKnato oblong-is vel oblong<sup>1\*</sup> obtusis ycl Kiiius .icutis basi obtusis vel subdculis intogiis nrugme suhie\olutis supra praetci noiMim (cntialom iuho velutnum ghbntis subtus nmo centi.ih dm stolltdto pilosis demum glabns, ppngonio t impanuhto 4-^-fido (xtus piloso, antheus apice callosuhs, peduncuhs bieubus monocarpis, cupulA lie-misphcrncA basi obtusissim.1 squ.imis adpippssissimis cineiPO velutinis o\ Uo lanceoldtis obtusis mleiioubus et niedns plus minus doi-o gibbosis, glande semiexserU elhpsoidoA \$ in MPMCI trapei Uis montium ouent alt 3-4^00 p ad Muador, lotutla, San Butolome Folia 0 elhpticce (juoad IPIVOS, pptiolum, pubein, sed lanus dpicc obtusissimi, lunioia ioisan minus pubescentia (quod c specim non patet) Pptioh 1 1} hn longi Limbi 3 5 poll longi, 1 2 poll lati Amenta in specimme ubi ddsunt vetustd, laceidta Vestigia iuuctuum in hgno \Ptusto, ubi nonnunquam iolia peistdin Fiuctus (scorsim servati) pedunculo 3-4 lin longo, cupulâ 5-6 lin. long\, 9-10 lin latâ, gibbissquamaium mrequdhbus Gkns 9 hn longa (v s)

- 141 Q LEIOPHYLIA, ramis iolns[(ue etiam nascentibus gl ibris, tnlns breviter petioldtis e bdsi acuta vel obtusâ dnguste ovato vel oblongo vol obovato lanceolilis dcumimtis lnlogns vrl ,i medio remote undulato \el sprrato-dentatis, floubus , peduncuhs Iructifens petiolo sublongioiibus monocaipis, cupulâ hornisphdenco tuibinnU squamis cineieo velutinis .ulpressis inieioribus et medus ovatis obtusis doiso valde ccivexis suppnonbus ovato-lanceoldtis minonbub'cieJjre biiperpobUis, gUndo vi\ cxseiU fi Ju sylvis Mexici ml

Huatamalco piov. Puebla, Despuentes et S Bartholome (Q lancifolia Liebm ' in h Copenh et DC , non Cham, et Schl) Rami vetusti albidi Novella omnino glabra, quod in genere ranssimum Folia secundo anno passim persistentia. Petioli 1-1 \ lin longi, glabn Limbi 2-4 poll longi, 7-12 lin lati basin versus vane angustati, ngide membranacei, nervis tertiarns subtus parum distinctis, dentibus mimis subcallosis vel ovato-acutis non subulatis Peduncuii 2-3 lin longi, e ligno vetustiore Cupula 7-8 lm longa, 9 lin lata, ore subconstncta, glande globosâ vix exsertâ — Descripsi specimen h Copenh ubi fructus ramo insidet Segregati fructus cum folns similibus in sacco adsunt ubi cupula vere hemisphaenca, ore non constncta, 6 lm longa, 8-9 lin lata, squamis similibus, glande ellipsoideâ 10-11 lin longâ Ad 0 lancifoham (sp dub) Cham et Schl acceunt, sed pubes squamarum mai-gine non reversa et peduncuii multo breviores (v s)

- 142 Q CASTANEA (Nee' in Anal cienc nat 3, p 276, et in Sims et Kœn Ann of bot 2, p 109, non Willd), arbuscula, ramis junionbus pubescentibus, folns breviter petiolatis e basi obtusa vel subcordatâ oblongis apice minus attenuatis mucronatis vel ran us muticis margine a medio remote setaceo-dentatis vel submtegnns vel lanus integris supra glabratis subtus pilis stellatis brevibus cinereis vel fulvis diu tomentosus demum glabiescentiùs, flonbus , peduncuhs iructifens subnullis vel petiolo brevionbus 1-2-caipis cupulâ hemisphaenco-turbmatâ tenuitei pubescente squamis adpressis ovatis obtusis, glande ovoideâ seimexsertâ 5 In Mexico ad Ixmiquilpan (Nee') Miradoi et Yavesia (Liebm ' h Copenh ) et in Guatimala (Warsc ' 9, 12, 1J, 14,49 in h Boiss) Q mucronata Willd sp 4, p 436^piutato nomine Neei, sed Q Castanea Willd cadit inQ Pnnos var ) Q tnsffiT Liebm ' Egesl p 1G Folia ex 2 specim hv Copenh et n 13 Warsc in h Boiss usque ad matunt fiuttus secundo anno perstant Rami fructif saepe secundo anno non elongati et inde duratio fol et fr ficquentei annua videtur Petioli 1-3, saepiu^ 2-5 hn longi Limbi 1J 3 † poll longi, 6-12 lin lati, mucronibus et dentibu. |-\ lin longis, in specim Guatimal passim deficientibus, e penphenâ \ol e dente ovato suigentibus Parenchyma pube subtus derasâ vel lapsâ ad lentem bullatum, nervis tertiarns reticulatis distinctis Peduncuii 1-2 lin longi, crassi Cupula 4-5 lin longa, 6 lm lata Specimen Neei in h Mati umcum flonbus et folns caret, sed absque dubio hie referendum Descnptio ex alus (v s)

p, *suUobata*, folns majonbus angulato-lobatis lobis mucronatis, fructibus minoiibus —In Guatimala (Warsc ' 10 in h Boiss) Folia 3-4 poll longa, 9-18 lin lata, petiolo 2-J lin longo, oblonga vel obovato oblonga, neivis et paienchymale pnoium, an e surculo vel arbore juniore? Cupulae (segregate?) 3-4 lin longae, 4-5 lm latae (v s)

Y, *indenSj* folns vel integriis apice setaceo vel adjunctis lobulis duobus mucronatis piope apicem 3-dentatis, dentibus setaceis 5 Prope Moian Melicanorum 0 tuilens Humb et Bonpl 1 pi \*quin 2, p 50, t % Folia omiino vai a, quoad formam, pubescentiam, etc , nunc mtegra apice setaceo mucronata ut frequenter in a, nunc in eodem iamo 3-dentata, dentibus setifens majonbus et magis symmetries quam in folns var a, ubi setae laterales adsunt. Flores similes Fructus ign (v s in h Mus pai )

5, *glabraldy* folus oblongo-lanceolatis basi acut.1 ^el obtusâ tenuionbus in costâ subtus pubescentibus cseterum adultis glabris mtpgns apice mucronatis vel subulatis In Sierra Madre Mexici (Seem 1 1974) Q Mexicana var glabratd Seem ' bot Herald, p 332 Petioli in eoti ramo 2-4 lin longi, limbi 2-4 poll longi, 6-8 lin lati (v s comm a cl Seem)

e, *Mexicana*, folns brevissime petiolatis mtegnns vel ranus prope apicem 1-2-setacei -1-entatis 5 In Mexico (Pav ' in h Boiss et Webb), inter Mexico et Acapulco, ad Chilpancmco, Moran, Regla, etc (Bonpl '), in editoribus Sierra Madre (Seem ' 1976, 1977, 1978) Q mexicana Humb et Bonpl ' pi equin 2, p 35, t 82, Seem » hot Herald, p 336, sine descr (non Benth) Folia in specimibus obs non persistentia, sed character in herb raro videndus Petioli in eodem ramo 1\$-3, 2-4 lin )ongi Liinbi 2-3 poll longi, 8-15 lm lati Flares adsunt edumibus

h Mus pai ubi amenta vidi quae folio breviora, lathi pilosa, biacteis lanceolatis cibatis dorso pilosulis floies aequantibus, pengonium late campanulatura 4-6)-fidum pilosulum, antheid 4-7 glabiae apite suballosae, peduncuh 2-4 lin longi, cupuld 4 lin longa, 6-7 lm lta (v s)

143 Q LANIGFRA (Martens' et Gal in Bull Brux 10, n 3, sp 16), lamuhs junionbus tomentosus, folns e basi tordita vel obtusa oblongis dpice obtuso vel acuto mutionatis et medio passim mutionulato-dentatis supra stellato-ubeiulis subtus pilis stellatis pcisistentibus dense tmeieo-tomontosis, flonbus, iuttibus subspssilibus solitams, tupula hriiisphd?iito-Luibmata, squamis adpressis sumelutims inns ovatis obtusissimis aliis lauteolous ohtusiustulis, glande oumleA semiexseita 45<sup>th</sup> Me\iti editionbus piope On\ata, alt 7-H)00 ptd (Gal n 10\*) Aiboi lamis non \dlidis Folid in lamulis ann appiovimails, veisim siibpeienma, fine secundi ann cued huctum m spp-cimmc dclapsa, 1-J-2 poll longi, 6-8 lin lata, petiolo 17 J lin longo, membranato, dentibus linediibus mollibus c\iti 1 peiipuiiam abiupte piominibus ]-!• lin longis mine lans Pubes subtus albida ut III Q UIPIPA )ihs longioiif)us, tonic ntum \eio potius quam Una \ot mda ( upula 4 lm longd latdque, peduntulo lmeara longo mseita — Spetimina legit tl Liebman in (eno de San Felipe Oaxataj, alt 6-7000 p, qucp sub nommibus falsis in h (openh ad pidisentem ex folns lpleianda sunt Fruttu junio mouse tarent Amenta 6-12 lin longa, biatteatd<sup>o</sup> Pengonium mapqualitei fissurn, extus et basi intus pilosulum Anthers\* mutiCte vel subnmcionatcC Folia peisistentid non \idi (\ s tomm d tl Maitens)

144 Q CRASSIPES (Httipib tt Bonpl ' pi equin 2, p 37, t 83), arbuscula, lamis jumoi pubescptibus, loins bievitei petiolatis e basi obtusa vel coiddta oblongis mtegemmis obtusis turn acumme molh ad apitem supn glabiatis subtus pilis stellatis ciebnis pcisistentibus luho-tomentosis, flonbus, hutibus solitams \ol gem in is ]cduntulo ti isso IJIPM insidentibus, cupula subturbnidta tPiuitei pubestente s(luamis adpiessis obtusis inns ovatis caitens o\ato olongatis, ghnde semiexseita ovouleA 7 In Mexiti monlibus ju\ta Smta Rosa et A110 (Bonpl ') et 'llapuxalma (Haihv ' \*)! in h Boiss) Q Mexitana Bentb pi Hartw num cit (non H otB) Diffeit a Q Oastanea 8 tomento sub folns densiore pcisistente, neivubs magis distinctis Folia 2 3 poll longa, 4 7 bn lata, potiolo 2 3 bn longo, supia pall id e uientia, subtus pallulc fuha pilis bievibus, \ensimilitei ultia annum peisistentia\*-Peduntuli e ligno ann pnons, 3-") hn longi, 3 lin lore ciassi (upula 5 lin longa, 7 0 lin lata (\ & in h Mus pai )

14") Q CINEMA (Micbx Chen t 14), ramis jumorihus pilis minimis intmo-velutinis, loins c IMSI acuta vel obtusa oblongis \el obnvato-oblongis sppius obtusis mucionatis integriis supeinp sparsim subtus tioro julis stellatis bievissimis persistentibus tinoreis, lratteis f\ mast fugatibus fiore squahbus, pcngonn 3-4-paititi pilosi lpbis ovato-acutis, antbeiis 4 5, Iruttibus sobunis scssihbus \clluovissimcpptfiincilatis, cupula hemispheenco-tuilimatA scjiuimis ovatis adpiessis obtusis soriteis, glande tu]ulam dimulio stepius supennte 7 In situs et steiilibus FIOIKUP (Gia\ ' h Boiss), levas (Lmdli ' K0 in h Boiss Holland 1 H26 Ill b Webb ct DC sine 11 et lr), Georgia. (111 A Gia>'), fdiolniiip (Mith\ 1 A Gray), Virginia,\* (Rugel' in b Boiss) — Mithx 1 aib Am 2, t 14 Q sempeivnens, etc, tatesb Cai t 17 Q Pnnos p Linn sp p 1412 () Phellos cineioa Spach \eg phan 11, p 1G1, loud enc trees p 878, t 1601 Arbuscula tortuosa sempervirens (L.) Folia non per plures annos perstantia (ex specimin), 1½-3 poll longa, 6-10 lm lata, petiolo 1-3 lin longo Stipulae oblongae, basi angustae, 3 lm longae, pubescentes Amenta 1-1½ poll longa Cupula omnino Q Phellos Diffeit a Q Phellos loins minus deuduis, tomenlo persistente, ab imbucana, petiobis biPMOibus, tompnlo pihs bioMoiibus, fo,1,1S niimi^ dpcidms, tompiitō «PI-sistpntP Folia feie 0 uienlis, difleit statuid inmoio, loins\i\ persistentibus, anthens glabus et loima squamarum (\ s )

β, *dentato-lobata*, folns intpgiis vel passim lobo uno alteiove dentatis, lohis obtusis vel mucLonalo-subu.atis In Florida (Rujrel' m h DC et Bojss a tl bhuttlew tomm)

Y, *humilis*, anthers mucronulatis — In Carolina (Walt Bosc) 0 *humilis* Walt Car p 234 (fide Bosc in h DC), quae eadem ac 0 cinerea ex Ell sk Geo 2, p 594 Ramus et folia omnino var a *Anthera* e quibusdam specim a et y aequid mucronulatum apice praebent (v s)

8, *purntla*, *humilis* (1-2-pedalis) — In pmetis et humidis Florida? (Ruge Michx f) Georgia? et Carolina (Michx, Bo#') Q *pumila* Walt Car p 234, Michx f art) 2, t 15 Q *Phellos pumila* Michx Chen t 15, f 1 et 2 0 *seneca* Willd sp 4, p 424 0 *cinerea* var Nutt 2, p 214 Folia ex Ell decidua, ex specimibus plunbus in h meo et Boiss persistentia, juniora angustissima, adultaut in var a, nunc (in specim florid) tarde subglabiata, sed imo tunc a Q *Phellos* petiolo brevior distmcta (v s) \*

e, *nana* (Michx arb p 82), suffrutex 3-4-pedals, folns mmonibus dentatis magis persistentibus — In montibus Carolina Folia polhem longa Ex Michx 1 folia var a in surcuhs mteTdum prcBsenti similia Non 0 *nana* Willd ubi folia m axilhs nervorum solum pilosa et quae forsant aquatica var

146 RUGULOSA (Mart ' et Gal in Bull Biux 10, n 3, sp n 3), arbor ramis unionibus tenuibus fuho-tomentosis, folusbreviter petioIdtis oblongis velobovato-oblongis parvis basi obtusis \el subcordatis apice obtusis mucroiulatis inLegns supra pilis stellatis minimis conspersis subtus fasciculis pilorum e basi ciassiuscula veirucilormi divergentium pubescentibus, flonbus, fiuctu (nnpicfcto) subsessili tuibihito-hemisphaenco, squamis "adpiosis ovatis obtiimssimis e\tus puberulis § In sylvis Mexicanis prope Real del Monte Pi pigmentum Mdi in h Maitensn, ubi ramus giacihs, secundo anno glabrescens, iolia 9-16 lin longa, 4-0 lm lata, subconacea, petiolo 2 lin longo iulvo-tomentoso, pilis supra minimis vensim senus evanescentibus, subtus aspectum liigulosum pibentibus, basi fasciculi cujusve punctiformi sub lente ovoideâ pilis tamen brevior Pubes sub lolio persistens videtur Cupula unica e ligno pnonis anni, folns vicinibus jam delapsis, 3 hn lata, sea ex ghnde abortiente inclusii imperfecta Pioxima Q Me\icana3, Q *crassipedi*, etc , sed basis fasciculorum in hisce tenuior ( \ s )

147 0 CONFERTIFOLIA (Humb et Bonpl i pi equin 2, p 53, t 94), ramuhs puberulis, folns e basi obtusa vel acuta oblongis ^el elongatis lanceolatis acuminis uis apite mucronatis margine integns subrecurvis supra clabratis subtus )illis mmimis stellatis caducis pubentibus, flonbus , fructibus sessilibus sapius geminis, cupula (juniore) subglobosa squamis adpressis ovatis obtusis extus pubescentibus, glande 5 In Mexico, praesertim prope Santa Rosa Guanaxuato Fiutex vol arbuscula, sempervirens ex auct Folia in 1 uniillis approximata 2-3 poll longa, 5-8 lin Tata, petiolo 2 lin longo, colitcd supra pulverulento-velutma demum lucida, subtus nervis laterahbus pilontibus, tertiams vix distinctis, nervo centidMiu breviter velutino lasciculis alibi sparsis bre/issimis oculo nudo punctiformibus demum delapsis Fructus nondum matun ligno pnonis anni, folifs lbi jam delapsis, uiserti Cujula (imperf) 3 lm lata, squamis margine tenuibus (v s in h Mus par)

S 4 *Ovula abortiva aut maluraho fiuctus nondum cognita* (1). *Diatw fohorwn wmihte* in plensque ignota — *Species dubiae quarum plwes forsant a precedentibm non dive7S&*

A *Americans*

\* E *Caroling*

148 0 SINIATA (Walt Car p 235), folns sinuatis laevibus obtusis supra pallidis subtus subglaucis, cupulft subnlanâ, glande globosâ mediocn — In Carolina Ab hodiemis non mcmoiatd, obhvio non sine causâ tradita

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(1) Affinitates nullo modopiasentiendae quum sspissime e duabfls speciebus

\*\* E Mexico vel Aniuicâ centiab

149 0 ARISTATA (Hook et Am bot Beech voy p. 444), loins brevissime petiolatis oblongis basi cordatis apice obtusis et anstato cu>puliis conaceis integernmis, Jumoubus lamuliMjiu pubescenti-tomentosis, adultis glabns juxta ncivum pubcstentibus — In Mexico occid intci Sm Bias et Fepic Folia 4 j poll longa, setâ 2-3 lin teiminata Floies et ir ign Specimen See manni n 1458, e Ccro del Pmal, quod 0 anstatam Hook vocavit (viso ven-simiblerhtib Hook)diff(it I dscnptione loins mope apicem mtpgiisveJ 1-2 mucionatis Kami JUIHOIPS m illo tomento palluto floccoso ciduto dense vesti, lolnculuca, pelmh i-3 lin longi hmbi 2 J-3 poll longi, 12 18 lm lati, subtus piopo nervum tomentosi, nexus teitiams vi\ distinclis fl et lr ign Alfans videtui Q agiiiohae Nee, sed tomentum ranii brevius (v s)

150 0 BRACHYSTACH\S (Benth pi Hartw n 618, p 91), « ramulis obtuse angulatis lanatis, folns obovatis oblongisve apice smuato dpntatis iltnlibus obtusis mucionatisque basi Uuncatis conaceis rugosis supi i glabns subtus soidulp lanalis, spicis bie\ibus pkiocaipis, cupul\ bennspbdeiicâ, squamis latis appressis tomentosis, glande oblongo o\oidecl 45<sup>m</sup> Mexico ad Cuesta de Mivto, prope San Lucas, m montibus QIHzaltpnangensibus —Folia 4 6 pollic , petiolo semipollicaii spicce 1-1J pollic Glaus 7 8 lin longa Alfiis Q chiysophyllde, lolia majora, densius lanata, pedunculi ilonfen bieviore An 0 calophylla Cham el belli ? »

HI 0 BLMELiomrs (Iicbm in Seem bot HPI p 251 et Egesl p 30), iamis albicantibus \uiucosis, lamulis angulatis h<sup>r</sup>i icilibus, loins appioximatisbiesi tci pcliolatis oboxalo lanceolatis oblusis apice sacpp le\ltoi einaiginatis basi cunealis mt(n<sup>r</sup>Piiimis nidiginp subic\ohilo supia ^1 iluninns subtus in i\ilhs neiNoium paice baibalis, liuctu In Yciaguas Vmuicr centi ad mojitom Chinqui (Seem ) Folia adulta2-f-4 poll longa, 1 1J poll lata, petiolo IS lin longo luvenilia ex Stem ciliata caetaum glal)ia, scd in phiasi iolia adulta m axillis baibata dicit Amenta giaciha 12 16 lin longa, densiflora Fiuctus ignoti — Spfcimma vidi in h cl beemann, sine nomine e Veraguas, qua3 cum dscrupt cilatA Lubm conveniunt, sed m eadem paginâ dude et loisan 3 divpisae species adsunt Numerus 1, sine ilore nee Iructu, 0 bumehoides dicendus, est lorsan Q elliptica Nee ^ s )

152 0 C\NDIC\NS (Nee' in Anal cienc nat 3 p 277, et in Koen et Sims Ann (il bot 2 p 110), lanns , loins ellipticis utnntiue subacutis subpinnatifidis lfjbis utimquc 4 lite ovato acutis apicp et margine mucionato dentatis membianaceis supra juiionibus incams tomento scnus cadno subtus J)ilis l)itvi bus stellatis pc laistpniibus liicmis, flonlms iructu 1 In Mexico piope IUHII Petioli 4 5 lm longi pubescentes, pube detersibih Limbi PV NCP 0 poll longi, 4 poll 1 Ui, ex loins duobus m Mus Matr sPivatis 5 b poll longi, '2'.-1. poll lati lobis 5 9 lm longis totidem basi latis sinubus obtusis, mucionibus i lin longis Mihi \idetui a Ouercotiliena, pioptpi dentes mucionatos secus maiginps loborum et pubescentiam modo Popuh albae

153. 0 CHRYSOPHYLLA (Humb et Bonpl i pi equin 2 p 42 t 87),nmis Juino-nbus pulvpracoo pubtntibus cito glabiatis, lolus oblongis \tl obovalis basi obtusis. \el siibcoidihs apicpm ^Plslls 3 4 5-setacPO dentatis mcmbianaceis, jnnionbus pihs mnnns sulluis pubpscniijuis iduliis gl ibuusiulis, amentis giacilibus sparsifloislobo dimidio bicMonbus, biactcis , pengonio 5-dentato, stammiDus 6, peduncuhs iemmeis petiolo aequilibus \P1 ))ie\ionbus, Jiuctibus > In tompci itis et lupcstnbus Me\ici mtci Moran, Pachuca et Rpgla alt 12-H00 hr\ip Nompn pessimum Aibor e\cp]sa svhas constituens Foha e\ speciminc caduca, tenuia, bipoJiicana, 8-12lin latâ petiolo 3 4 lin longo, dPiitinus 2 ^ lin longis e basi lanceolatâ subulatis, ncivis minimis

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loins, Hue et foimA liuctus similibus UJU o\uU mlera, alteia supera vcl uua Jiuctum matuium in gnno vetusto pidebet, alteia in umo anni

tertiaiiiis \ix distinctis Pubes etiam in folio adulto videnda, sed sparsa, mi nima, rara, in petiolo et nervo centrah solum copiosior, pulverulenta Flores masc ex IC et descr Feminei 3 4 an ice pedunculi axillans, 3-5 hn longi An 0 launna H et B \* (v s in h par )

J54 0 CORDAIA (Martens et Gal in Bull Brux 10 n 3, sp n 8), glabra, folns subsessilibus elliptico-cordatis integernmis nitidis, pedunculis brevibus, fructibus breviter spicatis imma uns lanuginosis parvulis 5 In editionbus montium Mexici Misteca Atd, alt 6500-7500 ped Gal n IP) Iruncus 8-12-ped , ramis tortuosis, cymâ lotunddtâ Folia 2, poll longa, 1<sup>1</sup> poll lata, basi pro funde cordata tructus immaturi magn pisi

155 0 CUNLIFOLIA (Liebm in Seem ' bot Her p 333 et Egesl p 24), ramis pptiolisnue junionbus glabnusculis, folns brevissime petiolatis obovato oblongis infernp longe angustatis basi ipsâ acutis \el subacutis apice obtuse acuminatis exceptâ b<sup>c</sup>sî maigine dentato lobatos dentibus ovatis paucis obtusis apice subcallosis, supra junionbus sparsim pilosulis adultis glabns, subtus m axillis neivorum pilis stellatis floccosis dm tomentosis, flonbus , fructu \$ In Mexico, ad Ceno de Pinal (Seem <sup>r</sup> 14S6) et prope Lacoba distr Chinantla, piv Oaxaca 0 Ghmantlensis Liebm i Egersl p 21 Ex specim Seem folia perennia, in lamulis approximata, 5 7 poll longa (7 10 poll ex Seem), 1 ^-3 poll lata (? J-4 ex Seem ), consistentiâ Robons, nervis tert et quatern utnnque in sicco visibihbus, dentibus vel lobis utro(iue latere 5-b versus apicem flexis, petiolo 2 hn longo Specimina 0 Chinantlensis Liebm in h Copenh sinnlter flore et fructu cdfent, iolia mensejunio ligno anni praecedentis adhuc persistentia, specim mi Liebm similia, sed numerosiora et ideo magis \anantia Petioli 1 I lin longi Lobi limbi plerumque minores et latiores. Limbi 4-7 poll longi (v s)

156 0 DYSOPHYLLA (Benth pi Hartw n. 421 p 55), « arborea, petiohs brevibus crassis, folns oblongis pleiumque ad apicem lationbus acutis mteger-nmis vel paucidentatis basi retusis crassis supra glabnusculis demum nitidis subtus dense velutino-lanatis, fructibus sessilibus subsohtarns \$ In montibus Mexicanis prope Huasca, ubi Manzanilla dicitur Folia 2-3j poll , formâ 0 tndentis H et B. (supra Q Castanea y), a quâ haec sp difTert praecipue staturft et lana pagmae mferioris foliorum Quoad folia convenit cum descr Q diversifohae Nee (supra Q tomentosa), sed inflorescentia discrepa^ »

157 0 EXCELSA (Liebm 'Egesl p 16), ramis junionbus pubescentibus fine anni glabns, folns breviter \el brevissime petiolatis obovato-oblongis basi obtusis \el acutis obtuse acuminatis versus basim undulatis mde grosse et maequalitei lobdto dentato serratis dentibus ovato-lanceolatis extremitate subcallosâ acutâ membianaceis amplis junionbus . adultis utnnque glabns, flonbus cunuld glande magna ellipsoideâ \$ In Mexici sylvis supra Matlaluca prov Vera Ciuz, alt 3-1500 p Januano lecta adsunt in ligno vetusto albedo folia persistentid Petioli in duobus ramis 1-2 hn , in tertio 2 4 hn longi Limbi 4 9 poll longi, 1J-3-5 poll lati^basi pleiumque longe cuneati, acumme m plensque rupto, dentibus nunc 4 hn longis 2-3 lin basi latis versus apicem loin flexis, nunc brevionbus, nervis tertiams et quaternams subtus distinctis tenuibus Insertio fructus ignota, sed cl Liebm sessiles sohtanos dicit Glandes 15-18 lin longae, 15 lin latae, urabilico subconvexo umbone e depressione suigente 0 cuneifoliae proxima (v s in h Copenh)

158 0 EUGENLEFOUA (Liebm Egesl \*p 27), folns subsessilibus lanceolatis acuminatis acutissimis mucronatis basi longe attenuatis cuneatis in petiolum brevissimum decurrentibus integernmis undulatis margme cartilagmeo reflexo utnnque glabernmis nitidis, flonbus fructu In Guatimala et Costanca (Warsew in h Berol) Petioli ^-1 lin longi Limbi I-J-4 poll longi, b 12 lin lati, conacei ex Liebm qm saepe folia ngida non crassa sic vocavit Affinis ex eo Q salicifohae Nee \*

159<sup>7</sup> Q FLAVIDA (Liebm ' Egesl p 20), ramis junionbus floccoso-tomentosis lqlvis, folns brevissime petiolatis e basi obtusâ vel subcordatâ obovatis acutis



vinudto-vel grosse dentatis dentibus anstatis, junionbus utnque pihs stellatis iulvo-tomentosis, ddultis supia glbrescenlibus, stipulis hnean-lanceolatis extus pubescptibus petiolo bublongionbus cadiyis, ilonbus , iructu \$ In Mexici 01 ditione Puebla, cnca Chiridiitla pt l.u/utlan, alt 7000 p Petioh 2-3 lin loiiffi, unJe praeseftim a 0 calophylU diffeit Limbi *h-b* poll longi, J poll lati non coiuipei ut dixit Liebm sed potius membianacei, non pellucidi, toineito supia cidente iloxoso subtus peisistente (*m* finem usque ?), minus quam in 0 calophylla pallido, apiculis 1-3 lin longis extiemitde nervoium sitis adjunctis passim alns, lobis fere nullis (setis tune penphencis), vel ovato-subulatis btipulae 4-5 lm longcB Duratio folioium et liuctuum ignota Aihnoi videtift; Q grandi, aut Q Waiscewic/u quam calophyllai, invito cl Liebm (v s in h Copenh)

160 Q FLOCCOSA (LiebmJ Egesl p 20) ramis junionbus petiohs et pagina intenore foliorum tomento st llato f ulvo floccoso caduco vestitis fine anni glabrat,foliis olxnatis vel elhpticis amphs basi obtusis \el acutis apice subacuto\el obtuso subuldto-mucionatis maigme levoluta undulatis prope dpicem remote subuldto mucionatis supid m nenis tenuiter velutmis adultis cartelurn glabrat, ilonbus fiuctu 5 In sylvis montis Mexicani On/aba, alt 8-10000p Petioh in eodem lamo 4 8 lin longi Limbi •) 6 poll lonrfi 1 H P<sup>o11</sup> Lit<sup>1</sup> > n<sup>o</sup>n coiuipei ut dixit Liebm sed fiimi et tenues, dentibus subulatis apice et passim piope apicem hneam longis, IIPIVIS teitianis subtus distinctis Mense septembi lecta lami pi ions anni apxlh et ioha adhuc subtus tomentosa, seu tomento cadente Stellae piloium supra citius cvanescentes, minimae An eddem quam Q Onzabae Liebm <sup>9</sup> (v s in h Copenh )

161 Q FULVA (Liebm ' in Seem bot Her p 333, Egesl p 2">), iamis junionbus petioh s fol usque subtus tomento stelldto bievi fenugineo dense vestitis, folns elhpticis vel obo\atis basi subcoidatis \el obtusis vel subacutis apice mucionatis vel obtiisiusculis margine integns \el piope dpicem pxtremitate nenoium 1-2-mucionatis conaceis, supia in nervo centiali tenuitei pulveiu-lento-\elutino weteium glabns (glaiuatis\*), flonbus , imctibus (junionbus) axilldiibus subsessilibus gemims ,1 In Mexici occid SieuaMadie (Seem ' 1976 h Hook et mile in h Copenh ') Folia in 3 idmis hgno anni inseita Petioh G-12hn longi, teietes Limbi 3-<sup>5</sup>) poll longi, 1 J-3 poll lati, mucionibus apicis et inteidum extiemitate neivoium piope extern hneam longis Fiuctusjunioideestin specim h Copenh AifimsQ scytopl^llae, sed tohabdsi obtusa, mucioncs rdiioies bicvioies e penphenâ nee e lobulo \el d^nte suigentes, tomentuni fla\um Inseitio fiuctus ignota et inde duratio (v s )

162 Q GERMANA (Schlecht etCham in Linn 1830, p 78), ramis , folns subsessihbus basi acutfis vel obtusis nunquam manileste coidatis o\ato ypl ono-vato-oblongis obtusis subintegemmis vel obtuse sinuato-dentatis dontmus Cdlloso-muciondtis, junionbus , ddultis glbns, iructibus in pedunculis brevibusgeministeinis\c, cupuld depresso-tuibmatd glandem mcludente, squamis ihomboideo-o\atis doiso gibbosis et tomentosus apicem veisus obsolete cihatis, glande sphaeioidea — In Mexico piope Lilapam (Schiede Pt Dpppp), in prov Veia Cruz (Linden'n 10, in h Floi sppcinipn ii dpficipnte dubium) h\ cl auctonbus ioha m ijoia b poll longd, 1 \ 2 poll lata Cupula 11 lm lata Diffeit (PX duct) a 0 polymoipha ut 0 se&sihfloia apedunculata in 0 Robore Lmn , s°d tune meo sensu \anetas esset — Cl Liebmann, qui \ensimihter specimen authenticum Beiohni \idit (conf Egesl p 2) ramos ex Alpatlahua, sme fl nee fr , m h Copenh , Q germanam \ocavit In hiscp folia piaeteriti anni *permstenlia* 2 adsunt, j)etioh 2-3 lm longi, cjetprum omnia lohoium junioiim et vetustioium Q polymorphae (v s mipeif)

163<sup>9</sup> ni \UGESGENS (Humb et Bonpl ' pi cq 2, p 20 t 78),iamisjun glabus, fohis annuls bieMtPi pptiolatis cuneato-obovatis o})tuis vel acutis a medio lepando-dentatis mpmbianaceis, supiajunionbus {>labnusculis adultis glabns, subtus nevis glabnuscuhspaienchymate pihs adpressis tenuissimis peisistentibus vestito inue pallido, amentis folio dimidio bicMonbus giacihbus sparsiflyiis^ lachi pilosula, pengoniosiibcampaiiil.ifoetHN piloso lobis nioi-

qualibus, stamimluis 5-8, peduncuhs fern folio dumdio brevionbu\* fructi bus S In cdl id is Mexici inter La VenU de la Motonera et Acagmsotla Kunth in H it B nov gen 2 p 14 Rami juniores angulosi froha 3 4 poll longi 1 2 poll lata petiolo 2 4 hn longo, basi mtegra, apicem versus mi (lul ito dontita cienis muticis, mdumento 0 bicolons Amenta e basi Iami anni Fiuctus jun ex IC doscnpiti desunt in specimine Maturatio vensim annua quum lructus per florationem non lecti fueiunt ( \ s in h Mus par )

164 0 GRAIUMI (Benth pi Hirtw p 57) « petiohs gracihbus ramisque glabei nmis loins oblongis lanceolatis\ e acutis m(ugine undulatis smuato-dentatis cUnlibus mucroridtis utnnque glabeinmis nitidis, fructibus subsessihbus sub-solilaris — In Mexico (Giah ) Q laminae Humb et B affims, sed vena. lUeialcs majoies omncs mucrone toirainatae et folia saepius latioia magis regulariter aentata, et saepe falcata et basi obhqjia sunt Supersunt speci-minaduo, alterum flonferum a 0 reticulata parum differt folus (junionbus quidem) utnnque mbiginoso-tomentosis, in dlteio nee flores nee fructus suppetunt, cujus vero loha m omnibus nisi petiolis bievibus crassis cum descriptione Q acutifoliae Nee convemunt »

16'i X) GUATIMALFNSIS, loins petioldtis oblongis acutis mucionatis basi ohtusis vol cumatis saepe in«equdhbus margine ielle\o undulatis supia glauco-vm-dihus glabus subtus luscescentibus ad axillas nervorum et secus costam Jusco-baibitis caeteium pulvei ulento-pubei ulis iuctibus gemims 9olitams\o subsessihbus, cupula tuibinata, glande oblonga pubeiuU — In Guatimal i (Warscw n 37 in h Beiol) Q tuibinata Liebm Egesl p 28 (non Blume) Folia 4-} poll longi, 1-1, poll lati petiolo 2-6 lin longo compiesso pul- yerulento, conacea e\ Liobm qui saepe folia membranacea Hgida sic vocavit Gupula 5 lm alta, 4 lin lata Glans 7 hn longa, 4 lin lata

166 0 IUROENSENII (Liebm Egesl p 30), folus breviter petiolatis ovato-lanceo- ldtis obtusmscuhs basi cuneatis margine parum reflexo repandis supra nitidis glabris subtus palhdioribus ad costam et axillas uervoium paice bdibatis xnox glabiescentibus, flonbus , fructibus gemims sohtanisve pedunculatis, cupula cratenmoiphâ, glande ovoideo-coaica — In Mexico ad Chinantla piov Tuebla (Liebra ) Petioh 3 lm longi, glabn Limbi 3-4 poll longL, 1, lati coiidgei (sed Liebm loha chditdcea, non ciassa, sic vocavit) Pedunculi 4-6 poll longi, gldbiescentes Cupuld o-6 lin longd, 6-7 lin lata Glans pollicem longd, 5-7 hn latd Affinis ex Liebm Q lanceoldtae Humb et Bonj)l Deost in h Gopenh mecum comm sed fructus adsunt in sacco separation uln soqiontid video pedunculi liuctileu i-6 hn solum longi, I-17 hn ciassi unde vriisiiiihtc) aunui, sdepms monocaipi, cupulae hemisphaencae, nasi ob- tusaj vel subacut<£, mdgmtudine citata, squamis arete adpiessis e basi ov.it \ convexa obtuse angust<itis fulvo-pubescentibus, giande oblongd vel ovoideo- oblonga 10-12 hn longa (v fiuct)

167 Q LANCIPOLIA (Schlecht et Cham in Linn 1830, p 78), glabra, folus brcvitor petiolatis anguste oblongo-Janceolatis antice parce smuato-undulato- dentatis pergamentaceis caitilagineo-marginatis, peduncuhs ohgocarpis, cu- pulâ subhomisphaencâ, squamis adpressis obtuse acummatis maiffime leveiso cihatis dorso tomentosis glande j evsertA — In Mexico pi ope el Molina do la Pcdipgueia (Schiede et Depje) Folia 3-5 poll longa, usque ad pollicem lata, rote vasculoso subtus prominente, subconacea Pedunculus in sjiecimuu axillans, tncarpus, sesquipolhcans Glans conoidea, 9 hn longd Duiatio iol rt fi ignota Conler ad Q leiophyllum

168 0 MOLLIS (Maitens' et Gal in Bull BFUX 10, n 3, sp 17), râiMis junio- ribus dense incano-tomentosis, lohis bievissime petiolatis obovatis basi coi- datis apice obtusis subconaceis undulatis mucionibus lmeaibus a medio passim dentatis supra glabiatitis s<btus dense et palhde fuivo-lanuginosis, amentis fbho brevionbus pilosis, bracteis , pengonio campanulato extus piloso oie 4-5 lobo. anthms paucis mucronulatis, peduncuhs fructif subla- natK petiolo majoiibus oligocarpu, cupuld parvâ lanuginosâ squamis 5 In Mexici mont Misteca Alta piov Oixaci ih bVi0(-)7i00 ped ((\*ab' 102) >

specimne florif. a el- Martens benign© conam. mmi non ralidi, setfundo anno brunnei et glabrescentes; folia anaua 'i-2', |»>||. tonga, 15-IN Jin. lata, nanc. KLSI obtosa, petioto J £-2 lin. tongo, pilis stellatis supra brevifsimiB caducis, suites longioribus persistentibus. Stipulae lineares, cuus villosae. 'A tin. toi gae. Dentes tenuerj folioraiB ' Im. longi, omnino in in 0. crassifohi. An ramus junior isiiiiis: sed Folia caduca. An Q. reticulate proprior? Bed tnaturatio ign. Specimen 102 Galeotti in h. Deless. pettolis :(< tin. longis differt. Peduaculus 4 liit. tongus .iiii'si. ex axilla folii anai, apice fructus 2 juaioReB gerens. Cupulae globesae, sq namis ovatis olituis, glande inaperfectft. Specimen subsimite sdesi in nero. Copenh. suL n. 149, a cl. Ciebmann SfavesiaB mense septembc. tectmn etQ. crassifolia auncupatum, obi fructus DBC Qorea vidcnifi, etfructas ramo anni inserti, inde a 0- crassitolii divaai. (v. ».)

1<9. Q. MUIEHUS (Kellogg in Proceed, of Calif, aead. nat. BC. 2, n. 36), foliis oblongo-ianceolatis versus basim acatam subafigustatifi tM<sup>1008</sup> v\* obl<sup>ue</sup> si-Quato-dentatis dentibus e bati lata cwspidato-feabalatis utrinque glabrig, fructibus axillaribus solitariis, peduncuUs petiolo subbrevioribus, cupola aemis-It'-(i•-i lasi angustaUl maiyine teau, wjuamifl ovatis sabacutifi in;ir<sup>^</sup>i; i' membranaceis dense adressifl basi ciliatis apice irregulariter ciliada, glande oblonga j immerea. ; In California ad tittus CJear lake, irbuscula suffruticos:L. Folia i-i poll, longa, l-l poll. lata, folia Castaneac vulgaria paulo teferentia, petiolo f-} poll, lungo.

IV). Q. OAJACANX (Liebm. Bgeal. p. 20), foliis breviter peliolatifi ovato-lancei la-tis Bubacutis basasversos attenuatis basi leviter cordatfs hategerrimis margine cartilagineo reflexo rugosia supra oitidis glabris secua costoffl puiverulentia subius [allidioribua secus costam aervosque floccoso-tomentosis demum glii-brescentibus] tinriljiis..., fructibus geminis pedtujculatis. cupulfi !epresse pa lei iVi mi i. glande ovoidea apiculata. s In Htexici naontibus orient, proy. OajacaiMS, alt. 2500-3000 i<sup>^</sup> LGAI\*I I<sup>11,11</sup> Zoochila fLiebm.). 0- <sup>anceolata</sup> Martena et BaL (non n. lu. Gal. IDS in h. Eook. Petioli 2-3 lin. longi. Limbi 3-4 poll, longi, 15-18 lin. lati. coriaoei ex Liebm. (f[u sa,pc Inl'i r i i 4 a, chartacea, Bl vorit) PEdudeulua poll, longus, tomentosus. Cupula :t tin. alta, G lin. lata. Glaus 7 lin. longa, 0 tin. lata. Eff Liebm. a&edit ad suam 0-nectandrjefoliam.

171. Q. Oiuw.K (liebm.! Egesl. p. III), ram is juoioribuB petioliscpie pulvaru-ii-r111-vfJu tin is perennibus onto v\*<sup>1</sup> ovali vn' obovato-acuminatts b;isi in; i>-qualiter subcoraatis rol obtuaja TOI rariua acutfs apice acutissimis rel acutis vd rariua contundatis integra wj prope apioeoa 1-2-setaceo-dentatis vel grosse i-j-di'iniui\* dentibua subulatis. jmuoribus..., adultis supra niil'lis nervo centrali pulverulento-velulinia subtua nervia tertiariis «t quaternariis tena' i-i reticulatis ad oervum centralem copiose tomento caduco stellate fuiyn ves' Litscum vestigia alibi pubisevanescentis, Doribua masc. ..., femi ne,8 Slr<sup>1</sup> i-tarius in a tilla folii subsessilibus vel pedunculo brevi suffulUs, fructu... ;) hi morjte Mexici Orizaba, jili 8-10000 p- Petioli in uno ramo :(<» in altej-n (l-IO lm. lobgi. Limbi 4-a poll, longi, J £-2 poll, lati, non.ooriacei sed rigidi. Extremitas et <l...>s quando perfecti subulati. Pedunculi fem. 1-2<sup>^</sup> lin. lou<sup>^</sup>i, nec petiolum a»(juantes ui .livii Liebm. Forsan a taurina Jl. <••• B. :! s'rd nuhen fbliorum copfosior, nervi lateralea magta patentes. 0. chrysophylla forsan rum hisce jungenda. HUM in omnibus ignota. (v. s.)

172- 0- BAPOTJEFOUA (Liebm. Bgesl. |>. 27J. foliifi b<vissim• peiolatis an<sup>^</sup>istn obngis supra medium parum latoribus basin versus sensim attermatis ubm-sis basi cuneatis integerrimis margine oartilagineo revolnto uti-iimup <sup>ALLIP T-</sup>rimis, floribus<sup>^</sup>, r? ur-m— i<sub>m</sub> Guatimala, ad Cuestn da Incensio (Skinner in D. Book.)- Petioli lineam lon(i, crassi, supra canaliculati. Limbi !> poll. longi <MT; poll, lati, cori acei ex Lie... (qui wejie Folia chartaoea vel riffido membranacea tic yocavit). Affim am dicit su«e Q. persesfolije, id est Q. «fiip-tics

173. 0. SBOOVIEKSIS (Liehm. figesl p. -28), foliis subsessilfous olw«tfis okusis l;IMH versus attenuaiis basi em<sup>^</sup>rgiitatis crenalu-ippiuwis,cirnis iiiKqualibts

obtusis integris \cl repandis saepius oaloso-apiculatis, margine cartilagineo leflexo, supia glauco-vnidibus mtidis glaberrimis, subtus flavidis pilis stellatis mo\ glabrescentibus sub lente subtilissime granulatis, flonbus , imctibus § In Nicaragua, prope Segovia, alt 4500-5000 p (GEistedt) Arboi fxtolsd Pctioh 1 lin' longi, crassi, puoescetes Limbi 4-§ poll longi, 2-i \ poll lati, coridcei ex cl Liebm (qui srepe folia ngidd, chartacea sic voca-ML) Affinem dicit Q cucnidde Nee et Q spicatae H et B id est Q leti-  
CULdtcB

174 0 SERRA (Liebm ' Egesl p 16, non Ung foss), ramis folnsque novellis spai^im stellato-pilosis cito glabratis, folns breviter petiolatis longe lanceolatis acumntatis basi cuneatis vel obtusis sinuato-dentatis dentibus longe aristatis membranaceis adultis utnque glaberrimis, stipuhs caducis longe lmeanbus doiso pilosulis, flonbus , Iructu § In Mexici prov Puebla, alt 6000 p Rami virgati jfrolia mitio saltern secundi anni persistentia, 4-7 poll longa, 1-2 poll lata, in petiolum 2-5 lin longum longe vel abrupte angustata, maigine subcnspato giosse setaceo-dentata, leie ut in Q Skinnen, Q Xalapensi, alivque, neivis teitiarns reticulatis crebris Stipulae 4 lin longs (v s in h Copenh)

175 0 SORORIA (Liebm Egesl p 17), folns bieivissime petiolatis linguaeformibus \el clongato-obovatis obtusis basi obtusis vel emargmatis integeirimis maigme taitilagmeo paium levolutu utnque glabns subtus glaucis, fructibus solitams sessilibus^ cupula paten form I squamis laxe imbncatis lanceol^tis atutis glabns, glande ovoideá utnque obtusá — In Mexici prov OajBca, pi ope Ohinantla (Liebm ) Folia i kf poll longa, 1 2 poll lata, petiolo 1-3 lin longo supra piano glabio, conacea ex Liebm sed cl auctor conacea \*dicit folia quae chartacea rigida non crassa Cupula 4 lm alta, 9 lin lata Glans 9 lft alta, 6 lin lata Affinem ait Liebm suse Q nectandraefohae Deest in It .Copenh saltern in folns mecum comm

### \*\*\* E Novà Granatà

176 Q ALMAOUCRENSIS (Humb et Bonpl pi equin 2, p 157, t 131), ram is glabns, folns apice ramulorum congestis subsessilibus cuneato-obovalis obtusis vel acutis basi ipsA angustá obtusis medium usc^ue undulatis inde ad apicem spirato-dentatis membranaceis utnque glabns subtus glabrescentibus, fl et fi § In AndIbus No\o-Gianatensium juxta Almaguer Folia 4-' poll longa, 2 poll lata, dentibus non profundis (ex icone), acutis nee mucionatis, petiolo ciasco, 1-2 lin longo

## B Gerantogex

177 Q AVELLANIFORMIS (Calm et Boutel examen enemas p 8), cortice crasso, folns perennibus ovato-acutis grosse serrato-dentatis dentibus spinosis supra glabns subtus incano-tomentosis, cupulae margine constnetae squamis ac^rjis- sis, glande parva glandulosa submclusa § In Estramadura um vulgo Mesto de bellotas como avellanas

178 Q BIVONIANA (Guss syn fl sic 2, p 604) ? I amis junionbus albo-tomentosis, folns ovato-oblongis sinuato-lobatis tnpartitise lobo medio hneanoblongo 3°-5 longiore int^gro vel vane mciso-lobato, paginà supenore glabrà, infenore albida tomentoso-villosa, cupulae hemisphaencae sohtanae sessilis squanuiacutis subpatulis, glande cupulam subduplo excedentes b In nemonbus Sicihae ad Boschi di Gerace (Biv), m Nebrodibus (Tin in Bertol) Folia (ex Guss ) perennia, nunc oblongo-obovata, 1-2-pollicana, afl summum poll lata, Irregula^tifer smuato-lobata, saepius infra medium 3-partito-tnloba, lobis laterahbus acutis ac mucronujatis brevibus integris aut angulato-lobatis Ex cl Beitol fl it 10, p 210, qui specim linai observavit • cupulae cnnita?, puberulae, squamis inferioribus subrecurvis, supenonbus brevionbus angustionbus acuminatis demum recurvis Duratio fructus ignota

179 6 CERRIOIDES (Wulk et Costa in Linnaea 30, p 123), ramis lunionbus pe-

tiohsque mfescenti-tomentosis, folus bievitei potiolatis elliptico-oblongis basi subcooidatis giossc incisib lobis utnnque circiler 6 tiidnguldiibus acutis calloso muciorntis siimbus icutis vel obtusis adultis subcoiucis supia glabns subtus tomentdlis flonbus Iiuctibus sessilibus subflomeiatis in pedunculp brevi crasso tomentoso, cupulae hemis^haencae squamis ddpresis o\atis bieviter acuminatis obtusissimis basi (pi^ecipue infiniis) gibbis tomentosis apicem versus rulescenti-maigindtis glande ovdto-c^linuncd fcxseifa *sin* CataldnicC legione littoi ill oUobi Iructus miturescens (num anni aut anni piaeced non Lit cl auctoi) 1 olid dicit Q (eindis cum cupula Q pubescentis etQ confertae Kit undennhi\erisimilitei vu Q Roboris videtur, sed duiatio foliorum et iuuct ignoti Polid cum petiolo 3-4 poll lon^d, 1^2 poll latd Petioh 3-4 lin Cupuld 4 hn altd, 7 lin lata Glaus 8 hn longa

180 0 HYPOCHRYSA. (Stev Vei7 Tiur Hilbins p 307) folus subtus flavo-puboscentibus oblongi\* lusi coiddtis \i\ ui^ustioiibiis obtuse sinuato crenatis, pedunculis bievibusl 3 flons cupuld, squ inns idpiessis toiuosis L montibus sum i Gdndschini piov transcaucas Ab omnibus divers i folus 5 6 poll longis, subtus sjiibaueis, gemmis majuscuhs icutis A Q longifoha Koch differt loins 2-2 \ puff litis'dilhuc bngionbus subtus pubescentibus in adultis saltern axillis venaium Imbitistt inpiimis s(juamis cupulae adpiessis, aQ Dshoichonsi Koch (supia 0 Robons scsilifloiae vu ) loins duplo et tnplo lon^io-ribus ncquaqudm ^1 ibemmis, d Q ibenc i (0 Robur et Q in icrdiitliei i nob ), cui (idmodum alfinis, folus lon^ionbus angustionbus, liuctu pedimcul ito

181 0 IOHENTII (Hochst in Lorent Wandei Orient ex Floia 1845, p 26), foliI3 hnceolatis pinnatilibis sublyratis bisi obtusis nunc subcor^atis utnnque glibns subtus rcticulatis pUlidionbus lobis tnangul inbus punfentk-acuniiuatis mterdum laterdhte#i 1-denticulatis lobo teiminah mijoic lanceoldto gn ssc seirato dentibus omnibus lon^iuscule pungenti acumutis, pettehs s mipollicanbiis, limbis 4-5 poll longis, fl et li ign Piope Seleucia Asiae nunois torsan (ex auct ) vanetas Q Libani •— Oblivio aeterno tiadenda\* quum sine fructu et flore species Quercus non definienda sit

182 0 OHTECTA (Poir diet suppl 2 p 218) ramis plibns folus ovatis **ϕ** 1 incLolatis obtusis vel acuti^ utnnque gldbunmis interns dut biewtei spinoso-dentatis, pedunculis fem 1-2-ilons, cupulae squimis imbricatis lmcto-ldtis acutis ngidis, jdpremis libens apice subrecurvis, gl«mde inclusa — (irea lingidem (Biouss) An Q coccilera<sup>9</sup> iut Q Lusitanica? iructu impei fecto

183 0 SCLEROPHYLLV (Lindl inPa\t flow gaid 1, p 59, t 37), serapeivnens, ramis glabus, loins petiolatis ovatis aut ellipticis basi subacutis apice obtuse angustatis grosse senatis conaceis supra glabns subtus glauco pubescentibus, Jl misu , pedunculis Iructifens lolio bievionbus polycaipis, fiuctibus scssililnis ippioximatis cupul\ subglobosi tomentosd, squamis adpiessis ovato^utis, glmdo paulo ultra cupulam piotiusis pubescentibus <sup>r</sup>, In Chinã boieah (FoMune) Rami adulti ex icoiie glabn Folia e\ icoiie 3 poll longa, 1") 10 lin lata, ex descr mterdum 6 poll longa et 3 poll lata, ex icone seinta, ex descr ultra medium grosse serrata Spicae fructilirse 3-4 poll longae, ev icone frutibus 8 a medio onustae Duiatio liuctuum ex icone non patet pcdunculus fiuct fere maturus > ev axilla iolu tcitn ante finem lami, inde annuus vide-tui Cupula (ex ic ) 6 lin lata Squama doiso lugosae, elevitae Glans apice tantum exseita An sp affinisQ Mongohcae > sed folia peiennia

Sectio H ANDROGYNE Alph DC note nouv car fr Chen p 9 — Sectionis Lepidobalani sp Endl gen suppl 4, p 27

Cupula squamis imbricatis tecta, ore aperta Flores miscuh in medio pilosi absque rudimento manifesto pistilh Stigmata fl lem (in eodem iamo) 3 4 <sup>r</sup>> 6, lmeana, divergentia Spicae axillares basi flores fcmipos paucos gerentes inde in amenta erecta mascula caduca elongatae flonbus misculis fisciculatis/bracteis \ cuique fasciculo Porigonium misc <sup>r</sup>> 6 fidum Stamina 10-12, longe exserta, anthens minimis Ovuli iboiti\ a ^upra Matinatio biennis Folia-\*pe-

rennia — Nomen e spicis androgynis" — \*dupula fectfopjs Lapidobalani, inflorescentia Pasani«, staminā etoimnerus frequenter auctus gtimatum generis Castaneae. Differt vero a Castaneā flor, fetal, intra iiJvolucrum solitariis, cupula apertā.

184. Q. DENSIFLORA (Hook, et Am. bot. Beech, voy. p. 391, Hook. ic. t. 380), ramis junioribus fwvo-fbmentosis, foliis e basi obtusā vel rarius acutā oblongis vel oyato vel obovato-oblongis apice obtuse vel subacute angustatis marginis cartilagneo revoititaundulato integrisiel subintegris junioribus utrinque tomento dtelktq flavo caduco vestitis fine *māi* glaofatis, amentis densifloris tomentosus folio aequalibus vel sublongiorfims, pedunculis 1-3-carpfl petiolo vix longipribus, cupulā hemisphjerico-abbreviatā, squamis extus senceis inferioribus Oblongis vel obovato-oblongis adpressis, mediis et sup. angustioribus linearibus demum patenti-reflexis, glande semiexsertā ovoide<sup>^</sup> pubescente. *fi* In California (Dougl, l h. DC. ex a. soc. hort.). Rami secundo anno fusco-pubescentes. Folia appropiimata, usque ad maturitatem fructus secundo anno et forsau <sup>u^im</sup> persistentia; petiolo 3-5 lin. longo, tomentoso; limbo 2-3 poll. longo, 8-12 lin. longo, rigido, integro vel rarius subdentato, nervis secund. utrinque 16-18, tertiariis et etiam quaternariis subtus distinctis. Stipulae fugaces, extus pubescentes, in foliis supremis lineares,  $\frac{1}{4}$  lin. latae,  $\frac{1}{2}$  lin. longae, squamis Stipularibus (folior, inferiorum) obovatis subacutis, 2-3 lin. longb, 6 lin. longis. Bractea prscipua ejusve fasciculi masc. flores aequans, ovato-acuta, extus pilosa. Lobi perig. ovato-acuti. Cupula 4 lin. longa. 8-9 lin. lata, squamis 3 lin. longis, mediis patentissimis { lin. latis apice subinflexo. Stigmata in'uno fructu 3, in aliis truncata. (v. s.)

p, MartSegi, foliis obtusis vel acutis apicem versus senslm neci flmstatis basi except! dentibus brevibus cartilagineis serratis, California prope Santa Cruz (Hartw. t 1968)4\* Q. densiflora Benth. Hartw. p. 337). penticuli fol. regularityr dispositi. Spies inf. folio longiores, sup. breviores. Flores odore Castanes. Stigmata linearia, acuta glabra, 3-4-5-6 In floribus ejusd. /ami. (v. s.)

Siptio m. PASANJA *Miq. fl. Ind. bat. I, p. 450 (adjunctii char.), Alph. DC. note nouv. car. ft. Chen. p. 4, Jtiq. Ann. Miu.J.ugd. bat. 1, p. 108. \*- Sect. Lepidobalanus (partim) Endl\* gen. suppl. 4, p: 2, p. 27. Benth. fl. Hongk. p. 320. — Quercus S 2, Blume Mus, Lugd. bat. 1, p.\*289.*

Cupula squainis imbricatis tecta, ore aperta. Pistillum in flor. masc. rudimentarium, liberum, globosum, hispidum — Arbores sempervirentes, Asis meridionalis. Folia plerumque integra. Amenta erecta, nuno patdmflata (ex axillis bractearum in ramulis primo adpectu aphyllis), floribus 4spe secus rachin fascicularis, bracteis plerumque (semper?) 3, unA inferiore majore sub singulo fasciculo aut flore solitario. Perigonium il, masc. regulare. Stamina, ssepius numero duplici lobefum, ideo symmetrice dlipoaita. Spicae femindse (nunc androgynae/basi solumrf^nilnese) floriDts et ideo fructibus saeps involucrjil connotibus. Ovula adpirtiva. supera (1). Maturatio post primum annum. S^iainae tō tylobalannm. Cotyledones interdum (in ultimis sp. et ft>rsan aliis), ut in Mimeri sect. Lepidobakni et Q. fissā sectionis Ghlamydobalani. sinuato-lobatej sappius tamen integriff.

§ 1. *Fflia integra. — Cotyledones plerwnque. integrx, in specie n. 206 (eolim?) \*imato\*lokity:*

185. Q. otABRA (Thjimb. fl. jap. p. 175), ramis glabris. foliis obovato-oblongis basi tt&eē ttttfintatiB apice obtuse acuminatie intetti^lmiB. ^ b r t « coriaceis, epTcig "SiculiB slpius šolimiis rachi \*Ap£to0 fOowA j brafitois

(n. Vidi in Q. spicata, Q. Kortbalsii/at ovuk omoia ju>4o^a in anguli^ super, peadentia, sefttis in centro kDperfecti^/ in Q. fenestrata, AmherstianJ et glabra.

oiato-acummatis ciliatis, j>erigonii 4-G-P<sup>drtil</sup> 1<sup>oDis</sup> ellipticis cilialis, nntlious plainis, fiuctibus secus pedunculum solitanis vel lasciculatis ot cuiualis, cupulae liomisphdMilB squamis ciiiorco-ieluliiiis adjji(ssis, mleimilius quadrangulis, supcuoiibus ovato-acutis, fclande oblonga tuj)iilun tnplo supelante \$ In mendionali parte msulae Kiusu JaponiaB — Sieli et /uctu 11 jap 1 p J70 t 80, Gay in Bull soc bot 1868 p 32 Novell\* gUliiuscula Folia per pluies annos peistantii, 2-4 poll longa, 12-1S lin lata, in petiolum 5-6 lin longuni atteiiuata, obtuse et brevity acummata ^el obtusa, inaiginc (m sicco) levoluta subtus j)lus minusve albide jiiuictulalii Stipulae iugaces SpidL masc 1J-2 poll longae, eicctae, conicrtifloide Biacteve cmquo flon aut iasuculo flonim ttniie, acuminata<sup>1</sup>, floie brevion s, Inliuales mininidp, nunc deficientes? Lobi pciigoniales} lin lougi Filamenta 8-12, niulto longiora Pulvinus centralis hispidus Pedunculi Iructiicn secundo anno malulescentes (ut in ic Zucc malo mterdum mteipietatu), 2 poll longi, lignosi Gupula 7-8 lin laU, mtus glabnuscule, squamae mier niajoies, lined sblongiores (v s comm ab heib Lugd. bat)

*fi, Inicrococca* (Blume' Mus Lugd bat 1 p 290), folns saepius majonbus, fructibus ininonbus — In Japonia Folia 2j-6 \ poll longa, petiolo 6-10 lin. longo. Cupulae 6 lin fats, in specim nogtro a cl Bl comm. (v s)

186 Q<sup>^</sup> AMHEBSTIANA (Wall ! list n 2783 partim), lamis plabns, folns e basi acuta oblongis obtuse acummatis iitegerrimis glabns conaceis, spicis masc saepiu\*<sup>7</sup> solitanis, rachi incano - tomentosa, biacteis lancoolalis acuminatis, ppiigonu profundo 5-6-fidi extus pubescentis loins obtusis, anlliPiis K<sup>^</sup>bris, liuiiilms SOLUS pedunculum crassum ioho sublongiorom solit.uus, tupula; heraisphajncde cinereo-velutmse squamis e basi ovato •ulpiossa conata acutis supenoibus crebns minonbus, glando globosfl cupuKmi nmlo supcrante \$ In Martaban ad Amherst Rami Ptnm nnnio anno tflabii Folia 3-6 poll longa, 15-18 lm lata, petiolo ,)-5 lin longo, |uaioia miln ignota, aduhtaglabemma, ncrvis lateralibus utunciue 9-12,tPriairis vix distmctis Stipula) ign Amenta 2-3 poll longa, simpheia forsan in axillisphmi? tomento ferevi, flonbus solitains vel fasucul itis, basi dissitis apuo «i}»pioimatis Bractea sub floio vel lasuculo porigonio paulo longior, e)lus ]ubcruh Stamina 8-10, exserta Spicae fern semipedalos, lamo anni crassiores, brevitee jjubscscentes, erectae Cu)ulje sessiles aut subsessilos <sup>r</sup>>7 lin longai, 6-9 lin iatae, stjuamis mucione eieto minimo liboio lintuin juimo adspoctu distinctis Glaus tenuitei pubescens Vanat cupulis oie piiPiitibus vol subconctiictis liuttibusque laio aboitivis enca basin cupuldc adnatis Mixta in heib meo cum 0 andiogyna et 0 aigiophylla (v s)

187 0 MixTA, i amis glabus, loins e basi angustata. acuta oblongis \cl lancoolatis obtuse vtl acute .icunmiatis integenimis glabns conatcis, spicis androgymis loio subbipvionbus mcino-velutinis, lasciculis floiuni l(m m Inlenoie bartē dissitis, masculoium in sup paite appioximatis, bi u if \ cujusveras-Liculi ovato-acuminata doiso mcan\, ]>eiigoiiii masc ]iolunde 6-hdi ctu<? pulfscntis l>bis obtusis, anthens glabns, tiuctibus (an ejusd sp \*) conglomeratis, cupuld domum planiuscula cinorao-vplutina squamis idpif>ssia o)ato-acuHs nimiiiiis, glando (\soila 5 In Mailabau ad Anlieisi Q AinlKisti.ma (partim) WalM list n 2783 ' Folia Q Amhcistiana (quuuin conlusa in h Wall ), sod basi longius angust.Ua, petiolo 0-<sup>l</sup>) lm loitfo IKIVIS lateralibus nunc numeiosionbus Acumen iohi in eodom ramo ubtusum vel acutum S)jica androgyna, 0 poll longa, usquo^ad i longit iennnoa Spicae quicTdam (segregate, dubiae) masculae Pedunculus inutiiei segiogalus (ideo dubius, a Q Amlierstian\ tamon diversissimus) 5 poll longus, apice (ubi ohm flores masc ?) tiuntatus Cu)illae in iasciculo basi coiuiatan, ut floios leminei; imi)erlect^, ovoidpjj, squamis hnecolatisdistinctis, j)cilact<T putcn tissimae, 2 lin long<B, 6 lin UUP, squamis ovato-aculis vix distinctly fc>ul> sinnlos INK Ins e laong-Dong, iegni AVOI, coram CP! Wallich, ubi glamlos tidsunt ovcudpac, glabur, b-0 lin longse, cupula ^aulo minoie Muihtor pat^nte inserta<sup>r</sup> (v s)

188. *Q. PALLIDA* (Blume I Bijdr. p. 524), dioica, ramulis glabris, foliis e basi saepius acutâ elliptico-oblongis vel lanceolatis cuspidatis aut longe acuminatis integerrimis coriaceis supra glabris subtus pallidis et ad nervos subfurfuraceis, pedunculis amentiferis simplicibus aut ramosis erectis pallide pubescentibus, floribus masc. in spicâ solitariis bractea unicâ lanceolato-acuminatâ minoribus, perigonio extus puberulo 5-6-fido, lobis ovato-acutis, fructibus secus spicam sessilibus, cupulâ acetabuliformi, squamis (jun.) lanceolatis, glande depresso-hemisphaericâ cupulam dimidio superante. J In Javâ.—Blume! fl. Jav. Cupul. p. 12 t. 4-5, Mus. Lugd. bat. 1 p. 293. *Q. pseudo-molucca* var. *pallida* Miq. Ann. Mus. L. B. 1 p. 108. *Q. pseudo-molucca* var. *rostrata* Blume! Mus. L. B. 1 p. 292 (ex ramo foliif. authent.). Folia 3-7 poll, longa, 1-3 poll, lata, petiolo 4-5 lin. longo, acumine obtusiusculo, nervis lateralibus utrinque 9-12, in sicco coloratis passim piloso-punctatis. Amenta ex Bl. dioica, saltem in ramis diversis amentifera, secus pedunculum 1-3 poll, longum sparse aut approximata, pollicem longa. Bractea cujusve floris 1-14 lin. longa, extus puberula. Fructus distincti! maturi ignoti. Var. 8 *Q. pseudomoluccae* forsân hic referenda (v. s. comm. a Mus. L. B.)
189. *Q. THALASSIGA* (Hance in Hook. Journ. 1849 p. 176), ramis tomentosis, foliis e basi acutâ vel acuminatâ ellipticis vel obovato-oblongis obtusiuscule acuminatis integris vel prope apicem subserratis coriaceis supra glaberrimis subtus glauco-tomentosis, amentis elongatis densifloris, floribus masc. fasciculatis? perigoni 6-partiti extus hispidi lobis ellipticis, fructibus in spicâ pluribus approximatis sessilibus, cupulâ brevi hemisphaericâ tomentosa saepe adpressis ovato-lanceolatis mucronatis, glande obovoidely exsertâ. § In China sept. (Fortune.), Hong-Kong (Benth. Seem.) et Java (Sieb.) — Benth. fl. Hongk. p. 321. *Q. inversa* Lindl. in Paxt. fl. gard. 1. p. 64 f. 36 (anno 1850), Seem. bot. Herald p. 414 t. 88. *Q. reversa* Benth. in Hook. Journ. 1854 p. 112, *Q. acuta* Sieb. herb. (non Thunb.). *Q. Sieboldiana* Blume Mus. Lugd. bat. 1 p. 290 (fide cl. Benin, qui specimen Sieb. vidit). Semper virens. Folia 3-5 poll, longa, 12-16 lin. lata, petiolo 4-6 lin., obtusiuscula, cuspidata vel acuminata, acumine ipso obtusiusculo, dente interdum uno prope apicem; juniora supra pulvere aureo puberula (Benth.), acuta supra glabra, tomento subtus brevissimo glauco. Amenta pilosa. Pedunculi fructif. 2-3-poll., fructibus 7-9. Cupula 5 lin. lata, 2-3 lin. longa. Glans 8 lin. longa, ex icon. Seem, obovoidea vel ovoidea.
190. *Q. IRWINII* (Hance in Ann. sc. nat. ser 4 v. 18 p. 229), ramulis glaberrimis angulatis sulcatis, foliis lanceolatis caudato-acuminatis integerrimis margine subrevolutis valde coriaceis costato-nervosis, nervis primariis subtus prominulis supra opacis, subtus dense flavido-lepidotis, basi in petiolum brevem angustatis, cupulâ squamis crassis late ovatis pluri-(circ. 10-) serialibus cinereo-tomentosis, glande perfecta.... § In ins. chinensi Hong Kong, rara. Folia 2-3 poll, longa, resinâ odorâ modo Juglandis praedita. Fructus biennes. Cupula immature 7 lin. longa.
191. *Q. ENESTRATA* (Roxb. Wall. list n. 2784), ramis junioribus puberulis foliis basi angustatâ elliptico-obovatis vel oblongo-lanceolatis acuminatis integerrimis coriaceis glabris, spicis solitariis aut fasciculatis simplicibus foliifloris vel longioribus incano-velutinis, glomerulis fl. masc. saepè 3-floris 3-bracteatis, bractea externâ ovato-acutâ floribus brevioribus aequali, perigonio 5-6-partito extus velutino, fructibus secus spicam fasciculatis aut solitariis, cupulis subglobosis, squamis ovato-acutis subadpressis, glande globosâ cupulam superante. § In montibus Silhet Indis or. — Roxb. fl. ind. ed. 1832 v. 3 p. 633, Wight ic. t. 219. Pili ramorum jun. patentes, breves. Folia jun. ad nervum subtus passim pilosa, cost. glabra; adulta 8 poll, longa, 1-1 poll, lata, petiolo 4 lin. longo, glabrato, acumine acuto vel acuminatissimo ut in ic. cit. Spies masc. numerosiores (Roxb.); fasciculis florum ovatis, minoribus quam in *Q.*, spicata, et paucifloris id est 2-4 floris. Bractea externa minor et minus acuta, extus velutina, laterales minimis obtusissimis. Anthers minimis, apice filamenti longati. Cupuli (ex Roxb. et Wight.) 8-10 lineatae, nunc glomerati, tandem distincti?



me constiictae et ibi fenestrâ rotundâ glandem monstrantes, squamis parvis spaisis dcutis ( \ s Hoi )

P, *Khasiana*, lamulis jun ct pedunculis iuho \elutinis, petiolo longiore, acumine lolioium contunddto, bracteis florem masc aequantibus 5 In Khasia Indiae 01 0 fenestriata Hook i et Th cxs ' Magis Q spicatae proxima, sed diffeit flonbus mast in glomerulo paucionbus, ramuhs pubescentibus et pia3seitim glande ux cupulam supcrante Ex spociminibus plunbus bonevolentci a cl Hook f communicatis, petioli 4 9 hn longi, limbi, juniores piaDsertim, secus neivos utnnquc pilis longiuscuhs adpiessis pilosi, fiuctus junioies ploiumique basi in iasciculo coaliti (ut ui 0 spiciitâ), squamis lantoolatis adpiessis iusco-velutinis, m.itun glo- i)osi, ominno ut in ltone "Wightn, glande ideo quam in Q spicata multo bieviore (v s)

192 0 DEALBATA (Honk f ' ct Th in h Boiss , non Wall , nee Roylo), ramis junionbus tenuitei \elutinis, folns c basi acutâ vel subacutâ lanceolatis acuminatis integns conaccis, junionbus tenuissime puboruhs, adultis supia glabns nitidis subtus ad neivos pubpiuhs, paienchymate albido glabrato, amentis subiamosis loho breMOiibus, lascicuh fl masc appioximatis, bractci<sup>^</sup> dorso puboruhs, extimâ ovato acummatâ maioip, lateralibus ovatis obtusis, pengonn 6-paititi lobis elliptius extus puberuhs, fl iem in lasc<sup>^</sup>culo basi connatis, fmctibus jun subglobosis, squamis ovato-lanceolatis crebns apite mflexis \elutinis S In Nepah.l (Wall) et mont Khasia alt 4-6000 p (Hook f et rh ), BengahA oi (Gntf ' hpib ab h Kew bub n 4474 toinm ) — Miq Ann Mus 1 B Ip 107 0 dealbata Rojle ill m IC (non m textu) cst Q dilaUU Q dealbata Wall list cst Q mtana Ramuli lulvo-\elutini Folia 2-J j poll longa, 9-18 lin hita, petiolo 2 4 hn longo, pubeiulo, nevis late ialibub utnnquc 8-9 cum centiah emmentibus fulvo-pubescentibus, teitiaux vix distinttis Amenta 1 1 \ poll longa Rachis volutina Biactese oxtenoies cujusve fasciculi masc ieie lineam longa?, lateiales multo bieviore Stamina cucitei 12, exsnta Biactea cujusve ltiscicuh Iem ovato-dcuminata, ngida, lineam longa Stigmata 3, lmeaila Squamae fi jun convexae, atuiiae, cinereae, gldndem junioiem includeiites (v s)

193 Q SPIGATA (Sm m Rees cycl 29, n 12), subdioica, ramis junionbus glabnusculis, folns e basi angustatâ elliptito-oblongis vel oblongo-lanceolatis acuminatis mtegemmis conaceis glabns, spicis solitarns aut fasciculatis simphcibus iolio subaiquahbus incano-\elutinis, glomeiulis masc elongatis 3-biatteatis, biacteis acuminatis exteinâ floiem pio\imum plus minus superante, pengonio 6-fido extus piloso, Jiuctibus secus spicam dense fasciculatis, cupuhs basi connatis late cupuhoimibus, squamis ovato -Janccolatis adpressis convexis velutinis, glande o\oidK)-plobosa cupulam plunes superanto J Aibor maxima, fiequens, in montibus Indue, a NepalM (Wall '), ad Sillet (Wall i), Chittagong (Hook 1 '), in BengahA or (Guff ' 4475, ubi bractee bieves, ut in var t sed petioli longi), in Borneo (Blume' in h DC), et Ja\ a (Blume) — Don prodi fl IIEP p ^6, Wall plant asiat lai 1 p 40 t 46, list n 2781, b Q squamata R6xb fl ind ed 1832 v 3p 638, Wight ic t 213 Q elegans Blume bijdr p 518, fl Jav Cupul p 21 t 10 Q pseudo-molucca Mont/i n° 1), n, non Blume Q Arcaula Ham ohm, Blume Mus lugd bat Ip 290 0 grandifoha Don in lamb descii Pinus p 27 t 8 Q placentaiia Miq pi Jungh (partim) fide Miq 11 Ind bât Q p^nfoha Blume Mus L B Ip 104 (loima jmenilis praisentis e\ Miq Ann Mus L B 1 p ]0(), quod equidem ex loins a Blume ohm comm non ciedideum Folia 3-7 poll longa 1^21 poll lata, petiolo 4-6 hn longo. Biactee cuique fasciculo fl masc 3, una extenore, lanceolata, acuminata, flonbus lon^ioie, basi extus pubescente, alns lat^rahbus, bie\ionbus e basi latioie acuminatis, bracteohs mterdum flonbus flonbus nnextis Spicae femiñeae mterdum mascuhs mixti (Wall), saepius in div aibonbus, 6-8 poll longae, secundo anno maturae Cupulae 6 hn latas Glans laevis, obtusissima (v s)

P, *racemosa* (Blume Mus. Lugd. bat. 1, p 290), glande saepius depresso-herihsphasneâ— In Sumatra (Q.racemosa Jack in Malay, misc , Koith. in

Verh. Nat. Gesch. Bot. p. 305) et Javâ (0. glaberrima Zoll sine num. in h. meo). Ex speciminibus Zoll. fructu maturo, petioli 2-6 lin. longi, pedunculi fructif. 5-8 poll, longi; cupulae basi mine connatae, depressae, pollicem latae, 5-6 lin. longae, squamis crassis pyramidatis patentibus aut paulo divergentibus (an fructus Q. spicatae vulgaris, omnino maturi, squamis adpressis differunt? an arbor indica squamis adpressis et insularis squamis demum divergentibus?); glans cupulâ dimidio longior, apice depresso, hilo carpico piano 6-8 lin. lato, (v. S.)

Y. *miefocalyx* (Blume 1. c), fructibus minoribus — In Borneo. Q. microcalyx et Q\* anceps Korth. in Verh. Nat. Gesch. Bot. p. 204 et 206. Q. turbinata Roxb. fl. ind. 3, p. 636? (ex Hook. f. litt.), Wright ic. t. 221, f. 1-5 (non bona) qua eat Q. Thomsoni Miq. Ann. Mus. L. B. 1, p. 109.

8', *brevipetiolata*, petiolo brevior (2-3 lin.), bracteis exterioribus fl. masc. subbrevioribus florem proximum non superantibus — In Khasiâ et Sikkim Indiae or. alt. 1-5000 p. (Q. spicata Hook. f. et Th. exs.!) et in Tennasserim (Heifer herb, a reg. herb. Kew. comm. n. 4468, fr. ign. a petiolo 1-2 lin. longo).

, *glaberrima*, spicis fructiferis abbreviatis — In Javâ, alt. 4-6000 ped. Q. glaberrima Blume in Bat. Verh. 9, Bijdr. p. 517, fl. Jav. dipul. p. 17, t. 8, Hys. Lugd. bat. 1, p. 290. Ex specimine florif. a cl. Blume comm. folia omnino Q. spicatae, petiolo ut in var. praecedente, amenta masc. aceryata., 2 poll, longa. Ex icone fructus similibus, pedunculo 2-poll, insidentes. (v. s.)

t, *gracilipes* (Miq. Ann. Mus. L. B. 1, p. 106), ramulis glabriusculis, mis graciliter petiolatis e basi acuta obovato-ellipticis oblongisve modice acuminatis magnis costulis utrinque 12-15 — In Sumatrâ. Q. gracilipes Miq. fl. Ind. bat. suppl. 1, p. 347.

194. Q. *MUDOMOLUGA* (Blume I in Batav. verh. 9, p. 214), ramulis glabris, foliis e basi ovato-oblongis vel elliptico-oblongis acuminatis integerrimis coriaceis glabris, spicis solitariis erectis simplicibus folio subbrevioribus tenuiter incano-volutinis, fl. masc. in glomerulos dissitos dispositis, femineis saepius solitariis, bracteis lanceolatis acuminatis caducis, perigonii masc. 6-7-fidi lobis ellipticis evtus puberulis, fructibus secus spicam subsparis, cupillis distinctis margine incrassato patenformibus, squamis ovatis adpressis velutinis, riande obovoidco-globosa cupulam pluries superante. In Java. — Blume p. 519, fl. Jav. Gupul. p. 14, t. 6, Mus. Lugd. bat. 1, p. 291 (non Moritzi). Ex foliis recitatur Q. spicata, sed flores certe monoici, etiam fortiter feminei masculis raixti, florea laxius dispositi, fructus non basi connati, cupula magis abbreviate, glans basi angustior. (v. s.)

fl. *incrassata* (Blume 1. c), foliis firmioribus subtus pallidioribus, cupulae squamis subincrassatis, glande late ovoideae. Q. thelecarpa Miq. plant\* Jungh. 1, p. 9; fl. Ind. bat. 1, p. 851? (v. s. florif. a Mus. Lugd. b. comm.)

*Ijmgustata* (Blume I ib.), foliis lanceolatis utrinque angustatis, glande ovoideae angustatae Blunw olim, fl. Jav. t. 7. Q. piniinosa Moritzi! n. 1956 (f. Blume). Q. thelecarpa var. angustata Miq. fl. Ind. bat. 1, p. 852. Q. thelecarpa Miq. Ann. Mus. L. B. 1, p. 108 (ex se ipso). Cl. auctor in sua thelecarpa squamas cupulae maturas subpatulas dicit, sub varietate vero, angustatae, iconem 7 Blumei citat ubi squama adpressa. (v. s.)

195. Q. *MOLUCCA* (Rumph. Amb. 3, p. 85, ex parte, t. 56, p. 85), ramulis glabris, foliis elliptico-oblongis vel oblongo-lanceolatis utrinque angustatis integerrimis coriaceis glabris, floribus..., fructibus subracemosis aggregatis brevissimis, pecunculatis, cupulae cratenformi squamuloso-tuberculatae, glande hemisphaerica sulcata triplo brevior. In Moluccis, Celebes, etc. — Blume! Mus. Lugd. bat. 1, p. 291. Folia 7-10 k poll, longa, 2|-4 poll. lato, petiolo 9-12 lin. longo, nervis lateralibus utroque latere 7-10 arcuato-patentibus, reticulo parum conspicuo connatis. Ex folio unico et fr. jun. a cl. Blume comm. pagina inferior foliis albidis punctuata; squamis juniores cupulae velutinae, adpressae inferiores ovatae, mediae et sup. gradatim longiores et lanceolatae. (Rumph. fragm. s.)

1% 0 HACFNTARIA (Blume' Bijdr p 51S "on Wall), ramulis glabns, folub e basi sepius obtusi ovato-oblongis elhpticis\ e obtuse\ acummitis vol obtusis Integernmis cornceis glabns, spicis bisexualibus apice ramoium congestis siraphcibus folio subaequahbus velutmis, hscicnlis florum interrupts bractea hnccolati icummatâ bracteisque literalibus litionbus brevionbus stipatu, pennon 10 masc 6-fido lobis oblusis e\*tus pubescentibus, cupuhs basi connatis cratenformibus, squamis ovitis idnressis subvelutmis dorso convex is, ghnde depioisso-orbicularan cupulam dimidio superante -5 In Javaj altioribus (Blume) — Blume' fl Ja\ Cupul p 19, t 9 0 depressi Blume ohm in Bativ Vferfi. 9, p 200 t 1 0 spitita ( placenUniMiq fl Ind bat 1, p 849 ct Ann Mus L B 1, p 106 folia J-7 poll longa, 1J-2<sup>1</sup> poll lati, petio\o2-3 lm lonpo m arbonbus novelhs mipliori, s<sup>e</sup>pe recurvata et phcata, nervis later utrmque 10-15 Ilores mast (ex B1) basi etapite spicaum, ex specim meo basi solum Biactoj praeupuae lincam longae, a fasciculo fl fun subdistantes, extus puberulae Stamina exseita Styh 3-4 eretti, cylindnu, basi pubescentes Cupulse (ex IC) 12-H lm htae — Cl Hook f m litt similem Q spicatae Sm ait, quod ex iconibus et specimine imperfecto nee iffirmire nee negare possum — C\ WaJhch, anno 18<sup>^</sup>0, fi-uctum insignem e Pening sub no-Dime Q placentanae B1, meum communicat, ubi omnia iconis Blumti agnovi, jlametro solum paulo imjore, fere bipollican, sed specimini senas sub num 2!!T0. a» Wallichn, communicata a planti Blumeani omnino differunt Istius cupula meae Q indrogyna<sup>1</sup> similis, sed ilores (in lit ^pcciminc) diversi Confusio manifesta adfuit in distubutioie num 2279 (v s flor abh Lugd bat comm)

197 0 CLASSINERVIA (Blume' Mus Luffd bat J, p 292), ramulis glabns folus c bw icuLiuscuU \el ol)tusa elhptico-oblongis lanceolatisve acuti\*» vcl oblusis nitegeiimms coincideis glibus ncivis secuiifidins subtus \alde piominentibus ultimis vero non distmctis, spicis simplicibus lectis folio subd. quilibus cinereo-velutuns, fl m isc fpmimissecus spicam solitarns, hi icteis , squ imis junioiibus idpiessis ^dutinis imis ovtto-icufis alus lanconlatis, fiuctu maturo 5 In Jav<c syhis mont Rending (van Hasselt) 0 p^et/domoluccl^ll p Miq fl Ind bat sp 849 (in fructus vidit? in spetimina authentic! comparavit ') Folia 4<sup>1</sup>-7 poll longi 1<sup>1</sup>-1 p< 11 |xt| pctwln ^4 lin longo, nenis secundims utiinqnc 7-10 tertiaus multo minonl)us; ultimis non peispicuis unde folia sicca ab ifhnibus differunt Plores fem junioles globosi Styh 3, fecti breves, cyhndnci, glabu (v s comm a Mus Lugd bat)

1<sup>1</sup>)8 0 LAPPACEA (Roib fl I 1832, p 637), lamis |umoiiib>is fulvo-vo-, lutiins folns c l)isi obtusL vel tout! Imccolatib oblont.isv( acuinmalfs integns brevitei pctiol itis Junioribusiiitnnnuo ulullis subtus pubesu ntihus spicis misc et heim axillanbus soht mis iolm subceqn ililms densiflons In ictois hnceolitis tciiminatis flora bievionbus floulms plerumqui fascicwl itm, pen „onio i-h-pirtito extus pilosn, fnictibus secus spitam glomcritn aut solitiins, cupulP homisphdiicae squamis hncoolihs acutis inibiititis difTuse pitontibus, pi uitc pilns\ cupul im dimidio super mte 5 In mont Silhot (Ro\b Wall') et Assam (dom<sup>u</sup> Mack) Bengali\* oi (Griff fab h iog Kew comm sub n 4462)-Wall I list 2780 Witfht ic t 220 0 husuti I indl in Wall list n 3734 (fide Hock f ined ) 0 Mickiana Hook ic t 2>4 (ul)i ^1 mdes ghbrae, sed cl Ho< k i eimdem speciem esse monet in litt) Rinn secundo anno fusco nee fulvo-\elutini Folia 4-8 poll longi H-2 poll hti membranica, pihs sohtinis \d fisciculitis petiolo 2-J bn longo Spic?e gnciles, masculae aut medio feminea Rachis fulvo-tomentosa Flores misc saepius in fisciculos 3-4-(loios appioximati, fiscicufis pioximis Biactei saepuw unica sub fasciculo jlin longa pubtscens, latei ales nuriL extanUs minim p stimina evseita, glil>i i tuuuld (ex n ) 9 hn 1 it i molle ( chin it i dims o\oidca 0 Iippicca llo »k it fh cKlnsii, \i\ convemt, s(d fJII i (t fl |UM solum vuh (v s)

199) o PIUNOSV (Blume ' in mtw VeWi % p 217), lamis jimioriNis denst iulvo-tomentosis, folns e l asi obtusa o\ itis ovilihusvp icutis vol acuminilis integiimms conaccis subtub ct ad nervum medium supia pihs stellatis fulvo

- velutinis, amentis simplicibus vel ramosis folio brevioribus fulvo-velutinis, fl. masc. solitariis vel fasciculatis ex axillis bractearum 3, bractea externâ longiore lanceolatâ, internis ovato-acutis minimis, perigonio 6-fido extus pubescente, spicis fern, sublongioribus velutinis, fructibus solitariis a<sup>t</sup> glomeratis imo coalitis. cupulâ late cupuliformi, squamis adpressis velutinis ovato-acutis, glanâ late ovoideâ cupulam dimidio superante. § in Java (Blume I Zoll. 1406 in h» Boies.), et verisim. Philippinis in Lucon (fide<sup>ic</sup>. a cl. Llanos comm.) — Blume! Bijdr. p. 521., fl. Jav. Cupul. p. 9, t. 1. Folia 4-7 poll, longa, 1-J-3 poll, lata, petiolo >3 lin. longo, nervis later, utrinque 12-15. Stipule caducae, oblongs vel ovato-oblonge, velutine, 3 lin. longs. JM<sup>t</sup>tea fl. masc. lineam longâ, interiores tfuplo minores, omnes velutinae. L<sup>o</sup>lKerigonii ovati, inflexi. Cupule 12-15 lin. late. Squamae juniores lanceolate, laxiuscule, serius adpressae latiores. Glans late conico-ovoidea, exserta. (v. s. a Mus. Lugd. B. comm.)
200. Q. PLUMBEA (Blume I Mus. Lugd. bat. 1, p. 293), ramulis junioribus furfuraceo-lepidotis, foliis oblongis vel lanceolatis basi acuminatis apice obtuse acuminatis integerrimis coriaceis glabris subtus adnatis lepidotis, amentis ramosis, bracteis..., fl. masc. subsolitariis, spicis f<sup>m</sup>meis simplicibus, floribus subsolitariis, fructibus in rachi subracemosis brevifloris stipitatis, cupulâ squamuloso-muricatâ. In Sumatrâ. Folia 3-5<sup>t</sup> poll, 1 on fl. 1-1<sup>j</sup> poll, lata; petiolo 2-3 lin. longo; nervis lateralibus utrinque 10-11 parallelis subpatentibus demum glabris. Spica fern, in specimine nostro pollicaris, flores fern, tres versus apicem gerens, cum flore uno masculo adventitio? Bractea sing<sup>^</sup>A lanceolata, | lin. longa, cuique flori femineo (in masculo delapsa). Puivmus in centro fl. masc. Stipes floris fern, lineam lon<sup>^</sup>us. Squams juniores lanceolate, adpresss. Styh 3, conici, basi puberuli. (v. s. a Mus. L. B. comm.)
201. Q. OLIGONEURA (Korth. in verh. nat. Gesch. Bot. a p. 203), ramulis novellis furfuraceo-lepidotis<sup>^</sup> foliis e basi acutâ vel angustâ elliptico-oblongis acuminatis integerrimis coriaceis firmis glabris subtus pallide gilvo-lepidotis, spicis androgynis simplicibus arcuato-patentibus furfuraceo-lepidotis, fl. masc. superioribus confertis tribracteatis, feminis inferioribus solitariis bracteis 3 lanceolatis acuminatis, fructibus.... J In Sumatrâ. Folia 6-9 poll, longa, 2-4 poll, lata, petiolo 5-8 lin. longo, nervis lateralibus utrinque 8-10 patulis. Stipulae semi-lanceolatae, utrinque pubescentes. Pedunculi basi glabrati teretes, apice trigoni puberuli. Florum masculinâ Actea inferior semilanceolata, a<sup>i</sup>Himinata, pubescens. Flores feminei bhHBQB<sup>^</sup>Muamis imbricatis lanceolatis tec(i. Styli 3, patentee, medium usque J H H r elongato-conici, glabri. (v. fol. et fl. fem. a Mus. Lugd. bat. comm g
202. Q. GEMELLIFLORA (Blumel in Batav. Verh. 9, p. 222), ramulis junioribus tomentosissimis cito glabratis, foliis lanceolatis elongatâ basi angustis acutis apice acuminatis a medio ad apicem remote serratis ad petiolum subtus pilosis caeterum glabratis, stipulis longe linearibus, fl. masc..., pedunculis remineis in axillis superioribus solitariis petiolo brevioribus 1-2-floris, cupulâ hemisphaericâ basi non squamigerâ medio squamis adpressis semiovatis tecta, glande cupulâ triplo longiore. 3<sup>In Ja</sup>.y4 et Sumatri — Blumel bijdr. p. 523, fl. Jav. Cupul. p. 30. t. 17. Ramuli tomento delapso passim ramentis oUongis membracaneis caducis stipati. Folia 4-7 poll, longa, 9-24 lin. lata, petiolo 3-6 lin. longo, juniora subtus adpresse pilosa, pilis prope petiolum post alios cadentibus, nervis lateralibus utrinque 8-12, vems ultimis in sicco distinctis. Stipulae 4 lin. longae, augustae, apice praesertim pilosae. Bractesae ign. Styli 3, apice claviformi-uncinato. Glans ovata vel ovato-oblonga. Q. rotundate ex cupulâ analoga. (v. ramum foliif. a Mus. L. B. comm.)
203. Q. ROTUNDA<sup>TM</sup> (Blume in Batav. Verhand. 9, p. 219), ramulis glabris, foliis e basi acutâ rarius obtusâ oblongis vel oblongo-lanceolatis acuminatis integerrimis coriaceis supra glabris subtus glabriusculis et glaucescentibus, spicis simplicibus androgynis, fl. masc. in apice rachis tomentose, perigonio..., fructibus subsessilibus solitariis, cupulâ juniore turbinatâ undique squamosâ, adultâ subhemisphaericâ basi nucleâ superne squamis adpressis velutinis ovato-

acutis tecta, glande inferne rotundata impolita adhsrente a medio circiter convexd mpulani supeidiite et ejus maigmem excpdente J In Javae monte Sdlak — Blume fl Jdv Cupul p 21 t 11 Folia 4-0 poll longa, 1<sup>^</sup>-2) poll latd, pftiolo 4-0 lin longo, ncrvis latpiahbus utunque ciruter 9, teitiarns \T\ perspicuis, pilis aliquot in paginA inf (uncle \cns folium junius pubescens) Stipulae lineares, pubeiul«p Spice flexiles, 2-3 poll longae, fl masc apice appioximatis fere IRII , fom basi seRipgatis Fructus uno feie latPie spicae Cupula junioi squamis ovato-lndnceolatis tidpicssis undiquo tecta, dcindo partp mf nudA 4-> lin longà subluibinalà, maigme incrassato squamoso 2-\ lm lato Pais infprna glandis impolitg, pais supenoi lae\is, latior, mdigmo simidia h\ icone glans omnino Q comeae, scd cotyledones non descrilmntui et cupuhe pais inferior squamis dcstituta ut in Q gemellifloU (s v folia a Mus Lugd bat comm)

204 0 SUNDAICA (Blume i in Bdtv Verh 9, p 21b), lamuhs et novollis tenuitei fulvo-velutinis, folns e bdsi acutd vel obtusA ellipticis cuspidatis lntpgcinnns chaitaceis utunque ad nervum fuho-subvelutmis, J)edunculis amentifcus axillaubus eiettis elongatis lamosis oLhraceo-tomentosis, bificteis lancoolatis ]>pisistontibus basi cujus\e amenti, fl mdsc , fmctibus setus podunculQb luhovelutinos folio Jjrcvioies paucis sparsis, cupulA late pateiifoinn scjuamfs vclutiliis adipissis e basi oviitfl viumlms connatà abni]tp cuspidatis, glaiidc dppipssso-hemisphaencduipulam paulo suppiante \$ In Java occid — Blume<sup>f</sup> fl Jav Cupul p 11, t 2 et 1 Folia > poll longa, 2<sup>^</sup>-4 poll lata petiolo 1-4 lm longo, subtus ]>allida, neivis laterabbus utunque 10-14, cuspidc obtusiusculo Stipulae tarde cadentes lanc(olatdp, ^elutniiC, 1 lm longde Jnflo-ipscentia m.isc composita, a feniineft spgipgata Peduntuli mill ex 'axilhs luacteanim stipuhs subsimihum Ampnta polhcem longa, densiflora, angusla 1<lores mast (ex icone) bratteati ? (upukr 0 10 lm laiyp Squamae infei obo-\atae, cuspidatae, media3 et supei giadatim magis ovato-acummatae (v s liuctif. a Mub Lugd B )

li)"i 0 URCEOLARIS (Jack Malay misc PX Hook comp bot mag 1, p 2<sup>^</sup>6), folns elliptito-oblongis acumine giacih Integernnns glabeinmis uniacou\* subtus pallnioi llms fl masc ., fiuctibus sjicatis, cupul«\ subhomisplu ncd squamis ]>ai vis acutis vprtililhitis maigme bubmtepri.l p«itpntc, glandp cupulam dimidio superante globosà supeinc planiuscul.\ et mucionatA J In Sunia-tr& Folia 8-9 poll longa Racemi fructifei I lateralos

206 KORIHAIHII (Blume ' "Mu> iut?dA«it 1, p 2<sup>c</sup>)2), i<imis junioiibus subtomentosis, folns c bdsi acul«\ vel obtus<sup>^</sup> ellipticis \P1 plliptico oblongis aciimimalis vel cuspidatis integpiiimi8%conac(is subtus pallidis in nevo medio utriiulue et neivis lateiahbus subtus fuifuiaceo-\elutinis, ppduncubs dmentifoiis snnplicibtis vel lamosis fiiho\elutinis, fl masc solitains \el glomoiuUis, l)iactns t lancpolitns pxtpin.l longioie, ppngonio 6-lobo extus tompiiioso, fiuctibus in spica sobianis aut glomeiulatis, cupulA latp ciatenfoimi squamuloso-asperà, glande late ovoideà cupulam dimidio superante \$ In Java (Blume) Q pinnosa ß Blume fl Jav cupul p 10 Folia } poll longa, 1<sup>1</sup>/<sub>2</sub>-} poll lata, petiolo } 4 lm longo, ncrvis later utunque 9-14 Pedunculi masc 3-5 poll longi, bracteis oblongis lanceolatisve 2-3 lin longis caliculis ad basin lamificationum Bracteolae CUJUSAC flons aut fasciculi multo minores, extpina \i\ i,lm. longa, laleiales minima? (v s. a Mus I B comi)

§, *Kajan* (Blume 1 c ), ramulis no\ellis fobisque sublus pr<escitim in nevo medio et veins fuifuiaceo-tomentosis — In Ja\, \ Q *Kajan* Miq. mss Zoll » \ei/ p 87, heib 11 2204 I'v speciminp Zoll folia junioia ubique stellato-pilosula , stipula3 oblong\* vel lancpolatdi, 2 lin long\* velutinae, caduc\*, amenta sparsiflora, basi denudata, }£ poll longa, bractedj indjoies lm long\* } spica3 fern in codem laino, floubus i biactcttis, stylis ipefis pubeiulis, fructus III pedunudo subvclutmo spaisi, brevissunp slmitat. , cupula late patenfoimis, 1 , h<sub>n</sub> \AU<sub>1</sub> s(,uarai< su i). veiticillatis adpicssis maigmc r-onnatis fuho volutmis dmto solum minimo liliPiis ad margmom .ppioxinutis, ciutucc planA polhcem lata, glans depiessa, 0 8 hn alta, 10 18 ha latd, urnbihco execpto IOIMS be-

men obovoideum irregulariter oonferruminato-lobatum. Haec omnia cum fragmentis cupulae Q. Korthalsii a Mus. L. B. comm. conveniunt. Embryo ex forma seminis ad Q. corneam accedit, sed pericarpium non osseum.

y, *pachyphylla* (Blume 1. c.), ramulis novellis parce furfuiaceis foliis obtuse acuminatis glabriusculis. In Javâ occid.

8, *mappacea* (Blume 11. h.), ramulis tomentosis, foliis in nervo medio et venis utrinque subtomentosis, amentis paniculatis. — In Borneo. Q. mappacea Kortn. in Verh. Nat. Gesch. Bot. p. 202. (v. ». oomm. a Mus. L. B.)

e, *hystrix*, ramulis tomentosis, foliis basi acutis, nervis utrinque subtoxtientosis, squamis cupulae longioribus subsquarrosis. — In Sumatrâ. Q. hystrix Korth. 1. c. p. 201, t. 43. Castanea? furfurella Miq. fl. Ind. bat. suppl. 1» P- 352 ex se ipso in Ann. Mug. L. B. 1, p. 108. Ex specimine a Mus. L. B. comm. folia utrinque stellato-pilqsula; squamae cupule ferrugineo-velutinae, margine mutuo connate, inferiores oblongoobovatae vix mucronatae, mediae et sup. ovato-acuta, ouspirfe divergentee (v. 8.)

„07. Q. ACUMNATA (Roxb. fl. md. ed. 1832, v. 3, p. 630). ramis junioribus pubescentibus, foliis e basi acuta oblongis vel late lanceolatis acuminatis internodiis glabris, amentis... spicis fern, axillaribus folio brevioribus pubescentibus multifloris, fructibus aternis solitariis, cupula hemisphaerica squamis lanceolatis subverticillatis acutis patentibus jflande ovoidea cupulam triplo-quadruplve quoad longitudinem superante. 5 In Ghittagong. — Wight ic. t. 221, L ft-9 (ex ic. Roxb. fig.), Wall, list n. 3731. Q. glabra? Ham. herb, (ex Wall. L. c). Kami juniores « somewhat villous » ex Roxb. Folia 6-12 poll, longa, 3-4 poll, lata, petiolo circiter 4-5 lin. longo. Fructus junioerea (ex ic.) ovoidei, squamis lineari-lanceolatis adpressis, stylis 3; maturi cupula 9-10 lin. lata, circiter 4-5 lin. aUa, aculeis brevibus rigidis echinata ex Roxb.. sed ex icone squamis brevibus acutissimis basi crassis? cincta. Cl. Hook. f. (in litt.) synonymon dicit Q. fenestratae, ubi vero glandes fere intra cupulam inclusae.

§ 2. *Folia dentata*. — *Cotyledones dor&o irregulariter rimoso-sulcatx 4-5-Zo6a?* — Genus *Synedrys Lindl. jntr. rial. syst. ed. 2, p. 441, veg. Kingd. p. 29, HUnktifr Hoo\ jowrn. 1849, p. 176.* — *Quercus sp. Lour. Benth. sem. § > mgerald p. 413, t. 87.* — Habitus, inflorescentia omnino pin\w(wUadoi. G^ns ossea. *Cotyledones sinuaUe vel divisa pasalik apparent in aliis Quercubus (Q. Skinneri, Korthalsii, fissa, Teysmanni, costata).*

208. Q. CORNEA (Lour. fl. Coch. p. ^00), novellis tenuiter tomentos, foliis e basi acuta oblongo-lanceolatis aeuminatis saepius a medio sinuato-dentatig coriaceis glabris, spicis androgynis paucis simplicibus, floribus saepius solitariis masc. superioribus, perigonii 6-partiti lobis ellipsis, fl. inf. femineis, cupula hemisphaerica squamis ovato-triangularibus adpressis impicatis, glande humeros usque intra cupulam immersa inferne convexa impolitâ, superne laevi convexi subpubescente versus marginem cupulae inflata undulata. § In sylvis Cochinchinae et Ghinae (Lour.) insult Hong-Kong (Ghannv. Seem.). Fractus vulgo venduntur et corned, sub nominibus King-li vel Shi-li (Hance). - Benth. in Hook. jonm. 1854, p. 112, Seem. bot. Herald, p. 413, t. 87. Synaedryr. otsea Lindl. nat. syst. ed. 2, p. 441 (fructu sol. descr.). Folia 2-3 poll, longa, subtus pallkiora, nervis lateralibus utrinque 9-1 b eminentibus, tertiariis vix perspicuis transversis, petiolo subtomentoBO 3-6 lin. longo. Spicae jolio breviores, pubescentes. Flores imi spicae feminei, caeteri masculi. Styli 3, lineares. Stamina ex Benth. 10\*12 (Lour, dixit 5, icon 6 OBtendit). Fructus solitarii vel (ex. ic.) uno abortive basi adjeoto, unde liofes interdum fasciculati videntur. Cupula 9-12 lin. longa, 15 lin. lata. GlafiB (ex specim. a Banks comm.) 9 lin. e basi alta, 15 Hn. lata, forma fere Agarioi junioris

(propter partem liberam basi hitioicm), tomento dciaso evaneacnte, septis 7-8, ex auct , saepius 4-5 (v glandes)

Sectioiv CYCLOBALANUS *Endl gen suppl 4, part 2, p 28 (anno 1847), Alph DC Note nouv caiact ft Chen p 4, Hiq Ann. Mus L B 1, p 108.*— Sectio Gyrolecdna *Blume Mm ludg bat l,p 299 (anno 18oO)*

Cupuld orcapeita squamis m 1 imellas concentncas vel subspirales, mtegiat vel sero crenatas aut duiticuldtas lateialitei coactis Pistillum rudimentaiium liberum, globosum, Impidum m centro lions masculi — Omnes c\ Asia mcn-dionah — Tolu perennii Amenta d(biln vel stiicte erectd, mine paniculita (modo sett Pasunae) Biactej sub sin^ulo flore nidsc vel lasciculo florum una aut J 1<lores mase ut in sect Pasmia Spicae lcn similes, flonbus \ero sempei solitarus,nunc stipitatis Ovula abortivd supra (1) Maturdtio post pumum annum

#### Folia Integra vel subintegra

- 209 0 ACUTA (Thunb fl Jap p 175), ramis junionbus fulvo tomentos, folns e bisi icut\ \cl obtusfl ollopticis oblongisve abrupte acuminitis integeinmis \cl dpieem versus undulêto-cieiidtis junionbus tomento tulvo intiicito vestitis, ddultis ffkbiis, dinentis fle\ilibus folio l)rc\ionbus penduhs lathi Jmuginoo tomentosâ, biacteis ovitis icuinmatis vel icutis extus pilosis flore Mihlongm-nbus, pengomo brtviter lobdto extus et bisi interne piloso, anhoiis glabns muticis, spicis fem rectis pauciflons cupull hcmisphaeucâ concentuce dn-nulit\, gl mco cupuhm tiljilo supei into — In Jdponid — Blume' Mus Ludg bit lp 20<sup>6</sup>) loli i 2-4' poll lon<sub>n</sub>'i ( ) 24 lin htd pctnlo 8 11 lm lon<sub>n</sub>o lunioic lulvo-tomrntoso nuus liUilibus utnnque 0 12, tomento fl jun longiusculo deteisibili StipulT 8 lin 1 >ng<£, ingustc lineares, apirc latioics dorso pilosse Amtntd solitana vel fdsciculdti, basi exceptA densilloia BrdctetL 1 J-1 lin longae Pongonium extus dense pilosum, lireguldiitei lobatum Anthci P subglobosae, vix excscite ^picae fem (c\ Blume) hrc\os Glans (c\ ood ) o\oidcd vel cllipsoidca, apiculata (v s flor a Mus Ludg bdt comm )
- 210 0 BURGERII (Blume'Mus Ludg bat 1,p 299), rdmsjunionbus ochnccto-tomentosis, folns longe petiolatis e basi <icuL\ vel obtusi ovdtis vel clliptico-oblongis knceoldtisvo acuminatis yUegeminis vel id apiceni npinde cienuhtis hnnisgldbiis, amentis , spiciffem prtiole M\ sequdhbusaut bieviorihus, fl>ril)us paucis biictei ovato-acutf stipatis cum rachi luho ^elutmis cupuld hcmisphaeucâ concentrice lamellatâ dense lulvo sencei, glande cupulam \ix duplo superante j In Jdponid 0 gemellifloia heib Buiger (non B1) Foln 2i \*> poll longa, ±2/ poll hta, pcti lo 0 30 lin longo adulta certo glibid, noivis later utrmque 9-1 J tenmbus tertuuis vix distincths Gcmmæ o\oidpjr dcutae, ^labiusculfi, s([iidmisobtusissimis Stipulae i^n Horcs lom 2 4 secus spicam eiectam Cupul i 6-8 lm longd et ldtâ, lamelhs infcnonbus cienitobobatis, supenonbus approximatis subintegns (v s comm a Mus L bat)
- 211 0 ARGENTVTA (Korth in Verh nit Gesch Bot p 215, t 47 f 1 17), rimuhs glabnuscusis folns longe petiolatis c basi acuti oblon^is vt 1 obloirfo-ldncoohtis dcumuidtis integciimms vel subrepnddis coruicois, junif nbus sub-Ins pilis loivis vestitis adultis glaluis imentis , spicis lom pttiolo subaBqna-lilmspiuciflons cii)il i siibn'loboso-tuibimtAlamellisconcentncis sulnelutinis multicienatis AUKU saepius inclus\ umbonp oxseito § In Sumdt r i et Borneo Blume' Mus Ludg bat 1 p 599 Rdini ciehe lenticellis lotundis asperdti Iolid 3-8 poll lon^d, 1-2i poll ldtâ, petiolo 9-1D lin lon<sub>n</sub>o, neivts latd utiinque 9 1) teiTi irns minimis, adultd supi i nitidi rfhbcnimi, subtus pissim pilosi mt ghbi i, m eodem specim lepuloto u^ented ^el pallide con-coloi i Spiufi Tem sppms 1 - 11 poll IOI^TB hmctus seuindo dno post foil i perstantes Cupul i ex specim n str et it 7-8 lin hti 6-7 lin loriffa, temuter pihsadpressiscinerei, cicius plus minusdistmetis, glande includ, ex Blume

(1) Vidi in 0- Bcinwai itii Itysmdiini conocaipA

1. c. cupulam dimidio superante, an ideo saepe imperfectá? (v. s. comm. a Mus. L. bat.)
212. Q. REINWARDTII (Korth. in Verh. Nat. Gesch. Bot. p. 211), ramufcs sublepidotis, foliis e basi acuta\ vel angustatá ellipticis vel lanceolato-oblongis obtuse acuminatis integerrimis coriaceis junionbus sparsim pilosis adultis grabris subtus griseo vel argenteo-lepidotis, amentis suDpaniculatis, spicis fern, simplicibus, fl. masc. interrupte glomerulatis 3-bracteatis, bracteis aequalibus triangularibus acutiusculis, perigonio pelviformi integro vel obsolete denticulato extus pubescente, fl. fern, solitariiis 1-bracteatis stipitatis, cupulá applanato-hemisphaericá concentricè zonatá glande ovoideá cupulá fere triplo majore.' \$ In Sumatrâ. — Blume! Mus. Lugd. bat. 1, p. 300. Folia 3-5 poll, longa, 12-30 lin. lata, petiolo 4-6 lin. longo, nervis lateralibus tenuibus utrinque 10-14. Gemmae subglobosae. Amenta mascula vel androgyna, 1-3 poll, longa. Rachis purpuracea. Bractee sublepidotae, acutiusculae. Stipes fl. fern, et cupulae 2-3 fin. longus. Cupula pollicem lata, zonis linearibus squamis omnino concretis, pelviformis, cinereo-lepidota, intus sericea. (v. s. comm. a Mus. Lugd. bat.)
213. Q. PLATYCARPA (Blume! fl. Jav. Gupul. p. 27, t. 15), «ramis junioribus glabris, foliis e basi cuneafe ellipticis abrupte acuminatis »obttf5isve coriaceis integerrimis glabris, spicis androgynis simplicibus foia, subaequantibus, rachi ftntyter cano-velutiná, fl. masc. glomerulatis, bracteis'!..., fl. fern, solitariis kra^teá subulatá stipatis, fructibus breviter stipitatis, cupulá patellaeformi zonis 4-5 concentricis linearibus denticulatis ornata, glande depressá ovoide4 semiexse^â. \$ In Javá occidentali. Ramuli angulosi, sublepiaoti vel scabrisculi. Folia 2 V^ P^ - longa, 1^2 poll, lata, petiolo 4-6 lin. longo, cuspidè obtusiusculo interdum nullo, nervis lateralibus utrinque 6-8 minutis, junioribus tenuiterlepidotis. Gemmas (an constanter?) phyllislineari-acuminatis crebre imbricatis formatas. Flores masc.... Pedunculi fructiferi 2-3 poll, longi. Pedicelli juniores bractea minimá stipati, demum 2 lin. longi et incrassati. Gupula junior hemisphaerica, basi turbinata, demum pateriformis, 14-15 lin. feta, zonis sub lente undulatis et denticulatis. Glans lajior quam alta, medio umbonata. (v. s. comm. a Mus. Lugd. bat.)
214. Q. TYSMANNII (Blume! Mus. Lugd. bat. 1, p. 300), ramis junioribus glabris, foliis e basi acutá vel obtusá oblongis acutis vel breviter obtuse acuminatis integris coriaceis supra glabris subtus glabriusculis pallidis, stipulis petiolo subxqualibus, amentis simplicibus. reáft, fl. masc. dense glomerulatis, bracteis..., perigonio..., fl. fern. solitariiis, ffractea..., fructibus sessilibus, cupulá latá zonis 5-6 concentricis depressis linearibus ernatá int^Tzonas torulosá concentricè annulatá, glande ovoideo-hemisphaeric^â cupulá duplo triplove majore. 5 In Javá or entah (Mus Lugd bat in b me9 Jungh! ex duc t a c l Qdem. comm.) et Sumatrâ. Q. laurifolia Miq. pl. Jungh. 1, p. 11 (ex ipso Miq. in fl. Ind. bat. p. 860). Q. hypoleuca Miq. fl. Ind. bat. 1, p. 869 (fide cl. Oudem. voorl. meded. Javan. Cupul. p. 4). 0- annulata Korth. verh. Nat. Gesch. Bot. p. 213, t. 46 (non Sm.). Q. Korthalsii Endl. gen. suppl. 4. p. 2, p. 28 (non BL), Miq. Ann. Mus. L. B. 1, p. 113. Q. pseudo-annulata Blume I Mus. Lugd. B. 1, p. 299 (vidi sine fr.). Nomen pseudo-annulata graeco-lafmum, ideo despiciendum. Folia 4-9 poll, longa, 1 j-3 ± poll, lata, petiolo 3-5 lin. longo, nervis secundariis utrinque 944, juniora forsan puberula? Stipulae 4-5 lin. longae, minus fugaces quam in ahis, lineares, apice angustiores sed obtusae, cinereo-sublepidotae, in gemmis imbricatae crebrae. Pedunculus fructifer 3-pollic. Cupula" pollicem lata, cinereo-subvelutina, zonis marginem versus propioribus, annulis inter zonas medii cristá irregulari subretrorsá stipatis. Gotyledones dorso sinuoso-lobatae, ex fr. a cl. Oudem. comm. (y. s.)
215. Q. OMALOKOS (Korth. in Verh. Nat. Gesch. Bot/p.4ttL ramulis glabris, foliis e basi cuneatá obovato-oblongis lanceolatisve obtusBwel obtuse acuminatis integris subcoriaceis glabris, spicis simplicibus rectis androgynis vel masculis, rachi cinereo-sublepidota, fl. masc..., fern, solitariis vel interrupte glomerulatis tribracteatis, bractea inferiore triaagujari-acutá, lateralibus auriculatis, cupulá sessili solitariá planet zonis concentricis 8-10 linearibus undulato-denticulatis ornata, glande ovoideo-hemisphaericá cupulá 3°-4° majore.



- 3 In Sumatra —Blume' Mus Lugd bat 1, p 301 Folia 2 4 poll longa, 9 18 lin hta, petiolo 1 ^-3 lm longo, nervis secundarns 10-W MY distmctis Stipulae lancpolatae acutiusculae lepioso? Spica in nostro specim 0 poll longa, angulosa, subcmeiea Biactea dentilormes, minimcfi Flores Fructus ran Cupulapoll lata subcmerea, zonis marginem versus approximatis tenuionbusque ( \ s comm a Mus L bat)
- 216 Q LEPTOGYNE (Korth 1 c p 206), ramuhs fulvo-velutims, folns e basi obtusa vel aubacuta oblongis acuminatis integns unionibus pilis brevibus sparsis stellulatis alnsque longionbus lans pubescentibus adultis glabiescentibus, spicis erectis snnpliubus andiogynis vel mascuhs, laclu iulvo-lopikota, fl masc jnterruj)te glonicrularis solitarnsvē, bracteis 3, infeiore ovata aculinati mijore, liteialibus oblongis acutis, pengonio 6-dentato extus pubescente, fl lem solituns, iuctu 5 In Borneo —Blume' Mus Lugd bat 1, p MI \*olui i- )' poll longa, 1 \ 2 poll lata, petiolo 1 ^-2 lin , nervis lateralibus ulrmque 10 12 tertiams minimis Stipulae semilanceolatae, pubescentes Spicae 1-3 poll longaj Bractedp flore breviores, extus pubescentes Peigonn masc lobis ovato-acutis Stamina 10, exserta Puhinus centiahs globosus (v s comm a Mus Lugd bat)
- 217 0 GRACIIIS (Korth 1 c p 207), ramulis hMI>iiusculis, folns e bisi acuta vd obtusa oJlon^is louminaus mlpgris glalnis, spicis lave paniculatis laius simplicibus andiogynis vel mastulis, latin mtano \elutina, fl. masc glomouilatis aut solitains, bracteis 3 tngularibus. externa majore, pengonio 6 dtntato ovtus pubescente, fl fem solitarns, fructu 5 In Borneo —Blume' Mus Lugd bat 1, p 301 Folia4;-9poU longa, 1 4-2 poll lata, petiolo J-4 lin longo, subconacea, nevis lateiahbus uUmcjue 11-16, teitiarns distinctis Stipula lanccolito-liiieaies, glabnusculde Spicae J 4 poll longae, semel lanus bis compositae, lamuhs gracilibus rectis Biactea in omnibus floibus 3, flore bre\iores, oxtus pubescentes Pengonium masc ut in praeced Ovanumjunius zonatum (v s comm a Mus Lugd bat)
- ^18 Q CONOCARP\ (OudSffi \ooiloo modcdel. \*Ja\an Cupul , 1861, seorsim impr p 4), lamuhs unionibus cum petiolis et loins jun dense stellato-fuiliaceo-tomentosis ruiis, loins e basi subacuta ovato-oblongis v ovato lanceolatis obtuse longiuscule acuminatis integemmis supia ad costam luilui iccosquamulosis caBtorum glabns, subtus tid noivos lurfuraceo-pubescentibus sensim glaluescentibus, fl masc glomeratis cupula plano-ciatenmorpha bie-vitei stipittita tenuitei velutina zonis 3-5 vix distmctis, glande ovoideo-acuta perfectæ omnino exseitd \$ In monte Malawai Javae (Jungh 1 c ) et forsan in Boineo (Miq Ann Mus" L B 1, p 112, ex fructu allato) Petioli \-k lin longi, hmbi 3-4 poll longi, 1 J poll lati, nervis lateiahbus utnnque 10-12, spied, misc subpiectie Fructus soli tarn vel approximati, laxe spicati Cupula junioi ot impofecta obo\oidea, perfecta 7-9 lin 1 Ua cum stipite 3-4 lm. alta, mai^me vix inflexo Glandes perfectce, 9 lin alt<u, 8-9 Un inicnic latoe, subvelutinae (v fruct a cl Oudem comm )
- 219 0 COSTATA (Blume bijdr p ^,22, fl Jav Cupul p 25, t 13), ramulis junioibus sublepidotis, folns e basi acutd elliptico-oblongis lanceolatis\ e obtuse cuspidatis nitegeriimis conaceis glabns, spicis lamosis vel uitoidum simplicibus incano-lepidotis, fl masc interrupte glomeiulatis vel solitains Inactea. majoie glomoiuli linoau subulata floies suj)erante lateiahbus 2 minutis semi-ovatis, pmgonio )-b-fido loins ovato-acutis, fl fem solitains, cupula stipitali glandiis lere totam vestiente turbinato-hemispha nca tenuiter velutinã in medio annulis 2 ciassis undulatis et apice lamellis paucis concentncis minimis ciebnis oinati, glande supeino planiuscul • unilonatd i{ In Java (Bl ) et Sumati\ (Korth heib Mus Lugd bat') — Koith Nat Gesch Bot p 212, Blume' Mus Lugd bat 1, p 302 (mcl var Y) Folia 3-5> poll longa, 9-24 lm lata, petiolo J 0 lin longo, nervis latorialibus utnnque 8-11, margine sublecuivo, junioibus sublopidotis? Spicae vel lami spicaium graciles, lolio subbiPMoiPs unisoMi.des Biactpao majores fl masc \- \ uJ \mq&, extus velu-liiw? Hoies jun Inn (n spot Sum.iti ) sctus spium seihipedaleni inimerosi,

alterni, stipite accrescente 1-3 lin. longae, bracteis ovato-acutis et squamis obtusissimis vestitae. Gcupula (ex ic.) pollicem lata, grosse annulata., (v. s.)

P, *convexa* (Blume fl. Jav. Cupul. t. 14, Mus. 1. c), cupularum postis minus prominentibus, glande supra convexiusculâ. J In Javee monte Salak et in Sumatrâ (Bl.), in monte Malawar Javæ (Jungh. ex Oudem.). —Lithocarpus scutigera Oudem.! voorloop. mededel. Javan. Gupul. p. 4. Specimen comm. ill. Bl. tanquam Q. costata, quod ex fructu melius cum var. S convenit, et equidem speciem diversam dixerim propter quod cupulae in a grosses, hic mihimos. (ut in icone, t. 14). In fructu nostro maturo **stipes crassus, 6 lin. longus, denudatus, cupula ovoidea, superne truncata, glande ibi planâ lævi clausa, 15 lin. longa, 12 lin. lata, tenuiter velutina, zonis parum eminentibus duabus partim obliquis partim horizontalibus** in latere fructus distantibus, lamellisque 4-5 undulatis proximis concentricis verticem cingentibus; glans cum cupulâ nisi prope lamellas arete conata, vertice libera nitida. Ex fructibus a cl. Oudem. comm. margo cupulae per spatium 2 lin. latum glandem tenens sed ab eâ liber, vertice glandis praeterea.... Nihilominus ad genus Lithocarpus manifeste transit. Lignum glandis validum. Semen pendens, obovoideum, inferne obtuse lobatum. (v. s.)

220. Q. CONCENTRICA (Lour. fl. Coch. p. 701, non Blanco) foliis lanceolato-ovâjis acuminatis integerrimis incurvis utrinque glabris petiolatis, spicis androgynis linearibus congestis erectis terminalibus, fl. masc..., fern, stipitatis, cupulâ laxâ brevissimâ extus circulis quinque parallelis excavatâ, glande obfongo-ovata acuminata glabrâ. J In altis sylvis Cochinchinae. Folia fere ic. Humph. 1. 4, t. 56, ex cl. auctore, sed curvata, et cupula diversissima. Flores fern.... in inferiore parte rachis, spicae ideo bisexuales nee unisexuales ut in Q. concentricâ Blancoi, quae nostra est Q. lianoii.

221. Q. GHAMPIONI (Benth. in Hook, journ. 1854, P. 113), ramis junioribus furfureo-tomentosis, foliis e basi acutâ obovatis oblongisve obtusis nunc multifloris coriaceis integerrimis, junioribus superne, nâ furfuraceâ vestitiâ, adultis supra glaberrimis nitidis subtus incanis et Jepidoto-tomentosis, amentis ferrugineo-tomentosis densifloris, perigonio semi-5-fido lobis ovatis dorso hispidis, staminibus 6-8, filamentis basi ptilosis, antheris hispidis, spicis fern, dissitifloris, cupulâ concavâ indano-tomentosâ concentricè 3-annulatâ, glande globosâ exsertâ. \$ In hualâ Chinae Hong-Kong. — Seem. bot. Herald, p. 415, t. 90, Benth. fl. Hongk. p. 321. Ramulifcubangulati. Stipulae subulatae. Folia 2-3 poll, longa, circiter poll. lata; bast plus minus acutif? nervis lateralibus utrinque 4-6, tertiariis vix conspicuis, petioh) 3-5 lin. longo. Amenta 14-2 poll, longa, subfasciculata. Filamenta pergoniaftjHx aequantia. Antherae efitpsoideae, pilis stellatis hispidiss. Flores fern\* in^Bfifeviatâ spicâ, 6-10. Styli 3, obtusissimi. Gupula (ex ic) 1-9 lin. lata.

222. Q. EWYCKH (Kotth. in Verh. Nat. Gesoh. Bot. p. 212, t. 46), ramis junioribus sublepidotis, foliis e basi acutâ oblongo-lanceolatis acuminatis iintegris \* coriaceis supra glabris adultis subtus glabriusculis pallidis, amentis et spicis fern, folio subaequalibus, rftchi tenuiter cano-velutina, fl. masc. solitariis vel sparsim glomerulatis, perigonio obsolete 6-lobo pubescente, fl. fem. solitariis bracteâ triangulari acutâ stipitatis, fructibus breviter stipitatis, cupulâiAelvi-formi zokis 8-9 concentricis lnearibus undulatis subdenticulatis omat&79&nde depresso-ovoideâ semiexsertâ\* fi In Sumatrâ. — Blume I Mus. Ludg. Bat. 1, p. 300. Folia 3-64 poll, longa, H-2,i poll, lata, petiolo 6-7 lin. longo, subtus ~~pubescens (ex Aorn.)~~, nervis lateralibus utrinque 10-13, acumine longo obtusiusculo. Perigonium masc. cupuliforme, ore dentatum. Stamina 12, longe exserta. Stipes cupul© 2-3. lin. longus^ cujm la e basi Bupi^atipitem turbinatâ brevi late patens, U-14 lin. lata, cinereo-subvelutina, zonis ut vrh^b ooloratis. Glans altiteditie sua tator, (v, d. comm. a Mus. L. b a ^

223. Q. BENNETTI (Miq. fl. Ind, bot. 1, p. 857), ramullB glabris, foliis e basi subcuneato-attenuatâ oblongis vel sublanceolato-oblongis acuminatis integerrimis glabris subtus fere subargentatis, fl. masc..., cupulâ breviter stipitatâ aceta-

buliloimi integpimnâ iuscuk<sup>1</sup> pubi ii, squamulis (oncietis conceptis requeiotis annulato stnaU, apiculib squ lmuldium libens, pla<sup>ide</sup> ovoidpo globosâ pxseilft /> Iu Bdnkd (Hoisî ) Pttioli 3 4 lin longi i imbi J-\*>; poll longi, ppigunacr oconauî, neivo cpntiali subtus et neivis latciahbus utnnqup 8 10 in sicuf iusculis (upula > lin Liu Glans i lm alta, d)ite pubcra Joins Q nitidae Dl ddeo sun ihs ut nisi cupula, obstaiet disci mien camdeni dixent cl auctor, hac notd Q Lwyck.ii similioiem ait,'

224 Q RASSAJfolia fl Ind bat suppl 1, p 35t)), lamulis hbris, folus longitci petiolatis e<sup>ksilsiem</sup>-acuti elliptico hnceblatib longilustulc acuminatis crasse coiideis intpgeinmis sul>vis pallidionbus costis utiinque 10 14 tenens, spitis lcm biinpbicibus vel subpaniculatissUictisi, fl leni ñivolucro pubeiulo e 4 cn-cJter seuebus cuculdiibus bidcteolaium conceptiruni eflbrmato - In sumati LocoPcnlali Petioli 4 (i lm longi Limbi 2^-4 poll longi, -j- 1J poll lati Spicae pubeiuldL stigmata J, brevi-conica, obtusiuscula.

225 0 OOGYNE (Miq fl Ind bat suppl 1, p 351) lamulis pctiolisqub plabns, joins cbdsi anguste acutâ elliptico VP! sulnancoolato oblon<sup>is</sup> sulnbni|)p anguste acummatis subconaceis, supid gldbns (novellis tdiPinmc squ imollosis) subtus liidumento tonuissimo stellato dcnssissimo aigentato griseis, cot>tis utnnquc 10 12, cupulis solitai us sessilibus obo\oideis subtuibinatis bi ictpolis (#juamis\*) ciassiusculis ppi series 6-7 cncularcs dispositis — In Sum iti i occid PotioJi 1 2 lm longi Limbi 3 5 poll longi, 1{ ljpoll IVi CupuldB nonduii maturae 1J-2lin altae Q ntuiphylldp piovinia, ex cl auctore

226 Q NITIDA (Blume I Mus lugd bat 1, p 294), ramuhs novellis glabns vel suWepidotis, folns P basi aculâ vel angustata ellipticis oblongis hncpolatis\p acummatis inte<sup>b</sup>emmis conaceis glabns lucidis, amentis simplicibus olongi-*IH*> lectis cmpieo-velutinis, flonbus raasoulis mteiiuptc glomeinlatis, lemincis soli tains, biacteis cujusve fl masc J ovato-lanepolatis externâ ma/orp floie biovioie, , fiuctibus in lacln spicatis subrsihbus, cupulâ tuibiiiaâ s>quamuloso-tuberculata InSumatil l«olia H-bpoll longa, \-li poll lata, pptiolo 4 0 lin lon<sup>n</sup>po, neivis liicnlibus uliinqup 7 ) aiciiato-pilcnhbus Amenta 2-5 poll longa, fasciculis floiuii pei Lt un lon<sup>it</sup> spais lengonium 6-fidum, extus pubescens Pulunus cntialis peispiciuus, albus — Cl Miquol (Ann Mus Lugd bit 1, p 112) Janc spec in scclione Cyclol>alaiius enuinoiat Pt fructum (equidem valde immatuuum) sic dscsiibit cupula tui-bmato stipilata, supeinc ovoideo-globosa, oie mteginmo acuto lciviter contricta, p\tus squamis sibi adnatis subciiculaiiitei dispositis gilvo gnseis subveirucifoimilms obtpcti, inferno et in btipite squamis oblongatis inbtructa (v s iloni a Mub L B comm)

227 0 LAMPONGA (Miq fl jdWbat suppl. 1 p 348), fofis brevi-petiolaris e bdsi latâ ad petiolum bi evIUhBe acute piotractâ oblongo-ellipticis vel obverse elliptic is abrupto icute vel obtuse apiculatis conaceis subtus cineriscenti pallidis costis uliin nie 8-9, spicis andiogyrus mine paniculato-iamosis flonbus masc Lppiovnitis, fcminds in mf p.Btesj)ic\* lemotis bisibiactpft 1 iti amplexis, cupuia c basi stipitita biannulata subtuil)init\ acetdliulifoimi albido-tomentella8 zonata7onissu)ci vldc appioximatis — In bumatidj piov Lampung Innovationes tenon imc sub)ul\ (i ul( nte Pctic>li 2 lin loiu, Lnnbi 6 7i poll longi, 2J-3 1 poll supia medium lati LupuU fcie m ituiaj, 6 0 lm latae

228 0 CELFBICA (Miq Ann Mus Lugd bit 1p 110), no\rlisidense ochiaccotompntosis cito gUbiatis, folns breMssime petiolaris e basi acutiusculalanccolato vel elliptico oblongs acummatis Integermmis conaceis supra lucidis subtus glabiatis glaucescentibus costis uliinque 8-10, cupubs sessilibus acetaiuhfoimibus squamis lato-dcltoidcis acutiusculis subadpiessis fusco tomente<sup>is</sup> pei zonas cuculaies IOpluiPsve dispositis glandcmovoideam icutam basi amplexentibus — InCtkbesbor distr Menado (Icysmann) Pttioli 1-6<sup>J</sup> lm longi Fol a 2-J-4 poll longa, iniamis 2-3 annoium peisistentia Cupula'3 lin cin alta, 5 lin ld<sup>ta</sup> Olans fere poll long<sup>1</sup>, C lin lata

229 0 DirpiNHOHSin(Miq 11 Ind bat suppl lp .J49), folns bieviter petiolntis

e basi brevi-acutâ ellipticis vel e<sup>l</sup>iptico-oblongis breviuscule obtuse acuminatis coriaceis subtus jun. mimitissime subsquamellosis dein pallidis costis utrinque 12-14, cupulâ sessilTOrevider acfttabuliformi glabrescente zonis circiter 7 smis similibus, glande abbreviato-semiglobosâ basi inclusâ. — In Sumatrâ occid. Petioli 2-4 lin. longi. Limbi 3-7 } poll, longi, 2-3 £ poll. lati. Gupuls 2-7 lin. lats, 2-21 lin.- alts.

230. Q. DAPHNOIDEA (Blume fl. Jav. Cupul. p. 28; 1.16), foliis e basi acutâ oblongo-lanceolatis acuminatis integtoimis glabernmis subtus leyitjt glaucescentibus coriaceis, fl. masc..., spicjflpsi. folio vix brevioribus dissffloris, cupulâ turbinato-hemisphsricft sessi<sup>^</sup>JBuam in zonas 6-7 concentricas lateraliter connatis crassis fptus inflatis\* calrescenti-tomentosis, glande ovoideo-acutâ nitidâ tertiâ parte gâsi immersâ. § In Javsprov. Bantam (Hasselt). Ramuli juniores tenuissime striati, nitidiusculi; serius basi et ad petiolorum<sup>^</sup>rtum levissime incrassati, epidermide cano-fuscescente papillis argenteis obsitâ. Folia 4-6 poll, longa, 1 -J poll, lata, in petiolum 4-6 lin. longum gradatim angustata. acumine obtusiusculo. fries 5-6 poll, longs, erebts\*vel cernuae, tomento brevissimo velutins, apice forsan masculi? Perigonium fern, lobis 6 ovatis. Stigmata 3, glabra. Fructusalterni, solitarii vel gemitfc Cupula squamis dorso inflatis quasi tessellata, zonis marginē undulato-dentatis.
231. v. HANCEI (Benth. fl. Hongk. p. 322), glabra, ramis floriferis brevibus robustis, foliis ipnge petiolatis obovatis wI oblongis acuminatis integris utrinque nitidis, spicis paniculatis erectis rigidis tomentosis, masculis femineis vel androgynis, staminibus 10-12, fructibus sessilibus minimis, cupulâ suberoso-lignosâ hemisphaericâ extus griseo-lepidotâ concentrice annulatē, annulis margine apiculato-repandis, glande § exsertâ. ^ In ins. chinensi Hong-Kong, ubiP rara. Hance in £nn. sc. nat. ser. 4 v. 18 p. 230 (unde, descriptio fruct.). Folia (ex Benth.) 3-4 poll, longa, nitidautin seq., sed magis coriacea, nervis primariis minus prominentibus ultimis magis reticulatis. Spies nunc omnes masc. et 2-3 poll, longs, nunc terminalis et plures femines vel andrqgyns 3-6-poll. Styli vulgo 3, rigidi, divergentes.; Fructus (ex Hance) biennes. Glans 7 lin. longa, basi cupuls bilineari inserta.
232. Q. HARLANDI (Hance in Walp/Ann. 3 p. 382), foliis e basi longe angustatâ oblongo-lanceolatis acuminatis a medio undulato-<sup>^</sup>erratis vel integris coriaceis, amentis folio brevioribus sparsifloris, bracteis..., perigonii masc. 6-partiti lobis ellipticis extus pilosis, fructibus in spicâ pluribus sessilibus, oupulâ hemisphaericâ squamis griseis subverticillatis imbricatis e basi latissimâ mucronatis, glande obovoidei varie exsertâ glabrâ. 6 In insulâ Hong-Kong (Hance, Seem.). — Seem. bot. Heratd p. 414, t. 89, Benth. fl. Hongk. p. 321. Arbuscula ramis foljisque glabris. Folia 3-8 poll, lonja, 1-3 poll, lata, in petiolihn 6-12 lin. longum angustata. Amenta 2-3 poll. ^ ^ p<sup>v</sup>floribus solitariis (ex icone). Styli (ex Benth.) 3-5, rigide subulati, diver<sup>^</sup>Ps. Cupuls 4-5 lin. longs, 7-9 lin. lats. Squamae, utinQ. indutâ, lateraliter connats, zonas 5-6 suljconcentricas formantes, ad sect. LepidobManum transeuntes. Glans variabilis, crasse obovoidea vel elongatâ, mucionulata.
233. Q. INDUTA (Blume! in Batay. Verh. 9 p. 220), ramis junioriDus-jnaDns, ioliis e basi acutftovato vel elliptico-oblongis abrupte et obtuse acuminatis integerrimis coriaceis glabris subtus albide sublepidotis, spicis masculis vel andrfcenis simplicibus vel rambsis, lr. masc. fflomerulatis, bracteis hmi t|o-mennHEnceolatis, perigonii 6-6-partiti tomentosi lobis ovato-acikis, mictiDus in rachi paucis spicatis, cupul& hemisphaericâ basi in stipitem brevem angustatâ cmereo-subvelutinâ zonis paucis linearibus obliquis vel concentricis margine sparsim denticulatis, glande subvelutinft cupulam dimidid<sup>^</sup>superantē. 5 in Java<sup>^</sup>occid.—Blume I fl. jav. Gupul. p. 23 t. 12, Mus. Lngd. bat. 1 pP294. Folia' 4-9 poll, longa, 2-3 poll, lata, petiolo 5-9 lin. longo, nervis later, utrinque 9-13, tertiariis vix distinctis, paginâ inf. pallidâ nervb<sup>^</sup>csBcipuo nunc subVelutino. Spies 1-3 poll, longs, erects, ttkes fern, ssp<sup>^</sup>tus in basi spies androgyns, alternantes. Cupula cum stipite JFL2 lin. longa, 15 lin. lata, ore constricta; zonis basi et medio nume»o 4-5 distantibun partim obliquis, apice propioribus minus distinctis denticulis raris/idpressis minimis. Glans ovoideo-nemisphsrica. (v. s. coram. a Mus. L. b.)

*\$,microcmpa*, iiuctu minoie, gUnde apice non depressa In Javâ occid  
Q induta p, Blume' 1 c t 12 f 3 Ex specimine meo a Mus Lugd  
bat comm lamuli sublepidoti, folia obtus minus palhda Vix vanetas  
vidctur (v s)

234 0 CYRTOPODA (Miq fl Ind bat 1 p 8u9), ramulis petiolis folnsque junio-  
nbus ulunque in nervis subturfurdceo-tomentelhs subflavicantibus, folns e  
basi subicutd elliptico-oblongis .abrupte anguste acuminatis brevissime petio-  
latis subtus aigentdtis, fl masc , 11 fern glomerulatis, cupulâ (submaturâ)  
acetabulifoimi cupulata explanatd infer ne cupulis stenlibus tuberculata gnseo  
puberâ zonis obscuns denticulifens, glande depressâ senceâ cupulâ tuplo  
fongiore \$ In Sumatrâ (Diepcnhorst) Petioh 1 2 lin tantum longi Limbi 8 9  
poll longi, peigamacei, nervis laterahbus utnnque 15 19, teitiarns tians  
versis Cupula inaigine dcuta, haud crassa Glans mdumento deterrenti se-  
ncea

235 0 LLANOSII, iamulis glbns, folus elliptico lanceolatis basi longe angus-  
tatis apice dbrupte dcummatis liitegns coriaceis junionbus puberulis adultis  
glabrescentibus,dmentis masc in axilhs solitams aut gomims erectis tenuitei  
cinoieo \cluLmis gracihbus folio bicvionbus, flonbus secus rachim sparsis  
solitanis gemmis ternatisve, biacteis fasciculi vol flous solitani ovato acutis  
extus pubescentibussubaequalibusflore multo biovionbus, pengonio piofunde  
6-fido extus pubescente, spicis lem , cupuld integr/L concentnee zonata,  
gldndcseiniovoideâ gdr«V cupulamdimidiosuperante \$ In Philippims 0 con-  
centiica Blanco Filip ed 2 p '02, Llanos' in h DC (non Lour) Ramuli  
jumores forsan puberuh? cito glabnti Folia 4-8 poll longa, 1 2 poll lata, basi  
longius quim ipice angustata, petiolo 4-8 lin longo, acumine obtusiusculo,  
ner\is ldiaribus utnnque 9-11, tertiams \ix peispicuis, pube tenuissimâ  
^vanescente pdgmâ ml pdllidâ Amenta J-5 poll longa Flores masc saepius  
solitani, junioies globosi aut o'ati Biacteeae t lin longae Stamina circitei 12  
Flores fem (ex Blanco) spicati Fructus ex Blanco descnpti (v s comm a  
cl Llanos)

23b 0 OVALIS (Blanco fl dñe Filip ed 2 p 502), folns ovahbus abiupte acumi-  
natis et apice emarginatis integrii glabns petiolo brevissimo, ff masc ,  
spicis fem spaisiflons, cupulâ Integrâ zonis concentncis ornata, glande ovoï  
^leâ superne exsoiUl ^ In Philippims Folia \* un palmo » longa Nomen e  
foimâ glandis An (ex cl duct) ^dlletas pi ions<sup>Y</sup> Si species servanda nomen  
0 ovalis Gcepp pi foss mutandum esset

237 0 BLANGOL, folns ovalibus abiupte acuminatis aut emarginatis intpgns gla-  
bns petiolo bieivissimo, fl masc , fem m spied sparsis, cupulAlmeis concen-  
tucisornata gUnde ovouleâ ^ In Philippims 0 glabra Blanco fl do hilij\*  
ed 1 p 727, in ed 2 omissa (non Iniinb ) loin longitudine « do uno  
palmo » Mdinleste sect Cyclobdlani, sed feie ignota Cl Llanos hanc sp  
agnosceie credit et figui in fructus mecum communicuit ubi cupuld 4-i hn  
altd 6-7 lin hta, liemisphaencd, oie subconstneta, lmtis conuntr 0 7,  
apice approximatis, dentibus minimis, glande semi-exsertâ ovoidei

238 0 PHILIPPINENSIS^amulis glabns, folns e basi acutâ ovato-lanceolatis acu-  
minatis junionbus subtus tonuiter puberulis adultis glabns subtus palhdis m  
tc^ns vel ranus id ijuom ropando dontdtis, 11 misc secus spicas giaciles  
eicctas pubescuiUs spaisis solitams pedunculis fiuctifons folio subdequa-  
ibus tenuitei pulveulento-miberuhs, fiuctibus dlleuiis bieivissime stipita  
tis, cupuld hemisphaenco tuibinatd basi abiupte dngustdti tenuiter cinereo  
^elutinâ zonis concentncis 6 7 lussim brevitei deuUtis uigosâ, glande ovoidea  
cintreâspiicei cupulam dimidio superante \$ In Philippims (Cumin\*' 809  
Perrotte'y Kami in sicco nigcantes Folia 2 3 poll lon^d 7 !> lin lata pe'  
tiolo 3 lm longo, coidgea, basi acutd \ol longius ln-justatd, saepius lnte'ffia  
acumine tenui, obtusiusculo, s-6 lin 1 >ngo, nunc dbbreviato, nervis lateralfbuš  
utiinqp 7 8<sub>T</sub> tPitiarus transversis mini'nis, folio luniore (ex spec Pcurr ) in  
nervis passim pilis adprossis longmsculis donato, in parenchymate punctaUi  
subpubescente, adult (2 mm) ^hbi itn subtus inter nervos -pallido P(duu-

culi bipollicares, erecti, crassi, fructus 3-6 gerentes. Fructus (ex spec. Gum.) juniores obovoidei, stipite  $\frac{1}{2}$ -1 lin. longo, squamoso, bractea lanceolata  $\frac{1}{2}$  lin. longa, squamis lanceolatis depressis subverticillatis, lobis perigonii ovato-acutis, stylis rectis obtusis. Cupula matura supra stipitem turbinata, 6 lin. longa, 6-9 lata, margine integra attenuata. (v. s.)

\*\* Folia serrata vel subserrata (1).

239. *Q. LINEATA* (Blume! Bijdr. p. 623, non Hook, et Th.), ramis junioribus fulvo-tomentosis, foliis ovato-elliptico-vel obovato-oblongis basi saepius acutis apice acutia vel acuminatis integris vel apice serrulatis, junioribus utrinque pilis sericeis adpressis fulvis vestitis, adultis supra cito subtus tarde glabratis, fl. masc..., pedunculis fern. 1-3?floris, cupula hemisphaerica lamellis 4-5 concentricis crenatis sericeis ornata, glande ovoideo-globosa cupula dimidio longiore. ^ In Java — Blume! fl. Jav. Cupul. p. 32, t. 19. Mus. Ludg. bat. 1, p. 302. *Q. polyneura* Miq. plant. Jungh. 1, p. 11 (ex Miq. fl. Ind. b.). Folia 2-4 poll, longa, 6-20 lin. longa, petiolo  $\frac{1}{2}$  lin., in arve junior 4-7 poll. longa, nervis lateralibus eminentibus utrinque 13-18, pagina inf. secundo anno glabrata pallida. Stipulae Unbares, extus sericeae, 3 lin. longae. Pedunculi fructiferi uniflori petiolo aequales, pluriflori longiores. Cupula junior obovoidea, subglauca, lamellis super, fulvis. Fructus e Blume Mus. Ludg. bat. p. 302 descriptus, nam in ic. et specimenibus a Mus. L. b. comm. nondum maturus. (v. s.)
240. *Q. THOMSONIANA*, ramis junioribus..., foliis oblongis basi subacutis apice acuminatis a medio vel apice tantum serrulatis aut aristato-serratis, junioribus..., adultis supra glabris subtus incano-tomentosis demum pilis adpressis brevibus solitariis vestitis, fl. masc..., spicis fern, plurifloris petiolo brevioribus velutinis demum glabratis, cupula (juniore) hemisphaerica lamellis 5 concentricis laxiusculis crenatis sericeis ornata, glande... ^ In Sikkim Indiae bor. alt. 5-8000 ped. (Hook. f. et Th. in h. DC. et h. Boiss.). *Q. lineata* Hook. f. et Th. in herb. DC. (non Bl.) Folia 3-4 poll, longa, 12-18 lin. lata, petiolo 6-12 lin. longo, nervis lateralibus eminentibus utrinque 13-22, pagina inf. in specimenibus meo fructibus junioribus (nempe foliis adultioribus) primo ad aspectum glabra, pilis sub lente adpressis distinctis. Differt a *Q. lineata* Bl. natura pilorum et dentibus fol. majoribus. (v. s.)
241. *Q. OXYODON* (Miq. Ann. Mus. Ludg. bat. p. 114), ramulis petiolisque glabris, foliis graciliter petiolatis e basi acutiuscula leviter inaequali lanceolato-oblongis anguste acuteque acuminatis praeter basim acuminisque superiorem partem dense spinoso-serratis adultis supra glabris sub indumento stellato floccoso caesio cinerascens, cupulis in spica sparsis basi bracteis 5-6 ovatis amplexis subanthesi pubescentibus annulatis? — In mont. Khasiae Indiae or. alt. 5000 ped. (Hook. f. et Th.). A *Q. lineata* Bl., qua cum in schedulae adjecta comparatur, differt foliis longius petiolatis, praeter basim totis spinoso-serratis, ostulis multo crebrioribus, indumento. Petioli 1-1 $\frac{1}{2}$  lin. longi. Stipulae lineares, basi dorso pilosae. Limbi 5-6 poll, longi, 1-2 lin. lati, costis subtus prominentibus utrinque circiter 25. Specimen ad cl. Boiss. miserunt d. Hook. f. et Th. sub nomine *Q. lineatae*, quod praesenti melius quam ad lineatam et ad Thomsonianam joespondet.
242. *Q. MERKUSU* (Endl. gen. suppl. 4, part, 2, p. 28), ramis junioribus fulvo-tomentosis, foliis e basi acuta oblongo-lanceolatis acuminatis a medio serratis, junioribus utrinque adpresse pilosis, adultis supra praesertim glabratifloris utrinque pilis formibus laxis pendulis, pedunculis fern, brevioribus paucifloris, cupula turbinata (ex ic.) hemisphaerica (ex specimine meo authent.) lamellis 5-5 concentricis crenatis ochraceo-sericeis ornata, glande... ^ In Java occid. *Q. turbinata* Blume! bijdr. p. 523, fl. Jav. Cupul. p. 32, t. 18, Mus. Ludg. bat. 1, p. 302 (non Roxb., de quo conf. *Q. spicata*). *Q. Horsfieldii* Miq. fl. Ind. bat. 1,

(1) In *Q. Harlandi*, n. 232, folia integra vel subserrata.

p 85b, ex se ipso Ann Mus L B 1, p 114 Nomen Blumei vetustius, sed character! contrarii videtur Rami secundi anni lenticelae cibus punctati, glandidi Foliis 7 poll longi, b-18kn laidi, petiolo 3 7 lm lon<sup>o</sup> neiusse cundans utrinque 13 18 unmutibus, deilibus brewbus subcillo MS Gemmae ovoideae, pilosae, stipulis iulionibus 2 lm longis extus ductae \menta (e\ Bl) plerumque lenticulata, longit aliquot pollicum, pinguis tomentosis Pedunculi 2-9 lm lon<sup>i</sup>, fructibus 1-2 Gupula in specimine nostro IK misplacenda, potius quidem basi angustata ut in icone, immatura 4 li<sup>n</sup> longi, > 1m lata Genua cupulam tunc pediculis superans A Q ramosior differens tolus adultis subtus glabris, nervis lateribus minus \alidis et cupula oclucea (v s comm a Mus Lugd bat)

243 0 HORSFIELDII (Mij (1 Ind bat 1, p 850), lamulis junioribus petiolo et foliis junioribus subtus pubescentibus, lobis et basi acuta vel attenuata ellipticis vel oblongis dentatis vel apiculatis a medio circiter serratis supra nitidis, fl. misc., sp. is fern folio brevioribus 0 10 floris gense ocheo tomentosis, cupulis /onis 4 s. crenulatis obovatis tuberculatis ochraceo-hirtulis, gland. elliptico-oblongis cupulis tunc longioribus j In Buickd Petioli 3 4 lin longi Limbi 1<sup>l</sup> 3 poll longi, conaceo periducto, db f vel \supra basim sciendi, nervis interdentibus utrinque 7-8. Styli 3 5 (?), interiori villosi, superne gland. stigmatibus convexo-dimidatis, subcapitulo, extrosum subcylindricum teinidit. Cupulus 6 lin alti Gland. 1 \ poll longi, apice pubescens.

P, longifolia (Mij fl Ind bat 1, p 809), lobis obverse oblongis elongatis. — In Sundtid Folia usque ad 5 poll, lon<sup>o</sup>.

244 0 VILLUTINUS (Liudl in Will' pi is rar 2, p. 41, L 150), ramis junioribus, lobis et basi acuta obovatis lanceolatis dentatis vel denticulatis a medio remote serrato denticulatis, junioribus, lenticulis utrinque gland. amentis, pedunculis petiolo bicuspidatis liutu unio teinidit, cupulis drupis Lupulifolium filio seucea lamellis 5 0 toncatis is lenticulis ornatis, lenticulis \i\ exsertatis lenticulis lenticulis id lenticulis — Will' list n 2768 Hum s. n. h. mm glabris, lenticulis lotundis ilbidis denticulatis Folia 3 \ poll lon<sup>i</sup> 1 > 10 lin. lati, petiolo 3 \ lm longo, ululu gland. in medio undulato serratis, dentibus pedunculatis (junioribus acutis), nervis hinc ilibus utrinque 12 13 lenticulis eminentibus, lenticulis usque \ dis metis Fiuctus scundo dno cum lobis persistentibus Pediculus 1 Jim lon<sup>us</sup> Cupulus 4 lin longa, lin laidi, lenticulis lenticulis pionibus, obovatis subcylindricis Oldis (lobis unpeileta in specimine nibus obs. el hg) sencea, umbone solo exsertid (v s)

245 0 SEMPERVIVA (Ro\ bfl ind ed 18J2, \ 3, p f32), ramis junioribus, lobis et basi acuta lenticulatis dentatis a medio serratis, junioribus, lenticulis rhabdosis, amentis, lenticulis in lenticulis seditibus lenticulis pedunculatis, cupulis abbreviatis late subhirsutis tomentosis 1 im His 4 5 com enticulis mlgns ornata, gland. ovoides cupulis quilibet lon<sup>o</sup> noic \$ In Sillipt India\* oi — Wighl IL. 1, f 211 (e\ it Ro\ b hg) Rami adulti glabris vid. niui VAN<sup>AS</sup> poll longa, 1-3 poll lata, petiolo 9-U lin longo diameo mjoio ultid inodiim limbi parte n, nervis lenticulis utrinque 10 12 eminentibus, pigm. ultraquod in IC gland. lenticulis idprsp. pilosae\* nl in lenticulis Cunctis pollic. inhta 4Hn lon<sup>i</sup>, lundo plinius Lulo, lenticulis I > 1G lm longum basi solum lenticulis — Synonyma Q. munitae ex cl. Hook I inlul Anspocimini nitelic nica Mdit<sup>o</sup> Nuranus lenticulis nuin cupulae in icone denticulis prmsniius

246 0 OCARPA (Koilli m Vei Nat Ges<sup>h</sup> Bot p 210, t. 47, 1. 18), ramis lenticulis, lobis et basi acutis iculiculis et obtusis oblongis vel ellipticis abiute aciculis denticulis versus remote somilatis, junioribus, lenticulis supra lenticulis sulcatis lenticulis pubescentibus, fl. inisu, pedunculis lenticulis lin Monbus fui tu lenticulis o Kimnatis, cupulis hemisplidicis (1 subiu bin it i hnellis) 7 conr nliis is pubescentibus initio crematis deinde inlenticulis oinit. lenticulis OKIP1 cupulam dimidio supermtp 5 1" Sumitra — lenticulis Mus Ligd bit P 302 Rami secundi mm lenticulis ihii, lenticulis iuctulis lotundis non minimis Folia mine leio integrii, 3-8 poll lon<sup>o</sup> ji j; pollic. lenticulis pflolito 7 \ lin j on<sup>o</sup>, ner Ms hifililms iiliniipir <> II ominntiliis f pihs in pipin \ Hl minimw.

Gemmae ellipsoideae vel obovoideae, squamis rotundatis, extus pubescentibus et cito glabratis. Gupula (ex ic.) pollicem lata, 7 lin. longa, ideo longiorquam in *Q. semiserrala* Roxb., cui affiniis. (v. stae fi. cfr. aMus. Ludg. bat.)

247. *Q. GLAUCA* (Thunb. ft. Jap. p. 175), ramis junioribus sparsim pilosis, foliis e basi acuta vel obtusiuscula ovato-lanceolatis oblongisve acuminatis a medio serratis vel undulato-serratis, junioribus supra sparsim pilosis subtus adpresse sericeis, adultis supra glabratis, amentis laxifloris diftusis, rachi tomentosa, bractea flor. sublongiore extus praesertim pilosa, perigonii profunde 6-7-fidi laciniis oblongis, antheris globosis glabris, fructibus solitanis peminisve pedunculo brevissimo insertis, cupula hemisphaerica sericea lamellis 5-7 concentricis inferioribus crenatis sup. integris ornata, glande ovoideo-acuta cupulara dimidio circiter superante. ^ In Japonia — Banks ic. t. 17, Blume Mus. Ludg. bat. 1, p. 302. Folia juniora basi valde angustata, pilis subtus in parenchymate crebris lucidis longiusculis, adulta 2-5 poll, longa, 9-24 lin. lata, petiolo 4-10 lin. longo, serraturis acutis vel contundatis, nervis lateralibus utrinque 9-10, tertiariis crebris, pagina inf. pallida nunc glauca pilis dissitis adpressis ad lentem videndis. Stipulae anguste lineares, 2-3 lin. longae, pilosae, taducae. Amenta singula vel fasciculata, subbipollicaria, fiezilia. Bractee cujusve floris elliptico-acutae, concaves, 1-2 lin. longae, extus adpresse pilosae, intus pilis brevioribus rarioribus puberulae. Laciniae perigonii, in eodem flore variantes, oblongae vel linear-oblongas vel ellipticae, in specim. observatis saepe asservatae, extus pilosulae. Stamina 7-9. glabra. filamentis in specimine perigonii subaequalibus. Cupulae 4-5 lin. longae, 2-3 lin. latae, cinereae. Glans in ic. ellipsoidea, valde exserta, in spec. nostro ovoideo-acuta, minus exserta. (v. s. comm. a Mus. Ludg. bat.)

p, *stenophylla* (Blume! 1. c), foliis angustioribus subtus glaucioribus. — In Japonic (v. s. ab eod. Mus. comm.)

Y, *fasciata* (Blume! 1. c), foliis albide fasciatis. Golitur in Japonia, cum varietatibus min. momenti. (v. s. ab eod. Mus. comm.)

248. *Q. SALICINA* (Blume Mus. Ludg. bat. p. 305), ramulis novellis pubescentibus, foliis breviter petiolatis basi acutiuscula vel obtusif linearilanceolatis acuminatis integerrimis vel remote serrato-denticulatis coriaceis supra glabris subtus junioribus adpresse pilosis adultis glabris glaucescentibus, stipulis anguste linearibus pilosis petiolo aequalibus. — In Japonic. Forsan varietas 0- glaucae Thunb. mirabili solertia Japonensium in arboribus cultis monstrosis tribuenda V Folia 1-3 poll, longa, 3-6 lin. lata, petiolo 2-3 lin. longo, nervis lateralibus utrinque 7-14, tertiariis vix conspicuis, denticulis ubi adsunt minimis, extremitate ipsa obtusa vel submucronata. (v. ramum a Mus. Ludg. bat. comm.) — Ad hanc speciem cl. Seemann refert arborem sinensem. *Q. bambussefolia* Hance mss. (Lindl. in Gard. chr. 1860, p. 46 e Chekiang) ex ins. Hong-Kong, quam in Bot. Herald, p. 41; >, sub nomine *Q. salicinae* et in t. 91 sub nom. *Q. bambusaefoliae* descnsit et figuravit. An vere eadem species? Ex icone folia satis similia, basi tamen magis acuta. Cl. Benth. (fl. Hongk. p. 321) sententiam Seemanni secutus est, arborem japonicam non magis cognoscens. Amenta (in plantajapon. ignota) folio breviora; floribus solitariis, subcondensatis; perigonio-6 fido, lobis ovatis extus pubescentibus; staminibus 6 (an errore pictoris?) lobis oppositis, filamentis glabris longitudine loborum, antheris ellipticis glabris. Floreg Tern, (in plants jap. ign.) pauci, in spica brevissima; styli 3 obtusissimi. Fructus (in pi. jap. ign.) solitarii, pedunculo 2 lin. longo inserti; cupula breviter hemisphaerica, 9 lin. lata, zonis concentricis 5-6 ornatâ j glande ellipsoidea, valde exserta.

249. *Q. ANNULATA* (Sub in Rees cycl.), ramis junioribus glabriusculis, foliis e basi acuta vel obtusiuscula ovato-lanceolatis oblongisve acuminatis a medio serratis, junioribus supra sparsim pilosis, subtus adpresse sericeis, adultis supra glabratis, amentis laxifloris pendulis rachi tomentosa, bracteis flore longioribus linearilanceolatis extus pilosis, perigonii 6-7-partiti laciniis linearibus, antheris globosis glabris, spicis fern, petiolo brevioribus pauci floris, cupula hemisphaerica sericea lamellis 7-9 concentricis inferioribus crenatis orem versus integris ornata, glande ovoideo-acuta cupulam superante. ^ In Nepalia (Wall.! list



- 2767), Kuniaon (id ' Hook f et In ' ) el Klnsia (Hook f et Ih ' ) Indiae boi — Loud enc ottiets, p 888 (cvcl ie et plensq sjn) Q Phullata Don prodr ì\ nepal p 57 \*oha junioid et ddult i in mnibusQ glam e simillima Dtntes saepius acuti sed in eo \inat Q glauca Cupulde el glandes similes videntui An eadem species ut suspicatur cl Loudon<sup>9</sup> Lx specimimbus meis (nume rosionbus et periectoiibus quam 0 glaucae) diñert solum dentibus tol pleiumque anstatis, id est longionbus (raro, sed in eod specimme con tundatis) stipulis lonRionbus ( ^ 8 lin ) biacteis 11 masc longionbus (2 4 lin longi?), minus pilosis interne glabnusculis lacmiis pengonu angustionbus, «b ipsa lore bisi distinctis, fiUmentis longionbus sed charactei pio aetate \anabilis, pedunculis mine longionbus et fiuctus 3 4 gerentibus, sed quercus ftrc omnes in eo \anant (y s )
- 200 Q LAMELLOSA (Sm inRees cjcl n 23 non Hook f), lamis junionbus , loins e basi obtusa elliptius acutis \el acuminatis amplis serratis, junionbus , adultis supidglabi is subtusgkucis passim stellato lanugmosis demum glabns, amentis , iructibus solitanis pedunculo pet olis breviorit insertis cupuh magiid globoso turbmati lamellis 8 12 concentncis undulatis laxius culis junionbus fuho \elutinis demum subglabns supremis mflexis glande depress i tupulam non superante ^ In Nepalia (Buch Wall ' ) et ins Penang (Roxb Wall 2777 ex specim ubi numerus foisnn transpositus) — Lindl in Wall pi as rar 2 p 41, t 149, Hook 1 et Cathc 11 Him t 20 Q nn bncata Don prodr fl nep p 57 Q lamelhti Ro\b ft md od 1832 v 3. p 641 0 Wdlichiana Lindl in Wall list n 2778 (c Penang, et cujus folium udi) Folia 4 6 poll longd 2 4 poll lata, petiolo 6 18 lin longo, conacea, ex ic subtus roseo ^ldutescontia dentibus acutis plus minus longis, nervis latera libus utnnque 1J 20 eminentibus, tertiaris distmctis transversis Fructus secundo anno matun Cupul i pollicem longa 1 \ poll lata, lamellis medns sub patentibus Semen (ex ic Cathc ) obovoideum longit sulcatum, non VPIO lobatum, cotyled carnosus repletum (v fr e Nepalia, folia e Nepalia et Penang )
- 251 Q PAUCILAMELLOSA, iamis Junionbus , ioins^fe basi obtusa vel subacuti oblongis acutis vel acuminatis sen itis junionbus , adultis supra glabns subtus glaucis et passim stellato lanuginosis, amentis , Iructibus solitanis ptdunculo petiohs breviorit inseitis, cupuld subglobosa lamellis 4 5 concentncis integns fuho velutinis suprenus inflexis, glande cupulam non superante ,5 In Sikkim Indiac boi alt > 8000 ped Q lamellosa Hook 1 et Th c\s ' (non Sm ) Folia 0 limellosde, sed pro longitudine angustiora, 6 12 poll longa, 2 1 poll lata Petioh b lolin longi Pedunculi fructiicn ut in 0 lamellosi ssepius 3 lin longi Fnictus (mitio secundi inni?) 5 6 lin longi et lati hmellis non patentibus, numero dnersissimo a 0 lamellosa Cupula maturafoisan amphor, sed numcrus lamellarum non mutat in spec vicinis (v s )
- 252 Q HELFERIANA, ramis petiolisquo rubiginoso tomentosis folns o^ato lanceo latis ellipticisve acutis obtusisve basi excepU breviter serratis coincideis, junio nbus utnnque lerrugmeo tomentosis adultis supra glabrescentibus amen tis , pedunculis fem petiolum jequantibus pauciflons iulvo velutinis, cupulis junior hemisphaenco turbinatis sessilibus fuho velutinis lamellis 5 b concen tncis denticulatis supumis ipproximatis submtegnis inñ(\is, glande non exserta 5 In montibus ditioms Moilmjne Indise or iltitudint 2400 ped (Heifer' 122) 0 Ilex Loui fl Coch p 700/ (non L) Rami etiam secundo anno tomentosi, te/tio glabiescentes tolia secundo anno u\ peisistentia?<sup>1</sup> i ) poll ionga, 15 24 lin lata, petiolo 6 1m longo, nervis lateralibus utnnque 12 14 eminentibus, tertianis paium distmctis tomento subtus perstante, apice et serratus brevissime mucionatis Pedunculus axillary 8 lin longus, in spe cimine3 floius Cupula fine 2 anni 3 lin longa, 4 1m superne lah hmtllis medns Idtionbus superpositis (v s comm ab infehce cl Heller)
- 2>3 O MhSPintOLiv (Wall ' list n 276b) nmis junionbus pttiolisqiu fuho tomentosis loins e basi acuta ovato - lanceolatis oblongisve obtusiusculis basi exceptd senatis, junionbus , adul is ad neivos piaesertim subtus tomento ca duco fuho donatis, amentis , cupul i hemisphaencd mine depress^ velutina Inmellis 8 10 cmcncricis plensque denticuhtis supremis submtegnis ct ap

proximatis, glande globoso-depressâ cupulam non superante ;5 In mon  
tibus regm A^a ad Prame et Taong Dong Rami tomento copioso caduco vesti-  
titi, secundo anno glaffcéscentes et autumno dfcfoliati Folia 6-8 poll longd,  
2-2 J poll lata, petiolo 476 hn lopgo, apice. obtusiusculo mucronulata, den-  
tibus similiter mucrone breyi stipatis, nervis lateralibus utyfique 17-J8 emi-  
nentibus, tertian is mediocrifus transxersis, juniora verisimihter tomentosa,  
tomento m nervis praecipuis fbUi adulti supra ad basin et subtus praesertim  
pprstante Stipulae lineares, 3 lin lonjgte, dorso hispidae Fructussohtarii? ses-  
sulos? (in spegmine obs segregati) Cupula perfect\* 7 hn toga, pollicem  
lata, cmereo-fulva, lamellis supe^osftis, imperfect magls deppBqp&tsuperne  
constncta (v s)

\*\*\* Folia ignota,

254 Q CYCLOPHORA (Endl gen suppl 4, p 2, p 28), folns , cupulâ plana  
margine inflatâ callosâ subtus lamelbs quinque imbricatis concentricis ornatâ  
5 In sylvis insulae Pulo Penang Q depressa Roxb fl ind ed 1832, v 3,  
p 640) Q Pcnangensis Miq fl Ind bot 1, p 859

Sectio v CHLAMYDOBALANUS Endl gen suppl 4, pyrt+2, p. 58, Alph. DC Note  
nouv car. fr Chenc, p i - Sectio CastaneopsK Blame, Mus. Ludg. bat 1,  
p 228 (non Castanopm Don) — Sectio EncleisocarpoDtftq, Atin ma. Lugd  
bat I, p 116.

Cupula glandem undique tegens net tamen cum eA concreta (njs^ut vulbò in parte  
infer! umbihcali), saapiub apite irre\*guranter flssa, nunc (in eodem .tajjo) clausa  
vel fissa, concentrice e\ squanus connatis verticillatis zonata Pistillum ifu^men-  
tanum liberum, globosum, hispidum in centro flous mascuh. — Omnes «x Asiâ  
mendionali Folia perenma Amenta erecta, nunc paniculata Bractes sub sin-  
gulo flore masc aut fasciculo florum ternae Perigonuim masc ttgulare Sta-  
mina numtro loborum plerumque duplici Spicae feminese fvel ariwogynae, basi  
femineae) flonbus fern s«#itarns, nunc stipitatis Ovula abertiva supera (1) Ma-  
turiatio post pnum annum

255 0 LANCEAFOLIA (Roxb fl ind ed 1832, v 3, p 634), ramis junionbus gla-  
bns, folns e basi acutâ vel subacutâ lanceolatis oblongisve acumanatis mtegrs  
conaccis glabns, amcntis erectis elongatis slmplicibus vel ramosis, fl masc  
saepius soli tan is, bracteis 3 ovati^ extus pubescentibus\* latejraibus minimis,  
prigomi 6 partiti lobis ovatis extus puberulis, fl fern dissite spteatis, fructibus  
alterms subsessilibus, cupuU ovoidea basi angus^afa ajjice iftuiâ vel irreguk-  
nter fissA rxtus tenuite,r velutmâ zonis 4 6 obliquis et nort^ontalibus lm^anbus  
obscure crenato dentatis, glande ovoideâ subsenceâ fi In Indiae bor prov  
Garrows (Rovb Hook f et Th '), SiUet et Sikkim (Hoof et Th !), Bengalii or  
(Onff ' n 4477 ab h Kew comm), insuiA Penang (Wall ' list 2791, sine fr  
ideo non certa), forsan m Sumatri? (Castanea glomerata Bl ) — Wight IC  
t 212 Q Terna Ham Q lucida Roxb fl Ind 3, p 65? (ex Hook f III litt)  
0 glomerata Wall' list 2791, a (e Sillet^ b (e Penang)? non Roxb. Çaatanea  
glomerataBlumc' Mus Lugd bat 1, p 28i? (utarbor Walhchianasuie fructu,  
ideo non certa) Folia 6 6 poll longa, 9-24 1m lata, petiolo 4-6 lin longo,  
nervis later'utrinmic 9-li, a< umme saepius acutissimo Amenta 2-3 poll longa,  
o ramis aphyllis glaberrimis ubi inserta tomento albido distincta, apicedensi-  
flora Bractea major \ lin longa, laterales saepe vix perspicuae Stamuoâ longe  
exserU, saepius 12 Spil<e lem 3-5 poll longae, rectx, flonbus pluribus alter-  
nis bractea unci ovato-atuta lmeam longâ stipatis Squamae fr jun subver-  
ticillatae, margm^connatae, dorso convexae, sencpas Fructus matun pollicem  
lon^fi, 8 9 lin lat\*, in eidem spicfi apice clausi vel fissi, glande inclusâ vel  
paulo exsertA, ranus tamen ut in icone cit (v s)

5b 0 ACUMINATISSIMA, ramulis junionbus pilis raris obsitis, foliis e basiacuU  
vel obtusiusculd lanceolatis vel ovato lanceolatis longe acuminatis mtegerrimis

(1) Vidi in 0 tuspida^â, et ovula juniora pendentia in Q lanceafolia

vel ultra medium obtuse denticulatis supra glabris subtus ad nervos hirtellis deraum glabris, spicis masc (ex Miq) erectis, flonbus glomeiulatis bracteis orbiculibus, fructibus in spici sessilibus solitary, cupull ine, mlariter turbinatavel ovoidea tenuiter velutmi dernum fissi Squamis junoubus lanceolatis adpressis matuns longioibus secus  $7 < n$  is obliquas dwtantibus dispositis et leflexis j In Java Castanea acuminatissima lilume' Mus Lugd bat 1, p 282 Castanea sessihfolia ejusd (quoad spec Javan) ex Miq Ann Mus L B JL, p 117 0 lineata Miq pi Jungh 1, p 10 (non Bl) 0 Junghunu Miq fl InS fcat 1, p 853 (ipso monpote in Ann Mus lugd bat 1, p 117) Q fagiformis Jungh in Bonpl 18)8, p 82 (fido Oudom vooil medel Cupul Jav p 4) Petioli  $\varphi$  1m longi Limbi 2 4 poll longi 7 15 lin lati, nervis latei utrinque 7 11 Fructus (a cl Oudem comm) forma et magn mequales, perfecti, nempeaprti, 4 7 lm longi, 3o lin lati, cinerascetes, zonis squamarum obliquis 3 4, squamis acutis, dm erectis, demum excurvatis J-IJ lm longis Glans ovoideo tngona, vi\ apice exserta (v s)

257 0 CUSPIDATA (Thunb fl jap p 17b), ramis junionbus pubescentibus, loins e basi acuta vel obtusa ovato lanceolatis oblongisve acummatis mtcgris vel undulato-serratis conaceis junionbus pilosis adultis supra glabratis subtus adpisse pilosis tandem glabratis, amentis giacilibus simpheibus vel ramosis bracteis ternatis rotundatis cihatis pengonii G-paititi bbis obovatis ciliaris, liuctibus m spica alternis ovoideo acutis iuho velutinis squamis subeiticillal s superpositis apice excepto connatis glandem includeitibus cupuU demum fissi ^ In Japonia—Thunb IC pi Jap dec 5, Sieb et Zuaft fl jap 1, p 8, | 2 (opi), 'illume Mus Lugd bat 1, p 288 Ramuli passim pilosi Polia 11 3J poll lonja, 7-15 lin lata, petiolo 3 6 lin longo, in eodem ramo acute vel obtuse dentata  $v < 1$  mto ^ nma, ncrvis lateralibus utrinque 7 15 pauim eminentibus pilis simpheibus in pagina sup ab initio lans Stipulde anguste hneares, 3 lm longae, pilosae Amenta folio subapquaha erectiuscula, rachi lepidoto-pubeiuli Bractee 3 sub singulo flore, eUernapaulo majore \* 1m longt Pengonium utrinque pubescens Stamina saepius 10, exserta, glabra Fructus secundo anno matun, ssepius 8 lm longfr, 4 lin lati, nunc subgto bosi, squamis ol longis mucrom glabro brevi terminatis, inleioibus tandem muticis, hssuns cupule uregulanbus 1 4 (v s)

(J, *pusilla* (B) *ume* 1 c), loins brevissime petiolatis lanceolatis obtuse acuminatis — In hortis Japonensium

Y, *Sinensis*, fons minus conaceis, bracteis fl masc lumonbus — In China borcah (Foitune<sup>1</sup> anno 1846 n 40) Folia a medio serrulati, ut saepe in a Biactee pengonio multo breviores, MX ciliatae Vanctas tantum videtur, sed fructus ignotus (v s)

258 0 Bi UMEANA (Korth m Veih nal Go ch Bol p >08 t 44) lamis jumorilius pulverulentj vdtutmis lulvis, loins c basi acut i vol oblusl ollipticis | < | clliptico oblongjs acummatis aui longe cuspidatis supra gl ibris subtus in noivo cenlidli lenuissime velutinis, spicis androgynis, bracteis sub singulo flore 3 Ian ccolatis peigorui masc 6 paititi lobis ovato acutis velutinis fiuctibus in infer parte spicae altcmis stipitatis cupul i e basi latissim« subconciivi abrupte an gustatd glandem includonte \clutmd srjiianis laiicooilis minimis adpressis e zonis 4 b surgntibus <sup>f</sup> > In Aoineo — Blunu ' Mus Lugd bat 1, p 288 Rami secundo anno glabri l«oha 3 6 poll longa, 15 30 lm lata, petiolo > b lin longo, subcouacoa lcumm saepius anguste elongato, ncrvis liter utm-v. quc 8 11, tcitianis minimis pube nervorum cito evanescent ttnuissim\ Spicae nunc andlogynv 1 MIO cuciter aequales nunc masculae breviores simplices aut ramosde, encte HOKS masc spusi BUC^TD \rluimae extern4 (majore) pengonio breiore Stamina exserta \*riiaus' jun]oro\oideo' acutus • marline cupulae mflexo, maluius polhcem basi latus 6 lin lonffus stipite 3 4 lin longo, zonis distantibus fv s) o > r

250 0 ENCLISOCARPA (Koi th in \erh nat Gcsch Bot p 208 t 45) rmus juiiionbus tenuitei \elutmis iolns<sup>1</sup> basi acuta vel subatuta ilhpticis vel elhp-tico oblongis acummatis utrinque sublrpulis, imenti^ subiamosis flonbus masc glomeiulatis, bracteis 3 glomeruli-lanceolatis, pengonii fipaititi lobis

ovftto-subacutis, fructibus jn spied, fern, elongate alternis stipitatis, cupulâ ovoideo-globosâ cinereo-velutinfz zonis 4-5 linearibus squamis indistinctis apice tandem nssa< glandeinclusâ ovoideâ sericeâ. § In Sumatrâ — Blume! Mus. Lugd. bat. 1, p. 28W Folia 3-f poll, longa, 12-30 lin. lata, petiolo 5-6 lin, longo, subcoriacea, acuta vellonge acuminata nervis later, utnnque 7-9, jd-niora tenuiter velltttjpa, fulva, adulta in eodem ramo nunc glabra laevia; nunc sparsim discis nfinlmis albidis rotundis aut margine dentatis punctata ten causâ advenâ?). spiês forsan interdum androgynae? Amenta masc. 1-2-pollîc., rachi subvelutinâ. Bractee minima, centrali majore, puberute. Stamina 6-12, exserta. Stipes fructus 3 lin. longus, superae latior. Cupula poll, lata, 9 lin. longa, squamis non distinctis. Glaps pilis retroversis dense sericea. Semen (ex Korth.) êxcavato-pelviforme, sulcatum, basi crenatum. (v. s.)

260. Q. frssa (Champ, et Benth. in Hook, journ. 1854, p. 114), ramis junioribus tomentosif foliis e basi cuneatâ elliptico-lanceolatis acutis vel acuminatis callose pauci-serratis vel integris supra glabris subtus indumento tenuissimo argenteo-lepidotis, amentis erectis subramosis glabris, fi. masc. solitariis vel 3-4-glomeratis, perigonii 5-6-partiti lobis ellipticis ciliolatis, spiCâ fern, brevior, floribus solitariis, fructibus pluribus ovoideis, cupulâ extus zonis dentatis 3-4 subconcentricis ornatademum irregulariter 3-5-nssa. § In insulachinensi Hong-Kong. — Seem. bot. fierald. p. 415, t. 92, Benth. fl. Hongk. p. 320. Castanea regia Hance in Ann. sc. nat. ser. 4, v. 18, p. 230, et in Seem. Journ. of bot. 1863, p. 175. Folia 4-8 poll. longa (interdum 14 poll, ex fance l. c), 1-3j)pl. lata, in petiolo 5-6 lin. longum angustata, nervis secundariis utrinque circiter 15, tertiaris transversis. Amenta 6-8 poli. longa, e ramulo aphylo plura, basi bractea lanceolatâ 3 lin. longâ stipata. Bractee cujusve fasciculi florum ignotæ. Spica terminalis (ex Benth.) androgyna, spicisque feminis ex axillis inferioribus. Stili 3 obtusi, lineares Spica fructiferae secundo anno maturescentes, 3-5-pollîcâres, fructibus, alternis onustae. Fructus 8-9 lin. longi, cupuld. subcanescente, interne sericeo-villoâ, glandem semipollicarem glabram diu tegente, demum apertâ. Cotyledones idricato-rimosae, ut in ultimis sp. sectionis Pasaniae et in quibusdam americanis sect. Lepidobalani.

Sectio vi. LITHOCARPUS *Miq. Ann. Mus. Lugd. bat. 1, p. 108 et 116.* — Genus *Lithocarpus Blume Bijdr. p. 526, fl. Jav. Cupul. p. 34 f. 20, Endt. gen. p. 275, Miq. !. Ind. bat. 1, p. 864 (1).*

Glandis pars involucri adnata multo major quam suj^ra libera, inde fructus pericarpium Juglandis (vertice tamen oculatd) refert. involucri coriaceum, externe pauci-zonatum. Nux ossea. Flores masc. et fern, ut in praecedentibus sectionibus.

261. Q. JAVENSIS (Miq. Ann. Mus. Lugd bat. 1, p. 171), ramis'etiam junioribus glabris, foliis e basi acut& vel subacutâ lanceolatis vel elliptico-oblongis acuminatis integerrimis coriaceis supra glaberrimis junioribus subtus lepidotulis cito glabratis, spicis saepius unisexualibus, fl. masc. saepius ternatis, bractea extern^ lanceolate lateralibus 2 ovatis duplo longiore, fructibus pedicellatis pyriformi-turbinatis zonis circularibus 4-5 demum obsoletis. § In Javâ. *Lithocarpus Javensis Blume: l. c. t. xv. Quercus varingefolia Miq. in pl. Jungh. 1, p. 12 (ex ipso auct. in Fl. Ind. bat. 1, p. 865).* Folia 2-4 poll. longa, 9-18 lin. lata, petiolo 3-4 lin. longo, nervis lateralibus circiter 12 parum subtus eminentibus, tertiaris et quaternariis reticulatis. Inflorescentia subpaniculata, ramos termmans. Spies erects, saepius 3 poll, longs, interdum androgynae (Miq.), saepius masculae lemneis inferiores, rachi floribusque cinereo-subvelutinis. Bractea inferior *Wte* lineam longâ, acuminata, caduca, laterales obtuss, subsistentes. Fasciculi fl. masc. basi dissiti, apice appronianati. flore uno (ubi 3 adsunt) superiore praecociore. Perigonium siibglobosum, 6-fiaum, lobis ovatis

(1) *Lithocarpus angustifolius* Miq. olim est species prorsus obscura, delenda, monente ipso auct. in Ann. Mus. L. B. 1, p. 118.

mllexis Stamina sdepius 12 lobis altera et opposita PX Blmnr 12 20 Antherae ellipticae?, mucronulata) glandulosa, filamentum subaequaliter distans exsertitae Pistilli rudimentum globosum, albido tomentosum Flores lem solitam in pedunculo sparsi sessiles, bractea lanceolata inenore lineam longe alba adpressis bt\h J, erecti lmeaies, adpressi, glabii Fructus junioi plongatus\* lineam obovoideus, 70lls 5 mirgim sihdentatis ut m queicubus chlamydomycetis, exteine sulnelutmus, mitimis (in Blumx\* IC ut medwcuter hg.) p\ specimenibus a cl Oudem tom ellipsoideus, 1 -1 \ poll longus, stipite 2 4 lin longo insidens ipiu umbilico dppresso 2 lm lito ubi plans libeia notatus involucrio conaceo passim exsiccatione fissus, oblique hneis 2 4 percurso, nullo (i rugosa, omnino Juglandis demum ut in ilia libeiatata Semen (ex Blumo) pendens cotyledonibus ciassis inaequalibus obovatis (\s comm i Mus Lugd • iMt flonf etliuctusacl Oudcm )

| *Species sechoms dxibiac. — Omnes ex Asui mendionah.*

260. 0 COOPERTA (Blanco fl Filip ed 2, p 303), lobis ovatis oblongis integris glandulosis, involucrio amplexu brevibus lobatis imbricatis echinato glandem conilobatam depressam omnino tegente hi Philippinis vixissimiliter Castanopsis, sed quaequam species'

263. 0 CARTORHYNCHA (Miq fl Ind bat suppl 1, p 370), innovationibus subtilissimis (squamulosis, lamulis novellis petiolulatis nevis subtus pubescentibus inmutatis adspersis, folis breviter petiolatis p basi lobulatis ad petiolum protractis ellipticis vel superioribus oblongo-ellipticis abrupte breviter angustatis in nervis firmis thutitis junctis in nervis utique 10-11 Hor , li In bumatia OLCHI Petioli 1J-2 lin longi Limbi 4-7 poll longi 2I - \ poll liti subtus pallidiores, venis seu uicium tuium distinctis Stipulae angustolineariae, petiolo breviter, caduceo H habitu Q cjitopodo, affinis videtur

264. 0 DIVARICATA (Lindl in Wall' List n. 2790), ramis junioribus sparsim pilosis, foliis obovato-oblongis vel ovatis acutis vel acuminatis membranaceis integris, junioribus supra junioribus pilosis subtus in nervis pilosis paucibus latis glabris, adultis vel labiatis, spitis tenebris velutinis, masculis e lamulis rhyssatis 2-1, androgynis superioribus solitariis, tamen masculinis ternatis, bracteis ovatis, perigonio (-) ovatis tomentosis lobis ellipticis, fl fem solitariis siliis fructu κ in Mditabann ad lavoy Queicus dicitur (astanei > (Castanopsis Nob ) ait cl mctoi I c , sed absque iruttu tigre dicitur dicendum Spicae subramosae, nunc indrogynae tamen fem ba^i spicae plumbus distinctis stylis «j divergentibus in Queicu polius adsunt Pib lamulorum et foliorum juniorum supra ramis, brevissimi, mine stellati, in nervis foliorum solitam et longioribus Rami graciles, seculo anno glabris, albidis Tolia i-4 poll longa, 12-1^ lm lata petiolo J 4 lm longo, nevis lateribus utique 9-10, ternatis et cuaternatis leuculatis, junctis saepe mucronulato, nunc obtuso vel mucronulato Pedunculi breviter, luteo-rosei, amentum 1 2 poll longa gerentes Hores misc ipicci amenti appropinquati bdsi distincti Antberae exsertitae minima Hores fem ovoidei, incani Styli J, divergentes, lineares, basi puberuli (\ s)

265.0 EvRri (Benth et (hamp. m Hook Journ 1854, p 114) tffhemma, lobis breviter petiolatis vel ovatis lanceolatis longe acuminatis mucronulatis seiratis concoloribus nitidis amentis pedunculato ramosis glabris distichis latis subaequalibus, perigonio masculis saepius 6-partito lobis petaloideis margine ciliatis, staminibus 10-12 longe exsertitis ^ In insula sinensi Hong-Kong— Benth fl Hongk p 320 Foliis 2-3 poll longa li poll lata, basi cuneata, petiolo 1-1 lm longo, suatans sub cuspidate paucis obtusis nervis petiolaribus, nervis vislateralibus utrinque 7 11 tenuibus, teitarnis vivis conspicuis Panicula masculis ramosissima amentis vugatis I^, -2 poll longis Discus fl masculis villosus Spica fem simplicis, breviter, ut masculis glabra? Myli 2-3, obtusi patuli Venis similiter (ex Benth ) 0 hssae alfinis, sed fructus ign Differt (e\ eod ) a Castanea chmensi quae cum junxerat cl Seemann

266 Q GILVA (Blume Mus Lugd bat 1 p. Job), lamulis fulvo aut nigrescentibus

tomentosis, ramis tertn anni glabratis, folns e basi acutâ vel obtusâ ellipticis vel obovato-oblongis lanteolatisve acuminatis vel acutis vel ranus obtusiuscuhs a medio ad apicem acute serratis conateis, junionbus stellato-tomentosis fulvis, adultis supra glabratis — In Japonia Folia 1-3 poll longa, 7 16 II9. lata, petiolo 2-3 lin. longo, nervis lateralibus utnnque 7-13 subtus eminentibus ad denies tendentibus, tertiarns transversis parum distmctis, quaternarns mimis opacis Stipulae anguste hneares, petiolo sequales, pilosae Ex folns a Q. incanâ Roxb. non valde diversa, sed fl etfr ignoti (v. Tam a Mus. Lugd. bat. comm)

p, *procera* (Bl. ib.), folns plerumque longionbus (2-4 J poll, longis, petiolo 2-3 lin longo) — In Japoniâ. (v. s comm ab eod. Mus)

267. Q GLOMERATA (Roxb fl Ind ed 1832, p. 640, non Wall), folns elliptic^ integns utnnque Ia3\ibus, II maso , spicis fern, elongdtis terminahbiis glomeratis, glande ovoidea glalna mtra cupulam tuberculatam semummersâ. \$ In ins. Pulo Penang Confer ad Q. lanceaeoliam
- 268 Q. GLUTINOSA (Blume Mus Lugd. bat 1, p. 304), ramulis glabns, folns elliptico-oblongis vel oblongo-lanteolatis utnnque angustatis integerrimis conaceis glabns supra lucidis subtus pallidis — In sylvis Ja\ae occid Accedit iolnsadQ Moluccani Folia 5-8 poll longa, 1 £-3J poll, lata, petiolo4-b lin longo, basi acuta vel subacuta, apice obtusiuscula vel obtuse atummdtd, nervis lateralibus utnnque 7-9, tertiarns vix distmctis, pagmd infer adultâ\*j>assim pilosâ, unde junior certe pubescens (v. ramum a Mus. Lugd bat. comm.) — Ex cl. Miq. Ann. Mus L B 1, p. 118 forsan solum folia sunt Q mdutae, quod ex comparatione foliorum autbent. nonaffirmare ausus sum.
269. Q KAMROOPII (Don piodr fl. Nepal, p 57), folns lanceolatis longe cuspidatis spinuloso-serratis utnnque glabns vindibus basi rotundatis In Nepali a ad Smnagui. An Q annulatae jungenda?
270. Q. OBLONGATA (Don prodr. fl. Nepal p. 57), folns oblongis mucronatis spinuoso-dentatis basi cordatis supra glabns subtus flavescenti-tomentosis \$ In birinagur, Kamroop.
- 271 0. LACERA (Blume Mus. Lugd. bat, 1, p 306), ramulis novellis fusco-velutinis, folns e basi cuneatâ mtegerimâ oblongis acuminatis mciso-laceraUs (hcinnns setaceo-acuminatis vulgo maequahtei serratis) chartaceissupia glabnuculis subfus pubescentibus — In Japoniâ Q. Catesbaei Midi, aifims, ex cl. auot. Folia 2-3J poll longa, 9-18 lin. lata, petiolo 2-4 lin. Ion Jo.
- 272 0 LEVGATA (Blume Mus Lugd bat 1, p. 304), ramulis glabns, fohis e basi acutd oblongo-lanceolatis longe acuminatis integerrimis vel ad apicem plerumque repando-crenulatis subconaceis glabns. — In Japqniâ ubi Ookasi vocatur. Folia 5-7 poll, longa, 1J-2 poll, lata, petiolo 6 12 lin. longo, nervis lateralibus utnnque 11-13, tertiarns distmctis, paienchymate opaco. (v. fol a Mus Lugd bat comm )
273. Q. LITIORUIS (Blume Mus. Lugd bat 1, p 303), ramulis glabns, folns oblongis vel oblongo lanceolatis utrmque angustatis integemmis chartaceis glabns — In mantimis Javae austrahs Folia 4^6] poll, longa, 1J-2 poll lata, petiolo 2-3 lin longo, siccata palhde fusca, ncivis lateralibus utnnque 9-12 arcuato-patuhs reticulo denso connexis — An forma Q spicatae\* ex Miq. Ann Mus Lugd bat 1, p. 118.
- 274 0 MARGINATA (Blume Mus Lugd bat. 1 p 304), ramulis novellis angulatis tomento copioso fulvo detersibili vestitis, ramis glabns, folns e basi acutâ elliiitiLO-oblongis vel oblongo-lanceolatis obtuse acuminatis integris margine subundulatis ^adultis) glabns subconaceis. — In Japoniâ. Q. glabra herb. Buiger (non Th). holia 3-7 poll, longa, H-2 } poll, lata, petiolo 6-18 lin. longo, nervis laterahbus utnnque 8-13, tertiarns et quaternarns pellucidis venisque ultimis praterea reticulatis opacis Stipulae circa gemmam anguste lineares, pubescentes, 3 lin longas. (v ramum a Mus. Lugd. bat. comm )
275. Q MURICATA (Roxb fl Ind ed 1832, v 3, p 635), novellis pubescentibus,

- loLus subsessilibus oblongis angustis subacutis internis, amentis , spicis iemineis axillanbus iolia, aequantibus, cupula turbmdti aculeis brevibus non ii^ulis concentiitis muncaU, glandt teilia paile cupulam superante \$ In msuld Pulo Ppnang Folia 4-> poll longa, 1 } poll lata Verticjlli aculeorum (squamae<sup>9</sup>) plunmi — An sections Cyclobalani \* an Pasaniae, versus Q Sundaicam, Koithalsn, etc.?
- 276 Q MYRSINEFOLIA (Blume Mus. Lugd. bat 1, p J05), lamulis glafenusculis, loins e basi acuti hncoelatis longe acuminate indd medium usque ad apicem glanduloso-serrulatis glabns — In Japom i Folia 2-4 poll loii^i, 7-12 lin lata, petiolo 4-6 lm longo nervis lateralibus utnnque 9-12, terrains etquateinarus reticulatis opacis, venis pragteiea pellucidis reticulatis, denticulis giacilibus brevibus, pagina infer pallidiore (v lol, comm a Mus Lugd bat)
277. 0 NUROPHYLLA (Miq fl Ind bat suppl 1, p 351), glabra, folns brevi petiolatis c basi ol)iusa \el rotundata ovato ^el obverso-oblongis acumine latiusculo mucronuldto ierminatis vel supremis obtusiusculis mtegeinms subpprgamaceis costis utrmque 14-15, fl et lr. ign. — In Sumalra occid Petioli '2 lin longi Limbi 4-10 \ poll longi, 2-4 poll ldti Stipul® 3 lm longde, line in laiceolatdB Species alfinilatis dubiae, quani cl auctoi nuper in Ann Mus Lugd. bat 1, p 104, non memoravit.
- 278 0 OXYRHYNCHA (Miq fl Ind. bat suppl 1, p 347), innovaLionibus senteo villosis, loins ad apices lamulorum subveiLicillato-confertis petiolatis e basi attenuata decur rente lanceolato-oblongis vel elliptico-lanceolatis longe acute saepe subialcatim acuminatis integeirimis adullis ^labratis, supia luudis sublineatis, subtus caisio-glaucis, coslis 1J-16, fl li . In SumatiA occid Habitus Q lineatae, piobab ex cl auct ad sect C^dobalani reieienda Petioli 4-12 lm. longi Lirabi 3-7', poll longi, 8 lin 2 poll lati, firmiter char-tdCPI.
- 279 Q PINANGA (Blume Mus. lugd. bat 1, p 303), ramuhs gldbns, folite elliptico-oblongis lanceolatis\e basi acutis apice obtusp acuminatis integernmis membranaceis glabns — In sylvis Ja\ae occid. l<olia4J-8' poll lon#a, 1J - 1J poll, lata, pculo 6-12 lin longo, nervis lateialibus utnnque 9-12 teitidins transversis ot quaLeinanis in parenchymate tenui opacis Cl Miquel Ann Mus Lugd. bat 1, p. 107 hanc suspicalui Q glabiae specimen cultum osse, quod ex loins d Blume ohm comm non admittendum, proptci loimam># neivos latciales pauciores et consisteiitiam (v. folia.)
- 280 0 > POIYSTACHYA (Wall ' list n 2789), ramis jimioiibus tenuissime puberulis cito ^libiatis, loins e basi lon^e ingustatL vel acuti oblongis vel oMOvato-oblongis dcuminahs interns adiiltis glabns subtus pallidis, amentisplunmis prectis piniculam pi ibenliluis cineico-\elutinis, fl masc spaisim fasciculitis, lasciculis j-1-fions, biactea pi rcipuA fasciculi o\ato-acuti floie brevior, peii\_0nn i-6-paititi lobis ellipticis externe velutniis, il lem . . 1 In Taong Dong legni A/a?. Castanca > ex Wall , id cst Castanopsis nobis, sed loha el nifloresc niasc dequo jure Oucicus prope 0 spicalam ant Q I w^ckn. Sine fl lem el lruclu genus diibium remanet Pubes lamulorum minutissima Folia 'i-Spoll lon^a, 2-JJ poll lita, j)Cliolo V7 lin longo, chaitacea, nervis laleialibus 11-1J, leitiain^ tians\eisis pirallohs acumino icuto \el conlundato, jumoia vens subtus tenmtpi \eliilina aduha niludum subtus m nei\o centrail sub\elutina, paicnchymate mtei nenos albido Amenta 3-6 poll longa BracteaelateralestasLiculoriiniM\ perspicuae Stamina 10 12, longe (xserta, anthens nnnimis, sub^lobosi\*> Pulvinus globosus, alhus, pilosus m centro flons (v s )
- 281 Q sissiLiFOiu (Blume in Mus Lu^d bdt 1 p iOj), lamuhs no\ellis subtomntosis loln^ subsessilibus e basi angustatft lanceolatis acunnnatis inte^(nimis siibconaceis ^labns cicbip icticulati\*. — Veiisimihter e bind in Japoniam uitiorlucti Folia >' -4 poll , K 14 lin lata ppvivi^ lateialibus utnnque 7-11, paiuni piomniulis terhains cicbustt qualeinanis leticuldtis distinctis (v tolium a M^\* Lu,d bat comm )

†\* *Species nomine tantwm cognilx, aul fclcrphus et fructibus ignotis admodum dubiae. Fere omnes gcrontogex aut in hortis cultx (1).*

- Q. AQUIFOLIA Kotschy! it. cilic. n. 402. Rami fqliaque non differunt a Q. cociferà foliis majoribus quam vulgo, vel a quibusdam speciminibus Q. calliprinos, sed flores et fructus ign. (v. s.)
- Q. CANDIDA hort. (ex Steud. nom.). — America sept.
- Q. CAPPINEA Kotschy! it. syr. 1855, n. 98. — In montibus >prope Damascuni. Ramuli puberali. Folia caduca. Petioli 1-3 lin. longi, pubescentes. Limbi ojjlongi, 12-20 lin. longi, 5-10 lin. lati, utrinque obtusi vel acuti, nervis lateralibus utrinque 9-10, crenati, crenis callosomucronulatis, superne glabrati, subtus parce stellato-pilosi. (v. s. in h. Boiss.)
- Q. CAUDATA Lindl. ex Wall, list, n. 2787. Hab. in Sillet. Forsan Castanea? ex Wail., id est Castanopsis?
- Q. COOKII hort. (ex Steud. nom.). — Hispania:
0. CUNEATA Roxb. ex Wall, list, n. 3732. — Patria ignota.
- Q. DENTOSA Lindl. in Wall list, n. 2775. — E. Sillet. — Synonymon 0-annulate Sm. (quacum jungit Q. semiserratam Roxb.) ex cl. Hook. f. in litt.
- Q. EXONIANA Poir. diet, suppl. 2, p. 225. Ch&ne d'Exester Bosc mém. p. 28. — Culta olim Parisiis.
- Q. FALKENBERGENSIS Booth (ex Steud. nom.). — Hannov.
0. LAXIFLORA Lindl. ex Wall, list, n. 2774. — In Nepaliá et Kamaon. — Ex cl. Hook. f. in litt. synonymon esset Q. annulate, quacum jungit Q. semiserratam.
- Q. LEZERMIANA Poir. diet. 2, p. 226. Ghdne Lezermien Bosc. m6m. p. 24. Olim culta Parisiis.
- 0- LINDLEYANA Wall, list, n. 2782. In montibus Avae.
- D. LOBULATA Sm. in Abbot (ex Steud. nom.)
- Q. MITIS Banks herb. Lowe (ex Steud. nom.). E Maderà, sed deest in catalogis meis mss. plant, mader. cl. Lemann et Heer.
- Q. PHELLODRYS Link (ex Steud. nom.)
0. RICHAHDII Bosc mem. p. 22. Ex Hispaniá attulit Richard; colebatur in horto paris.
- Q. SQUARROSA Kotschy! it. 1855, n. 100. In jugis infer. Antilibani. Ramuli puberuli. Folia annua. Petioli 2 lin. longi, puberuli. Limbi oblongi, 1-2 poll, longi, 6-10 lin. lati, basi obtusi vel subcordati, pinnatifidi, lobis utrinque circiter 7 ovatis acutis vel acuminatis subulatis, utrinque sparsim stellato-pubescentibus. (v. s. in h. Boiss.)
- Q. SUBEROIDES Rafin. (ex Steud. nom.). Sicilia.

*Species exclusse.*

0. ABELICEA Lam. diet. 1, p. 725 (pluribus div. in synonymia mixtis) = Celtis? ex Poir. diet, suppl. 1, p. 756.
0. ARGYROPHYLLA Wall. = Castanopsis argentea.
- Q. ARMATA Roxb. = Castanopsis tribuloides.
- 0- CRETENSIS Lam. = (ex Steud. nom.) Planera Abelicea.
- 0- DUBIA Lindl. = Castanopsis Indica.

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(1) Nomina quaedam hortulanorum vel pauca manifesto synonyma specierum supra descriptarum in bteudel nomencl. enumerata consulto omisi, ut et recentiora ineaita cum fructibus, saltern cum glandibus, e Cypro vel Kurdistan, a Kotschy communicata, quae omnia synonyma videntur. — Numeri sequentes ex imperf. statu speciminum in herb, meo non definiendi : Wall, list 9090; Griff, in herb. East. Ind. comp. 4446, 4459, 4485.



Q RHAMNIFOLIA Miq = *Castanopsis rhamnifolia*.

Q SPHACELATA Bluine Mus. L. B. 1, p. 304 = Euphorbiacea ° (fl. et fr. ign.)  
ex Miq. Ann. Mus. Lugd. bat. 1, p. 118.

11. CASTANOPSIS *Spach hist.veg. phan* II, p. 185, *Alph.DC. in Seem., journ. ofbot.jun* 1863, p. 182 (1), *Miq. Ann Mus.Lugd.bat* I (1863), p. 103, 118.  
— *Quercus* &ubdn. *Castanopsis Don prindr. ft. ncp.* p. 56 {non sectio *Ca\ta-nopsis BL*}. — *Castaneae ssp. Jloxb., Lindl., Blumej He.*— *Callaeocarpus Miq. fl. lad. bat.* 1, p. 868.

Flores masculi in amento fasciculati, bracteis cincti. Perigonium regulariter 5-b-lobum. Stamina numero loborum saepius duplici; filamenta yracilia, elongata; anther\* mirumae, biloculares. Pistilli rudimentum globosum, hberum, hirsutum. Florc\* feminci intra involucri squamosum 3-1. Periyomum 6-partitum, lobis obtusis, biseriatis. Styli 3, rarius 3-5, lineares, Jobis externis per/gonii oppositi. Ovarium 3-loculare, 7 loculis biovulatis. Ovula ex angulo inferiore hemianatropa (ex G. tubuloide et G. chrysophylla obs.) (2). Fructus ex involucri et nuculis 3-1 inclusis constans. Involucri sublobosum, aculeis so? pi us ramosis extra squamas tarde ortis undique echinatum, rarius tuberculis subconicis cristatum, diu clausum, tandem irregulariter fissum vel mdehi'scens. Nuculae cartilagineae, hberae. Semen singulae nuculae abortu unicum. Cotyledones crassae, farinosae, plano-conexa 3. Radicula supra. Ovula abortiva.... Arboros Asiaticae vel Californicae, habitu et inflorescentia. Quercuum sect. *Pasaniae, Chlainylobalani, Lithocarpi, fructu Castaneae, sed ovario 3-loculari. Maturatio biennis.*

Sectio i. EUCASTANOPSIS *Alph. DC. I. c.* — Involucri fructus dense aculeis echinatum, dehiscens vel indehiscens.

Folns acute serratis.

1. C. INDICA (Alph. DC. I. c.), ramis junibus et inflorescentia fulvo-elutinis, foliis ellipticis oblongis basi saepius obtusis ciliatis acutis remote serratis adultis supra glabris subtus fulvo-pubescentibus, fl. masc. in amento elongato erecto septuaginta, bracteatis, extensus fasciculi ovato-acuta, lateralibus brevibus oblongis, perigonum 6-partitum lobis ellipticis utrinque pubescentibus, apicis femineis amenta subaequantibus; fl. tom. in involucri saepius solitaneis, fructibus sparsis echinatis, aculeis subulatis praecipuis diffusis nec minus pilosis minoribus uterisque glabris rectis. 5 In Nepalia (Wall.), *Sillel* (Koxb Wall.), *Khasia* (Hook. f. et Th.) et *Chittagong* (Lindl. in Wall. n. as. i. r.), *Jiangahi* or (Griff. 4U1, 4445) (*astinea Indica Roxb. II Liu! et.* 183\*2, \*3, p. 643, Wall, i list 2761, *White* t. 17 *Quercus* <ul>a Lindl. in Wall, list n. 278b (fid. Hook. f. in list) Folia 4-6 poll longi, 2-3 poll lata, petiolo 4-7 lm. luteo-elutino, nervis lateralibus utrinque 14-16 tertiusque subtus eminentibus Stipulae ovato-acutae, dorso seuceae, 2-3 lm. longe Spiculae nascuntur et lem. in mine demum ex axillis superioribus Flores hierinaphroditi saepe arisunt, o' *Ko* in righ, siliinihiis tunc mchisis Stamina 12 in masc. et heim. Ovula interdum 2 mlra involucri, ov. met Aculei v trunco luevi communi divergentes, pube adpressa. Fructus iniliis cistuncis ul- ufi i uinor (\. s.)

\*\* Folns integris (in endem ramo) paucis latibus.

2. C. *cinnsophylla* (Alph. DC. in Seem, *journ.* 1863, p. 182), arbor, folns late lanceolatis acummatibus basi acutis mucronatis subtus junibus pra-

(1) In manusc. jam anno 1860 scriptum et in div herb adnotatum

(2) *Owila* pendentium in C *Tun* uinit, P *Hlume* fl. Ja Cupul. t. \* / an ei- IOIP piclons Flores fem, jumois m barbarus non liequentes

sertim aureis lepidotis adultis tarde tuscescentibus, stipulis ovato lanceo-  
latis, amentis folio dimidio brevioribus densifloris, fructibus condensates dense  
echinatis ^ In Oregon Castanea chrysophylla Hook Journ 1843, p 496,  
Bot rmg \*t 49o3 Folia perennantia. 4 "> poll longa, supia dense vinda,  
subtus (ut rami juniores) aurea Stipulae caeruleae spicae nunc (ex IC) andro-  
gynae Styli 3, erecti, subdivergentes, glabris, hinc Fructus secundo anno  
maturescentes

P, *minor* (Benth. in Hartw. n 1967), frutex, foliis minoribus basi acutis  
vel obtusis 3 in ^lilorniae mont Santa (ru/ Folia 1 2 poll longa, 4-8  
ln lata, petiolo 1-3 lm longo> junioria utnque lepidota, aquamulis  
demde caesulis sed parenchyma subtus adhuc aureum, senes fuscen-  
sentes Stipulae dm persistentes, Imeam longde Amenta pubescentia Brae-  
teae minores, lanceolatae, interdum intra fasciculum latentes Spicae andro-  
gynae Flores fem fasciculati, biacteis et squamis late ovatis cmcti  
Pengonium basi excepta pubescens, lobis 6 ovatis biserratis Stamina  
saepius abortiva Ovula in singulo loculo e basi ascendente Involucra  
plura in massam echinatam concreta Aculei e trunco communi lepidoto  
puberulo divergentes Noces (ex Benth) parvae, una fere matura, semie-  
mersi, subgloboso-tinetri, ex specimine h Boiss 2 J lm longae, 2 lm  
latae, palidae, glabrae, spinis involucri patentis superatae (v s in h  
DC et Boiss)

- 3 C CONCINNA (Alph DC 1 c), ramulis m florescentiaque incano tomentosis, foliis  
e basi acuta oblongo lanceolatis acuminatis mtegemmis conaceis supra glabris  
subtus incano-tomentosis, amentis densifloris folio subaequalibus, bracteis elip-  
ticis flore masc duplo brevioribus, pengonn 5-6 partiti lobis ellipticis pilosis,  
spicis fem brevioribus, fructibus globosis dense echinatis aculeis e trunco com-  
muni divergentibus acutissimis 5 \*n msula Sinensi Hong-K^ng Castanea con-  
cinnna Champ et Benth m Hook Journ 1854, p 115, Seem bot Heald,  
p 413 t 86 Folia \ poll longa, 9 lin lata, petiolo 2-4 lin, nervis setundaris  
utnque 12-15, venis inconspicuis Stipulae subulatae, senceo pilosae  
Amenta plura, 1^2 poll longa Spicae fem paucae, terminatae Styli 3, linea  
res, obtusi Fructus demum vilvatim hians, nuce glandifera, depresso glo-  
bosi, unica, pils adpressis caducis conspersa, involucrum non superante
- 4 C COSTATA (Alph DC 1 c), ramulis junioribus et niflorescentia furfuraceo-  
tomentosis, foliis e basi acuta vel obtusis, ellipticis vel elip-tico-oblongis vel  
ovato-ellipticis acuminatis vel contundentibus conaeis supra glabrescentibus sub-  
tus sordidae ochraceis stellulato tomentosis, amentis, spicis femineis folio  
subaequalibus, iasciculis florum sparsis 3-1 floris, bractea inferiore ovato-  
acutissima, fructu § In Sumatra Castanea costata Blume' Mus Lugd bat  
1 p 284 Castanea brevicuspis Miq fl md bot I, p 866 et Castanea specta-  
bilis id lb monente se ipso in Mus L B 1, p 120 Rami validi Folia 3-9  
poll, longa, 1-4 poll lata, petiolo 3-6 lin longo velutino, nervis hteribus  
utrumque 11-17 validis, tertiam propter indumentum vultu conspicuis Spicae  
3-5 poll longae, rigidae, erectae Flores fem cinereo-tomentosi Styli 3, breves,  
hinc, involucrum paulo superantes (v s a Mus Lugd bat comm)
5. C TUNGURRUT (Alph DC 1 c), ramis junioribus stenuiter fulvo-velutinis, foliis  
e basi rotundata vel acutiuscula ellipticis vel elip-tico-oblongis acutis vel acu-  
minatis mtegris supra glabris subtus stellato-puberulis demum glabris, spicis  
pubescentibus, floris masc soctanis ternatisve, bracteis ovato-acutis, pen-  
gonn 6-partiti lobis ovato-ellipticis pubescentibus, fl fem solitams spares,  
fructibus echinatis globosis monospermis, aculeis extremitate excepta adpre-  
sentes longitudine videntibus simplicibus aut a basi divisis § In Java (Blume'  
Zoll n 780) Castanea Tungurrut Blume i Bijdr p 52o, fl. Jav Cupul p 42,  
t 22, non Wall Folia 2}-5 poll longa, 1-2] poll lata, petiolo 4-6 lm longo,  
subconacea, subtus flavescens-cinerea, in nervis praesertim junioribus puberula  
Spicae foliis saepius aequales aut longiores Flores fem saepius cum staminibus  
effortis inclusis (Bl) Fructus omnino castaneae, nuce tamen unica ex flore  
unico Castanea Tungurrut Wall list 2763, e Penang, div sp videtur ex spe-  
cimine meo propter folia mmora petiolum breviora et palinam inf foln

magis iomentosam, sed mihi repugn species e\ imperfectis specim con-  
dere (v s)

- G G BAUANA (Miq Mus Lugd bat 1, p 120), ramulis peliolis folnsque subtus praesertim in nevis pubens, folns e basi acutd elhptico vel sublanceolato-oblon<sup>n</sup>is latiuscule acummatis Integernmis nevis lateralibus ulnnque 10-12, spicis fern folio subbievionbu., fiuctibus ovmdes squamis conicis acutis patentibus spinisjue interjectis glabns £) In Moluccaium msula Boeroe (Te\smann) Petioli circiter 6lm longi Limbi 3 1 -b poll longi, 1 \-2j poll. Ūti Affinis C. Tungunut
- 7 C JAVANIGA (Alph DC I c), ramulis junionbus subtomenlosis, foliis e basi acuta vel angustatd oblon<sup>n</sup>is vel oblongo-ldiice >ldtis icuminatis integris conaceis junionlms utunue pilosis, ddultis supra ^hbns subtus ochiaceo-sublepidotis demum glabiatis, spicis ochraceo-canescensibus, fl misc solitanis buns tf riusve, biacteis late semi-ovatis obtusis, pen<sup>^</sup>onn b pirtiti lobis ovahbus extus caescentilms, fl fern spaisis solitdius, fiuctibus eclnnatis globosis monospermis, dculeis extremitate excepti alpiesse senceis subulatis fasciculato-ramosis J <sup>^n</sup> \*aAIE occid sjlv<sup>s</sup> altionbus Castanea jdvanica Blume' lujdr p 52<sup>^</sup>, fl Jav Cupul p 44, t 23 Folia 2-4 poll Ion<sup>0</sup>'a, 1-1<sup>^</sup> poll lata, petiolo 3-4 Un longo, saepe Nilcato-recurva et conduplicata, pilis longiusoulis solitanis in folio adulto raio et non nisi in nervo cent tali videndis Stipulae petiolo subbiewoies, oviles, obtusae, e\tus seiceae Spicae foliis circitei aequales, masculae, bise\uales ^el femineae Fructus polliceto latus (v s coram a Mus Iu<sup>d</sup> bat)
- P, *montana* (Blume' 1 c t 24), folns eiga longiluduiem paulo ldtionbus JnJava — Cdstanea montaiu Bl bijdi 10, p 526 (v s)
- 8 C CVSTANICRP4 (Spich hist veg phan 11, p 18), rdruis junionbus pubescentibus, foh<sup>^</sup>maximis e basi subacut i oblonnis vel obovdto-oblon<sup>^</sup>is dcuminatis mtegtis, junionbus , ldultis suprd ghbns sublus neivo pilosulo caeteium<sup>^</sup>hhris, tl <misc , spicy> lem pubescentibus, fbnbus teiins vel ianu\$» soKknis altejps dissiiis, hiacleA mltnoie lanceolati acuminati pengonum<sup>^</sup>ji ^ ta in\oluc[o maturo glohoso dense e lunalo demum fisso § In G (in<sup>^</sup>b Hook f et Ih) Queicus ta<sup>^</sup>tamcaipa Ko\b pi. Corom 3, p 296. Wi<sup>0</sup>il it t 769 Gist mei Ro\lmr<sup>^</sup>hn Lindl in Wall pi as. rdt\* 2, J t H o o k t et Hi' exs Folia nunc pedilia, saepius 8-10 poll longaj\*3|5 m <sup>^</sup>a > P<sup>etl</sup>o 4-5 lin lon<sup>^</sup>j pil jsul), memlif nacea, nervis secunduiw uinnSe 1U ll,teitiansreticulatispelluci(lis pilis m neno primano paucis solitanis%pica fern ex specim meJ 4 poll lon<sup>r</sup>'a Penjonium lobis obtusis G(an sempei ') Stamini stenha lobis alteina etopposita Styli3-4, eiecti, lineares, basi pilosuli, ovuio asquales Fiuctus (e\ it) rufi, cum involucro 12-13]lm lati, aculeis lon<sup>^</sup>is (\ s ad Hook f coram.)
- K\* < ilvsThix (Alph DC 1. c), ramis junionbus adpiesse pibsis, folns e basi obtusd \el acutius uli ellipticis oblon<sup>^</sup>isvc tcmnuti-. Inlc<sup>^</sup>ns apicem veisus Jiiteidumundulato dentatiscoriaceisjunionbussuhtu\*. fulvo tom<sup>^</sup>ntosis,ddultis subglal>ntis, amentis , Iructibus id apicem pedunculi ngidi paucis ^lobosis involucio spinoso dense echinatis aculeis a basi iamosis linean-acummatis acumine excepto senceis 5 In mont Indi\* prov Khasia, alt 2-3000 ped — Miq \nn Mus L B 1, p. 119 Castanei Hystnx Hook I et Hi' (non Quercus Hystux Kortb ) toha in spe<sup>^</sup>imine unico 3-4 poll longa 10-15 lm lata, pe holo 3 lm longo, acumine ssepnis obtuso, nevis hterahbus utun<sup>^</sup>ue 10-11, lertidius vix distinctis, adulta subtus quasi foveolata ev indumenti fla\escens vestigns Fiuctus polbcm lati, clausi, aculeis undique tecti Aculei <sup>r</sup>>-6 lm. longi (v s in h. Boiss )
- 10 G. TRIBULOIDES (Alph DG 1 c; , ramis [unionbus et infloiescentid fulvo-\elutinis, folns e basi saepius acuta laiiceolatis vel oblongo-lanceolatis acuminatis pilosjs, adultis gtabratis, spicis elongatis erectis unisexualibiiB, fl masc integns, junionbus supra glabns subtus passim pilis adpiessis solitanis ternatisve, bracteis fasciculi ovato-acutis uilmoie majoie, fl lem teniatis intra bracteis obtusissimaa, fructibus ovato-globosis involucio spinoso echinatis aculeis e basi latuiscui i anjustatrs<sup>^</sup>cuh\* rectis aut subiecums apice

excepto velutinis simplicibus aut a basi divisis demum dislantibus et saepe cadentibus. 5 In Nepaliâ (Wall.! Buchan.), Sikkim et Khasia (Hook, f. et Th.), Chittagong (Roxb.). *Quercus tribuloides* Sm. in Rees Cycl. m. 13, Wall.! exs. olim. *Castanea tribuloides* Lindl. in Wall. pi. As. rar. 2/ p. 6, Wall.! list 2765, Hook, f. lex. *Quercus armata* Roxb. pi. Corom. 3, t. 296, Don prodr. fl. nep. p. 56, Wight ic. 770. *Quercus ferox* Roxb. fl. ind. ed. 1832, p. 640, Wight ic. t. 218 (Roxburghiana). *C. armata* Spach hist, pi. phan. 11, p. 185. *G. sphaerocarpa* in Wall. pi. As. rar. 2, p. 5. *Castanopsis armata* Miq. Ann. Mus. L. B. 1, p. 119, sine descr. Rami cito glabrati. Folia 3-4 poll, longa, 9-18 lin. lata, petiolo 3-4 lin. longo, chartacea, nervo subtus tarde glabrato, acumine (in eod. ramo) acutissimo vel obtusato. Gemmae sericeae. Spies folio longiores, fasciculis florum dissitis Bracteae fl. masc. perigonio 6-partito breviores. Fructus 8-10 lin. latus. Involucrum primi anni inerme, seritio valde echinatum, aculeis tandem fere deficientibus (ruptis), irregulariter dehiscens, saepius monocarpum. Aculei in fructu maturo magis distantes, ex ic. Roxb. et Wightii et uno e specimine Khasyae a cl. Hook. comm. 2-3 lin. longi, in aliis 2-4 lin. (v. s.)

11. *C. ARGENTEA* (Alph. DC. 1. c), ramis junioribus glabriusculis, foliis e basi acutâ vel obtusâ oblongo-lanceolatis acutissime acuminatis integris glabris subtus pallidioribus, spicis fulvo-velutinis erectis unisexualibus, glomerulis masc. sparsis 3-1-floris, bracteis ovato-acutis puberulis, perigonii 6-5-partiti lobis ovali-oblongis, fasciculis iem. sparsis 3-1-floris, bracteis ovato-acutis puberulis, perigonii 6-5-partiti lobis ovali-oblongis, fasciculis fern, sparsis 3-floris squamis ovato-rotundatis, fructibus echinatis globosis 3-1-spermis aculeis extremitate eibepta adpresse sericeis longitudine variantibus simplicibus aut a basi divisis. 5 In Java et ad Rangoon regni Pegu (Wall.!). *Castanea argentea* Blume 1 bijdr. 10, p. 525, A. Jav. Cupul. p. 40, t. 1, Moritz! pi. jav. exs. 807. *Quercus* (*Castanea*?) *argyrophylla* Walhl list nJH88 (ubi gallae globosae? saepe adsunt). Folia 3-7 poll, longa, 1-2 ^ poll, lata ^ et iolo 4-10 liri. longo, subcoriacea, subtus fere argentata, nervis secundu ^ uis subtus ^ alidis, tertiariis reticulatis. Stipulae lineari-lanceolatae, 3-5 lin. ^ ftgse. Sp. J. ^ Bl. legit, variabiles, saepius folio sublongiores, nunc breviores. Fructus ^ echinatus, pollicem et ultra latus, spinis dense acervatis. ^ in. longis, varie flexis. (v. s.)

p, *Martabanica*, petiolis brevioribus. — Ad Amherst ~~Castanea~~ *banica* Wall.! list 2764. Fructus simillimi. Flores ignoti ^ HBijHma: petioli paulo breviores, 3-4 lin. longi. (v. s.) ' ^ ^ ^ . " w .

12. *C. ECHIDNOCARPA* (Alph. DC. 1. c), ramis junioribus ^ labris, itoliis e basi acutâ vel subacutâ oblongo-lanceolatis acuminatis integris vel apicem versus 1-3-dentatis junioribus subtus tenuiter puberulis adultis cito glabratis, amentis... spicis femineis folio aequalibus, floribus solitariis, bracteis rotundatis, Fructibus globosis cinereo-velutinis monocarpis, aculeis conicis acutis aib-sparsis brevibus simplicibus extremitate glabris echinatis. ^ In montibus Khasiae alt. 3-5000 ped. *Castanea echidnocarpa* Hook, f. et Th. ined. in h. Boiss. *Castanopsis echinocarpa* Miq. Ann. Mus. L. B. 1, p. 119. Folia plerumque 3 poll, longa, 8-12 lin. lata, petiolo 4 lin. longo, subcoriacea, nervis lateralibus utrinque 8-10 tertiariis minimis reticulatis, acumine acutissimo vel (in eod. ramo) obtusiusculo, denticulis (ubi adsunt) ultra medium subacumine sitis. Spicas fem. rectae, secundo anno rigidae glabrae. Fructus alterni, plurimi, in specimine nondum maturi, 6 lin. lati, aculeis J-1 lin. longis, rectis aut subrecurvis, subverticillatis, basi praecipue inter verticillos segregatis. Styli 3, breves, involucrum vix superantes. Ex aculeis conicis brevibus accedere videtur ad sectionem *Callisocarpum* et tamen species *C. tribuloides* proxima. (v. s.)

Sectio 11. *CALLISOCARPUS* Alph. DC. in Seem, *journal*. 1863, p. 182. — Genus *Callisocarpus* \*Jffg. > ^ ant. *Jungh.* 1, p. 13, *fl. Tnd. bat.* 17 p. 868 («awl. syn. <sup>sci</sup>). *Ann. Mus. L. B.* 1, p. H8.

Involucrum fructus. globosum ^ in 4 dehiscens?, nuces coriaceae 3 continens, tuberculis subconicis cristato-agriga HI ^ er tres areas nunc dispositis extern\*

instructum (Miq fl. Ind Jn.t), si\e (iciobus tnbu piominontionbus cnstifeus, cnstis baud dltis oblique horizontaliter pei series dispositis, eaium tuberculis ovab-conicis broMbusobtuis (e\ Miq pi Jung\h) lubpicula mvolucn proxima iculois praesentis gpneris Mdentui, nee squamfs Qupituum

1) C SUMATRANA (Alph DC. 1 c), ramulis junionibus glabns vel stellatopubens cito glabrescentibus, loins e basi acuta ellipticis vcl elliptico oblongis acutis \ol ol)tusatis intgeiirais conaceis adultis omnino glabns supia mtidis floiibus mascuhs . , iemmis in dins spicis teinatis, fructibus subglobosis i-sppinns evtus tubertulis subLOinci? ci lstato-aggre^atis instructs v5 In Sunntia (alhocaius Sum man i Miq fl 1 c Iolid (ex Miq pi Jun^b.) 4-6 poll longa, 1-J-2 4Milgo 2 poll lata ^picae lemma? 4-5-poll , flonuu iascicuhs lemotis. Biactea sub iasuculo ovata, conacea Bracteolae iasciculum circumdantes, eo biewoies, alias pluies, angustiores, linearies, pilosulas includunt Moies snif?uli bi itleohs exilibus stipati Pengonium puberum, oic denticulatuin Ovunun J-loculaie Stigmata 3-2, teretia, obtusa tiuctus polhem ciassus Nuculae uistaneiloimes, ovoideo-compresscE, unà \ulgo majoip, pencaipio pilosulo, basi deiaso Cl Miquel, seio (fl Ind. 1, p 868), Castaneam gloiuei itam Blump, nco non Queicum glomeiatam Roxb et Q glomeiitam Wall linqiiam synonyma hie adduxit, sed Illae, quaium iructus non \idit, \r iisiiniliis ad Quercum lancedeloham et Q. glomeiatam Roil) iclelendap videntui

14 C RHAMNIFOLIA (Miq fl Ind bat suppl 1, p 3->3), novellis et folns nascentibus subtus furrurc slollito pulxiulis dcinuin gl ibioscontibus, loins c Insi steus \H tiolliui )i( v( \bi >li ict\ (Uipticis J)ip(\ .icuininatis icuminc mucionalo supra nitulis sublus pjlhdis, utioquo laUre 7-8-costatis fiuctibus \im in<i- quilat(io-obo\oi(lpis undiqip piocessibus bievibus bu vi-pirsmaticis albido-toiuntrllis umiiCtitis dassis uinis, glante uincà ft In Sumatra austiah pt OLCd luc ^ B Jlinca (Miq 1 e d Ann Mus I B 1, p. 118). QUPICUS rbannnoliaMfq fl Ind bit 1, p 8)i. Polioh 2 1 lin longi Lunbi \ 4 poll longi spicaj IPHI floipntcs 2-J J poll longac, urnmiales, masc giaulps, stnctae, pirnculato-iamosae. Pengonium masc 6-parlitum, 12-andium J disco lalo **tomentoso**

### *Species dubia.*

OurBCUS COOPERTA Blanco, sub Quercu, in sp dulms icicti

III ^AS^A^A^ \ Tnurn tnst p 584, t 352, Malpighi anat t 'A, Grrln fruct 1, t. 37 (in lam ill t IHitorata), Turpin in Cnaum fl mid 2 t 112^112 bis (in Ihct sc nat itirata) ^ee<i pin in den, (1 germ jasc i cum ic op/, femaout atlas elem p 201, Aqardh f thcor t 13, f 10 et U [di omlo) — Kigi sp lmn <jin id 1, n 728

Flores mascuh in amentis fasciculati, saepius ternali, bracteis cincti Pengonium saepius 6-partitum, regulare. Stamina 10-20 (saepius<sup>9</sup> 15), fihmentis exseitis praciibus, anthers minimis subglobosis biloculanbus. Pistilh ludimentum nullum Flores feminei intra mvolucrum plures, ssepius 3, nunc solitaiu Ovarium hgeniforme, inferum, soepius 6-loculare, extus intusque senccum, lobis saepius 6 bisenatis ptngonii coronatum Ovula 2 m singulo loculo ab angulo supenore pendentia sursum anatropa Styli totquot loculi et lobi pengoniales, prior bus suqernositi, postenonbus oppositi, hneiies, acuminati, exscrti, ngidi, basi pubescentes Fructus ex in\olucro accieto, globoso, aculeis prapter sauamis donato, demuni 2-4-partito, et nuculis (vel nucula) cartila^ineis inlusis hberis constans Semen intra singulam nuculam abortu unicum, ovula aboitiva prope verticem gerens, ranus semina 2-3, panetibus membranaceis tune segregate Cotyledones crassae, farinose, extus undulato-ruminata, intus undulatae, adpressae Radicuh supera, intra cotyledones

inclusa. — Arbores in hemisphaerio boreali crescentes, foliis hieme orbatae; stipulis fugacibus; foliis saepe dispositione j, nunc distichis (conf. Doll fl. Bid. 2, p 5W; dentatis, in veneratione secus nervum centralem plicatis et secus nervos laterales subplicatis (conf. ad Heufcy in nov act. nat. cur. 22, pars 1, t. 28, et Doll zur Erklar. Laubkn. Ament. p. 25, f. 21); amentis masculis ex axillis foliorum inferioribus, elongatis, fugacibus; andropynis ex axillis fol. superioribus, floribus inferioribus femineis, superioribus in parte caduca spicas masculis vel sterilibus. Flores feminei frequenter stamina 5-10 praebent quorum majora lobis pennonopposita, omnia inclusa, antheris vacuis. Involucrum junius (ex G. vulgari) secus lineas 4 nudas squamiferum, per florationem fasciculis aculeorum extra series squamarum (nec squamae in aculeos mutatae ut dixerunt auctores) auctum, tandem echinatum. Fasciculi aculeorum ideo genesi squamis posteriores, singuli juniores breviter stipitati, laciniâ inferiore longiore (folium?), lateralibus et interioribus brevioribus.

1. C. VULGARIS (Lam. diet. 1, p 708), ramis junioribus puberulis cito glabris, folium e basi obtusum vel subcordatum vel rarius acutum oblongis vel ovato-oblongis acuminatis vel auriculis saepe glosse irregularibus et acute serratis nunc dentibus brevioribus simplicibus sicut terminatis, junioribus supra lepidoto-puberulis subtus extra nervos incanis stellato-pubescentibus, adultis supra glabris subtus in nervis adpressis et longe pilosis aut puberulis inter nervos mecano-tomentosis vel glabris, amentis liliaceis brevioribus densifloris pubescentibus, floribus plerumque fasciculatis, bractea praecipua ovato-lanceolata, spicis ferme paucifloris, involucro fructus aculeis longis echinato globoso nucis paucis includente. § Hdb. 1° in Europa merid., et Asia conterminis caempe a montibus Lusitaniae (Biot. fl.), Granatae alt. 2500-5000 p (Bo<sup>o</sup>B<sup>o</sup>oy), Sardiniae (Moris el.), Siciliae, Cretae (Fraas syn.), Lybiae (Tchihat. Alrmm. 2, p 481), Karabagh (Szov ') (in Tauro Tara et cultasolum, fide Balansa n. 1000 in h. Boiss), Imiretia, usque ad fl. Terek et Taunam (Ledeb fl.), Albaniam (Gussone spic), Synam (Maly fl.), Alsatiara (Kirsch fl), montes montium Hardt (Doll rhem Fl) et Belgium (Lestib bot. belg.), extra hanc lineam raris, sparsim introducta aut olim frequentior et spontanea (Alph. DC. geogr. bot. p 687 et 996), cis lineam plerumque sylvam constituens, 2° in Africae borealis montibus Edough inter Bono et Philippeville, ubi nuper detecta, nec alibi in Algeria cognita (Cosson, Ch Martins, verb et in lit), in Edough sylvam non constituens, ideo forsitan olim introducta 3° in Chinaboreali, frequens etsponte (Bunge en. pi. Chin. n. 349 et sub n. 347), et Japonia (Blume var. infra en \\_ Nouv. Duham, aib. 3. p. 66, t. 19. Fagus Castanea Linn. sp. p. 416, Engl bot. t. 886. C. sativa Mill. diet. C. vesca Gaertn. fruct. t. 3, Haitig forst. 7 p fl. t. 19, Nees gen. 1. c. Reich, IC. t. 640, Bunge en. 1. c. C. Bungeana Blume Mus Lugd bot. 1, p. 284 (specimen vero liugeanum flor. vulgari nostra simillimum, fructus ex Bunge simillimus). C. Japonica Blume Mus Lugd. bot. 1, p. 285, var. Siba-Kun et canescens (ubi petioli non breviores, quam in var. europaeis). Folia plerumque elliptica, 6-8 poll. longa et 2 poll. lata, nunc breviora et tunc potius ovata aut elliptica, petiolo 3-9 lin. In eodem ramo speciminis Imiretiensis folia superiora vix subtus dense (ut vulgo mecano-tomentosa, inferiora glabra. Varietates cultae, insertione propagatae, numerosissimae (de quibus confer ad Duham. 1. c. Loudon art) p. 912, Alman. bon jard, etc.). Magis notandas sunt . *asplenifolia* Lodd., foliis dissectis aut lanceolatis, *vanegata*, fol. albo vel luteo maculatis, et sequens, quae etiam spontanea et hereditaria videtur.

p, *sativa*, (Lam 1. c), nucibus saepius unicus maturescente in involucro, cotyledonibus valde fannaceis maximis. — In Cebennis et Galloprovinciae unae ad Lugdunum fructus mittunt et sub nom. *matrons de Lyon* venduntur (Aim. du bon jardm. 1860).

Y, *Americana* (Mich. fl. bor. am. 2, p. 192), foliis basi acutis (an semper?), junioribus utrinque lepidoto-puberulis, adultis utrinque in parenchymate glabris. 5<sup>ta</sup> America sept., a mont. Carolina menci. (Fraser<sup>o</sup>) ad Ohio

(h Boiss ') et Maine, Michigan (A Gray Man , p 407) G- <sup>^</sup>esc<sup>^</sup> (spec aut var) amencana Mich arb 2, p 156 t b C amencana Raf new sylv p 82 Vanetas dicitur ab omnibus, et equidom chiiacteres specifici me fugiunt Pih longi sappe ddsunt in \er>o pa<sup>^</sup>in-E inf ut in europaea" Folia latiora dmt Mich sed in herb mpo non \idotur Nuces dulciore\* et minoies quam m var europeis dicuntui, sed cl Biomheld (in Hook Joum 1849 p 2M> <sup>l</sup>m' whores I'ope Vagaia observavit, unam et eandem speciem affirmat, vanetatibus euiopeis fructibus pan is in unolucio plunbus similem (v s)

δ *elongata*, folns mediocribus, amentis elongatis iolio longionbus — In Jiponil C Japonica vn elongata Blume I 1 c Folia 3-) poll longa, 1-2 poll hti petiolo (m eod nmo) 6-12 hn longo, dentibus ut m plensque var japonicis brevibus setâ longl terminatis Amenta 8-9 poll longa Ex- longit petioli ad vulgarem tiansit (v s)

e, *Japonica*, folns vulgan mmoribus, petiolis brevionbus <sup>^</sup> In Japonia \*agus Castanea riuinb fl jip p. 19J C VCSCI Blume Mils Lugd bat 1, p 28), var quercma', crenata • et stiicta' G Glunensis Hassk horl Bog p 73 (fide B1) C crenata Sieb et Zucc fl jap lam par\*, alt , u 189 C vesca fiuctibus maximis h Sieb (fide Blum ) C pumila Hassk lb (hde B1) G stncta bieb et Zucc ib n 710 G vesca Zoll ' pi |d\ sine num Petioli sappius 3-4 nunc i-6 lm longi, limbi saepius 3-5 poll lonrfi, iaro 5-b-polliciaies D<sup>^</sup>ntes plciumquc breves ut \olgo setit<sup>^</sup>f, sed in eodem lamo adsunt mteidum lolia grosse sr rrata, et simliliter vanat arbor vulgans ubi ltiterdum (in sp<sup>^</sup>cim Imnetiae praB<sup>^</sup>etim) dentesad setam leie reducti Anomnts loimaj laponicas spontan<sup>^</sup>ae \* (v b)

t, *subden<sup>^</sup>am* folns vulgan minonbus, peliolis bicvionbus subdentatis nempe nH<sup>^</sup>ine sttifens et vix sub setâ tienatis aut dentatis — In Japonia C I\pon\cae \11 letatos obtctta vulgai is, longispina et Ookasi Blume ' 1 c C vesca Zoll' pi Japon n 170 Mob loib (ov B1) Folia raaiginp nunc undulata potius<sup>^</sup>uam dentata setis ut \ul,|o dispositis nunc subdentata aut subserrata dontibus setifens, sed in his o tiansilus idsunt ad vai Japonicam et vulgnem europaeo-japonicam An omnes spont i-neaj "> an cultae > (\ s)

f, *Kusakun* foil is mmoribus petiolis bicvissunis <sup>^</sup>InJaponu C Japonica var Kusakun Blume» 1 c Folia 1 J-J J poll longis, 6-12 lin latis, petiolo 1-1 | lm longo, nevis subtus pilosis, pirenchymato glabio dentibus nunc e seta constitutis nunc (in cod ramo) magis distinttis et setifens An arbor culturâ contracta <sup>^</sup> (v. s)

2 P PUMILA (Mill diet n 2) frutex nit iibuscula ramis junionbus tenuiter tineieo-velutmis, folns e basi acutâ vel obtusl obovatis vol obovato-oblongis oblongisve obtusis crenatis a medio crenaium acute cuspidato seiratis, junto ubus siipn lepidoto pubeiulis subtus incanis stellato-pubescentibus, adultis supra glabraUs, amentis folio subae<sup>^</sup>ualibus densifloib pub scentibus, flonbus plensque fasciculatis biactci pne<sup>^</sup>ipul ovito icut\ spicis feminois multiflons, fiuctus-paivi involucro aculeis m<sup>o</sup>fliocnbus ochinato globoso nuculas pau-(ds \el urucani mcludente 5 vel 5 in Amenca sept a Hondâ (Mitchell'), booigiâ (A Giay') ot lexis (Smiths rep 18)8, p 2ob) al Pennsyhaniam (A Gia> man p 408) et Ohio (id ) — Mich arb Amci 2 p 166, t 7 Wangenh Noida.ni Hoi/ t 47 (fructus pessime del ) Loud lib f no7 1708 Trattin Aich I ]07 Gastanea pumila Virginidiia (atesb Gdiol It 9 Fa<sup>o</sup>'us pumili Lmn sp p 1416 Folia 1»-t raus 4 poll longi 7-12 hn laffus 18 lm lita, nems subtus stellato pilosulis th mum glabns piunchymate nunquam <sup>^</sup>labio, pptiolo 1-4 lm , s<sup>o</sup>rratuns minonbus quam in ( vulgari et potius iculeolise cronis constantiljiis I nictiis GistaneA \ulgau duple mmoros aculeis bievioubus Squamae oblon<sup>^</sup>x natntes, ranoies uiam in- G \ulf?dii' fasciculi aculeoium extra squamas evoluti, apice piaesouim fiuctus approxinidti, basi dissiti f otyl<sup>^</sup>dones dulces (\ s)

p, liana hunulioi loins riuciiibisqu mijoriltus j In syUis <sup>^</sup>iccis Paroling

mend *Q. nana* Muhlenb. cat. p. 86 (sine descr), Ell. sketch Georg. et Car. 2, p. 614. *C. alnifolia* Nutt. gen. 2, p. 217. *C. pumilae* forma Chapman fl. south. U. St. p. 424. Suffrutex 1-2-pedahs, ex Nutt. et Ell.

*Species dubix.*

- 3 *C. ^ MOLLISSIMA* (Blume<sup>9</sup> Mus. Lugd. bat. 1, p. 286), ramis junionibus hirsutis pilis patentibus, foliis e basi obtusâ vel subcordatâ oblongis acutis vel breviter acuminatis lepande mucronato-serratis chartaceis supra glabriusculis subtus molliter pubescentibus, stipulis e basi obliquâ lanceolatis acuminatis petiolo sublongioribus extus adpresse pilosis, flonibus et fr.... *fi* In Chinâ, unde in Japoniam introducta. Folia 2 }-6 poll, longa, 9-27 lin. lata, petiolo 2-4 lm longo, dentibus inaequalibus, nervo centrali supra piloso, lateribus utrinque 12-16 subtus eminentibus, tertiis crebre reticulatis, pube subtus in nervis longiusculâ simpliciter, in parenchymate stellulati. (v. s. a Mus. Lugd. bat. comm.)
- 4.\**C. CHINENSIS* (Spreng. syst. 3, p. 856, non Hassk.), foliis lanceolatis denticulatis acuminatis serratis prope basim integerrimis glabris petiolatis, amentis filiformibus, flonibus femineis inferioribus pengomo 4-dentato, fructu echinato plerumque bivalvi. § In Cochinchina\* sylvis (Lour.) et culta in Chinâ (id). *Fagus Castanea* Lour. fl. Coch. ed 8°, v. 2, p. 699 (non L.). *C. Chinensis* SBem. bot. Her. p. 413, quo ad planum Loureiri (conf. Benth. fl. Hongk. p\* 320), Blume Mus. Lugd. bat. 1, p. 286<sup>9</sup> Istius folium vidi a extol, comm. quod petiolo 4 lin. longo, limbo 28 lin. longo, folio lato, elliptico, acuminato, basi integro, caeterum setaceo-serrato, et inde a *Castanopsis tubuloides* (sive *feroce*) quâ cum junxit cl. Miq. Ann. Mus. L. B. 1, p. 118<sup>ftm</sup>ino differt.
5. *C. INERMIS* (Lindl. in Wall, plant. rar. 2, p. 6), foliis ovato-lanceolatis undulatis acutis integerrimis glabris, fructibus subdidymis in ramis fasciatim interfructe tuberculatis. — In Singapore\* (Wall) et Malacca (Hook. f. in hort.). — Ex hisce paucis omnino ignota, nec generis nostri *Castanopsis* videtur, nisi forsitan sectionis *Callocarpi*.
6. *C. LATIFOLIA* (Blume bijdr. p. 526),\* foliis ovatis acuminatis subtus albido-glauciscentibus in costis infra ramulisque tomentosis. § In Javâ. *Quercus pruinosa* synonymon ex Blume fl. Jav. Cupul. p. 9, sed postea (Mus. Lugd. bat. 1, p. 292) ab eodem exclusa, nec alibi memorata. An *Castanopsis* an *Quercus*?

*Species non descripta.*

- C. MICROCARPA* Lindl. ex Wall, list n. 3735. *Quercus acuta* Ham. herb. — E *Goalpara* Indiae oi. Vensirailiter *Castanopsis*.

*Species exclus.*

- C. ACUMINATISSIMA* Bl. = *Quercus acuminatissima*,  
*C. ARGENTEA* Bl. = *Castanopsis argentea*.  
*C. BREVICUSPIS* Miq. = *Castanopsis costata*.  
*C. CHRYSOPHYLLA* Hook. = *Castanopsis chrysophylla*.  
*C. CONGINNA* Champ. et Benth. = *Castanopsis concinna*.  
*C. COSTATA* Bl. = *Castanopsis costata*.  
*C. ECHIDNOCARPA* Hook. et Th. = *Castanopsis echidnocarpa*.  
*C. ^ FURPURELLA* Miq. = *Quercus hystrix*.  
*C. FAGOS* Scop. = *Fagus sylvatica*.  
*C. GLOMERATA* Bl. = *Quercus lanceaefolia*.  
*C. HYSTRIX* Hook. et Th. = *Castanopsis hystrix*.



- C JAVANICA Bl = *Castanopsis Javanica*  
 C ROXBURGHII Lmdl. = *Castanopsis castanicaipa*  
 C INDICA Ro\b = *Castanopsis Indica*  
 C MARTABANICA Wall = *Castanopsis aigentea p*  
 C MONTANA Bl = *Castanopsis Jdvanica p*  
 C SESSILIFOLIA Bl = *Queicus acutissima*  
 C SPICATABILIS Miq = *Castanopsis costata*  
 C SPHEROCARPA Lindl = *Castanopsis tubuloide->*  
 C TRIBULOIDES Lmdl = *Castanopsis tribuloides*  
 C. 1 UNGURRUT Bl. = *Castanopsis Tungurrut*

IV FAGUS *lourn mst p 584, t 351, Imm gen rd 1. n V28(excl Ca^taned), Gxrtin fruct 1, p 182, t 37, Nees jun gen pi ft qerm ic fasc 1, Hook journ of bot %p 147, Tndl gin n 1847 et tuppl 4pars2, p 20, Schacht del Baum, ed 2, t J, f 20 40 (opt anal) ilpn. DC in Act soc hth sc nal 1864 (dr nervations jfol) —Fagus et Nothof-lfeis Blume Mus Luqd bat 1, p 30b —CalucechmusetCaluspardssus^ombronc(Jacqtinof,t;oy aupolaud*

Flores masc solitarii aut capitellati Pongonium subcampanulatum, 5-7-lobum Stamina 8-16, fundo pongonii acervata, exserta, filamenta graciha, antherae oblongae, connectivo apice obtuso vel mucroniformi Pistilli rudimentum nullum Flores feminei 3-2-1 intra involucrium 4-lobum 0 ^ | u m tgonum, oblongatum, inferum, 3-loculare, apice 6-lobum, lobis vppius lanceolatis acuminatis persistentibus Ovula 2, in quovis loculo ex angulo superiore pendunt, sursum inatropa. St^h 3, hne ires, loculis superpositi, secus nram interne stigmatosi Fructus involucri accioto^ovoideo, ^-p irtito, basi bracteato, etnucis libens constans, lobis involucri dorso squamis aut fimbriis vestitis Nuculae abortu monospermae, sub stylo 3-2-aetae, pericarpio coriaceo. Albumen nullum Semen apice dissepimenti evanescentis pendens, ovulis abortivis vertice cinctum Cotyledones crassiusculae, intus mutuo plicatae et adpressae(1) Radicula superior, subexserta — Arbores, lanus frutices, in temperatis utriusque hemisphaerii (Africa excepta) crescentes, cotyledonibus in geminatione extra terram expansis semicircularibus foliaceis (ex F sylvatica obs) foliis alternis, penninervis, ^aeius dentatis, in vernatione convexis et secus nervos laterales interdum phacatis (conf Henry in Nov act nat cui 22, pars 1, t 29), nervis lateralibus saepius ad sinus folii tendentibus, stipulis fugacibus, foliis masculis ex axillis foliorum inferiorum, femineis superiorum — Nervatio foliorum in genere et interdum in speciebus proximis diversa, huc usque neglecta, characteres optimos praebet Nervi laterales quarundam specierum ad sinus marginis tendentes non nisi in paucis plantis adsunt, de quibus confer ad notulam meam in Prodr IX, p 558 et Act. soc. helv. 1863\*. — Flos hermaphroditus (monstrosus) a cl. Schimper del in Bot. Zeit 1850 p 745, t 8, f 1, stamina saepius 3, epigyni stylo opposita, lobis praecipuis altera praebet — Affinitas Fagi et Quercus adeo naturalis ut semel coadunatio spontanea tunc Fagus ^ylva<sup>ucæ</sup> cum Quercu Robore visa fuisset (Flor. berr. et jaid. 1851, p. 316).

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(1) Lx F sylvatica et F obliqua sed in F antaictica foisan diversae e\ ic. Hook i 11 ant 2 t | n In hac specie, ut in speciebus sect 2ae semina frequenter abortiunt, in h\*rhans Boiss et DC caient, mde et e\ silentio auctorum chdractei aelut inqunendua

Sectio i. EUFAGUS. — Genus *Fagus*, Blume, Mus. Lugd. bat 1, p. 306.

Folia cadi\ a, in vernatione secus nervos laterales plicata.

Involucrum tarde 4-paititum Styh elongati, dorso pilosi. Antherae glabrae. — Species hemisphaern borealis.

1 *F. FERRUGINEA* (Ait hort Kew 3, p 362), folns elhpticis vel obovatis basi obtusis \el subcordatis apice acuminatis vel acutis margine (basi exceptá) grosse vel brevierdentatis nervis lateralibus manifeste ad dentes tendentibus, ramulis petiolis nervis et margine foliorum sericeo pilosis tandem glabiescentibus, fructu parvo fulvo subsenceo-tomentoso laciniis lmeanbus tenuibus mferionbus reflexis medus patentibus vel reflexis supremis erectis vel patentibus. 5 I<sup>Q</sup> Americá sept a Novo Brunswick et lacum Winipeg (Cooper in Smiths, rep. 1858, p. 256), per Nov. Eboracum (Gray'), Ohio (Mathes' n. 7, in h. Boiss.), Tennessee (h Boiss.'), usque ad Caiolinam mend. (Fraser! h. DC), et Flondam (Chdpm Fl b st p. 450), vix ultra fl Mississippi progrediens (Brendel trees Him. p 11) — Michx. arb. Am 2, p 174, t. 9, Loud, enc trees, p 909, 1. 1697-1699 *F. sylvaticafcnn* sp. (quoad spec Amer). *F. Amencana latifoha* Wangenh Forstw p. 80, f 65 (folium). *F. sylvestns* Michx. a\*. Amer 2, p 170, t. 8 *F. sylvatica* Amencana, Loud enc trees, p 907, f 1695. *F. rotamdifolia* Rafin herb p. 22? *F. alba* Raf. new sylv p 80. *F. heterophylla* 18<sup>^</sup> ib. *F. nigra* id. lb \* Emerson rep trees Mass, p 158. Dimensiones foliorum, pedunculorum florumque ut in *F. sylvaticá*, sed fructus minor (4-8 hn. longus). An a nostrá *sylvaticá* satis diversa, ut plures censuerunt nominatim vir in hisce ingeniosus Bromfield (in Hook journ of bot. 1859, p 112)? Folia arbons amencanas saepius majora et magis acuminata, saejfllgrosse et semper acute den tat), nunquam obtusa, nee conacea; gerontog<sup>^</sup>Hkterdum grosse dentata, interdumque uon rigida. quoad formam in duaburaonriunquam simillima sed nervatione diversá (quod nondum obs.), in praesenti ad dentes clare et recte extensá, in *sylvaticá* ad dentes obscure vel oblique et frequentei ad sinus tendente. Lignum perfectum m amencaná, ex Emerson I. c., ab alburno diversissimum (an constans?), in europaeá lignum et alburnum sub-similia Color lign van at in Americaná ex Michaux, quod negat Emerson. Fructus in specimibus meis et h. Boiss., ut ex ic., minor in amencana, num vero characteres e laciniis securi non alfirmare audeo. (v. s.)

2 *F. SYLVATICA* (Linn, sp p. 1416, excl. loc nat Amer.), folns elhpticis vel obovd Us basi saepius obtusis apice plerumque acutis margine undulato-dentatis, nervis lateralibus obscure et oblique versus dentes summos extensis vel ad sinus margims tendentibus, ramulis petiohs nervis et margine foliorum sericeo-pilosis tandem glabrescentibus, fructu fulvo subsenceo-tomentoso laciniis fineanbus erectis ^el patentibus paucis basi reflexis. 5 In Europá, a mont Hispdiiiioe sept., Corsicae (Sails m Florá, 1834), Siciliae, Caucasi et Talysch (C. A. Mey. Ver7 44), usque ad 54 i grad in Scotiá, 60°20' in Norwegia\ et inde secus lineam obliquam versus Bessarabiam et Tauncam, de quibus et de histoni sp. iuse disserui m Geogr. bot. vol. 1, pi. 1, et in fitud sufl'esp. in Bibl. univ. nov. 1862 et Ann. sc. nat. ser. 4, v. 18. — Schk. Handb. t. 303, Engl. bot. t. 1846, Fl. Dan. 8, t. 1283, Swensk bot. t. 361, Hartig forstl. t. 20 et id i 25, f. 56 (de ovuhs), 103 (germm.), Nouv. Duham. 2, p. 80, t. 24, Loudon encycl. p. 908, f. 1G96, Dietr. fl. boruss t. 819, Nees jun. gen. fl. germ. fasc. 1 (Lab. opt.), Reich ic. fl. germ 12, t 639. *Castanea Fagus* Scop. fl. Cain. *Fagus sylvestns* Gaertn. fi. 1, t. 37. Petioli 2-6 lm. longi Limbi 1-2} poll, longi, 9-18 lm. lati, nervis lateralibus utiinque 5-9, prope extremitatem folu ad dentes saepius fendentibus, alibi vel ad dentes obscure et oblique vel ad sinus clare et recte extensis' Pedunculi folio breviores. Fructus 9-12 lin. longi. (v. v.)

p, *macrophylla* (Hohen. en. pi. Talysch, p. 29, sine descr), folus 6 poll longis, 4 poll, latis. — Ledeb. fl. ross. 3, p. 593. Specimina mea Caucasia folus solum donata, hmbuni amplum, 3-4 poll, longum, tenuem, nervis lateralibus utrmque 9-14 praebent. An formae caucasicas europaea unquam similes\* An ad var. Asiaticam referenda<sup>9</sup>

Y, *Asiatica*, lacinnis inferioribus et mednis fructus hneanus vel ligulatis et obovato ol longis supremis (ut vulgo anguste lineanus — In Asiâ minore (Tchihatch » 781 in h Boiss ), mont Phrygiae (Balansa') 1807, n 130, ib et 1858, n 1141 in h DC ), Ghilan (Aucher" > m in h Boiss) et in Japonia id Hakodaki (Wilford' in Loudon enc 1 1692, 1693).

o *quercoides* (Pers in Trans linn sot, 5, p 233, t 11), tortice tessellato-sulcato Arbor unica prope G^ttingen, progenies hybndd supposita Quercus el Figi.

w *colorata* liffno et folns coloiitis Subvanetates plures hortenses adsunt nempe *purpurea cuprea, lancqata* et una sponianea, prope Roveredo (Facchmi' 2327 in h Boiss ) Praxouor e\ hoi to meo

£, *heterophylla* (Loud, enc f 1QJ)2,1693), folns vane incisus vel lacimatis Formae omnes hortenses vulgo *T heterophylla comptonixfoha^ laci niata, asplenifoha, incua, salicifoha* dictae

yj, *enstata* (loud enc i 1604), folns cnstatis cnspis fasciculatis parvis Var hoi tensis nunc *b cnstqfa* vocata

o, *pendula* (Lodd cat 1836), ramis pendulis In hoitis culta. F pendula hoi tul

3 F *SILBOLDII* (Endl gen suppl 4, part 2, anno 1847, p 29), folns e basi subiotundata ^el subcordaU ovatis apice acutis vel obtuse angustatis obtuse crenatis nerus lateralibus ad sinus tendentibus, ramulis peliolis et margine foliorum senceo pilosis tandem glabrescentibus flore et lr ^ In Japoniâ 1 ferruginca Sieb m Bat Verh 12 p 2> (non Ait) I\* crenaU Blume' Mus L B 1, n 18 (anno 18)0), p 307 Vidi specimini lolnlcra a cl Blume comin quae crenis c^uldnbus a spccimine plecto fructifero jdponico supra ad b syhaticam relalo diflorunt Tola petiolo brou (1-2 hn ) ut mteidum Fagi nostise, nervis htei utunque9 10 (v » incorapl )

p<sub>r</sub> *piotera* (Bl <sup>f</sup> 1 c ) loins majonbus [2]-^% poll longis, 1^-2^ latis) ob tuse crendtis \el lepandis, petiole 2 5 lm (v s folnf)

y, *undulata* (Bl M e ), folns minonbus (|-2 poll, longis, 1-j' 2^ poll hti^), petiolo 1-11 hn (v s lolnt)

\*\* Styli breviores, glabri Antherae itt quibusdam pilosae — Species in heini-sphJDIIO dustrah omnes crescentes, sectioni2 affines

\* F *OBLIQUA* (Mirb in Mem Mus 14 p 465 t 23), folus ellipticis vel ovatis obtu sis irregulariter duplicato-senatis nervis latei ad dentes piaepuos tendentibus basi integid dtutis vol obtusis utnnque in nevis pilosiusculis, pengonio mast ldte tdinpanulito sinudto lobato, anthem obtusis filamento longionbus versus dpeem pilosis, huctu o\oideo squamis ovdto lanccolatis non pdtenibus apice subevcurvis et integiis vel denticuhtis, nuculis inclusis -? In Chili (Dombey' 932 et 934, h Mus pdi ), monl pioV Valdivie (Philijpi' 6S, Lethler <sup>t</sup>48 in h Boiss), mont Antuto (Poepp ' in h Boiss ), San Kinando (Bert ' 207), dd Cilchd^ui (Philippi')pt foisan usque ad fictmn Magellanicum (King in II ok 1 fl dntuct 2, p 347) —Hook journ lot 2, p 1') Gay 11 Chil ) p J88 Ponrp etlndl nov gen 2 p 68 t I^8 B (ar il ) Vul^o ROLIG. Raniuh I ul)osuntos Potioli 1 Jim I n<sub>i</sub> pubeiuli Linibi 9-18 hn long], 4-9 lin liti junioios subtus m paienchyiiidlt pubscenles ml gdl n dontibiis in pod iolio vaijuutibus nunc simplicibus sjepius 2 3 dentidWatis, ininoiibus acotis, mi]oiibus obtusis, nevis lateralibus utimque 8 Oicete ad denies pix-cipuos tendentibus Poduncuh 1 flon, 2-3 lm longi pul)scenles Cupula mast 2-2 i lm ldti lobis obtu is vel acutis pulJciulis btimina 30-40 Vild mentis sul)pilosis diithens } lm longis Piuctus J 4 lin longus 4-parlitus Sligmdta 3 pileniia bie\ n Amhei fi in Itone mmis pilosae (v s /

p *Valdniana* folns minonbus crmto-dentitis — f<sub>n nrrn</sub>, ValHui\* ad fonalffhihppi.) \* Vnldwnna Ph,l ' mod 1862 IncTs ROWP ITBus-culaVx rimochs Inha noil longi, cienis simplicibus obtusis, utm ioln\*. quibusdam F oMiquae in h Boiss vidi (v s )

- 6, *macrocarpa*, nuculis valvas superantibus -Inmont Aculco F procera Philippi! in h Boiss (non Poepp et Endl) Folia (ut saepe in a) lobulis rotundatis majonibus undulato-crenata, crenis hisce Irregulariter 3-4-denticulatis Tuculae valvis interdum dimidio longiores, nee aequales vel sublongiores An ex matuntate perfects? (v s)
- s, *macranitheray* fob is subtus in parenchymate magis pubescentibus, anthers longionibus — Prope Chilian\* F obhqua Germain' exs Anthers lineam longae, nee I hn ut in alns Fructus ign (v s)
- 5 P ANTABCTICA (Forster in Comm Gott 9, p 24, et IC ined in Mus Banks), foil is ovatis vel ellipticis obtusis basi suboblique truncatis vel angustatis vane duphciter dentatis vel crenatis nervis laterahbus ad sinus tendentiōus, supid glabrescentibus, subtus margine et petrolo vane pubescentibus, pengomo masc infundibuhformi obtuse lobato, anthem elongatis mucronulatis, fructu ovoideo fcquamis dorso valvarum unisenatis adpressis rotundatis ciliatis, nuculis puberulis J A Chili mend montibus usque ad caput Horn — Hook journ bot 2, p 149, t 6, Hook f fl antarct 2, p 3^8, t 123, C. Gay fl Chil 5, p. 392 Calucechinus antarctica Hombron et Jacqum mVoy Polesud, Dicot t 14 et Calucechinus Montagni ib, Monoc t 6 (fide Hook f) F Montagnei Philippi in Linn 29, t 45 Petioli 1-3 lin longi, 5-91m lati Rami in herbarusaut masculi aut femmei Perigomum masc 3-3 Jim Ion gum, sub-5 fid urn, margine •piaesertim loborum pilosiusculum Antherae plus minus exsertae, glabiae, filamentM longiores Fructus mitio? secundi an in maturescens, solitanus, 31m. longus, «4-partitus, pedicello minimo Pubes fol ex ic Hook non cogmta duplex est Inde et ex formâ hmbi vanetates aut vanationes sequentes
- a, *sublobata*, folns undulato-pauci-lobatis pr<eterea crebre d^ntato-crenulatis, petiolo et paginâ sup glabrescentibus, parenchyi^te subtus glabro, nervis vero pilis adpressis longmsculis vestitis, margine puberulo — In Hermite ins ad caput Horn (Hook f ' in h DC et Boiss.) Ex icon cit Hookenianis transire videtur ad sequentem (v s)
- P, *bicrenata*, folus regulariter biarenatis, pilis crebnonbus simihbus — Prope Sandy point (Lechler! pi Magell 1060, exel specim in mont Chilian) (F pumilio Poepp ex Phil in h Boiss '), ibid (Germain'), in editionbus Cnili austr (Poepp ic) F pumilio Poepp et Endl nov gen 2, p 68, t 95<sup>9</sup> (ubi flores et fr ign , pubes ign , et folia aestn. wlicdtd ex descr , non plicata in icone) F alpina Poepp ' n 868 m h DC (manifeste ad suam F pumilionem, nee ac alpinam referenda) folia praecedenti mmora, nei-vis lateralibus utnnque 4-6 (nee 3-5) ad sinus breves tendentibus, lobulis emargmatis Inter pilos adpressos latent pih pauci breviores, unde transitus ad seq Arbuscula deformata^ frutescens, in editionbus, et tune F pumilio Poepp vocata (v s)
- y, *uliginosa*, folns margine undulatis crebre crenulato dentatis utnnque praesertim m nervis subtus petioloque tenuiter pilis erectis minimis pubescentibus — In mont deRanco (Lechler! pi Chil 2964etHuite n 757), Chilian (Germain'), prov Valdiviae (Phil f) F antarctica Lechl et Germain exs F uhgmosa Phil ' ohm m herb In uhgmosis et turfosis, ubi saepe adest, arbuscula, folns parvis Nervi utroque latere 4-5, ad sinus vix distmctos tendentes (v s)
- 6 F GUNNII (Hook fi n Hook ic t 881\ fruticosa, folns late ovato-ellipticis obtusis crenatis secus nervos laterales subtus costatis, nervis ad sinus manifeste tendentibus, pilis adpressis supiasparsi evanescentibus subtus in nervis persistentibus alibi nullis, fl masc , fructibus soli tan is ovoideis, lobis dorso simplici serie lamellatis, lamellis lmbncatis late ovatis obtusiusculis inaequaliter sinuato-crenatis j In editionbus montium Tasmaniae (Hook f Mueller') — Hook f fl Tasm 1, p 346 Fmtex habitu F antarcticae, ramis tortuosis mtnctis, lamulis pubescentibus Stipulae lanceolatse, glabrae, basi gibbososaccaUe Petioli ^-l hn longi Limbi 5-6 lin longi, 4-5 lin lati, nevi laterales utnnque saspis 6, ad sinus clare et constanter tendentes, phcatura secus nervos post venutionem persistens, Nuculse 3-alatae, glabi<£ (v s bine fl pec fr)

- 7 F ALPIN v (Poepp et Endl nov gen 2, 1) 69, t 196, 198, A), ramulis petiolis-  
cme iuho pubescentibus, loins o\*ito oblongis obtusis \el acutis basJ lotunda-  
tis Irre^iiliiiiiter teiIuldtis utnnque pilosiusculis, ncni crebi\* mitio et prope  
extiemtatem loin lecte ilein et in majoie paite loin ad sinus tendentibus,  
fl raa&L , huUibus tiMllanbus subseihibus bracteis amphs«4 b«isi amplexis,  
squamis doiso \alvarum ciebus superpositis oblongis pubescentibus maigine  
glanduloso-hnibnatis, nuculis hntis j In montibus elevatis Chili australis ad  
Antuco — Poepp<sup>i</sup> exs 711 Folia approximata, petiolo hneam longo, limbo  
7-12 lm lon<sup>o</sup>, J b lm lato lieius utioque laterc 13 14, pagina sup glu-  
tmosA (Poepp), denticulis nunc altemalim nnoiiibus Peduncuh fiuctus vi\  
line<im longi Uiactae\eitjullaide, ellipticai, ut jicduiiLulus \cliUinaj, 1 \ 2 lin  
longic, ciliato denticulate!<sup>4</sup> Fiuctus o\oideus, 4 \*lm longus, \ahis 4 brac-  
teis oppobitis Squama; ciebnus quam biacte\* glanduhs stipitatis nunc ramo-  
sis ciliatdB Species magnit biatteaium liuclus insignib (v. s )
- 8 F PROCERA (PcPPP. et Endl gen 2, p 69, t 107, non Plulippi), fpljis oblon-  
gis hasi magis quam apice rotundatis petiolo bre\issimo hnto duplicato-seiratis  
cienjs majonbus 3-4-denticulatis supia gLibnuscus subtus pubescentibus  
margine ciliatis, fl. et h § In (hili anstiahs montibus ad Antyo Arboi  
excelsa, \ulgo IUuli Descuptio et icon super\acua3 ^uoniani sine \ \ et h spe  
cies non distinguendae. Folia majoia quam in alus, uscjue ad 4 poll longa —  
Nil in herb Boiss et meo lepcn ad iconem appiopinquandum nisi sfecimini  
Lechlei 2965 e ftanto Pehuelcoium, ubi lolia iconi simillhnia, inajora quam in  
I alpuiA ved nenalione, denticulis et pubr suniblnis, Jiuctibus plensque <i  
Acinus punctis et delornutis unico (b Boist.) liuctu F alpirice simili Indo  
F. pioccia loihcin \anctas maciophylla alpinae esset<sup>></sup> aut affinib sp ?

section ^iHOFAGUb — Genus ^othofag^ls Blume Mus. Iugd bat ]p 307

Folia persistentia, in vcmatione secus neivos laterales non plicata. — Lv  
lieniisphdeno austiali.

- 9 F DOMDFI (Mnb in Mem Mus. 14, p 467, t 2^), folns ellipticis ovalis vel  
oblongis utnnque acutis vel obtusis conaceis senatis glabns brevi-petiolatis  
ncivis lateialibus ad dentes pi<pcipuos tendentibus, cymuUs masc lolio multo  
J)ieviohbus, pengonio late infundibuloinii obtuse 4-5 lobo, anthers  
calloso mucionulatib, fiuctil)is solitains aullanbus involucri 4 paititi lobis  
oblongis 2 3-Iacunatis nuculis angustionbus et bievionbus f In Chili aus-  
trail, cnca Conception (Germain'), in prov Valdivia ad nr\es perp adscen-  
dens (Philippi' pi Hohen. 60') et ]>rope maie (Lechlei' i82 in h Boiss)  
Vulf'o Cojgue— Hook ioum bot 2. p 455, Poepp et Endl nov gen 2,  
p (9. Som)eiYiions folus tameu initio secundi anni cadivis Rnim junioies,  
petioli neiMque junioics tenuissime \elutini et viscosi Folu () l') lm longa,  
I b lm LiU, petiolo 1-2 lin , subtus passim glanduloso punctdla, nenis socun-  
danir, paucis paium distinctis, \eins crebus leticulatis, in sicco tminentibus,  
dentibus obtusiusculis i^lores bievissime pedirelldti Mascuh pengonio hneam  
lon^o glbnuiculo, anlhens 10-12 exscrtis glabiiuscuhs l^ructus nuculaj3,  
angulis htellce, 2 lin. longas. Lobi involucri ab initio segregate biacteohs  
ovatis basi stipati. (v. s )
- 10 F. BEIULOIDES (Mirb. 1 c.j) 469, t 25), folns ovatis vel ellipticis obtusis \el  
subacutis Dasi indcqualitei acutis \el obtusis conaceis cienato-senatis glabns  
Ineipeiolitis subtus glanduloso punctdtis, llonbus masc sohtanis bievissime  
puInelUlis, pengonio hte mfundibuliloimi obtuse />-7 lohato anthons WUCP  
ullosa niicionulitis, liuctihub suliuMis avilldiibus, imoluui 4 paititi lobis  
ol)longis doiso et apice Liciniis dlifoimibus eiocis cipitelldtis plunbus onustis  
nuculas iLtmantihis. > I leqiens in evtrpmita\*te austiahoie Amencae (Hook 1  
Lpchlei'pl Magcll ]0(,| Kirir \* m h Bcnss), usmie id dlt 1400 p' in tenA  
igneA (Hook I ), nonduin in Chili ujKitd — Hook journ flT bot 2 D 155  
Hook 1 fl antaict 2, n .)4C, t. 124 Betula antaictica I'oist.l CommGott.b!  
,> />, J «lul)iiMiih I c t 26. F PoistenHook I e t s Caluspaiassus  
Jjoluloules ot C foisten Hombron et Jacquin \oj Polo sud t o el 7 Folia  
secundo anno taide cadiva, Petioli I I ' lm longi, mm ramujii velutmi. Lmbh



5-9 hn longi, 3-7 hn lati, norvis et textfyr Jp Dombeyi feed dgntibus o'btus(p-  
nbMS puñYjfe saepius manifesto, et nervis laterahbusmuncad aenfes feunff-ed  
sinua obtuse tendentibus. Flores masc. similes, ðæpius (semper 9)<solitarii.  
Fructus magritf. simihs, lacinns vero crebriõnbus longionbus apige õbtusis  
(in JJook. / bene, in Mivbel male figuratis) £ 4 lobis duo (an semper<sup>9</sup>) bahi  
connati (v s)

11. <sup>9</sup> F. MEN/IESU (Hook. f. in Hook. ic. t. 65<sup>^</sup>, folns ovatis vel late ellipticis  
obtusis bail subcordatis vel maequaliter cuneatis conaceis duphcato-crenatis  
petiob excepto glabris, fl..., fructibus soli tan is brevissime pedicellatis, lobis pu  
beruhs dorso fimbnato-squamosis fimbrus hneanbus capitellatis erectis secus  
series ouec)er5 superpositasdispositis. § In<sup>^</sup>aontosisNovae Zelandi«e inutràque  
insulá — flook. r. fl Ntv. Zel. 1, p. 229. Arbor excelsa, ramuhs fulvo pube-  
scentibus. Folia 4-5 hn longa lataque, petiolo lineam longo pubescente, vems  
mcqnspicuis Fiuctus 3-4 hn. lxmgi, lobis a |m\* distinctis, lacimis dorsahbus  
5-6 & ^mpulá sene, apice inflato excurvis Nuculas puberulae, 3-alatae, ahs  
apice prominentibus acutis<sup>^</sup> sinubus ex lacihin (lobis pengonu<sup>9</sup>) flmbnatis  
|ernatio ignota.
- 12 ?• tP<sup>CA</sup> (Hook. f.I in Hook. ic. t. 630 et 631), folns ovatis# vel ellipticis obtusis  
basi cuijeatâ mtcgis\* caeterum grosse serratis, nervis lateralibus ad dentes  
tendentibus, pedunculis masc. petiolo sublongionbus nutantibus 3-flons, pen-  
goQl late mfundibulifonm puberulo obtuse 5-6-lobo, anthens apice callosis  
obtusKffructibus anllanbus sohUnis sessitibus, lobis ovatis dorso squamis  
umbricajij ðuberulis ovatis et supenonbus ovato-lanceolatis tectis. ^ In mon-  
fosis utnusque jnsulae Novae Zelandiae. — Hook f. fl. Nov. ZeL 1, p. 229.  
Ramub lun. petiob et pedunculi tenuiter pubescentes. Folia 9-15 lin. longa,  
6-9 hn. lata, novella pubescentia, cito glabrata. petiolo 1 2 lin. longo, venis  
paiumparspicuis. Pengonium mWSC vix 2 hn. longum. Antðerae glabrae, hn.  
longtf. Fructus 4 lin longus, ovoideo-globosus, bracteis late ovatis, squamis  
\arns coioratis. Nuculse 3-g«nae, nitidse, puberulae, 4 hn. longs, lacimis an-  
gustis senceis pengomi termmatse. Flores ex var. p, fructus ex a descripti.  
(v. s. a cl. Hook. f. » cõmm.)
- a, *Hookeri*, foliis membranaceis siccitate cnspatis, dentibus majoribus acu-  
tis, neryis ^teralibus utrmque 5-6. — Hook. ic. 631. (v s)
- (3, *Colensoi*, foh>6 conaceis, dentibus mmonbus obtusis, nervis lateralibus  
utnnque 3-4. — Hook ic. 630 (v. s)
- 13 F. SOLANDRI (Hook f.f m Hook. ic. t. 639), folns oblongis elhpticisve parvis  
maigine undulato siccitate recurvo integris obtusis basi obtusis vel acutis  
subtus tenuiter albo-tomentos<sup>^</sup> fl. masc. subsessihbus, pengomo cupuhformi  
obtuse 5-lobo, anthens oblusis, fructibus axillanbus sohtarns subsessilibus,  
valvis *ovato-ohlongis* dorso squamis unisenatis imbrjcatis<sup>9</sup> obtubissimis tectis  
nucuhs brevionbus. § In montosis utnusque ms. Novae Zelandiae — Hook. f.  
11. Nov Zel. 1, p 230 Ramuli velutmi. Folia 4-6 hn longa, 2-3 hn. lata,  
petiolo } lin. longo, nervis lateralibus utrmque 4-5, veins crebre reticulatis,  
maigme subcalloso. Flores, masc. ex Hook. f. approximate anthens octo, \$ lin.  
longis glabns/ Nuculse 3 lm. longce, puberulae, 3-gonae, acutae, valvas supe-  
rantes. (v. s.)
14. F. CLIFFORTIODES (Hook. f.mHook. m. t. 673), folns ovatis parvis acutis m-  
tepus subtus albedo-tomentosis, fl. masc. sulfcessihbus, pengomo cupuhformi  
obtuse 5-lobo, anthens subobtusis, valvis fructus pubescentibus lamellatis,  
Unielhs dentafSs. 5 vel J. In editionbus montium utnusque insulae Novae  
Zelandiae — Hook f. fl. Nov. Zel. 2, p. 230. An forma alpina humihor F. So-  
Uddn? Ramuli pubescentes. Folia 3 4 hn. lor%a, 2 3 hn. lata, petiolo <sup>x</sup>. hn.  
longo pubescente, basi obtnsa, apice ex ic. acuta vel subacuta, ex HOOK. f.  
(an lapsu jpennae) obtusa, newatione ex ic. ut in F. Solandri. Fructus non  
hgurati. Nuculse alatae.
15. F. CUNNINGHAMI (Hook joum of bot.2, p. 155, t. 7), folns ovato-deltoideis  
obtusis vel subacutis maequaliter crenato-dentatis basi Integrâ obtusis vel  
truncatis conaceis Rlabns vel cuneatis nervis lateralibus ad dentes tendentibus

eveniis, floribus masc. solitariishreviter pedicellatis, perigoniocampanulafb 5-7-fido, lobis lanceolatis acutis pntentibus, antheris apice obtuso calloso, fructibus solitariis b'reviter pedicollatis ovoideis, lobis dorso squamis plurimis verticillatis erectis gradatim angustioifbus capitellatis vestitis. 5 In Tasmanniã trequens (Labill! Cunningh.!), in Australia?, merid. coloria Victoria rarior (F. Mueller!) — Hook, f! fl. Tasm. 1, p. 346. Ramuli tenuiter pubescentes. Petioli }-1 lin. longi, pubescentes. Limbi ,V9 lin. longi, V7 lin. lali, jmuores vix ac ne vix pilosuli, nervis later, panim distinctiis. Podicolli pctiolo sublongiores. Fl. masc. ex ic. descripti. Fructus 3-3 J lin. longi. Bractcae basilares ovata3 obtusae. lAcinia in singulo verticillo partiali 2-4, inferionun verticillorum lanceolata?, sup. lineari-lanceolatt-e, extremitate excurviR et capitellatai. NuculffS-2-alata?, pubonilaB. (v. s.)

p, *microphylla*, foliis minoribus basi non cuneatis magis cotiaceis a medio t'xcurvatis — In Tasiajnã (Hook. F. Mueller D). Forma depauperata, myrlacea, foliis 2-3 lin^fcngis, 1 J-3 lin. latis. (v. s.)

### *Species dubia.*

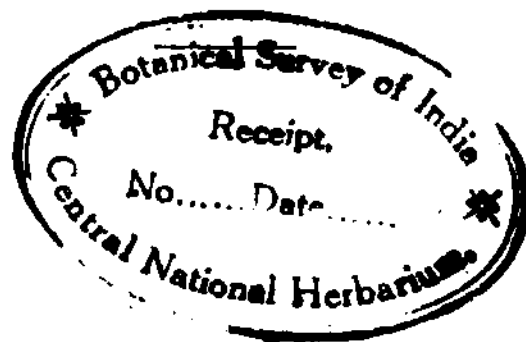
16. F. COCHINCHINENSIS (Lour. fl. Coch. ed. 8° 2, p. 699), arljuscula .Vpedalis, foliis congestis ovatis obsolete serratis glabris petiolatis, amentis masc. terminalihus, fl. raasc. calyce 5-fido, corolla 5-fidã, stamininus 12, fl. fem.^in cod. ramo inferiore, calyce 5-fido, corollã 0, capsulã muricatã 3-loculari \*trivalvi 1-spermã, seminibus castaneaB formã et colore. 5 In sylvis Cochincina. Floris masc. corolla est valde tenuis et membcanacea, ideo si nectarium vocare magis placeat non renuam. An F. sylvatica L.? — Haec e Loureiro. For-san Gastanea? aat Castanopsis? aut arbor diversissima?

### *Synonyma? dubia.*

- F. GLAUCA, F. NERVOSA et F. NITIDA, Philippi in Linn. 29, p. 43, 44, a Germain in prov. cbilensi Linares sine fl. nee fructu lectae. Ex descriptionibus foliorun^ vix species videntur, potius synonyma specierum in Chili cognitarum.

### *Species exclusx.*

- F. CASTANEA L. = *Gastanea vulgaris*.  
 F. Castanea Lour. = *Castanea Chinensis*.  
 F. GLUTINOSA PeEpp. et Endl. = *Eu4cryphiaj* sp. (Miers in Hook. f. ft- ^nt. 2, p. 346).  
 F. LUTFA Molina. = *Zanlhoxylum Magu IXcrifirn*.  
 F. COCHINCHINENSIS Lour. = *Castanea Cliinensis*.  
 V. JAVANICA Blume (ex Steud. nora.), in Bl. fl. Jav. non cil. = ? *Caslanopsis Javanica*.



Ordo CXCI. CORYLACEÆ. — Castanearum (sect. 1.) pars *Adaiw. fam. nat. 2, p. 375.* — Amentacearum pars *Juss. gen. p. 410.* — Cupuliferurum pars *Rich. anal. fr. p. 33, 92, Endl. gen. p. 273.* — Corylacearum pars *Mirb. elcm. 2, p. 906 (1815), Lindl. veg. Kingd. p. 290.* — Quercinearum pars *Juss. in Did. sc. nat. 2, suppl. p. 12.* — Gorylacea\*, *Hartig f'orsli. Culturpflanz. p. 111 (1840).* — Cupuli feræ, trib. *Goryleae Meissn. gen. p. 346 et 257.* — *Garpinea; Döll zur Erklar. der Laubknospen der Amentac. p. 15 (1848), // Bad. 2, p. 356.* — *Cupuliferai falsac Schacht Handb. 2. n. 441.*

Flores monoid, spicati, spicis unisexualibus. MASCULI in amento solitarii, bracteâ interne nudâ vel lobulis 2 adpressis juxlapisilis duplicate stipati, perigonio proprio nullo. Stamina plura, basi vel medio bractea} inscrla, inclusa; filamentis saspe partitis vel apice bifidis, loculis^idco discretis, erectis, apice sjcpius pilosis. Grana pollinis laivia, poris paucis dehiscencia. Kudimentum ovarii nulluAi. FL. FEMINEI duo intra singulam bracteam spicae brevis dispositi, bracteolis post florationem valde accretis basi cincti. Perigoniutn apice irregulariter lobatum. Ovariun inferum, moduli! quadam inferne iarctuin, placentis 2 prominentibus subbiloculare, placentd un! slerili, allerd apice ovula 2 gerente. Ovula pendentia, anatropa, integurneuto *simplici* tecta. Stylus brevissimus, in sligmaUi 2 elongaU lincaria divisus. Fructus ex bracteis arnplis foliaceis (bracteolis accrcrlis) et nuce intra bracteas occultakl constans: Nux aut nucula basi late umbilicata. Semen abortu nnicuin. Albumen nullum. Embryo radiculA super!, parv!; colyledonibus carnosus, facie intern! adpressis, radicul! longioribus. — Frutices vel arbusculoe in hemispluorio boreali vigentes; foliis alternis (saepius in cvolutione ramorum a I ad { transeuntibus, ex *Döll fl. Bad. 2, p. 537*), penninerviis, duplicato-dentatis, stipulaceis, in vernatione secus nervos laterales oblique plicatis, erga nervum centralem aut planis aut longitudinaliter plicatis, et ideo faciem superiorem concavam aut inferioris lalus unum erga axim praebentibus; amentis lateralibus, caducis.

Gharacteres natomici proprii adsunt in caule, ex cl. *Hartig, de quibus confer ad ejus praeclarum opus : Forstl. Gulturpl. p. 218..*

#### TribuB J. GAHPINEM.

Folia in vernatione erga axifti concava, nee longitudinaliter secus nervum centralem plicata. Garjella erga axim et peripheriam ramuli fructifetfi parallela (ex *Döll 1. c.*)

I. OSTRYA *Micheli gen. p. 4223, t. 104, Nees jun. yfji. pi. fl. germ. ic. fasc. 1 t. 13, Spacli in Ann. sc. nat. scr. 2, v. 16, p. 243, Enal. gen. tuppl. 4, part 2, p. 22.* — *Carpun ay. Linn.*

FLORES MASC. c -staminibus 3\*H ia axillâ bracteae late ovato-acut#



acervatis constantos Filamenta giaciha, non exserta, loculos 2 discretos erectos apice pilosos gerentia Pollen cylindricum saepius 4-lobum (Hassail in Ann and mag of nat hist 9, p 556). FLORES FRM in axilla bractee caducae germi<sup>7</sup> quisque intia bracteam secundaniam lateralem tubulosam per anthesin apice apertam, deinde cito accrescentem fusiformem et apice fere oclusam complexus Ovarium vertice breviter lobatum, interne medullam densum farctum, subbiloculare, ovulis 2 penduntibus Stylus brevis, e parte libera ovarii. Stigmata 2 elongata, lineana. Nuculae testaceae, loricatae, 1-loculares. Semen abortu unicum Cotyledonescarnosae, plano-convexae, obovatae, radiculam superam non tegentes —Arbores mediocres, etempeiatas hemisphaeri borealis, stipularum foliorumque forma et venatione Garpini (Doll Laubkn. Ament. p. 19). — De floribus et monstris notandis confer ad Meckhn in Bull. soc. nat Mosc. 1850, v. 1, p. 586, t. H5.

1 0 CARPINOFOHA (Scop (am ed 1772, v 2, p 244), nerus lateribus foliorum utroque late 1 j 17 J-y In Europa merid et Asil contermina, nempe tib ragoni L sept (Asso in Lange prodr cit sed ex silentio dlor non vensim ), potius a Galloprovincul (Mut , Gien et Godr fl fi , Reffuen' in h DC), Saidini\ (Mons fl ), licino Heh (h Boiss '), Tyroli ital (h Boiss '), Canntina (Graf) pei Italiam ' GiiPciam<sup>1</sup> Ruinchim (h. Boiss ') «ul famum Cilicior (Kotschy<sup>1</sup> 18)3, n 279, 91, Balansa' 185''), u 774), Linanum (Kotschy' 18>5, n 584. B'oiss ') et Sher Armenice (C Koch in Linn 22, p 331) 0 ita hca, Carpini iolio, etc , Mich gen p 223 t 104 Carpinus Ostrya L sp 1> 1'J17 (excl syii amti ) Nou\ Duham 2 p 200, t 9, Noes Jun 1 c, MichXiiiili Ame<sup>^</sup> 3, t 7 (nontext) 0 Milgdi is \N illd sp 4, p. nis 1, p 469, Hartig foist t 22, Reichb IC t (3'J 0 Hdlua Spich 1 c Fohn juniora utnque pubescentia, adulta in parenchymate Ralnescentn, pilis nerorum longiusculis adpressis Petioh l 6 lin longi Limbi ovdto \el elliptico acurai nati, bisi oblusi, duplicato-serrati, 1 J-4 poll longi, J-2 poll Uti btrobili matun J 1 i poll lon<sup>n</sup>i ovoideo cyhdnci Bracte.T late o^ato acntap, lugaces, I 1,\* Im longjp Bractearum fructum mvohentes ovdto-acutp, compressa<sup>1</sup>, pallidap, Jasi liirsutdj, cneterum glabnucuhe, medi p longioies, 0 lin longa. Nucula 1 \* 2 hn longa, ovoideo acuta, laeMs, glabi i, pdutinervia, vertice coronâ minima caduca sublobata lonffe cihatâ terminata (v s)

2 0 VIRGINICA (Willd sp 4 p 409), nevis lateralibus fhorum utroque latere II l') 5 ') In Amencâ sept a Novo Biunswitk (Michx) et liciim Winipeg (Richdids in Hook 11 boi dm ) usque id Floriddm (Uigel) et etiam montem On/aba. Mevici (Botten » 977), pro\inc Jlddpje (Linden' 26, in li Boiss) ( arpinus Virginiana florescens Pluk dim t 1 >6,1 1 CaipinusOstiya Linn sp p 1417 (quoad s>n amei ) Caipinus Yugmiana Lam diet 1, p 700, Abbot insect 2, p 151 t 75 (fide auct) O Virginica Willd Baum 2, p 200, loud enc ties, p 921 c ic , Spdch 1 c , Lmeison lep ties Massith p 177 O amencand Michx aib 3, p 54 (non ic ) O vulffdns Wdts dendr t 143. Carpinustnfloia Mnnch meth p \*94 Auctores nonnulli pluimos caracteres ab O caii)iniolita differentiales indicant, sed e\ speciminibus h mei et Boiss mini imlii ceitum nisi nem laterales pauciores in arboie amencana, quod etiam in loins lon^e .iciimuutis (linden' 20) pdiilo dulmmi evenit Stiobilli nunquini cernm ex Pursh 11 am 2, p G24, quod negat cl bpadi, eiecti et demium cernui e\ Lnierion 1 c In herbirns erectos pleiumque Tidi m amencana, cernuos in gerontogea, sed lnteidum rami flaccidi e\siccantur et inde chai in sicco dubius Pili fol et lamorum breviores in amencand, sed m ipso ramo ^a^lale semcl vidi I\ Willd novella pilis apice glandulosis gaudent, quod vanat (\ Spdch Biactea liutt inteine magis pubescentes (an sempei) Linibus peng ex Spach major in amencana, sed ex obs (non satis numerosis) mhil ceitum \idi landem aut species vix differunt, aut arbores uiltjj conlusje \el male obs in enoies tiaxeijunt (\ s)

I. CARPINUS Tourn <sup>onst</sup> 1, p 582, t 348, Linn gen ed ] p 729 (excl Oitrya), Grrtn fr. 2, t 89, Spach in Ann sc nat \*er 2, v' 16, p 248,

*Endl. gen. suppl. 4, pars 2, p. 23, Dcell zur Erkl. Laubkn, p. 15, f. 13, 14, Schacht Lehrb. 2, p. 440, t. 9, id. der Baum, t. 4, \ 1-9.*

FLORESMASC. e staminibus 6-12 in axill/L bractee ovato-acut<sup>33</sup> acervatis constantes. Filamenta gracilia, non exserta, loculos 2 discretos erectos apice pilosos gerentia. FLORES FEM. in axillâ bractee caducae gemini, quisque intra bracteam secundariam accrescentem occultatus. Ovarium plurinervium, apice breviteret inaequaliter lobatum, interne medullâ diu fartum, sursum subbiloculare, placentis 2, quarum una apice ovula 2 pendentia praebet, altera sterilis (Schacht 1. c). Stylus brevis e parte liberâ ovarii. Stigmata 2 elongata, linearia. Nuculae sublignosae, plurinerviae, uniloculares. Semen abortu unicum. Cotyledones carnosae, plano-convexae, obovatae, radiculam superam tegentes. — Arbifres mediocres vel rarius frutices, hemisphaerici borealis; foliis alternis, penninerviis, duplicato-serratis, secus nervos laterales in vernatione plicatis (non vero secus nervum centralem), parenchymate pellucide punctulato; stipulis caducis; amentis lateralibus; spicis femineis terminalibus. Bractee secundariae sive laterales basi utrinque lobatae (foHum et prophylla), evolutione insignes nam sub anthesi cito crescunt, praesertim e parte centrali, et bractea externâ delapsâ involucrum simulant. Germinatio epigaea (Hartig, t. 104, f. 8). — De vernatione confer ad Zucc. char. Holzgew. t 2; Henry Knospnbild. in Act. nat. cur. 22, part. 1, t. 29 ; Döll 1. c.

1. C. BETULUS (Linn. sp. p. 1416), foliis ovato-ellipticis acuminatis vel rarius obtusis basi obtusis vel cordatis crebre duplicato-serratis nervis praesertim paginae inferioris adpresse et longe pilosis, bracteis fructum involventibus 3-nerviis trilobis margine sparsim dentatis vel integris, lobo centrali oblongo obtuso, lateralibus ovatis 2-4° brevioribus, nuculis 7-11-nerviis. In temperatis Europae et Asiae, nempe a Pyrenaeis hispanicis (Colm. cat. p. 145) ubi vix inligena? nam in Pyrenaeis (Galliae non adest (Zetterst. pi. Pyr. p. 237), certius a collibus Galliae ineri. prope Tolosam (Xoulct fl. sous-pyr. p. 81) et Telonem (Rob. cat.), Italiae centralis (Bertol. fl. 10, p. 233), Peloponnesi (Exped. Mor. p. 273), Bithyniae (h. Boiss.), Georgiae caucas. (Hohen!), Ghilan (Auch. 5329), Asterabad (Boiss. et Bulise Aufz.) usque ad Angliam merid. (Wats. Cyb. 2, p. 378), Succiam merid. (Hartm. fl. j. 201), Curoniam (Fleisch. fl. Kurl. p. 338) et Roasiam merid. (Ledeb. fl. 3, p. 586). — Engl. hot. t. 2032, Schk. Hamib. t. 304, Nouv. Duham. 2, t. 58, Hartig forst. p. 229, t. 21, Nees jun. gen. ic. fasc. 2, Heichb. ic. t. 032, Döll et Schacht 1. c. C. edentula Rochel Banat. (sine closer)? C. intermedia Wierb. ined. Reichb. ic. t. 633. C. Carpinizza Kit. in Host fl. austr. 2, p. 626 (de hisce syn. conf. Neill. Nachtr. / Maly, p. 76). Gemma accessoria Irequcns sub vulgari adest (Viaud Bull. soc. hot. Fr. 1860, p. 840). Folia 1-3 poll, longa, petiolo 3-6 lin., in parenchymate glabrata. Lobus medius bractee involventis 9-4 lin. longus, saepe hinc dentatus illinc integer. Nuculae 2-4 lin. longae, ovoideo-compressae, inter nervos laeves aut depressae, glabrae, lobis inaequalibus, nunc lanceolatis, nunc ovatis, erecto-conniventibus, nunc (in cultis) erectis. (v. v.)

[J, *quercifolia* (Desf. hort. par.), foliis inaequaliter lobatis, nunc pinnatifidis, lobis acute dentatis. Var. hortensis. Folia frequenter formâ vulgari ex eodem rario quam pinnatifida. (v. s.)

2. C. CAHOLINIANA (Walt. fl. Car., 1788, p. 236), foliis ellipticis ovatisve acuminatis raro obtusis basi obtusis raro subcordatis crebre duplicato-serratis nervis praesertim paginae inferioris adpresse et longiuscule pilosis, bracteis fructum involventibus 5-7-nerviis c basi lalâ indivisâ trilobis margine sparsim dentatis, lobo centrali ovato-lanceolato hinc saepe intero, lateralibus ovatis multoties brevioribus, omnibus acutis vel obtusiusculis mucronulatis, nuculis 7-11-nerviis. In America boreali a Florida (Chapm. fl.) et Louisiana (Tainturier!) ad Terram novam (La Pyl!) et Canadam (Hook, fl.), a mare Atlantico ad Saint-Louis

- (Riehp 218 m h Böiss) C amencana Mich\ fl bor am 2, p 201, Mich f arb 3, t 8, Wats dendr t 1 > I (ubi lobi peng male fig), Guimpel et Hajne Hob t 84, Lou] enc trees, f 1714 Spich in Ann so nat ser 2, v 16, p 253 Omnid fere C Jtetuli, minquam ^p^o arbor elata bractee imolucris tasi ampliore et mde plunnerviaj, lobis lateralibus minoiibus Caeten char auctorum non validi (v s)
- 3 C VIMINEV (Will heib anni 1824 Inidi in Will pi as rar 2, p 4, t 106), folim o\ itis lon^c acuniinitis basi ol)tusis vel subacutis duplicato-senatis glabiatis bracteis fructum in\ol\entibus o\at) lanceohtis basi J-4 neiwA grosse paucidentatis, a medio mtcgiiis \el subdentatis uno latere angustiorc sjcpus mtgens, nuculis, o^ideo auitis 7 8 nenns lcsinoso punUatis > In Nepalia (Wall '), Kaimon (Wall ' list n 2800, Hook f. et Thorns) alt 6 7000 ped et ad Mussooiee (Rojlc ill) —Loud enc tiees, T 1716 Petioli gi idles, ) 6 lm lon^i junioies duplici modo pubescentes pilis longioubus mtei minimos sparsis deindo ^hbn Limlji 2 4 poll lon^i, 9 18 lm lati, icumine an fiisto, nenis suiitus spaisinT p losis pilis longiusculis obhquis, dentibus 1 3 inter dentes majoies Stiobili h\i Biactci liucl 9 lm loit^de, lateic uno lecto subintegio Nuculae 2 lin longa., lobis lanccolatis pauus erectis (\ s)
- 4 C FACINEA. (I null in Wall pi as rar 2, p 5), rfohis ovato-oblongis acutis argute senatis glabns petiolis larnul sque pubescentibus, biacteis fructifens subihombeis giosse dentatis acutip, retiuil itis —In Fniodo ad Guiwal a C orientali accedit Diffeit fol forma et niaigme, nee non bi icteis di\eisissimis r> —Cl Hartig ad C Dumensem refcit (Foist p. 2J2) An vidit si)ecimen?
- 5 C DUIVENSIS (Scop Cain cd 1772, n 1190 t 60) folns ovmtis \el ellipticis acutis \el n nus ohtusis bisi obtusis \e\ subcorditis dujilicato senatis nervis piaceitim sulilus pilis lon^iuscuhs adpussis pubesceitibus strol)ihns densitlois, biactus liuctitens miple sulxlniudiato o\ itis atutis 68nn\iis^ino latere grosse cL plmi dcuiliis ilt( to subinttgn wl paucidentitis nuculis 10-1J neivns <7 In Furopi mstio onentili et As i occid a Binitu (Heuff '), Foiojulio et Istna' (piupe Duino fiequens Scop , Boiss ') pti II ill mi centialem (SaM^1) usque ad Siuliam (Guss syn ) per bi BLI im (Heidi ' 2007, Oiph ' 103) et Rumeliam (Fnwald ') ad tiliciam (Bal insa ! 773) launcam (h Dr ') (aucasum niond ' et Ghihn (Auch ' >328 in h Boiss ) C onentilis I im diet 1, p 707 \ its dendi, > t 98, Reichb ic 12 t 6\*4 ( Duintensis Beitol fl ll Jf) p 2H Kami jun stucco pilosi Petioh 2 4 lin longi, pubescentes Limbi 9 24 lin longi, (^ 1 > lm lati Biactcje fiuct suj)orpositae, 7 9 lm longae, 4 6 lm basi latde et lbi maigino infle\cC Nuculr ovoideo-acuU, 2 lin longa, glabue, lobis conniventibus mmimis lanccolatis pilosis

### *Species txclusx*

C LROSA BI<sub>x</sub>C JAPONICV BI cj( LAMHJRA BI siiiit Distegocarpi sp.

III DISTLGOCARPI s Siebold tt /ucc pi Jap fam nat sect 2, p 102, t | {ubi trroi. m fig ^i> et 6) — Cnpim ^p Blumc Mus lugd bat 1 p 308 (ubi error m obs. de iniol)

FLOMS MASC e stammibus 6 8 in axilld geniculata bracted substipitatae ovato-icuto, inseitis conslantcs Filamenta graciha, non exserta, \ane bifida, loculis terminahous discretis ereotis apico pi'osis. FJORES ikM in axilla bractee persistentis ^emini, quiscjue intra biacteam secundanam accrescentem li^ula lotunditi minima 1 asi intus auctam occultatus Ovauuin stnatum, apice sublobatum St\lus brevissimus. Stigmata clongata, lincana. Nuculdu et semen ut in Carpino (ex Zucc) — Arborea Japonic®, loins, vernatione et stipulis Garpini An genus > an potius sectio Carpmi > Diversitas ex. Infloitscentia solum dicitui, sed clnr omnes non satis cogniti, et bractee m Ordino majons momenti quam n alns vidtntut — Fna\it picloi in Sieb et Z quando fructum

inter bracteam et ligulam suam figuravit (f. 6) et bracteas externas omisit (f. 4). Gl. Blume 1. c. serius aliter erravit, lobum internum (Zucc.) sive ligulam pro margine bracteae accretae sumens. Hunc lobum internum optime in *D. Garpino* fructifero vidi, sed in floribus *D. laxiflorae*, ante evolutionem bractearum lateralium frustra quaesivi. De ejus naturâ nihil cognitum : an limbus? bractea tunc e stipulis 2 connatis; an appendix o duplicatione folii?

1. *D. CARPINUS* (Siebold et Zucc. 1. c. p. 102, t. 3, f. 3), ramulis petiolis pedunculisque ferrugineo-tomentosis, foliis c basi iikCquali subcordatâ vel obtusi ovato-vel elliptico-acuminatis duplicato-serratis junioribus in nervis (subtus praesertim) pilis adpressis ferrugineis deinde glabrescentibus, strobilis ovoideis densifloris, bracteis ovato-lanceolatis dentatis, brae tool is secundariis in fructu ampliatas bractea raultoties longioribus ellipticis passim dentatis. 0 In Japoniâ. *D. carpinoides* Sieb. et Zucc. 1. c. in explic. tab. *Carpinus Japonica* Bl.! Mus. Lugd. bat. 1, p. 308, Moritzil pi. cxs. jap. 167. Petioli 4-6 lin. longi. Limbi 2-4 poll. longi, 9-18 lin. lati, uorvis utroque latere 22-24, denlibus e basi ovatâ subulatis. Stipulae oblongae, 7 lin. longae. Amenta pollic. squamis ovatis, 2 lin. longis. Bracteae primariae 1j lin. longae, secunuariae 7-9 lin. longae, 3-5 lin. latifi, 5-7-nerviaa> auriculâ internâ lin. iongâ. (v. s.)
2. *D. LAXIFLORA* (Sieb. et Zucc. 1. c. p. 103), ramulis petiolis pedunculisque subpubescentibus, i'oliis e basi ssepe inaequali obtusâ ovato-vel elliptico-acuminatis duplicato-serratis junioribus in nervis (subtus praesertim) adpresse pilosis deinde plabratis, strobilis clongatis laxis, bracteis longe lanceolato-acuminatis, secundariis (in fructu ? ex Bl.) subtrifidis lobo medio lanceolato elongato acuminato inaequaliter serrato vel uno latere subintegro. () In Japonia. *Carpinus laxiflora* Bl.! Mus. Lugd. bat. 1, p. 309. Ex specimine floril'. iLBluniK coinm. pili in novellis adpressi sparsi; pelioli 3-G lin. longi, linibi r2 ^ poll. longi, 8-15 lin. lati, nervis utroque latere circ. 20 (noc 8-13 ut dixit Bl.), dentibus ut in *D. Carpino*. Stipula3 oblongo-obovatae, subacutae, dorso ut in *D. Carpino* adpresse pilosulfp. Fl. masc. ign. Racemi fern. 15 lin. longi, sparsiflori. Bracteae 2-3 lin. longae, apice jilosae, floribus duplo longiores. Bracteae secundariae tune bractea multo minores, anguste lanceolatae, basi pilosae. Strobili (ex Bl.) 2-3-poll. (v. s.)
3. *D. ?EROSA*, ramulis novellis petiolis et strobilorum pedunculis glabriusculis, foliis e basi in;c<juali subcordatâ vel rotundatâ ovato-oblongis acuminatis eiioso-serrulatis glabriusculis vel in nervo «medio et lateralibus subtus pube rarâ obsitis, strobilis cylindricis, squamis ovatis acutis serrulatis vel altero latere subintegris in basi inaequilatâ convolutâ nuculam occultantibus. — In Japonia. *Carpinus efosa* Bl. Mus. Lugd. bat. ], p. 308. Folia 2 1/2-3 ^ poll. ionga, l'J-2 poll. lata, petiolo 5-7 lin., semipellucida, nervis lateralibus utriinjie 16-20. Strobili 2 }-3 poll. longi.
4. *D. ? CORDATA*, ramulis novellis petiolis et strobilorum pedunculis subpubescentibus, foliis e basi profunde cordatâ ovatis vel ovato-oblongis acuminatis inaequaliter miicronato-serratis in nervo medio utrinque et in lateralibus subtus subpubescentibus, strobilis ellipsoideis squamis ovatis acutis miicronato-serratis in basi ina?quilatâ convolutâ nuculam amplectentibus. — In Japoniâ. *Carpinus cordata* Bl. 1. c. p. 309. Folia 2 & 4 poll. ionga, 1 J-2 poll. lain, petiolo 5-8-lin., pellucida, nervis lateralibus utroque latere centralis 16-20, in paginâ sup. }ube brevissimâ scabridis. Strobili 2 poll. longi. — Praesentem et *D. erosam* inter *D. Carpinum* et *D. laxifloram* collocavit cl. Blume, sed bracteas et ligulam intra bracteas secundarias non descripsit.

#### Tribus II. *CORYLE* &.

Folia in vernatione secus nervum centram loDgitudinaliter plicata, inde uno latere axim ramuli spectantia. Garpella erga axiin antice et postice sita (Döll 1. c.).

IV. CORYLUS *Tourn. inst. p. 581, t. 347, Linn. gen. n. 730, Spach in Ann. sc. nat. scr. 2, v. 16, p. 98, Nees jun. gen. fl. germ. ic. fasc. I, Hartig forstl. Cult. Pflanz. DeutsM.p. 217, t. 15-17, Dcell Rhein. Fl. p. 273, ejusd. iwc Erklar. Laubkn. Ament. p. 19, f. 16, Henry Knospbild. in Act nat. cur. 22, part. 1, t. 28, Schacht Lehrb. p. 441, t. 9 (der Baum, t. 4), Doehmahl Fuhrei in d. Obstkunde 4, p. 29 (uM 7 spec, et 108 rar. caufe distinguuntur).*

FLORES MASC. BracteaB amenti cuneiformes, bracteolas 2 juxtipositas interne supra basim foventes. Stamina 4-8, in medio squamae secus lineas 2 inserta; filamentis breyibus, gracilibus, apice loculum vel 2 loculos discretos gereTitibus; potius (theoretice) stamina 4, nunc antheris, nunc antheris et filamentis partitione divisis. Pollinis grana sphaenica, poris 3 dehiscentia (Hass. in Ann. and mag. nat. hist. 9, p. 556). FLORES FEM. in axillâ bractese gemini; quisque intra bracteam secundanam lateralem et 2 bracteolas interiores, quae omnes post floracionem evolutae et dein accrescentes. Ovarium apice breviter et irregulariter lobatum, interne medullâ farctum, versus apicem subbiloculare, placentis 2, quarum una apice ovula 2 pendentia praebet, altera sterilis (Schacht, 1. c. f. 19, 23). Stylus breyis e parte Jibcra ovarii. Stigmata 2, elongata, linearia. Nuces plus minus lignosae, uniloculares. Semen abortu unicum. Gotyledones carnosae, plano-convexae, obovatae, radiculam buperam tegentes. — Frutices vel arbusculae, hemisphaerii borealis extratropicalis; folns alternis, penninerviis, duplicato-serratis; stjplulis caducis; amentis praecocibus; spicis femineis gemmiformibus; bracteis secundariis et bracteolis accretis nucem involventibus. Germinatio epigaea (Schacht d. Baum). — Bracteae interiores floris masc. et feminei prophylla sunt, ex Doll 1. c, nee equidem stipulae mihi videntur quum erga folium internaB sint.

Vernatio foliorum optime in tabulis Henry et Döll figurata, in Zuccarini Charact. Holzgew. t. 3, quo casu nescio, erronea.

#### Sectio i. ACANTHOCHLAMYS Spach 1. c. p. 108 (mutato char, praecipuo).

Filamenta stammum saepius 4, Integra, loculos 2 discretos erectos gerentid. Lobi et laciniae bractearum lructus extremitate ngidi. — Ev stauinibus accedit ad genera Ostrya, Garpinus et Distegocarpus. Vernatio tameii Coryli'

1. C. FEROX (Wall.' list n. 2797), folns e basi obtusa ovato-oblongis acuminiatis duplicato-serratis nervis laterahbus utnque 10-12, supra sparsim vilosis, subtus nervis pilosis parenchymate glabro, petiolis pubescentibus, iructibus in capitulum glomeidtis, bracteis nuceni mvulventibus eA duplo niaioribus niultifidis, lobis ramoso-pinnatis, lacinnis lineam-acurainatis divancato-patentibus<sup>^</sup> extremitatibus praesertmi loborum pungentibus. 5 In NepiliA ad cacumen montis Sheopore. — Wall, plant, as. rar. 1, p. 77, t. 87, Loudon enc. trees, p. 925, f. 1729. Gemmae ovoideae, senecae. Petioh 6 hn. longj. Limbi 3-4 poll, longi, 15-20 lin. lati, dentibus crebns majonbus ab alus parum diversis et minime lobos dicendis, pihs subadpressis. Amenta gracilia, cmereo-pubescentia. Bracteae ovatae, obtusae, vi\ lmeam longos; bracteolae mternae gemmae, vix breviores. Stamina 4-6, filamentis minimis, anthers bipartitis, loculis elhpsoideis apice pubescentibus. Fructus (ex ic. et descr. Wall.) in capitulum 2-3 poll, latum, nutans gloinerati. Bracteae in\olucn 2, amplae, cano-villosae, medium usque divisae. Nux ovoidea (ex descr.), globosa 6-7 lin. lata (ex ic). Semen Avellanae. (v. s.)

#### Sectio n. AVELLANA. — Sectiones Avellana et Tubo-Avellana Spach, I. c.

Filamenta saepius 8 (ex partitione potius rami filamentorum dicenda?), loculum smgulum geientia. — Cl. Schacht (Handb. t. 9, f. 24) errore aut ex obs. monstn, filamenta bifida apice ramLrum loculos gerentia ostendit, aln (Nees, Le Maout, Hartig 11. cc), filameuta, ut ipse vidi, a basi distmcta vulerunr.

- g 1. *Bractee fructum involventes distinctae, involucrum campanulatum vel subcylindricum praebeant, dentibus et extremitate non rigidis.*
2. *G. HETEROPHYLLA* (Fisch.! herb., a Besser in Flora 1834, Beibl. p. 28, cit.), foliis o basi cordata late obovato-truncatis irregulariter serrato-dentatis lateraliter passim sublobatis facie extrema 5-7-lobato-dentatis lobo centrali abbreviato lanceolato extra nervos demum glabratis petiolis pubescentibus, fructibus 1-3 pedunculo brevi insertis subglobosis, bracteis 2 amplis nucem paulo superantibus inaequaliter 6-7-folis lobis acutis patentibus passim dentatis, dorso bractearum integro convexo nervis striato puberulo setisque rufis plus minus lispido. — In Dahuria ad fl. Argun (Pall., Fisch.!), ad fl. Amur (Maximow.). Describit Coryli omnes in Ural et Sibiria occid. — Trautv. imag. ross. 1, p. 10, t. 4, Turcz. fl. Baik. 2, p. 134. *G. Avellana* Pall. fl. pss. 2, p. 22 (quoad plant. sibir.)- *G. tetraphylla*, (err. typ.) Ledeb. comm. in Gmel. p. 58. *C. Avellana* var. *Daliurica* Ledeb. fl. ross. 3, p. 688. Petioli 5-12 lin. longi. Limbi 1)-28 poll, longi et extremitate lati, nervis lateralibus utrinque 6-6 obliquis ad dentes majores sublobulosis leniuntibus, nervo medio apice attenuato lobulum magis distinctum abbreviatum praebent. Fructus fere pollicaris. Bractee 2 maximae, basi bracteis externis minoribus latis laciniato-dentatis varie flexis cinctae, lobis supremis 3-5 lin. longis varie patentibus vel reflexis parte integra brevioribus nervosis. Nux globosa. (v. s.)
- (*S. Thunbergii* (Blume! Mus. Lugd. bat. 1, p. 310), dentibus foliorum minoribus, pube petioli setis glanduliferis saepius mixta. — In Japonia. *C. Avellana* Thunb. fl. jap. p. 160. *G. Hasibanii* Sieb. Kruidd. Naaml. p. 27. *G. americana* Sieb. syn. pi. Oecon. in Bat. Verh. 12, p. 26. Pili glanduliferi petiolorum non omnino desunt in a. (v. s. florif.)
- Y. Sieboldiana*, foliis amplioribus quam p similiter dentatis, setis glanduliferis petioli frequentioribus, bracteis majoribus fructus nucem duplo majoribus. — In Japoniae montibus Nikoo. *C. Sieboldiana* Blume! in Mus. Lugd. bat. 1, p. 310. Kx specimine meo (flor. et fr. orbato) folia *C. heterophyllae* sibiricae subsimilia, in eodem ramo 1)-3 5 poll, longa lataeque et truncata vel lobo medio longiore. (v. s.)
3. *C. AVELLANA* (Linn. sp. p. 1417); foliis late ovalibus vel obovatis cuspidatis vel rarius acutis cordatis irregulariter duplicato-dentatis extra nervos demum glabratis, petiolis pubescentibus et passim setis glanduliferis obsitis, fructibus plerumque geminis ternisve ovoideo-campanulatis, bracteis fructus palmifidis, lobis acute laciniato-dentatis apice erectis aut patulis, tomento brevi nonnunquam setis paucis sparsis mixto. — In montibus Hispaniae centr. (Isern in Cutafl. Madr.) et Algeria? (Munby cat.) ubi rara, et praesertim Sardiniae (Moris fl.), Siciliae (Guss. syn.), Peloponesi (Exped. Moree, p. 352), Ponti (*C. Koch* in Linn. 22, p. 330), Karabagli (Szovv.!) et Talusch (*C. A. Mey. Verz.*), usque ad fines merid. prov. Viatka et Vologda (Trautv. pf. geo. Verh. 3, p. 43), Fenniam (Ledeb. fl. ross.), 63° lat. in Suecia (Wahl. fl.), (jy in Norwegia (id.) et Orcades (Wats. Cyb. brit. 2, p. 379); olim in Shetland (A. DG. geo. bat. p. 995). — Lam. ill. t. 780, f. 5, Schk. Handb. t. 305, Hartig forst. t. 15, Dietr. fl. bor. t. 842, Nees jun. gen. fl. germ. ic. fasc. 1, Reichb. ic. 1. 636. *C. Avellana* et *G. Pontica* Doehl. Anal. Fuhr. Obstkunde 4, p. 38 (non *G. Koch*?). *C. Srenyaua* Plusk. CEstr. bot. (fide ipsius ex Neilr. Nachtr. z. Maly, p. 77), *C. intermedia* Fingerh. in Linn. 1829, p. 385. Petioli in eod. ramo 2-6 lin. longi, limbi 1)-3 poll, longi. Stipulae oblongae, obtusae, 2-4 lin. longae, pilosae. Fructus interdum 4-5 glomerati. Bractee saepius nucem subbreviares vel aequales, rarius longiores. Nux obovoidea, ellipsoidea, rarius ovoidea, vel subglobosa. — CM Uoelnn.-i. lil (F^nliror in (1. olisLkuiiilo h, J. 33) sedulo varietates 8^ distinctas quartum pars magna spontanei, siBissime hereditariae videntur, quam vis characteribus in eodem ramo interdum variantibus constitute, ex. gr. magnitudine) et forma nucis, elongatio brae team m erga nucem, etc. Distinctio specifica *C. Avellanae* et *C. Ponticae* in Doehm. 1. c. ex characteri-

bus relativis sunntui, ul fiuctus majoi, lulu Cdipico dinplioie, pencupm duio, etc bequentes \di e\ div duclonbus tt heib pi&seitun uotandae

p, *urtiafoha* (hoit), folus plus minus lobatis jncisive In hortis C hete rophyllid, laciniata, queicifoha, hortul

Y, *varugata* (hort), folus albo, auieo \el rubio vanpgatis — In hoitis. E\ tl Dochmahl 1 c coijli folus puipueisad C tubulosam peitinent, \ai legatee ad piaesentem

6, *latifolia* (hort), folusamplionbus — Cultd C latifoh i, filicifolia, hortul e, *glomerala* (Doclun 1 c), fiuctibus 7-10 in glomerulo. — Spontanea

**YI, *xstnahs* (Dochm 1 c p 36), fructu praecociore —>\*>pontanea**

**C, *crtspa* (hort), bracteis nucem superantibus lobis cnspatto-dentatis — In hortis Loudon enc f 1722**

**8, *grandis*, luctu majore. — In Italia, mend (Ten fl nap 5, p 263) et alibi in Luiopa mer vel onente, sed ab duct oniissa et saepius in hortis visa C Avelldna sphaerocdipi Reichb ic fl geim t 638, n 1303 (fig supenores in pdg). Vandt ut a nuce globosa vel ellipsjidea, bracteis nuce supeiionbus vel longionbus, et inde subvdi letates plus minus defi. nitae G Avelhna Pedemontina (Dochm), Hispanica (id) sive Barcelonensis ahoium Vnictates JS 89 in opere cl Dochmahl hie omnes refeiendde \idfnlui et lormas nunc spontaneas nunc cult is diveisas constituunt Quando nuces oblongae et braoteae maxiinae lobis acutis transit ad C. tubulosam (v s)**

k C GOLUHNA (Linn sp p 1417, pro parte), folus e basi cordaU hte o^alis ova libus obovatisve acutis vel acummatis duphcilo lentatis supr i pubc dcuin evanescentesubtusinnncmspetiohsque tenuilci \elutinis huctibus glomeratis, bracteis volutinis, infenoiibus e basi o\ati l inceolalis nunc diwsis, intenoibus majoiibus multifidis lacinns lon^e acummatis interns \cl passim dentatis eiecto divergenlibus nucem multo saperantibus -7 In Banatus mendiondhs sylvis montanis (HeuffeP), in llnicii ct Macedoni\ (Gnseb spied p 341), agro Bzantino (Sibth m bm piodi), Ponto (si C PonUca Koch cadem) — Wats dendi l)it t 90 (optimi), Lou Ion enc. tiees, p 923/ f 924,925,920 Norn Duham 4 p 20 spich in Ann sc 1 c (non Haitig, alioiumque), Dochmdhl Obstkunde 4 j) 52 (ubi \di pliir cultae optime enumeratze) C aiboiescens hoitul (non omnium) C Bizantma Clus hist p 11 (exel fi^ sujjenore simsti) Avellan\* Bj/antma J Bauh hist 1, p 270 G Indite ouentahs Sebi Mus t 27, f 2 (a Linn cit sed pessima et defectu fructus omno dubn) G stipulis lineanlms acutis Linn hort Cliff p 448 C Pontica 0 Koch in Linnaea 22, p 229 (ubi frutox dicitur, ut ohm a Clusio, sed irboiescit monente Linn) Specimen meum optimum HeiifMn cum ic Watson et fig supenoie dextil Clusn quadi it Lx PO pelioh 3° lm 10lm, limbi latp obhquc coi lm, 3 3 \ poll longi, ZS^ poll lati, nervis laterahbus mrinque 7 8 ad dentes sue lobulos piaecipuos tendenlihus, stipulis delapsis, amenta 3 4 poll longi, 3 lin lata, bracteis ovato-iculis velutinis lmeim longis. antherjp pauca, glabrae (ut in ic Wals \di in specinuno Wieibi/ki in h Boiss, e Banatu, pilos 1 2 ipice vidi) nuv globosa, matuid (m Wats) pirtem mtegiam liiacteirum non sii)cians, lacunae biactearum valde acuminatT filcatJG (v s)

P, *laeera*, pube bievi pcLiolorum ldmulorum biactearumque setis glandu- hleis m\ta — In Kamdon Indiae l)oealis C lacei i Wdl i hst n 2798 tohd speciei Hores masc junioies biactgis ovato-icummatis, anUitns apice pdosis Pmctus (ev involucro, mix fnim deest m specmiine meo) figurae citataj WLLSOIH t 99 uniuono siinihs, lacmus idoo lunge acuminatis pauculcnUlis vain lilcato fl(\is paite liitegia *sjLpc* longionbus (v s)

Y, *Jacquimonhi* licmns biacUdiuni liiiUileium pule uitegi i suLbuVIOM bus -y In Jiicli t l)3i occid i V(in iguead |u^uiu liiiliat| alt 2Q >O nicti G Jaciuunonli Decdisnc in \oy lac | put b »t n J^J i K(j Vi\ ab

aiboie Banatus vai. o differ t Pubes eadem, sed de involucro ait cl auctoi a interne glandulosum pilisque bievibus rans inspersum, » uride setae paucde \ensimilitei ibi adsunt Lacinide bractearum fiucf acuminatae, patenli falcat<£, paucidentatae Nux globosa

*B, glanduhfera*, pube brevi petiolorum peduncuh biactei unique setis glandulifens mixta, lacunis bractearum fructilerum minus acutis saepius dentato lobatis. In Banatu montoso sylvas effonnans et aiboies diametio bipedali (Rochel in Reichb), in Ponto (si C Pontica ead ) et in Phry già (Balansa' 132 in h Boiss). C. Columna Reichb IC t 638 C Pontica glandulifeia C Koch 1 c > Seta? glanduhferae in aifin speciebus variant admodum Ex Reichb. antheraj glabice

- 5 C TUBULOSA (Willd sp 4, p 470), loins e basi cordatâ ovahbus abrupte acuminatis uregulantei duplicato-dentatis supia dcmum glabnuscilis subtus in nenis et \enis pubescentibus, petiohs pubescentibus setis glanduhfens cum pube mixtis, amentis crassis, biacteis late ovatis acutis, huctibus 1-3 apice pedunculi, bracteis 2 maximis nucem subglobosam mlerne aicte involventi bus lbique velutinis cum setis glandulifens pube mixtis medio supia nucem plus minus coarctdtis inde expansis erectis vel erecto -diveigentibus dentato-lobatis lobis ovato-vel lanceolato acutis dentatis J In Istnâ (fommisini' 1038 in h Boiss ) et Banatu (Wierb ' m h Boiss ) — Lam ill t 780, fig q? Poir suppl 4, p 100, Koch syn ed 2, p. 738, Reichb ic. t 637. C Columna Hartig forst t 17<sup>9</sup> lommas<sup>f</sup> exs 1638 ^n Reich cit.), non Linn. Cor Avellana pumila Byzantina Glus hist p 11, fig sup sinistra (non alve) C tubulosa Doehmahl Obstkunde 4, p 38 (ubi var plunmae sedulo disting ), Hartig forst. t 16 (mediocr ) Forma et nugnitude foliorum et fructus omnino C Amencanae, cui propioi quam ulla Lv speciminibus lructif mihi cognitis non diversas, imo vix \anctates dixeam, sed bracteas juniores flons masculi non vidi, quae in American i subulatae Amenta crassiora m praesenti, squamis magis tomentosis Floros infenores subsessiles, supei stipitati Diveisitas physiologica adest nam amencana frigus m (an ida mend et Mass ichusetts patitur et europdea in pnte cahdiore tantum adest Antherae in duabus apice pilosde Vanant specimin i h Boiss fructu 9 24 lin longo, bracteis praecipuis plus minus conni\entibus, plus minus dentatis ot acuminatis vel acutis Nux ellipsoidea (an sempei<sup>9</sup>) (v s )

jj, *atropurpur<a* (Doehm Fuhr Obstk p 49), loins intense purpureis — In hortis frequens C purpurea, atropurpurea, etc , hortul C. Avellana puipurea Loudon enc trees, p. 922 (v v. sine fr )

- 6 C AMERICANA (Walt fl Car p 236), loins e basi cordate vel obtusâ ovatis vel ovahbus vel obovatis acutis vel acuminatis irregulariter duplicato-dentatis extra nervos demum glabratis, petiolis ]>ubescentibus setis planduhfeis cum pube mixtis, amentis giacililms, biacteis ante floiationem mucionato subfatis lructibus 1 4 pedunculo bievi mseitis, bracteis 2 maximis nucem subglobosam inferne arete invohentibus lbique velutinis cum setis ghncluhfons pube intermixes a medio ultra nucem expansis erectis vel patentibus dentato lobatis lobis ovato-acutis dentatis 3 A Canada et Illinois (Brendel trees III p 12) ad Caiolmam (Rugel' Frasei ') et Flondarn (Michx) — Michx fl boi am 2, p 201, Willd sp 4, p 471 Emeison trees Mass p 171, Diet sc nat t 102 (mediocns) C Avellana3 pusSpachl c. C Amencana humihs Wangenh arb p 88, t 29, lr 63 (mala) C humilis Willd Baumz p 108 Petioli 4-6 lin longi Limbi 3-3 J poll longi, 2 3 poll lati, nervis lateralibus utrinque 7 8 ad dentes passim majores tendentibus Squamae fl. masc cinereo tomentosae, juniores subulatae, adultae muticae Fi uctps perfecti pollicares et ultra, bractea basilan ampla iotundaU dentati 4-6 lin lata, biacteis majonbus cinereo pubescentibus setis bi unneis m paite evterna infeiore numero vanabihbus, limbo ultra nucem \ane flexo \ersus apicem solum lobato Nux tecta, subglobosa, demum laevis (v s )

P, *Mis\ourensis* limbo hractearum ultia nucem abbreviato, setis in petiolo rans in bracteis fructus nulbs — In Missouri prope Saint-Louis C Americana Riehl 91 in h Boiss !



§ 2. *Bractex fructum tniwlventes ultra nucem in tubum angustum elongatum apice lobatum plus minus coactx.* — Sectio 2. *Tubo-Avellana Spach I. c. (excl. C. tubulosa).*

7 C ROSTRATA (Ait hort Kew 3, p 364), folus e hasi coidatâ \el obtusâ late ovatis \el ovalibus acutis vel acuminatis inegulariter duplicate dentatis subtus in nenis petiohsque pubescentibus, fructibus apice pedunculi solitams paucisve divergentibus, bracteis fructum imolventibus hispida m tubum circa nucem (noideum dein .ingustaturu subiecuivum apice vane lobatum subcoactis paite angustioie alteia duplo fere longiore 5~3 ^n America, boreali versus Saskatchewan (Richaids in Hook fl ), Wisconsin (Brndel trees Illm p 12), Nova Anglui et secus Alleglinnios (h Boiss ') meridiem usque (Emerson) — Mich\ fl bor am 2, p 201, Willd Bauni/. p 108, Loudon enc trees, p 921, f 1727 (sine fr), Emoison trees Mass p 173 C coinuta Duroi haibk (fide auct) Stîpulde Idiiceolatae, acuminatae, 3 lin long?e, dentatae, subpubescentes Petioh 2 6 lin longi, pilis longis subadpiessis Limbi 1-3 poll longi, J-3 poll lati, nervis lateralibus utnnque 7-8 ad dentes majores (raro lobulos) tendentibus Bracteap fl masc ovato-mucronat«, hispidae Fructus 1J-2 poll longi, flonbus abortms et bracteis eorum parvis basi cmeti, externe pilis ngidis rufis basi dense obsiti, bracteis interne basi glabris, lacinnis apice 1 3 lin longis lanceolatis Nux ellipsoidea, 5-6 lin longa (v s)

P, *Cahformca*, collo fructus sublatoriop quam infera pars non longiore — In California *C rostrata* Benth pi Hartw ' (n 1960 in h DC et Boiss)

y, *Mandschunca* (Regel Veget Skizz Amur p 489), petiolo longiore (4 0 lin ), limbo lobato paulo amphore acumine abbreviato — Ad fl asiaticum Amur C *Mandschunca* Maxim ' heib Ex forma fohorum accedit ad *C heterophyllum*, sed fl et fr praesentis *Transitus* adsunt ad folia amencanae ex Regel 1 c (v s)

### *Species exclusa.*

C. TURTSCHANINOVII Besser in Steud nom = *Corydahs Turtschaninovn* Bess (ex transpositione in Steud)

Ordo CXCI. JUGLANDACEJE (1). — Terebintaceis affin. *Juss. gen. p. 375.* — Amentacearum gen. *Giseke, prxlect. Linn, p. 583.* — Juglandea DC. *Thèor. èlém. p. 215; Kunth ann. sc. nal. 1824, p. 343; Bl. fl. lav. fasc. VIII; Barlling ord. nal. 397.* Terebinth, trib.? 1, Juglandetc, *Meissner gen. p. 74.* — Juglandine *IJumort. anal. p. 11.* — Juglandcae *Endl. gen. p. 1125.* — Juglandaceae *Lindl. nal. syst. ed. 2, p. 180, vegct. Kingd. ed. 3, p. 292; A. Gray man. of bot. p. 401; Cas. DC. in Ann. sc. nat. ser. 4, v. 18, p. 5, t. 1-6.*

Flores unisexuales. Inflorescentia indrffinita, niodo uuisexualis et tune masculina ainentacca axillaris, lemiriea spicata terminalis axitlarisvfc; modo bisexualis et tune amenti pars masculina terminalis. Floris niasc. minuti pori^onium simplex, bractee intus adnatum, modo 6-lobum (lobo antio, bractee opposito extrriore), modo 2-3-lobum (lobo antico et •lobis duobns lateralibus aborHvis), moSo nullum. Stamina 3-36, porigonio intus vel hractetc basi inscrla, 2-multiscrla; filamciita brevissima vcl subnulla, libcra vcl imd basi coalita. Anlbcrrc biloeulares, glabrsr vel pubescentes, longitudinaliter dehiseentes, eonnectivo sajpissimc supra loculos producto. Pollen giobosuim, poris septem in circulo aequatoriali dispositis dehiseens (*Flassall in Ann. of nat. hist. 9, t. 16, f. 99*). Ovarii rudimentum rarum. Floris feminei braetea cum flore plus minusve coalita vel libcra. Perigonium modo duplex; exterius (in auct. calyx) enm ovario plus minusve connatum, cupulifonne, upice tri-muUi-deuU'tum vel bractrale involucrum fonnans; intei-ius (in auct. corolla) cum ovario connatum, apice 4-dentatum (dentibus 2 rachi oppositis in jrslival. exterioribus); modo simplex, cum ovario comiatum, mine basi cupuliforme, apicc 4-dentatum (denle anteriore rachi opposito, bracteali, caeleris longiorc exteriore), nunc c dentibus lateralibus duobus cum ovario connatis constans. Ovarium unicum, priinuim uniloculare, postea e disscp. 2-4 (quorum duo slignmlihus opposita *dorsaka*, duo cum stigmalibus alterna *ventralia* dicta) incomplete basi et apice 2-4-loculare. Stylus brevis. Stigmata plerumque duo rachi oppositii vel lateralia, raro quatuor. PJacentarium centrale, columniforme, primum liberum, postea cum dissepimcnlis plus minusve connafnm, apice ovulum unicum orthotropuim crclum sessile gerens. Fructus e (lore incrassato corislans. Pericarpium a perigonio forniatum, carnosum vel menibranaceum, maturilate indehiscens vel irregulariter fissum vel valvis quatuor dehiseens. Nux ah ovario induralo forinata, cum pericar|io concreta, vel sajp hib libera, intus a

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(1) Auctore Casimir Pyramo de Candolle.

dissepimentis osseis basi et apice incomplete 2-4-ocularis. Cocca et dissepimenta lacunis amplitudine variabilibus intus perforata, in sectione transversali forma et crassitudine variantia. Semen exalbuminosum, ex ovulo inflato nucis loculos omnino implente formatum. Testamembranacea, Iracbeisporcursa, stomatis et interdum pilis disciformibus instructa. Endopleura tenuissime membranacea, interdum rubra. Radicula supera, brevissima. Cotyledones carnosae, nucem implentes, apice plerumque bilobae, basi attenuatae cordatae. Plumula intra cotyledones abdita, squamis distichis vel apice imbricatis plerumque instructa.—Arbores in temperatis hemisphaerii borealis, Java? et Bolivia? crescentes, succo aqueo vel resinoso. Folia alternata, secundum ordinem I disposita, exstipitata, composita, impari-pinnata, vel rarissime abortu abrupte pinnata, 3-15-juga, glabra vel pubescentia vel tomentosa vel pilis disciformibus conspersa. Foliola forma variantia, membranacea vel coriacea, epunctata, margine integerrima serratae. Gemmae in axilla. 2-3 superpositae, modo squamosae (squamis petiolaceis vernatione decussatim valvaribus, vel equitantibus), modo oliaceae, modo in axilla sessiles, modo ante evolutionem stipitatae.—Ordo Terebinthaceis, per Anacardiaceas, et Myricaceis, per Myricam Gale affinis.

I. JUGLANS L.—Nux Tournefort. *insl.* p. 581, t. 346. — Juglans L. *gen.ed.* 1, 997; Watson *Dendrol.* t. 158, 192; Nutt. *gen.* 2, p. 220; Kunth in *Ann. sc. nat.* 1824, p. 374; Moench *gen.* p. 74; Endlich. *gen.* 6890; A. Gray *man. of bot.* p. 401; Can. DC *mem. in Ann. sc.* 18, p. 34, f. 1, 11, 12, 22, 38, 43. — Wallia Alfeld in *Bonpland.* 1861, p. 334.

Amenta solitaria, a priori innovatione nascentia. Floris masculini perigonium 5-6-lobum, bractae intus adnatae (lobo antico bractea? opposito, in aestivatione exteriori, lobis lateralibus). Stamina intra perigonium toro inserta, 2-multi-seriata. Filamenta brevissima, libera. Antherae crassae, biloculares. Ovarii rudimentum rarissimum. Spicae breves, pauciflorae, terminales. Floris feminae perigonium duplex, cum ovario usque ad stylum connatum; exterius cupuliforme, villosum, apice 3 vel irregulariter multi-dentatum; interiorius 4-dentatum (dentibus rachi oppositis in aestivatione exterioribus). Stylus brevis. Stigmata 2, rachi opposita, decidua, linearia vel claviformia. Pericarpium carnosum, indehiscens, cum nuce concretum, vel maturitate liberum, irregulariter rumpens. Nux globosa, exclusione longitudinaliter vel irregulariter rugosa, intus basi et apice 2-ocularis, in gorminatione bivalvis; valvae cum stigmatibus alternae, ad commissuram et dorso costatae. Lenticulae coccae et dissepimentorum amplae. — Folia impari-pinnata geminis squamosis, squamis paucis, (6 decussatim valvaribus. — In temperatis Americas borealis, Mexici, Boliviae, Jamaicae et Asiae.

§ 1. *Dissepimenta 4, quorum 2 dorsalia, 2 ventralia. Squamae embryonales nunc distichae, nunc apice cauliculi imbricate.*

1. J. REGIA (L. sp. p. 1415), foliis 5-6-jugis glabris, foliolis ovatis apice attenuatis vel ovato-lanceolatis margine integris membranaceis subcoriaceis subtus

addxillasnervorumsecundarium cum pnmanopilosis, flonbusmasc sessilibus, bracted lanceolatâ, pengonio elongato 6 lobo, staminibus plerumque 12 pengonn lobos apquantihus, spicis 2-7) flons, florihus femin sessilibus pengonio PUCHOIP MIOSO apice 3 dentato dentibus minutis, pengonn intenons dentibus 4 glahris, stylo brevissimo, pencarpio glabio mdturitate incgulanter rumpente, nuce ovato acuminatâ basi subcoiddti reticulato rugosi. rugis obtusis ifttus basi et .ipicc incomplete 41oculan, dissepim tenuibus lacunis inconspi < ins, squirms cmbiyonis disticlus ' ) Spontinea in prov transcaucasicis (hoib MUS I ai ', I cdol) (lor loss p >07), id est in Imireht (fichw casp cdiic p 21), drorKii (Hohen mum Llisab p 2)9), Ialyscli prope Lenkoi in et Astidi.(Hohrn enum piov lalyscb, p 10i), in Ponlo alt 410-1800m sub spontdnoa, et in Armenia inter Av/apcrt ot Uumbazar copiosissima et verosinnlitei spontaneil alt 1800 m (ichihatcherT Asie mineuie 1, p 172), in Belud( histan (herb Boiss , ubi folium unicum cum commentano not above ten ticcs in ill HPhidsbistan J Mocks), in Indiâ prope Kamaon et Sikbim, regno Birmanico prope Ioong Dong' (J villosa Walhch, n 4945), prov bor imp sincensis(Loui 11 (och p 702) Alibi irequenter cohtur, in Luropâ usque .id % lat ad occ et 52° ad or (Alpb DC geogi bot 1, p 393), \lgena» Chili (Gay fl du Chili) — Woodw mod bot 2, p J47, Diet sc nat t 268 pt 269, Noes ic offic , Hayne 1) t 17, Neesjun gen fl germ fasc 3, Cas If mem in Ann sc nat 1 c fig 12, 22 Wallia regia Alcf De A metatibus cultis confer ad Dochmal Beschieib ex Bonpl 1861, p 387 (v v)

p, *macrocarpa*. fojns 4 jugis, nuce maximâ 6 7c longa rugosissimâ Regia maxima Loud encycl Noix bijou, noix de jauge (Bon jardimer)

Y, *venosa*, folus 5jugis, foholis margine senatis, nuce parvâ o\atA. 4 c vix longd subrugosA — In hoi to pai (v s)

0, *Barthenana*, foliohs margme remote serratis, nuce elongatâ basi apice-que attenuatl longitudinabter stnatâ"— In horto par (\ s)

e, *rugosa*, foliolis conaceis, nuce maximâ 6 7c longd o\ato oblongd apice basique glohosl rugosissimâ, cocci 2 J mm crassa, dissepimentis ciassis osseis — In hort par (v s)

II, *monophylla*, folus 0 1 jugis, foliolis margine mlegns, impan majore 14 c longo ovato (v s)

•fly *seroUna*, folus 4jugis, fohobs raargine integernmis, fructu sero ma turescente

G, *pr,r par tune ns*, folus 4jugis, foliolis sessilibus ovato-acummatis basi obtusis margine intpgernmis conaceis (v v)

1, *laciniata*, folus ^ 6 jugis, foliolis lanceoldtis dissectis vel lacinosus, nuce ovato-oblongâ apice attPimata Nu\ Julians folus laciniatis Nouv Duh 4, p 7J4 J hptrophylla loudon encycl p 732 J hlicifoha Lodd cat ed 1836 Fern leaved walnut loudon encycl p 732 J dissecta hort Taur 910 (v s)

x, *tenera* (Loud encycl p 732) coccâ fragili J fructu tenero, fragili puta mine Bauh pin 417, Nouv Duham v 4, p 174 Nojer à coque tendre, noyer mdsange — Bon jardimer, 1861, p 396

>, *Bplavdchistanaj* folus 2 jugis, foliolis ovato lanceolatis margine mtegnis conaceis dpice acummatis, ioliolo impan 2f c longo In Beloudchistan, ppontânea, herb Boiss (v s)

p, *racemosa*, spi cis elongatis multi flons —Nouv Duham 4, p 174 Noyer à grappe Bon jardimer ed 18dO, p J96

v, *bifera* — Nux Juglans bifera, Nouv Duh 4, p 174

5, *Kamaonia* (fas DC in Ann sc flat ser 4, v 18, p 33), petiolo 6 7 c longo et rachi rufo-pubescentibus, folus 3 jugis, foliolis lanceoldtis mtegnis subtus ad nervos rufo-pubescentibus, flonbus masc pedicellatis. fructu rufo-villoso, nuce ovoiaeo "lobosa bicostatd apice attenuate, cocci

extus reticulato-rugosd rugis contammatis dunssinri elacunosa, dissepi-  
mentis crassis lacunosis — In india bor piope Kaimon (li soc Ind  
or 4943')

o, *Stnensn* (Cis DC mun I c p U f. 18, M), nucp glohosi bicostaU  
subobo\ati cocci extus reticuhto sluat\ duussnn\ lacunis conjunctis  
diipliLid ipdrte inteiil smuo&i, dissepimentis elaumosis osse.is — In  
Chin i (h 1)(')

\*, *intermedia* ((i\* DC mem 1 c p 281 42), folns 4<sup>r</sup>>jugis petiolo et  
rat hi glahus, foholis marline icmote seiratis mcmbiandcus nucp ohlongo  
globosi hdsi trrffilosl et mucronat i dpice attpnu iti mudoniit i cocci  
et dissepimentis osseis •) J in crassis, sqiuduus enilnxonis distichis Hy-  
bnda inter J niginn et regiam, in hoitis rara, m liorto lnanon nata

2 J NIGRV (L sp p 1415), loins 7-9-jugis, petiolo et rachi pubescentibus,  
foholis ovato lanceoldtis basi \anantibus apicc acummatis niargine serratis  
membranaccis supid claims suhtus pdllidiiibus pubtscentibus, gemmis  
albo-pilnsis floi masc biactcâ hastati ^el apice tuduidt i, pengonio lotundo  
6 lobo extus pubescent?, stanunibus iU JO multi scnatis fihmentis brevis-  
simis connocli\o supid loculos producto dcuto ^el obtuso spicis I ) flons,  
llorum iemin sessilmm pengonio extenoie puliesicntp «^pice nrcRiilaitoi  
multi dentato pengonio mtenoie 4 dentdto dentibus extus ghbns, iructu  
stnctp sphenco, pencaipio indehiscentp cainoso MIKII, IUUCP plobosi extus  
lugosissinn IURIS lon^is pdi.illelis linpirilms inlus Insi pt api(e 4 loculan,  
ccc«» et dissep ciassissimis dunssimis Idtunosis, lacunis nia^nis, endoplevrâ  
rubrA, squamis ipicc c uiliculi imbncdtis J I» Amoric i bore ill a Massachussetls  
(Emers 1 c ) ubi forsantiod (Cooper in Smiths rep IK >S, p 2'>4) et Big  
sioux n\cr Iowa (Coop ibid) ad Hoidani (Bock bot p M5) Pt lexas in  
Fayette county (Mittlies' n *Ilk* in h Boiss ) — Nuv Juglans vir^miana  
nigraHenn Hoit I u^d. p 4 >2, t 453 Jnglans foliolis lanccolitis etc Iinn  
Hort Cliff p 4i9 Nux Iii^Ims nigia vnginiosis Puk theal J41't Catesb  
Car 1, p 67, t 67 Juglans in^ri Jinn p 1 »1 >, Wangenh Amei t 8,  
l 20, Jacq IC rar 1, t 191 Mith\ arb t H8, Loudon encycl trees p 734,  
f 1417, Emerson iepoit tiees Missach p 18T, Duham arb 4 t 4, n 48,  
Schnizl icon, lam lasc II, t 244, i 1, Cds IK rmetn 1 c fig 8 10, 4b  
Wallia nigia Alel Arboi evcelsd, i unis diffusis, j union bus pubehcenti bus,  
folia aromaticd 4J ">0 C longa, pih glandulosi numerosi (v v)

P, *Bolinana* (Cis DC m6m 1 ( ) folns 70 c longis 11-jugis glabns,  
petiolo 0 longo et rachi glabns, loliolis 12-15 c longis<sup>r</sup>> 6 c latis, nucis  
rugis crassioibus In temperatis Bolniae unde a Weddel allata (v in  
herb Mus pai )

## § 2. *Dissrpimnla dorsaha nulla. Squamx embtyonis nullse*

3 J CINERLA (L sp p 1415), folns 8 10 jugis, netiolo et rachi pubescentibus,  
foliolis sessilibus \el raro bieviissime petiolulatis ovato-lanceolatisr margine  
serratis ciliatisque supra miberulis subtus pubescentibus, gemmis albidopubescens  
llor masc bncte\ lanccolatâ, pengonio elongato plerumque  
6 lobo, stammibus i)leiumque 12, filamentis biexissinus connecti\o non supra  
loculos producto, loculisapice rostratis, spicis 6 8 flons, flonbus lem sessi-  
libus et rachi luio hiisutis, ppngonio exter J laro obscure 4 dentato dente  
anler longioic cxtenoip, pengonii lntenons dentibus pengon extenons sub-  
longionbus extus pubescentibus, fructu c}lmdnco pemaipio indehiscentp  
rulo hirsuto, nuce cylindnco acuminatâ e>tus rugosissim\ rugis asperatis  
crassis quarum 8 magis distinctis longitudinalibus intus basi luloculari apice  
uniloculdn, cocc.^ Pt dissepimentis crassissimis dunssimis licunosus lacuinis  
maximis loculos fingentibus § In America boreali a ( anada (Michx flor bor  
amer 2, p 143) et Bigsioux ruer Iowd ^Cooper in Smiths ren ift^ft n 254^  
ad Tennessee (herb Boiss <), Saint Lc us Missouri (Hiehl herb Boiss ^) Pt Geor-  
giam (Beck bot p Ui> - Jacq ic raf 1, t 192, Wanffenh amer '51 t 9  
f W, Purshn am sept. 2, p bJb, Loudon enc trees, T?35, ?i418, Bigel'

- med bot, t 32, Emers rep trees Massach. p 882 J oblonga Mill diet n 3 J cathartica Mich arb am. ], p 166, t 2 Walha cinerea Alef. 1. c Oil nut, white nut Walnut et Butter nut anglo-ani (v s)
4. J MYNDCHOURICA (Matun '), folus 7 9]ugis, petiolo et rachi rufo-pubescentibus, foliolis sessilibus basi \anantibus apite attenuatis marçine remote seiatis supra puberulis subtus pubescentibus ad axil las mfo puñescentibus, flonbus masc sessilibus, penguinio 0 lobo elongato, stiminibus rue. 8, iructu ut in J entered rugis nuus ciassionbus \$ In regione fluminis Amoor (Maxim. coll ') Folidbd Longa, petiolo 9 c longo (v. s.)
- 5 J BUPFSTRIS (Engclm ), loins 6 10]ugis, petiolo et rdchi pubescentibus, foliolis sessilibus lancpolato-acumin.ilis sYibialcatis basi maequalibus marline sendtis supra ^labns sublus pubcmllis gpinnns albido-pubescentibus, flonbus masc brevissinip sLipiUiis, biictei lanceolaU extus pubescente, penguinio elongato vel subiotundo J Vlobo extus pubescento, stamimlms circ 20, filamentis subnullis, anthens subpubescentibus oculis apice rostratis connectso non ultra oculos producto, spicis J 4 flons rachi et flonbus albido husutis, penguinio extei apice h multi dentato, dentibus peng mterioris extus pube rulis linedn laiiLeolalis, Iructu globoso, pencarpio gla!>rato indehiscentc, nuce sphaencà extus longitudinaliter stuaU, coccd et dissepnn crassis lacunis amplis numerosis in sectione transversall oculos fingerlibiis ^ In Amei. bor a Calilornia ad no Grande N M. (Cooper in Smiths rep 1858, p 260), New Mexico (bilgre'aves rep p 171, t. 15 et 16) — Cas DC mem. 1. c f 11 de fl masc Folia 2-5 d longa (v s)
- p, *major* (Sitgreaves rep. p 171, t. 16), fructibus subovato-globosis apiculdtis leviter sulcatis

*Species nun satis notm.*

- \*6. J ARGLITA (Wall.), folns'3-jugis, petiolo et rachi rufo pubescentibus, foliolis subsessilibus sessihbusve basi attenuatis margine senatis Ad 'loong Dong in regno Human (Wdllirh' list 4944). Folia foip 20 c longd P'orsan Engelhardtus addenda (v s)
- 7 J. PVRIFORMIS (Liebm.), folus 9-15-jugis, foliolis altornis suboppositisve levitei fdlcatis basi rotunddtis margin© soirul itis subtus luscis ad neivos pubescent! bus (gemmis fusco MIOSIS? Wjlp mn), flonb masc. penguinio rotundo 5 6m lato 6 lobo, stammibus CA, in Mexico ad Cosmatepec. (ex collec Botten, n. 579, Sumichrast' n 879 in h DC ct Boiss ) Wallia pyuformis Alef Amenta 20 c circ longa Fructus sossilis, globoso pjnformis, pyicnt basi depressà, longitudin ticute et profundo sulcalà, crississiniA, dunssimà, mesocarpium exsuccum coiidceum (ex Walp ann v. J, p 844) (v s)
- 8 J IAMMCCNCIS loins 9 |u\_n'is, loholis nlerumque altPinis scirato-lanceolatis, basi inaequalihiis margine serratis glabus supra nitontibus suhtus palhdionbus, gemmis lernitfineis, nuce globoso attenuate, cocca et dissepiment]s crassissirnis 5<sup>im</sup> J^maicj Noyer do la Jamuque et nojer d feuillos de fiène. Descourt fl. med des A>nt. v. 7, p. 5, t. 455, non J lra\inilolia Lam.

*Species exclu&x.*

- J ALBA L = Caiya tomentosa Nutt  
 J ALBA Michx = Carya alba.  
 J ALBA MINIMA Maish. = Carya amaia  
 J ALBO-OVATA Marsh = Carya sulcata  
 J A MARA Michx = Carya amara  
 J ANCUSTitOLiA Lam = ? Carya amaia  
 J BACCAT#Lmn sp. p 1416 = \*

- J. CAMIRIUM Lour = Ign. — Non Juglandacea.  
 J. CATAPPA Lour = Terminalia Catappa  
 J. COMPRESSA Willd = Carya sulcata  
 J. COMPRESSA Gaertn = Carya alba  
 J. CYLINDRICA Lam. = Carya ovata/ormis.  
 J. FRAXINIFOLIA Lam = Pterocarya Iraxinifolia.  
 J. GLABRA Willd = Carya poruna  
 J. MUCRONATA Michx = Carya sulcata.  
 J. LACINIOSA Michx. = Carya sulcata.  
 J. MYRISTICIFORMIS Michx. = Carya myristiciformis  
 J. OLIVAEFORMIS Michx. = Carya olivaeformis.  
 J. OBOVATA Willd = Carya porcina.  
 J. OVATA Mill = Carya alba  
 J. PORGINA Michx. = Carya porcina.  
 J. PTEROCARPA Michx. = Pterocarya Caucasicum.  
 J. PTEROCARPA Colebr. = Engelhardtia Colebrookiana  
 J. RUBRA Gaertn = Carya sulcata  
 J. TOMENTOSA Michx. = Carya tomentosa.

II PTEROCARYA Kunth *Terebinthaceae* gen in *Ann sc nat* 1824, p 13, *Lindl gen n* 5891, *Cas. DC. mem. I. c* p. 35, fig 7, 1820, 47 49

Amenta solitaria, apud innovacione nascentia. Flors masc. minuti pennis bractes adnatis 5-6-lobis, lobo anteriore bractea opposito in aestiv. extenore, quatuor lateralibus, posteriori rachi opposito aspectu aborientate. Stamina 9-18, 2-senata; antherae biloculares. Spiculae axillares multilobas. Flors femina sessilis bractea lanceolata, pennis libera, postea cum lobis 2 lateralibus connata. Pennis duplex, extensus e bractea et lobis 2 lateralibus foecundatum, basi cupuliforme cum ovano connatum, superne liberum, lateoliter dipterum, intensus infusum cum ovano connatum, tubiforme apice ovarii 4-dentatum, dentibus rachi oppositis 2 in aestiv. extensus Stilus dentibus pennis. inter subbrevisior. Stigmata duo rachi opposita, decidua. Fructus lateoliter dipterus, pericarpium indehiscens, scanoso-membranaceum. Nucleus osseus, cocca iaculis duabus stigmatibus oppositis medullae medullae perforata, dissepimentis dorsalis cum dissepimentis ventralibus connata, unde nucleus basi intus viloculans — Aibores e prov. rossicis transcaucasica, China, Japonia, ramis diffusis, folia sub-12-jugis.

- 1 Pterocarya (Spich hi-i ve<sup>2</sup>, p 180), lous sub 12 pennis, petiolo et rachi glabris, pennis sessilibus vel brevissimis petiolatis ovato-attenuatis basi angustatis inagine senilis sublus ad axillas nervi secum. cum pennis pilosis, Remmis «inte» olivae stipitatis foliaceis, flonibus masc. subpedicellatis extus glanduloso pulioscentibus, luactea ovato-lanceolata. pennis 3-6-lobis plenique lobo lobis conspicuis 2 3-nervi, staminiibus 9 18 biscriatis spiculis multilobis, 11) nibus sessilibus, bractea minuti lanceolata, alis serai orbiculatis. Idibus muUmevibus, nervis parallelis inconspicuis, perianthio interioris dentibus lineariibus glabris .5 m pennis rossicis transcaucasica distr Schekonsis (Höb 1 c), cued lankortin (Hohen) et m provinc lalush (Hohen) in locis temporal Luiop. culta — fas DC m6m 1 o f<sub>K</sub> 7 19 20 47 49' Juglans Iraxinifolia Lm diet 4, p 102 lupinus pterocarpa Willd sn 4\* p 455 Bieb n Tauricauc suppl p 624 Rlius oliscium Bieb fl Tauricauc n 606 Juglans pterocarpa Michx fl boi am. 2, p 192. p. Caucasia C. A.

Mey. Verz. pfl. Cauc. p. 134, Hohen. en. Tal. p. 103, Ledeb. fl. ross 1, p. 507. Folia circ 5 d longa, petiolo 4 c. longo. Stipes geramarum 2 c longus Bractea VIX millim longa (v v)

2. P STENOPEIU (Cas DC. m6m. cit. p. 3D), lous Vjugii, impan rudimentano, petiolo et r/ichi glabns, loliohs sessilibus elliptico lanceol.itis basi pleiumque attenuatis apice obtusis bieivissime denticulatis raaigine seiratis subtus ad axillas nprvuium secund cum prim.mo pilosis, gpnimis stipitaMs,flonb lemin sessilibus, bractea minutd auitd, dhs hnean-oblongis dpice attenuatis, 5 In Chinà, ex Calley, 1844, n. 169 in herb. Mus. pai.' (v. s.)

*Species ignotcC.*

3. P SORBIFOLIA CSiob pt /uc( \ im. nit lisc 1, p. \*M), folns 4-8-jugis, fohohs suboppositis subspssihbus Idiiccoltdtis longe acurainatis dpnsp at digutp sorru-latis aeque ac pctioli et pedunculi mollitor pubescentibus, amentis masculis simpheinus infrafohaceis \el in axillis lolioium infenorom, femineo elongate folns bieivore laxo Mibteimin.-ili, biactPis dense linsutis. In Japoni.i
- 4 P BHOIFOLIA (Sieb. et Zucc. fam. nat. fasc. 1, p. 33), folns 8-9-|ugis, foliolis sessilibus e basi rotundatâ mapquali oblongo-lanceolatis acuminatis argute et dense serrulatis superne glabns sulitus ad \rnas .Tqin ac jfofoli mollitei pu-hesc entibus, doientis frmuicis subUMirnihilibus laxiflons folia a?quantibus vel superantibus, bracteis glabns In Japonid.

III KNGELHARDTIA (1) *Itschen in lilumr Bijd (182')* 2, p T>28, *Blumc fl jav. Juqland*, Wall h\l n. 4940-42, Wall pi a\ lar 2, p 83,3, p. 4, *Endhch gen n 'HOi (ercl Dammara Humph)*, (as DC mSm I c. p 35, f. 21 (fl fern). — Ptonlem.i Rcinw syll pi nov in I lord, 1828, p 13. — *Oreomunnea Orsted Oreomunnea not Juqland ^WHS,8 (sine anno duulq hed 1859 comm.)*.

Inflorescentia modo paniculato-ramosa, mmis lateralibus m.tsc amon-tiformibus, terminah femineo spiciformi, modo pars masc. amentis axil-laribus 2-4 lachi communi nasc»'ntibus constans, pars feminea spicifor-mis, terminahs axillansvc. Flons masc. parvi sessihs vel subsessilis pengonium bractee plorumqup tn-dentatde vel tn-lobataB flore minore intus adnatum, plerumcjue 3-6-lobum tlongatum 2-3 m. longum, lobo antenore bracteaB opposite 4 latralibus, uno postenore rachi opposito saepe abortivo. btamina 5-13, filamenta brevissima, lobos pengonu asquantia vel paulo superantia. Flores femin. numerosissimi, sessiles vel brevissime pedicellati; bractea pengonium extenus formans7 inferne cupuliformis cum flore basi connata, superne quadn-lobata floie-multo longior, extus basi villosa, lobis 3 anterjonbus hnean-lanceolatis pin-natfnerviis, Jobo postenore rachi opposjto margme 2-multi-crenato aunculaaformi. Cotyledones contortuplicatas — Arbores asiaticoa, lanus ameucanae.

Sectio i. PTERILEMA *Cas, DC. in Ann. sc nat. 18, p. 35.*

Dissepimenta in IIUCP 2 \ol in<l basi 4, in sectione transversal! non soptulifera — Engolhaidtia sive Pteillema *auclorum*. — Omnes asiatitaj.

1. E. SPICATA (Bl bijdr. p 528, fl. Jav 1.1 et 5), folns circiter 5-jugis plerumque abrupte pinnasectis, petiolo et rachi glabns, foliolis petiolulatis ngidis coi-w-ceisve ov.ito lanceolatis basi inaaqualitpr atpnuatis apice acunlinatis acutis znrgmp infpgprnmis glabns ad axillas norvorum secund. cum pnmaro pilosis,



- ameiitis a priore uinovatione et dliquando basi spitaium nascentibus 3 4 rachi cftmmuni inseitis lonbus masc sessilibus pedicellatise extus puberuh, brae tea pleiumqup minutl tulobati pengonio elongate) plerumque ^ lobo, lqbo postenore abortivo, stamnubus 81) hhmptis brovissimis, anthens pubescentibus, spicis a priore inno\atione nascentibus flonbus lem sessilibus lobo peiigonu tUciions lneimrdio litPtalihus duplo lon^ioie ^ in Java Occident in piov 1 lanjoi et Buitenzoig (Bl 11 Jav ), in Napilil (herb tump ind oi 18\*2, n 4940 '), Mkliini, Kb isia ct C hittagong, all 1 )000 pd (Hook I et Thorns Mi Ind or)K RovbuighianaLindl in Wall list n 49W Will pi as rar 2, p 85, t 19<) Juglans perococca Roxb h beng Arboi 50-200 pd alta, mdhoica Folia sub-40 c 10llcM, loliola consistentia maxime \anabilia (v s)
- 2 E PHILIPPINENSIS ((as DC 1 c ), folus 4 ') jugis imp in pinmtis, petiolo et rachi puheulil loliolis inembian iceis peliolulatis pllipiico 1 mceotlis bisi ple-iiniqüp lniquilihus ipiccoblusiusculis maigineuegr mniis aiupntis a priore inno\ Uione niscrntibus 4 > lachi communi appioximatis, flonbus masc albo hnsutis stamimbus 7 11 ilbo hnsiitis mdiminto ovini fililoimi SDICJS a recenti innovatione niscontibus ilonbus Itinimis pdi^onu (xlnorislolo inteimedio lateialibus iJinucdio lougioie stiguatibus pluunique 4 — In Pin lippims (Cunnng' n 1120 in h DC ct Boiv») tolia 10 20 c longa, petiolus 5 b c. longus (v s )
- 3 F PARVUOMA (Cas DC I. c ), (bins J-4-jugis uleiunique abiupte pinnalis discis Havis conspersis loliolis o\ato lanceolatis basi attonuatis maigine sei ratis ngidis ad axdlas neivomm spcund cum prim ino subtus pilosis gemmis flavis, spicisaiecenti lnnovitione nascentibus, ilonbus lem pengonii cxeuo-lis lobo inteimedio lateialibus riinndio lougioie, sligniatibus pleiunique 4 — In Pliilippmis (CumiiM' n 1329) tolia3 >c longi (v s )
- 4 h ACFRIPLORA (Bl pi J iv t 2 el 5, B ), folus 2 4 jugis ibrupte pinnatis, foliohs sessilibus vel bieivissirne petiolulatis ovatis ^el o\ ito oblongis apice m acumen obtusum bipvitei iittcnuatis maigine intpgpii imis glabns subtus ad axillas nervoruru secund cum pnmirio pilosis, spicis a recenti innovatione nascentibus, flonbus lem sessilibus pengouii (\tenoiis lobo mtPimodio latorahbus duplo longiore, ^ in Jav?e sylvil Pagaianghu m salibus pio\ intpr Bantam\* (Bl fl Jav) Ptonlema acpiifloium Hemw syllogp plant v 2 p II in Flora 182o E acenlolia Steud nom (en. tjp.). Dioica. (v s)
- 3 L SLRRATA (Bl fl lav t i\ pt ^, C ), folus circ 1 jugis, pit Kilo (t rachi pubeiuh, foiohs subsessililnis ohlon^is vol oblongo-luilitolatis oblusib acummativp basi m equalibus (t obtusiistulis nnus spmicordatis inirgmc seilatis conacpis supia glibns (npivis exceptis) subtus pubescentibus spicis recenti inno\atiom nascpiitibus flonbus lem spssilibus lobo perigonu exte-iions intermedio latpi ilibus duplo lon^ioip ]ostenorc o\ato 1 muohto ^ 'n sylvus Jave occid (Bl 11 1 iv ) (I in Smuati » oi (Miqutl) Vil) n lastuosa GO 100 pd alta Dioiti 1-olulle lon^i h Paltinbanita Mi |utl 11 Ind bat suppl 1, p 34b (v s)
- 6 E (OLFBROOKCANA (hiidl. in Will pi as rn i p 4t 208) loln^ 4 ^-jga, impanpinnatis petiolo et I lchi t mo touu ntosis loliolis p< liolulatis clhptico-lanceolatis basi subattenu ihs lpiit ohLusis tonauis mugim uite, r'cinniis ju moiibus tomcMiLosis, flonbus misc pedicellatis, pengonio J lobo sidinmibus plci unique 10, antbcns [ iilKsciitibus spicis a lecentiinnovatione nascentibus liuctu lnspidissimo ^ Ininontibiii Nipalui (Wall ) piopp Kamion alt 4^>00pd' (Himalayan hprb Stiachcv in h K( w') Julians pU IOCOCC i ( oltbioock ic pict Pptiolus56 c longus Spica loins bic\iores vel cis vi\ longioios. (v s )
- 7 L WALLIUIANA (Lindl in Wall list), folns 1 4 jugis abiupte pinnatis, pe-liolo et rachi glabiatil, foliohs petiolulatis elliptico lanceoldtis basi mtenuatis apiceobtusis maigine inUgunmiN ^libns conarpis, spicis a recptunnovatione nascentibus flonbus lem pedicellatis ppiigonu extpuoris lobo mtermedio laterahbus duplo longiore, pengonio intenoip basi MIOSO sti/zmitibus 2 deci duis, liuctu petioluWo, nuce apice dentibus peiigonii'mténoiis induratis

cororutd In Penang et smgapoie (Wall ' list n 4942) Folia 6 10 c longa.  
(v s)

(3, *chrysolepw*, foholis marline rpeurvulis, sti^malibiis 4 'i deciduis, pejik^<  
mo interior? mituntau auico In sylus m^ulde Hong Kong (Hanuj IQ li  
Kew) — E *chrysolepsis* Hance m Ann sc ii it sei 4, \ l^rj, p 227 (v s)

8 K RIGIDv (BI bijdr p ^28, fl Jav t 3), folns plerumque 4-juffis abrupte  
pinrulis, peiolo glibro, foholis bre\itci pctiolulm\*» ovatis bisi apitcque alte  
nuaiis margins intern I in>> conacois#1 III IS, aim ntis solitarns vel iachi com-  
muni a ltepiiti inno\ Uiono nisi uilibus, flonbus masu pan is constaftibus  
o\ squarm floi ill unici i 5 fidi. pnbesclnlc pigmi supenore \ersus medium  
staminileia lacmiis 2 nuis opposiis dcentilonnibus vel sa,pe vix dislinguendis,  
slaniimbus 5 5 In Java, alt 2)00 pd , monte balak pio. Buitenzoig Fohola  
2 G c longa Dioita (\ sj

Section OHEOMUNNEA *Cas DC in Ann sc nat 18, p. N>, et Jig 1()*, *seetwms*  
*ruct a cl Ohnl comm Genus Oieomunnca Otutejj, I c*

Dissepimentain nuce 4, maigineinlia loculos septulifera et sinuosa

9 h OHEOMLNNLA drupi txsmca mi^mtudine fere nucis Coiyli Avellanae  
,) In Ameca centrali (listed) — Oieornunnt i pteiocaipi CERsttd 1 c —  
E medio cncitei tujusve disstpimnti piuliudunl scj)luli in sn 1 1 il >

### *Species exclusa*

E SELANICA BI = Ign

IV (AKYA *Nutt gen v 2, p 220, Kunlh in Ann sc nut 2, p J44, Meissn*  
*gen Ik, Kndl qen ^889,i4 Gray man of bot p 402, Cas DC in Ann v 18*  
*p 36, / 2 5, 13, 14, 18, 24, 'II J9 — HICOHUS Raf fl lud p Hyd{sinechar*  
*gen) — Scouas cjud in N<w-York med rep 2, her >, p 3)0 (fide Endl)*

Amenta a recent vel pnore Innovatione nasc ntia, apice rachis com-  
munisternataquoium latt iilid duo opposita vi I alternabasi bracteâ fulta.  
Florum mdsc. pengonium \*2-3-lobum, biactue intus adnatum, lobi duo  
latf rales, terhus post nor plcrumque abortivus Stamina 3-10, intia  
pengonium toro inseita, 2-muUi-sc nata 1 ilamuita bnvissimi, lib ra,  
antherde pilosaB, connctivum supia loculos non pioductum. Spicde bre-  
vts, pauciflor\*, teiminalcs Florum femineorum pcrufonium simplex,  
cum ovano usque ad stylum oonnatum, cupuhforme, cxtus villosdm,  
apice /i-dentdtum, dente alt< ro antcnore in destinationc extenore ]le-  
rumque longiore \ensimilitcr bract ,ili, d< ntibus duobus literalibus,  
postenore donto in JPSLIViLione lntcnoie Stj^us subnullus Stigmitta  
duo, rachi o^jjosita, basi carnosopapillosâ discum papillosurn fmgenti  
connata, prsistentia Pencarpium 4-valvum, dehiscens, carnosum vel  
membranaceuin Nux \alvis 2 stigmatibus ct rachi oppositis, formâ  
maxime van ibili, plerumque angulosa, supoifino la3vis, intus incom-  
plete 2-4-loculans Lacuna cocctp < t disscpiinentjium plerumque pimc-  
tiformes. Squamae embryonis apice ciuhculi — Arboies in temperatis  
Amecae borcalis crescentcs, folns impari-pinnatis.

### bectioi EUCARYA

Squamae m gemma pluiimae, vernatione cpquituites — (aiya sect I *Cas*  
*DC Ann sc I c*

1 c ALBA (*Nutt gen 2, p 221*), folns bijugis, petiolo et iachi puberulis,  
fohohb s>es>bilibus lanceolato acuminal s bisi iitcnualis apice acumiintis mar

gine serratis cilutisque supra glabns sublus pubestentibus, inferioribus minffibus, gemmae squamis JO, amentis abasi locmtois Innovitionisnascenlibus bracteis aiuncloium literal, fihioimibiis pubescentibus, flonluis mast pubtrulis, biacici linean lmccolaU, pui^onii lobo postcnore ibortiu), sti minibus plei unique 4 spicis 3 ) flons flo ibus spsilibus fiietu globoso, pencaipio oiassissnu), nucepuvt albj 4 6dnfe,ulati lc vitei stiiata apice breviUr itteniuti mucu matā bisi oblus\ miusbisi k loculiu, cocci et dissep ci issis (t duiissimis lacunis punctiformibus > In Anienea boi i Now Himpshiro ad ( iDlinim mer (Mich\ lib im 1 p 1<sup>1</sup>0), a Pennsylvania ad Gcoikiam et Iouisi uim (Loopci in MIUIS up IS,8) - ( is DC 1 c f U, 14, 18, 14 Juglans oviti Mill lu^lins ilboovita Marshal, p 105 J squimosa Lam diet v 4, p oO\* Michx. aib am I, p 100, f 7 Juglins c >mprey>a GcCitn fr 2p 31, t 8<), i 1 J Ubi Michx 11 boi im \ 2, p ISM Puish fl Am sept \ 2, p 637 ( alba Nutl , Bll sket Georg p 624, Lmcis rep Massach p 191 Coitex squamosus Petioli b-9 c longi (v s)

2 C SULCATA (Nutt gen 2, p 221), folns \*4jugis, potiolo el racln tomentosis, foliolis o\ato acuminiti^ basi iticnuiti> scssihbus maigmc seiratis supra glabns sublus tomentosis, gemm r squamis 10 nmontis lontissime pedunculatis ghbns flonbus masc bractei icummit^, pengomi postonoip lobo aboitivo sliminibus 4-6, anthers scssilibus, fructu o\ito pencaipio crassissimo, mice elon^iti apice bisique mucionitl 4 m^uliti It\itei stnati, intus bisi 4 loculiu cotxi et disstpimontis ciassis duiissimis lacunis puncti formibus ^ In Amenci sept i Ppimsyhami ad Illinois el Kentucky (Griy man of bot p 4U2) —Cas DC mem 1 c f ^) et S2 (de fiuctu) Indians albo ovata mucioiuta Michx Julians compiessa Willd sp 4, p 4>8 Juglms rubia Gaetn fi 2 p, 31, I 89, f 3<sup>7</sup> J sulcata Dull Ju^lins laciniosa Mich aib Am sept 1, p 199 t 8, Ponet suppl 4 p 112 Vulgo Shell buk hickoiy, bhagbark hickoij (oitc\ sqttamosus Petioli 6 8 c longi (v s)

3 G MicROGANPA (Nutt gen 2, p 221), fohis 2 3ju<sub>n</sub>ns, foliolis oblongo lan ceolais acummatis margme senatis supra glabns subtus plandulosis, amentis longissimis ^libns, llonbus misc pengomi lobo postenoie aboitivo, ^tamimbus plerumque 4, spicis 2 3 flons sti^mite lhomboidali, lructu subo\oboso, pencupio tenui, nuce 4 mgulit\ mucronati superhcie ldevi mlus basi 4 loculin, cocci et dissepimentis crassissimis duiissimis, lacunis puncliloimibus ^ In Amenci boi in Ponnsyhnni et \ci^us re^ionem ad occid nieifl (Gi\*y m in of bot p 403) Coi lex laj\ is (v s)

h C TOMINTJSV (Nutt gen 2, p 221) folns 3 4-jugis, petiolo et idchi cano villosis, foliolis scssilibus ovatis vel obo^alo lancoolatis vel elliptico l mceolatis apice acummatis margine soiratis bisi pleiumqut uiTqu ilibus supi i glabns subtus tomentosis exsiccatione puiuiascntiljus gemma squamis 0 8 amentis a recenti innovitionp nascentibus loniento-is, lichi commiun a iolio seanoso s(luamoso niscente, bi icleis imentoium liteil involucium nngentibus hntan lanceolitis villosis, (To rib us masc Dmentosis, pengonn lob) postenoie aboitivo, staminibus 3-b, mthtris subscsilibus, spicis 3 > fl^ns lructu sphaLncu vel ovato, pencaipio ci isso, nuce ovaU lrre^ulintci 4 angulata le\itei stnatl apice acuminati mutionati mtus IUM 4 loculm, cocci et disstp crississimis licunis punchlormil)iis ^ ^ Amenei boicih a New Ilampsliirc dd Gc i^iim ((oopu ni smiths icp 18>8) in VIU^hany (Pursh fl 2 p (>37) juglans ilbi L (n in Michx ) Juglins lumtnlosi Luu Uict 4, p 504, Michx iloi boi am 2, p 192 Michx aib Vm p 184 ( tomentosa Nutt Pursh, Emers Guy man ol bot p 402 Vulgo Mockei nut, white heart hickory Petioli 6 8c longi i-oha 50 c longa (v s)

p, *maxima* (Nutt 1 c), lructu duplo crassiore

o C PORCINA (Nutt gen 2, p 222), loins 2 3 jugis, petiolo et lachi glabns, j^foliolis sessilibus ovato linccolitis basi uienuatis apicc icuminatis maigine serratis, subtus subpubesrentibus, geniuij squamis cnciln 11 amentis a recente inFiovatione nascentibus, flonbus misc puhtsceulibus peugonu poste norc lobo saepe nun abortivo, staiuinibus4, ailneiib sessihbus iuuctu ovoideo

vel obovoideo vel sphaeuco, pencarpio crasso, nuce ovofoeâ vel obovoideâ vel sphaenci 4 6 angulatâ apice acuminatâ mucronatâ, superficie leMtei stfiatâ, intus basi 4 locul ii i<sub>r</sub> cocci et dissepiment is crassis duns ^ I> America boieali a New Hampshue ad Aikmsas et 1-idiiklin (I oopei in Smiths lep 1858), in Florida centiali (heifo Chapp ) Juglans poicina Michx arb Am. 1, p 206, t 9 C poicina Nutt , "Watson dendi 2, t 167, Emers rep trees Massach p 197 fas DC mem 1 c f<sup>r</sup>h ^4 Juglans glabra Willd Juglans obcoidata Willd C glabra Gray man of bot p 40I. Vulgo Pig nut, Hog nut Folia 50 c. longa, pelioli r> 20 c longi (v v)

## Sectio II APOCARYA

Squamae in gemmâ paucae, plerumque f, veinatione decussatim valvares — Carya sect 2 Cas DC 1 c — Paulo a CaiyA verâ discedit, unde nomen

\* *Disstptmenta quatuor*

6 C AMARA (Nutt 2, p 222), loins } 4jugis, petiolo et ncln jmbescentibus, foliolis sessilibus vel bievisime petiolulatis o\ato-lanceolatis basi attenuatis inteidum lalcatis apice acuminatis maigine seiratis supia glabns subtus sub pubescentibus discis llaus nemeiosisjconspensis, gemmis flivis amentis a recentioie inno\atione n lscntibiis. laclu comrauni pubescenlc l)iacteis amen torum lateralium lugacibus, flonfjus masc evtus pubescentibus, pengoiuu lobo posteiioie aboitivo, stamim)us 4 lobis oppositis, anthens sessilibus connectivo supia loculos non producto, Honbus lem discis flavis conspersis, pe ugonio 4costalo, coslis apicem \eiskus torulosis, fiuclu globoso, pencarpio temiissimo 4 costato, costis apicem \eiskus alaJounibus, nuce subglobosa extus levissime stnata apice mucronatâ intru<sup>s</sup> basi 4 loculan, cocci et dissepimentis tenuissimis, lacums linembus lenuissimis \$ In America boreali a Georgia (Lil sket v 2 p 626) et lexas ((ooper in Smiths rep 1838) ad Massach (Liners rep tiees, p 199) Windsoi Pensjlvanu<sup>1</sup> (Michx) et Misboun (Cooper bsmiths rep 18)8) Juglans angustifolia, Lam diet 4, p 504<sup>9</sup> J alba minima Maish p 104 J amara Mitliv arb am v 1, t 4 C amara Nutt gen 2, p 2i2, Giay man ol bot p 40J (as DC m6in 1 c f 27 K) Vulgo Bitter nut, white hickory, Swamp hickory Folia J 4 d longa (v s)

7 c AQUAIIIGA (Nutt gen 2, p 222), fohis 4 6jugis, petiolo et rachi pubescentibus, ioliolis sessilibus lanceolato acuminatis basi attciHatis interdum lalcatis apice acuminatis margme senatis supia glabi is subtus pubescentibus, gemrnis fla\issquamis 2 extenoiibus lateralibus basi in tubum coalitis, amentis a recentli liinovationonascntibus, biacleis amentouim lateiahum iugacibus, floiibiis masc extus pubescentibus, peiigonu lobo i>ostci sajpissime non aboitivo stamimbus "> 7, anthens subsessilibusconnectivo supra loculos non pioducto flonbus lem discis ih\is conspensis. pengonio 4-costato, costis non toilulosis liuctu ovatoacununato compieso, pencai]io tenui 4-cosUto, nuce compressi extus 4-costata stnata intus basi imi 4-loculan, cocca et dissepimentis tenuibus intus sinuosis, lacums implis 5 In palustnbus Carolina\* et Georgian (Puish fl) — Cas DC m6m 1 c 1 4 et 56, 57 Juglans aquatica Michx aib 1, p 182, t 5, Pursh v 2, p 638 Vulgo Water hickory Toha 20 24 c longa (v s)

\*\* *DiMepimenta duo*

8 C OLIV<sup>t</sup>ORMis (Null gen 2, p 221), loins sub-8-jugis; petiolo et rachn pubescentibus, Ioliolis bievisime subpetiolulatis ovato lanceolatis basi falcatas apice acuminatis margine serratis ciliatis pubescentibus, gemmis ohvaceis, squamis 2 extenoiibus lateralibus basi in tubum connatis, amentis a pnoie inno\itione nascntibus pubescentibus, flonbus misc subsessilibus bractea convoluta, peiigonu lobo postico saepissime non abuitao, stamimbus 4 6 bisenatis, anthens subsessilibus connectivo supra loculos non pioducto, lructu oblongo-cylmdiico, ptncarpio 4-costato cainoso, nuce t^linducil apice mucionulafasub 4 angulatd extus Idcvi intus basi 2 loculan, cocca crassâ duris-simâ dissepimentis ventiaibus nulhs vel inu tantum basi couspicuis, dorsah-

- bus lamelliformii]us tenuibus supia iii>ertionem seminis evanescentibus, lacunis cocceE subnullis (hssepimentorum magnis sectione transversah hneanbus \$ In Iouisiana, Aikansas, Missouri (Miclix arb Am ), in Texas usque ad S Pedro (Cooper m Smiths lep 18'8) — Cis DC mera 1 c f 4 Pt 9 Juglans cyhdnca Lam diet 4, p 50> J olivdefforrais Marsh p 105, Michx fl hoi am v 2, p V)l, Michx arb Am v 1, p 173, t 3 Vulgo Pacane nut Folia 30 45 c longa NUY 3'i o longa (v s)
- 9 C MYRISTICAFORHs (Nutt gen 2, p 222)> folns 3 4jugis, petiolo et rachi glabns, loliolis sLssilihus ovato lanceolatis apice acuminatis bisi attenuatis marine senatis glabns, nuce cjlm dnn. apice mucronulat i cklus 1T\I lonzi tudin ihter leMssimo suhsttiali intu-s basi I loculan, disscpnntis \enliali bus nullis, dorsahbus supi i insertionem seminis e\anscentibus cum cocci ciassis dunssimis, lacunis piinctiloinibus\* j In Amend boreali in Caiolina mend (Puish 11) a Massach ad Opclousas\* (Coopei m Smiths icp 18'8) — Lll sk Georg p 628, Cas DC mem 1 c 1 8 (de mice) Julians mynsticae formis Michx aib am \ 1, t 10, Pursh fl am sept p 638, Poiret diet suppl 4, p 112 Vulgo Nutmeg Folia 16 20 t longa Nux 3-4 c longa (v s>>)

*Species non satis nolx.*

- 10 C TFTRAPTER\ (Iicbm M(lonsk mcdcl kiopen 18'i0, p 80, ex Waip ann 3, p 844), loins 5 8jugis toliolis alttims petiolulatis basi falcatis apice acuminatis margine duphcato senatis impan majoie longius ]>etiululito, siipia glabus sublus pubescentibusad nenos paice pubuulis spicis 6 flons, fructy ovah sessih teliapctro 5 In con\alle Oijitcnu ad vicum Omlapa et alibi in Mexico Rimuli puberuh Folia 8 12 poll lon'a loholo teiminali 4 1'> poll longo 1J 2-poll lato lateialibus I 4 poll lon^is, 1-1 ) latis, petiolulis 1 2 hn longis teiminali subpollicau Fiuctus 1 ) poll longus, alis 4 acutis, putamme lai\i o\ili stigmata 4, ciassa, leflexa
- 11 ( TEXANA (Cas DC in Ann sc nat ser 4, v 18, p 34), lamis jumonbus, petiolo et rachi tomntosis, folns 7 Sjugis, foliohs sessilibus ovato atunnatis maigine seiratis pubescentibus,amentis c leLenti innovatione nascentibus Honbus masc subpedicellitis, peigonn lobo postico aboitivo, stammibus pie i unique 4, anthens sessihbus pubescentibus tonntti\o supia lotulos non pio ducto In lexiis oiicnUli (Ch Wright, collect du le\as or 1848 49) PetioluS 3-4 c longus (v s)

V PLARYCARYA Sieb et Zucc Abhandl der munch Acad v 3, p 743, t 5, Cas DC I c p 24, f 6, 16, 17, 25, 2b, 27, 33 37, 60-fa2 - loitueea Jmdl Journ horl &oc 1, p 150

Amenta modo unisexuaha mascuhna, modo bisexuaha inferne feminea superne mascuhna, axillana \el teTminaha, mascuhna decidua. Flons masc pengonium nullum. Stamina basi bractea) umflorde mtug adnala Flons feminei ovanum ovoideum in axilla bractecE liberae unillorae rachi msertum, cum dentibus duobus lateralibus postea alaeformi-Lus basi connatum Stigmata duo, lateralia, decidua Fructus dipterus Pencarpium indehiscens Nux ossea, cum pencarpio concreta, intus basi 2-ocularfc Dissipimenta dorsalia nulla, ventralia rachi opposita supra insertioncm seminis evanescentia. Lacunae nullae. Semen inferne bilobum. — Arboies Asias onentahs, folns imparipinnatis — De vanationibus et monstns florum conf ad fig meas supra cit.

P SIHOBIACFA (Sieb et Zucc 1 c t 5), folns 5-8jugis aromaticis, petiolo et rachi subpuberuh, loliolis ovato lanceolatis acunnnatis margme serratis sessihbus oppositis, subtil ad axillas ntrvorum setund cum neivo pnmαιο pilos>is, gemuns squamo^is squamis pltiumque 11 \eiiuitione equitantibus, lions

raasc. bracte<sup>v</sup>L Janceolatâ medio constricts pubescente intus basi glabrâ, stamibus 8-10 uniserialis, 3 medianis, 3 positis, 2-4 lateralibus, antheris glabris, filamentis brevibus basi imâ in distum coalitis, floris iemin. o. A. alisque glabris, ut Zucc.) et in collibus Japoniae et Ningpo (Fortune ex Lindley) Fortunea Clunensis Lindl. I c. Folia 25-30 c. longa, petiolus 4-5 c. longus; gemmæ autochthonem slipi. Flos femineus in Journ. hort. soc. male pictus (v. v.)

Ordo GXCIII. MYRICACEJE (\*). — Pistaciearum genus *Adans. fam. nat.* 2, j). 338. — Amciitucearum pars *Juss. gm. p.* 408, DC. *fl. fr.* 3, p. 300. — Myricoe *L. C. Rich. anal. fr., germanice versa cum addit. auctoris, a Voigt (1811), p. 193, et anglice (1819) a Lindl. p. 33, 36; Ach. lieli. diet. Class, sc. nat. 11, l>. 382 (excl. plur. gen.); Blume fl. Jav. fasc. 17 (1819); Endl. gen. p. 270.* — Myricaceae *Lindl. nat. syst. ed. 2 (1836), p. 179.*

Amenta axillaria, plerumque c recenti innovationenascentia, simplicia vel composita et tunc amentula modo dense appressinata spicam, mox distantianpaniculam formantia. Apud monoicas species amenta androgyna, basi masculos apice femineos flores ^erentia. Flos masculus staminibus 2-16 in axilla bractea sessilibus spicatisvc, nudis vel bracteolis 2 lateralibus aut pluribus sterilibus fultis. Filamenta basi plus minusve coalita; antillarum bilocularis, rimis longitudinalibus dehiscentes. Flos femineus ovario in axilla bractei sessili, basi bracteolis 2-4 sterilibus, in unica specie (*M. Complonia* Banks.) fertilibus multo, et cum eis plus minusve basi connatis sistens. Ovarium apice stigmata duo, lateralia, liliifolia, sessilia gerens. Ovulium unicum, uniloculare, orthotropum aut amphitropum, basi in loco sessile. Fructus drupaceus; pericarpium c papillis seu rugis materiam circum exsudentibus, pilis intermixtis formatum, nucem osseam plus minusve duram tegens. Semen locum implens. Albumen nullum. (Lotyledones carnosioconvolutae). — Sultrilicis, frutices v. arbores, in America boreali et merid., Africa et Asia merid., specie unica, *M. Gale* L. (et forsitan *M. Faya* Ail.) in Europa spontanea. Gemmae in axillis solitariae, squamosae. Folia simplicia, exstipulata (*M. Gomptonia* excipienda), margine saepe serrulata v. serrata, in unica specie (*M. Gomptonia*) pinnatifida, sicca rigida coriacea, saepissime pilis disciformibus crebris fragrantibus conspersa, uninervis, nervo centrali utrinque nervulos inter se anastomosantes emittens.

1. *AIYUICA* *Linn. gen. ed. 1, n. 74G, Necess jun. gen. fl. germ. fasc. 3 c. 7c, Endl. Uen. p. 272.* — *Gale J. flavif. fits\*. 2, p. 223.* — *Naffea* *torm. Vucl. 1, p. 19 t. 39, f. 8.* — *Complonia* *fanks in G.ITH. fr. 2, p. 8, 90.* — *Faya* *Webb phyt. canar. 3, p. 272.* — *Gale, Myrica el Complonia Spach hist. i w/ l'\*\*\*\*\* 11, l> 2>8.*

Ovulum orthotropum; caetera ut in char, ordinib.

Sectio i. *GALE* *Endl. gen. p. 272 [mutatis char.],*

Amenta mascula simplicia.

§ 1. *Stamina nuda. Ovarium basi cum bracteolis 2 lateralibus. connatum tunc fructus dipleris. \**

1. *M. GALE* (*L. sp. p. 1W3*)<sup>1</sup>, foliis cuneato-lanceolatis vel cuneato-obovatis siccis membranaceis vel rariis marginibus apicibus versus senilis supra subtusque

(\*) *Auclore Cas, Pyr. do Candolle.*

pubescentibus, amentis masc cnciter 20 flons flonbus masc sessilibus, biac teâ hastatâ scanosâ maigine pellucidâ, stamimbus 4 anthers glabns, loculis connectso longionbus, filamentis bieMssimis amentis femiteis circ 20 flons, bractea o\ato lanceolatâ acutâ deciduâ, bi icteohs 2 lataiahbus dentifoiraibus basi ima cum ovano connatis, ovano o\ato attenuato apice stigmata 2 lihfor mia lateralia geiente, ftuctu lateialiter dipteio gianuhs cereis aureis conspeiso, cocca tenui J Socuhs in palustnbus et lmmidis Luropae occid , in insuhs bntann usque ad Sutherland sub 59° lat (Wats Cyb 2, p 408), secus occidentem continentis a Biant/ et Bayonne (Mut fl fi 3, p 208) usque ad Lapomam mend (Fries summa \eg Scand p 50), Fennidm, inde ^elsus Ros siam raediam ad Pcnsa (Iedcb fl ioss 3, p GCl), in Sibnil (h DC '), in Anienca boicih a montibus Vnginu (A Giay man bot p 410) usque ad fort Noipeo Mackc nsie uvu (Hook fl boi am 2, p 160) et pei No\am Angham (Gi iy) et fanadi (h Kew ') usque id labiador (id !) — Fl Dan 2, t 827, bv Bot t 7G, Engl Bot t '>62, Nou\ Duham 2, t 57, Schk Handb 3 t 322, Rcichb ic ft germ 11, t 020, Necs ic gen fl gcim lasc 3, kpach hist \eg nhan t 97, Cas DC in Ann sc nat ser 4, \ 18, p 20, t 3, 1 30 Ramuh pubescentes Folia 3 ' > c longa, 12 14 mm lata (v. s) \*

p, *lomontow*, folns et lamulis tomentosis In Kamtsthatka (Fiseher! ex sicc ), ad flum( n Amur (MixiraoN ' in h Kew ), et in insulâ Sitcha (Bon ttiifl in L> (h I) fl ioss )

- \*y, ]\*ortu{jalensis, sli^m itiluis pih sis In b>ortiiif^alia (Mnbcl niim Mus l'i, p 477, t 28)

## § 2. *Stamina nuda. Ovarium biacleohs 3-4 fultum.*

- 2 M **CORDIFOLI**v (L sp p 1453), folns pams e basi coidatâ o\ato acutis margine undulato dentatis supia pubeiulis siccis conaceis, flor masc biacteâ ovatâ nngine ciliatâ, stamimbus X biacteA duplo Jongionbus glabns, filamentis bivissimis, amcnlis ieinin solitams, floi lem biacteâ lanceolatâ glabiâ, biacteohs 4 pilosis 2 ncln oppositis minonbus, ovano imâ basi cum bi.ictcolis ronno, huctu iniico sphd,nco albo ceioo \$ In promont Bonae spei (lhunb flor cap ed Schult p 108) — Norn Duham 2, p 193 Cas DC m Ann sc nat sei 4, v 18, p 21, t. 3, i 31 Ramuh pubescentes Folia vix centim longa Rami usque ad 1 -J c crassi (v s)
- 3 M **QUIRCII-OLIA** (L sp p 1453), folns oblongis basi cuneifoimibus apicem versus margine opposite sinuatis subpinnatisve siccis ngidis conaceis\ e adultis utrnique glabns subtus gianuhs ceieis conspersis, amentis masc matuntate quam folia bieuonbus solitams, flons masc biatteâ cuneato obovatâ glabiâ, stamimbus 2 matuntate subspicatis, flons lem bractcohs4, fructu sphffiiico albo granuloso ^ In promont Bonde spei (lhunb fl cap p 159) — Lam enc^cl 2, p 593, Nouv Dulnm 2, p 193, Jacq hagnm p 2, t 1 M laci niata Willd en p 1042 Folia magnitudine et ioimâ \anantia pleiumque 3 i c longa (v s)
- 4 M **NATALLNSIS**, folns oblongo lanceolalis utnnque acutis glabns siccis ngi duhs maigine senatis serratuus obtusiuscuhs, amentis masc 3-4 appioxima tis, flons masc bractea ovatâ basi coidatâ extus glabrâ, stamimbus 4 bractel brevionbus In piomont Bonde spei piope Natal (Guen7ius/ n 55, in heib Boiss) Ramuh glabn Folia 8 c circ longa, 1^ c cue lata. (v s)
- 5 M **CERIERA** (L sp p 1453), folns cuneato obovatis utnnque acutis apicem • veisus margine denticulatis siccis fume membranaceis supra subtusque pube •mlis maigine cijiolatis amentis masc solitams quam loha parum minonbus flons masc bractea cuneato obovatâ glabrâ margine cihatâ, bracteohs mtei dum 2 fililoimibus, stamimbus 4 8 (pleiunique 4) matuntate spicaUs, amentis ieinin sohtmîs, flons femm biacteâ ovata glabrâ, bracteohs 4 glabris, o\ano pubeiulo, huctu sphdenco albo ceioo gianuloso nuce ossea 5 ^cl ^ 1'' Amencâ boreah a lacu hne (Gray man of bot p̄ 410) ad Flondam (Chapm



- fl South p 426), in montibus Alabama? (h Boiss '), in Louisiana (herb fanri ') — Bigelow med bot t. 43, Michx fl bor am 2, p 227, Elliot sketch Georg 2, p 678, Pursh fl north am 2, p 020, Schk Handb t 322, ( DC in Ann sc nat ser 4, v 18, p 21, t J, f 32, Nouv Duham. 2, p 190 M Gaiohmensis Mh' Wilhl sp 4, p 746, Fll I c, Puish 1 c M Pennsylvanica horti par (exLim), Nou\ Duham 2, p 190, t 55 Altitudo et loha maxime vanabilid Ramuli pubescentes Folia circiter 8 c longa, 2 c lata (v s)
- (J, *angustifoha*, folns angusliorihus glahris margme Integemmis \el versus apicem denticulatis, In uteolis lions masc 2 filifoimibus ciliatis Prope New Oilcans (Diummond in h Kew ) (v s)
- b M SPATHULATA (Mirb racm. Mus 14, p 474, t 28, f 1), folns obovato-spathulatis apice obtusis subcoidatisvc miiginr inlegemmis utinique glabns, amentis rrnsc solitarns, flons masc biactei cuncato-obtusi, stammibus 4 biacte) siiblongioiihiis, amontis femin soliUrus, (Ions femtn bracteolis 4 ;) In msula Muh<sub>h</sub>Mscai (h (and ' a Pcnottet missa et h Kcw ') Ramuh glabu Folia feic-7 c longi, mcdil p<nte 2 c lata., petioli *tfdhn* 1-1 ^ c longi (v s)
- 7 M MirRor AHPA (Den(h pi Hulw p 200), folns obo<ito elliplicis lpucvoh-tusis \ol obtiisiusculis nniKiiK l>i'i mli <cu inns .ipiceni VCISIIS denticulatLS glbns id iiei\os piilMTiilis suhtns discis aurois conspeisis siccis fiKidulis, amentis masc soliUins, lions masc bractea cuneato-lanteolata, staminibus4, amiMitis fem solitmis, lions lem biactea o\atoacuti ghnduhs tonspeis^, bracteolis 4 acutis \$ indulosis, o\ano glabro 5 In limuci iHaitw n 15dl in h Kcw), <sup>sup</sup>M C<UIIP(^ montrs (I inrh n CXMC n 1671 inn fand) Cuba prope Habanam (R dc la bagia ibid.) et in Guadeloupe (Ball) lb) Rarai len-ticelhsconspersi, ramuli pubescentes Foliage longa, 2 c lata, petioli 3 mm longi, pubescentes (v s)
- p, *angnstifolia*, lamulis auieis, fohis e basi cuneatà lmean-oblongis subtus auieis supra ilibcis auieis conspeisis In Jamaicà (h Kcw<sup>1</sup>) (v s)
- 8 M PUNCTATA (Gnseb pi Wright p 177), folns lnevitei petiolatis lanceolatis integerrimis vel pauci-crenulatis glabus subtus dense discis auieis conspersis siccis conaceis, amentis mast giacilibus sohtains, icmineis solitarns siccis flajs, flons fem biacteohs 4 In insuU (ubensi prope monte de Verde (Wright' n 1460 in h Kew ) Ramuli teretes gUbn Folioium hmbi 4 5 c, petioli 3-4 mm longi (v s)
- 9 M ZEYHERI, folus cunsato-lanceolatis apice obtusiuscuhs maigine basi mtegermms apicem versus senatis senatuns ohtusiuscuHs supra tenuissime pubescentibus subtus glabus siccis ngide conaceis, amentis masc solitarns, flons masc bi acted, cuneato lanteolaU vel tuncato oho \ it A glibia margine ciliatS, stammibus pleiumque 4 bractea minonlnis, filamentis subnullis, an-thons puberulis In piom Bonae spei (Zeyher' n )878 in h Kew.). Ramuli pubescentes Folia circiter 4 c longa, iamuloium folia infeuoia mmora, integernma (v s)
- 10 M BUHMANI (E Mey mod), folns elbptico lanceolatis bisi attenuate apice itulis maigme inteReiumis subtus recurvulis utinique glabris siccis ngidis toilaceis, amentis masc ^ohtuns, sUmimbus 4, amentis lemiu solitarns, lions fem bractea ovata glabia, biacteoils 4 glabrib ereclfs acutib, ovano\* basi puberulo In promont Bon\* spei (Zeyher, n 3875, et E Mey m h Kew) Rami et lamuh glabn Folia 4}c longa, He lata (v s in h Kew)
- 11 M KRAUSSIANA (Buchinff in Flora 1845, p 89) dioica? folns subsessihbu^ ovahbus obtusissimis mtegerrimis vel apicc paudentatis dense glanduloso-punctatis subtus reticulato venosis,\* amentis mast solihrnS oblongis folio duplo tnplove brevionbus, squamis- late tningulanbus stipitatis patuhs gla-hns ciliohtis, anthens 4 subsessilibus, amentis f^m in promont Bonae spei intci rupes montis Steenberpe (Krauss) Rauji validi, apice 'corymboso-

ramosi, dense foliosi. Cortex gneseo-fuscus, longitudinahter ru^ulosus folia conacea, 12-16 !m longa, 6-9 hn lata, venis supra obsolete immersis subtus prominuhs. Accedit ad M. Burmain, glabntie diversd

12 M ONOVATA (Cham mss in li Kcw), foUis elliptico-oblongis ^el oblongo-0 bo vans sessihbus basi in pctiolum decurrentibus apice ohtusmsculis glabns siccis conaceis, amentis masc. soliiarns simphubus, flons masc bracteohs nullis vel 2, stamimbus 6 10 spicatis In Floridâ (Dr'ummond m h Kew j 1 luctus sphcLiius, albocoeius, rugosissigius (\.s)

13 M HREVIPOLIA (E Mey in herb Zeyhcr), folns elhptico-lanceolatis brevisime petiofatis basi marline Integrcnmis apicem \ersus irregulariter seiratis integrisve supra subtusque glabns siccis ngide conaceis, aractis lom, solitanis, racln glabrâ, biacleohs 3 ovato-acutis margine ciliatis, o\ano glabro InPiomoni Dona) spei (Zeylicnu h Kew.) Ramuh pubescentes. Folia3c. cue. **longa, 1 c. circ. lata (v s)**

14 M HUMFIS (Cham, ot Schlecht in Linn b, p 535), folns brevissime petio- latis ovais et ovaio-lanccolalis aniice profundius obsoleteusve ranter lncqua- hter crenatis scnalis nee non subintegromis acutis mucronuhtis conaceis maigine recurvulis, amciis raise solitarns densiilons tiassiusculis, lions misc ]ractei ovalo-acuM ciliolati, amontis lem lixiflons, rachi hiiiclh, A uctu spha3nc0 cerco In Prom 13ono spei (Cham cl Schlccht 1 c ct Villette in h Kcw.). 3 Ra<sup>13111</sup> pubescentes A M brvifoha E Mey anicntis fem laxiflons diversa. (v. s )

**§ 3. Amenta masc. simplicia vel basi subcomposita. Stamina bracteolis 2-6 fulta. Ovarium bracteolis 4 fultum.**

15 M LINDENIANA, loins oblongo lanceolatis lanceolatisve uliunque acutis mai- gmc sen at is supra Mibusque glabns *situs* ugidib, anientit masc solitanis snnplicibus, ltidu pubLscLiitc, (lons masc biaclea cuncao obovatâ. glabid maigino ciliatâ, biaLtoolis 2 lineanbus cilialis, slamimluis 6 8 spicatis, s]ic« biacteam «equantc vel paulura sunerante In Mexici pinv. Chiapas (Linden, n 10) Moiet. ipiili. fcoliduiulci (CLini longa cl 25 mm lata; petioli 10 nun longi, teietes, pubcruli Ramuh pubeiuli, discis auieis cospersi (\ i> )

10 M XALAPENSIS (kuntli in H et B. nov. gen 2, p 10), folns lanceolatis dcuminatis Dasi cneato-angustatis margine inte\_ncnimis vel apice senatis glabns SIGCIS ngidiusculis ncivo medio pubescnte, amentis miso scssihbus rachi glabiâ, flons masc biyicted cuneato-obovaU extus pubeiuli, biatteo- lis 2 lineanbus bracleâ brevionbus uhalis, staniinbus 4 5 In regno me.i- cano piopo Xalapa all J 4000 pd (U. 13 in b. Mus par ). (v. b )

17 M. PAHVIFOLIV (licnth pi Hartw. p 251), folns anguste elliptico lanceolatis basi apicccuc atlenualis margmc integcinnis \el apicem veisus remote denticulatis glabns siccis n^idis supra nitidis pctiolo ijubescnte, amentis masc solitanis simplicibus, flons masc bracteolis 2 staminum spica mseitis, siaminibus 8 spicalis, Hons ftm braotcohs 4 margine cihatis In regno No\o (jianatensi (Hcib Mus p«ii CiOudot 1844 et heib. Kcw). IUm pubeiuli, lanmli pubescentes Folia 20 25 mm longa, 4-5 mm lata, majora usque ad 7 c. longa, discis aureis conspersa. (v. s )

18 M INTERRUPTS (Benth pi Hartw p 2S1), folns oblongo-lanceohtis mte- genimis senulitis\e obscuic ;enosis glabns, amentis fem solitanis gcmi- usve inteinipiis, flons lem lnactea acuminatY, bracteolis 4 discis aiueis conspeisis Juxtd cataractamliqiudama piv. Bogota (Haitw 1380 in h.Xew ) tolid 25 mm. circ. longa. Floies lemoti Tiuclub sphaencus, dlbo-gianulosus (v s)

19 M SALICIFOLIA (Hochst mpl. Söhimp ab>ss. sect n, n. 1093, 1135, 1327) exclsi, folus ovdlo lanceolatis basi attenuatis margine mtegemmis denticul •

tise glabns ad nervos pubpruhs siceis nfeiduhs, amentis masc simpheijjus, flons masc hneto\ hnccolitt exius jniboscnto, brictcolis 2 4 extub pubescntibus, stimibus 12 miluntite spicitis, imuitis feraineis simpheihus gubcompositisve flons fciuin biactca cihat\, biactpolis 4 6 ciliatis, Iructu sphaenco dlbo gidnloso nucc dunssima 5 In regnd Clia, m prov simensi (A Rich tent fl Abyss 2, p 277, et h Cand), prope Genansa in piov simuisi (Schump ltdi abyss m horb Kew) Folia longitudine tt fonn\ ni i\imo vanantia, pleruraque 8 10 c longa. (v, s)

- 20 M Nvn flhunb fl Jip p 76), folns c bisi longe cuneato lanceolatis apice oblusmscuhs margme integenimis siceis conaccis, amentis fliaesc simplici bus, flons masc hractoa ovito acuti, bractcohs 2 3 '\* ovatis stuninibus mlcidum mixtis stiminibus 6, /ilaracntis lobos aequantibus bisi libons, Fructu *glohoso* dense pilloso & In Jipom i (Ki rapf. etc), ciao Nagasaki (U kew), in Chinâ piope Hongkong et Honokong (Bentli 11 Hongk p 6XI) Na, vulgo Na^i Kdcmpl amon p 773, ic dd p 874 Nd^cu Japonic Gaerh ir 1, p 191, t J9, f 8 M. mbra Siebold et Zucc fira nat /dsc. 2, p 10G (v. s)

{3, *acuminata* fohis ipice icummatis mucionulatis vel breviter emirginulatis siccisngidis, amentis masc bisi subcompositis, spicis fem sohtipis simpheibus floro unico lertili, fructu pyriiormi valde papjloso 8 m *Ipngo* In Japoniâ (Zollmger' n 164), Loochoo islands (wng hf n 3\*6 in h Kew ) {v s}

Sectio II COMPTONIA Endl gen, p 272 — Genus Compton Banks in Gvrtn ft 2, p 58, t 90 (ad *Myncam referendum, monente jam A Rich. %n Diet, class ic 4, p 3G2*)

Amenta masc sirmphcia Stamina nuda Ovanum bnctcolis duibus hteialibus fultum, biactcolis in avilld squamuhs4 gcientibus — Folia pinnatiida

- 2\ M COMPTONIA, folns hncanbus mirgine pinnatifidis pmms roniformibus supra subtusque pubescentibus, stipulis e basi spmi corditi linoin oblongis, amenlis masc solitdnis cylmdicis, flons masc bidctLd hast it i gla)id cihati, staminibus 4, spicjs fem globuhnbus, flons fem bractel obluhd biactcohs 2 acuminatis fertihbus, oviiu ^hbio 5 In Amentâ boicab iCarolinL sept (Chdpm fl South st p 427) id nov Brunswick et Saskdtchaw in (Luierson necsMass p 226) et Wisconsin (\ Gidy man p 410) Comptonia aspleni folia Binks dpud Gaeti\* 1 c, Nouv Duh 2, p 46, t 11, Wilson dendiol 2, P 166 t 156 Liquid unbar aspleniolum Linn sp p 1418 Liquidambai p regrum Reich ex Steud. nom. Ramuli pubescentes Folia orciter 8 c longa, 7-8 mm lata (v. s)

Sectio in FAYA. — Genus Faya Webb phyt canar 3, p 372

Amenta masc composita Stamina nuda

- 22 M INTEGIPOLIV (Roxb fl ind ed 1832, v 3, p 765), folns c hasi cunatl lincohtis apite acuminatis nuigino integemmis vel dpicera versus semilatis supia sublusque ad nervum pinudiiuni puboscenfiljus siceis ngulis amenlis masc solitams, amentuhs dqnso apiJiovinulis bieussimis condensatis piuciflons, flons masc bractod ovati mdiginc cilidta, sldnnnibus 4 brattodm sul iLiiuntibus, flons fem biactcohs 2 (Roxb icon) ^}n Indiae piov Sillet (K \b), Klmsn (Ouffith, n 138, 139 in h Kew), Bengilu onenhli (herb comp Ind or 'Giiltth' n 5009 in h Kew) — Wight IC 3, t 7b\* Rimuli et pUioli tenuissime pubesconth toha cirtiter 16 c longi, cucitci 3 c 1 iu (v s)

IA M PAVONIS, folns linoanbus uhinquo icuiis mirgme sorrilihs supra sub lusque tenuissitnc puheruhs vel glbns siceis ugiJuhs membidiidceisve iiiiulis inisc sohlinis, imontuhs subglobosis U 8 flons, flons nusc brdct>spuhulitd; stiminibus 3 4 iudiuntite subspieUis spicis\*fem solitarns simpli<i)us, flons fem bi acted luccolatd cxlus\* pubescnte bidctcohs U. dncusto ovatis cxlus pubeihs In Pciuid prope Huaydquil (herb. Pdvon m h Bôiss ;

et Santa prope Lima (herb Kew Sim n 88) Ramuli cinereo puberuli *lo*  
hi 7 8 c longa, 4 mm lata (v s)

- 24 M JAVANICA (Bl Bijdr p 517, fl jav Mync p 1, t 7), folns obovatis  
hasi attenuatis apice obtusis margme remote serratis glabns siccis conaceis,  
amentis masc sohtarns amentuhs cyhndncis, flons masc bractea ovata extus  
pubescente stamimbus 3 4 matuutate spicatis bractei duplo longionbus, an  
thens extus glanduloso puberuhs spicis fem simpliuhus flons fem bractea  
acutiuscula, bracteohs 2 ovato lanceolatis fiuctu oxtus puniceo ovato lenticu  
lan compresso ^ In Ja\ a alt 10000pd (Bl fl Ja\ et herb Kew) M ma-  
crophylla Mirb mem. Mus par 14, p 472, t 27) Aliquando monoica Folia  
10 c longa, 5} c lata (v s)
- 25 M SAPIDA (Wall tent fl nep p > q, t 45)^ folus e basi cuneata lanceohtis  
ipice acuminatis obtusisc mirgine lntpgemmis ghbiis sitcis conaceis ngi  
disve amentillis c)lindricois ilteinis lemotis richi pubescente, flons masc  
biactel oviti extuv piilxIuli mngrno ciliali stimmibus 3 5 plerumque 3  
bractea lonjgionbus, anthnis glabns floi fem fiuctu pyifoimi gianuloso  
nuce dunssima basi et ipice attenuiti > In Indne oi montosis piope Sin  
naggi et Kumaon alt 5000 pd ct Nipaln (Wall tent 1 c et herb 6811 in  
heib Kew) monte khasia (heib ind or Hook et Chimp) m PenmsuU  
bum micã (herb comp ind or coll Gnffith, n 5008) Malacca et insula  
Borneo ad mare et prope Banguirmassing (Motley, n 602 in heib Kew)  
Arbor umbrosa Ramuli pubescentes Polia 9 12 c longa (v s)
- 26 M MISSIONIS (Wall f list n 7297), folns obovatis basi attenuatis margine  
lntcgernmis recurvuhs utnnque ghbn lunionbus ad nenum pvim pube  
ruhs amentuhs cyhndncis flons masc bractea hnceolata extus pubesrente,  
stamimbus 4 maturitite subspicatis In Asia mend ad Kamion, alt 5000 p  
(h Kew) prope Malacca (Leman in h Cand ), penins birman (h L Ind  
comp 5008 id h Kew) et Borneo (Motl n S02 in h Kew ) Ramuli subpu  
bescentes Folia 3 7 c longa, 12 mm lata (v s)
- 27 M LONGIFOLIA (Tejism et Bmendjk mss), folns e bisi cuncat\ lanceolatis  
anice acuminatis mtegernmis supra glabns subtus ad nenum pnm pubescen  
tibus siccis ngidis subconaceisve amentis raise solitariis lachi \illos\, amen  
tulis sparsis flons masc biactel ovato acuta extus villos^, btaminibus 4 In  
nsula Ja\ a (Zollingtr<sup>1</sup> J697, Miquel fl Ned Ind 1, p 872 lejsin f e\ sic in  
herb Kew) Ramuli et ppti oh pubescentes Folia circitei 7 c longa, 2 c 'lata  
(v s)
- 28 M FAYA (Ait Hort Kew 3 p 396> folns ovato lanceolatis basi et apice  
attenuatis petiolatis margine serratis \el subintegns glabns siccis conaceis,  
amenti masc amentuhs multiflons, flons masc brictea ovita extus glandu  
loso pubescente, staminilms 4 bractea duplo longionbus, filara infra me  
dium coahntis, amentis fem compositis, amentuhs globosis 3 4 flons, flonbus  
fem coahntis, flons fem bractel ovata evtus pubescenie ovano extus papil  
loso, fructu e\ amentuhs incrassatis glanduloso papillois rubns composito  
simulatione multiloculan 5 Spontanea in A/oncis msulis (Biot pi lusit  
p 211), in Madera et Canams (Webb hist Can 3, sect i, p J72), Ill Tene  
nffã (li Cand a Brouss lecta et Bourgeau in heib Kew), subspontanei  
Ill Lstramadurã et legno portugalensi et ad rivulos in Sieira de Picata cum  
Rhodod pontico (Biptero fl lusit p 211, Bourgeau in herb Kew) ex Fayal  
ad\ecta (Brot) Jaya fragifera (Webb hist Can 1 c) M Faya Ait 1 c ,  
Brot 1 c Nouv Duh Arbuscula 20 25 pd alta, rami stnati, glabn, nodosi  
(Webb 1 c) Antherac interdum cum flonb fem mtermixtae Petioh glabn  
(v s)
- 29 M FARQUHARIANV (Wall tent fl nep p 61), folns e basi cuneata lanceo  
latis integernnis vel acute serrulatis fae\ibus deorsum acuminatis basi sub  
obtusis, amentis masc solitariis dense ramoso-subpaniculatis sessihbu\*  
femineis solitariis elongatis erects Prope Singapore (Wall 1 c) J Petioli  
brewssimi, pubescentes

## SeCtIOIV SUBFAYA.

## Monoicae Amenta siraplicia, androgyna

- 30 M CALIFORNICA (Cham et Schlecht in Linnaea 6, p 335), folns e basi cu neatâ anguste lanceolatis margine integerrimis vel irregulariter apicem versus denticulatis utnque glabns siccis ngidis subconaccisve limbo in petiolum subcomplanatum decurrente, amentis subcompositis simplicibusve, hracteis ovato acutis glabns margine ciliatis, flons masc bracteohs 4 ^el plunbus lanceolatis glabns, stamimbus 5 7 spicatis, spicâ. bracteohs duplo longiore, flonlms fern 1 3 4concretis uno feiti, fructu sphaenco vel ohlon^o sph-Enco valde papilloso albo cereo, nuce o^atâ dunssimâ 5 In Cahfoinâ (Haitweg, n 1%9) Ramuh glabn Folia 6 c longd, 12 m latd M Fay ae af fin is
- 31 M iETHiopifA (Lmn mant p 298), folus breviter petiolatis bnean lanceolatis lanceolatisve utnque acutis maigine piofunde duplicate senatis \el remote dentitis laio lntcgerimis supra sublusque ad nēnos hispido pilosis, amentis androgynis, lachi villosi, flons mdsc biactea ovato acutâ extus pubescente biacteis nulhs, staminibus 4 filamentis basi coalitis matur spicatis spicâ bracteam supfrante, fl fern bract ca ovato acuta extus pubescente, biacteolis nulhs, st\lo subnullo, fmctu sphspnco pai\o papilloso- albo teieo 5 In promont Bonae Spei (h Cand Boiss Kew et le\h m n Boiss ) etad ca taractam fl Zambese Victoria dictam (Livingston in h Kew )— Pink t 48 58, Willd sp 4, p 47G, Ihunb fl cap p 153, lausch in Hoia J8U p 671 M serrata Lam diet 2\*p 592, Nouv Duham 2p 192 l^olia J-11 c longa, 15m 3c lata, in ramuh s mferiora mmoia submtegenirna ( \ s ).
- 32 M ARGUTA (Kunth in H et B no\ gen 2, p 17, t 98), folns e basi cuneata> oblongo lanceolatis o^ato lanceolatis\e margine basi integerrimis apicem versus argute serratis subtus pubescentibus siccis ngidiusculis, amentis subternis lachi villosa, flons masc bractei hnean lanceolata extus villosa, bracteohs 2 hnpnbus villosis, staminibus 6 8 matuntate spicatis, floiis fern bractea subulata extus pubescente, bracteohs 4 biactei duplo longionbus o^atls e\tus pubescentibus, fructu sphasnco papilloso pubescente 5 In regno Novo Granatensi (H B 1 c Linden exsic n 1123 et 20 in h Kew Goudot m h Mus par), ad radices montis Chimborao (Spruce n 6191 in h Kew ), prope Caracas (Linden evs ), in Peiuvia (herb Pav ) et Bohviae prov Larecaia, valle hpuani (Weddel, 1851 in h Pai ) Rami fusci, lenticelhs conspersi Ramuh pubescentes Folia 10 H c longa, 27 3 c lata, petioli pubescentes, 10-12 m longi ( v s )
- p, *macrocaipa*, folus e basi cuneata ovato-lanceolatis subtus tenuissime pubescentibus In Peruwa' pi ope Ajavaca (herb Mus. par) M macrocaipa (H. B I c) ( v s )
- Y, *twctoria*, folus e basi cuneata ovato lanceolatis maigme seiratis serulatisve mtegemmisve glabns ad nervo^enuissime pubescentibus vel glabns, amentis masc sohtains simplicimTs raclu viluM, flons masc hractea lanceolato acuminati extus pubescente, biacteolis 2 hneanbus, staminibus 6 8 10 spicatis, amentis fcmin androgynis, floiis fern biactei lanceolata extus pubescente, biacteolis 4 ovato acutis extus pubescentibus, ovario pubescente fructu sphaenco In Peru via (Pav III h Boiss et heib Mus par) Rami pubeiuh, fubci, lenticelhs conspersi, lamuh pubescentes Poha 6 12 c longa, 23 c lata, pctioh 6 mm longi Amenta masc 2 c longa ( \ s )
- ò, *Peruviana*, folus e basi cuneata, ovato lanceolatis siccis subngidis margine senatis supia glal>ns ad nervos pubescentibus pttiole pubescente, amentis androgynis masculis\e pubescentibus, floi masc bracteohs 2 lanceolatis cihatis, staminibus 8 14-16 pleruraque 14 spiratis, spici subglobosa, flor fem bractei hnceolatd extus pubescente sa?pissirae folncej et tune 9 mm circ longa, bi\ctehs 4 ovato acutis extus pubescentibus, ovario pubescente In Peruvia (Pav in h Boiss) Rami püberuh, ramuh pubescentes Folia 7-10c longa, 2 2 1 c lata petioli centim. longi ( \ s )

33. *M. POLYCARPA* (Kunth in H. et B. BOY. gen. 2, p. 18), foliis lanceolatis basi integerrimis et angustatis glabris nervis subtus puberulis, amontis superioribus masculis inferioribus androgynis terais, iloris masc. bractea ovato-acuta vel ovato-lanceolata extus villosa; florum duplo superante, bracteis 2 bractea brevioribus, staminibus 6 spicatis. In regni Novo Granatensis Parano de San Forlunato, cum *M. arguta* (H. B. 1. c). Rami puberuli; ramuli villosi-pubescentes. Petioli 1½ c. longi, canaliculati, pubescentes. Folia 7-8 c. longa. Forsan *M. arguta* varietas?

*Species non satis nolx.*

34. *M. LAUREOLA* (Trecul in herb. Mus. par.), foliis ovatis basi cuneatis margine integerrimis recurvulis glaberrimis, fructu ovoido extus hispido albo-creo, melle durissima crassissima. In America boreali prope Mississipi (herb. Mus. par. a cl. Trocul missa). Ramuli pluri. Folia 7-8 c. longa, fere 3 c. lata, sicca rigida, subcoriacea; petioli 12 mm. longi. Fructus 7 mm. circ. longus. (v. s.)
35. *M. LINEARIS*, foliis linearibus-oblongis utrinque attenuatis apice acutiusculis breviter petiolatis glabris siccis subcoriacea; nervis rigidis nervo centrali ad apicem ducto sulcus prominulo secundariis tenuissimis, amentis femin. solitariis radii triflori, floris fern. bracteis 4 apice ciliatis ovatis. 5 Patria ignota (in herb. Cand. et Kow.). Ramuli glabri. Folia 4-6 c. longa, 1-2 c. lata. (v. s.)
36. *M. DOMINGANA*, foliis ovato-lanceolatis apice obtusiusculis margine integerrimis recurvulis siccis rigidulis supra subtusque glabris, amentis femin. compositis, amentulis cylindricis, floris femin. bractea obtusiuscula glabra margine ciliata, bracteis 4 ovato-acutis glabris margine ciliatis. In Santo Domingo (Bertero in herb. Cand.). Ramuli pubescentes. Petioli glabri. Folia 5 c. longa, 5 mm. lata. (v. s.)
37. *M. CARACASSANA* (Kunth in H. B. nov. gen. 2, p. 18), foliis ellipticis utrinque acutis serratis siccis coriaceis glabris nervo puberulo, amentis femin. solitariis floris femineis bractea ovato-lanceolata piloso-pubescente, ovario villosa-pubescente squamulis tecto. 5 In insulis Venezuela ad Caracas alt. 1200 hexap. (H. B. 1. c). Rami angulati, tomentoso-pubescentes. Folia 15-16 lin. longa, 8-9 lin. lata. Verisimiliter *M. arguta* varietas.
38. *M. PUDESCENS* (Willd. sp. 4, p. 74G), foliis lanceolatis utrinque attenuatis adpressis serratis subtus pubescentibus, squamis amenti linearibus. 5 In regni Novo-Granatensis montibus altissimis prope Paramo de Chingasa alt. 1400-1500 hexap. — Kunth in H. et B. nov. gen. 2, p. 19 (ubi nihil amplius, cum cl. auctor plantam non vidit). Folia ex Willd. sesquipoll.

*Species exclusx.*

- M. ARABICA* Vahl. (*Buxus dioica* Forsk., *Nageia arabica* Willd.), fide specimenis Forsk. in h. Holm. = *Myrsine Jottensis* A. DC. prodr. 8, p. 93.
- M. SEGREGATA* Jacq. ic. = *Olinacee* sp.
- M. TRIFOLIATA* L. = *Asaphes undulata*. Illus. suaviscolens (ex Steud. nom.)

II. *LEITNERIA* Chapm. fl. south. U. st. p. 425.

Flores unisexuales, amentacei. Amenta masc. densiflora, cylindrica, floris masc. bractea ovato-acuminata, bracteoarum nullarum. Stamina 5-10. Antherae biloculares, in loricis; spicis form. paucifloris, teretes. Floris fern. bractea ovata, bracteoarum ^, ovato-acutae. Ovarium uniloculare. Stigma nunc, elongatum. Ovulum amphitropum. Semen exalbuminosum, loculo inimplens — Omnia ex cl. Chapman.

*L. FLORIDANA* (Chapm. 1. c). In suliginosis Florid. — Klorid. — Klorid. polio-

lata, oblonga, utrinque acuta vel obtusa, margine integerrima, supra glabra, subtus tomentosa. Drupa oblonga. Epicarpium crassum, coriaceum. Nux. ossca.

*Genus non satis notum.*

III. ? CLAUSIA *Ruin et Pav. prodr. p. 128 t. 28.*

**Stamina 2. Floris fem. bracteolae V6, orbiculares, subpeltatae. Pedicellus disco affixus. (Pav. 1. c.)**

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Ordo CXCIV. PLATANACEAE. — *Gastaneae* sect. in (pro parte) *Adans. fam.* 2, p. 377. — *Amentacearum* pars *Juss. gen.* p. 410. — *Platanaceae* *Lestib. botan. elem.* (1826), p. 526; *Dumort. anal.* (1829), p. 11; *Limll. introd.* (1830), p. 99. — *Amentaceae* *Platanaceae* *Mart. consp.* (1828), p. 83. — *Artocarpearum* genus f 1830), *Bartl. ord.* p. 105. — *Platanaceae*? *Lindl. nat. syst.* (ed. 1836), p. 187; *veg. Kingd.* p. 272 (*embryone male fig.* — *Hamamelidearum* ordo *Platanaceae* *Brongn. cnum.* (1843), p. 109. — *Amentacearum* ordo *Platanaceae* *Mdr. Jttro. Taxon.* p. 53 (1848). *Platanaceae* *Ag. f. thcor.* (1858), p. 155, t. 13, f. 1, 2; *Schnizl. icon.* L 97. — *Platanaceae* *Clarke in Ann. and mag. of nat. hist.* 1858, t. 102, l. 6 (*ubi charact. omnino novali*).

Flores monoici, capitulis unisexualibus globosis secus ramulos distinctos. FLORE. bracteis 3-5, squamiformibus, minimis, apice pilosis cincti. Lobi (sepala ex Clarke, stamina abortiva aliorum) 3-5, bracteis longiores, absque symmetria, erga bracteis (Clarke), lineari-claviformes, sulcati, apice lobato-truncati, 1-2 saepe minoribus vel deficientibus. Stamina lot quot lobi, iis alterna, idcirco 4-1; filamentis brevissimis; antherae elongatae, clavatae, loculis 2 lateralibus, connectivo ultra loculos capitato-truncato pubescente. Pollen (ex Schnizl.) ellipticum, 3-rimosum. FL. FEMINEAE bracteis 3-4-0 cincti. Lobi (sepala ex Clarke) 3-4, obovato-clavati, apice truncato intus emarginato. Stamina sterilia (Clarke) lobis alterna, iis minora, nunc minima et passim deficientia, irregulariter obovato-acuta. Pistilla 5-8, nunc 4-2, subserrulata, lobis opposita usque basi adhaerentia, ovariiis ovoideis in stylis linearibus elongatis apice excurvos ibique inclus papillosos desinentibus. Ovulum in singulo ovario unicum (raro 2, ex Ag. fil.), e latere ventrali pendens, atropum, tunica manifeste duplici ornatum. Nuculae monospermae, coriaceae, stylo persistente terminali, pilis rigidis basi cinctae. Semen oblongo-elongatum, pendens; testa tenui, membranacea; albumine nullo (ex Gaertn. Neces jun.), lenissimo (ex Schnizl.). Embryo rectus; radice cylindrica, elongata, superba; cotyledonibus oblongis, radicibus brevioribus. — *Arctostaphylos* raro frutices, hemisphaerici borealis; cortice squamis latis caducis denudato; foliis alternis, stipulis caducis, limbo palmato-lanceolato paucilobato pilis evanescentibus stellatis doriato; gemmis intra petioli basin diu occullatis, folio delapso apparentibus, limbo in vernalione marginibus longitudinaliter externe plicatis (in Döll z. Erkl. Laubkn. Ament. f. 4 optime fig.).

Flores plerumque adeo in capitulis condensati ut difficile intelligantur, sed ex cl. Clarke in quibusdam (in hiis ignotis) cito evolulis arboribus investigandi, ut tunc stamina vel pistilla plura cujusve floris apparent. Capitula interdum polygama, nullo lamen flore proprie hermaphrodite



Habitus et fructus quodammodo Artocarpearum; affinitates verae cum Accraceis, Tiliaceis (medianle Christiania) nee non Phytolaccaceis ex cl. Clarke 1. c., sed ovulum unicm pendens atropm ab omnibus hisce ordinibus differt et Urticaceas polius memorat (1).

(1) Liceat hie adjungere genus olim ad Amentaceas prope Platanos relatum, postea Onlo (Balsami flux) dictus, mine oianium consensu Hamamelaceu, sed toco proprio supra in vol. IV omissum :

LIQUIDAMBAR Linn. gen. cd. 1742, n. 878; Juss. yen. p. 410; Gxrtm. fruct. 2, l. 90; Lam. ill. t. 783; Blume fl. Jav. Balsamiflu.v, p. 6, t. 1 et 2; Spach veg. phan. 11, p. 82; Hook. f. el Th. in Journ. Linn. soc. 2, p. 85; Clarke in Ann. and mag. nat. hisl. 1858, p. 104. — Altingia Noronha in Verh. Batav. 5, p. 1. — Sedgwickia Griff, in As. res. 19, p. 98, t. 15, 16.

Flares monoici, unisexuales, nunc subhermaphroditi, capitati. Capitula juniora bracteis 4 caducis cincta. FLmasculi e staminibus appi^oxi\* matis intra bracteas capituli acervalis constantes. Antherae obverse lineari-pyramidatae, 4-angulares, filamenta brevi aut nullo. Feminei : Calyx infundibuliformis, cum proximis basi connatus, marline integer aut obscure glanduloso-lobatus. Petala nulla. Stamina sterilia saepe 4-9, circa verticem calycisinserta. Ovarium semi-inferum, 2-loculare, loculis antice et postice sitis, oyulis CSJ in angulo interno cujusve Joculi superpositis amphitropis. Styji 2, lineares, acuti, recurvi. Gapsula cum proximis capituli margine concreta, superne septicide hians, loculis tune a calyce lateraliter disjunctis. Seminaabortu pauca vel solitaria, angulosa, nunc extremitatem versus breviter alata. Albumen tenue. Embryo axillis; radícula supera; cotyledonibus planis, radícula multo majoribus. — Arbores hemispha3iii borealis; succo balsameo; foliis alternis, apice ramulorum approximatis, serratis (specie ult. dub. excepta), lobis in vernatione margine intus plicatis (Orst. Am. centr. t. 10, 11), stipulis fugacibus; pedunculis ex apice ramorum, masculis capitulis pluibus, femineis unico donatis. — FJores masculi (nondum satis cogniti)7 verisimiliter plures in singulo capitulo, ut in guibusdam capitulis laxioribus cl. Clarke obscure apparuit, bracteis mediis (ex eod. et plerisque auct.) destituti, ex Spach bracteati.

S 1. *Folia palminervia, lobata. Semina prope radiculam in alam ovalo-oblongam planum compressa.* — Liquidambar Linn,

1. L. STYBACIFLUA (Linn. sp. p. 1418), foliis palmati-5-fidis ralius fr vel f-fidis subtu in axillis neryoruni barbatis basi truncatis vel cordatis lobis ovato-lanceolatis lanceolatisve acutis serratis, passim lobatis. § In America; borealis sylvis humidis a Connecticut et Troy Novo-Eboraci (A. Gray man. north, st. p. 148, Bromf. in Hook, journ. 1848, p. K4, Emerson trees Mass. p. 312) usque ad Missouri (Beck bot. p. 327), Floridam (Chapin. fl. South: st. p. 157), Mexico or. (Kunth in H. et B. nov. gen. 7, P- 273, Linden 1036) et occid. (Bot. Herald, p. 346), etiam American! centralem (Orst. Amer. centr. fasc. 1 t. li). — Michx arb. Am. 3, p. 194 (ubi error in lim. bor.), 1. 5, Schk. Handb. t. 3U7, Nouv. Duham. 2, t. 10, Nees pi. ofl. IC. sine num., Hayne arzneyk. Gew. 11, t. 2> (opt.), Orst. 1. c. Xochiocotzo Hern. thes. p;56, ic. mala. Liq̄iquidambar arbor, etc. Cat. Car. 2, t. 66. L. macrophylla Orst. Am. centr. t. 10, sine descr. Folia apice ramorum conferta, stipulae ovato-lanceolatae, fugaces. Petioli 1-5 poll. longi, teretes. Limbi 1-6 poll. longi latique, dentibus parvis

vetustioribus obtusis Capitula masc ofeoidea, in lacemo oipctd pflura feni in pedunculo pndcule unica, globosa, IrMctif pollicem lata Arbor balsamum praebtns, folns tntis sud\eolentibus (v s ct v)

2. I ORIENTALIS (Mill diet n 2), folns palmati 5 fidu r\ro 3 vel 7 fidis undique glibns bdsi liuncatis vel subcoidatis lobis o\ Uo lanccolatis acutts obtusisve sdiatis jltiumque itipgulantf I lol ulis latPiibbus 1 3 metis j In ~~h~~—toic mond Asm minons piope Melasso, Mirnion/zi, Mougla ^Mldtss in Bonpl 1 infi l cit)y jam anno 1759 cult — S| ach lusL vefv phan 11, p 8b, Hanbuiy pharmit Journ 1G, in S< om Bunpl \*> p 114, c ic p 119 Pldtanus ononUlis Pocockp trd\ 2, I 89 (fide aucl) L imberbc Ait hort Kew 3, p 360, Nouv. Ojilum 2, p /4, Loud enc tices, p 933, f 17 W Arbor sucu) bdsldineo Stoid\ liijuulurn dicto Non jnsi glabntie diflciant folu fiuctut>que d pluubus inioucdiilL sp excmplanbus, std flores non vidi (v s)

§ 2. *Folia pinnmervia, non lobata. Seminaangulosa, non alata. — Altingia Not.*

- 3 I\* ALTINGIA (Blume II Jav fasc 17, p 6, t 1 et 2), folns ncnninenns o bast ol)tušao\dto icurmatis scrutis glabns acumint au^usto oi luso, Inthtii^ filimento bicvi suffullis ,5 In Absim it montil)is Mislimet (Griff 1), Sunidtid (Miq fl Ind bit suppl 1 p IT), J iv\ (Hlunic./oil ' J028) U Novft Guinei (Rumpli) —Miq fl Ind bdt 1^ p 8JG lignum Pipuanum Riimph Amb 2, p 57 Altmgid p\colsi Noionln m Bat Vorn 5 p 1, Hayne u/ntygtw XI, p 20, t 26 L Risamild Hlume cit Ruit p 0 L Altingiana Blume bijdr p ^>27, Nees pi oluc suppl (ic Bl mut) Snlgwickia UTLŠHOIL dtiff in As ns 1, p 98, t 1^), 10 (fide Hook I ot Th in Pioceed I inn soc 2, j) 8S) P( lioli ^ldcilt, J 2 noil Iimlji 2 J \ poll long], 12 20 lm lati Auuntđ SOCIIS )C(luncilliin tPnninifLin ((\ ic Iliync) Iltcina, cipititi vel ovoidei, mfeiroia puhcrlliti, JiivdiiLro^i pilyllo culuco emcli Stđinnid numeiosis simi, o plur floiibus simpbcissimis constintu Iructus in ciput 8 10 bn litum LondensLti Setmn i obverse et irregulariter pyidmidatđ, superposild, plcidque dbortientid (v s)

- /A L OiiNrNSis (rinm̄r) (\ Benth fl Hongk m Journ of bot 1852, p IC'i) loins penninuuis c bisi cuneit\ bipvitu petiohti o\ali obo)\*itis ol)tusis ul ol>tnsiisLillis glibus scrritis anlliPns stssilibus '> In nisiilV Ilmgknng — BuiHi fl Hongk p M2 Seem bot Herald p 380, t % 1 olia J h poll longđ pMiolo 3 4 bn solum longo lituisculo ct ideo a L Altingu dlvcisis soio. JnilorosLciiti i ( idem J'cdunculi et bi ldeae pilosa BidctPT cipilub misL bi ictus J4^ ciducis bisi tincti, un i majore Anthera. oblongo quadratae Flores fern sa pius anthens effoetis paucis doiidli Semmi laid

*Species dubia.*

- 5 L TMCUSPIS (Miq H In<1 1)al Ij P 10D7, suppl p 139), folns lato rotundatis couaceis apice lobđto-tncuspidatis maigine lani coridceo cinctis 3 vel sub ^> ncivns In Sumitfa L Altingiana ipysm med (non B1) Innovatione s huto illosae Stipule djutiu> ijersistentps Amculatcm pedunculatđ, 12 \c 1 pliu? flora, buictđL urc> cipMihrum <meigentium paitem \ mf in urcpo liuu obtuso plui i J( ntulum t u noso coi iacc um ^ connatae Bucklandiaj fohoiurn mdigine ldevi decedit, sed diflul stipubs d piobib fructihcacione Capshlae clGetae in spec a cl. Miq descr.

*Species excludsz.*

- L ASPLENIFOLIUM L. = Mynca Comptoma,  
L PEHKGRINUM REICH CX Steud nom = Id.

PLATANUS Town mst p. 590, / 363; Finn gen ed 1, n 896; Gnertn fr 2, p 57, t 90, f. 5, Lam ill t. 783, Nees jun gen pi fl germ xc. fate. 1, Spach note sur ki Plat in Ann sc nnt ser 2, v. 15, p 289.

### Ch.iractres ordinis.

1. P OMENTALIS (Linn. sp. p 417), iohis Vvcl sub.) fidis 3 5-plmeivns cito glabntis bisi plcrumque cuneatis, lobis lanceolatis lriogulanter passim dentatis lobitis\c. f) In Affgb mistamā (Griff. • ab horto Kc\ v. sub n. 4491 conim ), Persia sept. (Boiss.l h(Mb ), Armenia (Szowitz'), Libano fGaillardot' 95G in h. Boiss), Lyci\ (h Boiss '), Thraciā, Macedoniā (Gnseb. Spicil. p 331), Graeci.l (Nieopbr. Sibl h Boiss.' boib.) atquo a longo tempore in pioximis alnsque terns culta et fere indigGiiā iacU. — Nouv. Duhain. 2, p. 1, t. 1, Wats dendr. t 101, Sibth fl groec. t. 94', Pall fl. ross. t 51, Loud. e/ic. trees, p. 958, c IU P. palmala Moench metb. p. 358. P. bispamca 'lon. cat. ort. nap. 1845, p. 91. P. vulgans a et |i Spach in Ann. sc. nit. sei. '2, v. 1', p. 2'2. Folia cito glabrata mteidum basi non cuneata, oti.im lito coidata (in bortis fipquens, in Onente spont. h. Boiss '), piHPiiclymilr\* lamcn sub ncivis mlcnonbus expanso, sxpius folia basi piope potiolum cuneaU, mlerdom in eodun ramo cunoata vel tiuncata. Ex Clarke I. c. bractoc flons lem. desunt quoj in P./occiduaUU adsunt. (v. v.)

p, *insulans*, folns ultra medium fissis lobis .nguste lanceolatis. — In Cypro (Kotschy' a. 1840 in h. Boiss.) et CioU ad Platania ct ubique (Kaulin ' 740 ibid.). Folia mmora quam m vulgan, basi late coidata sou more sobto prope petiolum plus minus cuneata. (v. s )

Y, *cuneata* (Loud, one trees, p '29, 1. 1734), folns profundo fissis bisi mamlubtr cuneatis. f In hortis P. cuneita Willd. sp. 4, p 473 P. onen t LIS unduldU Ait. bort. Kew. 3, p. 3G4. P. onentabs (dbollilolia Spacil in Ann. sc. nat. ser. 2, v. 15, p. 292 Arbuscula vel fiutex, folus vulgan minonbus.

ò, *acerifolia* (Ait. hoit. Kew. 3, p. 364), foliis basi cordatis vel liuncatis non cuneatis parenchymate sub neivis laterabbus non e<teiso. § In Onente e\ gr. in Lycia (Bourgeau 'in b Boiss.) ct boitis P. onentabs aceris folio Tourn. cor. p 41. P. acenlolia "Willd. sp. 4, p. 474. P. onen-labs acciifoba Ioudon one trees, p. 928, f. 173J (non bpach) Sata in P. oricntdlem vulguoin inergit (Hook 1. in Giudin tontr. loss mem 6, p. 7), ct equidem m ipso vulgan folia in quibusdam lamis \idi non cuneata, basi truncata, prope cuneata. Accedit folns non prolunde fissis ad P. occidentalc, sed vulgan onentali piopioi »i < > • • <h<sup>ri</sup> lucidum distinguenda (v. v.)

I P OCCIDENTALIS (Linn sp p 417), folns basi plcrunuiiu mmtatis taide glabntis ambitu passim et Inegulanter lobato dentatis lobis plui unique 3 majoiibus ovalo ttiangulanbus acutis ^ In America'boreali a VM inont (Michx <irl>), loisan Montieal (id ), ad Flondam (Gbam fl S. St p 418), a man Ail.mtito ^elslls Monies Kocky dictos bmile IIM nondum cogruU, iic(juentoi cullLi — Catesby («u 1 I 5b, Michx aib 3, t 3, Wits dendi t 100, Schk Handb t 30(> (mwliocr), Nouv Duliam 2, t. 2, Hartig forst p 4^E, t 54, Emeison tices Mass p 227 P. lobata Moanch metb. p 3'J8. P. bybndus Biot fl lus 2, p 487 P vulgans 5 (pro parte) et e Spach 1 c Folia nunc basi late (onlata, sdepius liuncata Djfleit a P. onentali piccseitim limbo minus prolunde lobato, ct piajterea tomento dcnsioro minus caduco, petiohs saepe pui-puieis, capItubs minonbus. (v. v.)

J P. LINDENIANA (Martens et Gal. in Bull Acad Brux. 10, n. 4, p. 2) folus basi tnincatis 3-5 sinu.ito lobjtm subseticco-lenticuhtis lobis ovafw "acuniina-iissimis supia glabns iiiidi^ subtuf moililer leiruginoo-tomentosis, petiohs Innugineo-lanatis § In Mexuo piope Xalipa alt 4000 pod. (Ejndén n 9) StipuUc bifidii<sup>1</sup>, doculu i» Cipilyli fiudil hd\n Mllo^issinw Ahmpis P 'bm

- dentali, sed folns suhtus dense tomentosus piaseitimus di\ei\*sa — Haec solum a cl auct dicta
- 4 P MPXIGANA (Momm ' in Hull Ten Lot 1830, p 79, ubi tab ined cit, el Plant nouv d Am6i 1833, p 39, t 26), folns tnphnerviis breviter et acute 3 lobis basi truncatis\el Irrevissime piope potiohiin cuneatis tomento incano subtus persistente ( ) CHLJ, uibcm Me\i(o (Beiland ' in h DC ), inter JampiLo et Mexico (id 491 in b Hoiss ) Ramub, petiolique tomento demum orbatu Petiob 1-2 poll longi Lirubi 3-5 poll lon^i liliqne, lobis e basi latl amminatis mto^iis suiubus undihtis & medio loim dislintibus Peduncub huctif 5-6 poll longi, tomento douudati, capitula 2 geientesquae (mituia) 1-1 ; poll laU \*ruttus claviloiraes, 3 bn lonpi, stylo flexo teiminati, glbdbn, penitillo piloi um 2 lin longoi um a basi cincti (v s )
- 5 P RACEMOSA (Nutt suppl to the Noitb Amer sylvai, p 47, t 1<sup>e</sup>), loins bdepius db apito )etiob .J-neivns lbi Idto tordatis \el tiuncatis quinquefidis ^el ranus 3 lubs lobis o\ato ricutis, tomento subtus pcrsistente incano ,5 In Cab tuinii (DOUKIISI Hditw ' 1901) —hmeison lep tiees Mdss p 2J7,\* Audubon bndsofAmei t %2 P occidentals Hook et Am bot Boebey's, \oy p 100 et ,W0 (non L) I\* ( ililornu i lkntb but Sulpbui p hk (iiidin in P race mosim mutavit in Plant Hutw n 1061 1 \ spocunine Douyhs lami et loba iiscontia tomento auico et incino pmnoso undique vestiU, pagin i super iolioium cito glabiaU, stinul c dimidntj\*, tomcMitosde, 3 bn longde, integri<p, bmbi scJIIus 3 lobi neivis ,J non db ipso petiolo sed supra divergentibus, race mi lolio bievioies, tdpituld .) 4, floientia I 4 bn laU squamae o\at<e, mmmc, margine etJ>asi mtusiJilosje, squamulffi glabian, cainos<r, minores juxtd squam im et inteiuis salpe ddstantes, antbertii linean clavata, squamis inulto longioics, COMKM ti\o apice liuncato Lx speciminibus adultis Haitwegi petiob 1-2 poll longi, demum lex\* ^labii, bmbi 4 6 poll longi latique, neivis constanter a petiolo divei^cnlibus, lobis 5, maigine nitcigiis \el undulatis foimá veie ovato- ncc tianguldri laiiceolatis, lacemi senupollicaies, glabiati, capituh 6-9 lin latis, sty lib rigid is Iconeb cit non vidi (v s )

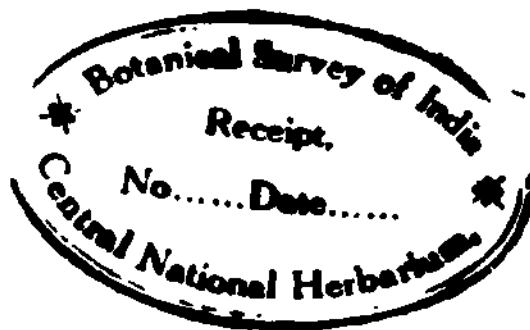
DE CANDOLLE  

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**PRODROMUS**  
**SYSTEMATIS UNIYERSALIS**  
**REGNI VEGETABILIS**

PARS XVI

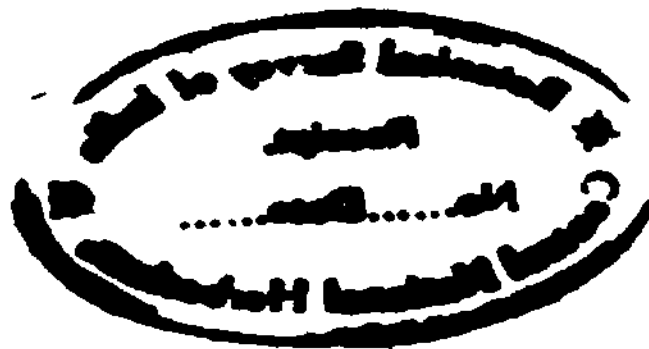
SECTIO POSTERIOR — FASC. II



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PAHISIIS. — E TYPJS C. LAHURK  
Via dicta de Fleurus, 9

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DE CANDOLLE

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**PRODROMUS**

**SYSTEMATIS NATURALIS**

**REGNI VEGETABILIS**

BITI

ENUMERATIO CONTRACTA  
ORDINUM, GENERUM, SPECIERUMQUE PLANTARUM

BUC USQUE COG\* IT A RUM, JUXIA METBODI NATURALIS NORM AS DIGESTA

EDITORS ET PPIO PARTS

AUCTORE

ALPHIONSO DE CANDOLLE

PARS DECIMA SEXTA

SECTIO POSTERIOR

Fasc. II.

**Sistens** Salicineas, Gymnospermas, etc.

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**PARISITS**

SUMPTIBUS VICTORIS MASSON ET FILII

FORO DICTO DE I/FCOLE DE M&DKCINE, N° 17

VENITQUE A PUD EOSDEM LI PS I\*, PROCURANTE Ft **WAGNER**

**JUNIO** M UCCC Lwflii

Ordo CXGV. BETULACEAE (1). — *Amentaceae* Juss. *gen. p.* 469. — *Ulmaceae* Bartl. *ord. pi. p.* 99; *Endl. gen. p.* 292; *Schnitzl. ic. fam. nat. recent. veget. Hefl.* 5; *Regel, Monogr. Bot. p.* 5. — *Betula* Rich, in *Kunth nov. gen. et sp. pi. v. 2. p.* 20; *A. Rich. Elem. bot. ed. 4. p.* 362.

Flores monoici, in amenta terminalia v. axillaria collecti, in axillis bractearum bini ternive sessiles. FLORES MASCULI • Squama peltata, utrinque bracteolis squamiformibus stipata, Inflora v. rarius 1-2-flora. Perigonium nunc squamiforme monophyllum, nunc calyciforme 4-5-fidum v. 10-12-phyllum. Stamina 2 vel 4 v. rarius 10-12, perigonii basi inserta, ejusque foliolis opposita Filamenta brevia, nunc simplicia antheris basilicis unilocularibus longitudinaliter dehiscentibus, nunc apice bifida et antherarum loculos uniloculares segregantia. FLORES FEMINEI : Squamae sessiles, 3-5-lobae v. interne, cum fructu crescentes, bi-triflorae, nunc simul cum (Vultu deciduae, nunc demum lignescunt) persistentes. Perigonium nullum. Germina bilocularia, compressa, stylo nullo, stigma libus duobus filiformibus terminalibus. Ovula in loculis solitaria, dissepimento paulo infra apicem affixa. Fructus nucamelleus, angulatus v. alatus, stylo coronatus, abortu unilocularis, monospermus. Semen inversum exalbuminosum; testa tenuissima, cum endocarpio concreta. Embryo orthotropus; radicle hilo proxima; cotyledones planae, ^ennatione foliaceae. — Arbores v. fruticosa, ramis terribus, baud articulatis, sparsis. Folia alterna, simplicia, penninervia, dentata v. serrata, rarius incisa v. pinnatifido-lacinata. Stipulae liberae v. caducae. Flores parvi, hand colorati. Amentasaepe in racemos foliatis disposita. — *Betuleae?* in hemisphaerii borealis regionibus teiipe mliis frigidisque abundant, nonnullos extremi septentrionem et summa montium cacumina petunt, paucos in Asia\* et America\* tropica\* jugis altioribus reperiuntur, unica Africana australem incolit.

I. *Betula* Tournef. *insl. I.* 300; *Endl. gen. pi. p.* 272 *et suppl. 4. p.* 187; *tfes gen. pi. fl. germ. fasc. kt. 1H*; *Willd. spec. pi. 4. 1. p.* 462; *Arc. et Kunth. I. germ. ed. 2. p.* 760; *Ledeb. Fl. ross. 3. p.* 649; *Regel, Monogr. Bot. p.* 9.

FLORES MASC. : Amenti squamae pellatae, utrinque squamula aucte subtus triflorosa. Perigonium monophyllum, squamiforme, integrum. Stamina 2, apice bifida et antherarum loculos uniloculares segregantia! FLORES FEM. : Amenti squamae (bractee) trilobae v. rarius subintegre, imbricatae, 2-3-florae, deinde membranaceae, saepissime cum fructu

(1) Auctore K. Regel.



decidua. NuculaB lenticulares, samaroideae, compressae, ala membranaea ciMB^abortu uniloculares, monospermae, stigmatibus duobus patulis c^^Ha3. — Arborcs et frutices sylvestres et paludosi, foliis autumnO OTTOuis. Floratio vernalis, foliorum cvolutio coetanea. Amenta mascula e gcmms aphyllis lateralibus terminalibusqup solitaria v. gemina. Amenta feminea e gpmms lateralibus 3-5-phyllis solitaria v. rarius in pedunculo communi racmosa. Strobili oblongi v. ovoidei.

### CONSPECTUS GENERIS.

A. Strobilorum squamae samaras occullantes. Strobili solitarii.

#### Sectio i. EUBETULA.

1. *Albx.* Arborcs excelsaj v. rarius humiles. Samararum alrc nucula 2-3-plo latiores v. rarius earn a?quantcs. — Spec. 1-2.
2. *Frulicosx.* Frutices. Samararum aim nucula 2-3-plo latiores v. earn aequantcs. — Spec. 3-6.
3. *Nanx.* Frutices. Samararum alae Euculasaepissime duplo-pluries v. rarius paullo angustiores. — Spec. 7-12.
4. *Dahuricx.* Arborcs suupissime excelsae. Samararum alas nucula duplo-pluries aDgusliores. Strobilorum squamae hieme deciduae, lobis plerumque abbrevialis. — Spec. 13-14.
5. *CoslalJi.* Arborcs sjL'pissime excelsa<sup>1</sup>. Samararum also nucula duplo v. pluries angustiores. Strobilorum squamx\* hieme deci-diic'p, lobis plerumque linearibus elongatis. — Spec. 15-23.
6. *Unix.* Arborcs excelsae. Samararum ala?, nucula duplo v. pluries ar'iftustiores. Strobilorum squamae hieme persistentes. — Spec. 24.

U. Samararum squamae strobili sqirimas supcranlos. Strobili 2-4 in pcilunculo communi racmosi.

Sectio ii. BETULASTER. — Spec. 25-29.

Sectio i. ELBKTULA — Strobilorum squamae samaras occultantes. Strobili solitarii. *Betulu Spach, Hev. Jirlul. in Annul, des Sc. nat. sec. 2. v. 15. p. 182.*

#### S 1- *Alba.*

Ai bores excelsae v. rarius humiles. Samararum alre nucula 2-3-plo latiores v. rarius earn scquantcs.

1. U. ALBA (L. spec. pi. ed. 2. vol. 2. p. 1393), arborea, samarae alis nucula s:rppissimu 2-3-plo latioribus y. rarius paullo tantum latioribus v. rarissime cam ajiiuantibus. In Europa, in Asia media et boreali, in America boreali. — Spach, rrv. Bct/in Ann. du Mus. d'list. nat. ser. 2. vol. 15. p. 186; Endl. «cn. pi. sii.ppl. \. pars 2. p. 19; Lacst. in Botaniske Notiser 1806. p. 103; Hegel, monogr. Bet. p. 16. Merklin Bull. Acad. Petrop. torn. 8. p. 295. de form. cort.; Beketow Bull. d. 1. soc. b. a Mosc. 13, .p. 75, écorce du bouleau. — Arbor trunco erecto 50-60-pcdalis v. rarius humilis, cortice saspe papyraceo albido solubili v. deinde rimoso. Ramuli erecti v. penduh, speciminum juniorum in statu slerili pubescentes v. glandulosi, fructiferi saepissime Ia3ves, giabri, v.<sup>1</sup> rarius Rlandulis raris adsporsi, v. rarissime dense glanduliferi, v.

puberuli Folia petiolaU, e basi cuneata ovato-ihomboidca, v laruis e basi tiuncata v. subiorddta ovata, v. cordaLo o\ata, v. coidato subiolundd, acuta, v. acuminata, v cu^pidata, v ranssime subobtusa, sunpUc^r \ duplicato-dentiU, v. lanus smuato-lobata, v. inusa, v pinnalihda, ramuloiu sterihum (prccciqije speuminum juvenilium; saepe pubesceilia, v subtus resmosopunctata, laniuloiu ieitilium sdepissne glibia, v. subtus in venarum axillis bdrbdU. Amenta iMSC elongiio cjlindnca, nut mlia, pldbr i v pubescentia. Amenta fem stiobilormia, eiccta v pendula, cyhndiica, glaln iv pubescentia, pedunculata, squamae tnlobac, lobi laterales, eiecti v. diveigentes v. recurvati, sjcpissime lobo inlermulio majores

Subspecies I, **Ierrncosa**, nmulis fru\* tiforis glabns v piice glandulifms, folus ramulorum feitilium e bdsicuncatav. dilitato cuneata ihombouleo-ovatis acunini iti-\*, samau' alls nucula duplo Inplove lationbus, squam<irum strobih lobis divancilis v lecunatis. r\_j ^el .7 In Europa ct in Asia media. Regel, Bemerkungen ubci Belula u Alnus in Bull de la soc d Mosc 18 p 397. B. alba L.I c (fohis ovaUsacunniidtis scrratis), Willd. spec pi 4 p. 462, ejusd. Beil. Bium7 1 52, Letlcb. 11 ross v 3. p 630, Ait hort Kew. ed 2, vol 5 p. 298, Tiautv et Mcy in Midd fl. OLIi p. 83; Koch syn. fl geim. ed. 2p 7G0,1)u Roi Haibk Baumz v 1 p 82, Dietr fl. bor vol 11 t 787, Henze in Bot Zcitung 1848 p 7"), Hirtif? Lchr b t. 27. B alba ot alba verrucosa Wdlr. bchod cnt. p 494 et 495 B alba I alba a-d Laest in Bot. Not. 1856 p. 103 B alb i a el y Endl 1. C. p. 19 B alba a vultfiris et Y venucosa Regel, monogr. p. 17 et 19. t. 4 fig 1-8. 18. .10 J2. B. alba vulgans Spacb 1. c. p. 186 B alba typica Irautv in Maxim pum fl. amur p 249. B verrucosa Llih. Buitr. 6, p. 8, Fries summa veg. 1 p 211, Bechst Forslb p 234 B gummifeia Beit fl it. v 10, p 229. B odoiata Reitlicnb. IC fl geim t 62b. fig 1288 (ncc Bochst). B lliom-lufoliL Kuis li in Flora ratisb 1818 p 752 Rdinuh stenles e bdi trunci egrodienti's v. spcuminum juvemhum s.ipis^imc dense glandulifen, v. ranus eghindulifen. Folia ramulorum leitiliutn gUbra, v subtus s<ppe rcsinosj-puncUla, e basi cun(Mti v. dihuto-uincald ihomboideo ovata, plus minus aiiminaU, bimpfcitei v. duplicato-dentata, v. ranus subsinuato-lobulatadentataque, v ranssime pinnalihdo litinia'a, folia ramorum sternum e basi trunci cgiedicntium (tuiuonin) specimifium(jue juvcniliuin s>cilium < basi truncate v subcordatd v. roiundita dc3ltoideo-o\ata, v. subcoidafo-ovita, plus minus acuminata, marpine denlata v sa'pius smuatu-lobuhti, subtus plcrumque dense glandulosa. I'ctiolus folium diimdm subai juans v paullo longioi Ainentorum lem masculoiuque squama) glabro; v. ianus margine brevii ei pilosu-ciliolatcje Stiobilus cyhndiiLUs Vdnat.

a<sub>y</sub> *tulgans*, trunco euelso, folus ramuloiura fertiliu e ba>i cuicata v ranus cuncato dilitaU lhomboi leo-o\atis. — ,j In sylvis huropi' medho ct boiealis frequens, in ASIA me ha lanus occurit, ul in montibus Alatau (Sdenk), ad fluvium \ngaiam (luicziiunow), ail SLhilkam (Maximowic/), in montibus insul.r Nippon (Maximowic/ , in montibus Vimciiuu (Kotschy), el in (uppadocia B «ilba a vulgaisKegel, nionogi p 17 t. 4 firf. 1-7 10 13. 14 10. 18 Cfi syn. supra cit — Ha u ludil I *expansa* (Regol, monogr. p 18), rainis M nulls juc eiectis B albd ditheiei Wallr sbed cnt p. 494 B alba raaorcarpa Walh 1. c. B. alba a Ait. hort. Kow. ed. 2 vol. 5, p 299. B iilbd 1 dII) L a b L. La^st. 1 c. B odorata Bechst. in Reicheub 1 c. — 2 *pendula*, idmis dedexis vimineis penduhs. B alba penduli Willd spec pi. v. 4. p 402, Walh. sched cnt. p 49'i. B alba l alba d pendul Laest. 1. c p. 104 B media Lacst 1. c. p 107 B pendula Hoffm fl. germ. p. 334 B. alba a vulgins lus. 2 *pendula* Regel, inonosi. p 18 B alba var *pendula* Tausch herb, boh — 3 *microphylla*, folus paivis Habitat in monlibus alnonbus Geimanu et Italic, cullaque in hoitis B. alba microphylla Walli ^clid. cut. p 4% u ahnensis Raf. inheib.Cand etc B SokoI>\iH Peti B albia vul?aris lus. 3 microphylla Regel, 1 c Folia 0 basi cuneatd d(jltoideo-o\ata lamina ± 1 poll lonxa. Folia pt lamuli omnino Blibn. - >r *lubulata*, foius grosse sublobuldtc-dentalis, dentibus acumnidtis dentitis. In Suecia, cultajuc in

**hortis** B. alba lobulata Fr mlieib Boiss B uiticddolu lioit nonnull — 5° lobata **loins** pinnatifido-lobdlis, lobis deltoideis auimindtis dentalisque In Supuae pro\ Vermlmdia ciUd<jlic in hortis. B alba \ai. lobnlata Andeis. in Vr herb norm B dlbalobataet\enucosa pinnalifida in heih reg. succ. B alba dalecarhcd Regel, monogr\ ev parte et t 5 fig 40. — (> *dalccarlica*, loins pinnalifido-launiatis, lobis in cuspidem longam a( u-minatis dentalisque. — In Sueuae prov Dalecarlid cultaque in horlis B albki ddleccarlicd L suppl p 41G, Willd. spec 4 p 462, Spach Re\ Bet in Ann d sc n. bor 2 v 15 p 187, Fndl gen pi suppl 4 p 19. B bjbiidaiMoomnidcl Holm 1780 p 186 t 6. Jig. U Bechst. Foistb p 237. B. lacwiatd Wahlcnb fl succ. p 164, Reichenb it. fl. germ. 12. t 627. B veirucosa lacimata Fr. m herb. norm. B. alba \ dale-carhca Regel, monogr. p 27 t 5. fig 41-49.

*i*, *sleiiilij* irunco humili pleiumquo (juvenih v ileratim pccu dopasto) ramuhs omnibus stcnhbus gUndulilens, folus e basi rotundtdt v. truncaU \. coidaU dcltoidecwnalis A. subcordatis dcuminatis duphcato-dentatis v. sinuate sublobulatis. — In turfosis pascuisque Helvetia Germanise, Rossiae, Fenmac, Sueciae, etc , in montibus Ciliciae alt 5200 ped. leg. cl. Kotschy, in Asia media ad iuuwum Amui (IUdde). B dlbd ^ verrucosa Regel, monogi p 19. excl syn. B alhavar \ errucosa Tausoh herb. boh. In herbains saepissime sub nomine B veirucosae Ehih. vi-dimus.

*y*, *oycou icnsis*, trunco humih friite^cmle, ramulis glanduhfen^, (olns ldmuloiuni fertihum c basi cunoata d( ltoideo-ovatis acuminatis dupli Cdto-dentatis, foln\* lamulorum stenlmm us vdr. p similibus. In Galiciae valle Oycow. B oycowiensis Bess pnm fl Galic. austi 2 p 289 (nrc Reichenb. it. fl tfnm ) Ji alba var venucosa Trautv. in Bull so( Nat. Moscou Jan. 1857. Irutex 4-pedalis (teste Bessero). Ramuli gl.in dulifen Fohd Jumord punctis resinosis adspeisa captrcum glabra, plus minusvc acummala — Vidi specimina a cl. auctore irussa aliaque in her-bano Reichenb fil

8, *reimifera*, idmuli^ fertilibus densissime ghmdulosis, folnsc basi cuncata \ cunLdio-dildldl i rhomboidco ovatis acuminatis — In Sibina onent-dli prope Udskoi (Midde^doifl), in Tidnsbaicdlid (Kopliefl), in America boieali-occidentdli ad Sa kdtchavdn (Pallisei) Rpl Bcin ubei Bet in Bull de Mosc. 18. p. 398 B dlbi Trautv in Tiautv ot Moy fl och in Midd. Reisp vol. 1 2 p. 83 Ramuli brunnci, glandulis crassis densissim( •vestiti. Folid scppissime subtus resmoso punctdli, CcLteium ^labia v in venarum dxillis obscure barbala Amcna feminea longe pedunculata — In speciminibus omnibus obseivatis huctus desulerantui.

*e*, *aibusuila*, stciilis, ramulis vug.ilis pndulis glibus subcglandulosi^, iolus lationbus qiam lonyis ihoimboidco-fUhelliloi iiiiilms c\ apice jotun data \ truncata ,ibi upto tit umnidtis 5 In Dalecailia Rgl. 1. c p 398 B dlldl \ai. drKiscula I^uessumnid vcg. 1 p 2U, el hnb norm , Rcgcl, monoffi. p 20. Aibor humihs. Rami penduli. Folia parva, \- poll in did metro.

Subspecies II, **popuIfolia**, Irunco arboreo elato ramulis fructiferis glabns v plus mujusw ^Luidulosis fohis ldmulorum leitilium deltoideo-ovatis cuspidatis, sdmam alis nuculd duplo tnplove ldtionbus, sliobih squamarum loLis lateidlibus divancatis v. recurvatis ;, in Amencd boieah, in Ohio, Mdssd-chusetts, Niw-IIampsluaie, d Pensylv. ct Maine (Asd Grd\ ) B. popuholid Willd spec 4 p. 46J, et cjud **licit** Bdum/ p 55, Ait. hort. Kew. ed. 2 A 5 p 299, Fuish 11. am septi 2. p. 6iO, Hook, fl bor. am. 1 p 133, "Wats dendr bnt 2 1. 151, Michdiix, aib loresi 2 p HO. t. 20, Ion. IScM-Yoik, p. 199 t 112. B. dcumindtd Lliih Bcitr 6 p 98 B. lentdDuioi Hdrbk Biuinz 1 92 B cuspidtdt Schiad herb 11 albi \ai. populifohd Spach, R(\ Ret p. 187, Lndl gen. pi. suppl. 2 p 19; Regel, monogr Bet p. 18 t 4 Jig IM-29, Asa Gny M muel ol bot p. 4<sup>f</sup>c). — Arboi modiocns, tiunco gracili 1 )-25 pedali, cortice papyiaceo albido soluhili Rjmuli )lciiumque dense glanduliJen, uius totidem glbdu. 1 olid ldmuloiura fcrilium e babi cuncata \

lanus dilatato cuneata imboideo-ovata, longe cuspidata, alutic duphcatodonta, junioia lesinosa punctata, Ceteum h'lahcrnmi Folia rdmuloium stenum (tunonum) e basi truncata v. rotundata ^ s»subtorrida deltoideo-ovata long(que cuspidata Squamae strobili dense imbricatae, sub lente vix puberulae, lobus intermedius saepissime abbreviatus

subspecies III, **mnmlnhurica**, trunco arboreo cldto, lamuhs fructiferis o'labns v pdice glandulifeus folns rdmuloium fertilium e basi dihtdta cunedta deltoideo ovatis aLuminitis duplicdtd-dentdtis ghnbs, sdmarae illis nuculdm rntitei aequantibus v ea paulo Idtionbus, strobili squamuum lobis latoiahbus iectingulis > Ad smum Olga in Mandshmiu, au'ti ill (Schmidt) Hgl. Bern Bet in Bull de Mosc. 18 p 199 t 7 Uj 1 > Ramuli in sjeciminibus examinatis ghnduhs rans adpersi Folia subtus eximic jeticulato lenoba, glaberna Strobili squamirurn lobi laterales rectanguli, breves, oblique tiuncati, **lobo mlermedio lineau-oblongo**

subspecies IV, **latirolin**, arboiea lamuhs fructiferis glibns v paice glandu- hftsns, folns ramulorum fertilium e basi iruncata v rotundata \* corddta sub- rotundis v coiddtib parce acuminatis sublus in mllis venauim harbatis, samarop Mis nucula duplo tnplovc ldtioi bus, strobili squimirum lobis liteia- libus divancatis et sipe iecurvis , In Asia medu et boieali B latioliui lausch in Hoid latislj 1838 p 761. B ilba ? papjnfora Spach l r p 183 ex partt., Lndl l c p 19 ex parte, Regel monogi p 2i ex parte et l » fit? 8 10 11 12 subspcciei pubescenti miximc .liTuns tflibntio i imu- loium junioium samaiarumque aid lalioic clijnoscitui — Folia ovdto subio- tunda plus minus icuminata duplicito dent-iti, suhtus id neivos plus mmub pilobri cl ulc)ium ixillis sTpius insigniter, rinub \i\ baibatd junioi i subtus lesinosa punctdta Strobili c^lindnci, mine tlongat ct sappe tipice attenuiii nunc abbreviati, squamae sub lente pioxipue mir^ine pilosult Haec vaint

α *Fauschu*, strobilis elongato cylindnceis — In hponia, in in^ula Josso piope SiRinopi et circum montem Kuunga tiki in plimlie (Maxim), in Mindshuid id fluv Ussun (Maxim ), propc Dundisct Maj in Mandbli auslro-onentdli (Mxim ), in rt^ione amurensi (Maxim et Itadde), in &i- bmi, prope Ndaimo\o (Muldon), ad litora partis austrahs lacus Bucil (Radde), cultaque in hoitis Hgl Bern ubei Bet in Bull de Mosc 18 p W9 t 7 UJ 11-14 B ilba Miq in Ann bot Mus lugd bot. 2 p 136 — Folia ciassiora subpergamacei Strobili apice attenuati v ob- tusi, erecti v nutantes, squamarum lobus intermedius abbreviatus, lobis lateiahbus bicvior

β, *kamtschatica*, sti ibilis cylindnceis abbiaviatis Croscit in Kamtschitk J (Ricdir, Stewart) Hgl 1 ( p WO t - hg 10 20 Ioili tenmpoia Stio- luli cucitd J poll, longi et 8 poll in dianioio sqinm iiiiini Kibus mtti- intdus **brevis-simus**.

subspecies V **occidentullii**, aib)ica, rimiihs fun tilens ^labiis v paice gl m- •luhfeis v juniorilms laxe pilosulis etmo\ glabus, loins rdmuloium fertilium p basi rotundata ovato oblongis v ovatis acuminatis subtiis m lullis venaiutn bdihtis, bamarde ahs nucula duplo tnplo\e l ilioibus, strobili squamdrum lobis latcnlibus divancatis v recurvis — In Amenci hoicih B occide nllis Hook II boi am l p 1"), Uegd mono^i p 73 Bunuli bniniui, nunc loiidem gl ibn, nunc gl indulis adpersi, juniorts pilosili ct mox glabrestontes Poll i duplicito dentdtd, subtus dd neivos plus minus pilosa ct ad eoium ixilUs HibigrutGi bubdta, juniora subtus resmos»o punctata strobili cyhn- dnci, clongali, bajpe ipice attenuati nnus obtubi eiocit v. ponduli, squa- maium sub lente pilosularum lobus inteimedium abbn \iatus et lobo> lateia- les aequarib v superans Vanat

α, /ypica, trunco bumili, folns inciso-sublobatis d( ntatisquo ; In Ame- nci boieali-occidentili, StMitsof (ne Fuci (Scoulei) Rocky mountains (Dougl (iDiummond) Hgl Bun ubcr Bd in Bull d( Mob 18 p 100 t 7 ftk 1-T B occidentalis Hook l o , Hgl l c t v fig Jj Ra- mull Rlandulifpii Miubili sjiidmuum lobus intpirnprlms lol < l itn ,le,

equans \ snpci mcs

P, *commvata*, trunco elato, folns duplicate) dentitis. > In America boicali, Sumais Piaine (I)all), Popsfield, Massachusetts (Asadij), Oregon (Lyall). Rgl 1 c. p 401 t 7 fig. 6-10 D papyiaca et papynera auct ex paite. Suhspociei subsequent! proxinia et solummodo strobili lobis laterahbus rcctanguhs v. recuivatis di\orsa.

Subspecies VI, **papyri fora**, arboioa ramuhs riuctifens glbns v plus minus glandulilons v junionbus h\e pilosulis, loins lamuloium fertiliura e basi lotundata \ lanus coidata o\ato-oblongis v subo\atis \. lanus subcordatis acummatis duj licato-dentitis subtus in \enarum axillis saepissime baibatis samarac alis nuaila duplo tnplove lationbus, strobili squamarura lobis laterahbus erectis — *In*. America boieah et ranssime in bibina onentali. Rgl Bern uber Bet. in Bull d Mosc. 18. p 401 Ab affnibus subspecielms anto-cedentibus 4 et 5 squamaium lobis latoidhuls euctis laule d gnoscitur — Aibor oxcrlsa v. liumilis Ramul<sup>1</sup> denies tunonum plus minus glanduhlen, milio pilosuh v. lanus dense pubescentes Folia, subtus ad nonos pilosa tunonum pilosula v lanus dense pubescentia. Strobili cjhndnci, elongati, saepissime apice attenuati, erecti \. insigniter penduh, squamae pilusuLp A cihatx<sup>1</sup>. Vanat:

a, *commvnis*, ramulis fruclifens ghbns v. la\e glanduhfens, folns ramulorum feitilium e basi rotundata ovato-oblongis. ') \n Amenta boieah New-York, Missacbusctts, a Nova Anglu ad Pensjhaniam et Wisconsin et in bortis europaeis culla Rgi 1 c. p 401 B. papjiifpra Mich 11 boi am 2. p. 180. B. papjiacea Willd spec, pi 4. p. 464 Ait. hoit. Ke<sup>^</sup>. ed. 2 v. 5. p. 300, Mich hist d. aibr. Betula p 133. t. 1, Wats, dendr. but. 2. t. 152, Willd Berl Baumz. p. 58; Pursh II. aYn sept 2 p 621, Hook, fl boi. am 1, p. 155, Toir. New-York 2 p. 199, Asa Gray Manuel of hot. p. 4S9. B. nigia Duh. ed. nov. 2. t 51 B. excels i Duh 1 c t 52 B. grandis Schiad in ind sem h Gott. 183\* p 2 et in herb B alba var papjnfera Spach 1 c. p. 188, Endl 1 c p. 10; Refrel mono<sup>r</sup> p. 23 Arboi excels i, coitice albo insigniter papuacco. Ramuli et folia mitio ssep<sup>i</sup>sime la\e jiilosula ^ tunonuia folia (lensius pubescentia tandem glabiescentia et subtus tantum ad nenos plus minus\e pilosa in axillisque \cnarum baibita 1 olia tunonum stenhum ovata \ coidata mitio la\o pilosula deinde glalnescntia v ranus pubescentia Squamarum stiobili lobus intermedius lateralibus angustior.

P, *cordi/olidy* ramulis glabns v. -parse glanduhfens junioiibus laxepilosuhs mox glabns, folns ramuloium fertihum c basi coidata v dilaiatorotundata coidato-ovatis — *In* lena no\ a (de la IMAie in lib DC), et in America boroah, Maine (lib Asa Gra\), Like supenoi, Pic Kivei (Lonng, in hb. Asa Gray). Rgl. 1. c. p '401. B cordifoha Regd, monogi p. 28. t 12 fi? 29-36. Arbor ^e^oslmlllte^ mediocns Ramuli lu^ci, n&idi. Folia acuminata v. lanus acuta, subtus ad ner\os pilosa et in venarum axilhs plus nnnus\ e baibata Stiobili eiecli v penduh, elongato c>hndracei v lanus bie\iores, squamarum lobi ciliolati subaequilati lobus niteimcdius lateiales superans

Y, *hnmilis*, tiurco humih suffrutescento, folns ramulorum feilihum ovato subiotundis acutis, squimarum strobili lobis poirectis v. rectanguhs. 5 In America boreih occidentah, Saskatchewan (Bourgenu), Rockj mountains (Parry, E Hall et P. Harbour), White mountains luckerm ). B pap\racea vai minor Tuck teste AsaGiay. Ramuli conieiti, flpxuosi, glandulifens v. juniores jubf scntes, dem glabrati. Folia ovato subrotunda, acuta, paiva, 1 ' poll, longa, simpheitor \. duplicalo-dentata, Junioia pctiolique saepe pubnscentia, doin glibra v subtus ad nenos tantum pilosula Samaiaium alas nucula usque tnplo latiores

Subspecies VII, pubcticenfi, ramulis planlaium juniorum stenhum tunonuniquedense pubescentilms, ramulis icitihbus mitio puberulis deinde saepissime glabiescentibus, folns acutis (ncc acuminatis), samirae alts nucula sesquiduplo lationbus. — Jn Europa et Asia media et boreali in America bnreah Rgl Bern uber Bet in Bull, de Mosc 18. p 402 B pulxscens I hih Bcitr. p 98, Willd spec pi \ol. 4 p 462, Mossl Handb. 2. ^uil 4

p 1764, Guimp et Hiyne Abb d Holzg 2 t 1^6, Lodcb fl ross./ p 641 Roiclienb fl eve p 174, Hart lebrb t 28 Hon/e in not /cit 18i8 p "8 B nliuci Wendor in B t Zeit IS16 p VH B auiati Bork toistb 1 p 498 B glufinosa Pi summncg p 212 B b^l^lutinosa et B pu be^cens W illi sched cnt p 497 ct 400 B odorati B bircembei^en^is et B i^i^bi la Bee list Porstb p 204,207,208 B lib i ò pul cscens s\_p^d^ih rc\ Bet p IS7 Lndl gon suppl 4 p 19 B alba ò\_n^lutinosa ct £ pulscens He^r^el mono^M p 20 et 2i Ail)oi in nemonbus nostns excelsa in regia nibu\* boieihbus alppstnbusque liumilis Ramuli fructilen mitio sub hnte [lusminus dense puberuli ghndulisjue sin^dulis intcidum idspersi poster •>aeppissimc blibrpsLentes n mil stons tunonum spcciminumqne junioiim v stenhum piacipue in tuifosis crescent um saepissime dense pulescncics Foil i riniulfiiim fulihum snepe e basi cuncata ihomboideo ovati v late o\iti ^ r IUS e 1 lsi lotundati lite o\ati simpliciter v duphcato dentita \ ranssimr s iblobuhti dentataque, L,labia v su! tus in \enium axillis hiibita \ Junioi i pubescentia Folia nmulorum steni um saepe pubescenta tuno- num \ plant u um jumoiium steniium saepissime molluer pubocentn o bisi iotund tao\aa\ lateo\ita, subcoi lati acuta v icummata, grosse duph- tito ltnl iti Pcti Ius folium (hmidium T]iuns Amentorum loeminooium mascukiumque squamae plerumqnc pubesLentes Stiobilus cvhndiicus elon- gatus \ ranus abbre\iatus, squamaum mirgine pleium jiiie c hatarum lobi lateialcs recti \ plus mmusve rectanguh v iecurvati Smiararum ilae nuculd Saepe duplo, lanus se&qui v paullo laiores — Vanat

*OLJ steuln.* saepissime bumilis, ramulis folnsque junionbus dense pu- bescLentiDus 5 In piscuis et tuifosis ubi nmuli j nioics ittratim pecu pascuntur Dcmde ad foirnas sijb^equentts transmatur H^l 1. c p 40J B tomentosa Ret/ et Abel Beschri d Holzailen \rl I p 17 t ID B pumila bioccmbergensis Du Ro) Hubk Baumz p 92 B pu- besLcns heib Aibor humilis v mcdioens, steniis ^peciminum allmum ramuli juniores pubesLente^, folia rbombco ovata v late ovata junioia pubescentia dtinie glabrescentia, simj)licitei v duplito-Ut nntita Sj e ciminum bumiliium v juniorumv tunonum lamuli lohaqnc liniio saepi- siine molliler pubescentia, ioha cord it i / cordalo v late ovata, saepe grosse duphcato dentata, acuta v acuminata v lanus obtusa

P, *pamfolia* fohis ramuloium fertihum steniiumque parvis MX 1 1 i poll longis 5 B ill a pontica Wats dendr bnt vol 2 t 94 B carpathica P sudetica Reichcnb IC fl germ \ol 12 t 624 fig 1285 B caipatlnta Jausch, hfib bob B alba parvifoha Wimra hcib B pubescent Beit fl it ^1 10 p 230 B alba pubescens b parvifoha Repel monogr •p 2b Aiboi plerumjue humilis, in turfosis, regionibus boical bus llpes tnbusque i rescens saep slenhs, ranus fructikra Ioha c bisi cuntata v rotundata ibomboidoo oviti, glabra v glabrescdilu, simpchiter v duphcato dñtata Ramuli juniores pubescentos, saepe mox ^labiebcntes Amenta cvhndiica erecta squamaum lobi lateiales erecti v rcclan^uli v recunati —Ludit fohis e basi cuneata v subconlala deltoideo o\atis duphcato inciso-dentatis Cohtur in hortis B asplcnifoha et B nigra hort B alba, pubescens c asplenifoha Rcgel, monogr p 2G

y, *Hoincmanni*, trunco dato foins ramuloium fertihum c bisi cunta'a rhoinloidco ovatis v lanus c basi rotundata ov\iti« stiobih squamarum lobis 1 teiahbus eictis — n Luropamedn et lort ih R^l 1 c p 4yj B dlbaHomcm fl dan t 1467 B llba Reichenb it fl geim vol 2 t 623 B albivar tflutinoso TuuU in heib. Peliop B nigra ct B rubiahoit B albxo rfluiinosa a lhombifoha et b latifolia Rcgel monogr Bet (e\ put ) fig U-42, et e pniduh 1 c p 23 Aibor pleiumque excelsa I imis ehl us v novclhs plus ininas pubscuitibus 1 olia at.uti plcium- que rlioml)Oideo ovata, i urns e Insi rotundat i plus minus late ovata duphrito dentati glabia v subtus ad nenos pilosaet subinie in venarum axilhs olscuie barbata Strcbih eicti v nutantes — Squamirum lobis laterihbus erettis solummodo a \anatile e dnrsa Ramuli ct loin tuiium ut in scquentibus \ai

r, *tnesn*, trunco humili, folns rimulorum feitilium :>aepissine e basi cuncoata lhomboideis, l xnsimc e basi dildata late ovato rhomoidis, sqmmarum strobih lobi^ semper eieolis — In Sueciae morldniN ilpes inbusque in 11 ^ionc uralensi, in alpostnbus Bohemiae, Germanise, Helvetiae et Scotiai, in insuld Island Rgl 1 r p 404 B glutinosd lorma pnm d FIKS summa veg 1849 p 56 (tejusd herb norm B glutinosa br summa \eg 184G p 212ctLjusd foimi fruiicosa B sylvestns Laesl in Bot not 18)G p 107 B cyptocurpa Ldest 1 c p 109 B subaequdhs Ldest 1 L p 109 B subdlpina l acst 1 c p 110 B pubescens \ir Cdrpa lica Hditig Lehrb p 29 B cornfoh i Faustb in herb Schrad B alba o glutinosi c caipaticd Repel munogi p 21 t \* fig 44 >2 (txel 47,49, 51) t ) fig 28 30 t o fig 10 11 AIIJOI liuimlis \ suflrutescens Ri muli felabn, cglandulosi v novdli pubescrntes 1 olid ramu'orum feiti- hum glabiav juniiori sublus ad nenos pilosuld \ tantum in venarum axilhs pilosuh, \*impliciUrv duphcitj duilata, 1 Etc vmdid, sae^e sub toridcoa Strobih erecti v nutantes, elonpato cjindritei v magis abbre- viati Samararum aid nutula sesqui duplo laiioi \ lanusci pauHo tan- tum ldtior — Ludit lol is duphedto inuso dntatis B Munthii Gaud in herb Boiss

e, *ihombifoha*, trunco elato, loins ramuloium lertihum ^aepis^imo p basi cuneatd rhomboideis v rdius c bdsi dilataid late ovito lhomboideis s([Udmduiii strobili lobis laUMdhbus rectangulis \ lecurvatis — In Europa medid et bore tli I^l 1 c p 404 11. ihombiolid lausch in Hoia ralisb 1838 2 p 752 B glulinosi Willr sched rnt p 490, Pnes summa veg 1849 p 557 forma secunda B alba Guimp d Hol/g vol 2 t 145, Engl Bot I 2198 B nigncans Wend(i Bot /eit 1846 p 291 B odora- rata Henze Bot /eil 1848 p 75 Schnd heib B. dahunca Willd spec vol 4 p 46\*, Ait hoit Kcw ed 2 vol o p 299, Schrad herb B pubescens Leleb herb, lausch heib. boh et auct div. B hlifoha h Potiop B imbiguaHimpe in Roichenb fl germ exsicc B microsta- chya Schrad herb B ovita C Koch in Linnaea vol 22 p 3J3, et in heib rtg bcrol li megalocarpa Laest 1 c p 106 B rustitaLaest 1 c p 104 B alba §. glutinosa a ihombifoha b litifoha (ex piite) et d pen- dula Rcgel monogr p 20, 21 2\*, fig 3Wt 40 43 Ramuli tandem gla- bn, novelh saepe plus minus pubestentes tolia luniora saepc pilosula deinde glaba v pagnn mfcuoie in axilhs \cnaium parce haibati, simp- hciter v duphcato dentata — ludit fohis c lusi c\ neati rhomboideo- ovatis (B albi glutinosa ihomboideaRegel 1 L p 2i)) \ e basi dilalata v rotundata late rhomboideo ovatis (B alba glutinosi b litifoha Regel 1 c p 21), limis erectis \ penduhs (B alba glutinosa d pendula Regcl 1 c p 23),strobi^s erectis v penduhs, squamarum lol is latewhbus iectanguli^c \ recurvis v lanus in uno eodemque strobiln magis porrectis, samaiarum all nucula sesqui usque duplo v I inus piullo tantum latioie.

C, *carpatica*, tiunco humih suffiutescente, ceteri ut antecedentis Hab in Succia, Norwegia, in Sudetis, in montibus Heicymae p^j 1 c p 404 B carpatica Waldst et Kit teste Willd spec pi vol 4 p 464, et Willd. in heib rcg berol, Reichenb IC fl geim vol 12 t 624 fig 1284, et pjusd fl exc p 174, Mossl Hindb 4 p 176i B cupatici (3 hercjniici Reichenb ic fl germ vol U t 62\* fi^ 1286 B o\atd, syh itici ius- tici, media et megilocaipa Liest-in Bot Not p 106, etc B tiliaefoha laest 1 c p 107 (formi folns rimnlomni stenhum co'ditis icutis) B pubescens Koch syn fl germ ed 2 p 761 (forma s^m irnum ala nucula pdullo tdnium latiore) B alba p pubescens Jausch herb boh (nmjlus stenlis) B alba o glutino^d c cirpatica Regel monogi p 21 Ramuli folia, squamae amentorum samirasque variant omnmo ut in antecedente Folia subtus in venaium dxilhs sD3pe barbata

Subspecies VIII, **tortuoen**, trunco humih, rimuhs tortuosis, petiohs iohum dimidium circiter aequantibus, samaiT alis nuculam circiter apquaniibus 7 In montanis Sibinae Tui pze ct in Rossia boreali R\*1 \rim u Bet in Bull. Mosc 18 p 404 B toituos>a Ledeb fl loss vol 3 p b>2 B Davunci ledeb fl alt \ol \ p Q4-, exci sjn B toituosa Regel monogi p 30 c\cl

syn. p 31 Aibor humilis, ramulis saepisaima toluosis, junioihus minute pubescentibus, deinde glabrescentibus coitice biunneo tolia ramulouim stentium rhomheo o/dXa v. subrolunda, glabiescentid, acula, simplicity v. dugh tato-dentata, lamuloium novelloium steilium saepi^sime exunic gros-se v submciso dentata Squam irum amenti loin liteiales ponecti - A 11 alba imbescens Fnesii samaraiumahs angustioribussolummododiveisd Vauat

a, genuina, folus ramulorum fertiliu e basi cunoeata \ rotundata ihombco-otatis — In Suecia et Rossia boreali, Kaiesuando, Kcngis, Finnmarken, Laponia, in Sibua illaica, et in alpinis Germaniae oucentalis. B toituosi a genuma Regel monogr p 31 B hybnda ^ ifhnis et £ cuneata Regel mono<sub>n</sub>r p. 39, 40 B pubescens b Mert B (arpatica Reichonb pi exs et beib div (Riesengebirge bcim grossen leich.) Folia s<vpe omnia acuta, ranus singula obtusa, lamuloium stentium latiora et b isi saepe rotundala

i, Kusnussch<(ln, folns ramuloium feitiuum a basi Uuncata \ rotundato-dilatata o\nto-subiotundis 5 Ad inare album ct in Lapponia B toituosa p kusmisscheffii Regel monogi p 32 t 7 fig 1-2, Regel Gartenfl 1800 p 311 t 303 B hjbnda 6 macroplnlla Regel 1 c p. 39 (foima stentis) B tihaefoha, leticulata et glutinosi ciassilolia Lae^t in beib leg suc (foima stentis) U glutinoba lol cordalis m herb reg suc 'forma stentis) B glutinosa m herb ieQ suc (loima feitiilis). Arboi humilis Kilia ramulum letilium sjppissmie omnia acuta, ransime singula obtusa, subconacca, letimlato \enosa simpliciti v duplicato-dentata, glabra, lamulorum stentium glabra, sTpissime e basi cor-(kli late o^ala et latiora quam longa Ramuli novelli dense puoescentes, folus saepe subinnso-duplicito-dentatis ^-trobili squamae tuneatae, bre-Mtei tnlobac, lobi laterales\* poirecti

Su]specios IX, OXCCINII, arboiea, lamuhs junioihus dense pubescentibus, peiihs lamina 4-plo brevionbus, samara) alis nuculam circiter aequantibus < ohtur in hortis euiopeais. Rgl Bern, u Bet in Bull Moso 18 p 40') B (vcelsa Vit hort Kew ed 1 vol 3 p 337, ct ejusdem hoit Kew ed 2 [o] ft p. 299, Willd ^pec pi vol 4. p 463, Spach rev. 1 c. p. 188, Wats <lendr bnt ^ol 2. t in, Willd Berl Baum^ p 60. t. 1 h? 2, Indl gen pi. suppl 4.20 p 19, Regel monogr p 29 I 7 iig 4 ') subspecies hujus valde dubiae specimina ii3c in heibams euiopeais, nee in herbano cl Asa Gray m America boreali kcta vidi et hanc ob tausam lusum eximium cultural B ilbae esse aestimo — Ramuli mnelli dense pubescentes, eglandulosi. hoha e basi rotundata v subcordala ovata v subiotundo ovata, acuta, duplicato-<lentata, supra glabrescentia, bubtus pctioloque puhescentia, petiolus brevis ^imus, lamina 4-8-plo breuoi StrobiU cylindnu, pedumulati, pedunculus quam petiolus longior, squamae maigine pubescentes, lobi laterales rotundati 'Cttanguli, lobus niteimedijs longior ovato-lanceolatus

\* B. MICROPHYLLA (Bunge fl alt suppl m Mem. de l'Ac de St-Petersb 183'i P 50C), aiborea, ramulis fertilibus dense et eximie glandubfens, folns paivis e basi cuneata integra obo\alis, strobilorum squamis tnlobis, lobis augustis iateiahbus erectis, samarae alis nucula 2-3 plo lationbus § In Sibinas altaicaa traUu onentah Bunge enum pi alt p 84, Led\* b fl ross. vol 3. P 652, Spath lev I c p 190, Endl 1 t p 19 B. fruticosa fi cunei-loha Regel monogr p. 3T t 7 fig. 16 23 Arbor 20 30 pedes alta, epidei-midc flavescence Folia excluso petiolo circiter 1-11 poll Tonga et ± poll, lata <\* basi cuneata Integra obo\ata, obtusa v acuU, maequahter dentata, juniora subtus ad ner\os pilosa, deinde glabrescentia, petioli lammi 2 4 plo breviores, pilosuh Stiobih subsessiles, oblongi, squam39 cuneiformer, margme vix pubescentes, antice tnlobas, lobi omnes angusti, lateiales porrecti, mteimedio saepissime latioies bre\iorcsque

## § 2. Frulicosx.

\*iulices Samararum ala: nucula 2 3-4 lo latiores v earn dequantcs

\* B tRUTicosv (Pall fl ross t 40. fig. a. b, c), ramulis glandulifens, folns e basi cuneata o\ato-ellipticis. saeps acutis argute dentatis, samarae a< nuacula



circitei duplo lationbus § In Divuna (Pallas. Turczaninow), in ilpibus sajanensibus (Ruldc, Stubendorfl), in AlamNhuna boreali (Maximouicv), in Sibma onentah al iluv Utschur (PUIUANsky). — Koch s<sup>n</sup> fl germ od. 2 p 7bl. U Gmelini Bunge cnu<sup>n</sup>. pi alt p 113,w obs. ad B microphyllam, Ledeb. fl. ross. \ol 3 p. 672, Turc/ fl. baic dah vol. 2 p. 28, Trautv. pi. imag t. 5, Tiautv. et Mey. m Midd fl och p 84. B. humihoi palustns amentis per omnes dimensiones mino-ibus Omol. fl <ib. \ol. 1. p 167. t 26 fig. 2 B. divancata Ledeb. 11 ross. \ol. 3 p 652, Tuic/ fl. baic dab. vol. 2. p 129 B. futicosa a Gmelini Repel monogr p. 34 t 6 fig .19-49. Fiutox 8 IC-pedalis, ramis eiectis, lamulis dense gUudulifens, no\ellis folnsque laxe pilo sulib et deinde glabus 1 olia petiolo 1 imina dimidio bieuoic surtulta, saepissime acuta, ranus obtusa, mdigme dnphuito v in<equalitpr argute dentata, subtusinsigniter v idims vi\ conspicue glanduloso-punctata, ad 1 ' poll longa et ] ro'l ldti rolia lamuloium stenum prosse duphc ito-dentata \ submdi submciso dental i, intcidum usque 2 poll, longa SUobili bievitci pedunculati, oblongo-elliptiu v ranus oblongo-cylindnci, jieduncuh strobilo dimidio bre\lores, squamae sa3J!Ssime basi elon^ato-cuneatae, apice Inlobae, lobis angustib bievibus lateiahbus porrectis v subpatentibus lobo mteimedio sspissime brevionbus. Samararum alae nucula sjepe dQplo ranus sesqui fanturn latioics

4. B. MincNDORhFi (Trautv. et Mej in Midd Rcise fl. och. p 81), ramulis glanduhfens, foliis obovatis v. subrotundis obtusis crenato-dentatis samarralis nuculam aquantibus usque duplo lationbus %J In Sibiu onentali boieah et austrah, in regione amurensi — Irautv. in Ma\im prim fl am p. 255, Regel et Tiling fl. ajan Nachlr , Regel monogr. Bet. p. 40 t 8 iig. 13-27. B rotundilolia Regel ot Tiling fl. ajan p 11') Fiutex 3 10-pedalis; ramis crectis, ramulis plus minus dense glandulileus, novellis saspissimr pubescentibus, deinde glabns Folia brevitni p^tiolitd, e basi cuneata ^ bubcunoata obo\ata v. subrotundd, inajqualiter cicato-dentatd, saepis-ime lotundalo ob'usa, nnus subacuta, utnnque 3-6-neiMi, jumora pilosuld LI mox glabri, subtus sa?pibsimc epunctata Strobili oblongo cjldmrdici v ovalo suhglohosii, pedunculati, nutanles \ eiecti, pedunculo giacih aimnlum dimidium subasquanie; snuamis obovato-cunealis, npice tnlobis : lobis oblongis v hncui-oblon^ib v. ^ lationbus, subaequilongis, laterahbus porrectis . ranus patentibus.

*OL, communis* (Trautv in Ma\im. prim fl. amui pag 2'')', lamulis nevellis pubescentilji<s, foliis e basi cuneata o\ato-ihomboideis v obovatis, slio-Jjhs oblo^go cjldmrdicis 3 In legione amurensi (Maxim), in Sibnia onentali piope Udskoi et in insula Schandai (Middendorf), pr. A] in (Tiling), ad Lenam (Adams), inter Ocholsk et likutsk (Langsdorff) Robustior. Petiolus parvus lamina 3-pIunes bievior, lamina usqum 14'poll. longa ct 1^ poll lata Strobili saepissime penduh Samaiaium alee nucula sa3pissime duplo latiores.

p, *globosa* (Rgl monogr. p 41), ramulis novellis pubescentibus, foliis sub oibiculanbus rotundato-obtusis v. obtusissimis, strolulis globosis v o\ itis v onlongis 5 ^n C)1^iria oricntdh, in insula Schantar (Mitldcnlorl), ad Tongam et d'd U nam (Schangin), m Sibina altdica (Mortens). B Mld-dendorfinar schaiiiarensis'li.iutv heib Humilis. Folia suborbiculana \ o\ato-subrotunda, subtus mterdum gl mduloso-punctatd, vix i poll longa Strobili p nduli v eiecti, squamarum lobis saepe angustis Samirarum alaa nuuilam circitei aequantes v ea paullo latiores — A B. glandulosa cui haec foimaproMma^olummodo samararum ahs ldtiontms distinguitUL Hue peitment specimina sibmca, qua3 in monogi. Bet. nomine B. nanae y intermedia? enumeraM.

y, *mtida* ^Rgl monogr p. 41), lamulis no\ellis glabns rcsino>o glamlulifens mo\ ldj.ibusmtidis, loins obovaiis v. subrotundis, strobilis oblongo-cylindncis Piope Ajan legit 'liling.

5. B.INTERMEDIIV (Thoro teste Reichenb IC fl germ vol. 12 t 624. fig. 1283) ramulis dcuiumla3vibus, folns I homboideo-ovatis aiguteduplicato-dentatis, samararum ahs nuculam aquantibus v. paullo lationbus j <sup>In</sup> Hehcti< monti

bus Turæ Lipponia rossia (Middend) Norwegi, Suecia borealis et Isl in n R<sup>1</sup> Bern ub Bet in Bull Mosc 18 p 407, Koch syn cd 2 p 701 B h\ -bnda e K elm R<sup>1</sup> Monogi p 39 B ojcowiensis Liest in herb leg. suec Frute\ 6-7-pedalis, nmosissimus Iumi erecti, novelli pubescentes demde glabn, kEves v i inssime pirc glmdu'iferi I on lhomboideo ovato v ovato subiotunda, acuta v paullo acuminata juniore | ilosula et utmque lesinoso punctdd, adulta >-libemma Stiobili cvlindnci squ imae tnlobae, lobi later lies ponecti lobo intermedio latioics Species A aide dubia et veiosimiliter planla hybuda, ex B alba et B nana

- 6 B GRAYII, Rfel Bern ubor Bet in Bull de Mosc 18 p 406 t 6 fl<sup>1</sup> 9 13 nmulis 1 lusque junionbus dense pubescentibus, folns obuvitis obtuMS crenato dentatis simaiarum ihs nucula sesqui u que duplo 1 itionbus 5 l<sup>1</sup> Ohio (v in herb Asi Gi iy) 1 rute\ Ramuli et folia initio dense deinde laxius pubescencia toln raraulo um Ierlilium e basi Integra obo<sup>1</sup>dt<sup>1</sup>, simplicitate crenato dentata, obtusa, usque 1 | poll longa et J poll lata, ramuloium ste nlm fol a majora, OJ/O subroiunda, obtusi v aculmscula grosse et acute crenato dentata Gemmae sublamtae Stro))ih oblonpo-cylindnci erecti ptdunculati, squimae tnlobae, ciliolatae, lobi oblongi ldtciales crteti v pilntes, lobo inter medio plerum jue breviores Habitus B pumilo?, samararum alis lationbus facile dignoscitur

### § 3. Nan%.

Mutices Samaraium alac nucula saepissime duplo-plunes angustioics, v ranus paullo ingustiores

- 7 B N\NV (L spec pi p 1<sup>1</sup>94), suffrutex ramosissimus ramulis e<sub>o</sub>landuloi>is, folns obtusissimis plerumque lationbus quani longis cbLuse cienits samaraium ahs dn<sub>o</sub>ustissimis 5 In Helvetm et Austnae ilp bus, in me ntibus allionbusEuiopae mediae in tuilosisLuropaeboieilis m Sibina (in re<sup>1</sup>ione uralensi Its Hoflnnnn, ad fluvium Taimyr leg Middendorll), Kamlschatka (Libosthulz), in Gio rldndu Icr<sup>1</sup>a non (anidi —Linn fl lapp p 266 t 6 fig 4, Du Roi HdLbk Baum7 p 98, Willd spec pi vol 3 p 465, \*1 <Hn t 91, Pall fl ross vol 3 p 604, luic/ fl hue dah vol 2 p 130 Tiauty (tMey mMidd fl ch p 83, liduty in M ivim pum H amur p 8i, En<sup>1</sup> bot t 2326, Willd Bed Baumz p t>0, Hdrú<? Lchib t 31 Rciohenb IC fl germ \ol 12 t 6>1 fig 1278 Moessl Handb Aufl 2 vol 4p 1766, Koch syn fl germ ed 2 p 762, GuimpeletHdyne Abbild d Holzj vol 2 t N8, Roth fl germ vol 2 p 478, Endl Bet in gen suppl 4 pa<sup>1</sup> 2 p 20, Purbh fl am sept vol 2p 622, Mich fl im sept v 2 p 622 Ion Vw Yoik\ol. 2 p 201 t 114, bpachrcv 1 c 19 > B ndna afeenuinaR<sup>1</sup>gel mono<sub>o</sub>, 43 t 29 fi<sub>o</sub> 13 B n in i a curopaea Ledeb fl ross vol 3 p f>4 Sufliutcx spitliamasus usque bipedalis, rami adscendentes v pro triti ramuli erecti, no\elh plus minusve pubescentes et dcindc saepissime glabrescentes l<sup>1</sup>olia minima usque 1 poll diametro zequant a saepissime subrotunda sacpe ldtiora quam lon<sup>1</sup>a obtusissima v subtruncala, basi lotund ita v raiius dilatato cuneata, grosse simpheiter v duplicato creiuta subtus reticulaio venosa et punctulata Sirobih ]rc\iter pdicclldli, ovatoobhngi v obh n<sup>1</sup>o-cjhndnci squaniu cuncilorm<sup>1</sup>b v obov ii e, saepe usque ad medium, lanus minus profunde tnlobae, lobi aequales v. nid3quales, anguste oblongi \ arabitu ldtiores, later lies saepe poirecti ranus divergentes Samardium dla saepissime angustissima, ranus nucula dimldio v. pdullo tantum angustioi.

- X B MICH\XII (Spach rev Bet in Ann d sc nit ser 2 \ol 10 p 195) suffrutex ldmis procumbentibus, nr veil s dense pubescrtibus gemmis sublantatis, folns minimis lationbus quam latis rulundato obtuse prolunde crenatis strobilorum squamis Infeiiionbus tnlobis |e| integriis nuculisominno anteus<sup>1</sup> 5 In Ipna Nova et ad htoia HuJsonsiv-I ndl 1 c p 20, Rgl Bérn u Bet in Mosc 18 p 407 B nanaMuh fl 1 or am vol 2 p 1g0 Puish fl am sept \ol 2 p 622 B nina y Micluuvn Rgl monogr p 45 Fruttx pygmaeus Ramuli eglandulosi folia bicviter pctiolata v sulsessilia, cuncat flabelhta subconacoa icticulata, glabra, minima diametro cuciter ' poll

aequantia Strobili sessiles, cyhndnci, squami ovato-v oblongo-lanceolat e et inferiores tnlobae.

- 9) B *ANDULOSA* (Midi fl am bor vol 2, p 180), frutex \ sulfiulev lamuhs glandulifens, loins lotundato-ohuiis obtuse trenails samaraium ahs angustissimis v nu^ula duplo anguslionbus ^ \*<sup>n</sup> Sibma et in Amtnt i arctici (New Inland, few York, Lake superior in monlibus altionbus tesle Asa Gi ly) — Willd spec pi vol 4 p 46, Pursh fl im sept vol 2 p 622 B plinduh sietpnana Hook fl boi am vol 2p 1J6 B ^laiidulosa et B rotundifoha Spach rev 1 c p 19J et194, Indl gen pi suppl 4 pais 1 p 20 B nana p sibirica ct y inteimedia Regel monogr p 43 ct 44 B glandulosi Asa Gra> M mucl of hot p 460 —Fruttx spithamaeus v usque 4-5-ptdahs Rami plocnmbdiies \ adscendentcs, ramuh jumoics dense lesinono glanduhfen l\*ulia bicvilc I pctiolita obo\ iti v suboibiculan i v latioia quam longa, lotundito ohtusa et obtuse cienato dontata subtus icticulato-venosa, ghemma Strobili oblongo-tylindnci, pcdicellati crecti, squamae trilobae lobi angusti, \ oblon^i latoiales porrecti v divanciti samaraium <Ha angustissima v ldiusnutulani dimididm sequins Van it

a, *typica*, cmle \*2-4 pedali, lamis ramulisque eiectis, fohis obovalis ^ infenonbus subrotundis — In Ainenca boreah et nctica, m Cinada New Jeisey, Pensylntia (Pursh) Ohio etLakt supenor ad Saskatchewan (Bouigeau), Poit Fiankhn (Richinson) Maine in ilpibus (Young) Tabiadoret Ten i No\ a (Morrison) H glandulesa Mich 1 c, Willd 1 c Pursh 1 c, Hook 1 c, Spach 1 c Indl 1 c

p, *rotundifoha*, caule spithamaeo v usque biped ill procumbente v ad&ccn clnte, v lanus subrecto, raniis ramulisque adscendentihus \ difrusis folus suborbiculanbus v l itionbus quain longis InDihuna, in alpibus sajanensibus (R lddc), Sibirn ilitaica bdicalonsi ct onentali, Kimtschatk t insula Sitkd, Jabradoi, id H nelson si a), in Gioenlandia, ad cap Espren et in -nontibus ilbis B rotundifolia Spach rev 1 c p 194, Indl 1 c B nana [i sibmca ledeb 11 ross vol 3 p 654, liauU et Mey in Midd Rei e fl och p 8>, Iurecz fl baic dah vol 2 p 131 B nan i Hook fl bor am vol 2 p 156 B nana (3 sibinci et y intermedia Regel monogi p 43et/j4 t 0 fig 6 8 9-12 14-19 21-2C B I Utelliana m Sull Journ

- 10 B *ALPESTRIS* (tr summ veg Scand vol 1 p 212), frutcx lamuli\* laeubus, foliib siibiotundis v o\atis acutis v obtusis obtuse v obtusiuscule CK nato dcntitis siniiiarum ihs nucula sa?pissime duplo an^ustionbus ) In Suecia et Norwe^i i llossia lappc nica (t media Islandia ct Groenlandia —R^I Bem 1 C p 409 B fruticosa Ft in Hori ratish 18iO p 152 B huinilis K r heib norm B frulicosa [i humilis Rcichenb IC fl j,erm vol 12 t 022 fig 1280 B frutitosa Wits ddidi but \ol 1 t 154 B humilis Witsmi Spach rev 1 t p 19^ B nana 5 alpcsins R\_n\ Monof,r p 4T t 9 fig 8 16 17 19 26-38 B hjbudi a rhombirolia, fi rotundifolia et y alfinis R\_n\ Monogr p 38 30 40 hiuUx 2 J [tdahs Ramuh rflabemmi lae\es\ e \ juniores paullo pubescentos tol a plerumquc pir\ a, ovata \ subroiunda v ovato rhomboidca acuta v lotundato-obtusa glabia subtus reticulato \ enosa, cienato dentata, dentibus obtusi^simis \ obtusiuscuhs, foln ramulioium slenlium hisi iotundati \ coiiata \nterdum htiora <juam lon\_n i Strohili fedunculjti cylinduco oblon^i squamarum lobi lateiales ciecti \ subdiver^cntcs lobo inteimedio saepissime bre\iores et sappe latiores bama laium alae nucula satpissime duplo an^ubtiorcs ^ in uno eodem strobilo nunc duplo nunc tnplu nunc paullo tantum an^ustiore^ — Verosimihter planta hybnda ex B alba pubescnte et B nana — Vanat

a, *typica* fol is feie omnibus rotundato obtusis — In Suecia Noi wegia et Rossia boieali B alpestris li 1 c B frutitosa bumibs Rcichenb 1 c B alpestrns ^a^ rotundifolia, var montani, var nanae iormis ct \ ir subrc ti ndifoha Lacst in htrh re\_o^r suet B nana macrophylla et nana mijor laest 1 c B alba lruticosa heib hisch B humilis )i herb norm B nana o alpestris Regel 1 c toll i snepe suborbiculana \ c hasi cuneata o^o\ato-sul lotundi ramulorum stuilium Insi rotundin

v subcordata mterdum htitudine longitudinem superanle Stiobilo-  
rum squamae cuneatae, lobi saepe angustī, laterales erecti

p, *communs*, folns plcrumque acutis v paucis rotundalo-obtusis — In  
Suecia INoiuegia et Rossia borcali, in Pennia prope Petropolm, in  
Islandia et Gra nlandia B hybnda a p, y, Re<sup>el</sup> 1 c B lagopina Hartm  
in herb reg SUCL B alpestrns \ar macrocarpa var auricula, \ar aun-  
culaefoimib, \ar dubia, var palustrns \ar polycarpa, var crassiuscula  
et var major Lacst inherit leg suec B gluliosa var pseudalpostns  
Bjoomsti m herb re<sub>n</sub> suec B carpatica var micioph(lla Kuhlwl fl  
exs fl Petrop Ioha oidlo-subrotunda \ sudrotunda ramulorum sten-  
lium basi rotundati v cordata Strobilium squamae lobi laterales eieci  
v ranus subdivancati

11. B PUMILA. (L mant p 124), ramulis eglandulosis junionbus dense pubes-  
centibus v tomentosis, iolus obov Uis v obov ito subrotundis lcutis \ obtusis,  
strobilis c<sup>l</sup>indncis, samnirum alis angustis ^ In America borcali et irtica  
Du Roi Haibk Baumz vol 1 p 04 t 3 fi£ 1-4, Jicq hoit vind  
t 122, Willd spec pi vol 4 p 467 Ait hort Kew ed 2 vol 5 p 300  
Wats dendr bnt \ol 2 t 97 Wingenh am 86 t 29 fig 61, Puish fl am  
sept vol 2 p C22, Hook n im boi vol 1 p 156 Spuñ iev 1 c p 192,  
Endl 1 c p 20 Regel Monogr p 5> t 9 fig 68 09, t 6 fig 12  
t 13 fig 38-39 Asa Gny Manuel of bot pag 460 trutex 3-o pedalis Himis  
erectis Ramuh omnes v tantum novelh dense pubestenUs toll i biewter  
petiolata, crenato-dentat i v rinus subicute dntati, subtus pallidiora, ie-  
sinoso-punctata v Impunctiti saepissime obov ita ranus subrotund i Polia  
rimulorum sleiilium sacpe subsessilia suborbiculana grosseque duphcatod-  
dentita Strobili obhngo cjilindnci, squiniL tnlobae iobi laterales porrecti  
\* plus minus divergentes lobo intermedio saepe breviores Samararum alae  
saepissime angustissimae — Variat

a, *typua* rimuhs folus(lue junionbus dense pubescentibus v sublanitis  
foliis obtusis \ subiculis crenito dentatis subtus eghndulosis — In Ame-  
nca boreali (Nova Anglia, Pensjlvania, Michigan leste Asa Gray) et in  
TenaNina (de la Pjlaie)

P, *glabrescens*, ramuli novellis lantum pubescentibus mox glibns subtus  
eglandulosis — In Ohio (Sulliv int), Miclngin Wisconsin B pumili p  
glabra Regel monogr p 4 lohaoblusi obov it n subrotunda crenato-  
dentm — l< oim i intermedia inter B glandulosam et B pumilam Affi-  
ms B llpestrn

"), *glanduhfera*, folns subfus rcsinoso-punctatis — In Canada (herb Asa  
Gray) Cetera ut in vai a

Ûy *boieahh* (Regel monogr p 55 t 13 fig 38-39) folus acutis v sub-  
cuminatis simpliciter v duplicato-dentatis — In Icira Nova B borealis  
Spach rev 1 c p 96

! B ПУМИЛС (Schrank baic fl vol 1 p 421), ramulis glandohfens, folus ova-  
5> ^ subrotundis argute dentatis, samararum alis mgustis ^ In Luropa  
media et borcali Dihuna, Mandshuna boieili, Sibina, Kamtschatka a  
America bore ill — Roth fl germ \ol 2 p 478, Koch syn fl geim ed 2  
P 761, Ledcb fl IOSS vol j p 0>3, Fi in Hoia ratish 18JO p 152,  
Spach rev 1 c p 193, Lndl 1 c p 20, Regel monogr p 46 t 9  
»g 37-55 t 10 fig 1 18, t 8 fig 40 47 Re<sup>el</sup> fl us p 130 B fruticosa  
Pall fl ross t 40 fig D F, Willd spec pi. vol 4 p 46b et ejusd Berl  
Baumz p 01 Pill Reise |o| 3 app p 758 n 133 t K H fig 1 2 3 (exel  
syn Gmel), Trautv et Mey in Midd Reise fl och p 84 lurcz fl baic  
dah vol 2 p U0, Inutv in Mixim pnm fl amur p ^54 Reichenb IC  
H germ vol 12 t 621 fig 1279, GJiniptl et Hayne Holzg vol 2 t 149  
B oycowiensis Reichenb ic 1 c t 622 fig 1281 B bocolown Jaccj fil  
msc B myrMnoides I uisch in Flori lattsb 1828 p 7S3 B palustrns Rupr  
in Bull de lAcad do St PeUrsb 1817 p ^59 B sibmcalcdd cit Wats  
dend Bnt AOI 2 t 154 n<sub>o</sub>' B B reticulata et B ovalifoha Ri pr 1 c' p ^60  
et 561 Frutex 2 5 pedalis Rami erecti Ramuh plus minus dēse glānduli

fen, ncuelh pilosuli mox glabn Folia plerumque acuta, raurus obtusa, maequilliter \ duplicato argute deniata, utrinque > 6-nervia, junioia pilosula et mox ^labia v ad ner\us tuilum pubeiuia, subtus laeud v rtsinosa punctata, ldiuulioium fertihum ovati v o\dllo oblong i subrotunda \ rinssimo cordato ovata, ramnlorum slerihum brevius petiolati, ovato subrotunda v basi saepe corddtd et piolundius dentata btrobih ovato-oblongi v cyhndnci, eiekti v ranssime nut rites , squunae plus mmus\e cuneifoimes, mticc tlobae lobi aequdles ^ intr lmedius longior, lat^ralcs porrecti v plus minus\e diveirentes, angusti v mlc imedius latior Sdinaiarum alaenuculi 2-4-plo^angustiores — Vdnat :

a, *gtuina*, folus subtus egladulosis, stiobihs bieuler pedunculdtis — In luropi me ha etborcali, in turfosis subalpinis Helvetia?, Bavanas Austria\*, Germdniae borealis, in Suecii, Curonn, Li\onia in RosMd media et austrah, Sibina altaica bncdlensi et onentah, Daliuna, Daliuna, alpi-bus sajanensibus, ^oongorw montibus et in piovincns Oregon et Wisconsin Amcncae boicalis B humilis, B fruticosi B oycowiensis, B SOCOIOAMI et B sibnica auct supia utatorum B humihs a genuma, fi commulita et y Socolown Ke^el monogr p 46 et 48. Pediccllus bicws, strobilo 4-plunes bre\ior — Vanat fohis denticulatis (B humilis y com-mutata Re<sup>r</sup>el 1 c) v subgro^se dentitis (B humihs a genuma Regel 1 c), strobilis ovato-ol)lon^is v subovatis, v ranssime subcyimdncis (B humihs ð Socolovn Repel mon<sup>r</sup> p 50), ramuhs dense resinoso-glan-duhiens v glandulis plus minus raus adspersis bpeumina in America boieali mdigena ramuhs sparse glanduhfens strobilisque bubcyhndncis gaudent

p, *Jlapiuhhi*, fohis subtus resinoso punctatis — In Dahuna (Socolow) et in Miridohuna (Maxim Maak) B humilis e Ruprechtn, ^ Ruprechtn et rj ovalifoh i Re<sup>n</sup>el monogr ) ^\ et 52 t 8 fig 40-47, t 9 fig 5< 67 B palustn^ var Rupr in Bull 1 c p 559 B fiuticosa Ruprechtiana Trautv in Mdxim pnm fl am p 254 B reticulata et B ovalifoha Rupr in Bull de l'Ac de St P6tersb 1857 p 561 Frutex 3-4-pedahs Folia o basi cuneata \ rotundata o\ata acuti \ ran us obtusa (B o\ali-folia Rupr), inaquihLei aigute denticulata \ grosse duphcato-donlati (B reticulata Rupr). btiobih cyhndnco-oblongi v lanus oblongo ovati, bre\iter pedunculati \ pedunculo longiore ^latihore suffulti, erecti v nutanles

y, *Kamlschattra* (Re^el monogi p 49 t 9 fig 37 49), folus saepiSbime coidato-subiotundis v ranssime rotundato-o\atis acutis subtus e<sup>n</sup>landu-losis, strobilis lon<sup>o</sup>e pedunculatis — In Kamtsliatka et in Vleutis tolia inaequahte v dupliacto-dentati Strubih oblongo-tylindnti, eretti v nutantes, pedunculo strobilum dimidium aequante suffulti, squamae cu-neatijp antice luloba,, lobi elliptico-oblongi, laterales erecti Pedunculus folium dimidium suba quans

#### § 4. *Dahuncos.*

Aiboies saepissime c\celsa? Samararum alae nucula duplo plunes angustioris Strobiloium squama, hieme dcciduae, earum lobi plitiumque abbreviati.

13. B DAHUICA (Pall, fl ross. vol. 1 p 60 t 39 fig A), ramuhs glabns v glandulosis, Tolns e basi cuneata \ rotundata ovatis acutis v acuminate dtntdtis, amentis oblon^o-cylindnus j In Dahana, Mindshuna et in mon-tibus albis Amcncae borealis — Pall Reise vol 3 p. 224 321 421 t K J> fig 4 et 6, Ledeb fl. ro's vol 3. p 651, TiauU m Bull de la Soc des nat de Moscou, 18J7 vol 2 p. 445. t. 7, Tuicz fl baic dah \ol. 2 p 128, Regel in Bull de l'Ac de St Pétersb 1856 p 400, Rupr m Bull del'Ac de St Petersb 18)7 p 562, Regel monogr p 55 t 10 hg 19 40, t 8 fig 36 39 et ft uss p \3i B dahuncavir Maximowicziana lidutj in Max pun? p 250 B Md\imowic/u Rupr in Bull de l'Ac de ist-PetersD 1856 p 435 B Mlaki Rupr I L 1857 p 564 Aibor cortice gnseo lusco profunde dnumpente Ramuh eiekti glabn et plerumque laxa v ran<sup>lls</sup>

densius glandulifera Ioh 1 e basi cuneata v rotundata ovata, acuta v acuminata, inaequiliter \ iius subduplicato dentata, juniora utunque pilosula, serms utnunc v sublus tantum ut ad petiolos pilosula v lanus omnino glabrescentu, in pagini mfnore inteidum resinoso-puncialil Strobili pedunculati, oblon^o c^lindnci, eretti \ declmati, pedunculum subaequites v eo longiores, strobilium squamae basi i>ie|Ur ^ longius cuneatae, tulobae, lobi ecihau, lateiaUs stpi^sime plus minus diveigentes loboque intermedio breviores ldtioiesque, rarus lobum mci medium subapquantes \ rarus erecti bamararum aid, nuculi 2-4-plo angustio es — Vanat

a, *lypica* petiolo fohisque subtus ad nervos plus minu« pilosus, strobilorum squamis basi bie|itercuneatis lobis latei ihbus divergentibus saepeque lobo Inleimcho latiobus breuonbusque — In Dahuna ot Mand-shu na R diluncauct suj ra cit B Dahunca |ai Alaximovic/n Irautv 1 c B Maxiinovic/n et B Maaku Rupr 1 c

p, *amencana*, folns petiolique postea omnino ^hbrescentibus, strobilorum squamis basi longius cuneatis lobis equahbus oblongis obtusis late-lahbuserectis — In montibus albis (herb Asa Gray)

- 14 B UKTICHOLIA v^egel mono<sub>0</sub>i p 57 t 10 fig 41 50) aiborea, ramuhs novelis pubescentibus, rhomboideo v subcordato-ovatis acummatis inegulaiiter incis dentatisque, stiobihis cjhndiis samaiarum ahs angustibus o In Suecia<sup>3</sup> provincia Veimelanlia et in hortis cjlti B alba urticifoha Spach in Ann d sc nat sei 2 vol ID p 187, Indl geni suppi h pirt 2 p 10 B virpultosa Fi in herb norm B pin-nata h\ndi Lundm in act Holm 1700 p 130 t 5 Aibor mediocns Ramuh stenles et no\clh |iibcscente^ Toha petiolo gncih |ubestente suffulta, e basi cuneata v tiuncala v sul)coid ita ovati, j>his minus acuminata, niciso lohata dentataque \ giosse duilicato aigutquo dentata, juniora nmuloium lue stenum pubestentn, delude sTpe ghbrescentia stiobili pedunculati, yhndnci, squimi dense pubescentes, ba^i bre|itei v longe cunealt lobi diHormes laterales poirecti v subdivergentes, lobo mtermedio saspissime duplo tnplo e breviores — An lusus insignis B alb L

### g 5. Costa <B.

\ibores saepissime e\cclsa<sup>3</sup> Simuaium ala? nucula duplo v plunes angustior< s tji obiloi um squain i hieme d^cidu<t, carum lol|i plerumque lineares elongiti

B S IIMDTH (Rgl Itemerk uber Betula in Bull de Mosc 18 p 412 l 0 fi<sub>n</sub><sup>r</sup> 14 20) ramulis glabns sparse glinduhfeus folns e basi rotundata ovalis icurmnatis duplicato dentatis ^emmis ^libns, stiobilis p^dunculatis cyhndncis, nucuhs feie dptens S In Mandshuua lusro-onent ih (Schmidt, MdAimowil/) Aiboi coitic Id3i v nmo^o 1 olia encitti 2-24 poll longa et usque 1, poll lati, utnncjue 7-10 neivia, supra glibia, subtus K MHOSO-punctata el ad nervos i llosa petidlus julosus, lamina circiter k 6 plo bie|ior bliobih qiecti v piulh dcluiati, |C(lunculo 3 4 plo longioies Miobiloium squamae glabrae, cuneatae tulobt, lobi subhneaies, laterales pjnecti, mteimedio pleiumque piullo bieviores

- 10 B NIGHA (Willd spec pi vol 4 p 464, 180>), ramuhs lunionbus dense pube^centibus, loliis e basi cuneata rhomb ideo oviUs acuinimlis aip^ute iluphcdto dentatis, ^emmis puhescentibus, stiobihis peduncualis oblon^o-cylindriois, simaiaium a is nucula paullo v duplo angustionbus ) In America boieah a Gaiohna Flonda Viiginia ad Canxdam, cultaque in hoitis europaeis —Willd Bed Baumz p 06, Torr New |oik p 201, Wats dendr but vol 2 t 153, Puish fl am sept vol 2 p (>21 Ait hoit Kcw ed 2 vol 5 p 20J, Re%el raono^p p 60 l 12 life 1 12 t lo iig 30-37, Asa Oiaj Mxnuelofbot p 409 13 mbia Mich\ arb vol 2 p 143 t 1 (anno 1811)- Spich rev m aim sc nat sei 2 vol f> p 18), Endl B^tula 1 c n 20' li hnulosa Mich fl bor ini vol 2 p 181 B nijra Mi^inna Pluk ' ilm p 67 Arbor excelsi co-lice mbrofusco demum nmoso Mndcscente Folia e hisi cuneata olato ohlon,?a v rhomboidej ovita, acuminata v rarus tan-

- turn acutj, juniori (praesertim ramulorum stenhum) utimque dense pubescentia \ suhlanata adulta supra glabrescentn et infra pubescentia ^ ad nervos tantum pubescentia folia ramulorum steilium densius pubescentia marline smuafó sublo)uhti dcntitaque petiolus pubescens lamina 3 4 plo breviori Strobili cylindrico-oblongi M A r mus o\ ito oblongi pedunculati erecti v nutantes podunculo lanato 2 3-plo longiores Strobilorum squamae linatdG, decidui bisi breviter v elongo'ito-cuneatae infida? lobi lineares oblongi, acuti, subaequilongi, laterales eieci v lanus subdiver^entos
- 17 B uLMitoin (Sich et /ucc in Abh d Keen Bayi Ak der Wiss torn 4 ^bth i p i28), ramuhs feitihbus glabns et interdum glandulosi, folns p basi lotundati \ coidati v subcordata ovalis v ovito oblongis v coidato ovatis acuminatis in i qualiter lrgutejue dentatis utnnque 12-14 nemis gemmis glabns, strobilis ellipsoideis v elhptico oblongis, samaiarum alls nuivula circiter duplo angustioribus ^ In Mandscbuna boreali et austro-occidentalali, et in Japonn leg cl Maximowicz —Miq in Ann Mus Lu^! Bat. 2 13(>, Regel \OHO,T p G6 t 6 fig 20 2 > B coslata liautv in Maxim prim fl amiu p 253 B 1 rmani y costdta Regel Monogr p C5 t 13 fig 1-6 , tiJj 6 fitf 36 ct cjiisdcm fl uss p H5 Arboi e\celsa trunco usque 1 J, ped in diametro Lt cortice lrvi fl ivido-fusco v fusco Ramuli speciminum feitihum glabn laxequ glandulosi, specimmum juniorum subinde pubes^entes Gemmae glabrr, glutinosai tolia utnusquo ad neivos plus minus pilosula, subtus in nervorum axillis birbata in pagin 1 inferorc punttis resinosis demum obsolete obsita, dentibus ponectis, acunnnatis, ipicc ipso cillo^is poliolo circitci scinipollican pilosulo, foil 1 tunonum \ sptciminum juniorum sacepe jubcscentia strobili sessiles v sub sessiles , ellipsoidei, erecti \ declmau sjuam « glibir \ parce ciliolat I basi longe cuneata , lobi lateiales ihombei v obovati \ oblongi eieci v divergentes, lobo intermedio oblongo scpissime duplo bicviores — Vanat
- a, *typica*, fohis sae)je cordatis A cordato oblongis, strobilis breviter \ dicellatis v substssilibus oblongo ellipticis — In Japoniae insul 1 Jesso propt Hakolue Hgl Bern 1 c p 414 B ulmifolia auct supi cit tolia coidata v e basi COR^ it 1 ovaU (blonga \ lanus e basi rotundata o\ata, xpiissime insigniter acuminati, argute dontata, dentibus longe lcuminati Strobilorum squamae lobis laleralibus obi >ngis
- p, *coslata*, folns s<jpe e basi rotundata v rarms subcoidata ovatis \ o\ ito oblongis, strobilis subsessihbus ellipsoidcis — In Mandschun 1 ct in regione amuiensi /Maximowicz, Raddc) Rgl Bern 1 c p 4i4 B costata liautv 1 c B \* rmani y costati Regel 1 c Strobilorum sjuama lobis lateralibus rhombeia v obovatis
- 18 B 1 RMANI (fham in Linnaa, vol G p 537 t 6 fi^ D), ramuhs junioribus plus minus pilosis, loins e basi rotundata v cordata late o\ itis acuminatis duphcato v inaequiliter ar^utquc dentatis utnnque b lOnerviis, gemmispilosis v lanatis, strobilis ellipticis \ ovitis v oblongis, sdinararum ahs nucula duplo an^iistionibus s In Sibua ouontah, in Kimtschatk 1 Unalashk 1 ct in Mandscbuna —Ledcb fl loss \ol 3 p 653, Sjtach rev in ann d sc nat ser 2 vol IT p 190, liautv et Mey 11 och p 83, Regel ct Tiling fl ajan p 119, liautv in Mixim prim fl imur p 2:>2, Regel Momogi p Gw excluso svn -y Arboi ramis ramulisque eiectis nmulis lunionibus stenlibusque plus minus pilosis glandulifensque ^oln P basi coidata v truncata v lotundata, late ovata, acuminata, duplic Uo-v^ maequaliter argute dentala, utnnque ad nervos pilosi, in pagina inferiorp interdum iesinoso punctata, petiolo glabro v piloso limina 3-4-plo bie\iore suffulta Strobili sessiles \ bre\itei pedunculati, erecti v paullo dechnati, strobilorum squama^ basi longe cuneite lobi lineares\ lineares oblongi, lateiales erecto pitentes lobo mteimedio biovioie —Vanat
- a, *typica* (4es monogr p 04), ramuhs dense glanduhfens junioribus pilosis sonusglabiescentibus, gemmam squamis margme piloso ciliatis, strobilorum ellipticorum squamis piloso-cihatis — In Unalashka et Kamtschalka B Lrmani Cham , Leripb Spach 1 c B Frmani a genuina Petioli glabn Strobilorum squama? lobis angustis hneanus

3, *lanata* iamulis laxè glanduhfens junionbus pilosis demura glabrescentibus, gemmis plus minus dens- albo lanatis strobilorum elhpti corum squamis margine villosis — In Sibina orientali prope Ajan et in Mandschuna boreah B Trmani Regel fl ajin 1 c, Irautv in Max pnm 1 c Petioh pilosi Strobilorum squamae lobis apicem versus latioribus

Y, *tomenlosa*, ramulis junionbus tomentosis Remmis lanatis, strobilorum squamae lobis apicem versus Utioribus Hdb in Sibina orientah (Middend) B Ermani Irautv et Mey 11 och p 81 Petioli villosuh strobili oblongo-cyhdndci, saepissime breviter pedunculati

19 B BHOJPATTRA (Will pi as lar 2 p 7), ramuhs junionbus dense pubescentibus v ghbns glanduhfensque, folns e basi rotundata v ranus subcordata v cuneata ovatis acuminatis argute maequidhterque dentatis, gemmarum squamis pilosulis v glabns, strobih cyhndraceis, samararum alis nucula 2-3 plo angustioribus v earn subaequantibus — In provincns boreahbus Indiae orientalis, in montibus altionibus Japoniae — Lindl in Bot Reg 1840 misc p 73 Regel Monogr p 58 t 6 fi<sub>o</sub>' 13 19 t 13 lig 1-U Fjusd Bern uher Bet in Bull de Mosc 186S II p 415 B utilis Don prodr. fl nep p 58 B Jacquemontn Spach 1 c p 189 et in Jacquem voyage dans l'Inde, t 108 Folia utnque 7-14-nervia, supra mitio adpresse pilosa, demde saepe glabrescentia, subtus ad nerves insignter adpresse pilosa et jn nervorum axilhs barbati Fohorum dentes porrecti et saepissime msigniter acuminati btrobih cyhndracei, sesciles v peduncuhti 1-2 poll longi, sohtani v subbini, squamae mox deciduae saepissime basi longe cuneatae tlobae, lobus in termed 1 us lineans v oblongus lobis lateralibus erectis v divncatib oblongis v ranus hneanbus 2 4-plo v ranus paullo tantum longior, margine plus minus pilosus Samaiarum alae apicem versus latiores, nucula 2-3 plo angustiores v ranus edm subaequartes — Vanat

a, *typica*, petiolis senceo-pubescentibus, folns e basi rotundata v subcordata ovato oblongis longe acuminatis utnque 10 1-4-nervis, lobis squamarum strobili oblongis — In Nepauha, ID piovmcus borealibus Indiae orientahs, in sylvis montium ins Nippon interioris (Ischonoski) B Bhojpattra Wall 1 c (senus ab eod in list, Bhojpattra senptum, enoie loisdn?) Ramuh juniores pubescentes, tandem glabrescentes glandulifeu toha longe acuminata, juniora supra adpresse pubescentia, tandem glabrescentia \ inter nervos lateraks pubescentia, dentes paullo sursum curvati btrobih sessiles sohtani v pedunculo brevi dense pubescente suffulti, squamae margine villosae

p, *latifoha*, petiohs pubescentibus folns e basi rotundata ovatis acuminatis subtus eglandulosi utnque 10 12 nervus, lobis squamaium strobili hneanbus laterahbus intermedio paullo tantum brevioribus — In pro\muis borcahbus Indiae orientahs Ramuh antecedentis Folia supra in nervo medio et inter nervos laterales pubescentia Strobili sessiles, sohtam Squamae strobilorum margine pilosae

d *glanduhfera*, petiohs, puberuh folns e basi rotundata v leviter cordata ovatis acuminatis subtus lesmoso glanduhfens utrimie 8 nervns, lobis squamaium strobih hneanbus margine pilosis latci ihbus in turned 10 circiter daplo brevioribus — In pio\incus boieihbus Indiae orientahs — Ramuh pubescentes, glandulifen Folia supra glabrescentia v mteineivos laticales pubescentia, dentes margmis latiores Strobili sessiles, sohtaru v. bun

e, *Jacquemontn*, petiohs sub lente puberuh folns e basi cuneata v rotundata ovalis acuminatis utnque 7 9 nervns, squamis strobih utinantedentc — In Tmodo B Jacquemontn Spach 1 c B Bhojpattra 8 Reccl 1 c p 60 Ramuh juniores puberuh eglandulosi Folia supra clabta subtus glanduloso-punctata strobih sohtani, pedunculati, pedunculus puberulus

z, *subtordata* petiohs glabrescentibus, folus e basi subcordata late ovatis longe acuminatis utnque 10 12 nervus, squamamm margine pilosium



strobih lobo intermedio hnean-elongato lobis laterahbus subdivancatis oblongis 3-4-plo long 1 ore In msula Nippon circa montem Fudsi Yama in alpbis (Tschonoski). Ramuli juniores glabu, glandulifen, subgluti-  
DOSI Petioli circiter  $\wedge$ -1 poll, longi. Folia 2 2 | poll longa, 1 $\wedge$ 2 poll lata, supra glabrescentia, subtus eglandulosa, denies erecti, longe acuminati

- 20 B JACQUEMONTII (Spach rev in Annal. d. Mus ser 2 vol 15 p 189), ramuli!) novellis pubescentibus folns e basi cuneata rotundata ovatis acuminatis Inaequalittr v duplicato arguteque dentatis utnnque 7-8-neivns, gemmarum squamis margine ciliolatis, strobilis pedunculatis cyhndncis, samararum alis nucula 2 4-plo v ranus paullo tan turn angustionbus — In Emodo—Endl gen 1 c. p 19 B. Bhojpattra, p Jacquemontu Regel Monogi. p. 60 t 6. fig. 60. Ramuli speciminum examinalorum eglandulosi, Spachio teste autem resinoso-venuculosi Petioli leviter puberuli, lamina 3 4 plo breuores Folia supia glahra, m pagina infenoie resinoso punctata, ad nervos pilosa et in neivorum .mllis barbata Strobiloium squamae basi brevitei v. longius tuneatae, lobi lincan-subulati \ oblongo-ciholati, lobi laierales erecti v. subdivergentes, lobo intermedio paullo usque duplo breviores. — In dumento, folns basi saepissime cuneatis siibolisquo pedunculatis vix a piaecedente specificce diversa
21. B CORYLIFOLIA. (Regel et Maxim ), folns (junionbus) e basi cuneata v attenuata saspissime obovatis acutis grosse arguteque insigmtei duphcato-dentatis, gemmarum squamis margme pilosuhs, strobilis cylindncis bieviter v longius pedunculatis, samaiarum alis nucula 4-plo angusiionlms — In Japonic), in montibus altissimis insulae Nippon legit Tstnonoski Rgl Bern u. Bet 1 8 p 417. tab 8 Ramuli novelli desunt, annotmi glabn, lenticelhs adpersi Folia supra glabra v. ad nervum medium pilis caducis obsita, suhtus ad norvo9 dense albo pilosa, usque 2j poll longa et fere 2 poll lata; dentes porrecti, acuminati. Petiolus sericeo-pilosus, lamina 3-4-plo brevior Strobili sdepissime insigniter nutanles Strobilorum squamte pubescentes, basi cuneatae, lobus mteimedijs linean-oblongus, longissimus, lateiales oblong], erecti, subparalleh, lobo intermedio duplo tnplo\ e breviores.

*Species dubix hvjus sectionis.*

- 22 B CARPINIPOLIA (Sieb. et Zucc in Abh d Keen. Bair Ac d Wiss vol. 4 Abtb 3 p 228), ramuhs novellis glabns, folns inferioribus e basi cordata ovatis, supenonbus basi rotundatis v. cuneatis oblongis, summis lanceolalis, omnibus longe acuminatis argute et inequahrer senatis, gemmis glabns, strobilis subsessiltfuis o\ato elhpticis, samaiarum alis nucula angustionbus. — In Japonic Specimina stei ilia coll cl Maxunovic/ in montibus in sulae Kiusiu. — Endl gen 1 c p 19 B lenta Regel inonogr p 67 — Miq in Ann Mus bot Ludg Bat 2, 136 Polia 2<sup>1</sup>-<sup>i</sup> poll longa et 12 20 lm lata, supra glabra, in pagind infenore glanduloso punctata et ad nenos pilosa Petioli urcitei poll longi, pilosuli Amenta mascula in apice ramorum et axillis foliorum summorum 4 6, subiacemosa, cylindnca, nuda Stiobilorum squamae late cuneatae, glabiae, bieviter tnlobae, lobi laterales subdivancati rolundati, termmilis parum Icngior, oblongus, rctus — B lentae maxime dffin s et verosimihtor hujus vanetas
- 23 GROSSA (Sieb et Zucc 1 c p 228): ramulis novellis resmoso-punctatis glabns, folns e basi rotundata v subcordata ovato ellipticis acutis v acuminatis inaequaliter amute seiratis, strobilis breviter pedunculatis v subsessihbus oblongo-elhpticis, samararum alis nucula angustionbus — In Japoma. — Endl. 1. c p 19. Folia I7-2 poll longa, 10 15 lin lata, in pagina mfenore resinoso-punctata et ad nervos pilosa. Petioli semipolhcars Strobih pollicarcs, pedunculus petiolo brevior v. subnullus, squamae extus canescenti hirta?, late cuneatae, breviter tnlobo,, lobi rolundati, sub<equales v rnedius parum longior. B lenUe maxime afhnis.

§ 6. *Lentae*. — *Arbores excelsae. Samararum alae nucula duplo v. pluries angustiores. Strobilorum squamae hieme persistentes, cum rhachi tempore vernali deciduae.*

24. *B. LENTA* (Willd. sp. pl. vol. 4. p. 464), ramulis novellis pubescentibus mox glabris, foliis e basi angustiore cordata v. rarius rotundata ovato-oblongis acuminatis inaequaliter arguteque dentatis, strobilis subsessilibus. ^ in America borealis sylvis, Canada, Nova Anglia, New-York, Connecticut, Tennessee, montibus Alleghany, et Carolina. — Willd. Berl. Baumz. p. 59; Du Roi Harbk. Baumz. vol. 1. p. 93; Wendl. coll. t. 40; Guimpel et Hayne Abbild. Holzg. t. 83; MESSL. Handb. vol. 4. p. 1766; Michaux hist. d. arbr. vol. 2. p. 147. t. 4; Pursh fl. am. sept. vol. 2. p. 621; Torr. New-York vol. 2. t. 113; Wats. dendr. brit. vol. 2. t. 144; Ait. hort. Kew. ed. 2. p. 300; Hook. fl. bor. am. vol. 2. p. 156; Spach rev. 1. c. p. 190; Endl. gen. 1. c. p. 20; Regel monogr. p. 67; A. Gray man. of bot. p. 458. *B. carpinifolia* Ehrh. Beitr. VI. p. 99; Mich. fl. bor. am. vol. 2. p. 181; Willd. Berl. Baumz. p. 59. *B. nigra* Du Roi Harbk. Baumz. vol. 1. p. 93; Wangenh. am. p. 35. t. 15. fig. 34. *B. lutea* Mich. hist. d. arb. vol. 2. p. 153. t. 5; Spach rev. 1. c. p. 191. A. Gray man. of bot. p. 459. *B. excelsa* Hook. fl. bor. am. vol. 2. p. 154; Pursh fl. bor. am. vol. 2. p. 621. Arbor pyramidalis, excelsa, trunco epidermide demum transversim in lamellas lignosas solubili, ramulis annotinis glabris lenticellis adpersis. Gemmae glabrae. Folia breviter petiolata, novella pilosula, demum supra glabra et ad nervum medium tan turn sparse pilosula, subtus ad nervos pilosa et ad axillas venarum plus minus barbata saepeque resinoso-punctata, 3-4 poll, longa, 1½-2 poll. lata. Petiolus adpresse pilosus, lamina 4-8-plo brevior. Strobili ovales v. ovato-oblongi v. oblongi, sessiles v. breviter pedunculati, erecti v. nutantes; strobilorum squamae basi breviter v. longius cuneatae, breviter v. profunde trilobae, praecipue margine pubescentes; lobi oblongi v. oblongo-elliptici, v. subovati, laterales erecto-patentes v. plus minus divergentes lobo intermedio breviores vel subaequales. Samararum alae nucula 2-4-plo angustiores. — Variat :

o, *typica*, cortice brunneo, amentis oblongo-cylindricis. *B. carpinifolia* et *lenta* auct. cit.

p, *lutea*, cortice lutescente, amentis ovato-oblongis. *B. lutea* et *excelsa* auct. cit.

Sectio II. BETULASTRUM. — Genus *Betulaster* Spach rev. *Bet. in Ann. d. sc. nat. s&r.* 2 vol. 15. p. 198.

Samararum alae strobili squamas superantes. Strobili 2-4, in pedunculo communi racemosi.

### § 7. *Acuminata*.

25. *B. ACUMINATA* (Wall. pi. as. rar. p. 7. t. 109), foliis oblongo- v. ovali-lanceolatis cuspidato-acuminatis subaequaliter dentatis, dentibus cuspidatis sursum curvatis et margine subcompressis, strobilorum squamis oblongo-vel ovato-lanceolatis integris v. infra medium bidentatis. ^ In Emodo, Sylhet, Nepaulia. — Endl. in gen. pi. suppl. 4. pars 2. p. 20. *B. alnoides* Don prodr. nepal. (ex. Wall. cat.). *Betulaster acuminata* Spach 1. c. p. 199. *B. acuminata* genuina et lanceolata Regel monogr. p. fl. Arbor excelsa ligno duro. Ramuli novelli pilosuli, annotini glabri, lenticellis adpersi. Folia saepissime ovato-oblonga v. rarius oblongo-lanceolata supra glabra, subtus resinoso-punctata, ad venas et in venarum axillis plus minus conspire pilosa. 3-5 poll, longa, 1½-2 poll. lata; petiolus pilosulus circiter pollicaris v. brevior. Pedunculi pedicellique pilosi. Strobili filiformi-cylindrici, erecti v. recurvati; strobilorum squamae persistentes, pilosae. Samararum alae nucula circiter duplo latiores.

16. *B. CYLINDROSTACHYS* (Wall. pi. asiat. vol. 2. p. 7.), foliis e basi rotundata v. subcordata ovatis v. ovato-oblongis cuspidato-acuminatis duplicato-dentatis, dentibus cuspidatis erectis, strobilorum squamis oblongis v. ovato-oblongis integris v. infra medium bidentatis. § huiusmodi in Emodo et Nepaul. — Endl. 1. c.

p 20 Betulaster cylindrostachya Spach rev 1 c p 198 B acuminata a, p, v, e, Hegtl monogr p 61 t fa fig 61 34 t 13 fig 29 Pracedenti simillimd, foins saepe latibus dentibusque marpinahbus eictis diTer^a videtur btrobili ciassiores — Vanat

a, *typica*, ramulis jumoiibus pctiolisque tomcntosis, folns ovatis cuspidato-acuminatis supia ad neivum medium pilosulis, subtus adnervosetin venarum <ixillis dense pilosis B dcuminata o genuina Regel monogr p 71 I<sup>l</sup> olid in pagma infeiore resino<sup>o</sup> punctata v epunctata

p, pz/oa, ramulis junionbus pctiohs folnsque subtus ad costam mediam fvcnasqii<sup>f</sup>\* pubescentibus B acuminata (5<sup>l</sup> pilosa et y arguta Regel 1 c. tohd ovala v ovato oblonga, dentibus subinde minus acuminatis

f, *subglabraj* ramulis folnsque subglabns folns o\ato-oblongis longe cuspidato-acummatis subtus epunctati-, — B dcuminata glabra Regel 1 c

27 B MAXIMO\ILZIAN\, folns cordatis duplicato dentitis, dtntibu<sup>9</sup> calloso cuspid Uis en ctis, strobilorum squamis cuneatis tnlobis — In insula Jesso leg cl Mixiniowic<sup>7</sup> RL<sup>PI</sup> Bemeik ubei Bet in Bull de Mosc 18bo II p 418 tab 8. hg 18 Arboi pulcheruma, cortice albo papyraceo Rami ramnhque glabn, cortice brunneo nitente lenticellis adperso Joha magna, e basi profunde cordata ovato subiotunda. bievitei acuminata, duplicato-dentata, utnnque 10 12 nervid, supra ffbra, m pagina mferiore resinoso punctata et in venarum axillis paullo barbata, 3 5 j poll longa, 2}-4<sup>l</sup> poll lata, dentibus erectis in cuspidem callosam hnearem acuminatis, petiolo glabro 1 15 polhcan Strobili cylindracei usque 3 poll longi, erecti v plus minus nutantes plerumque quaterni, in racemum axilldiem dispositi, pedunculi pedicelhque glabn petiolis breviores Stiobilorum s\uamae cuneatas, 3 lobae, iobi oblongi, vi\ ciholati, Idterales erecti v.subduancati, intermedio In ev lores Samararum dle nucla 3 4plo latiores

### *Species dubix hujits seclioms.*

28 B AIUNIS (Endl 1 c p 20), folns ovatis v ovalibus cuspidato-acumidtis uuqualitei seirdlis, dentibus acuminilis, strobilorum squamis tnlobis lldbellifoiniibus v cuneatis. — In Lmodo Betulaster alfinis Spach lev 1 c p. 199 B. nitida Regel monogi p 72. Ramuli no\elh simul ac folia junior l lomentosa Jbha basi subcordatd, in pagina inlenore resinoso-punctita, ad nervos petiolosqup tomentosa Stiobih bipollicares, gemini, crassiusculi, squamarum loin lateiales nunc pualleh, nunc dnancati subrotundi v truncati, abbievjati, lobus intermedius oblongus, obtusub Samaraium alas nucla paullo latiores

29 B NITIDA (Don prodi fl imp p 58), folns ovato- v obl ngo lanceolatis v oblon, is cuspidato icumnidtis jiserratis senatuns cuspidate, strobilorum squamis tnlobis cunufornibus \ flabellioimibus — Inhmodo — Lmdl in Wall pi as iar p 7, Lndl 1 c p 20, Regel monogi p \*2 Betulaster nuida Spach 1 c p 200 folia basi rotundata v subcoidata, subtus iesmoso-punctulata et ad nenos petiolosque pubescenti-tomentosa Sfobili graciles, folia iloraha subeequanies squ urnium Iobi laterales abbieviati, subiotundi, lobus liteimtdius elonjatus sublineans, obtusus. Samaiaium alas loculo paullo latiores

II ALNUSTournef mst t 3'>9, Fndi gen pi p 272 etsuppl 4 part 2 p 20, Nees gen 101 4 t. 19, Schnizl. Famil , Regel monogr p 73

I flores monoici, dmentacei Flores> masc Amenti squamas peltatae, f^uinquebracteolatae, subtus tnfloras v ranus 1 flora<sup>e</sup> Pengonium sae<sup>l</sup>pbsimo 4-partitum v ianus irrrgulanter 10 12-phyllum Stamina numero loborum v foholorum pengonji, us opposita et supra basin inserta Filamenta indivisa, brevissima, antherae hiloculares — Floies 103m Amenti squamae imbucatae, carnosae, 2-flora<sup>3</sup>, d-appendiculatae Strobili squamae cuneiformes, antice breviter ^-5-lobae lignosae, suoerne in-

crassatae, matuntate ase in\icem secedentes, nunquam deciduae, hgnescentes Nucules compressae, apterae v ala membranacea cinctae, abortu uniloculares, monospermae — Arbores et frutices sylvestres et paludosi folia autumnno v ranus senus decidua Floratio vernahs, nunc foliorum evolutione praecocior \ coaetanea, nunc amenta flonfeia folus adultis anni praetenti fula

Sectio i CLETHROPSIS *Endl gen suppl, 4 p 20* — Genus *Clethropsis bpatch rev Bet in Ann d. sc nat & 2 tol 15 p 20*

Floratio coaetanea Pkres masculi squamis uniflons, penanthio 10 12 phyllo, phyllis inaequahbus squamaeformibus — AmenU utnusque sexus c gemmis aphyllis, perulis omnino orbatd, mascula longissirna, giauha, m pamiculam termmalem aphyllam disposita, fceminea sohtana v racemosa Nuculae ala conacea v peflucida cmctae

1 A NEPALENSIS (D Don prodr. fl nep p 58) folns jintegernmis \ minute calloso denticulatis amentis icemineis in quavis axil'a racomosis, nutuhs ah pellucida us duplo angustiore cincta. -5 <sup>3n</sup> Nepalia, in Emodo in Sikkim Himalaya, m Bengaha oilentah — Wall pi as rar vol 2 p 27 t 131, Endl 1 c p 20, Regel monocr p 83 t 16 fig 46 t H li p 4041 Clethropsis nepalensis Spach rev 1. c p 202 Betula leptophylla Wall cit n 2799 Arbor 30-40 pedalis Ramuh teretes, brunnei, lentitellis adpersi, juniores pube ferrugnea adpersi glabnve iolia o\ata v ovato oblonga, acuta v subacuminata, v ranus subobtusi, basi rotundata v cuneata mtegemma v vix conspicue repandula v minute calloso dentitulata, «upra laete vinln nitida glabenima, subtus glaucescentia, resinoso punctulata et ad neivos ferrugneo pubenila excluso petiolo 4o poll longa, 1J-3 poll lata, petiolus \ 1 poll longus, glaber Amenta mascula subfiliformia usque 4 poll longa Amentorum loem racemi saepe penduh Strobih ovati Nuculap o\ ito oblonpae, apice stylis 2 brevibus rectis coronaicc, ala membranacea sursum latiore cinctae, ala nuculam subajquans v usque tnplo angustior membianacea

2 A NITIDA ^Endl in gen pi suppl 4 part 2 p 20), folus saepissime plus minus eudenter crenuhtis, amentis femmeis m qua\is axilla solilanis v binis, nucuhs ala conacea cinctis — In Emodo, in Cashmir, in montibus Kunawer — Regel monogr p 82 t 14 fig 23 30 Cletlnopsis nitida Spacr rev 1 c p 202, Spach in Jacquem voy part bot p Io9 t Io9 Ramuti fusci, lenticellis lans adspersi, juniores puberuli, deinde glabn \ Folia elliptica \ ovata v ovato-lanceolata, acuminata. v apicem versus sensim attenuato-acummata, basi cuneata v rotundata, Ia3le vmdia, lucida, subtus minutissime resinoso punctulata et in nervorum axilhs baibulata, margine sub lente remote calloso-denticulata \ crenulata v evidentius cienulata v denticulata 2^-6 poll longa 1T-3Jpoll lata Pedunculus sub lente brevissime pube rulus j-1 ] poll longus Amenta femmea subfiliformia, usque 5 poll longa Mrobih oblongo cylindnci, adscendentes \ subnutantes Nuculae oblongae, styhs bre\issimis 2 erectis coronatae, ala conacca nucula subaequilata \ angustiore cinctae

Sectio ii ALNASTLR *Endl I c p 20* — Genus *Alnaster Spach m Bet in Ann, d Mus sir 2 tol 15 p 200*

Floratio folus praBcocior Amenta foeminea e gemmis 1-3 phyllis prodeuntia. Nuculae ala membranacea cinctae — Amenta mascula e gemmis terminalibus lateralibusve aphylls solitana v bina, sjuamae tnflorae, pengonium regulaie, 4-phyllum Amenta masc hieme nuda, foem hieme perulata

3 A VIRIDIS (DC fi fr vol 3 p 304), folus ovatis v subcordatis acutis v obtusis, racemis strobiloi urn loins 1 3 ad autiimium persistenubus prjeditis 3 In monnbus Etiopne, m omni Sibnn in Mandshuna et Japomaf in sa-chahn et Kamtschatka et m America bore »li — Indl gen pl SUP pl 4<sup>n</sup> n 20 Regel njonoKr p 76 t n fig 4 22 Betula ovata shrañk balc fl vol T p 419 B Alnobetula Lhrh Beiti vol 2 p ^2 B Mndis Chaix ap Vill fl delpb vol 4 p 789 B alpina Bork A undulata Willd spec vol 4 p 3M.

B cr.spa Mich fl bor am \ol 2 p 181 A cnspi Pursh fl bor im vol 2 p 181 A Mitchelliani Curtis mss testo Gray in bull journ 42 p 42 A suaveolons Req in Ann d sc nat \ol o p 381 Alnaster \mdis fepach rev 1 c p 201 Alnaster fruticosus Ledeb 11 ross \ol 3 p 600 P*ut*ex 3 1<sup>^</sup> peddlis Ramuli junioies ghbn v pubeiuli Folia ovata v elhptica v late ovaty hasi rotundata v ranus sul)cordata, apiceacuta v obtusa, margine argute inaequaliter v dumphcitodentata v rarius sinuato-repanda dentata que, dentes subcuspidati, crecti holia caeterum utnnque vnidia, in pagina mftiiorc resmoso punctulita, supraglabrav glabroscentid, Infianunc omnino nunc id ner\os, mine in venaium axillis tantum puberuld, nunc omnino glaln Gemmae prruhtae Amenta masculd snhtana v bina sessilia, ^-2 polhceslongi, erectav plus minusdependentia Strobiliovati, pedictllo t,racili snffulti Nuculae dla membdnacei superne amphatd cinctae, dla nuculam urciter aequans \ ea angustior Vinat

a, (*jmwri*ij folns simpliutei v duplicato dentatis saltern subtus ad venis et in venaium axilliB pubcsuniibus -5 In aljibus et montihus cditionibus Europae mcdif<sup>1</sup> et m America boreih (New York Caiohna septcn tnondh, Lake superior, in montibus albis, etc ) — A \mdis DC A ii vol 3 p 304, Koch syn 1 c, lorr New York vol 2 p 203 t 116 Reichenb IC fl germ \ol 12 t 028 et eiusd fl germ exc p 174 Hartig Lehrb t *1b* Betula cnsfdAit hoit Kew ed I vol 3 p 130, Mich fl bor am vol 2 p 182 B Alnobotula \*hrh Beiti vol 2 p 72 B o\ati Schunk bdir fl \ol 1 p 41J, Gumipel ct Ha\ne Deutschl Holzg t 147, Beit fl it vol 10 p 230 A vindis *a* genuina Regel monogr p 78 Aluus Mitchellidfid Guitis 1 c foimd folns obtusis A crispa Pursh fl am oept \ol 2 p 623, Hook fl bor am vol 2 p 157 \ ovata Lodd Bot Cab t 114I A umluliiia Willd spec pi vol 4 p 33b, Ait hoit Kew vol <> p 2i8, Willd Beil Baumz p 21 Alnaster vmdis Spich 1 c p 201 >iut \ 0-16 [edahs Ramuli junioies saspissime pubeiuli Polu elhptica v ovita, interuum in statu juvenili utnnque pubescentia, deinde supra semper gldbi 1, subtus \mdiaad net vum medium secundanosque semper hntuld lanus id nervos tertunos v in toto lete venarum hirtula, in venarum dxilhs baibata, folia ramulioium stenlium saepis<<ime IndLquihteit donldta v idrius sinuato icpandi ^Jentalaque Petiolus J— poll longus, puberulus Pedunculus pedicelli- que saspissime puberuh — Occur runt Ill dlpihus Europae et m America boreali formae transitonae dd vanetatem y

p, *parufoha* (Sauter pi exsicc), folns parvis vix pollicanbus utnnque vmdibus ^ In alpibus altionibus Helvetide australis, in alp bus tyiolensibus et in Labrador. A vinais var pumila Cesati pi exs A Brembdiaa Rotaprosd d fl d piov Bcigamasco p 79 etinBer (pstr Lrtt 1 p 113 Frutex humilis 1 3 pcdalis 1 olia pdrva, vix polhcaiid, ovato-oblonga ct icuta \ rarius ovitd, obtusa, utnnque undid supra glabia, subtus in nervo medio tantum v etnm ad neivos socundanos hirtula, margme saepe msignitei duplicaio-dentata

Y *Mbinca*, folns simpheiter v duplicato denlatis utnnque vmdibus subtus adnervummediumhirtulisA in \enai urn axillia tantum birbatisv glabns Hab in alpibus Hehetiae, Austnae, Gallide, Bosnia et Corsicae, in Sibiria uralensi, altditd baicalensi etonentali in Ddhuria, in Mandshuii 1, Japorna, in insula Kamtschatka et Sitolu, ad smum Kotzebue, in \mencd septen- tonali ttin Gioenlandu Almstei Tiuticosusledeb 11 IOSS vol 3 p 6<sup>90</sup>, Trautv et Mey in Midd Reise fl och p 8>, Re^el et lihng fl ajan 1 '19 Tiautv in Maxim prim fl amui p 2i7 Alnaster vindit, Turcz fl ban dah \ol 2 p Hlexcl s\ n Alnus Goicl fl sib 1 p 171 n 24 If A tntis Woimsk in herb Ledeb A lruetiosa Rupr fl simo| n 2W G A Mejer Beiti / Pflank Russl V n 88 Bptuli ovita Tausch herb boh A lepensWormsk pi exs A \m lisfhnn in Linn \ol 6 p ^38, Bong veg d Sitchun Mkm d lAc d St Peteisb ser 6 vol 2 p 162. A, vindis p sibinci lus a et c et y sua\colens Regel monogr p 79 Rt Alnus suavtolens Req 1 c Duby bot gall p 422 Loisel gall vol 2 p 317 Ic Bocc mus t %, Gien et Godr fl de France \n\ 2 p 1<sup>^</sup>

Transit ad \ar a Folia utnque vindia, saepissime us formae a ma-  
jora, ovata \ elliptica v ranus basi cordata (in speciminibus Kamtscha-  
ticis), saepissime acuta, ranus obtusa Lusum lolus o\alis obtusis v  
acutis utnque viscosis mdumcnlo oibatis cl Requien nomine A suaveo-  
lentis (A suaveolens Req in Ann des sc nat vol 5 p 38!, Dub bot  
gall p 422, Loisel gill vol 2 p 317, Gren et Godr 11 d France  
vol 3 p 149) descnpsit Hancex uiontibus Corsicae et Pedemontu et ex  
Japonja fol majonbus subtus tantum viscosis vidimus

ð, *stnuata*, folus sinuato-repandis dentatisque Cetera ut praecedentis. —  
In Kdintschatka, ad smum Kotzebue, in insulis Kat)ak et Sittha, m  
America boreah occidentali et in Canada A vindis Hook fl boi am  
vol 2 p J57 A vindis (J sibirca lusus b et d Regel raonogr p 80  
et 81

4 A HRMA (Sieb et/ucc in Ahhandl d Ac d Wiss in Munch \ol 4 Abth 3  
p 230), folus elhpticis dtenuato acuminate, racemis strobilorum folus 1 2-par-  
vis mox deciduis 3 In Japonia" — Lndl in gen pi suppl 4 part X p 20,  
Regel mono'r. p 84 t 15 fig 1-9 Miq in Vm Mus Lugl Bat II 137  
— Rgl Bern u Ret 1 c p 423 Frutev lamosus, trunco cra^so Ramuh  
glibn, angulati, veirucis adspeisi Mia e nasi lotundata v cuneata elhp-  
tica et atunuato acuminate \ supeinid elhptico lanccolata v submde elon-  
gdto lanceolata, juniora saepe indmmento la\o piloso mox deciduo \estita,  
supra deinde glbñ, suDtus v ad nenos sub lante adpresse pilosa v in  
venaium axilhs paullo barbulata v glabra m pagina interiore dense resinoso-  
punctdtd, margine argute duplicito-dentata, denlibus antioisum \eisis cal-  
loso-acuminatis 3-5 poll lon^i 1-2 poll lata Peliolus pubescens, deinde  
glabrescens, 4~£poII longus Vmenta mascula terminaha, sessiha, solitana  
v bina, eretta v nutantia btrobili ovati, pedicellati, solitam v 1 D racemosi,  
racemo puberulo, juniore folus 1 2 parvis deciduis piaedito Nuculae oblongae,  
styhis duobus crassis erectis termindtae, aid membianacea suibum amphata  
nrv^ulam stpe subaequante cinctse — Vanat

a, *typica*, stiobihis majonbus sohtanis \ 2 5 racemosis, folus utnque  
10-lo-ner\ns — In Japonia (biebold et Oldham), in insula Kiusiu  
prope Nagasaki et in pncipatu Simaiara, in insulae Nippon sylvis  
montanis provmciae Senans (Maximowicz), in insula Jesso prope Hako-  
dale (Weight) A firma Sieb et ZULC 1 c Regel 1 c

(3, *multin<rin*, strobilis mmonbus 3 5-racemosis, folus utnque 12-24 ner-  
viis — In insula Jesso prope Mohidsi leg Maximowicz

Sectio in PHYLLOTHYRSU\* *Spach rex Bet in Ann d sc nat ser 2 vol 15*  
p 204 — *Alnus* sect *Alnus*, et *Phyllothyrsus Endl. hep 20-*

Floiatio codclanea Flor masc squamis tufions, penanthio regulan 4 partito  
Nucula^ ala membranacea angusta cinctae — Amenta utnusque sexus in ramu-  
Hs no\ellis axillana v terminalid, perulis omnino orbala, racemosa, aphylla

5 A ACI MINATV (Kunth in Humb et Bonpl nov gen et spec vol.2 p |Qf  
anno 18170, folus ovatis v ovato-subrotundis o In alpihus Amencae  
tropicae Mexico, Nova Granata, Bolivia, Peiuid, Chili — Mirb in ^lem d  
Mus d hist nat vol 14 p 464 t 22, Spich rev 1 c p 204, Regel Bern  
u Bet Bull de Mo\*c 1860 II 423 A ferruginea Kunth 1 c p u, Spach  
rev 1 c p. 205 A Mirbeln Spach rev 1 c p i04 Betula arguta bchlcht  
in Lmaea \ol 7 p 139 (18\*2) A arguta Spach re\ 1 c p 20F A Mir-  
beln, A dcummata, A ferruginea ft A arguta Lndl 1 c p 20 et 21 A acu-  
minata a, (3, 7 et A arRiua Rpgel monogr p 87 90etp 92 94, t 15 fi<sub>ff</sub> in-20  
28 32, t lfi fig 3 7-10 Arboi ranns raniuhisque ten tibus glabns v^ funio-  
nbus plus minus Tonu^moo pubescentibus paice veirucosis Folia ovata v  
ovato subrotundd sppissime acuminidta, ranus acuta basi rotundata mai-  
gine irregularitei v duplicate ai,ute dentata, supn obscure vmdw riabrd  
sub<sup>US</sup> t il " v L X ^1D A^dque ferra^in t o P^u)P^ntia v ranus in venarum  
axilhs tantum barbata Amenta raascula cyhndnca, sessiha v pedicellata  
scepissime racemosa et te.minalia, lanus axillana Amenta tonfinea race-

mosa, pedunculata, sappissime axillana, ovato-oblonga Nuculae ala angusta membranacea cincta — Vanat •

a, *genuina* folns acuminatis argute duplicatis dentatis subtus glaucis subglabris, v saepius ad nervum medium lateralesque ferrugineo pubescentibus — In Mexico in monte Orizaba, Serra Colorado prope San Miguel del Soldado, Naulingo, Acathn et Chiconmaco in Peiuvia et Chili A acuminata Kunth 1 c Spach et Endl 1 c A arguta Schlecht, Spach et \*ndl 1 c A acuminata a genuina et A aiguta Regel monogr p 89 et 92 — Rarauli glabris Pelioh glabris v vix puberulis 1<olid Scppissime insigniter acuminata et duplicato-argute dentata, subtus glandula v rarus ad venas etiam pallide fenugineo pubescentia v rarisime subtus subglabra et in venarum axillis tantum barbata

p *Miibelu* ramulis subglabris folus maequahtei dentatis subtus glaucis ad nervos ^enisque pallide ferrugineo pubescentibus Hab m'Peium (Fechler), in Ecuador (Spiuce) in Mexico prope Zecualtipan (Hirtw) Jri Andibus Bolmensis in pro\ Jacireii (Mandon) A acuminata Mirb 1 c A acuminata 3 Mirhchi Regel 1 c pa<sup>o</sup>r 90 A jorullensis\* Bcnth pi Hiitw Ramuh glabris v juniores Vix puberulis foln dcuta \ larius paullo lummata Amenti mascula infra v supra foemina sita

y, *Spachn*, ramulis junonibus dense fenugineo tomentosus Habitat in Peruvia A Mirbeln Spach in herb Mus Par Ramuli deinde glabrescentes Petioli fenugineo-pubescentes folia acuminata Amenta mascula infra foemina sita

ð (*erruqmea* (Regel monogr p 90) folns subtus ferrugineo tomentosus — In Nova Granada (Humb Loudon) Bolivia (Weddell), St le de Bogota (Boussinault) Chinqui (Vigeni) Ecuador (Spiuce), Peruvia — A ferruginea Kunth in Humb (t Bonpl 1 c, Spach 1 c, Endl 1 c Ramuli glabris \ juniores fenugineo-floccosi toha acuta \ acuminata, uregulantei v idnus duplicato argute dentata

A JORULLENSIS (Kunth in Humb et Bonpl m A gen et sp pi \ol 2 p 16) folns oblongo ellipticis v lanceolato-oblongis 5 In Mexico et Peiuvia — Spach lev 1 c p 200 Endl 1 c p 20 Regel Bern u B t 1 c p 424 A castanifolia Mirb in Mem du Mus d hist nat vol 14 p 463 t 21, Spach 1 c p 204, Tndl 1 c p 20 A acuminata y jorullensis et A castanifolia Regel monogr p 91 t 6 fig 1-2 t IS fig 33 Arbor ramulis fuscis glabris v junonibus puberulis Folia oblonga v elliptico oblonga v oblongo lanceolata maequahter dentata v smuato lefinda dentataque subtus plus minus ferrugineo-puberula v glabra et in axillis tantum barbata strobilos maturos non vidi — An vanetas piaptedentis? — Vauat

a *typica*, folus elliptico oblongis acutis v inflexionibus obtusis subtus plus minus ferrugineo puberulis — In Andibus mexicanis (Humb Schiede) A jorullensis Kunth 1 c Spach et Endl 1 c A acuminata, p jorullensis Regel 1 c Folia inaequaliter v duplicato-dentata, superiora augustiora inferiora latiora

p, *castanifolia*, folis elliptico lanceolatis subtus glabris et in venarum axillis tantum barbatis — In Peiuvia prope Tacma (Dombey) — Folia maequaliter dentata \ Scapis^imo sinuato-repanda dentataque, supra glabra, obscurae undae subius ferruginea in venarum axillis tantum barbata caeterum glabra, superiora angustiora attenuata alata, inferiora latiora

Sectio iv GYMNOTHYRSUS *Spach 1 c* — Alnib sectio Gymnothyrsus *Endl 1 c*

Floratio folns praecocior Amenta foemina e gemmis aphyllis prodeuntia Nuculae apteiae v ala conata v rarus submembranacea cinotae Amenta utriusque sexus e gemmis aphyllis prodeuntid propter perulas maturissimas deciduas nuda racemosa Flor mabc bquamis trifloris, pegenio legulai 4-partito

§ 1. Amenta focmmea m quavis gemma solitaria v bma usque terna.

7 A CORDIFOLIA (Ten fl nap prodr p 54, IC vol 2 p 340 t 99), folns basi cordalis v subcordatis \ ranus nonnullis rotundatis, nuculis ala angusta submembranacea cinctis 5 In Loistica, m Italia in Caucaso — Spach rev. Bet in Ann d. sc nat ser 2 vol 15 p 208, Endl gen pi suppl 4 part 2 p 21, Ledeb fl ross vol 3 p 653, Lodd Bot Cab t 1Q31, Regel monogr p 110 t 16 fig 2127 t 11 fig 20 A subcordata C A Mey nd cauc 43 Betula cordata Loisel not p 139 Arboi mediocus Ramuh fusci, glabra, v juniores praecipue strobiles pubescentes Gemmae ovatae, obtusae folia longe petiolata e basi cordata v subcordata ovata v subrotunda, ovato-oblonga, \ rarius basi rotundata, apice acuminata v rarus rotundato obtusa, subaequaliter crenato-dentata, saepissime supra glabra et m pagina inferiore resinoso-punctulata, m axillisque venarum barbata, ceterum glabra v rarus utrumque plus minus pubescentia Petioli glabri v rarus pubescentes. Strobili magni, ovati v ovato-oblongi in quavis gemma solitari v bini Nucula? ala angusta vix membranacea cinctae — Vanat

a, *genuina*, folns omnibus basi cordatis ovatis v. subrotundis apice aruminatis v acutis v rotundato-obtusis utrumque glabris et in nervorum axillis subtus tantum barbatis — In Corsica, Italia, Caucaso A. cordifolia Ten 1 c, Beit fl it vol 10 p 160 A rotundifolia Bert fl it vol 10 p 160 A cordifolia genuina et 8 rotundifolia Regel monogr p 111 et 112 t 16 \*fig 21-22 Folia subtus resinoso-punctata, m nervorum axillis barbata v ad nervos paullo pilosula caeterum ut petioli glabra Specimina folns cordato subrotundis et apice rotundato-obtusis saepe occurrunt. Lusum singularem folns similibus sed minoribus cl Bertoloni nomine A rotundifolia? descripsit

p, *subcordata* (Regel monogr p 112), folns e basi subcordata v rarus rotundata ovatis v ovato-oblongis saepissime acuminatis Hab in Italia et in Caucaso A subcordata C A Mey 1 c — Folia nunc glabra et subtus in venarum axillis tantum barbata, nunc utrumque ad nervos laxo pilosula Petioli saepe pubescentes

Y, *ullosa* (Regel 1 c), ramulis folisque pubescenti-villosis, folns ut in praecedente In Caucaso specimen stevia tantum \idi.

8 A ORIENTALIS (Decsne fl maiua in Ann d sc nat ser 2. vol 4 p 348), folns e basi rotundata \ rarus subcordata ovato-ellipticis v ovato-oblongis, nuculis aptens — In Libano (Bove), Cipro, Cihcia (Kotschy), Syria prope Beyruth (Bove), Mersina (Balansa), — Spach 1 c p 208, Endl 1 c p 21, Regel monogr p 112 t 17 fig 12-18 B Ion Ilion Bo\6, teste pachio A. tomentosa Hartig (teste A. Braun) A oblongata Kotschy pi exsicc et Blanche pi exsicc or — Ramuli glabri \ rarius juniores puberuli Folia longe petiolata, e basi rotundata v rarus subcordata ovato-elliptica, v ovato-oblonga, \ subcordato-elliptica, v rarius superiora e basi cuneato-hincolata acuta v rarus acuminata, v obtusa, margine simpliciter v duplicato crenato-dentata, utrumque glabra, nitida, subtus in venarum axillis tantum barbata, rarus ad nervos et petioli puberula Amenta juniora utrumque scilicet glutinosa Strobili ovati v ovato-oblongi, saepissime pro genere maximi, pedunculati, in quavis gemma solitari v bini Specimini tulta ex horto Beroynensi sub nomine A subcordatae accepimus — Ramuli strobiles specimen juniorum v tunonum saepe magis pubescentes, folns majoribus subtus\* undique pubescentibus A tomentosam Hartig inditavit.

9) A MARITIMA (Nutt sylv am suppl 1 p 34 1.10 1842; folns basi cuneatis -7 In Mandshuna et Japonia, in America ad fluvium Delaware in Maryland — Regel Bern u Bet in Bull. Most 1860 II p 427. A japonica Sieb et Zucc in Abh (1 Ak d Wiss in Munchen vol 4, Abth 3 p 230 Endl in gen pi suppl 4 part 2 p 21, Regel monogr p 81 t 15 fig 22-27 Mia in Ann Uus Luod Bat II p 137 Beula Alnus Tiliu fl jap p 76 A Han noki Sieb synopsis p 22 A oblongata Regel monogr p 113 t 7 fig 3-9 (non Willd) Arbor circum 20 pedalis, tunco 4-6 poll crasso. Ramuli fusci



glabn v. ran us puberuli Poha petiolata, e basi cuneata Integra ovato obloiga, \ ranus ovatd, v ovdto-lanceolata, acula, v acuminata, v ranus subobtusata nunc simpliciter denticulata, dentibus callosis sursum versis, nunc inaequaliter grosse dentata denticulataque dentibus eiectis, denticulis callosis sursum versis, saepissime glabra et subtus in venarum axillis tantum barbata, juniora ranus pilosula, postea subtus ad \enas pubescentid Petioli graciles, saepissime glabn ranus pubescentes Strobili elhptici, in quavis gemma solitarn v bini et term Nuculae compressa?, ovatae v obovat<e, aptera; v ala angustissima Lonacea cinctae — Vdiat

a, *Lypica*, folns acutis et ranus obtusis denticulatis utnque glabris et subtus tantum in nervorum axillis baibulatis Ad fluvium Delaware in Amencae boieahs piovincia Maryland A mantima Nutt 1 c A oblongatd Regel 1 c Kamuh petiolique glabn Folia ovato oblonga v obovato oblonga, denticulis in tallum sursum versus acuminatis

p, *japonica* folns saepissime longe acummitis denliculatis v Iruequahtei dentatis glabns et subtus Untum in ner\orum axillis barbularis — In Japonia (Sieb ), in insula Nippon prope Yokohama in insula Jesso ad ldcum Konom i leg Maximo<sup>ic</sup> in Formosa leg Oldharn A japonic i Sieb et ZUCL 1 c , Lndl 1 c Regel 1 c B Alnus Ihunb 1 c A Hannoki Sieb 1 c Rimuli petiolique ^labi I Folia ovdto oblonga ^ oblon^ lanceolata, uentibus in c ilium sursum versus acuminatis

y *arguta*, folns acuminatis simpheiter v duplicate dentatis subtus ad nervos plus minus puberulis — In Mandshuna dufflo onentdli (Maximowicz, Schmidt), in insula Jesso ad pedem montis KiXianga take (Maximowicz), in msuh ISippon piope Yokohama (Oldfield) Hamuh petioli que pubescentes v senus glabrescentes Folia ovata vel ovato-oblon&ia, juniora saepissime pilosula, p stca glabrescenti i et subtus ad nenos tantum plus minus piloMih ina3quiliter v duplicate dentata dentibus malonbus acuminatis reUis, dentibus minonbus saepissime in 'allum suium versus acuminatis

## § 2 Amenta foe in me a in quavis gemma racemosa.

\* Nuculae ala submembranacea angusta cinctae

10 A HUBRA (Bong in Mem At St Petersb ser 6 vol 2 p 162 Veg de Sitcha), folns ovato-ellipticis obtuse lobulatis crenatisque — In insula Sitchi (Bongdrd Mei tens, bu wart), Vancouver island (Ljall) in Terra Nova in California, Colonia Ross (Wnngd) in Rock> mountain (Hall et Hdiboui) — Hook fl bor am vol. 2 p H8, Miq Ann Mus Lugd Bat II p 1W, Rgl Bern tl Bet 1 c p 430 Sjuch rev 1 r 205 Jcdeb fl ross vol J p 616 , Tndl 1 c p 21, Re^el Bern tl Bel 1 c p 42^ B incana y lubra Regel monogr p 90 t 17 hg 3 4 Arbor (') ramulis anguldtis, fuscis, glabns v junionbus puberulis Folia magna pctiolata, elliptico ovdtd, dcuid ^ obtusa, subtus glaucescentia norvis piommontil us rubus utnque glabeinmav ad nervos plus minus pubciuli Stiobih ovito-elliptici Vdridi gemmis glutinosis folnsque gldbernns (v ex \ancou\ers island) \ saepius gemmis parte pubeiulis loliorum que nenis m pdgma mfenore laxe puberulis

\*\* Nuculae apterae v ala conacea cinctae

11 A GLtniNOsv(Wild spec pi vol 4 p 334) folns cuneato obo\atis\ subiotundis utnque \indibus obtisissin is saeptque retusis . In Europa (aucaso Onente, in Jdponid, in Afuci australi — Gaertn fruct vol 2 t 90, Spichiev 1 c p 207, Lcdeb fl ross vol 3 p 6>7 TndL 1 c p 21 Betula Alnus plutinosa L spec p H94 A barbata C A Mey enum pi cauc p 43 A denticulata C A Mey 1 c p k\ A olhptica Req ann sc ndt vol T p 381 A glutinosa a y e, Regel monogi p 10^ Arlor ramulis fuscis glabns Mscosisque, v nnus junionbus 1 ixo pilosulis Folia petiolata, e basi cuneata obovatav subiotunda apire rotundato obtusissima saepeque retusa i ranssime pauca subacuta, margine duplicate dentata, v ranus subaequaliter dentirulata v interriuin mciso lacmiata, saepissime glabia subtus in nei

lorum axillis eximie barbata, v ad venas etiam adpresse pilosa, v ran us in venarum axillis nuda Pt ad venas plus minus pilosula v rarissime utnque glaberrima Folia juniora saepe glutmosa Strobili ovati, pedicellati. Nuculae ala conacea cinctae v subapterae — Vanat

a, *vulgans* fohis duplicato crenato dentatis subtus in venarum axillis barbata ad venas glabra v plus minus conspicue puberula — In Europa, Caucaso, in Oriente, in boeotia (Schrenk) B glutinosa "Willd 1 c, "Willd Berl Baumz p 19, Gaertn 1 c, Ait hort Kew ed 2 vol 5 p 258, Sturm Deutschl Fl 8 t 29, DC fl fr vol 3 p 149, Guimp et Hdyne Deutsch Holzg t 137, Gren et Godr fl fr vol 3 p 140, Rchtnb ic fl germ vol 12 t 631 Koch syn p 763, Haitig Lehib t 23, Hornrm fl dan vol Hi 2301 A nitens C Koch in herb [krol Betuh Alnus glutinosa Duroi Hubk JUumz 101 A barbata C A Ale> 1 c A glutinosa a vulgans Spach 1 c p 207 A gluinosa a et p Re^el monogr p 102 et UU t 11 fig 1 2 Gemmae, nmuh foliaque limioia saepe glutmosa Folia e basi cuneata obovata v subrotunda subtus in venatum axillis sempei barbata ad ^endsv obsolete v densius pubescentia Ioimam postenorem venis pubescentibus cl C A Meyei nomine A baibda? descnspsit — Folia iamulorum stenium interduin subacuta Lusur fohis aureo \ inc^itis colitui in hortis A glutmosa var auiea Lem ill hort 18(6 tab 490

p, *denticulata*. fohis inaequaliter v subaequahter denticulatis subtus in venarum axillis barbata v ad venas plus minus puberula — In Caucaso, Oril^Bf Italia Corsica Hispima et in Promontono Bonae Spei (Lckl eTzeyh) A denticulata C A Mey I c Eichw pi nov in it casp cauc t 2 A oblongati Willd spec pi vol 4 p \*35 et ejusd Beil Baumz p 20 Ait hoit KPW ed 2 vol S p 29 B oblongaU Ait hort Kew ed 1 vol 1 p 338 Alnus cenlerd Haitig testo A Bi lun A glutmosa p denticulata Ledeb 11 ross vol 3 p 607, Regel monogr p 100 t 11 flR ^ A glutmosa p subrotunda Spach 1 c p 207 A elliptica Req in Ann (1 s^ nit vol S p 381 ^ien et Godr 11 fr vol 3 p 150 Beit 11 it 101 A Monsiaud Bui 11 it vol 10 p 163 A suaevolens Bert 11 it vol 10 p 163, Req in Ann d sc. nat 182\*) ^1 S p 181 A tubia Roq in hb DC Foil i obovata \ ovito lliptita Ndepissime subaequahter denticulata, lanus inaequiditei v subduplicato denticulata, denticulis saepe in callum ituminatis, apice oblongo-obtusis v lanus> retusd. subtus ad venas plus minus conspicue puberula et in venarum axillis paullo v. ux perspicue barbata Folia juniora saepe insigniter glutmosa

Y *quercifolia* (Willd spec pi vol 4 p. 330) fohis cuceato-obovatis pinnatifido-lobulatis lobis obtusis Colitur in hortis, in Oriente in montibus Hardushiae leg Hot-scliy — Spach IL\ 1 c p 208 A glutmosa & pinnatifida quercifolia Re^cl inonogi p 110 Fohn. ipice saepissime retusa, glabra et subtus tantum in venarum axillis haibila

d, *laciniata* (Willd spec pi vol 4 p 355), lobis pinnatifido-lobatis, lobis acutis Colitur in hortis — Koch syn p 76 J A glutmosa 6 pinnatifida Spach re\ 1 c p 207 A glutmosa impenalis asplenifolia Veisch IllusLr. hoit 1860 p 7 A glutmosa e pinnatifida h Kcinuti Regel monogr p 109 lobis e basi cuneatis intff<rnina ovato-oblongi, obtusa v acuti, glabra, subtus in venarum axillis barbata, lobis intergerminis v crenulatis, acutis v acuminatis

e, *incisa* (Willd spec pi vol 4 p 335), fohis pinnatifidis v vane meisis foliis v lobis obtusissimis Colitur in hortis A glutmosa e oxyacanthifolia Spadi 1 c p 208 A glutmosa p nu is i Koch svn. p 763 Folia nunc puva, nunc majora, diffirnii nutu subijunda\* et irregulinter pinnatifida v pinnatifido lobata, hincis v lobis obovato-oblongis antice trenato-dentatis lobo intem(dio rnaioie subtus ad nervos pilosula \ in venarum axillis barbata, capterum glabra

12 A PUBESCENS (Lausch in Flo. i ntisb 1834 p -,i0), fohis subrotundis v obovatis utnque vix dilis infenoiibus obtusis superioribus acutis duplicato-dentatis — In Bohemia, in Germania austro-occidentali in Lappoma et

in Caucaso. — Koch syn p 762, Regel Bern ü Bet in Binl de Mosc 186) II p 411 A badensis lang pi exsicc fl bad A glutim sa p pubescens Regel monogr p 103 Verosimihiter planla hybnda ex A glutinosa et A incana RamuTi petiolique saepissime pubescentes, ranus glabrescentes toha junior a pubescentia, sen us supra glabrescentia subtus ad nervos v undique pubescentia v ranssime in vemrum dxillis barbata Stiobili elliptici ISuculae sub oibiculares, ala conacea angustissima cincte

|| 3 A sRRULATA (Willd spec pi vol 4 p 336), fruticosa, folns saepissime o\ato ellipticis fere omnibus acutisutnnque viiidibusdenticulatisv duphcato argute-dentalis ^ Hab in Ameuci boieali — Willd Berl Baumz p 21, Spach rev Bet in Ann d sc nat ser 2 vol 15 p 206 Ait hort Kew ed 2 vol 5 ) 2oO, Pursh fl am sept vol 2 p 623, Mich arb vol 3 p 321 t 4 hg 1, Ion ISew Yoikvol 2 p 202 t Uo Regel Bern u Bel I c p 432 B senuliti Mich fl her am vol 2 p 181 B iu£osa Lhrh Beiti 3 p 21 A glutinjhdacutifohabpdchl c p 207 A hybnda Reichenb ic fl germ vol 12 t 030 fig 1292 A glutinosa 6 seirulata Regel monogr p 106 \*rutex ramulis junionbus sappe glutinosi, pilosulis \ pubescntihus senus glabiescentibus Folia petiolata o\ato-elliptica v obo\ Uo elliptica \ late ovUa v ranssimc lanceolato oblonga utnnque vindia, supra glabri subtus ad nervos plus minus |uberula in venarum axilhs nudd mar<sub>n</sub>inc simphciter denticul ltd \ plus minus ewdenter duphcato argute dentatd denlibus in cilium acuminatis Peuoli saepissime pubescptes Strobili elliptici \ ovato oblongi Nuculie suborbiculaics ~v obovalae ajttra — Vanat

a, *g<numa*, folns ovato-elhpticis v obovato elhplic^piulis aequahter v nidLqualiter denticulatis Hah in Alabama Georgia, Carolina Vuginu, Ponnysylvanid, ad fl Missoun et Ohio in Nova Anglia cultaque in hortis europaeis A senulata Willd 1 c A glutinosa 6 senukta d genuina Begel monogr p 10b t 11. fig 6 I\* oln dentes marginales plei unidque parci, a.uales ran us inaequales \ folia nonruh subduphcato dentda

p, rugoia, f( Ins ovatis v o\ Uo-ellipticis v ranus late ovitis acutis v ranus acuminitis argute duphcato dentatis — In Mds°achusets, Cah lornia Oiegon et in Rocky mountains Betula lugosi Lhii 1 c Alnus hybiida Reichenb 1 c A suiulati Mich 1 c lorr I c A oblongita, A undulata A rugesa, A caiidonsis ct A amencina hort A autumnalis et A latifoha Hartig testc A Braun A glutinosa o serrulata c rugosa et d californitd Regel monogr p 107 et 108. t 11 fig 8 10 I oln plerumque rugosionbus lationbus duphcdto-dentatis ab intecedente dignoscitur F California specimina folns angustionbus litionbusque vidimus

Y, *oblonqifolia* loins lanceolatis acuminatis insigniU r duphcato dentatis — In Novo Mexico (W ught) A oblongifolu lorr teste Asa Gray

o, *oblusifolia*, folns olo\atis lotundato obtusis simjliciter denticulatis — In Virginia et Ohio A glutinosa 6 sciruhta b obtusifoha Rt^el monogi t 11 fig 7 Vix ac nt \ix quidem ah A glutinosa p denticulata folns ae jualiter denticuhli\* distmguenda

|| A INCANA (Willd spec pi vol 4 p J35) aiborea, folns argute duphedo dentalis sublus glnicis v incinis , In Europa, Asia et Amenti septen tnonali.—Willd Berl Baum/ p 20, Ait hort Kew ed 2 p 2o9 Ruchenb fl c/c p 17T, Ledet> fl ross vol 3 p 0D6, Turcz fl bale f dab vol 2 p 132, Koch s>a fl PTM<sup>m</sup> P 7C2, DC fl fr vol 3 p 304, Spach rev I c p 206, Oien ct Oodr fl dc br vol 3 p 1^0, hautv et Me) fl och p 86, Reichcnb ic fl germ vol n t V>9 fig 12')1,0uimp et llayne deutsch JIol7g t H6, Inutv in Max prim fl amur p 258, lorr rsew Yoik \oi 2 p 202, Hook fl bor am \ol 2 p 157, Sw Bot vol 2 p 59<sup>f</sup>j, II dan \ol. 1J t 2101 Betula incana L <pec p 1394 B Alnus (incana) Duroi Haibk Baumz vol 1 p 1'i) B mcana Roth fl germ vol 8 p 477 A glmciMuh irb \ol J p 320 t 4 fig 2 A hirsuta lure/ cat baic n 1064 Rupr Bull de 1 \c de bl Pettrsb J857 p 5^8 \ sibirca I isch toslc Turczminowio A miana I ndl »en c p 21, Regel monogi p 94 t 16 fig II-10 t 17 fig 1 8 Ijurd Bern u B>t 1 c p 433 A alpma Bork tfste Endl Aibrrei, iimulis teretibu-\*, saepissime puberulis \ subto-

mentors, ra IUS glabrescenhbus Folia. ovata v ovato-lanceolaU \ ovato-subrotundaT plerumque acuta, rarus acuminata v obtusa, saepissimo argute dupliato dentata, rarus pinnatifido lobuhta v inusa, supia glabra v plus minus idpresse pilosa subtu\* glauca ad ner\os v undique pub\* rula v incano subtomentosa, \ ranssime subglabra Strobih pedunculati, elliptic! NUCUICP ila conacea saepissime angusta v rarus latiore cincl P — Vmat

- a, *iulgans* loins duplicato-dentatis acutis subtus dense pubescentibus v cano-toinentosis. — Hab m Kuropa et in Caucaso — A. incana Willd 1 c Hornem fl dan 1 c, Hartig Lehib t 24 A incana a vulgans Spach 1 c p 206 A incana Y gpnuma Hegel monogi p 97 tolui saepissime ovdtd, rarus late ovata v 1 mceolato-ovata, omnia acuta v rarus nonnulla infenorura obtusiuscula, argute duplicato denUtd\ sublobulata
- p, *glauca* (Ait horl Kew cd. 2 vol o p 259) folns duphcato dentatis acutis subtus glaucis ad venas v undique lave pubescentibus — In Luropa, in siWiid, m Mandschuna, Japonia (Maxim ), in Novo Mexico, California Penn \an ad Sdsktachavan, et in montibus dlbis Amencap borealis A glduca Mich 1. c A intermedia Schrad in horto Gottिंगensi — Regel monogr p 96 t lfa ng 19-20 A incana p gldbrescens bpach 1 c p 206 A incana var tuolensis Siut in Reidienb ic fl. germ vol 12 t 630 fig 1293 A incana v pinnatifidd a laciniata Regel monogr p 99 t 17 fig > hoi a elliptico-ovita v ovata v rarus sublotunda, acuta v rarus acuminata v nonnulla mfenorum obtusiuscula, duphcato dentatd v rarus pinn mlido-lobulatd Specimina a cl Maximowiczio in Japonia piope Hakodate et Jukobama, item ut spcumma a cl btubendoiffio et Mejam lecta folus majonbus suboibiculatis gaudent. Cl. Miquel hanc formam (Ann. Mus Bot Lugd Bit. II p 137) ad A. incanam y husutim ducit
- y, *hirsuta* (Spach I c p 207) folns ovato-suhrotundis duphcato-dentatis obtusis subtus dense pubescentibus v molliter tomentosis — In Dahuna, Mandschuna Kamtschdtk, Sibirid onuitali A hn^uta lurcz. cat bait <lih n 10G4, Rupr in Bull d l Ac d SIPLKISI) 1877 p rj>8 \ meani 6 hirsuti Ledeb fl ross vol { p 6)6 luicz fl baic aah \ol 2. p 133, Trautv. et Mey in Midd Reisc 11 och p 86, Iriutv m Max. pum am p 2>8, Regtlfl uss p 136, LJUSKJ inonogr p 97 h jlia saepissime obtusissim i v interdiii m nnulla tt pi a3( ipue supenora u utiuscula
- δ, *sibinca* (Ledeb fl loss \o\ 3 p 656) fJUS ovdto-^ubiotundis v. late ovatis ol tusis duplicato-dentalis subtus glmcis ad nervos tantum pubescentibus — In Sibnia altdici et oriental!, Dihuna et Mindschuna A sibined tiscli in lurcz rat baic n 10bi A incana y sibinca fapirh 1 c p 207, lrautv, et Mt> in Midd Hcise fl och p 8<i, Iurc7 fl baic dah vol I p 113, Repel nionogi p 98 — A simillnna pr#-tedentc vanctate folns glabnoibu^ subtus ^lauris dignoscitui Specimina \anetatis p in laponia le<ta loimam ti insitomin exhibent
- e, *parvifoha*, folns paivis o^atls obtuse pinnatifido lohilatis — In buecid A ini ind δ pinnatifida b pai \ifolid IU ^pl nionogi p 100 t 17 fig 7 A incdiii pinnitifiidi R(IUH nb ic fl gcini \ol 12 t 630 fig 1294 loin cnciler I^ poll longa et polhtem hta obiusa \ acutd, obtuse lobulau dentallque, subtus ad nenos v imdique puberula
- ^ *pinnatifida* (Spach ie\ Bpt in aim d sc ndt SPI 2 \ lo p 207), loins o\dto-ellipticis pmnalifido-incisis, lobis acutis utunque icute seiratis — In ^uecn, (uronid — Wahlenb fl succ p 622 Ledeb n. IOSS vol 3 p 686 B pinnata Sw act Holm I7W B incana v pmnatiydd c \ulgans Rrgel monogi p 100 t 17 fig 6 tolia icuta, bublus ad neivos lantum v undi<ue pubeiuld
- r, *acuminata* loh s ovato ellipticis pinnatifido-incisis, lobis acuminatis subintegerinnis fulta in hoi Us A niLdiia pmnatiydd d acuminata Regel monogi p 100 fig 8 1 olia atuminala, subtus ad nervos v undique pubescentia, lobis acuminatis mtegrinns v in latere mfenore **tantum argute senatis**

Ordo GXCVI. SALICINEJE (1). — Amentacearum genera Linn. *PraelecL Ord. nal. p. 528; Juss. Gen. p. 407.* — Saliceae Rich, ex Kunth in *H. et B. nov. gen. 2. p. 22* (1817). — Salicineae Rich, *msspt. A. Rich. (1828), Elem. ed. 4. p. 560; Endl. Gen. p. 290, Enchirid. p. 177; Meissn. Gen. p. 348, 259.* — Salicipeae Bartl. *Ord. 119.* — Amentaceae, A, Saliceae Reichb. *Consp. p. 83.* — Salicaceo<sup>1</sup> Lindl. (1836) *nal. syst. ed. 2. p. 186; cjud. veg. kingd. ed. 3. p. 255.*

Flores dioici, in amenta laterialia vel subterminalia sessilia et squamis vel bracleis paucis suffulta aut pedunculo plus minus foliato nonnunquam etiam gemmifero foliato conferta; singuli bractea membranacea (squama) persistente vel decidua integra vel lobata glabra vel pilosa concolori vel discolori obiecti. Perigonium nullum. Torus (nectarium) aut minimus in glandulam simplicem vel duplicem vel annulum parvum vel urceolum oblique truncatum tumens. *Flos masculus* : stamina e centro tori exserta, duo vel saepe plura; filamentis filiformibus, liberis aut basi aut juxta totam longitudinem monadelphis; antheris bilocularibus, basi **laxis**, loculis appositis, connectivo oblitterato contiguis, longitudinaliter dehiscentibus; ovarii rudimento nullo. *Flos fernineus*: ovanium liberum, sessile vel pedicello torum plus minus superintus pedicellatum, e carpophyllis duobus conflatum, carpophyllis marginibus valvatis coimatis vel plus minus inflexis unilocularibus; placentis linearibus brevibus parietalibus, ovulis plurimis adscendentibus; stylis duobus vulgo inter se connatis, stigmatibus aut integris crassiusculis aut bimittis, laciniis plus minus filiformibus vel carnosis. Capsula unilocularis, bivalvis, polysperma, valvis apice solutis demum plus minus revolutis. Semina plurima, erecta, minima, testa membranacea, umbilico basilari truncato, funiculo brevi in comani lanuginosam tolimi semen obvolvencem fatiscente, albumine nullo. Embryo orthotropus; cotyledonibus planis convexis ellipticis; radícula minima, interna. — Arborea, frutices, vici fruticuli fici herbacci. Hami alterni, teretiusculi, saepe fragilissimi, interdum lenacissimi, nunc (orulosi, nunc viminei, divergentes vel erecti. Folia alterna, simplicia, integerima, plus minus serrulata vel raris denticulata seu sublissa, serraturis saepe glanduligeris, penninervia aut in lateribus obsolete palminervia, petiolo plus minus longo semitereti vel compresso petiolata, decidua. Stipula squamosae decidua), vel foliaceae saepe persistentes, oblique, subserratae, in ramulis vegetis majores. Gemmae laterales et terminales.

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(1) Auctore, quoad char, ordinis et genus praecipuum, N. J. Andersson, Reg. Acad. sc. Holm.

1 SALIX *Tourn Inst* p 590 t 364, *Linn H lapp* 1737 p 280, *Gen n* 1097, *Linn Codex ed Rtrht* p 904, *Juss Gen* p 408, *Grrtn* 2 56 t 90 *Endl Gen n* 1903, *Meissn Gen* p 378, *Willd sp pi* 4 p 655-710, *Steud Namend* 2 493, *ira/ifo?nb II lapp* p 015-710, *Jloffim lh\t Sal* 1780 *Wade on Salloits and Osieis*, 1811, *Scringe Fssai dune Monographic des Saulis*, 181) *Dumortier Wilgtn*, 1825, *Host Salix*, 1827 *Koch Comment de Sal euioy* 1828\$ *Sadler Synopi Sal llungar* 18 U I ney *Comment de Sal SuecixmNov Mant* 1, p 21 80 (cow<sup>1</sup> //arf?n ?n \* *Wet Akad llandl* 18>1) 7YaMv *Sahcet in Mem prd\ & IAcad de St Petersb* 3 607 636, *De Sal fngtdu m \Um de la \oc dei i\at de Moscou t Sp* 281 \*40, *Smith vi Trans of Linn we* 6, *Wimmer Tiora od But Zeit* 1849 *Jaliresber d Schlcs Geselhch f taterl Cultur* 1842 et seq, *Denhsthr* 185\* p HO *Saliceseuropea* 180G etc, *Traunstemmer Monogr d Weid v Tirol u Voralberg in7e\t&chr de\* Ierdinandcumh in Innsbr* 1842, *Andersson Sal lapponir*, 184=), *Ostwdicns pilarter (in Sw Wet Ah Hand I* 1808 p 40-) SO2) *On East indmn Salices [in Journal of Inn Society tot I* 1800 p W), *B>diag tw Kami om di Noidameiika pilarler (i Ofutrsujt af Wet Akad lorhandl* 18i8 p 109-13-\*) *Salicum Monographm m Si Wet Akad Handl t 0 p 1 Htichenb Icon hi qerm Cent 2^0 p 1182-120^)* //<>/\*/( *Volht Natutyesch d foHL. Lulturpfl Deuhchl* 1851 p 75 93 *Tout Arboret* 3 *Forbes Sahcet Woburnense* 1829 *Kerner Niedercrster Weidin(m Virhandl der zool bot Ge&ellsch in Wien* 10 ISO) p i D6 179 282, et in (u>ti oot *Zcitschr*), *Wichura Die Bastardbefr im Pflanzenr.* 186a *Chamdia kern Weid (Lst p 277 (senus ab co derehcta)*

Flores dioici in amentis plus minus laxis dispositi, squamis (bracteis) obtecti Rhachis leres \ angulato-scrbiculata, nro glabra, saepms cine reo vel rufo-pilosa, in ament masc citius decidua, in femineis diutius persistens bquamas lanceolatdb, hn^ulalJL, vel concavo-rotundalde, a\\*t obovatje, apicc inte<sub>r</sub>rae vel ranus glanduloso-crenulatae, concolores sc palhde straminecJL fulvaj vel rosedede, aut discolorcscsc basi pallida) ila{a3 v vindulae apicem versus fusciores picea v atratai, dorso toto aut tanturn apice pilosa, baibata) v ciliatae Torus glanduhformis, m foimis tropicis aut maxime alpinis et arcticis m duas glandulas7 unam antic im altenm posticam non laro partitam dmsus, aut integer et fere annuli-vel subcyatlnformis, in plensque aulcm simplex ettantum anticus Stamina in plensque gemma, in quibusdam nobihonbus 3 12, fihmntis lihformibus, hbens aut a basi connatis pillide stramineis, ranus defloratifuscis, anthens ranssime etiam conn itis, t>pice aurantiacis, m alns purpurois post anthesin fuscis dermen plus minus conicum aut obtusiusculum aut subulalo lostratum, glabrum v tomentosum villosum v lanatum, sa.pe pcdicello lristitum, stylus clon^atus aut obsoletus, integer vel nssus, flavus v fulvus v fuscus, stigmata bina, ant crassa brevia et intepria aut in lacinnis dudbus sdepius angustis partita Capsula uniloculans bivalvis, \aUis prope basin seminiicns, dehisc/ntia retrorsum arcuatis, falcatis vel circinatis Semina plunma, erecta, comosa Embryo dxalbuminosus, 6rthotropus, radicu infera — Arbores excelsae, frutices elati vel fruticuli trunco subteiianeo et ramis flabelliformibus humistratis Gemm\* perula calyptnformi obtectde, termmales nou evolutaB Folia lanceolata, obo\ata, ovata e. s p sxpius elonf,ato angustata, penninervia Amenta in le^iombus temperatis saspus praecocia sessilia nuda, in calidis et fiir ths coajtanea foliato-pedunculata — Per partes fere omnes lotius orbis divul^atae, ubique for'ins ct modificationibus inter se multifanam connexis scatent, saepe hybnditAte procreatct, ultia modum intricate

*Sahces sequenh modo dtaponuntur :*

A) PLEIANDRI , stam 3 cr>, squamis pallidis caducis, concolonbus Sp 1,21	/1° Tiopicr   r Temperatx J	}	1	Indie i
			2	Orientales
B) DI\NDBIE, stam 2 libens, squamis discolonbus persistentibus Sp 28-141	1° Micrnstylv 2° Podostylx 3° MacrostylcX	}	3	Africans,
			4	American x
			5	Amygdahnx
			6	Lucidx
			7	Fragiles
			8	fongifohx
			9	Cinerascentes
			10	Roser
			11	Argentex
			12	Virescentes
			G) SYNANDRIE stam 2, filameDtis connatis, squamis disco'onbu* Sp 14M61.	
14	Pruinosa,			
15	Micantes			
16	Nivex			
17	Nitidulas			
18	Incanc			
119	Purpurea?			

A SAUCES PLEIANDRIE — Sahx, tnb 1, Amenna (Phn ) *Fries Mant 1 p 41*  
— *Chlontcae Kerner Weid Oestr. p 43* — *Salices Pleiandrae Anders,*  
*monrgr p 1*

Amenta 9 foliato-pedunculata, squamae concolores palhdae in flonbus femineis deciduae Torus saltern in flore masculino bi^landulosus Stamina saepissime 3-12, basi villosa hbera Capsulae crassius>culae, vulgo glabrae, stylo nullo vel brevi rostratae — Aibores vel frutices altiores Folia elongata plus minus attenuaio-cuspdala, glanduloso-serrata, typice glabernma

1° Tropicae vel subtropicae.

Torus in utroque flore saepe annulans vel urceolatus Capsulae plerumque basi valde crassae, vulgo longe pedicellatae, tonfertse Stamina semper ultra 4 Regiones tropicas vel subtropicas potissimum inhab tantes

§ 1. *Indicz v tetraspermse.* — Arbores. Folia typica basi latiora, argute serrata, ngida, nitentia. Amenta subranflora. Gapsulde ovatae, subangulares

1 TETRASPERMA (Roxb plants of Corom 1 p 66 t 97), amentis plus minus pedunculatis pedunculo folnsparvis suffultis, masc longis laxis flonbus fere verticillatim remotis, femineis elongatis demum ranflons, squamis oblongo-bfathulatis vel subrotundis flavidis dense gnseo-torr^ntosis deculuis, capsulis ovato-globosis v ovatis glabernmis longe pedicellatis, pedicello nectanum subcyathiforme quadruplo superante, stylo vix ullo, stigmatibus integris brevissimis crassis loins ovato-lanceolatis v hnean lanceolate longe acuminatis supra saturate vnidibus subtus plerumque glaucescentibus glabernmis vel pilis adpressis subhirsutis serrulatis v integris demum conaceo ngidis, stipulis ovatis deciduis 5 Ad npas et in locis humidis per toiam Nepaliam frequens in montibus Himalaya et Nilagin, Khasia reg alt 2400 ped (Hook fil. et Thomson), in Coromandeha (Roxb ), Oude (Wallich), lava (Zollinger n 2927) — Willri sp pi 4 p 607, Roxb fl ind 3 p 703, Wall Catalog n 3701, Blume Bijdr p 517 Trautvett Mem de St Peteisb } p 629, Anders bal md in Act Holm 18iO p 484 Proceed Linn Soc 4 n 13 p 41, Sal Monogr p 1 fig 1, Wight IC pi Ind or c 1904, Forb

Sal wob t 31 Arbor trunco non alto sed vahdo, bumana era sitie, ramis undique palentibus glabns novellis tantum gnbeo tomentosis Folia pinno us S fiagilis, demum nsS pentan liae nostrae sat simiha, 2 4-poll longa, 1 poll, lata, deuium subconacea, margme acute sed \*ubtiliter seirulata, dm peisis-tentia, ita ut gemmae amentiferae non raro m axillis evolvantur Amenta masc suaveolentia, 2 polhcana, gracilia, laxiuscula, feminea 1-1 J poll longa Capsulaa obscuie vindes, granule formes, lineam longae, saepe subquaternatim collectae (inde nomen') — kximie vanat haec species in India onentali indigena quoad formam et indumentum foliorum, longitudmem amenti e( pedicelli capsulae, quare formae sequentes ut modifications huicadnumerandae.

a, *suaieolens* (Anders in Proceed Linn Soc 1 c p 41), amentis mascuhs numerosis multiflons longissimisdistmcte pedunculatis squamis latissime ovatis dense albo villosis apice summo nudis, folns demum saltern glabernmis subtus dense glautescens integns — In India onentali ad AINU (V Jacquemont) et in Himalaya (Hugel n 526) S suaveolens Andeis Act Holm 1. c p 491 S. Myurus Wimm herb \md b Hugelu Wiram ibidem Arboi ramis rufo castaneis glabemmis Joha us Lauri nobilis simillima, supra medium polhcem lata, fere 3 poll longa, adulta eximie conacea et mtenti-glabernma Amenta odore grato suaveolentia, 3 5 poll, longa, aurea (v s)

P, *ichnostachya* (Andeis m Proceed Linn Soc 1 c p. 14) amentis masc distincte pedunculatis anguste cyhndraceis valde remotiflons squamis enspato-villosis dcutiuscuhs, loins anguste lanceolatis acutato-acuminatis serrulatis subtus glaucis Ad Kankal, pi ope Pondichery (Perrottet) et m Nepaha (WalhcM S Ichnostachya Lindl in herb Wight Anders acta Holm 1 c p 488 S Pondichenana Anders, in herb Mus pans lv s)

Y, *Nxlagxnca* (Anders mon p 3), amentis mascuhs pnmo densiflons, squamis rotundatis densissime tomentosis, folns line\*n- anceolalis serrulatis hrmis — In mont Nilagmcis. S Nilaginca Miq }n Hochst pi. coll Metz 1851 n 982 Praecedenti eximie snnilis, sed folns adhuc angustionbus magisque conaceis, amentis minus laxis Modificationem sistit maxIme angustifoham S tetiaspeimae (v s)

6, *Horsfieldiana* (Anders mon p 13), amentis paucifohatis, masculis 3 4-polhcanbus sublaxifloris, femineis 1 i-2 J - poll , squamis pedicellos superantibus, capsuhs ovoideo-attenuatis glabrescentibus, stylo distincto (?), fulns pnmo senceis demum glabiescentibus tenuibus ovato-elhpticis attenuate acuminatis 6 2} poll longis 1-1 poll latis — In insula Java Op den Oengaran (Horsfield), et Sumatra? S Horsfieldiana Miq Fl ind lat 1 2 p 461

2 S PYRINA (Wall Catal pi Ind orient n 3705), amentis bi evitei pedunculatis folns paucis suffultis excurvatis elongato-acutiuscuhs subnmflons, squamis subdeciduis spathulatis emerascenti-pilosis, capsuhs ex ovata basi attenuatis gla ns fuscis pedicellatis, pedicello nectanum quadiuplo superante stylo subnullo, stigmatibus integns ciassis, folns lanceolatis acutis integernmis demum ngidis utrinque sparsim cinereo pubescentibus 5 <sup>m</sup> India oi lentah Nepal (Penottet, Wallich) — Anders Act Holm 1800 p 486, Journ Linn Soc 4 H p 41, Monogr Sal p 4, Miq F! Ind Bata\* 1 2 p 461 S Wallichu Wimm hb Vindob b lenta FriesNov fl sv Mant 1 p 78, Anders Act Holm 1 c p 501, Jouin Linn ^oc 1 c p 42 Monogr Sal p 4 fig 2 Arbor ramis fusco-cinereis glabns, novellis gnseo tomentosis Folia I 3 poll longa, 1 poll lata, paullo infra medium latiora, in apic»m subproductum attenuata, obsoletius undulata v serrata, supra obscure vindia costa venisque flavidis, subtus pallidiora, utrinque pilis adpressis cinerascens, juniora obscure sencea, adulta glabrescentia ngidis ima, petiolo 2-3 lm longo Amenta fem breviter pedunculata, e-ecta v flexuosa, 3-polhcana, peduntulus folns 2-3 minutis instructus squamae obovatae, fulvo piceae, capsula pedicello squamam asquante paullo longio\*\*, o\ato conica, in apicem attenuata Amenta masc nudiuscula, J 4 poll longa, squamae angustiores Est sine dubio S tetraspermde Ha affinis, ut ejus mera \anetas pubescens forsan sit judicanda, vetant tamen capsulae in apitem eudenter attenuatae nee globos>o



**granulæformes** AS urophylla vix differt nisi capsulis longius pedicellatis et JuenuatO'Cofticis Ex mididis fbrntis nostrae S fragih similUma (v s)

- 3 S c A LOST ACHY A (Anders Act Holm 1810 p 489), amentis sessilibus longe cylindræis fle"xuosis dentil ins, squamis parvu fulvis pihs albo-gnseis hir sutis apice subfuscis den si us persistentibus, capsulis ovato-globosis vmdibus glabemmis longissime pedicellatis, pedicello nee tan 0 minuto pubescente fere seituplo longiore, stylo nullo stigmatibus divancatis, folns ovato-lan-teolatis undulatis trnuibus inlpgei rini"\* subtus glaucis utnnque pnmo sen ceo-argenteis demum glabiescentibus 5 In India onent , in sylvis humidis 2000 metr elevatis a Kahoula adMahabid (Jacquemont n 2^0) —Anders Journ Linn Soc 4 13 p 42, Monogr Sal p 5 Aiboi mediae magnitudinis, habitu b albae Rami brunneo picei, coerulescentes, apice altJido-villosi Folia | 2j poll lon^d, vix pollicm 1 a 11, sublus sub,lauescenti albida Amenta feminea omriuio scssiha 3\* poll longa, pitentia, obtusa, rhachis hnsutu. vaiida, squamde obtusae, pedicello duplo tuplove brevioics Cipsula pedicelli 1-1 J 1m longilongitudme vel eo ^ubbceviior, anguste conica palli le vuescens, stigmata sts^ilia in foimam ciucisdivisa Ob capsulas longe pedi c^Uatas et breves al typum S tetraspernnp accedit, sed foliorum lorma et indumento b pynnam non paium snnulat Quaerendum umen esl num raorbo quodam capsulae deformes, et species ideo dubia i (v s)
- 4 S UROPHYLLA (Lmdl in hb soc Linn et Wall Catal n 3708), amentis pedunculatis folns parvis «uffultis arrectis cuivatis pnmo densiflons, squamis oiato-rotundatis dense mcano pilosis capsulis ovato lanccolatis glabemmis iuscescentibus pedicello nee anum bis tcive superante, stylo brevi, stigmatibus ciassis excurvatis loins 1 mceolatii acummatis inte#emmis pihs paucis molhter inrsuns supia saltern demum glabrati\*. 5 In Oudc Indiae orient (Wai lich),etin insula Java (/ollinger —Anders Act Holm 18 >0 p 487, Journ Linn Soc IV 13 p 4', Monogr Sal p '> S 7ollngenana Miq in/oil Catal 2 p f08 et in H Ind Bit I 2 p. 462 Aiboi ramis cineieo brunneis etiam novelhs glabns Folia anguste lanceolata, X\ | poll longa, piullo infra medium 4 lin lata, basi attenuaU apice sepe subobliquo longe acumi-nata> mtcgnima vel denticuhs lans minute scirulata, supra pallide vmdula, subtus evidonter pillidiora, costa vunsque elevatis juniora utnnque pilis ad-pressis soricca, demum ghbrescenti i, ngida Amenla leminea crecto pitentia, pollicana, ioliis I 3 minutis Inrsutis suffulta , squamae basin germims tegentis, capsula ovato conica, fulvo brunnei, pe ICPIO leie hneam longo S tetraspermae maxime alfinis, sed distmguitur folns saltern pnmo longiter puberulis tenuissinns pellucidis integemmis capsulis acutiusculis, brevius jpadicellatis Habitu quasi ad species orientates S albae afflnes tiansitum prT-jbens (v s)
- % S poPuriFOLiA (And(is Act Holm 18^0) amentis sessilibus densiflons misc dlongatis laxis fem c)hndncis obtusis folns minutis suffultis, squamis obtu-\*n tomentosis, ca)sulis globoso conicis albo lanatis obtusissimis subsessih Jaus, nectano minuto cip<>ulae basin attin^ente stylo nullo, stigmatibus cru-ciformibus, folns longissinu petiolatis ovalibus basi subcordatis aj)ice longe acummato-cuspid itis tenmbus utnnqae glabrescentibus acute cienatis 5 InIndid onetatali(Peiroit8t, lacjueraont, nihb Pans DC ) — Andeis Journ. Linn, Soc IV 14 p 48 Mjno^i sal p 6 fig 5 Arbor mediocns vel fiutex majons magnitudinis Kami fus, o picei, glabernrni, novelh subglauescentrs \*olia 2-4 poll lon^a, infra modium 1-2 poll lata, senatuns glanduligens margine mflexis supra ob^cuTc vnidia costa venisque legulanter lineata, sfbutus vix pallidiora venis subnnpresis pulchre leticulata, nitentia, ngida, , petiolo fere pollicana petiolata Amonta mascula folns \*> 3 minutis bracteata, 2-3-pollicana, squama? late rotundato ovatae, bisi dense gnseo tomentosai Stamim numeiosi Amenta fem incurvo eiecta, 1 || pollicana, bracteis pau tiis baki stip ta, squama, ovalo-oblongde, densissime lanatae Capsula ovato-subtnanguliris, lana d^nsissima albo flavida Plabitu valde\* smgulans, folns longissime petiolatis latiusculis ngidis, amentis valde densiflons, cap\*suli> g^boso-conicis et albo lmatris ab omnibus facile diversa Ob lolia 11s S tc\* ~~tetraspermae~~ similia et capsulas stylo orbatas ad species Indiae peculiare hano

associavi, qua? tamenamentis se<sup>^</sup>siliDus capsulis tomentosis et sessilibus longe recedit Nonne S Koreensi dffinis et ad div. *Purpwearum* pertmet<sup>^</sup> (v. s).

§ 2. *Orientates vel acmophyllx.* — Arbores. Folia longe lanceolato-attenuata, Integra v. subintegra, subtus glaucescentia. Amenta demum densifjora, capsulis crasse ovato-comcis, breviter pedipellatis.

6 S ACMOPHYLLA (Boiss Didgn pi orient 7 p 98), amentis pedunculo iohato msiduitibus trassis lectis, squamis deciduis ovato cuuulhtis v oblongis cns-pato pilosis vel in femmei> ^1 ibns, staminibus 4 > cipsuhs ovato oblongis gld Ins pedirellatis, puicello mctanum bis tene supeidnte, stigmatibus sessi-Jibus ciassis, folns sublmeaii-lanceolatis longtime acuminatis glaberumis subtus glauus integris, slipuhs minimis 5 In Peisia, ut in alpe Kuli Daena (Kotschy pi Pers aubtr 1845 u 020), prope urbcin bchnas (1 c n 61&, 620), in montp Elbrus pi ope pagum Passgald et in fiuce pi ope Dervent (Kotschypi Pers boreal n 121 et78>), in Kurdistan ad nvos piope Amadiet, et ad pagum Gara (Kot<sup>^</sup>cby pi Alepp), et in byia ad Aleppum (Boiss). — Anders Sal monogr p 7 ig 7b Arbji sat alia Raoii grnciles, rubelh Folia 2-0 poll longa, 4-6 lineas k<ita, indjia ramulorum oblusiuscula et mucronulata, ce4eia <ipice feie subulalo attenuata, supia k<pte vindia cobta vali la et venis paiallth confluentibus p< rcuisa, subtus aut intense ^lauca aut palhdus vindula Amenla mascula pollicaua, cyhnduca,duied, densitloia, ieu miea vix polJicana, subo\alu, lhacln villosi, squa.mis lutcib capsule pallide fulvis vix hneam longis Chdiauenbus s safsaf, bed habitu loHorum uinnino S Babylonij} similis A pnon difficil caps/ilis multo bieviub pedicellaus, folns loDgissune ouspidalo atunuridlis, a Bdbylomca blamimbus 4 b, capsulis ciasse ovdtis pedicelUtis — HUL ptutu sine ullo d ibio pertinent S glaucopylla ot S. dealbata Anders Att Holm 1850, etJourn uf Linn boc 3 p 43, ex India orientali a Jacqu( moit lepoitatae Il)a tamen amentis sublon<sup>^</sup>iunbus fobisquu ten ui on bus<sup>1</sup>, haec amentis inagib ranflons et capsulib basi magis jtienuatit nonnilnl reccdunt (v s)

7 S PERSICA (BOISS in Kotsthy pi Pers austr n 101), amentis breviter fohato pedunculatis oblongo cylindncis crectiuscuhs masc hexandns squamis oblongis acutitftcuhb feie tolls glabns flavescntibus, capsulis ublongis acutis glabns pedicello nectdnum bis superante pedicellatis, stylo brevbNimo, stig matibus crassis indivisis folns anguste lmceolatis substssihbus inUgris utnnque glabernmis vnidibus 5 In Persia austrah ad iivulos in montanis cuca pagum Gere (Kotschy) — Boiss Diagn pi orient 7 p 99, Anders Sal Monogr p 8 fig 7 Rami gncillimi, rubelli, feie penduli Folia juniord vix pollice longioia et ^ lin lata, b<asi attenuata, apice submucronulda, glabernaia, concolora Stipulse nullae Amenta niase. Literalia, nuuieiosa, foliis parvis 3<sup>i</sup> suffulU, \ix pollicem longa, densifloid, aurantiacea, feminca cyhn dried, oblusu, subpollicaua, squamae m utra<sup>^</sup>ue diutius prrsistpntes, sed demum decidudp, llavescentes, glibcuimae, tenues Capsulde vindi flavescntes S acniophyllcE ita affinis ut, pueseitira quu>n speunnna tanlum juveniba examnidie miln fuit occasio, \n dicert andeo an ab ea sit sppue dis-Unvta Kecedil taniem i imis cxiraie giacilhns, folns multo tenuioribus et bievionbus, amenlis sublongioibus,, squamis diutms persistentibus et Omuino glabns, capsulis den<sup>^</sup>um bievius pedicellatis Habitu b Babilomcaoi fatale revocans ab ea distmguitur flonbus masculis hexandns (v s)

8 S DAVIRSN (Bois<sup>^</sup> m Kotschy pi Peis austi p. 33 >), amentis masc. biac-teatis trasse tjhiidiaceis rectiusLuhs densifloms, squamis ovatis Havidis extus glabns, staminibus 2 3 andus, loins oblongo lanceolatis bibi dtenuatis apide breviter cuspiddtis inlimis obtusis cotens brevitei atteuiidtu-dcuminatis sub-mte<sup>^</sup>ris demum glabei nmis concolonbus 5 Ad fontes monus Kuli-Barft prope bchnaz (Kotschy) —Boiss biagn pi oi 7 n 98, Andeis bal Monogr. p 9. Arbor piocpra ex cl Kotschy Hamuh lecti bolid 2-3 poll longa, semipollicem latd\* juniora subtus margmeque parcp el adpressp tiliata, omnia mox

glaberrima, utrinque luteo vincta, subtus non pallidiora nee glaucescentia  
 Amenta masculina, quae sola vidi, 12-15 lm longa, basi foliis parvis sessilibus  
 spatulatis obtusis suffulta Squamulae latiusculae, cucullatae, magnae, flavido-  
 fulvae, apice rotundae Antherae parvae, aurantiacae Affinis *S. acmophyllae*,  
 pro cuius sexu multo flonero primo hanc habuit Boiss 1 c, mihi autem  
*S. pentandrae* similior videtur, a qua differt staminibus paucioribus differt Ob  
 id praecipue notabilis quod hinc *Salicum* species orientales vere polyanthas  
 Illinc *S. frigidum* v. *album* in senem continuam aperte conjungit Sed propria  
 species vix dicenda, utriusque inquirenda (v s)

**JJ3 African <LV oclandra.**—Arbores vel frutices alti Folia anguste  
 lanceolata, cuspidata-attenuata subtus glauca. Amenta mox den-  
 siflora abbreviata. Capsulae subglobosae, nonnunquam subcaesise.

A Boieae africanae.

9. *S. SAFSA\** (\*oisk Cat pi Agypt p 76) amentis breviter pedunculatis  
 foliis paucis suffultis, squamis ovato-rotundatis v oblongis obtusis saltern  
 margine vulgo villosis plus minus cito deciduis, staminibus non raro reflexis,  
 capsulis ovato globosis glaberrimis undibus demum confertissimis pedicello  
 nectanum demum quadruplo superante pedicellatis, stylo subnullo, staminibus  
 crassis brevissimis, foliis primo tenuibus et subintegris demum fere  
 coriaceo rigidis anguste lanceolatis cuspidatis senescentibus utrinque glaberrimis  
 supra vinctis, stipulis in junioribus lamulis evidentibus emicardatis  
 5 In Aegypto inferiori et superiori, ut videtur frequentissima in ripis fluvii et  
 secus vias culta, in Nubia et Abyssinia (Achim n 700, Kotschy n 95, '36)  
 — Trautv Mem de l'Acad de St Petersburg III p 612 t 2, Anders Sal Monogr  
 p 10. f 9 *S. subsinata* Willd sp pi 4 p 671 *S. octandra* Sieb evsice  
 Arbor sicciora habitu v *S. albae* v *babylonicae* Rami glaberrimi, testaceo-  
 vincti rufescentes, juncturae vinctae v subpendulae Folia adulta breviter  
 petiolata, e basi plusquam latiore sensim et longe attenuata cuspidata, supra  
 luteo vincta, subtus pallidiora vix autem glaucescentia, 6 ) poll longa, 1/2 poll  
 et ultra lata Amenta aut subsessilia aut distincte pedunculata, anguste cylin-  
 drica, masculina vix poll longa, aurea Stam subocto feminea plerumque foliato-  
 pedunculata, 1 poll longa, demum fere globoso-abbreviata, capsulis vin-  
 dulis arete conlatis Stylus primum subdistinctus, demum obsolete  
 Stigmata flavescencia Quid *S. Aegyptiaca* L sp pi 2 p 1444, Amoen Acad.  
 4 2QT, non e diagnosi nee specimenibus in herb nte extucan potest, *S. per-  
 dicellata* — Modificatio hujus in convalle Nih vulgarissimae formae se-  
 quentes credo

<sup>a</sup> *Nilotica*, amentis brevioribus squamis totis densissime albo-villosis  
 diutius persistentibus, capsulis ovato-subconicis, pedicello nectanum ter  
 superante, lacinis anguste lanceolatis, stipulis cito caducis — Haec forma,  
 locis siccis secus vias saepius obvia, amentis longius pedunculatis, magis  
 foliatis angustioribus et brevioribus, squamis villosis senescentibus  
 foliis denique angustioribus minus acute serrulatis et subtus subglaucis.  
 quidem recedit sed formis intermedis numerosis cum vera *S. Salsaf*  
 certissime connexa.

(J, *tyathipoda*, amentis acuminatis brevibus, masculina incurvatis, squamis basi  
 villosis apice glabris filamentis brevibus, fere squamis citius caducis,  
 capsulis anguste conicis pedicello nectanum valde cyathiforme duplo  
 tantum superante fusco-vinctis, foliis primo tenuissimis et latius lan-  
 ceolatis miagris — In Abyssinia (Quartin-Dillon et Petit in Mus Pans ), et in  
 valle legionis septentrionalis Scholoda ad upas fluvium (Schimper) *S. cy-  
 thipoda* Anders in Rich fl abyss 2 p 290 *S. Blumhardtiana* Schimp.  
 it abyss Sect 1 Martio 18d7 *S. axillaris* Anders in Rich 11 ab) s  
 2 p 275, amentis in axillis foliorum persistentium valde rigidioribus  
 foliis vix vix suffultis densifloris — Modificationem axillarem ex Ab) S-  
 sinia etiam reportaverunt Quartin-Dillon et Petit Cum *S. Salsaf* normali  
 formis numerosis aperte confluit, et *S. tetrasperma* eximie simulat.

y, *hirta*, amentis masculis elongatis densifloris foliis nunc evoluti? 4-6 suffultis, squamis rotundatis pilis sat longis hispidissimis, foliis subovato-lanceolatis apice fere cuspidato-mucronatis utrinque senceo villosis margine — Ad foliis Nili (Sabbatier, in Mus Pans) ES Salsaf ita recedit foliis vix pollicem longis, medio hinc, basi apiceque acutatis, utrinque dense incano-villosis margine integerrimis, amentis demum foliato-pedunculatis, ut facile species propria sit salutanda Specimina tamen perpauca tantum vidi, mihi eodem modo ad S Salsaf «e habere visa est, ut S *hirsuta* Thunb. ad S Capensem, scem itaque Salicum in Africa boreali ei in Africa meridionali obviae omnino analogam term. mans. (s)

10 S SENEGALENSIS (Anders Sal. Monogr p 12 fig 10) ramulis, lateralibus longis annotatis foliatis apice frontens, amentis paucifloris, squamis ovatis roseis apice glabris, antheris fuscis, capsulis glabris irroratis, pedicello nectarium superante, stylo brevissimo stigmatibus crassis indivisis, foliis elliptico-oblongis obtusis mucronatis integerrimis tenibus utrumque glabris bernis subtus pallidioribus § In Senegal (Perrottet, 1825, in h DC petrop et par) — Mert in h petrop sub Adans 189 S coluteoides Mirbel in Mem du Museum 14 p 41\*2 20 (1), Irautv in Mem piés a l'Acad da St-Petersb 3 p 622 Arbor vel frutex ramis sat crassis glabris Folia basi subcuneata, apice obtusa, vix pollicem longa pt semipollicem lata, subtus subpruinosa, breviter petiolata Stipulae obsoletae Amenta basi interrupta, ramulo difertali foliis remotiusculis 6-8 vestito flavido gracili pedunculata Stam 8, filamentis basi ulosis squamas duplo superantibus Capsulae linea breviores, obscure vinctulae Species vel forma sat singularis, S Salsaf in Africa orientali indigenae sine dubio affinis forsitan modificatio abnormis, tempore mso-lito florens, cujus capsulae saepissime etiam deformatae conspiciuntur, sc ad basim hirsutae ibique corrugatae Habitu a cetens longius recedens tamen characteribus cum us bene congruit Cum S Cananensi, in insulis adiacentibus crescente, parum habet commune (v. s )

#### B Austro-africanae

11 S CAPENSIS (Thunb fl capens p 139), amentis saltern femineis. sat longe pedunculatis foliis parvis 3-5 suffultis squamis nudiusculis (vel albo villosis) ovatis rufescenti testaceis mox deciduis, capsulis ovato-globosis glabris vel rufescentibus sat denso glaucis, pedicello nectarium quadruplo superante, stylo subnullo, stigmatibus crassis indivisis, foliis anguste lanceolatis demum concavis margine subrevoluto acute glanduloso serrulatis acuminatis glabris subtus plerumque intense glaucis, stipulis obsoletis 5 Per regiones capenses Africae australis frequenter occurrit, ubi a botanicis plerisque collecta, a me prope Stellenbosch viva examinata — Fries Ofvers af Kgl sw Wet Ak Forh 1856 p 121, Anders Sal monogr p 13 fig 11 S ^Egyptiaca Thunb prodr cap p 6, Sieb fl cap n Ml Arbor mediocnis vel nuxta plunorgyalis, rami subvimeini glaberrimi Folia nunc subtenuia, 1} poll longa medio semipollicem lata, supra vix subtus pallide glaucescentia, nunc duriora angustiora et longiora, sc 3-5 pollices longa 1} poll lata, longissime et suboblique acuminata, aut modice aut valde argute serrulata, adulta subrigida, subtus minus dense glaucescentia, amenta (quae more Salicum tropicalium saepe in axillis foliorum \*enus exoluta conspiciuntur) mascula breviter pedunculata, erecta patula, semipollicana, squamis subglabrescentibus pallidis, stam subocto, antheris aureo-fulvis, feminae subanthera, brevis^ima, sub^alia, saepe vix semipollicem longa, capsulis ovatis, vix lineam longis, pedicello subbrevis-ibus Huic vel formae locales vel accidentales affines seorsim notandae

β, *Ganepna* (Anders Salic mon p 13), amentis adhuc tenuioribus, capsulis majoribus nonnihil crassioribus, foliis anguste lanceolatis longius cuspidato-acuminatis subtus intensius glaucis — Plunbus loci's Africae australis observata, ut ad fl fTanep (Drège Exsicc), Cadembo, Wap-

(1) Nomen *colufeoides* pronuntate gaudet, idpo admittendum (Alph, DC)

perthal, Gnadenthal et Rivierzonderinde, Grasbergrievier, etc. S. Capensis Fries 1. c. p. 121. S. Gariopina Burch. cat. pi. Afr. extratrop. ji. 2669. E typica S. Capensi non d̄ inert nisi gracilitate omnium partium, ramis valde viniineis, foliis 2-4 pull, longis, vix ultra { poll, latis, amentis inasc. brevius pedunculatis erectiusculis, fem. brevissimis et rari-floris, Ci'jpsulisque evidenter minoribus. S. Zeyheri Sond. herb. (Fries 1. c.) quai ad Magclis-Rivier collegil Zeyher (exsicc. n. 1552), adhuc fercacilior est modihcatio foliis antfustissimis subluscatiss, margine acutissime serratis insigms. Ad hanc etiam pertinet S. Natalensis Wimm. herb. Vindob. a Gueinzio in Port Natal collecta (n. 136), quae praeterea foliis adhuc rigidioribus subtu conco'loribus, amentis masc. subpraecq-cibus in axillis foliorum persistentium, squamis albo-hirsutis et stamini-bus aureis variegatis gaudet. (v. s.)

Y, *mucronula* (Anders. ih.)» amentis pedunculatis brevibus et crassis, foliis rite evolutis «Lifultis, squamis subdense albo-villosis demum deciduis, capsulis ovato-conicis gnaris, pedicello nectarium (bis-) quadruplo superante pedicellatis, foliis ovato-lanceolatis primo integris viridibus, demum serrulatis et subtu intense glaucis, nervo medio in apice distinctiusexcurrente. 5 In regione capensi pi. locis (Thunb., Dröge n. 215|, Ecklon. n. 1266)- s- mucionaU Thunb. 11. cap. p. 140; Willd. sp. pi. JY, p. 685; Fries 1. c. p. 120, Nov. Mant. I. p. 76. Frutex erectus, ramis subtorulosis luscis. Folia adulia saipe fusciora evadujit, raro plus quam pellicaria, arcte condensata, ita ut ramuli valde foliati conspiciantur. Gemma; glabraj. Amenta ereqta v. excurvata, pollicaria, squamis capsulas acutiusculas primo suboccultantibus. Ad S. Cape.nse.mse hab^t omniao ut S. Nilotica ad .S.. Safcaf, i. e. squamis villosis diutius pevsistentibus solummodo diversa. (v. s.)

6, *hirsuta* (Anders. 1. c.), foliis plus minus dense hirsutis interdum utriD\*- que senceo-villosis vel canescentibus, marline subrevoluto tenuissime serrulatis vnl integris. — CresCil multis in locis Africae capensis et Caf-frariae (Tbunb. Ecklon et Zsyher, Mund et Maire, etc.), ut : Grosbtrg-rivier\* WatervHl, Ijergvallei, inter Langevallei et Olifanl-rivier, etc. : j(D.rege). S. hirsuta Thunb..fi. cap p. 141; Willd. sp. pi. 4. p. 695; Fries 1. c. p. 120. Nov. Maut. 1. p. 77. (v. s«)

Formae Ibliis maxime hirsutis a normali S. Capensi habitu quidem sat diversae ; exstant autcm modificationes Ibliis partim pilosiusculis vel subglaiirQscentibus, de quibus vix <|ici potest utium ad hanc an ad S. mucronatam v. Capensem pertineant.

12. S. MADAGASCARIENSIS (Boj. in h. DC.), amentis longius pedunculatis rari-floris, masc. patentibus, squamis pilis cinereis hispidis, femineis brevibus squa-nis glabrescentibus tandem deciduis, capsulis subglobosis glaberrimis fusciscentibus peilicello noctariura quadruplo superante, stylo parvo, foliis lanceolatis utrinque viridibus subtu pulchre vcnulosis apicem versus serrulatis. 5 In convallibus prov. Imarion ins. Madagascar interioris (Bojer, 1833) et in -mintosis prov. Emirna sec. Fries, qui ut patriam etiam affert « Hottentott-Holland. » — Anders. Sal. moriogr p. iS. fig. 12. S. australis Hils. et ttoj. iricdft. sec. Fries Nov. Mmnt. 1. p. 77(1); Trautv. Mém. pr^s. à l'Acad. de -St-Peiersb. 3. p. 6'22 Krutex ut videtur non altus vel arbor humilis, ramuhs valde torulosis, annolinis pubesceniibus. Folia vix pollice longioraj { poll. lata, margirie, subrevoluta, apicem versus tenuissime sermlata, supra opace viridia, subtu vix glaucescentia, adulia tamen longiora, longius acutata et subtu conspicue pallidiora. Quod ad amenta iis piaecedentium subsimilia, sed mascula multo magis ran flora, capsulo; parum majores, matuiae subcorjugatae^ r fusco-piceae el vix glauco-irrp ratip. A speciebus in Africa australi continentali ind-igenis foliis, amcniis et capsulis parum distjnota, at cum iis certissime affinis, ad eas se habeffere ut S. Senegalensis ad boreali-africanas. amentis longius et foliato-pedunculatis, foliis brevioribus et tenuioribus non-nihil recedens. (v. s. in h. par. et DC.)

(1) Nomon *australm* jure pnunUilis admittici Klurn (Alph. DC).

§ 4. *Austro-americanæ v. Humboldtianæ.*

Arbores vel frutices alti. Folia linearia, serrulata, sæpe subfalcata<sup>^</sup> subconcolora. Amenta gracilia subrariflora, capsulis conicis subrostratis.

13. S. HUMBOLDTIANA (Willd. sp. DI.4. p. 657), amentis serotinis patentibus ramulo foliifero pedunculatis densifloris, squamis acutiusculis subciliatis fulvescentibus nervosis, capsulis ovato-conicis vel subglobosis glaberrimis longe pedicellatis, pedicello nectarium crassum 3-5 superante, stylo subnullo, stigmatibus sessilibus crassis bifidis, foliis lanceolato-linearibus longissime attenuatis argute denticulatis utrinque glaberrimis, costa crassa nervis lateralibus ante rmarginem incurvatis, stipulis subnullis. 5 In America meridionali *z*i rpgno Chilensi medio usque in Brasiliam sat frequens quum in plaga occidentali turn in orientali, in Nov. Granada (Humb.). — Kunth in H. et B. Nova Gen. et Spec. 2. p. 22. t. 99-100; Trautv. in Mem. de l'Acad. de St-Petersb. 3. p. 614.; Leybold in Mart. Fl. brasil. fasc. 13. p. 227. t. 71; Anders. Sal. monogr. p. 16. fig. 13. S. Chilensis Molina hist. nat. Chili p. 140 (1); Gmel. Syst. Nat. 1. p. 73. S. Magellanica Poir. Encycl. méth. suppl. <sup>^</sup>p. 66. — Sal. Wob. t. 8. Arbor 3-6-orgyalis, ramis strictis vimineis glabris dense foliatis. Folia 2-4 pollicaria, 1-3 lineas lata, serraturis depresso; glanduligeris, costa fulvescente, adulta rigidiuscula. Ramuli laterales floriferi 1-3-pollicares, dense foliati. Amenta masc. 2-3-pollicaria, aurea. squamis acutiusculis, feminea etiam sæpe 3-pollicaria, demum subrariflora, squamis integris aut denticulatis, capsulis lineis longioribus fusco-irridulis quoangustiores eo longius pedicellatis. (v. s.)

a, *Martiana* (Anders. mon. p. 16), foliis latioribus ideoc[ue nervis lateralibus evidentius parallelis i. e. nervis <sup>^</sup>secundariis in nervum intramarginalem martini parallelum confluentibus, amentis quam folia brevioribus, squamis iixtegerrimis, capsulis basi attenuatis. 5 In omni ripa flum. Amazonum Brasiliæ frequens. S. Martiana Leyb. in Mart. Fl. bras. fasc. 13. p. 228 t. 72 et phy. 6. Oualia specimina in herbariis variis et figuris citatis illustrata nullis notis certis nec habitu ullo peculiari a vera S. Humboldtiana, ut congeneres valde polymorpha, differre mihi videtur. Capsulae 7-3-lin., longe pedicellatae, oblique tumidae. Nervi secundarii non raro etiam in S. Humboldtiana vera conflunt.

P, *falcata* (Anders. 1. c), amentis masc. heptandris, squamis subrotundis obsolete denticulatis, dense albo-villosis, capsulis ovato-conicis brevius pedicellatis, foliis lanceolato-linearibus falcato-curvatis. Crescit prope Truxillo Peruvianorum, juxta liltus Oceani, locis arenosis (H. et B.). S. falcata Kunth in H. et B. Nov. gen. 2. p. 23; Trautv. 1. c. p. 613. Jam Kunth de hac planta dixit: proxima et fortasse nil nisi varietas. Mihi moditentio videtur, folia inde den<sup>^</sup>ius albo-hirsuta, squam<sup>T</sup> etiam tonientosae et capsulae brevius pedicellatae. Sat evidenter in S. nigram abit. (v. s.)

y, *oxyphylla* (Anders. 1. c), amentis breviter foliato-pedunculatis islongatis erecto-patulis subdensifloris, squamis basi saltern villosulis demum caducis, capsulis 0. basi non crassa lanceolatis glaberrimis acutis pedicellatis, pedicello nectarium bis quaterve superante, stylo minimo, stigmatibus brevissimis crassis, foliis e basi latiori attenuato-linearibus vel anguste lanceolatis glaberrimis vel subtus subpubescentibus denticulato-semilatis, stipulis semicordatis. 5. In temperatis Mexici prope Chilpancingo (Humb. Berlandier n. 1491, 1606, 1823, 2'212, 2317, 3026. Sumichrast 1363) et in insula Cuba (Linden, n. 1786). S. oxyphylla Kunth in H. et B. nov. gen. 2. p. 24; Trautv. Mem. Acad. St-Petersb. 3. p. 616. — Utrum haec forma S. Humboldtianae an S. nigrae angustifolia? sit amrrianda nescio, certissime eas aperte cpnjungit. A pnore habet folia eximie elongata, sa;pe 6-8-pollicaria et angustata, sed differt: folii non raro basi latioribus nervis saepius discretis, non raro subtus puberulis,

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(1) Nomen *Chilensis* Molina? vetustius, ideo admittendum (Alph. DC).

amentis brevius pedunculatis et minus foliatis, squamis basi latioribus et villosis cap<sup>u</sup>hs vulgo majoribus «grammatici nonnulli maffitudinem basi angustatis et in stylum quodammodo rostra Us, stipulis denique sat magnis (v s)

- 14 S BONPLANDIANA (Kunth in H et B Nov Gen et Sp 2 p 24 1101, 102)» amentis (axillaribus) subsessilibus cylindraceis densifloris recurvatis, squamis ovato-ovalibus obtusis praesertim basi villosis, capsulis conicis apice subproducto acutiusculis glabris\* pedicello necianum duplo superante, stylo vix ullo, stigmatibus crassis integris foliis elongatis lanceolato-linearibus rigidis margine crebre serrulatis utrinque glaberrimis subtus pilulosis -5 In Mexico, locis apertis prope Marianam Cabrera Quitlan et Pachuca alt 1270 1300 hexap (H B) —Kunth Synops pi aequin, 1 p 36-, Trautv Salicet in Mem pres a l Acad de St Petersburg 3 p 610, Anders Monogr Sal p 18 fig 14 Arbor procerum describitur ramis glabris Folia 5-6 pollicibus longa } \$ pollinula lata, basi dilatata, apice longissime attenuata, costa validissima, subtus vix glaucescentia Amenta masculina 2-3 pollinula, femina subpollinula Stamina 6-8 Capsulae obscure vides — Species maxime ob<sup>u</sup>cura a S Humboldtiana ad S nigram aperte transitum efficiens, S Salsaf vel etiam S albae quoad folia similia (v s)

p *pallida* (Anders 1 c) foliis longe acuminato-attenuatis utrinque sed praecipue subtus tenuissime puberulis supra pallido videntibus subtus intense glaucis margine tenuissime serrulatis stipulis semilunatis In calidis regionibus Hispaniae (Humb) A S Bonplandiana non differt nisi foliis falcatis adhuc longius acutatis et praecipue subtus ad costam tenuiter pubescentibus Gum S occidentalis maxime analogum S pallida Kunth in H et B Nov gen 2 p 25 et Syn. 1 p 366

#### 2° Temperatae

Torus vix annulans sed duplex Capsulae conico angustatae saepe subbrevis pedicellatae aut sessiles Stamina non raro 2-3 — Species regiones extratropicas temperatas (S pentandra et foeminae affines etiam septentrionales) inhabitantes

#### § 5. *Amygdalin* Koch comm p 17, Kerner 1. c. p. 46, Anders. Monogr. p. 19

Arbores vel frutices, ramis elongatis flexilibus Folia lanceolato-hincana, longe acutata, vulgo acute serrata et praesertim glaberrima nee viscida, saepe subtus intense glauca reticulato venulosa Amenta foliato-pedunculata, squamis concoloribus persistentibus Torus in floribus biglandulosus Stamina 3-8 Capsulae glaberrimae, rufescentes, longissime pedicellatae, stylo obsolete vel rarius subexserto

- 15 S NIGRA. (Marshall Arbust p 293), amentis foliato-pedunculatis elongatis laxiusculis subramifloris erectiusculis masculinis 3-5 annis, squamis in amentis masculinis rotundato-ovatis cucullatis villosis, in femineis ovato lanceolatis acutiusculis glaberrimis vel basi et margine villosis paludibus plus minus caducis, capsulis conicis angustatis vel conico-subglobosis fusco videntibus glaberrimis pedicellatis pedicello nectarium quadruplo superante, stylo obsolete stigma-  
tibus brevissimis integris crassis fulvis foliis anguste lanceolatis vel lanceolato-linearibus basi saepius dilatatis longe acuminatis crebre serrulatis glabris subtus reticulatim venulosis glaucescentibus vel videntibus, stipulis sat magnis semicoidato-lanceolatis 5 In America borealis a mare mexicanum usque ad lacus majores in Rocky mountains sat frequens — Willd sp pi 4 p 607, Trautv Mem de l Acad de St-Petersburg 3 p 614, Hook fl boreal amenc 2 p 148, Toney fl New York 2 p 209, Gay Man. ed 2 p 417, Anders fl boreal amer 1 c p 114 Sal Monogr p 19 fig 15 S Caroliniana Michx fl 2 p 226 S vulgans Ckyt fl virg (ex Muell et Pursh) S ambigua Pursh fl p 617<sup>u</sup> *Icones* Muhl Neue Berlin Schr 4 t 6 fig 9, Michx Sylva t 125 fig 1, \*ahcet Wob q 11. y P «*Idem* nosi allata elucet notis perpaucis\*

a *S amygdalina* orbis vetens differre videtur haec ei maxime analoga, in orbe novo vulgans, eique pecuhans iorma Quod *S Humboldtiana* in Angelica australi haec omnino in boreali, innumens formis (*S oxyphylla*, etc.) invicem connexae A *S Humboldtiana* tamen typice recedit *S nigra* amentis multo brevius pedunculatis, staminibus paucioribus, squamis magis rotundatis, capsulis longius et tenuius pedicellatis basi crassioribus et obusioribus fere granuliformibus, foliis basi vulgo latioribus et costa ut plurimum albobertis Difficilius autem characteribus a *S amygdalina* distinguenda Est tamen vulgo arbor 15-40 pedum ramis fragilibus, folia habet vulgo multo magis elongata, tenera angustiora subtus minus vel vix glaucescentia, dense serrulata, amenta conspicue laxiora tenuiora et rariora, stamina numerosiora, et capsulas longius pedicellatas magisque productas et maiores — Formae ex foliis maxime notandae sunt 1° foliis vix 3 pollicibus longis, medio evidenter latioribus, basi subrotundatis, costis supra albo-tomentosa, subtus subpallidioribus — Nostrae *S amygdalina* similis Haec varietas amentis fere pollicibus, foliis masculinis subcondensatis, staminibus subglobosis brevius pedicellatis, seu amentis 2-3 pollicibus longis acutiusculis Kx flexuosis, foliis masculinis verticillatim dissitis, capsula ovato-conicis vmdulis — 2° Folii subpollicibus basi apiceque subrotundatis, sed evidenter apiculatis, subtus glaucescentibus • *S Wtacea* ramis foliorum testaceis (Wright Mex n 1876) — 3° Folii 3-5 pollicibus longis, infra medium vix semipollicem latis longissime attenuato-cuspidatis, glaberrime nitidis concinnavibus Est interdum foliis oblique curvatis sublineari-lanceolatis (^ falcata Pursh fl amer p 617 *S Purshiana* Spr, ex Torrey), vel foliis valde angustatis demum sat rigidis (*S angustifolia* Michx hist arb amer sept 3 p 226 t 5 *S Houstoniana* Pursh 1 c p 614<sup>9</sup> Trautv 1 c p 61<sup>8</sup>, *Sal Wob* t 11 *S tristis* hort) Varietates ex diversis characteribus sunt

a, *marginata* (Wimm in sched herb Vmdob), amentis elongatis gracilibus, foliis contiguis squamis hirsutis canescentibus, capsulis breviter pedicellatis, lobis hinc lanceolatis leviter serrulatis venarum ramis pone marginem conjunctis — Ad New Orleans (Drummond) *AS nigra* recedit squamis foliorum 9 villosis, capsulis basi subpuberulis stylo subevidenti apiculatis

P *amygdaloides* (Anders Overs af wet Akad Forh 1858 p 114), amentis patentibus 9 crassiusculis, squamis parvis pilosis, capsulis longe pedicellatis angustatis gibbernis late lanceolatis apice cuspidatis productis subtus glaucis Ad Missouri (Neuwied), Milwaukee (Lapfum) Illinois (Brendel), Red River (Bourgeau) — *S tinctoriae* europeae simillima sed squamae facillime deciduunt, folia longius petiolata *Plasteria S lucida* simulat

Y, *longipes* (*S longipes* Shuttlew hb Hook), pentandra, amentis breviter pedunculatis foliis suffultis laxiusculis, squamis ovato-lanceolatis dorso villosis, capsulis ovato globosis glaberrimis fusco piceis, pedicello nectanum 6ies superante, foliis lanceolatis v lanceolato oblongis subtus glaucis et dense reticulato venulosis *S longipes* Anders *Sal boreali* amer 1 c p 114 Hab prope St-Marks Horidae (Rugel) *AS nigra*, cui habitu simillima, parum differt foliis latioribus et brevioribus obscuris vinctibus, amentis vix 1<sup>o</sup> pollice longis valde rarifloris, capsulisque granuliformibus longissime pedicellatis, quibus omnibus *S Capensi* superflue affinis et similis Hue certe referendae 1° *venulosa* foliis inns ovato oblongis obtusiusculis submucronatis subtus quasi cinerascens nervis acutissime prominens superioribus longissime attenuato-hincibus, capsulis sat magnis rufescentibus Ad *S nigram* transitus In Novo Mexico (Wright n 1879) — 2° *gongylocarpa* (Shuttlew), foliis e basi latioribus longe attenuato hincibus obsolete pubescentibus In Florida prope St-Marks (Rugel) *S occidentalis* proxima

6, *Wrightii* (Anders Monogr p 22), amentis brevibus densifloris crasse cyathraceis curvatis obtusis, pedunculo foliis paucis et paucis instructo squamis mox et facillime (Jeoduis flavidis pilosis, capsulis ovato conicis glaberrimis flaus longe pedicellatis, pedicello nectanum 4-6ies super-



rampe gracili gahcrrimp, foliis anguste lanceolato-linearibus glaberrimis serrulatis subtus glaucis venulosis. — In Novo Mexico (C. Wright n. 1877). S. Wrightii Anders. Ofvers. vet. Akad. Förh. 1858. p. 115. Foliorum forma et colore omnino S. nigrae simillima, sed amentis brevibus et crassis valde densifloris ab ea recedens et nostram S. albam subsimulans.

16. S. OCCIDENTALIS (Bosc, ex sched. herb. Hook.), amentis saltern masculis breviter pedunculatis foliis parvis, femineis autem foliis majoribus et pluribus suffultis, squamis densissime villosis vel potius lanatis, capsulis sat magnis globoso-conicis brunneis glaberrimis longe pedicellatis pedicello nectarium 4-6ies superante, foliis e basi subrotunda vel attenjjata lanceolatis acuminatissime rigidis utrinque cinerascenti-pubescentibus costa valde albo-tomentosa supra demum glabratis subtus glaucescentibus, stipulis similunatis. In Trinidad et in ins. Cuba. — Koch Comment. p. 16; Anders. Sal. Monogr. p. 23: fig. 16. A vera S. nigra certe quidem foliis majoribus i. e. 5-6 pollices longis, infra medium fere  $\frac{3}{4}$  poll. latis, vulgo dense albo-hirsutis, multo magis rigidis, forma fere ut in S. Bonplandiana, amentis brevius pedunculatis foliis paucioribus suffultis, squamis ovali-rotundalis et densissime canis, capsulis demum majoribus basi crassioribus differt, innumeris autem formis intermediis, ut jam exposui, cum ea confluit, ut modificationibus S. nigrae foliis tenuissimis anguste linearibus, iis S. Humboldtianae simillimis, ad eas foliis latis hirsutis subintegris, ut habet S. occidentalis, series una contigua existit. Ad S. nigram quoadmodum se habet ut S. hirsuta ad S. Capensem. (v. s.)
17. S. TRIANDRA (L. sp. pi. 2. p. 1442), amentis foliato-pedunculatis elongatis laxiusculis subrarifloris patulis masculis triandris, squamis pallide flavis in amentis masculis obovatis tenuiter angustioribus acutiusculis, saltern apice glabris subpersistentibus, capsulis ovato-conicis retifluentibus glaberrimis pedicellatis. pedicello nectarium triplo-quintuplo superante, stylo obsoleto, stigmatibus brevissimis crassis integris recurvatis fulvis, foliis oblongo-lanceolatis vel ovatis raro sublineanbus acuminatis crebre serrulatis utrinque glaberrimis subtus serratis glaucis rigidis, stipulis semicordata-lanceolatis. In Europa facile omnia a Rumeliu, Siciliae, Hispaniae, Italiae usque in Sueciam borealem (Tornea) et Rossiam orientalem; in Asia regione caspica (Lohmann, Buhse etc.) et caucasica usque in Sibiriam baikalensem et regionem Amurensis (Maximowicz). — Willd. sp. pi. 4. 054; Sm. brit. 1004; Hook. et Am. brit. II. ed. 7. p. 393 in Wimm. Fl. v. Scab. ed. 3. 184, Sal. europ. p. 12; Ser. Kss. p. 75; Gaud. helv. 6. 209; Bertol. fl. it. 10. 301; Trautv. Mem. mosc. 8. 168; Anders. Monogr. Sal. p. V3. fig. 17. S. amygdalina L. fl. suec. 881; Wahlenb. fl. suec. p. 66A; Fr. Mant. 1. p. 42; Anders. Sal. lapp. p. 17; Lange Dansk. fl. ed. 3. p. 731; Koch Comment. p. 18, synopsis. ed. 2. p. 24; Hartig Forst. Cult. p. 417; Host Sal. p. 4 t. 13, 14; Kern. Woid. Ocstr. p. 192; Gren. et Godr. fl. fr. 3. 120; Griseb. fl. rum. p. 3. 4; Willk. et Lange II. hisp. p. 226; Ledeb. fl. ross. 3. 600; Maximowicz Mem. d. St. Petersb. 9. p. 242; Bunge I. c. 7. 495; Coss. et Bischoff J. NOUV. Mem. Mosc. 12. 201. S. Villarsiana Flugge Willd. sp. 4. p. 655; Guss. Sic. p. 624; Trautv. 1. c. p. 619. S. Hoffmanniana Sm. E. B. t. 2620. S. Hopfiana Willd. sp. 4. p. 654. S. androgyna Hoppe Trautv. 1. c. p. 620. S. liastata et S. ppendula Thuill. paris. p. 512, 513. S. ligustrina, S. semperflorens, S. tenuiflora, S. varia fit S. venusta Host Sal. t. 5-16. — Icones: Anders. Sul. lapp. f. 2: Host 1. c; E. B. t. 1435, 1936, 2620; Sal. Wob. t. 15-18; Fl. D. t. 2558. Reichb. Icon. n. 1256-1260; Hartig 1. c. 48. — Exsicca: Ehrh. arbor. n. 19; Fr. Hb. norm. 3. 51; Reichb. n. 292, 709, 1631; Billot n. 2363; Ser. n. 7, 28, 29, 48; Wimm. Hb. Sal. n. 38, 51, 122; Kern. Hb. n. 25-30: Coll. Sat. 13, 14. Frutex v. arbuscula saepe biorgyalis, trunco corticem quotannis abiciente, ramulis glaberrime nitidis odore et sapore miti amygdalino. Folia 3-4 poll. longa, pollicem lata, basi subrotunda, lateribus rectiuscula, apice subito acuminata, utrinque glaberrima, supra nitide lucida et saturate viridia, subtus pallidiora aut saepius intense glaucescentia costa prominenti fulva, nervis vix reticulatoanastomosantibus. Amenta 2-3-poll. longa, gracilia; mascula foliis paucioribus plerumque suffulta, floribus subverticillatis rariflora, feminea cylindrica obtusa. Sape in autumnis

foliis adhuc persistentibus amenta in axillis denuo evolutyconspicuntur (ut *m* plerisque Salicibus tropicis). Hsec *S. seinperflorens* Host. A ceteris speciebus in Europa indigna facile dignoscitur, clifcillirne autem a *S. nigra* distinguenda, qua tamen multo elatior trunco validiori, foliis magis elongato-atenuatis, utrinque viridibus v. in costa supra hirsulis, fl. masculis 5-10-andris, capsulis viridulis magisque elongato-aftenuatis. — Adsunt *S. triandrae* formę riumerosae foliis et amentis tarn varie ludentes ut varietates primariae difficillime proponendse sint.

a, *discolor*, foliis subtus intense glaucis. Variat: 1° latifolia, foliis ovato-lanceolatis vel late-lanceolatis subabrupte acuminatis; 2° angustifolia, foliis anguste lanceolatis vel sublinearibus argute serrulatis aut integerimis rigulissimis; 3° microphylla, frutex prostratus, foliis parvis subtus albidis, stipulis longioribus. *Rxc*, quae potissimum *S. amygdalina* auct. sfpplus silvestris occurrit et Europae occidentali magis pecuiiaris videtur.

fi, *concolor*, foliis utrinque viridibus subtus pallidioribus. Variat: 1° latifolia, foliis ovato- vel obovato-lanceolatis sensim acuminatis tenuibus sat argute serratis; — 2° angustifolia, foliis exacte lanceolatis vel lanceolato-ellipticis; — 3° microphylla, foliis vix pollice longioribus ovajibus. Haec *S. triandra* vulgo appellata, in Asia frequentior, in Europa saepius culta.

Y, *tenuijulit*, amentis gracillimis vix 1½ lin. crassis, capsulis basi crassis brevibus condensatis.

δ, *crassijulit*, amentis 2-2½ lin. latis, capsulis conicis aut condensatis et breviter pedicellatis, aut subrarifloris, longius pedicellatis.

X (*f*) *S. AIOPECUHOIDES* (Tausch Ind. hort. Canal. 1821 et pi. select. Bohem.)» amentis masc. valde elongatis crassiusculis densioris triandris flexuoso-patulis, Squamis obtusis totis longe pilosis, filamentis squamas duplo triplo superantibus basi pilosiusculis, capsulis conico-oblongis glaberrimis longe pedicellatis pedicello necurium quater superante, stylo gracili subevidente, jigitmatibus partitis, foliis sat longe petiolatis lineari-hinceolatis longe acuminatis utrinque glaberrimis subconcoloribus costa lata flava acute et sat densa serratis, stipulis longe diutius persistentibus oblique semicordatis acutiusculis saepius serratis. σ In Bohemia prope Prag (Tausch), in Siebenburgen (ex Kotschy) et prope Vindobonam (Ncilr.). In hortis ex. ai vundobonGnsiprimum culla ad plures deinde divulgata. — KernerWeid. (Estr. 1. c. p. 190; Anders. Monogr. Sal. p. 26 fig. 18. *S. speciosa* Host Sal. 5. t. 17; Wimm. Hb. Sal. n. 77. *S. amygdalino-fragilis* Wimm. Flora 1848 p. 333; Neilr. Fl. v. N. (Estr. 254. *S. f-agilis-triandra* Wimm. Penschr. 1853 p. 166; Sal. europ. p. 136; Pteichb. Ic. n. 1257 (scd pili gracilioies!); Wimm. Coll. Sal. n. li>. — Ex *S. triandra* et *S. fragili* procul dubio hybrida. A *S. fragili* habet folia juniora eximie tenuia, facile sub prelo nigrescentia, venis pellucidis lineata, apice oblique attenuato-acuminata, lutescenti-virilia, amenta masc. bracteishirsutis suffulta, filamenta valde elongata straminea, denique capsulas elongato-acutas. A *S. triandra*: folia adulta rigidiora magisque lucida densius serrata costa valide prominente lineata, stipulis magnis subpersistentes, stamina semper tria, capsulas evidentem longius pedicellatas breviores subfuscescentes. — Duas sequentes, hujus facile modificationes, etiam illustravit Kerner 1. c.

a? *Koratsii* (*S. Kovatsii* Kern 1. c.), amentis d\* gracilibus latitudinis bis longioribus, squamis fere labris basi tantum breviter pubescentibus unde amenta novella glabriuscula, staminibus geminis vel ternis, filamentis brevibus, foliis breviter acuminatis, stipulis serratis. — Nonne potius *S. triandrae* varietas ad *S. fragilem* accedens? In Austria prope Gloinmitz et Wien (Kerner).

§? *subtriandra* (*S. triandra* Kern. 1. c. p. 189), amentis J crassis latitudine bis longioribus, squamis pilis longis rectis hirsutis, staminibus geminis v. ternis, filamentis elongatis, foliis longifolia acuminatis, stipulis

integrus — Kern herb Sal n 21 23 S fragilis subnandia Neilr Verh. d zool Verems in Wien 1 p 117, pro parte Nonne S fragilis modificatio S tmandram revocans 7 In Austua infenon.

XX S UNULATA (Ehrh Beitr. 6 p 101), amontis pedunculatis erpctiusculis cylindrateis obtusis densiflons, pedunculo folus 2-4 instructo, squamis flondis teiuitter pilosis apice obtusiusculo barbatis, capsulis ovato conicis pedicellatis, pedicello nectanum bis superante, stylo evidente, stigmatibus bifidis divancatis fob is lanceolatis basi sanpius Utionbus apice longe acuminatis acute serrulatis supra ob&ture subtus laetius vindibus utnnque demum glabernmis, stipulis semi cordatis § In Furopa mediaa Transsyl\ama et Bavaria usque, in Sueciam (ad Upsalnm) in Hossia ad Petropohm oi in Angha (culU et silvestns?) — Willd. sp pi k 655, hautv Mém de l'Acad de St-Pétersbourg 3 p 616, Koch Comment p 20, Syn oil 2 p 742, Hartig For&f Cult p 417, Fr Nov Mant 1 p b2, Lange Dansk fl ed 3 p 732 Hook et Am fl bnt ed 7 p J94, Gr\*n et Godr fl p J p 126, Gaud fl helv 6 p 211, Icedeb fl ross 3 p bOl, Anders Monogr Sal p 28 hg 19. S tmandra viminalis Wimra Flora 1849 p 39 Denkschr 18i3 p 157 S viminalis tmandra Mey fl hannov. p 500 — *I cones* Reich n 1261, E B t 1436, Fl D t 2V>0, Hartig 1 c t 47, Sal Wob n 13, 14 — *rxsicc.* Fr H norm 3 53, Reich n %0 *I formis* inter S tmandum et viminalem (quas S. multiformem appellavit Doll fl Ind p 506) hanc extrerna ad S pnozem ut S mollissima ad postenorem \ergens Fructx sat altus, ramis virgatis glabns Folia 3-5 poll longa, infra medium fere jiolliccm latn, marginibus plerumque undulata Amenta mascula ranssima, ab I hrh tmandra, a Greniero diandra descnptal P'eminea pnmo llava, pilosa, H poll, longi, dense floxiosa A s tmandn racile difTeit capsulis brevius pppditellatis et siylo rostratis, a b. viminali folus glabns ot vindibus, capsulisque podicellaus Nupenus hanc formam e S albi et tmandia ortam susnic itus est Wimmer (Sal. europ p. 144) ab ea S. tmandn-viminalem (S. mollissjmam I hrh) distmctam roponens (Sal europ p 140) cujus formas tros scquentcs enumerat S Irevirani, S. hippophac foil Lm et s. mollissimam, capsulis pubescentibus bone distmctas! Has autem cum S viimnali simihtudinem majorem haud abncgmdam praebentos huic specioi assouavi, omnes autem cum S undulati seriem efficiunt Integram, ut jure cenlendit Doll et plenque (v v )

p, *hebecarpa*, capsulis pubescentibus. S undulata Fhrh , ranssima.

y, *lanceolata*, capsulis glabernmis. S. lanceolata Sm.E Bot t 1436, Trautr. 1. c p 617

S, *lattfolidj* fohis basi htion, sonsiui attonuatis.

e, *angustifolia*, folus basi et apice attenu itis angustis

XXX S KRAUSEI (Anders Mon Sal. p 29 f 20), amentis breviter pedunculatis erecto patulis cyhndraceis subranflons folus 3 5 pan is subtus senceo-pilosis acutis mtegnis buffultis, squamis testaceis obovato lingulatij, acutiusculis stramineis longe sed sparse pilosis, cansuhs ovato corner obiusis basi glabns apicem versus tenmssime puberulis longe pedicellatis, pedicello nectanum J 5'> superante, stylo minimo, stigmatibus divantatis emugmatis, folus obovato lanceolatis basi angustitii\* acuminatis saltern junionbussubtus tenui^sime pilosis supra nitonte glabernmis suhtuspallidionbus vel glaucis, stipulis semi corditis In Silesia piope Breslau et Oppeln, lanssimc (sec Wimmei) S. inandra cmerca Wimm Regensb Fl 1849 n 1, Fl v Schles ed 3 p 207, Herb Sal n 141 et Coll Sal n 248, Sal europ. p 146 S tmandra aunta Wimm. Fl v Schl 1. c Verosimihier hybrida pioles, cujus tantum tres fi utices hucusque observati. Proxima ost S tn<indra3, a qua amenta folus suffulta, linean cylindracea, squamas tcsUceas parcis^me pilosas, cipsulas fustassubglabias, folia pure vindia habet, ut simul e S caprea vel S aunta folia saltern juniora sat evidenter senceo pilosa, brevn et obovata, subrugo a, capsulas longms podn ellatas tenuiler puberulas «Kxstant dua2 loimae, altera folus pffullo majonbui semper lere puberulis, germinihus puberulis (coll n. 248), altera folus minonbus fere glabns germimbus aut ex parte pubescentibus aut totis glabns (coll n 248b) » Wimm (v s )

§ 6. *Lucida* v. *pmtandrae*.

Arbores vel frutices, ramis nitentibus subtenacibus. Folia basi latiuscula, apice saepe longe cuspidata, adolescentia viscida, acute glanduloso-serrata, lucide nitentia, Mibtus pallidiora, pedunculo glandulifero. Amenta foliato-pedunculata, squamis ante fructu & maturitatem caucis, toro in utroque ilore biglanduloso, staminibus 4-12, capsulis plus minus pedicellatis glaberrimis testaceis, stylo nullo, stigmatibus crassis.

18. S. LUCIDA (Mthlenb. Nov. Act. Soc. Nat. Scrut. Berol. 4. p. 667), amentis pedunculo saepe stipulato-foliato plus minus longe pedunculatis, squamis pallidis ovato-lanceolatis salern apice plerumque glabris, staminibus 3-5 flavo-aureis, capsulis glaberrimis obtusis pedicellatis, pedicello nectarium ter quaterve superante, stylo brevi, stigmatibus internis crassis, foliis ex ovata basi lanceolatis longissime abrupte et cuspidato-acuminatis densissime glanduloso-serialis utrinque glabris lucidis demum coriaceo-rigidis sublus pallidioribus, stipulis setniovatis scnalis, petioli superne glandulifero. — In ripis fluviorum potius inumlatorum per Americam septentrionalem mediam usque in alpes et ad Il. Saskalchawan adscendens. — Willd. sp. pi. 4. p. 617; Trautv. Mem. de l'Acad. de St-Petersb. 3. p. 625; Pursh fl. 2. 615; Nutt. Gen. p. 231; Hook. fl. bor.-am. 2. p. 148; Torrey fl. New-York 2. p. 208; Asa Gray Man. ed\* 2. p. 417; Anders. Sal. Amer. 1. c. p. 115; Monogr. Sal. p. 20 fig. 21. S. penlandra Nutt. Sylvap. 77. — *Icones*: Michx. Sylva, 2. 1.125. f. 3; Toirey fl. New-York t. 119; Salict. Wob. 32. — *Kxsicc.* Barratt Sal. 17. Haec species americana nostia<sup>^</sup> europew S. pentundrx ifa similis et characteribus ei congruens, ut, si formas exiremas respicias, nullo modo ab ea dislingui possit. Forma typica attamen plerumque recedit: foliis acumine longo tenui quasi flagellari cuspidatis, basi rotundatis, vulgo crebrius serratis, magisque coriaccis, stipulis subsistentibus non raro etiam in pedunculis evidentibus, gemmis maximis rutescentibus, capsulis obtusioribus longinsque pedicellatis. Variat attamen notantum forma et mutabiludine eic. foliorum, sed etiam amentis et capsulis. Quod ad folia has modificationes distinguas: 1° *latifolia*, foliis 3-4 poll. longis, ad medium fere 1) poll. latis, basi aut rotundatis aut subangustatis, apice brevius vel longius cuspidato-acuminatis, tenuibus v. rigidissimis. — 2° *orali-folia*, foliis ovali-oblongis acumine breviori cuspidatis vel tantum aculeis majoribus v. minoribus. Haec nostra) S. penlandrae similissima. In regionibus magis septentrionalibus Americae. — 3° *angustifolia*, foliis plus anguste lanceolatis, basi subattenuatis, apice vulgo longius attenuate. Locis alpestris. — Adhuc magis a forma typica recedit:

p, *macrophylla*, pedunculo valde elongato, foliis magnis stipulatis instructo, amentis ex crasse cylindricis elongatis, squamis pallidis acutiusculis magnis basi et intus pilosis, foliis tenuibus 5-6 pollices longis infra medium fere 2 poll. latis et basi subcordata v. rotunda late lanceolatis in acumen elongatum cuspidatis costa venisque supra albo-pilosis subtus pallide viridibus margine sat crebre crenulato-serratis, stipulis magnis lunatis argute serratis. — Ad « Lower Frazer-river » 49<sup>o</sup> lat. bor. (Dr. Lyall, 1859.) et in ripis ad Rio River (Bourgeau, 1859).

19. S. ARGUTA (Anders. Sal. Monogr. p. 32 fig. 22), amentis elongatis subdensifloris erecto-patulis foliato-pedunculatis, squamis plus minus argute denticulatis, filamentis ad medium pilosis, capsulis ovato-conicis glaberrimis breviter pedicellatis, pedicello nectarium vix\* duplo superante, stylo subproducto stigmatibus crassis fuscis, foliis anguste lanceolatis basi attenuatis apice longe acuminato productis tenuibus utrinque viridibus venis fuscis anastomosantibus reticulatis margine argute et subprofunde serratis, stipulis minutis semicordatis. In America boreali in Novo-Mexico (Fendler n. 816 sp. masc.) in Rocky mountains (Burke et Geyer n. 287) et ad fl. Saskalchawan pro De'cai Ytoii house (Bourgeau). S. Fendleriana ^ Anders. 1. c. p. 115 (1). Est forjná aut mera angustifolia S. lucidaj (sed stipulis, squamis, capsulis et foliis lineari-lanceol a

(1) Nomen *Freridleriana* ex lege prioritatis servandum, aut vetustius adhuc nomen varietatis (*3, lasiandra* praeposendum. (Alph. DC.)

tisrecedens), aut quasi hybrida a S lucida et S cordata angustifolia, habitu sat singularans, characteribus autem valde ambigua Hue ut modifications tantum referendae

- P, *lasiandra*, amentis ramis longis erectis cuivatis acutis, squamis profunde et inaequaliter serrulato dentatis glanduligeris spatulatis glabris, staminibus, filamentis longe hispidis, foliis anguste lanceolatis dectissimis adultis utrinque glabris subtus parum pallidioribus — In California ad fl. hat 1 imento (Haitw n 1984, Bigelow in Whipple) S *lasiandra* Benth pi HarUv p JIG S luudo-angustifolia var Anders 1 c p 115
- 7, *erythrotoma*, amentis longe pedunculatis patulis curvatis acutis basi subramulosis, filamentis iusculis, antheris minutis lovis tenuibus facile mgiescentibus, summiibus rulo hulis adultis utrumque glabris subtus opacis In npiis et insulis lacus Wimpce America boieihis (HI) Asa Gray) ad Columbia n\ei et tori tidnklni (Hb Hook) b eiythiocomma Barratt sil amei exs
- 8, *paUtstens*, amentis ioluto-pedunculatis, <? brevibus squamis obovatis obtusis glabris 9 oblongis squamis anKustissimis et tenuissimis lanceolatis glabris capsulis\* conico-attenuatis <> disunctis pedicellatis, pedicello nectarium quadiuplo supnante, stylo subdistuoto, stigmatibus crassis, tolus crassiusculis ipict plus minus cusculatis supra opaco-vm dibus venis impiessis sulnapqualilijus subtus ]>allido glaucescentibus maigine minus argute glanduloso senulatis — In Amer boreali ad fl Saskatchewan (Bourgeau) A VPI is lucida non paum differt ramis crassis testaceis, foliis primitus pubescentibus, supra \ems obscurioribus impiessis, subtus sat intense glau is, coi silentia dunonibus, amentis masculis brevius pedunculatis, squamis e^imu tenuibus et ^labemmis, capsulis multo longius pedicellatis et stylo subdistincto rostratis
- £, *alpigena*, amentis brevibus ovalibus foliis sat magnis suffultis capsulis stylo evidention, stigmatibus demuni fuscioribus, lovis conaceo-angustis utrumque lucide vinctibus acutato cuspidatis in pedunculo concolonus subintegris — In Rocky mountains ad Cimpment de la loret bidce (Bourgeau) AS lucida ets aigatotypica differt staturahunrh, foliis conaceo-angustis utrumque lucide vinctibus tt cle\to nervosis, us in pedunculo obtusiusculis jta ut S NOV\*IL Anglu non male revocet ideoque affinitatem quaedam cum S coidita ultcius cemonatiet.
- 5 *Inrtisquama*, amentis brevibus pedunculatis brevibus eiecto patulis squamis (laudis ajnee summo escopto albo-lucis, foliis angustis argute serratis Ad lacum Winipeg (Bourgeau)
- 20 S^LANGIFOLIA (Anders Sal Monogr p J4 1 23), amentis magnis longe pedunculatis patulis cylindricis densifloris pedunculo foliis magnis instructo, squamis stamineis tenuibus acutiusculis glanduliferis, capsulis glabris corncis breviter pedicellatis, pedicello nectarium vix duplo superante, stylo obsolete, stigmatibus subintegris, iolus ex oxaio-iotundati basi in cuspidem longe productum aequiliter attenuatis margine subtilior glanduloso senulatis supra obscure vinctibus subtus pilidionibus vel immo opace glaucescentibus demum angustis, stipulis nullis vel mox deciduis ^ In America boreali occidentali, in insula Vancouver (Dr Lyall) Aibor magna ramis fusco cista fleis, iamulis puberulis, f<pmmis puvis hoha i> poll longa Ametitafminea 2-J-[ olhcana — Intel S lucidarn mauoph\llam et S nigrarn latifoliam ita ambigit, ut dilficilime ah us distinguatui Ah ilia habet folu latiuscula, margine et piaepue basi glanduloso serrata, pedunculos longos fohatos, capsulas iufescens magnas acutas breviter pedicellatas, a postenore lamos annuinos et petiolos sat longos pubescentes, consistontiam foliorum angustiusculam, folia subtus ciebenime retioulato-venulosa et opaca vel glaucescentia, costa flava percursa (v s)

\*L| s PLTANDha (L sp pi. p 1442) amentis sat longe et fohato pedunculatis densifloris obtusis nutanti patulis fl masc \*-12andns, squamis ovatis vol obovatis pallide flavis saitem apice glabris, rachi glabra, capsulis conicis lostratis

tis glaberrimis demum pedicellatis, pedicello nectarium fere bis superante, stylo brevissimo, stigmatibus crassiusculis patulis, foliis ovato-lanceolatis acuminato-cuspidatis dense glanduloso-serratis glaberrimis adolescentia glutinosis demum rigidis lucidis subtus pallidioribus et crebre venulosis, stipulis ovato-oblongis, petiolo superne glandulifero. § In pratis paludosis et sylvaticis Europae lete totius et Asiae praecipue septentrionalis ab Italia meridionali usque in Laponiam borealem, a Gallia in Kamtschaikam. (in Americas, lucida, huic analoga) asque vulgaris adest. — Willd. sp. pi. 4. 658; Trautv. Mem. de l'Acad. de St-Petersb. 3. p. 610; Wimm. Sal. europ. p. 22; Anders. Sal. Monogr. p. 35. f. 24; Hook, et Arn. brit. 3. ed. 7. p.; Koch Comment, p. 13; Fr. Mant. 1. p. 21; Wahlenb. suec. p. 657; Lange Dansk. fl. ed. 2. p. 651; Koch Synops. ed. 2. p. 739; Kern. Oestr. Weid. p. 179; Hartig Forstl. Cull. p. 418; Wimm. fl. v. Schles. ed. 3. p. 183; Gaudin helv. 6. p. 215; DC. fl. franc. 3. p. 287; Godr. et Gren. fl. fr. 3. p. 124; Bertol. fl. ital. 10. p. 311; Ledeb. fl. ross. 3. p. 597; Maximowicz fl. amur. I. c. p. 245; Bunge, Mem. div. Sav. de St-Petersb. 7. p. 495. S. hermaphrodite (monstr.) Linn. sp. 1422. S. polyandra Geld, in Schrank hair. fl. 1. p. 228. S. Meyc. riana lorr. in Hook. Brit. Fl. ed. 3. — *Icones* : Fl. D. 943; Sv. B. 325; Host Sal. 1-2; K. B. 1805; Reichenb. 1267-1269; Hirtig Forstl. Cull. t. 49; Sal. Wob. 134. — *TJxsicc* : Khrh. Arbor. n. 48; Ser. n. 13. 49; Reichb. n. 1423; Fr. H. norm. 9. 60, 9. 59; Anders. Sal. Monogr. f. 24; Wimm. 79, 80; Billot, n. 1065; Kerner Hb. Sal. n. 1-3. — Arbor saepe excelsa Ininco valido omnibus partibus glaberrima, flavescenti-viridis. Folia forma varia, typice subovalia vel late lanceolata apice plus minus producto acuminata, 3-4 poll. longa, pollice in lata, costa flava, primo glutinosa ut chartae adfixa maneant, demum subcoriacea splendentia glandulis saepe stipitatis serrata. Amenta mascula saepe 1-2-pollicaria, aurea, squamis basi vel ad medium tenuiter crispato-villosis; amenta femineal longiora, 1-2-pollicaria, demum pendula. sub hyeme saepius persistentia, squamis angustis tenuioribus; capsulis pallide flavidis viridi-lestaceis stramineis. Species elegantissima eximie varians statura (nunc frutex humilis nunc arbor altissima), ramorum colore (viridi, rubro, fusco, vitellino), foliis latis v. angustis, obtusiusculis vel cuspidato-acuminatis, tenuibus v. coriaceis, amentis longius vel brevius pedunculatis, arrectis vel recurvalis, staminibus 4 vel usque ad 10, capsulis rostratis vel obtusiusculis, etc. Sequentes praecipue notandae ob formas foliorum recedentes.

p, *latifolia*, foliis latitudine duplo-triplo longioribus acutis vel cuspidatis. Saepius frutescens.

y, *angustifolia*, plerumque arborea, foliis latitudine triplo-quintuplo longioribus basi angustatis margine argutius serrulatis, non raro staminibus paucioribus instructa. — Nonne S. Friesii Kerner Oestr. Weid. p. 183. quae 1. c. S. superpentandra-fragilis salutatur. S. quae S. polyandra Bray, Fries herb. norm. 12. n. 65?

δ, *microphylla*, foliis vix pollice longioribus supra medium  $\frac{1}{2}$  poll. latis breviter acuminate basi angustatis. Arbor parva praesertim in regionibus frigidis frequentior.

22. S. CARDIOPHYLLA (Trautv. et Meyer Florula Ocliotensis in Middendorf Sib. Reise I. 3. p. 77. t. 19. 20), amentis cosetaneis longe pedunculatis anguste cylindraceis pedunculo foliato et stipulifero, squamis rotundato-obovatis dorso glabro margine tenuiter ciliatis pallide stramineis nervosis, staminibus 5-8, Hlainentis basi pilosis, capsulis ovatis glabris breviter pedicellatis, pedicello nectarium iequinte v. bis superante, stylo minimo bifido, stigmatibus bipartitis excuspidatis, foliis ovatis basi cordatis apice acuminatis margine glanduloso-serratis utrinque glaberrimis subtus pallidius virescentibus, stipulis suborbiculatis glanduloso-serrulatis. § Ad fl. Polowinnaja, prope opp. Udakoi et ad sin. Ujakon (Exped. Middendorff.), prope Ajan legit Tiling, et in montibus Stavonoi (Dr. F. Schmidt). — Reg. et Tiling Flora ajanens. in Nouv. Mem. de la Soc. des Natural. de Moscou v. II. p. 117; Anders. Sdl. Monogr. p. 37. fig. 25. Est quasi a S. peniandra et S. pyrullifolia hybrida, notis tamen ut etiam habitu huic proxima et facile distincta. Frutex dicitur altior; rami adultiores usci, glaberrimi. Folia  $\frac{1}{2}$  poll. longa, suprapure viridia Uicida, primo ad

costam mediam parce pilosiuscula, mox glaberrima, pulchre venulosa, subtus dilutiora sed non glaucescentia petiolus eglandulosus, 1 3 lin long us Stipulae petiolo plerumque duplo breviores Amenta mascula (quae sold vidi) viz pollice longiora 2 lin crassa, folns densis rite evolutis suffulta, squama, margine saepe retusae lbique semper cilns parvis scabiau (v s)

X S CUSPIDATA (Schullz (1 siaigard suppl p 47) amentis foliato pedunculatis vel subreflexis subdensiflons, stamimbus 3 5 pallidionibus s<sup>u</sup>amibus oblongo lineanibus basi aepe crispato villosis, rhachi pilosa, capsulis conico-rostratis ex ovaia basi longe attenuate glains pedicellatis, peicello nectanuni ter quateive supcrante, stylo mediocn pallido, stigmatibus crassiusculis marginatis, folns oblongo lanceolatissupia medium lationibus subitoet longe saepe oblique acuminatis dense glanduloso seiratis demum glaberrimis nitenibus pure vmdibus subtus pallulioiibus junionibus lenuitatesub prelo nign-Cdntibus, stipuhs semicoidatis obhquis petiolo superne glanduligero 5 In Europa media passim, i on ubique adhuc rite recognita ideoque paucis tantum locis indicata ut in Anglia, Germania boreah Dania, Suecia usque in lac Moelarui circa Petropolin, in Livonia, Curoiuat Lithuania —Anders Sal Monogr Yl fig 26 Koch (omment p 14, Synops ed 2 p 740, Hook et Am bnt el 7 p 39J, Kerner Weid Oestr I c p 181, Lange Dansk Fl ed 2 p Go2, Ledeb fl ross 3 p 597 S fragilis pentandia Weinm Schles Fl ed 3 p 208 Denkschr 1853 p ISJ S pentandra-fragilis Wimm Hegensb Flora 1849 n 3, sal europ p H4, Mey H hannov p 499 S Meyenana Rostkov in Willd Beil Baumz ed 2, p 427 (vanatio stamimbus iedexis sec Koch et Wimtn, Harlig Forstl Cult p 419, Trautv Mem de l'Acad de St Fétersb 3 p 61o —*Icones*\* Reich f 1266, HarMgl c t 50, Fl D 2487, bal Wob t 33 —*IXMCC* Wimm Hb Sal n 29, Kern Hb n 4, Fi H Norm 15 61<sup>9</sup> Inter S fragilemetS pen tandram omnino media et ab us sinedubioorta AS pentandn habet staturam arbons elegantis, ramoset ramulos tenaciores, petiolos apice glanduhgetos lolia in acumen magis subito acuminata ngidiora et sat lucida, amenta longa et densiflora, stamina numerosioid, a S fragili truncum validum et rdmificationem, folia multo angustiora < t tenuiora subius pallidiora obhqua, capsuias ranores Jongius attenuato rostralas Floreridi tempore etum medium tenet inter parentes Inter S pentandiam et fragibm duas formas caeterum offeit ill Kerner 1 c sc S l«riesii et S Pokorny Quod ad S l<sup>u</sup>nesii attmet d S pentandra (cujus vanatio angustifoha mini videtur) vix differt nisi folns angustionibus et longionibus staminibusque 4 8 — S Pokomyi Kern I c p 181 (S fragile herb, bal p 5 sec Kerner S fi agi I is pentandia Neilr H v Nied Oester p 2i3) ut v angustifoha S cuspidate, ad S fragilem apertius accedens (in herb Sal p 8 etiam hoc nomine designavit Kerner s fragilis var Pokonyi) videtur fl masc s«fipius 2-3-andns, loins laiitudine 4 duplo longionibus subdi versa Fodem modo du is modihcationes distinxit Meyer S Iragili pentandram (S Meyeiidfiam Willd) et s pentandro Iragilem (S cuspidatam Sch) Adhuc notdbiliorem a Petropoli misit amioiss Koinicke folns adhuc angustionibus et ugidioiibus distinctius glanduloso-serratis msignis (v s)

XX S HEXANDRA (Lhihr aibor exsicc n 140), amentis foliato-pedunculatis curvato-patulis densiflons cylindnceis, rhaohi pilosa, squamis oblongis pallidis vel rufescentibus superne nudis, starainibus4-fa, filamentis basi hnsutis, capsulis subsessilibu<sup>9</sup> ex ovata basi attenuatia glabeinmis, pedicello nectanum brevissimum subtequante, stylo obsoleto, stigmatibus patuhs, folus lanceolatis basi angustatis apice longissime et oblique attenuato-cuspidatis junionibus pi<sup>1</sup>is adpressis scenceis, adulus glaberrimis lucidis utnnque vnidibus ngidissimis margine ciebre glanduloso-senatis, petiolo longo apice glanduhgero In Austna alpestrn et mfenore (Salzburg) et ad ^teizing Tyiolis (Kern), prope Posen (Ritschl) et Tilsit (Heidenreich) ex Wimm Etiam ex Germania boreah allata —Phihr Beitr 8 U8 Anders Sal Monogr p 40 1 27 S Ehrhaitiana Mby Chi Hannover S pentandia et alba Ker nei Oestr bot Zeit 1808 p 123 (Ritschl hi v Poscn p 291 Wimm Sdl europ p 138<sup>9</sup>) S albo fra illis Mey fl Hannov p 499p p—*Exsicc* Kern Hb bal n 19, 20 Wimm Hb Sal 103 Coll 186 (?) Forma quoad synonyma<sup>1</sup> authentica obscifra flonbus S dlb« Ironde S pentandrae propior. An

plane eadem ac Weimmaniana nescio. A *S. pentandra* diniaguitur foliis primo pilosis angustioribus, subtus nervis leniibus parum prominulis venisque crebre anastomosantibus quasi reliculatis, 'mentis gracilibus pilosis, capsulis brevioribus; a *S. alba*, foliis mox glaberrimis margine creberrime glanduloso-serratis supra lucide viridibus, petiolo glandulifero, amentismasc. 4-6 andris. A *S. viridi* differt: foliis multo angustioribus longiusque cuspidato-attenuatis utrinque pure viridibus supra sublucidis margine glanduligeris et amentis A *S. cuspidata*: foliis junioribus subsericeis, longius cuspidatis, rigidis, flor. masc. 4-6-andris, capsulis subsessilibus et stylo obsoleto apiculatis.

### § 7. *Fragiles* ▷. *Albx.*

Arbores vel frutices, rami\* gracilibus ad insertionem plus minus fragilibus. Folia lanceolata, longe et saepe oblique acutata, tenuiter glanduloso-serrata, subtus glaucescentia. Amenta foliato-pedunculata, squamis concoloribus caducis, toro in fl. masc. biglanduloso, staminibus binis rarius ternis, capsulis subsessilibus (vel rarius pedicellatis) glaberrimis, viridiusculis, stylo subnullo, stigmatibus crassis, integris. — *Fragiles* Ehrh. Comment, p. 13. p. p. — *Fragites et Albx* Kem. 1. c. p. 45 (cum Pentandris). <sup>^^</sup>

23. *S. FRAGILIS* (L. sp. pi. 1443), amentis breviter pedunculatis foliis paucis primo suffultis patulis vel recurvatis densifloris hirsutis, squamis pallidis acutiusculis pilis longis basi plerumque hirsutis, staminibus geminis vel rarius\* ternis-quadernis stramineis, capsulis elongato-conicis attenuatis glaberrimis pedicello nectarium bis terve superante, stylo mediocri, stigmatibus partitis divaricatis, foliis lanceolatis oblique acuminatis junioribus teneribus subpilosis adultis glaberrimis subrigidis subtus pallidioribus, stipulis (quum adsunt) semicordatis facillime deciduis. 5 Ad ripas et in locis paludosis per totam Europam, Sibiriam, in provinc. caucasicis, Persia, Asia minori, etiam in America boreali culta. Spontanea vix nisi in Asia australi-occidentali. \*— Willd. Sp. pi. 4. p. 669; Koch Comment, p. 15; Nyman Syll. p. 343; Hartig Forstl. Cult. p. 419; Fries Mant. 1. p. 42; Host Sal. p. 6; Wimm. Sal. europ. 19; Anders. Sal. Monogr. p. 41; Wahlenbg. n. 2. p. 657; Lanpe Damk i] ed. 2. p. 652; Koch Synops. ed. 2. p. 740; Wimm. Schles. fl. ed. 3. p. 1P4; Kern. Weid. Oestr. p. 184; Smith brit. p. 1051; Hook, et Am. brit. fl. ed. 7. p. 395; DC. fl. fr. 3. p. 288; Godr. et Gren. fl. fr. 3. p. 124; Ser. Ess. 79; Gaud. helv. 6. p. 212; Willk. et Lange hisp. n. 226; Bertol. Hal. p. 303; Tenore Syll. p. 479; Sm. il. graeca p. 252; Ledeb. fl. ross. 3. p. 598; Bunge Reliqu. Lehm. 1. c. p. 495; Tchihatcheff As. min.; AST Gray Mon. ed. 2. p. 416.—*icones*: Sv. Bot. t. 373. Fl. D. t. 2484. E. B. 1.1807. Host oil. t. 20-22 (?); Hartig 1. c. p. 51. Reich, t. 1264. Sal. Wob. 27. — *Exsicc.*: Ehrh. arbor, n. 88 Ser. 12. Bill. norm. 1955. And. Sal. Monogr. f. 28. Fr. H. n. 1. 60. Reichb. n. 1163. Billot n. 1955. Leefe n. 50. Wimm. n. 87. Coll. Sal. 9. Sal. austr. 6. 7. 9. Arbor cito crescens, sat alta, ramis undique vergentibus, ramulis fere rectangularite." divaricatis eximie fragillimis; intacta. sec. ill. Kerner, in formam pyramidalis excrescit arbor. Folia 3-5 poll, longa, senaturis glanduligeris mflexis crenata., juniura sat tenuia et sub prelo facile nigrescentia, subpilosa, adulta rigidiora. Stipulae tan turn in ramulis sat magnae. Amenta masc. 2 poll, longa, primum flavescens-pilosa deinde subrariflora! S'amina saepissime bina, non raro autem plura in singulo flore observantur (hue *S. fragilis* y polyandra Neilr. Fl. v. Nied. Oestr. p. 253, referenda et a *S. hexandra* distincta, teste Wimmero). Capsulas viridulae, exsiccatione nigricantes, sub stylo apice incrassatae, linea longiores. Occurrit :

o, *an gusli folia*, foliis angustis 2-3 poll, longis semi-pollicem latis, apibus vultus pallidis vel glaucescentibus. Kerner Hb. sal. n. 10. *S. fragillissima* Host? t. 22, 23. (ad *S. viridem* a Wimmero relata!)

p, *latifolia*, foliis 4-5 poll, longis pollicem latis aut concoloribus (Kern. Hb. Sal. n. 9) aut discoloribus (Kern. 1. c. 6-7).— Haec *S. persisifolia* Schl., *S. excelsa* Tausch., *S. Monspeliensis* Sal. Wob. t. 30.

Y, *decipiens*, cortice ramulorum testaceo, « gemmis fuscis », foliis pedunculi



et ramulorum infimig o bo vat is — S decipiens Hoffm Sal p 2, t 31, bm £ 8 t 1937 et auct vanor, Sal Wob t 29 — Est levis modificatio saepissime atnputdtione quotanni orta passim obvia

§ *australis*, amentis densioribus et crassioribus\* sjuamis rufescentibus saepe lusco-nenosi>> o\atis ve obovatis fere toti^ glandris filaments basi den e villosib, dntliens minutis auiantiaus, folns brevioribus sed latioribus saepius obovatis brevius acuminatis — In Imeietid et cetens provinuis caucasicus (Witman), Persia (Hansen) et prope Aleppum (Kotschy pi Alepp n 84) Habitu a S alba non valde alieni, sed loins omnino lenius, nudis, amentis crassis, filamentis longis divtrsa

X S VIRIDIS {Yr Nov Fl suec ed 2 p 283), amends coTtaneis foliatis cylindraceis elongatis grduhbiis densifloris, masculis patulis vel recurvatis, lemineis erectiusculis glandulionibus, pedunculo fohato s juuuis oblongis obtusis bdsi pilosis, staminibus geminis interdum terms, hlamt niis palhde flavis antherib aureis, capsulis breviter conius ohtusiubculis glandimms pedicellatis pedicello nectinum subsuperante stylo mmimu, aigm lthius patulis bilobis foins lanceolatis apice subitcto longo icuminatis teni iter glin luloso-serrulati&primo subsenccis doinle gkbcmms supra lucidis vindissiniis \*«ubtiis palhde vnrdbus vel glaucis ngidis exsiccatione \ix nigrautibus stipulis ovatis glan lulose seirulatis deciduis ^ Ad npd> ef \ias in huropa medu usqje in Hjlronm Sueciae locis specialibus vix adhuc accurate assignata, ut potp uum S alba v fragih saepius coiimutatd — hr Mant 1 p 43, Nyman, Synops fl urop p 3-4J7Hdilin Skand Fl ed 9 p 176, lange Dansk H ed j.p 7J0, Kern W(id Oestr p 18b Hb Sal n 12 13, Anders Sal Monogi p 43 1 29 S Russcbana Forb Wob t 28 KouhComm p 10, Reichb Cxcurs 10\*9,Haitig FoLst Cult p .? S frt^ilis (3 Kuwlhana Koch bjnops p 6i3, Ledeb fl loss J p ^98 s alba y vindisWahlenbg fl suec p H8 S fragi lialbaWimm Dcnkschr 18>3 p HG, Fl v Stbl el J p 208, Sal europ i) 133 \$ albi fia,nlis Mcy Fl Udno\ p 40'), Ritschl PI v Pos j 20G — *teant*\* II D t 248b, Anleis Sil Mono0i f 29,\*orb Wob J') 28 Rcitbb D fl 120S 1st diloi pul(hra eL exoeha, quum babitu turn cbaiaetenbus inters 1 a^ilcm et S albuu o nnino media, enumque sine, ullxlulno hjbnda piolts Ab ilia lubet i imos divancatos (sed saepius in arbore floics masculos proferbnte p^ndulus s pendula Ser Ess p 7) (>) S fia^ihs pendula Pi Mdnt p 43 (0, folia adultangidi ^laberrnnapuie vndia sat angusteseirata, amenta masculi crassioia et lon^ioid flexuoso pdtula, capsulds evidentius pedicellatas angustions, sed a S albi rarnos minus fragiles folia eiam exsiccatione pare vmdia apice subiccto icuminata junioia spaise subsencca, amenta mascula mdgis lulvo auiea tdenbiora lemmea en eta, cipsulas pure vmdes bievius pedicellatas nou in sylum attenuato-rostratas Sub tnbus provenit modificatiombus

a, *fracifoor*, folns s it lon{?e et subobhque acuminato-cuspidatis, junionbus plus minus hirsutjs demum ghbns subtus vulr^> glauc scentibus, remotius serrulatis, amentis paucilobialis masu palhdius flavis, lem elongatis — Ma^is ad b fi ijilem accedens S palustns Host Sal p 7 t 24, 25 ?, Kern Hb Sal n 14 >

p, *excelsior*, typica — Fr Herb Norm I 61 S excelsior Host Sal p 8 t 28 29 Kem Hb Sal n 12 (^pe tlontera, sed flonbus tetramliis) S gracilenta Tausch S Russeliand Koch

7, *albescens*, folns dngustis^imis, longissime et lecte acummato cuspidatis, saepe utrmque ^at diu pilis idiis spdrae senceis — s albde habitu similior S excelsior (Host) Kern Hb bal n 12 folia

De S Ru^sehdnd Sm bnt p 104o C Bot t 1808, magna fuit dissensio de oua hae. hdbet ill Wimmci (Sdl euiop p 21) smitlni si verba in Fl but s quimur ejus S Ilusselidna ip>am s fragile in, ej us autem S fi lplis petiohs dentatj gidnduloMb» S cuspid itim schultz indicat bed bmitbn, qui b iragilis ue llorem 9 qui lem vilent, nommibub j>ynonymisqje po&tbcac fd lie carebimus H >c nomine arborem certam zna^mtudine mirabihter excclsa pid-bLantem S fragilis ipsius» absque dubioillustriavubmubiuj, deinde autem foimds inter S frdgilem et dl-

bam intermedias aut ex us hybridas et in Angha ut in Germania media minime raras huic assignaverunt auctores vni

24 S. ALBA (L. sp 1449), amentis fohato-pedunculatis flexuoso\*patu is femiaeis erectiusculis subdensiflous, squanus flavescens apice glabrusculis, staminibus saepius geminis, cipsuhs ovato conius obtusis glabus, pedicello necatanum brevissimum subvquante, st^lo vix ullo, stigmatibus crassiusculis emarginatis divancatis, folns Imceolatis lecto acuminatis glandukw)-seuu lafis utnnque plus minus adpresse serious, slipulis lanceolaiis mox deciduis § In Sibina usque id lacum baikalensem, in provinc Caucasicis in Asia minori in Syria (Gaillardot), in Persia (Kotsoby) et in Africa septentrionah (Kialik etc) Inquilina lacta in omni Europa quum boioah (Sueua) turn mendionali (Gi rua) Ltiam in Araenca nunc teinpons colitur — Willd sp 4 710, Koch Comment p 1h, Fi Mant 1 p 44, Ho>t Sal p 9, Andeis Sal Monogi p 47, Wahlenb\_o' suoc p 653, Lange Dansk fl. ed 2 p 65'i., Koch Synops ed 2 p 741, Wimin Schl ed 3 p 184, Sal europ p 16, Kern Oest Weid p 187, Hartig Forstl Cult p 420, Doell Fl v Bad p 487, Sm but p 1071, Hook et Am but ed 7 p 39G, DC fl fr 3. p 283, Gren et Godr fl fi 3 p 125, Ser Ess p 82, Gaud helv 6 p 205, Willk etLinge hisp p 226, Bertol it 10 p 246 Gi seb fl rum p 343, Ledeb fl ross 3 p 599, alt 4 p 255, Bunge Rel Lehra 1 c p W., Coss et Buhse Nouv Mem de la Soc de Mosc 12 p 201, Asa Gray Man ed % p 410 — *Iconts* Hoffm Sal t 7, 8, 24 f 3, Host Sal t 32 33, E B t 2430, Reichb IC t U63 by Bot t 523, Fl D I 2552, Hartig Forstl t 52, Sahcet Wob 136, 137, Coss All — *Edict* Ser n 10, Fr 1 G2, Bill n 847, Wimin Hb bil 90, Io6 Coll Sal 11, 12, Kern HL Sal n 15, 18 Aiboi pier imque excelsa, ramis stnctis, lamulis.flavo-vuidibus minus fragil bus Gemm\* obiusiuscula3, saepe apire albo hir^ulae Folia basj et apice sul ionaliter angustata 2-3 pollices longa, ad medium semipollicem lata, maigne tenmssne glanduloso-senulata mt utnnque pilis adpressis ilbo sencea, aut supia glabnuboula bubtus pilosa, demum rigida Amenta I H pol licana, squamae ad basim villosui<fi fulvae, flavap v miniatae, filamenta basi villost antherae aur^ae, capsule \indtilae A S tiagih diffeit ramis stnctis, ramuh-5 subtenicibus loins rectiusculis vulgo dbo senceis, amentis masculis brevioj ibus et dtnsionbus anthers aureis femmeis brevionbus augustionbus et oipctis, capsulis tnvisionbus subsessilibus vmdibus Mullis tamen formis (h)fbriple) cum ea confluit Vanat insuper

p, *iilelhna*, ramul s rubellis \el testa^eis gracilhmis, folns saepe angustionbus — S vitellina L sp pi ed 2 1442, Willd sp pi 4 p 6b8, Host Sal p. 9 t 30 -fl, Sal Wob t .0, Ser I xs 9, 19 I hih arb n 78 et auct plur — Hah ubique cum priori, sed vix nisi culta (et forsansemper cultura procreata) obseivita

Y, *tplendtns*, folns utnnque tomentosio senceis argenteis. S splendens Bray. 6, *cirulea*, folns demum glabratis subtus sordide glaucis b caeiulea (Sm E B t 2 31).

£, *rigida*, loins longissime cuspidato-acuminatis rigidissimis In Songana.

C, *lustis* (liautv in Ledeb fl alt 1 c), ramis subpendulis, folns elongatis lon^issirae auimmatis demum pihs tenuissimis o itusis vcl omnino lucide glibialis — In bibina altaica et in Songana pi locis, et ad in clytas angustias Gullek Boghas in legionemontma (Kotschy it cihcium jnTaunalpesRed^arDa^h, 18oi) S amygdalmaaBoiss mscnpta Habitu smgulan, facile cum b acutifolia compaianda, toll i novella et ramull annotini non raro subpilosa conspiciuntur

n, *ovalts*, loins br^vionbus ovah oblongs in acumen breve subito attractls 3 3J unciam longis, unciam latis — In trceteras occurrit Wimm

6, *mwrophylla*, folns vix unoiam longis 3 4 lineas latis nuuc argenteis nunc glabrusculis P ^a^lls locis fcuiopae et A>ae minons (Safranbol, Andsch, ex Wiedemann)

t, *latifolia*, folns late ovatis e basi ovata sat longe acuminatis densius et argutius serratis supra vulgo glabns subtus plus minus argenteis — la

Asia minori (Wiedemann). § Syria adsunt specimina « S. libanotica Boiss. » inscripta et a Gaillardot collerta, quae folia habent potius obovata et amenta mascula longissima, ceterum iis ex Asia minori simillima, quae ad S. micantem nostram transitum praebent.

1., *Kassanogluensis*. AS. alba vulgari vix recedit nisi foliis junioribus dense et mollissime sericeo-villosis latiusculis et brevibus, amentis femineis brevibus, capsulis condensatis bracteis basi eximie crassis. Ad littora Sari et in montibus alt. 4000' (Kotschy). S. Kassanogluensis Kotschy it. cilic. kurd. 1859, n. 64.

2., *Pameachiana*, foliis subtus quasi rufescenti-hirsutis. Rhode island. S. Pameachiana Borr. sec. A. Gray man. ed. 2. p. 716.

*Ikjmicans* (Anders. Sal. Mouogr. p. 49), amentis foliato-pedunculatis arrectis curvatis subrarifloris, squamis obtusis pallidis caducis pilosis, capsulis ovatis glaberrimis, pedicello nectarum fore bis superante, stylo minimo, stigmatibus bifidis divaricatis crassiusculis, foliis ovali-lanceolatis supra parce pilosis subtus densissime sericeo-argentatis micantibus margine glanduloso-serrulatis.— In Caucaso (Wittman Hb. Petrop.). S. albae sine dubio maxime affinis, a qua lamen dignoscitur foliis et capsulis. Folia enim, quae in ramis floriferis 1-1<sup>1</sup> poll, longa, fere | poll, lata, apice et basi fere asqualiter attenuata, supra sat calva obscure viridi-lucida aut pilis nonnullis derelictis adpressis obsolete pilosa, subtus pilis rectis adpressis sericeis argenteo-nicantia. In ramulis novellis majora fiunt, supra medium latiora apice cuspidata ei argutius serrulata sed subtus cana et sericeomicanlia, nervis valide prominentibus acute venulosa. Amenta (fem. tantum vidi) U poll, longa strictiuscula, basi foliis parvis 3-4 suffulta; rachis dense villosa; squamae facile deciduas, lutescentes, ciliatae; capsulae brunnescentes, obtusiusculae, vix linea longiores, nectarium sat longum truncatum, pedicello evidentius duplo brevius. (v. s.)

X S. BLANDA (Anders. Sal. monogr. p. 50. fig. 31), amentis subpraecocibus breviter pedunculatis patulis vel subcurvis anguste cylindricis, pedunculo foliis 2-3 parvis instructo, squamis pallide stramineis lanceolato-linearibus glabris pilis paucis ciliatis, capsulis anguste coarctatis glaberrimis acutiusculis pedicellatis, pedicello nectarium elongatum duplo fere triplo superante, stylo obsoleto, stigmatibus inaequalibus excurvis, foliis anguste lanceolatis longissime et oblique acuminatis serrulatisque glaberrimis subtus glaucescentibus, stipulis fere nullis. — In Geruania, ad Hanau (Clemencon). S. Babylonica-fragilis Clemencon in herb. DC. habitu et characteribus exacte inter S. Babylonicam et fragilem media. Ab illa habet folia longissima et tenuiter cuspidata, subtus glauca, costa fulva et venulis densissime articulatis percursa, amenta breviter recurva, foliis paucis et parvis suffulta; a S. fragilifolia fere exstipulata, obliqua, capsulas pedicellatas acutatas substratas. (v. s.)

25. S. BABYLONICA (L. sp. 1473), amentis subcoetaneis paucifoliatis gracillimis brevibus curvatis, squamis ovato-lanceolatis obtusiusculis stramineis superne saltern glabris, capsulis omnino sessilibus ovato-conicis glaberrimis pallide viridibus, stylo subnullo cum stigmatibus crassiusculis divaricatis integris latis, foliis anguste lanceolatis longissime et suboblique acuminatis serrulatis utrinque primitus glaberrimis subulsa saepius glaucescentibus, stipulis semilanceolatis vel acutis, ramis saepius laxissime et longissime pendulis. § In regionibus Asiae centralis occidentalis (Persia et prov. Caucasicis) forsitan spontanea, nunc per Europam australem et mediam usque in Daniam et per regiones plerasque tropicas et subtropicas totius orbis culta. — Willd. sp. pl. 4. p. 621; Koch Comment, p. 17; Nyman Sylloge p. 343; Anders. Sal. monogr. p. 50. fig. 32; DC. n. fr. 3. p. 286; Godr. et Gren. fl. fr. 3. p. 125; Gaud. Helv. 4. p. 125; Pall. ross. 2. p. 78; Ledeb. fl. ross. 3. p. 599; Trautv. in Mem. des savants de St-Petersb. 7. p. 496, Nouv. Mém. de Moscou 12. p. 201; Pursh Amer. p. 614; Asa Gray Man. ed. 2. S. propendens Ser. Sal. helv. p. 73.— *var. concolor*: Gmel. l. c. t. 34. f. 2; Schk. Handb. 4. n. U96; Saic. Wob. 22; Coss. AM. t. 27. — *Exsicc.*: Ser. Exicc. n. 45, 73. Kotschy, it. Cilico-kurd. 1819. u. 817; Kern. hb. Sal. austr. n. 5; Billot, n. 1. Arbor ramulis (saltern apud

- nos) fere usque ad solum pendentibus elegantissima Gemmae parvae acutissimae Folia 1-6 pollices 1 iuga raro pollice latiora, basi attenuata, apice longissime cuspidato-acummata Amenta subpollicana, folns paucis et parvis suffulta, mascula staminea foeminea, vmdula, capsulae vix lineam longa\*
- a, *typica* ramis erectiusculis rubicundis, folus submtpgns aut angiiistis aut lationbus subtus pallide viudibus — Kurdistan, Mesopotamia, etc (Kotschj pi Alepp Kurd n 400 )
- p, *culta*, ramis laxissime proppndentibus,folns' tenuissime cuspidctis obhquis argute seiratis subtus glaucis — Pro\enit aut latilblia aut angustifolia, longifolia \el brevilulia — Modificatio saepe culta folns cirunato-reflexis vel corrugatis deformis est S dnnulans Forb Sal Wob. t 41.
- Y, *Japonica*, amentis sessihbus nu<lis cyhndncis acutiuscuhs defloratis value elongatis flexuosis gracilhmis, squamis ovatis testateis glabrmsculis capsuhs fere ad medium aequantibus, capsulis ovati\* glabns subsefcihbus, stylo minuto glabro, stigm Uihus integris, folus lanceolatis cuspidatis acute snratis glabns subtus palhdionbus —Juxta Nagasaki (lhunb ), Hikoclddi (W ilhams et Moirou) S Japomca rhunb fl Jap. p 24, IC fl jap 31, Willd sp pi 4 668, A Gray inPaaiy Jap. Exped. 2. p 31^, Anders Memoirs of the American Acad of science and art, 4 p 4S0 Cum S Dabylonica saepissime confusa ab ea quodammodo differt. loins brevibus exacie 1 ite lanceolatis, acute et sat dense serratis, serratus e\identer productis, amentis eximie numerosis et confertis, longissimis et ldxissimis Vix auteai nisi modihcatio hujus speuei dicenda. (v s)
- 26 S MACBOLEPIS (Turcz Catal baik. in Bull Soc Nat Moscou 1854, p 369), amentis mascuhs sessihbus, femineis longe pedunculatis, pedunculo folus cjetens aequalibus 2-4 m&tructo, squamis caducis luteo vindibus ovah-oblongis subtruncatis nervosis glabernmis ciliatis fere totas capsulas mvolventibus, capsulis oblongis olituis minutis subglaucescentibus glabernmis pedicellatis pedicello nectano suboirculan tnplo superante, stylo brevi ad basm usque bipartito, stigmatibus bifidis, folns oblongo-spathulatis basi attenuatis apice acuminatis apicem veisus serruldtis subtus intense glaucis utiinaue glabernmis. Ad fl Selenga (Iurcz) in legione Ochotensi prope Uvskoi (Midd ), in virgultis Dahunaa subalpina<sup>3</sup> (Turcz ) et in montibus Stavonoi (F Schmidt) — Anders Sal monogr p 52. fig 33 S bracteata Trautv. in Midd Reise 1,2-3 p 77 Species singulars, affinitutis dubias Squamis caduois pallidis et pellucidis cum S Iragili congruit, sed differi folns et amenvtis, capsularum forma et pedicello cum S amygdalma, sed differt folns,glautedine foima et serratura foliorum cum S puipurea, at differt amentis Dictur arbor excelsa. Rami gracillimi, folia circiter pollicana, amenta eadem longitudme (v. s )
- 27 S SONGABICA (Anders Sal monogr p S3. fig 34), amentis pedunculo paucifoliato insideniibus gracilibus flexuosis, squamis caducis pallidis glamiuscuhs, capsulis conicis glabernmis obtusiusculis pedicellatis, pedicello nectaiium semicirculare bis terve superante, st^lo lere nullo, stigmatibus crassiusculis divancatis, tolns anguste lanceolatis vel lineanbus laevisrmis et lucidis «at longe petioldtis margme subindurato remotissime et obsoletis-simp glanduhgero vix seirulato pure vindibus utnnque glabernmis concolnbus 5 In Songana in npis fl Nchu et Flee (Schrenk ). S alba purpurea\* Elegantissima species inter S albam et purpureim media. Arbor mediocre T3mis gracihbus pendulis vitellis Gemmap parvap adpressae Folia 1-3 polhces longa, majora ad medium / poll lata angustioia sublineana vix 3hn latiora, costd et \enis subtus elevaus stnata, petiolus subpollicaris Amenta 2 pollices longa, flexuosa, omnium gracillima Capsulae minuta2 rufo testaceas (v s )

## B SAUCES DIANDRE

Flores masculu diandn, filamentis discretis, nettanum sineulum, squamas apice fusciore vel minus nigcante^

## 1° Microstylae.

Capsule stylo nullo, obsoleto vel mimmo apiculatae, saepius longe et gracillime.pedicellatae

§ 8 *Longifolia*B.

Forms ^mencam occidental] septentnonalem inhabitantes — Piutices ramis vimineis Folia lineana, pnnmana pinnati-partita, seouentia denticulata Amenta ritnuhs folialib ptdunuilatd, non raro conferta, squama stramineae, subdeciduae (apsul\*p oMusae s<Epius breuissime pedicellidae

28 S LONGIFOLIA (Muhl N Boil schr 4 p 2\*8) amentis in ramulis lateralibus plus minus elongatis foliatis teimmalibus elongatis linear-cylindricis pnnmo densifloris bjunujs vindi-flavidis ^labns vel bisi \illo^is obiusiuscuhs bubdenticulatis deoiduis, stam 2 capsulis oblongo-corticis oblongis breuiter pedicellatis pedi olio *nci* taimm emargihiLum vel bihdum productum aequant\*\*, stylo Jullo tigmatibus glandul i quadripartite instar scssilibus folus lineanub longe acuminatus inargine mucronato-dentatiii utnque virubus glandibus vel pilisusuihs bievis>>ime petiolatis, stipulis par^is bieuissime cdducis *tf* In xlll> fluvijum per AineriLdin totdm boiedlcm quum otudentaltm (in Calif >mlA Oregon eic ) ctntrilan (I ocky mountains, id Mississipi tctero&cup fluvio) turn onentalem U septentnonem v( isus ad i\ baskatchawm, in Texas (HuUndi r, n 10W 2M), m Mexico novo (*bendler*, n 813,814, Wright n 607 668 18 7, IS7j 187S) — Willd sp 4 p 670, Pursh fl 2 p 613, Hook tl boiedl amu 2 p 148, Toney il New York, 2 p 210, <arej in AM Gray M mual ed 2 p 417, Anders Sal bor Am 1 c p 116, Sal monogr p V> S rubra Riclnris app p 37 (Hb Hook ) S fluvia-tih Nutt s\lvi p 89 (S ma(rotichyaNutt 1 c p 89 b exi^ua Nutt 1 t D<sup>1</sup>)0<sup>2</sup>)- *Inmrs* Mqhl 1 c t 6 f 6 Andeis monogr f V>—Ji&irc Barratt, n 2i 1 ruiex diflusus, \ulgo 2p dalis, sappe lutcm adhuc altioi subvimineus in lotis ironosis riparum trncco et ramis inteidum proslatis lateque radioinlib is Poln in surcul s J 4 poll longa in lamis fciLilibus subbreviora, J J joll lat< b<si attenuata ipue lon,e acuminato pi ducti, initioutn-%quo pube^fntia drmm vulgo glandrata, crsta et nevis elevatis subtus fulvis utnntjuo linbin, folid quae post germin itionem novella exstant non laio pinnatipirliti obscivantui\ mmti saepc 2 4 in apitt ramorum colkLa, ramulo tamen rvolulo longissime pedicuhfi, miscula subpollicand angusta, anhrns pestmthesin obscura \monti f minea saepius longioia magisque nriflori Pt ingustion, capsula viridula, demum tola, glabix vel s nco-argenteae, necianum hneam elongatum ipice subbihdum (v \ in Call form i)

P, *prdicUala* (Anders monogi p S5), amentis olongitis floxuosis capsulis glabeirinnis t slaceis, pedicello nectuium elongat im superuite disiinctius pedioollati^, folus angust s subintcgns — In npis ft Saskatchewan (Bourgeau, 1858) Hibitu amentorum singulan a forma normah \*at diversd, sed vix distincta species

\ *argyroplujlla* (Nutt syha Amei p 87<sup>2</sup>) folus et capsulis tomento argenteo lucido micantibus — In Texas et Mexico novo (Berlandier 2371, Wright i) 187 ^). Van it 1° *opaca*, folus tomento cinerascnte vi\ luudo obs>cuonbu^ H&C S liianim Turopae simulat — 2° *angulusima*, f Ins an^usto linearibus, VIY pulhoe lon^ionibus et linei lationibus S bidebycdrpd ^utt 1 c p 8>? In npis iluvioium in Lai forma (Fremont) et K tky mountnns (^utta^). Ob id prdLti ue memonbilis qucd saltern indumuito iolioruui et capsularuui ad sequentrs \ l^ebet li ufeilum sat evidenttrn s taxifolia altamcn habet amenti multo br( vioia, subovaba, nmulos valde el ngitos terminantia et loha adhuc breviora

29 S SFSSILIFOLU (N ittall N Amei Sylva, p 84), amentis ramulos elongatos laterale>> termnuntibus cyliudncis densifloris, masculis recurvato pendulis, squamis apite glabratis, capsule conicis bicvibus ciabbis cinereo tomentosissilibus stylo brevi stigmatibus ciuciatim bifidis, folus sebsilibus aoumiuatis integn\*\* vel denticulatis utrinque gnseo-tomenitosis vel demum s\ibde-

nudatis, slipulis acutis petiolo sublongionibus. In America boreali-ocdenlah ad Sumass-praiue (Pr Lyall) — Ander- Sal boi Amer 1. c. p 116, monogr Sal p 55 fig Jf> Arbor vel frutex magnus, 1-3-orgyahs Folia 2-3-poll., medio feio scnipollicin laia, aut exacte lanceolaia, apitc longius produt to aciimnata, aut supia medium latu ra, mox denticuhs parvis vix-errulata Ramiih floientes 6-S-j olluaros, amenta mascula ob srmamas apue gldbia^ Inunnfscntia, fiminea antem can^scntia Hibitu fohorum S Smilhianam nostram non n ale simulat. A (etons mr difkationihus S longifoliao recedit haet forma folns lationbus et longe acummatis, nmentis eximie gracilibus ot recurvato-pendulis, capsulis breviter conicis vix pedicellatis. (\ s in h Hook)

p, *iiUosa*, fplus brevibus vix pollice longionibus ufunquc alho-villosis basi lationbus apice cuspidatis, amentis polhcanbus enUis attonuatis, squamis hirsutis In Oigooii (lobb, 1852 in b Hook) Fois leucadendfon, flonbus Mimosam simulat (Nutt) A priori non nnim differt, et a S. Hindsiana folns lationh is, amentis in ratnulis valde elongate ex ovata basi attenuaia capsulis minus evidenter rostiatis

30. S HINDSUNA (Benth pi Hdrweg, p 3 5, n 19^6 ct herb ). amentis bre-  
 \ibub crassis dentitions in ramuhs lolutis bievibus tPiminalibus, squamis acutiusculis dense U tuenlosib. capsahs o basi ^\b)A longe lObiatis angulosis tenuilcr p losis bievitei pei lcellatis, peditello nectanolenui bievion, folus anguste lanceolatis basi et apice aaqualitei altenuatis acutis maigmc liilegerni's utni qut nicano-tomentosis v. lanalis subopaus In California(Hartweg^ 1956, Bigelow, Hb Hrok lknth ) — Andeis Sal. Amer. p 117, Sil Monogr. p. 56 f^g. il AS longifolia ad S taxifoliam transituni cfhcit evidentissimum nolis tamen ab utiaque quodammo diveisa A S longiloha lamis florilens rnulto brevionbus, amenlis wx pollue longionbus, squamis multo angustionbus'hirsutis <apsulis basi ciassionbus, apice magis rostraiis, folusque demum pollicauhus medio 2-<sup>1</sup> lm latis tomento densD gnseo opaco nee aig(ntto lucido ot tectis a S laxifoha magnitudine omnium partium ioiraa typica difleit, ad earn tamen ita aciodit f ran tenuilolia, ut non nisi dnnenlis longionbus, brevius pedunuulatis qu idammo distmgui possit (v s )  
 P, *trmuifnha* (Anders monogr. p. 56), folus pollicem longis 1-2 lm lads acutis utrmquo unereis. — In npis Snake n\ei (Burke in h Hook ) et Novo Mexico (Schur ibid )

- Jl S. TAXIOLIV (Kunth in H et B Nova Gen et spec 2 p 22), amontis in ra nulls annotinis dense foliatis terminahbus ovato oblongis v subglobo-  
 sis saepe confoits, squaniih basi pilosis margine cuspato-ciliatis, capsnlis sesMhbus o\ato-coniu« sti matibus sessihbus cra^sls, folus omnium nummis lanceolato liiHMnbus a<utis obsolete denticulalis pubcscenti-eiiceis quisi (list chis. — (ohur in hoiis M(vici, Quietnn, Zdiga?, alt 900 1200 hex Floiet Aigusto I plwnbus locis regni Mexicarum in hcib vnrns eiiaju Mdi — Andtrs Nord Amer. pil 1 c p 117, Sal Monogi p 57. fig n 38 S uncrophjlla schl^ubt et Ohimisso Linnaea VI p J54 (183^), Hook et Am Bot. of Beechey vo^ p Ml t 70 Arbor a Kuntbio dic>tur procernmi, rarms inlerionbus npite pendulis, ramulis teretibus, fusce^centibus glabus, annotinis abido-sencois Folia exade "-essilia, siibdistiha lanccolato lincana, obsolete denticulda, utrinque ciripscontia, piniora aigon ea ^5 linoa^ longa, liueim lata Amc nta v tide seiotina, niasoiila inteidum 3 4 congesta, non raro fere globos i amenta fem e flonbus stiboctoms composita. Videtur modifi< atio **maxime** micro|ih\lla et miciojulis S longifohaa, vams fonnis intermedns **undubie** cum ei connoxa

**α, sericocoma** (Anders monogr ),ra[sulisdonseargp>ntoo-sencpis bre\ionbus  
**β, leiocatpa** (Anders ib ), capsulis demum glabus vel pubescentibus longus comuMObtatis.

### S 9- *CvnerascenUs vel Caprex.*

Arboros mediocres vel fiutices non raro humiks, ramis crassiuscnhs sub-  
 ulosis Folia vulgo ovalia vei obovata, breviter et saepissime oblique acuminata,

supra obscure viridia glabra vel pubescentia nervis impressis masqualia, subtus tomento incano velutina nerviselevatis rugulosa, marcescentiabrunea. Amenta praecocia, sessilia, haud foliata. Stamina anthers defloratis sordide flavis. Capsula longe petlicellaia, conica, obtusiuscula, valvulis demum dehiscencia omnino revolutis, stylo obsolete vel nullo. — Capreae Koch, p. p. — Cineareae Fr. Mant. 1. p. 53. (cum aliis). — Rugosae Kern. 1. c. p. 52.

32. S. CANARIENSIS (Chr. Smith.'sec. Webb. Phyt. Canar. 3. p. 270. t. 215), amenlis sessilibus bracteis nullis vel cito deciduis suffultis erectiisculis albobhirsutis, squamis obtusiusculis fustofulvis longissime albo-pilosis apice nudiusculis, capsulis crasse ovaio-conicis plaberrimis pedicellatis, pedicello nectanum quadruplo superante, stylo brevissimo, foliis anguste lanceolatis integris supra glabris vel nervis pubescentibus subtus glaucis, gemmis magnis cum ramulis obsolete glaucescentibus. In sylvaticis et secus vias, in aquis et ad convallium nulos insularum Fortunatarum: Canana (Leman), Teniff (Bourgeau), Palma, Nivana et Madera (Chr. Sm.). — V. Buch Besch. Canar. Ins. p. 159-178; Lowe prim. Fl. et Faun. Maderae, p. 14; Anders Sal. monogr. p. 67. fig. 39 — Exsicc.: Bourgeau, pi. Canar. n. 195. 1502. Arbor non paiva, vel arbuscula saepe 20-pedalis; rami virgati juniores incano-tomentosi. saepe glaucescentibus subirrorati. Gemmae glandulae v. cinereo-pubeiulae. Folia 4-6 pollices longa, 1-1½ poll. lata, basi modice angustata, apice longius proclivata, interdum obsolete crenulato-undulata, subtus nervis aequaliter subreticulata, stipulis parvae, caducae, calceoliformis. Ampnia masc. 1-1½ poll, longa, aureo-pilosa, feminea valde conferta, 1-3-pollicana, rhachi et squamis dense et longe pilosa. Capsulae longeae longiores, obscure vides, demum subnigrescentes. Stylus fuscus; stigmata subconniventia — Ut ex his apparat quasi inter S. pedicellatam et S. daplinoidem intermedia, sed mihi magis cum S. grandifolia analogam videtur et per S. Silesiacam (cui insuper non parum similes!) cum S. capreis cetens coniugua. S. Silesiaca in Silesia, S. grandifolia in Austriae et Helvetiae alpinis, S. denique pedicellata in Hispania meridionali, haec in insulis Fortunatis; praeterea non negandum potest hanc speciem in multis, turn notis turn habitum, S. discolorum amencandam revocare et hanc cum formis affinibus in orbe vetere optime jungere. Denique mediante S. pedicellata cum S. Salsaf et cetens formis Africae indigenis sat affinis est, eas capsula pedicellata breviter et crasse conicis valde simulans, unde inter S. subtropicas et boreales stylo nullo sed pedicello longo capsularum praeditas nexus evidentissimus. Sub duabus occurrit formis:

a, *subdaphnoides* amentis longissimis, capsulis saltern exsiccatione nigrescentibus, squamis et rhachi longe albo-villosis, foliis usque ad 6 pollices longius rigidis subtus sat intense glaucis, gemmis rognis conico-rosstratis, ramis interdum glaucis. (v. v.).

β, *subpedicellata*, amentis brevibus ob squamas glabriusculas minus villosis, capsulis laetius viridibus longius pedicellatis, folus basi et apice aequaliter attenuatis tenuibus 2 poll, longioribus semi-poll, latis initio subtus pubescentibus costa et nervis elevatis rugulosis, gemmis minoribus, ramis vix testaceis (v. v.).

33. S. PELICELLATA (Desf. Fl. Atlant. 2. p. 362), amentis demum breviter pedunculatis basi paucibracteoalis elongato-cylindraceis rufis, rhachi villosa, squamis fulvis apice parum mufuscatis oblongo-obtusis saltern basi pilosis, capsulis ex ovata basi conicis glabris pedicellatis, pedicello nectanum 6-8 superante, stylo brevi, stigmatibus brevissimis bifidis suberectis, foliis oblongo-obovatis v. lanceolato-lanceolatis subtus reticulato-rugosis tomento apicis uterque undulato-crenatis v. integris, stipulis semicordatis serratis, ramis plerumque tomentosis. In redone mediterranea occidentali, sc. in Hispania (Baetica), in Sicilia pi. locis, in paludibus Calabriae, in Corsica (Requien, sec. exempl. a u c sson). p. in regno Akeripnsi et Tunetano ad rivulos. — Ten. Syll. p. 480; Guss. Synops. 2. p. 623; Lange et Willk. fl. hisp. p. 229; Bertol. fl. ital. 10. p. 31 (sub S. nigricante); Anders. Sal. monogr. p. 59. fig. 40. — Exsicc.: Croulewe, Fragm. Fl. Alfer. n. 278. (excl. ram. masc. qui ad S. albam pertinet); Billot n. 2365. Arbor mediocris vel frutex sat diffusus. Folia:

1° late lanceolata, 4-6 poll longa basi et apice aequaliter attenuata, supra lucide vincta subtus denudata venulotio reticulata, us S grandifoliae similia, 2° obovata, subintegra, obscure vincta, subtus dens\* tomentosa ut in S faprea bievifoha, 3° lanceolata, serrati, longius attenuata, supra canescentia subtus dense tomentosa et rugosa ut in S. cinerea angustifoha Ob capsulas long pedicellatas glaberrimas et stylum brevissimum certeprebet cum S africanis affinitatem magnam RhaLhi villosa capsulas glabras et squamis ferrugineis barbatis non parum S hastatae similis et, his omnibus notis compositis S Silesiacae maxime affinis vel in sua legione analoga Eodem modo quo a Cananensis, cui insurret ita similis, ut difficillime distinguatur, ramum et gemmas non raro glaucescentes conspiciuntur Cl Wimmer hanc speciem veram Europae incolam haud accipere vult (Sal europ p 9). (v s)

34. S GRANDIFOLIA (Ser Tssai dune monogr des Saules, p. 20), amentis breviter pedunculatis Insi folis parvis demum siliculis subtus subranflons crassiusculis squamis ferrugineis apice fuscis non longe pilosis, capsulis ex ovata basi elongato lanceolatis inano-tomentosis pedicellatis pedicello nectanum 4-6° superante stylo brevissimo \*«ligamentibus ovatis bifidis patulo ditantibus folis oblongo-obovatis basi longe attenuatis acuminatis platis sed subtus costa nevisque acute proiumentibus digite reticulatis supra viridibus subtus cinereo-glaucis et pubescentibus rostris undulatis natis stipule remiformibus, gemmis glabris — In jugo alpino meridionali europaeopertaham borealem, Galliam maxime occidentalem australem, Helvetiam), Bavanam et Austriam ibi frequens — Koch, Comment p 36, Synopsis ed 2 p 70, Kern Weid oestr p 242, DC fl fr 5. p 3\*3, Godr et Gren fl fr J HS, Gaud 11 helv 6 247, Beitelon fl ital 10 332, Wimm Sal europ p 64, Anders Sal monogr p 60 S cmerassens Duby Bot Gall p 423, Hegetsch fl helv 2 372 — S pendiculata Vill Delph 3 77T «liaceae Ua Loisel gall 2 fat. S acuminata grandifolia ets bilipulans bei Exsicc n 41 2 — how\* Beichb n 1225, Host Sal t 72 (S monandri) Anders 1 c fA 41 — Exsicc Wimm Hb Sal n 83, 84, Kern Hb Sal n 147 1 >| Lst formi vere alpigena S capreae vel S cinerea ita similis ut a plunibus hujus in difalio alpina teneatur (cfr. Neilr. fl v N ed Onstr p 262) nee adhuc distinguitur nisi amentis mitio minus villosis, capsulis demum longius et gracilibus pedicellatis densius albo-lanatis, folis typice valde elongatis inaequaliter angustatis et reticulo nervorum pulcherrime prominente In legionibus editioribus alpium supra abietis terminum ascendens humilis adest ramis torulos folis brevibus et eximie canescentibus quo magis autem legiones subalpinas et adhuc inferiores secus torrentes rapidos descendit altior exuescit folia majora tenuiora et utrumque vincta fiunt amenta etiam magis praecocia, Ita ut demum difficillime ab affinis distinguenda Mdcatur Praeterea S Silesiacae similis eique in suis alpiibus omnino analogae Itaque modificationes sequentes propono

a *pubescens*, frutex humilis ramis crassis nodosis diutius inano-tomentosis Insi spithuhto-obovatis supra et praecipue subtus cano villosis demum glabris subtus sed opaco cinereis et exsiccatione saepe nigrescentibus inano glaucis, amentis subcoetaneis breviter pedunculatis, capsulis albicantibus — Kern Hb Sal n 146 Variat 1» *parvifolia*, folis pollite feie longioribus, supra medium {-J poll latis, utrumque sat dense canis — 2° *angustifolia*, folis 2-3-V poll longia supra medium vix pollicem latis basin versus longe attenuatis, supra demum glabris sublucidis subtus glaucis Haec forma in regione summa alpium optime viget Hic verimmihter jungendae sunt S albicans (Bonjean in bei Jss p 21 (t t/site n 6), amentis elongato-cylindricis subranflons squamis ferrugineis apice piceis albo-villosis, capsulis breviter pedicellatis, pedicello nectanum 2-3 superante, stylo saepe bifido fulvo, stomatibus iusos bifidis cruiatim patulis, folis utrumque mollioribus cano-vinctibus subtus intense glaucis S Rrandiloha S lanata Gaud helv i p 248 — 3° S Laggen Wimm Bot Zeit 1804 p' 162 S glauca-grandifolia Wimm Sil europ p 286 Hab in Mont Cems (Bonjean ap Ser), Oberwalhs am Rhonegletscher (Ugger), Diableret, prope Bex



(I Thomas et ipse) — Magnam certe cum *S glauca* habet affinitatem (oh amenta coajanea, capsulas brevitei pedicellalas stylo bifido apieulalab), sed loco jam indicato sat copiose crescit et quo magis loci decliua 11 pin m d scensus turn eo magis ad for mas vulgans *S gr indifobae* hano ii n s untcm obseivavi, miln iiique hujus species Jorma typica vi- (ILtur<sup>f</sup>

p, *iHescm?* Irutex pluriorgyalis interdum in formam et magnitudinem aibons excresiens rimis t isco-piceis vel testaceis, stipuhs magnis coi-riatis folns saepe raaximis obovato-taneeolatis supn lucide vindibus sub-tus pallidionbu\* - \* levatissime nervosis rasi plus minus longe ittenuatis mirgine s-Epe grosse crenatis, amentis piaecocibus brevibus migis den-siflons ^ubebi ittc ins Loci buunlioi 1 ilpium secus iranps et nvulos ocu-pupat Van it 1 *grandifolia* folns usque d i T 8 pollices longis supra medium 1^-2 poll latis, subbio o acunmtis s d basi longe attenua-tis sin n. satui l p v n iibus „1 ibemmis su tus crtbrc et vilide venu]o«-o-leiiculatis nunc dd norvos silicm < > drc puljeiulis mine glabernmis — 2° *acutifidia*, folns 2-4 poll 1 ygis sit icummidto produclis supia me-dium 1 J i poll Jali> — 3° *hi en folia* folns obovnto-oblongis vix 2 poll longis supia medium 1 lj latis ngilionbus subtus obs'utis et elevato-Ntnulosis S Silsiacae si i illimd — 4 *tcnuifnha*, folns latiusculis et tlongiLis supia laetius viuhlms subtus pallidi >nbus molliter tom(n-tosis tenuibus In regi< nibus infenonbus ^ cipseim vel S cineiodin sirauldiis HJC cst iolus 4 o poll kngis supi i medium 2 poll htis, vel f JMS obovatis df)ice \alde oblique, vel fo us infia medium suhla tior]ju\* apice plus minus et \ulgo recte acuminus Hybndis sequentes S ^randifoliaj proposuit ill Keinei

X<sup>s\*</sup> AT rENi VIA (Andnis men j> 6'i) imcntis coeetineis 9 ovito-cylmdraceis, sfjuim s ic ins ipce dtrdtis cipsulis Innpe pe h ellitis, sligmatibus patulis, folns ellqticis iirimo -enceo tomentosis subtus cinereo glauns — Kein S simergnriifoln npieal c p 246 Hb Sjl n 153,154 Ip Austria mfenore. Mini S prandifoli'B nimis cognata videtur

X X S MACIDPHYLLA (Anders ib ), ameniis subcoetanLis, misc ovatis squamis apice atratis cipsuhs cano tomentosis stigmatil us conniventibus loins elhp-ticis bisi rotundatis subtus albi lo-tomentOMs — In Austria mkriore S sub-grandifohi caprea Kein I c p 247 ~ Vix ab S caprea diveisd

X X X S UMNOGENA (Anders ib), amentis semipollicanbus nudis sessibbus, squamis fulvescentibus, capsuhs cineieo tomentosis jarvis brevitei p<sup>f</sup> dieella-tis folns obovatis supra venis immersis rngosis obscure vindibus subtus opacis crebemme venulosi<> stipulis nullis S aunt -grandifolia, Kern. Oest bot Zcitsch 1804 p 187 Hb Sal. n H2 — Prope (Empontum. — A vera S aunti vix distuiguere valeo

35 S SinsiACA (Willd sp pi IV ) 660), amentis sessibbus basi bracteis paucis vel nullis suffultis domuin bieviter ppdunculatis et bracteatil lanflons oblLsis squamis ipue luscis longe pilosis eap^ulis ex o\ata basi conico clongatis gl ibi is'sen eisve) leluclLitis, ]>edicollo nctanum 3-> supeiante, stylo brevi, stvniaiibus ciassis bifidis di\ uicalis, loins obovato vel ovito el lipiicis vel plus m nus hie Uneoolatis iciinnnaus un(lulato-^er^atls primo tenuitite rulesconlibus dtmum olscuie vjudibus subtus subeolonibus et subtomentosis nervis acute piozumulis leticul illis, stjipulis renilormibus ^ in •lpibusetiegu nibus subalpims Silosia3quum boiussicae turn austnaeae In Ctr-patbis Huiigarn Bucowini H Bo^ia Quam ox Italia (lenoic syll H ^eap Ajp r, j, iQj Suecia(l<r Mant II p 62, et H noini VII (1) et Rossia melia(iulei fl ross i p 609) altulerunt auctorps, smo ullo dubio nn dincitionts s capreap sunt censendae ^ec in Scotia provenit uti b spha-celatam Sm h B 2331 inierpietm volmt Wimmer — Koch foiuinent p 40, bynops ed 2 p 7)9, Wimm Jabresb d scbles Gesellsch P^>7 p. 79 h\ Schlc^ ed 3 p 1P8, Sal euio p fc<), Haitig Fortl Cult p .04 t 4U, Andcis Sal Monogi p ib S Ludwigu Schk Handb t 3H S fagi-foha Willd n. 103. b lasiocarpa Wimm. S Mauckschn Hartig Forstl. CulU

pi p 396— *lconei* Reichb 1219, Anders I c. fig. 42 — *Exstcc*, Wimm HbJ Sal n 2 3 26 27 Frutex m regiombus sUpenorjbus (ubi cum S Lapponum et S hastata fiequentissime intermixtus) parvus subdepressus, in lfenonbus (ad terminum supenorem s purpuredj) quasi in formam arbons excrescons, ramis glabns, gemmis etiam glabns paivis Folia forma eximiewrn ly, ice ob vato vain bisi brevii ei atienuala arice non raio ol lique s ibdcuminata, 2 \ poll longi, supia medium 12 f<sup>0</sup> ^ ^<sup>ata</sup>) margine subintegi i pumo utiique villosa mfosc nlii, demum ghbrescentia et ngida sed ttnua et exsutatione obscuie rufescnti-vindia Amenta mascula subcylmdnca a thens demum fuscis, feminea 1 2-pollitana Capsulaa typice glabrc, urides vel rufcstentes, hne> subloi giores, stylo crassiusculo flavido — lximie vinat arbuscula vel Irutex huimhs subdepressus, folia e latitudme summa ad dntfuste lanceolata, nunc utnnjue pilis conspersa, uunc glabrati, ulnnque vuidia \el bulilus ghuccscentn, amenta praecocia omnino SPSSIII aut subcocCtanea, pedunc lo bievi loins parvis instiucto, rtuchi vulgo gldhra vel husuia Est sine ullo dubio S cnpieis maxime afhnis ab us ad lypum s ha^titae tidnsiena A capreu\* non i>empei tute) diffeit lohis lulesu nil v ndibus tcmuoribus ot ngidioubus sed vix toriiteis, acute nervosis, utnnque feit contolonbus amentia mgustis, tapsulis noimaliter glabns \ulgo adhuc longius ptdiullatis, stylo brevi apitulatis et a S hastiid folns Irequontius hirsutis, minus leliculato-venulosis et lucidis, capsulis multo longius pdiooll itii, stylo brevion — Hegioncm sil I i eculiarem occupans in c ntio luiupcL, ouiniuo analoga esl S t?iandifoha in alpibus adhuc niLndionalibus, cui in&up r hal)itu bimillima et notis ceiiiis vix ulhs distinguenda, per earn aihniiiauni eiam quandam cum S pedicellata adhuc abtralion et S Canauensi pidtliPt In SOUK tato s Capioarum fiequentissime crescens naultas exhibel ioioias auf cum nshybiidis aut ad eas tiansitonas, quarum s>cquentes ex Silesia<sup>1</sup> alpibus affeL ill Wimmer (Cfr Denkschr 18a3 p 167 et sequent)

P, *subcaprea* (S caprea-^ilosiaci Wimm Fl 1849 p 43), amentis elongato cylmdncis, lem 1 ixiflons squaniis ferrugineis seminigenis, cipsulis long\* sutiulatis obtusis (ilbo villosis), stylo subobhtterato stigmatibus eiectis, folnsovalibus subtus molliter cmo tomenlosis ru^osis —Wimm. Sil europ p \*08 HF\* n 8 fem , 134 masc Coll Salic n 8 33 Sdl. 191 194, 196 — tormae valiae †

Y, *suhewerea* (S cmerea silesi ica Wimm Denkschr 1 c), amentis oblongo cylmdncis basi laxiflons capsulis pedicello longo comco subulatis (seriteo gi is< is) folns oblongo ovahbus v lanceclatis acutis supra sordide \mdibus suhtus glauco pubeiulis rupulosis —Wimm Sal europ p 211 Hb Sal n u2 Coll 197, 188 Duo spccimina mventa 1

6, *suhaurtia* (S aunta silesiaca Wimm Flora 1 c), amentis angustionbus et brevionbus, squamis ferrugmeis, capsulis cano-iomentosis v nud ustulis, fobis obovalo lanceolatis v o\ahbus t?labiis subtus glauto-palhdhis — Wiuim 'al euioy p 209 Hb Sal n 21 \*4 bi 130. Haec [r'requptissinja et foimaj numcrosissimi 1 Coll 199 203 206 208 210. 211

e, *Caucasica*, amentis bie-vitei pedunculatis fohis pdrvis J S suffultis anguste cylindraccis subdensiflons, squamis obovatis apice infuscatis plus minus 1< n,p illo llosi\*, capsule an^uste corncis glabns vel tomentosis acutis pedicellatis pedic\*Mlo nectanum ttr quiteive superante st^lo t videnti bilido tngmatibus p ntitis pitulis folns ellij lico-oblon^is bieivitei acunnalis tnuibus utnnque glibernniis (oncol(iril)u, \el subtus jallidioubus margine nndu'Uo-cienatis, stipulis somicoidatis serrulatis atutis s SilesiaLa Jedeb fl loss, 3 p 60^ p p In piwincns raulasins (Noidmann Hb Petrop et Ledeb ) —Vinat I *Ipfocarpa* capsulis longis pedicelUtis Jab mnm — \*• *eruKarpn* cnpsuhs brevis prdi (ellatis gns o tomtniosjs — Prutex ccrlo iiediouis staturae lamis eroc is toiulosis, cortioQ fu coatip glabeinmo obduittis, ptiam'novcllis glabernmis. Folia jumora obovato-rotundata, subpolhcana, pellucida,

ulnque, costa forsan excejta, glaberrima et dilute v̄india, adulta 2 3 polhces longa, vix pollicem lata, lanceolata, acummata, supra obscure v̄india, subtus pallidiora vel etiam opace glaucescentia, margine inaequaliter senata vel undulata, pirum firmū Amenta masc subcoetanea, erecta, anguste cylindracea, pollicana, firmē longius pedunculata, et folns sat evolutis sed paucis sulluta, etiam pollicana et 2 lui crassa, capsule vindulae, vix lineam longē pedicello, stylo et sigmatibus rufescentibus Hdbitu cum S hastata et nigricante etiam quociammodo congruens vix a. S Silsiaca specie distinguenda, ab ea habet folia tenuia, pellucida, concolio amenta gracilia et capsulas longe pedicellatas, sed r̄iifieri amentis pedunculate subscrotinis folns evidentiōibus suffultis, capsulis brevius pedicellatis et stylo evidentiōe

- 36 S. AURITA (L sp pi 1446), amentis sessilibus bracteis vel folns minutis suffultis, masculis ovatis, femineis bievitei et anguste cylindraceis densifloris obtusis, squamis ferrugineis apicifuscatis tenuiter pilatis, capsulis elongato-conicis albo-tomentosis (vel pubescentibus) pedicellatis, pedicello nec tantum l̄er quaterve superante, stylo nullo (vel brevissimo), stigmatibus brevibus crassis oïecto p̄itulis, lobis obovato-oblongis vel hinc lanceolatis recurvato-apiculatis undulato-ciliatis rugosis vulgo tenuibus supra obscure viridibus vel medianis subtus glaucis tomentosohirtis nervis prominentibus reticulato sciuposis, stipulis reniformibus, gemmis et ramulis glabris sappius rufescentibus <§ In pratis et sylvis uliginosis, paludibus etc per omnem Europam, usque in Lapponiam infenorem, in Sibiria altaica (sec Ledeb), uralensibus et ad Tanyp et Jama\*tau (Bunf-e) etiam in Persia boreali ad Asterabad (Buhse) sed verobim S. cinerea — Willd sp pi 4 p 700, Koch Comment p 38, )?T. Mant 1 p 13, Wimm. Sdl europ p 6J, Anders bdl Monogr p 69, Wahlhg Suec n 1H8, Lange Dansc fl ed 2 p 661, Koch Synops ed 2 p 750, Wimm fl v Schles ed 3 p 186, Kern Weid Oestr 1 c p 13, Hartig horstl Cult p. 402, Godr et Gren fl fi 3 p 13h, Gaud fl helv 6 p 24^, Hook et Arn bni fl ed 7 p 404, Lange et Willk. fl lusp p 229, Bunge Reh ju Jehmin 1 c p 497 S uhginosa Willd J num pi h beiol 2 p 1007 S nigosa Str frxs. p 18 b ulmifolid Vill Delph 3 p 77b S Iserana Presfl. cch et Reichb fl excurs (forma pusilla depressa ex Wimm) S molhs, S spireaefolia, S cinnamomea S cinerea schleicher EXMCC — Icones Hoffm Sal t U 3 t 22 I 1, L B t 1487, Reichb icon 1220, Sal Wob t 124, Haitigl c t 39 Anders I c f 4) — bxwee Ehrh arb n 39, Ser Txirc S M 101 102 O 103 hr H N 7 60. Wimm Hb Sil n 2S, Kerner Ilh Sil 16b 171, Billot n 8AK 2K — Sal caprean nid Ximo ilfirms ab pa s-ppe dilhdllirno di«tinguitur 1 st timen frutex vulgo non altus, ramis gracilibus divaricatis, junioribus rufis scenlibus, sappius glabris, folns brevibus vix 2 poll lon^ionibus typice late et breviter obovatis apice brevissime acuminatis, basi valde angustatis, tenuibus, junioribus eximie rufescentibus, rugosis et conspicuis, amentis levionibus et angustionibus, capsulis brevius pedicellatis vix lanatis sed adpresso senceis A S cinerea dignoscitur ramis et gemmis glabrescentibus, loins laptius vindibus et valde rugosis, capsulis mdgih albo-senceis vel rufis glabrescentibus Stipulae in hac minus deficiunt, plerumque mdgnae, undulatae, saepe ensipae — Quoad folia maxime ludit, e latitudine permagna ad formas angustissimas, apice rotundata vel sat longe acuminata, glaberrima v̄india vel denso meano-tomentosa, majora (usque ad 3 pollices longa, supra medium 2 poll lata), et minor (vix pollicem longa et semipollicem lata, raargine integrā seu ensipato serrata Has praecipue sequenti modo disponen Jas censeo

- a, *nemorosa* (Fr. Bot Not 1840 p 187), frutex sat altus, fere arbuscula, ramis saepe stinctis, folns obovatis vel rhombeo subrotundis scruposo-iugosis, stipulis magnis, amentis fere pollice longionibus Ad S Capream p tissimum vergens Vanat <sup>virrscem</sup>, folns tenuibus utnque v̄indibus Jere glabratis nunc margine submarginatis nunc ensipato undulatis, stipulis magnis Haec praecipue locis silvaticis — 2° *cinercu>cew*, folns rigidionibus supra plus minus opacis subtus evidentiōe canescentibus margine saspium integris, stipulis interdum nullis vel parvis Hah in locis minus aquosj^ p, *ulgmosa*, frutex mediocns, ramis undique divaricatis, folns plus minus

basi attenuate hngulatoobovatis vel anguste lanceolatis planiusculis, amentis brevionibus et tenuionibus Locis magis uliginous Ad b cineream fere accedens Vanat 1° *mrescens*, foliis tenuibus obsolete cretatis utnque vmdibus, 2° *cinerascens*, folis demurn subconaceis sub integris prse^ertim subtus canescentibus

7, *microphylla*, frutex subdepres«us vel hurnihs, ramis brevibus toiulosis cnsiuscuhs foliis vix polhce longionibus obovato rotund itis vel oblongo-ovalibus immo ba»i subcoidatis secns nervos tomentoso mcanis, amentis brevibus In pratis pasuns et paludibus uli^mosis — Ad S antiquam accedpns Vanat \^vir(scens loins tenuibus utnque vmdibus exsiccatis saepe ni^rescentibus (lere S repentem revocans) 2 *canescens* folus ciasiusculis, utnque sed praesertim subtus plus minus dense mcano tomentosis

7 S CINLREA (L sp pi 1449), araentis praBcocibus sessihbus basi bractedtis mdsclusis ollongis femineis elongdto cylindncis pnmo dtnsifloris, squanns apice nigncantibus dense gnseo tomentosis acutiuscuhs pedicellatis, pedicello iiectaiium 3 o° superdnte, stylo bie|i vel subnullo, sti^matibus bievibus cieoto patulib folus obovato lanceolatis breviter acuminilis bdsi m^ustatis undukto-cienatis supra sordide vindibus vel pubescontibus subtus pallide gnseo-tomentosis nervis elevdtis lugosis, stipulis subrenifoimibus gemmis et ramulis tomentosis — In omni 1 uropa, a mL\ime inenriioridli usque ad Hues infenores Lappornae, in Asia media et pei bilimm usque in Kdintscbatk im (? Beechey ex Hook et Am ), etiam in Faun alpibus (Kotschy il tilit 18i3) et in provmcus ciucasic s I Persia horeali mihi dubu — Koch Comment p 35 frrie&Mdiit 1 p ^4 Wimm Sal europ , Andris Sal Monogi p 71, Wahlenbg Suec n 1137, Koch Synops ed 2 p 74S Lm^eDansk fl e«d 2 P 66K Keiner Wcid Oestr p 128, Hartig ?orstl Cult p 403 Hook et Am bnt (ltd 7 p 403, Gren et Godr fl fi I p H4, Lange et Willk fl hisp p 228, Beit fl it 10 p 333, Ledeb fl ross 3 p 607, Bungc Rtliqu Lehmann 1 c p 497 b acurninati Lhrh irbor p 89, Hoffm bnl p 39 Ser Ess p 12. S luhneivis Dl fl fi i 371 S nquitua Sm but p 107a — S ldnata Vill Delph 3 p 777 b Hoffmannidna Blufi et Fingerb 3 568 S dunicorum but fl helv 2 p 184 S oleilohibm bnt p l()o> S constneta Guss I num pi liur p 403 — /tones Hofni Sil I 0 »t 22 i 2, Host Sal t b8 70, L » 1402 Ii37 1897, Sv Dot 56i, II D 2001, Reichb \IU 122<, Hartig 1 c t 40, 41 , Sal Wob t 12->, 326. 127 —txsuL ser Lxs 3 4 5 26 9o 97, \*i Hb N 7 59 Wimm Hb Sal n 57 >8 K^rner Hb bal p 164 16o — Sppms cum b capnae u>m,uratur et ub foimis magnopeie vanantes ilifficillinie db ta di tinguenda quare etiam cum eaa Bentham (forsan mento) conjun^itur Vulgo in foimam drbusculae maio is exciescit lamis subtorulosis divaucdtis coiticc cmerco, in annot nis molhtci cano tomentoso obductis holia qut lornn eximie vana typi9e mmora et angustiora bisi migis attenuat i dpicc ldtion bicvius acu mindtd, consistentiadunora supra obscure et soidide vindia non rno tomento tenui canescentia, subtus pallidiora et #LISPO tomentosa, satpe omiuno dermdata \el lufescntia nevis acute pruminentibus areolato reticulatis Amenta senus c\olvuntur, in iscula centnluga, multo an^usliora, stamun bus satuiatius luho auicis ci])suhs minoiibus — S giandiloliaj \aide ana loga, ab ea dittcit folus vulgo mmoubus et brevionibus, apicc lationbus minus puie vmdibus stipulis minoiibus, amentis exacte praecocibus et cap suhs guseu-hirtis minus pedicellatis A b aunta recedit loins raagis elongate, textura crassionbus, canescentibus, subtus pallidis, ramis el gemmis tomentosis

a, *latifoha*, folus oboMto oblongis apice plus minus bre|i obliquo supra medium sdepius polhce lationbus Vanat 1° *Integra* folns subintegris virescentibus vel mcanis — 2° *crispata*, folns crebre aerratis saepius vniduhs, interdum opacc mcanis

p, *longifolia* folns lancnolato-oblongis saepius ad medium lationbus m-Legns vel cnspatis vir^scentibus s cinereis.

Y, *brenfolia*, folns latitudmc non duplo loagioribus. s«pws serratis vires-

centibusvel incanis Yariat micropbylla, folus vix semi pol lice longionbus et subrotundato obovatis

- 6, *laxiflora*, amentis serotimsin pedunculo elongato foliatopatulis, squamis angustis fulvis, capsulis longi sime pedicellatis stylo subevidente - Valde singul ins foi ma eujus p» cimm i piura ad Schottwitz prope Bre\* 1 IU lecta communiea\it ill Wimmer

X S LUTESCENS (Reiner Weid Oesten 1 c p 131), amentis saepe brevissi me pedunculatis folus sq i im-eformibus 4 7 fultis, iemmpis bis ter longionbus quam latis, sjuimis in bdsi palhdis ] llosis cipsulis longe ] eduelldtis, pedi cello neclndum tPr quinquics superdnte, stigmitibus eiect patuhs folus oblongo-obovatis undu dto seiratis ddolcscntia lutescentibus opacis utunque molliter tomentos adultis supia obscure vindibus jubeiulis subtus cmo- tomtnto\*is — In Silesn (Wimm ) Ne jmarchi i piope Dncsen (laseh) M D baden ji Doniueschingen (Brunnen) (ailsiuh et Heidelberg (1) 11) eti im in Angha (t(ste Wimm) — s. eineiea aunta Wimm H 1849 p 43, Denkschi p 163 S aunti cinrea Wnm Reg H 1848 Sal euio p 202 S muitinervis Doll fl bid p 'S6 - Cum S auuia communia habet ramos divaneitos tenues ^labros ^partes florum mim res et cipsulas lreves, sod cum S cinerei amenta longi rd stvlum hievissim msec! sulewdenteoi to liorum formam et indumentum Nonne melius S cinerea parviflora?

38 S CAPREA (L sp 1448), amentis pr«ecocibus s(ssihbus bracteis minutisdenique suffultis ranflons maseulis ovili ov ills femiueis elf n<sub>o</sub>'at0 cjlindreis subpenduhs squa is aoutis d| lee ni^ns lon^i vill sis cipsulis conico elon gatis obtusiusculis cineieo tomentos pedi elldtis jedicelij n ctanum 4 Gies supeiantc, stjlo ubnullo stiginitilnis o\ Us bifidis conni^eniibus folus ovato-ovdhbus vcl late laneieldtis obovdtisve oblique acummitis obsolete un dulato eienatis supra vin libus fcldbi s sub us pilli lionbus torn ntosis in nei vis saepius elevatis mollitei Unitis stipulis lpnifomiibiib giminis PI i unis ghbns 5 In omni Europd usque in 1 d| | mam subalpinim, pei Asiam mediam et borealem in Sibirnam bdikalen\* > em ot regionem Amuie lsein, in regione Caucisi \sia minon et Feisid boreali (sed sp^eimnid ceita ex ed tend non vidi) — Willd sp pi 4 p 703, Koch, Comment p 37, 1 ries Mdnt 1 p 57, Wimm Sal europ p 50, Anders Sal mono^i p 7>, W ihenll t>uce n 1136, Lange Dinsk 11 cd 2 p 6G1 Koch Svnops ed 2 Wimm JI \ Schles ed 3 p 18 > Kein Weid Oesti\* 1 e p 247, P Hartig \*oistl Cult p 402, bren et Godi 11 fi \* p 13>, Rook et Am but 11 ed 7 p 404, Lange et Willk fl hisp p 229 Beit fl it 10 p, 335, Ledeb fl ross 3 p 609, Bungo Rel Lehmanu 1 c p 497, Md\ mim Fl Amur 1 c p 243 cosson et Buhse Her peis 1 c p 201 S tomentos Sei txs p 14. S tiybnda Vill Dclph 3 p 778 S aungeiana Lap abr 598, DC ff fr 5 34J b ulmirolid Ihuill Pai p S18, DC fl lr \* > 340 — *hones Hoffm Sal t 3 f 1 2 t r> 1 4, H(st Sdl 66 67 Sv Boi 98, Fl D 24T, L B 1448, Reichb 122i, Hdrtig 1 oistl Cult I 48, bal Wob t 121, 122 Anders Sal lapp fig 6 Sal monogr ff\* 4T — / isicc I hih arbor n 98, Ser n 68.76 80 98 99 Reichb l(i1, Fr H N, Bill n 4b2 Wimm n 40 50 56 Coll Sal 21 25, Keiner n Io7 160 Arboi vulgo sat alta tiunco fere pedem ciasso et coitice umoso umis luscis \el satui itp vindibiib cuain annotims sapissime typico ^I^brib Gemmae sat magiide casUneae vtl rufescenlos I oli i lornia idm him van a lypicc ov it > avail i J- > pol ic s lnga 1 3 poll Utd, bast ioLundata n n raio sulicoidala neivis beundai us 0 12 supia dilutionbus subtus eltvaais hiitub ru^o^a, peiolus sat longUb flax us Amenta piimo albo-villosi, ma^cula kcle itirej flavicantu ov ili-rotundata feminea usque ad 3 poll longd demuni rmflon subpen lula Capsulae lined longiores, canescentes, sti<sub>n</sub>mdtibus iulvi-. Lximie v mat 1 staturd arboi excelsa, irbuscula vel frutex, in regio ubus alptstnbushumilis 2° folns a) latifoha fol rotundato o\ahbus s pi i gla^ris, subtus sat dense tomoiuosis basi rotunddtis \el in^ustdtis, b) parvifoha foi o\atis v obovato-ovahbus subtus niveo tomentos v olal lescentibus hisi rotunditis v an^ustatis (Reich, f 1227), c) angusiifolia fol linceolato obovatis, basi longe aeu- minatis, utnnque aut mollitei cano-tomentos s (tune S lapponum v< 1 I aest- ~~tadanae~~ simillima et in regionibus aipinis fiequentior) aut glabernmis et*

tenuibus vel subtus tomentosus (tunc s. glandifoliae sat simili) Piaeterea variant folia in omnibus intergra vel undulato immo ensipato serrata bipulvatae, petiolum subaequantibus vel parvae, subdeficientes — Amenta longitudinaliter et ciliata vana in apicibus interdum subobovata — quae in specimenibus nonnullis attingimus vidi, unde amenta femineae eximie dichotoma — & caprea vinculo ultimo cum \* a in i et ungeria conjuncta, fornix non paucas exhibet, demum valde inaequum (tunc cuius optime binae ascendentes)

*p<sup>a</sup> orbiculans*, amentis crasse cylindrica lappulis longis semipollice crassiusculis, squamis demum longissime villosis ciliatis parvis conice subulatis tenuiter tomentosus longissime pedicellatus, pedicello tenuissimo nectanum interdecies supereminens lobis obovato-ovatis fere 2 poll longis 1 - 2 poll hinc planis supra glaberrimis subtus parce tomentosus vinctusculis in eis tenuissimae elevatis vix rugosis murginis — Ad urbem Petropoli in Kamtschatka Gipsulis solum longius pulcherrimis parvis foliis tenuibus, planiusculis, modice tomentosus, orbiculatus et glandibus a venis et pediculis caprea dicitur An vere binae consocianda? (v. s.)

*y. capreola* (b. capreola Kerner in h. t.), amentis biciviter ovatis vel oblongis squamis fere totius piceis, capsulis longius pedicellatis conice orbiculatis albis cinereis, stylo brevi stigmatibus bievibus, lobis minus superne satius opate in lobis rugosis subtus tinereis obovato oblongis basi subito angustatis Fere in balesia et piope Wien S. circa aucti Wilmsh. H. 184) K. in 1 xico n. 161 162, et foisan etiam s. caprea miuophylla Sor. Exsicc. n. 99 Quod idem lolid S. aurn in sat similis, sed amentis b. caprea Miln. lormd tantum bujus speciei pulv. morphae videtur

X S. REICHHARDTI (Kern. Wdd. Oestr. p. 249), filamentis longis, anthus oblongis, amentis lem. oblongo cylindrico, capsulis uneio-milosis hinc matibus lineibus eictis foliis oblongo-ovatis bis lobis gionibus quatin latis, demum breviter acuminatis basi longe attenuatis supereminens sordide demum puberulis subtus minus cano-tomentosis g. demum puberulis — S. polymorpha L. Host. Salix t. 69 b. uipia oinea Wini. lloid. H. 49 p. 3. otc. Kern. J. sicc. p. 163 E. balesia et Austria mellei (piope Wien) dicitur bim. dubio alns etiam locis baud. Infere jentei. Amentis angustioribus, capsulis magis cinereis, folis supra sordide demum puberulis et gemmis iansque submedianis obovatis b. cinea congruit

39 S. WALICHIANA (Anders. Act. Holm. 1850 p. 447), amentis gracilibus sessilibus attenuatis erectis densifloris biaculis paucis et minutis suffultis, raris lectiusculis aureo-pilosis l. unguis. J. sicc. lurtis, squamis b. demum birsutis apice infuscatis acutis, capsulis conicis et natis incano tomentosis mitantibus glabrescentibus pedicellatis pedicello n. Unum bis-quaterve superante stylo nullo stigmatibus erectiusculis, lobis ovalo oblongis demum in unguibus utrinque argenteo-tomentosis adultis supra glandulosis itis subulatis senceis demum coniceis maius aut minus integris aut obsolete ciliatis serrulatis — Anders. Journ. Linn. Soc. 4. l. p. 0. sal. monogi. p. HO. fig. 4b. Stquentes lormis, quas non sine hesitatione minus unguis speuem rede, amentis et iohis inter se non parum discrepantes in eo Linn. Luunt. quod lolia uabent lenua, sen eo-tolnerlo imenli mid i fidulia. lou, c. laccida Lt c. ipsulas longas angustas, plus minus pilositas, stylo nullo apicibus, demum vti rarus

#### SALICINAE

*a. gnsea* (Anders. monogr. p. 80) amentis valde confertis 1-1 { poll longis omnino sessilibus, squamis longis acutis pallidis demum fuscatis capsulis lineis conicis angustissimis minus tomentosus subsessilibus, pedicellatis nectanum supereminens folis supereminens labiatis magis tenuiter serrulatis — In India nonnulla Nepal. Kumaon, billet (Wd. h. H. 1) Kalimat, Boges. v. Uley. fs. i. IOU. d. Ut. bti. u. hey. et Winterbotom) S. gnsea Will. list. n. n. g. non. 0) rbor. v. iutex. mdj. al. titudinis. Rami. robusti. pioei, glabris, novelli tomentosi Gemmae subtrigonae, demum glabrescentes lolia petiolata, demum ovata

oblonga, saepe in apicem acuminatum subito attenuate, basi subrotundata v obsolete attenuata, 2-3 poll longa, 1-1.5 poll laia, adulta supra glaberrima laete viridia, nigida Amenta masculina crassa ] J pollicana, densiflora, feminea 2-pollicana, angustior ciliata flaccida (v s in h. soc linn Lond )

P, *julacea* (Anders mon I c), amentis brevissime pedunculatis longis simis valde attenuatis flexuosis, squamis obtusiusculis imbricatis, capsulis pubescentibus tenuibus, pedicello nectanum ter quaterve superante, foliis subtus argenteo pilosis minute remote et minute denticulatis oblongo ovalibus obtusiusculis supra Hyderabad Indiae orientalis, alt 2600-2730 m (fr (Jacquemont) — Act Holm 18-JO p 476 trutem diffusus Rami glabris, fusco brunnei, novelli puberuli gemmae raagnij nitentes toha 2-2 i poll longa 1-1.5 poll lata, basi attenuata, apice subobliqua Amenta feminea 3-5-pollicana, patenti divancata Capsulae 2 lin longae, subcaescentes, stigmata fulva — Habitu amentorum non nide S. phylicifoliam revocat, sed stylo nullo longe aha (v s m h par )

γ, *sencea* (Anders mon 1 c), amentis breviter pedunculatis crassiusculis squamis acutis atemmis fere tollis glibris, capsulis brevibus obsolete puberulis pallide fulvescentibus, pedicello nectinum superante, foliis utrinque sed subtus densius sericeo micantibus 5 In Himalaya boreali Occident reg temp alt 1000-1000 ped ad Banahal (Dr J D Hooker et Thomson) Arbor laxis tenuibus, fusco piceis glabris Folia 1-1.5 i poll longa, ad medium infima poll lata, plus minus lanceolata, apice acuminata v acutata Amenta lemnea 1-1.5 poll longa rhachis villosa Capsulae pallide flavescens — Habitu idem magis quam loima julatea S. phylicifoliae subsimilis (v s in n Hook )

40 S SILBOLDIANA (Blutnc Bijdr p 517), amentis sessilibus nudiusculis erectiusculis densifloris, squamis lanceolito-linearibus distaccis concoloribus margine strigosis, capsulis comae ovalibus obtusis pilis nigridis dense hirtis pedicellatis pedicello hinc nectari mm duplo superante stylo obsolete, stigmatibus bifidis foliis oblongo ovalibus utrinque glabris minutis subtus opacis acute nervosis margine acute sed repando serratis G In Japoma ad Hdkodaki, etc — A Gray in Perry jap tped 2 p 19, Anders in Asiatic Gay plants of Japan in Mem of the Americ Acad vol 6 p 41, Sal monogr p 84 hg 47 Arbor laxis fuscis glabris Folia 1-1.5 i poll longa pollicata, basi rotundata, apice breviter acuminata, supra obscure viridia subtus subglaucescentia Amenta feminea vix pollicari ciliata, rhachis villosa hirta Capsulae hinc longae, conico oblongas A speciebus europaeis nihil quam S grandifoliae similior b Korcensi maxime affinis, sed ioha plane aha (v s )

41 S BRACHYSTACHYS (Benih pi Hartweg 2 p 336), amentis sessilibus brevibus curvatis densifloris mollior villosis basi nudis v bid (leis paucis et cito deciduis suffultis, squamis atque obovatis acutiusculis pilis longis senceis dense vestitis, capsulis albo senceis conio atutalis pedicellatis pedicello nerUnum 4-5" superante, stylo nullo, stigmatibus sat longis flavidis integris subdivancatis foliis obovatis subtus densissime et complete velutomentosis demum glabris rufescentibus, stipulis nullis In Californie, sylvis prope Monterey (Hartweg n 1907, Coulter, Coulter) — Andeis Ofvers Wet Akad Forh 1858 p 121, Sal monogr p 82 hg 48. Vix pro certo dicere audeo utrum hanc formam, cujus specimen tanturn pauca sed authentica vidi cum distobre ut ejus modificatio occidentalis, conjungere, an ab ea distinguere valeam Amenta quidem breviora sed squamae et capsulae prope eadem, folia etiam eadem forma sed multo breviora, supra obscure viridia subtus plerumque vellere lucido et molli cinereo velutina Nostra S cinerea hinc absimilis sed amentis multo brevioribus, longe albis-senceis et foliis nigido-coriaceis rtcedit (v s in h Benth et Hook )

fj, *Scoulenana* (b Scoulenana Banatt sec Hook Fl boreal Amer 2 p 14J), amentis longioribus magisque raris et tenuibus, capsulis minutis senceo-villosis, foliis admodum et acutioribus pneum villosis

rufescente dense obtectis, costa albo tomentosa. Vanat 1 *tenuijulis*, dimentis femmeis polhcanbus patentibus vel recuivatis 2 3 lin ciassis, capsulis vix linea lungionbus, stigm itibus brevibus fuscis folns spdthulatis molhter rufescenti-velutinis Hab in Amcnca boieah occidental prope Columbia (Scoulei), ad Fort \ancouver (Tolmie) a Scoulenana Hook 1 c Modificationem loins supra laete vindibus, siibtus denud »tis sed ruñs in California leg Wrangel (Hb Petr) — 2 rrasiijutii, amen Us masculis subclavatis ob filimenta longa aurea lucidis, lem 1^ poll loogis el crassissimis, squamis lati«. ranus villosis, capsulis fere 2 lin longis, e basi ciassa cyhndncis, folns obovalis vellere ferrugineo velutinis Hab. in California (Coultei n 656) b capreoides Anders. Ofvers. Wet Akad Forh 1 c p 120 Modificationem amentis masc brevionbus, ovah-rotundatis, squamis longissime villosis, folns ovah-oblongn apice productis et stipuhs sat magnis ornatis ex Oregon prope Astona reportatam in Hb Asa Grayi vidi

- 42 S. DISCOLOR (Muhl Neue Schrift d Gesellsch Nat Fr , Borlin 4 p 234), amentis sessilibus biacteis vel loins VIY ullis sufTultis pnmio densiflons crasse cylindncis squamis apice atns pilis lylvis vel gnseis longe hirsutis capsulis conicis aculis emereo-pilosis pedicellahs, pedicello nectanum 4-Sies superante, stylo brevissimo, stigmati lacinnş linearibus elongatis fulvis, folns oblongo-obovatis vel obovato-lanceolatis longe petiolatis ngidis pnmio sericeis demum utnnque glabernmis supra costa venisque tlavicaiitibus lineatis subtus sat intense glaucis margine integris vel remote serrulatis stipuhs acutis, gemmis magnis glabns § In Amenca septentnonah pidjsertnn onentali, Caiolma usque in regionem quam pcrtluit Saskitchawan — WiUd sp pi 4. p 665, Pursb fl bor amer 2 613 Hook fl boreil amer. 2 147, Toney Fl New York 2 20b, Asa Gray Manual ed 2p 414 Anders Sal boreal araei 1 c p 123, Sal monogr p 83 hg 49 b balsarailera et S sensitiva Bar ran — *I cones* Muhl 1 c t 6 f 1, bal Wob f 147 — *Exsxcc* Banatt, n. 3 trutex 6-pedalis et ultra ramis non r«no subcatsus, annotinis scıppe pub uhs Folia 2 5 polhces longa, 1-2 poll lata. Amenta masc vix pollice longioia, ldete aurea , feminea 1 3 pollicana, laxiflora et subpendula Capsul\* sat magnde, cinereo tomentosae, acutae Quod b capipa in 01 be veteie h«c in novo mediantibus b Lananensi, b bilesiaca et S giandif ha Amenta feie eadem, praesertim mascula, sed capsulas majores magis conico acutalj stylo brevissimo pilis occulto, stigmatibus longionbus iolia longioia el suhtus evidentei glauca Ramis non laro glaucis, folns ngidissimis lanceolatis et subtus glaucis, gemmis magnis acutiuscuh et amentis cyhndiKis (omnia fere ut in S Cananensi) S daphnoidem non parum revocat, formje quam S comixtam appellavimus eximie simihs, sed cap^ulaj longius pedicellitae et stylus nullus' — Quoad formam foliorum vanat 1° *latifolia* folns lale o\ali-elhpticis 3 6 polhcaribus margine evidontius undulito crenatis, stipuhs sal magnis — 2° *anqintifoha*, folns latitudine triplo vel quadruplo longionbus, nunc ovato-oblongis tenuionbus undulato cicnatis siipulati^ majonbus v minonbus, nunc lanceolatis ngidis crenato-seirails (ere exstipulatis — J' *hirsuta*, folns supra sparse puberuhs, subtus vellere densissime submicante tomentosis (Hb Vindob )

p? *enocephala* (b enocephala Michx fl. boreal-amer, 2. p 225), amentis masculis breuonbus, femineismagis densiflons, squamisat''Misrotundate obovatis, pilis longissimis dense ullosis — Asa Gray manual ed 2 p 464 Anders Sal boreal amer 1 c p 117 Hab cumpnore In herbarns vani«« indubie identicas nunc S discolor nunc S enocephah promiscue signatas vidi, nee e scnpstis auctorum differentias ulla ex«tn-care potui nisi jam allatas, e forma squamarum desumtas sed viles — Hue ace dit forma

Y\* *ptinoides* (S pnnoides Pursh fl North Amer p 0U), folns amentis et capsulis ut in pnore, sed stylo nonnihl magis evidente, sticmatibus sat longis divisis, lacinnis filifoimibus coronatis —sal Wob t 40 Hab etiam in America septentnoiuli in eadem regione ac pr«cedentes Ob id praecipue memoiahihs utpote qp«, regiones magis septentnonales Amcncae orientalis, pr«ecipue inhabitans, foima capsularum ad S humilem



transitu in ifuadaiuiodo efficit. — *S. myricoides* Mühl. ad bane referri solet i mini propius ad *S. cordatam* ea forma accedere ejusque modificationem efficere videtur.

Nonne ad *S. discolor* etiam referenda est *S. paradoxa* Kunth in H. B. Nova Gen. et Sp. pi. 2. p. 2. i? e qu; pauca specimina tantum> jeaque deioria vidi. Folia oblongo-lanceolata, acuta, basi adnata integra, supra glaberrima, s<i>0Uis glauca, rufascenti-tomentosa, a men la lateral!\* (serotina adsunt). Capsulae hirsute longe pedicel laiae, stylo null.), stigmatibus quadrilidis. Vix ullis characteribus a *S. discolor* distinguitur, nisi foliis subtus rufescenti-tomentosis ei amentis (insolita evolutione) serotinis.

43. *S. GREYERIANA* (Anders. Sal. boreali-amer. 1. c. p. 122), amentis pedunculo brevi foliifero infixis brevibus subrarifloris, squamis fulvis obtusis sparse pubescentibus, capsulis ex ovata basi oblongis tenuiter sericeis pedicellatis. pedicello nectarium 6<sup>lei</sup> superante, stylo nullo, sigmatibus sessilibus cruciformibus fulvis, foliis lanceolatis apicem versus brevior acuminatis planis ttnnque molliter tomentosis integerrimis. In America septentr. : Missouri, Oregon et in Rocky mountains (Coll. Geyer. n. \*28b). — Anders. Sal. mon. p. 86. fig. hi). *S. vataulii-rostrata*! valde similis, sed differt habitu toto, ramis saepius glaucescentibus, foliis (<u>ae tamen novella tantum vidimus) multo angustioribus nee late obovatis, integ'rrimis, saepe subtus rufescenti-tomentosis, haud lenitate pellucidis, amentis vix semipollicaribus pedunculo brevi foliis 3-4 parvis instructo. Amenta mascula sessilia, vix bracteata, majora et crassiora. Stamina magis aureo-fulva. (v. s.).

44. *S. VAGANS* (Anders. Sal. boreal. Amer. 1. c. p. 121), amentis gracibus breviter pedunculatis foliis parvis 3-5 suffultis patulis obtusis, femineis valde rarifloris, masculis anguste cylindricis pallide aureis, squamis linearibus obtusis palido fulvis parice pilosis, capsulis ex ovata basi linearibus vel conico-rostratis obtusis sericeis (ramis glabris) longe pedicellatis, pedicello nectarium 5-9" superante, stylo vixulio, stigmatibus biparillis laciniis patulis, foliis late lanceolatis vel obovato-oblongis subinlegris d^mum rigidis hirsutia vel glabris, stipulis parvis. — Anders. Sal. raonogr. p. 86. fig. 51. Hoc nomine collectivo fonnas sequentes conjunxi inter se stalura, habita, forma, indumento et colore foliorum inter se divorsas, vix autem distinctas species, constructione enim florum omnia similes.

a, *cinerascens* (Anders. 1. c), frutex depressus vel arbor biorgyalis, ramulis annotinis vulgo tomentosis, foliis typice obovato-lanceolatis basi attenuatis apice breviter acuminatis aut iirique inenno-tomentosis aut supra glabris pallide viridibus subtus pallidioribus tomentosis nervis reticulatis elevatis, capsulis sericeo-tomentosis plerumque conico-rostratis, stigmatibus magnis. — in Lapponia Tornensi, per omnem Kossiam sept. mediam et arcicam usque ad Kamtschatka et regionem Amurensis. *S. livida cinerascens* Wahlb. fl. lap. p. 273. *S. depressa cinerascens* Fr. Mant. 1. p. 57. *S. depressa velutina* Koch Synops. ed. 2. p. 751; Bunge Reliq. Lelmann. 1. c. p. 407. — In regionibus alpinis depressa et foliis crassiusculis utrinque sat dense-cinereo-hirtis ornata, quum in regiones inferiores secus fluvios sylvarum descendit altior fit arbor, ramis tenuioribus, foliis minus dense hirtis et habitu *S. capreae* vel cinereae, a quibus tamen bene distinguuntur foliis multo minoribus et brevioribus, fere exstipulatis, amentis magis rarifloris, capsulis multo brevioribus, longius pedicellatis, squamisque totis pallidis. *S. depressa* L. fl. suec. (fl. lapp. n. 361.) sine dubio formam maxime humilem *S. lanatae* respicit, *S. Janata* (3, Sp. pi. p. 144(i), ut ipse hibet. — JIX formis numerosis sequentes praecipue notandae: 1° *capriflora* Laest. in sched. amentis majoribus, capsulis crassioribus brevius pedicellatis, foliis 1 £ poll, longis supra medium fere pollicem lalis basi longe attenuatis supra omnino glaberrimis subtus leviter et iiole tomentosis. Hab. in Lapponia Tornensi (Lujstadius). Habitus foliorum omnino *S. capreae* minoris, sed amenta prorsus *S. vagantis* quanquam minus rariflora, quamobrem forsitan hybrida proles. — 2° *aurioides*, frutex humilis, ramis eximie divaricatis glabris fuscis annotinis parce tomentosis, foliis parvis obo-

vatis basi vix angustatis bed rotundalo bubcorddtib tenuibus utnque subglabrescentibus subtus palhdis, \ems reticulatis rugosis-, aoiensis brevissime pedunculaus, capsuhs brevibus magis\* conius Ad flucn Ischa rynch Sibiride (Turcz ) bst quasi eS vagante cum S aunta hybnda, et S lmdae formisquibusldni analoga —*fobscuidj* folus lanceolatis apice et basi bubdequalitei altenuatis, tomenio utnque sunili subdenuiato opacis In Kdintbchatka (Stewart, Lubanski Hb Petrop ) Specimina tantum btenlia folus rite evoluUs viili, facie ommno b veibilohae sed reticulation? aperte ad S vagantem pertmentia — 4° (*lorida*, amentib sat longe foliato-pedunculdtib valde elongaiib et eximie lanflons, squa mis tuidissinns elongalis apice gldbiuisculis, capsuhs conico subulatis 3-4 lin lonys tenuibbime pub iulis, pedicclo nectanuii feie 10" su perantc, folus elongito lanceolatib utnque lncanu-hirtis sed subtub pallidionbus In re<sup>A</sup>ioni Amurenbi (Maxim ) et jn bibwia onentah (Stubendoiff Hb I<sup>A</sup>eliop) s deprebsa cinerascens Maximotjtz Flora amur in Mem mds aAcad de M Peteisb t JI p 2+4 Hdbitu a formib vulgatoriDus vldde abernns et quod ad folia us S viminahs liaud diNbiimlis Folia 2-27 poll lonp<sup>A</sup>a,, supra medium \-f poll ldtā Gap bulae 3 4-hnearth, vuidulae

p, *rostrata* (Andeis mon p 8) folus majonbus saepius supra glabernmis el dilute venulosib subtus tenuitei tomioUOsis et acute reticulato-venosis obovato lanceolatib apice longius icutninatis Hab in omni America boreah quum occulenuh turn onentah usqije in piovincia<sup>A</sup> mtdias frequenter, etiam in Mexico novo (tendl n 815) i> robrata (Richards append p „J), Hook ft borcili-amencind X P 147, Torrey 11 New Yoik 2 p 211, Abi Gray Mmual ed 2 H, 4)b S vigms cinrcdbcens occidentaib \nders I c Nullis ommno noiw <sup>A</sup>Ibrma cinerascoute Upuomci el sibined distingm potest al quas nisi siatua piocenon, loins inajoiibus et lngius dcumimlis plenius evolutis differt Sdepe in arborein bioirfdlem, tiunco 1001 crasso sed evidonte, exciescit' Quod dd lohorum vdnitionos msi<sup>A</sup>ncs 1° *lalifoha*, fol l J poll lonfi\* supia medium i poll ldtis tenuibus subiulegns sublus inollitci tomentobib us <sup>A</sup>tdprede simillhmis LecU in ins Vdncouvir (Lyill) — I *twain*, tol ovito-subcorddtis crassiusculis utrinque dense tomentosis Ad Lower Fra76F rner (Lyall) — 3 *obovata*, fol obovito oblongib 1-2 poll longib Mete nobis typici amencina vide tur Frequenti<sup>A</sup>sima cst, ludit fol ovah-obovdtis ngidissiuis sur-uui icute serratis supra incanis sublus subluude tomentobis, lls S ambiguae simillimis et folus obovato-lingu iatib 2 poll longib { poll ldtis \mb» in Rocky mountains (Bourgeau) — 4 *lanceolata* folus elongdtis bupra medium parum htionbus gnseo birtib, lohib valde tenuibus hncnolato obovitis, vel bupra subtomentosis subtus putim biltem glaucesc ntibus VJ 11 baskdtchawan (Bouigeau). Ad sequentem sat evidenter transit

Y, *Inida* (Anders 1 c), frutex vulgo humilib, ramis rufescenti castaneis valde divancatib glabns, folns ovali obovatis v lingulato lanceolatis lenu bus glibernmis supn Idete viudibu\* subtus lividib \el pallidionbus neivis minus distmcie linedtis, capsuhs \*ape tenuissime puberulis, stigmatibus bievibus s hvida Wahl nbg 11 lapp n 72 t lb f 6 lit jam supi i monui nullis notis ex imntis desumts a vir cinerascence disungui potest, folus tamen magis ai phylic loins vergit Modificationes sequentes attulerunl auctores 1° *livida*, folus pnmo pcatuhs tenuibub m jx laBviSbimis n<sup>A</sup>idis glabernmis parallelo ner\osis burtus h\id> glauLis Fi Nov Mant 1 p 58, Koch Commont p jq, Hartie FoibtI Cult p 408 Ledeb fl robs 3 p 611 S ububcula § Linn<sup>v</sup> 9p.pl 3 p 144o <sup>A</sup>foliosd Alzel m<sup>c</sup>, Linn fl lapp „d 2 ' n 29h" Willd sp pi 4 p 625,Reichenb 1 2009 Regiones praeupue alfnāsēt sept Scandinaviae inhabitdt In Rossu medid (ut ad Puiopohn) et Fennia Quo magis dustrum veisus descendit eo md<sup>A</sup>ib mutaiur ut ht l' bg-color f\* bicolor Ii 1 c), loins pnmo rugulosib teooiibub mox laevibsimis leticulato venosisjunionluib aurtus velutinis demum tfla.ina /baud hvidis). Reichenb 1 2008 Hdbitu folioi urn S duntam quōdammodo re-

vocat. Etiam in regione badensi occurt (Doll fl bad p 499) — 3° *Starkeana* (Anders 1 c ) frutex altior folus majonbus utnque glaber-rimis ovalo ovahbus acummatis sdepe sat ugute serratis ngidionbus, stipulis non raro magnis *Starkeana* Willd sp pi 4. p 677, Patze, Elkan et Mey b\ v Pieussen p 139, Lorek fig 1205 Reichenb f 2010, Hartig l e t 413 ^ milifolu Be^ Galic 2 p 313 Praecipne in pro vincids Bouissiae et Rossia? man baltici adjacentibus et in Silesia supe nori occurt A typica foliorura rnagnitudme et ngiditate nee non sti-pulis parum recedit sed in earn hequenter exacte abit Hue etiam *Salix* n 1977 Kaielin et Kinlofl (capsulis glabns, supissimc pedicellatis quodammodo defonms) — 4° *Americana* Joins magnis 2 3 poll longis late lanceolatis v subovali-obovatis grosse undulato crenatis pnmo tenuibus subtus partim glaucescentibus, denium n^idiuocuhs utnque vnidibus, nervis palhdionbuset prominenti reticulatis pulchre percursis E regione ad fl Saskatchewan plurd spuimina L Lourgeau lecta vidi toima, magnitudine et neivationc lolia oriunu cum us b rostratae congruunt, sed demum saltern glaJ er ima us b liscolons haud absimilia Cel Doll qui S lividam Wihlbg etiam in icgione badensi (locus in Europa rmaxime muidionahs) crescere monet, sc m palude prope Pfohre a fid Brun-ntr deiectdm vanas lormas enumerat ab La cum alns bdlicibus ut lertui , hybnditaie procreatas, scilicet

- X S C-ERULLSC\*NS (Doll fl von Bad p hV), ramis patentibus fusco-vindibus vel vindi-rulescentibus giacilibus, annotims molliter tomentosis suhcine-reis, loins planiusculis obovatis vel obovato-ellipticis apice breve obliquis, plerumque minute undulato cienatis, supra vindibus pilis adpressis consi eisu>, subtus hvidis vems elevatis reticulatis, jumonbus subpudescensibus, ddultis glabns, stipulis ovato vel semicordato remformibus, amentis brevissime pedunculatis squamis obovato oblongis cinerco-tomentosia apice mfuscatis, capsulis ex basi ovata conico cyhndiaceis obtusis mcanis, pedicello nectanum 4 6" super ante squamam superante, stylo brevi, stigmatibus elhpticis plerumque bihdis b cinerca liv da Brunn b aunta Slarkeana Patze in sched — Mihi potius b cineredL associanda udetui
- X X S LIVESCENS (Doll 1 c p 520), ramis divergentibus gracilUmis annotims cinereo tomentelhs, adultis glabns, folus obovatis, sdepius apice obliquis basi attenuatis supra pilis brevibus et ddpitssis conspeise vindibus subtus glabns vindi livescentibus vcnulosismargme crenulatis, amentis subse«silibus ovato oblongis, anthens semper lldvis,Cdj suhb ex rotundata basi conicis obtusis incano tomento&is stylo brevissimo, sti^matibus ellipticis vel oblongis in tegns vel bifidis Hab in BorusMa ad Konigsberg (Hatze), 1 liltit (Heidenreich), Lithuania et Posonia, M D Baden et in Lapponia pitensi S aunta et hvidaWimm Deukschr 18o3 p 247, Sal europ p 247 b Patzei Wimm Hb Sal 9T Coll bal 189 190 b aunta (J subhvidd Ld3st in sched Fr Mant. 1 p 56, Anders, bal lapp p 57 p p (all\* ad b histulam And )
- X X X b sTNOCLADOS (Doll 1 c p o21), raiiis giacilibus annotims tomentelhs cinerascentibus, folus oblongis vel oblongo lanceoldtis acutis vel apice breve obliquis maigine subievolutis supia plains pilis ddpresis tenuissime conspeis subtus hvidis subpuberuhis s<cpe argenteo pilosis venis prominulis saltern demum evidentius reticulatis, stipulis oblique ovatis, squamis floscu lorum anguste oblongo lincanbus obtusis palhde luscenscentibus, capsulis ex ovata basi sensini angustdtis obtusis, pedicello nectanum quadruple vel magis superante, stylo brevi, stigmatibus patulis bifidis fuscis In M D Baden, Pobonia ^Ruscil) piope Konigsbeig (Patze) et liltit (Hei' ^ b. livida repens Biunner, Wimm bai europ p 239
- X X X X b MYRTOIDS (Doll 1 c p o22 necFr ), frutex parvus ramis subgracilibus divergentibus junioribus pilis brevibus subincanis, folus planis ellip-ticis ovato-eihpticis vel obovato aculiuscuhs vel apice breve obliquis margine obsolete serruUus vel cienulatis demum subrevolutis, supia saturate vindibus mteutibus (inde norucn!), subtus pallidis subhvescentibus venis oubelevatib pumum pilis adpressis subsenccis adultis glabns, stipulis in surcuhs semicorddtis vel remformibus, amentis brevibus elhptico globulanbusvelelliptico-

oblongis pedunculatis foliis parvis suffultis, squamis glabris vel pilis adpressis cinerascensibus hirsutis, capsulis sensim angustatis acutatis glabris pedicello nectanum subnullo superantibus, stylo elongato, stigmatibus oblongis bifidis In M D Baden et prope Tilsit Boiussiae (Heidenreich) S hvida nigredens\* Brunn Wimm Sal europ p 230 Mihi potius forma humilis-S nigricantis visa

### § 10. *Rosex s. Myrtilloides.*

Truticuli humiles, ramis gracilibus Folia tenuia, elliptica vel lanceolata, glaucescentia, plerumque glaberrima, reticulato-venosa, juniora roseo pellucida Amenta foliato-pedunculata, randa Squamae apice parum infusatae et pilosae Capsulae vulgo glaberrima? et longe pedicellatae, stylo \*ubnullo apiculatae

45 S PROLIXA (Anders Sal monogr p 94), amentis breviter pedunculatis foliis 3-4 parvis suffultis eiculis lemmeis eximie rufis, squamis lingulato-oblongis apice subfuscibus in amentis masculis dense albo-villosis in femineis pleurumque glabrisculis, capsulis ovalo-coniis obtusis tflabemmis rufescentibus longissime pedicellatis, pedicello nectanum 8-10ies superante, stylo subevidente stigmatibus crassis breviter erectis, foliis obovato-lanceolatis acuminato productis integris supra laete viridibus subtus pallidioribus v concoloribus venis fuscis subreticulato-natis, stipulis petiolo duplo triplo brevioribus ^ In America boreali-occidentali, ad Lower Frazer River, 49° lat bor lecta (Dr Lyall, 1819) —Anders 1 c fig 52 Forma elegantissima, S rugulosa onusta non dissimilis, sed potius quasi e b pedicellata et S pynfolia (vel alia S coidatae modificatione) composita Frutex sat altus, ramis validis glabris Folia usque ad 2 pollices longa, } poll lata, basi angustata apice breviter acuminata Stipulae parvae, serulatae Amenta mascula ob aquas hirsuta subvillosa, pallide aurea, feminea 2 pollices longa, omnium maxime laxiflora, capsulae fere 2 lin longae, valde rostratae. A S pedicellata, quae in America occidentali non crescit, facile distinguitur foliis acutis stipulatis pure viridibus, capsulis tenuissimis et longissime pedicellatis i s rugulosa iormis, ex orbe vetere, folis planiusculis, amentis masculis villosis, femineis valde laxifloris (v s.)

46 b MYRTILLOIDIS (L sp 1446), amentis fructifera longe pedunculatis foliatis rufis erectis, squamis oblongis obtusis flavidis vix apice fuscibus glabrisculis, capsulis ex ovata basi oblongo-cylindricis glaberrimis rufescentibus longe pedicellatis pedicello nectanum 5-8ies superante, stylo vix ullo vel brevissimo, stigmatibus bifidis minimis divaricatis, folis ovato-oblongis basi subcurvatis obtusiusculis Integerrimis superne opace viridibus subtus glaucis utrinque acutissime elevato nervosis 5<sup>in</sup> palatibus per partem sylvaticam Lapponiae et Sueciae borealis usque in Smolandiam, in Noidlandia, in bilesia, in alp Carpathis et bavancis et prope Monacum, in Gahcia pro Lemberg in Rossia arctica septentrionali et media (occidentali) per Sibiri septentrionalem etacticmi usque in Kamtschitka, e\ Americam occidentalem arcticam (sed ibi saepe cum illo spectatus valde confusa) — Wahlenb succ p 666, Fries mant 1 p 71, Anders Sal. lapp p 67, Sal. monogr p 95, Koch Comment p 57, Synops ed 2 p 753, Wimm Fl v Schles ed 3 p 18, Sal europ p 112, Hirtig^orstl Cult p 411, Led(b fl ross. 3 p 613, Trautv Mém de la bot d \at 8 p 380, Midd Reise Bot 1 p 153, Maximovicz<sup>9</sup> Amur (Mém de l Acad St-Petersb 9) p 244, S elejans Bess Tnum p 77 (modificatio) —Iconops Wahlenbg fl lapp t 18 f 1, Amlrs Sal lapp I 19, Sal monogi fi^ 53 Sv Bot 646, Reichb 1244, Hartig 1 c 4H, Fl D \*uppl n 111 —Fisic txsic Reichb n 1139, Fr H N 8. 63, Wimm Hb Sal n 69, Coll n. 110 Fruticulus elegans, VIX plus quam bipedalis, facie glaberrima subcaesia Rami rufo-nitentes Folia mitio pilis adpressis praecipue subtus sparse senesca, demum omnino glaberrima, infra medium plerumque latiora apice minus subcurvata sed saepius obtuse rotundata pollicem longa, i poll lata, stipulae vix ullae nisi surculis Amenta mascula subcoetanea, anguste cylindrica, laetissime aurea, antheris exsiccatione subfusca, feminea subserotina crassiora, rachis saepius glaberrima, capsulis hneam lon-

gis demum rubellis. Quoad folia admodum variat, iis nempe nunc majoribus, ovali-rotundatis pollice longioribus et fere pollicem latis, vel oblongo-ovatis, vel demum sublinparibus et lunc saepe costa plicata. Amenta, quae typice rariflora, subinde magis densiflora evadunt. (v. v.)

3, *pedicellaris* (Anders, mon. p. 96), amentis longe et foliato-pedunculatis, crassiusculi\* subclavatis, squamis oblongo-spathulalis glabris stramineis, capsulis ovato-conicis brevibus glaberrimis rufescentibus obtusiusculis pedicellatis, pedicello nectarium 10ies superante, stylo subnullo, stigmatibus brevissimis perititis divaricatis, foliis oblongo-linearibus, utrinque pallide glaucescentibus et acutissime nervoso-reticulatis\*. 5 In America boreali-orientali sat frequenter, a Canala septentrionem versus. — Pursh fl. am. 2. p. 611; Torr. Fl. New York 2. p. 212; Hook. t. boreal.-americ. 2. p. 450; Asa Gray Manual ed. 2. p. 417. S. myrtilloides Tuckerman in Sillim. Journ. 45. p. 34; Anders. Sal. boreal, amer. 1. c. p. 175. Vix ullis notis, nisi iam allatis de foliis angustioribus, pallidioribus acutius nervosis desumptis a nostra S. myrtilloide distingui potest. Est fruticulus vulgo altior et virgetior, ramis magis strictis, foliis 1 & poll. longis, J poll, latis, amentis vix pollicaribus subclavatis. (v. s.)

47 S. FUSCIGENS (Anders, monogr. p. 97), amentis lateralibus foliato-pedunculatis laxiusculis subranfloris, squamis lutescentibus acutiusculis glabris ciliis vel breviter ciliatis. capsulis ovato-conicis subrostratis glaberrimis pedicellatis, pedicello nectarium quadruplo superante, stylo perbrevis, stigmatibus crassis internis v. sublobis, foliis obovato-spathulatis basi valde angustatis apice brevissime uuminatis utrinque glaberrimis subtus glaucescentibus demum nigricantibus rigidiusculis longe potius margino integris vel obsolete undulatis. *f* In Kamtschatka (Beechey), ad Alaxa (Kostalski) ei a ostium fl. UJH in Ophotensb, etiam in fl. Doonida (Midd.). S. myrtilloides f. 1-2. Chamisso in Linnaea 6, p. 39. S. vhamnifolia Hopf. et Am. Beechey Voy. p. 117. t. 26; Trautv. Middend. Reise 1. 2. 3. p. 80; Anders. 1. c. fig. 54. Videtur frutex parvus, ramis subflagelliformibus gracillimis glabris. Folia 1/2 poll. lata, pollicem longa. Pedunculus pollicaris, laxo pendulus. Amenta vix pollicaria Capsula? obscure fuscocentes, rufo-piceae, 1/2 lin. longae. S. myrtilloidei simillima, «cd differt: crescenti modo, forma et colore foliorum, amentis densioribus ob capsulis multo brevius pedicellatis.

perflum nor, nimis magis elongatis finbelliformibus foliis vix pollicem longis distinctius venoso-costatis ovalibus vel elongato-obovatis acutiusculis subtus minus glaucescentibus, amentis fern, crassiusculis, capsulis crasse ovatis brevius pedicellatis. In insult freti Behringi. S. myrtilloides f. 5. Linnaea 1. c. p. 30. Quasi ad S. ovalifoliani transitus, licet nec speciem forsitan formam maxime arcticam S. myrtilloides vel ex S. myrtilloidei et S. arctica compositam probans.

X S. HUGULOSA (Anders. Sal. monogr. p. 97), amentis fruticulis foliato-pedunculatis rarifloris patulis, squamis oblongo-spathulatis fulvis apice fuscioribus fimbriatis, capsulis ovato-conicis glabris vel tenuiter puberulis longe pedicellatis, pedicello nectarium 4-10ies superante, stylo brevissimo vel subnullo, stigmatibus crassiusculis subrectis, foliis elliptico-obovatis vel late lanceolatis subtus pallidioribus rugoso-venosis utrinque subpubescentibus demum interdum glabris. S. aurita-myrtillodes Wimm. Regensb. Fl. 1849. 3. Sal. europ, p. 246. Sequuntur duae formae, inter se valde similes, characteribus quodammodo distinctae, a S. myrtilloide et S. aurita ibi subhybridae.

*onusto* (Anders. 1. c), amentis pedunculo elongato foliis ceteris aequalibus instructo pedunculatis erectiusculis magnis rarifloris, squamis elongato-cylindric-conicis obtusiusculis fere 2 lin. longis omnino glaberrimis rufescenti-testaceis longissime pedicellatis, pedicello nectarium fere 8-10ies superante, stylo vix ullo, stigmatibus ovalis integris erectis, foliis late lanceolatis primo rufescenti-pellucidis utrinque glabris supra vinctibus nervis impressis rugulosis subtus glaucis. Hah. in Lithuania, Volynia et Silesia. Specimina ex regione Amurensi (S. myrtilloides finmarkica

Maximovicz 1 c. p 244) nimis juvenilia, sed forsane spectant S onusta Besser en Volhyn p 78, Ledeb fl ross 3 p 614 S aunto-myrtilloides Wiram Flora 184> n 28 S myrtilloides aunta Wimm Fl v Schles (d ) p >09 S finmarkica Hartig Forstl Cult p 409 S. vilnensis Goiski (ex Hartig) — *Icones Reich f 1245\** Anders Sal' mon fig 55 BM S jnyitilloidi sat similis, sed differt folns utqnque acutis supra venuloso pncatis, squamis amenti pilosiuscuhs, a sequente parum diveisa nisi fulns et amentis (v. s )

p, *Finmarkica* (Anders 1 c) amptis foliato-pedunculatis patentibus brevibus ranfloris squamis oblongo spatulatis glabnuscuh> apice luscio-nbus subpilosus, capsuhs ex o\ ita basi conico elongatis glabns pedicel-latis pedicello neUanum 4 6<sup>#s</sup> supeiante stylo bievi, stigmatibus subbifiuis erpctiuscuhs, folns elhpticis obovatis\ e subintegernmis supra opace vmdibus subtus nervis reticulato rugnlosis parce pubescentibus saepius pallidionbus — In paludibus sjlvaticis Lapponia? mediae (I aesta-dius) S Finmarkica Fnes mant 1 p 68 Magnam cum priori habet simi-litudinem, sed diffeit quodammodo folns soidjde vinduhs supra et praecipue subtus pilosiuscuhs demum ghbrescentibus, in ramis fertilibus basi sa?pe subcordatis et prorsus mtegerVimis magis reticulato rugosis, amentis bievionbus minusque laxiflons, capsuhs demum minus ovato-rostratis Duabus gaudet modificationibus [*\*latifolia* frutex 2 3 pedahs, ramis crassiuscuhs divergeniibus fusco atns, folns polhce sublongionbus obovatis vel late lanceolate apice obliquis basi modice subangustatis supra saurate vindibus et evidenter impress? nervosis subtus elevato-npivosis maequ^hbus diutius pubescentibus margine undulalo crenulatis exsiccatione ncile nigrescenlil us, amentis femineis subpraecocibus et densiflons bievissime pedunculatis folns 2-4 parvis sufulus, squamis sparsissime pubescentibus ipice fulvescentc lation subbarbdtis capsuhs sat magms (hnea lon^ioies) rufescentibus, pedicello nectanum vulgo sextuplo siperaute, stylo obsoltto, stigmatibus integriis In Lappoma Pitens,i (L33l id ) S aunta p pa udosa LaMad (18i3) S paludosaHartm. Skand Fl ed ^p 2to s" aunta piludosa Hartm 1 c el 7 p 179 S fmmarkica *lr*, Andeis feal lapp p 69 fig 20 txhabitu potius hanc formam e b mgricantc et S myitilloide procreatam suspicari malle. Supra terrainum S auntae detecta dicitui — 2° *angustiloha*, fruticulus humih >r ramis gracihbus plectis iusco castineis glabernmis, fohis ol ovato lancolatis basi sat longe angustitis apice subpioducto acutius-cuhs, supri hatuiate vindibus, subtus paium pallidionbus, nervis supra impressis subtus elevatis et anastomosantibus ruguloso lnasquahbus par-cissimt pubescentibus amentis mascuhs tenuibus iulvescentibus, lemmeis bipvibsime pedunculatis, eiertib eximie lanflons brovibus, ihachi hnsuta, squamis angustissimis glabnusculis fulvescentibus capsuhs ut in piaecedente forma sed angustionbus, stylo plane nullo — In buecia boreali, ad urbem P teo Westrobotniae, et in Heijedeha — E S hvida aunta diffi-cillwne dignosienda nisi loins magis acutatis et rugosis, amentis brevibus et capsuhb glabernmis

XXS HIBTULA (Anders Sal moDOgr p 100f S6), amentaangustiserectiuscnhs foliato-pedunculatis, squamis obtusis subtruncatis apice fuscionbus glabnusculis, cdp^uhs anguste comets subcylindncis pius minusie tenuiter sericeis pediuellatis, pedicello necianum 4-8" superante, stylo subnullo, stigmatibus brevissimis crassiuscuhs S hvida myitilloides Wimm Denkschr 18M. p 166, Sil europ p 248

a, *subemerascens*, folns ovah-obovatis breviter et subobhque acummatis supra opace vindibus nervis Impressib tenuissime puberuhs subtus rugu-lensis et molliter pubescentibus, amentis cyhndncis, capsuhs albo-senceis — In Lapponi t Tornensi ubi etiam b vagans cinerascens adest (Laestadius), etiam e St Peteisburg (v s)

p, *subhwda*, folns ngidiusculis jtnnque glabnusculis Van at folns •J°ovah-cbovdtis planiusculjs obtusiuscuhs sublucidis — 2° lanceolato obovatis tenuibus acutatis nigrescentibus *yd* pure vindibus. In Suecia boreah

ad urbem Pitea (Laestadius), Lithuania (Fischer-Ooster, Wichura et Wimmer) Difficile sane forma subcinerascens a *S. rugulosa* fin mark ica nisi capsulis sappius saltern scriceo-lmeatis distmguitui, iolia etiam magis rnelliter tomentosa Forma autem sublivida habitu singulari, a ceteris magis diversa, certe a *S. myrtilloide* et *S. vagante livida* orta (v s)

X X X AURORA (Anders Sal monogr p 101. fig V7), amentis longe et fohato pedunculatis ranflons erectiusculis brevibus demum subpendulis, squamis flavis obovatis dorso et apice parce pilosis, capsulis ex crassa ovato basi conicis obtusiusculis pedicellatis, pedicello nectanum S. ^ies superante, stylo evidention lulvo, stigmatibus hilidis divancatis loins ngidis ovato ovahhus vel elliptico oblongi« supra vmdibus cosU impressa et venis subelevatis lineata subtus glaucescentibus siltem prime pilis aigenteis adpresse hirsutis margine mtegro subreflexo — *S. repens* et *myrtilloides* Wimm Denkschr 1853 p 170, Sal europ p 249 *S. finmarkica* Willd Enum suppl p 66, Koch Comment p 51, non Kr In insula, prope urbem Pitea in Suecia boreali (Lapstddius) et prope Monacum Bavanae (v s)

x \* *lejocarpa*, amentis brevibus, capsulis glaber-imis attenuato-elongati\* longe pedicellatis, folns minimis elliptico linearibus subtus sat dense argenteo-pilosis *S. fusca auroia* Laestad *S. fusca abscissa* Lsestad—Amentis ad *S. myrtilloidem*, folns ad *S. repentem* aperte accedens

xx *fhbecarpa* imentis subclavatis erectiusculis, elongatis, capsulis majonbus 1 asi crassionibus brevibus pedicellatis tenuiter senceis folns majonbus ovali-rotundatis aut ovali obovatis nunc tenuibus subm^ncantibus nunc rig diuscuhs subtus glanducis, pilis argenteis cito evamdis — *S. lusca myrtilia* et *S. rosmannifoha* Laest in sched (e Bottnia) Capsulis ad *S. repentem*, sed folns ad *S. myrtilloidem* propius pertinens

X X X X S VERSIFOLIA (Wahlenb fl lapp p 271), amentis pedunculatis fohis pduois iiffullis densiflons obtusis crasse cylindncis, squamis obtusiusculis dpite salteiu fus o piceis vel atns cinereo pilosis, cipsulis ovato-conius parce hiiisu is glabnsve pedicellatis, pedicello nectaiium deaium 2 4ies superante, stylo elongato palhdo, stigmatibus brevibus luteis bifidis erectis, folns lanceolatis ovdto vel obovato 1 inceolatis basi saepe subcordatis argenteo-tomento^is vel tordide \indibus denudatis hneato-nervos s — In Sueciae paludibus regionis sylvdtitae etLipponid, Norvegia septentnonah, Lithuania (Gorski), Jutlandia et Daletarlia, ad Petropohn (Ruprecht) et Vilna Wolhyniae — Wahlenb suec n 11\*5 Fr Summa ^eg p 57, Anders Sal lapp p 62, Sal monogr p 103 hg S8, Ledeb fl ross 3 p 613 *S. fusca* Fr 1^ Mant 1 p 69 *S. neglecta* Gorski in sched *S. lapponum myrtilloide*» Wimm Flora 1849 p 46, Sal. europ p 251 — *Hones* Wahlenb fl lapp t 18 f 2, Anders 1 c f 17, Sv Bot 511 — *Exsicc* Fr H N 3 p 56 frescit inter *S. lapponum* et *S. myrtilloidem* e quibus certe hybrnda proles, quare etiam sub duabus formis occurnt

a, *sublapponum*, ramis fuscis glabus, novelhssubcanescentibustomentosis, folns lanceoldtis 1 J-2 poll longis e basi ovata apice acuminatis utnn que cinerascanti-lomentosis vel demum soidide denudatis margine subrevolutis prassertim subtus osta et norvis secu-ndarns hneatis, amentis brevius pedunculatis 1 >lns mimmis suffultis, capsulis vindibus tenuiter canescenti tomentosis in sylum elongatum attenuate — Habitu *S. I apponum* proximi e quka tdnien diffeit loins et capsulis multo minus tomentosis, folns basi conspicue lationibus amentis foliato-pedunculdtis et cipsulis pedicellatis

P, *submyrtilloidei*, ramis tenuibus rufescentibus, folns supra glabnusculis subtus pallid onbus tenuiter pilosis ex ovato-cordata bdbi oblongis obtusiusculis, amentis mascuhs tenuionibus subcylindnus, femineis gracilibus subranflons, capsulis longius pedicell tis glabns vel pilis» hinc mde rehtis tenuissime puberulis e vindi-fu^cescentibus, stylo evidente sed brevi Modihcatio hujus folns basi longe attenuatis quae *S. versifolia myrtoides* (si folia omnmo glandbra) Fr Mant t p 70 Anders Sal Lapp p 66 hg 18, a, b, c J> *myrtoides* Hartm sk Fl ed 4 p 322, appellate

S finmarkicae sat similis et ab ea vix distinguenda, sed quodammodo distinguitur foliis opacis vix distinguendis, et capsulis stylo elongato apiculatis'

§ 11 *Argenteas s. repentes.* — *Argenteae* Koch Comment, p. 46. p. p. (cum Roseis). — *Incubacex* Fr. Mant. 1. p. 64; Kerner 1. c. p. 54.

Frutices saepe humiles, vulgo loca arenosa praepnms eligentes, ramis tenuibus ascendentibus vel strictis. Folia elongata, hinc lanceolata, sordida, supra acute nervosa, subtus saepissime argenteo-tomentosa, margine revoluta aut serrulata, demum marcescentia nigrescentia. Amenta sessilibus. Antherae post anthesin infuscae. Capsulae plus minus pedicellatae, stylo saepius per brevi sed distincto.

48 S SITCHENSIS (Sanson mscpt ex Bongard de Vegetatione ms Sitcha, in Mém de l'Acad de St-Petersb t 2. p 162), amenus fructifens breviter pedunculatis foliis parvis et paucis 1-3 suffultis erecto acutis cythraceis aen-sifloris, squamis flavis apice fuscioribus dorso pilosis, capsulis e basi crassa breviter ovato-conicis argenteo-tomentosis breviter pedicellatis, pedicello nec-tanum bis superante, stylo elongato, stigmatibus crassis vix emarginatis erectis, tolas oblongo-obovatis fere cuneatis apice rotundato subacuminatis planis integris v. obsolete crenulatis supra cano-virentibus nervis impressis subtus lucide argenteo-tomentosis costa et venis elevatis lineatis & Amenta borealis-occidentalis in ins Sitcha (Meitens) Oregon (Scouler), juxta fluv Columbia (Hinds), ad traser River et in Cascade mountains (D' Lyall) — Ledeb fl ross \* p 609. Anders al boreal amer 1 c p 126, Sal monogr p 106 hff 59 Pulchei nma et distinctissima species Frutex medio-cens, ramis subviminalibus, novellis cinereo-tomentosis. Folia 1-2 poll longa, supra medium 1 poll lata, basi aequaliter angustata, apice rotundato v. acuminate subproducto acutiuscula, exsiccatione brunnescentia, costa sola albido-pubescente subtus nevis secundarius 12-16 e costa legulanier divergentibus lineata. Amenta praecocia, sessilibus, domum subpedunculata, ascendente-erecta, masr apice primo florentia, anthesi demum tuscescentibus, fem demum 3-4 poll longa, squamis glaberrimis, capsulis linea longioribus, stylo brevi sed pediculo sublongo, apice cum stigmatibus brevibus et crassis tuscescentibus.

a, *congesta*, foliis angustioribus, amentis ob capsulas crassissimas et breves sessilibus valde densifloris 3-4-pollices elongatis — Ad Lower Frazer River (D' Lyall).

p, *denudata*, foliis subtus demum glabrescentibus tenuibus (us S Silesiacae v b cinereae haud absimilibus) — Etiam prope Lower Frazer River (D' Lyall)

Y, *Ajanensis* (Anders monogr p 107), ramis glaberrimis fuscis, foliis brevioribus subconicis supra nitide glabris subtus opacis subtomentosis rarsissime argenteo micantibus, stipulis acutis sat elongatis amentis confertis — Prope Ajan (lithograph n 252 Hb Petrop). S bithensis Regel et 'liling fl Ajanensis in N Mém de la Soc des Natural de Moscou, v || p 117 \*orma foliorum et amentorum a S Sitchensi nonnihil recedit ei autem certissime maxime affinis. Transitum haud abnegandum ad S speciosam haec forma efficit, unde affinitas certa cum S lapponum indicatur.

49 S ABOYROCARPA (Anders Sal Monogr p 107 fig 60), amentis brevibus oblongo-cylindricis patulis subantheris pedunculatis, pedunculo foliis 2-4 cetens paulo minoribus instructo, squamis fulvis obtusis tenuiter albo dilatis, capsulis bieve comis argenteo senceis vel lanatis pedicellatis uditello xictarium quailruplo superante alio, stylo elongato rufo, stigmatibus bifidis lacinus divancatis rufo-piceis, foliis lanceolato-linearibus vel lanceolato-linearibus supra glabris impresse venosis subtus glaucis pilis adpressis ar-



genteis plus minus sericis nitidis costa fulva et venis prominens lineatis integris vel sinuatis. ^ In America; borealis locis alpinis et frigidis: White mountains, Fort Franklin, Mackenzie-river, Labrador (?), Newfoundland, etc. S. fusca Hook. fl. bor. amer. 2. p. 151 (p. p.)- S. repens Pursh Am. 2. 610; Nutt. Gen. 2. 231; Anders. Qfvers. vet. Ak. Förh. 1858. p. 126 et S. arbuscula ibid. p. 130 (p. p.). Fruticulus ramosus, ramis glabris rufescentibus erectis. Folia pollice sublongiora, vix  $\frac{1}{3}$  poll, lata, basi longius attenuata apice subproducto fere acutata, margine acute revolutq demum sinuato-undulata, supra saturate viridia costa et nervis impressis inaequalia, subtus primura  $\{>\}$  adpressis elongatis sericeo-micantia demum glabrata glaucescentia costa rufescenti linpata. Amenta pedunculo subpollicari pedunculata, ovali-oblonga; antherae minutae subfufescentes. Capsulae vix  $\frac{1}{2}$  lin. longae. Quoad habitum inter S. arbusculam et S. repentem Europae fere media, foliorum forma et nervis, praecipue autem capsulis lacteo-tomentosis, haud male etiam S. candidam referens. Exstant etiam specimina (forma denudata) foliis glaberrimis rigidiusculis, iis S. pedicellaris americanae simillima! Nonne ex his duabus hybrida proles? Ab omnibus differt capsulis minutis longe pedicellatis et stylo terminatis. (v. s.)

a, *sericedj* foliis subtus sat intense sericeis glaucis.

P, *d<nudata*, foliis utrinque glabris, subtus opace viridibus, iis S. pedicellaris subsimilibus.

50. S. PETIOLARIS (Sm. in Linn. Transact. 6. p. 122), amentis sessilibus fructiferis hrcve pedunculatis foliis parvis vel bracteis suffullis erectis demum subrarifloris, squamis fulvis apice fuscioribus longe et tenuiter pilosis, capsulis ovatis aculiusculis griseo-tomentosis pedicellatis, pedicello nectarium quadruplo-quintuplo superante, stylo perbrevis, stigmatibus brevissimis bifidis erectis fulvis, foliis rigidiusculis anguste lanceolatis cuspidatis acute serratis aut intensius; item demum utrinque glabris subtus glaucescentibus petiolis longis, stipulis parvis, ^ In regionibus mediis Americae borealis in ripis fluviorum sat copiose. In Angliam introducta, et etiam in aliis hortis saepe culta. — Willd. sp. pi. 4. p. 665; Torrey fl. New-York 2. p. 207; Hook. fl. boreali-amer. 2. p. 148; Asa Gray Man. ed. 2. p. 415; Anders. 1. q. p. 126, Sal. monogr. p. 108. fig. 61. S. fuscata Pursh fl. boreal-amer. 2. p. 612; Engl. Bot. t. 1147; Sal. Wob. t. 23. Frutex mediocris altitudinis, ramis subvinnatis, atris vel fusco-piceis, tenacibus. Folia 3-4-pollicaria, vulgo semipollicem lata, juniora utrinque pilis sericeis sed parum micantibus hirsuta, (Jemum glaberrima, supra vitida et saturate viridia, subtus glaucescentia. costa venisque elevatis fulvis percursa, petiolo 3-6 lin. longp. Amenta mascula sessilia, semipollicem longa, ovali-oblonga, condensata, squamis nigricantibus, antheris effloratis fuscis; feminea fere pollicem elongata, capsulis aculiusculis. — Variat:

a, *subsericea*, foliis initio sat dense sericeo-pubescentibus demum subglabris pilis raris subtus derelictis anguste lanceolatis margine crenatis, amentis subdensifloris, capsulis brevibus pedicellatis obtusiusculis. (S. sericea Hb. Asa, Gray e Massachusetts). Haec quum habitu turn notis S. sericeae maxime affinis, a qua vix differt nisi amentis magis laxifloris, capsulis longioribus et foliis demum subtus subglabris.

p, *rigida*, foliis utrinque glaberrimis demum rigidis aculissime serratis supra laetissime viridibus subtus evkjenter glaucis, amentis distinctius pedunculatis, capsulis acutioribus. — Variat : 1° *latifolia*, foliis 2-3 poll, longis ovali-lanceolatis basi subrotundis medio fere 4 poll, latis subito cuspidatis acute serratis rigidissimis aut valde intense glaucis aut pure et lucide viridibus. Haec quoad folia iis' s. lucidae v. nigrae latifoliae non dissimilis, sed amenta longe aliona! — 2° *longifolia*, foliis 3-4 poll, longis lineari-lanceolatis basi angustatis acute serratis subtus minus intense glaucis. Haec fere typica. — 3° *brvifolia*, foliis ]-? poll, longis anguste lanceolatis ad medium vix  $\frac{1}{2}$  poll, latis subtus pallidioribus serratis.

v, *angustifolia*, foliis anguste lanceolatis fere linearibus margine tenuifloris

serrulatis v. subintegrifolia subtus glaucis primo sericeis demum glabratis. *S. rosmarinifolia* Barralt (Hb. Hook) et Hook. Fl. boreal-amer. 2. p. 148. I. p. — Haec, quae regiones magis septentrionales praecipue incohit, nostra? *S. rosmarinifoliae* sat similis, sed differt foliis subserratis, capsulis longius pedicellatis et habitu! Ad sequentem transitum evidentissime effluit et ab ea difficillime distinguenda; e contrario in formas minus latifolias et rigidas *S. petiolaris* sensim confluit.

d, *gracilis* (*S. gracilis* Anders. Sal. boreal-amer. I. c. p. 127), amentis femmeis gracillimis subpendulis demum subfoliato-pedunculatis valde laxifloris, squamislingulatis apice infuscatis, capsulis ex ovata basi Jpnge rostrato-acutatis tenuiter sericeis vel glabriusculis longissimae pedicellariis, pedicello nectarium fere 8<sup>cc</sup>\* superante, stylo brevissimo, stigmatibus bipartitis l'uscis divaricatis, foliis anguste lanceolato-linearibus serrulatis laitudine fere decies longioribus subtus pallide subglauciscentibus utrinque demum glabris. J Ad Hum. Saskatchewan (Drummond, Richardson, Bourgeau). *S. rosmannifolia* Pursh fl. amer. 2. p. 612V; Hook. fl. boreal-amer. 2. p. 148 p. p. (non L.) — Variat: 1° *sericocarpa*, capsulis angusto conicis 2<sup>^</sup> lin. longis tenuiter sericeis. r— 2° *lejocarpa*, capsulis basi crassipribus glaberrimis viridi-testaceis. — Habitu et characteribus praecedentis forma angustifoliae et nostras *S. repentis rosmarinifoliae* admodum similis, sed differt foliis adhuc angustioribus, amentis subfoliato-podunculatis elevatis et capsulis longissime pedicellatis. Frutex humilis, ramis divisis erectis gracillimis fuscis. Folia fere 2 poll, longa, 2-4 lin. lata; amenta feminea vix pollicaria.

e, *sericea* (*S. sericea* Marsh. Arbust. amer. p. 140), amentis sessilibus fructiferis brevissimis pedunculatis bracteis paucis et parvis suffultis cylindricis densifloris, squamis nigricantibus pilosis, capsulis ovato-oblongis obtusis griseo-tomentosis pedicellatis, pedicello nectarium ter quaterve superante, stylo brevi sed subdistincto, stigmatibus crassis brevissimis connatis fuscis, foliis tenuibus lanceolatis longe acuminatis plerumque serratis supra obscure viridibus glabris subtus pallidioribus argenteo-micantibus. 3 In ripis arenosis fluviorum in America boreali non rara. — Mull. N. Bed. Schr. 4. p. 230; Asa Gray Man. ed. 2. p. 414. *S. sericea* Willd. sp. pi. 4. p. 699; Pursh fl. am. 2. p. 616; Anders. Sal. amer. boreal. 1. c. p. 126 *S. petiolaris* v. *grisea* Torrey fl. New-York 2. p. 207. *S. petiolaris sericea* Anders. Sal. monogr. p. 110. fig. 61. Frutex 4-10-pedalis ramis vimineis tenacibus fusco-viridibus v. atque glabris. Folia 2-4-pollicaria, j-i poll. lata, apice saepe subobliquo longe cispidata, initio tenuia et utrinque pilosa, demum supra obscure viridia, subtus argenteo-sericea micantia, serraturis depressis glanduligeris crenata Amenta etiam mincula pollicaria. anguste cylindrica, incurvata, antheris demum fuscis. Capsulae subovales, crassae, quasi sessiles denique conspicue pedicellatae, stylo fere nullo sed stigmatibus fuscis connatis. Forma major foliis fere 3-4-pollicaribus iis *S. fragilis* quodammodo similibus paucis, sed subtus intense argenteo-sericeis micantibus; forma minor foliis subintegrifolia saepe denudatis *S. petiolaris* valde simulat et per earn ad typum *S. repentis* pertinere demonstrat. Auctores varietatem (Torrey, Knuth in Comment, p. 21, et Borrei) bene speiem cum *S. petiolaris* conjunxerunt; nec nota esse posse quibus inter se distinguantur, haec autem *S. sericea* plerumque amentis longioribus magis (leptifloris et cylindricis, capsulis evidenter obtusiusculis et densius tomentosis, foliis denique acutioribus vulgo subtus sericeis excellit. (v.s.)

5f. *S. HUMILIS* (Marsh. Arbust. amer. 1785 p. 140), amentis sessilibus bracteis nullis vel minutis et paucis suffultis ovali-oblongis subramifloris, squamis obtusiusculis superne atris longe albo-pilosis, capsulis e crassa basi elongato-conicis rostratis albo-hirsutis pedicellatis, pedicello nectarium saltem quadruplo superante, stylo brevi et subdistincto fulvo, stigmatibus crassis erectis, foliis petiolatis ovato-oblongis apice latiori breviter acuminatis subtus glabris subtus glauciscentibus pallide tomentosis vel glabris exsiccatione nitescens marginibus integris vel undulato-crenatis, stipulis semiovatis acutis serratis. 3 In locis siccis et glareosis ad margines sylvarum « via-

rum in America boreah media, etiam in California (ubi vidi) sat vulgans Asa Gray Man ed 2 p 444, Anders Sal boreal-amer 1 c p 126, Sal Monogr p 110 fig 62 S Muhlenbergiana Barratt Sal amer n 1, Torrey h1 New Yoik 2 p 205 S conifera Muhl Neue Berl. Schr 4 p 240 t 6 fig 9, Willd sp pi 4 p 70S p p, Pursh fl amer ? p 612 Frutex 4-10-pedalis, ramis fragihbus, annotinis cinereo-tomentosis Folia 2 5 poll longa, supra medium saepe polhce sublitoria supia opace viridia costa a I bo hirsutd, suotus tomento tenui mollia vel eo denudato palhde glaucescentia, hnean-oblonga, apice latiora, stipulis saepe sat magms basi fulcrata Amenta masc J-polncaria anthers lu&Lescentibus, femmea pnmo subovalia demum polhce longiora, capsuhs sat longis fere undique divancatis irregular)a Lst quasi inter S tnstem et discolorem media, folus angustioribus ad priorem, lationbus ad postenorem vergens (v v )

a, *grandifoha*, folns obovato oblongis 3-4 poll longis ultra medium 1<sub>2</sub>• poll latis supra nitidis — S conifera Muhl Vanat 1° *obtusifoha*, folns dcuminc peibrevi apiculatis subtus aut denudatis glaucescentibus, aut tenuiter alho tomentos — 2° *acuminata*, folns apice production acuminati\*, subtus tomento saepius evanido glaucis S prinoidi (sub S discolore) subsimihs, sed differt folns tenuibus, amentis brevibus, capsuhs brevius pedicellatis

P, *longifolia*, folns oblongo spatulatis 2 4 poll longis supra medium ^ poll latis — Vanat i° *ngidiuscula* folns demum ngidis longius acummatis supra opacis sed glabns subtus densius tomentos Ad S tnstem appropinquans — 2° *glauca*, folns supra mtide vindibus acumi nato cuspidatis subtus denudatis intense glaucis — 1° *tewuis*, folns valde tenuibus rufescenti subpellucidis subtus vix tomentos opacis

Y, *angustifolia*, folns 1-2 poll longis vix } poll latis subtus glaucescentib is vel tenuiter tomentos — Hue forsan etiam pertineni S. recurvata Pursh fl amer 2 p 609, sec Birratt in herb Hook , et forma *opaca* capsuhs brevius pedicpllati glabrescentibus vinduhs, folns glabnusculis Ex ISovo Mexico (Wright n 1878)

d? *Hartwegi* (S Hartwegi Benth. pi Hartweg p 52), amentis (axillanbus sessihbus) brevibus cyhndncis erectis densiflons obtusis, squamis oblongis atns obtusis basi pilosis apice glabns staminibus filamentis elongalis anthers aureis, folns elongato lanceolatis v lmeanbus supra medium bublationbuc brevit r acummatis basi angustatis supra glabns nitidis obscure vindibus subtus tomento brevi subferrugineo cineieo sparse obtectis vel denudato glaucis maigme tenuissime serrulatis — In Mexico ad Angangujo (Hartweg n 390) Specimina tantum folnfera, ut formae plures legiones mendiomles inhabitantes, amenlis valde serotims in axilhs foliorum ornata udi, dequibus itaque nil ccrti enuntiare audeo Forma foliorum fere ut in S mgra, sed to men turn cano rulescens et glaucum ommno ut in S humih *angustifoha*, squamae etiam atrae et stamina bina Huic speciei itaque haud indubie associanda

52 S TRISTIS (Ait Hort Kew ed 1. 3 p Jy3), amentis sessilibus basi nudis globoso-ovahbus subdensiflons, squamis basi fulvis ceterum fusco atns obtusis longe pilosis, capsuhs breve conicis basi crassiuscuhs dense griseo vel subargenteo-tomentosis pedicellatis, pedicello nectanum ter-quintuplo supe rante stylo brevi stigmatibus crassis integris v emarginatis erectis, folns subsessilibus Imgulato-hneanbus su^ra opace gnseis demum subdeudatis subtus adpresse lacteo tomentos costa et nervis elevatis rugosis margine revoluta vel undulato integris, slipuhs parvis \elnulhs ^Inlocis drenosis ej. in montiuni dechvibus America boreali orientUis mediae — Muhl rs Beil Schi 4 p Vi\ t 6 f 9 Willd sp pi A (>9i, Asadriy MLIUII od 2 p 413, Anders ofv Akad F<rh 18S8 p li(> rac noqr p 112 fig 63 b longirosins Michx fl I p 226 Banatt Sal n 2 S Muhlenbeigiana Willd sp || 4 p 692 p p S villosa Sal Wob p 183 t 92 Fruticulus humilis, ramosissimus l 4-peddllis hdbitu gnseo tntis Folia £ 1<sub>2</sub> poll longa 2-4 hn lAta, rugulosa, subtus tomento lacteo ex albo caerulescente sat denso corrugate quasi landta venis e costa sublute<cente fere lectangulanter divan

catis Irregularibus elevatis distincte lineata, supra opace gnsea, demum rigid a Amenta in ramulis dense conferta, mitio fere globosa, 2-3 lin longa, anthers mitio ruficundis demum flavis, capsulis vix lineam longis, stylo obsoleto et stigmatibus fusco piceis. Quod in Europa S repens haec omnium humilima Salix in regionibus Americae borealis, ubi nulli nisi S. humilis affinis, ad quam foliis glabratis proxime accedit ita ut vix distinctas diceret has species duas, ab ea non recedens nisi loins saepissime angustioribus et brevioribus densius gnseo-tomentosis, amentis et praecipue capsulis brevioribus. (v s.)

a, *glabrata*, foliis elongatis acutis basi longius attenuatis supra glabratis subtus tomento vix ullo obductis sed intense glaucis

p, *nivea*, foliis brevioribus subcorrugato-undulatis supra tomento tenui gnseis subtus densissime et subluide nivea

53. S REPLANS (L. sp 1447), amentis subsessilibus fructifens ovah-cylindricis breviter pedunculatis et foliis parvis suffultis, squamis spatulatis apice saepius infuscatis pilosis, anthers effloratis nigrescentibus, capsulis ex ovata basi lanceolatis tomentosius glabrisve distincte pedicellatis, pedicello nectanum bis terve superante, stylo brevi, stigmatibus ovatis integris v. bifidis, loins ovalibus ellipticis lanceolatis vel sublineanibus apice subobtusis margine saepius recurvato integris vel remote-serrulatis supra lucidis elevatis v. vix subtus plerumque sericeis v. saepe utinque subvirescentibus, stipulis obsoletis J *Salix* pratis et pascuis uliginosis per totam Europam borealem et mediam praesertim occidentalem, ab Hispania et Tyrolis Italico usque in Bothniam. Lx Sibira uralensi altaica et Baikalensi et Dauna etiam indicator (sed dubia, utpote ibi verosimiliter S. rosmanii in folia) Ex Asia minorum specimina a Wiedemann lecta vidi — Linn, *Uec* n 8% Lange Dansk fl.ed. 2 p. 664, Fr Mant 1 65; Koch Comment p. 47, Synops ed 2 p 757, Host bal. p. 16, Kern. Weid. Oestr. p 268, Wimm. II v Schles. ed 3 p. 19, Sal europ. p. 117, Anders bal. monogr. p 113, Smith 11 but. 3. p. 1061, Godr et Gren fl. et Fi 3 p. 137; Gaud fl. helv. 6. p 233, Bertol 11. it 10 p. 326, Willk et Ledeb fl hisp p. 25b, Ledeb fl. ross. 3 p. 614, Maximovitz fl amur. 1 c. p. 245, Bunge Rehg. Lehm 1 c. p 497, Willd. sp pi 4. 693, Hartig horstl. Cult, fl p. 412. S. luscida Linn suec. n. 897, Wahlenbg. fl suec. n. 1140, bin. 11. bnt 3 1060, E. B. 1960, Hook et Am 11 but. ed 7. p. 399, Hoffm bal. 15. t. 28, 29, Willd sp pi 4. 694. b incubacea L. suec n. 895 (♂), Sm E. B. buppl. t. 2600. b arenaria Linn. it. gotl 206, suec n 351. S depressa Hoffm. Deutsch. fl 2p 265, DC fl. fr. 5 346, Sei. Ess p. 9, Exsicc. n 61 > 62 b. argentea bnt. 3 1059, E. B. 1.1364, Gaud, helv 6. p. 236, Hartig Forstl Cult p. 412 S. polymorpha L. hih. arb n 49, Ser Exsicc n. 11, 3a b piostata bnt. Rees Cyclop, n 98, E. B. t 1909 b pauciflora bnt in Kees fencycl. B. 102, E. B. t 1961 b foetida Sm E. Fl 4. p 208 S ascendens Sm 1. c n 103, E B 1962. S lostrata Thuill fl. pans 516 S decumbens Forbes Wob n 88 S vesicolor Hoit Wob. n 77 — *lignea* E B 183, 088, 10D9, 1364, 1959, 1960, 2600, Reich. 1239, 1240, 1241, 1243, Fl. D 2489, Host t. *ovata*, bal. Wob t "7 84, 88, Anders. 1 c i. 64 — *hirsuta* Lhrh arbor. n. 49, Fr H. N. 6. 55, Reichb n 1239 Bill. 1959, Wimm n. 13, ber. n. 35, 36, 61-63, 66, 92, 93, 106, 107 Species ut b nigricans omnium maxime polymorpha ita ut specimina potius quam formae saepe ab auctoribus varis sub nominibus proposita Est enim : 1° Trutex 2-5 pedalis, vel 2° Fruticulus 2-3-pedalis IQ hisce duobus ddsunt : a, loins lanceolatis hincanibus, quae nerum leiocarphae vel sencocarphae, b, fol oblongo ovahbus, quae leiocarphae vel sencocarphae, c fol ovali-orbiculatis, quae aut leiocarphae aut sencocarphae. — Ab omnibus iterum obvium modificationes foliis utinque glaberrimis, supra obscure vix vix subtus puberulis, tomentosius vel sericeis, vel utinque deuse loineulosis de quibus et alns conf ad Oionogiaphiam, p 114

- (3, *rosmanifolia* (S rosmanifolia L sp pi 1448J, amentis sessilibus, fructifens subglobosis subdensifloris breviter pedunculatis et foliis paucis parvisque suffultis, squamis obovatis atque pilosis, capsulis ex ovata basi lanceolatis acutis tomentosius pedicellatis, pedicello nectanum bis terve superante, stylo brevi subobsoleto, stigmatibus plerumque **bifidis divan-**

catis fuscis, folis stnctis linearibus vel anguste lanceolatis apice lecto acuminatis planis integerrimis v<sup>l</sup> remote glabris, subtus adpressis senceis vel glandulis, stipulis parvis lanceolatis — In paludibus spongiosis in Anglia frermania boreali orientali ei media usque in Austriam orientalem (Temeswaj Banaius), Oama et Suevia inendionah et botlandia — Sed in Rossia occidentali frequentiori et deinde per regiones Sibirie in Amurem sem Liraites mtei hinc veram h<sup>l</sup> ippentem vixulli sed mo<sup>l</sup> lificitionni sistit pecuhaiem legiones occidentales fugiens in orientibus optime evoluta, et sd. pe a. S<sup>l</sup> repente difleat statura densior, ramis virgato-surrectis tenuibus, folis elongato-productis foimam line<sup>l</sup>iein saepissim<sup>l</sup> mduentibus, vulgo planis et tenuionibus, amentis demque brevionibus lere subglobosis demum evidentiussed breviter pedunculatis braeteis paucis suffultis S<sup>l</sup> mdnifolia Willd sp pi 4 p 697, Koch Comment p 48, synopsis cd I p 75<sup>l</sup>, Yv Mant 1 p Oi Hartig hoist! Cult p 41 J, Wahlb<sup>l</sup>ff Suec n. 1141, Lange Dansk Kl cd 2 p bb4, Hook et Arn<sup>l</sup> But ft cd 7 p 397, Beitol fl it 10 p 327, Ledeb fl loss | p 61<sup>l</sup>) S<sup>l</sup> npensd rosmannifoln Wimm Sal europ p 117 s repens rosinarumifoln Andeis Sal monogi || 11 > fig 64 S Integra lhung<sup>l</sup> fl jap (sec spec in herb Berolin et Pans) S<sup>l</sup> repens rosmannito<sup>l</sup>ha Kemer Oest Weid 1 c p iBb s tmuis, S. lmonlis el s pratensis Ho<sup>l</sup>'t Sal t 2 p Hell' t 47, 48, 50 >2 — *Icones* Hartig 1 c t 43, Fl Dan t 255b, Sal Wob 86, 87, Heichb t 1242 F R t 136S — *Exstcc* Ehrh arbor n 119, hi H N 6 n 06, Keinei 120-178 Difficillime a S<sup>l</sup> repente distinguitur — Vanat *latifolia* f<sup>l</sup>us oblon<sup>l</sup>is VLI oblonge lanceolatis 2 5" longioribus quam in latis (S<sup>l</sup> pratensis Host) — *angusufoha*. folns linearibus vel angustissime lanceolatis -> 10" longioribus quam latis

Y, *flavtram*, folns junioribus subtus flavicanti-senceis, demum utnque glabris subtus Cd<sup>l</sup>us elevato-venulosus, amentis longioribus < subpeiluntulatis, stylo evidention In I gione Amurensi — Nonne cjdem quani sub nomine S<sup>l</sup> repentis attulit Traulv in Middendorf Kcisc 2 1 2, 3 p 79 e regione Ochotensi?

X S REIPNS-CAPRI-A (Lasch in litt), amentis sessilibus ovatis densi<sup>l</sup>-, squamis, nigis oblon<sup>l</sup>is villosis, capsulis subsessilibus corucis albo tomentosis stylo medio, stigmatibus oblongis patulis bindis folns ovali oblongis plicatol)iculatis lovitci repandis supra bvissime puberulis subtus candidantibus dense senceo tomentosis In Germania prope Dnesen in der Neumarkt (Lasch) et Breslau - Wiram Der ksclir 1853 p 170, Hb Sal 73, coll 216 S caprea-repens Wimm bal europ p 237

X X S RPFNS-CINEBEA) Wimm Denkschr 18<sup>l</sup>i\* p 71), imentis oblongo-cylindraceis subsessilibus, squamis spalhulatis seminigns villo baibitis, capsulis brevibus comco-subulatis cano-tomentosis in pedicello m dioen vel bnvi, stylo jjevissimo, stigmatibus oblongis subinlcgiis pitulis, loins ovali oblongis (oblongo-ovahbus) breviter acutis supra uadibus puberulis fcincrascenti-vindibus) demum fflabns subtus glaucescenti cims pube sencea tectis venis vix elevatis — Wimm Hb bal ] hi v Schls ed 3 p 206 b cinerea-repens Wimm Flora 1849 p ki, Sil cuiop p 236 5 subsericea DollH v Bad 517 Prope Breslau Silesiae (Wimmer) et Pfohren M D Badensis (Brunner) Quantum e speciminibus peipauus uuae examinavi, judicare possum, paum e formis latilolus S<sup>l</sup> ambigude hte differunt

X X X S AMBIGUA (Huh Beitr 6 p 10J) amentis sub<cssihbus densiflois oblongo cylindric s fiuctifens bipviter pedunculatis folns paivis raio suffultis, squamis obtusis fulvo luteia apice luscionibus parce pilosis capsulis ovato-conicis gnseo tomentosis pedicellatis pedicello nectanum ter quiterve superante, ity|o brevissimo, stigmatibus crL<,siusoulsoraar<sup>l</sup> nntis ciectu\* iu->cis, Joins elUptico lanceoldtis v obovato ovalibus oblique lecuivato apiculatis murgine subrevoluto mtegnis vel remote senulatis supra nevis impressis lineatis subtus ruguloso-reticuldtis ddpresse villosis demum ngidis, stipulis bemi-ovatis rectis. — In pratis spongiosis paludosis et pascuis humidis pei hu-

jiopam mediam iere omnem ubi parepites vegetant, ab Helvetia in Sueciam mediam et in Rosswe occidentals provincus Jjalticis — Willd sp pi 4 p 700, Koch Comment p 49, Sjnops ed 2 p 7?), Lange Dansk fl ed 2 p 663, Godron et Gren H fr 3 p 136, Hoojt et Am but fl ed 7 p 400, Ledeb fl ross 3 p 614 Anders Sal monogr p 117 b aunta c amfrgua Fr Nov Mant. 1 p 54 b. plicata kr H Hall p 148 b incubatea (L) (plicata) \*i Nov Mant p fc6 \* versifoha bei ess p 40 (p p), exsicc n 60 b spathul tta et b proteifolia bchl s Lintan i H irtig Foi stl Culturpfl p 410 t 41 b aunta-repens Wimm Flora 1849 p 49, Fl v bchles ed 3 p 205, Sal euioy p IM, Nilreich Fl v Neied Ost p 262 S lepens aunta Wimm Denkstlir 1853 p 171 — *Icones Reichb 1243 b* (et c\*), 11 D t 2670, 1 B t 27\*3, Sal. Wob t 15 — *hxsicc fchrh aiboi n 109*, ber n 66, *hr H N U 6i Wmm Hb bal 20 35 36*, Ktrn Hb Sal n 173 Lst procul dubiu c b aunta et S repente liybnda proles, nunc huic nunc ilh evidentissime actedens A pnore habet lolia latiora oblique acuminata mgulosa et tomentosa stipulis sat inarms ornata imenta pauciora et longiora, sjuamas vulgo fulvescentes Pt capsulas lougius pedi(iell itas, a S repente tapsuhs Sdepe stylo quanquam porbreM apu ulatas et brevius pedicellatds, folia ngidiu^tula marine liequlntius ie\oluto mlegra et exsiccd-tiont Sdepius m^ricantn babilium dcinum et stiuram huuillioem ramis tenuioibus Intntatis, quait eliam sub duabus occunit foimis

a, *spathulata*, frutex plus minus elevatus, ramis stnctiusculis iamulis diutius cinereo pilosi?, amentis etiam Iructifens brevius pedunculatis, capsulis pedicello nectanum quater superante et squarna pajlida lon^ioi I pedicellatis, stylo valde oDsoleto, loins exsiccatione vix ni^ncantibus saepius stipulatis apicc subobliquis S spaljiulati Willd — Van it *i'latifoha*, fjlns non raio 2 poll longis. 1^ poll latis ovalibus Haec est hirta, folns adultis ngidis utnnque mtano tomentosis (b cinereo-lepens Wimm Fl 184) o 4o), vel glabnu^cula, folns t^nuionbus saltern supia demum glabratis vindibus — 2° *anquUifoha*, loins plus minus late lanueolatis vel ovito-ovalibus, vix polhcem longis, imentis birevibus H&c est hirta, folus adultis n^idis utnnque mcano-tomentosis, vel glabnuscula folns tenuionbus, saltern supra demum vindibus

p, *plicata*, fruticulus pleiumque depiessu^ ramis c trunco valido subtr-raneo ertcti>>, folns tenuioibus tacihus nigricantibus apice f&etmsculis lanus stipulatis, amentis fructifens pi lumque paucifolnto peduncillalis capsulis brevius pehoellaiis, stylo evulention — S plitata Fr Vanit l^w *cineratcens*, folns utnnque vel saltern subtus plus minus cauo vel argenteo tomentosis In locis andis vel immo arenosis! Haec foima vauat folns subovahbus apice subobliquis aut integris aut apicem versus sei rulatis magnit vaiiantibus, et loins plus minus lincolaii\* plcrumque mtcgns — 2 vuts<tn), loins saltern <upra glabns tenuibus virenlibus exsiocationo facile nigucanubus Haec est folns subovahbus i poll lms, \el luiceolatis vix J poll latis Tx juibus omnibus przrtere extant modihe itiones lejooai)dL (thebecaipae Wimuiti (NachLr /ui Hora v bulc p 3^)) el post eum Pat/e, Meyer tt Likan (H v der Piovmz Preusscn p 142) de iilym la lonu i, S omeieo losmaumlolia, menLioner leccruni bpeciminiljus nullis a me wsis nou diCLit audeo utium a b ambigui angustifoha >L distmUa Spccimnia m'Hb bahcum n 36 a Wjinnior divulgata, qua^que a b losmaunifolia piocieita quodammodo autumavit (cfr peikschr 18)3 p 171) sed aunta-icpens appelfavit, verobimiliter ex b repente orta

XX ^ ^ PAIZLANA (Anders Sil Monogr p. 124. fig 67), amentis sessilibus bracteis paucis suHullis brevibus den illons eiecto-patuhs cylnidncis, squamis oblongo-obovdtis apic DtumUu-\* itns pilis cintieis villosis, capsulis conicis aouus facie glabnusculis sed seriatim parcc pubeiulis pedicellalis, pedicello piloso nectanuu superante, stylo olongato, sti,^naatibus nitegn^ crassis treutis, folns anguste lin^eolatis bievibus acutib utnnq le nioano-pubescentibu^ subtus senceg-micantibus marginc subrevoluto acute serratis, atipulis nulhs 5 G^rca Fischhausen propt Ko3nigsberg (C A. Patze). b\

daphnoides y cinerea Patze in sched S d>pbnoides repens Wimm Denkschr 1853 p 155 Hybnda proles sat singulans Frutex non dltus, ramis crassiusculis, fusco cast ineis, lucidis Folia 1 { poll longa, 3 hn laU, us S repentis sat similia, sed dcutiorea, ngidiora et distmctius serrulata Amenta us S daphnoidis, sed nx pollicana, bracteis paucis et parvis suf-fula, squamae et capsule ut in eadem specie sed hae brevius pilosae et rotun datae, ilia. p̄i<> bievissimis senatim conspersae (v s )

X X X X X S SUBALPINA (Forbes Sal Wob t 93), amentis masculis subsessih bus oblongo-cyhndncis erectis densiflons paucihracteatis, squamis rotund illis apice fusco-purpuieis IMSi tenuiter puberulis filamentis lut(islongis,anthers aureis, fohis line an Idnceolatis basi ipiceque subaequalier dtenuatis bie-iter dcummat s miigme revoluto integns supid opace vmdibus tenuissime incdno-tomentosis subtus vellere Ucteo tomentosis costa flava perrursis demum sat ngidis —Anders bal monogr p 124 fig b8 s repens-incana Wimm Sal europ p 15> Cohtur in horto berohnonsi et plensque Sec ill Wichura in Helvetia silvesins detectd A S incand habet amenta cylindnca, squimas obtusas purpureo marginatas, stamina aurea, lohdt subtus lacteo-tonuntosa costa vahda flavd peicursa a S repente amenta oblonga crassiuscula, stamina hbera, folia latiora demum ngida, supra opaca, neivis impressa, margme revoluta

2° Podostylae.

Capsulae typice pedicellatae et stylo producto rostratae, stylo et pedicello sub-jequilongis

§ 12. *Virescentes s. Phyhcfoh<r. — Nigruanles el At busculp Kern — Phylicifolid, Fr. Mant I. p 48 (cum Rigidis et n̄l).*

Fruticcs s<epe dlti, regiones boreales, alpinas vel arcticas inhabitantes Kami tenues, iniuscddi Folia ldtiusculi,suboLovata v ovilo lanreoldti, vulgo utnn que glabra et viridu, subtus glaucescentia, nmoteet mflexo serrulaU, mar cescentia nigiescentia Anunta ovali cylindnca, subscessilid, antbens post antbesin sordide flavis, capsulis vulgo senceis plus minus pedicellatis et stylo rostratis.

54 S NIGRICANS (Sm. Irans of Linn. Soc VI p 120), dmentis praerocibus plus minus pedunculatis folns vel brdcteis s<epe suflultis cylindncis, fnmi-neis sublixiflons patulis, squirms acutis pilosis apicem versus nigcantibus, capsulis coince rostidtis glabiis vel toraentosis ppedicellatis pedicello necta num plerum'jue 5 8its superantc, stylo pnducto, stigmalibus cidssiusculi patentibus partitis, loins Idnceoldtis ovatis bdsi (orddtis rolunddtis vel angus statis integris vel serrdtis primo pubescentibus adultis saepe glabidtis s>upra costa excepta vindibus subtus glducescentibus vel laetius vindibus, neivis elcvatis subiugosis, stipnlis sdepe sat magnis ^ vel 5 In omm Europa a partibus mendiondlibus Italiae usque in maxirne boreales Scandinaviae et Rossiae, vulgo loca alpestrna oteditiord montium eligens \ix in Asia, nee in America occuint — Willd sp pi 4 619, Fr Mant 1 p 52, Wahlenbg Japp n 485 suec p 068, Anders Sal lapp p ^6 Sal Monogr p li'j Haitig Forstl Cult p ^05, Lange Dansk fl ed 3 p 740, Koch Synops ed 2 p 748, Wimm fl v Schles cd 3 p 189, Sal europ p 20 Neilr fl v Niecf Oestr p 263, Kern Weid Oestr p 238, Sm br fl 3 1047, Hook et Am br fl ed 7 p 404, Gren et Godr fl f 3 p 138, Lange et Willk fl »isp p 229, Bertol fl it 10 312, Ledeb fl ross 3 p 608 S phylici-olid (L) Wahlenbg lapp n 48?, suec p 667, Koch Comm p 40, Willd sp pi 4 69'j, Gaud fl helv 6 p 220 S. phyliofoha p Linn suec. 11 880, sp pl.p 1442 S stylosa DC fl fr 5. 319 S stylans Ser Ess p 62 S has tata Hoppe, ViU delph 3 774. t 50. f 18 — *Icorns* Wahlenbg fl lapp t 17 f 2, Anders 1 c f 15, Sal monogr f 69, Fl D 1053, 2553, E B t. 1213, Reichb n 2017, 2018, Hart 1 c p 41 c, Sal Wob 37 41 42 53

54 76 96-120 123 — *Exsirc* \*i H n. < 62 7 6\* 8 62, Reichb "1^568, Wimm n 42 Billot n 1060, Kern n 10\*-118 L sahubus hucusque cognilis forina inaxime vanabilis neo ulhs notis certis umqu im defnmidi I<rut< nunc in forinam arbons hau 1 mediocns cxtrescens, non laio bicussimus evadit, fere procuinbens Hami divaucati mine ciassi nunc praciles, glabre nitentes aut meano tomentosi I olu nunc 4-> polhccs nunc \ix scmipolliceia longa, 2 poll ad 2 J lin lata, omnes foimis a mixime lutunduo oibicului ad hnearem inuentia, glabeiiinn \o\ densissimc incaio loincntosia, integer nma vel enspato serrati, vulgo vmdi i kubtus pallidiora \el sat intense glui-cescentia, exsiccatione lacillirae et dense niaiLCscuni ni^ncantu Vnienu vana longitudme et crassitie, mascula o\ah oblongi iemin a ini^is\* cyhndnca, caj>sul<e 2 lin longaj conico lostnla , vulgo Miidulae aut test ice<e — S phyhcilolice pioxinu ct foisan in earn abiens, ab ea lamem vulgo difleit foil F< magis inaequahbus, sub lente punctis albis con->pcisis el tenuilate facllime nigncantibus, ca>sulis demum majonbus stylo longion rostratis Sub duabus modificatiombus piinianis occunil

a, *boreahs* (Anders Monogr p 128, S borealis Iries Bot ^ot I840 p 193), amenta coectdnei" pedunculoelungato villosio ioiiatopcdunculatiss, capsuhs maximis longe stylifens, loins inagrns sdejie crassis et dense tomentosis — Hab j)raecipue III regionibus subalpnis Lapj)oniae et SueciT boreahs I xstat aui *lejocarpa* aut *Ubtcarpa* pnoi poiissimum S phyhcifoha Wahlenbg , posterior b nignudns cjust Van it oliini 1 *grandifolia* fohis maximis 4-5 pollice^ longis usque ad 2 poll latis vul^o icnuio nbus et utinnue \indibus (b Kudbctkiina l'i in sthed ) \ibor \cl arbuscula elata — 2° *crassifolia*, folns uassis ulnnque mollitei MIO&IS, venis subtus sat cleuUis iugosi>>, ovatis aut obovatiN, nmgine icmot scrratis IIs S capree sat similibus In ilpims — 3° *tiniufolia* loins tenuionbus aut ommno nudis vindibus subtus jtalhdis, aut parte pubeik centibus, integris aut serratis ovab-oblongis, oblongo obovatis, \el anguste lanceolatis In s\lws et secus flu\ios et amnes.

p, *protia* (Anders Mon p 128 , b campestns Fnes) amentis brvcioubiii, saepissime piaecocibus nudiuscuhs magisque ranflms, capsuhs bievius ]>edicellatis (t stylo subbre\ l0lc roshatis, loins nnonbus et tenuionbus Miiduhs>, nunc ovato ovabbus basi subcordatis, nunc sublineaii I intochtis basi apice attenuatis, integris aut enspato seiratis — In legionrs ctnralcs dl]inas btandinaviae tt in Luiopa cetera aut alpina aut campisti 1 I ximie pol}inoiphd 1° *lejocarpa*, cips glabris Hue ieleien(Jae sunt s Amnii-< niana Willd bp I>l 4 p 663 b Audi lsoniana bm L B t 234Jctsequentes species Hostianae b ovata, b glaucescons, b aunta, S mentbctfolia, b. nvahs, b piunifoha, S parietaniloha in Host MI p 23 2) tab 74 86 In regiones onentales (ut Austria) tintum lcojenpa — 2° *hebecarpa*, capsuhs pubescei\t\bus \cl dlbo MIO&IS HU S lupcsius Donn1 B t 2342, b torstena Sm I B 2344, S. cotiinlolu sm \* i\ 1403, S birtl Sm h B 1404 ct mulUe aliae

5a S PHYLICIFOLIA (L Sp 1442, ex auct Smith et b nes), amenlis sessihbus basi demum minute et pauei-bracle Uis densiflons ciassiusculis, squarnis acutis pice nigns albo pilosis, eipsulis cornco-ioslratis aeutis cincieo-tomentosis vel glabns pedicellatis, peaicello nectanum bis ter\c suprinte, st^lo elongato tenui, stigmatibus bihdis diveigentibus, loins ovalo-ovdlibus \el elliptico lanceolatis remote serrulatis int( gnsve supia lucide vindibus subtus glaucis utiique glal>eninns, stipuhs obsulctis angustis ^ In regionibub alpinis buecid- et Norvcgiae totius abunde, in Angha boredh et beotia, in Hdrz Biocken et Silesia, in Iransylvania, Hungaiu, Ganii eentiah Pyenieis austrahbus, in Ros^xaad Peiropohn, Kossia septentiionah Ural (Biauth) et Sibma onentah^ (btubendorf) Lx bibnia ince-ta, in America vix crescit — Iinn pi lapp ed 2 p 291, ¥I Nov Mant I 50 x cres 42 p1 Mp p31 1, d 2 p 50 Andeis &al Upp p 42, bdl Monogi p 131, Koch bynops ed 2 p 751, Ledcb fl\* ross 3 p. 611 I B t 19-58, bm bnt 1040, Hook et Am bnt fl ed 7 p 40b llartig ioistl Cult p 391 S a buscula Linn, p 886 a Wiblenbif lapp<sup>1</sup> n 470 t 16 f 2, suc n 1122, Koch Comment p 44 S aibuscula Weige-Jiana Keincr bal ausli p 208, E B t 2bo6 s bicolor Lhii Beiti 5.162,



Willd sp pi M 691, Koch synops ed 1 653 S Weigeliana \Willd sp pi 4 678, Wimm europ p 26 S foimosa Willd 1 c p. 680? S iadica.ns Sm in E B t 2700 Willd 1 c p 676 S laurmea Loisel gall 2 p 343 (ev Gren) S Dicksoniana Sin ! B t 1390 S phyllireifolia Borr L B 2660 S tenuifolia Sm L B 2186? S Davalliana sm fc. B 2701 S Borrenana Sm. T B 2610 S tenuior Borr I B 2650 S propinqua Borr E B 2729 S nitens Anders h B 265 > S Wulfeniani Sal wob n 42 S patens Sal wob n 39 — *Icones* Anders Sal lapp f 9 Sal Mon f 70 Sal wob 38 <) 44-47, 50-52 Haitig t 110 (3>9) Reichb 2001 2002 — *Exsicc bi* H n 3 54 Wimm H sal n 4 Toll n 87 Reichb 1629 1630 Kern n 6 Sai n 80 Frutxcelgmtissimus usque ad lopedahs ramis fusco piceisvel rubellis, mtidissimis, divancitis Folia lincolata supra medium sublitoria, basi apiceque attuiuata, margine obsolete crenulato serrata, 2-4 poll longa, J-1 poll lata, supri nitide vindn subtus intense glaucescentn unde, \ento agrtita, pulcheinnum reddunt spectauilum, puma |uventute pilis adpressis leclis subhirsuta, demum glahernmd. ngida marcescentia brunnta Amenta masc aurd, omnium congenerum maxime piaLCocia anthers flavis, ftminea cylindriiGa obtusa Capsula, aigtneleo hasutae minoies glibratae, majoies, biumico testaceae Ex ea foima typca muum in modum ludit haec species pideciput llpmi In iegionibus liileiionbus fruticem lormat sat altum valde dilfusum, loins tenuionbus subtus minus ghuus, anieniis crassionbus magisque ranflons, capsulis demum majoiibu> sappius glabus stylo lon^iou tostiatas ad s nigncantem e\identei ti insiens Haec potissimum est S majili& W Lhlenbf, H lapj) n 483, mil succ p 668etiamS nigncanti subjuncta et cum ea confusa (immento S hastata-Wei^eliana a Wimmeio Sal europ p 218 appellata, copiose eniin vigol ubi nullum S hastatae vestigium') \*oi-san ttiam S tenuifolia Sm bnt 10J2 et 1 r Bot Not 1840 Suis autem locis in subsylvaticis et alpibus humihor lit, loins eximie \aiians, quae modificationes ad sequentes polissimum refem possunt 1° *latifolia* folus obovato-ovalibus latitudinc duplo tnplove longionbus Vanat fol integris v serntis, paivis et magins distolonbus v concohubus capsula pubescente v glabra, statun humili v elata — 2 *anqushfolia*, folus lanceolitis vel lingulato obovatis Vanat ut latifoha In Alpibus d mum qunmaltius idscendit (scd MX supra terminura Betulai um oxistit) adhur humilior fit, folia mmora et angustion amenta nn,'is scrotina, squamne dilutioies et cipsulae subsessiles. Itaque in regionibus micnoribus difficillimp a S nigncante distinguitur, nisi rainii. teruionbus minus divariLato-intncitis, folus hrmionbus, nuus supra in costi albo-hnsuta hneatis, subtus evidentius discolonbus, basi plenimque atlonuatu, amentis valde praecocibus, folus fulciatis, densiflons, (ipsulis rarius rostrato-itlenuatis, pedicello et stjlo brevion — et in icgio ninus editionbus ilpiuni in S ubusculam abit qua? timen tjpice differt loins minoribus oblongo lanceolatjs, amentis bubserotinis foil ito-pcdunculatjs squamis obtusis fulvis glabrescentibus et capsulis se^ihbus stylo sappe bilido Ouomodo loimaB quae hanc in Asia onentali et America septentrionali epiaesentant (ut S ph^hcoides, S chlorophylla, S macrostachya, S lul^rataelc), ab ea diffoiunt sub sequontibus exposui Salici phyhcfoliai ut focmae suis locis huic analogae iorsitan subjungenddL sunt

[i, *Hegetschnlen* (Anders monogr p 136, S Hegetschweilcn Heei in Hegelsch M Schweiz p %3) amentis subcoa>tams demum pedunculatjs arrecto-mcurvis cylindriaceis haud densillons, pedunculo iolus pauns instructo\* squ lmis lanceolatis pallidis apicem versus ohsuinorihus tenuiLerpilosis ripsuhs ronico rostratis (plus minus) senceis pedicellatis, pedicello nectaiium duplo tnp'o\p superante, stylo elongato, stigmatibus nipartitis vel submtegnjs folns ovdlibus \el oblongo-obovatis gl ibernmis obsolete cienulatis subtus sat intense glaucis supra lucide viridibuspnmo tenuibus demum n^idis, stipuhs semicoidalis petiolum longum haud aequintibus In Helvetia Valesia ad HhoneM^letschpr Urserenthal et Samaden m P'ngadin (Heer) — Koch synops ed 2 p 75^, Wimm Hb Sal n 70, Sal ourop p 220 b pinlicilolia-bastata Wimm Denkschr 1853 p 168 Haec forma, qmm Heer forsitan a s nipucante et S hastata, sedWimmei aS phyhufolia el S hastatapiocreatam credunt,

a ven<sup>^</sup> phylicifolia non diffeit mai amentis plerumque folns perpaucis suffultis<sup>v</sup> uis locis fiequens dicitui, s<sup>v</sup> hastidam quidem re\ocat amentis lreMter pedunculatis, folns stipulatis subtus flavescentibus et reticulato venulosis (v s)

y, *Rhaehca* (Anders 1. c S Rhffltica Kern Hb<sup>^</sup>al n 119, a b), amentis bievibus crassiusculis latitudine duplo tnplove lon<sup>^</sup>ioribus oblongo cylindnceis obtusis patulis subdensiflons, pedunculo amento duplo breviare folns parvis 2 4 instructo, squamis fulvis apice fuscis aculis parce pilosis, capsuhs conicis elongatis Unuitertomentellis vinduhs pedicellais peihcello nectinum tnplo supeiantc, stylo brevi supeine subfusco subbilido, stigmaiibus fuscis lobatis, folns membranaceis ngidiuscuhs obovato-lanceotetis breviter acummatis supra lucide vindibus subtus glaucis coala flava vahda percursis margine tenuiter inflexo cicanatis longe petiolatis, stipuhs parvi semiluratis, ramis castaneis glibus, gemmis nlfescentibus ghbns In SeHrainer Thai in Tirol (Kern) A b phylicifolia non differt nisi amentis sublohato-pedunculiUs et capsulis stylo bievioriapico fusco et subbilido rostratis Est itaque quasi hujus speciei in Austria uio-dificatio ad S arbusculam majorem (Waldsteimaaam) accedens, vu a S. Hegetschweilen tute distinguenda (v s)

56 S DHUMMONDIANA (Barratt in Hook Fl bor Amei 2 p 144), amentis sessihbus cjlmdncis erecto patulis subdensiflons obtusis basi nudis squamis fulvis apice mfuscatis obtusiusculis cinereo pilosis, capsulis conicis tenmtei senceo tomentos pedicellalis pedicello nectanum tnplo supcrante, stylo producto rufescente, stigmitibus bipartitis erectis, loins obovatis mtegnis supra glabns subtus vellere densissimo candido tomentos domum ngidis, stipulis lanceolatis subtus glaucis<sup>^</sup> In America occidentali alpma (Rocky mountains Drummond) — Anders Olvers wet akad I jrh 1808 p 123, Sal Monogr p 137 fig 71 trutex ramis stnctis castdneis mtidis Gemma3 rainutae glabrae Folia adulta feie 2 poll longd, supra medium pollicem lita, dpicc paum productd, basi attenuata, su]id satuiate vmdia, sublus albidd costa flava prominente, petiolus longus, stipulae paivae Amenta- Icmintarere 2 poll longa Cipsulas hneam longas, stylo apice glabro cum sti<sup>^</sup>miiibus fulvo-piceo Vanetatem capsulis glabns etiam ofTert Hook 1 c Hibitu ut S launnas ab omnibu\* afftnibus facile dibtineta, praesertim loins subtus vellere albo nitente obtectis (v s)

57 S CHLOROPHYLLA (Anders Sal. Monogr p 138), amentis sessihbus basi nudiuscuhs cyhndncis densiflons, squamis obtusiusculis atns longe albo-pilosis, capsuhs oblongo conicis cinereo tomentos (clglabu scentibus) subsessilibus, pedicello nectanum vix duplo superantt, stylo \alle clon<sup>^</sup>ato fulvo sti<sup>^</sup>mitibus integns divancatis, folns lanceolatis vel oblon<sup>o</sup> obo<sup>^</sup>atls integernmib supra pure \indibus stipuhs nulhs In America borcali a I fl Saskatchewan pi locis ad lacum Winnipeg, etc (Bourgcau), al Great sla\e lake (fapt Pullen) et in »Vlnte Mountdins (Oakps, luckeiman) i> discolor p Hook l| bor Amer 2 417 S (phylicifolia) discolor Anders Sal Amer 1 c p 123 p p b phylicifolia Care> n Gray Man id 2 P 416 S cordata<sup>^</sup>a<sup>^</sup> Mackayana p p Hook herb Anders 1 c fig 72 Lst frutex plus minus dltus ramis castaneo fuscis glabernmis nitentibus toha piimo ai<sup>o</sup>enteo-tomentosd salte/ii d mum lajte vmdii anguste ldnceolata mihtus glauci aut obovato oblon<sup>^</sup>a, subconcolora Amenta misculi viv pollicana auica, fo3-mmea longioia, exacte cylindncaet densiflora — Cum nostra S phylicifohd congruit forma a colore iolioium ut etiam habitu amentomm si ssihum sed differt folns pilis argenteis plus minus dense conspeisis etiam demum subderehctis, amontis angustionbus et compactionbus capsuhs subsessilibus, stylo multolongion (saepc cipsul-e longitudinem 'Bquanteot hhfoimi), stiKmatibusque elongatis intpgns Cum S enoccephah saepe confusi ab ea tacde distinguitur folns angustionbus tt tenui)nbus, amentis tenmonbus causal brevissime pedicellatis et stylo valde clongato (v s)

p, *vestita*, loins saltern mitio litnnque sed piaecipue subtus pihs argenteis adpressis micantibus tomtnlosis, capsulis obtususcuhs den<sup>o</sup>e villosis

Y, *denudata*, folns saltern demum Idete vindibus glabns vel subtus intense ghucis pilis rdns argenteis obsoletis conspersis, cap<sup>u</sup>lis eMdentius pedicellatis acutiusculis rarius glabiescentibus Jam monui me spec 1 mind. Salicis a Wlntc Mountnns vidisse quae nullo modo, nisi loins elliptiois Integernnis, a nostra b phylicifolia recedunt Num hujus speciei foima nmimc denudat<sup>9</sup>

8, *pychnocarpa* (Anders Monogr p 139), amentis brevibus eximip compactis, squirms item mis, capsulis sossilibus ovato oblonpis obtusissimis dense albo-villosis, stylo longissimo, fol is anguste lanceohiis vindibus subtus gl IUCIS Ad Ciilton house in Amenci borea.li (Bouigeau) A S chlorophylla exicte habet folia jute vmdia, discolora, anguste lanceolata, integeinma, ramo«» fusco piceos, sed amenta omnino ut in nostri S Laponum SPSSIII compacta densiflora, et cipsulae ut in S glauca sessiles obtusissims dense tomentosae, stylus autem maxime pio ductus Habitu sat singularans foima!

p, *pcllua* (Anders Monogr p 1391 72), amentis breviter pedunculatis folns paucis ct parvis bracteatis subdensiflons, squamis acutis apioe fuscis pilosib, cpxsulisovato-conicis acutis digenteo-tomentosis breviter pedittlatis, pdicello nctanum vix duplo supei trite stylo elongato fuho, stigmatibus crassiuscuhs integris eiectis, folns hnRulatis apice obtusiusculis basi longissime attenuatis maigine integro suhic<sup>o</sup>lutis supra op u,e \indibus tenuissime pubtrulis sul)tus tomento ar<sup>o</sup>nteo denso micantibus stipulis nullis ^ Ad Ucum Winipeg Amence scptentr. (Bourgeau) et in Rocky mountains (Lyll) Pulchcinma loima hrutcx non altus, ramis divisipiceis, subglaucescentibus, glabeinrnis Folia 1 2 pollices longa, supra medium 3 4 hn 1 ltd, bdsin \eius longissime dltnuata, Mipracosta et ner\is 14 18 albida, cterum opate vindia, pilis untum brevibus et pducis conspersis subcmerascentia, subtus tomento densissimo argenteo micdnctc jellita Amentd fonminea pollicana et ultrd Capsuljj testaccas lineam \ongx, stjlo ildvestentc, sligmatibus fuhs Alfinitis dubias, quasi form i maxime diigustifoha videtur S Sitchensis dut veit e S chlorophyll i et S sericea composita 1 oliorum formd ct indumento, capsulis brevissime pdicelltdtis stylo sat longo (ut in b ni\eis') apiculdtis bene dignoscitur (v s)

S FIHCRATA (Anders Sal Monogr p 130 t 73), amenta sessilibus elongatis crectis dense c\lindnceis, squamis acutiusculis apice atns longe cinereo-pilosis, cipsulis e basi ovita longe conico-rostiatis cin<sup>o</sup>reo pubescentibus breMter pedicelltdtis pdicello nectarium vix superante, stylo valde elongato cum stigmilil)»<sup>s</sup> integris divmcatit fuhs, folns lanceolato obovatis acutissubcrp-nulatis ghbernmis suhtus glaucis vel pallide vindibus stipulis maximis lanceolato-ovatis seirul itis fulcratis S cordata var Scemann in Hb Hook

a, *subglauca*, folns mdrgrmc acuto mtegernmo utnnque venuloso stnatis supra obsrre vindibus subtus opace glaucis v luteo-vindibus demum ngidis\ix 2 poll longis supra medium -J 1 p 11 lalis interdum obovatis, amentis fem mignis usque ad { poll longis \ poll latis crassis, capsulis ovato oblongis obtusiusculis In America arctici occid\*»ntali (B Seemann Hb Hook ) Hue forsam etiam pertinct S phyhoides Anders Sal amcr boreal 1 t p \ qua\* nonnisi amentis demum folns pautis suffullis, amentis angustis, capaulis bieMbus (sed amenta vix rite evoluta ') diflert (v s)

P, *subphyhcifolia*, folns tenuibus brovionbus supra lucide vindibus subtus glaucis maigine minute crcnulatis fere acuminatis, amentis angustionbus et bnvionbus, capsulis acutiusculis — In Asia boreali onentali (Stubendorfl in h pctrop ubi vidi) — Multa baesitdtione has formas ad unam eaindemque specicm rotuli, prapcipue quum speumina perpauca tanturn exdmindvi l'orma sulik<sup>o</sup>iiica qurc **fruliculus** videtur subiepens **trunco subterraneo et ramis flagelliformibus msignis, consistentia et colore fohioium etiam stipulis sat magnis modificationi S glaucae dentatae appendiculatae eximie simili<sup>o</sup>, db onim tamen S glauca differt**

amentis prorsus sessilibus foliis tenuibus et vix bipedalis Form L subphylicifolia iterum (quae frutex est altior sed vix bipedalis, iam erectis piceis nitidis) a vera b phylicifolia cui tamen hibulum foliorum bimillima, optime distinguitur stipulis petiolum brevem basi dilatatum saepe quadruplo superantibus, stylo denique eximie elongato et atigmatibus liformibus A S cordata, capsulis fere sessilibus et gaseo tomento vis optime distincta (v s)

59 S pumilio (Anders Sil amer boreal 1 c p 123), amentis subsessilibus foliis minutis paucis suffultis erectis anguste cylindraceis squamis fulvescentibus apice infuscais albo pilosis, stipulis breviter conicis acutis cinereo scenceis subsessilibus pedicello nectidum vix superante stylo sat elongato lulo, stigmatibus interdivancatis fuscis, foliis lanceolatis acuminatis internis vel crenulatis utrinque glaberrimis subtub intense pallidioribus stipulis antefloris lanceolatis. J In America boreali-occidentali Avvitcha Bay (B Seemann Hb Hook) — Anders Sal monogr p 140, fig 74 frutex vilius sat altus Minis fuscis piceis albis tolia magnum et forma variant semper autem sicut glaberrima lutea vicia, subtus opaca sed laevissima viridia subglaucescentia interpersus rarus dispersa costa prominente fulva lineata in forma aruusti folia longissime acutiuscula, venis rectangulariter divancatis margine subundulato crenulata vel immo integerrima Amenta 1 2 pollicana, vix 1 1/2 hinc ensa, dense cylindracea (si nunc evoluta necne necio) Capsule semilicam longae, subsessilibus, squamis fuscis basi involutae Hi ut arbusculam male simulcut, btylus fere in longitudine hinc capsulae productus breviter biva Vnut 1 latifolia foliis lanceolatis, 3 4 poll longis, medio 1 1/2 poll latis — *Taiquin-Ufolxa* foliis lanceolate linearibus 2 3 poll longis basi latis et apice longis acuminatis jqualiter itenuatis An status normis vel amenus non rite evolutis abnormis? Habitu foliorum mei S phyllicifolium no trim vel S discolorum Amende et S cordata quibus ambigui ab utriusque unentis inter hinc et capsulis brevibus subsessilibus certe divicibus — *d'atlinuata* folia anguste linear lanceolatis 3 7 pollices longis vix 1/2 poll hinc subtubconspicue glaucis costa crassa fulva lucida et nervis rectangulariter piceis multum repandis, stipulis nullis Hab in Kamtschatka (tubenloif) Habitu S utrae vel sicut pophifolia, sed foliorum glaucescentia ad b phylicifolium potissimum veigens (v s)

60 b MUCILIFERA (Anders Sal monogr p 141, t 75) amentis breviter pedunculatis foliis 2 3 angustis suffultis erectis cylindricis subranflans squamis obovato-rotundatis glaberrimis paucis ciliatis, capsulis anguste conicis obtusiusculis glaberrimis interdivancatis, pedicello notantum vix superante, stylo medio, stigmatibus integris crassiusculis, internis lanceolatis apicem versus sublobatis renole et obsolete senulatis inter quibus hinc subtus glaucescentibus Initio in costa subsessilibus — In Kamtschatka (rhimisso) S phylicifolia rhimisso Imnaei B p Vi2 1 t sine dubio S phyllicifolia v S irubucua it ad hinc q ubi congruit ramis stantiusculis cistineis glaberrimis subnitidis foliis\* rigidis lanceolatis non perundante 1 remote crenatis supra vix vix notantibus costa flavis per ursos subtus glaucis sed nec inter amentis eximie tenuibus MX pollicem longis et 1 2 hinc parum cussionibus, Mjucis obtusis vel rotundato-truncatis ol capsulis glaberrimis L> ibis (v s) \*

61 S MAUICARPA (Nutt North American Sylva 1 \*p 83), amentis fructuifera pedunculatis erectis, squamis pallidis apice fuscis lieviter imoreo villosis, capsulis ovato conicis glaberrimis pedicello hirsuto notantum bis superante, stylo paucis stigmatibus divancatis, foliis lanceolatis acutis integris glaberrimis subtus intense glaucis, stipulis nullis J In America boreali occidentali Hudsons Bay (Burke lib Hook) — Anders Sal boreali Americi 1 c p 124 Sal monogr p 142 iig 79 1 mte 3-i ped hinc, nunc claims lusco-hiunnus jumonl us, -iisto tinontosis 1 1/2 poll longa, J poll 1 it 1 Insi ot ipiu» a?quiliter att>nu.it 1, SALICUM demum uuuu, supra obscure viridi 1 novo costis subtus mltis hinc maitrine icuto subevolutis mltis hinc (lem taiLum taque sat matua'idi) vix pollice longiora, pedunculo aquilonis foliis 3-4 cetens parum minoribus mstructo

- msidentia, squamæ minutæ. Capsulæ brunnescentes, 1 ♀ lin longæ, e basi ventricoso conico angustatæ acutatæ, stylus et stigmata fusca fest habitu nostræ *S. phyllifoliae* sat similis, sed differt amentis foliato-pedunculatis, capsulis breviter pedicellatis et stylo medio, b podophylloide e *bidina* quodammodo similis sed folia utrinque acutissima Integra, capsularum pedicello nectanura lere bis superante (v. s.)
- 62 *S. PODOPHYLLA* (Anders Sal monogr p 142 f 17), amentis sat longe pedunculatis erectis subdensifloris pedunculo folus rite e<sup>l</sup>utis oblecto, squamis fulvescentibus obtusis apice parce ciliatis, capsulis ovato conicis glabris breviter pedicellatis, pedicello nectanum elongatum vix superante, stylo parvo luteo, stigmatibus brevibus bipartitis eiectis, foliis lingulato-spathulatis apice brevissime acuminitis n<sup>id</sup>is supra, pinnis vix lucidis subtus intense glaucis, margine undulato ciliatis siliquis paucis setulosis In bibma ad Irkutsk (Hb Fischer, Petrop) 1st habitu, consistentia et colore foliorum *S. phyllifoliae* sat similis, sed differt amentis longe pedunculatis, pedunculo foliis ciliatis binaud minonibus siliquis His notis ut etiam habitu *S. macrocarpæ* ex America boreali simillima, sed distinguitur ramulis, rachis et pedicellis capsularum glabris et duplo brevioribus, foliis pinnatis margine subundulato-crenulatis. Putricium b mytilloide ob pedunculo luctum, folia subtus intense huco cineritida nigra et spinulosa quodammodo comparanda *A. S. arbuscula* iecedit illud me, foliis duplo longioribus capsulis siliquis et stylo parvo Gemmae medioeres, comæ, acutæ, foliis 1-2 pollicibus longa, supra medium sensu ollice vix latiora, subtus colore glauco intenso aequali obducta, costa flava elevata et nervis parallelis opacè striata, dimensio sat nigra, exsiccatione pinnis vix Amenta (lem tantum vidi) vix pollicem longitudine excedentia, sat densiflora, squamæ paniceae, parvissime ciliatæ Capsula 1 h. n. longitudo, omnino ut in *b. phyllifolia* glabra (*S. majali* Wahlenb<sup>l</sup>) (v. s.)
- 63 *S. CHLOROSTACHYA* (Turcz Fl baic dahur in Bull de la Soc. d Nat Mosc 1854 p 373), amentis coetaneis elongatis subramulosis pedunculatis pedunculo paucifloro, squamis parvis oblongo lingulatis obtusis fuscis ciliatis, capsulis ovato conicis glabris vel tenuissimis scissis breviter pedicellatis, pedicello nectanum duplo superante, stylo producto, stigmatibus subbifidis erectis foliis lingulato lanceolatis basi longe inquilatis apice subproductis. oblongis utrinque glaberrimis subtus deteglicis margine integris vix minute serrulatis <sup>l</sup> in Asia boreali prope Jikotk (Turcz), in alpinis tataricis (Turcz), in Sibira orientali (Stuebel in Hb Petrop) — Anders Sal monogr p. 143 fig 78 b pyracanthos Turcz. exsicc Fruticulus m<sup>l</sup> diocisallitudinis, ramosus, 1 imis erectis etiam novellis glaberrimis fusco piceis testacco-viridulis tolia 1-1.5 poll longa, vix semipollice latiora oblonga oblonga laneeolata acutiuscula vix lingulato-obovata, basi angustata, apice pinnis producto obtusiuscula, plana, supra laete vix, subtus sat intense plauca, costa flava notata Amenta foliis 4 j cetens parum mmonibus suffultis dngulis cylindracea, mitio densiflora, masc <sup>i</sup> pollicana, fem 2 poll, long<sup>a</sup> gratia Squamæ angustæ plabris obtusæ Capsulas crasse comæ, rufescentes, binaud subpuberulæ, ceterum vulgo glabra Sub triplici occurrunt forma 1<sup>o</sup> *condensata*, amentis 12 pollicibus, foliis 2-3 suffultis pinnis vel mucinis, squamis lulis tenuiter barbatis, capsulis glaberrimis rufescentibus breviter pedicellatis, pedicello nectanum, vix duplo superante, stylo brevi sed evidente, stigmatibus crassiusculis fuscis Vanat major et minor *S. arbuscula* similis sed capsulæ laberrime Cl Turczanow hanc ad *S. amgdahnam* potius referit quæcum attaujen sat parum commune habet nisi amenta plabra. lufescentia condensata — 2<sup>o</sup> *rariflora*, amentis breviter pedunculatis foliis parvis 1-2 suffultis lingulatis pollicibus erectiusculis squamis lulis apice obscuris parce barbatis, capsulis tenuiter gremio juberis distincte pedicellatis pedicello nectanum elongatum fere triplo superante stylo parvo stigmatibus bifidis, lulis parvis tenuibus basi subpellucidis s vaganti livulæ subsinulis, sed capsulis multo brevius pedicellatis stylo evidente — 3<sup>o</sup> *S. tenwijnii*, amentis angustis cylindraceis pollicibus 1-2 lin crassis erecto-pinnatis foliis parvis ) 3 suffultis squamis apice lation fulvescente sat dense et longè barbatis, capsulis ovato-comicis glabris vix breviter pedicellatis, pedicello nectanum duplo superante

stylo parvo apice subfisso, stigmatibus partitis, foliis oblongis parvis. Quasi a *S. arbuscula* et *S. hasta* composita! (v. s.)

64. *S. LEPTOCLADOS* (Anders Sal monogr. p. 144 f. 79), amentis sessilibus bracteatis ulnis suffultis erecto-angustis cylindricis densifloris, squamis obtusiusculis apice infuscatis cirereo-pilosis, capsulis brevissimis ovatis glabris tomentosissimis sat longe pedicellatis, pedicello nectanum quater superante, stylo producto fuho saepius fisso, stigmatibus partitis patulis, lobis obovato lingulatis integris junionibus pilis adpressis parcissimis subnicanibus mox glabris subtus parum glaucescentibus, siliis nullis. In Asia boreali ad flum. Solonga prope Vercline-Udinsk (leg. 1 urczaninow in Hb. Petrop.) Frutex videtur mediocriter altitudinis, ramis divaricatis gracilibus cortice fusco-piceo nitente obductis. Folia vix pollicem longa, supra medium nervi lata, basi angustata, mtegerima, breviter apiculata, supra saturate viridia subnitentia, subtus opice glaucescentia, plana, nervi venulosa, juniora adpressopilosiuscula adulta nigridiora et lucide glabra. Amenta (lem tantum Mill) pollicem sublongiora, vix 2 lineas crassa, anguste cylindrica, ob pilos squamarum capsulas obtegentes sat cinereo-hirsuta. Capsulae minima, vix semilineam longae, pedicello et stylo capsulae aequilongis, hoc usque ad basin saepius partito, apice cum stigmatibus fuscis. Specimina tantum paucula in herbano vidi, quare species mihi non parum dubia. Habitu quodammodo inter *S. arbusculam* et *S. hastatam* intermedia, ab utraque tamen capsulis longe pedicellatis distincta. Priori certissime maxime affinis ob foliorum formam et colorem, ramos piceo-nitentes, capsulas tomentosas et siliam productam saepissime partitam, sed amentibus sessilibus, capsulis longe pedicellatis. Quibus notis etiam a *S. chlorolachya* tenuijuli difert, cui ceterum sat similes, sed capsulae minores magisque pilosae. (v. s.)

65. *S. ARBUSCULA* (L. Sp. 1445, sec. Fr. et Koch), amentis breviter podunculata foliis paucis suffultis angustis cylindricis densifloris, squamis rotundato-obtusis fulvis apice rufescentibus hirsutis, capsulis ovato-conicis tomentosissimis sessilibus denique brevissime pedicellatis, nectano basin capsulae tegente, stylo elongato saepe bifido, stigmatibus bifidis, foliis lanceolatis acutis vel oblongo-obovatis acuminatis sessilibus supra nitide viridibus subtus pallidioribus vel glaucis nigridis, stipulis nullis. In alpibus Sueciae, Norvegiae, Scotiae et Europae meridionali-medias fere totius, per liossum arcticam (et septentrionalem) et Sibiam usque in Davuriam, in Caucasio et deserto Songarico (Karelin), in Groenlandia (sec. Hornem) — Fr. Mant. 1. p. 49, Hist. forstl. Cultur p. 190, Andeis Sal lapp p. 79, Koch Synops. ed. 2. p. 76, Godr. et Gren. Kl. de Fr. 3. p. 140, Hook. et Am. bot. fl. ed. 7. p. 407, Iedeb. fl. ross. 3. p. 622, Rink. Goeenl. p. 121. — *hones* Reich f. 1196-2000 2006, Sal. Wob. 55-59. 138, Fl. D. t. 1055, Anders. Sal. lapp. f. 23, Sal. Monogr. f. 80. — *Exsicc.* Fr. H. N. n. 61, Rchb. n. 727, Bill. n. 1952; Wimm. n. 76. Coll. Sal. 117-119, Kern. Sal. austr. n. 85 88. *Truticulus* vulgo humilis, fere omnibus partibus glaber et nitidus. Saepius in formam arbusculae minoris cespitosae. Kami mfo piceae nitidae. Folia vana forma, typice pollicem longa, vix semipollicera lata, coniceo nigrida, viridia et discolora. Amenta masculina subsessilia, ovata-oblonga, feminea elongata, anguste cylindrica, densiflora. Capsulae vix lineam longae, basi crassa, conica, rufescentes, plus minus villosae. *S. phylicifoliae* maxime affinis e formis aliorum in humifusis et perpusillis subsimiliter transgreditur.

a, *erecta*, frutex locis subsylvaticis et subalpinis crescens saepe 2-3-pedalis, erectiusculus, foliis majoribus 1-2 pollicibus, amentibus paucis suffultis. Varietas *grandifolia*, 2-3-pedalis, ramis crassiusculis glaberrimis foliis margine runcinato-crenatis supra laete viridibus subtus opaco-glaucis, amentibus demum valde elongatis. — Reichb. n. 1196. Kern. Herb. n. *Hh* s. *flavescens* Host Sal. p. 31. t. 101. — 2 *ovifolia* suffruticosa 2-pedalis, foliis ovata-oblongis vel obovato-ovatis pollicem sublongioribus obsolete verrucatis supra saturate viridibus amentibus angustis brevibusque s. *Waldsteiniana* Willd. sp. pi. z. c. j. c. Koch. Comment. p. 52. *S. arbuscula* *Waldsteiniana* Keim, Oest. Wild. p. 206 — 3° *angustifolia*, suffrutex 1-2-pedalis dense ramosus, ramis praecipue

rubro-nitentibus, foliis lanceolatis vel lanceolato-obovatis sublus saepius glaucescentibus amentis gracilibus folialis. *S. prunifolia* Sm. fl. brit. III. p. 1054. *S. formosa* Willd sp. pi. 3. p. 680. *S. alpina* Scop. Cam. n. 1208. t. 61. *S. pulchella* Host Sal. p. 30. t. 98. *S. coruscans* Jacq. austri. t. 408. *S. carinala* Sm. pi. brit. 1055.

P, *humilis*, fruticulus saepius depressus, trunco plus minus subterraneo, ramis saepe flagelliformi-repentibus, foliis brevioribus rigidis subtus paucis, amentis initio subglohis foliis occultis. Variat : 1° *parvifolia*, foliis fere pollicaribus lanceolato-ellipticis argute serrulatis subtus obsolete glaucis. *S. fontida* Schl. apud D.C. fl. fr. 3. 296. *S. venulosa* Sm. (l. brit. j). 1055. — 2° *brevifolia*, fruticulus saepius sat humilis, foliis ovali-ellipticis plus minus serrulatis subtus saepe sat intense glaucis vel sulcaesii. *S. vacciniifolia* Walk. Kxs. Sm. E. B. t. 2341. *S. myrtilloides* Vill. del. h. 2 770. *S. alpestris* Wulf. Host Sal. p. 30. t. 9100.

Y, *thymeloides* (*S. thymelcoides* Schl.) A *S. arbuscula* et glauca descendere credit Wimmer (Sal. europ. p. 265). Mihi modificatio subpilosa *S. arbusculae* potius videtur.

66. *S. HUMILLIMA*, amentis sessilibus gracilibus arcuatis acutis rarifloris. squamis obovatis obtusiusculis fulvis apice nigricantibus parce pilosis, capsulis breviter conicis tomento sericeo lanatis subsessilibus, nectario magno emarginato basin capsulae iequanto, stylo fere nulliostigmatibus brevibus bifidis vel emarginalis, foliis anguste lanceolatis acutis integris vel minutissime serrulatis laete viridibus, stipulis elongato-linearibus subinde serrulatis. In America arctica : Prince Alberts sound (Mieschring), Rac River (Dr. Ilae) et in Labrador (?) *S. arbusculoides* Anders. Monogr. p. 47 (nomine incaute graeco-latino delendo). Fruticulus humilis subpedalis, ramis rufescentibus. Folia subpollicaria. 1-2 lineas lata, utrinque attenuata, demum sat rigida. Amenta feminea pollicem longa, sat rariflora. Habitu omnino *S. arbusculae*, ad quam se habet ut *S. fulcrata* ad *S. phyllifoliam*; recedit amentis sessilibus et conspicue rarifloris, capsulis minoribus et angustatis, stylo fere destitutis. (v. s.)

a, *puberula*, foliis praecipue subtus tenuiter sericeis laetioribus sat argute serrulatis, stylo evidentiori integro.

p, *glabra*, foliis utrinque glabris subtus opacis.

67. ^ *SCLEROPHYLLA* (Anders. Monogr. p. 148), amentis sessilibus nudis parvis ovali-oblongis e gemmis sat magnis erumpentibus, squamis obovatis obtusis concoloribus seu nigrice infuscatis ciliatis, capsulis sessilibus conico-rostratis pube sericea cinerascens, nectario ventrem capsulae tegente, stylo obsolete fusco, stigmalibus crassisdivaricatis, foliis parvis ovalibus basi rotundatis vel subcordatis integerrimis rigidis planis subtus pallidioribus. In Tibet (Strachey et Winterbottom) et ad Dras Himalayae, alt. 10000-15000 ped. (Thomson). Frutex ut videtur humilis; rami crassiusculi, saepius glauco-irrorati. Gemmae ovato-conicae, apice subincurvo productae, saepe irroratae, florales sat magnae castaneae. Folia fere pollice longiora,  $\frac{1}{4}$  poll. lata, venis arcuatis valde distinctis venulosa, pure viridia, subtus pallidiora, demum coriaceo-indurala, margine interdum subrevoluta. Amenta brevissima, vix semipollicem longi; mascula arrecta, femina horizontaliter excurvata vel recurvata, capsulis basi tenuiter puberulis, nectario crasso truncate. Hasc species habitu *S. repenli* nostrae admodum similis, sed differt: ramis glauco-irroratis, gemmis magnis, amentis et capsulis omnino sessilibus, stylo vix ullo. His, ramis et gemmis cum *S. daphnoide* affinitatem praebet; folia autem et amenta alicna. (v. s. in h. Hook.)

a, *glabra*, foliis utrinque glabris laete viridibus.

(S) *pubescens*, foliis ovali-ellipticis basi et apice rotundatis sed apice nervo nudo ecurrente brevissime apiculatis coriaceo-rigidis utrinque sed subtus densius albo-villosis.

68. *S. OBLONGIFOLIA* (Trautv. Middendorff's Reise I. 2. 1 p. 81), amentis pedunculati? 3-4 foliis suffultis, squamis lanatis fuscis, capsulis sericeis

subsessilibus, stylo elongate, stigmatibus bifidis, foliis elongatis oblongis utrinque angustatis apice basi acutis remote serratis denique supra glabris subtus glaucis et ad costam paucis puberulis Hab ad smum Ujikon, reg Ochotensis Speciminibus nullis a me usque diagnosticis auctoris hic transcripsi, cui addit Trautvetter 1 c «specimina crassa, quod ad amenta feminea attinet, congruunt cum S arbuscula, nisi quod in us amenta longius pedunculata, folia elongata »

69 S UDENSIS (Trautv in Middend Reiso I 2 3 p 81) amentis sessilibus foliis 2 caducis suffultis, squamis apice plerumque rugis lanatis persistentibus, capsulis anteis breviter pedicellatis, pedicello nectanum vixduplo superante, stylo medio stigmatibus hinc elongatis minus, foliis (nondum procerbus evoluitis) oblongis apice basi acutis integerrimis utrinque vix hinc glabris, ramis novellis subseno pubescentibus usque Piope Udskoi Sibinorientalis rej Ochotensis (Exped Midd) Frutex altior Rami adulescentes fuscissimi Folia 1-1½ poll longa, basi apiceque angustata juniora scabra Amenta minuta, squamulae fuscae Capsulae lineam longae Habitu foetissimis proxiarum accedit ad formas quasdam S physocilone quae tamen foliis hinc glaucis plerumque strigatis, ovario longius pedicellatis stigmatibus bifidis facillime ab hac distinguuntur (Trautv) A me baud usata est

X S LATHOUA (Forbes Sal wob II M8) amentis subpraecocibus ovato-elongatis crassis subsessilibus patulo divergentibus bracteis vel lobis paucis suffultis demum subranfloris, squamis hinc elongatis vel oblongo obovatis minus cantibus pilosis, capsulis e basi crasse ovatis micis mijusculis tomento illo flavicantibus divergentibus, pedicello nectanum 4-5 superante stylo ovidente stigmatibus subconniventibus saepe bifidis, laevibus ciliolatis, foliis elongato obovatis vel anguste obovatis breviter acuminatis plerumque sursum sessilato-crenulatis crassissimae conaeae supra puberulis sordide virentibus iunctis glaucis in venis prominentibus inobtusis pilosis, stipulis obliquis cordatis breviter acuminatis In Lipponia subalpina et Ostrogothia Sueciae media (Ipse) M D Badensi prope Pforten (Brunner) et prope Inno (D Heidenreich) S Badensis Doll fl v Bad p 819 ^ mgnans tapraeformis Laetia in sched p p S caprea-nigricans (Brunner) Wimm Sal europ p 220 — Exsicc Wimm et Krause Hb Sal n 139 Coll n 79 Habitu et characteribus inter S nigricantem et S Capream proxiarum media A priori habet folia exsiccatione sat facile nigricantia margata, amenta laxiuscula et rufescentia capsulis acutis stylo evidente rostratis S Caprei folia conaeae utrinque dense tomentosa a latiuscula, amenta crassissima capsulas subnigricantes longius sime pedicellatas Adsunt autem specimina de quibus haesitandum est ulium ad unam alteram amento afferantur (v s)

X X S PUBERULA (Doll Fl v Bad p 518), amentis subpraecocibus brevibus Jis oblongis patulis densifloris bracteis paucis suffultis <gemum> utriusque is squamis linguato lanceolatis basi fuscescentibus apice minus cantibus pilosis capsulis angustis coarctatis cinereo incanis pubescentibus tomentosis, pedicello nectanum triplo quadruplo superante stylo medio stigmatibus subintegris conniventibus, foliis obovato oblongis vel ovalibus brevissime apiculatis basi rotundatis supra medio vnescentibus subtus minus laevibus centibus e medio reticulato minus? et pilis densioribus submentis integris vel runcinato crenulatis, stipulis reniformibus minus obsemp tomentosis Hab in Suecia boreali (in Bottnu) in Hehetia (chleici) in M D Badensi inter Plohren et Neudnjen (Brunner) et in Schuttenpldtze prope Iilsit (D Heidenreich) S Vaudensis (Schl) Forbes in Sal. Wob n 117 ^non Kern) S mgnans cinerea Wimm Denkschr 18i3 p 169 S cinerea nigricans imm Sal europ p 227 — [cones Sil WJJ t ] — Exsicc TOM Coll Sal n 74 (S nigricans) Pi 1011 S latifoliae subbimibis sed pumo obtutu foliorum hura et coloris distinguuntur huic proxiarum germina baud cinerea sod flavicantia alba multo crassiora, pili crassiores breviores latius sparsi in pedunculis crassis, folia novella multo latiora ovali-subobovata (Wimm) Res modificatales descendit Wimmer

*QL. pubtrula*, foliis lanceolato oblongis acutis subtus subvirescentibus, capsulis stylo longo stigmatibus divergentibus lobatis,



(3, *\audtnsn*, folns ovahbus subtus cinerco-glaucis, capsuhs brevionbus stylo medioen, stigmatibus contiguis

Y, *mtida*, folns ovali-oblongis acutiuscuhs supra nitidulis subtus molhtei tomentosis, capsuhs virescentibus passim senceo pubescentibus, stylr medioen apice fisso, stigmatibus partitis

X X X S IAURINA (Sm Trinsact of Linn soc 6 p 122), amentis praxocibus sessihbus demum subbractedtis clongdto-laxiusculis cjhndrlas patulis\*, squamis oblongo-spathulatis fulvis apice fuscis **pilis** sit lougis llbo-hirsutis, capsuhs elongato-comcis lon<sup>e</sup> et molhter sciiceis pe licellatis, pediuello nectanum quadiuplo supeiante; stylo parvo aut mcdiocn, stigmatibus brevibus crassiusculis bifidis divancatis, folns mitio tenuibus peluude rufescentibus utnque pubescentibus demum npidiusculis obovatis vel ovah-oblongis breMter et suboblique acuminatis supri obscuie vmdibus subtus glaucescentibus spuse pilosis vel glabns margine mtegris \el remote serrulato-undulatis, stipuhs paivis ovato-cordatis 5 Silvestns ranus observat, in Saxonia, Anglia putc mendionali SueciT et circa Pctiopolm occurrat, in hortis aitem sat (icquenter culta Macrostachya ex agro petropohtano — Willd sp pi 4 (162, Hartig \*orstl Cult pi p 394, Fr Summa,) 57 **207**, Hook et Arn but fl ed 7 p 405 S bicolor Sm but. 1048 S phjhciiblii P launni Koch s>nops ed 2 p 7>2 Iedeb fl ross 3 p **Gil.** b phjliulolia-caprea Wimm Denkschr 1853 p **102** — *Icones* Reichb 2004 L. B t 1806 — *Exsicc* Reichb n 2417 \*r H N 8 60 Wimm Hb Sal n 68 Est inter S Cipream et phyluloli im J)roisus media, pulohemma et<sup>e</sup>geta forma, arbuscula sat all L, ramis subvimentis lubellis A S Capred hdbet gemmas magnas (saepe <sup>e</sup>Uberiiiiis vdi Uretti Harlig), folid obo\tdt m ijon, saepe J 4 poll longa, 1-2 poll laid oblique luimmdta, <>upr nervis unpressiustulis inaequalii, subtus inteidum elevato-rugosis (var rugosa HdiUg), stipulds diutius peisistentes, dmenta magis ldxidora et elongatd, squauidb pallidiores, capsulas dtteiuato elonguas, longius pedicellDUs ct longius villosas, stylo et stigmatibus brtvionbus dcutatas, a S pbyhcitolui colorem loliorum vancgatum, loin pldr luscuk suprd lucide vindia, capsulds brevius pedi-elatas el stylo cudente loslratas Exstat b \iolaced, in hoitis culta, d Wimmer pio S plnlitifolia-Lcipponurn hdbitd, qu c mihi vix a S launna distinctd vulptui Ad S ldunnam foisdn etiam rcicienda est ilia S laxifloid Boir 1 B t 2749, qu,e valde dubu \idetur Cipsulae maximam pditern glabrdUL, apice dense albo-laiutae, longissime pedicellDtae pcdicello nectdnum 4 superinte, stjlo \alde elongato, stigmatibus bipartitis laciniis iilfoimibus lolid exdete ul m vcia b launni Videtur qudsi e S hastata et S phjlicilolia hjbndi, ad b histaLa vix in Anglia occuint<sub>c</sub> Ad Kilhn in Brea-dalbane lecta dicitur, sed specimina in F B depictd-a D TITI(cison cominunicata, nonne in horto ejjis culta lbique prociedta?— inAbhndl d Schles. Gesellsrh f Vnt <sup>ult 1861 p 129, novim loimam descnpsit ill Wimmer sul) nomine S tephocupae, forsan ex S phylicifoha ct cinerea in horto berlomensi ci<sup>u</sup> oitd Qiantum e descnptione l c datd eruere possum notis tantum perpauci<sup>simis</sup>, si ulhs, a S launna (e b Caprea et phylicifoha orta) distmgui potest.

X X X X S FRUTICULOSA (Kem Oest. bot Zeitschr 1864. p 368), amentis coetaneis densiflons pdunculatis, pedunculo folns parvis 3-4 instiucto, squamis icutis apicem veisus ipnugmeis vel purpurascntibus villosis, filamentis glabns, loins obovato-lanceohtis acutiusculis supra vmdibus subnitidis subtus opace glducescentibus pnmo senceo-pilosis aduitis plus minus glabratibus venissubius ele<sup>atis</sup> ana-tomo<sup>antibus</sup> reticuldtis mdrgrme cienuldto-sentdis, stipulis nulhs \$ In paLtc septentiionah monLis Platten piope A<sup>en</sup>kirchen in Tiruhb stpt. s >b cilcareo dlt J000 hcxiped. (Kem ) — l x **flk** Hb <sup>ad</sup> n. 90 S grandifolia drbusculd tiutitulus humihs ramosissimus Folia l£ **poll.** longa, supia medium 4 poll ldt, bdsin veisus dn<sup>ust</sup>tdta Amenta masc o\tdto-oblonga — \*oha colore S drbusculae sed consistentid ma<sup>o</sup>, nitudine et ntrvacione dpei tius b grandifoham simulant

X X X X X b. MACRORHYNCHA, amentis sessihbus \ix bracteatis eloDgato-cylm-dit<sub>is</sub> ldxo llcxuosis non densiflons obtusis, squamis auitiusculis apice fu c o-

nbus iere nigricantibus longissime gneseo-villosis, capsulis comco-iostratis elongatis pedicellatis, pedicello nectanum usque ad quater superante, stylo /aide elongato filiformi fulvo stigmatibus integris renexi\*, foliis lanceolatis basi attenuatis acuminatis subtus pilidionibus glaucis inaigne crnatis, stipulis minimis angustis acutis ^ Ad St-Petersbmg, unde specimina pauca a Sanaon lecta in Hb Le Normandi et Petrop vidi S phyhuiohd daphnoides Fructx sat altus, ramis glabernrais piceo rufescentibus loha (novella) li-2 poll longa, supra medium ft re semipoll lida, basi longe dtenuata, subpallidula Amenta feminea 2 4 poll tlcngita, flexuosa, ihaclns lnrta. Capsulae biunnescenti testaceae, longe cnico rostratffi, 2 7 lin longae Est exacte inter S phyhcfoliam et S daphnoidein media a prion foha vindia crenulata, cipsulas pedicellatas saltern basi cineico puberulas, pedicellatas, a S daphnoide foln acuiissime elongita, amenia \ ilde protiacla, capsulas rostrato piocurrentes et stylum eximie elongatum in stigmata Integra divisum habens — Vanat 1° *leiocarpa* cipsuhs basi glabernmis apicem versus puberulis, pedicello nectanum 4 duplo superante — 2 *hebecarpa* capsulis totis tenuiter puberulis, pedicello nectanum vix superante — 3° *puberula* foil is subtus pilis rans puberulis

X X X X X X S SCHRADERIANA (Willd sp pi 4. p 695), amentis sessilibus bracteis parvis et minutis suffultis incinis cylindricis densifloris obtusis, squamis obtusiusculis fulvislonge albo pilosis, uipsulisovato conicis attenuato-rostratis molliter succis biewtei pedicel! ill\*\* pedicello nedanum subsuperante, stylo parvo stigmatibus minirais mtegnis ciassiu^cubs, tolns oblongo-ovatis apice subobliquis, pumo supia mrce puberulis sublus adpresse senceis tosta flava et nevis acutiusculis elevitis, demum ngidis utnqut, glabns J>ubub glaucescentibus maigine sup<ririe remote et repando olandulob0 serulatis In Germania et Suecia maxime mondionili ciessere dicitura me tantum culta visa — Pcrs Synops I. bOi, Bluff ettingein Fl Germ 2 p 560; Wimm Sal euio p 221? b discolor btluad ex Willd 1r H N S bicolor c pubescens Mey. Gbl hann 494 — *lcone*> Reichb Icon 2003, Anders Sal monogr f 90 — *fxsicc* Ser n 34 52 Wimm Coll Sal n 89 ?• VideturS repentetS ph>hcifolia hybiida A pnore habet folia adolescentia subtusargentea, oblique apiculata et senatuiifl sparsis, capsulas buvitci pedicellatas et stylo brevi piaed tas, a S phyliciloha statuiam pioenorem (liuti culus2 3polhcans), ramis erectis, folia sappe [ \ poll longa, supra medium (i \ lata), demum planioia, supra lucide vindia ot subtus glaucescentia, capsulas majores Ut ceterse h\bdnae sub duabus occurrnt formis, altera *minor* (subrepens) folns subsericeis angustionibus et crebnus seirulaus, altera *major* (subpliYhcifoha) folns niajonbus tenuionibus laetius vindibus et evidentius glaucis et subintegi is H PC major = S bicolor Ehrn. Arb n 118 sec specim authent, = Reichb fig 2003 sub S arbuscula, ut etiam Koch Comment p 46

### § 13. *Rigidae s. haslatas.*

tiutices mediocres vel humiles, alpini vel subarctici, ramis tortuosis, ramuhs gracihbus, fuscis glabus loha elliptic! vel lanceolata hie\iter acuta, margine vulgo acute senulata gobia utnqut Mndia, subtus palhdiora et nervis elevatis anastomosmtibus pulchre venulosa, adulta ngida dum marce>cunt rufescentia Slipulae \ulgo ma^na. Amenta plus minus coetanea squamis flavis vel fulvis, apice luscioi villo albido baibitu anthens flavis, capsulis glabns, vindibuss rufescentibus, pedicellatis, stylo rostratis.

70 S COHDALA (Mull. N Berl Schr. IV p 236 t 6 f 3), amentis sessihbus vel breviter pedunculatis folns minutis interdum suffultis, Sjuamis palhdis pihs longis albis et molhbus dense villosis, capsulis o\ato conicis glabernmis longe pedicellatis pedicello nectanum 6-8ies superante, stylo mediocn, stigmatibus brevibus crassiusculis pleiumque bilobis, folus oblonfio-lanceolatis basi cordatis (vel submgustitis) acuminato cuspidatis glabns~n<idis ncnoso venulosis acute seiratis, stipulis sublus pall dis saepius macnis cordato-lunatis 3 In America boreal 1a regionibus niedus usque ID septentriona'cs

praecipue orientales—Willd sp 4 p 666, Spr syst 1 p 99, Puish fl amer 2 p 615, Hook fl. boreal, amer 2 p 149, Torrey fl New York 2 p 211 Asa Gray Man. ed 2 p 4f5, Sal Wob t 24, Anders Sal boi amei p 124, Barratt Sal n 26 Lst species haecce amencana nostrae S hastatac similhma, eique eodem feie modo analogd ut S mgra S amygdalinae et S lucida nostiae S penlandiae Differunt lormae typicae folns valde ngidis, elongatis, producto acuminatis, basi profunde cordatis, acutissime senatis et capsulis multo longius pedirellatis Duas piaecipue modificationes, vel subspecies habet pmarids

- a, *nquia*, folns o basi cordato lotrindata et latissima sensim angustitis cuspidatis margine plerumque pioiunde serratis subtus palli lif ubus, demum valde ngidis, stipulis magnis cordatis, capsulis longissime pedicellatis S ngida Willd spec 4 p 667, Spr syst Veg 1 99, Pursh fl amer 2. p 615, Hook fl boreal, amer 2. p 149, Torrey fl New York 2 p 212 S cordati ngida Asa Gray 1 t Frutex sat altus 6-15-pedahs ramis rufescentibus Folia 4-6-pollicana, 1 2 poll lati petiolus 1 l'-pollicans Amenta subpedunculita — Haec est 1° *latifolia*, folns latissimis olliptico ovatis basi sat profunde cordatis, stipulis maximis petiolum subaequantibus — 2° *serrata*, folns acute et profunde incurvato serratis Ipice longe cuspidtis \*st potissimum S cordata auctoilim — 3° *Integra* folns mdximis tenuionbus mtegiis, stipulis mmonbus — 4° *binifoha* folns basi latissinns vix 2 polhces longis sjubtus valde intense ^laucis us S lucidae similhmis — 5° *angusli folia* folns late knceolatis d medio et basi et apice subattenuatis bine subcoiditis llmc longius acuminatis slipulis sat quidem mdgins sed ppetiolo e\identer brevionbus S ngida typica — 6° *myncoides*, folns lanceolatis basi subiolundatis vix cordatis dpict longtime acumiidtis margine tenuiter se ritis subtus palhde vindibus, stipulis minonbus S myncoides Muhl 1 c p 235 t 6 f 2, Willd sp 4 p 68b Spr syst Veget 1 p 99, Pursh fl amer 2 p 613, Torrey fl New-York 2, p 207 Vix aicendum quomodo a priori differunt nisi folns adhuc anguslionbus etvulcro tenuionbus Nonnunquam ad S discolorum d eta<sup>t</sup> — 7° *testita*, nmulis tomentosis, folns novellis senceis, amentis eras is prrcocibus squamis longe pilosis, stylo haud longo Hab Port Osage ad fl Missouri CNeuwied)

- p, *angustata* (Anders M^noqr p 1-D9), folns lanceolatis basi angustatis apice producto acuminatis maigine subtihter oerrulatis mitio subtus ad costam albo villosis tenuionbus stipulis parvis vel mterdum obsolelis S angustala Pursh fl 2 p 613, Spr syst 1 p 98, Asa Gray Man ed 2 p 416 A veia S cordafB foima ngida, mednntibus modifitatio mbus angustif lid et m\ncoides, nec habitu nec charactenbus ullis tute distinguenda Rami ST pe crdssiore«\* mcano tomentosi tormae sequenks notardsp 1 *discolor*, folns 4 6 pollices longis eximie dngustato acu n - natis infra medium \ix polhccm latis ngidis subtus intense glaucis breviter petiolatis, stipulis latis luntis toln us S Bonplandianae siroillnri! — 2° *uridula* folns 2-4 poll longis medio vix pollicem latis tenuionbi s subtus vindulis — 3° *itellma*, coitice ramoium flavescente, amentis subcoataneis loins suffultis lon<sup>n</sup>ssimis erectis, folns angustis tenuibus subtus pallidis et tu«cato venulosis Hapc interdum crassa, amentis piaecocibus sessiliDus ciassis densiflons capsuhs dut \nidulis aut rufescentibus e basi crassa breviter comas, brevitei pedicellatis, stylo brevi In collectione ditissima Salicum quam ex regiombus fluvn Saskatch iwan reportavit Bourgeau, 1858, multa specimina hujus formas examinavi, inter se haud pdrum disciepmtia, sed evidenter ad typum S. cordaldc pertinentia

- X<sup>s</sup> MACKENZIANA (Barratt in Andeis Mon p 160), amentis brevissime pedunculatis bracteis paucis et piivis suffultis erecto patubs brevibus squamis minutis parcius villosis apice fu^cis enpsuhs ronicis glabns longissime pt-dicellatis, pedicello npctanum 10 les supeiante, stjlo subproducto, stigniitibus brevibus emarginatis, folns obenato lanoelatis cuspidatis basi angustatis

subintegns tenuibus subtus glaucis, stipulis fere nullis vel parvis — S cordata y Mackenziana Hook In Vmenca boreah ad Great Slave Lake et Mackenzie mer (Richards) bi fas esset quidquam de natura hujus formae conjicere, facile crederes eam a S cordata et b rostrata esse h\ndam i^olia fere hujus speciei textura et nervatione, obovata et tenui, junioia pellucida iufescentia, sed glabernma magis elongata, basi angustata, apice producta Amenta tamen magis ut m b cordata sed multo breviora et capsuhs adhuc longius pedicellatis praedita Quoad colorem fohorum S phjlicifoham nostram non male revocat (v s in h Hook )

- 71 S NO>E ANGLIC (Anders Sal Monogr p 160), amentis breviter pedunculatis brevibus ovali oblongis erectis loins peduncuh suffultis et us pmo involutis squamis obovato rotundatis ipice piceis albo ullosis capsuhs conico rostratis glabemmis laele viudibus vel testaceis brevitei pedicellatis, peihcello nectanum interdum duplo supeicinte stylo mediocn i alhdion, stigmatibus crassiuscuhs intogns erecto conniventibus folns obo\ato oblongis vel ovalibus obtusiuscuhs crebre cienatis utnnque pure viiidibuset glabernmis pmo exsiccatione nigre«ccntibusadultis rigidisiienoso strialis lucidis plams, stipul s parvis vel nulhs ^ In Ameuca boreah anghca a fluv Saskatchewan usque in regiones dd mare glaciale, etiam n snmmis montilms petrosis (V in herb Hook et in collect Bourg dm ) Hoc nomine tres sequentes formas, forsan specie diversas comprehendimus

a, *pseudo myrsmUes* (Andeis Sal amer 1 c p 129), frutex parvus 1-3-peddhs, ramis divancalis folns Ij-polhcaribus membranaceis utnnque et praesertim subtus pure vmdibus et lucidis venis prominentibus nervosis, amentis laterahbus loins paucis bracteatis\* squamis albo pilosis, capsuhs fusco testaceis pedicelhtis pedirMlo nectanum bis feive superante Vanat \° *cordata* folns 1-j' poll longismo medio saltern J poll latis ovah lanceolatis basi subdistincte cordatis vel rotundatis apic§ breviter productis roargme crebernme sciruhtis utnnque et praesertim subtus acutissime venuloso reticulatis et lucidis demum submgricantibus breviter petiolatis In Rocky mountains (Drummond, Hb Hook et Bourgeau) Haec S cordatae subbimihs — 2° *hngulala*, folns vix polhce longionbus supra medium -J poll latis basi angustatis apice bieviter productis obovato oblongatis vel hnguldtis venis minus prominuhs obscurus hneatis Ad « the grand rapid of Saskatchewan (Hb Hook ) Haec folia S myrsinitidis fere habet — 3° cPguahs, fruticulus parvus, ramis adscendentibus, folns sat longe petiolatis ± 1 poll longis supra medium latibus integris vel minutissime serruldtis, utunque glabns, subtus palhdionbus costa elevata sed \ix \enulosis, amentis crassis, capsuhs rufis In Rocky mountains (Bourgeau )

P, *pwudo cordata* (Anders Monogr p 161), fruticulus haud altus, ramis stnctiuscuhs, folns ovah oblongis infra medium parum anquestionbus basi subrotundatis apice subproducto acutiuscuhs margine minute serrulatis utnnque puie vindibus nervoso reticulatis, amentis folns pan is 3 5 suffultis fere polhcanbus, squamis atns dense albo-villosis, capsuhs longe rostratis stylo subdistincto S m>rsinites curtiflora Aideis Sal amer 1 c p 130 — In America septentnonah ad fl Siskatchewan pirpe Foit Pitt (Bourgeau), piope Jaspers House (Burke) et ad Port Frankhn, Mackenzie nvei (Dr Kiel ardsen) Ttiam in Rocky mountains (Drummond) \idetui S coidata. forma alpestrns, eidem formae S hastatae analoga, sed diffeit planius folns et amentis — Modificatio maxime boreahs, oh amenta inteidum subterminaha ad glaciales accedJns, omnibus partibus minima est

y, *myrlillifoha* (Anders Sal amer 1 c p 132), fruticulus humilis superne ramosus, lamis stnctis intricatis fohatis fere ommno ut in Myrtillo nigro, cui insupei simihs, loins semipolhcem longis ^-^ hneas laus ovahbus utnnque nallidp vmdibus et glabemmis margme crenulato-serrulatis, amentis Uterahbus vel terminahbus interdum ramulos annotinos brevissimos tcrminantibus ovalibus, folns suboccultatis squamis brevi-pilosis, capsuhs breviter pedicellatis iaete Mndibus crasse comcis

stylo brevi et stigmatibus crassis terminatis. — In Rocky mountains, utnque, locis demissis (v. s. in Hb Hook).

72. S. PYRIFOLIA (Anders Sal Monogr p 162), amentis subsessilibus v brovitei pedunculatis foliis paucis minutis saepe suffultis, masc. densiflons aurois, fem laxiflons squamis ioseis vel testaceis longo albo-pilosis, c ipsiis ex ovata basi conicis glaberrimis longe pedicellatis, pedicello nectanum 6 8 les supelante, stylo modico v parvo, stigmatibus meivibus crassiusculis emarginatis fulvo rufis, foliis tenuissimis pellucidis utinque pure vindibus et giabemmis subtus pallidionbus et crebre venuloso-ieticulatis a rotundata v subcordata basi ovatis tenuissimc glanduloso-serrulatis, stipuhs minutis caducis.

a, *Lrta*, amentis subfoliato-pedunculatis, capsuhs longissime pedicellatis, foliis tenuibus subpellucidis cordato ovatis In America boreali ad lacum Winipeg (in paludibus prope Brochet) et in nra fl. Saskatchewan (Bourgeau).

p, *obscura*, amentis subsessilibus v basi bracteoatis, capsulis rufescentibus breviuspedicellatis, iolns demum ngidis ovato-lanceolatis acutius serratis. 5 In Rocky mountains, vallée des Arcs (Aug 1855 • Bourgeau). Non sine haesitatione permulda has duas ad unam retuli speciem. Typica elegantissima est forma sine dubio S pyrolaeofae asiaticae in America analoga, sed ab ea non tantum amentis et capsulis sed etiam foliorum forma et stipuhs bene distincta Frutex sat elevatus, ramis grauhbus castdncolucidis etiam junionbus glandulosis Folia pollice sublongiora, ] poll, lata, juniora subtus pilis paucis conspersa, demum omnino glandulosis, marline glandulosi seirulati Stipulae aut omnino deficientes, aut minutae semicordatae. Amenta 1<sup>a</sup> poll longa, squamis albo-baibditis, femmea usque ad 2 poll, longa, sat ranflora, capsulis lineam longis, stylo pedicello 4 5ies breviora. — Foima p, *obscura*, est pyrolaeofae adhuc simibor, sed capsulis longius pedicellatis, obtusiusculis, stylo multo production et foliis subovalibus differt Potius cum S cordata comparanda, folia autem subtus vindula, l e. concolora, breviora et latiora, et amenta affinitatem cum vera pynfoha demonstrant (v. s.)

73. S. ADENOPHYLLA (Hook, fl bor amer 2 p 146), amentis pedunculatis erecto-patuhs obtusis densiflons pedunculo foliis granuistipulatis instructo, squamis obtusiusculis fusco rufis glabrusculis, capsulis ovato-conicis giabemmis breviter pedicellatis, pedicello cinereo squama multo breviori, stylo elongato pedicello longiore, stigmatibus eiectionis margatis, foliis subcordatis ovalibus planis ngidis margine argute et subspinuloso serratis aut glabrusculis aut utnque densissime albo tomentosus vel senceis, stipuhs magnis semicordatis seiratis J In Labrador (Dr. Morrison)— Anders Sal bor. dmenc 1 c. p 125, Sal. monogr. p 164. Frutex & ramosus, ramis crassis cinereis, annolinis vellere albido tomentosus Gemme ovato-rotundatae, obtusissimae, albo-lanatae Folia brevissime petiolata, majora pollicem longa, J poll lata, minora glandulosis, reticulato venosa, dentibus glanduligeris dcutissimis serrata. Amenta feminea ] pedunculo pollicem, foliis 4-6 glabrusculis instructo, pedunculata, 1<sup>a</sup> poll, longa, patula, rhachis breviter pilosa, squamaj basin capsulae attingentes rufius pilosae Cylindricae piceo-rufo-fuscescentes, rugulosae, stylo et stigmatibus fuscionibus. S cordatae nimis affinis, distinguitur amentis longe pedunculatis, foliis saepe brevioribus et latioribus, squamis glabris et capsulis breviter pedicellatis (v. s. in h Hook).

74. S. BAHCLAYI (Anders Ofers af Wet Aks. Forh 1858. p 125), amentis pedunculatis crasse cylindricis densiflons acutiusculis patulo-erectis, foliis anguste ellipticis stipulate suffultis, squamis obtusiusculis atns pilis longis albis senceis, capsulis conico-subulatis glabris in stylum longum sensim attenuatis breviter pedicellatis, pedicello nectanum vix duplo superante, stigmatibus lacinis reflexis bipartitis, lons obovato-ovatus vel unceolatis brevissime et oblique apiculatis subserratis supra pilis sat longis adpressis floccoso villosis v glabrusculis subtus pallidionbus reticulato-venulosis, stipuhs ovalis acutis 5 In America boreali. Formae foliorum variant I *rotundifoha*, foliis rotundato-ovatus, subtus pallidionbus integris vel minute et remote serrulatis. In Kadiak leg. Barclay. (Hb. Hook) — 2<sup>o</sup> *grandifoha*,

folns late lanceolatis subtus glmcescentibus margme anguste serratis In Unalaska ('schschol/) — 3 *anqushfolia*, folns anguste lanceolatis tenuibus subconcoloribus integris In Sitcha et Unalashka (Hb Petrop) — Frutex sat altus, ramis vahdis, atns, glabns Folia in forma rotundifolia vix pollice longiora, -j poll lata, in ffrandifolia fere 2 poll, longa, 1 poll latd, supia obscure viridia et floccosa-villosa, pf>tiolo 1-2 lin longi Amenta fem. fere 1-1½-pollicaria, podunculus folns 4 8 ngulis parvis Insiructus, squamae capsulam ultra medium tegentes, dense villosae Capsulae uiuiulcp, anguste conicae, stylo fere lineam longo fulvescente rostratae S cordatae alfims, di>ün-guitur folns brevionibus et lationibus, minute semitis, exsiccatione nigncantibus, capsulis subsessilibus, stylo demum multo longion — Exstant specimina ex Sitcha, quorum capsulae stigmata habent cras>a et indivisa, nee aliter diversa videntur Alia autem ex eodem loco differuntfolns multD tenuior bus, supra omnino glabns. (v. s.)

p, *latiuscula*, amentis foliato-pedunculatis patuhs subdensiflons cylmdraceis elongatis, squamis fulvis oblongis obtusiuscuhs Mlloso-barbatis, capsulis ovalo-conicis tenuiter tomentosis breuter pedicellatis, pedicello nectanum valde tenue vix superante, stylo breu, stigmatibus bihdis, folns ovahbus \el obovato-ovalibus basi subcordatis apice brevissime acum mat is supra lucide viiidibus subtus pallidioiibus acuto nervosis evidenter punctatis sat crebre serrulatis petiolo haud glanduligero, stipuhs ovato-cordatis Hah in Feira no\ a (de la Pylaie) Inter b. lucidam et S. cordatam quasi media, sed ab utraque >at bene distincta S. Barclayi huic simillima sed recedit capsulis omnino glabns<sup>1</sup> (v. s.)

75. S. BIGELOWII (Torr et Asa Gray Report of the Botany of Whipples Expedit. p. 81), amentis sessihb-s nudis adscendentibus \el patulis sat densiflons cylinducis obtusis, squamis obtusis luho lulvescentibus dense cnspato-albo-villosis, capsulis ovato-conicis glabenimis pedicellatis, pedicello nectanum fere quadruplo superante, stylo subproducto, stigmatibus breMbus erectis bipartitis, folns ovah obovatis \el cuneato-oblongmntegegnmispubescentibus vel nudis subtus glaucis nigrescentibus exstipulatis. 5 in California, St Francisco (Bigelow) et Bokara (in herb Hook) — Anders Sal. Amer. 1. c. p. 118. Sal. monogr. p 163. Lst 1° *lalifoha*, foil is obovato-spathulatis obtusis-Mmis subtus sdtem pnmo gnseo pubescentibus. — 2° *angustifolia*, folns hngulato-lanceolatis apiculatis subtus gliucis nudis. Frutex mediocns magnitudinis Gemmae parvae tolia 1 i-2 poll longa, supra medium j poll, lata vel m forma angustifolia breviora et angustiora. Amenta fcminea fere 2 poll, longa, conlerta, bracteis paucis cito deciduib suffulta, rhachis dense albo-villosa. Capsulae in specimibus majonibus ferelineam longae vindes, m mmonibus rufescentes et pmap, stylus et stigmata dilutiora Affinitas difficile determmanda I xameucanis sine dubio S. toidatae maxime afhnis, quandam etiam simihtudinem cum S Coulten prcbens In herb Hooken aliam formam, cum S humili recurvata iorsan affinem, exammavi.

P, *fuscior* (Anders Monogr), amentis sessihbus brevibus, curvatis squamis obtusissimis dense albo-lanatis, capsulis conius glabernmis longe pedicellatis rufoscentibus, stylo producto, folns obo\ato oblongis supra glabnuscis subtus rulescenti-pilosis In America septctnionali (Hb.Hook.) Yidetur frutt\ tat parvus lamis glabernmis.

- 76 S. PADIFOLIA (Anders, in Asa Gray, plants of Japon in Mem. of the Amer Acad. vol b p 451), amentis sessilibus praecocibus gracilibus flexuosis elongahssquamis concoloribus jusgiabernnis, capsulis *subcyhnducis* \el o\ato com-cis glabernmis pedicellatis, pedicello nectanum lore duplo superantibus stylo parvo, stigmatibus integns brevissimis, folns o^ato lanceolatis cusm^ dato-dcummatis utnnpq glabernmis subtus glaucescentibus mar^mp ^nn^ latis 5 In Jiponn, id Siroda leg Williams et Marrow Arbor vidPtilr^ sat proccra, ramis glabris cistineis. Folia 2-3 poll longa, ad medium fIM^ DOIT^ lata, basi rotundata ssepius subcordata, apice abrupte acum.nata Ament 1 fcminea 3-3J poll longa, 2-3 ln .passa, capsuhs testaceo-unduhs lmeam^lon-Ris -Est species tnandra. hab.tu sim.l.s, sed typum S has a\* e''ocTns et S. elegantihimalayensi sine ullo dubio similhma\| s ) <sup>d9iaifE iexocans et</sup>

P, *undula* (Anders, 1 c p 401), amentis masc breviter pedunculate foil is paucis suffultis densiflons acutiusculis, rhachi cinereo hirsuU, squamis oblongo spathulatis pallid e testaceis concoloribus glabris, staminibus pallidis, antheris sat magnis, folis ovalibus basi subrotundatis apice parum productis integerrimis vel serrulatis utrinque glaberrimis venis anastomosis pulchre reticulatis subtus parum palhdionibus In Japonia ad Yokahama (Williams et Morrow) S hastatae potius dubio mixime diffinita, sed S pedifolide foecitans SLXUS masculus, a qua tamen recedit amentis basi lobatis, lobis ovalibus apice parum productis remote seeratis utrinque vinctibus (v s)

77. S MIQUELII (Anders vel Monogr p 166), amentis breviter pelunculatis elongatis glabris subflexuosis haud densiflons, pedunculo lobis 2 in instucto, rhachi pilosa squamis testaceis lacinatis apice subfuscis obtusiusculis, capsulis undibus glaberrimis linearibus obtusiusculis pedicellatis, pedicello nectanum subulatum parum succiat, stylo producto flavo, stigmatibus bilobis lacinis luscis eioctiusculis, lobis lanceolatis basi attenuate apice acutiusculis supra laete vinctibus deute nervosis lucidis subtus palhdionibus nervoso reticulatis mirgmit h mod profundo sed evidenter glanduloso serrulatis ngidiuaculis, stipulis tennellis 5 In Japonia, ad Nagasaki (Oldham, 1862, n 551) Aibor videtur hmod parva, rami cassiusculi glaberrimi \*oha juniora 4' poll longa, 1/2 poll, Uta, utrinque glaberrima subtus fere glaucescentia Amenta ? 2 J J poll longa, in ramulis condensata flexuosa squamis basin capsulae tegentibus, capsulis fere lincanibus vinctibus basi rufescentibus. Habitus fragilium quofhmnK do releiens, sed id tjpurn S hastatae sine dubio ptrincta oh iolia iigidiusculi venulosa, amenta subfohata, squamas pilosas, capsulas stylo rosliatas subpedicellatas

p, *vulpina* (Anders in Asa Gray Plants of Japon 1. c), amentis d<sup>1</sup> cyhnd race is subflexuosi derisiflonga basi folis parvis 2 l suffultis, squamis acutiusculis apice nigricantibus et subcalvescentibus celeium pilis sat longis rufo fenugineis hirsutis, staminibus pallide flavescens. folis junonibus obovatis prosertim subtus vcllere tenui rufescente piloso et lacile caduco obtusiusculi adultis pollicanibus obovato-ellipticis supra obscure vinctibus costa albescens excepta glaberrimis subtus pallidionibus pulchre venulosis mirgmit sat piofunde serrulatis exsiccatione nigricantibus In Japonia Quod huic formae singulare, sc squamae rufo-pilosae, etiam m amentis superioribus S Miquelii observatur, aum amenta inferiora genseo hirsuta conspiciuntur

7g S FLEGANS (Wallich Catal pi Ind orient n 3699), amentis foilUo pedunculatis, masc densiflons tenuibus pallidis fern, gracilibus demum hxis subpendulis anguste cylindricis acutiusculis, squamis parvis flavis glaberrimis capsulis conico oblongis glaberrimis parvis obtusis brevissime pedicellatis, pedicello nectanum piivum subacuate, stylo subnullo, stigmatibus bipartitis, lobis oblongo-ellipticis ngidiusculis lctte vinctibus subtus inienso glaucis pulchre venulosis deruum ngidis utrinque glaberrimis vel In India oienlah supi rion alpestris, in iugionibus Himalensibus ut ad Baltal (Jatquemont), Kamaon (H Uhnkwoith), Himalaya bor ocud, reg temp alt 6000 WKUped (Thomson, et Niti, Urhwal 11 >00 ped (Strachey et Winteibottom), in Nepal pi locis (Wallich) —Anders lourn Linn Soc 1 c p SI b Kamaonensis Lmdl in Wall Cdtal n i701 S denticulata Anders Act Holm 1. c p 481, Heise Pnnz Waldcm p 119, t 89. Jbrutex v arbuscula, rami valde divantati, piceo atn, nitidi, nonnunquam subcaarulescentes Folia brevitei petiolata, vulgo 1-1 1/2 poll longa et 1/2 poll lata, ovato elliptica v oblongo lanceolata, regulanttr sed minute senata, superne laete viridia, subtus ut in S tandra caeruleo-glaucis venis stnata et reticulata, utrinque glaberrima, adultd ugida, ut folia b myrtilloidis Amenta folis 4 5 rite evoluitis suffulta, masc giacihate late flavescuntia, 1-1 1/2 poll longa, densiflora, lincinea gratillima, 2 1/2 poll longa, anguste cyhndica acutiuscula, pmo eiecia, demum laxepatula vel immo subpendula, squamtt basin cajisula: superintes, obsolete pu be rulee Capsula lineariiconica, tenuis, basi lulto lulescens upicem versus vmlula et attenuata sed obtusa, stylus feie nullus, stigmata 2 mi-

nima, emarginata, apice capsulae non multo latiora Species nitidissima, alpestris, S hastaum folns reticulato venulosis, rigidis, et capsulis glanduliferis infescenti vinctulis non male revocans, ut etiam folns suis parvis ellipticis S myrtilloidi submissis, ab omnibus autem Lene distincta

p, *Goianiana* magnitudine altior, folns majonibus magisque elongatis apicem versus subattenuatis fere lanceolatis margine denticulatis senulatis basi aequaliter angustatis subtus intensius caesio-glaucis Hab in Nepali a (Wallich 1821), in alp himalensis (Hofmeister) S Govdnind Wall. Cat n 3699 S Himalensis Klotzch in herb duce Wildemar S denticulata Uimalensis Andeis Act Holm 1 c p 482 S elegans Himalensis Anders mon Statura procenon, tenuitate foliorum et amentorum a typica S elegante quodammodo differt, sed characteribus omnibus cum ea eximie congruit (v s)

79 S RHAMNIFOLIA (Pallas fl ross 2 p. 84), amentis pedunculis terminalibus et lateribus semipollicribus 2-3 folns instructis in hinc inde crasse cyathosis elongatis, squamis fulvo-piceis oblongis glabris apice villosis barbatis, capsulis ovato-conicis rufis denticulatis glaberrimis breviter pedicellatis, pedicello nectum subsuperante, stylo parvo, stigmalibus minutis integris, lobis oblongo obovatis basi subattenuatis breviter acuminatis margine mucoso senatis utrinque glaberrimis lucidis, stipulis sat magnis sciniatis In Sibiria baikalensi (Herb Ledeb) — Pallas fl ross cd mm p 167, Gmelin fl sib P 1 189 t 2 > f 1? Ledeb fl ross 3 p 612? Dubia forma, de qua quod voluerunt Gmelin et Pallas non habet Specimina quae ipse vidi a Ledebour hoc nomine descripta quae I S hasuti et S myrsinitide composita videntur Amenta habent folia obovata pure vincta < t subclivata in magna crebre reticulata, denticulata sat crassa, squamis apice barbatis, et capsulis rufescentibus a posterioribus amentis subternatis, pedunculum suum nudiusculum. folia nigra acute serrulata — Quae alias s Rhamnifolia inscriptam in herbarnis videri, a Hooker et Aiton sub hoc nomine descripta et depicta, divertit, et a me S fuscescens ippellata (v s.)

80 S PYROLAEFOLIA (Ledeb fl ill 4 p 270), amentis sessilibus basi bracteis paucis minutis subultrix laxifloris. squamis testaceis apice fuscescentibus longe albo pilosis demum glabrescentibus capsulis anguste ovato-attenuatis glanduliferis pedicellatis, pedicello insertum ter (juncte subtante, stylo elongato, stigmalibus bifidis recurvatis, folns orbiculatis vel ovato ellipticis glanduloso senatis tenuissimis pellucidis utrinque fere pilulis subtus pilulosis v. laevibus, stipulis orbiculatis basi cordatis lobis rotundatis In Russia septentrionali (terra Samoiedorum), in Sibiria altn i < t buka. lense m. Davura — Ledeb fl ross 3 p 613, Turcz (atal bdikal n 1036) rutex non altus, subdepressus, rami castanei vinctes inlentes etiam juvenilibus Folia adulta 2 pollicos longi et fere eadem lititudine, subtus minus pallidi in costa vincto arcu minus ruficulis connexis flaviculis venulosis minutis crenulata v. obsolete glanduloso serrata Stipulae fere subsimiles Amenta mascula erectiuscula, pollicari de mum 2 pollices longi, \ poll lata (capsulae basi pallidiores ceterum vinctes v rufescentes, interdum recurvatae stigmitibus bidentatis, cruciata, subsciora Congruit cum b. basiliensi piisitivis annatis, squamis emereo-barbatis capsulis vinctibus et glandulis, lolorum textura et nervatione, notis tamen allatis abunde differt (v s.)

a, *alnoides*, folns ovato ellipticis petiolo costaque flavis. S alnoides Schan gin et Beckers in Pallas n nord Beiti 7 p 347 349, Georgi Beschreib d Russ R 3 p. 1 p 1340. S corymbosa Lurcz pi exsicc a 1830.

(4, *orbiculata*, folns orbiculatis, petiolo costaque flavis.

Y, *sabulosa*, folns orbiculatis subcordatis petiolo costaque in vivo laete roseis — S sabulosaluaic7.pl exsicc a 1830 Ledeb icon 476

81 S HASTATA (L sp 1441), amentis subcoactis plus minus pedunculatis densifloris lobis paucis subpilis subtulis fern diutius persistentibus, squamis spatulato obtusis apice fuscis pilis ensatis longe hirsute, capsulis exsertatis basi subulato conicis glabris pedicellatis, pedicello nectum duplo



longionibus, stylo elongato, stigmatibus bifidis, folns ovato ovahbus v. anguste lanceolatis subtus pallidionibus venoso reticulatis, stipulis semicordatis rectis vel obsoleteis 5<sup>in</sup> lows humidis et ad nvulos praecipue alpinos et bubalpinos feie totius Europe (in onenali ranssima) ROS<sup>AE</sup> usque in Davuiam (sec Lcdebour, nulla certa spocimina inde vidi), Himilayae (lacquem I horrid alt 6 9000 p), etiam in regiones magis temperatas descendit ut in Danh, Suecia austrah etc In Asia septentnonali oneritali formis S pyio laefohdc, in Asia, mendionah, Himihya etc & elegantis (sed b hastata lbi adest), et n America formic S coidata\* repiajsentan videtur — Willd sp pi 4 p 661, Koch Comm p 42, Anders Sal lapp p 48, Sal monogr p 170, Ser Es> p 58, Fr Mint. 1 p 48, Wahleng suec p 666, Lange Dansk fl ed 3 Hirtig, Forstl Cult, p 392, Wimm Sal europ p 83, Koch Synops ed 2 p 7)2, DC fl p 5 p 3J8, Gren et Godr II Pr ed 3 p H7, Hook et Arn bnt ed 7 p 410, Gaud fl hel? 6 p 22o, Bertol fl ital 6 p 313 (sub S nigncante), Lange et Willk fl hisp p 230, Lcdeb fl ross } p 612, Tiautvett Middendorfs Rcis 1 2 p 8 153. b serrulata Willd si) 4 p 664 b malifolia Sm bnt 3 p 10>3 Willd sp 4 p 676 b elegans\* H>xt fl austr 2 6)2 b Pontederæ Vill Delph 3 p 766 h Pontederana Loisel gall 2 p J4J S viburnoides eninthe et cerasifolia Schleich Gat et ILXICC b tenuitolia Sei Exsicc — lona Wahlenb lapp t 16 f o, Anders Sil Upp p 11, Sal nonogr, Reichb f 2013, bv Bot 719, Sal wob t Jo J6, K B t 1617, Hartig 1 c t 111 (3o h), M D 1213, Host bal t 97 — Exsicc Fr H n i 51 Reichb n 9^6 ber n 8o, 89 Wimm H Sal 71, 72 Coll Sal n 82, 83 Kern H Sal n 9193 trutex typice 3 5 peUlis, ramis atrofuscis glabns, annotims gnseo flivicanti-tomentosis Folia forma et magnitudine vim, vul^o nooinhil longioi i quam lata, e basi ovata vel immo subcoidiU ovali lancolata, supra saturate vmdia, subtus pallidioia et venis distinctis pulchie et crebre reticulaLd StipulE ovato-bemicoidatae, petiolo saepe subduplo longiores Amenta mitio ob squamis viUosas longe atgenteo sencea, misculi lajte flivoaurea, anthers rubescentibus, feminea elongata et sat rarUora, s jua nis b irb itis, capsulis glabeirimis pallide vuentibus aut rulscentibus stylo pedicelh fere longitudine fulvo stigmatibus piceis — Tres potissimum modiicationes evidentiorcs distingui possunt

a, *vegeta* (Anders monogr p 172), Irutex magnitudine mediocn, folns latissimis ex cordata basi subiotundatis vel ovalibus subabiupte acuminatis crebie serratis stipulis litis sutultis, amentis praecocibus biacteis paucis suffultis b hastata Willd b mahfoha bm b viburnoides bchl Occurrt praecipue in regiombus mferalpinis aut plantierum Major aut minor

p. *subalpina* (Andeis 1 c), frutex mignitudine altion saepe feie orgyali, folns ovato vel ob)vato ovalibus elhpticis vel elongato lanceolatis utrm que acutatis margine tenuiter serrulatis, stipulis parvis non raio omnino deficientibus amentis subcoetaneis folus paucis ft parvis suffultis S serrulata Willd b cerasifolia bchl In regiombus alpinis Major et minoi, latifolia et angustifuha

7<sub>a</sub> *alpestris* (Anders 1 c), fruticulus non laro subrepens diffusus, ramii> valte torulosus folns tcnuionbus j)ar\is lanceolate immo sublineafibip subintegnsranusstipulatis, amentis codetaneis brevilms stiminibus pal hde stiaaoineis, capsuhs saepe crassis ruhs et condciwati^ pcdicello nullo subsessihbus Hasc est S hyperboiea Andeis Sal lapp p ol f 12, qud& pnmo hybndam e b hastata el Inandra habui Cfr Wimmer Denkschr d Schles Gesellsch 18o3 p 16ol, Sal. europ p 86 In planitiebus elevatis alpium

X ' *viridvla* amentis prorsus sessihbus, capsulis e basi crassa conicis, tenuissime subpuberulis, breviter pedicellatis, pedicello nectanum non multo superante, stylo valde producto, loins elhptico lanceolatis vel ODOvato rotundatis tenuissimis supra obscure vindibus subtus sat intJn^if glaucis mirgine crenulato-undulatis In bibina onentah (btubeDflon, Hb. Petiopl ) b hastata alpestris vniduU Anders. 1. c. Habitu lOdruu\*

S *phylicifoliae* sat *similis*, sed *folia* *latura*, *tenuiora*, *magisque venulosa* Capsulae *quam* in *S. hastata* *crassiores* Amenta *magna* (2-3 *pollicana*) *exacte sessilis*<sup>f</sup>

82 S *GLABRA* (Lcop fl earn 2 p 25 >), amentis *subcoetaneis* *fohato-pedunculatis* *stnetis* *elongatis* *squamis* *initio pilosis* *demum pubescentia* *deusa* *glabns* *obovato ellipticis* *ipice vix iniuscatis*, *capsulis* *a crassa ovata basi conicis* *vel subulatis glabeinmis pedicellatis*, *pedicello nectanum fere duplo superante*, *stylo elongato*, *stigmatibus bilobis*, *folns ellipticis obovatisve crenulato serratis glabns lucidis suhtus glaucis conaceo ngidis*, *stipulis nullis* *v subreniformibus* 5 In *subalpinis Germaniae inendionahs* sc *Bdvaride* *et Austnae*, *Itahae septentnonahs*, *non tamen in Lapponia rossica*, *ut in Ledeb fl ross 3 p 612 dicitur* — *Koch bynops ed 2 p 7<sup>c</sup>>2*, *Kern Weid Oestr 1 c p. (113) 215*, *Neilr fl v N Oestr p 254* *Hartig torstl Cult p S94*, *Wimra Sal europ p 81* *S coruscms Willd sp 4 p 681* *S Wul femana Willd sp 4 p 660*, *Host fl austf 2 p 652* — *Icones Sturm H 25 Reichb 2011 (12<sup>^</sup>) Host Sal 95 96 Sal wob t 48* — *Exsicc Wimm Hb Sal n 78-79 Kern Hb Sal n 97-104* *Frutex 3-pedalis*, *omnibus partibus*, *squamis florum loris in exceptis*, *glabernmus* *Folia* *1-3-pollicana*, *J-t poll lata*, *supra quasi oleo mliai*, *subtus hetc vmdia demum vilde ngida*, *utrumque venis regulanbus pallidionbus pulchie stuatis* Amenta *1-3 pollicana*, *eiecta aut patentia* Capsulae *vindulde aut mfescentes hnea longiores* A *S hastata*, *cui a Koch m Comment p 43 subjuncta*, *distinguitur amentis longionbus foiiatis*, *squamis gkbus*, *capsuhs crassionbus*, *folns majonbus iubtus plus minus intense glaucis vix roticuUto-venosis* *Hdbitu S pilyliciohan* *non dissimilis*, *sed iecuht imentoium oonstruttione tota alia* A *Bertolom in fl it 10 p 313* *S nigricante subunita*, *etnm a Kerner in eddem tubu cum ea disposita* — *Vanat 1° latifoha*, *folns ovah-elhpticis usque ad 3 pollices lonfjis* — *2° angustifoha*, *folns oboatis* A *lanccolatis 1-1½* *poll longis basi longe attenuatis facilius nigricantibus* — *Huic inaxime tognatae*, *si non ejus potius modificationes sunt*

p, *cratxgxfoha* (*Andeis monogr p 175*), *snuarais diutius senceis elongatis*, *capsulis basi ciassionbus breams pedicellatis*, *stylo fusco*, *stigma» tibus integris*, *folns junionbus suntus senceo-aigenteis demum glabns supra parum nitidis magis elon<sup>^</sup>atis lacile mgncintibus* — & *crataegifoha* *Bertol in Desv journ bot 3 p 76*, *fl it 10 p 313* In *Apenmnis ad lambura et in monte Cenis* (ex *Reichb IC n 3012* & *glabia cemsia folns stipulis ornatis elongatis*) *I tiam in Austria*

p, *subqlahra* (*Anders 1 c*, *S subglabia Kerner Die Wcid Oestr p 2<sup>^</sup>7*), *amentis COTtaneis laxis pelunculo fcinto*, *squamis concolonbus e vindi fldvis sparsim pilosis*, *capsulis ovato-conicis glabris pedicello nectanum duplo superante*, *stylo elongito* *stigmatibus patuhs bilobis crassiuscuhs*, *folns subrotundis vel ellij tics serritis* *adolescencia in nervis subtus pubescentibus adultis glabcrnmis supra nitidis subtus glaucis dum marcescunt nitricmtibus*, *ramulis lunionbus puboscentibus cortice flavescence tectis* In *rupibus dlcarcis Austnae inferiors*, *2200 p. fKerner*), *etiam in fdiinthid lecta fcitur S glabia-nigrcins (Kern) Wiram. Sal europ p 229* (um *S nigricante congruit ranns crassiusculis opace albo tomentosis*, *folns tenuionbus minus nilidis*, *squamis florum obscuronbus*, *statura altion* *Magis autem S glabiam omnibus partibus revocat*

T, *laxiflora* (*Anders 1 c*, *S. laxiflora Kern Hb 3al n %*), *imentis fern bre viterpedunculatis patulo arrectis vel excurvatis elongatis ranflonsancuste cylindraccis*, *squimis tenuissimis fulvo fuscescentibus ohovato snathulatis nervosis vix pubescentibus*, *capsulis brevibus ovato conicis obtusm<sup>^</sup>cuhis* *pihs rans brevibus paicissime compiessis breviler pedicellatis*, *nprhELLO piloso nectanum feie taplo si peiante stylo brevi* *Uilvescentē 'stürroä' tibus brevissimis* *USPIS Ucmus erectis*, *loins c bovatis buvissimie dcūminatis supra lucide vindibus subtus subglaucescentibus* *ir UBineserruhtis* *Hab m \schenthil in Tuol (Kern)* *S glabra-grandifolia Kem A vera S. glabra non recedit nibi amentib gracihonbus magis ranflons*, *capsuha*

brevionbus subobtusis pihs ranssimis subpuberulis] stylo brevion et squamis fuscionbus b fruticulosae jam descnptae maxime est affhnis

8, *stenostachya* (Anders 1 c ,S *stenostachya* Kern Oesti bot Zeitschr 1864 p 188), amends coaetaneis pedunculatis anguste cylndraceis erecto patulis, pedunculo folus parvis 3 4 suffultis, squamis oblongis obtusis apice fuscionbus villo longo canescente barbatis, capsulis conico subulatis glabns virululis pedicellatis, pedicello nectaiium duplo triplove supeianle, stylo elongato gracili, stigmatibus bi parti Us lacinnis divergent]bus, folns ooovatis acutis utunque glabenimis supra laete vin dibus nitidis subtus caesio-glaucus margine serratis, stipulis par-vis semi-reniformibus —Ad bonnewendgech in hrol (Kem ) b hastatam conjungit cum S glabra et S nigricante, et hybnditate ex us oriara verosimile est A b. nigricante et b g abra ainentis longionbus, villo squamarum canescente (neque can dido) et stipul s multo minonbus differt (Kern.) Forma, in hoi to beiolinensi culta (< fr Wiram Sal eu rop p 218, s phyhcifoha Willd cnum h berol p 1003) huic quidem sal siinilis sed diffett imentis pedunculatis incuivatis ranflons, pedunculo loins paucis parvisque instructo, capsulis anguste conico suSulatis basi cum pedicello llbo-scnceis, squamis pallide lulvis apice haud nigns breviter ilbo barbatis

E, *Miechhoferi* (Anders 1. c , S Mielichbofen Saut in Regensb Flora 1849 p 662), amentis lateralibus folns pai vis suffultis masc ovali oblongis densiflons squamis basi fulvtscentibus apice subnigricantibus, an thens violaceis, fem elongato cylndiaceis subdensiflons rbachi hirsuta squamis pallidis plus minus albo lursutis, capsulis conico subulatis gla bernmis, stylo eloogalo, folns supra lucidis saturate vindibus subtus lcete vel pallide vmdibus subnitenlibus In alpibus austmcis passim sat frequens (Kern ) — Vanat 1 *laltfolm* folus ovali-oblongis v obovatis basi rotundatis apice breviter acuminatis 1 \ poll longis fere pollicem ldtis cosU fulva basi sunpubescente elevata subtus notatis — 2°, *angustifolm*, folns basi apitf-que subaequaliter attenuatis longe acjminatis 2-2 } poll longis sem I poll ice m Jatis margine cienulato seiratis Jam pridem a Sautero cum S punctata (b myrsinitoide Pi ) comparata fuit haec form i, de qua sane nescio quibus notis a S glabi i typice differat nisi loins feie concolonbus, \ e subtus haud glaucis, tenuilate et forma S myrsmitiden quidem haud male revocans, ab omni S nigricante luculentei diversa

X S CHLOROPHIANA, amentis pedunculatis erecto-patuis cvhndncis subranflons pedunculo folus 2 4 parvis Instructo, squamis obtusis spathulatis apice fulvo longe viilosis, capsulis conicis acutis glabemmis longe pedicellatis pedicello nectanum 4 b superante, stylo elongato fulvo, sugmatibus mtegnis crassiusculis, folns obovato lanceolatis basi attenuatis apice plus minus acuminatis milexo-serratis utrinque glabernmis subtus palhdionbus reticulato-venulosis pnmio peilucido rufescentibus demum ngidis obscure vindibus — In Silesia ad Peterstein et in Gesenke (Wimmer) S hastata-Silesiaca Wimrn Denkschr. 18<sup>7</sup> p 16J M V Schles ed 3 p 201, Hb bal n 48 Aperte ex S hastata et > bilesiaca hybrida Folia vulgo ut in b bilesiaca obovata, pnmio pellucida et demum obscure vindia, sed etiam ut in S hastata puie vindia subtus subglauescentia argutius serrata, demum ngida Amenta ut in S hastaLa pedunculata, sed folns tantum parvis et paucis suffulta Capsulde pedicello quam in b Silesiaca bievioire sed stylo longiore prasdita?, acutiores, vindulae (v s)

P, *hebecarpa*, capsulis hie illic pubescentibus, folns late o^ahbus subtus puberulis

XX S SCHRENKIANA (Anders bal monogr p 179), amentis foliato pedunculatis erectiusculis subranflons, pedunculo subpollican fo us 2 4 cetens a?quahbus instiucto il achi glahra fusciscente, squamis concolonbusapice situiatius fulvis obtusiusculis paice ciliatis v glabnusculis, cipsulis ovato conicis obtusiuscuhs glabemmis rufescentibus longe pciicellatis, pedicello squamam Sles supprante, stylo palhdion mediocn, stigmatibus integris capitellatis fus-

cionibus, folis obovato-lmgulatis basi attenuatis margine crenulatis utrinque glaberrimis supra saturate viridibus subtus parum pallidioribus venis crebre anastomosantibus impressis venulosis, stipulis nullis. 5 In terra Samoiedorum Asiae arcticae occidentalis III regione sylvatica (Schrenk). *S. hastata* var. inundata Schrenk Siber. Reise d. d. Tundr. e Samoied. 2. p. 522. (*S. hastata-raytilloides*). Fruticulus trunco subterraneo, lamulis gracillimis fusco-piceis. Folia subpollicana supra medium fere semipollicem longa. Amenta masculina palhda, gracilia, fere tenuia, vix pollicana, capsulis anguste comcis rufescentibus, pedicello longissimo stylo perbreui, stigmatibus minimis. *S. myrtilloides* aemulat statura humili, folus obovatis obtusis integris, amentis tenuibus, squamis glaberrimis, capsulis longissime pedicellatis rufescentibus sublineanibus, stylo parvo et stigmatibus integris, *S. hastata* vero : folus venulo-reticulatis (saltem superne) serrulatis, amentis elongatis stramineis, etc. (\. s.)

3° Macrostylae.

Capsulae saepissime sessiles, stylo producto integro vel bifido rostratae.

§ 14. *Pruinosax s. daphnoides*. — Arbores vel frutices admodum elati, ramis tenuibus saepius glauco-irroratis. Gemmae magnae, acutae. Folia lanceolato-elongata, vulgo glabra et subtus glauca. Amenta sessilia, crasse cylindrica, ob squamas longe pilosas aureo vel cinereo-villosa. Capsulas sessiles plerumque glaberrimae (in hybridis subpedicellatae, hirsutae), stylo elongato rostratae. — *Pruinosae* Koch Comment, p. 22; Kern. 1. c. p. 51.

83. *S. DAPHNOIDES* (Vill. Delph. 3. 765), amentis sessilibus minute bracteatis crasse cylindricis densifloris incano vel aureo-pilosis, squamis acutiusculis apicem versus atratis longissime villosis, capsulis ovato-conicis glaberrimis sessilibus, nectario basin capsulae superante, stylo elongato, stigmatibus crassiusculis erecto-patulis integris, folus oblongo-lanceolatis longe acuminatis adultis glaberrimis supra nitentibus subtus plerumque glaucis acute serratis, stipulis semicordatis acutis, gemmis magis comco-rostratis, ramis saepius glauco-irroratis 5 In convallibus subalpinis, in planities cum fluvio descendens per Hah am borealem, Helvetiam, Galliam alpinam austro-occidentalem, in paludosis Germaniae septentrionalis et alpinae mediae, Norvegiae australis, Sueciae merlicae. in Rossia media, per Sibiriam prope Samarkand (ex Bunge) et in regione Amurensi. — Koch Comment. p. 22; Synops. ed. 2. p. 745; Fr. Mant. 1. p. 46; Wimm. Fl. v. Sciles. ed. 3. p. 18V; Sal. europ. p. 4; Kern. Weid. Oest. 110, Hartig Forstl. Cult. p. 416. t. 43 (46); Reichenb. ic. fl. germ. 602. f. 1253; Godr. et Gren. Fl. de Fr. 3. p. 130; Bertol. fl. ital. 10. p. 310; Gaud. fl. heiv. 4. p. 228; Ledeb. fl. ross. 3. p. 602, Bunge Reliqu. Lehm. 1. c. p. 496. *S. bigemmis* Hoffm. Germ. 2. p. 260; Sal. t. 32. *S. praecox* Hoppe in Sturm. D. fl. 7. 25; Willd. sp. pi. 4. p. 670. Spr. Syst. Veg. 1. 97; Forbes salic. Woburn. t. 16; Ser. Ess. p. 55; Maximovicz Fl. Amur. 1. c. p. 212. *S. Pomerinca* Willd. sp. 4; Spr. 1. c. 98, Reichb. ic. p. 1254. *S. cinerea* Sm. Fl. bnt. 3. p. 1063; Engl. bot. t. 1897; Host Sal. p. 8. t. 26. 27; Salic. Woburn t. 129. — *Exsicc.* : Ser. 96. Reichb. 569. Wimm. 28. 37. Coll. Sal. 2-5. Billot 1957. 53. Fr. Hb. norm. 6.54. Kerner Hb. Sal. 38-4\*2. Schultz n. 153. Arbor mediocris vel frutex sappe sat altus, ramis post 2-5 annos rore capsio abstergendo obtectis. Gemmae fere semipollicares, stipulis plerumque stipatae. Folia 1-4 pollices longa, J-1^ poll, lata, basi subrotunda. apice longe acuminata, supra lucide glaberrima, subtus glaucescentia, costa et venis semi rectangularibus flavidis juncursis, demum angustiuscula. Amenta ex apice primum fiorentia, sub anthesi longe pilosa, masculina fere bipollicana lucide aureo-villosa, feminea crasse cylindrica, 1-3-pollicana, apice subincurvata, cinerea, demum in capsulas subcompressas stylo luteo rostratas evidentiores vindula. Formae vulgatiores sunt : 1« *latifolia*, folus bis quaterve longioribus quam latis oblongo-lanceolatis abrupte acuminatis,

stipulis semiconlatis (S cinerea \\ illri. et Lk ) Hæc est • *discolor* (folns sub-  
tulis glaucis, ngidionibus), vel *concolor* (folns subt-is pallidius vindibus, tenuio-  
ribus), vel *hirsula* (folns etnm aduLlis incano velutinis), nonne quadammodo  
aS viimnali piognita "i l'iupe Petmpolin mdigaut amiciss. Knermcke —  
I"\* *afiqustifolia*, loins quadriuplo (juinluplo Imigiuiibu? quam latis obverse  
lanuolitis supia medium lationibus et abiuptp in acumen tenue productis,  
aut exaote ut angusto lanceulais, apqualiti i atte nuato cuspidatis (S Pome-  
ranica, S pia»co\ ) Hrc est *discolor* (fol subtus glauus, ngidis), vel *con-*  
*color* (fol iublus pa lidc vuidibub, iLnuionibus) I tidque vanat prantera  
ramis capsio-moratis vel lusco piceia d< nudalis immo viellinis, lmentis ci-  
nereo vel aureo pilosis — Specimma indiLd, quide Jacquemont in surama  
valle Jumath et ad Han h.itta logit, ut et Hook et Thomson ad Simla, re-  
codunt amc ntis magis exuirvatis, slylis multo longionibus, folns mdgrns sub-  
undulaLo crenatis I ornam suf»ucam quam ill. Wimmei sub nomine « S.  
pulchia » Sal tuio p ]> 7. dostnpsit a vnia S daphnoide nullo modo distin-  
guere valeo. S. daphnoidem cum h acutifolia apeitc\* conjungit. (v. s )

p; *acutiloha* (S a< utilolia Willd sp pi 4 p. GG8), amontis omnium præ  
cocissimis vix bracteatis ciasse cylindncis, cajsulis subsessilibus, stig-  
matibus oreclis, loins dnguste lancoolatis longissime et subobhquo  
aiurnin ill\*-, stipulis lancpohio acummatis In Russia 01 lcnLali asntica et  
europa et in 1 uropa br)n ill (re semper culti") — Koch Comment.  
p 21, synops cdl 2. p 74 J, FF. MMT 11 p. 44, Hook, et Arn bnt. II.  
CM 7 p J0", Ledob 11 ro^s J p fa0, Hartig Forstl. Cult p 41(>, Bunge  
Heliq. I ohm 1. c p 49fi, Reichb p U'fi, Sal Wobuin t 2^ S.  
Moluea Andieus, in Reos c>rl n. jj, Sal Wob t 49 s prumosa  
Wondl Reichb. iLxcurs 1046, Wunm Fl. v Schles ed 3. p 183; Sal.  
euio p ). S caspiLa Hortor S. daphnoidns p angustifolia Weinm. pi.  
pdiop. p %, Doll II bad ed 2. p 492?—*Exucc* Fi H N 8 58.  
Winim n 8> (oil Sal n 1 Kern Hb Sal n 42 A S daphnoide vix  
/olls ullis certis disiinguenda, ejiis(juc lorma m.igis oncnlalis forsan sus-  
picmda quiddtinimodo ut S. rosmannilolia ad S. repentem ( itius lamen  
cultu Lirsrit, jadiccs longissinus profert (t ramos habet multo tonuiore  
snbfondulos \d curvatos subummeos sipissimo intrnsms glaucos  
(crnman mgustoiios et longioies tolia sajpius subtus latins vindula,  
sompcer multo angustioia et longius atUnuato-acuminaU. Amenta hie  
viora magisque \* ur\ ita, capsule etiam longiores et angustiores. Præ-  
couus floret, torram aiemmm libontios amans (v v.)

84. S. *INSONIB* (Anders, Journ. Linn. Sot 4. 13 p 47), amentis sessihbus e  
gerarnis magms crumpentibus basi nudis, misculis crassis squamis atns fla-  
vescunt pilosis, fr nnnus lixo cuctis elongalo cylindntis acutmsLulis squa-  
mis atns obtusis glibnusculis, cay)shs bievitei ppdicellatis conicis tenuiter  
j)ul)cmlis, stylo pivo. sii^inalibus n tegns ci.issnisculis erectis, folns lan-  
roolatis jilus minus s( ruitis glibns |o| seiitcis ngidis subtus glaucis iontibus,  
slipulis semiLordatis acutis pcisihtentibus 5 In Asia meidiomh . Kaschnr,  
reg temp, alt (> 8000ped (Ihoinsoi). Aibor v frutex sat altus, lami valuh,  
fusco gliuc( scentes Opmmiae atutce, castanea), magnap Folia 2 3 poll longa,  
1 poll lata, ulrniue aqualitor attenuita, gl.induloso-seirata, supia vindia,  
costi ver isqm dilulius linalis Shpiilac s'nppe loupe cuspidat<c Amentt  
niisLiila 1 pull long i, ovato-oblonga, pilis squ imaium longis pulchre aurea  
Amenta feminea Jjiacteis piucis suffulta arutiusscula, 2 pollitana, ob sauianas  
aUinnnset glabiusLiili- fusca, capsulac angustp toniCE, lostratae, denuim  
glabre^Lentes, lulvo wiidulse, pedicello nertanum superante, stylo pium  
pioducto sed conspicuo — Vajiat Hirsuta, loins anguste lanceolatis, Spoil.  
l'fi, is, niedio vix \ poll, latis, uhinque sed subtus densms unereo-villosis  
subiitcantibiis, mugijic obsololms sinuato-seiruJatis, lamulissunnuis giiseo-  
tQirKntosis — Ex Inbitu iKLL species proximo a( S daphnoidem accedit,  
diflpil autem 4menUs fcmicis lonj,Hsimis et laxis squamis atns nudis, cap-  
sulis jniberuhs distiriLlius poduellatis vi stylo brevi quibus ad typum s cap-  
præ vprgit<sup>1</sup> Ob aiidlogiam otiam ad hanc letuli formam hirsutam, quum  
cpgnitum sit etiam s daplinoideis existPie iiodifiCatio item mollis. (v. s )

85. S. *IRRORATA* (Anders Oivers. Wet Akad. Foih. 1858. p. 117), amentis con-

fertis sessibus peruis maximis piceo glaucis pinnis bracteatis, nervis subrotundis aureo-villosis, femineis erectis vel patulis elongatis densifloris cylindricis, squamis apice fuscis obtusis basi et medio pilis unereis longis villosis, c. ipsulis conicis glaberrimis vinctulis obsolete pedicellatis, pedicello nectarium in superio-  
 re, stylo medio, stigmatibus brevissimis (s. v. bifidis, lacinis lanceolatis utrinque glaberrimis vinctulis minute serratis, ramis glaucis irroratis) In Mexico novo (Fendler n. 8W) Aboi sat data, laminae validis glaberrimis fusco piceis passim intense laucis dimmae maximae rotundatae. Folia lanceolata linguata, pollicem longa supra medium j. poll. lata, pediculus brevis fl. IVUS Amenta in ramis valde conlita, mascula ob pilos squamarum aureo villosa, feminae || poll. longa, pinnis ob squamas magis sententia, distichum ob capsulas evidentiores vinctula, capsula lineam longis, stylo et stigmatibus latis Maximam cum S. daphnoide habet affinitatem, sed distinguitur amentis condensatis, gemmis rotundatis, squamis obtusis, capsulis mihi 11bus distincte pedicellatis, stylo breviori apiculatis, et folio tenuiori (v. s.)

X S. IRDINGERI (J. Kerner Verh. d. zool. bot. Gesellsch. in Wien 1861, p. 243), amentis femineis sessibus bracteatis paucis vel nullis suffultis cylindricis densifloris, squamis obtusis acutiusculis basi inermibus ipse versus atratis longissime villosis, capsulis vinctibus pilis senceis adpressis spais obsitis pedicellatis, pedicello nectarium ajquante vel subsupante, stylo tenui medio stigmatibus integris erectis conniventibus, folio obovato lanceolato ibiuple acuminatis serratis pinnis sulcato-natis subtus rugulosis venosis (lemum glaberrimis) — In Austria inferior ad Wien et Krems S. super d. ipinoides-ciprea A. Kerner Hb. Salic. n. 40 47 48 S. caprea daphnoides W. num. Sil. ruiop. p. 203. It. sine ullo dubio inters. daphnoidem et S. capream oninino intermedia, ut ab us. hyuda dicitur. A. pion. h. b. d. lamos. subciliatos tenaciores, folia tenuia elongata distichis, proisus vinctis, subtus demum glaberrima (t. supra luteo vincta, nonnulla etiam subtus glaucescentia, in inferioribus acute serrata, petiolo basi dilatato geminis magis vinctis. Inplectente amentis fenestris cylindricis longe senceis, capsulis vinctulis distinctis, passim glabrescentibus, stylo elongato AS. caprea habet folia breviora supra muhum disticha, veins supra immersis subtus elevatis nigulosis junioide tomentoso-inidicis, margine undulato-uncinata, capsulas evidenter quadruplo breviter pedicellatas, lacinis p. iucis apicem versus tenuiter et adpressis pilosis — s. Koenickei, huic vinctis distinctis, capsulis habet densissimam sublanatam longius pedicellatam et folia nigra glaberrima (t. a. a. S. daphnoides et S. phyllicolia (Linn.) foemina hybrida — S. Hungarica A. Kern (Oest. bot. Zeitsch. 1864, p. 9) a. b. Fidingen diffinitivum (specimina nulla vidi) gemmibus glaberrimis longius pedicellatis et folio lacinibus ellipticis, adultis glaberrimis, quibus Uaque magis ad S. capream appropinquatur (v. s.)

XX S. KCIUNICMI. amentis sessibus elongato-cylindricis subincurvatis densis et longe senceis bracteatis p. iucis basi suffultis, squamis basi rulescentibus apice acutiusculo nigricantibus lacinibus pilosis, capsulis conicis argenteo senceis pedicellatis pedicello nectarium quadruplo superante, stylo medio, stigmatibus integris patulis, folio lanceolato-oblongo utrinque glaberrimis subtus sat intense glaucis elevatis vinctis supra nitentibus vinctibus cretinosis, stipulis geminis magnis brevibus subsistentibus — J. Ad. Petiophora (Kernicke) Irulx. sit. ramis subviminalibus, castaneis, nitentibus lacinibus 2-3 poll. longa 1 2 poll. lata Amenta masculina vix pollicana aureo pilosa, feminea 1) pollicana c. merea — Difficile sane est dictum, cuim. naximie sit affinis Habitu et characteribus mtor S. phyllicoliam (burin.) et d. hnoiodom. e. act. (medn. Pion. est similis folio demum nitentibus, subtus glaucis, supra nitentibus vinctibus vinctis lacinibus, bicinctis vinctis, margine saepe undulato crenato serratis, amentis geminis vinctis, capsulis sat longe pedicellatis et albo senceis mollibus A. S. daphnoide habet consistens et saepe etiam figuram et glaberrimam fohorum stipulas sat magnas et acutas, gemmas magnas incurvato apiculatis amenta om. uno sessiha, mascula aurea, feminea densiflora, stylum elongatum et stigmata patula Integra Sed differt: capsulis longe pedicellatis, senceis Praeterea S. Eidingen haud absimilis,\*

quae tameo folia habet breviora, ruguloso-venulosa, juniora mollia, amenta angustius cylindrica, capsulas subsessiles, pilis raris seriatim apicem versus et stylo brevion rostratas (v s)

a, *angusti folia*, folns lan ceo I at is basi apiceque longe attenuatis, stipulis semilunatis apice recurvatis. Haec mteidum hirsuta, folns sat dense pilosis incurvis.

P, *latifolia*, folns ovato-ovahbus nitentibus, stipulis sat magnis vel nulhs — Haec interdunj cnsptad, folns profunde serratis.

86. S COULTFRI (Anders Ofvers Wet Ak Forh. 1858, p 119), amentis omnino sessihbus bracteis 2-3 cito deciduis suffultis erectis cylindricis densiflons, masc. aureis squamis fulvispihs flavidislongissimis dense villosis, capsulis ., folns oblongo-hneanbus latiusculis supra obscure vmdibus costa et nervis impressis albidis ceterum glabns obscure vmdibus subtus vellere densissimo lucido aiRenteo tomentosissint\* >giis maigmatis, stipulis nulhs \$ In California <Dr Coulter). Arbuscula ramis sat crassis angulatis tomento denso griseo-fulvescente obductis, stnctis Gemmae magnae, rotundato-ovatae, obtusiusculae, gnseo tomentosae tolia 3 poll, longa, pollicem lata, basi et apice breviter seâ aequuliter attenuata, supra obscure viiidia, subtus argenteo sericea, mollia, subangulosd, demum ngida, petiolus brevis Amenta mascula e gemmis magnis erumpentia, omnino cylindrica, ob squamaium pilos longos et densissimos nee non stamina subproducta pulchre duioo-nitentia Species valde distincta sed dubiae affinitatis S discolorum cum S lanata (mediantibus S. Hookenana et S. spec osa) in senem naturalem quodammodo connectit (v s)

87 S LASIOLEPIS (Benlh. pi. Hartweg p. 335 et hcrbar), amentis sessihbus nudis conferlis erectis hirsutissimis, squamis subiotundis tomenlo densissimo et brevi obtectis capsulas fere occultantibus, filamentis basi mhma connatis, capsuhs acutis gldbenimis wndul s basi pedicellatis, pedicello nectanum bis superante, stylo mediocn, stigmatibus crassis bievibus erectis integris, folns lanceolatis e basi angustata sensim lationibus acutis supia glabernmis subtus ferrugineo glaucis mdrgrme subserratis 5 In California, ad rinam fluv Salinas et Carmel prope Monterey (Hartweg n 1%5 (167) in Hb Benth et Hook) — Anders Sal bmeal Amer. 1 c. p 118 Pulcherrnaa species, inter Salices pruinosas et Capreas quodammodo dmbigua. Arbor dicitui 20-35-pedahs, rami crassiusculi, atn, novelh apice pdrce tomentosi Gemmae parvae, petiolo tnplo quadruplo e breviores, atrae. Folia 3-4 poll lungd, supra medium saepms semiuncia latiora, supra nitida et obscure vindia, subtus glauca, integumento ferrugineo evanido saltern secus nervos demum leluto colorata Amenta omnino sessilia, perulis magnis Initio griseo hirtis, cylindracea, densiflora, ddscententia, subflexuosa, in ramnhs arete condonsatd lere opposita, vel immo quasi subvertiullata, squamap atrae apice rotunddtae basi anguslatae, pilis palhde stramineis senceis (in g)y vel cinereo albidis (in 9) densissime obsitis Stam. aurea squamas tnplo superantia, filamentis basi plus minus connexis, anthens mmutis Capsulae squamis supra medium obtectae, vindulae, anguste conicae, pedicello et stylo ttavescentibus, stigmatibus fuscionbus (v. s)

S !5. *Micantesseu Viminalis*. —Arboresvel frutices alti, regiones campestres temperatas vel inendionales mhabitantes, ramis vimineis flexihbus. Folia elongato-lanceolata, saepms subtus argenteo-sencea et micantia, margine saepe revoluta Integra vel denticulata, costa fldvida subtus elevata. Amenta elongato-cylindrica, densiflora, staminibus aureis, capsulis conico-rostratis, saepissime tomentosis, stylo rostratis, valvis dehiscentia excurvatis. — *Vvminales* Koch Comment, p. 27; Fr. Mant. 1. p. bO (non alns); **Kern. 1. c. p. 48.**

88. S. VIBINALIS (Linn. sp. pi p 1448), amentis se^ilibus bracteis ux ulis suffultis elongaiis cylindricis erecto-patuhs densiflons, lemneis demum

subflexuosis squamis obovatis vel oblongis acalisculis fusco-fulvis apice obscurioribus doiso pihs stylo brevioribus villosis, capsulis ex ovata basi conico-rostratis tomentosissimis sessilibus nectino hnean ovani basin superante, stylo elongato cum stigmatibus filiformibus indivisis vel fuscis excurvatis fulvis, foliis lanceolato-linearibus longe acumato-attenuatis supra obscure vinctis impresso nervosis subtus argenteo-raicantibus costa prominente fulvescente margine subrevoluto integerrimo repandis stipulis lanceolato-linearibus petiolo brevioribus mox caducis 5 In omni Sibina a Kamtschatka, regione Amurensi et Alanensi etc., in desertis Songanae, etc., per Rossiam omnem, arctica excepta, usque in Europam totam late dispersa. Litem in America colitur — Willd sp pi 4 p 706, Koch Comment p 29, Fr Mant 1 p 61, Wahlenb fl suec n 1128 Lange Dansk Fl ed 2 p 657, Koch Synops ed 2 p 746, Wimm fl v Schles ed J p 192, Sal europ p 36, Hartig Forstl Cult p 398 Kerner Weid Oestr p 21L, Doll Hb bad p 494, Ser Ess p 3->, Gaud helv 6 p 260, DC fl fr 3 p 297, Gren et Godr fl fr 3 p 131, Sm bnt 3 p 1070 Hook et Arn fl bnt ed 7 p 402 Loud arbor 1549, Lange et Willk fl hisp p 228, Sm fl graec 2 p 253, Gussone Spic rum p 344, Ledeb fl alt 4 p 265, fl ross 3 p 605 Trautv in Mem de la Soc des Nat de Mosc 8 p 373, Bunge in Mém pres d l Acad de St-Petersb 7 p 49% Maximow Fl Amur 1 c p 242 Asa Gray Man. ed 2 p 4h S longifolia Lam fl fr 2 p 232 S virescens Vill Dauph. 3 p 780 — *hones* Hortm Sal t 2 f 1 2 t 5 f 2 e f, Sv Bot 211, Fl D 2485 Reichb icon 1248, E B t 1898, Host Sal t 54-55, Hartiq 1 c t. 36, Sal Wob t 13-1. — *Exsicc* Ehrh arbor n 6^, Ser 25 43 74, Fuchs n I 64, Billot n 1958, Kerner Lxsicc n 70, Wimm Hb Sal 126 127, Coll n 101-103, Leefe Sal bnt n 23 24 Arbor medioculus sed aepissime frutex sat altus, cultura et amputatione ramis strictis virgatis cito crescentibus tenacissimis et foliatis pulcherrime in usum hominum frequenter usitata. Folia elongata pulcherrime argenteo-micantia ob tomentum tenuis saepe evanidum adpressum in patina mlenon hnean-lanceolata, saepe 6-8 pollices elongata integerrima-acuminata, marline subundulata. Amenta mascula aureo-flavida mitio longe villosa, oblonga pollicana, staminibus palide flavis, feminea longioribus demum flexuosis, squamis minus villosis, capsulis hnean longioribus bisinatis. Frequentissime culta non parum ludit. Frutex nunc subtorulosus abbreviatus (silvestris) vel longissimis et virgatis, vel arbor tunc modice (rasso, foliis linearibus vel angustioribus, basi rotundato-lanceolatis vel angustatis, supra apice pubescentibus vel nitide glaberrimis subtus intense argenteis vel obsolete tomentosissimis, «tipulis in ramis vegetio-fibus angustis vel saepius plane nullis, amentis femineis elongato-cylindricis vel linearibus abbreviatis (vel abbreviata Doll fl bad p 49i) stylo integro vel rarisime fissis, stigmatibus indivisis vel partitis lacinis rectis vel flexuosis-divicantibus — Fx Asiae borealis regionibus mediis loisan pmititur in Occidentem avecta, ibi maxime ludit. Huic terrarum partibus peculiare videntur modificationes sequentes ad benthianam quodammodo acutentes et ad earn saepe etiam relatae

P, *splendens* (S *splendens* Turcz pi exsicc 1829), foliis utrinque fere aequaliter senceis sed subtus pulcherrime argenteo micantibus planiusculis integerrimis, amentis elongatis incurvatis, squamis subconcoloribus, capsulis attenuato-rostratis — S *minahs* 5 Turcz fl baic davur in Bull de la Soc de Mosc 1854 p 380 — Vanat 1° *longanica* ramis testaceis tomento levissimo radice albatis, foliis elongatis rigidis supra cinereis vel pilis rarisissimis appressis subglabrescentibus subtus omnium maxime argenteis e basi vulgo latioribus longissime acutatis (unc latifolia (foliis 1 j poll latis) nunc angustifolia (lois i poll latis, saepius exstipulatis), quam in Songana ad n. p. fl Hu et Ajagay, leg Schrenk (Hb Petrop) Forma latifolia quoad folia habitum S *Smithianae* omnino referens capsulis attenuatis omnino sessilibus ab ea differt ES stipulan recedente colore foliorum intensissime argenteo. Formi valde singulari, cujus tantum specimend examinavi — 2° *breifoka*, ramis vulgo glaberrimis testaceo-vinctibus, foliis planis supra opacis saepe senceis subtus intense argenteis, costa et venis obsolete basi angustatis apice vulgo non longe attenuatis, squamis capsularum ferrugineis. In Sibina « inter Zylman et



Kolwam (Schienk Reise d. d. lundren Samojodens, n 2521), prope Irkutsk, et Wedenskaja, ad Solengam, Werekenshinsk et ad nulum Kaja (Hb Peti) Coloru ioliiim opce uncio et folus brevionbus 6ubobtusis singulaus Icoima e terns Samojedorum S Smithiande subsimilis, sed lolu mdigine rvoluta et subtus intense et adresse argontea.

Y, *Gmelini* (S Gmehm Pall fl ross. 2. p 153), amentis scssihbus brevibus diigustis densiflons subbracteoatis, squimis rufo-iuhis apice Idlion lotundalo-Luucito suhfuscioibus barbdllis, cipsulis bre/e et crasse ovatis obtusiuscuhs dense dlbo-tomtntosis sessilibus nectdiio basin capsulae superante, stylo valde producto, stigmatibus int gns aut bifidis, folus anguste oblongis acutis bdsin \eius altmuatis Integrumis supra incanis subtus aigenteo-senceis aut utnnque senceo-albis slipuhs pdrvis mox deuduis — Ledeb fl ross. 3 p 606 (synonyma alldia \alde mcerta!). Specimma doscnpU ad Petropohn legit Sanson (Hb Lenormandi) \*— Varidt I' *vestita*, loins saltom jumoribus utnnque dense et molhter albo-ullosis subtus digenteo-luiatis obtusiuscuhs, ampntis insigniterfulvescentibus. In Altai et dd Wolgam Hum. S Gmelini Geoigi Beschri d Russ. Reich 3 5. p H, 37 — 2° *lufescens* (line/ exsic) amentis angustis, tapsubs squanids \ix excedenibus subovdlibus, stylo subito apiculatis folus angustus supra medium sapp sublaiionbus suprdemereis demum glabres( entibus. In AUu, Irkut/k, SeUngd, Angara Cum subvar supra alldta biLviioli i ceitissime \dlde con^iuit, sed foima amentorum et capsulidum feie dliena Habitu a \eia S. viroinah non paium recedens et ad S. acunnatara accedens, forma sine dubio luxunans, at cujusdam^ iniln saltern incertum. An buo peitinent S. serotind Pdll fl. ross 1. p 18i milu non liquet (quae ioisdn found dccidenlalis am on Us serotinis folus suffultis) Piaaieied sub nomine S Gmelini in herbarus \anas lornds vidi, etiam modificationem S. Lapponum.

X S STIPULARIS (Smith bnt. 1069), amentis sessilibus sat longis crassis et villosis bisi biacteis paucis suffultis, squamis fulvis aculis apice obscuronibus pills stigmata subaetuantibus MIOSIS, uipsulis ovato-comcis brevissime pedicclatis, nectano ovtini bisin snepius superante, stylo elongato, fildmentis indivisis fulvis, loins elongato-ldnceolatis basi srpius attcnuitis longe acuminatis integns et repandu unduhtis subtus tomento submtido AIX adpresso fibtectis, stipulis lanceolatis acuminatis peliolum sjpe aequantibus In Uuiopa media passim, ex Anglia, in Germanid boreali (Silesid, msula Nordernay) intioductd in bortis hdud idro culla alias (ut in Austin, Li\onn et Dania) dut inquilina fdctd aut cum affmibus commulata — WilM Sp pi 4. p 708, Koch Coin in p 29, Synops cd 2 p 74o, Hdrtig Foistl Cult p 398, Wimm Sal.euiop p 18A, Hook et Arn bnt. (1 od 7 p 402, Hook fl scot, p 286, L^ud aibor J 1^r>0, I »ngo Dinsk fl ed 2 p 6)8, Lcdeb fl. loss. 3. p 605 S longilolia ° Host tab 63 S Hostn KCMIII Weid (Estr 1 c. p 217. (S suptrviminalis cinerea Fxsicc. n 71-72 Wimmei dd S Smithi-iidm relati<sup>1</sup>) S vuninalis stipuLins Fr Mant. 1 p. 61 S viminalis caprea 1. stipulans Wimm Flora 1849 p 42. S viminalis ddsyclddos Wimra. Denkschi 1833 p 65 — *Iconn j*: B. t 1214, Reichb. 1249, Fl D 2668; Sal Wob t 132, 130 (S mdcrossiipulacea). A vcras viminalis vix tute distmguilui nisi procentate pdrtium, pueseitim foliorum et stijuljrum, quE praicipue in rami^ vrgetis conspicuis sed in alns non rdio defiuuntur. Folia ofidm subtus minus argontro-micdnlid, sul magis ojaco et minus adresse sencea, quaie hjbnda a S cinciad a quibusdam hdbetur Rami ssepiissimo dense inLano-toiiientosi ita ut foimas dngustifohas S dasyclados nun nale referant Quomodo vcre sit iudicanda ad S Smithianam ceite pracbet tidiisum (v. s)

p, *vestita*, folus usque ad 6-8 pollues longis subtus \ollere dpnsissimo lutescente-m(dno vestihs, nmis ciassis dense tomentosus, stipulis mdgnis acutissimis — Hdb ad Petr6polm Quas sub hoc nomine ex vdrns partibus Sibinae (ut baikalensis, altdicae et ex Ddvurid, Fl TOSS) in herbarus asservitds videre hcuit ad formns sequentes saepissime pertinent, et ad S Smithidnam adhuc evidentius transeunt.

XX S SMITHIANA (Willd Enum Horti Berol 2 p 1008) amentis sessilibus basi bracteis paucis vel fere nullis fuffultis densiflons pilosis, squamis apice siltem nigiescentibus pilis albidis aucdnibus vel cinereis longe villqsis capulis ovato coincis albedo tomenlosis pedicelltdtis pedicello nectaum et'ssepe etnm squamam xqudnibus stylo flavulo el jn^ato losliddtis, stigmatibus brunneis intcigiis ^el bi| artitis eiectis ^el di\ mtdllis linmo contortis, folns oblongo ldiiceolatis acumuidto cuspidatis m irf,im plus minus unduldto ciendtis supra obscure vmdibus venis mipiessis subtus tomento bul sericeo aigenteis vel denudato-obacuns venis mollius tomentosus stipulis reniformi semicordatis — Proles a S viminali ei Capieis Vdins sine ullo dubio hybuda Ideoque eximie polymorphd per omnem Euiopam mediam sat vulgo culla, lbiquo juunc quasi indigena facta adhuc magis ludens toimas fere innumcias avārnas auctonibus vann n terpretdtds varnsque denommationibus appellatas nuper nme cxunia sagicitdte in Sal europ a Wimmero quasi monographice tractatis, sed me iudice ut diversas immerito propositas, sequenti modo disponere studui do synonymis ad unamquamque juste pertinentibus haud parum dubius, quia specimma potius quam formas descrpserunt auctores

a, *sencans* (S *sencans* Tausch pi select ex Kern Weid Oestr p 216 et Hb Sal n 73 ), amentis dongato cylindncis demurn subpendulis, squamis o\ah sublanceolatis basi lulvescentibus longe pilosis cipsuhs conicis molhter scnceis pedicellatis, pedicello nectanum a3quante vel immo bfe supeiantc, si\lo stigmita strj IUS bihda rquante, loins subtus tomento ar<sup>to</sup>enteo sencco micantibus costa luhescnte in irgine subinhgns supra gjabriusculis obscure vuidibus lanceolaiis infra basi saepius lationbus, ramis umineis vulgo ghbns — In Turopa potissimum racdi i usque dd buecnm borealem (semper cultui i quisi indigena factd ut vi lelor). Speumina pullā ceita e Kossid dsntica vidi S Smithiana Koch Reg bot Zut 18JO p 276 Sjnops ed 2 p 746, Hook et Am taj fl ed 7. p 402, Ilirtm skand fl ed ^ p 177, Iedeb. fl ross 3 p 606, Hartig J< rstl Cultui pi p 398 S Smitbiana a nitens Godr et Gren. fl fr 3 131, Loud drbor 3 1550 S m Hissima Sm bnt p 1070 L B 1 1509 S lanceolata tr Nov ed 2 „ 283, Mdnt 1 p. 61, Sum ma p 06 \* affinis p cdpn formis Gien et Godr 1 c p 133 S longi folia Host Sdlic t 62 (p p) S ciprea Mminahs Wimm Sal europ p 178 b vimindh<-capiea Wimm Fl v Schles 1845 Ndcstr Regensb Fl 1840 n 3 Denkschr 1853 162 —hones Reichb f 1251 (2'), Sdl •Wob 134, Hartig n 40, Fl Dan i ^ P — hxnee Wimm n 12, '4, 118 119 141 Coll 11 1G0 161 16>168 1 eet n 25.26 28 lr H N 1 Fl 63 In formam aibusculde majons vel s iltem eximie diffu^ae vel aions minons /ulgo excrescit ramis (excisi\*;) \imme1s tenacibus testaceo-\nd1bus excellens I olia e basi subrotundi sensim lanccolato ittenuala, recte dpiculxtd, 3 1 pollices longd, sa,[ t '-4 poll Idta forma et mdu mento non paium \diid, nunc subtus densissime ugenUo micuiua, nunc ommo denudita supra obsruie vmdia ^ed t,l<sup>d,fa</sup> G^ ^ublucida venis obsolete impressis, stipulae utplunnum mediocres, scmiovatae Am nta crassiuscufa, mHsculi ovali oblongi 1 2 polhcana ITta aurea, feminca cyhn Jnca, i -\ poll crassa, capsulx fere 2 hn longae, \11dl-lutescentes Quoad lolia vanat prapteira 1» *lattfoha* folns 4 6 pollicari bus infri medium | l£ poll latis supia ob^cuie vindilus (S *sencans* Tauscli) Haec est vel *icstita*, folns ngidiusculis subtus velleie fldvescenLi albo densissimo obtectis c basi ovata longissime dteriuato dcuminatis (formam luxuiidntem amentis 3-polhcailibus passim observavi), \el *moths*, loins mollionbus subtus toiuento u^enteo qudsi SLUCCIS basi non late ovatis inde dttenualo linccolatis (foimi tere typica \ulgatior culta S Smilhiana) ipsissima!), \il *glabiata* folus demum subglabus niUntibus — 2° *anyustifoha* (Wimm ), iolns bisi attenuate dpice louse lecurain His supi 1 demum gl ibi itis \l unusculis, matginc obsolete lepandōseintis OccuintetiamvLstiu mollis et glabrati — i\* *tubobscura* Mns sublus minus luoide tomentosus sed opacis 1(re biunnescentilus 'nervis ideo dcutius piominentibus stnatis ei marline cvidentius crenatis S vinamalis cinereaWimm Hb Sal n 23 24 (oil n 170 175 S emerea-

viminalis Wimm Sal eur p 141 (ex citat sed cum S holosencea sequente conjuncta) Leefe n 27 29 30 32.33 Est nunc *major*, folns 2-4 pollicibus sat anguste lanceolatis fere apquahter attenuatis, nunc *minor*, folns 1 3 pollicibus vulgo supra medium lationbus subtus saepissime vindiuculo-denudatis (Quasi e S viminali et aunta procreata ideoque = S aunta-viminalis "Wimm Regensb Fl 1848, p 319 1849 p 42, Denkschr 185 p 163, Sal europ p 183 p p Hb Sal n 11 12 (135) — 4° *serotina* amentis breve sed distincte pedunculatis, pedunculo foliis parvis mstructo Hanc formam sine dubio accidentalem m Bdhusia et prope Holraiam Suecide legi.

P, *velutma* (S *velutma* Schrad ex Koch et spenm ong), amentis sessilibus demum subrdnflons, squamis acutmsculis nigns cineieo pilosis, capsulis cinereo tomentosis pedicellatis, pedicello nectanum bis (terve) superante, stylo brovi, stigmatibus emargmatis, foliis lanceolatis acuminato-cuspidatis argute seirulatis subtus mcano tomentosis arcuato nervosis, stipulis spmi ovatis ramis plprumque breviter cinereo tomentosis — In Anglia, Germania, Suecia et Rossii, sed ubique ranssime et smgultatim crescens S holosencea Willd Berl Baumz 458 (vix Sp pi 4 208), Koch Comment p. 34, Synops ed 2 p 748, Fr Summa, p 56, Hook et Am bnt fl ed 7 p 403 Loud arbor 3 Io51 S cinerea-viminalis Wimm p p S lancilolia Doll fl bad p 112 S Michehana Forb Sal Wob t 125, Loud arbor I 1552 — *I cones* Rpichb icon. 1226 Hartig Forstl Cult p 400 t 112 (37<sup>b</sup>) Leefe n J4 Ex omnibus hanc potissimum a S cinerea et vimnali procrpatam conjicerem Apnore habet ramos cinereo-tomentosos diviso dnancatos crassiusculos, folia breviora supra medium latiora, supra ol scurius vindia impresso nervosa, subtus opace mcano tomentosa, margine aut sat argute crenulata aut fere mtegerma, amenta demum breviora et crassioia, mascula teretiuscula, a S vimin.ili formam foliorum, ramulos subvimineos et capsulas — Vaidt *ferruginca* (S *ferruginea* Forb hort. wob t 128, Anders, amid Sra I B t 2665) amentis brevibus, capsulae um stylo et stigma tidus brevibus, loins anguste lanceolatis saepe supra medium lationbus utnqiu demum fere omnmo denudatis et obscure fenugmeis, ramulis dilancitis glabnusc lis tenuibus — Leefe n i6 Loud arbor 3 1552. S viminah-cineiea Wiram Exsicc n 87 Passim in Germania et Angha obvia Hanc lorsjtan a S viminali et dunta hybndim haberes A priori habet folia angusta elongata tomento parcissimosubmirantia et amenta, a postenoie amenta breviora, capsulas longius pedicellatas, stylum breviorom, ramos gracilps baepius glabros Hanc itaque esset S fruticosa Doll Fl v Bad p olo, at dilficilhme a S sencante subobscura minoie distmgueoda

Y, *acuminata* (S *acuminata* Sm bnt 3 p 1068) amentis crassis curvatis 1} 2-pollicibus ob squamas nigras acutas et longe villosas pilosis, capsulis sublanatis vel stngoso tomentosis pedicellatis, pedicello nectanum bis supermle, stylo producto fulvo, stigmatibus filioimibus divancatis, folns usque ad 4 6 pollices longis snpra medium conspicue lationbus supra opacissime pulierulis obscuie vindibus planis subtus molhther pt tenuiter senctis, demum nudiu^culis pallidionbus margine subrepando crenatis, stipulis reniformibus acutis — In 1 uropa media passim Specimina (semper cultd?) vidi ex Anglia, Geimania, Galha (prope Nantes, a Dr Jordan communicata) et Rossia media (ad Petropohn) Loud arbor 3 1551, Doll fl bad p 513, Ledeb fl ross 3 p 606, Sal Wob t 131, Leefe n M S caprea-dasyclados Wimm Denkschr 185\* p 15^ s Calodendron Wimm Sil europ p 187 Hujus formae sine dubio maxime evoluta modificatio patentiss me hybnda Lharactnbus inter S capieam et viminalem optime media, ramis vihdis (saepis simc) densissime incanis nigrescenti tomentosis, magnitudine foliorum etamentorum insignis et peculiaris. — Huic sine duM affirus si non cum ea identica S. dasyclados Wimm Regensb Fl 1849 n 3, Fl v Schlps 1857 p 191, foliis ex ovato rotundata basi elongato-lanceolatis usque dd 6 pollices longis et ultia, subtug primo tomento satconspicuo

cinereo-micantibus, demum obovato-lanceolatis plus minus denudatis, stipulis mediocribus, amentis ut etiam ramis densissime fusco-villosis. Wimm. Hb. Sal. n. 7. *S. acuminata* Lange Dansk. Fl. ed. 2. p. 658; Hartig Forstl. Cult. p. 398? Fr. Summa p. 56- H. n. 2. 59. *S. longifolia* Host p. p.; Wimm. Sal. europ. p. 42. (sed quæ sub hoc nomine ex Tilsit mihi benigne misit Dr. Heldenreich specimina ad *S. rubram* exacte pertinent). E Silesia et Dania specimina vidi. Formæ notandæ sunt : 1° *glabrescens* : foliis 3-4-pollices longis, medio latoribus, demum utrinque glabratis, adultis subtus sublividis, margine profundius crenatis, ramis adultioribus æabriusculis. *S. acuminata* Patze, Elk. et Mey. fl. v. Preuss. p. 135. E Koenigsberg communicavit cl. Patze. — 2° *virescens* : foliis lanceolatis longe acuminatis, grosse crenatis, utrinque demum lucide glabratis. Specimina e Silesia dedit Wimmer. Etiam e Pctropoli in herb. Ledeb. vidi. — 3° *cinerascens* : foliis 2-3 poll, longis, supra medium latoribus, utrinque cinereo-sericeis, demum supra glabris, margine subintegris, ramulis glabris. Hue etiam pertinet *S. cinerea*, quam prope Ajagus legeruat et sub n. 1963 divulgaverunt Karelin et Kiriloff.

89. *S. OBSCURA*, amentis sessilibus tenuibus patentibus bracteis nullis suffullis, squamis acutis atris apice pilosis, capsulis ovato-conicis sessilibus parvis tenuiter puberulis, stylo mediocri, stigmatibus brevissimis integris erectis, ibiliis anguste lanceolatis planis vel initio marginibus subrevolutis integris vel remote denticulatis supra obscure viridibus costa cinerascens subtus opace glaucis vel rufescentibus aut tenuissime puberulis aut glabris, stipulis nullis. § In India orientali, ad Sikkim, reg. temp., alt. 9-14,500 ped. (Dr. J. b. Hooker). — Fructus ditFusus, ramis obsolete cinereis glabris, annotinis tomentosus. Folia 2-3 poll, longa, ad medium vix ½ poll, lata, supra costa cinereo-tomentosa percurta, juniora subtus villosa submicantia. Amenta feminea 1-1<sup>^</sup> poll, longa, anguste cylindrica. Capsulae vix lineam longae, breve conicae, in stylum sensim attenuatae, demum glabrescentes, subtestaceae. Quoad structuram amentorum *S. viminali* ita affinis ut vix ab ea characteribus ullis differt nisi omnibus partibus minor et brevior. Folia uullem iis *S. longiflorae* sat similia, colore opaco subrufescente marginibus aut integris aut remote denticulatis. Differt aulem amentis exacte sessilibus. Specimina tantum perpauca examinare licuit, quare mihi quod ad affinitatem obscura manet. (v. s.)
90. *S. SIKKIMENSIS*, amentis sessilibus e gemmis magnis erumpentibus basi nudis crassis ovato-ovalibus curvatis fulvo-griseo-villosis, squamis atro-fulvis obovato-cuneatis dorso pilis fulvescentibus sat longe villosis amice inaequali dentatis, capsulis sessilibus conicis griseo-tomentosis in stylum piceum ad basin fissum abeuntibus, stigmatibus fuscis subbifidis divaricatis, foliis ovato-lanceolatis supra glabris subtus pilis subcupreo-micantibus dense villosis. 5 In Sikkim Indiae orientalis, reg. temp. alt. 9-14,000 ped. (J. D. Hooker). Arbor non alta. Kami crassi castanei, glaucescentes, angulati. Folia (novella tantum vidi) integemma, vix pollice longiora. Amenta (feminea) vix pollice longiora, basi perulis magnis opacis atris circumdata, apice in vertus angustiora. Capsulae squamis occultatae, conico-lineares. Nectarium basin capsulae attingens. Stylus capsulae fere longitudine, ad basin usque partitus, ita ut laciniae subsistantes conspiciantur; stigmata excurvata, angustiora. Characteribus plerisque squamarum et capsularum cum *S. Daltoniana*, mediante forma crassipili, congruit, sed differt : amentis omnino sessilibus, crassissimis, brevibus et fulvescentibus villosis, basi perulis magnis inclusis. Gemmis et ramorum colore ad *S. daphnoidem* accedit, sed recedit foliis, capsulis earumque squamis! (v. s.)
91. *S. DALTONIANA* (Anders. Journ. Linn. Soc. IV, n. 13. p. 49), amentis pedunculatis foliis bracteatis longissimis flexuosis subdensifloris gracilibus, squamis elongato-lingulatis fulvo-testaceis apice crenatis v. emarginatis capsulas ultra medium tegentibus tenuiter pilosis, capsulis primo sericeis demum subglabris conico-rostratis sessilibus tenuibus, stylo densissimo bipartito fusco, stigmatibus filiformibus divaricatis integris v. bifidis flexuosis. foliis lanceolatis integris vel minutissime glanduloso-serrulatis planis supra demum

\* glabratis subtus cupreo velutinis — 5 In Sikkim Indiae onent, reg temp alt. 9000 14000 ped (J D Hooker) Arbor haud excelsa, ramis atns glabris, ramulis parcissime pubescentibus Folia 1 3 poll longa ad medium pollice vix latiora, superne obscure vincta costis venisque parallelis impressa, subtus costa subelevata Amenta (femineae) eiectione demum 4 6 polli Ceterum laciniosum, acutata subdensiflorum pedunculatum laciniosum 3 > eetens duplo mioribus basi rotundatis instructis, squamae apice laciniosae antea profunde emarginatae nit inaequaliter denticulatae Capsulae fusco rufescentes, e basi conica in stylum sensim attenuatae Stylus piceus vix elongatus, usque ad basin fissus stigmatibus divinis intus nulli formae Saccis similibus nisi Saccis enolabis\*, amentis longissimis et laxis squamis spatulatis denticulatis, capsulis angustis et stylo longo bipartito pedunculatis (v s)

p, *traijuli?*, amentis longissimis ovulibus densifloris breviter pedunculatis iolus jam suffultis, squamis lato obovatis enerviatis vel dentatis, capsula sinuata emarginata, stylo integro medio cernitibus excuivitis, foliis hincolatis oblongis subtus Jerviugmeo tomentosis — In India orientali Sikkim reg temp alt 14000 ped (Di J D Hooker) funi Saccis Diltoniarum cognominis haec forma sinuata foliis obscuris Miidibus, superius foliis subtus saepius cupreo velutinis, amentis breviter pedunculatis saccis imbricatis ipse nulli formae divinis, capsulis sessilibus subnatis stylo jodiecto Saccis differt foliis minoribus (11^ poll longis), dentatis brevibus poll embus, valde densifloris, squamis obovatis rotundatis fuscescentibus, stylo subintegro et stigmatibus vix imbricatis — Saccis inaequaliter pedunculatis in Indiae Ilrukoi Laccis quae nunc dicitur possum uti in statu sit lantum juvenilis saccis inaequaliter found ad Saccis Sikkimensem dicitur transiitum tamen amentis sessilibus fulvo-hilutis tamen g(mmis maximis) saccis dignoscitur (v s)

92 Saccis *FLORIDA* (Anders Journ Inn Soc IV 13 p. 48), amentis breviter pedunculatis trecto-pedunculatis ingule cyathodensifloris, pedunculo iolus parvis (tamen pauca instructio squamis obovatis rotundatis dense villis capsulis sessilibus obtusis tamen denticulatis linilis squamis superius intibus stylo profundo bipartito, stigmatibus bifidis encistulis luscis f(Ins 1 ut eolatis icutis superius rotundatis TI VIS impiessis sulcus subtus vix laciniosae argenteae fere coarctatis denticulatis nosis Idiatis nosis cloitis stans in nigricante undulato-sinuatis, stipule semiobovatis cordatis-arutis \$ In India orientali Khasia reg temp alt 4000 pul (J D Hooker et Thomson), ceterum in collectione Jeddah montium parvis vidi sed tamen specierum minime saccis stagnis Anders Act Holm 1840 p 4% Pictis sit illis leide/dici (Saccis viminalis Urni fohati luscis, glabris vel novellis tomentosis foliis exacte hincolatis 2^ 4 poll longa ad imdiurn sicuti olliit kiti brevissimis pectatis SiipulT? in j-ans veltis et jiffionibus siccitatibus pilioluni multo superciantes Aniuili nisc pollicarid nisc cylindricis squamis obtusissimis 1, edenduo fulvescentibus, longius albo villoso staminibus pilosis, amentis pedunculatis fere 1-2 pollicarid subnatis Neclanum poirectum dentatum Capsula vix semibneim longd, obtusissimi stylo lusco stigmatibus testiceis 1st nter species Silicum mixinis notabilis foliorum longitudine, laciniosae amento Saccis inaequaliter hincolatis vix etum Saccis imbricatis simulans, distinguitur autem amentis pedunculatis, squamis rotundatis et Capsulis minutis subglobosis [v s)

93 Saccis *ERIOSTACHYA* (Will Cdl 1 Inl oiciiU 11 370^), amentis longe pedunculatis pedunculatis fulvatis, squamis obovatis rotundatis pilosis, capsulis sessilibus ovatis comis pilosis CHICK n pubescentibus demum parvis pedunculatis luscis angulatis, neclanum bisu cij MIP Utin^ nU stylo bipartito stigmatibus integris longis, laciniosae hincolatis ellipticis icutiusculis integris ulmque spais pilosis subtus vix glaucis 6 In Nepdln ad Gossain lhan (Will) — Anders Act Hort 1850 p 403 Journ Linn Soc IV, u p 43 Arbor vel frutpx altus, rami cinereae vix laciniosae glaucescentes, glabris Stipulae mediocres 1 folia 2 2f poll longi poll lata basi laciniosae subaequaliter attenuatae marffine obsolete serrulata etlovisime undulata, supracostis ceterum giabeiuna fusco vincta, subtus pedunculatis pilosis

- ad costam conspersa Amenta feminea l<sub>2</sub>-polhcana, patentia, curvata, subdensiflora, pedunculus pubescens folns 4 6 instructus, squamae fuhocastineaj Capsula brevis, pmo sat dense albo-villosi, demum calvescens iusco picea btylus elongatus, fusco castaneus, profunde bipaititus, ^tig natum facimai filifoimes Distmcta species, ex Indicis S DaltomanaL pioxima, a qua tamen differL ainentis bievionbus et crassionbus, capsulis duj lo niajoribus basi crasse ovitis, lolnsquc \ellere cupiesccnli ommmo orbat<sup>^</sup>, subn<sup>^</sup>idis Ltiam b daphnoidi quodauimodo affinis, sed distiDguitur amcntis loDge ot fohato pedunculatis, capsuhsque mitio saltern albu tomentosis. (v s)
- 94 S LONGIFLOHA (Wall sec spccim in Herb Hookei), amentis pedunculatis gracillimis laxe penduhs densiflous, pedunculo Coins panis 2 3 instruo, squamis fusco-testace is obtusis glabns vel sparse pubescentibus cnpulis sessibus crasse ovatis acutis parvis glabeinmis, stylo fere nullo, stigmatibus paititis eiectis, foliis an<sup>^</sup>nste lanceolatis acutis supra obscure vindibus glans subtus opacc tomentollisintgeinnns - 5 In India onentali (Will ), in Sikkira, ieg Icinp ill MOO ped (J D Hookei) — Andeis Jouin Linn soc 1 c p JO Aibusculd 10 pedalis, i unulis gldbns fusco-nigricantibus, divincatis Folia minoia elliptici subtus gliuiesccnlid, niujoral<sup>^</sup> I\ poll longd, vix i p 11 latd, subtus ml tomento bicvi>>simo subfenugineo submollid aut omno denudata opacj glabia Amenta 9 ulultd 2-4-polhcana, angustc cylindnca subilxuosa, squamae scmilnua longioics Capsula ex ovata et crassa bisi brevissnne conica \ lin longi, loie omnino scssiiis, glabia, vindi bmnntscens Stylus obsolclus, sti<sup>^</sup>matis lacinns divaucalis Ob labiiLam amentoium S ele<sup>^</sup>uui, ob foimain lohonim leie b Daltoniana3 subsmnlis a priori diHeit folns Integernrnis an<sup>^</sup>ustc lanceolatis, capsulis crasse ovatis, a postenon stjlo nullo, stiginatibus bievibus tolu jnterduni subtus opace glatresceutia, us b mytilloidis non dissimilia (v s)
- 95 b muNBFroiANA (Blume ex hub rcg bcrolincnsi), amentis sessibus ebracteatis eiectis bievibus c<sup>^</sup>lindncis, sijuanns icutiisculis ^upelnp atroiuscis albo pilosi< cijisulas in\olventibus cipsulis minutis ovito conicis albo-villosis sessibus nectano ingiisto elongalo basin cipsulae siiperanl(, stylo longissimo cipsulim Teic duplo superante lulvo stigmalibus brevibus inlegns erectis, folns oblongo ellipticis lalenbus xctiusculis supia medium paullo lationbus apicc bn vissime dcurninato subobliqu s inu<sup>^</sup>inc ipnuitoi sed sit angustp serrulatis supra obscuic vindibus parcissinu puboiubs subtus glaucis pilis sublactcis pra>sortim in neivis cle\atis micantibus spuse seceis, stipuhs parvis —Speo(mpn o Japonia a eel Blume comm in berb Berohnensi descnpsi S. alba lhunb fl jap p 2> sec Blume Specios \aldc sinKu<sup>iiii</sup>\* characteribus inter S daphnoidem ol ^mithiianam quasi medii longitudine styh eximie ib omnibus diveisa loin n> S SdingcinL himl ib<sup>^</sup>milia, 2} poll lungi, j poll lati Ainrnta lcminci pollicana condensata ramis sub adpressi, squ Lmis atns, pilis albis, et stylis i>roductis fulvis miium in modum vanc<sup>^</sup>ata (v s)
- 96 S KOREFNIS, amenlis sessibus biovissimis cylmdnco ovibus densilloui patuhs, i hachi longius rufescenti pilos i, squ inns oblongo ov ilibus obtusis fusco piceis ghbiiuscalis subglobosis albo-luulis sessibus, siylo elongito lusco, btigmatilms brevibus lupartitis loins clongalo-lanccpolatis basi altdiuilis ipite longe cuspid itis lcnuibus ulnn ju< ghIknimis subtus op icis sub<sup>n</sup>huc( sec n-tibus maigmc sprrulilis — In on boieah p< ninsul L Korea (^chlippenbich) Singuhns sptcKS valdedubia. liliniitit 1 olu 2-21 |><sup>0m</sup> 1 "R<sup>a</sup> ^n semipolliLom longa el loir omnino ut in s Iragih aut b 11 ihjIonic<sup>i</sup>, sod itiii<sup>o</sup> usihora et tmnora AnUenU vix semipolbbem longa ebractcitas capsulis condensatis granuliormibus, pihs sptiionnibus hirtis et stylo longo apiculatis quum b. purpuream turn S viminalcm simulans Flonbus mascuhs incognitis non ad nbum S purpuieac ductie ludeo Alidmetimi ex penmsuh Korea vidi speciem Salicis, sed tantum folia Sunt m. S pinpuici sunilid, lanceoldta, Integra, gUuct<sup>^</sup>centia, sed pollicana tantum ct basi pilis conspersa (v s)
- 97 S MULTIFORMIS (Doll (l v Bad p 50b). amentis breviter pedunculatis erectis cylmdncis densitlons aavido-villosis bracteis paucis suffultis, squamis lulvib obtubib iougc fldvo pilobis, capbuhs ovato-comcib tomentosis sessi lbus,

nectano basin capsulæ superante, stylo elongato, stigmatibus linearibus bifidis pilos squamarum aequantibus, foliis elongato-lanceolatis acuminatis remote et repando serrulatis vel intrinsecis junionibus subtus tomento molli impresso micantibus superius laevibus, stipulis ovatis — In Germania media, Galia, Dania et Suevia maxime australi Culta et silvestris Inter Ætnandram et S. viminalem media a prole (ad quam S. Irevirani evidentissimum præbet iransitum ita ut huius foemina MX a S. undulata distinguas) habet folia supra pure vmdia longe lacunata, infra medium latiora, subtus non raro demum glaberrima lappula, imbricata bracteata laxiora, et squamas fulvas, et a postenore folia subtus saltem adolescentu tomento tenui subaigentem mihi canthia, amenta crassius et densius cythracea flavo pilosa, capsulas tomentosas sessiles et stylo elongato apiculatas A. S. undulata ad S. hippophaeoliam formam variat itaque senem plane contiguam effiunt, quas bene modo proposuit Wimmer (Sal europ. p. 140)

a, *Treviram* (S. Trevirani Spr. pug. 1 p. 61), amentis cythraceis coactantibus foliis suffultis squamis ferrugineis ovatis pilosis lingulatis, capsulis breviter pedicellatis conico subulatis glabris punctulato scabris aut pubescentibus stylo modico stigmatibus subrevolutis, lobis lanceolatis supra nitidius subtus opacis palide aut pubescenti-viridibus — In Silesia, et Dobruchia S. hippophaeolia Wimmer et Grab H. sil. 2. 163 S. hippoph. Y. leiocarpa et S. undulata p. lanceolata Koch Syn. 641, Hartig p. 44 S. undulata Forbes Sal. 13 S. Inandra viminalis a hippophaeofolia Wimmer Donkschr. 18)7 [p. 157 — *lumis* Forbes Sal. H. Reichenb. I) H. 2062 (ex Wiirm) — *lxsicc* Wimmer Hb. Sil. 11J. 115 Coll. 249 2<sup>a</sup> Irutex 4 20 pedicellis, ramis virgatis, ramulis nitidulis, novellis glabris aut hirsutis puberulis Stipulae semicordatae Folia v. poll. longi, 5-12 lin. lata, saepe minus facile a lobis S. rubrae discernuntur, sed levius ut in agis nitenti L. Amenta cylindrica gracilia foliis paululum distantibus l. poll. longa, 4 lin. lata Stamina gemma vel tema, geminasque augentur multiflorae, sed semper staminibus sunt, intermedium ne augmentum quidem sed mox collapsa tabescunt Huius forma? vanetas est ramorum germinibus senceo pubescentibus, amantibus longis gracilibus (Hb. hdl. HJ. Coll. 249) — Wimmer

p, *hippophaeoUa* (S. hippophaeofolia Thuill. fl. par. 514 515, sec. Koch), amentis femineis cythraceis coactantibus in partibus mediocriter bracteatis, squamis lingulatis fulvis paenepilosis, capsulis breviter pedicellatis pubescentibus vel subtomentosis canaliculis ovatis conicis, stylo brevissimo, stigmatibus partitis divergentibus, foliis lanceolatis attenuato acuminatis margine reflexo serrulatis subtus pube levi canescente fugaci textis foliis Hab. circa Pansios, in Hannovera et Bohemia et in locis cultis S. virescens l. oib. Sal. n. 7, laud. arbor. ) 15J. S. alba hippophaeofolia Sei. Lss. p. 84 S. trundra viminilis c. polyphylla Wimmer Donkschr. 18)3 p. 157 — *lxsicc* Fr. H. N. 10. 59 Wimmer Hb. Sal. 114 Ser. Exs. 44 A. praecedente differt quod fuit omnino limum et tenuior, folia minora angustiora minus longe acumina nunquam quidem sed evidenter serrulata novella subtus tenuissime velutino pubescentia, leviter cana, amenta paulo unius et breviora, capsulae minores senceo-caninae sunt In foliis adultis pubes pleiumque evanescit

γ, *mollissima* (S. mollissima Ehr. Beitr. 6. 101), amentis femineis oblongis crassiusculis spissis, squamis ferrugineis dense villosis oblongo obovatis subtomentosis, capsulis sessilibus hirsutis tomentosissimis brevibus ovatis, stylo medio, stigmatibus longis bipartitis reflexis, foliis elongato lanceolatis margine subreflexis obsolete serrulatis supra sordide viridibus levissime puberulis subtus tomento tenuissime adpresso lutescentibus — In Germania Gallia, Dania a Suecia munda — Willd. sp. pl. 4. p. 707, Koch Comment. p. 28, Synopsis 047, Reichenb. Excurs. 1015, Gren. et Godr. fl. dp. fr. I. p. 127, Fr. Mint. 1. 62, Summa Veg. Scand. p. 56, Lange Dansk. fl. ed. 3, Loud. arbor. 3. 155, fistula t. 45, Fl. D. t. 2604 Mirh. Arbor. 29, Ser. n. 59, \*r. H. n. 1. 65, Wimmer Hb. bal. n. 116. Coll. n. 252 b. viminialis-vindis Ehrh. Pflanz. Verzeichn.

27 S pubera Koch apud Boeningh Prodi S hippophaefoha viminalis  
Wimm in Jahresb a Schles Ges 1848 p 24 S amygdalifolia viminalis  
Wimm Reg Fl 1848 15 S tandra viminalis molhssima ibid 1849  
p 39, Denkschr 157, Mcy Hannov p 501

### § 16. *Nivex s Glaucx.*

Frutices ramis torulosis divaricatis, regionum alpinarum et arcticarum m-  
colae Folia ovata vel ovata villosa, tomentosa Amenta densiflora,  
vulgo latens capsulis sessilibus, stylis bifidis

#### A. *Fanati,*

Frutices ramis ovatis fuscis Folia ovata rotundata vel late lanceo-  
lata, subtus reticulato nervosa Amenta sessilibus subterminata, squamis dep-  
catis, capsulis conicis iostriatis vulgo glaberrimis, antheris post anthesin flavis  
— Chrysanthae Koch\* Comment p 52 — Chrysanthos Fr Mant 1 p 45

98 S LANATA (L sp pi p 1446, excl P) amentis sessilibus terminalibus  
hirsutissimis crasse cylindricis erectis, squamis acutiusculis atque pilis au-  
reis vel cinereis villosis capsulis ex ventricosa basi conico subulatis subconi-  
cis sessilibus, nectario basin capsulae attingentem stylo elon-  
gato tenui, stigmatibus erectis hiliformibus integris, foliis subciliatis ovatis  
vel lanceolatis vulgo minutis plus minus lanatis venis subtus promin-  
entibus scrobiculatis reticulatis stipulis renatis semicordatis glandulosis serratis  
3 Juxta torrentes et in nemoribus alpinis ut in Succia et Norvegia (plurimum in  
Scotia ranor, in Rossia et Sibiria actica fere totum tor 694 731 lit —  
Wahl succ p 688, \*iies nov Mint 1 p 47 Koch Gjm n Knt p 03, Willd  
Sp pi 4 p 688, Wimm bil euoj) p 2, Ledeb fl ross 3 p 61b S hnu-  
ginosa Pall fr ross 2 p 83 S chrysothos Vahl H dan t Hb7 Will 1 sp  
pi 4 p 704 S cyprii Fl D t 24) (dit capiea sed pev»inn') — *Icone\**  
Ledeb icon fl ross t 480 (?), Anders bdl lapp M, n dm 10)7 Wikkn  
fl lapp t 16 f 1 H D 1057, Sil wob t 77 — /rs/cc li H n 8) 1st  
facile pulcherrima Salix in Succia ne dicam in niundo toto»» (Wahlbrf) l'rutex  
biorgyili' ramis minusque crassis cinereo-fuscis, cano-villosis Folia tunc  
tomento albo denso utrinque oblecta, ramis conivae, rotundata ovata basi  
subcordata, 2-3 poll longa 1/2 poll liti subtus praecipue venis s rupe-  
rugosa, smpulismagiis Gemmae miximae denticulatae Amenta 1 3 teimina-  
lia, congesta 3 4 poll longa ; poll crassa masculina aureis vel in legio-  
nibus minus fuscis cinereis squamularum inaequalibus (unde duae formae  
chrysantha (iue\* typica, et cinerea quae in regionibus inferioribus frequen-  
tior) Capsulae 2 3 lineas longae vinctae vel pilosae (v v)

a *latifolia*, foliis rotundato ovalibus cinereo-lividis densissime imbricatis de-  
mum tamen supra intantum glabrescentibus — Vanat 1° *majm* frutex  
1 2-organus foliis basi nunc cordatis ovatis nunc attenuate tomentosis  
albido-lividis oblectis Haec in Lapponia subalpina frequentior — 2° *im-*  
*nor* frutex humilior, foliis ovatis rotundatis vel late lanceolatis saepius  
sordide tomentosis In Scotia, in Lapponia alpinis summis frutex  
exstat humilissimus depressus ramis ultimis supra terram arrectis fo-  
liis parvis et minutis nunc dense lanatis nunc fere glabris et imbricatis  
porpucis siccis inaequalibus HLC id S vaga item in situ prae-  
sertim in 301 t 8 lij I in Linn 11 lapp S delies>a L bucc  
n 899

fl *angustifolia* foliis plus minus lanceolatis tenuibus plerumque cinctis o-  
valibus interdum glabris et subinde glaberrimis serratis, amentis vulgo  
ciliatis pilosis Haec al S in Lapponia, quae a S lanata cum S  
hastata praecipue aperte traustris

» S Ricinosa Nil (Hook Fl bor Pal amer 2. p 147 t 182), amentis  
sessilibus terminalibus villosis crebris ciliatis cylindricis obtusis, sicut  
acutiusculis pilis atque venis villosis, capsulis conicis iostriatis glabris  
vel minutissimis cinereo puberulis sessilibus stylis elongatis rufescente, stigma



- tibus bievibus bipartite dnaucatis, folus glabns lanceolatis phm\* utnnque viridibu\* nervis paiallelis hneatis subtus palhdionbus s glaucis integris v. margine subrevoluto dons© at minute planduhgens, stipulis anguste lanceolatis acutis 5<sup>m</sup> Amenca septentiionah piope Fort tnnklin et Mackonzie river (Hichardson) S Ian iti aranciria Anders Ofwers Wet Ak. Forh 1858 p II<sup>1</sup>) Frutex parvus, lamis undiqup divincalis»crassis torulosis guscotomentosis habitu omnino S lanitT minons klabiescentis, a qua tamen difleit stitun humilion, folus ±1 | poll longis, ad medium 3-9 lm Utis, omnino pi mis nee ncivi<sup>^</sup> ullis magis clc\atis scrobiculatis, ghbcmmis, subnitidis I tiam ex ea forma (a S hdstata et S lanata hybnda<sup>7</sup>), quam sub nomine S Hirmmni ma pioposui, distinguitur folus glabns planisque, amentis brevionbus et crassionhus acutiussculis teimirahbus, cipsuhs omnino scssilibus, stylo vilde clongito et tenui! I st tamcii procul dubio S lanatae forma milogi ameucana cuiiis ex Iapponu \cl Sibin i nullas» formas folus tarn argustis, gldbns et glaucoscentibus praeditis vidi (v s).

a, *latifoha* foins ovali-elliplas, margine fere omnino.integns.

p, *angustrfoha* folus anguste lanceolatis, margine plerumque anguste glanduh<sub>o</sub>ens.

100. S BARPATTIVNA (Hook fl boreal-amenc 2 p 146. t 187), amentis terminahbus ot hfialihus maffnis MIOSIS crassissimis erecto-patulis nudis, squimis itns oblusiusculis longe dllo pilosis, capsulis magni<sup>^</sup> conico-rosatiatis cano seuteis dcrnum pallidionbus subnudis sessihbus vel pedicello minimo n<sup>^</sup>clanum vix suponnre subpedioelldtis stvlo elongito fulvo, stigmatibus bipartite divincatis fulvis, loins ovali oblongis acutjuscusculis IMSJ cordatis tenuissime <sup>^</sup>linduloso-stnat s pumo utunque aig<sup>^</sup>nUo pilots demum saltern supia glibus \indulis stipulis sjepp matins semi-ovatis J Prope I ort 1 ranklin Aiu<sup>^</sup>nc c subucLiuc (Hicliardson, Dougl is) S lanata Birrdttiana Anders Sal boreal Amei 1 c p 119 1 rutex non altus, ramis divancobulis toi ulosis v Uidis gUbnscuhs vel tomento albo \ obscuie biunneo-obduutis 1 olia 2 3 poll longI, -J--<sup>1</sup>-poll Uta Ami nti ciississimi, 2 '-polh-cana, mascu'i feminns bievion, pilis s(juamarum luhis subauiea Istpnmo mtor S laiiitam (ts Lapponum, quales in 1 uropa nascuntui, (videntissime iibdi i Ldscj c indubie conneitcns AS lanata ets Hichaidsonn difTert autem rapsulis sciiceis et folus, j, s Lapponum imentis \alde crisis sublerminabilibus, cipsulis comco elon<sup>^</sup>atis folus ghnduloso scnatiss AKinifaLem quan (Utn cum s coidata ceitissirnc babel, et ob id iiostrae Haitmannianae anadjga (v s in b Hook)

a, *latifolia*, folus ovahbus basi distincte cordatis supra glabrescentibus viridiJjiis

p, *angustifoha* folus lmccolatis utnnque acutatis bisi obsolete cordatis raar<sup>^</sup>me vix gl mdulosis utnnque molliter albo-senceis

- 10! S HooKrRiANA (Barratt in Hook. Fl bor-amei 2 p 145 t 180), amontis sessilibus loins \1 bracteis paucis suffulti<sup>^</sup> ciasse cylindncis densiflons eiectis lmsatissimis, squimis fuse -itns apice rotundatis longe et densissim( lanatis, cipsulis coincis glabernmis longe roslratis pedicellalis, pedicello breu necLaiiuni vix bis supeiantc, styb pioducto policollo longioii rufoscento sti<sub>m</sub>dtibus Inn mbus inUgns errectis, foils late obo\dtis fr-d rotundatis n<sup>^</sup>ifJm<sup>^</sup>culis undulatis \el lemote subseiratis supid obscure vindibus deraum gldbiatis subtus tomentoso-lanatis, stipulis kte semi-ovaus <sup>^</sup> In Amenca soptontnonih prope ciiaiactis mignas fluvn SASKITHIWM (Dough) —Anders Ofveis Wet Akad Foih 18J8 p 119 1 rutex non LHUS, sed lobustus, id mis cia«sis olscuie tomentosis folia 2-2 \ poll longa, 1 || noil 1m, forma et inJumento us S (apreae sat similia, supra on<sup>c</sup>cuie vindu, costa tantum albo tomentosa, subtus mollitei tomentosa, petiolus 1 2 lin lon<sup>^</sup>us, gnseo-tomentosus Amnnta mascula I 2-pollicana squamarum pilis spncpo-flnicantii, amenta femin\* d longiora sed angustiora, squamis gnseo pilosis, cipsulis obscure vinriibus, exsiccatione rufescentibus, lin<sup>^</sup>am lon<sup>^</sup>is — (um S coidaia con<sup>^</sup>ruit cipsularum ioima et coloeie, ceterurn<sup>s</sup> linaam s ( ipream vel S hasldtnn ( nostratis habitu et caracte-

ribus simul revocans. Non parum cum *b* Barclayi et *S. adenophylla* habe commune, species attamen bene distincta (v. s. in *h. Hook*).

X *S. HARTMANNIANA*, amentis plerumque lateralibus (subterminalibus) anguste cyathosis densifloris eicte patulis basi nudiusculis, squamis pilis cinereis barbatis, capsulis conico-subulatis glaberrimis breviter pedicellatis, pedicello nectanum vix duplo superante, stylo producto, stigmatibus bifidis cruciatim divaricatis, foliis basi et apice plerumque apiculatis lanceolatis vulgo integris glabris vel hirsutis reticulatis venulosis stipulis saepius magnis acutis serratis In alpibus Sueciae borealis, ut in Jemtlandia. Lapponia Lulensi et Tornensi, etc haud frequens *S. linata-depolita* Wahlenbg. fl. v. n. 659 et Fr. Man I 1 p 47 p p *S. subhastata* Laest mscpt, Anders Sal lapp p 21 — Haec forma inter *S. lanatam* et *hastatam*, quarum in societate credit, exacte media et ab us hybrida, sub duabus potissimum occurrit formis

a, *sublanata*, foliis lenticulis subintegris, pilis raris busutis, amentis praecocibus crassiusculis subinde nonnullis terminalibus.

β, *subhastata*, foliis angustioribus basi apiceque lenticulis subsenatis utrinque saltim demum hirsutis supra saltem subtus pilis densiusculis vel hirsutis, amentis semper ueris apertis ramulis lenticulis raris serolinis demum foliis paucis suffultis — Utraque forma timen a *b. lanata* differt capsulis breviter pedicellatis, stylo brevioribus, stigmatibus bifidis (amentis late inermibus), et a *S. hastata* amentis nudis, crassis lenticulis cinereo-pilosis, capsulis breviter pedicellatis, stylo tenui longioribus, foliis majoribus, minus hirsutis, subintegris, grossius venosis (v. v)

### B. *Villosa*.

Frutices mediocres, ramis tenuioribus Folia lanceolata, integra, nervis et costa subtus elevatis Ueris lineata Amenta, sessilia, squamis apice densis, antheris post anthesin flims, capsulis conicis, tomentosis. — Engidde Koch Comment p. 53 (cum pi. aliis)

J02 *S. SPECIOSA*. (*Hook et Am. Bot. of Beechey Voy p 130*), amentis subterminalibus omnino sessilibus vix bracteatis crasse cylindricis valde elongatis subflexuosis densissime arboribus villosis, squamis densiusculis apice nigris pilis (dorsalibus impressis) lenticulis linearibus, capsulis ovato deuminatis sessilibus imbricatis, stylo longissimo, stigmatibus octis hinc inde saepius bime integris, foliis oblongo-lanceolatis vel fore obtusis acuminatis inlegeribus supra obscure ueris? subtus petiolisque velleis densissime dequid niveo tomentosis, stipulis persistentibus inermibus lanceolatis subulatis membraceis proliis longioribus, ramis hirsutis In Lapponia actica otridentibus, proecipue ad litora mans glacialis, usque ad Ptar lako — *Hook fl bor imcr. 2 p 145, beem Bot Voy Herald p 40 t 10, Andas Ofvers af WeL. Ak Forb 1858 p 119 Tiutex eldtus, ramis virdii, densissime fluorescentianatis 1 folio adulta 3 4 poll longa, 1 1/2 poll lata, mte basi angustata supra medium litorum inde breviter acummata (ut in *S. acummata* v cinerea majon) nullo basi lenticulis et subintundita sensim ot longioribus attenuato hirsutis (foie ut in *S. Smitnani*), subtus tomento densissimo compacto nivea. Amenta masculina 1 1/2 poll longa, eximia 1 1/2 poll villosa stamibus durcis\* feminea ) 4 pollicam inermibus argenteo-villosa, capsulis linearibus longioribus, stylo Ihuvo Notis cerulis lenticulis Inermibus a *S. Lapponum* distinguitur sed habitu valde ilieni, omnibus partibus est vegeuolus et robustior, foliis velleis densissime compacto obtusis, ita ut nevi vix conspicui, imonti pilis squamarum longissimis eximia villosa, stylus magis productus filiformis (v. s.)*

γ, *Alaxnensis*, foliis plerumque longius acuminatis et basi longius ansustatis subtus foveolatis ueris supra olivaceis demum ob nervos duastomiosantes lanitis pulchre dilbo-ucolentibus — In Ahxd Americas occulentibus boieahs (*Kosulsky*)

δ, *Ajanensis*, amentis in ramulis brevibus subterminalibus mollioribus flavo-pilosis nonnullis angustioribus, foliis ovato-lanceolatis apiculo brevi

oblique terminate — Prope Ajan Asia? boreih-ontahs Rossicae (hling)  
Ah ill Regel cum S Lapponum conjuncta, S speciosae vero ut forma  
analoga certissime as^ocianda, loins magis obovatis et amentis angustio-  
nibus subteimmahbus ab ea pa rum remota

δ, *Trautiettnana* amentis sessihbus, vix bracteis suffultis erectis elongato cylindricis basi ranflons, squamis fuse is obtusiuscuhs albo-vdlo-  
sis capsuiis crisse conicis albo-lanatis brevissimc pedicellatis, stjlo  
nnllo ^tigmatibus hrewhus fuscis partitis excunitis, foliis lin, iilUis  
basi longe dttenudtis apicom veisus lationbus obtu^uscuhs supra vin-  
dilus glabiis subtus lomento denso argenteo obtectis plains margine  
irilegns In lapidosis humidis subalpmis reg baicalensis (lure/ herb)  
S Gmcliniana lurcz Fxsicc S Lapponum p p lurcz Cat baical  
Dab 1 c p 387 S Bdicalensis Tuicz Exsicc S limosi p p Trautv  
in schod 1st sine ullo dubio S speciosae maxime affinis sed ab ea notis  
allatis irecdens hrulex mediocus videtur ramis \alidiuscuhs fusco-cas-  
taneis, gldbns Folia 2 poll longa, supra medium \ix &emipolhccm laid,  
subtus tomento aigenteo adpresso micantia' Amenta fere bipollicana,  
3 lin crassd Cipsula pirva,, bipissime sed evidenter pedicellatr et  
stylo nullo pr&ditdL Habitu S. Helvetica; etiam si mil is ab ea facile icce  
dit amentis nudis (v s)

e, *chrysen* lmentis multo dngustionbus nngisque nnflo-is subpatuhs  
mascuhs (liginltr r lnyseis, fcminns polhci brevionbus cipsuhs brevio-  
nbus sed in stylum attenuato-rostratis, stigmatibus longionbus divan-  
calis, loins tomemo auieo lucido derso obtectis — In Sibina, ad h  
kutzk (Stubendorff)

10J. S LAPPONUM (Linn, sp pi 1447), amentis sessihbus fructifens subpedun-  
culitis bdsi bidetcdtisdensifioiis cmssecylmdncis squimis acutis nigns, pilis  
cipMilis brevionbus busulis, capsuiis conicis tomentosiss sessihbus, nectino  
bdsin cdpsulx attingonte, stylo elongato fulvo, sligmatiDus hneanbus bifidis,  
folus elongatis elhpticisve acumin.itis margine subrevoluto integerrimis vel  
obscure sinuito-serrulatis supra obscure vindibus floccoso-vel sciiceo-villosis  
Tugosis subtus vcllecre albo dense tomentosiss venis pdrillehs sul)rectis ele-  
vatis, strpuhs obsoletis ^ Locis piludosis et huni'dia in Luropa fdcile totiu»  
alpihus (m iximo mondi( nahbus HispanicL, Itilide et GrxcicL exteptis nee in  
Pyreneis obvenit), in Tidiisilvaru i, )rovinnis medns et so)tentnondhbus  
Rossiae, net in Sibina (tonf ad prated), vixiue in Amenci arctica oc-  
cuint species hdccc — Fr Mdnt 1 p 59, Koch Comment p 54, Sjnops  
ed 2. P 7\*7, Andeis Sal 1 ipp p 22 Ledeb fl ross 3 p 617, Gren et  
Godr ff fr J 130 p p, Hartig Forstl Cult p 388, Trautv Mém de Id soc  
de Moscou 8 p 288, Wimm Sal euioy p 38 S arenam Willd <p pi 4  
p 689, Ledtb II alt 4 278, Hook et Am Bot of Beccbey Voy. p 129,  
Trautv 1 c p 287, Sm L l 4 p 204 S Innosa Wdbleubg fl ldpp p. 265  
succ n 1124 S nitens Gihb Ixeic phylol p 408 S li(tcaBn> Denksch  
d Regensb bot Oesellsch I 43 s Uucopb>lli Willd Beil Bdumz, Besser  
Enum p 77 S Huaitidna Smith L Fl 4 p 203 S glauca Sin E B t 1810  
S glaucoph)lla Bess Lnum n l2>l S Sudeticd Host Sal p 28 — *Icones:*  
Wdblcnbg 11 lapp t 10 f 4 Anders 1 c f 4 Reiebb t l2l() Hartig 1 c  
t. 108 (V.) Sdl Wob t 69-70, 72 73 1 B 18l<), 288< Hort Wob.93  
(S subilpin 1 Schi) — *Exsirc* \\*r H N 7 >8 1 iutex elegintissimus, ramis  
toitulosiss fusco nitentibus castanno testicis, junionbus cinereo tomentosiss  
Fohatypice2 / poll longa, medio vix polhctm lita, utumjue feie aquihter  
altenudta, maigine Integra siltem parle supenore subre\oluta, costa crassa  
lulvesLtnie, neivis supia impicssiss subtus elt\atis legulanter lineata, ngida  
Amenta e gemnns magnis castancis, mascuh pulchre aurea, femmca cine-  
ra<-centii, l 2-polhcnia, capsula, hneim exctdentes Pohorum forma eximic'  
vanat quum migmtudine et loriD\* tuin indumento Pxstant forma perpusill 1  
loins ovil rotundatis vel bneil-ianecolatis (S gn iphihoidrs Schi), ntnnque  
vellerc densissimo tomentosiss (S minubnfoha Tausch) |e| dcnuditiss et  
vindibu-. (S Diphneoli Iausch) \*od sempei sordid] In Scotia foliis bre-  
\i >nbus magis acutis, supia obscure tt opace cineieis, subtus hneito tomen-  
tosis uisignis In Rossia. mediai (Iivoniae, Curonu) 1 iludibus fngidis sr pius

glauescit. In Sibiriae alpihus tomento multo densiori folia rigidiora et alba habet. In sudetis et montibus Silesia? saepius glabrescit er, cum S. Silesiaca immixta, habitum hujus speciei obtinet. (v. v.)

(\*, *Helvetica* (S. *Helvetica* Vill. Hist. d. plantes d. Dauph. 3. p. 785), amentis breve pedunculatis foliis parvis suffultis, 0 cylindraceutis elongatis subflexuosis, cf brevibus anthesis subroseis, squamis ovatis acutiusculis stramineo-fulvis sursum nigricantibus sericeo-villosis, capsulis subsossilibus conicis obtusiusculis albo-lanatis, stylo mediocri aut longo apice )roducto, stigmatibus bifidis, foliis ellipticis supra nitidulis sublus incano-tomentosis niveis.— S. *Helvetica* Hegetschw. Fl. d. Schweiz n. 2846; Gaud, fl. helv. 2. ed. 6. 267; DC. fl. fr. 3. 291. 343; Wimm. Sal. europ. p. 89, S. *arenaria* (*Helvetica*) Willd. sp. pl. 4. 692. S. *Lapponum* Koch Synops. ed. 2. p. 658; Gren. et Godr. fl. p. 3. 139 p. p.; Bertol. fl. ital. 10. p. 323. S. *nivea* Seringe Ess. p. 51, Saules n. 67-69. S. *tomentosa* Host Sal. p. 28. f. t. 93. — *Exsiccata*: Reichb. n. 1628. 1630. 2r>20; Ser. Saules n. 67, 68; Wimm. Coll. Sal. n. 98; Kern. Sal. austr. n. 80-81. Hab. in alpihus Helvetias imprimis meridionalis et Delphinatus, etiam in alp. Tirolens. (ex Wimm.) — Est ita S. *Lapponum* et S. *glauca* intermedia forma ut nunc huic nunc illi speciei synonyma dicta sit. Cum S. *glauca* comraunia habet : amenta foliis paucis parvisque suffulta 9 laxiuscula, squamas pallidiores fulvescentes tantum apice fusciore, capsulas molliter albo-lanatas stylo vulgo subbifido fulvescente apiculatas, sed ad hue niagis cum S. *Lapponum* congruit ramis torulosis testaceis vel rufescentibus, foliis elongatis basi angustatis, novellis e pube inaquabili subaraneiformi leviter canescentibus, quod integumentum in adultioribus nonnunquam manet, subtus semper lana subfarinacea rquabili tomentosa lutescenti-nivea obtectis. venis curvulis )arallolis in tomento delitescantibus. — Est frutex humilior alpihus Europae centralibus peculiaris et in iis ad veram S. *Lapponum* se habens ut S. *grandifolia* ad S. *Silesiacam*, ut S. *sericea* Helvetiae, S. *pyrenaica* Pyrenaeorum et S. *villosa* Americae arcticae ad S. *glauca* Lapponiae, vel ut S. *speciosa* Trautvetteriana in montibus Altaicis, vel S. *speciosa* in America arctica ad S. *Lapponum*, itaque ut forma parallela nunc seorsim describenda, nullo modo autem origine diversa. (v. v.)

104. S. *BOGANIDENSIS* (Trautv. in Midd. Reise 1. 2. Bot. p. 154), amentis sessilibus ebracteatis densifloris rectis patulis brevibus, squamis nigris acutis dense et longe albo-villosis, capsulis ovato-conicis sericeis sessilibus nectario basin capsulae tegente, stylo elongato, stigmatibus brevibus bilidis, foliis lanceolatis utrinque attenuatis, apice longe acuminatis medio tenuissimae setulalis supra glabris subtus opace viridulis pilis raris conspersis, stipulis angustis. ^ In Sibiria arctica ad fl. Boganida (MiddendorQ. — Trautv. I. c. tab. 2, 3; Ledeb. fl. ross. 3. p. 616. Frutex humilis, ramis castaneis glaberrimis, novellis pubescentibus. Folia 2-2^ poll, longa, fere scmpillicem lata, basi apiceque acutata. Amenta feminea junioia dense albo-villosa, demum pollicaria, dnnsiflora. Capsula tnuiter pubescentes, tesiaceae, lineam longai, aculiuscula}. Forma dubiae affinitatis aut S. *Lapponum* aut S. *Songarica* magis affinis. A S. *Lapponum* differt foliis medio acuto^ serrulatis, utrinque glabris, angustis, longe acuminato-cuspidatis, stigmatibus bifidis ; a S. *Songarica* foliis yix glaucscentibus, stylo valde elongato. Oh pilos'in foliorum pagina inferiori visos argonteos quasi S. *viminali* affinis ; sed vix in regionibus tam arcticis crescunt format ad hunc typum peitinentes. Folia etiam plana, colore flavicantia, denudata, angusta. Amenta brevissima. (v. s. in h. petr.)

105. S. *CANDIDA* (Flugge sec. Willd. sp. pi. 4. p. 708), amentis sessilibus demum foliis minutis suffultis erectis^ihgracilims, squamis fulvis apice fusciorebus spathulato-ohovalis pilis aWkr lursutis, capsulis breve conicis dense albo-lanatis pedicellatis, pedicello nectarium clongalum fuscum saltern duplo superante, stylo elongato picoo, tigmatibus fuscis brevibus emarginatis divaricalis, foliis lanceolatis vel lineari-lanceolatis rigidiusculis acutis apice obsolete crenulatis supra ramulisqu« floccoso-subtus densissime niveo-tomentosis margine tenui revoluto, siipulis ovato-lanceolatis deciduis. \$ In Amc-

rica boreali-orientali sylvatica usque ad regiones vere septentrionales. — Pursh Am. 2. p. 608; Richards. Append, p. 37; Hook. fl. bor.-Amer. 2. p. 144; Torrey. fl. New-York. 2. p. 204. t. 117; Carey in Asa Gray Man. ed. 2. p. 413; Salict. Wob. t. 91. *S. incana* Michx. Fl. Amor. 2. p. 225. *S. tomentosa* Schrad. herb. *S. nivea* Sra. herb. Frutex 4-6-pedalis, ram is rufescentibus initio saltern niveo-tomentosis. Folia 3-4 poll, longa, J poll, lata, basi subrotundata, apice breviter producta, margine revolulo integra vel obsolete, sinuala, costa supra sulcata sublus lutea elevata. Amenta pollicaria, mascula longius villosa, ob filamenta flava et anthemas nigricantes discolora. fozninea exacte cylindrica, capsulis vix lineam longis. — Est species vere americana ex europans forma et indumento foliorum *S. incanie* subsimilis, ExUnt forma? *S. humilim* foliis subtus incanis non male simulantcs, qua tamen amentis, evidenter recedunt. Specimen in herb. Lenormandi vidimus amentis ♀ foliato-pedunculatis, capsulis longius pedicellatis, stylo breviori et foliis supra glabris subtus molliter lacteo-tomentosis insigne; num a *S. incana* et *S. pedicellari* hybrida? (v. s. et c.)

a, *tomentosa*, foliis supra valde rugulpsis ibique floccoso-tomentosis subtus tomento intenso niveo lacteis.

p, *denudata*, foliis supra glabrescentibus subaequalibus subtus tomento rariori vel obsoleto fere virescentibus vel etiam glaucescentibus.

106. *S. LAESTADIANA* (Hartm. Skand. Fl. ed. 3. p. 237), amentis sessilibus bracteis paucis vel nullis suffultis densifloris elongatis crassiusculis, squamis apice atris ~~griseo-pilosis, capsulis conico-rostratis acutiusculis albo-villosis~~ ~~pedicello~~ ~~nectarium bis terve superante, stylo eloiigato, stigmatibus bifidis laciniis linearibus divaricatis, foliis lanceolatis vel obovato-oblongis supra plus minus pilosis subtus griseo-tomentosis secus nervos molliter sublanatis margine crenulatis, stipulis parvis. 5 In regionibus littoralibus Sueciae septentrionalis (in Norvegiae Saltalm sec. Fries) et in Lapponia inferiori sylvatica et subalpina haud infrequens. *S. canescens* Fr. Nov. Mant. 1. p. 58, Bot. Not. 1840. p. 183, Summa leg. Sc. p. 10; Anders. Sal. lapp. p. 28. f. 5. *S. limosa cinerascens?* Wahlenb. fl. suec. p. 663. — Arborea vel frutescens, ramis glabris, novellis albo-hirsutis, foliis et amentis quum habitu turn charactribus inter *S. Limonum* et *S. Capreas* intermedia vel ut jam autumavit Lacstadius, ah iis hybrida, his formis praecipue ludens :~~

a, *canescens*, foliis elongato-lanceolatis fere obovato-spathulatis initio molliter tomentosis, demum supra glabratis subtus in costa venisque saltern tomentosis, amentis crasse cylindricis, capsulis majusculis. *S. caprea*-Lapponum (Last.) Wimm. Sal. europ. p. 192. — Variat 1° *subcaprea*, foliis 2-3, poll, longis supra medium J-poll, latis supra planis late viridibus subtus molliter canescentibus nervoso-lineatis, margine opace crenulatis, capsulis lacteis albo-villosis, squamis basi ferrugineis. Hab. in Lapponia Miensi et Tornensi pi. locis. — 2° *sublapponum*, foliis 1 -J-2} poll. Tongis supra medium J-J poll, latis utrinque ~~longius acuminatis supra obscure viridibus nervis impressis subtus adpresse tomentosis opace cinereis. Haec interdum foliis lanceolato-linearibus vix 1 poll. latis oriseis. — In Lapponia Tornensi: S. Lapponum valde simile in v~~

P, *opaca*, amentis brevioribus, foliis obovalo-oblongis brevius acuminatis jupra opacis. — Variat 1° *subcinerea*, foliis supra medium evidentius latioribus in te acuminatis supra planis subtus griseo-tomentosis. *S. einereo-limosa* Laist. *S. canescens* I^estadiana Fr. Bot. Not. *S. cinerea*-Lapponum Wimm. Sal. europ. p. 193. Hab. prope urbem Pitea Sueciae septenirionalis. — 2° *subaurita*, fol. obovatis basi magis attenuatis apice brevius acuminatis supra purius viridihus nervis impressis rugosis, subtus pallidioribus. *S. lapponu^aurita* Wimm. Denkschr. 1853 p. 166, Sal. europ. p. 194^ c\_o\_u\_# sal. n. 10. 2206. Hab. in Norrlandia Sueciae pi. locis, in Helvetia (Thomas, fib: windob.) et in Sudetis (Siegertex" wimm.) Haec certe a typica *S. Laestadiana* valde recedit folris multo minoribus subtus rugosis glaucescentibus, amentis brevibus anguste cylindraccis densifloris, sed formis innumens intermediis inter se connexa? videntur, quare hanc nou separare vellem. E. Lapponia Umensi specimina vidi a

Dr Angstrom missa, quae aut ad bane formidra aut id byndam e s. Lapponum et S nigricans procreatae pertinent Cum hac congruunt amentis sessilibus folio uno dente minima sutillis, c ipsius subsessilibus breiter peicellatis tomentosus conico subultra, stylo producto flavo, sed cum illa (vel cum S cypria) lina ovali obovatis basi subrotundatis apice breviter acuminatis supra lucidis conspiciuntur nevisis, subtus pice tomentosus, costa nevisque dilutionibus elevatis eisiccatione magis maculatis (v v)

X S 1 USCHIANA. (Sieb Cat 1821 sec Wimm ), amentis sessilibus fere ebracteadis elongato cylindricis subdensis basi laxifloris erecto cuivatis eras subultra obtusis squamis oblongo-obovatis obtusis fusco ferruginis primo villosa demum villosa obliterate subnuda, capsulis conico hincolatis cano-tomentosis (vel glabris) pedicellatis, pedicello nectinum bis quadruplo superante, stylo fulvo, stigmatibus filiformibus luteis bifidis, foliis oblongo ellipticis subapiatis, lationibus biovatis oblique acuminatis pulcherrime subtus unescensibus margine reflexo integris venis lectis bipinnatis pievatis auturano jepe denudatis videri rufescentibus. — S. Silesiaca-Lapponum Wimm H 1849 p 44, Sal europ p 195 S Lapponum Silesiaca Wimm. Daiksch 1851 p 16', Hb Sal 131-H3, Coll 214 219 S tomentosus, b. multi-glandulosus, S sphenogynia S sphenocarpa, Serythrophlebia et S ahipila Tausch txa (teste Wimm ) Sub duplici occurrit forma 1 subultra amentis crassiusculis fere bipinnatis, capsulis ovato-conicis elongatis crassiusculis incano tomentosus (basi nudiusculis), pedicello nectinum bis tene superante breviter pedicellatis stylo medioconigmatibus obscuris squamis abutiusculis brevis villosus, foliis longius petiolatis basi subrotundatis 4-pollicibus, supra medium pollicis lationibus subtus minus tomentosus, nervis et costa fulva prominentibus Pst S lapponum habitu similes, sed differt capsulis pedicellatis, stylo multo brevior, etc — 2° substansia capsulis brevioribus, basi crassiusculis, omnino glaberrimis obscure ternatis pedicello nectinum quadruplo superante pedicellatis stylo pedicello apiculato rostratis lutescente, stigmatibus fere dilutionibus foliis brevioribus subnuda Vix a S Silesiaca differt nisi stylo valde elongato per foliorum nervis elevatis bene incanis, consistentia densioribus — In alpibus Silesiae? hie inde passim parentibus immixta formis certis ita agant inter S Silesiacam et S Lapponum intermedia, ut ab us certe proles hybrida sit enata. (v v)

XX S HIRTI (Kem Oestr hot Zeitschi 1866 p 370) amentis femineis cylindricis densifloris pedunculatis pedunculo lina inugis senceis 14 obsito, squamis spatulatis acutiusculis lavis apicem versus lina rectis longissimis dense villosis, capsulis conicis tomento brevi opaco albido demum nrescente et canescente vestitis pedicellatis stylo mediocon crasse purpurescente, stigmatibus bifidis erecto patulis, foliis ellipticis vel obovatis basi cuneatis breviter acutis margine remote crenato serratis basin versus integer rimis adolescentia canescentibus adultis super glabrescentibus sicutat' s(d pure videntibus et nitidius subtus cmo-virentibus tenue et molliori tomento, stipibus rariosimis J In consortio parentum in salicetis alpinis vallis tirolensis Selraen (6000 p )', specimina amentifera ad nulum alpinum prope Kals (Pisthicitul) in n 7000 p hgit cl Hutcb histata X luhetici ex Kem Tiutexad 2 pal altus lamosus, lamulis cano pubescentibus adultis glaberrimis coarctate fusco cistaneis oblectis Folia U) 10 in , l'j 2) liri De online hujus stypis nulli manet dubitatio Ceite e bailee hastata I et S Lapponum Helvetica connubio oita est Hibitus inter parentes optime rarius 1 oha lite margine crenato serrata, supra parce videntia, S hastatam simulat et indicant, vestitus foliorum autem et germina tomentosa originem ex S Lapponum Helvetica ostendunt ( s )

XXX \* > cpi RIA (Willd e Schleich Herbifet Fxsicc ), amentis bievte pedunculatis foliis paucis suffultis erectis densifloris cylindricis, squamis fulvis apicibus fuscis acutiusculis pilosis, capsulis lina ronicis itenuatis gneo-tomentosis sessilibus stylo elongato flavo, stigmatibus brevibus bifidis, lina lanceolatis basi angustatis apice acutiusculis supra glaberrimis videntibus subtus primo senceis demum deuudato-opacis costa (lava perousis margine plus minus

acute sen at IS In Helvetia et Tiroli. — Hegetschw n 248, Kerner Herb Sal n 81 S nivea F su concolor Ser Hs p 54 S Hehetica C spuna Gaud Helv 6 p 263 S Lapponum arbuscula Wimm 1863 p 103, Sal europ p 264 S helvetica myrsinites Kcin 1 c Omnibus s Lapponum ita similis, et vix ab ca ullo inodo distinguenda s t, nisi amentis brevionibus et compactionibus, folns paucis suffultis, sed praecipuc foil is raulto dunoribus, mag is glabratiscet maigme snpe aut argute serratis S myrsinitidtm rt\otat folus ugidiustulis vims Jevitis reticulatis sub tomento lucidis stylo capsularum subviolatco, iniIn tiuti m a. S arbuscula onginern Inluc potius tidetur « Alia foimaHeib Willd n 182)1 quam Schleithi S lhymlaLOidts mscrisit, a S arbusculaet glauca desfendere videtur, quod hoc loco monuisse satis est, quoniam e specimibus praepcsitis «? nondum satib constat » Wimmer Sal cuiop i) 265 Qjiritum tx sptcimibus qua. vidi hanc lormam vix a typica S arbuscuia distinguere valeo (v v)

C *Scncear*

Fruticrs srpe humile\*, regiones ilpmas summas et arrticas imantes Folia elliptito-lanuolifi molln, mt(£ra \menti folnto pedunculate, squamis fulvis •el apice obscuronibus anlhtns pnmo rufis demum fuscis, capsulis ovali-oblongis senceo-lanatis, stj Io Juteo \ultfo bifido

107 S (LAICA (L sp 144G) amentis foliato-pedunculatis tylmdnus crassmsculis subdensiflons squamis actitiusculis VPI obtusis fulvis apite fuscionibus longe ilbo villosis, capsulis ovato lanceolatis obtusiustuli\* dense ni\eo toraentosis vix vel brtviter uedicclalis, ptdittllo nectauum subaequinlp, stylo producto bdLpissimc bifiño, ^tigmatum lacinnis divincitis, folns elliptico-lanccoteolalis si\ius utnnque SCILLO-MIOSIS subtus obsolete glaucescmtibus arcolato vcnulosis interns ^ Locis ulginosis in Ljuum camj is et in (onvalihus alpium ctsummo SLptcnluone Amenta,Sibiuae et Lapponiae arcticde per regionis omnes boiealcs et alpinas, dunque in Al^ibus Helvetia et Gallic idjacentis — VWahlenb suec n 112J, Fi Mant 1, p 44, Surnma p 57, Koch (i inmenl p >> Sjnops ed 2 p 757, Uartig Krstl (ulturpfl p 388, <aud hclv 6 t 272, Ore n et Godr 11 fi 1\*0, Btrtol fl it 10 p 32^i, Willk Igc fl bisp p 2J1, Ledeb fl ross J p 618, Hook et Am Bot of Decehty Voy p 12^, Middendorf Rcisc 1, p 26, Kupr Fl Sarnoied p 53 HinkGifvnl p 122 Andtri Sal bor Americ \rt —/corns Wahlbg fl lapp 204 t 16 f J,H Dan 10%, 10^>8, Andtrs Sal lapp f 21, Re ichb f 1214 Sal Wob t (8 74, <j — *Exsur hr Hb n J ,2 Reithb n 2014-5 K(rn Hb sal n 84 Hill n 1961 1 rulex statun et paitium fort omnium forma eximic vinabilis, typitt difTusus vt ramobu»», lainis rufo lustis nitidis Folia biUMtidlu s(mij)olliccm lala, utnnqut sed subtub dtnsius pilis lon^is mollite^ sr ricei, 1 ervis aiuatis in mn^intm int( ^cinmurn subundulatum excurrentibus, sipo oxsiaticno nigik intia Armnti sc rotma ramulos brevts foluftios ttiminantu, mistulao^ali tylin«Jii( 1 anth ns pnmo pulthie rufestentibus, dtmum iuscis, feminca basi sul lbiunti, capsulis lineanbus pulchre tt denst vilksis In tonvallibus tt sylvis. subalpinis fiutex tondit plus quam orgyalib, in timpis alpium eximic dtpnssus et exiguus, pollites tan turn paugos altus (v v)*

a |er|rea<sub>y</sub> folns pihs argenteis plus minus dense tonsptsrtsis exsitatione ttiim gliuto nneis rite nignt mill us tonsistntia densx n subngidis v moll bus Vanat 1° *f/randifoha* loll s htissimc ovali ov ltis srpc sti pulatis S lanalam qiJ(dammodosiinulalpi7upucloimalohis ngidionibus — 2 *oxaUfolia* folns ovali rotundatis vtl ovato o\ahbus 1 2 poll longis, mterdum siipulitis — i *lanuolala* typica, folns plus minus elliptitolanttolatis S stntc 1 Vill Dtlph 3 p 782 t 14 f 27, Willd sp Pi 4, p 688, Ser. Lxsicc XU 58 — 4° *angustifoha*, folns anguste lan< eol itis longitu line htitudfnrm sextuplo et adnut rmgis hupeiantibiis Ilibiiu S laiporiirn

p *pullata*, loins supn glabrescentibus subtus plus minus villosis et glautis tenuibus vul^o nigntaniibus Vanat ovalioliola rt ingustifolia ut forma prjeed ns Ad s Amandt tiansieris.

y *virescens*, folns saltern demum utnque giabratis nguliusculis subtus integns glaucescentibus Ad S Wichurae transiens — Vanat 1 *latifolia*, folns 2 3 poll longis I poll latis — 2 *Unmfolia* fol ^ 1 } poll longis nunc ovahbus, nunc anguste lanccolitisv ommmo Imeanbus

o *alpina* fruticulus subrcpens, nmis apice idscindentibus, folns brevionbus aut densissime \llosis nil sub^hbrescentibus, amentis facie subterminalibus vulgo crassis, capsulis interdum minus d use tomcniosis — Ad S arcticam \ergens S glauca p nuciocaipa Iedeb fl dlt 4 n 281, Lcdeb fl ross ic I 468 L macrocarpa liautv M6m de la soc de Moscou 8 p 292 S mcl molcpis fi tutv 1 c p 29J, est modifitio squamis apice atns, stylo integro

X S GLAUCOPS imentis brevius pedunculatis sat longis latiuscuhs subrariflons, squamis acutiusculis fusco fulvis pilosis, capsulis conicis acuhusculis demum subglabrcscentibus breviter sed distincte pedicellate stylo pioducto vulgo inttgro sdupe autem sat pcfunde bifido stigmatibus brevibus fusuonbus, folns lingulato lanceolatis basi attenuatis apiee breviter atuminatis intcgemmis supra plus minusve villosis subtus glaucescentibus demum ngidis sii)uds Mjbpcrestentibus lanceolato lineanbus — sub duabus occurut modihtationibus

\*j *vtllosa* folns mollionbus supn sat denso subtus parcms villosis, amentis angustionbus S wlosi D Don sec Hock Fl bon il imenc 2 p 144 n J, Seem Voy of Hcrild p i<sup>4</sup>) i4 S glauca VIIIOSL Anders Nord \mer Pil p 127 S cordifoha Hook H bortal arner p 1S2 p p (non Fursh) In omni America septentnonali usque ad fl baskatchawan crescere dicitur

P, *ylabrescens*, amentis crassis vulgo multiflons foilis rigidionbus supra sparse pilosis demum glabr s subtus sat intense glaucis In Rocky mountains copiose legit liourgeiu

horma villosa S glaucr nostrr ex orbe \etere ita est similis ut earn vix separas em nisi cipsulis mult) icutionbus minus dense lanatisct stylo integio raomt is, quam autem glabrescpnttm appellavi longius distil et S chlorophvHam (c typo S phylicifoli i) non pirum levexit, fflnsglabns supra luculis ot ncrvosis subtus gliucis reticulatis amentis multo brevius peiuncuiatis ct cipsulis distinctius pediccllais Ad S desertolum manifestissiraum pnbet transilum

108 S DESERTIORUM (Richards Appond p 371), amentis breussimis fvemipollicanbus) subglob\* sis densiflons, squinns rosco pilhdis dense albo villosis, upsuhis ovato tonicis albo lamtis sc-silibus., stylo bipartito lu^co folns »n ^ustc obkngis rigidis subtus plus minus albo tomentosis sultglaucescentibus costa prominente fliva et nervis elevitis subscrobiculatis supn interdum vmdibus sublucidis — Hook fl boieal imtr 2 p 1 A n JO !\* giauci ilesertorum Andtis 1 c p 127

a *data*, frutex 4 5 pedilis nmis subsimplicibus crassis nifescantibus, foliis basi sul)anj?ustitis supn gl ibns \cnis modice imj re^sis subtus demum Rldbrescentibus, imentis scmipolhcem lonps — Itocky mountains (Drummond)

· *stncta*, frutex 2 3 pedahs, nmis stntctissimis, folns elhptico lanceolatis pollicanbus supra tenuier senceis subtus densius in< inis reticulato venulosis, imentis } poll longis — prope fl Saskitclnwin (Hourgeau)

Y *fruliculosa*, ramis e tiunco subtemneo trectis folns ' poll longig I i lin 1 illis anguste 1 inccolat^s utnque acutatisapite subobliquu, subtus dense senceis mtegermmis, amentis ob folia rimuloium fulcrantia occul tatis o>ato rotund uis — in regionibus Amencae septentiionalis, ut ad Fort Hall, in Rocky mountains.

109 S LINGULATA, amentis longissime foliato peduncuhtis tonuibus brevibus curvatis subdensissimis squamis fulus vel fuscis lint an oblon^is obtusiusculis glabnusculis vel pilis paucis et brcubus conspersis capsulis / irurn bievionbus, (apsulis ov ili-oblongis obtusis albo tomentosis sessihbus, nectano



brevi basin capsulae superante, stylo subnullo v. bifido, stigmatum laciniis fuse is (divaricatis, foliis anguste obovato-elongatis vel lingulatis supra glabris subtus tenuiter tomentosus integris exsiccatione subnigricantibus. J In America boreali-occidentali, ad Alaxa (Kostalsky). Humilis, e trunco subterraneo assurgunt rami glabri, in formam arbuscula; ramis divisi, vix pedales, dense foliosi. Folia 1-1½ poll, longa, super medium ½-¾ poll. lata. Amenta vix J-J poll, longa, vix 2 lin. crassa. Habitu valde peculiari forma et indumento foliorum indubie ad typum *S. glauca* pertinet, sed amentis perangustissimis et capsulis globoso-ovalibus *S. reticulata* sat evidenter referens. (v. v.)

110. *S. PYRENAICA* (Gouan. ill. 77), amentis serotinis longe et foliato-pedunculatis, masculis pollicaribus subincurvatis, femineis anguste cylindricis laxiusculis et laxifloris, squamis rufescentibus obtusis vel apice rotundatis parce pilosis, capsulis ovoideo-conicis rufo-testaceis tenuiter griseo-pubescentibus breviter pedicellatis, pedicello glandula subbreviori, stylo integro vel rarius bifido, stigmatibus bifidis, foliis ovalibus vel obovato-lingulatis supra viridibus et parce pubescentibus subtus glaucescentibus et pilosis demum glabratis nervis subtus prominulis margine integro ciliatis. § In regione alpina Pyrenaeorum. — Willd. sp. pl. 4. p. 696; Duby Bot. gall. 426; Lap. abr. 600; Gren. et Godr. fl. fr. 3. p. 141; DC fl. fr. 3. p. 292; Trautv. Sal. frigid. p. 290; Hartig Forstl. Cult. p. 390; Willk. et Lange fl. hisp. p. 231; Wimm. Sal. europ. p. 94. *S. ciliata* DC. 1. c. p. 293. — *Icons*. - Clus. hist. 1. p. 85; Trautv. Sal. frigid, t. 4; — *Exsicc.* : Lange n. 157; Billot. 555. Fruticulus humilis, depressus, trunco valido, ramis gracilibus flabellatim adscendentibus, torulosis, castaneis, lucidis. Folia vix pollice longiora, supra medium J poll, latiora, aut ubovato-ovalia aut subspathulata, apice subproducta non raro subobliqua, tenuia et fere diaphana, demum rigidiuscula et glabrata. Amenta masc. pollicaria, feminea 11 unciam longa. *S. glauca*, qua; in Pyrenanis non crescit, forma analogae vel modificatae geographicae eadem fere ratione se ad *S. glaucam* ut *S. Lapponum helvetica* ad *S. Lajponum* habens. Ab *o* *a* *b* *c* differt statura valde majori, ramis flabellatim adscendentibus, foliis junioribus tenuibus subdiaphanis pilis longis albis adpressis et ciliatis, subtus intensius glaucis, brevioribus et latioribus, amentis longius pedunculatis. pedunculo rami instar foliato, squamis rotundato-ovatis brunneis, capsulis distinctius pedicellatis brevioribus multo tenuius pubescentibus ita ut bene-vesteae adparcant, stylo plerumque indiviso fusco apiculatis. — Folia adulta rigidiuscula a *S. arbuscula* recedit foliis integerrimis pubescentibus, tenuibus et ciliatis, nec nunquam capsulis basi crassioribus, stylo interdum diviso, stigmatibus saepe cruciatis; a *S. cassia* staminibus duabus, stylo producta, foliis majoribus viridibus. *S. ovata* Ser. (= *S. Pyrenaica* Norvegica Fr.) foliis serrulatis, amentis brevibus et breviter pedunculatis, styloque ab *o* *b* *c* distinguitur; at ab ill. Wimmer cum *h* *v* *c* conjungitur! *S. cordifolia americana*, quae olim *S. Pyrenaica* forma creditur, vix a formis foliis tenuioribus nigricantibus *S. villosa*; est distinguitur. (v. s.)

111. *S. RKPTANS* (Kupr. Flores Samoied. cisural. p. 54. t. 3), amentis lateralibus longe pedunculatis ovalo-cylindricis foliis suffultis subdensifloris, squamis glabratis margine ciliatis t<sup>h</sup>staceis, capsulis ovato-conicis tomentosus sessilibus, stylo brevi, stigmatibus bifidis divaricatis, foliis ovato-ellipticis rarius subcordatis integerrimis utrinque sericeo-villosis demum glabrescentibus subtus glaucescentibus inferioribus apice rotundatis superioribus acutiusculis, stipulis ellipticis integerrimis apice rectis. *fr* In parte orientali ins. Kolgudew non longe ab ostio II. Pestschanka (Hupr!). — Ledeb. fl. ross. 3. p. 619. Affinitas difficile extricanda. Cum *S. glauca* potissimum a Ruprecht comparata, sed diversa : ramis humifusis radicanibus, foliis parvis subcordatis (8 lin. longis, 6 lin. latis), stylo integro, etc. Cum *S. ovata* magna etiam similitudo ut etiam cum *S. sarmentacea*; a priori differt foliis subcordatis subtus glaucis et integerrimis, a posteriori amentis brevibus, capsulis crassiusculis sessilibus et tomentosus. — *S. ovalifolia* etiam recedit foliis glaberrimis costato-nervis, capsulis plerumque glabris, violaceis, plus minus pedicellatis.

112. *S. SUBCORDATA* (Anders. Sal. boreal.-amer. 1. c. p. 128), amentis lateralibus foliis suffultis patulis cylindricis densifloris, squamis oblongis obtusis fulvis

apice fuscionebus paice pilosis, capsulis ovato-conicis sonceis sessilibus, nectano basin capsulæ superante, stylo elongato intero, stigmatibus bifidis integris divancatis fulvis\*, foliis rotundatis v. ovatis basi cordatis vel subangustatis utrinque glabris subtus pallidionebus acute venulose reticulatis margine integris vel minute glandulose denticulatis majonibus stipulis acute serrulatis ornatis. In Rocky mountains Americæ septentrionalis\* *Frutex* parvus ramis erectis sculis nitidiscasianis, gemmis inarms, holia adulta saepe InpoUicana, fuio eadem latitudine, orbiculari-ovata, Ion Re petiolata (petiolo flavo lucido), cosla et nervis arutris prominentibus reticulata Amenta subpollicana, crassiuscula Capsula\* fere lineam longæ — Est quisi inter *S. glaucam* et *S. coidatam* intermedia A priori amenta et capsulas dense senceas sessiles habet, a posteriori folia glabrata, margine glandule serrulata, crasse coriacea, stylum intermedium elongatum — Folia minor et juniora usque cordifoliae Hook (quæ est modificatio *S. arctici*) similia sunt, sed vulgo basi latiora et siliciformia Hue lora etiam pertinent 1. spetunna a Bourgeau d. 24 maji 1861 ad fl. Saskatchewan prope Carlton House collecta, quæ dum (sat juvenilia!) nonnulla redunt capsulis ovato-tonicis, stylo subnullo, stigmatibus integris, folisque lanceolatis, arutis et argute serratis, quibus notis ad *S. (lucidam) argutam* accedunt, et 2. specimina nonnulla a De la Pylaie in Terra Nova collecta, (quæ (jdm declorata) attamen differunt squamis villosobarbalis, capsulis (jam maturitate dehiscentes) brevissime pedicellatis, folis quoque subtus intense glaucis, margine aigute et inflexo-serratis (v. s. in h. Hook.)

X *S. AMANDA*, amentis pedunculo brevi foliis 2-3 instructo pedunculatis breviusculis subdensifloris patulis obtusis, squamis fuscis pellucidis atutiusculis parce pilosis, capsulis ovato-conicis obtusiusculis plerumque albo-villosis pedicellatis, pedicello nectanum duplo-quadruplo superante, stylo producto integro, stigmatum laciniis duancatis, foliis late lanceolatis aut utrinque pilosis aut supra foliis subtus densius tomentosus demum denudatis tenuitate facile nigricantibus et creberrime albo-punctatis margine tenuiter et remote serrulatis. In Lipponia fere omni, in Fennmarkia (Fries) et Hejdedaha (Thedemus). b. glauca pullata Fr Not 1840 *S. nigricanti-glauca* Anders bal. lapp p. 75 *S. glauca-nigileans* Wimm. Flora 1849 p. 46, Denkschr. 1853 p. 172 Est a *S. glauca* et nigricante, quas inter semper crescit, certissime hybrida, et ex forma in Lapponia frequentissima. A *S. glauca* habet totum habitum, folia adolescentia pallide viridia et molliter sencea, amenta foliata, capsulas obtusiusculas albo-lanatas et stigmata bipartita, a b nigricante staturam fere arboris parvæ, folia latiora et breviora, tenuitate facile ingrescentia, margine serrulata, amenta foliis paucioribus suffulta et capsulis breviter pedicellatis styloque integro rostratis — Vanat *heliccarpa*, capsulis latis albo senceis, et *lejocarpa*, capsulis saltem basi subglabrescentibus (v. v.)

XX b *parvifolia*, foliis vix semipollicem longis basi subrotundatis limbulato-oblongis subtus glaucis nectano linealis supra glabris basin versus serrulatis, amentis longe pedunculatis et ramis squamis dense barbatis, capsulis elongato subulatis basi glabris (m versus albo-villosis longe pedicellatis, stylo tenui elongato — Hab in Hejdedaha *S. glauca* mytilloides Wimm. in sched., Wicbuia Die Bdsterbildung p. 77 Notabilis forma qua? non a b. mytilloide et glauca sed a flavo et nigricante mirum procreata est, nullo modo nisi longe minoribus capsulisque glabris a *S. Amandae* diversa.

XXX *S. SPISSA*, amentis pedunculatis pilosis patulis incanis crassis cylindricis obtusis densifloris, foliis 2-4 suffultis, squamis fulvis oblongis obtusis, ensatis pilosis, capsulis e basi crassis obtusis testaceis tomentosus sessilitus, nectano basin capsulae superante, stylo brevi fulvo stigmatibus subfuscionebus bifidis lacinis cruciatim divancatis, foliis tenuibus late lanceolatis basi apiceque jequahter attenuatis utriusque v. v. vindibus glabris subtus pallidionebus margine tenuiter serrulatis In bongana, in alpibus Alatau (Kirel et Kinl). *S. alata* Kar. et Kinl. in sebed Inter *S. glaucam* et *pylicifolia* media, amenti priori, longe postonon simile. *Frutex* mediocriter lanna

et raraulis crassis divancatis Havoscentibus Folia 1 \$ 2 poll longa, ad medium pollicem lata, subnitentia, amenta?) poll longa, fere seunpollicem crassa Capsulae valde confertaj, tenuiter tomentosae, fulvescentes ^v s )

P, minor, folns vix polhce longionbus, amentis <sup>l</sup> poll longis capsulis stylo nullo praeditis — In Songara (Karel et Kill n<sup>o</sup>\* 1906, 1975)

XX>O< S WICHLRA, amentis foliato pedunculatis crectiusculis elongato-cyhn-dncis basi ranMoris, squamis testaccis dcutiusmlis apice fusuonbus parce pilosis, capsulis elongalo coinus obtusiuscuhs breviter cinereo tomentosis pedicellatis pedicello neclanum icie bis supudiite, stylo mediocn mlgio, stigmdlum ldcim s brevibus divancdtis Coins lanceolate o bo vat is basi angustatis apne plus minus liuiiiinalis utunque glabnuscuh vel parce hirsutis, supia vmdibus subtus gluci->, demum sublucidis rigidis maigririe lependocienitis In Lapponia Lulensi et Pitensi, nee non in Do\re a glauco phylicifohd Anders Sal lapp p \*7 fig 10 Wimm Denkschr 1853 p 168. Inkr S glaucdm et phylicifoliam exacte media A S gluca habet staturam humiliorem lolia saltern jumoiia lomentosa etiam adulta | illis paucis derebctis conspersi, IUiuscula, imentd folidto pedunculata, capsulas obtusiusculas tomentosae et stigmdlum laciniat divmcatas Scd a S pbylicifolu habitum, lamos tenues graules, rubicundos folia acuminat, supra demum lucide ymdia sublus gluca, mdigine cieinU, capsulas ptdicellatas et stylo integro rostratds (v. v.)

>O<XXX S GLAUCOIDES amentis longe foliato pedunculatis croctis crassis densiflons obtusis, squamis piceofuUis apice lotunditis villosis, capsulis ensse ovalo conicis ohtusiusculis me ino tomentosis hrevissune pedicclatis, pedicello ncttinum vix equant(, st>lo paivo atio, stigmalum lacinnis bievibus patulis luscis, folns ngidis m,Misc lanceolatis basi lpicque attenuatis utunque pnmo subsencctis demum glabns mtidis et norvis clovatis lineatis nmrgine argute sorratisvtl Intogernnis S glauco myrsinites Anders Sal lapp p 78, Wimm bal europ p 2>8 S myrsinites glauca Wimm Flora 1849 p 4 In I ipponu IMtonsi et lulensi (Vnders), nec non in k-inmarkia (Th tries et I jestadius) Inter b glaucam et myrsinitidem media A pnoic babgt staturdm elatiorem, ramos stnctiusculos, cipsulas <Unse gnseo tomentosae et stigmata bifida crassiu<culi ai> myrsinitide rdmulos piceo nitentes, fobd ngidissimi pure vindi intentii, utunque venis ele\itis icute lineatd, marginr aiguu seirati cdpsulas stylo atro mtegro dpiculatas et pedunculum sul)orne nudiusculum Hibitu S myrsinitoidem \alde aemulat sed rocedit folns inolhoiibus non ruo plane inUgnis cilntis nei\is minus elevitis,amc nitis Jonge (oil it pndunculatis rinlloris, capsulis longe et crasse conicis molh ter tomentosis stylo bifido pallido apiculatis (v \ )

XXXXXX^ ELAAGNOIDPS (Schleich Catalog p 2^), imenlis bre\iterpedunculatis folns pducis suffultis jdtu is subianflons cylmdiiicis obtusis squamis oblongo spathuhtis apice sul)tiuiu ito ldtioiibus fulvis tPiiuitti pilosis, capsulis tenuilms conicis apico suhtonicntosis celcrum ^labernnis brevissime pedicellatis,pedicello nect mum\ix aequante, stylo bre\i inte\_nTo ^tigitum ld^inns pituhs rulvo carneis, folns lanceolatis vel subhngulatis basi an^ust His apice acutis aut obtusiusculis pnmo tenuissime pilosiuscuhs demum ^libnuscuh subtus pallidionbus interns InHelvttiapl loci° — Scr I ss p 01, Gaudin n hclv G 271, Hc(r in Hogetschw H d Schw n 2842 S glauco retusa W mm Denkschr 1853 p 172, Sal europ p 2>9 S glaucae similis staturd autera multo humilion nrrulis ulscendctibus castaneo piceis glabenimis folns an/ustioiihus tt bievionbus (vix polhce longionbus | | poll latis), apice saepius lationbus scd prcipue squamis magrns obovato-lingul Uis glabnuscuh et capsulis tnenonbus maxim mi [drttm glibns, st\lo mtegro lpiculatis ad S letusam \ergil ConsisUritu autem et hnsutie folioruna nee non capsulis salUm ajnee villosis et colore onmis fruticuli S glaucam aperu rcvo at s Imxifolia Willd schl berb Kern Hb Sil n 82, a ecl Wimm hue ctnm rclita mihi pr>pius ad S Klaucam peitineie \nlotur oh capsulas totas \illosis Sciiiuulutn s| o iiiina qn rdam sillem <f s hlr icJienina hdiu fonniiri ill Kurnur | i ) hyl nda a S retusa oi lieUctied (b Lapponum) hdbet at specimnu a Kermr divulgala mihi it parum i s retusa ipsissima

recedere videtur nisi folus subtus tenuiter tomentosus ciliatisque, specimina amentis 9 tantum ornata vidi — (v v)

### §17. *NitiduU s. Glaciates.*

Fruticuli sap, e humifusi regionum arcticai uni vel summarum alpium pn cipue incoljc, trunco subteiraneo, ramis flabcllanbus apice adscendentibus ot fohatis Folia sappe conaceo ngida, nevis tt veins elevatis reticulaU Amenta in ramulis annotinis non laro gemmifens fohatis terminaha Capsula} vulgo subsessile3, stylo saepissime lusco et elongato rostratai, squamis concavis basin capsulap involventibus — \*ormae hue relatae quom habitu turn charactenbus inter se sat diversae, modificationibus tamen innumei is mirum m modum mulUfanam inter se connexa?, quasi multarum aliarum tnbuum formae extremae, contractae, aut primanae aut degenerate, usque forsan adsenbendae — Chamchx Dumort ex Fr , Fi Mant 1 p 72 p p

#### a *Myrtosahx* Kern.

Frutices interdum mediocres, vulgo p\gmaci, divancato ramosi Folia nguhsissima, conateo induiata, nitentia, punctulata et nervis elevitis stnata, Scppe aigute et glandulosc senataet marcescentia, persisientn vcl fulvo brunnea Amenta latcraha vel subterminalia, pedunculo non gemmikro apite nudiusculo pedunculata, crassiuscuh, squnnis apice infuscatis antlitns uefloratis fuscis, capsuhs coinco rostiatis, surplus uohteis, stjlo pioducto fusco Glandula ton simplex, antica, purpurca — Myrtosahx Kern Weid Oc-tr p 47

113 S PALLASII, amentis pedunculatis elongatis crassiuscuhs densifloris, pedunculo superne sat longe nudo inferno loins 2-3 instructo, squamis atns obtusiuscuhs longe albo-villosis, cipsulis conicis longe cineito villosis obsolete pedicellatis, neciaru basin subsuperante, stylo elongato fusco, stigmatibus bifidis lacinus filiformibus elongatis dnergentibus folns obovatis apice rotundatis \el brevis->ine apiculatis Integemmis parco et molliter pubescentibus demum cihatis subtus plus minus distincte reticulato venosis (v s)

a, *crasstjults* (S crassijulis Iiev herb ex Trautv Sal frigid 1 c p 308) frulexhumilis semipedih^ rimis adultis radicanibus, unionbus ddscen-denhub annulinis pubibtentibus, folus >dpe (eie 2-poli supi i medium polhte lationbus basi longe attenuatis plains vel niargineparu n levolutis subtus vix pail dionbus obsoleLius venulosus junioibus subtus senceis deraum glabiatis tenuionbus, petiolo semipollican, amentis lattialibus femineis feie bipolhcanbus erectiusculis In Kimtschatki pi lows (Mertens, Ptteis, Rioder, Stewail) et in Inalasukki (Lschscholtz) Est quasi a S \eslitiet S glauca composita Ad b aicticam st habet uti S vestita ad S re ticutatam,ct foisan cum ei formis specie confine ns, «b ilia recedit folus nee subtus glaucis nec elevato-rtticulitis, ib hac foliurum tonna et tiunco ramisque, ab utraque ameniis longis ciassis, squamis fustis et praecipue stylo valde elongato saspius inte^io fusco A S aictice pi i upue magmtudim partium loins mollibus villosis icticulato-venulosus et amentis bene diursi — Ludit 1° *oblongata*, folus suboblon^is supra medium modice lationbus pnmo dense villosis — 2° *grandifolia*, fol obovato-ohlougis znollilus spar e pubescentibus sod evidenttr cilulis — 3° *obcordata*, fol latissime obovatis sa^pius apice relusis tenuionbus plains longius petiolatis

p, *diplodictya* (S diplodictya liauly bal fngid 1 c p 307) frutex humihs rami> piocumbenubus nnotinis mox glabn«, folns ellipticis ulnnque obtusis vcl bisin \eius pium attenuatis mine pollicem longis et supra medium polliLem latis nuno feitdimidio ejus lititudinis uttnque reticulato Imcatis integemmis subtus vix glaucis demum duwdato gla-biatis amentis polhcem lon^is eiectis de nsiflons, capsuhs submmonbus stylo ffiacili ipice sijissune bifid > io tntis — Specimm i hie destnpta c\ siiiu I inn nlii i Lhdmisso (I n suj« f mt< i Olum fl ,i in MO pi u uih in herbalio Pallasn b aiotica insuipia vidi His» omi ino sioiiliti sunt

ea, de quibus, ab Erman in monte igaivomo Schiwelatsch collectis mentionem fecit Chamisso Innaci 6. p 5\*29. Videtur a S glauca et reticulata typica composita. Ab us quas Ledeb sub nomine S arctica\* de pinxit diversa A precedente lecodit non nisi loins irebnus et distinctius reticulato-venulosis minonhus basi baud lti attonuatis, amentis bicvionibus — Hacc lorm i S Pall lsi tan tam cum S arctic i babot similitudinem ut facile earn liujus modihcilionem maxime evoluit Ill babores lla'c autem foil is domum saltern tfl iboinmo mtontihus, n^idis it lcnubus amentis subterminalibus, capsulis conitis sa.pius 1 ulescentibus\* tt glabeinmis vulgq recedit

114 S AM TirA (Pallis Fl ross 2 p 86), amentis laterahbus et subterminalibus pedunculos tangos stnc tos fuluferos tormmantibus erectis tiassiusLulis densifloris, siuamis obovalis obtusis pallidis vel atns pilots, tipsuhs e b<asi ovata cunicis lomentosis tfl ibnsve, bn ve pedicellatis, pe icello nettanum subsupt - lante, stylo rrdwLW fnvescenle, sti^mitibus p nLitis divancatis, folns ODOvatis o) IIIJUS vel spatbnlato-luicLolitis intc^einnns vel obsoletissimo et remote sciiuhtis deinuin kLVik<itis sublu-> glauto oj) iLis ^ V ^ In regionibus arcticisquuni viltiibtuin noMorbis — Ioiieb H alt 4 p 28J, ioss 3 p 619; Chamisso LiniiiL 4. p r>2) r>H. r'i'io, li.iutv Mem do Id Sou des Natui de Mostou 8 p 293, Middtudoif Hi isu I 2 1 i). 26, R. Br Bot of Hoss Voy ed 2 \ 2 p 1%, Venn bebr I Wi, Hook V\ boieal araer 2 152; Hook et Am Hot or H< they Voy p 129, Sohclu linu.ta io p 8', Seem. Voy oflleiald p 40 Vi r.), li Maul 1 p 71, lloinom PlaitelLre 2 p. 295 —hones ledcb. Icon 11 loss t 400 Inutv I t t. 0. FL D. t 1488 Sub hoc nomine vanas formas saepe comprceubas invenio, qux>, forsan inter se diversa ongine diversae, tarnui in pleiisque notis, supia allatis (pid3-cipue amr nlis fore podunculatis d(nsfilons erectis, squamis fuscis, capsulis subessidibus stylo elon^ato fusco roslratis) s.cpius congruunt. Pro tempore has omnes hit una ita conjungo

a, *nervosa*, lrutox humilis iamis bicvibus, folns spathulato-oblongis basi longe attenuatis ap te obtusiusculis vel breviter et oblique apiculdtis in tegernmis supino unpicse nervosis subtusghucescentibus costato-reticulatis demini cilvtsu ntibus Iniontis fominois l( nuionbus, squamis .itutiM uhs nitfi i< milliis ilbo villosis, ci))sulisgl ibciiunis stylo elong ilo rufpscontr - In Kirnistbatk i 11 juxta Othot/k A prioibus lecodit folns rnulto .m^iiHioihs et Vdlidms tost ito linoitis, Imuitis m irihbus, tapsulis KUBoniim SubvanetiS videtur *cutuuta* (S tuoati lurtz. pi Jixsic Jino IHE> Bull de la Sot de Most lh>4 p r\*7, I oilob fl. ross J p 1)21, Middond Heise I. 2 ) p 82), folns sup.i lutide vindulis subtus pallnlnoiltus .lcutissime neivosis obovitis <di>ue plerumque anguslatis, tipsulis bniinesteniibis, stylo birvion toto fnlvo I Lib in Sibina onenldli Videtui quasi S retusaJ modifitatio njajoi Miidula'

p, *Browner*, folns teriuorihus deinum ngidiusculis pi misvionis vix elevatis narum ru^ulosis demum gl ibialis v tilidtis IKKHS viiidulis basi dpicujue interdum <n[ua'lier dttcnu His subtus evi lentius gliucis Vdiat I°o6o-tata, petiolo plus quim pollitan stipulis sit magnis ornato, folns Idte ovali-obov itis lcn I poll lon^iv. pollite ' itionbus subtus intense glaucis intogernmis, amentis elon^itis s ju in\*\* itis rotund itis, cips ilis ma^nis aut densis^irnc albo-tomentosis lut tonuitr tomontosis, nit deiKiue subglabrestentibus, slylo vdlde elonpito filiformi llab in Unaldstbkd, Alexi,etpl locisAmorit.-carciir^ —HucS coidilolia Puish fl 2. p Oil, Hook II ИOK ill im i 2 I .2, Ti mtv 1 c p 298 t 9 ex I ibrador forsitan otiam pertnif t — 2° *oblotuja*, folns spathul ito oblongis vel oblongo-tllipLitis (Kjllitaiibus MX ultra sumipollitun 1 itis, amcnlis br(\ionbus, tapsulis plorumque gnseo tomentos nonnun(luim denudato puberulis, stylo elongato S arttita H Br. S irectiti forma J Cluni 1 t p r>41. Ha^c eti im in sibina aittita (t in insuhs America<sup>1</sup> scntonti lon.ilis m ixnne arcticis —3 *lamosa*, ramis undiqui protumljontibus 11 iholliformibus, loins pirvis tenuibus obo\ itis \ oblongo lanepolatis planis non reticulatis Intogris piimo albo villosis (ionium gldbrihs, lmdilis bresibus. S fuuiosa luicz (pi exsicc a 1828) 11 baical.-dahur 1. c p 384 S.

phycifoba-mijalis Ledeb fl ross 3. 612 S diva icata (Pill fl ross 2 80?), lurcz (at Baikal n 1017, Ledeb fl ross 3 62», Willd. Sp pi 4 p G3-> Hib in lapidosis id torrenlem Ur<udei (Tuicz), Ochotzk, sinu St Loien/ (Meitens) in Itinere id Kamsch ilk i (stubsendorf) et in Libradur (Hohenacker pi Lal)ial 18)8 n 92 c) bpeumina ldrddonca (s calcirp<fid Inut\ sil fn'id 1 c p 29») recddunt folns vix scmpolliLdnbus, obovato oblonffis basi oblusis v rotunda lib, supra obscure vmdibus, impresse nenosis subtus lntffiquabtei ru^osis intense slaucescentibus, us Vaccinu ulitfinosi pidsUnKr sinnlibus, squ inns pubesceitibus et capsul scintreo pubeiulis ISonne haicpotisbiuim S tor difoliL Pursli 11 Amei syt i (n ) i\_rautv 1 c p 298 (judc tamen styl > lנגissimo msi^nis \idetui ')

Y, *Gronlaruhca*, Iruticulus pusillus sTpr suherectus et ramosus, fob is Idtc lanccolitis lpium \orsus sublitionbus pnmo sparse pilosiusculis demum omno plibemmis supn lucide vmdibus sublus lut IT tius vindibus aut intense KIUCIS mai\_ninr mtpgemib aut leuiotL et obsolete serrulatis, a nentis distinctius lalcralibus eiecto p-itulis, squimis ipice atus pircius villosis, cipsuhs ciase ovitis pedicclatis, pedicclo nectirium superante, stylo producto Ilib prj>Lipuc in (juuiliandi I S ircluaFl Diu t 2488 Vanat 1° *hebraipa*, cipsubs fuscis saju t mcilo tenui #nscis — 2° *lejocmpa* cipsuhs glibris sublucidis mfescentibus — 1° *latifolia*, folns oi bicul ilo ovahbus — 4° *angustifolia* loins hncc ol itis — 5° *macrocarpa*, amentis 2 3 pollicibus >>ollio (n^sionbus, capsulis longius pedicclhtis magnis — 0 *pusilla*, initicuJus vix di^itihs, folns 1 J hn. lonyis dens ssune conlertis Sali(i rtusa. seipyllilolu milogi A foimis atnericus et asiaticis gia nlandica <iuodamin(jdo lecedunt, babitu fruticuli mi no rib niblnr, omnibus paitibub glbnonbus, glaucebceut bub el virentilms

*fi,petiirai* fiutex humilis, ramis divisis suberectis apice foliatis, folns lanccolati apiu et bisi subc^ualitei attenuitis utrinque laete vindibus subtus pai um pallidioi lbus iitogen urns \<\*nis pioinmulis subtus line illis supra plani->glabcinmis imentis tcimm libus cieclis pnmo tfncibbus subian lions (Jomum c ussiusculis densiflons, squimis Mavis tenuihus apice fuscis parcius julosis, capsuhs ovito-comns senceis subsessihlius, nectii IO bisin capsulai subspiciante, stylo \ Ude elnnpato lenui intrgro, stitmatibus lufidis divancitis v icvolntis In summis Hockv mountains (Buuigcau) A c( tens foimis buic speciei sulmumtis diffVrt f)hib an^stionbus et InnRioribus sc pollicom et ultrt longis, \-| poll 1 ill., ul m S giant L vel S plivlicilolia angustati-, capsulis pallidius vindulis testacis et stylo longissimo rostratis

i, *Taimyrensii* (S Tuiuyre'isis Trautv in Midd Reiso I 2 1 P- 24>, amenlis pracocil)is sessilibus bi icleis piucis tan turn sufTultis, squimis atns oblusis longcalbo-villosis, capsulis ^encois sessilibus stylo elon^ato pi eo, stiKmatilms bipartite c rectis loins ellipico-obovatis | arce ot minute serrulatis tlenuim utnn |iio ^lilms subtus ^lmcis Ad fl 1 umyr ad 7J] usque ad Vi | iJuin ox Iscliuga (Vital) spccunim vidi id bane Tormam forsan speuluitia Habitu c t chaicteubus omnino s irticae, sed rccedit prLci uo imontis pracocibus loins tanlum junionbus biactearuui instar builullis, longis et dense villosis, lolus (kuium minoiibus acutioubus.

X S OVATA (Ser Kssai d'une mnogr des Saule<! p 92), imontis latei ihhus et subterminibbus praluncul itis pit illis oblonRo- \cl ovato cylinducis deiisiHons obtusis, pedunculo folns J 4 nistiuctis squimis obovato obl( ngisoljtusiusculis fulvis Lpice obsrunonbus pt pircce pilosm part in mfeioreni cipsula3 mvolventibus, capsulis ex ovit i ba\_i breve conicis] U lumque illio villosis subsessilibus n^ctino bisin cipsult atlin^cnte s!^!o bic|i si| n^ JupirtLo, sti\_n^matibus bifid is Ucinnssdivaucitis folns ovio-elliiHicis \cl ovaliluis acutiusculis supra glabns subtus pilis ilbis idpiessis it lon^is pnmo villosis demum glabratis sed subcibatis trehre et pplucide venuloso lotuulatis remote et tonuiter crenu^tis 5 In Helvetia, ubi ad Arola\* lontes priraum detectaluit

et in SucciiC et Nonegiae alpae et subarctic L pi locis —Gaudin fl hel\ o p 274, Sprcngel Pugill pi 1 p 61, Anders Sal. lapp p 81, Hartn Skand II cd 9 p 181 b P>renaica Vjivcgica lr Mant 1 p 74, Blytt H douens Nyt Magaz f Naiurvul 1 H p 322 S drbuscula a Waldsteinidna Kocli Synops ed 2 p 2>6 (p p) — *Icones* Ser Lss t 2 Anders 1 c f 2i — *Lxsicc* Ser n 112 FT H n 7 64 — Fruticulus ramis vulgo longe leponliiuis, qua>i a S glducu et S herbacca piotreata A b glauca in cidum lidlu t foil L saltern juvenilu molliter villosa demum saltern ciliata, amentd litei Un pituld folidto poduncul ita, capsulds molliter tomentosas et stylum non raro bifiduim, cum b herbacea communid lubct folia demum ngidd situ rate vindia punctulati venis ieticulata margine sjppe argute senu lati, stylum nonnuinqu ini mtegnun piодукtum fulvescentein, et capsuhs squiinis ios (is truncatis bisi mv nul is lufscentes et glabnusculas AS pyn naica (((uicum db ill Wnnmro conjungitur Sal europ p 94), sat long reredit loins concoloribus tenuitei serrulatis styloque sacpissime cum stigmitibus fusco (v v)

a *lahfolia*, folus o\atis v obovatis subovahbus pollicem longis et ultn

p, *paru folia* folus anguste ellipticis vel ovato-obovdto-spatbulatis fere j poll longis aut molliter villosis ant mox glabratis et sublucidis

Y, *macrostachya* irnctis subteinunilibus pollicem longis pracsertim basi Mibunflons pedunculo superm nudiusculo, capsulis majonbus fu^cis tenuitei gnseo tomento&is (fdCic dd b myrsinitidem)

XX S NORMANNI amc ntis laterilil us bre\itei po luncul itispatulo mcurvis elongito-cylindnus obtusis subdensifl\ms, pedunculo folus cetens vix minonbus instructs squirms fulvo piceis ovdlibus ipicem versus obscuns obtusiuscuhs puct pilosis cipsulis ( viiis bie\ittr con it is albo villosis subsessihbus, ntc tano basin cipsuli aejuinte, stylo clon^ito mtegro fuscescnte, stigmatibus apicc pntitis lacirnis pitulis folus elliptico-UnceoIatis dcutiusculis tenuibus utnnpq ^Idberrinub vtl sublus pilis parce pilosis supn obscure vindibu^ infrd pillid oiilius inhgris vel remote oi tenuiter incur\o scrrulatis ^ In Noidlindid id Skervo (Lastadius) et in tinnidrkid ontniah id Wddsoe (Ib >i) S arbuscul 11 oldris Ltidd in stbed S pliyhc folidX myrsinites milu binguldiis foima, sat niignam cum b ovdt [naebens simihtudintm liu-ticulus idims proiejtentibus naret folialis loha fert pollicem longd, medio j^ poll laid, dmonid vix [Oibcdna A S ovdta differt folus subrrujonbus vulgo acutioubus b LS\ magis attenuatis et glabnonbus, sod \ raeciipiit imctis elongito cylmndiicis etcipsulis st^lo sdl longo fusco lostiatis Ob constiuctionem arnenti etiam S inyisiniudi lfhrns sed diffcit folus tenuissimis Ex onim it,ion , ubi baec foima lecli fuit, omnis vera b dibusculd aufugif Hdque b nc e s myisinitide et b phlycifoia tenuifolia, quae lbi baud infrequentissimd occurnt (v s)

115 S TENIHA amentis in rimulishtcrdibus foliatis tormmilibus oiectis sub dtnsiflons gidcilibus anj,usu ohnlncis squidinis in imctis ni isculis obovatis obtusis \ rotund itis itis lon^e pilosis in lemineis acutiusculis fulvis, stannibus binis lilim nlis longis, authens dtmum fuscis, capsulis ovatoconicis ilbo lmitis sfssililms nectanobasin (dpsula\* supeiinte, stylo producto fulvo dpice bifiJo, stiKnidtibus obscuonbus bih lis licinns trectis, folus linguittis bdsi Im^re itunuatis aput acutiusculis nervis elevatis parallelis lincdtis utrinquL gl ibernnus vel parcissime ciholdlis concolonbus Integem mis In America sepunlnonali, ad CdNcade-mountain, lat 49, alt 7000 ped (Lyll) Mcmoiabihs foima a nostns S letusi, rtticulata et ubuscula quasi compositi S rdusae similis lolus linguhtis vix { poll lo h, is supra m(-dium 2 lin latis pai illdo nuvosis Inttgeinmis, S reticulatae capsulis scssilibus, derive Ian ltis, pusillis, et b arbusculae amentis ramulos laterales terminantibus (v s)

116 S viNusiA, amentis fohato-pedunculatis erectis densiflons, squamis ovalibus subretusis ful\is saltern apitem veisus glabns cdpsulam ltre totim in\oluci iMtibus ci]sulis ovalibus peipu illis lanatis sessnibus, stj\ j clougdto filioiuu lu^co, sligmdlibus bifid is lat l in is diYdiicdlib, folus longt petio-

latis tenuibus obovato oblongis vel obcordatis ghemmis integernmis nervis distinctis et venulis prominulis mdstomosintibus icticulatis utnque laet sed subtus pallidius vmdulis ^ Ad bitka Ammcae boredli occidentdlis >utex ramis subpeddibus undique jnostiatis diffusis froIn \ix semipollici longiora et supra medium fere eadem lititudine sdt icute norvosa, us s ovatae (formd) similia ut etidm leticuldtione s leticulatae Amenta fere ut in s reticulita, i e angustissima, vix lincdm ciassi ct semipollicPin longi Cipsulae mmu tissimae, squamis lere totae involute, std stylo atro sat longo iotrafc (\ s )

117 S MYHSINITES (L sp |kk >), amentis litenlibus vel teiminahbus foliatpeduncuhtis erectis vel pitulis misculis ovalibus flividis lemincis ensse cyl ndricis basi nudis subdensiflois is pedunculo apice nudiussculo, squimisspathulato-obovatis atns dense giisoo villosis, anth^iis dcnium nigrcintibus, capsulis ovato conicis sessihhus rostians, nectino basin cap^ulae supeianlc, stylo producto fusco, stigmitihus bipartitis erecto pitulis, licin;is angustis, folus lanceolatis ovito-lanceol itis vel ovalibus oblique acuumnatis concoloribus utnqnp reticulato-venosis lucidis glanduloso sorratis muccsentibus diutius persistentibus stipule ovato-lanceolitis glaiiduloso-ciliaiis In 1 uiopa alpma a maxime aicticis Lipnoniae et Rossia partibus in Scotum, Itaham boi( ilem, Gallidm occidentali mend oridlom et PyrenTos et in Asia boreali usque in Kamtschitkd per omnem Sibiriam , etiam in America aictici —Willd sp pi 4 p 682, Koch Commnt p 60, Synops ed 2 p 700, lncs Mant 1 p 1 |, Wablenbg suec p 661, Hartig Forstl Cult p 389, Wimra MI cuiop p 97, bin E H 4 19>, Hook ct Arn bnt fl cd 7 p 408 DC fl fr | 296 r> 347, Gren ct Godi fl li 3 141, Gaud fl h<l\ 6 262, Willk et I inge fl hisp p 231, Bertol 11 it 10 p 320 Icile h 11 ross J b20, Trautv Mem dc la Soc dc Moscou 8 p 314, Midd Rcise I 2 3 p 22, Rink Grdnl p 121 S alpma Scop Cam p 1208 S aibutifoln Sei Ess 44 S Qubia but fl hch 2 283 S rtusa Dickson S lectijulis Trautv 1 c p 31) — *Icorns* M D t 10^4 Vill Delph t 1 > f 12 L B 1360 Andns bal lapp 1 22 lrautv 1 c t 18 Rcichb t 1188 1190 1193 94 Sal Wob t 60 — *Lxucc* IT H N r> 66 K(rner Hb Sil 121-124 Wimm Hb bal n 72 Coll 120 truticulus pedals, ?ut(icclus aut depicssus subropens, ramis stnctiusculis aut flibclldtim prostratis holu brevissime pctiolati, J-l poll latd, vix ultra polliccm longd, forma vim, tjpice lanccoldtd, conacco indunta, lucide vmdid, concolora, ct argute scirata, utrinne venis prominulis hneata Amenta mascula o\alu bie\n fcminca 1 2-poilicana, ob squim is ati is (t capsulds plerumqnc fusco-fenuginpis stylo clongato piceo ro<>trilis obscuidd Van it nia^nopcie 1° *latifolui*, loins ovali-rotundatis vel obo\atis, aut major stipulis sdepc sat magnis ornata aut minor, qur minor est S procumbens Poibcs sdi wob t bl, Y 13 t 27Si, Hook ct Am but fl <d 7 p 409 ^ rtusa With Arr t 31 S Is\is Bnt Fl cd 1 p 482 — 2 *anyustifolia*, folus uigustc Unceolatis saepms oblique falcalis, dut majoi aut minoi — 3° pu>cnila, lohis plus minus villosis — 4° *pedunculata*, amentis longe pedunculatis aut scssilloi i amentis folll, fere occultatis — 5° *enocarpa*, capsulis plus minus albu lnrts

(i, *Jacquiniana* amentis brovionbus semol vel bis quam latiora longae, pedunculo loliato, squamis acutiusculis longe villosis basin goi minis mvolventibus, capsulis crasse ovitis demum glibratis rufeset ntibus vix ttediccllatis, stylo tenui, stigmitibus hrc vibus erecto patulis bilolns, lohis Lipdrtitis purpurcis, folus ellpticis vel obovatis bis lonK'onbus qu^m latis margine inteKcinmo cilntis adolescentibus longe pilosis adultis glabernmis lucidis crebro \onuloso reticulatis S Jacf\umuna Willd Sp pi k p 692, Korner Wcid Oestr p 203 Koch Synops ed 1 p 6^9 S Jdcqumi Host bynops >29, Salix p 31 t 102, Koch Comment, p 61, Trautv M(m de la Soc de Moscou, 8 p 300 S myrsinites integfolia Neilr Fl v N Oe\*tr p 266 s fusta lacq msi, t 409. S alpina Scop Cam 2 p 2)5 t 61 — *Icones* Reich 1 Hqj Hirt,gi c t 109 3T b dasycarpa Turc7 txsicc 1822. — *hxsire* : Wimm Hb Sal n 92 Kerner Hb Sal |lh 26 In summis ilpium jugis Europv austrdhs occidentdlis, in regno Austnae h »am ex Altai montibus, Sibir'i Baikalensi et Dahuna relata Vdriat 1° *major*, irutex nmis adscen-



donthius, folns late lan ceo la t is pollicaribus vel ultra tenuioribus 2° *mincn*, frutex humilis, foliis semipollicinibus glabris (Q/ adpresse villosis ol)O)atis V lypiti s myrsinitid< saipius divert stitura multo bumilion, ramis piceoatis II itfelliloimibus, lulus omnino integernmis basi aienuatis, amentis bicvionibus et subinde crassiusculis. Nonne affinitate qua lam cum S hastatd counexa<sup>9</sup>

X S MYRSINITOIDES (1 p H N fistr 16 n 62), amenlis ppduncuhtis latenhbus loins (gemmafens) suflultis erectis subdensiflons squamis lancoolatis fusc<> \ illici is, cdnsulis cunico rosulis breviter pedicclhtis pcdulo nctanum acqumte vet paulluluzii supennte, stjlo- (longdto integio pallido, f JMS lance old is vel obovatis pumo pilis <pd<>is subseucus draum cost i ler( except i glabminus nifrudntibub (t nitentibus maigine scrralis, i>Lipus sdepe hand pin is In 1 J i) mark id pi locis ft in Idpponu feic told alpiua sea rara (t pissimobwa s pun data Wablcnb, fl lapp n 481,11 suec 2 p 007 M r Mint J p 51, Vndefs Sil hpp p (0 S myrhiniles nigrcins Wiim Sil curop p 227 Vinat Cdpsubs j lus minus dense j,nito tom( ntosis, mentis vulgo crassionibus, et tapsulis fere omnino Kladns rulscscntibus \cl Miidulis, amentis dngustionibus Ccitihsime e S myrsinitulo et nigrcantf pfrerc Hi \b ilh I ibet lolu saepi^nac ufei la lucnd acute ncrvosa (t ir^ute surnhti folia peduulLuli ^appc g( mmis oinatd imenta femincl (ncti subdensiflori lolita, ( ips ilas bic\ e i (ditellaUb, s(d is nigrcantc r imos cidsoiocs, folia toniuraet fdcilluuo nigrescentii punctis albidis cic< I nmc conspersa siltem costa tomentosi, arricula later did, capsul is concis subsessil^s — Quim loimain Sdlici^ NVablenbcyiut\* nomine S punctatae intel lexent baud bene liquel Specimn sua nidiu inscpta vidi quoe nunc S nigrt intrm borcalem sistunt mine S myrsinitoidcra, dtscnptio in 1 lora 1 lpjonir i mcliib in bane quadial — S Micliebofen lausch, c Tjroh, hanc (Uam noii paium simulat, earn autem potius id S gUbram lefcircm (v s)

118 S CHAMIS<OMS, amentis lateralibus patulis crectis elongato-eylindncis JMM subranllons peduneulo lpicc nudo folm l-\ mstructo, squimis fusco itns dfutiusrubs gnseo-)]ilosis, capsulis conieis acutiscinoieo puberulis p(dicelld Us pelicello nectirium bis superante stylo clongato hlilonni integio fuse ), sti^matibus putitis divineatis fuscis bins (bo\itis bre\issime apicula'is uliin jue glilicliiims subtus pallidionibus relicuhto nervosis tonuibub sub pdlueidis margine tenuiter sed acutissime sf nulitis, stipuhs pams — In sinu S laurontii (Cbamisso) S myrsinites fhimisso LinntBi 6 p 540 Difficile dijudicatu cui speuoi mixime sit affinis Cum S arctic i habe t i iinos proeurtnctcs amenta later ill l erecta peduneulddd, capsulis violae >-iu^eis et slyLum clung Hum, se<l differt loins drgule s< rrul itis cipsulis p<<di celulis (I longis quil us ad S phyllicifoliam veigit, sed foliorum forma, pedunculi supn micli, rapsuhnin col >r ot sivlus dffinit item itenim quanddm cum S myrsinitide draonstrmt i qua differt ripsulis IOIMUS pedieelldtis et i 'li'^ msiKnitor tenuibus Hibitus luscscenlem quidom simulit, sea reedit 1 Ins serrul itis cipsuhsque stylo rostriatis Sim dubio S. rhamnii lolmllo k saipius subsumtai (v s)

11) s PHILI HOPHYLLA (AHLIC rs Sal boreal-amer 1 c p 132), amentis m i i mulis 1 )hosis ldtci ilibus vel lermmalibus eylmdncis treviusculis densiflons uaetis, squamis lotunddlo obovatis atns longc albopilosis \el barbatis, c if Mins ovdto eonieis fuscis Unuici puberubs sessibbu , nectano cipsulae bisin suijeianU3, stylo clongato cum stigmatibus pdrtitis jhvaneatis fusco, folns oblongo-obovitis biovissim( acruinatis vel apicc constncto subol Uisis conaceis deniquo in veins nticuldtim connexis solutis persistentibus uitegeirins i nc biibus subtus et imio'inos-Bpissinu pills lo ig s ilbis conspersis ceterum glabenime lucidis, nervis parallnhs utnnque val de promini ntibus quasi costatis In regiombus maxime arcticis \meucj septenliionahs occidentahs ^ butifolia Trev h(rb sre Irautv M<m de h Soc des naturahstcs de Moscou 8 p 301. S dretica p buxifolia leleb II IOSS \ 669 S retusa H ok n borcil-amu I p 1 JJ (p p), bet mann Voy Heiald p 40 (p p) S dngloruni(hamis.soLinndBa6 p 1)41 S myisiniti li rnixime allmis quicum conffruit folus conaccis nUidis sub lente pmuiihtis demura persistpntibus, squamis all is piloms et capsulis violates, stylo fusco parti to losttutis. Sed

differl: statura **digital!**T. pollicari, foliis vix • **poll, loogn** 2 lin. tatts integerimis utrinmic riervoso-costaiis, lorlio anno in reiicuhim eancellatum oli parenchsmn cv.-mescens solutls, **pqoamii longi**ssime v **Moso-barbatis**, et capsulis sessilibus. A S. rciusa **longtua reoedlt: foliis coatatbj**, squamis barbatis capsulis tomentos, stylo producto. **Cum** S. arctica parura commune, (v. s.)' XS..SOMMEHFKLri!.anientissil]iU;rmalibus **longe pedunculatu ereetia** -rassiusculis foliis suiruliis -ubdensilloris squamis fulvis acutiusculia pilosis, capsulis e basi crf.ssii ovaio-cunicis aculisKlabris brevity ;pedicellatis, nectarium basin capsulae atii **ngente**, stylo el **ongato**. **stigmatibus bifida divaricatis, folHg e basi** cord **ata late** atis aculis **creberrime** «errulatis prhoa utiri(ju.> pilosis demuru Jucidis **glabrescent** tibus venis acuLo cicvati'; **peticuktis** mnxiniis ^tipulis **lanceol** atis serrulatis ornatis. In Finraarkia orientali ad Ncesseby (Chr. SommojTett.) **Omnino inter** S. :uyt>iuitid«in el s. herl **aceari** media; a priori habet: **folia oortacea**, maiKine acutissime sRrrata, niletitin, **subtOSnonnUuil** pallidiura, <lemi[m: **calvescentia**, amenta **mblsteralia**, **pollicaria**, **ereeta**, **podunculo e&ce Dudiuculo**infixa, a s. iierbawa folia **basi** ordaia, **sube>iou**ularia, subtus **vema creiee** anaslioniosaiilitus aroulata, **oapsulu** crassiusculas vindulas v. rufescentes, glabras et stylo Oavido **aplculaW** (v. s.)

*fi, mtundifolia*, foliis semipollicem **iatfa longiaqm** uirinqe gtaberrime mtulis crebre venuloso-reticulatis marline **serratia apice sabretnsis** niarcrcscenlibus subjersistentiLus. In **Fiomtrkia Occident**, in Mallsoe (Th. Fries).

120? S. OVALIFOLU (TVautv. Mcra. de la Soc. d<s Natur. dc Moscoik 8. p. 306), amentis **Latenlibtu** fuliatis **obloogia vel ovatibtu subdensiflom**, squatinis rusco-rurescentibus **oborato-xoluDdatfs** pilosis Rt **ciliatts** Kisi n **capauls** subin-vnlveniljus, capsulisoiiiiMii^j-ianctJolcitis **squamas triple** vd **quadruplo superan**tibus **gteberrimfil flubsesmlibus**, pedcellp nectarium vix **squante**. stylo **distlneto**, **Btiraaibm** tuscis **bifids**, lacUüfi **breribua patentibuB**, folns **ellipticis** v. nviilitui **obttuia glaberrimia** vel **soirtuB in coata** pili^ **adpressis suf**-**longiB** demum **evanidia** liirsutis et ciliatis **nei vis sul tincrassitus** utrinque venulosis inlcgerrimis, suhlus **glaucle** ^cl pallidms viridulia. 5<sup>m</sup> **Amenw** arctica occideninli -borcali **prope fretam Bahrinffi el etiam** ad Udslcoi, i reg. "chotensis.— Lfideb. (1. **PO85. 3. n.** (J20; **Anders. Sal. boreali-arner. J. ci p. | 3.** — S. V; i lisi -.-man Vuy. of Herald, p. 40. 5. myrtilloides f. (-**Chapaw Linaaa 6. p. wo. s. Onalactikensia Chamisso 1. c. p. 541. Frutex** hurnilis, ramis llabellatini procurrentibu\*, annotmis jiriumm pilis ilidit:is, demum **glabrU, FuKto**. Folia pullice **Vtlgo minors** |>-| **unguicularia, petfolata**, demum saltern omnino ^laberrima vl **margtna lenuitar ciliata**. **Amenta** vix semi poll icem **longa, ellipticft**. Cai)sulfo linea **longiores**, **rufescen** leg. Cresceiuli modo S. retusaa sirnilis, scd norvi tnlorum jam ad exitum **ditergettei, foli4** saope basi laiura et apico suliproducta, **mutto tenutora**, **subtus** ^laucescintia, et fiiiis adpressis saltern initio liirsnta. A s. oyata **recedit capsulia trajoribus** glabris el foliib **obowato-rotundatis**, a S. s<inm'tacGa amentia brevisub crassiusculis, **squaoua** villulis, **oosistentia 8t forma**, ot a caiteris oirca a. **herba**ceaia **ruilUatiiibus aervaliona** ut colore fojiorum **subglaucescentt\*** **Verisimniia** .iititnodilicatio maxime arctica S. myrtilloides am hlyn •;la a S. **myrtiMoide** el S. berlj: i **cea habenda, se.I** i luajnis ot capsulis **bane dignosoada**. S. fuscsoois, **ad 9. oayrtilloidem traositus, capauiaa** haliel longissime pedicellatas, **pc**-limculis Ion, **toribus ai toUt** lunuioi. (v. a.)

*vi, pubescent, oapsulii* lenuiter griseo-pubeicentibus pelioli.i ot foliis basi **bogiuj urtatu**.

X S. OBCORPATA, folijs teniissimis lonce petiolatis **aut basil** aut apice cordatis integerrimis. Hali. ad Sitcha America **borthli-occidentalis**. s. nustryj venustffi ramts et foltis **valde** simills diltert amentis et **capsulis**. Ai'finilatem cum a. reticuiata rnoncitt **folia longe j)etiolata, reticulato-venulosft**. (v. **gJ**)

121. S. FunCATA, amonlis ramulos breves latorales **foliifsroi** ttjrminautibus aut subterminalibus ovali-oljlungU densifloris, squauis **rotuudato-obovatii** Iruncatis (**astaneCHRufescantibua** ylabris, capsulis **antilibus** <jvato-cotncis aubrosralis glabris rufesLUiitibus, nectario b;isin capauJa; **tegente**, stylo bipartito laciniis croctis, sligmatibus inte^ris capita Us, foliis par vis **oviui-laaceolatis**

vel olivigolif<sup>u</sup>latis utunque ghibcinmis subtus glauccscentibus tenuitei crenulati\*. Jin Indu onentali Pindari, Kurnaon (Strachtj cl \ interbottom, ex herb Hook) & arbustula Andeis Journ I inn. Soc 4 14 p 53 Fiu ticulus parvus digitalis Folia \ poll longi, 1 2 lin lata basi a?quahter attenuata, apice obtuso sublatioia, margine subrcvo uto aut mtegra <ut quasi unduldtim crenulaU, supra lane vindia, sublus pallide gl lucescentia Amenta rn isc aut \cie apicalia aut lamulo brevissimo laterali Joins minuti\* et paucis instiucto pedunculata, vix somipolliccm longa, anthers magms demum fuscis Amenta feiiiiinca s<je>uis lateraha, folns imnutis suffulta, o\ato ovalia, semii)ollice breviora Speucsmagis caracteribus quam habitu distincta. Foliorum loima S LindleyaitL proxima, j>ed folia majora subtus intensius glauca, margiru magis conspiuH uenulata, amenta longiora sappissine lateraha Stylo bipartite, launns c ILUIS cum S Ihom\*>oniana (t S Serp\llum congruit, ab utraque tamen dilleit loins omnino glaberrimis subtus intr nse glaucis, ab ilia prjJteia dinentisbrevibus dcnsifloub, ab hac aractis Uteialibus,s>quainis glaberniis, ramis in futiculi formam crectis et intnedtis. (v s )

122 b CUTLIRI (luckerm in billmi Journ 45 p\* 36), amentis ramulis laterahbus folnf(ris erectis pedunculatis angustis oblongo-cylmdnus breMbus densillons, squamis obenato rotundatis truncatis iuhs apice obscuron ullosis, capsulis bre\ibus o\ato-conicis glabenimib breviter pelicellatis, pedicello nectanum subJ>(juante, stylo mediocn piteo, stigmatibus crass'is subpunctiformibus, folns lingulato obo\atis apiculatis utnnque glaberrimis subtus elevato nenosis reti ulatis intense glaucis supn acutt nenosis luude vindibus mediO supenore obsolete denticulatis adults ngidissimis 5 In summis alpibus Amcnrdu borcali orient illis « White Mountains »— lofr fl New-York 2 '2H S lha Ursi • Pursh lI Amer sept 2 p G10, Hook Fl borealamci. 2 P \Wl, Asa Graj Manual cd 2 p 418 \*iuticulus panus, subdigitalis, glibeinraus, ramis subinde clongato repentibus. tolia vix pollicera longi, 2 J lin lata, consistentia, colore et neivatione fere ut in S arbuscula mixuiie alpin nostri pumila Amenta J pollicom longa, capsuU vix lineam longae — AS irlniscul i rteddit folns minimis parte supuiore scrrulatis, amentis subtcimin ilibus et tapsulis glaberrimis Longius a S ictusa distat Si ut fciunt auctores amencani, flores masculi stamimbus tantum singulis praditi sunt, tune affinitas cum S coesia esset, cui etiam rigiditate et glauccsu ntia lolioium non absimilis, sed folia subserrata et capsuki glabrae (v. s )

[1, *Iahradonca*,\u dunculoamenti longe exserto supeme nudo, amentis densiflons anguste cylindncis, squamis oblongis acutmsculis densissime albo \illosis, cipsulis dnguste conicis fusco piceis, stigmatibus brevibus bilidis, folns mmutis acutiusculis — Prope Oakak, Labrador (Hohen. pi. labrad 1842 n 92 c) tolia 2 lin longa, brevius petiolata Amenta longe pedunculata S Ja-quinianae subsimihs, sed folia subtus glauca!

123 S SERPVLLIM (Anders Linn soc.v 4 p 14. p 55), amentis in ramulis annotinis fohatis teiminalibus longius et distmcte pedunculatis, subcla\atis densiflons, masc diandris, squirms rotund ito cuncatis atns margine villosis, filamentis fusus basi lanatis, cipsulis rufescentibus sessililms glabns squamas involu-crantes elongato-o vales atias glabnuscultas barbatas apice superantibus, stylo elongato atiobipiriito, stigmatibus fulvisbifidis lacinnis brevissimis excurvatis, folns parvis lingulito lmcLolatis planisapicom versus utnnque minute scrrulatis cutcium integeinmis breviter petiolatis subtus pallidionbus ^ In India onentali bikkim, Kg sululp alt 10000 1400 ped (J. D Hooker in herb. Hook) S longipes II >ok f in herb Ind orient ] luticulus buinilis, truncoc crassius^ulo, ramis aiiectis foliosis Folia in ramulis quasi disticnis anectis pubeiuh.2 4 polliccs longis quasi distiche conden<ata, \ix 3 lin. longa, supra medium 1} lin lata, lingulato lanceolata, glabemnia, subtus subglaucescentia venisque limata, supra satuiate vindia costa impiessa. Amenta poHicarii,orecta, ihacliiscmcreo-pilosi,fcmineadtnium 1 i poll longa, squanuc pilis cnspatis ubique hirsutJ) demum denudatae aut omnino glabrae Capsulae comwe, attenuata-apiculaU, fusco bj mines. Distinctissiiiiia est species, crescendi modo (fere ut in Fhymo Serpyllo), ramis et folns ab omnnms di\ersa

Quod ad formam amentorum eorumque partium proxima est *S. myrsinites*, quam in alpinis indicis quodimmodo repræsentat *b. Lindleyanae* subsimilis, obciractenbus foliorum non male Uiam furn *S. I<sup>h</sup>i* congruit (v s)

*P. pusillum*, ramulis subdigitatus, foliis <sup>1</sup>longis hngulato lmeanhus margine subro\olulis (fere ut in *Andromeda polifolia*), subtus sat intense glaucis, amentis multo brevius pedunculatis, J poll longis.

124 *S. BRAYI* (Ledeb fl altaica 4 P 289), amentis in ramulis lateribus vel terminalibus pedunculatis foliis suftultis erectis tyhndncisbre\ibus densiflons, squamis rotundato obovatis flavis brevius msrrtis, capsulis glaberrimis comitis obtusiusculis brevissime pedicellatis, pedicello nectanum elongatum demura duplo supei into stylo brevMel fere nullo, stigmatibus partitis, foliis clhpticis vel o\ ill obovatis præcipue versus basin argute den<sup>e</sup> et <sup>at</sup>profunde serratis, serratis incur\is acutis glanduligens \$ In Sibinae altaicae tractu onentali, in Altai et Kamtschatka — Ledeb. fl ross 3 p 621, Ic pi fl Ross, t 449 *S. berbenfolia* Pall fl ross 2 t 82 (ex Ledeb) — Fruticulus prostratus omnibus partibus glaber Rami fl lbellifoimcs, folia <sup>h</sup>poll longa, supra medium 3 4 hn lata, ngidiuscula, utnque laete vindia, concolora et lucida, demum marcscenti persistentia Amenta fern J \ poll longa, cjhndnca, capsulis rufiscentibus *S. myrsinitidi* mixime affinis, et inter earn et *S. berbenfolia* lm quasi media Differt trunco subterraneo, ramus fl ibclhfoirnibus, foliis minonibus et crebrius grossiusque dentatis, amentis brevionibus, capsulis semper glabris et stylo fere nullo, us *S. beibacca* subsimilibus (v s)

*Y. berbenfolia*, amentis nmulos hterales et terminalcs torminantibus pedunculatis erectis brevibus rinflons, squamis pilis illudis pnmo longe villosis ovato-vel obovato rotunditis, ( insulis gliberrimis yiftscLiütibus ovato conitis icuminatis breviter pedicellitis, pedicello nectinum in<sup>n</sup>ustum sed nioductum non multum superante, stjlo m diotn, stigmatibus cruciformi-piititis, foliis obovatis inice rotunditis toto maigmo profunde quasi spinuloso serratis marcescentibus facile persistentibus. In alj il>us Sibinae bukalensis et onentalis, in Dahumet Kamtschatka *S. beilcnfolia* Pallas it ross 3 p 321, PalUs fl ross 2 p 8\*, lurz fl bdik. dah 1 c p 392, Ledeb fl ross 3 p 021 Itones fl ioss t. 449 f gk, Willd sp pi 4 p 683 *S. iliifolia* Willd herb n 1822 J (Clumisso), Sil Woh t 140 Cum Salice llnji, i qui PalUs non distinoiam habuit ita fere conjuncta ut *S. scryllifolia* cum *b. retusa* ctt Vix difTort nisi stitura crassa adhuc minon, foliis brevionibus et smuloso dnisis, amentis brevionibus, squamis albo-villosis et sligmatibus profundis partitis (\ s)

*b. Retusa* Kerner Weid Oestr 1. c p. 46.

Tiuticcs procumbentes, trunco subterraneo ramis flabollanibus, annotnns saspis gemmifens, foliatis et amentis ornatis Tolu vulgo lingulato-elongil i, subconcolora, nervis pirallchis basi tonfluenlibus hneata, typice inteffia, couirca Amenta folus occultata, brevia, pauciflora, squamis ful\tscentibus sLpe pucius pilosis Glandulitoii <luplex, antica et posiiita Antherae aureae Capsula \irescentos vel testaceae, subpedicpllatDB, stylo brevion et sti<sup>at</sup>matibus crassis piaeditae. — In pnonibus capsulx glabrae, in duabus ult toinclosae

125 *S. RETUSA* (I sp 1445), amentis in iimulis htei ihbus folnfens et gcmmitens terminilibus ruiflons eiectis paulolongionibus qu mi lilis squamis obovato spatulatis truncatis \cl emargmatis siltem demum f\abc inmis fl ivopiceis, capsulis ex ovata basi conicis obtusiusculis gl ibns pedicellatis, pedicello nectanum «bduplo superante, stylo brevissimo lulvo, stigmatibus bipaititis lacinis ciassis folus brevissimc peliolatis oblongo-obovatis obtusis vel emuginatis plerumquo inlegnemis vel bisin vcisus minutissime senulatis utnque vindibus subnitentibus nervis subtus modico clevitis exsiccatione quasi longitudinihter hncitis <sup>at</sup> in regione alpina Pyrcnajoi urn, Hehetui et Austias (ubi v v), in Sibina et Asia septentronali dubia civis. — Willd sp pi 4 684, Koch Comment p 62, Synops ed 2. p. 759, Gaud fl bclv 6 p 218, <sup>at</sup>ci Iss. 84, DC fl fi 3 289, Gren Pt f,odr. fl U.3.

p 142, Kerner Willd (Estr p 197, Hartig Forstl Cult p 387, Wimm. Sal curop p 121 Bertol, fl it 10 316 Willk et Lange fl hisp p 232, Ledeb fl ross 3. p 624 — *Icones* Reichb fig 1185-7 Host Sal 103 Sal Wob t 139 Haitigfoistl (ult (106) 354.— *Ixioccata* Reichb n 9>4 Bill n 2366 Sei.n 46. KornerHb SLI n 31-35T. Wiimm Hb Sal 82 (ol 121,122 Frutex dejiessus, lanus fldlicLalini ic]enlibus foliatis luha semipollicana, supra medium 4 5 lmeas laid, bas\* longe altcnuata, apice obtuso subictusa, margmc cartilaginco inlegra, nervis basi cohaeientibus pinkhs percursa. Amenta ser tma intoi 1 h i ramulioium quasi occulta, mascuJ i l)reviora, feminca semi prllicjna, cipMilis unduhs \el pilhdc rufescentibtf s glabernmis hncam sub-longis L modihcationibus haud paucis sequentes extrcmae

p, *Kilaibckana* (S Kitubeli ina Willd sp pi 4 p. 683), lamis procumbenti repentibus, folns conspcrsis apice adscendentibus, folns pollicem et ultra longis plus minus clongato-sp ithulatis, amentis multillons rhachi subpilosa — Hab m regione Pirn<sub>f</sub> in latenbu\* dlpium magis irrigatis. — Reich IC f 1187 bal Wob t 64.

Y? *vegeta*, fobis feiv 2 pollices longis basi lpiceque aequilibus acutatis utruicque pure vindibus subtus vix pallulinribus mugino fere toto remote borralatis, liicnfjs<sup>n</sup> pollice longionljus eieclis basi pinsertim ranflons, squimis apice sulnctuso pallnlionbus birbuis, capsulis pure \indihus evidentius pedicellatis, peucollo nectanum fere tnplo supcrante, stylo producto semilinoam longo flivicante, stigmatibus obscunonbus bipartilib, launus di\aiiLalib In Carpathis, Idtra (leg Wichun) Non pio certo dicre possum utrum forma S relusd, maxime vegtla an S hastata. etrectusj<sup>1</sup> hynnda censenda Cum S rctusa con^iuiil amf ntis ramulifoln fens p6duiculalis, scjuamis Jdtiusculis, sed cum S baslita folns apice pioductis, aniciilis longis, squamis barbatis, capsulis evidentius pedicellalis et stjlo i roducto rostratis Spccimina tamen adsunt eodem loco collectaqusc folns et amentis bievionbus apertius ad S Kitaibclianam accedere videntui Nonne S alpigena Kcm.?

tj *serpyllhfoha*, fruticulus valde rimosus, rimis brcMbus quasi conglobatis et fobosis pirvis saepius J pollicem longis apice Jiitogns, amentis numoiosis intra lolu fulcrantii s ssilibus fla\icin(ibus cipsuhs bicvius ppdiccllatis crassionlius In summis Alpibus, locis hpidosis andis, ubi mini mam spenern fruticilli exhibit S serpyllhfoha Scop\* fl carniol 2 255 t 61, ANIM sp pi 4 68/i, Reich f 118>, Sal Wob t 65 In Austria mren ic, Tyroli et Helvetia modificationes nonnullac hujus typi detectaj fuerunt quas hybi ida ongine creatas cicdit ill Kerner, quas attamen parum a vera S retusa rcedere video Sunt sequentes

X S Com TI (Iiprgpr in lill ad A Kernel), amentis pedunculalis laxiflons, pedunculo loins 3-4 instructo, squamis emirgmatis v truncatis vindi-flavis pilis sparsis IOIRC pilosis, capsulis conicis glabns \el apiccm \er>.us pihs sparsis 'vestitis pedicelhtis pedicello nectanum vix supenntp, stjlo elon^ito, stigma tibus bipirtitis patulis folns obovatis obtusis vcl acutiusculis crenito serratis pnmum uiiinque subscnceis denique adultis costi excepta plabernmis reticulato-venulosis — Kem Ocstr bot Zcitsclu , 1864 p 368 S retusa nigncans Kern J<sub>f</sub> In dau dessus Jnburgensis Helvetian (I)r lag^cr) Fruticulus bunnlis tiuneo decumbente vel arcuato-adscendente 1 irnulis cieciis Ramuli quamdiu sunL li'ibacci albidt pilosi, annotini hgnefacLi glabrati et torticc rufescenti subnitule tecti Gemmae ovatac obtusae piLosa, 1 oha petiolata bis longiora quam lala, adulta solummodo in marginc et subtus in nervo mediopilosa Amenta iciinnca coalLanei ter longiora quam lata, pedunculus sicut iliaLhis albidc pilosus Nectanum simplex (v. s.)

XX \*5.FPN7II\N\ (Kern Wcid mod CLsr ],c p 19''), amentis foliato peduncuhtis gracilibus, squamis obovatis vindi flavis demum ghbris, fikmentis 2 hberis basi pilosis, noctano du]hci interno duplo majoie oblongo, folns obovatjs obtusis lalo nnibitu serratis glabornmis supra saturate vindibus subnitidis subtus opieisbicvitei glaucescentibus ^ In Alpinis austnaxis, ad montem Schneebergpi. Ymdobonam ad 5500 p , in regione Pmi Mughl semel fruticulum

in\enit Earner S. rctusa-glabra Wimm Sal. europ. p 264 S. supciresusa-  
tflabra Kein 1. c Lst fruticulus decumbens ramulis adscendenhbus fiagi-  
libus glabommis. Folia in pmolo brvissirao bis longiora quam lata, nervi  
scundaru subtus vix elevati utnnquc 4-6, a nei\o modio sub anguhs 20 JO  
adscendentes Amenta raacula 20 30 flora, bis longioia quam lata. Squamae  
parum cihatae — Pnmo visu S retusam refert, fjuocum figura et nei\h  
lohoium, squamis concolonbus luteo-vindibus truncatis, nectaiioduphci con-  
venit, sed folia subtus opaca sunt levitei glauco-pruinosa et serrata, amenta  
(lores plures et magis confertos gerunt et dlamenta basi pubescunt, quibus  
rebus act S glabram, hoc loco Irequentem, acccdit (Kern)

XXX S ALPIGENA (Kern. dv>t. bot. Zeitschi 1804. p. 369), amentis foliato-  
pcdunculatis cylindraceis laxiflons, squamis oblongo-obo\atis truncatis v.  
retusis longc pilosis apicem \ersus purpurascensibus, capsulis conicis acutis  
glabns pedicellatis, pedicello nectanum MX superante, stylo ciassiusculo elon-  
gato, sti&^iitibusl)partitis liciniisnatulis ioliis oblongo oknatis obtusisv  
acutiuscubs remote seirdtis, aduLlisglabmimis supra saturate vindibus subnitidis,  
subtus opacis et leviter glaucesceniibus obsolete venulosis 5 I<sup>n</sup> Tirolis sept  
alpe Langenthal supra Lisens solo sclnstaceo alt. 6500 p. inveint Kerner, et in  
Saday tnburgensi Helvetiae Cottet. Pruticulus humilis tiunco depresso, ra-  
mulis clongatis decumbentibus RamuL novelh ut gemmae puberuli, demum  
rulescenti-nitidi. Folia pptiolum \ersus angustata 18 45 mm longa, 8-20 mm.  
lata, pnmo in marginc et in nervis subtus pilis sparsis ciliata, ncrvi secun-  
dani utioque latere 7-11, tenues, utnnquc elevati Stipulae nulla) Amenta  
9 15-23 mm. longa, 5 8 mm Juta, masculo bievioia, pedunculus sicut rhachis  
pilosus, folns 2-3 instructus. (v. s)

XXXX S. RETUSOIDEs (J. Kern Verh d Zool. bot. Ges. in Wien. 1862 p. J22I),  
trunco dcpiesso fusco brunneo toruloso, ramis decumbentibus nitidisannotinis  
molhbus pilosis, fohis obovatis breutr acuminatis v emarginatis petiolum  
vcibus angustatis 15-20 mm longis 13-18 mm latis mtegenimis maigine  
sacpe sparse cihatis ceterum glabemmis concolonbus la3te \mdibus n^idius-  
cuhb marcescentibus pallide jjiunnescentibus utnnque pixupue autcua subtus  
acute ncrvosib, ramis secundarns utnnque 5 7 sub angulo 30 35° adscendenti-  
bus In alpe Gollei Auslna3 mfeiioms (J Kern ) S letusa Jacquiana  
Kern. A typica S retusa non differt nisi folns lationbub neivis bcoundams  
angulo laliori adscendentibub, lamuli^ junionbus pilosis.

126. S FLADILIAHIS (Anders, act Holm. 1850 p 497.), amentis exapicc ramu-  
lorum annotinorum folns suffultis clongato-cylindncis femineis subdensi-  
flons, squamis linpulato-obovatis glabemmis fulvo piceis, capsulis subses-  
silibus ovato-conicis glabcinmis, nectano basin capsulae superante, stylo me-  
diocn, stigmntibus mlegiis, folns obovato rolunditis \cl spithulatis glabns  
scrulato-crenul itis uliinque \indibus subtus pallidionbus longe petiolatis 5  
In India oncntah alpina, Ill bumidis berbosis sub jifgis versus Sogium,  
alt 4000 mctr. (Jacquemont), ad Kumaon (Walhch), m alpibus nima-  
lavensibus (W Hofmeister), Kunawai. alt 15000 ped (Thonison) — An-  
ders Journ Linn soc. IV 14 p 54, Rcise Pnric. WaMem. p 120. t. %  
S lucida Jacquemont Voy n 1600. S. obovata Wall Catal pi. md.  
11 3698 S rotundifolia Hoyle, Klot^sch herb borol. Arbuscula vel fruti-  
culus vix scmpedalis, rami c tiunco crasso undiquo sarmentosi, ruroscentes,  
glabn, ramuli angulati. tolia srepe polliccm longa, apice rotundata vel ra-  
nus acutiuscula, supra \ (ius piallehs evidentius stnata, subtus ^cnls pul-  
cne an islomo>.antibus non cle\atis hncati, con icea Amenta nedunculata  
folus 4-0 sufTulU, masc sul^pollican 1, giacilia, squamis apicc suborenul ito,  
autbeisfulvib, feminud fusco puipuiea, squamis cips>ulas diniidias Ugenlibus  
— Folia variant 1° subiotunda basi subdilatata s. beibaceae subsimilis  
2° obo\ata basi angustata apico srpo maigmata. 1 orma typica 3° spatbu-  
ldta basi sensira et longe atUnuita, apicc subproduOa. S. letus\* habitu. —  
Amenta breviauassa, in foimis minimis, vel longioia subiandora, Ill formis  
elatis. Voiina. et glabnlie capsulaium S Lindloyiud. ut etiam s calycu-  
latae affims, dignosutur folns maionbus, obovatu-spatmlmalis, utuuque vind-  
ibus, glabenimib S. cunedtoj (aiclicij foimoj) simlihua ut forsan modifi-

catio cjus lumalayensis sit habenda, ab ea ut etiara a *S. rctusa* differt \* folns vulgo multo lalionbus, distmcte cronulato-serratis, amentis elongato-cyhn-dnus, capsulis lusco-biunneis, obsolete pedicelltdtis. (v s.)

- 127 *S. INDLYFVNV* (Wall Catal pi Ind n 1J 697), amentis in apice ramulorum annotinorum brevibus ovato-rotundatis, squamis oblongo-obovatis glaberrimis capsulis duplo triplo brevioribus, capsula breviter pedicellata cornea glaberrima, stylo minuto, stigmatibus incassatis, folns panis oblongo-lanceolatis integris vel crenulatis glaberrimis subtus: glaucescentibus costis lutida prominentibus. In India orientali superne ad Gossun Than, id Kuinaon (Dlmkwoith, see Wallich), Sikkim reg alp. alt. 10000 ped (J D Hooker) et Biye Kung pass, Kumaon, 17000 ped alt (Stiachey et Winterbottom) — Anders act Holm J80 p 499, Journ Linn. soc. IV 14 p. 56

a, *ladfoha*, folns condensatis 2-4 lin. longis 1-2 lin. latis margine fere toto subserratis.

f, *microphiffla*, Coins valde confusis 1-2 lin longis lineam latitudinis costis improprie profunde canaliculatis nidifunc subinlegro revolutis. Fruticulus minor, tunc repens, ramis illicifolibus undique breviter prostratis glaberrimis. Folia basi magis diuisa, apice obtusiuscula, vix semipollicem longa, 1-3 lin lata, supra fusca Indiae impressa, subtus opacoglaucis costis fidem nitentibus exinuo prominente, ceterum plana, nerva Amenta 2-4 lin longa, ovata rotundata, obtusa, squamis fusco-castaneis, nervosis, in laticulo basin capsulae; logunt, capsula basi gibbata, apice attenuata, fusco-castaneis laticulis inditis alpmis s fruticulos quod ad habitum tanturn affinis, tamen amenti baccis vulgo 1-2 rali laticulo elongata, capsulas stilo elongato bifido praeditas S calliculata folns obovatis multo latioribus junioribus villosis distinguuntur — Ouid in Europa alpibus S retusa ILPL in India} regioni bus editionibus tolia autem in plinta lumalayensi magis elongata, amenta breviora, capsulas rufescentes v glaucescentes

- 128 *S. cAIVCATA* (Hook fil herb. Ind Orient), amenti terminibus subsessilibus oblongis brevibus, erectis subsessilibus foliatis, squamis oblongo-obovatis fusco glaberrimis, capsulis brevissime pedicellatis lufescentibus ovatis glaberrimis, stylo medio fusco, stigmatibus bievibus erectis folns lanceolato-obovatis crenulato-dentalis petiolatis subtus palmdionibus, junioribus villosis (enis superioribus) subtus prominentibus. In India orientali. Sikkim, reg. Linn. 14 15000 ped alt. (I. D Hooker). — Anders. Journ. Linn. soc 4 14. p 57 Fruticulus parvus laticulis nectariis Folia plerumque vix pollicem longa, 2-4 lin lata, superius medium sublonge dila aut truncato-subrotunda, aut integra aut apicem versus senitens subdepressis apice mucronatis crenatis, superius obscure Indiae, petiolus 1/2 lin longus. Amentis nervis ovatis rotundatis, laticulis fulcrilibus subocculatis, dimidia femina subrotunda, capsulis ex ovata basi conicis, pucis, in laticello nectarium glaberrimum conspicuo superius Auctore Houken hanc speciem, nunc Subiam, accepit, inter S (Indiam) et S. berpyllum omnino medium. Congruit cum prioribus folns nonnunquam obovatis laticulis crenulato-seriatis, squamis et capsulis fusco brunneis laticulis, stylo integro, cum postea folns saepius sublonge ovatis aut subintegris subtus palmdionibus aut apicem versus seriatis, & b utia (sic dicitur) folns primo pibus longis subtus plus minus busatis, amcrillis bievibus sessilibus. Crescendi modo S ubellarem practerea sat simulat, a (jua tamen folioium forma longius distat. Stamina ni tubum subconciata, inde nomen (v s. in b Hook)

- 120 *S. OREOPHIA* (Hook fil herb. Ind orient), amenti terminalibus folns subobtusis minimis 2-9 floris nervis diandris, squamis palmdionibus flavis concavis obovatis glaberrimis, capsulis subsessilibus conicis glaberrimis squamis lingulatis glabris triplo superantibus, nectario magno, stylo perbrevis, stigmatibus brevissimis integris, laticulis oblongo-cuneatis vel obovatis apice mucronatis serratis ceterum integris brevissime petiolatis utunque palmdionibus villosis costis et venis supra impressis In alpibus Indiae orient: Sikkim reg alp. alt 16000 ped (J. D Hooker) — Anders Jouin Linn. Soc 4. 14 p. 57. Fruticulus digitalis vel minor, raris arcuatis flabellatis, ramis dense folia-

Us Folia 1 1-3 lin longa, 1 \ lin lata, apice serratuns 3-5 profundis sublissa, supra rugulosa, utunq̄ glabernma, pilis piucis ad basin petioh perbrevis tdntum huta Amenta folus occultaU, feminoā vix 3 lin longa, e flonbus quasi unibcllatim confertis globosa, rhachi tenuissimo pubciula, squamis supra medium latioiibus apite subvenosis Ca psula basi quasi in pedicellum bicvissimum constrict i, lin longa. obtusiuscula, castanea, lucens, stigmatibus fuscionbus Haec species ab omnibus ficile diflert Coins obovitis apice tantum acute et sat profunde divisis Est s retus.r el seipylhblid<sup>4</sup> in Turopi, S Brayī et s beibenloliae in Asia boreali andloga, quae tamen folus marline toto aut omnino integris, aut spinuloso dentatis txctllunt (v. s. in b Hook )

p, *secta* (S. *secta* Hook, fil in berb. Ind. orient), fruticulus minimus ramis rosulatum confertis intncatis dense folutis, loins vix lineam longis apice fere eadem latitudine lbique dd tertiam partem lamina<sup>1</sup> lacimis porrtis acutis scctis utnq̄ vndibui subconaccis planis impiesse \enulosis, amontis folus arcte absconditis e llonbus 2-4 composite, squamis apice subdentatis, capsulis exacte (onius, stylo \i\ tonspicuo, stigmatibus minimis Hab in cat u mini bus (ditissimis alp. Himaldae (Hook et Thomson) Foima omnium, quantum novi, minima est Salix, In altitudinem max imam otiam adstendens. Ut And rosace vel brabae qua?dam caespites rotundatas et condensatas in regione nivali allissima format, (v. s)

130 S 1 HOMASII, amentis terminahbus brevibus ovalibus pauciflons pedunculo semipollitan nudo, squami<sup>^</sup>bbovato-rotunddlis piceis Ipite vix obscuo-  
nbus glbns basin tapsul<sup>^</sup>nalc involventibus, capsulis o\dtis oblu&is ru-  
fescensibus tenuissime puberulis subglbrescentibus bnvissime pedicolhtis,  
pedicello nectarium vix superdnte, stylo lero in illo, stigmatibus brovissmns  
mteges, folus rotundato oDovdtis obtusiustulis aut -ubretusis supra vmdibus  
glabns subtus palhdionbus obovato nervosis venisque tiansversalibus areo-  
latis primo pilis senceis adpressis albo villosis demum glabratis niaigino  
omnino iiteKemmis J In Helvetn ad Bagno, Valeswr 1802 log E lliomis  
S retusa vdr. lthomasiani Keiclib (ent t >G0 n 16 f 1102 liuticulus  
digitalis, facie foliorum omnino Myrtilli uligmosi, habitu ot characUribus  
inter s rotusam et roticulatam Myrsus media A S reticulata habet lolia  
subrotunddta vellatissime oblong i, subtus pilhdiori et reticulito-neivosa  
nee non pilis pnmo albo villosa, amenta peflunculdta, tipsulas ovatis sub  
sessiles vi\ btjlo ullo pra?ditas tenuissimc lorncntosds, sed a S ictusd foil i  
uncidlia elongdta, interdum apice rctusa, tenuiaet planiora, capsulas subglab-  
rescentes ovatas (\ s).

131. S THOMSONIANA (Andr-> Journ Linn Soc 4 14. p V»), amentis in ra-  
muhselongdtis dimotinis foliatis terminahbus tlongatis t>lindius nnsulis  
laxiflons lemneis subranllons, squdmis obovato iolumlatis atns, apict albo-  
hirsutis, c ipsula globosa longe et dense albo \illosa neclidio atro producto  
fere medidm capsulam attingonte, stylo producto dd bdsin biudo, lacnm\*  
picpisdi\ancdtis. itigmatibus brevibus subdivisi-> fuscis, foliu Idncolatis  
subtus inoino-Mllosis nervis albo linedtis birsutis tenuiter et remote serru-  
ldtis 5 I" I>dia oientah Sikkim reg temp alt 10000 ped (Hookci et  
Thomson) Fruticulus subpedahs, trunco valiclo, i inns adsicndc ntibus nitido  
fuscis Folia ldiiccolata, vix pollisen longa, Mjri medium pdium latioi.i,  
J poll lata, basi apiceque attenuita, marginr tenuissime Revoluta, supia  
obscure vinduet glbra, subtus incano-butā Amenta mrisi '2 pol,icaiid,  
flexuosa, remotillora, lildmentis exsicidhione piceis, antbens lusLcscentibus,  
eminea biviorid magisque densifloia squdmis rotunddtis tapsuhm mediam  
suepantibus, c ipsula omnino sessili Specios maxmie singulars d ceteiisldtile  
distmguenta, s ittitulat<sup>1</sup> ob cdpsulas globosis mmimas et duisissnne dlbo-  
lanatds subdlfinis, sed folus et stylo toto cielo diversd. tolus S repenti sub-  
bimilis. (v s. in h Hook.)

c. *Herbaccx.*

Fruticuli pumili, facie subberbacei, tiunto pirvo subtonaneo, ramis brevibus,  
subdigitahbus, adscndentibus. tolu orbituldiia basi apiceque emarguidta



y. oltlonfffi-olliptica **glabra**, nervis **prominalii elevalia** reiiicukda, corinceo-**indurata**. Amenta j>etlunculo gemmifero **Butterminali pedunculata**, **tuliia** 2-3 Jiffulia, **brevia**, **rariflora**: **iquamis apiee** rotmuLitis; cajisulis conico-subulatis rufesceulibus, siylu proruelo rosLraUa.

132? S. NU«M«LARIA, nmeilis raranloa fotiifRms pt Kcnimiferos trirniinantiims Itrevilms **rariflois**, squamis concavis: (nincatis fin vis ^Intiris vel **tenuissimi** ciliales, c;t]Mil: s ovatis glabris sess ililm?, nectario basin capsulffi **suponnte**, **Btyk**) **perbrevl ftriw**. **stigmatibus in** C^TIS **crassia erectioeeulis**, **foliis orbiculato-conlata** **utracrae** Hln: **errimis nervoso-cos uiijs** \*t reticulato-venulosis in ir^inn omnim; **integerrimis**. — *fj* In sittirin arcticafad fl. **Boganida** : **iffidenoorf**, et In Sibiria **altaica**, In aT**ipibffl** ad (L. Tschuja **QJunpe**). s. retusarotundifoUi B<nge Enum. alt. p. 85; Traulv. in Midd. Reis. 1. p. 2. 1. p. 8, 146, 162. **BBI** quasi :i S. reto^a et herbactM (vcl polari) **compostfft**. A pnore **habet ramos** flaliclhiim ntes, **folia pallide** viridia, **iffimo** auMlavicuntia, **coriaceo-indarata**, **ii** **legerrimis** **ma ft pvallele cortato^nervosa**, nervis liasi conii-guis, sed a s. ! **herbacea** : folia laiissima et brevial, saepius liasi **cordate** (vix nisi in k>n; n; **major** i apice **subproduota** nee **oarginata**) **reticulftto-waulosa**, amenla peduncuJata, capsulas longc conico-roatratas, **rafaacontes**. (v. s.)

p, **nibntutt**, **folis fere** J pollicm lonffisnon raro ilongo-obovatis **basi** cordatis, venis ima basi folii evolutis. — 8. retus;i **Tnrra**. Cat. b; iik. 1. c. n. 1040. — In **afplbia** D hrie.

13.i. s. mt**BiCTA** (L. sp. **U45**), **amentis maluloe subbifolio\*** **hnminantlbm m ili-obld&sigij33** **2ffidij9** **naillons ifa** **Uttis suljihvintig**, **sijuaniis concavia** obovato-ovalibus truncatis vel **patbulatia** : **iibreiiisis flRo-rufescc** 'illi-pici-is ghiris vel cinereo-pili **sis**, capsulis ovatu-couiuis **glahris** subse **silibus**, **Ofictano** pedioel-lutii **brevem** subsuperat **tile**, stylo brevi **jiuoco**, **Btlgmallbiu bifidu** divaricatis **fuscis**, **tolii** **cordat** D-orbiculotis vel ovalibus obtus **J** retusisve utrinque gla-**]crrimis aitia** elevato-raticuJatO'Tenulosi **margiie** subargute **Bernatis**. 5 **Lochl** durts **apricU** mmanun alpinm totiiis Europæ a Sabaudia in Lappo-niam arcticam, a **rviojxms** et Scotia! in Traosylvflaiam, in omni Sibiria. Etiam In America orient! in White mountains. — Willd. sp. pi. h. 682j Pr. lltot J. 76; Wahlenbg. suec. II. inn; Koch Comment, p. 63, Synops. ed. 2. p. 759; Kernerustr. weid. p. 201; Wimmer fl. v. Schles. ed. 3. p. 194, Sal. europ. p. 125, Hartig Forstl. cult. p. 387; Sm. E. Fl. 4. 4199; Hook. et Arn. brit. fl. ed. 7. 409; DC. fl. fr. 3. 288; Gren. et Godr. fl. fr. 3. 143; Willk. et Lange fl. hisp. p. 232; Bertol. fl. it. 10. 317; Ledeb. fl. ross. 3. 624; Rink Grœnl. p. 121; Asa Gray Manual ed. 2. p. 418. — *Icones* : E. B. 1907. Hoffm. Sal. t. 20. Host t. 104. Anders. Sal. tapp. n. Reich. 1132. Hartig **JOS** (356). Sal. Wob. 62. Sv. Hot. 867. PL. D. [17. — JEm'cc.-Fr.Hb. norm. r> 07. wimrn. ii **b**, Sal. n. 7:.. Heicli. 953. Billot ii. 1964. Kerner Hb. Sal. n. 36^7. Ab omnibus "acillime dignota : stal **tiro** [er] **ustilia** saepe **rix polHcari**, ram**Tlia** tractis art **flabellatim** prorepen-tibna pi **ree foliosis**, **foliis or** **biculaributseinlpollcaribt** **MCTeberrne** reticaratis aerntn vulgoemarginatta, **amentia** **brevlboseteapsulisglabris**. Variat 1° **foliis orbieulari-rotundati** **basi et apice** **plerumque** **emai** **ginatis**, **ev** **i d t l** **us serru-kitis** (gun major Bt minot). et 2° **Mrisairt** **basj atteautia** **apice** **rotundatis** el rettnit, **sutobsolete** **acuminaiis**, **mimss** **ditttnete** **sermlatis**.

[i, **jhii/iUnrii**, ramis fero **pedalibui** longe **aatpeotihai** a>ice **follaUft**, **foliis** **pindsoblongo-obovatisomniDo** **inte** **gerrimis** **authasi** **donte** **tmo** **auerove** **obsolete** **se** **rrulatis**. J **Rossia** et **FioaurkA** **arctloa** **obi** **solla** **S. ov&lifolia** **erectit**, **cai** **ctterum** **subsimilis**. s. **herbacea** **Sctureok** **ReUe** % p. 523.

7, **tubpoloris**, **toliiis** **magnis** **dllutiorrbiu** **supra** **plaiuiuseulis** **stbtbiu** **lincato-vfinnlms** **vix** **auten** **renuloso-relicolatis** **marginc** **in** **legris**, **capsulii** **una** **alterava** **Berie** **pilorum**. **passim** **obsitis**. — In **Berjedalia** **Suedie** (rhe I.) **ei** **Pintnarkia** **occidentall** (Tli. Fries.). Ad S. **polarem** **transitum** **evidentis-** **sitinirn** **prabel** **qnam** **pilis** (attamen **porpaucis**) **capsularam** **t<m** **FoBa** **planiusculii**, **i** **igidis**, **Integris**. — Ab omni S. **nummxit** **'icia** **diflert** **stature** **inaction**, **i,** **ljjs** **tenuiocibus**, **ovalo-conlatis**, **apice** **subnroiluctis**, et **capsulis** **gato-rostratis**.

134. 8. **SASMEMFCu** (IV. Hot, Fl. suec. Mant. 1. p. 76, sub S. rclusa), **amentis**

l-tlcrailibus et subterminalibus foliis rite evoluti\$ suff<sup>^</sup>iliir\* angusle cVlindricis  
 glabriusculis vel barbato-villosis, capsulis conicis elongatis glabris pedicel-  
 latis, pedicello nectarium bis terve superante, stylo elongato integro, stigma-  
 tibus bipartitis divaricatis fulvis, foliis ovatis v. obovatis glabris vel initio  
 pilosis subtus <pacis distinctius cogtalis el venulosu-reticulatis nianrine  
 serrulatfl. 5 In region\* spiria Norv>\*gia! qui am australioris tum bor ea!<sup>^</sup> jn  
 Lapponia Tornensis el fo Herjedalia Sueciae. — Fr. Nov. Mant. 2 p. 63, Suinnu  
 Sc. p. 5H; llai-tm. i. Fl. 2. 0. p. 182; Anders. Sal. europ. 8. liastata-her-  
 bacea i Anders. L c. p. 51. S. rectum ex Alibus meridionalibus Europ... Sn  
 borcaillms repra-sont. Est [amen Iruticuhis suberectus, foliis sulitus palli-  
 tioribus, flmenlis cylindrim multfloris el capsulis distinclius pediceUaffs  
 stylotme elongato rostratw disincta. His notia S. taastatam alpinam revocal,  
 a qua differt : foltis apice sa plus latioribus et pmarginatis, elevato-nervoste.  
 crebriiw serratis, ftmeaUs denique m,icriori!>us. A s. herbacea recedit foliis.  
 p, rotufidifolia foliis orbicularibus barf subconclalis planis subintegris,  
 ame in is brevibus, sqtiamis longtus villosu-barbatis. capsulia breriuu pe-  
 (liceiatis magia ovalo-conicia tenulter pubescentibus, stylo adhuc Ion-  
 gion. In all in Ariskutan JamUandise In Suecia. A S. sai'ueiiUtcea aon  
 parum recciuu Miorum forma et nervatione TOcnoa ameatt\*, s^uamistt  
 capsulis, quibui magis ad S. ovalam aiipropinnualur; aper e autea S. liur-  
 bacea Hinior.

135. S. BOtoirawouA (Tr;mtv. Mt'm. tie TAcad. da Ifwcon a. p. 804), amends  
 in ramulis fulialis ^emmiileris tormiaalibus ovaUbus pauais ei rarifloria foltla  
 abscondilis, stjuarais oJjovalis trincato-rotu ndatis fuscis concol iribua iiviu.isc.  
 sat lonffll ciliaits, cap-ulis ovato-tenceolatifl glabris rufeso ntibus brevissim  
 pedicel[atis, pedicello neclarium aubeequante, stylo gnbproducto, stigmatlms  
 ijifidis crasmuaculis divaricath, foliis orbiculatis ernar^innis iitegerramls gla-  
 jpi> iutenlum subciliatie venia utrinqnc coatarum in star valide prouinentibua.  
 In America arctica occiden^tii, ut ;i'l Bioum St. LaurantH, in peninsula Unalas-  
 chka, etc. S. polaris !jocarta Chamisso Liin;);ii 6. p. b42. S. raitUB rolii-  
 diiblia Ledeb. ft. ross. 3, p. t<24, [ > ]>. Quasi FormaS. rfu-s. e maxime rotundi-  
 fulia illi surpyllifoliae analog. Sed folia quae in S. retusa el HI dificationibus  
 ojvsformam dongatam typice habent fn hao e contrario maxljne rotundata,  
 nrvJs multovaHdius prommentibus costatael iisnlicata. i'otius ad S. polarem  
 referenda sed capsule alieuau I (v. s.)

136. S. POL;is (W.ihlenb. il. kap. D. H3), aTiencis raimbos ttemiatis (v. la-  
 ter;ik<> l. pMiiiiir J.; Bulbifolio torinjantibus OTali-rotuntlalis 3-^ffqrls  
 <•>loris, squa'OBupnc.LV>s obovato-o-alibus tcimcaLis v. spalliulaLis Mihre-  
 lulis rufesi-venti-piceis, cl fulvescentibusglabria vel villusulis, ciji.svilis ovato-  
 conici-, srssiliilius plus minus allio lomentosia nectario basin cipsulaa atlin-  
 Rfinte, sijlo sub]producto (ulro-fusa scente, sllgmatibua bifittia diwricalia  
 fulvis, folu orbiculatis v. ovalibua basi vel apice latioribis emar finatis vel  
 obtu«a glaberrtmia concoloribus vel sub: us panllo pallidioribai uiringy  
 nitiuis eoriaceo-dgidk plania liiraato-nervous obaoleuus tenuloio^wolatlis  
 maigine pierumque inipcei-rimis. -; In loa regione maxiiue arctica orbia  
 quum vetens turn notd (ii, i auicm sa?pius s. rolundifolia el afae bane repres-  
 sentanM.. — Wahlonb. wee. n. H19; Fries Maul I. p. 76; Anders, fl. Sal.  
 hpp.; wimm. Sal europ. p. 137j Koch i....mant. p. 64; Ledeb. fl. ro&s.  
 ii. p. 626; Hoot fl. boreali-ame., jt n., -J3. mddendorf Keisu 1. % 1.  
 p. •£. H. 14.2:>; MeritTis in Linn., a y. Maimgrei Fl. Si^1- J- \*'w' "" Ofv. af  
 I rl. Ak. rorli. 1862, p. 249. s. herbncea Sol. in PWpp s' >• etlook. l'arrys  
 Narrative or Voyage mi.- -Icones Wahlenbg. fl.lapp. t. 13. f. I. Sv. Jtot.493.  
 Anders. I. c. I icb. f. 1[K.J. Sal. Wob ;. 63 fmabl). - ; asicc. p r, H.  
 K. V. G8. 5. berliaccnj ita similisj ut ab oa \ix d' stingu- itur. Vulgo gracilior  
 folia habet pnnio tennia, aed exstam modfl cationes fomaplus minusevidanter  
 serrolatia naac mawme aimulantes, lla ei iam ut in S. herb aacea capsulae ,Htm  
 raro nbscrvantur sulili rsulae el folia obsoielius serrulata! Specimina in Fin-  
 markia occidental!, ad Kauffjad, legit cl.Dr.Hi.Fries «S. po&ja capsulis Kb-  
 licrriinis foliis orliicularibus iniegerrimis » S. bevbuceam clS. polarem i;videti-  
 La coujungentia. (v. v.)

137 S CLACIALIS (Anders Sal boreal americ. 1. c p 131), amentis in ramulis annoUius latenlibub vel tenniulibus foliatis pedunculatis ovato globosis, squamis rotundatis fuse is glabnuscuis, stammibus | allulis, capsulis ovalibus albo-lanitis sessilibus squamas feic duplo suprintibus obtusissimis, stjlo nullo, stigmatibus scssihbus b fid is fuscis, folns o\alibus vel late lanccolatis ngidis supia obscure vindibus norvoso line at s subtus glauccscentibus utrinque glabernmis vol ad costam infra subferruginco hirtis integerrimis 5 In httoie mms glacialis (inter C Banow ct Mickenzie river. Capt Fullen) S Uva Ursi Seem Voy of Herald 1. c p p 1 st quasi inter b ovahioliam et S polarcm media, \el pnoris forma pusilla A priori diflert folns vix | pol hcem longis I- | lm latis, amentis duplo bievioribus, capsulis senceis ct stig matibus sessihbus, a S pol in folns aculiuscuhs subtus evidenter glaucis, capsulis longius villosis ct stylo nullo truticulus parvus MX digitalis est.

(V.fl)

v

A

d Retxculatx

Vruticuh Irunco subterraneo ramis flabcllmbus humo adpressis aut erectiu\* culis toll a orbiculana, Integra, venis subtus elevitis ct cibernme amstomo santibus quasi scrupulosa aut aigentco villosa aut gliuca Amenta tciminalia longc pedunculata, gracile cylindnca, squamis n tundatis rosaccis, toro in ui-teolum lacimatum tumente, capsulis ovalibus, albo lanatis, stylo bifido.

138 S VESTITA (Pursh, H of North Amer. 2. G10), .uncntis tcrminahbus peduncuhtis basi bubranfions angustc rjhndraois, pedunculo foliato, squamis fulvesccitibus ohovatis cilntis, caj>sulis oblo/igo-ov.ilibus scssilibus incino tom( ntosis oblusis, stigm itil)us bipartitis fuscis divorgontibus, foil is pctiolitis oblon'go o\alibus apicc gl ibris subtusglauco-albesc( ntibus In Labrador,circa lacus m i]ons Amenci 1>Oicalls, in Rocky mountains ct ad oras glaciales maris septentioriilis Ltiam in Altai monlilius legg Scliangm et Geblei S vesliUHook fl boical amci 2 152 b rcticulata a vestila Andeis Nord Amer pil 1 c p U3

*OL, humtlior*, fruticulus subpedalis e basi derumbonto adscendens, ramis tenuionbus, folns ovali-oblongis basi subcorditis supra la\*te vindibus subtus intdiso lactcis evid( ntius reticulato nervosis diutius senceo pilo-BIS, lmenlis brovioribusmigiscjuc densiflons — Chanctenbus, spccimmi pi i cipuc altnc a si perspicias, ad S leticulatam aperte transit sed habitu fiuicis rainosi folns lenuionbus ornati ab ea non parum diversa.

p, crctfo,fiutex X k pedalis, ramis stnctiusculis glabernmis cincico lucidis apicc castaneo-rufescentibus, ramulis annotmis bre\issimis folia 2-i vl ainenlum profcientibus, loins pollice sublongionbus ad medium scinipollicm latis olon^alo oblongis vel lite lincolitis apice obtusiusculis Lasi subiotund itw supra lunde vindibus pi iniusc ulis \ix nervis impics^is ruRulosis, subtus adolescenti i sen ceo pilosis, adullis omruno denuditis sublacteis costa ct nevis pallide ilivicantibus percuisis integennnis, amenlis lore basi rarifloi is A tunra S reticulata valdo recedit, sed ad earn evidenter adpropmquatur modifcatione piaoccdente

139 S ORDICUI VBIS, lmentis longe et nude pedunculatis gracilibus densifloris ereclis, squamis iotundito obovitis glabus fuscis, capsulis ovali conicis acutiusculis tenuius incano-tomentosis, stylo nullo, stigm Uibus iuscis bipirtilis div(rg( ntibus, folus suborbicularibus v<1 obovato-oibicularibus ulnnque glabennnis supn obscure vindibus impressc nenosis subtus pallidionbus densissimo fusco-nenoso-reticulitis maigmatis longe pctiolatis, petiolo sa pc plus quim pollican ^ In Kamtschatka ct in Amenca borcali-occidentali ut id Sitebka rt Unillbelifcl. — Irunco longissime scrpit lamulos subullosos radicioimes undique emittens Hami apicc tantum modice assurgunt, ibi folns '2-} ornati, alrijglabcuuiJii ^emmajusco-pjcea? omnmo glabro.,fjbtusae, subidpressa I oha polliccm longa el lata, suj)n medium vulgo latiora, ipicc lata rotund Ua baud cmargmala, basi lotundata \el obsoletius attenuati mugine intpgermi sid potius subic\oluti, subtenuia, nevis 'upra valdc immeisis sul>tus dislmctissime fusto^-reticulatis arrolato iugosis ne vestigio pilojum dciclitto glabemma Petiolus gi icilis, ^ubllcxuosus, Don raio polhec

longior. Amenta ut in typica, sed vulgo graciliora. A-formis vulgaribus S. reticulate habitu abunde diversa. (v. s. in ti- i>etrop.)

140. S. PETICULATA (L. sp. 1446), frutex depresses, raulis apice foliiferis, amentis terminalibus longissime [odunculatis densilloris anguste cylindricis. pedunculo foliato, squamis flavo-roseis unicoloribus rotunda to. obovatis, capsulis ovali-ovatis sessilibus incano-tomentosis, nectario urceoli lacinali ins tar basin capsulae cingente eamque saepe surterante, stylo brevissimo vel nullo, stigma-tibus bifidis fuscis divaricatis, foliis petiolatis elliptico-rotundatis supra rugosis subtus. glauco-pallidis reticulato-venosis integris. /, In regionibus borealibus et alpinis Europae, et in arcticis et septentrionalibus Asiae et Americae; in insulis Spitsbergen et in Greenland in. — Wahlgren. suec. p. 660; Urtm. Skaiid. ed. K; Anders. Sal. him. p. Hi; Koch Synops. ed. I. p. 756; Gaud. helv. 0- 256; Ser. Ess. p. 27; Vill. delph. 3. 77.); Godr. et Gren. fl. fr. 3. p. 1 <; Bertol. fl. ital. 10. p. 319; Hook, et Am. brit. ed. 7. 400; Ledeb. II. ross. 3. n. 28, alt. 4. p. 291; Rupr. fl. sibir. n. 263; Chamisso Linn. 6 p. 542; Hook, et Am. Ucechey voy. p. 130; Seem. Herald voy. p. 40, 54; Hook. fl. boreal. Amcr. 2. p. 151; Rink Groenl. p. 121, Malmgren Spitzb. I. c. p. 249. Chamitea reticulata Kerner Weid. Oestr. p. 277. — *lames*: Host Sal. t. 105; Fl. D. I. 212; Sv. Hot. t. 529; E. B. t. 1908; Keichb. Icon. u. I mt.; Salict. Woburn. t. 67. — *Exsicc.*: Ser. Exsicc. n. JJ; Pries n. 9. 62; Reihb. Eissc. n. 1421; Billot Exsicc. n. 19t.). Est species ab omnibus **setem** sutlicibus quum litibitula nolis ita distincta, ut br. Kerner, hujus generis aculis inius monographus, eam typum generis sui, Chamitua apjiellati, proposuit quam opinionem attamen nuperrime deseruit (v. s.)

a, (i) pica, foliis ovali-rotundatis v. elliptico-obovalis oblongisve jtipra glaberrimis subtus albido-glaucis rigidis — 1<sup>6</sup> *glabra*, foliis utrinque glaberrimis — 2<sup>o</sup> *scricca*, foliis subtus plus minus argenteo-villosis **baal** uubinde **Umiuloso**-subserratis. In Kuropai et Asise jseptentrionalis alpiibus frequenter occurrit, nunc depressus nunc suberectus, foliis nunc J poll, nunc vix J poll, longis latiludino maiori supra vel inl'ra medium varianle. In alpiibus calcaris Europae nieridiunalis forma sertcea vulgutior.

p, *nivalis* (S. nivalis Hook. fl. bor-Amcr. 2. p. 152), nana, **fUSOO** el rarais vix pollicaribus, foliis 1-4<sup>o</sup> lin. longis **etfotico-ODOfatia** vel conlaln-ovalis utrinque glaberrimis, amentis subquinq'doris. In cacuminibus **clit** oribus Rocky mountains, **Labrador**, et ad oras glaciates America, in Islandia et Spitzbergen, Inter plantas lignea maxime pusillas terrae adun-**mcrandal**

141. S. RETICULOIDES, amentis terminalibus crasse cylindraceutis densifloris **Bexuosii** patulis, squamis fuscis obtusiusculis dense albo-villosis, capsulis conicis acutis glaberrimis sessilibus, stylo parvo sed evidente, stigmatibus parvis integris flreclusculis, foliis obovato-ovalibus breve acuminatis junioribus pilis sat **longifl** adpressis subsericeis adultis glaberrimis primo lenius demurn rigidiusculis subtus pallidis venulis anastomosantibus crebre el pulchre reticulatis. 5 In alpiibus **summit** Lapponiae Lulensis (ipse) et in terra Samojedum (Schronk). Inter S. **battatua** tit reticulatam aperte araliigil, ab illa habet staturam sulwrecUun, **ramoa** glaliros fuscis, folia 3-6 basi apiceque suba; tualiter att«nuata adoiescunlia tenuia gubjiellucida glaberrima subtus pallidura **margisfl** minute († conapicue sorrulata, snd nr\*cipue amenta terminalla 1<sup>o</sup>, poll, **longa** :-)» lin. crassa serrulata, squamas villosas et capsulas glalierrimas **conical rafescentea** stylo ovidenii rostratas ei sligmata tenuia\* paliida, seda S. reticulata staturam numifusam, ramos toralosos annotinos dense incano-tomentoso S; folia aut basi aut apicera versus latiura ita ut laliludinem longitudine fere eequanl, basin versus **saepissime** intogra, juniora pilis sat longis **adpretsia** subsericea subtus evidrtissime reticulata, sed pwe-cipufi amenta lerminalia denailora, capsulas sessiles basi Crdssas.— Specimma nonnulla legi foliis magis angustatis diutius pilosis sublus intensius glaucis insignia qua; adpertua S. hastalam revocant; crescendi uiodusaulem oiunino ut iu S. reticulata. (v. v.)

C. SAUCES *SYNDRA*.

Stainnum diorum filamenta in unum plus minus conneta.

§18. *Incanat.*

Frulices sat alti alpigon!, ramis subvirrinus. Folia Iniean-lancoolata, supra opace vmdia, subtus hctoo-tomentosa. Amenta sessilia, anguste cylindna, arcuato-flexuosa, squamis obtusis flavidis, filamentis plus minus connatis, capsulis pcilicellatis, stylo evidente pideditis — Canae Korn 1 c. p. 49.

142. S. INCANA (Schuank Iiaic. 11.1. p. 230), amcutis sessilibus arcuatis gracilibus angusto cylmdncis biactcis suffultis, ^quamis fulvis rotundato-subcuneatis fere truncato cieiiulatis glabns vel tunuissimo ciliatis, stamiibus basi subconnatis, aiihoiis flaws, cap^ubsconico-lantcoljtis glabernmis luscesc ntibus pedicollalis, pedicollo necUnum bis superarite, stylo brevi sed evidente, gigmalibus hlifoinubus bifidis divancatis, loins lanceolato-linoanbus acuminatis margmo rcoluto sululenticulaiis subtus adpresse et opdcc tomentosomcanis sublattis costa ^ ilidd fulvescento, stipulib nulhb. 3 ^«cus npas fluminum in con\allibusinf/aalpini&Lurop.pau!.ti.(tmodi<je abIUlu et Hispanu in planitns Silesic mendionaliS), Danubn et Rhom usque in Luxcmbouig, onentem vcisus in Moldau et Balkan. Knam in Asia rainon id Andach (VVeidemann).—KochSynops.ed.2.p 747; Kein^i Oestr.VVc id. 1. c. p. 22G,Wimmei Fl.Schles cd. 3. p 192, Sal.curup.p. 25; Willk.etLange n. bisp. p. 227; Harti^ Forstl.CulC. p./100, drcn et Godr. Fl.fr. 3. p 128, Gaud. fl. lielv G. p.2J0, DC. fl lr. J 28'i. S 337, Willk et Lange fl. bisp p. 227. S iipana Willd. sp 4. p. 6U8; Bert. II. ital 10. p. 30ft; Gnseb II. Rumel p 3^II. S. lavanduljifoaha Lapeyr. abr. p. 001; Ser K\sic. Ess. p 70. S. angustifoli i 1'oir. in Duh arb. ed. 3 p. 29. &. rosmannifolia, Goaan boit. 501; Host Synops. p. S29. S. Elanagnos Scop. earn. 2. p 257. (quam tamen IKI S. bifidam duxit Wiinmer). S. vimuulis IULb. Taur. p. 16'), Sut. helv. 2. p. 280, Vill. Oolph. 4. p. 785. S. limuris Forbes Sanct. Wob, t 89. — *Exsicc.* • Rchb. n. 958. Scr. exsicc n. 8. sdiultz n. 154. Wimm. 81. 04. Billot UK. Puel Hb. II. Lurop. 43. Kenier III). Sal (*A-iti.*—*hones* Host bal. 58. 59 Ruchb |2M. Sturm D. fl 2^> II. Hartig. t. 113. (37 c). Sil Wub. t. 90. Frutex sjjpe raa-joiis altitudinib, fohis et amentis a ceteris facile distinguendus. Folia saepe 2-5 polliLes lon<sup>r</sup>a, 1-4 lmcas usque ad semip^llictm lata, supra saturate vindii, nonnuuMuim tonuissime et obsolete floccoso-unerascntia, neivis subimpressis, subtus tomento plus minus dense sublaclea. Amenta mascula subpollicana, in^urva, sub inthcsi rubcih, obtusa, AMiinca P-2-j)ollicana, lanusculi, capsillis lineahbus vinduhs vel testaceo fuscis. In varns locis statua et m>K>'t'dine folioium admodum vaiidt, nunt frutex altus folns valde elon^11s aut subtus tomento lacteo villosis, mar^inibus revolutis (in legioiic siilwlpuiu convallium), aut tcnuionbus et lationbus, subtus denudato-soi dulis ^enlsevl(l>ntlo^lbus, maiginc senulalo vix revolutis (in planitie setus fluvios majores) — nunc frutex humilis loins valde confertis angustissinns (in editionbus alpium) Pinter sequent'^ quas hybuda ongme ortasplenque consent iuctores du is formas babeo ex Helvetia sat memorabiles non autem Hoiltu^ liisliuUas ut natuaia caium plane perspici possit Sub nomine S. arenam\* a 1H20 divulgavit ^chleichci specimma quorum aliorum loins oinatuni medium tenet inter S. Hehctictim et a. inoanam. Folia vix 2 polhcos longa, nbo\dto-ldiiceoku, brevissime acummati, supia medium vix

\* ieunpollicem lita, supra glaborrunc nitentia, nervis dilution bus notata, subtus costa valuta ful\ ipeicursa, lana opaca laUea obtecta, adolescentia pihs sat longis adressi, sdicea, pctiolo sat longo iufesconle, gemmam obtusam sat DQagnam glabrim supraute, rami toiuulosi crassiascuh castaneo-nifontes Specimen amentis masculis praiditum ad S. Helveticim pptinet Jn alpe supra utbem Aiyle in convalh 11 Khodani fruticem ipse 18>7 obsrvavi tune (mense se|>t) tantuin folns mstructum. Folia lorma et ngiditate omrno S. myisinitidis, statua et ramificatio fruticis etiam ut in hac speue, sad indumentum loboium ut in b inriin IUmi undiquedivergontes, rubicundi, glabernmi. Gemma3 adpressae, albescontes. Folia pollice longioia, evade Ian-

ceolata, supra **hatt vfciaia, nitidula**, suMus lacteacostn **Jutva** lineata, margin!  
tenuiter set! **ct^fcime** den la to- et glanduloso-serrulaia. (v. v.)

X S. WIMMEIU (fflier Rege!sb. Flora 1852- p- M I) T amntis sessrlibus brevi-  
**bos** foliis minutis **bracteatis vei nudlusculU**, **squamis basi** ferruffineis apice  
rolundato Fuligineo-nigricantibus breuiua 11osis, filamentis basi connatjs,  
capsulis conicis siibcbmpressis gbbriis **subsessilibus**, pedi crllo neotarium  
**aeqtiavte, stylo in> rrlgmalibus** <recto-patulis, foliis **oblongo-lineari-**  
**Lanceolatts** \*iltem **ftuiiorimi** **eo-tomentosis**  
**adoltia supra lucide Tiridibtis** subtus nlhi-!o-glaucis, stipulis ob-oleis vel  
deciduis, **gemmafl** «t mnrnis saltem (nisi albido-toi i av **ipe Gen** evam  
**fReuter)**, in Austria inferiori et Tyroli **paucia Locis (Erdirn Kerner)**.  
— Kern. Verh. d. zool.-bot. Vercins in Wien. \*2 61, Nidi. Oestr. Weid. p. 230.  
s. li.ssa **Bofflm?** es ncui. Catal. pi. Gene\*, p. 3n. s. Reuteri Motiizi **Flora d.**  
**Sebweiz p. 469, a. 1M4'**. — s. **dapbaoidi-mcaQi Rent, m** so. et h  
**daphnoidM Wimm. Jahresb. <l scblea. Ge> 18V2. 1 64, 1 lenkschr. p. 15<**  
Sal. europ. p. 158; Neilr. il. v. Medcr-ucsir. Pp. 266. — **Kxsicc.: vfmca.**

o. 88. Kern. Hb. Sal. n. 434S. Frutex aui arbuscula usque ad 5-orgyalis,  
**ramis fragllibug, juaioribuB araclxnoidBo-totneAtosU**, **aduitia glabrai** is saepe  
nosis. I s- **dajibnoide babetfdha uepe 4-pollicari** a. margine acute si ratn,  
enta p. anti-

**S** **pin supra viridula, firma, saLiuis subgl^uca, an** ills fulvesci  
nia, **capsulas glabras** viridulas, tenut's, stylo elongato rostratas. A S.  
**Iacaaa amenta bre?iora et angusHus** cylincWca, Bquamas obtusisslmas hi'i  
**FulvpteenteSj** stamina basi **connatal Capwilaa padiceflatas,fbliatomwnto opaco**  
saltern **subtus slatu junjor&** ulilecla et cusla fulva percursa. (v. s.)  
a) **lonium produciU supra saturate vinctibus Diidulia** sulilis iil:lauci3 **glabra**  
in **produciU supra saturate vinctibus Diidulia** sulilis iil:lauci3 **glabra**  
β, **brerifi>lia, fol. linearilras** ©IUpico-oblongis **breriter acatisnqpra** **sordide**  
**rirentibtta puberulia rabtw** iequaliter **farinaoeco-ptibescentibus** incano-  
glaucis [ad 8. dapfnoidem).

Y, **denuddla**, bl. subtus opacis scd glaberrinis supra lucidis inargiae sat  
acute serrulalis. S. daphitoidi aUmc similior.

XX \*. **STOKOBAWA (Gaud, apud Ser. Ess. p. :n et fl. lu-lv. 6. p. Wt)**, nmentis  
**sublesailibus** arcualis rrassiusculis masc. **obtongia** reininois **oylindricfl bitt-**  
**tei**« siill'uliiis, **squMnis ovali-obkrogii obtosia apioe obsovriotibua dorso pHi** isis,  
:i:isniis **opaoe albo-tom<ntosia** conico-rostratis **pedicell&ttis, pediceUo** neota-  
rium **bis aupemnta**, stylo tenui **eto^to**, sti^mailui-\* filiformibus bifi\*lis  
**divaricatiff**, ffdiis lanue(ilaio-<^bl(rigi)» ipico sulis:iciuinatis marline urnlulato  
subcreiatis **dsmaaa** supra lucid is **glabresconUlms** sultus **albb Xnwttosis**  
**rugOAO-venOllis, stipuUs** semicordatis cienatis acutis. **Bab. ad rivuliu in oon-**  
**vallilius sabelpiDJJ** HelvetiiE, Tyroli, **Cfriatbise at** in Silesia ausiriaca **ad**  
**Teachoa. Indicaiur** etiam e PyreD2tis **CatalaupisB (Iolmeir i sec. h^nge)**. —  
KucU Synojs. ud. 2. p. 747 (ex&L S. intermedia); Kenior VVeid. Oeslr. I. c.  
p. 127\ **Hartig ForeU, Cult. p. 401; Willk. ct Lan^o 11. bi<p- p. 228.** S.  
lanueofaia Ser. Ess. p. 37; DC. fl. Er. 0. p. 34\* S. holosericea Ser. Kxsicc.  
n. in. s. Kandi•fiana Ser. Kxbicc. n. A2- 3. **longifolia** Schleich. Cat. S.  
Sinitiliana & **ofaseura** Grou ct Gwlr. Fl. fr. 3. p. 13L 8. oaaescens **WULD.**  
berl'. n. IH174 ram. ilorif. s. [ncaao-casrea wiimm. Heyensb. **PI L849.**  
**p.46,DeDkschr. 1853.p. IV;t; Neilr; KL NieSer-Oostf. p.260.** S. caprea-incana  
Wiiim- Sal. europ. p. IV). 5. ciuoreo-iiicana Wimm. Rogensb. I-l. [1348.  
p. 3:13? — **Iconet : Reich, r. T229. Ser. 1.1.** — **Exsicc: Wimm. fflj, gaj,**  
n. 64- (quam Kerner ex S. incana et grandifolia **ortam credit**). Snr. exsicc.  
n. 42. 70. 71. 72. Kern. Hb. Sal. n. 4J. 53. Wimm. Hb. Sal. n. 63- **Coll n 221.**  
222. Arbuscula **8-4-orgyolia**, habitu ct **chufacteribua** inter S. **incanam** et  
**Brandiflopporsus media**, ab utraqu- autem foiiis **subtua lacteo-tomentosis**  
laiis et am en tis Tani **distinguennda, Rami fuaco-picei, glabri, navclJJ** tomen-  
tosi. Folia **2-i pollioeca longa**, I 11 poll, lata, oMongo-obovata, apice interdum

obliqua, supra demum saturate vincta, subtus costa \alida et nervis fere  
 rectangulanbus subrugosa stipulae subinde semirenicifori Mfc Amenta mascula  
 crassa et brevia, squama atns et stamibus imabasi c o. f. l aureis vniegata  
 feminea us S grandifoha; albicantis simi'hma, sed capsulae multo brevis  
 pethcellatae magisque acutae, in stylim evidentem attenuate (v s)

a, *macrophylla*, folns mpdio evidentiu\* lationbu\* sc 3 poll longis ultra  
 pollicem latis sul tus dense albido tomentos s — Kernel 1 c Pt exsic  
 n 49 S holosencea n 70 et S gemmata n 71 Wimm I \sicc n 61  
 (forma fol tenuionbus brevionbus integris, a Kerner ad S inteimpdiam  
 relata, scd fol supri medium tvidenter lationbus diversa<sup>1</sup> Adb capream  
 maxime \crgens')

p, *angustifoha* (Gaud 1 c) folns angustius lanceolatis utnque attenua-  
 tis apice longius acuminatis 3 4 poll longis vix p llicem latis costa  
 crassa subtus prominentclulva b holosencea angustifoha Ser Exsicc n 72

Illustnssimus A Kerner, qui summa diligentia et sagacitate Salices Austnae  
 extncavit senem lormarum e S incana et Sal cibus e tnbu Caprearum  
 procreatis vel inter eas c mnino intermediis proposuit, scilicet S benngena  
 = S mcana X Ciprca — b intermedia = S incana X grandifoha —  
 S hircina = S incana x S cinerea — S patula = S incana X S jKita  
 Quum autem omnibus cognitum sit, quomodo species Caprearum i<sup>^</sup>f se  
 connexae sint, ltd ut adhuc incertum quibusdam videatur num inter se\ere  
 diversae smt, quum przeteica b incana folus nunc angustis v latis, nunc  
 lacteo tomentos v denudatis vanat, non pro certo afmare audemus has  
 sequentes formas ipsa natura ut specificie diversas proponendas et a distinctis  
 specibus vane protreatas esse

X S INTERMEDIA (Host Sihx p 17 t 56 57), amentis angustionbus cylindncis  
 rectiusculis cinerea squamis lnngius cinereo-pilosis basi flavis apice brun-  
 nco-purpureis, capsuhs tenuionbus tenuius tomentos, folns elongato-lan-  
 ceolato lineanbus supra viridibus glabernmis lucidis costa albida percursis  
 subtus lacteo tomentos vel denudato vinduhs In horto Vindobonensi a Host  
 culta (ex Cdrnioli') a Kerner in fyrolis australibus et in Austria inferion m  
 monte Josefsberg detecta — Kerner Weid Oestr p 224 (S grandifoha  
 X incana), Lxsicc n 54—<sup>^</sup>6 Wimm Sal europ p 151 S incana cinerea  
 Wimm Mora 1849 p 40, Denkschr 1853 p 159 S subalpina bchl Evsicc  
 Kern (S supragrandifoha x incana) Oestr bot Zeitschr 1866, p 338  
 A vera b Senngena non differt nisi loins adhuc angustionbus, feie linean  
 lanceolatis ideoque lougionbus, supra ssepius lucide vmdibus, subtus nervis  
 tenuibus reticulatis margine profundius crenatis, amentis sordide unereis  
 et duplo angustionbus

XX S HRCWA (J Kerner in htt ad A Kerner), amentis bisi bracteis parvis 3 4  
 suffultis ljrpoll longis 2 hn erases cylindncis crectiuscuhs, squamis fuscis  
 acutis pilosis, capsuhs tenuibus basin versus glabrescentibus, fohis 2 polhces  
 longis supra medium fere poll ktis basi attenuatis apice breviter et sub  
 oblique acummatiss supra junionbus sparse pilosis sordide viridibus nervis  
 immersis subtus tenuiter lacteo-tomentosis, costa nervisque lateralibus flon-  
 dis elevatis — Kern (S cineiea x mrana) Verz d zool-bot Gesellsch in  
 Wien 1864 P 99 Hb Sal n 58 Wimm Sal europ p H3 Hab prope  
 Wien, ubi nulla S grandifoha adest A priori differt folns supra sordide viri-  
 dibus, subtus minus elevjto-nervosis et reticulato-rugosis, amentis magis  
 tenuiflons et capsuhs basi glabrescentibus

XXX S OLEJEFOLIA (Vill Delph 3 784), amentis subsessilibus basi paucibrac-  
 teatis cylindncis subrariflons, squamis oblongo-spathulatis obtusis flavicanti-  
 bus apice obscuronbus y arce pilosis, capsuhs oblongo-conicis gnseo-tomen-  
 tosis pedicellatis, pedicello nectanum bis quadruplo superante stylo parvo  
 vel obsoleto, stigmatibus rrassiuscuhs subdentatis obscuris, folns oblongo-  
 lanceolatis vel spathulatis obsolete sinuato denticulatis vel saltern basin versus  
 Integns supra cams vel opace wndibus subtus mcano-tomentosis ruguloso-  
 venosis ^tipuhs semicoiditis ad iciJtis In paludosis alpinis Helvetia; Eymatt  
 prope Bern (bei ), Gallia austidh (Flugge, Villars, Chaix, Lecoq ) m Lusita-  
 Dia (Link, Welwitsrh), Hispaniae Gahcia, et Silesia —bodi etGicn Fl Ir }

p. 133; Willk. e<sup>^</sup>Unge fl. hisp. p 229 S. sahiaefolia Brot.<sup>9</sup> Link apud Willd sp 4 p. 688<sup>9</sup> I<sup>^^^</sup>Porstl. Cult, p 401, Koch Comment p 34, bynops cd. 2 p 747. p P (sp<sup>^</sup>Hfryioh ad b intermediamduxitKeiner<sup>1</sup>) S patulabei. ess. p. 11, Gaudui H<sup>^^</sup>6 '249. S Muggeana Willd sp 4 p 709, ioisel. Gall. 2\* p. 344 S. SermgeanaLecoq et Lamoite, cat Sob. S. Incana-cinerea Gren. ra'ss. S aunta-incana Wimm Fl v Schles ed 3 p 20}, Sal europ p 151. I Icones Reich, f 1228(>).Vill Dtlph. t 51 f. 28, Sal Wob t. % — Exsicc Sennege n 1 (S. oleioliola non Sm ), n 94 (S patuld) Wimm Hb n. 66. Coll n 225 226 Kernel (S patula) h Sal austr. n. o7 Cura b inter<sup>2</sup> media el S hircina jam descnplis sat indubie confluit, siepius autem differt amentis adhuc magis ranflons et tenuibus, squamis totis fulvis, capsulis obtusionibus,folns magis obofdto lingulatis ramisque magis divancato-divisis.

a, *brevifolia*, folns obovato-lingulatis obtusis v acutiusculis MX polhce longionbus J | poll latis us b auntae minons forma simiibus pnmo integris demum subcrenulatis — H-PC S patula Ser. n. 99 (S. oleifoha n. 1 folns majonbus ad longifoham transitus)

p, *angustifolia*, folns sublincan-lanceolatis acutissimis margmc evidentius revoluto subintegns utnnque dense lomentosis. — Hd3c poiissimum S. salvixfolia Link

<sup>^</sup> *longifolia*, folns 2-3 poll longis supra medium -|J poll latis margine sdepius crenulato serrulatis — Vanat 1° folns ngidis subtus dense lincanis argute venosis. S patula Kein. Hb Sal. n 57 S. oleifoha Wimm Hb. Sal. p 66. — 2° folns tenuibus subpelluudis Hetc folus tomento densissimo albo lacteis vel tomento opaco denuddtis soididis.

XXXX S. KFRNERI (Erdinger Verh d zool.-bot. Vereins in Wien 1861, p. 78), amentis sessihbus densiflons arcuatis jiallide aurcis, squamis oblongo obovatis apicem versus leirugineo-atratis, filampntis in h&ci cohaerentibus, anthers lutcis, folns linean lanceolatis elongatis 8-10<sup>les</sup> longionbus quam latis margine subievolutiset minute denticuhfs subtus albo-tomentosis supra obscure vindibus 3 In insulis flum. Danubn, prope Krems (Erding). S viminalisxincanaKerrl. Frutex sat altus, ramisvirgatisflavescenti-rubescens. Folia 2-3 polhccs longa, acuminata, in petiolum pioducta, >upra sordide et obscuie vindia opaca adolescentia pilis sparsis tecta mde puberula adult 1 glabra, subtus costa elevata flavicante percuisi holoseuceo - et arachnoideo-tomentosa adolescentia aubsenceo-micantia, nevis secundarns in utricque latere 20-30 supra vix conspicuis subtus prominentibus. Amenta masculapolh-cana (v. s.)

143 S BIIDA (Wulf llor. nor pban p. 780. n. r>08), amentis masccths tenuibus cuivato-patuhs femineis elongato cylmdncis angustis curvato flexuosis basi paucibracteatibus, squamis owlbus obtusis apicc ohscuns tenuitCL pilosis, filamentis ad apicem connatis, anthers llavis, capsulis cv ovata basi brevissime conicis tenuiter sencis basi glabiescenubus sessilibus, stylo elongato fulvo, stigmatibus brevissimis erectis mtegn fusco-purpureis, folns elongato hneanbus ultia medium lalionbussupia glabernmis subtus opac.s glaucis vel opace senceo-arachnoideo tomentosus costa vjilida lul'd pcursis, margine supenoie tonuiter senulatis. 5 — Kernel \Veid Oestr. p 22i. Hb bal. n. 59 GO S. Llaegnos Scop cam. 1210? sec. Wimm. S. purpurei-incana Wimm. Jahr d schles. bosellsch. t. 1, f 1. Denkschr. 1803. 1. |;|, Fl. v Schles. ed. 3 p 204, Sal, europ p. 150, Txsucc. n. 5. S. mcano<sup>2</sup>purpurea Neilr. ^MII d zool bot. Vereins 1801 p. 119, Fl. v. Nied Oesti p 260.

a, *subhncana* £ folns paium supra medium lationbus hreviter acuminatis subtus plus minus lacteo tomentosus, amentis brevissimis squamidms flavis In Austria (Kern et Winkler). Fruix mediocns rimis subvimeinis glabns Gemnde acutatae Folia 2 3<sup>^</sup> poll longa, supra medium -<sup>^</sup> poll lata, adulta ngidiuscula, margine feie toto tenuissim seuulata (v s)' ft, *subpnrpurca* ? folns lmeari-lidnceolatis longms dtenuato-acuminatis plensque nudis subtus pallidius vindibus, summis arachnoideo-puberuhs, squamis vindibus apice adultis. S. Wichurcr Kern, exsicc. In Silesia



dustnaca prope Bieht7 dbeato Wichura et nupemnae in Austria infer propeKiemsabErdingero detecta Frutex sat altus raffliffi sLactis Gemmae intus applanatae \*oha 3 4 polhces longa, infmoi a MOI<I, 7 pollic. lata, ddulta tore ngniuscula Amenta 1 ' poll longa, dpsuhs vindiusculis saltern basin versus glabrescentibus A S Pontederana differt folns multo angustionbus, capsulis glabnuscis pedicello nullo, stylo evidention S pychnoachyd mdica quae huic simillima, recedit capsulis omnino glabns, st}lo nullo apiculatis, loins obtusionbus, etc (v s )

### § 19. *Purpurex.*

Frutices altiores, mediocres aut pygmaei, glauco vel obscurus vindes, ramis tenuibus, temcibus, glabns Folia elongata, lanceolato lmeana, plus minus Integra, glaucescentia, saepe sat conferta Amenta anguste cylmdnca, squamis obtusis apice fuscatis, stamini gemma, filamentis, ranus etiam anthers plus minus comntis, pnmum purpurcis, defloratis nigncantibus, capsulis typice sessilibus senceis, dehiscentid parum falcatis— Puipureae Koch.—Helix Fr — Semipui pureae Pt purpureas Kern 1 c p 55

144. S PuniUREY (L sp 1442), amentis sessilibus minute bracteatis cj ^ ^ i - cis gncilibus obtusis densiflons, mascuhs monandns, filamentis omniMKa litis, squamis obtusis apice fuscis purpureo-atns plus minus cnspato-pilosis, Cdpsulis ovato conicis obtusis cmereo-tomentosis sessilibus, nectano basin capsulae superante, stylo nullo, stigmatibus ciassis integns suberectis, folns lanceolato lingiilatis gldbernmis tenuibus glaucescentibus apicem versus te nuiter serrulatis interdum quasi suboppositis, subtus palhdns, stipulis obsole- tis. 3 Secus npas fluviorum, Iocis uliginosis etc pei omnem Europam usque in Sueciam mediam, Asiam onontale mediam et mendionah septentno- nalem Ftum in Persia et Asia minon, aed in America tantum culta — WiJd sp pi 4 p 672, liautv Mem pres a l'Acad de St-Petersb 3 p 630, Linn Su n 884, Fr Mant 1 p 63, Wimm. Sal curop 29, Hartig Forstl Cult p 413, lange Dansk H ed 2 p 616, Smith bnt 10\*0, HooketAm bnt ed. 7 p. 392, Godi et Gren Fl fr. 3 p 128, Malhieu fl Belg p. 486, Koch Comment p 24, Synops ed 2 p 7^4, Wiram fl Schl ed.3 p 193 Kerner Weid Oestr p 272, Bertol ital 10 p 328, Guss Synops 2 p 2 p 62t, Willk et Lge fl hisp p 227, Sm Piodr. fl Graec 2 p 251, Griseb. fl. Rumel p 344, Ledeb fl ross 3 p 602, Bieb fl taur-caucas 2 412, Asa Gray Man. ed. 2 p 415 S monandia Hoim Sal p 18, Ehrh arbor n 58, Sei. Ess p 5, Gaud Helv 6 p 231, Vill Delph 3 p p 767 DC fl fr. 3 f 29? S Carniolica Host austr 2 64 (androgyna) S fissa WihlenDR lapp 2012 — Icon • Hoflm Sal t 1. f 2, L B t 1185 1343 1388, PI D 2554, Sv Bot 589, Reichb 1230 5, Ledeb ic fl ross 453, Haitigl c t 44, Sal Wob t 1 — Exscicc Ehih arbor n "Sl, Ser Exsicc n 24 31 (fol ter- ms), 32 (fol dorso senceis), Fr H n 2 56 57, Wimm Herb Sal n 52 Coll n 10? 109, Kernel Hb Sal. n 128-131, Kotschy pi. peis boreal 1843 n 154 Frutex plerumqua 1 3-org}ali>>, ramis glabns, \ulgo vimineis, te- nuibus, valde tenacibus, interdum autem frutex humilis, ramis intricate- di- vancatis. Folia breuter petiolata, ^aeplus iti conferta ut mteidum qudsi opposita appareant, 1 3-polhcana, suprimedium i-1 pollicem lita, basi longe attenuata et Integra, apice latiora acuminaU et serrata. Amenta m ramulis dense conferta, graciha 1 1^jpoll longa, 2-4 lin crassa, saspe incurva Squamae obtu^ae, saepe quasi truncatae, basi autmarginibus pilosae. Capsulae late ovatae, obtusissimze aut breviter comca\ stylus minimus, flavus, stigmata purpureo- lusca L modificationibus varns sequentes praepnmis notandas, quarum du?e ultimam forsan subspecies

a, *gracihs* (Gren et Godr Fl Fr 1 c ), amentis gracillimis, vix 1 2 lin ciassis, capsulis brevissimis suhovahbus S purpurea Sm et auct plei europ

p, *Lambertiana* (S Lambeliana Sm bnt 1041), amentis crassionbus capsulis ovato conicis, toliis majoiibus supra medium conspicue lalio nbus tenuibus facile nigrescentibus — Willd sp pi 4 p 673, Forb ^al

Wob t 3-4. Trautv 1 c p 629 S. Woolganam Borr E B Suppl t 260l  
S pratena Mfcop Cam p 252° S oppositifolia mutabilis hort Vanat  
folus 3 4 | Rk longis, supra medium 1 || poll latis, \cl folns ||x 1 2  
poll longionbus, supia medium <sup>t</sup> 3 poll lalis, fere obo<sup>^</sup>ato-spathulatis  
Y *Helix* (S *Helix* L sp 1441), amentis crassiuscuhs folns magis elongatis  
acumme piod cto acutatis margine aut inguste serralis aut subinteg<sup>^</sup>is  
fere concolonbus aut subtus migis glaucescentibus — Trautv 1 c  
p 632, Willd sp.pl 4 672, Hartigl c t 46 torb Sal Wob t 2 Vanat  
folns multo magis -Ingustato-lmearibus vixl-S hn latis longissime cuspi-  
dato attenuatis, \el loins j i poll longis angustis ngidis subtus pie  
rumque mtensius glaucis

δ, *pallescem*, ramis vindi-te&taceis, folns hnean lanceolatis icutis integris  
concolonbus utnnque glaucescenti vindibus amentis vix pollicanbus,  
squamis palhde flavis ipiceobscunonbus, glabnusculis capsulisoulongo  
conicis testaceis minute pubeihs In pro\incus cauca«ucis (Hb petrop )  
— AS Ledehoumna differt ramis vimineis, capsuhs obtusionbus, stylo  
nullo rostratis stigmatibus brevibus, erectis, purpureis — Si S Lede  
bounana stirps indigena et S purpurese ongmna h<ec forma inter am-  
bas transitus

T, *virescens*, folns anguste lanceolatis supra medium pirum lationbus indp  
longe et acutissime cuspidatis et sat argute serritis utnnque puie a  
lucide vindibus—Kotschypl Peis boreal 1843 n 1)4 ^ hippopnaefoha  
Ledeb fl ross 3 p 601 In provmns caucasicis (Hl) petrop ) —  
Amenli non vidi, sed color et consistentia fohorum hanc id t<sup>^</sup>puin b pur  
purea pertinere indubie probant

\n S RUBRA (Huds fl angl ed 1 p 164, ed 2 p 428), amentis sessihbus  
crasse c\hndncis obtusis basi bracteatis masc saepe recurvatis, tern arrectis  
«quamis obtusiuscuhs apicem versus roseo-intusctis basi et dorso villosis  
capsuhs e basi ciasse ovata conicis uneieo-tomentosis sessilibus, nectano  
elongato basin capsulne supeiante, stylo evidente ^alhdo stigmatibusoblongo-  
lineanbus divancatis folns subconcolonbus elongato-lanccolatis acuminato-  
cuspidatis margine 3ubrevoluto repando senulatis adultis plerumque supra  
g abns subtus pilisadpressis senceis submicantibus ^ Ad npas et m lous hu-  
midis Europae totius medicfi usque in Sueciam mediam, in Asia media usque  
in Daburia, in piovinc (aucisius, etc —Willd sp 4 674, Fr Mant I p 63,  
LangeDansk fl ed 2 p 656, Sm H. bnt 1042 Hook et Am bnt ed 7  
p o93, Koch Synops ed 2 p 745, Gren et Godr fl ii 3 p 120, Ledeb fl  
ross 3 p 603 S fissa Hoffm Hist Sal p 61, Lhrh Dec 3 20, S ^ Ess  
p 32, Hoffm Sal p bl DC fl fr 5 W), Gaud helv 6 p 257 b ^ iem-  
brinacca Thuill pans p 515 (sec Koch) S olivacea Ihuill 1 t (fol latio-  
nbus breMonbu^.) S \nescens Vnl Delph 3 p 38o b concolor Host fl austi  
2 639 s mollissima Wahlenb fl carp n 1013. S Hoffmanniana, b tenuis,  
S fuscata et S elaeagnifolia Tausch (in herbirns) b purpurea \immali<sup>^</sup>  
Wimmer Regsb MOLL 1849 p 40, Denskchr I8o<sup>^</sup> p 151, H v bchles e1  
| p 204, Mej fl hannovi p 502 Neih Fl Nied (Estr p 257 — *Icones*  
h B t 1145, 1344 Host<sup>^</sup>al t 34 35 Hoffm t 13, 14 Reichb t 123b Coss  
et derm t 20 Hartig, 1 c t 456 Sal Wob t 4, 5 — *Frncc* <er  
Lxsicc 30 75 Fr H 10 60 Billot n 286 Wnrm Herb Sal 1<sup>^</sup> 86 124  
Coll 230 23D Kern Hb Sal n 77 78 S viminalis-puipurea Wimra Sal  
europ p 173 — Est sine ullo dubio inter S viminalem et S purpuream media  
aut ex us hybnda, omnium frequentissiraa easdem regiones ic parentes mco-  
lans torma? numerosa3 ad duas potissimum referenda modificationes

a *ummaloides* (Gren et Godr 1 c), folns sat longe petiolatis lanceolato-  
hneanbus longissime acuminatis mugme subie\oluts subtus saltern  
mitio pilis aigriteo senceis conspersis costi valida fla\apeicuisis sau-  
mis ament fern pallidionbus longius v llosis capsuhs magis fla\escenti-  
sence is acution bus, stylo ewdention, stigmatibus flavis \el palhde Dur-  
pureis lmeanbus re<sup>^</sup>oluto-di\ancatis Frutex altior ramis \a\de vimineis  
habitu evidentei ad s viminalem acuedens, sed ab ea distincta folns  
adultis plaois glaucescentibus ptiam subtus uudiuscuhs, imentis cy.m-

dncis, (apsulis hroviorihuscrausculis stylo hrew^Lslignntibus cras-  
sionibus I'rovent 1° latfol/a, folns 2 4 poll 1<^fc medio 7 1 poll  
latis. Vanat folus supra obscure vmdibus glabns s n^w tomento sonceo  
mollibus, stipuhs et gemmis magnis s claeagnifolu lausch Kern  
Weid Ust I c p (97)210 H Sal 74 76 s rubra sencea Koch  
fWimm ), folus \el iitrmque glabns supra obscure sublus pal 1 id 1 us vires  
contibus — 2° arujustificoha, folus 1-J poll longis anguste lanc^olatis  
subtus initio evidentiussseiiicoo-micantibus— Forma duhiaest s lmeans  
Turc/ amontis U mineii crasMSsimis, sqihimi\* o\il lotunddtis, capsulis  
ovah-oblongis stylo \ ilde elongato Unui, stigm ltibus divancatis fusus  
folns longissim mgustissime hncanhus supra op ice \indibus sublus  
arg< n< o sonms Hib add selenga Sibinae et prope Dormick Dahuna?  
(Iurt7 ) utriim id s vimmalom an ad b. rub ram bane formam singu-  
larom ipfciam vildo sum dubius

p, *purjmrrotides* (Gren el dodr 1 c ),follis breuius petiolatis angusto lan  
cool.iiiis supra medium lationbus plants roarginc salUm apirem versus  
plus minus scrratis utnquo glibns glaucescentibus subtus pallidionibus,  
squamis apice obtusion fuscion minus pilosis, capsulis cano-Mllosis  
migis oblusis, stylo breuon, stigmatibus c 1 issionibus integns c |Mh  
Hæc \an it 1" lahfalta, folus majoribus 2 4 poll longis, supn m^Hm  
usquo ad I poll litis. temiionbiis, facilius nigrescentibus (s sulnITna  
hs-purpurei Kern ) s viminalis-purpuna, c, ForbynnaWimm H IH48  
p. 112 s roncolor Host\*' S hcli< iflora 1 luscb S ForhyiniSm bnt 3  
p 1041 I B 1)44 sal Wob t '> KcMiier 1 c p (W) J2I lib ^al  
n 70 s purpiiiof I imbertiannr\* an ilogi — 1° brewfoha, Iclns bre\io-  
nbus \ 1 \ poll longis medio \ S linoas htis d(mum ngidis vindulis  
b puipucte Hehci aniloga, et ficile curn s Don 1 in a contundenda

X ^ CAIHANTJIA, (1 Korn Vorh d /ool-bot Vrreins in Wion 186» p 44),  
amentis sessilibus ( yhdrK isdensiioiis loins hand suflultis, squimis oblongo  
obovatis apicem \orsus ilritis villosis, filarnontis usquo id npicom connatis,  
antlions pi IIIIO rubcsi ontibns semis sordide 11 ivc s( ntibus , folns obovato  
lam ooUtis Kumimtis rron itis prim adoh scentii utnque pihs serucis  
tertis, adultis glibernmis supn nitidis subtus ojnus stipuhs lanceotitis,  
go mm is magnis \$ Propp Vindobomrn (Kern ) S purpurea x chphnoldps  
A Kern S subcaproi-purpurvi Kern lib Sal n 141 1 lulox trunco erecto,  
nmis ore tis tonuibus (itnini-c flavescences, conuo-iostrataj, petiolo pium  
broions »lolii tor it simissi quater longion quini Uti, feio 4 '» pollices  
loiiffi, pollicom lati, le 1 vis sccondirns v\ marginem dcciiiioitibus uirngic  
IiM^ 14-IH Mipulf sit paive, ruiviti AmontL HIIMUII pollicom longi,  
lldWitu loro (fid(m htitudino, pulchernmo auica — Ouum cbai ictoribus  
turn h ihilu mtoi S daphnoidecm ot S purpura media, at primum ab inven-  
loro cum<sup>s</sup> ( ipioicogniU (rodita — Nonne hue otiam rforondi psts Traun-  
stoinenkern lib Sil 11 I4i(s supercapioax purpun 1 Kit/biK hel in Noid  
tirol K« rn )' I olii. emm I<K ut in s diplmoidf s(d subtus densr scucea,  
ffemm r mignp acutd. adpicssa\*, scd amenta Idinnci subspnnpolliciria,  
donsillora. (v s)

140. S IIDFBOIHIANA Mrautv Sabrot in M6m do TAcad. de st-Petersb v )  
p 6JM, iimnlis biPMter pedunculatis elongato-cylindncis incuivis, s(linmis  
flavescntibus obt'isiusculis bisi et margine pilosis, capsulis cemco oblongis  
acutiusculis s(ssilibus (Uv^scontibus tenuite rpuberulis nectino bisincipuld<sup>1</sup>  
suporanto, stylo brevi, st'^ni ilihus llavis ert( Us bifidis, folns lanceol ito-h-  
lin( inbus utnquo attcnualis longe acuminatts subintegns glabornmis  
ulinqio rnncolfihin glUCIS venis piominontibus lineatis (xslipulatis  
In Stbina tltued et baikahnsi, deserto Njongoro Kirgisico, nocnon in Davun 1  
(soc I^cdeb) In monte I lbrus pn pc Dei bond (Kotschy pi Pois boreal) —  
Lcdeb fl ross 3 p fJOI S pillida Lode b II alt. 4 p 201, Ic fl <sup>ross</sup>  
t 4Vi S vimin ilis Mine7 pi (xsicc 1 1820 (soc Lodob) S felbrusensis  
Hoiss Diigm pi OIK nt 12 p 117 (s(c spoumina quTdam) S. vimmalisf  
n |007 Karelin et Kinloff I x omnibus Silicis purpuieT formis baec S ru')ra  
simillima ot forsan ut modificilio pillidt lunc subjungdida Diffort autem  
ramis testaccis divancato nodulosis, loins tenuiter membranaceis apice sappc

bubobliquis conoolonbus eistipulatis glabernmis planis, amentis crassionibus, squamis pallidis, capsulis fere glabrescentibus et stigmatibus brevibus. A s purpurea vera differt ramis non vimiis, aiticulatione subfiagibus, foliis valde acutatis subtus concolonibus, tapersulis acutis, \*stylis brevis, etc Folia sapms 3 polices longa, amenta subcoetanea a tenuijulis Ledeb. fl. alt 4 p 262, Ic fl ross t 453, quam deinde in fl ross j> 003 synonymam lialis purpureae S Ledebouanae potius subjungenda est \*olia apice et basi subsqualiter et longe attenuata, contolora, sed aemta. pnu tenuioia, fere ut in vera S purpurea, squamis apice obscuronibus (v s)

p *prw nosa*, ramis ramulisque pruina cacia sat densi obductis — Ad flum. Oka legit Ku/uhtsofi" (Herb. Pelrop). b acutifoliae habitu subsimilis. Flores non vidi

H7 s KossM\*ssimi (Willk mscpt. olim), amentis femineis sessilibus, squamis spithulito obovatis subtruncatis nigris basi imo albo illos ceterum glabernmi, capsulis coisus vinctibus sessilibus stylo evidente sed baud producto, stigmatibus subbilidis, foliis lingulatis breviter acuminatis basi attenuatis integre in versus tenuiter serrulatis utrinque glaberniis supra obscure jidibus subtus cassis In regno Murcia (Kambl 1 de Nagalte). b *purpura* Hossmidissl n Willk et Lange 11 Insp p 227 AS purpurea exat liabet folia, ut si here nspiciis, vix distingui possint, itiam amenta vix 1 linea Crissioi. valde densiflora et squamae nigrescentes obovatae subtruncatae lidic spec 1 cm optimo revocant Recedit autem capsulis quoj ut in s alba vel potius s *amgdalina* (iubus cum immixta dicitur hiefoima) induln, omnino glabrata, obtusa, stylo pano apiculata Auctores citati amonU mascula pedunculo foliis inserta dicunt (Amenti Tem tantum vidi lrdgmetum et folia)

148 s litGI-Lii, amentis pedunculatis matunt ite recurvito pedunculiscyli denticulis obtusis loins paucis t parvis sullullis, squamis oblongo spatulatis rubicundis (undofhvjs infem sparse pilosis, tapersulis oNato-coniu\* vindi-Uslaceis t (nului tormentosis sessilibus, nectano basin capsula; subsupciante, stylo subnullo, stigmalibus crassis erectis obscuris, foliis oblongo-lanceolatis sublinatis junioribus subpilosis demum glabernimis apice subobliquis glanduloso-serrulatis utrinque glaucis indibus subtus pillulionibus, stipulis luvolalis In Songanaad 11 Ajigus (sdirnk) toima singularis intri s puipun im (I S liagilni A pncr li ib (t lolia (saltern inmoi 1) lanteolato lingulati vel ad medium latioia, utrinque glaucescentia, vtnis flividis acute stnatis, auunta angusta cylindrica, squamas persistentes, apice subobscuriores et tapersulis sessilibus, bracteis, tomentosas, stigmata demum bicvia crissa Sed a J liagili lamos fusco nidos, subfragiles, loliavalde elongati (3-5 poll loriga)/\*<sup>11</sup> liqua repand glandulosa (rnti, junioi 1 pilis idpicssis MIOSI subnigricanti 1 stipulis lanuolatas, amenti folia to pediculi, capsulis vindulas A s Ledebouana fac de distingmtui iim>itis longius pedunculatis, squamis tuscis, stylo subnullo, stigmalibus obtusis, loins subnullis, stipulalis, sublus inlensius glaucis A s l'allasu aujuilib p(duntulatis, tapersulis sessilibus, etc (v s in h petrop).

[i<sup>c</sup>] s PACHNOSTACIYA (Andei lourn I mn Soc h p hk) amonlis spsilibus crasso cylindricis densillons elongatis loins nuHis suffultis, si iminibus moiidc plus, squamis fulvis obtusis apice 1 iliusculo fuscoribus basi pedosis, (instills sessilibus ovatis glabris, stylo subnullo, stigmatibus bicvibus erectis In illis, foisslancoolais oblusis bisi anfractis plims inf<sup>pi</sup> 1 mns ulrin- (IK> glabris c luriinnhiis subtus pTsortim SPIKCS S In India orientali Gau (kn reg alp, alt 13000 ped (Thomson) *hiux* Itre oigyalis, rann divanecati atroviolacci glaucescentes lucidi toliiftrci **poll** longL supri medium vix spmuncm lata, adu ta glibrata, utrinque laelo Mndia' costa dilutione vonis fusciscentibus Gommapi sit magna\* Amenta biactis minutis suffulta, obtusa, masc 1 < poll longa, squamis fulvilineis bencenibus pilis albis compressis, staminibus auctis, feminea 1 J\*2 poll longa squamis sum fusco piceis (aula 1 J hn loriga, basi gibba, aculiuscula, vnidula, stigmalibus testaceis. (v a)

[i<sub>y</sub> *alpina*(U) Hook), frutex minoris altitudinis rons gncillinis \ ilde

divisis flavescentibus, lamulis obscuronibus, lincis wx pollice longioribus 2-3 lin latis saepius utrinque pubescentibus integris vel apicem versus modice seirulatis, dmentis (masc) vix semi pollicem longis excurvatis squamis rotunda to obovatis fuscis. — Hab. etiam in Gauckar, reg alp. 13-14000 ped alt. Species in tribu sua sat peculiaris, hinc ad b rubiam, illinc ad s ddbnoidem iiccedens A priori tamen differt: folis non longe productis obtusiusculis integeriis, capsulis glabris, stylo brevi et stigmatibus crassis, a posteriori folis, capsulis, stigmatibus et stylo, praecipue autem staminibus. — Forma alpina a typica non nisi statim humilior, dmentis brevioribus, iolus magis hirsutis et squamis obscuronibus lecedit. (v. s.)

150 s OXYCAKPA (Andeis Jouv Linn Soc. 4 p. 4''), amentis praecocibus sessilibus vix elongatis laxe flexuosis subranfloris bracteatis vel folis minutis suffultis, squamis fusco-piceis aut fulvis obtusiusculis pilosis, staminibus 2, filamentis de medio connatis, capsulis sessilibus conico elongatis acutis terminalibus senceo-pubeis, stylis brevissimis, stigmatibus brevibus subclavatis, folis lanceolatis acutiusculis tenuibus adultis rigidis glabris integris subtus glaucis, stipulis parvis semilanceolatis. § In India orientali, ad Kischtwai, leg. temp. dlt (>11000 ped (Thomson) FITZGERALD oigydus, lincis molliter incanis vel glabris rufescentibus. Folia 2-3 poll longa, fere pollicem longa, vel angustiora et breviora, aequanter attenuata, plana, juniora pellucida tenuia, pilis integris adpressis praesertim secus costam pilosiusculis, subtus opace glaucescentia, costa ilavescente. Amenta mascula crasse lymdiata, 2 poll longa, amenta feminea su bar recta, 3-4 poll longa, acutiuscula. Capsula lincis 2 lin longa, stylo paivo sed evidente. S. yugostemoni Boiss exirruce alfinis, divertit autem quodammodo amentis masculis cylindricis, squamis cinereo-vel albido-pilosis amentis femineis multo gracilioribus, capsulis remotioribus exacte sessilibus valde tenuioribus, obsolete tomentosis, stigmatibus brevissimis erectiusculis crassis, lincis demum subintegris subtus evidentiis gliucis. Facie potius S. physocarpa v. laurinae nostra, dmentis etiam ad S. Wallichianam senceam appropinquatur, quae tamen capsulis habent distinctis pedicellatis et tenuioribus — Videtur folis anguste lanceolatis, subtus glaucescentibus, squamis capsularum acutiusculis, lincis, vel folis late lanceolatis vel oblongis, subtus pallidioribus, squamis capsularum rotundatis, flavescentibus (v. s. in h. Hook.)

p, *terrata*, amentis (defloratis) 4-5-pollicibus lanatissimis sessilibus, capsulis glabris mlescentibus, folis J-pollicibus exacte lanceolatis cuspidato-productis venis et costis flavescentibus elevatis pulchre et regulariter striatis subtus sicut intense glanducis margine minute sed sat acute glanduloso-seirulatis In India orientali Simla leg temp alt. 8000 p (Thomson) A pedicelate lincis pdrum lecedit lincis el capsulis glabris, bdbitu S. daphnoidi similima, seel amentis longis et laxis, capsulis stylo vix ullo praeditis distincta. (v. in h. Hook.)

Y, *breviuscula*, amentis vix ultra pollicem longis foliis parvis suffultis, capsulis lomento seuceo tenui subevadido puberulis, lincis anguste lanceolatis margine saepius remote senulatis utrinque glabris subtus opace glaucescentibus In India orientali. Idnkar, leg. alp, alt. 10-17 000 ped. (Thomson) Rami graciles brunnei. Folia 1 J poll, longd, dut anguste lanceolata dut oblongd, 1-1 poll lincis, utrinque puie Miidid sed subtus pallidiora, sat distincte petiolata. Amenta feminea interdum vix abbreviata, squamis fuscis sparsis pilosis, capsulis 1 J lin longis uneio-testaceis Habitu quodammodo S. senceo-pubeis revocans, amentis et capsulis S. oxycarpae est proxima, ob id tamen notis tam multis usque gradibus diversis ut vix mceitum sum utium ad lincis an ad alidum referenda sit specim. Videtur tamen hujus maxime alpina modificatio, a b. divergente capsulis glabris et a S. pyrenostachya alpina folis glabris diversis (v. s. in h. Hook.)

151. S. ZYGOSTEMON (Boiss et Hohenackeri in Kotschy pi. pers. exsicc. 1846 n. 135), dmentis sessilibus bracteatis minutis suffultis crasse densifloris masculis oblongis aureo-pilosis, squamis obtusiusculis saltern apice atro-piceis longe

aureo-vel cinereo-villosis, filamentis ad<sup>j</sup> coalitis, Cdpsulis ovato comcis acutiusculis cinereo-tomentosis pedicellatis pedicello nectidnum fere duplo superante, stylo mediocri, stigmatibus fihfoimibus palulis, foliis late (obovato-) lanceo Utis primo subsensu villosis demum plabiatis leviter crtnuldo-dentatis, stipulis linear lanceolatis glanduloso dentatis, gemmis glabris 5 In monte I lbrus Persia borealis (Kotschy) — Boiss Diagn pi orient Idsc 12 p 118 Arbor? Rami subvitidhni, annotun pubeiuli Gemmae sat magnae, castaneae? Iolid I \ poll longa, nidio 4 I poll lida demum omnino glabris, bdsi et apice fere aequahter attenuatd, subtus pallid 101 a Amenta prd Ltocia, miscula 1 5 poll longa, diitbens parvis, lemnea sa?pe u←que dd 3 poll lon<sup>^i</sup> flexuoso-cuivuld, densiflora capsulae 2 ijlin. long\* guse& Hdbitu sine ullo dubio typum S caprearum refert (jam S grandiloha, dilinem salutavir ill Boissier) Cum lls congruit folioium iorma et indumento, stipulis, amentis masculis longe aureo villosis, femnis crasse cyhndncis, cdpsuhs comcis pedicellatis cinereo tomentosis S Medem maxime simihs Capsulis sat breve pedicellatis, folus tenuibus demum exacte glaberrimis et hlamentis unilis, etc , mox distinguitur — Monendum utspecimma tantum paucafuisse collecta et ea amentis masculis divisione ipicuh monstrosa' (v s)

X<sup>^</sup> PuNrcuFRANv (Schl Cat 1809), amentis subsossibus bisi foliis paivis bracteatis densifloris mucivatis cyhndncis squamis apice fuscis vel piceis cinereo pilosis, capsulis ovato lanceolatis albo tomentosis \ix \el bieve pedicellatis, pedicello nectanum subsuperante vel eo duplo longior, stylo medio cu vel nullo, stigmatibus cictis internis vel emargmalis obscuris, loins lanceolatis apicem versus plenimque lditionibus demum ngidis utnqvp vuidulis sed subtus evidentius glaucis saltern supeint serrulatis stipulis plpiunisque persistentibus cordatis — Koch Comment p 24, Synops ed 2 p Kfc\* bub hoc nomine van is loimas e b purpurea et Cdpreidum s d spci ieflp hyndas, ongint loisan vanas sed inter se parum disti ill lies et notiscppfis vix ullo certo modo distmgundas comprehendo A S purpurea habens flores a cetens parentibus lolia, mtei eas tamen exacte mediae

a, *Greneriana*, amentis sessilibus, masculis ovalibus bievibus (stiminibus subdictinctis<sup>^</sup>), femneis cyhndncis crassiusculis incurvatis, squamis obtusis supra medium puipueio-nigricantibus villosis capsulis ovato conius senceis pedicello nectanum superdnct stylo subnullo, stigmatibus bievibus llavis comventii>us, folus clhpticis vel obovato elhptius acuminatis unduhto-serrdtis adolescentia utnque obsolete tomentosis adultis supra glaberrimis vmdissimis et nitidis subtus pallide glaucis pihs dispersis putferulis, stipulis lanceolatis acuminatis 5 S purpureo caprea Wimm Dcnkschi (folus subtus demuir omnino glabris) 1853 p 152 Exsicc n 16, 53 S cdpiea purpurea Wimm Schles Fl td 3 p 196, Sal curop p 161, Hb Sdl 10, 53, Coll 159 b discolor Host Sdl p 18 t 60 61 S oleifoln Host b Wimmenand Gren et Godr II ir III p 130 S Mduternensis Kern Oestr Weid 1 c j» 261, Hb bdl n 142, Reich 1 1237, bal wob t 4 Hab in Silesia prope Bresldu, etc , in Austrid infenon (ad Muatern, etc ), in Gallid pi ope Montbliard, sempei ranssimd Arbuscula trunto vdhd, folus mtei b tapream tt S puipurtdm media, amentis S puipurea simihs, sed capsulas villosas Duas alids specus attulerunt ill Kernci a S purpur<d cum b Cdprcd quoddmmodo compositds, SL 1° b Cdlhantha J Kern (III htt Hb bal n 141 = s subtdpieapuipueia) et 2° S liaunsteinui A Kern Hb bal n 143 S callidiitbdm nunc e b purpurea et ddphuoidé ctnset rompositam. b Traunsteinen habet folia ngidissinu, subtus densissime cinereo-tomentosa amenta bit via submcurva, hdec etiara mihi non parum cum S daphnoide commune hdbere videtui (v s)

[i, *Neilreichii* (s. *Neiheichn* Kern Oestr Weid 1 c p H6 2-8), amentis rf brevibus ovato ovalibus, hlamentis semi-vel aa<sup>^</sup> connatis, 9 cyhndncis densifloris subsessilibus, squamis feirugmeis supra medium atratis villo lecto barbatis capsulis tomento lictescenti-cano tectis pedicellatis conico acutis, bljlo bievissimo, stigmatibus brevibus oblongis tonniventibus demum jatul<sup>^</sup> loins oblongo-lanceolatis utrmque aequahter dtenuato-dcutis cinereo-sciratis subtus glaucescentibus neivis et venis

acute prominentibus reticulum elegans constituentibus supra nitidis, stipulis connatis. In Austria inferiori paucis locis adhuc observata. S. Pontederana Facchini. S. purpureo-grandifolia Wimm. Jahresb. Schles. Gesell. 1852, p. 6\*; Denkschr. 1853, p. 155; Neilreichil. Nied. Oestr. p. 258. (S. subpurpureo-grandifolia Kern. 1. c. et Hb. Sal. r. 139). Ad hanc formam sequens etiam pertinet (rueo sensu) modificatio. - S. ausiriaca Host Sal. p. 19. t. 64. 65, amenlis subcoetaneis brevissime pedunculalis, masc. oblongo-cylindricis, filamentis vulgo ad *I* connatis, foliis obverse lanceolatis basin versus plerumque integris adultis supra viridissimis nervis secundariis utroque latere 12-20. S. superpurpureo-grandifolia Kern. 1. c. et Hb. Sal. n. 135-138. S. Pontederana Bertol. fl. ital. X. p. 331. S. sphaerocephala Kern. Oestr. bot. Zeitschr. 1864. p. 240. (S. supergrandifolia purpurea Hb. Sal. n. 140) differt: amentis brevibus subglobosis, foliis minus acuminatis, subtus grossius reticulato-venosis, stipulis magnis ornatis. Hab. ad Innsbruck. A S. Greneriana quodammodo recedit hæc forma hybrida foliis citius glabris, angustioribus, sublus pallidioribus nervis venisque ansistomosantibus inagis elevato-rugosis, stylo brevissimo quidem sed evidente, stigmatibus denique patulis. S. Siegerti, huic analoga, recedit foliis tenuioribus, primo tenuiter sericeis, oblongo-obovatis, capsulis distinctius pedicellatis et stylo evidentiori.

Y, *sordida* (S. sordida Kern. Oestr. Weid. 1. c. 257), amentis praeconibus sessilibus cylindricis, squamis obtusis supra medium atratis villosis, capsulis sericeo-tomentosis pedicellatis, pedicello nectarium subinde superante, stylo brevissimo foliis obovato-lanceolatis etiam adultis supra obscure viridibus opacis puberulis vel obscure glabralis subtus cinereis hirtotomentosis venis secundariis subtus prominulis supra impressis, stipulis semicordatis, ramulis annotinis velutino-tomentosis. S. subpurpurea-cinerea Kern. — S. cinerea-purpurea Wimm. Fl. v. Schles. ed. 3. p. 195, Jahrb. d. Schles. Gesell. 1847, Sal. europ. p. 162, t. III. f. 14 J. f. 17?. S. Laponum var. albens Hartig Forst. (Culturpil. p. 389. Variat: 1° *Cinerascens* (Wimm.), foliis latioribus cinerascensibus supra puberulis subtus glaucopubescentibus, autumnalibus olivaceo-lanceolatis glabralis subtus glaucescentibus, capsula acuta, stylo brevi. Wimm. Hb. Sal. n. 59. Coll. 148. Ha3C S. cinerea magis similis; 2° *Glaucescens* (Wimm.), foliis angustioribus viridibus aestate glabralis subtus glaucis, capsula obtusa stylo nullo. Hab. in Silesia paucis locis, et in regione Badensi rarior (A. Braun, Brunner). — Ad S. purpuream propius\*. Wimm. Hb. Coll. n. 10 d. 100. 101. Coll. Sal. 142. 144. 145. 149. t. cit. f. 15. 20. Haec potius S. Pontederana Koch (non Willd. et Vill. quae S. hastata forma). Reichb. Excurs. n. 1041; Doll Fl. Bad. p. 510; Hartig Forst. Cult. p. 415. t. 75 c; Bertol. fl. it. X. 331; Hausm. Fl. v. Tir. II. n. 1670.

6, *dichroa* (S. dichroa Düll Flora v. Baden, p. 511), amentis praecocibus, fern, cylindricis squamis acutis apice atratis pilosis, capsulis ovato-conicis obtusis cano-tomentosis pedicellatis, pedicello nectarium bis superante, stylo nullo, foliis obovato-lanceolatis supra obscure viridibus glabris vel levissime puberulis subtus glaucescentibus hirtotomentosis venuloso-reticulatis, stipulis oblique semicordatis, ramulis annotinis glabris rufescentibus. Hab. in Silesia, in Austria inferiori et in regione Badensi, paucis tantum locis. S. purpurea-aurita Wimm. Regen. Flora 1849. S. aurita-purpurea Wimm. Denkschr. 1853. p. 153, Fl. s. Schles. ed. 3. p. 195, Sal. europ. p. 165. S. auritoides (subpurpureo-aurita) Kern. Oestr. Weid. 1. c. (135), p. 257, Herb. Sal. n. 132. S. Kochiana Hart. p. 27. Variat: 1° *Cinerascens* (Wimm.), foliis cinerascensibus supra puberulis subtus glaucescentibus puberulis, demum fere glabris subtus glaucescentibus. Wimm. Exsicc. n. GO (sec. Kerner ad S. purpuream pertinens). — 2° *Glaucescens* (Wimm.), foliis viridibus aestate glabris subtus minus glabris. Haec est: a) foliis lanceolato-oblongis sub apice latioribus plicato-apiculatis glaberrimis subtus nervis elevatis subrugosis 9. (Wimm. hab. Sal. 71. 134. fol. 151. 153. 154. 155.) Hue sine dubio etiam referenda S. Peloritana Prestandr. (in Tineo plant, rar. sicul.

fasc 2 p 31) quara Bertol fl it. X ad S nigncantem duxit, folus valde tenuibuset brevibus subacute serratis msigms! Hab in Silesia' —b) folnsmargiueundulatis 9 Wimm Jahrb Schles Gesellsch 1847 t ] f 7, Coll Sal n 150 S mollissima Reichb Icon 12->0 saltern <? (sec Wimm , sed stylus productus, stigmata hhformia') Difhulhme a priori distinguitur, sed ad S auntam aperte vergit folus t°nuionbus magis obovatis subcns-patis Ramos tamen habet erectos, amenta patula angusta, capsulas multo brevius pediculas stigmatibus obscuras apiculatas Jllustnss A Kerner, cujus opusculo de Sahcibus austnacs nullum piaestantius novi, S Pon' tederanae nomen, ut pi in obscuro omnino tollendum esse dicit, et formas hybndas vane procreatas eodem juie ac alias sp esse proponendas E S purpurea et grandifoha ortas censet 1 S *austnaca* Host (S superpurpurea x grandif), 2 S *Ncdnuhii* Kern (purp xgrandif), et 3 S *sph trocephala* Kern, (subpurpurea x grandif) — A S purpurea et Caprea 1 S *calhantha* J Kern (superpurp X capi ), 2) S *Mautetnensis* Kern (purpurp xCaprei), et 3) S *Iraunsteinen* Kern (subpurpurea X capita) Pia,t°rca in Austni ob\eniunt S sordida Kern (subpuipuaica X cmerea) et S auntoides Kern (subpurpurea x aunta) b calliantham nunc e S purpurea et daphnoide ut miln videtur, justius censet ortam

XX S biEGERN, amentis masculis crassiuscuhs cjlindncis curvatis, squaom spathulatis atns pilosis, filamentis semiconnatis, capsulis ex ovata basi conico acutis gnseo senceis bieviter pedicellatis pedicello nectaiium aequante, stylo brevissimo, stigmatibus cras>iuscuhs subintegns erecto-pilulis, folus oblongo obovatis acuminalis aut pnmo tenuitc\* senceis demum glabns ant il> initio glabns rufescentL-tenui<sup>l</sup>us demum n<sup>n</sup>'idiuscuhs supra obscuri vindul<sup>^</sup>s sed subtus pallidionbus, stipuhs angustis In Silesiae convallibus extenor<sup>^</sup>s alpinis ubi S Silesiaca alpina S purpurea. e regionibus humilionbus Immiscetur S arboiesctns Hartig p 2) Nachtr p ir> (teste Wimm ^ b purpureo silesiaca Wimm Jahresb d Schles Ciesellsch 1847 p 124 t II f 13-19, H v Schles ed J p liJ S Silesiaca-purpuica Wimm Sil ourop p 107 Heib Sahc n 17 18 JO 31, Coll n 126-m H5-H1 — Vamt 1 *latifolia*, folus obo\atis basi angustatis nunc pilosis (saltern subtus), nunc utrinque pilis destitutis — 2 *angustifoha*, folus latitudine tuplo qmdruplove longionbus, quae hnsula et glabia loins basi attenuatis vel basi lotundalis — 3° *Ujocarpa*, capsuhs glabns, stigmalibus erectis pailitis — Diffiullime a S Ponledeiana dignoscitur ad quam se omnino habet ut S Silosiaca ad grandifoham, folia autem tenuiora pure vn ldia, amenti augustior i ma<sup>^</sup>is ranfloia, capsule non raio ^labrae vmdulae vel fusco-ufescentes evidentius pedicellatde et stylo mediocn rostratae Prseterea admodum vanat, inter palentes ambigux (v s)

XXX S Rir<=cnrLi, unentis bieviter pedunculatis folus paucis et minimissulfultis elongato cyhndncis gracilibus arrectis, squamis obtusis apice fuscopurpuicis sparse pilosis, capsuhs oblongis obtusiuscuhs senceis pedicellatis, pedicello nectanum bis superante, stylo nullo, stigmatibus ohscurs erectis integris, folns oblongo obovatis tcnibus plus minus acummatis utnque glabernmis supra lucideMndibus subtus glaucis maiginc Irregulantei sinuato seriJitib — In Po<cn ad dohcin et Sytkowo, 18'>1, detexit RiUchel S puipurea-hvida Wimm Denkschr 1853 p 154 b hvida puipurea Wimm Sal, Europ p 170, Hb Sal 91, Coll 1^7 Forma pulche-riini intci parentes crescens Tiutcxhumih, ramis undique di\ancalisrufescentibus glabenimis Stipulae, quum adsint, petiolum superant Folia 1 2 \ poll longa, supra medium latiora ibique saepel 1 j- poll lata, omnino glabernma et lucida us S \a<sup>^</sup>antis \el b purpurea similia Amenta feminea lcie ut in ^agante sed sqflamae luscioies, capsulae multo breviores pedicellate Habitu S phyhcifoham etiam quammodo simulat, qua? tamen amentis gaudet ranflons, capsulis stylo evidenti rostiatis, etc (v s)

- a, &ubiagan\, folns obovatis oblique acummatis junionbus rufesc(nti)-pel-lucidis subtus intense glaucis rigidis, stipulis ovato-lanceolatis  
p, *subpurpurea*, folas spalhulato-oblongis basi attenuatis apicebreviteracu-



minatis 2-J poll longis supra medium 1 poll latis subtus minus mlense  
glaucis subnigricantibus tenuiter serrulatis, stipuhs nulhsvel obsoletis

XXXX S DUBIA, amentis sessihbus bracteis paucis suffultis cyhndncis densi-  
floris, squamis acutis basi ferrugmeis apicem \cisus atratis pilosis, ñlamen-  
tis plus minus connatis, anlhens ante anthesin rubentibus cffloratis sordide  
flavicanibus, capsuhs comco-acutis tomentosus pedicellatis, stylo brew, stip  
matibus linearibus longis patuh^, fohis obovatis lanceolatis basi atenuatis  
apice bieviter acummatis et subserratis adolescentia senceis adultis supia  
saturate vindibus et nit dis subtus intense glanducis stipuhs semi-ovalibus sat  
magnis — Pi ope Drcsldu d\* et intci Gastling et lassing Austnae inferioris  
mhortisnonnumquamcuin S purpuica nigiiCdnsWimm Denksch 80' > p 54  
S Vdudensis Ktrn Weid Oesti p 26J, Hb Sal n 144 b puipuieo-capred  
mss f Wimm Jdhresb dei Schles Ges 1847 t 1 f 0 Hdbitu b purpurca?  
ramis magis divancitis, crassionibus. fusco biunncis, nitentibus Foha fere  
ut in mgncdiite sed angustiora minus ingncdritia, basin versus Integra  
subtjs evidentervenulosd glauci sed apicem versus urentid Amenta (tantum  
mascula vidi) pollicem longa I k hn crassa, stdmhubus sdt longis S Vduden-  
sis Forb Hort woburn t 117 attamen ab ill Wimmcro eadem ac b pube  
iulaDoll(S cinerea x nigncdns) nunc habetur (v s etv c)

162 S KOCHIVNA. (liautv. Sahcet in Mem de l'Acad de Saint Petersbourg,  
vol. III p 602 t 1)2 amentispedimcub bievi sed folialo insidentibus muiiva-  
tis masculis cylmduicis femineis oblongis demum lariilons squamis obovato  
truncatis \ti ublongo-lanteoktis pallidis mferue pilosiusculis, capsuiis  
demum brevissimo pcdiLellalis conicis rostrdlo dtutis tointnto pditissne ob-  
ductis, foil is obovatj bpdhulatis vulgo oblusis utnnqt glakirimis subtus  
**R**ucescentibus acute nuvisis tenuibus ^ In Sibnid aUica et baikdncsi et  
Ddurid (Hb peliop) — Ltdcb fl IOSS III p 602 S Ponledeidna  
Trautv in Lulcb 11 alt IV p 2bS (exel synon), luitz Cdt bdik n 1024  
Quodd hdbitum mci S purpuredm et S m> ililloid< m fere est media Vrutex  
parum dltus, i a in is lldvidntibus, glabeinmis tolia ovato-elliptica, integre-  
nma vel dpicem vprsus senuldti, supra vmdu obscure lineatd, subtus glauca  
venis prominulis stnau, non idro nigresctiitid Amenta subcoaetanea, pauci-  
foliata, miscula vix semipolharid, lemmei oblongd, uassiuscula 1-1} poll  
lon<sup>r</sup>a, arrecto-patuld ( upulaj lined longioies (v s)

[i, *anynstifoha* folii\* exacte oblongis basi et apice subaequahter rotunda-  
tis, ldtitudme tnplo qu idruplove longionbus

y, *turtiflota*, dmentis ftnnns brevibus grdcilibus longius pedunculatis,  
capsuhs multo mmonbus (vix } lin longis) dense dlbo-villosis, stylo fere  
duplo longion rostidtis Hab dd 11 Ischdrgok (Trautv Hb Peti) Spe-  
cimina m montibus Riddusk Sibniae colleetd, capsuiis longius villosi^  
S glaucam quoad amenta feminea quodammodo revocant (v s)

1 > i b VoLotNfab, dmentis 9 sessihbus bractus pduus suffultis ovali-oblongis  
squamis obtusis ingneantibus lenuitei Mllosis, capsuhs ex ovata bdsi conico  
tlongatis rostiato productis tnuiteL pilosia demum f;ldbratis pedicellatis pe-  
dicello nectanum tii)lo superaote, stylo nullo, stiguiatibus crdssis bihdis  
puipurco-itns, loins hncan ldnccolatis dpice acummatis lntegeinmis supid  
pillide glanduco vindibus subtus glanducis uittio pihs digenteis adpressis senceis  
demum glabratis Hdb in Hossia dustrah inter Wolgdm et Ural, ad fl  
Sdrpa et Kdnia b Caspioa PdU fl ross p 74'Mnutv bdlicet p bJ3, Ledeb  
11 ross III. p G04' Hoc nomine in herbarns vanis van\* formae inscruptae,  
ei in horlis culttt Specimina quac exdminavi quod ad amenta optime sed folns  
parum cum diagnose congiueiunt et spccicra sistunt lntei b purpuicam et  
b angusilohdm quodammodo mtermedidni A b purpuiea habet folia glau-  
cescenti viridia, squamdj diutius peiaisicntes supra medium atras stylum  
nullum et stigmtda erassa eicta, atro puipuiea Sed d b angustiloha ra-  
mulos graeilesut in loinid vitellinauibieunda, fohddnguste hnedn lanceolata,  
ngidd, sibtus saltern et mitio totd pihs adpressis senceis albida, eapsulas  
elongato-eomc is Ab utraque differt capsulis pedicellatis Locus itd(lue in  
systemate mcertus, et sic iorsau semper mauebit' (v. s. in h. petr)

a, *pedicellata*, foliis longe et anguste linearibus subtus tomento adpressis micantibus, amentis brevibus, capsulis longissime pedicellatis, pedicello nectarium 4° superante. — In montibus uralensibus a Lessing lecta. (v. s.)

P, *longifolia*, foliis adhuc angustioribus 2-3 pollices longis vix 2 lineas latis utrinque glaberrimis, amentis elongatis plus quam pollicaribus crassiusculis, capsulis brevissime pedicellatis. — lisdem locis ac niaeccdens a Lessing lecta. Aperte ad *S. purpuream* accedit vel potius ad *S. rubram*, sed foliis angustissimis et longioribus, capsulisque puberulis et breviter pedicellatis diversa. (v. s.).

154. *S. ANGUSTIFOLIA* (Willd. sp. pi. IV. p. 699). amentis subsessilibus foliis paucis suffultis erectiusculis anguste linearibus densifloris, squamis lingulato-spathulatis basi argenteo-pilosis apice testacco subpellucido glabris, staminibus insingulum monadelphis, capsulis sessilibus conicis adpresse sericeis squamas fere duplo superantibus, stigmatibus sessilibus sanguincis divergentibus, foliis sessilibus angustissime linearibus acutis basi attenuatis inlegris vel calloso-denticulatis costa subtus prominente marginibus revolutis sericeis vel denudato-glabris rigidis. j In provinciis Caucasicae plunimis, in desertis Kalmukorum inter Volgam et Ural, in Songaria, in Persia boreali (Kotschy et Buhse) et (latifolia) in Tibetia boreali-occidentali (Hook. et Thomson). — M. B. fl. taur.-caucas. v. II. p. 414; Lodeb. fl. ross. III. p. 604. S. Wilhelmsiana M. B. fl. taur.-caucas. III. p. 627; Trautv. Salicet. p. 627. S. dracunculifolia Boiss. in Kotschy pi. pers. austr. n. 621, Diagnos. pi. orient. VJJ. p. 70, Boiss. et Buhse. herb. pers. 1. c. p. 201. — Icones: Trautv. 1. c. t. 3. Frutex humilis, vix 1-3-pedalis, ramis strictiusculis castaneo-fuscis glabris vel subilliter tomentosus. Folia pleruraque 2 lineas lata, usque ad 3 pollices longia, semper membranacea, venis striata. Amenta brevissima; mascula subpollicina, 1-2 lin. crassa, antheris fulvo-aureis; femineae vix pollicem longa, capsulis lineari longis. Certissime ad typum *S. purpureae* referenda, *S. Donianae* hand parum affinis, sed folia mugis linearia, amenta eliani angustiora et capsula distincte pedicellatae! Variat: 1° foliis longissimis, pilis argenteis utrinque obiectis; 2° foliis saltern adultis glabratis, subtus pallidioribus; 3° foliis adultis fere 2 pollices longis, 2-4 lin. latis, glaberrimis, obsolete denticulatis, amentis crassioribus. (v. s.)

P, *Microslachya*, amentis brevioribus subrarifloris, squamis acutiusculis, capsulis glaberrimis rufescentibus, stylo brevi apiculatis, foliis sublinearibus. — Hab. in Sibiria baikalensi (herb. petropol.). *S. microstachya* Turcz. Gai. Baikal, n. 105), Bull. de la Soc. de Moscou, 1054. II. P- 377; Trautv. Salicet. 1. c. p. 628- t. 4. *S. angustifolia* p. leycarpa Ledeb. fl. ross. 1. c. Vix nisi glabritie capsularum a vera *S. angustifolia* diversa.

155. *S. DONIANA* (Sm. Engl. fl. IV. p. 213, sec. Koch Synops.). amentis scssibus anguste cylindricis erecto-patulis obtusis fern, basi minute foliatis, squamis obtusiusculis apice coloratis vel infuscatis pilosis, capsulis ovato-conicis (tomentosis) pedicellatis, pedicello nectarium bis superante, stylo perbrevis, stigmatibus brevibus emarginatis patulis, foliis lineari-lanceolatis vel lingulato-lanceolatis acutis rigidis veltuloso-striatis subnigricantibus margine subrevolutis supra nilidis lucide viridibus subtus plerumque adpresse sericeis et pallidioribus vel glaucis semper apicem versus serrulatis, stipulis obsolete vel linearibus. j Locis subaridis Germaniae praesertim mediae et septentrionalis passim et rara. — Koch Syn. ed. 2. p. 755; Sond. fl. Hamburg. 537; Hartig Forstl. Cult. p. 397; Forbes Sal. wob. 85; Döll fl. Bad. 512. *S. purpurea* repens Wimm. Kegensb. Flora 1845. p. 415; Fl. v. Schles. ed. 2. p. 20a- Ne5?. Fl. v. Wwd. Oesir. p. 257. s. repens-purpurea Wimm. Sal. europ. n. 171. *S. repenti-purpurea* Mey. fl. hannov. p. 503; Patze Elkan et Meyer Fl. orov. Preussen, p. 134. *S. parviflora* Host Sal. p. 142.49; Kern. Oestr. Weir. f. 971 (forma *S. repenti* v. *rosmariniifolia*? proximal). Herb. Sal. n. n. i. / L. J. E. B. t. 2599. Sal. Wob. t. 85. Wimm. Jahiesber. d. Schlos. Gesel. sch. Tfti? t. 1 f. 4. t. 3. f. 18. Reichb. Icon 1233. - *Exsicc.* Wimm. Hb. Sal. „ Q. io i. ifi" Coll. D. 236-241. Frutex 3-4' altus, ramulis gracilibus, glaberrime Zetnic

bus Folia forma vana, typice angustè lanceolata, basi attenuata, supra medium latiora, breve apiculata, Integra, margine revoluta vel apicem versus minute serrulata, supra saturate vmdia, costa et venis subrectis lineata, subtus sat intense glauca, denique denudata Amenta mascula sessilia, ovah-cylindrica, anthers vix nigrescentibus, filamentis basi plus minus connatis femina polhcaria, obtusa, anguste cylindrica, capsulis vix lineam longis Est inter S. purpuream et b. repentem exacte media A priori differt anthers flavicantibus, capsulis acutiusculis intrepidum glabris, stylo brevi, foliis typice subtus senceis et margine revolutis elevato-hincatis A posteriori ramis gracilibus rufescentibus, foliis tenuibus glaucescentibus planiusculis, amentis elongato cylindricis densifloris, filamentis semiconnatis A S. Ponderosa maxime angustifolia tenuitate et longitudine foliorum et amentorum. (v. v.)

a, *lalfolia*, frutex majore magnitudinis, foliis obovato-lanceolatis utriusque videntibus tenuibus glabris Vanat foliis 2-3 poll longis supra medium pollicem latis, vel obovatis 1-1 \ poll longis

P, *hngulata*, foliis obovato hngulatis basi longe attenuatis 1-2 poll longis supra medium ^-} poll latis supra videntibus. Vanat. loins subtus glaucis glabris, \el subtus adpresso senceis.

y, *hneans*, foliis linear-lanceolatis acutissimis vulgo subtus argenteo-senceis (quasi e S. rosmarinifolia et S. purpurea composita)

ò, *Icycarpdj* capsulis glabris vel glabrisculis

150 S DIVERGENS, amentis breviter pedunculatis foliis paucis et parvis suffultis oblongo ovahbus densifloris, squamis obovato-rotundatis « iu^co-piceis albo villosis, filamentis supra medium connatis », anthers hinc fulvis, capsulis minimis ovato conicis dense senceis sessilibus, nectario pallido basin capsulae cupiente, stylo minimo fuho, stigmatibus crassis integris erectis, foliis oblongis parvis supra glauco videntibus subtus pallidioribus v glaucescentibus senceis s glabris integerrimis J In India orientali! Kischwar et Jauschar, reg alp 12000 ped alt (Thomson) S mynaefolia Anders Act Holm 1850, p 483, Linn Journ. III p 51 Fruticulus pedalis, ramis eximie divergentibus ramosissimus, ramis novellae saepe coalescentes > oha in forma senecaj-<sup>j</sup>, poll longa 2 hn hit i breviter petiolata, apicefere rotundata sed brevissime apiculata, oblongo elliptica, supra glabrescens, quando plaucescentia eadem longitudine sed adhuc angustiora apicem versus sublata utrinque glaberrima Amenta pedunculo vix 2 hn longo foliis 2-3 cetens tEquahbus instructo pedunculata, ovah-oblonga, mascula<sup>1</sup>, -i poll longa, femina masculis fere longiora, squamis pallidioribus et minus villosis capsulis ad medium tegentibus. Capsulae semihneam longae Est species certissime S. coarctata P in sua regione omnino analoga S hastata alpina quod ad magnitudinem et colorem pallide flavescens amentorum masculis simili, sed amentis femineis cum S. repente potissimum comparanda Staminibus maximam partem concretis S. pychnostachyae ex Indicia affinis, sed distinguitur amentis brevissimis et capsulis senceis (v s)

17. b *biBmicA* (Pallas fl ross n p 78), amentis femineis subsessilibus bracteis suffultis oblongo cylindricis brevibus, squamis ornato cuneatis\* apice lusciosis pilosis, capsulis conicis acutatis argenteo-tomentosis breviter pedicellatis, pedicello nectarium vix superante, stylo producto, stigmatibus brevissimis crassis submarginatis, foliis lanceolatis acutis margine plus minus reillexo integerrimis supra opaco videntibus subtus glaucis utrinque \el subtus plus minus pubescentibus, stipulis acutis vel ovato lanceolatis acuminatis Hab in Sibiria altaica ad fl Jenisei (Pallas), ad urb Lokut/k (Goldbach et Haupt) et in Davuria — Ledeb fl alt IV p 287, fl ross III p 622 S copiosa pubescens Turcz fl baical - davur 1 c p. 394 Species obscure sane affinitatis, in herbis aut cum S. coesia (foeminae glabrae) aut cum s rosmannifolia (formae pubescenti sencea?) confusa. Sub duabus enim occurrunt modificationibus i» *glabrescens*, loins utrinque glaberrimis aut pilis brevibus raro conspersis, haec, quae aut brevifolia aut longifolia, nunc S. munitoidem nunc S. rosmannifoliam glabrescentem simulat, 2° *pubescens*, loins sat longis

basi apiceque acutatis utrinque sed\* subtus parcius pubescentibus, nunc *S. Friesianum* nunc *S. versifoliam* revocans, sed sine dubio *S. rosmarinifolic* magis affinis si non cum ea plane identical (v. s.)

158. *S. coesia* (Vill. Delph. 3. p. 268), amentis paryis breviter pedunculatis foliis paucis suffultis ovali-oblongis vel subglobosis densifloris, squamis foliis oblongo-obovalis apice obtuso parum fuscioribus glabris, capsulis ovato-conicis albo-sericeis subsessilibus, nectario basin capsulae tegente vel demum tantum attingente, stylo subproducto, stigmatibus brevibus crassiusculis integris, foliis ellipticis lanceolatisve acuminatis glaberrimis utrinque opace glaucis margino revoluta integerrimis exstipulatis. 5 In summis alphis Helvetia, Tyrol et Gallie austro-occidentalis rarissima. In Pyrenaeis post Lapeyrouse Don reperita — Koch comment, p. 59, Synops. ed. 2. p. 758; Trautv. mém. de la soc. des nat. de Moscou 8. p. 305; Hartig Forstl. Cult. p. 390; Wimm. Sal. Europ. p. 100; Gren. et Godr. fl. franc. 3. p. 140; Gaud. fl. helv. 6. p. 254; *S. prostrata* Ehrh. pi. select. 159; Ser. Essai, p. 29. *S. myrtilloides* Willd. sp. pi. 4. 686; Loisel. Fl. gall. 2. p. 341; Forbes Wob. 66. t. 66. — Icones: Vill. 1. c. t. 50. f. 11. Trautv. 1. c. t. 12. Reich, f. 2005. Hartig 1. c. t. 359.—Exsicc: Ser. n. 23. 57. 64; Reich. n. 2519; Kerner Hb. Sal. n. 120; Wimm. Coll. S. n. 116. Fruticulus prostratus, ramis erectiusculis 2-3-pedalibus intricatis. Folia 1-2 poll, longa, ad vel supramedium angustiora. Amenta serotina, mascula holosericea, staminibus fere ad medium coalitis, fern inaequaliora et magis cylindrica, capsulis vix lineam longis. Haec species habitum fere *S. arbusculae* prae fert sed colorem *S. purpureae*, ita ut quasi ab iis hybrida esset. Affinitatem cum posteriori praecipue specimina culta ideoque magis luxuriantia clarius demonstrant, amentis longioribus et foliis obovato-elongatis, iis *S. purpureae Forbesianae* non dissimilibus. (v. v.)

*P. minutiflora* (*S. minutiflora* Turcz. pi. exsicc). Frutex humilis, ramis gracilibus, foliis 3-5 lin. longis basi sublatis acutis nervosis, amentis vix semipollicaribus. In pratis subalpinis Dahuriaj et in glareosis ad torrentem Kudin, in alp. Alatau ad fl. Sarchau (Kar. et Kiril.) *S. coesia* glabra Turcz. fl. baical. Dahur. 1. c. p. 394. *S. Sibirica* et glabra Ledeb. fl. ross. 3. p. 623. A vera *S. coesia* europaea non differt nisi statura humiliori, foliis minoribus vulgo magis acutioribus vel tenuioribus. (v. v.)

#### *Species dubiae.*

159. *S. PILOMOIDES* (M. Bieb. Fl. taur.-caucas. 2. p. 415. 3. p. 628), amentis sessilibus demum bracteatis vel foliis paryis et paucis suffultis, squamis atris acutis pilosis, capsulis conico-elongatis cinereo-pilosis pedicellatis, pedicello nectarium 2-4ics superante, stylo nullo, stigmatibus bifidis erecto-conniventibus, foliis ellipticis vel obovatis obtusis utrinque cano-tomentosis subtus glaucis demum nigricantibus margine glanduloso-serratis, stipulis semicoelato-lanceolatis, gemmis et ramulis incanis. — Bunge Reliq. Lehm. 1. c. p. 497; Ledeb. fl. ross. 3. p. 608; Anders, Sal. monogr. p. 74. *S. acuminata* Pall. fl. ross. 2. p. 81 (ex M. B. 11) Hab. in Rossia media Simbirsk et Saratow et australi ad Wolgim, in provinces caucasicis, et in Sibiria altaica ad fl. Ob (teste Ledeb.). Haec forma, cujus specimina tantum pauca et varie determinata in herbariis examinavi, quoad amenta potissimum *S. cinerea* similis, recedit attamen foliis, quae ea *S. grandifolia* magis simulant. Sunt autem exacte elliptica, basi vix attenuata, eximie tenuia, subtus sat intense glauca et praesertim secus nervos molliter tomentosa, supra leete viridia sed pilis raris conspersa, 3-5 poll, longa et 1-J-2 poll, lata, margine saepe acute serrata, quibus notis et colore non parum etiam cum *S. nigricante* congruunt. Adhuc incerta forma, quae forsitan melius cum *S. cinerea* est conjungenda. (v. s.)
160. *S. MEDEMII* (Boiss. Diagn. pi. orient. 8. p. 100), amentis sessilibus minute bracteatis dense cylindricis elongatis masc. aureo-pilosis, squamis oblongis rufis apice nigricantibus, capsulis acutiusculis griseo-tomentosis breviter pedicellatis, pedicello nectarium fere superante, foliis obovato-rotundatis supra opace cinereis subtus molliter cano-tomentosis stioulis parvis. In Persia australi prope pagum Gere inter 'Abuschir et Schiraz' *I\** Kotschy pi. pers. austr. n. 113 et 9 n. 802). - Anders. L. monogf.

p. 75. Difficile saneest dictu utrum a vera *S. cinerica* sit distinctaan ejus tantum modificatio levis. Planta mascula amentis apice diyisis abnormis, sed ramis crassiusculis tomento denso cinereis insignis, feminea quoad amenta iis *S. phlomoidis* omntno similis sed rami rufescentes glahri (quare ill. Boissier earn ad *S. capream* ut variet. retulit), capsulae forsan brevius pedicellatae. Folia vix pollicaria, obovato-rotundata, apice subemarginata, crassa, incano-tomentosa, subtus pallidiora. — Specimina amentis tan turn femineis instructa in variis locis Persia a Buhse collecta vix ab his distinguere valeo (*S. caprea* Boiss. et Buhse Nouv. Mém. de la Soc. de Moscou 12. p. 201), et ad *S. Wallichianam* transitum optime praebent. (v. s.)

*Species exclusa.*

*S. AMPLEXICAULIS* Bory et Chaub. = (ex Buohing. in Steud. nom.) *Apocynum Venetum* L.

*Index Salicum.*

*N. ft.* Nomina admissa litteris vulgaribus, synonyma cursivis. — Numeri paginae respondent.

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*S. sabulosa* Turcz. 257, *Safsaf* Forsk. 196, *Salviaefolia* Brot. 305, *sarmentaeae* Fr. 298, *Schraderiana* Willd. 251, *Schrenkiana* Anders. 260, *sclerophylla* Anders. 248, *Scouleriana* Barratt 224, *Scouleriana* Hook. 225, *secta* Hook. f. 297, *semperflorens* Host 202, *Senegalensis* Anders. 197, *sensitiva* Barratt 225, *sericans* Tausch 267, *sericea* hb. As. Gray 234, *sericea* Marsch. 235, *sericea* Vill. 280, *Seringeana* Gaud. 303, *Seringeana* Lecoq et Lam. 305, *serpyllifolia* Scop. 294, *Serpyllum* Anders. 292, *serotina* Pall. 266, *serrulata* Willd. 258, *sessilifolia* Nutt. 214, *Sibirica* Led. 317, *Sibirica* Pall. 316, *Sieboldiana* Bl. 224, *Siegerti* Anders. 313, *Sikkimensis* Anders. 269, *Silesiaca* Ledeb. 219, *Silesiaca* Willd. 218, *Silesiaca-Lapponum* Wimm. 279, *Silesiaca-purpurea* Wimm. 313, *Sitchensis* Sanson 233, *Smithiana* Koch 267, *Smithiana* Willd. 267, *Smilhiana* var. *Gren. et Godr.* 303, *Sornraerfeltii* Anders. 291, *Songarica* Anders. 213, *sordida* Kern. 312, 313, *spathulata* Schl. 239, *spathulata* Willd. 239, *speciosa* Hook. 275, *speciosa* Host 203, *sphacelata* Lotiel 217, *sphacelata* Sm. 218, *sphxrocephala* Kern. 312, 313, *sphenocarpa* Wimm. 279, *sphenogyna* Wimm. 279, *spirexifolia* Schleich. 220, *spissa* Anders. 283, *splendens* Bray 211, *splendens* Turcz. 265, *spuria* Willd. 279, *Starkeana* Willd. 228, *stenoclados* Doll 228, *slenostachya* Kern. 260, *stipularis* Ser. 217, *stipularis* Sm. 266, *stylaris* Ser. 240, *stylosa* DC. 240, *suaveolens* Anders. 193, *subalpina* Forb. 240, *subalpina* Kern. 304, *subalpina* Schleich. 27G, *subcaprea-purpurca* Kern. 308, 311, *subcordata* Anders. 282, *subglabra* Kern. 259, *subgrandifolia-caprea* Kern. 218, *mbhastala* LtCstad. 275, *subpurpurea-cinerea* Kern. 313, *subpurpurea-aurita* Kern. 312, 313, *subpurpureo-grandifolia* Kern. 311, *subsericea* Doll 238, *subserrata* Willd. 196, *subviminalis-purpurea* Kern. 308, *Sudetica* Host 276, *supercaprea purpurea* Kern. 308, *Wperdaphnoides-caprea* A. Kern. 263, *supergrandifolia* S<sup>(1)</sup>V<sup>rea</sup> Kern. 218, *supergrandifolia-purpurea* Kern. 313, *superpentandra-fragilis* Kern.

207, *superpureo-grandifolia*, Kern. 313, *superretusa-glabra* Kern. 295, *supenimimalis-cinerea* Kern. 266, *supragrandifolia-incana* Kern. 304.

*S. Taimyrmsis* Trautv. 287, *Tauschiana* Sieb. 279, *taxi folia* Kunth 215 *tenera* Anders. 288, *tcnuiflora* Host 202, *tenuifolia* Ser. 258, *tenuifolia* Sm. 242, *tenuijulis* Ledcb. 309, *tenuior* Borr. 242, *tenuis* Host 238, *tennis* Fausch 307\* *tephrocarpa* Wimm. 250, *testacea* Wright 201, *tetrasperma* Roxb. 192, *Thonisoniana* Anders. 297, *Thomasii* Anders. 297, *Thunbergiana* Bl. 271, *thymexoides* Schleich. 248. 280, *tomentosa* Ser. 222, *tomentosa* Host 277, *tomentosa* Schrad. 278, *tomentosa* Wimm. 279, *Traunsteineri* Kern. 308, 311, *;;j3*, *Trevirani* Spreng. 272, *Treyirani* Wimm. 204, *triandra* Kern. 203, *triandra* L. 202, *triandra-aurita* Wimm. 204, *triandra-dnera* Wimm. 204, *triandra-viminalis* Wimm. 204, 272, *tristis* Ait. 236, *tristis* hort. 201.

*S. Udensis* Trautv. 249, *uliginosa* Willd. 220, *ulmifolia* Thuill. 222, *ulmifolia* Vill. 220, *Unalaskensis* Cham. 291, *undulata* Ehrh. 204, *undulata* Forb. 272, *undulata* (J Koch 272, *urophylla* Lindl. 194. *Vva-Ursi* Pursh 292, *Uva-Uni* Seem. 291, 300.

*S. vacciniifolia* Walk. 248, *vagans* Anders. 226, *varia* Host 202, *Vaudensis* Forbes 249, *Vaudensis* Kern. 314, *velutina* Schrad. 268, *venulosa* Sm. 248, *venusta* Anders. 288, *venusta* Host 202, *versicolor* Hort. Wob. 237, *versifolia* Ser. 239, *versifolia* Wahlenb. 232, *versifolia-myrtoides* Fr. 232, *vestita* Pursh 300, *viburnoides* Schleich. 258, *Villarsiana* Fliügge 202, *villosa* D. Don. 281, *villosa* Forb. 236, *Vilncensis* Gorski 231, *viminalis* Balb. 302, *viminalis* L. 264, *viminalis?* Turcz., Kar. et Kir. 308, *viminalis-caprea* Wimm. 267, *viminalis-cinerea* Wimm. 267, 268, *viminalis-dasy dados* Wimm. 266, *viminalis-incana* Kern. 305, *viminalis-purpurca* Wimm. 307, *viminalis-purpurea* Forbyana Wimm. 308, *viminalis-stipularis* Fr. 206, *viminalis-triandra* Mey. 204, *rtmt-nalis-viridis* Ehrh. 272, *violacea* Andrews 262, *violacea* Host 250, *virescens* Forb. 272, *virescens* Vill. 265, 307, *viridis* Fr. 210, *viridula* Anders. 2>6, *vitellina* L. 211, *Volgensis* Anders. 314, *vulgaris* Clayt. 200, *vulpina* Anders. 2>6).

*S. Waldsteiniana* Willd. 247, *Wallichiana* Anders. 223, *Wallichiana* Anders. 223, *Wallichii* Wimm. 193, *Weiycliana* Willd. 242, *Wichurae* Anders. 284, *Wichuras* Kern. 305, *Wilhelmsiana* Bieb. 315. *Wimmeri* Kern. 203, *Wimmeriana* Gren. et Godr. 311, *Woolgariana* Borr. 307, *Wrightii* Anders. 202, *Wulfeniana* Sal. Wob. 242, *Wulfeniana* Willd. 259.

*S. Zycheri* Fries 198, *ZoUngeriana* Miq. 194, *zygostemon* Boiss. et Hohen. 310.

II. POPULUS (1) *Town. Inst.p.Wl.* t. 365; *Linn. pen.* 1123; *Gaertn. fruct.%.* p. 56 et 90 /, 5; *Lam. et DC. fl. fr.* 4. p. 298; *Endl. gen.* p. 290; *Smith Engl. fl.* 4. p. 242; *Lam. ill.* t. 819; *Schkuhr Handb.* t. 330; *Gaertn. fr.* p. 56, t. 90; *Loud. encyclop.* p. 819; *Nees ab Esenb. Gen. Plant. icon. fasc. 1;* *C. Koch Wochens.* 1865, n° 29; *Wesmael mon. Pop. in Bull. fed. hort. Belgiq.* 1861, p. 315.

Flores dioici, in amentis sessilibus vel pedunculatis, pendulis, quam folia praecocioribus. Flores masculi k-S vel 12-30-andri. Filamentalibera, capillacea, basi disci oblique truncati inserta. Anther® bilobae, lobis parallelis longitudinaliter dehiscentibus purpureis. Flores feminei in amentis quam masculi saepius magis elongatis minusque densifloris dispositi. Bracteolae glabrae vel pubescentes, membranaceae, lobatas vel palmatifidae vel fimbriatae, plerumque caducaB. Gupula brevis patens, versus axin paullo brevior, ovarium uniloculare multiovlatum stipitatum cingens. Stylus brevis, saepius bifurcatus. Stigmata 2~ bifurcata vel laciniata. Gapsula unilocularis, 2-valvisT polysperma viridis, glabra. — Arbores in temperatis hemispbaerii borealis oresten-

(1) Auctore A. Wesmael.

tes; ramis cylindricis vel angulosis vel alato-angulosis; gemmis squamosis, saepius resinosis; foliis in vernatione involutis (conf. Henry in Nov. Act. Nat. Cur. 21. t. 31), dentatis vel lobatis vel angulosis, plerumque ovatis vel ovato-acutis, in surculis et ramis junioribus plerumque majoribus; dentibus saepissime apice incurvato-glandulosis; petiolis plerumque a latere compressis; stipulis merubranaceis r. angustis caducis; gemmis floriferis lateralibus vel terminalibus.

§ 1. *Gemmae pubescentes, rarius adultx glabrx, nunc paulo viscosae; v. Rami juniores pubescentes, adulti interdum glabri. Petioli teretes. Stamina 4-8, raro 15.* — Seclio Leuce Reichb. ft. Germ. excurs. p. 173; Spach rev. Popul. in Ann. scienc. nat. 1841, p. 28, ot sectio Leucoides Spach ibid. p. 30.

1. P. ALBA (L. sp. p. 14631, gemmis non viscosis, ramis junioribus tomentosis, foliis subtus tomentosis adultis saepe supra glabratis nitidis intense viridibus, ramealibus ovalibus vel ovali-oblongis vel ovali-orbicularibus sinuato-angulosis vel sinuato-crenatis vel sinuato-dentatis palmatisque basi rotundatis vel subcordatis, surculorum et ramulorum terminalium ovalibus vel ovali-lanceolatis vel palmatis eroso-dentatis vel denticulatis 3-5-lobis acutis basi rotundatis vel conatis. ^ In Europa nier. et sept. — Gemmae ovalae vel conicae, tomento dclapso rufescentes lucidaeque. Amenta masc. 1 | poll, longa, valde lanata; bracteolis oblongis crenatis et margine barbatis, apice brunneis vel purpurascensibus, basi virescentibus; antheris purpureis. Amenta fern, duplo longiora; bracteolis apice purpurascensibus, basi luteo-virescentibus, crenatis, erosis vel subintegris, glabriusculis. Ovarium ovoideum, acuminatum, luteo-viride, cupula in tertia in'eriore parte cinctum. Stigmata parya, laciniis angustis sublinearibus obtusiusculis margine revolulis. Folia rigida, plus minus longe petiolata, ramulorum 1^2 i poll, longa, 1-2 poll, lata, surculorum et ramulorum juniorum. terminalium saepe 6 poll, longa et 5 poll. lata. Petiolus valde compressus, raro dimidium longitudinis limbi superans. Stipulae lineari-lanceolatae.

a, *Qenuina*, foliis rhomboideo-ovalibus sinuato-dentatis acutis. In Europa, Sibiria (Led. h. Petersb.), Caucaso (Kolcnati h. Peteisb.), Persia bor. (Aucher! li. petrop.). Variat : 1° Argentea (P. alba Engl. bot. t. 1618; Fl. Dan. t. 2182), tomento foliorum alborum albo. Haec folia nunc ampla nunc minora praebet. — 2° Grisea (P. alba Nouv. Duh. 2. t. 52), tomento in foliis adultis cinereo. Magnitudo foliorum similiter variat. (v. v. sp.)

j5, *nivca*, foliis saltern in apice ramulorum 5-lobis supra tomento denso argenteo subtus pilis sparsis adpressis vestitis ramis junioribus ramisque tomentosis. — In India Or. (Hook, et Thorns, in h. DC.), Caucaso ad Hum. Cyrum (Kolen. h. petrop.), flum. Thorn (Lowh. petrop.), flum. Ajagus in Songaria (Kar. et Kir. h. Vind.), Sibiria (h. petrop.), Amasia (Wiedm. h. petrop.), Helvetia prope Martigny!, Corsica et Algeria (Math. fl. forest, p. 239, an ibi indigena?). Frequenter culta. (v. s. et v. sp. etc.)

Y, *denudata* (Hartig Forst. p. 434), foliis rhomboideo-ovalibus sinuatis glabrescentibus. In agro Pisano (Snyi h. Vindob. !), circa Vindob. (h. DC), ad Semipalalinski (Kar. et Kir. h. petrop.), in sylvis Belgiif Variat foliis ainplis vel minoiibus. (v. s. et v. sp.)

õ, *Itachofenii* (Hartig 1. c), foliis ovalibus subrotundis sinuato-dentatis terminalibus tomentosis albis inferioribus denudatis. In Bannatu (Wier/b.), ad amn. Thorn (Szow. h. petrop.), Transcaucasia (Kolenati h. petrop.), Kopteff Altai (h. petrop.) Colitur et forsane spontanea facia in Belgio (p. Uclgicahorl. Hoffmans. ex Linn. 1842. P. Bachofeni Würzb.! in Reichb. icon. v. JI. t. 616. (v. s. sp.)

tj *Croatica*, arbor pyramidalis, foliis angulosis albidis subtus tomentosis.

P. Croatica Waldst et Kit, fide Koch Wochens 1805 p. 246 (in WaUst et Kit pi rar non fig )

§, *Salmon* (Can h par), ramis ramulisque longis giacdibus pendulis In Algena (Salmon) (v \ c )

2. P. TOMENTOSA (Carr m Rev hort 1867 p 340), folns o\alibus plorumque basi cordatis crassis niegulinte acutissime dentatis lobatis supra intense viudibus lucidis subtus albo tomentosus longe Detiolatis, gemmis tomentosus, ramulis junionbus toincnto«is adullis ghbris ^ In China (Tug Simon in horto par ') Aibor cortice cineieo, ramis patulo-adscendentibus Gemmae crassae, conicae, acutap, Idnu^ino«o tomentosa?, squamiscineico rabescentibus Folia 4 5 poll longa, 2-2^ poll lata, petiolo 12-r> lin longo tomentoso. Amenta . . . . .(v v. c )

X P. H\BRIDA (Bieb fl Taur Cauc 2 p 423), amentis pulverulentis vel tomentosus non viscosus, folus supra intense vindibus subUis plus minus albidocinercis nunc utnnque vmdibus subtus tamen pilis gnseis brewssimis vestitis, ramulorum dpmum glabicscentibus o\alibus vel o\ah orbicularibus vel suboibicularibus obtusis sinuatis angulosis vel smuato-crcnularis vel sinuato-dentatis basi rotundatis ^el subcordatis, surculorum et rauorum terminalium basi plus minus cordatis acuminatis smuato denticulatis dentatisve nunc tngonis vel ovalibus plus minus angulosis 5 In Europa media et sept eum P alba et tremula quaium vensimilitei hybnda Sibnia (Wied h petrop '), Caucaso (Fnsh') P cuiescens Smith Engl bot t lf)19, Fl Danica t. 2183, Reich Icon t 615, Spach hist ^eg 10 p 38^, Suingefl jard 2, p. 58 P albo-ticmula Kiaus-<sup>1</sup>Jahib Schles Gesell 1848 p HO Rami magis quam in P. alba breves, toiulosi, juniores plus minus tomentosi Amenta fominea quam in P tremula bieviore quam in P albi magis densa Bracteolae plus quam in P albi lacmialae Siigmata palmati quadnloba Foln in diversis arbonbus etimque in eadem vaiiantia, paientumcharacteribus manifestis (v s et v sp )

3 P. TRLMULA (L Sp p 1464), gemmis glabibus viscosis nunc pubescentibus, ramis junionibus glabns vel puljescentibus, folus ramulorum subiotundis vel ovali-rotundis obtusis vel subacuminatis siruiato dentatis vel eioso cnnularis ranssime dentatis supra viridibus eioso dentali\*-vix lucidis subtusgliucesLen tibus basi rotund itis truncitisve junionibus glabi s vel pubescentibus adultis plcrumque glabenimis, lamulorum teiminalium et surculoium cordatis |c| tngonis \el uvahbus acuminatis plus minus profunde sinuatis et dentatis crenularisve ranus dentatis subtus glabus tomentosusvp, nascentibus ulnnque velutinis ^ ~<sup>ln</sup> Euroja, Afncna boieali et Asia bor Gemma? conica?, acuta?, brunneas Amenta mascula 6 4 poll longi, biacteolis rufescentibus, anthers purpureis Amentafeminea I| 3 poll longa, bracteolis rufescentibus 0\anum ovoideum, medium usque cupu<sup>1</sup>a cinctum Stigmati lacinns divancatis. Semina ni^ia (Spach 1 c) toha rigida, ramulo-um > lin -2 poll longa, lacinns dnancitis Semina ni^ia (spach 1 c). Folia ngula, longe petiolata, petiolo valde compresso, suiculorum et ramulorum terminahum 2-3 poll. longa, 18-30 lin lata, saepius brevitci petiohta Stipule linean lanceoldtae, velutina3 (v v.)

a, *genuma*, folus junionibus gl-ibris \el pubescentibus ddultis glabernmis In Europa media, Caucaso, Onente , in Japonia (Ma\imowicz in Miquel Ann Mus bot Lugd bat p 30) , in Kabylia (Coss in h. Boisb ') p Cilicica Kotschy'n° 162 P australis Ten Syll. fl neap 482. (v v op )  
p, *pendula*, ramis ramulisque pendulis In hortis culta P. pendula Lodd cat 1836 P supmaLodd cat 1836 (v v c )

Y, *villosa*, gemmis pubescentibus fohis adultis supra pubescentibus P villosaLang Reichb icon v 11 1 617 t 1273 In sylvia Charlottenhmff (Lang h Anders i), Buda: (Lang h petrop ») (v. \. sp )<sup>1011c^i^</sup>

4. P. THEMULOIDPS (Michx flor bor am 2 p 24i), gemmis glabns viscosis junionibus subpubescentihus, rjmisadjltis giabus, loins suborbicularibus acuminatis vel anguste acuminatis argute dentatis vel eroso-dentatis supra intense v iidibus subtus gliucis, m ramulis o^allbus^el longe acuminatfs saspe

obhquib basi rotundatis vel truncatis subcordatis in ramis termmahbus fere omnibus cordatis subobtusis aequilaterahbus -f In America sept ad Saskatchawan (Bouig h Anders '), Canada, New-Brunswick, Terra Nova (Hook bor Am 2 150), Boston (Dutton h DC '), Novo Mexico (Fend! h Anders \*), in mont pi ope San Francisco (Cxp Colorado nv. 1861), Rocky Mountains (Hall et Harbour S27 in h DC ')— Michx f arb 3 p 288 t 8 f 1, Nouv Dub 2 t 53 P Gaeca Ait Hoit Kew 3 P 407, Willd arb 232 sp 4 p 804, Nouv Duham 2 t Vt P Athenicnsis boit P trepidaWilld sp pi 4 p 803 Gemma? conicae acutae, lucidaj, castaneae I olia ngida fere Armeniaca, ramulorum 1 2 poll lata, petiolo hmbum <equante \el eo longiore nunc ut nevi puipurascente, surculorum et ramorum termimilium 3 6 poll longa, saepius longitudino et latitu line ajqualia Stipulae subulatae Amenta-masc 1 J poll longa, densissima, bracteolae longe launiatae, valde conaceae Stamina 10-15 Amenta lem 1 }-2 poll longa, matura 3 poll longa, densissima, bracteolde longe laoiniataj, valde senescae, marcescentes Ovanum ovoideum, acuminatum Stigmata brevia Capsule vircscentes, ovoideo-acummatae (v v c cf, et s c et sp )

- 5 P HETEROPHYLLA (L sp p I464), gemmis valde pubescentibus crassis brevibus obtusis, folns ovatis vel subiotundis vel subacummatis denticulatis vel eroso denticulatis plerumque basi cordatis ranus truncatis junionbus dense tomentosi> adultis supi i glabns subtus praesertim in nervis puberuhis -5 In Louisiana (Drumm h Vind ') montibus Alleghanies (h Petrop f) — Michx fl lor Am 2 p 244, Nou\ Dull 2 t 51 P cordifoliaBurgsd.in Lodd. 1836 Rami ramuhque }allidi Poha 6 12 poll longa, 4 8 lata, ngida, in eodem ramo foima vanabili, plus minus piofunde dentita, petiolo quam hmbus lieviore crasso cyhndnco, in ramis flonfens multo min >ra, non minus polymoipha Stipulae lineares Amenta masc crassa, 3 4 poll longa, dcnsiflora Stamina numerosi sima Biacteolae brunneae, latae Amenta feminea 2 poll longa pauciflora Cupula longe polunculata, laciniata, basin ovam cingens Stylus longus, bifurcatus Stigmata peltata Amenta fructifera 3-4 poll longa Capsula ovahs, 4-sulcata, longe pedunculata (v s sp , et c , v v c)

P, *argentea* folns adultis subpubescentibus utnque petioloque albidis In America bor (Daricth in b Vind '), culta in hort Genev (b DC ). P argentea Michx fil aib 3. p 390 t 9

- 6 P GRANDIDENTATA (Michx fl bor Am 2 p 243), gemmis pubescentibus nunc glabnusculis, rami\* ramuh^que cyhndncis, folns junionbus puberulis, adultis glabernmis, m ramuhs suborbiculanbus vel rhomboidahbus vel de-toideis subacummatis sinuato-dentatis m ramuhs termmahbus et surcuhs ovalibus vel subcordiformibus acuminatis eroso dentatis ^ In America sept ad West Point (Torrey h Anders ') mont Alleghanies (h pctrop ')— Michx ill arb 3, p 384 Gemmae conicae acutissimae SquamaL pubescentes \*oha supra intense vindia, subtus pallida, juniora pubescentia mcani in ramuhs 1 J poll lonp;a, busi rotundati vel liuncali suicul)ium 2 -I poll lon^iora rotiindata, bisi truncdtI vel conlata I c tioli ^taciks, compieSSI Stipulae line arcs Amenta masc )4 poll, lon^a, fern 1]-2 poll longi, squamis castaneis, profundo launiatis (upula terliam ovarn partem cingens btigmaU lacinns divancatis Amenta fructiftia 3 h poll longa Semina ruicsentia (v s sp et v c)

p, *pcndula* (Loud encyclop p 823), ramis penduhs

- 7 P EUPHRATICA (Ohv Voy Emp Othom fig 45 46), ramis ramuhsque cyhndncis apicc pubeacentibus, folns ovalibus vel lanccolatis vel ovato-lanceoiatis vel ovah-oibiculanbus adultis glabns glaucis margme remote et grosse dentxtis bisi Integernmis, pttiolis compieSSis ^ In Onente P diversifoha Schrenk enum plant 1842 p 15, Hegel Garten fl 7 p 228 Gemma3 plus minus pubescentes, conicae, bieves tolid ngida, quando ovalia vel ovalia vel o\ah-orbiculana 3 3 • poll longa, 2 poll lata, acuta, basi rotundata vel cuneata, dentibus\aldedistantibus vix regulanbus quando lanteolata vel ovah-lanceolata 1 \ poll lata, 8-10 hn. lata, longe acummata, basi cuncata vel ro-

tundata, petioh 8-12 lin. longi Amenta masc 14-18 hn longa, laxi, rhachis pubescens Stamina 8 Amenta fern 1]-2 poll longa Capsuh ovoidea — sequiites vanetates vel potius subvanetates ex speciminibus herb adsunt (vs.)

a, *orbiculartSj* folns orbicularibus subrotundi\* Inter Abuschir et Schiras (Boiss'), ad Euphratem (h Boiss'), m Beloutschnstan (h Boissl), ad fl Ilu (G A Mey h Boiss'), in Songana (h Boiss I)

ft, *ovata*, folus ovatis Ad fl Zan (Kotschy h Boiss !), in Ind. or Nubi i (Hook et Thorns h Boiss')

Y, *lanceolata*, folhis lanceolatis In montibus inter Abouschir at Schiras (Kotschy in h Boiss !)

ð, *hippopharfolia*, folns 2-4 poll longis 2-5 lin latis, in mont inter Abouschn et ^chiras (Kotschy 1^ Boiss'), in mont Arganaty et flum Aja-gus (Kar et K I h Boiss')

8 P PRUINOSA (Schrenki bull phys Math AcaJ St-Petersbouig, III, p 210), gemmis brevibus albo tomentosis, ramis albo tomentosis, folns integm oibicularibus vel oibicular ovahbus obtusis submucronatis basi rotundatis eras sis utnque tomentosis tomento brevi denso. In Songana (Schrenk in h Boiss'), Sibina ad flum Ilu (C A Meyci h Boiss') Hami jumeres cylindnci, tomentosi, adulti pruinosi Gemma\* breves, obtusae, squama tementosis Folia nunc longitudine latiora, nunc subrotunda, petiolo subcompresso, nervis valde eminentibus (v s)

9. P. SIEBOLDI (Miq. Ann Mus bot Luffd bat 3 p 29), innovationibus villosis tomento^is, stipulis fihformi linearibus caducis hirteilis, folns e basi recto truncata raio concaviusculi ad petioh msertionem supra biglandulosus. late ovato-rotundatis breviter suhacuta tngulan apiculatis dentato-serratis serratus incurvulis apice quasi glandula callo&a terminatis tnervus et costulatis, novellis utnque villosis albicantibus, adultis supra glabratis subtus gneo villosis sensim glabrioribus, interjectis pissim folns minoribus feie elhpticis, petiolis antice sultatisangulato teietiuscuhs, amentis fem. gracilibus levitei arcuatis, bracteise basi cuneata obveisis palmatim raro subp nnatifide incisis, scgmentis circiter G, inferioribus minoribus hntoci liatis, cupula cum pedicello hirtella, amentis masculis flaccidis cyhndncis, bracteis lanceolatis longe ciliatis, staminibus circiter 15, antheiis apice longe hirtis penicillatis ^ In Japonia (bieb in Miq) Ramuli apice inano villosi tomentosi, cito glabiati, sursum subangulati, caeterum cylindnci Gemmae juveniles ovoidecB albido hirsutula^, veie sejuente mijores lacta), laterales ovoideo oblongae acutae, squamis fuscis non viscosis ovatis obtusis praeter imas subglabns, terminalis major, ovoidea, obtusa, squamis albido-puberulenkis Petioh 1-1 \-| poll longi, ut videtui haud multum compressi Folia 4^ -3i poll longa, vulgo paullo latiora quam longa, pleraque basi recto truncata, hmc fere semicircular ovati, subdeltoidea dicenda, undique serrata scrutans h lud grossi6 in Jasi minoribus, tncrvii, adpectu passim obcosiulam imam e ntrvo laterali egiessim sub-5 nrvia, ncivis lateralibus uliia medium peiductis extrorsi m costulatis, racJio praeseitim supra J alf patule pauci costulato, caeterumque omnibus transveisc venosis et in sicco leticulatis, supra lucida dein glabra, subtus inneivis indumentum retinentia, subconacea, passim in quibusdam ramulis piassertim deorsum folia minora bre\ms petiolata magis eUiptica rehquis interjecta Stipulae fugace\*. Amenta masc et fem circiter 1 \-3 poll longa, ilia crassiora laxiora, haec tenuiora gracihora Antherae in sicco nigrescentes. Stigmatum lobi obtusi

§ 2. *Gemmae viscosae. Rami juniores viscosi. Petioli compressi. Stamina* |b-20, |anus6-|2.—*SQClioAigeiTosReichb. ibid* v, ^, 173\*  
*Spach l.e. p. 31.*

10 P NIGBA (L. sp 14G4), gemmis glabns viscosis, ramulorum unionibus pubescentibus vef glabratis, folns deltoideis vel subrhombmdeTs \*vd ovatis

acuminatis basi cuneiformibus vel cordiformibus rarius attenuatis dentatis adultis glabris nitidis et fere concoloribus. § In Europa et Asia temp. Rami viridi-ulbicantes; ramuli obscure angulosi, lutei vel fuscescentes. Gemmae ovoideae, acuminatae, fuscae vel fusco-lutescentes, glabrae, valde viscosae. Folia fœrta, vulgo 2<sup>^</sup>-3 poll, longa et totidem lata; in surculis et ramulis adventivis saepe 5-6 poll, longa, fere totidem lata. Petioli limbo breviores. Stipula ovata\*, acuminatae. Amenta 10-20 lin. longa, arcuata, cylindracea, densiflora; mascula sessilia, feminea pedunculata; bracteolae lutescentes, subrhomboidales, longe purpureo-ciliatae; amentorum masculorum ante anthesin decidua; femineorum post anthesin mox deciduae. Flores masculi vulgo 6-8-andri; filamenta alba. Antherae purpureae\*. Ovarium subglobosum, 4-sulcatum, fere omnino cupula cinctum. Stylus brevis. Stigmata reflexa, fulva. Amenta fructifera 2-6 poll, longa.

a, *genuina* L., arbor coma ovoidea, ramulis novellis cum foliis glabris. In Europa, Caucaso (Hohcnacker in h. petrop.), Sibiria ad Barnaoul. (h. petrop.), Altaï (h. petrop.). P. nigra Blackw. t. 248; Engl. bot. 1.1910; Reichb. Icon. v. 11. t. 619. f. 1275. P. Pannonica Kit. in Reichb. t. 619. f. 1276. (v. v. c. 6, et s. sp. 9)

p, *pyramidalis* (Spach Rev. Popul. in Ann. Sc. nat. 1841 p. 31), arbor coma pyramidalis, ramulis novellis et foliis glabris. Mas frequenter culta, feminea in Durlach Alice prope Carlsruhe (h. DC.), in Tauria (h. DC.), in Himalaya masc. et fem. spont. (Royle Illust. II. Himalaya p. 344). P. nigra var. Senior pi. Veron. syn. 2. p. 267. P. dilatata Ait. Hort. Kew. 3. p. 460. f. fasciata Desf. Hist. arb. 2. p. 266. P. nigra Italica Du Roi Harbk. 2. p. 141. P. Pannonica Italica Moench Wcisseeust. 79. P. Italica dilatata Willd. P. pyramidata hort.

Y, *betulecfolia*, arbor coma ovoidea, ramulis novellis et foliis pubescentibus. — In America septentrionali. P. beinfolia Pursh fl. Am. sept. 2. p. 619. P. Hudsoniana Michx fil. arb. 3. t. 10. fig. 1. (v. v. c.)

ð, *Sinensis* (Carr. in Rev. hort. 1867. p. 340), arbor ramosissima subfruticans, foliis subtriangularibus coriaceis margine crispis dentibus arcuato-rotundatis. In China (Eug. Simon), (v. v. c.)

M. P. MEXICANA, gemmis glabris viscosis, foliis latitudine longioribus ovalibus vel ellipticis acutis rarius acuminatis vel obtusis basi cuneatis v. rotundatis glabris lucidis dentatis. In Mexico: via Puebla ad Real del Monte (h. Boiss.), ad Tampico (Berlandier n. 274 in h. Boiss. DC.). Rami cylindrici, lucidi. Gemmae conicae. Folia ramulorum terminalium 2 poll, longa, 1 poll, lata, crenata; petiolo limbum subirquante gracili subcompresso; ramulorum laterali-um 1-2 poll, longa, raro subsessilia. Amenta? P. nigrae valde affinis. (v. s.)

12. P. ANGULATA (Ait. hort. Kew. 3. p. 407), gemmis glabris vix aut minime viscosis, ramulis ramisque angulosis, angulis alato-suberosis, foliis deltoideis vel ovali-deltoideis vel ovalibus vel cordatis acuminatis dentatis vel erosocrenatis glabris. In America sept., ad Mississipi (Spach Hist. veg.), Pennsylvania (Scringe fl. jard.), Missouri (tingelm. b. berol.), St-Louis (Engelm. h. petrop.), New Jersey (Esenb. h. petrop.). P. macruphylla Lodd. Cat. ed. 1836. Rami brunnei, angulis crassiusculis per 5-8 annos perstantilms. Ramuli juniores, olivacei, angulis saepius purpureis. Folia arborum juniorum 6-10 poll, longa, saepe latitudine simili; arborum mascul. adultarum 2-3 poll, longa, fem. multo minora et valde crenata. Petioli nervique primarii rubri vel lutei. Amenta masc. 3<sup>^</sup> poll, longa, rhachi glabra, sessiliflora; bracteolis glabris, rufescentibus. Cupula cyathiformis. Stamina 20-30. Amenta fructifera 4<sup>^</sup> poll, longa, floribus laxis, rhachi glabra. Capsula ovato-couica, crassa, rugosa. (v. s. sp. et v. c.)

p, *tortuosa* (Carr. in Rev. hort. 1807. p. 360), frutex ramosissimus, ramis valde angulosis tortuosis saepe flexuosis vel angulato-tortis, foliis longe petiolatis glabris limbo bullato contorto secus nervum medium involuto calyptram acutam inde praebente. Ex horto Barthère ad Toulouse. (v. v. c.)

13 P CAN<sup>A</sup>DENSIS (Desf. Cat hort Par), gemmis glabns wscosis, folns deltoideis vel ovili-deltoideis v subrhomboidcis v owlihus acuminatis acerosis eioso-denticuhtis \el eioso-cienuhtis basi subcoidatis unionibus ciholatis adultis glabn mis ranssime discolonbus \$ In Amenta sept ad rip<sup>^s</sup> Saskatchewan (Bourg h Anders') Missouu (h. Vindob !), Mi<sup>»</sup>sissippi (\\e\l III h Vind') ad Burlington Veimont (Oikesh Vind') louisiana (Drumm h \indob' lainlunrh DC'), Ohio (tianck h DC '), ad Go! uado Majave Vallej (Cxpl Color IHbl) Novo Mexico (I endltr h Regel, Anderson 1) — Michx i' Aib 3 t 11, Spach Hist Vc<sup>^</sup> 10 p 390 Sennge II jud 2 p 6S P mo nihfera Ait hort Keu 3 p j( > Will<) Arb 232, sp 4 p 80"), Wats dendr t 102, Spich ibid p 38Q, Sennge lb p 63, Michx f 3 t 10 n 2 p Viignuana Dum (ours Bot (ult 6 p 400 P Marylandica Bosc Nouv cours p 409 P lanigata Willd sp 4 p MH Pursh fl Am 2 p G19 P Lindleyam, P neglect 1 et P U vigata hort (ex Koch Wochens 1865 p 236) P ghnduhsi Motnch Meth p 339 Peuplier Suisso hort belg — Aibor mas leinica major elatior Cima ampla, conica Rum patentcs, ramosissinn, gñsco- \el brnneo vindes, ramuli junions anpulo«-i vel cylindru (in eidem aibore sapissime .ngulosi ^el cjlmndci, III fem sipius angulosi) Amenta masc circiter I poll lon<sup>e</sup>a, crassa cyhndrici, densis sima, ses<sup>^</sup>ilia, bncteohs obtusissimis, apice cilntis, ciliib membranaceis Stamina 20 iO Amenta fem 2 3 poll longa, cylindnca, rhachi glabra, biacleolis lulescentibus, caducissimis cupuli ovanum \inde medium usq; cingente Ovanum subglobosum, 6-sulcum SULus 3 4-furcatus Stigmata luteo-Miidia, margine puipurea rcnilormi diloba Amenta fruct 3 4 poll longa Folia ngida, in masculis major 1, suiculoium maxima, bisi truncata vel subcordata vel lotundita margine cart lagnita, petioh glabn comprssi luteoh \el purpurascetes, nunc apice biglandulosi, si pius limbo longiores Folia arbons masculae cncitei 2 hebdom post lem evoluta Stipula? angulatae acuminatap, caducissirnae —In plensque auctoi bus mas sub nomine P mom hfera: et fem sub P Canadensis (v s c et sp et v. c)

P, *discoloi* folns discolonbus, capsulis pubscenlibus In hortis (h Tind ' petrop ' Andeis I)

y *angustifolia*, lamuheretibus glabns folns ovato-lanceolatis attcnuatibasi acutis glabns crenato sen itis In America sept ad Ientes flum Plattc, Cinnon Cascade nvei (Fexpl Col n\ 1861) P angustifolia Jam lorreyAnn Lye New York p 240, Nutt S<sup>^</sup>h 1 p 52 t 16

14 P CILIATA (Wallich cat n° 2796), gemmis viscosis conicis folns cordatis vel otatis acuminatis inaiqualiter dentalis, unionibus senceis margine cihatis, adultis glabernmis ncnosis senceis marine cilntis ^ In Kimaon nothern lace of GH001 in lml sopt (Wall in h Regel et \in HcurcU) — Royle, Illust of the bot HimalaM, p 3<sup>^</sup>6 f 84. 1 P pynlormis Rojle ib p 344 (fide cl Hook f in lit) Rami angulali, puhescenles Folia 4-5 poll lonpa 2 1 3] poll lata, supia vnidia, subtus Jallula, noivis iurescentibus, petiolis compressisi 4' poll ; pubescentibus Amenta fructifera 5-6 poll longa (v s sp)

§ 3. *Gemma\* viscosx, rami juniorcs visiosi FoLa subtv<sup>^</sup> albida, petiolis teretibus. Stamina 20-30. — Sectio Tacamahacd S<sup>^</sup>ack loc. cU.fl<sup>^</sup>32.*

I'j P BALSAMIFEKA (L sp 1404), amentis viscosissimis crassis conicis, ramis unionibus glabns viscosis adultis cyhndncis vel angulosis folns membranaceis subtus albidis sappeque lubigme suflu<sup>^</sup>is ^ I' hemisphauo bor Amenta pra?cocia, masc laxifloia, 2i, poll longa, rhachi alata, alls mornbranaceis btamina 20 JO Cupuli lon<sup>^</sup>o podunculati Amenta fem pei anthesin 2-3 poll longn bractoolis lut<sup>^</sup>is taducissimis Cupula ova! mm medium usque cingens, lutca, glabn Stigmata lobis I ovano lationbus, reflexis, subpurpureis a, *genuine* arboi elata, ramis subcylindncis folns eliipticis o\alibusvp acutis basi lotundatis vel cordatis rigidis obtuse dentatis, dontibus carti-



*Iagmeis subciliolatis* In America sept Terra Nova (La Pylaie, h DC !), Connecticut (Oakes h DC'), mont Alleghanies (Rafin h Petrop'), lacum Win pég et flum Saskatchewan (Bourg h And I), in Sibma ad Kam-schatka (R der h Petrop 1, Stubendorff id) P balsamifera Michx arb 3 p 306, t 13 n° 1, Nouv Duh 2 t 50 P Tacamahaca Mill diet 6 p 97 P vimmea Bon Jard 1845, p 565<sup>9</sup> —Vanit folns vane-ga'is (Mill, Loud Encycl p 830) (v v c)

p, *suaieolens* (Loud Encycl p 830), arbor ramis cylindncis, folns late ellipticis acuminatis obtuse dentatis petiolo ncrvisque praecipuis subpu-bescentibus InAmcnca sept Rocky Mount. (Hall et Harbour, h DC • , m Sibina (Schenk, h Petrop', stuhendorff, h Petrop'), ad torrentem Terekty (Kar et Kir h Petrop' ot DC '), ad flum Amur (Maximow, h Petrop '), id Baicalem australem (h Ledeb '), in Kamtchatka (h Re-gel') P maciocarpa (Schrenk'enum plant nov 1842 p 16, Schrenk in h Petrop 1) (v v c)

Y, *launfolia*, ramis angulosis jumonbus subpilosis, folns "ovalibus oblon-gisve plus minus longe acuminatis vel lanceolatis nunc subcordatis den-tatis jumonbus subpilo^is In Sibina ad Ulban (Ledeb b Regel'), ad npis Ulba, Uba Jrtysh, Buchtorma (Led fl Alt p 297), in mont Altai (Ledeb Ui Vmdob et DC) P launfoha Ledeb icon, fl alt t 479. (v s sp et c, v c)

S, *viminans* (Loud Encycl p 830), ramis angulosis elongatis gracibus flexuosis folns longe lanceolatis P vimmalis Lodd cat ed 1836 P Lmd-levana Booth in Rev hoit 1867 p 380 P sahicfoha hort P longifoha Pall Ross t 41 B (w e)

16 P SIMONII (Carr in Rev hort 1867 p 360), folns conaceis crassis sub-erectis brevitei petiolatis valde irregulariter ovato ellipticis utnque aequali-ter attenuatis dentibus Crispatis subarcuatis brevibus utiunque glabns supra intense vindibus subtus albido g aucis subcer°is 5<sup>in</sup> China (Lug Simon) Arbor data, ramis patulis elongatis, cortice lufo biunneo, lenticelhs sparsis albidis lmeanbus lineam longis, angulis quinque vahdis subalifoimibus pur-puiascentibus Gemmae parvae, elongatae, valde adpressae, intense rufae, luciddL, viscosae Folia h 6 poll longa, 3-3 | poll lata, petiolo 9 10 lin longo, crasso, canahculato, supra et inde medium usque limbi puipurascente. Amenta ign

17 P CANDICANS (Ait Hort Kew 3 p 406), gemmis glabris viscosis, ramis ter-mmalibus angulosis teretibus, folns cordatis deltoideis vel ovalibus basi trun-catis vel rotundatis acuminatis acerosis inaequaliter dentatis saipius subtus puberulis lanceolatis chaitaceis -j m Canada (Spach Hist Veg Ser fl Jaid 2, 63), Massachusetts, New Hampsh re, Rhode Island (Mich fil arb 3, p 308) —Mich f Aib 3 t 2 1 2, Willd arb 231, Sp plant 4 p 806, Spach hist Veg 10 p 392, Senngge fl jard 2 p 62. P nigra Catesby Carol 1, f 34 P macrophylla Lindl enc p 840 P Ontanensis Desf Hort par. P Canadensis Munch Weiss 81 P latifoha Moench meth 338, P Acladesca et P heterophylla hort ex Koch Wochens 1805 p 23ff Cortex gnseus, in vetustis arbonbus nmosus, lamuli tenuiter pubescence\*, gemmae elongato conicae, acutae, brunneo-iutpae Folia juniora utnque pubes-centia adulta quam latitudo multo longiora, dentibus obtusis apice cihati=, supra intense viridia, subtus palhde alba, nervis subtus ruf scentibus, pe-tiolo 1 i - 3 poll longo, depresso pubescente, juniore 2 glandukm Amenta<sup>masc</sup> 4; fem folns multo praecociora, pedunculata, in anthesi 1-poll longa, oblongo-c\lindracea, obtusa, densissima, biacteohs caducis, gl bns, fimbna-f\* Stigmatia reniformi 2-loba, ovano latiora Cupula cyathilormis, crenata Amenta fructifera, 4 5 poll longa Capsula ovato-pyramidahs, obtusa, eras-siuscula, circiter 2 lin longa (v v c)'

18 P TRICHIOLARPA (Torr et Gray, m Hooker Icon plant., vol 5 t 878), folns sublonge peiolatis cor lato-tnangulanbus berratis glabns subtus pallidis mi-nute reticulatim venosis, amenti feminei squamis laciniatis villosis, ovarns globosis dense tomentosus, stigmatibus insigniter basi lobato-dilatatis \$ Hab ad Santa Clara Rivei, prope Beneventano, Cahforniae

*Species dubix.*

P. CAUDINA (Ten. fl. napol. 5. p. 280), ramis patentibus, ramulis angulatis petiolisque junioribus villosis, foliis\* deltoideis diametro transversali longiore serratis apice acumine longo producto basi levissime cordatis lateralibus inferioribus basi ad angulum obtusissimum convergentibus, trunco albido. j Culta in regione Caudina ditionis Neapolitanae.

P. NEAPOLITANA (Ten. fl. nap. 5. p. 279), ramis patentibus ramulisque glabris teretibus, foliis deltoidibus diametro transversali longiore basi levissime cordatis lateralibus inferioribus basi ad angulum obtusissimum convergentibus, trunco giiseo rimoso. ^ Circa Neapolim communis. P. dilatata var. Neapolitana Ten. syll. in Fl. napol. 4. p. 137.

P. LOBATA Fischer in Steudel nom. bot.

*Species exclusz.*

P. NANA Royle 111. Himal. p. 345. = Betula nana.

POPULUS n°423 Th. Kotschy. = ? Pyrus.

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*Ordo CXGVII. CASUARINE/E (1). — Coniferarum genus Juss. Gen. p. 412. — Casuarineae Mirb. Ann. Mus. 16. p. 451, Elém. l. 33. fig. 6; R. Brown in Flinders Voy. 2. p. 571; Bartl. Ord. p. 97; Meissn. Gen. p. 351; Endl. Gen. p. 270; Reichb. Consp. p. 79; J. G. Agardk Theov. Syst. pi. p. 164; Schnizl. Icon, fam. natur. 1. U 86; Miq. Revis. crit. Casuarinearum in N. Verhand. K. Nederl. Instit. 1. hi. vol. 13. c. t. 11 (1848). — Casuaraceae Lindl. Nat. Syst. ed. all. 2. p. 181, Fe<sup>^</sup>l. Æmpd. p. 249. Taxearum pars Rñchb. — Myricearum genus Rich, in Diet, sc nai.—Amentacearum trib. 2. Casuarineae Griseb. Flor. W. Ind. hi. p. 177.*

*De anatome confer : Gccppert in Linnsea 15. p. 747; Santo variis locis; Stachc diss. de Cas. viv. el foss. Vralisl. 1855; E. Loew diss. de Cas. caulisel folii evolutione. Bcrol. 1865.*

**Plores amentacei, monoid. Amenta terminalia et axillaria, utriusque sexus rarius coetanea, unde floratio spurie dioica. Masc. tereti-elongata vel abbreviata, ex internodiis abbreviatis vaginalis conflata; flores in axillis vaginarum dentatarum sessiles, dente singulo bracteam referente, bibracteolati, bracteola singula dextrum et sinistrum latus occupante; perigonii dinhylli phylla cum bracteolis decussata, apice calyptratim coWrentia, dein dejecta; stamen unicum, filamentum sub anthesi exserto basi incrassato, anthera biloculari incumbente, loculis basi et apice discretis longitudinaliter dehiscentibus. Feminea ut plurimum axillaria, globosa vel ellipsoidea, florum seriebus perpendicularibus vulgo numerosioribus. Flos singulus unibracteaUis et lateraliter bibracteolatus, bracteis bracteolisque persist\*ntibus, his passim in fructu basi extrorsum incrassatis vel tuberculo (aut squama accessoria libera? ei ad dorsum opp<sup>^</sup>sita) auclis; perigonium nullum; ovarium unicum, ovulo unico anatropo ex apice cavitatis pendulo, stylo terminali, stigmatibus 2 filiformibus. Matura seu strobili ii-gnoso indurati, bracteolis primum clausisachaenium includentibus, dein valvatim hiantibus; achaenium compressum, apice membranaceo-alatjm; semen unicum pendulum, testa cum endocarpio connata, ab endopleura vasis spiroideis longitudinalibussejuncta, albumine nullo, embryonis orthotjbi cotyledonibus magnis planis, radícula minima supera. «Arminatio epigci»a. — Arbores quandoque elatae aut frutices elatiores humilesve, Equisetorum ramosorum habitum mentientes, ramificatione ut plurimum verticillata, ramulis ultimis partim quotannis deciduis, simplicibus vel rarius in paucos homomorphos**

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(1) Auctore F. A. Guil. Miquel.

divisis, ligno e tracheidibus fibris libri similibus, tracheis et parenchymate ligneo formato, stratis annuis distinctis, radiis medullaribus perspicuis, libro distincto, canali medullari cylindraceo; foliis anguste linearibus, verticillatis, prater apiculos liberos in vaginam dentatim serjuentis internodii basin amplectentem connatis, totis facie antica cum internodio suo toto cohaerentibus, pallii instar id includentibus, lateraliter sulcis longitersis angustis puberis vel glabris a se invicem separatis, secus latera sulcorum stomatiferis, cum iis sequentibus internodii alternantibus, internodiorum senescentium sensim dejectis et verum corticem passim eximie suberiferum denu-  
dantibus; floribus omnium verisimillime monoids, amentis utriusque sexus vero in eadem stirpe raro simul obviis, unde complures species dioicae nuncupatae.—Casuarineae novo-orbi a natura denegata, inde ab Africa? orientalis calidioris regionibus littoreis, Madagascaria et insulis Mascariensis per Asia? calidaj continentalis plagas maritimas, Arctipelagi indici littora et sylvas montanas, insulas Philippinas, Novam Hollandiam atque insulas magni oceani meridionalis distribute sunt. Si C. equisetifoliam totius huius arcse regiones littoreas inhabitantem et cultura nunc in Africa occidentali et novo orbi etiam propagatam excipias, reliquae species sinuulae inter arctiores fines militantur. Maximus earum numerus in Nova Hollandia gignitur, ubi species singulares a reliquis magis recedentes in ora occidentali nuper detectae sunt; paucae sed a novo-hollandis haud diversae in Tasmania cresunt; in Nova Hollandia boreali raresunt; Nova Caledonia, insulae Fijeenses, Archipelagus Moluccarum et Borneo G. nodifloram alunt; in Java et vicinis insulis parvis G. montana, in Sumatra, Borneo et Celebes G. Sumatrana in regionibus interioribus nascitur, atque G. Rumphiana insulis moluccanis prava esse videtur.

An amenti feminei organisatio omnibus speciebus eadem sit, haud satis mihi persuasum est. Bracteolas in floribus omnibus quas examinare potui, non nisi geminas reperi; sed in quarundam specierum maturis strobilis processulos exiles vulgo trigonos ad singularum dorsum observavi quae vix pro illarum basi incrassata habendae; in sectione Acanthopitys vero in amentis maturis bracteola singula quasi duplicata est, interiore genum amutica, altera extenore longiore in acumen spinosissimum excurrente, interior! dorso opposita—olim punitus Wherry esse credidi, fissura longitersa sub' maturatione in duas laminas parallelas divisam; nunc dubius hirsutus et quum amenta successivam evolutionem monstrantia mihi desunt, hanc quaestionem solvere haud potui.

CASUARINA Rumph. Herb. Amb. 3. p. 87. tab. 58; Linn. Gen. n. 1395; Thunb. diss. d. nov. pl. gen. 1. p. 53; Forst. Charact. Gen. p. 103. fig. 52, Prodr. n. 335; Juss. Gen. p. 412; Gaert. Carp. 2. p. 63. tab. 91; Lam. Ill. tab. 746; Lour. Coch. ed. Willd. 2. p. 670; Vent. descr. pl. nouv. p. et tab. 62; Labill.

*Nov. Holl. 2. p. 67. tab. 280; Turpin Iconogr. tab. 299.300; Iloxb.Fl. Ind. 3. V- h9', Spreng. Syst. Veg. 3. p. 804; Miq. in Lehm. PL Preiss. I. p. 639-643, PL Jungh. 1. p. 7; Zolling. Catal. p. 86; Nederl. Kruidk. Archief. 4. p. 98; FL Ind. bat. v. 1. p. 872; de Vriese in Tydschr. nal. Gesch. 11. p. 113; OMo et Dietrich in Allgem. Gartenzeit. 1841. n. 20 et 21; Ferd. Mueller Fragmenta Phyt. Austr. vol. 1. p. 61.*

Sectio i. EUCASUAHINA Miq. in PL. Preiss. 1 p. 639. — Bracteolae strobili maturi obtusaj vel acut<c, baud in acumen longum spinosum products.

1. C. GLAUCA (Sieberl Herb. N. Holl. n. 325), ramulis simplicibus crassiusculis terelibus nodulosis glaucis, internodiis 3-6 lin. longis obsolete striatis, vaginarum dentibus 15-16 anguste lanceolatis adpressis, amentis masc. terminalibus cylindricis vaginis brevibus, strobilis subglobosis utrinque truncatis circiter 22-stichis, bracteolis ellipticis acutiusculis exsertis versus basin extus incrassatis. 3 vel 5. In Nova Hollandia or. (Sieber 1. c.), ausiro-occid., ad fl. Georgii (A. Cunningham!), locis turfosis ad fl. Cygnorum, in solo calcareo ad portum Leschenault (Preiss! n. 2002), ad fl. Murchison, portum Lincoln et prom. Lefebvre, porro in Flinders-range et ad Morinde (Ferd. Mueller!). Ex F. Mueller distributa est ab ora orientali usque ad occidentalem et forsitan in Australia centrali occurrit, locis siccis arenosis et paludosis. — Sprang. Syst. Veg. 3. p. 804; Miq. Rev. p. 76. t. 11. fig. C, Regensb. Flora 1865. p. 17. 34, Ned. Kruidk. Archief. 4. p. 100. G. obesa Miq. PL. Preiss. 1. p. 620. G. pauper F. Muell. herb. C. obtusa hort. quorund. Frutex elatior vel arbuscula. Rami vetustiores subannulati, ramuli strictiusculi, cinereo-vel glaucino-viriduli, glabri sed novelli in sulcis tenerrime puberuli, striis deplanatis sulcisque perangustis, cylindrici, ob vaginas basi tumidulas nodulosi; vaginarum dentes ut plurimum 15-16, raro 13, dein truncati. Amenta masc. rumulos terminantia, vaginis subpatellaeformibus plerumque 15-dentatis. Strobili fcm. breviter pedunculati, in quavis serie perpendiculari 4-5, bracteis lanceolatis; bracteolae dorso ad basin quasi in tuberculum desinantes, ceterum nube tenera conspersae (v. s.). — An hujus forma hortensis C. torulosa Willd. Sp. pi. 4. p. 191; Spr. Syst. 1. c; Miq. Rev. p. 75- t. II. fig. B, Regensb. Fl. 1. c. p. 18 et 35 (non Aiton)? Ita putat F. Mueller in lit. Gulta, ramulis elongatis simplicibus tenuiusculis teretibus subnodulosis viridibus, internodiis 2-3 raro 4 lin. longis striato-sulcatis, vaginarum dentibus circiter 15 raro 12 subulato-lanceolatis subadpressis, amentis masc., strobilis ellipsoideis utrinque truncatis circiter 17-stichis, bracteolis ellipticis acutiusculis exsertis extus vix incrassatis. \$ an et J? In hortis nostris culta, probabiliter e Nova Hollandia, sed quod mirum hactenus nondum reperta. Usque 25-pedalis, cortice crasso non rario fere suberoso; rami subereclii striati, ramuli plerumque vericillati, internodiis utrinque pedetentim leviter incrassatis, vaginis pallidioribus. Strobili breviter pedunculati, bracteolis exsertis quasi annulato-muricati, fuscule pubescentes, glabrescentes, foveis in singula serie perpendiculari 4-5; bracteis e basi ovata acuminatis. Strobili iis G. Cunninghamianae similes, paulo majores. (v. v.)
2. C. QUADRIVALVIS (Labill. Nov. Holl. Spec. 2. p. 67. t. 218), ramulis elongatis debilibus patulis simplicibus viridibus, internodiis 4 fere 8 lin. longis teretibus striatis et sulcatis, striis verrucellosis, sulcis puberis, vaginarum dentibus 9-12 lanceolatis erecto-patulis, amentis masc. terminalibus et lateralibus elongatis flaccidis vaginis campanulatis, strobilis ellipsoideis 7-18-stichis, bracteolis exsertis ellipticis punctatis acutis basi vix incrassatis. In Nova Hollandiae Capite (insula?) VanDiemen (Labill.), in Tasmania (J. D. Hooker!, Herb. Mus. Paris!), in planitiis Fraser et Fields (Macarthur!, Backhouse!, in h. Hook.), ad sinum Twofold, a Sinu Spenceri usque ad N. Cambriam ex F. Muell. in litt. (A. Cunningham!), in m. Kaiserstuhl (F. Muell!), in Nov. Holl. austr. (Behr), in caldariis nostris vulgaris, vulgo C. equisetifoliana nuncupata; in prom. Bonae spei certe culta (Breutel in herb. Boiss. l. n. 27). — Spreng. I. c. Miq. Rev. p. 70. t. 2. fig. A — C., Ned. Kruidk. Arch. 4. p. 100, Regensb. Flora 1. c. p. 18. 35; J. D. Hook. Fl. Tasm. 1. p. 348. C. distyla Schlecht. in Linnæa t. 1. p. 513. non Vent. C. quadridentata hort. DC. herb. 1. — Variat :

- a, macrocarpa* (Miq Rev p 73. t 10 fig B), strobili lobatis magis globosis C macrocarpa A Cunningh mss — In N. Holl austro-or ad fl Lachlan (A Cunn 1 in h Hook)
- p, cnstata*, ramulorum internodiis paulo brevioribus, strobili ellipsoideis utrinque obtusis, bracteolis angustioribus oblongis minus pungentibus C cnstata. Miq Rev p 70 t 10 fig A. — uescit cum var a (A Gunn I)
- Y, spectabilis* (Miq 1 c p 73 tab 10 fig C), ramulis crassis 1] 12 sulcato striatis, striis tenens palmdis laevibus sensu venucellosis, sulcis pubescentibus, internodiis 4 10 hinc longis, amentis masculinis flaccidis 10 25 articulis G Gunn Hook fil' mss Miq Ned Kruidk Archief 4 p 100 C quadivalvis var spectabilis Hook fil. Flora Tasm 1 p 348 — In Tasmania locis montanis, prope George town (Hooker fil », Stuart' Gunn n 124 1), in Flinders-island (Hook hi) Fruticosa densa format, habitu quidem \*ad nullo caractere essentiali a specie distincta est
- 3 *G MONTANA* (Miq in Zolling Catalog, p 86), ramulis gracilibus strictis simplicibus subnodulosis, internodiis 3 hinc longis sulcato striatis vaginularum densis 10-11 radio 12 adpressis, amentis masculinis terminatis teretibus obtusis, strobili ellipsoideis vel oblongis utrinque truncatis 17 20-stichis, bracteolis ellipticis parumper exsertis — In Javae orientalis regione montana elevatior (Junghuhn', Zolling n 2164' in h Boiss I), in Timor (Leppehus', in h L B, in herb Mus Pans. I nomine C afneanae Lour), probabiliter in Bah Arboi haud raro excolta, cujus duas prostant varietates, vix simillime conspiciuntur a tenuior (Miq Regensb Mora 1 c p 19 et 35) C equisetifoliae fere habitu exsiccatae cinereo-palidae, ramulis tenuibus strobili minoribus, bracteolis magis exsertis C montana Jungh' Itiner (probabiliter Labillardiere ined), Miq Flor Ind bat 1 1 p 875 C muncata herb Mus l'ans e Timor! — p talidior (Miq 1 c) C strictae habitu simillima, exsiccata subvoluta ramulis crassis nigridibus, strobili magis oblongis bracteolis minus exsertis C Junghuhniana Miq 1 c partun, 1 lora Ind bat 1 1 c p 874 Hae probabiliter in regionibus magis elevatis provenit — Varietas a ramulis masculinis saepe gracilibus usque bipedales, amenta utriusque sexus usque equisetifoliae similia vaginularum densium numero autem tuto discernenda — Var p ramulis densis strictis, magis teretes ad vaginas obiter sulcati Amenta fem utriusque nunc breviter nunc distincte pedunculata, matura ad aspectum elongata, magnitudine autem perquam ludentia in var p semper robustiora, pedunculis sursum incrassatis suffulta, 19-20 sticha, foveis in singula sene C 4, bracteis e basi lata cuspidatis pubescentibus (v. s)
- 4 *C CUNNINGHAMIANA* (Miq Rev p 56 tab 6 fig A), ramulis densis tenuibus strictis simplicibus, internodiis ut plurimum circiter 2 hinc longis angulato teretibus, faciebus planiusculis, vaginularum densibus 8 10 anguste lanceolatis adpressis, amentis masculinis, strobili breviter pedunculatis brevibus utrinque truncatis panis circiter 12 stichis, bracteolis ellipticis acutiusculis exsertis extus subcannato incrassatis — Arbor JO-40 pedalis In Nova Hollandiae orientalis planitiebus arenosis in regione sinuum mans Moieton et Glashouse (A Cunningham I in herb Hook) in colibus juxta fluvium Lichlan (Praseri ibid) secus fl Hastings (terd Mueller') — Miq in Regensb Hoia 1 c p 19 et 11 C equisetifolia var microcarpa ex 1\* Mueller in lilt Rami atrofusci, folia demum piosus solutis, cortice laevi aequabilibus Ramulis densis verticillatis et sohlain, digitum longi vel paulo longiores recti eiectionis, stricti, ubique aomeciassi, in sicco unereo vel subglauco vides' Vaginae novellae basi puberulae, adultae piosus glabrae, densibus basi postice subconvexis, ut plurimum cito emortuis et truncatis Amenta fem lateraliter conferta florentia obovoidea, bracteis ovato-lanceolatis acuminatis glabris margine ciliatis, matura 2j-vix 3 hinc adaequantia, utrinque perspicue truncata (v. s)
- p, vaginularum densibus usque 15 strobili 12-15-stichis* In Nova Hollandia orient (h DC ex Mus Pans!).
- o *C HUEGELIANA* (Miq PI Preiss. 1 p 640), ramulis elongatis subflaccidis

teretibus cinereo-viridulis, internodiis 3-4 raro 6 lin. longis elevato-striulatis, striis verrucellosis, vaginarum dentibus 7-9 triangulari-lanceolatis erecto-patulis, amentis masc. terminalibus et lateralibus flaccidis, vaginis obconico-campanulatis puberulis, strobilis ellipsoideis 16-17-stichis, bracteolis dorso convexo-incrassatis intus tomentellis baud exsertis. §. Circiter 35-pedalis. In Nova Hollandia austro-occid. inter rupium fragmenta ad latus or. montis Brown in distr. York (Preiss herb. n. 2006!), secus fl. Cygnorum (Drummond. herb. Hook.). — Miq. Rev. p. 68. t. II. fig. A, Regensb. Floral, c. p. 19 et 35. C. trichodonti dentium numero accedit, attamen amentis masculis, colore ramulorum et dentium forma tuto dignoscenda. Rami nodosi atro-fusci, foliis adnatis striati; ramuli verticillati vel solitarii, erecti, subcinereo-viriduli, ob strias verrucellosas tactu baud laeves, sulcis juniorum puberulis; intemodia ubique aequae crassa. Vaginae fuscescentes, dentibus basi marginibusque pallidis. Amenta masc. ramulos terminantia et in iisdem lateraliter sessilia, subremotiflora, 1 £-2£ poll. Jonga, vaginis floriferis angulatis, in sulcis puberulis, dentibus ut plurimum 8 fuscis rigidulis ciliolatis; axis pubescens. Strobili maturi giiseo-nigrescentes, ^ poll, circiter longi, foveis in singula serie perpendiculari 5-6, bracteis demum transverse tetragonis margine superiore denticulo instructis, bracteolis dorso fere hemisphaericis. — Varietas? dentibus 8-6 videtur sp. Drummond. n. 232 coll. 3. in h. DC. et Boiss.! bracteolis ellipticis a dorso squama accessoria aequalta acuta basi adnata auctis (v. s.)

(J. C. TRICHODON (Miq. Pl. Preiss. 1. p. 641), ramulis plerumque verticillatis rigidis simplicibus viridibus, internodiis 3 lin. longis angulato-teretibus, angulis prominulis laevibus, faciebus sulco puberulo vel glabro percursis, vaginarum dentibus 8-y lineari-lanceolatis elongatis attenuatis patulis diutius persistentibus, amentis masc. terminalibus strictis vaginarum cyathiformium dentibus anguste linearibus patule recurvis, strobilis lateralibus brevissime jedunculatis brevi-ellipsoideis truncatis 14-20-stichis, bracteolis exsertis. In Nova Hollandia austro-occid. in saxosis ad latera collium Konkoberup in distr. Kent (Preiss n. 2001!) , in regione fl. Cygnorum (Drummond 1848. n. 239! herb. Boiss.). — Miq. Rev. p. 63. t. 8. fig. A, Regensb. Fl. 1. c. p. 20 et 36. Species bona, strobilorum organisatione etiam singularis. Arbuscula vel frutex octopedalis, ramis cylindricis nodosiscinerascentibus. Ramuli densi erecti rigidi pleriquetereti-octangulares, angulis obtusis. Vaginarum dentes praee omnibus elongati, nascentespatulo-recurvati, adulti erecto-patuli, sublanceolati vel lineari-filiformes, saepe leviter torti, basi fusci, sursum decolores. Amentia masc. nondum florentia ^-1 | poll, longa, vaginarum dentibus basi ciliolatis. Strobili fem. in sp. Drummond. nunc primum observati florentes brevi-pedunculati globosi, bracteis lanceolato-acuminatis patulis obducti, maturus 1j poll, longus, vcrice concavo-truncatus, bracteis prominulis acutiusculis, singulis a dorso squama conformi aequimagna carinata et acutiore basi adnata caeterum arete appressa auctis (v. s.).

7. C. STRICTA (Ait. Hort. Kew. J. p. 120, non Willd. Sp. p. 18), nee Miq. Rev. b. Till), in ramulis strictis simplicibus spursis vel multivalvibus viridibus, internodiis 2J-1-J<sup>lin</sup>- longis saepius 7-raro 6-angulatis, vaginarum dentibus 7 raro 6 ovato-lanceolatis appressis, amentis masc. terminalibus articulatis gracilibus, strobilis subsessilibus oblongis nuncapice conicosterili terminatis circiter 14-stichis, bracteis ellipticis vix exsertis dorso incrassatis. 5<sup>et</sup> ^ ^<sup>n</sup> Nova Hollandia austro-orient. (Labillard. in h. DC! Sieb. n. 348 et 390! et sub n. 326 forma amentis masc. elongatis, in h. Boiss. sub n. 328 et 330!), in Gippsland (F. Mueller!), in Tasmania (Gunn! J. D. Hooker! J. Stuart! herb. Mus. Paris., J. Verreaux n. 108!). Stirps variabilis, nunc arborescens nunc fruticosa. C. distyla Vent. Descr. d. pi. nouv. p. 6?. t. 62; Desf. Cat. H. Paris, ed. 3. p. 354; Willd. 1. c. p. 191; Miq. Rev. p. 57. t. 7. fig. A-C, Nederl. Kruidk. Arch. 4. p. 98, Regensb. Flor. 1. c. p. 23 excl. varr. P et y, J. D. Hook. Flor. Tasm. 1. p. 348. C. excelsa Salisb. teste Steudel. C. quadrivalvis Sieb. herb. n. 330! excl. syn. Ramuli haud elongati, semper stricti, ut plurimum tereti-7-angulati, angulis obtusis, facierum subdemissarum sulco radio glabro vel puberulo. Vaginarum dentes breve Sj juniores triangulares, adultiores paulo longiores et angustiores, pallidi, apice magis

fuscescentes, non raro tenerrime ciliolati, dorso leviter convexi. Amenta masculina ut plurimum 1-1 | poll, longa, 10-14-articulata, vaginis remotiusculis axeos intervalla brevia glabra nuda relinquentibus, 6-7-angulatis, fuscescentibus, glaberrimis vel per lineas puberulis. Strobili maturi  $\frac{3}{4}$ -1  $\frac{1}{2}$  poll. longi, normales apice truncati. n. distyla Vent, ad iconem et descript. l. c. datas huc certe referenda, in h. DC. autem sub hoc nomine specimen C. quadrivalvis exstat, anno 1811 in h. Malmaison (?) cultum. (l. s.).

8. C. FRASRMANA (Miq. Rev. p. 59. t. 6. fig. D), ramulis strictiusculis simplicibus brevibus et elongatis plerumque verticillatis viridibus, internodiis 2½-3 lin. longis 7-plerumque 8-angulato-teretibus, angulis prominentibus, vaginarum dentibus 7-saepe 8-lanceolatis erecto-subpatulis, amentis masc. . . . , strobilis pedunculatis ovoideo-globosis, bracteolis obtusatis dorso tuberculato-incrassatis puberulis glabrescentibus. In Nova Hollandia australi, in arenosis sylvaticis circa oppidum Perth, in solo subturfoso sylva ad radices in Wuljenup et Plantagenet (Preiss n. 2000, 2007!), prope Brighton (F. Mueller!). G. strictae var. Miq. in Regensb. Flor. l. c. p. 20. C. humilis hort. partim. C. rigida (Miq.) F. Mueller! herb. C. nana Schlecht. in Linnaea. 20. p. 574, non Sieb. Arbor 25-pedalis, ramis vetustioribus fuscescentibus, foliis adnatis pallide striatis; ramuli in sicco pallide virides, plerique breviusculi, pauci usque 1-pedales, internodiis inermis abbreviatis, reliquis circiter 8 lin. longis; vaginarum dentes medio subbincervi-lasci, marginibus hyalini, subciliolati, dorso ad basin convexi. Strobilus ad aspectu tuberculatus, pulicem longus, bracteolis maturis subrotundatis, intus glabris subconvexis, extus tuberculato-incrassatis. — Habitu raagis quam gravioribus notis a C. stricta differt, nimirum habitu robustiore, internodiis constanter licet haud raulto longioribus, denium numero et praesertim strobilis crassis subglobosis bracteolae-umque forma. Attamen non nisi unum strobilum separatum examinavi. (v. s.)

9. C. RIGIDA (Miq. Rev. p. 61. t. 7. fig. D), ramulis rigidis subrobustis simplicibus breviusculis viridibus semi-verticillatis vel verticillatis, internodiis 2-3 lin. longis 8-9-angulato-teretibus angulis prominentibus, vaginarum dentibus 8-9 ovato-lanceolatis lanceolatisque erecto-patulis, amenta masculina terminalia nudulosa 18-20-articulata viridulofuscula, strobilis breviter pedunculatis oblongis apice nunc conico-attenuatis vel truncatis circiter 14-stichis, bracteolis ellipticis obtusis vel subacutis basi protuberantia prominente tumida (colorata) auctis intus puberulis. In Nova Hollandia orient, in regione Sinus maris Moreton (Fraser! in h. Hook.), in Tasmania (J. D. Hooker, Gunn n. 735). C. strictae var. rigida Miq. in Regensb. Flor. l. c. p. 20; J. D. Hook. Fl. Tasm. l. p. 348 (sub C. distyla). Rami foliis adnatis striati, digitales usque spithamci, in sicco pallide virides, alii fere teretes, alii magis distincte angulati, faciebus concavis vel subplanis minus perspicue sulcatis; vaginulae non dilatatae, dentibus plerumque 8 basi pallide viridulis caeterum leviter fuscescentibus tenerrime ciliolatis, praesertim at pressis, sorius silipatulis. demum tiruncalis. cirrator hipillicaria, vaginis angulatis, axin per brevia intervalla subnudum relinquentibus, dentibus vulgo triangularibus ciliolatis fuscis; bracteolae ciliolatae. Strobili maturi circiter pollicem longi, oblongi, non raro irregulares, basi v. c. sterili-contracti. — Haec species C. strictae nimis forsitan affinis, notis propositis autem discernenda. (v. s.)

10. C. SUBEBOSEA (Otto et Dietr. Allg. Gartenzeit. 1841. p. 155), ramulis teretibus simplicibus subangulato-striatis et sulcatis subglaucescenti-viridulis internodiis 1½-2½ raro fere 3 lin. longis, vaginarum subtumidularum dentibus 6-7 raro 8 appressiusculis sublanceolatis, amentis masculinis nodulosis vaginis remotiusculis, strobilis oblongis obtusis vel apice sterili acutis circiter 15-stichis, bracteolis lato-ellipticis prominulis subcutis basi extus appendiculato-incrassatis. In Tasmania (! in Hmkr. M. N. Cambria, in Sandy-Island Nov. HoM. or. <Cuming in h. DC. > in Miq. Rev. p. 55. t. 6. fig. 13, Regensb. Flor. l. c. p. 21 & 38; J. D. Hook. Fl. Tasm. V. p. 348. t. 96, C. torulosa Willd. Spec. 4. p. 191. partim? l. c. Miquelii Hook. fil. in h. Boiss. (forma tenuior). Arbor in liortis usque 40-pedalis, in Tas-



mania humilis, frutescens, G stnctae etiam pi ox 1 ma, sed tenenor, hinc ( leptocladae accedens, ramuli densi, tenuiores mternodiorum angulis non ciassis sed rnagis strideformibus, facierum sulro vulgo pubero, truncorum coitex praë reliquis speciebus provectiore state suberoso-incrassatus Vagina in sicco pallidae, dentibus ima basi vinduhs, cdeterum tenero pallidis, apice dorsoque fusculis Amenta masc terminalia semi polhcana, vaguns brevibus, fern lateralia gemma vel sohtana breviter pedunculata, clavato-globosa Strobih oblongi nuce avellana paullo majores, Dracteis latis ima basi villosis, in acumen lanceolatum abrupte attenuate, extus fere glabns intus puberuhs, oracteolis lato elliptius acufiusculis intus prater apicem glabns, extus ima basi subtomentellis et protuberaniia fuse L? auctis (v s)

p, *MuelUnana* (Miq Regensb Moral, c p 21), ramulis magis augulatis vagmarum dentibus o brevionbus — In monte Torrens (*b* Mueller!) C Muellenana Miq in Ned Kruidkund Arclnof4 p ^9 Ramuli subinde unilaterales, iiffiduh inagis acute 6-angulato-suicdti, paullo robustiores auam m specie dtntes subtnanguldics, strobih bievisime pedunculati oblongi ct apice truncato bicvi-acuti vulfeo 12 stichi, ciruter polhcem longi, biacteohs apice obtusis — Notisl< vionbus diversa, sed pro specie vix habenda, *if* Mueller ad C stncUiin ducit (in litt)

Y, *Baxtenana* (Miq 1 c), ramulis magis angulatis mteinodiis brevionbus, dentibus 7 8 tnangulai ibus C BaxtenanaMiq Rev p 37. tab J fig f — In Nova Hollandia austro occ dd sinum regis Georgn (herb Hook ') Habitu satis diveisa, inprimis strobilis longmscule cyhndncis, plensque apice stenli contracto terminatis Ad completioia exemplana ultro pei scrutanda, forsan species — An G suberosa Gidff med in lenoie Cat hoit Neap 1845 p 87, nostram homonymam speciem spectct eruere haud potui

11 \*C PALUDOSA (bieb Herb n. 3291 Spreng 1 c p 804), ramulis tenuibus stnctis simpchibus vindibus heptagono-teretibus subtihter sulcatis, interno dus l-J- 2 ' vulgo circiter 2 lin longis, vagmarum dentibus plerumque 7 ranus b ^el 8 sublanceolatis ngiduhs subadpressis, imentis masc lateiaHbus brevmscuhs, stiobilis oblorfgis obtusis 10-15 stichis, bracteolis ldto ellipticis obtusis piomiiiulis extus leviter convexis basi in protubeiantiam purpurascensem expansis — ^ vel 5 In Nova Hollandid orient (Sieb'), in montibus caeruleis, ad Wombat Brush Cannon hills (Cunningham! in h Hook), secus fl Alberts-river in Gippsland (F Muellei !) — Miq Rev p 6 4 tab 8 B Regensb Hoiia 1 c. p 21 c j umild Ottoet Dietr ! Allg Gartenz 1841 p 162, Miq Rev p. 66 tab 8 fig C Ned Kruidk Arch 4 p 10 C dumosa A Cunmngn ' herb C repens hort ex parte G nana Schlechtd ? eicl syn Linsea 20 p 'i74 l^rutex vel arbuscula humilis, rami patentes folns ddnatis stnati in sulcis puben, ramuli haud raro verticillati laete vnides, exsic cati gliucescenes, utpliinnum heptagono teretes faciebus planiusculis utunque id sulcum interjectum plerumquepubeiulum striula elevata notatis internodid ubique auqui-crassa, vagmarum dentes crassiusculi marginibus non extenuati, pallidi vel subfusculi, nascentes subciliolati Amenta masc in exemplanbus austFahcis secus ramulos veiticillata, sessiha vel brevissime pedunculata 3 6 lm longa, 10 16 aiticulata, vagims 5 6-dentatis, in sp cultis horli berol (C punnla) ramulos terminantia, semi-pollicai la Amenta fern lateralia, haud raro gemma cblonga obtiisa bracteia e basi lata lariceoldto-acuminalis bracteolisque ciholatis stiobili bie\ssime pedunculati elhpsoidei obtusi 1J 1 poll longi, 14 15 stichi, bracteis ovatis glabratis, biacteolis suboi bicularibus subtruncatis, extussubconvexis fusciscentibuspuberulis basi protuberantia purpurascente auctis, intus planiusculis secus marginem supe\* noiem fusro tomentellis — F Mueller in litt pro vanetate C stnctae habet sed obstant notae essentialcs. — (v s)

12 C EQLISETIFOLIA (toist Gen. pi. austr p 103 fig 52), ramulis gidcilibus tenumsculis pallide vindibus simplicibus tereti-7-raro 6 vel 8-angulatis mternodus circitei 2 hn longis, vaginalum subtumidularum dentibus utplunmuin 7, ran us 6 vel 8, lanceolatis appiessis, amentis masculis terminahbus raro laterahbus subclayato teretibus, strobilis lateralibus brevi pedunculatis

ellipsoideis truncatis urciter 12-stichis, bracteohs exsertis elhpticis acutis dorso incrassatis *ft* vel 5 In littonbus el planiliebus mantimis ab Africa onentah cahdiore msuhsque vicinis mde per Asiam calidiorem, Archipelagum mdicum, ms Philippinas, Novam Hollandiam, usque in insulis Oceani pacifici dispersa, passim sylvas submantimas constituens In Africa or (Loureiro), Madagascana (Perrottet<sup>1</sup> Giovanni I in h DC PerviH6 n 377' in h Bois ), ins Mauntn (Sieber 2 n 317' Huguenin in h Bois ), Borbonia (herb Mus Pans. I), Peninsul Indiae (Wallich n 6815' Wigt ), in ora Canarar (Metz in Hohenack herb n 811), Chitlagong (Roxb), Ccytonia (Walker' m h Hook), Sumatia (Kortlsl m h L B Teysmmn'), Java (Bl I Jung huhn' in h L B , Zollinger n 32^3, 1407 I in h Boiss), Borneo et Celebes (ex viatorum testimonio), Geiam (de Vnese' Teysrnnnl), Timor (herb Mus Pans! Spanoghe), Amboina alnsque ins Moluccanis (Rumph ), ins Philip pinis (Blanco, Cuming n 730 863') > China, prob austr (Staunton' in h DC ), ins Fijeens (Seemann n 5701 in h. DC et Boiss ) Gualan Arch Manae-Annae (Chamissol Mertens' in. h Boiss), ins Nukavah (Cuming n 1604 in h DC Matthews in h Hook '), ms Amicorum, Societdtis, Marquesas (Barclay I in h Hook), Ita, Taiti (Moerenhouf aluque in h Hook '), Nova Hollandia boreah et onentah (Sieber n. 565, J Verreaux' n 143 aluque), ex F Mueller usque ad ins Curtis et bmum Moreton, —plantata et ererata m alns mundi \ artibus Senegalia (I epneui I Heudelot!), Senegambia (Brunner!), insul Madeira (Lowe'), in insul Indiae occid (conf Gnseb FI W Ind Isl ) Hivannah (Ramon de la Sagral in h DC ), ms Tnmtatis (Sieber n 147' ), Mirador (Linden!) Brasi'ia (Iheiemin! in herb DC) —Ait Hort Kew 3p 320, Lam Illust t 746, Miq Rev p 43 t 5, PI Tungh 1 p. 7, Regensb Floral p 24 37, Blanco Flor Philipp p 661, Gnseb Flor W Ind Isl p 177 C littorea Rumph Htrb Amb \* p 86 t 57, in textu etiam «terrestns » C afncina Lour Cochinch ed. alt 2 p 670 C muncata Roxb Fl Ind 3 p ^>19, Wall herb 6815 F. C latenfioia Poir Suppl 2 p 638 C littorahs Sahsb Prodr p 2 C indici herbanor C Mertensiana Rupiechtin h Boiss « Ingens aibor forma Abietis, sed humihor, nee ejus truncus adeo rectus est, at pa rum incuivus pleruniqu e vix virum crassus, inveniuntur autem quos bini vix complecti possunt vin » (Rumph 1 c) Arbor supia mediocrem, ramislongis diffusis paucis, lamulis frondilens (I e ramis ramuhfens) rechnatis » Rami primdru test? Roxburgh spaisi horizontals apicibus adscendentibus, ramuli extremi saepe penduli — Ramuli saepe paucio verticillati, novelh pubescentes, praeter sulcos vel totietiam glabrescentes, spithamei usque pedales, passim longiores, ex siccati gnseo-vinduh Horatio monoica, sed raro coaetanea, unde plenque auctores dioicam crediderunt Amenta masc plerumque terminalia ramulum f?racilem teimmantia, vel e ramo juniore lateialia et sessiha, } I poll longa, adspctu gnseo-fusca, 15-40-articulata, vagina puberulis glabrescentibus, biacteolae ciliolatae Amenta fern infra lamulos masculos vel inter eos orta, hrevi-pedunculaU, confer ta Strobili ellipsoidei utunque truncati, { pollicares \el et magis elongati pollicis longitudine (v. v et s )

p, *longiflora* (Miq Regensb Hoia 1 c p 21), amentis masc. elongatisglabrs, ramuhs magis spaisis laro fastigiatis, vaginis 7-dentatis In Java (Blume!) An forma montani vel nova species?

- 13 C LEPTOCIADA (Miq Rev p 41 tab 4 fig C), ramuhs simpheibus fihformibus inferne teretiuscuhs, superne angulato-teretibus, internodiis 2-3 hn longis, vaginarum dentibus 6 7 brevi-lanceolatis subpatulis, amentia masc. terminahbus raro lateralibus hhformibus laxiusculis, strobili-> cylindnco ovatis utnquo tiuncatis 10-12-stichis, bracteohs subexsertis apice sulunangulalii rotundatis 5 usque 30 pedalis — In Nova Hollandi i orient (Sieber n. 547 et probab n 61') h Mus Pans'), secus flumen Hastings (Dr Beckler in b Mueller'), New South Walos (Ferd Mueller!) prope Sidney ((loves' Sinclair » in h Hook Dr Logan' J D Hook '), ad 126 mill a Sidney (Stephenson 1 in h Boiss ) in arenosis ad Wombat Br ish (A Matthews' m herb Hook ), bandy-Island Nov Holl austi , pi ope Melbourne (teid Mueller')—Mi^ in Regensb Flora 1 c p 22 et 37 C moesta !\*. Mueller! mss> ap Miq in Nedeil Kruidk Arch 4 p 98 (forma propc Melbourne obseivata vaginarum dentihm

6 raro 5). Ramuli densi verticillati et solitari, dig)tales usque spithamei, vides, vulgo sexangulato-teretes, angulis angustis, laciibus planiusculis in sulco nubescensibus. Vaginarum dentes versus basin subcannati. Amenta masc. J-1 | poll, longa, juniora subnodulosa, vindulo-luscula, 16-24-articulata, vaginis subremotis glabris vel secus sulcos puberulis Strobili fem. infra ramulos masc. laterales breviter pedunculati, in sp nostns lit videtur abortivi steriles, Dracteolis scil. et gem talibus prorsus indistinctis. (Conf. Regensb. Fl. 1. c. p. 37). — In alus speciebus praeter amenta norma gemmae crassobulbiformes dense squaiato-imbncatae observantur, quae an naturales aut morbosae sint nondum satis liquet. — Teste sp. h. DC. (ex h. Deless.) bdec species jam a. 1810 in horto Malmaison? culta! (v. s.).

14. C. HUMILIS (Otto et Dieti. Allg. Gartenz. 1841. p. 163), ramulis simplicibus erectis patulis vel unilateralibus stncils tenuiusculis 5-6-raro 4-angulatis internodiis 1-2 lin. longis, vaginarum dentibus 5-6, rarissime 4, tngulanbus adpressis, amentis masc. terminalibus b^ovibus densifloris crassiusculis, strobilis subsessilibus oblongis utnque obtusis 10-12-slichis, bracteolis haud exsertis depressis, vertice truncato subsemilunari extus carnosio-incrassatis maturis rubescentibus. £ humilis. In Nova Hollandia austro-occidentali (Drummond, n. 732, 7^3, 231, in herb. Hook, et Boiss.), in arenosis inter frutices m. Baldhead (Preiss n. 20031), in planitie arenosa Quangen disti Victoria?, in solo sublimoso distr. Hay (id. n. 2009'), in virgulis saxosis prope Freemantle, declivibus calcareis m. Eli/a, plantie subsylvaticae prope Albany (id. n. 2008'), sinu Regis Groggn (Mac Lean' in herb. Hook.). — Regensb. Flora 1. c. p. 22 et 37. C. Lelimanniana Miq. Pl. Preiss. 1. p. 639, Rev. p. 33 t. 3. fig. A. C. Pieissiana Miq. 1 c. p. 640. Rev. p. 31. t. 2. fig. C. C. selaginoides Miq. 1. c. p. 643 Rev. p. 35. t. 3. fig. B (pi. masc. ramulis unilateralibus). C. tephrosperma hort Hamburg. Miq Rev. p. 31 (pi. juvenilis). Mire ludit statura et ramificatione, sed amentis masculis abbreviatis et strobilorum bracteolis depressis incrassatis baccarum instar incarnato-rubentibus cognoscitur. Rami patentes, subnodosi; ramuli breves, verticillati, oppositi, densi, non raro umbratales, rigidi, recti vel leviter curvati, paltille vides, angulis prominentibus obtusis. faciebus planiusculis\* vel subdepressis, sulco vulgo subtiliter puberulo; vaginitate pallida, dentibus utplurimum 6, raro 5, rarius 7, dorso parum convexis, junioribus tenebrime ciliolatis, adultis glabris, passim spinacelatis In forma quam olim Preissianam dixi dentes 4-6, haud raro 5 esse solent. Amenta masc. 2- vix 6 lin. longa. Strobili maturi usque J poll, longi, / crassi, utrinque truncati, foveis angustis, bracteis in acumen lanceolatum fuscum ciliolatum serius abbreviatum terminatis, bracteolis obtusis nihil exsertis extrorsum tumensibus et coloratis. (v. s.)

P, *macrocarpa*, ramulis crassioribus, vaginarum dentibus plerumque 5, strobilibus oblongo-cylindricis majoribus 1 J-1 | poll, longis. — In Nova Hollandia occid. ad fl. Cygnorum (Drummond n. 238' in herb. Boissier.)

15. C. NANA (Sieber! Nov. Holl. n. 328; Spreng. Syst. 3. p. 804), ramulis simplicibus brevibus tenuibus strictis teretibus 4-plerumque 5-sulcatis, internodiis 1-2 lin. paulo longioribus, vaginarum dentibus 5 raro 4 triangulanbus adpressis, amentis masc. terminalibus et lateralibus abbreviatis ellipsoideis, strobilis subsessilibus. *jj humilis* In Nova Hollandia orientali (Sieber n. 3281); in alpestribus Blue Mountains, secus Cox-river (A. Cunningham! in herb. Hook.). — Miq. Rev. p. 29. t. 2. fig. B, Regensb. Fl. 1. c. p. 23 et 37. Rami foliis adultis diutius persistentibus instructi; ramuli sparsi, erecti. stneti, pallide vel subglaucescenti-virides, 1-2 poll longi, plus minusve teretes vel subangulato-teretes: vaginarum dentes pallide fusciscentes, junioribus ciliolati. Amenta masc. vel ramulos terminantia vel inter ramulos sessilia, 1-1-3 lin. longa, 6-15-articulata. Fem. infra ramulos masc. obvia. (v. s.)
16. C. DECUMNANA (Ferd Mueller Fragm. Phyt. Austr. 1. p. 6), ramulis simplicibus elongatis stnclo-tenuibus obtuse tetragonis, internodiis 1-1 J poll, longis, vaginarum dentibus 4 brevi-lanceolatis acuminatis appressis, amentis terminalibus teretibus confertifloris, strobilibus magnis tomentellis globosis vel r\lindracco-ovatis obtusis 8-stichis, bracteis apice spinuloso-acuminatis, biac-

- teohs txseitls apiculatls. f ID Nova Hollandla centrali, juxta moniem Mueller (F. Mueller) Nondum vldl, sed internodia 1-1} poll, nee totidem lmeas longa, PX Muell. in htt. eigo species itaqiie perdltmcta. — Mlq jn Regonsb. Fl 1 c. p 23.
17. C. TORULOSA (Ait h. Kew. ed 1<sup>o</sup>. vol 3. p. 320), ramulsl bimpheibus capllanbus erectls teretlscuhs junlonbus obscure tetragono-teretlbus, internodlls • li<sup>o</sup> ^ h ^<sup>in</sup> longls, vaglnarura dentlbus 4 brevisslmis tnangulanbus appressls, amentls masc terminahbus filiform>-sluctls, btrobllhs elhpsoideis 8 10-stlchls, bracteohs elllptlcis «ubtruncatls haud exsertls crassls, extroisum ln pnotube-lentlss papillosas extensls J \el 5\* In Nova Holland! orient (^ieber n 327<sup>o</sup>), prope SidneJ (J D Hookei<sup>f</sup>), ln Stradbroom-Island (Fraser ln heib Hook.) a portu Jackson usque ad fl Fitzoy et Burnett, ex F Mueller ln htt — C. tenuissima (Meber<sup>1</sup> Nov Holl n 327, Speng. 1. c. p 804), Mlq. Re\ p. 39. t. 4 fig. B, Regensb H.I cp 23 et 38. Pnmo adspectu C leptocladae simlhs, sed dentlum numero statlm dignoscenda Ramuh densl, spithamei, rectl, pallldl vel subglauco-vlnduh, adultlores 4 sulclsl vulgo pubeulsl ln-structoraglnarum denles lunlores tenemme ciholatl, dem glabll Amenta, masc 12-20-articulata, \aglnls contlgulsl nee lmbricatls, hracteolte subcllo latae, amenta fem lnfra ramulos masculos exorta, pedunculata, ovato globosa vel oblongo-obovata, matura seu stroblll elhpsoidei \cl obovoidei, utrlaque obtulsl, vulgo pollice longlores, haud raro quam tenemme puberulsl, bracteis latls, marglne supenore tnangulanter acutatlsl, acumlnne pubeululo, bracteohs haud plomlnentlbus elllptlcis subtruncatls, extus papillosls lntrus laevlbus et hirtellulsl Hanc pro vera C. torulosa habendam esse, monulit Fr. Mueller ln htt (v. s )
18. C. SUMATRANA (Junghuhn' ln Tydschr. Natuurl. Geschied 11 p 103), lamulsl densls simpllcibus tenuisslmis stnctls acute tetragonls, internodns ^lin circiter longls, vaglnarum dontlbus 4 brevibus lato-lnangulanbus obtuslus ^cuhs, strobllhs subterminahbus magnls elllpsoldeis vel globoslsl, bracteis crassls vertlce concavo-truncatls, bracteolsl exsertls elllptlcis acut^s extus convexls § In Sumatra plaesertlm boreall et occldpntah, ln planltlebus montanls (Junghuhn' Teysmann' Diepenhorst' do Vnese, /oil 1 n. 164. coll 2), Borneo austr m m Pamatton (Korth.lsl' ln h Lugd Bat), plobabliler ln Celebes et Ceram ex Rumphn synonymo. — Do Vnese PI Nov Ind. or bit p 2 t 1 (quoad fructum erronea), Bot ZeL 1844 n 31, Mlq .Rev p 19, Pl. lungh 1. p 6, Fl Ind bat I p «7 J, Suppl 1 p 141, Regensb. Flor I.e. p 24. Casuanna Celebide fructus Rumph Herb \mb 3 p 87 et 98, t 48. fig A. Arbol sls alta, truncopedern classo, coma lotundata, ramulolium structuall C nodiflorae et Rumphlanac ploxlma, sed strobllsl omnium propemodum maximlb (1 \ poll longls) longe diversa In Sumatra Andur Mangan battalce Malabut, Ijumulal vel Pitungang pipi malaia dicta Ramuh saepe scoplrorml-confertl, vulgo haud longl. Amenta masc nondum observata Strobllsl subteimmales, ln bractearum dorso mucro exllsl superstes, blacteolae ln Iructu Immature arcte claus<e corpusculum conlcum reierentes, dein separatae satls crassae (v s.)
- 19 C RIMPFIANA (Mlq ln Regensb Flora 1865. p 23et38), ramulsl ultimls secus ramos tenues subpinnallm dispositls simpllcibus vel plerumque altemo ramulosls hhhforml-stuclsl tetraj?onls, mtefnodlls ^-2^ plelumque rncitei 2 ln longls, vaglnarum dentlbus 4 brebus anguste ovatlsl acutlscuhs subcannatls margmlbus extenuato-palhdls appressls, ^trobllsl subterminahbus vel ln ramulo subterminall paucsl pedunculatlsl subglobo^s clrciter 8-stlchls, bracteis vertlce truncatls toldato-sub-4-angulsl, blacteohs alte exseultsl elllptlcis oblique acutls 5 In Amboina, remolius a man, teste Kumphlo ln montl-buJ» et planltlebus, Rein\\aidtlusI stenlem, leysm^nn et de Vnese I fructlferam lepenebant. In ins Bouiou stcnl. (Labillaldcre ln h. Boiss ') — Mlq Rev. p. lb sub C nodifloid prousone C montana Rumph Herb Amb 3 p 87 partlm, tab 58 excl. fig \ (satls bona) Pulchra species, quaj strobllorum situ subterminall ramulsl tenulbus, internodlls mladndenlatls cum C Sumatrana et nod 1 flora congruit Raml graciles, lamulsl subasquilonglsl 3 4 7 poll longls alternls flhformLbus obsltl. Intefnodla exsiccata sub-4-angula. Amenta mast, incognita Strobllsl haud numerosi, pedunculatl, aln laterates

- solitarii, alii in ramulo brevi pauci conferti, echinato-subglobosi, cerasi mole; bractee parvae, bracteolae baud crassae. Ramuli adhuc tenuiores quam in *C. nodiflora* et *Sumatrana*; bracteolas tenuiores et brevioresque quam in illa, (v. s.)
20. *C. NODIFLORA* (Forst.! Prodr.Fl. Ind. austr. n. 335), ramulis tenuibus breviusculis indivisis vel pauci-ramulosis\* tetraquetris, internodiis  $\frac{1}{2}$ -1 lin. longis, vaginarum dentibus 4 ovato-triangularibus acutis vel acutiusculis cariuatis pallido-marginatis appressis, amentis masc. terminalibus breyibus passim basi compositis, strobilis subterminalibus subglobosis parvulis circiter 8-stichis, bracteolis ellipticis alte exsertis haud crassis. s vel 3? In ins. Hebridis (Forster! h. DC), Nova Caledonia (Labill.! Deplanche n. 112! in h. L. B.). — Thunb. Nov. Gen. 2. p. 54; Gaertn. fr. et sem. 2. p. 63. t. 91; Miq. Rev. p. 15. t. 1. fig. A; Fl. Ind. bat. 1. p. 873, excl. syn. Rumph.; Regensb. Flora 1. c. p. 33, haud Otto et Dietr. Allg. Gartenzeit. 1841. p. 164. *C. verticillata* Lam. Rami ramulique subdivaricati, hi non raro subramulosi. Amenta masc. usque 6 lin. longa, basi saepe parvulis aucta, vaginis quadridentatis fuscis. Strobili in exemplaribus novo-caledonicis a Deplanche lectis (quae ramulorum internodiis 1 lin. longis dentibus ovatis obtusulis varietati sequenti accedunt) numerosi, breyiter pedunculati, depresso-globosi, J poll, vix lati, bracteis transverse latis, apice (ubi denticulus superest) et basi concavi, lateribus incrassatis, facie extrorsum concava bracteolae ellipticae alte exsertai basi adpressis. (v. s.)
- (3, *robusta* (Miq. Rev. 1. c), ramulis ultimis plerumque regulariter alternis elongatis tenuiusculis subflaccidis saepe indivisis tetraquetris, internodiis 1-2} raro fere 3 lin. longis, vaginarum dentibus 4 late ovatis obtusissimis albido-marginatis appressis extus convexis basi tantum carinatis, amentis masc. . . . , strobilis subterminalibus depresso-globosis, bracteolis altissime exsertis. 5 vel 5? In Borneo (de Vriese!), Nova Caledonia? (Labillardière!), ins. Fiji (Seemann n. 571. in h. DC. et Boiss.!). — Miq. Rev. p. 17. t. 1. fig. B (ad exemplar tenerius). *C. Webbia* Miq. Regensb. Flora 1. c. p. 33. Ramuli crassiores longiores, internodiaque longiora quam in specie, vaginarum dentes valde obtusi fere ecarinati. Specimina borneensia robustiora quam reliqua. Exsiccata fuscescit; rami cylindrici calamum scriptorium crassi; ramuli subalterni, usque spithamei, inferne nudi, caeterum ramusculis alternis subpinnatim instructi, qui simplices haud raro J-<sup>^</sup> pedis longi, passim multo breviores. Amenta fem. infra apices ramulorum solitaria, lateralia pedunculata, subglobosa, bracteis arete imbricatis triangularibus oblecta; matura lateralia, depresso-globosa, pollice latiora, foveis in singula serie circiter 4; bracteis altissime exsertis ovato-oblongis subellipticisve, dorso leviter convexo striulatis. (v. s.)
21. *C. DEPLANCHEANA*, ramulis ultimis subrobustis strictis verticillatis simplicibus vel verticillato-ramulosis fastigiatis tetragonis facibus sulciformi-demissis angulis obtusis, internodiis 2-2<sup>^</sup> lin. longis, vaginarum dentibus triangularibus inferno tumidis nitidis sursum albidis et membranaceo-extenuatis, strobilis solitariis ramulorum reliquis subrequilon<sup>^</sup>um terminantibus depresso-globosis 8-stichis, foveis fertilibus in singula serie circiter 2-3, bracteis transverse latis basi apice lateribusque concavatis extrorsum tumidis, denticulo terminali evanido, bracteolis exsertis ovatis acutis extus convexis crassiusculis obsolete striulatis. 5 vel J? in Nova-Caledonia (Deplanche n. 113! in h. L. B.). *C. nodiflorae* var. *robustae* non absimilis sed multum differt ramificationis indole, vaginarum dentibus haud obtuso-rotundalis, strobilis vere terminalibus. Ramuli in ramorum 2-3 poll, longorum parte superiore (inferior prorsus nuda) dense conferti, in uno paucisve verticillis plures, stricti, iis *C. nodiflora* var. *robustae* adhuc crassiores brevioresque, 4-2 poll, longi, quorum unus alterve apice strobiloterminatur, in sicco viridulo-atrofuscis, angulis obtusis facie in sicco profunde demissa separatis; vaginarum dentes acutiusculi breves usque ad basin fere liberi, basi ima fusci nitidi, caeterum tenues albi. Strobili J poll, circiter lati, vertice truncati, bracteis bracteolisque ibi more congenerum complurium sterilibus, glabri, pallide fusciscentes, bracteolis exsertis crassioribus quam in *nodiflora*; bractee transverse multo tenuiores quam

longis, dorso medio depressis, lateribus tumentes, eorumque marginibus concavatis bracteolae basin subamplectentibus (v. s.)

22. *C. DRUMMONDIANA* (Miq Rev p 96 tab 1 fig D), lamis lamisque subconformibus rigidissimis, his oppositis et verticillatis patentibus brevibus angulato-lanceolatis, internodiis lineam vix longis, vaginarum denis 6 lanceolatis appressis, amentis masculinis terminalibus ellipsoideo-abbreviatis densifloris, strobilis 5! In Nova-Hollandia australi occ. in fl. Cygnorum (Drummond' in herb. Hook) — Miq. in Regensb Flora 1 c p 34 et 39 Habitu singulari rigido, rarefactione singulorum densatissima ab omnibus valde recedit, sequenti tantum affinis Ramuh paludum, abbreviati, pauci articulati, sexangulato-lanceolati, angulis prominulis, faciebus subdemissis sulco medio gibbo vel puberulo percursis, vaginam dentes parte superiore fusciscescente mox marcescentes, basi vix persistente Amenta nuda breviter, 6-10-articulata, vaginis densis 6-dentatis, dentibus mox truncatis, bracteolae naviculares subciliolatae, perigonum phylla in calyptram conjuncta. glabra. Filamentum longiuscule exsertum aurantio-fuscum, antherae castaneae Strobili nondum observati. (v. s.)
23. *C. MICROSTACHYA* (Miq in Pi Preiss Ip 642), ramis ramisque subconformibus rigidis obtuse tetragonis, his oppositis et alternis quasi dicotomis, internodiis 1-1<sup>1</sup> raro 2 lineis longis, vaginarum dentibus 4 lanceolato-acuminalibus mox emarcescentibus, amentis masculinis terminalibus et lateralibus conico-abbreviatis densifloris, strobilis depresso-globosis 7-stichis \* In Nova-Hollandia austro-occid., in regione fl. Cygnorum (Drummond!), in solo sublimoso distr. Hay, Perth Preiss n. 1997, 1999', ad fl. Cygnorum (Drummond n. 434! series 4 in h. Boiss) et forma omnibus partibus tenuior in distr. York (Preiss n. 1997'). — Miq. Rev p 24 tab 1 fig E et E' (forma tenuior), Regensb Flora 1 c p 34 et 39 Frutex 1 3 pedalis, ramosissimus, habitu smugulans, ramus cinereo-vel glaucescenti virides, tetragoni, angulis obtusis repando ciliolatis, faciebus subdemissis, juvenum in sulco puberulis Vaginarum dentes nigrescenti-fusci, cito sphacelati, dein truncati. Amenta masculinissima castaneo-fusca, vaginis ad basin usque in dentes 4 ovatis acuminatis tenere ciliolatis divisis, bracteolae canaliculatae naviculares, ciliolatae, perigonum phylla saepe jam ante dejectionem separata, anthera subglobosa, — Specimen Drummondiano strobili graciliori adjectus est strobilus maturus separatus depresso-globosus cerasi majoris mole 7-stichus, foveis in senis perpendicularibus paucis, bracteolis prominentibus ellipticis dorso lato tuberculato mucronatis. — (v. s.)

Sect. n. *AGANTHOPITYS* *ttqx.* in *PI Preiss.* 1 p. 641 — Bracteolae strobili matui in (an duplicatae aut singulae longitrorsae bipartitae?) extenores in longum acumen spinosum excurrentes

- 2'i. *C. THUYOIDES* (Miq PI Preiss 1 p 641), ramis simplicibus tenuibus. strictis pentagono-vel tetragono-lanceolatis, internodiis brevissimis, vaginarum dentibus 5 raris 4 angulato-lanceolatis appressis, amentis masculinis tenuibus brevissimis densifloris, strobilis subglobosis, bracteolis ellipticis lamina in acumen uncinato-spinosum terminata extus auctis, Humilis, 2 3-ped In Nova-Hollandia austro-occidentali, in planitie arenosa Quangen distr. Victoria, in planitie cis flumen Gordon distr. Hay (Preiss n. 2004'), ad sinum Regis Georgan (Baxter' in h. Hook), in regione Swan river (Drummond 1 IQ h Hook in h. DC et h. Boiss. coll. 3. n. 233), per opem Kalgan (F. Mueller in litt) Miq Rev. p. 27. t. 2. fig. A Regensb H 1 c p 23 et 24 Ramus patulius, glabri, nitidulus, 3-6 lineis longis, vaginas paludum, dentibus concoloribus vel apice fuscis Amenta masculina juvenilia haec parum excedentia, pauciariculata Strobili fem. in ramis vetustioribus lateraliter inserti breviter pedunculati, subglobosi, 4-I poll., diametro, bracteolis latis breviter acuminatis puberulis, bracteolarum laminis ceteris in acumen longum spinosum uncinatum alte exsertum terminatis singularem adspicuum piae seferentes. Achaenium compressum subtriangulare atro-fuscum nitidum, alabastrum basi mucronata (v. s.)

25. C OXYCLADA, ramis ramuligenis tetragoois, internodiis 2] I<sup>1</sup> lin IODgis vaginis in dentes 4 lanceolatos ochraceo fuscis patulis partitis, ramulis verticillatis bmodibus, mternodio mfimo breussimo | -vix 1 lin longo basi attenuato apice 4 dentato supenoie 1-lj pollican tereti-tetragono apice extremo acuto fusco (vaginae dentatae rudimento) terniinato, amentis masc in apicibus ramorum lasciculato-confertis, strobilis lateralibus breutei crasseque pedunculatis ellipsoideo-glohis, biacteis vertice lato-concavo truncatis, bracteolis fructifens elliptic<sup>^</sup> Mngulis a dorso lamina elhptica longe spinosodcummata stipalis — 5 vel <sup>^</sup>? — In Nova-Hollandia occid in regione fl Cygnorum (Drummond f a 1848 n 241 et sp masc sine numero, in herb. Bois<>) Omnium maxime singularis species, ramulis folia numerosa sohtana mentientibus pmo ad aspectu et absque fructu Coniferam aemulans, fructus indole C thuyoidi simillima Rami vetustiores atro-fusci, folns prorsus dejectis lapvigati, subcylindnci, rami iarnuhgen digitum usque fere spithamam longi, undique ramuhs patule erectis nunc praeter apicem pallide vinduhs tenuibus ngidis obsiti, huius internodium supiemum folium acerosum vel cladodium referens apice fusco acuto terminatum, qui vaginae dboitivae denticuhs 4 drcte compictis formatur Strobih «atis robusti polhcares, pedunculo crasso bracteato suffulti, lamina bractcolarum ad dorsum dcesoim spmoso acuminatis erectis patulisve echinati Bractae pallidre dorso convexae latiores quam lon<sup>^</sup>ae, vertice quasi semilunatae, angulo utunque apicah acuto Bracteolae fertiles intus pubeiae parum exsertae dorso leviter convexae, e basi lata in longum acumen spinosum excurrentes, cui non raro accedunt acumind lateraha minora que pmo ad aspectu propnas leferunt laminas. Achaenia omnia a ceciderunt Amenta mdsc valde juvenilia bre\ia (v s) Dum haec typis mandarentur eiusdem speciei iconem ineditam misit cl F Mueller, qui C. dcuanam nominaverat (1).

### *Species incerta.*

26. C RAMULIFLORA (Otto et Dietr ' Allg Gaiten-Zeit 1841 p 163), ramulis horizontalibus passim umldteialibus strictiuscuhs 6 8-anguldo-teretibus, faciebus demissis glabns vel m sulco puberuis, internodii. | -|| lin longis, vaginalium dentibus 6 8 saepe 7 tnanguldn-lanceolatis pallidis vel bdsi fuscis, amentis femmeis ramulos ultimos terminantibus j In Nova Hollandia, an austr-occ', culta in hort beiol — Miq Rev p 38 tab 4 fig A, Regensb. Flora 1 c »p 34 Species humihs, ex specimimbus cultis tantum cognita, amentium fem situ ab omnibus lecedens, omnibus partibus C humih autem adeo simihs, ut dd earn omnino ieferevideatur, tanqudm lus cultura ortus, dmentoi urn situ singularans (v s.)

### *Species delendx*

- L BRUNONIANA (Miq Rev p 21 tab 1 hg C), lor ma juvenilis C equiseli  
tohae
- I i XCKLBA (Dehnh 1 Miq Rev p 23 tab 1 fig F), forma hortensis ( nqmsiii loliao, alia hoc nomine npociminu vuli quee cum Stoudelio ad ( slucluuj le lern possunt
- ( TRUNCAT\ Willd ' tnum h. berol Suppl p 63 C stneta Willd ^p pi 4 p 191 Miq Rev p W tab 6 fig C (haud Ait), ex sp cultis stenhbus tantum co<sub>o</sub>nild, veusimillime ahcujus specierum legitiraarum sjnon}muni
- C SPARSA (Tausch in Flora bot Zeit 1839 p 480, Miq Rev p 78), nimis breviter descripta, ad C stnctdm vel ( equisetifoham lefrrenda videtui
- L TORTILOSA hoit. quoiund el apud Heniy in ISov Act Leop 22 1. t 19, probabiliter sphalmate pro «torulosa» sed icon ipsa potius ( stnetam icefit
- Nomina nova a Zoologo Swamson (in Gatilogi«i) Casuannae speciebus dm cognitissimis imposita, obltviom tradenda

(1) Women *acuarta* mense Juln 1867 a cl Muellet inulgatum (Frdgm p ic) prnis est, sed linguae latinae ahenum (Alph. DC ),

DICOTYLEDONEÆ GYMNOSPERMÆ (1). — Embryonatae Synrhizae Rich, in Lindl. *obs. on the struct. of fruits and seeds, transl. from Anal. fr. p. 81* (1819j). — Phanerogames Gymnospermes Brongn. *prodr. veg. foss. p. 88* (1828). — Gymnospermae Lindl. *nixus p. 20* (1833), *excl. Equisetac, ejusd. intr. to nut. syst. p. 245; Endl. gen. p. 258.* — Tympanocheuc Mart, *comp. p. 11* (1835). — Gymnogens Lindl. *veg. kingd. p. 220.* — Dicotyledones Gymnospermes Brongn. *enurn. genr. p. XXXII* (1843). — Anthophyta, 1, Gymnospermae A. Braun in Aschers. *Fl. Brand, p. 26.*

Flores plerumque unisexuales, simplicissimi; masculi e squamapollinifera, feminei ex ovulo apicali, velsecpius ex ovulis in margine folii aut prope basim squamae axi lateralis constantes. Ovula ovario orbata, omnino nuda, vel rarius (in Gnetaceis) tunica aperta (perigonium?) cincta, frequenter polyembryonata. Tubi pollinis intra membranam grani intimam formati; evoluli demum cellulas quasdam, corpuscula dictas, in suprema parte sacci embryonalis, tangentes. Proembryo intra corpusculi inferiorem partem, e cellulis numero quaternario constans, extra corpusculum per centrum endospermii fila suspensoria elongata sinuosa emittens embryonem extremitate gerentia. Cotyledones 2, nonnunquam partitae. — Arbores vel frutices; vegetatione praesertim ex gemmis terminalibus; vasis ligni poris umbiliciformibus scatentibus; in foliis exstipulatis, plerumque ad membranas tenues vel squamas vel limbum anastomiasimum reductis; floribus vulgo in strobilo dispositis, bracteis interdum sub singula squama ovuligera.

Ex embryone et ligno externe accreto a Dicotyledoncis non diversae, sed modo fecundationis Cryptogamis vascularibus affines. Habitus in Cycadaceis fere Palmarum, nec non Filicum et Lycopodiacearum, quibuscum oim in terra frequentiores vigerunt.

Aliae Dicotyledoneae sunt Angiospermae (Lindl. *Introd. to bot. 1830*) quae Thalamifloras, Calycifloras, Corollifloras et Monochlamydeas supra enumeratas complectuntur.

Plura de morphologia Gymnospermorum controversa sunt aut fuerunt. In

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(1) Auctore Alph. de Candolle.



hisce Prodiomus statum scientiae quodammodo repiaesentat, etc Dim in praesenti Utulo et infra in Cyeadaceis sententiara ill Brown de ovulo nudo admisi, quum amiciss Parlatore aham, ovarn monospermi, in Gnetaceis et Conifens sequutus sit, diversitas quae verba discrepantia in characteribus ordinura mtroducitur, sed parum valet in discimine generum et speciesierum — Omnibus per-pensis, et Cyeadaceis praesertim nisus, ovulum nudum esse me sident

1° Evolutio partium quae in ovaris centupeta, in ovulis centifuga, et in semine Cyeadacearum et Coniferarum quoad iarlem a pluribus ovarum aictam si mi liter centifuga

2\* Semina in Cornifens interdum (Podocarpus) anatropa, quod in ovaris hucusque cognitis non adest Ft enim ovaria gynobasica Labiaiaium, etc, ubi ex foima aliquid simile videtur, sunt ovaria gibbosa, quorum pars superio-ri (stigmata) a basi valde distans remanet

3° Insertio quae ovarum est, nee ovarum si e flors Nascuntur enim semina in Conifens et plensque cyeadaceis e basi aut juxta basim bractaeae, nunc prop-hylis (Caspary infra cit), nunc iolio ipso bracteah (Dickson, de Dammara, infr cit) repondentis, ut ovula in pluribus plantis, et in Cycade ex ipso mar-gine folii, ut stppissime in Phancrogamis Prolificatio e margine folii gemmas (ut in Bryophyllo) aut ovula frequenter gignit nunquam ovaria, id est flores, et equidem inflorescentiae veie epiphyllae, rarsissimè, mihi solum in quibusdam Begonnis cognitae (Prodr 15 sect 1 p 353,354), peduncirium pia benè t apice petioli, nee e periphaena limbi ut ovula Cycadis

Transitio ad Angiospermas adest in Gnetaceis, ubi procosus ovulo exte-riores et praecocios pergonio, potius quam ovario, compaiandi videntur (Conf ad Tulasne et Eichler in Fl bias, fasc 34, et Hook f de Welwitschia)

Qui dubia scrutare vehnt conferant praesertim ad soquentes

De origine embryonum et fecundatione H Brown in Rip bnt. assoc 1834 et (tmntegrum) in Ann sc nat 184 J, p 195 / 5, liq. sig forstl Culturpfl (1840) t 25, Mirb et Spach in Ann vc nat 1843, v 2, Geleznoff in Ann &c nat ser 1 i 14 (1850) p 207 I lo, Hofmast hok. Kryptoy und Conxf (1851) p 126 t 27 33, Schacht licitr (1851) p J24, lehrb 2 p 401 t 250 der Baum rd 2 (1860) p 273 f 185, 186

De cotyledombus in quibusdam Go infer is partitis nee multiphribus DuchartTe m Ann. AC nat ser 3 ? 10 p 207. t 9, 10

De squama pollinifera, praesertim Coniferarum Mohl, ueb. mann Blüth d Comf m Verm Schnft p 4', t 1

De squama fructifera Goniterarum Caspary, de Abietin fl fern, m-4°, Ilegiomont 1861, Dickson, infra cil.

De ovulo nudo aut ovulo intra ovarum — 1° Pro ovulo nudo fl Brown, on the struct of the unimpregn ovulum in Append to King's toy tn-8° (1825), gallice m Ann sr nat. ser. 1. v 8 p 211, german m Br Qermischte Werb 4, D. Don m Trans Linn we 18 p 163 (1838), Fielder in II Brasil fasc 34 p 441, E. Fatre, flews fern Podoc, m Ann sc. nat ser 5 t.3 | j 379, Hartig, Hofmeister, Caspary, Schacht, II cc, Lindl, Endl, Mohl, A. Braun, passim in div op — 2° Pro ovario clauso monospermo Rich Mem Comf et Cycad. in 4° (1826) c. tab 29, Mirb et Spach I c J G Agardh theor (1858) p. 317 323, Hemzel, de Macrozamia, in Nov Act Nat Cur (1844) t 21 p 1. p 203, Batllon, Rec d'obs 1 p 1 (1860), Dichson, devel. Nm fl Dammara, w Fdmb n phil journ Jul Oct. 1861. p 18 J t 4, Parlat in tomp rend Acad sc Par 9 juill 1860 et fevr 1861, Studu organ dell Comf in 4° (1864) t 1-3.

De hisce omnibus et alus confer ad Cyeadaceas infra descr et ad egregiam jam cit disertationem cl Eichler Excursus moiphologicus di format flow\* Gymnosy in Fl brasii. fast 34 et m Ann si nat ser 4 i 19 p 257

Ordo CXGVIII. GNETACEJE (1). — Coniferarum pars *Linn. Phil, bot.p.* 28. — Urticarum et Goniferarum pars *Juss. Gen.' p.* 406 et 411. — Taxinearum et Ghlorantharum pars *Bartl. Ord. nai.* (1830) *p.* 86 et 96. — Gnetaceae *Blume nov. fam. exposit.* (1833) *p.* 23 et in *Ann. des sc. not. 2<sup>me</sup> sér., 2. p.* 101 ; *Lindl. in Bot. Reg.* 1686 et *Veg. Kingd. p.* 232; *C. A. Mey. Ephedr. p.* 62; *Endl. Gen. pi. p.* 263, et *Conif. p.* 247; *Carr. Gonif. edit. 2. p.* 753; *Parl. Fl. ital. 4. p.* 98. — Taxinearum trib. *Ephedreae Spach Hist, des vég. phanér.* (1842) 11. *p.* 290. — Coniferarum Iribus IV Gnetaceae *he Maout et Decaisne Traitè gén. de bot. p.* 539.

Arbores aut arbusculae ramosissimae vel frutices sarmentosi, aut suffrutices humiles, gummi translucidum saepe exsudantes. Truncus cortice saepe rimoso, ligno e cellulis porosis et interdum vasis areolatis vel spiralibus radiisque medullaribus composito, ramosissimus, rarsissime simplex et crassus. Kami oppositi vel fasciculati, nodoso-articulati. Folia opposita, late exstipulata, penninervia aut raro nervis parallelis notata, saepe ad vaginam minutam apice 2-4-dentatam, demum laceram reducta, dentibus interdum in folium breve strictum abeuntibus. Flores dioici vel monoici, raro polygami, interdum paleis setaceis laceris vel filis articulatis (bracteolis) immersi. Amenta masculina solitaria vel 2-pauca aggregata aut fasciculata, sessilia aut in pedunculo simplici vel subramoso aut rarissime dichotome ramoso solitaria, globosa vel cylindracea aut oblongo-cylindracea. Bractae plurimae, decussatim oppositae, plus minusve in involucrum (vagina Endl.) bilobum bifidumve aut in discum connatae, rarissime (in *Welwitschia* amentis hermaphroditis) distinctae. Bracteolae 2, singulo flore insidentes, simul connatae et involucellum (Perianthium Blum. Hook. fil. Perigonium sive vaginula Endl.) apice bilobum et formantes, rarissime (in *Welwitschia*) 4, per paria oppositae, exteriores angustiores, omnes basi in tubum coalitae. Calyx et corolla nulli. Stamina 1-pauca, e fundo involucelli orta. Filamentum simplex vel apice bifidum vel filamenta basi in stipitem apice saepe ramosum aut basi in tubum coalita. Antherae biloculares, rarissime triloculares, loculis contiguis vel in filamentis cruribus sejunctis, apice rima transversa demum poro dehiscentibus. Pollen ovale leve. Amenta feminea solitaria vel 2-pauca, sessilia aut subsessilia aut in ramulo brevi vel longiusculo erecta, cernua vel pendula. Bractae paucae vel plurimae, decussatim oppositae, in involucrum (vagina Endl.) bifidum bilobumve plus minusve aut ad basim tantum connatae, plus minusve imbricatae, inferiores

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(1) Auctore Philippo Parlatores.

saepius minores, iu fructu saepe incrassata\* et carnosaa\*, rarius aridae. Bracteolae 2-4, decussatim opposite, simul coalitae, urceolum simplex vel duplex, initio bifidum vel fissura longitudinali notatum, apice, pro styli emissionem perforatum et pistillum includens, efiormantes; urceolum exterius raro in fructu ampliatum et alatum. Pistilla solitana, ad axillas bractearum omnium, aut floribus masculis vel in disco carnosaa e bractearum coalitione efformata intermixta, erecta. Ovarium uniloculare, uniovulatum. Ovulum erectum. Stylus longiusculus, saepe teres, rectus vel tortus. Stigma oblique ligulatum vel disciforme aut fimbriatum, in floribus Welwitschiae hermaphroditis apice infundibuliforme et papillosum. Fructus siccus, urceolo vel urceolis aridis, membrana<sup>is</sup> aut induratis vel incrassatis bracteisque carnosaa inclusus et spurie drupaceus. Embryo in axi vel in apice aut in cavitate albuminis carnosaa vel dense carnosaa, nunc ejusdem longitudinis, nunc parvus et in filum longissimum flexuoso-intricatum desinens. Cotyledones 2, nunc amplae, nunc parvae et iere dentiformes. Radicula superior, saepe incrassata.

Orioo naturalis inter Coniferas et Casuarinaceas fere medius, ad illas et praesertim ad Taxineas pistillorum et fructuum structura summopere affinis, ad has ramorum ramulorumque articulatione et amentorum fabncapraecipue accedens, attamen a Coniferis, ni fallor, ligno etcqrtice resina carentibus sed tantum gummi exsulantibus, ramis articulato-nodosaa, foliis oppositis et saepe penninerviis, bracteis sive squamis oppositis, antheris 2-3-locularibus, loculis apice poro dehiscentibus, stylo et stigmate magis manifestis et embryonis radicula sa<sup>pe</sup> in filum longissimum desinente, certe distinctus, per Ephedram ad Casuarinaceas et per Gnetum ad Chloranthaceas transiens.

- I. GNETUM *Linn. Manl. p. 125; Blume Nov. fam. e.rposit. p. 25, et in Ann. des sc. nat. 2<sup>m</sup>>ser. 2. p. 102, in Rumph. 4. p. 2, et Mus. hot. 1. p. 27; Brongn. in Duperr. vol. 2. p. 5. t. 1; Endl. Gen. pi. p. 263 et Conif. p. 249; C. 4. Mey. Ephedr. p. 63; Tul. in Ann. sc. nat. ser. 4. r. 10. p. 112. et in Mart. Fl. bras. fasc. 33; Carr. Conif. edit. 2. p. 755. — Thoa Aubl. PL de la Guyan. 2. p. 874. t. 376. — Abutua Lour. Flor. Coch. 1. p. 775. — Gnetum Rumph. Amboin. 1. p. 181. tab. 71, 72. — Ula Rheed. Hort. Malab. 7. p. 41. f. 22.*

Flores monoici vel rarius dioici. Amenta axillaria raro etiam terminalia, solitaria vel 2-plura, fasciculato-conferta, simplicia vel subracemosa, cylindracea, articulata, interrupte verticillata, verticillis singulis bracteis in disco sive involucrum peltatum simul connatiscentis. Flores paleis setaceo-laceris, laciniis filiformibus, articulatis (bracteolis<sup>is</sup> immersis, nunc masculi et feminei in eodem verticillo mixti, nunc in verticillo osdi versos vel in amenta propria interdum in diversa stirpe segregati. Masculi bracteolati; bracteolae 2, simul connatae, involucellum bivalve efformantes. Stamen unicum e fundo involucelli ortum. Filamentum simplex vel rarissime apice aut profunde? bifidum. Anthera bilocularis, didyma, loculis contiguis vel in filamenti cruribus sejunctis, apice rima transversa

demum poro dehiscentibus. *Feminei*. Involucellum nullum : Pistillum solitarium, erectum, bracteolatum. Bracteolae 4, per paria oppositae et coalitae, urceolum duplex utrumque apice pro emissionem styli perforatum et pistillum includens et Tormantes. Pistillum solitarium. Ovarium ovoideum vel oblongum. Stylus longus, filiformis. Stigma-fimbriatum. Fructus urceolis succulentis vel rigide coriaceis spurie drupaceus vel nucamentaceus. Embryo in apice albuminis dense carnosus subclavatus, cotyledonibus duobus minimis denticuliformibus, radícula in filum iongissimum flexuoso-intricatum desinente. — Frutices sarmentosi, rarius arbores erectae, in Asia, praesertim in Archipelagi indici insulis et in America tropica provenientes. Rami oppositi, geniculato-nodosi. P'olia opposita, coriacea, petiolata, petiolis supra sulco, longitudinaliter exaratis et basi connatis, ovata vel ovalia aut ovali-bblonga, inteperrima, penninervia. — Genus in herbariis ob specimina saepissime incompleta et sexuum distinctionem extricatu difficillimum et botanicis peregrinatoribus praecipue commendandum.

1. G. GNEMON (Linn. Mant. p. 125), arbor monoica, ramis articulato-nodosis, foliis oppositis breviter petiolalis elliptico-oblongis vel ellipticis apice subacuminatis basi attenuatis, amentis solitariis vel paucis subumbellatis aul raro vix racemosis, rhachide inferne nuda, floribus crebre verticillato-capitatis, verticillis sub{Jflobosis, drupis subsessilibus rubris ovali-oblongis obtusis cum mucronulo. § Colitur per totum Archipelagum Malaicum et Malaccensem (Rumph. Labill. Blume! Teysmann! Zolling. n. 1315), nec non in peninsula Malaccensi (Griffith!), ubi folia, flores et fructus ab indigenis comeduntur. — Blume! Nov. pl. fam. p. 30 et in Ann. des Scienc. nat. 2<sup>e</sup> série, t. 2. p. 105, et Rumph. 4. p. 3. t. 176; Brongn. ad Duperr. 6. t. 1; Endl. Conif. p. 250; Carr. Conif. p. 53fi. Gnemon domestica Rumph. Amboin, I. p. 181. t. 71. 72. *Gnemon Gnemo, Medinjo, Utta Sod*, Malacc. Malay.

P, *sylvestris*, foliis minoiibus, drupis obtusioribus. In montibus Javae et aliar. insul. Malaccensium (Rumph. Blume!), in Amboina, Gerama et in insulis ad Eurum sitis (Rumph.). Gnemon sylvestris Rumph. Amboin. 1. p. 183. t. 73. Gnetum ovalifolium Poir. Suppl. 2. p. 810. G. sylvestre Brongn. ad Duperr. p. 12. G. Gnemon B. ovalifolium Blume 1. c; Endl. 1. c; Carr. 1. c. Arbor, trunco recto, cortice aequali ac cinereo, in vetustis truncis parum fisso. Folia integerrima, supra viridia et lucida, subtus nervis paucis ramosis prominentibus prsdita, in plantis cultis majora 10-16 cent, longa, 5-6-J- cent, lata, in sylvestribus 7-8 cent. longa, 2<sup>^</sup>-4 cent, lata, omnia in sicco semper luteo-viridia. Amenta axillaria, solitaria vel pauca, erecta, simplicia, raro vix ncemosa, monoica. Rhachis compressa, latiuscula, inferne nuda. Flores crebre verticillati, verticillis subglobosis. Mascui. Involucellum proprium, obconicum, truncatum. Stamen unicum. Filamentum demum elongatum involucello subduplo longius. Anthera bilocularis, oculis discreis, rima transversa apice dehiscentibus. Drupae plus minusve olivaeformes, apice acutiusculae vel rotundatae cum apiculo, primo virides dein luteae, demum rubentes vel sanguinei colons, 20-24 mill, longae, 10-12 mill, latae. (v. s.)

2. G. GRIFFITHII, monoica, ramis articulato-nodosis, foliis oppositis breviter petiolatis oblongo-lanceolatis apice acuminatis basi vix attenuatis, amentis solitariis brevibus racemosis, racemis ramosis, ramis 2 inferioribus oppositis. sa3pe amenta mascula gerentibus, floribus femineis dense verticillato-spicatis, drupis subsessilibus ovali-globosis vel ovalibus obtusis cum mucronulo. In peninsula malaccensi (Griffith!). G. Brunonianum Griffith? in Lindl. Veg. Kingd. p. 233. Folia coriacea, in sicco lutescentia, 8-11 cent, longa, 3 cent, fere lata. Amenta menoica, solitaria, opposita 2-2{ cent, longa, erecto-patula vel subrecurva; rhachis tertio inferiore ramosa, ramis 2 oppositis, sa3pe amenta mascula breviter gerentibus, reliqua parte s?epissime feminea : flores feminei dense verticillati et fere in spicanj continuam dispositi. Nuculaa parvse 12-13 mill, longae, 8-9 mill, latae, obtusae cum mucronulo. (v. s.)

- 3 G LATIFOLIUM (Blume Nov pi. fim p 30 et in Ann des Sc nat V ser 2 f) 105), arbor dioica, ramis articulato nodosis, loins oppositis breviter petiolatis elhpticis subacuminatis basi subrotundatis amentis masculis subracemosis, inachide basi longo tractu nuda flonbus dense verticillato spicatis drupis bievitei pedicellatis ellipsoideis obtusis 5 In monlibus lavae (Blume'), Nova Guinea (Zippel ex Blum), impeno Nirmino (Griffith' n 4977), et prope Mandagiram in India citenore (Hohenack » pi Ind oi n 489 et 2\*\*9) in ins Luzon Pihppinarum (fuming n 1S49) — Presl Epim bot p 236, Endl Conif p 211, Carr Conil p 538 G pynfohum Miq in Hohtn pi exs *Kansunca* Javan Folia maioia quam in On Gnemone, 10 20 tent longa 5-8 cent lala, exsiccata semper nigiesceniia Rhachia amentoium masculorum inferne longo tractu nuda, subiacemosi verticilli floium dense capitati et ferp in spicam continuam cylindraceo nodosam. dispositi Diupae 28 30 mill longae, 12-13 mill latae, in sicco rugose (v s)
- 4 G NEGLPCTUM (Blume! Rumph 4 p 6 t 17a f 2 et t. 184, et Mus bot 1 p. 28), frutex dioicus saimentosus, ramis articulato nodosis folns oppositis oreviter petiolatis nblonffo lanceolatis acuminatis basi subattemntis, amentis axillanbus solitams geminis ternisve, masculis cylmdraceis, flonbus crebro verticillatis, fcmineis longionbu<-, flonbus rcmotiuscule -verticillatis, drupis sessihbus ovah-oblongis obtusiusculis ^ in nemonbus humidis Sumatrae (Blume•) et Bornei (Korthals') — Carr Conif edit 2 p 762 Folia subconacea, 10 1b cent longa, 3'-7 cent lata lonRiuscule acuminata ludunt basi plus minusve attenuata et raterdum subrotundata Amenta mascula 3 7 cent longa, cylindrarea obtusa, flonbus ciebre verticillaUs feminea lon giora, flonhus in verticillos remotiusculos dispositis Diupx ldeves, aurantid- cae ex Blume 1 >-1b mill longae, 8-9 mill latde (v s)
- p, *microcarpum*, ramulis ad nodos magis inciassatis drupis mmoribus In nemonbus Sumatrae (Kor'halsl), et Javae (/oiling) G *microcarpum* Blume' Rumphia 4 p 7 t 175 f 1 et Mus bot 1 p 29, Carr Conil p VJ4 Quantum ex sicco dijudicare hctt videtur tantum varietas O neglecti Diup<E 12-13 mill longae, 7 mill later (v s)
- 5 G CUSPIDATUM (Blume! m Rumph 4 p 5 et Mus bot 1 p 28), frutex saimentosus, dioicus^, iamis articulato-nodosis, folns oppositis breviter pedicellatis ovah-oblongis apice sdepe acuminatis basi subaltenuatis, amentis sohtarns femineis fililormibus pendulis, drupis sessihbus ovahbus obtusiusculis verrucoso punctatis ^ ID sylvis montanis Sumatra (Blume 1) — Carr Conif p 543 Species mehua in patna illustranda b oha coi lacea, ampla 15 20 vel raro 22 cent longa 7-8 cent lata, inteidum mmoia apice ssepe longiuscule acummata insicco nigiesceniia Amenta non vidi Drupae exdescriptione Blumn croctte, veirucoso punctata , 18 mill longde, 12 mill latae (v s)
- 6 G PANICULATUM (Spruce' PI exsicc e Brasilia n 1923) monoicum? ramis articulato nodosis loins oppositis brevitei petiolatis ovatis v ovahbus brevitei acuminatis v obtusiusculis basi rotundatis amentis subsolitanis vel saepius 6-8 subverlicillatks (lul ) pedunculitis iacemoso paniculatis, flonbus crebie verlicillatis, diupis in Brasilia boreah prope San Carlos ad Rio Negro legit cl. Spruce'— lul in H bras 61^ p 400 t 102 f 1 \*olia conacea, 6-9 cent longa; 4J-5J cent lata, obtusiuscula, mterdum lere obtuse acuminata Racemi subsolitarn , elongati, ramoso paniculati ramis divancatis, amentis bievibus, cyhndiaceis, acutiuscuhs 6 8 mill longis 1J mill latis, flonbus crebie verticillatis Diupas non vidi (v s)
- 7 G LEYDOLDI (Tul m Ann des sc nat 4<sup>e</sup> sei v 10 p 115 et in Mill Hor bras lasc 33-3? p 401 t 103 et 104), monoicum, ramis articulato nodosis, folns oppositis breviter petiolatis late ovatis \ ovato-elhpticis acutiuscuhs v breviter acuminatis basi rotundatis, amentis masculis solitams oppositis pedunculatis racemoso paniculatis, florum verticilhs paucis subapproximatis obconicis drupis . 6 In sylvis pnmsLvis udis Brasiliae boreahs cnca Japura et Noguena prov do alto Amazonas (leyb ) G dioicum Leyb in hb Mait pro parte *Thoa* Brasil Arbuscula glabernma Drupa crasse obovato elhptica et obtuse papillata, polhcem longitudme excedit (lul)
- g G AMAZONICUM (Tul m Ann des Sc nat 4<sup>e</sup> s6r v 10 p 115 et in Mart

- Flor. bras. fasc. 33-35. p. 402. t. 102. f. 2 et t. 105-106), dioicum, ramis crasse articulato-nodosis, foliis oppositis breviter petiolatis late ovato-ellipticis brevissime acuminatis basi attenuatis, amends masc. . . . . femineis paniculalis, paniculis geminatis folio subaequalibus, ramis divaricatis ad nodos bracteis parvis lunulato-reflexis praeditis, floribus oppositis ternis quaternisve in verticillos distantcs dispositis, drupis. . . . In sylvis ad flumen Amazonum circa Ega, prov. do Alto Amazonas (Pocpp. n. 2601. Leyb.). G. dioicum Leyb. in hb. Mart, ex parte. *Thoa urens* Poepp. pi. exs. non Aubl. Frutex glaber-rimus (Tul.).
9. G. THOA (R. Br. in King it. austr. 2. p. 555), frutex monoicus scandens, ramis articulato-nodosis, foliis oppositis breviter petiolatis ovalibus apice sub-acuminatis basi subrotundatis, amentis ima basi femineis, floribus masculis crebre verticillatis, drupis sessilibus ovalibus vel ovali-oblongis acutis. /J ID sylvis Guyanae prope Oyac, Orapu, montem Serpent, Couru alibique (Aubl.) — *Thoa urens* Aubl. PL de la Guyan. 2. p. 874. t. 336. G. Thoa Brongn. ad Duperr. 12; Tul. in Ann. sc. nat. sér. 4. v. 10. p. 114 et in Mart. Fl. bras, fasc. 33-35. p. 401; Endl. Conif. p. 252; Carr. Conif. p. 541. *Thoa* Caribens. Truncus tortuosus, decempedalis, cortice gummi luteum, translucidum exsulantate; rami tortuosi, scandentes, supra arbores etiam proceras sparsi. Folia coriacea, integerrima, viridia, 7-10 cent, longa, 4-5 cent. lata. Amenta monoica, axillaria et terminalia, erecto-palula, 4-6 cent, longa, ima basi utrinque florem femineum solitarium gerentia. Floies masculi remote verticillaii, fere in spicam dispositi. Drupae laeves, rubellae, edules, ex descriptione Aubletii, nam ego non vidi. (? s.)
10. G. NODIFLORUM (Brongn. ad Duperr. I tin. 1. p. 12), frutex monoicus scandens, ramis crasse articulato-nodosis, foliis oppositis breviter petiolatis ovato-ovalibus v. ellipticis acutis y. breviter acuminatis basi rotundatis aut subcordatis, amentis axillaribus folio brevioribus aut subaequalibus, florum verticillis subglobosis longe distantibus, drupis. . . . In Guyana gallica (Melinon n. 108), in sylvis Roraimae Guyanae anglicae (Schomburgk! n. 1013 et 1737). — Tul. in Ann. des sc. nat. 4<sup>e</sup> sér. v. 10. p. 118 et in Mart. Flor. bras. fasc. 33-35. p. 103. Frutex giabeirimus. Folia coriacea, 8-15 cent, longa, 5½-8 cent. lata. Amenta axillaria, an etiam terminalia? 4-10 cent, longa. Flores masculi remote verticillati, verticillis dense subcapitatis, superioribus sensim minibus. (v. s.)
11. G. SCAN DENS (Roxb. Fl. ind. 3. p. 518), frutex dioicus, scandens, ramis articulato-nodosis, foliis oppositis breviter petiolatis ovali-oblongis apicè breviter acuminatis basi subrotundatis vel subattenuatis, amentis masculis solitariis vel fasciculato-confertis cylindraccis crebre verticillatis, femineis solitariis lateralibus et terminalibus, eorura verticillis remotiusculis subcapitatis, drupis breviuscule pedicellatis ovali-oblongis obtusis. J In sylvis India orientalis; Concan (Law!), Chittagong, Sikkim ad 1000 ped. el Khasia usque ad 3000 ped. (Hook. fil. et Thorns!), penins. Malaccensis (Griffith!), insularum Javse et Moluccarum (Rumph. BLume!) et Borneo (Korthals). Ula Rheed. Hort. Malab. 7. p. 41. t. 22. Funis Gnemoniformis Rumph. Amboin. 5- p. 11. t. 7. *Thoa edulis* Willd. Sp. pi. 4. p. 477. G. edule Blumel nov. pi. fam. p. 31, id. in Ann. des Sc. nat. 2<sup>e</sup>sér. v. 2. p. 106. et in Humph. 4. p. 6; Endl. Conif. p. 539. G. Ula Brongn. Duperr. p. 12. G. gnemonoides Brongn. 1. c. *Tali Gncmon* Malaic. *Tankil Assu* Javan. *Walisna* Amboin. Rami flagelliformes e tereti-compressi, ad modos undique incrassato-nodosi, interdum contorti, fusci. Amenta mascula in ramulo nudo, cum amento apice articulato illoque brevior erecta, 3 cent, fere longa, 3-3 ½ mill, lata : eorum verticilli crebri subimbricati. Amenta feminea lateralia et terminalia, longiora et crassiora\*. verticillis remotiusculis vel remotis. Drupaa pedicellata?, ovali-oblongas obtusae cum parvo mucronulo, 22-26 mill, longae 11-13 mill, latae; ex Rumphii descriptione tres digitos transversales longas, ultra digitum latae; semina edulia, lenti nee grati saporis. (v. s.)
12. G. FUNICULARE (Blumc! Nov. PL fam. p. 32, in Ann. des Sc. nat. 2<sup>e</sup> ser. v. 2. p. 106 et in Rumph. 4. p. 7), frutex dioicus scandens, ramis articulato-nodosis, folns oppositis breviter petiolatis oblongis vel oblongo-ellipticis apice

'subacuininaLis basi subattenuatis (amentis subracemosis Biume), ameiitoruni femineorum verticillis remotiusculis subcapitatis, drupis pedicellatis ovoideis acutis. § <sup>^n</sup> umbrosis ad radices montium Javae (Blume!), Moluccarum (Rumph'. \$lurr>e) et Cochinhinae (Lour.). — Brongn. in Duperr. p. 12; Endl. Conif. p. 252; Can\*. Conif. p. 540. Gnemon funicularis Rumph. Amboin. 5. p. 12. t.8. Abutuaindica Lour. fl. Coch. p. 630; Fuss, in Poir. Suppl. I. p. 35. *Gnemon Tali* Malaic. *Soa Wali* Amboin. *Kasunka-Burri* Javan. montic. Truncus et rami inferiores cortice cinereo vestiti, verrucosi. superiores in sicco l'uscuscentes ad nodos vulde incrassati. Folia 10-15 cent, longa, 4-6 cent. lata. oxsiccata subnigroscentia. Fructus maturos non vidi, sed ii, Rumphio teste, primo virides, dein aurantii ac tandem minii coloris; seminaedulia ac'grati saporis. (v. s.)

13. G. VENOSUM (R. Spruce et Benth. Pi. Brasil. bor. exs. n. 1579), frutex monoicus, foliis oppositis brevissime petiolatis ovato-v. ovali-oblongis utrinque breviter attenuatis in utraque pagina exiliter venosis, amentis solitariis geminatisve in paniculam folio brevioris dispositis, florum verticillis minimis remotis, drupis. . . . In ora meridional! fluminis Rio Negro ad concursum usque fluminis Solimões prov. do Alto Amazonas (Spruce a. 1579), in regionis Paraënsis parte orientali (Mart.). — Benih, in Hook. Journ. of Bot. and Kew Gard. Misc. 8. p. 358; Tul. in Ann. des sc. nat. 4<sup>e</sup> sér. v. 10. p. 118 et in Mart. Flor. bras, fasc 33-35. p. 403.
14. G. MICBOSTACHYUM (R. Spruce et Benth. PL Brasil. bor. exs. n. 2314), frutex dioicus, ramis exilibus articulato-nodosis, nodis mediocribus, foliis oppositis brevissime petiolatis late ovatis longiuscule acuminatis basi rotundatis, amentis masculis. . . . . femineis solitariis brachiatis, drupis. . . . In provincia do Alto Amazonas prope S. Gabriel da Gachoeira, secus ripas fluminis Rio Negro (Spruce n. 2314). Frutex glaberrimus ut videtur, docente cl. Tulasne G. venoso affinis, sed ex ejus sententia foliis longe acuminatis basi contra obtusis amentisque unisexualibus distinctus.

*Species a me non visx vel indescriptx.*

15. G. LEPTOTASCHYUM (Blume Jumph. p. 5), dioicum, ramis articulato-nodosis, foliis oppositis breviter petiolatis ovalibus vel ovali-oblongis apice saepe, breviter acuminatis basi rotundatis vel subattenuatis, amentis rasiculatis vel racemosis. . . . In nemoribus regionis australis Insulae Bornei.
16. G. NODIFLORUM (Brongn. ad-Duperr. 12), foliis obovato-oblongis acutis integerrimis, amentis staminigeris 4-5 pollicaribus, verticillis glabris pollice distantibus. In Guyana (Poit.) G. nodiflorum Endl. Conif. p. 253. Videtur affine Gn. urenti.
17. G. NIGBUM (Carr. Conif. p. 545 et edit. 2. p. 764), ramis sarmentosis nigrescentibus articulato-nodosis, foliis ellipticis petiolatis margine subundulatis, . . . Colitur in florto bot. Musei paris. e seminibus a Cayenna acceptis. Folia ex descriptione Carrierii opposita vel alterna. An Gneti species?
18. G. BRUNONIANUM (Griffith in Lindl. Veg. Kingd. p. 233. f. 164). In India orientali. Species haud descripta. An ad Gn. Griffithii referenda?

II. EPHEDRA *Tourn. Coroll. p. 53, l. 477; Linn. Gen. n. 1136; Juss. Gen. p. 411; Rich. Conif. p. 135. t. 4 et 23; Endl. Gen. pi. p. 203; C. A. Meyer Ephedr. p. 63; Endl. Conif. p. 253; Tul. in Ann. sc. nat. ser. 4. v. 10. p. 120 et in Mart. fl. bras. fasc. 33-35. p. 404; Carr. Conif. edit. 2. p. 765; ParU Studii organogr. sui fiori e frutli delle Conifere del Museo di stor. nat. di Firenze ser. seconda vol. 1. p. 172. tab. 3. f. 5-14 et fl. it. 4. p. 100. — Chaetocladius Nelson Pin. p. 161.*

Flores dioici, aut rarius in diversis ramis monoici, filis articulate nullis. *Masculi*. Amenta solitaria vel 2-plura ad ramorum articulos ag-

gregata, sessilia, vel in ramulo (pedunculo auct.) brevi vel breviusculo, articulado vel continuo solitaria, rarius in ramulo paniculato-racemosa, subglobosa. Bractee decussatim oppositae plus minusve connatas et involuorum bilobum bifidumque efformantes, approximatae vel subimbricatae. Flores in singula bractearum axilla solitarii, bracteolati. Bracteolae 2, involucri saepius longiores, simul connatae et involucellum bilobum efformantes. Stamina 3-8 e fundo involucelli orta. Filamenta in stipitem sive columnam, apice interdum ramosam sive in stipitulos divisam coalita, stipite involucellum saepissime superante. Antherae sessiles vel centrales interdum stipitulatae erectae, terminatae, subrotundae vel basi parum angustatae et subcuneatae, biloculares, oculis apice rima transversa demum porro dehiscentibus. *Feminei*. Amenta ad ramorum articulos solitaria vel 2-pauca aggregata, plerumque in ramulo brevi vel breviusculo, articulado vel continuo, recto vel curvo erecta, cernua aut pendula. Bractee decussatim oppositae, simul connatae, involucri 2-d emarginata, biloba vel bifida referentes, involucri inferiora minora sterilia, superius majus 1-2-florum. Pistillum vel pistilla 2, erecta, bracteolata. Bracteolae duae oppositae, urceolum apice pro styli emissionem perforatum et pistilla includens, efformantes. Ovarium saepius ovali-oblongum. Stylus rectus vel tortus, teres. Stigma oblique ligulatum vel disciforme. Fructus saepe spurie drupaceus, e bracteis saepius incrassatis et carnosus vel aridis et nucula vel nuculis inclusis compositus. Semen solitarium. Embryo in axi albuminis carnosus, ejusdem fere longitudinis; cotyledonibus duobus oblongis; radice longa, cylindracea, obtusa, supera. — Frutices vel suffrutices ramosissimi, erecti vel scandentes. Rami articulati, equisetiformes, teretes vel raro subcompressi, vaginati, vaginis breviusculis, saepe 2-4-dentatis, dentibus aphyllis, raro in folium breve abeuntibus.

1. *E. ANDINA* (Pöppig! Pl. exsicc. e Chile austral.), dioica, fruticulus ramosissimus erectus vel subscandens, ramis tuberculato-scandens, vaginis bifidis, laciniis in folium brevem subulatum patulum in ramis junioribus desinentibus, amentis masculis ad ramorum articulos in apice pedunculi vel subsessilibus solitariis aut raro geminis vel ternis, antheris 5-8 sessilibus aut subtessilibus, stipite communi involucello vix duplo longiore, amentis femineis solitariis, ternisve pedunculo longiusculo aut breviusculo recto ovato-oblongis bifloris, involucris 3-5 marginatis bifidis supremo profundius bifido pistilla oblongo-ovalia subaequante, fructibus oblongis dorso convexis facie planis albis vel rubris J. In Peruvia (Pavon! Ruiz! Dombey!), Chachapoyas (Mathews!), in Chili (Cuming! n. 1210; Bridges? n. 1210; Cl. Gay!), in praeruptis alpinis sterilibus de Antuco et in litore arenoso ad Concon (Pöppig!), in praeruptis et arenosis Quillota et S. Fernando (Bertero!), in Andibus de Chilian et prov. Santiago ad 7000 p. et prov. Colchagua ad 2-3000 p., nec non prope urbem Santiago ad 1800 p. (Philippi!), in Cordillera de Maule (Ph. Germain!) — C. A. Mey. Ephedr. p. 78; Endl. Conif. p. 255; Cl. Gay Fl. Chil. 5. p. 400; Carr. Conif. p. 549. *E. Peruviana* Bertero n. 966. Un. itin. *E. americana* Bertero Enum. pl. Chil. in Linnæa 7. p. 46. *E. bracteata* Miers's Travels in Chile and la Plata 2. p. 531; Meyen Itin. 1. p. 313. *E. Chilensis* Miers ex Mey. Obs. bot. l. c. *Frutilla del Campo* Chilens. Fruticulus 6-12-pedalis. Ab *Ephedra vulgaris* affinis, facile dignoscitur antheris fere omnibus sessilibus involucris amentorum femineorum profundius bifidis et margine scariosis. Antheris hinc 5, hinc saepius 6-7 vel 8 et involucris amentorum femineorum hinc vel 5 ipso in specimine plantarum quitensium, peruvianarum et chilensium. (v. s.)

p? *humilis*, caespitosa 1-decim. fere alta, vaginis aphyllis, amentis femineis solitariis. In regione alpina Andium boliviensium ad w, m /uandon1) *E. humilis* Wedd. Sup V tl. Amer. sud. p. 77 Unn. fo' Mif'l v. 13. p. 201; Tul. in Anu. sc. nat. sér. 4. v. 10. p. 124 et in Fl. bras.



- 1 c p 407, Cair Gonif edit 2. p 557 Vidi tantum plantam femineam siccam. mehus in plantis vivis observanda.
- 2 E TWEEDIANA (Fisch et Mey in C A Mey Ephedr p 96 t 5 f 9), dioica, frutex subscandens, ramis laxis patentibus in sicco stnatis laeviuscuhs, vagina brevibus profunde bihdis lacinnis acuminatissubpatulis, amentis masculis ad ramorum articulos sessihbus dggregatis, anthers 4 5 medns vix stipitulatis, femineis sohtanis aggregatisve se&sihbus vel in pedunculo breviusculo patulis subdeflexisve biflons, involucris 6-5 maiginatis bifidis, supremo ad medium bifido pistilla ovalo oblonga subaequante, fructibus <sup>3 \*n P<sup>rovi</sup>ncia</sup> Buenos Ayres prope Bahia Bhnca (Tweedie) et Buenos Ayres'(Bonpl •), in Montevideo (Gaudich i) — Endl Conif p 254, Tul in Fl bras. 1 c, Carr Conif p 547 (v. s tantum pi fern )
3. E ANTISYPHILITICA (C A Mey Ephedr p 101), frutex ut videtur ramosissimus, ramis rectis laeviuscuhs punctatis ad nodos parum incrassatis in sicco secedentibus, agims bre\issimis lacens amentis mascuhs ad ramorum articulos aggregdtis sessilibus, anthers 4-5 substipitulatis, stipite commu involucello proprio duplo longiore, itmineis <\$ In Mexici prov Cohahuila, inter Laredo et Bojar (Berlandier! n 1590), in rupibus et arenosis Llano Estalada et in Pecos (Wlupple et Pope ex lorrey) —Lndl Conif p 263, Carr Conif p 560, lorrey Whipple s Repoit p 84 et Pope s Report p. 19 *Popotio* Mexic Amenta feminea non vidi sed, lorievo teste, 1 2-floia. Nucula saepe solitana, tnquetra nuculae diw, si adsunt, dorso convexiusculae, facie planae. Fructus carnosi (v s)
- 4 E OGCIDPNTALIS (Torrey, ubi?), dioica, frutex ramosissimus, ramis rectis scabnuscuh vel scabns haud secedentibus, vaginis brevibus bifidis, amentis masculis . , femineis ad ramulorum articulos aggiegatis brevitei pedunculatis subceinuis uniflons, involucris sub 5 vix marginatis bilobis, supremo pistillum oblongum aequante \$ <sup>In</sup> levas (herb, berol.)
- 5 E. AMERICANA (Humb Bonpl ' in Wilhi\* Sp pi. 4 p 860), monoica' frutex ramosissimus erectus aut procumbens, ramis fasciculdtis teretibus stnatis scabnusculis, vaginis bifidis, lacinnis in folium brevem subulatum patulum in ramis junionibus desinentibus, amentis masculis in ramorum aiticulis 1-2 sessihbus, anthers h sessilibus capitulum globosum efformantibus, stipite communi involucellum propnum paulo excedente, amentis femineis solitanis vel subaggregatis subsessilibus patulis erectisve biflons, involucris 4-6 vix maiginatis piofunde bifidis, supremo prolongius bifido pistilla ovaha dorso convexa facie plana zequante, tructibus <sup>^</sup> In ruderatis ad thlv Guallabamba et in crepidinibus regionis temperatae regni Quitensis ad 7200 ped (Humb et Bonpl '), in saxosis et arenosis montis Antisanae ad 15600 (Francis Hall 1 Hartw 1 n 1394), in Andibus Bohviae ad saepes prope Sorata inter Poquerdni et San Pedro ad 7800 p <sup>^</sup>Mandon!) E ?n 3079 Humb pi exsicc. in h Willd RunthinHumb et Bonpl Nov Gen et spec 2 p 2, Rich Conif p. 31 tab 29, C A Mey Ephedr p. 97, Endl Conif p 254, Carr. Conif. p. 548 h rupestns Benth » Pi Hartw p 253, Endl Conif p. 255, Tul. in Fl. bras 1 c p 406 exel syn. Paeppl, Carr Con p 548 (v s)
- 6 E TRIANDRA (lul in Mart M bras fasc 33 35 p 408 t 107), dioica<sup>9</sup> fruticulus ramosissimus, ramis teretibus laevibus, vaginis pellucido scanosis cito bifidis, lacinus anguste ovato-acutissimis, amentis masculis in ramorum aiticulis 1-4 sessihbus anguste ovato acutis, anthers 3 sessilibus, stipite communi imolucellum superante, amentis fem solitanis \ subaggregatis in apice pedunculi breviuscul erectis biflons, involucris 3 5 laxe imbricatis bifidis supremo profunde bifido, pistillis oblongo ellipticis dorso convexis facie planis subbreiore, fructibus in Brasilia prov Rio Grande do Sul (h imp bras et Gaudich n 697, 877, 1017, 1743), m agro Montevideensi (Sello ex lul)
- 7 E VDLGARIS (Rich Conif p 26 exel f a D E F), dioica, frutex ramosissimus, ramis lectis tuberculato-scabns, vagmis breviuscuhs bidentatis, demum bifidis, amentis masculis ad ramoium drticulos pedunculatis vel subsessilibus subternis veL solitanis, pedunculo recto, anthers sub-8 centralibus stipitulatis, stipite communi involucelio subduplo longiore, amentis femineis sohta-

riis geminisve pedunculatis, pedunculo recto breviusculo bifloris, involucris 3-4 immarginatis bifidis, supremo pistilla ovato-oblonga subaequante, fructibus subglobosis, nuculis geminis ovato-oblongis facie planiusculis dorso convexis. 3<sup>in</sup> Europa australi et orientali ab Hispania ad Caucasum et in Asia boreali centr. et occid. nempe : in Hispania centrali etaustro-orientali (Clus. Loeffl. Asso, aliique), in arenosis prope Valentiam (Willk.! It. Hisp. secund. n. 507. Bourg.! Pl. Espagn. ann. 1852. n. 1671), in Gallia australi (Dufour! DC! Salzm.! Schimp.! Heldr.!), etc. et occidentali in Armorica (Endress!), in Valesia Seduni aa rupes arcis Tourbillon (Hall.! Thomas, Portenschlag! Kotschy!), in Italia praesertim australi, in rupibus prope Segusium (Rostan!), in Tyroli australi a Doss Trento (Morctti! Facchini! Perini!) et in Valsugana prope Levigo (Montini), insula Pharia (Noé n. 141), in collibus maritimis Latii Japygiae, Lucaniae (Ten.!) et Calabriae (Ten.! Pasquale!), in Corsica (Soleirol. ex Bert.), Sardinia (Mull.! Moris! De Not.! Aschers!), in arenosis maritimis Siciliae (Guss.! Tin.!), in rupestribus Promontorii Mylse (Tin.!), in Rossia merid. ad Saratow (Eichw. Besser!), Bessarabia (Stev.!), Hungana prope Pesthinum (Sadler! Noé n. 142), in rupibus Tauriae calidissimis (Pall.! Bieb. Stev.! Beaupre!), in conyallibus Caucasi orient. (Bieb.), prov. Taliisch (Hohenack.), Armenia ruthenica (Koch!), in litore orient. Caspii, in insula Swiatoi et in montibus Bulcan dictis Turcomaniae (Karel.), in montibus Uralensibus et in desertis finitimis (Lessing!), Scythia (Pander), in regionibus altaicis (Ledeb.! Gebler!), Songoriae desertis (Sievers), ad Irtin fluvium (Schangin), circa M. Targatabai (Karel. et Kiril.), ad fl. Jennesei (Pall!), in montibus sajanensibus (Lessing), in Thibeti regione sept.-occid. ad 7-14000 p. et in Himalaya Sikkim inter 14-17 000 p. (Hook. fil. et Thorns.!) — C. A. Mey. Ephedr. p. 80; Endl. Conif. p. 256; Ledeb. Flor. Ross. 3. p. 363; Carr. Conif. p. 250; Moris! Fl. Sard. 3. p. 555. Uva marina Monspelisium Lobel Ic. stirp. p. 796 cum icon. Polygonum IV Plinii minus Clus. Hisp. p. 163 et 185 cum ic. et Hist. p. 92 cum icon. Tragos Camer. Icon. t. 46. Polygonum fruticans botroides narbon. minus Barr. Icon. 731. f. 2. Ephedra maritima minor Tourn. Inst. app. 633. E. distachya Linn. Suppl. p. 1472; Koch Syn. Fl. Germ. 2. p. 764; Bert. Fl. ital. 10<sup>o</sup>. p. 392. E. monostachya Linn. Sp. pi. p. 1472 et pi. auct. E. polygonoides Pall. Fl. ross. 2. p. 87. t. 83 exclus. nonnull. synonym. E. arborea Lagasc. Bert. Fl. Ital. 10. p. 394. E. minor Host Fl. Austr. 2. p. 671. E. helvetica C. A. Mey. Ephedr. p. 87. f. 10; Endl. Conif. p. 238; Carr. Conif. p. 553. E. intermedia Schrenk et C. A. Mey. Ephedr. p. 88; Endl. Conif. p. 253; Carr. Conif. p. 563. Stirps revera proteiformis unde in multas species vel varietates immerito distincta. Ludit enim statura altiore vel humiliore, quae saepissime in plantis sibiricis occurrit, ramulis rectis vel in plantis ipsis Asiae borealis interdum circinnatis, amentis masculis pluribus, ternis vel solitariis, stylo breviusculo vel longiusculo, recto vel plus minusve contorto, quod in ipso specimine in plantis Tyroli australis \idi. Nulli sunt certe limites inter varietates nam una in alteram transit. (v. v.).

8. E. FRAGILIS (Desf.) Fl. Atl. 2. p. 372), dioica vel raro subpolygama, frutex ramosissimus, ramis ramulisque teretibus rectis vel flexuosis distortis et scandentibus scabris in sicco plus minusve secedentibus, vaginis brevibus 3-raro 4-dentatis interdum foliatis, foliis brevibus lineari-subulatis rectis vel subrecurvis, amentis masculis ad raniorum articulos 2-5 aggregatis raro solitariis sessilibus aut subsessilibus, antheris 5-4 rarius 6 sessilibus, stipite communi involucello subduplo longiore, amentis femineis pluribus subsessilibus vel in pedunculo sive ramulo articulo erecto vel recurvo solitariis, 1-2-floris, involucris 3-2, inferioribus emarginato-bilobis, supremo apice bilobo pistillum plerumque solitarium ovali-oblongum subaequante, fructibus globoso-ovalibus Tel globosis (rubris). J In Europa australi et austro-orientali, Asia occidentali et Africa boreali insulisque Canariensibus; nempe : in Lusitania australi (Brot. Willk.! n. 458), Hispania baetica et regno murcico (Clus.), ad Gibraltar (Schott!), in Aragonia (Asso), in rupibus Montis Sant. Anton, prope Malacam et rupibus prope pagum Alhaurin (B > iss.!), in Sierra de Fuensanta et Sierra de Garrascos prope Murciam (Bourg.! Pl. d'Espagn. ann. 1850. n. 912 et ann. 1852. n. 1672), in ins. Balearibus (Cambess.), in arenosis et rupestribus

- maritimis Sicilian (Guss.! Tin.! Bianca! ipse!), in rupestribus lotius Dalmatiae litoralis (Vis.!), in arenosis prope Torrete et frequens prope S. Girolamo (Petter! n. 358), prope Epidaurum (Clement!), in Macedonia (Frivaldszki!), rupibus prope Thessalonicam (Heldr.! n. 1810), Byzantium (Aucher-Eloy! n. 2872), in rupibus per totam Graeciam (Sartori! Orphanid.! Heldr.! n. 449 et n. 1810. Clement.), montibus Cretae (Prosp. Alpin. Sieb.! Frivaldszki), rupestribus prope Smyrnam (Fleisch.!), in Syria prope Berytum (Labill.! Bové n. 498), Sidinum (Blanche! n. 41), in agro tunetano, in insulis prope Sfax (Kralik!), montibus maritimis Algeriae (Desf.! Bove! RousseU Coss.!), prope Biskra (Balansa! Pl. d'Alg. ann. 1853. n. 1041), in Madera? (Mason), Teneriffa (Webb!, Bourg.! Pl. Canar. n. 469) — C. A. Mey. Ephedr. p. 69; Lindl. in Fl. Graec. t. 961; Boiss.! Voy. en Esp. 2. p. 581; Griseb. Spic. Fl. Rum. 2. p. 354; Endl. Conif. p. 260; Carr. Conif. p. 557. Polygonum IV Plinii majus CLus. Hisp. p. 183, 184. et Hist. Pl. p. 91. 92. Tragos sive Uva marina major Lob. Hist. p. 462. Equisetum montanum, creticum Prosp. Alpin. De Plant. exot. p. 140 cum icon. Equisetum polygonoides montanum creticum Morison Pl. Hist. lib. 3. p. 621. Polygonum fruticans botryoides hisp. medium Barr. Icon. 731. f. 1. et Polygonum fruticans aphyllon crassioribus flagellis Barr. Icon. 732. f. IV? Ephedra maritima major Tourn. Inst. app. p. 663. et Ephedra cretica, tenuioribus et rarioribus flaccllis Tourn. Coroll. p. 53. E. distachya Brot.! Fl. Lusit. 2. p. 6; Asso Stirp. Araff. p. 144; Smith Prodr. Fl. Graec. 2. p. 265, non Linn. E. major Host Fl. austr. 2. p. 271; Vis.! Fl. Dalm. 1. p. 204. E. campulypoda C. A. Mey. Ephedr. p. 73. t. 2; Endl. Conif. p. 259; Carr. Conif. p. 555. E. altissima Boiss. l. c.; Webb! Phyt. canar. 3. p. 276. E. dissoluta Webb! l. c. p. 275. E. Clusii Dufour! in Bull. de la Soc. Bot. 7. p. 445. Yerba de coyunturas Hispan. Specie3 revera polymorpha et immerito in plures species divisa. (v. v.)
9. E. ALTISSIMA (Desf.! Fl. atl. 2. p. 371. t. 253), dioica, frutex scandens ramosissimus, ramis subteretibus, ramulis subcompressis nodosis scabriusculis, vaginis brevibus 2-4-dentatis, amentis masculis plurimis paniculato-racemosis aggregatis vel solitariis pedicellatis vel sessilibus, antheris 2, raro 3-4 sessilibus, stipite communi involucello vix duplo longiore, amentis femineis in ramulo sive pedunculo articulado recurvo-patulo vel deflexo longiusculo solitariis 1-raro 2-floris, involucris 3 immarginatis, inferioribus utrinque truncato-emarginatis, involucro supremo apice bilobo pistillum solitarium ovali-oblongum subaequante, fructibus oyalibus rubris, nucula vel nuculis ovato-oblongis obtusis. 3 In Africa boreali, in arvis Mauritaniae et in Atlante (Desf.!), prope Mostaganem (Balansa! Pi. d'Alger. ann. 1856. n. 186), Oran (Durando! Balansa! pi. d'Alger. ann. 1852. n. 426; Coss.! Bourg.! Pl. d'Alger. ann. 1856- n. 24), Tlemcen et Nemours (Coss. I), Alexandriam (Samaritani!). E Sicilia ubi a Richardo et C. Meyero dicitur aGussonio et a Tineo inventa certe exula. — Rich. Conif. p. 29. t. 4. f. 2; C. A. Mey. Ephedr. p. 67; Endl. Conif. p. 261; Carr. Conif. p. 558; Willk. Prodr. Fl. Hisp. p. 23. Frutex 4-8 metr. altus (Desf.), basi lignosus, cortice cinereo. Rami ramulique e viridi glaucescentes, ramuli oppositi, terni vel solitarii, patentes vel patentissimi, inferne compressi, superne subcompressi, basi nodosi, in sicco plus minusve secedentes. Amenta mascula parva, ovoidea, pallide lutea, in ramulis oppositis verticillatisve patentibus paniculato-racemosa, feminea uniflora, raro vidi biflora, ut ex descriptione eticone Fontanesiana. Fructus immaturus oblongus, involucra e viridi lutescentia, nucula atropurpurea; maturus ovalis, ruber. (v. s.)
10. E. ALTE (C. A. Meyer Ephedr. p. 75. t. 3. f. 4), dioica, vel androgyna (Boiss.), frutex ramosissimus, ramis ramulisque teretibus rectis setuloso-scabris in sicco subsecedentibus, vaginis brevissimis scariosis acute 2-3-dentatis aut foliiferis, foliis 2-4 brevibus vel breviusculis erectis vel patentibus subrecurvis anguste linearibus ciliolatis, ramulis floriferis sive pedunculis verticillatis inaequalibus erectis subcompressis, amentis masculis in apice pedunculorum solitariis aut 3-5 spicato-capitatis, antheris 3-5 sessilibus capitato-congestis, stipite communi involucello proprio duplo longiore, amentis femineis in apice pedunculorum 3 vel 2 aut solitariis 1-raro 2-floris, involucris 2-3 inferioribus emarginato-bilobis, supremo bilobo, nucula vel nuculis ovatis sub-

- breviore, omnibus scanoso marginatis ciliolatis, fructibus 3 in Arabia ad rupes vallis Raphidim et Bestan ad Iadices Montis Sinai (W Schimper' Unio ltin n 280 et J16) in convalhbus Montis Sinai (G Ehrenb ' Aucher-Eloyt n 2873), in rupestnbus & Saba \ersus Mare Mortuum et in saepibus prope Joppe frequens (Kostchy Her Synac ann 1805 n 1118 et 45S), in Persia boreah provinc Ghilaan (Aucher Eloy' n '}>38) et austrah prope Persepohm (Kotschy<sup>1</sup> PI Pers austr ann J84) n 866), Endl Conif p 260, Carr Conif p 556 F foliata Boiss ' Diagn pi orient 7 p 101 E alata Schimp ' pi exsicc non Decsne E cihata Fisch et Mey ! Ephedr p 100. *Alte Arabic FiuteY*, ut videtur, a It us basi lignosus cortice albicante Rami et ramuh teretes, ad nodos mcrassati, setuloso scabn Vaginae in plantis masculis saepissime aphyll\*, in femineis fohatae, folns nunc brevibus nunc longiuscuhs Ramuh florifen in sicco videntur subcompressi, in planta mascula raro abbreviati, unde amenta videntur subsessilia, saepissime elongati Speciem vidi dioicam, nunquam spiculas 2 laterales masculas et nitermediam femineam mi hi videre occurrunt ul ex cl Boissien descnptione (v s )
11. E MONOSPERMA (Gmel ex Amm Ruth p 178), dioica vel monoica, suffrutex ramosus, ramis diffusis, scabnuscuhs in sicco vix secedentibus, vaginis brevibus dentatis vel apice subfoliaceo praeditis, amentis masculis in ramulorum articulis sessilibus sohtarns oppositis parviuscuhs subglobosis anthers 6 8 sessilibus vel centralibus substipitulatis, stipite communi involucello duplo longiore amentis femineis sohtarns oppositis pedunculatis, pedunculo breviusculo continuo recto vel demum retuivato uniflons, involucris 1 2 lmarginatis bifidis, supremo pistillum ovato oblongum superante, fructibus globosis turguhs nuculam ovato oblongam compressiusculam includentibus 5 In rupestnbus et arenosis bibinae baicalensis (Turcz ') et onentahs ad fi Lena (J G Gm<sup>3</sup>l • herb. tisch '), et in Davuna (Turcz ) — C A Mev Ephedr. p 89 t >. f 11, Endl Conif p 262, Ledeb Fl Ross 3 p 664, Can Conif. p S>0 E monostachya Turcz Cat Baik n 1077 E polygonoides Sievers in Pallas n nord Beitr 7 p 174? Suffrutex lepens, humilis, a speciebus affinibus involucro amentorum femineorum supremo amplo, turgido, nuculam excedente optime distmctus (v s )
12. E NEB^ODENSIS (Tin ' in Guss Syn Fl sic 2 p 638), dioica, frutex ramosissimus ramis rectis scabns m sicco vix secedentibus, vaginis longiuscuhs cylindraccis bulentatis demum bifidis, amentis masculis in ramulorum articulis sessilibus sohtarns vel 2 plunbus parviuscuhs suuglobosis, anthem 4 8 sessilibus \el centralibus vix stipitulatis, stipite communi involucellum vix superante amentis femineis sohtarns opposite subsessihbus vel brevitei pedunculatis pedunculo continuo recto vel subrecurvo uniflons ranssime biflons, involucris 2-3-marginatis bifidis, sup<sup>r</sup>emo pistillo ovah-oblongo obtuso subbrevoie, fnictibu<sup>^</sup> ^ In montibus Fuiopse austrahs et Africa? boreahs, nempe in Galha austr ad muros arcis urbis begestorum (Godron') et in vertice montium les Alpines (Huef), in calcareis Hispanise centrals et austrahs, prope Aianjuez (Lange') et alibi, in Italia, in Monte S Manni (Petrucc ), in rupibus ad Narem pio| e Visso (Ottavmn), in Praetutns (Guss »), Sardinia in calcareis montis Ohena ad 4000 p (Moris'), in lapidosis editiorum montium Nebrodum Sicihae a bcalamadaggio (Guss Tin '), alia Colma Grande (Gasparr ) et in valle qua<sup>1</sup> supereminet ad Favan d'lsnello (Tin '), m Algenae montibus, prov Oranensi et cirtensi (Coss ') in calcareis prope Batna (Henon et Lelranc' Fragm Flor Alger exsicc n 382), et in regione alpina ins lenenff<B (Webb'), et in rupibus montis la Fortaleza (Bourç. 1 PI Canar n 470) — Bertol f1 it 10 p 394 exel nonn syn , Moris Fl Sard 3 p 557 Equisetum nebrodense fruticosum, etc Cup Hort Cath p 62 et Iragus sive Uva manna major Cup 1 c buppl alt p 89 E distachyaVill 'H duDauph 3 p 816 non Linn ex loco E fragilis Moris' Stnp Sard Elench 2 p 9 non Desf h equisetiformis Webbl Phyt Canar i p 275 I Villarsn Godr et Gren ' Fl de France 3 p 161 E. Scopana Lang! Piodr fl Hisp 1 p 24 Frutex 1-1 i pedahs, basi lignosus et cortice fusco tectus Rami basi tortuosi, nodosi, graciles, conferti Vaginae juniores cyndraceae, longiusculae, obtuse bidentatae, rufescentes denique bifida\* Fructus m. uio>n 11 Mdi \b iffini I vulgan differt piaeipue antlui^iinn lipiu.

involucellum subsequante, antheris sessilibus vel subsessilibus, bracteis sive involucris amenta feminea stipantibus, marginatis, amentis femineis unifloris vel rarissime bifloris et internodiis in sicco subsecedentibus; ab E. procera Fisch. ramis scabriusculis, involucris amentorum femineorum minus profunde bifidis, pistillo ovali-oblongo, obtusiusculo, utrinque egregie convexo, non oblongo, acutato, lateribus convexiusculo. (v. s.)

13. E. PROCERA (Fisch. et Meyer Index Hort. Petrop. 10 ann. 1844. p. 45), dioica, frutex ramosissimus, ramis rectis kevibus in sicco non aut vix secedentibus, vaginis brevibus bidentatis demum bifidis, amentis masculis in ramorum articulis sessilibus solitariis oppositis parviusculis subglobosis, antheris 5-8 sessilibus vel centralibus vix stipitulatis, stipite communi involucellum non aut vix excedente, amentis femineis solitariis oppositis pedunculatis, pedunculo brevi continuo dein recurvato unifloris, involucris 2-3 submarginatis bifidis, supremo pistillo oblongo acuto subdimidio brevior, fructibus ovato-oblongis vel ovato-globosis ilavis vel rubris, nucula solitaria oblonga acutata. <sup>m</sup> montibus Europae austro-orientalis et Asiae occid., nempe : in Graecia rupibus Montis Menelai et in Monte Kronion Peloponnesi nee non in vertice Hagios Elias jugi Malevi ad 6000 p. et in Pisidia (Heldreich. 1), ad radices Sipyli (Balansa! Pl. d'Orient. 1854. n. 358), ad Troadis rudera (Webb!), in provinciis caucasicis ad Terek (Kolen. Fritsche), prope Tiflis (herb. Fisch.!, C. Koch!), in Imeretia (Guldenst.), territ. Elisabethopol (Hohenack.), Helenendorf (Kolen.!), in provinc. Nakitschiwan et in Persiae prov. Aderbeidschan (Szovics!), in Monte Elwind (Auchei-Eloy ! n. 2825), Monte Sabst-Buschom prope Schiras (Kotschy! Pl. Pers. austr. n. 417). in Affghanistan (Griff. ! n. 4981) — G. A. Meyer! Ephedr. p. 91. t. 4; Endl. Conif. p. 262; Carr. Conif. p. 559. E. graeca G. A. Meyer! Ephedr. p. 93. t. 5. E. major Heldr. ! et Kotschy! pi. exs. non Host. Frutex 1{-2& metr. altus, trunco lignoso cortice cinereo recto. Varietates fructibus flavis rubrisve, teste Kolenati, promiscue proveniunt. (v. s.)
14. E. LOMATOLEPIS (Schrenk in Bull. de la classe physic.-mathém. de l'Acad. imp. des Scienc. de St-Peterb. 3. p. 210), dioica, suffrutex ramosus, ramis ramulisque teretibus rectis tuberculatis, vaginis breviusculis 2-3-fidis, laciniis acuminatis apice leviter recurvatis, amentis masculis..., femineis in apice pedunculi continui 3-5 aggregatis, raro 2 vel solitariis subglobosis bifloris, involucris sub-4 late membranaceo-marginatis vix denticulatis subbipartitis, supremo pistilla ovoidea subaequante, fructibus... 5 Ad lacum Balchasoh in Songaria legit Cl. Schrenk. — C. A. Mey. Ephedr. p. 95. t. 6. f. 8; Endl. Conif. p. 259; Carr. Conif. p. 555. (non vidi).
15. E. ALATA (Decsne! Fl. Sinaic. in Ann. Sc. nat. 2\* sér. 1. p. 236), dioica, frutex ramosissimus, ramis ramulisque teretibus rectis scabris vel scabriusculis, vaginis brevibus 2-3 raro 4-fidis, amentis masculis ad ramorum articulos in apice pedunculorum sive ramulorum abbreviatorum aut subsessilibus glomerato-congestis, antheris 3-8 stipitulatis, stipite communi involucello subduplo longiore, amentis femineis solitariis vel 2-3 ad ramorum articulos sessilibus pedunculatisve bifloris, involucris pluribus profunde bipartitis, laciniis late membranaceo-marginatis denticulatis, superioribus pistilla ovoideo-acuminata dorso acute carinata subaequantibus, fructibus... J In desertis arenosis Africae borealis et Arabiae, nempe : in Algeriae arenosis prov. Oran (Bourg. ! Pl. d'Alger, ann. 1856. n. 25), in arena mobili prope Djebel Oranmer et prope El Abiod Sidi Cheikh (Cosson !), in aggeribus arenas mobilis loco, a copia plants, Oued el Alenda dicto, et ditfone Souf (Kralik! pi. Alger. select, ann. 1858. n. 84 et 85), i' deserto lybico ubi rara et arabico ubi vulgatissima (L'acho! in herb. Kunth), deserto Suez (Bove! n. 215. G. Ehrenb.!), in deserto prope Cahiram (Kralik! Her Syriac. ann. 1855. n. 808), in Thebaida inferiori fiequens (Figari!), ad Sinaim (Bove! Aucher Eloy! n. 2876), in Persia prope Teheran et ad ruinas Persepolis (Kotschy! arm. 1846. n. 51 et 1845. u. 819). — c. A. Meyer Ephedr. p. 94; Endl. Conif. p. 259; Carr. Conif. p. 554. E. altissima Bove in Ann. Sc. nat. ser. 2. v. 1. p. 162. E. strobilacea Bunge! pi. exsicc. Alenda Arabic. Frutex interdum 3 metr. altus (Cosson). Kami oppositi vel a-/\* verticillati. Amentorum leminuorum involucra margins lato albo membranacea, dorso viridia. Fructus maturos non vidi. (v. s.)

*Species dubise-*

- 16 E STENOSPERMA (Sckrenk et C A Mey Ephedr p 77 t 3 f 5), dioica, ramuhs tuberculatis amentis femineis subglobosis biflons, involucus 3 sea noso marginatis supremo ad tertiam longitudinis partem semibifido pistilla subhneana aequante — In Songanae desertis ad fluvium Sarys<sup>c</sup>u in locis arenosis legit cl Schrenk — Endl Conif p 256, Carr Conif p 4>0 Species tantum lamulo plantae femineae a cl Meyero viso et descripto vix cognita
17. E BOTRYOIDES (Fisch in Mey Ephedr p 99 t 5 f 12) ramulis patentissimis deflexis\e tuberculato scabns, vaginis tubulosis bulentatis, peduncuhs lateralibus articuldtis recurvatis amentis masculis racemosis oblongis antheris subquateims sessilibus Patna ignota
- 18 F APHYLLA (Forsk Fl aegyrt arab 6 p 170) Caulis teres, plinitus, articulatus, subdich(tomus, plaber non sulcatus aphyllus, en<sup>^</sup>sitiepennsp columbinae, articuhs sesquipolhcanbus, non hgnosus sed conaceo spongiosus, vinctis, difflusus, altissime scandens Graecis IrocoTa nominis sun litudo spartium diadelphium non evinut, quamquam flores non vidi convmentiam memim cum planta ejusdem formae in insula Imros ohm imenia, quara Lphedram putavi, torsitan vero in utraque deceptus sum Habitat ad Rosettam in sepibus altissimis (torsk 1 c)
- E GFRARDIANA (Wall Gat n 6048, Royle Himalay p 348) Habitat in alta et frigida regione montium Himalayensium Kunawur dicta
- E TRIP ARIA (Torr ubi?)
- E ARBOREA (Ferd Mull) In Nova Hollandia onentah, Newcastle RangQ (Ferd Mueller) Possideo tantum ramos qui insigniter sulcati

III WELWITSCHIA Hook *fU.onWebtntschia*, p 6 t 1-14, Carr Conif edit 2. p 780 — Tumboa Welwitsch in hit ad Hook

Floies dioici? et hermaphroditi Amenta in apice peduncuhs dichotome ramosi, bohtane ereita, oblongo cylindracea, tetragona Biacteeae (squamae Hook fil ) plunmas, quadnfanam imbricatae, latissiraae, o\ato-orbiculares, distinctdB<sub>7</sub> uniflorae, flonbus in axilhs bractearum sitis, scssilibus, compressis Fl hermaphroditi bracteolati. Bracteolae (penanthium Hook fil ) 4, membranaceae, 2 extenores falcatae anguste spathulatae, dorso cannataB vel subulatae, 2 interiores late obovato spithulatae, mferne in tubum compressum connatae, imbricataB Calyx Pt corolla null! Stamina 6. Filamenta crassa subulata, basi in tubum crassum coalita, post anthesim geniculatim zeflexa Antherae subglobosas, obtuse tngonae, 3-loculares apice nma tnciun dehiscentes Pollen simplex elhpsoideum (Hook hi ) Ovanum (ovulum Hook fil ) ovo deum, subcompressum Stylus (tubus styhformis Hook fil) longus, teretiusculus, tortus Stigma infundibuliforme, dihtatum, supra pdpilosum Ovulum solitidnum, erectum Embryo Fl feminei bracteolati Bracteo<sup>^</sup> (penanthium Hook fil) 2, opposite, urceolum (utnculus Hook fil ) hyahnum, apice pro cmissione styh perforatum ct bidentatum compressum et utnnque alatum, in fructu amphatum efformantes Ovanum et ovulum ut in flore heimiphrodito Stylus fihformis, rectus Stigma baud dilatatum, lacerum Fructus siccus, urceolo ampliato inclusus Semen erectum, obovoideum, compressum Albumen densum, superne in.collum carnosum annulare constnetum Ei ibryo in cavitdte albumims,\*elon<sup>^</sup>atus, cylindraceus<sub>7</sub> cotyledombus 2 parvis, planiuscuhs, compressis, radícula super i<sub>7</sub> teretiusculd, apice in filum longissimum tortum abrnppte desinente — Planta humihs, lignosa, dijihylla, b<sub>7</sub>ummi colloideum exsu

**dans.** **Truncus** crassus obconicus vel subglobosus, plus minusve compressus, supra foliorum insertionem in lobos 2 amplos, depressos, monstruosos, floriferos dilatatus. Folia 2, opposita, crasse coriacea, longissima, latissime lineari-ligulata, obtusa, mox valde lacera et in lacinias angustissimas fissa, utrinque nervis parallelis creberrimis striata: basibus membranaceis truncum fere circumambientibus et in fissuram horizontalem profundam trunci receptis. Pedunculi floriferi numerosi, ambitu lorum in jugis externis siti, dichotome ramosi, teretes, pseudoarticulati, ad nodos tumidi et bracteis 2 oppositis persistentibus praesediti. Amenta florifera parva. Strobili majusculi, coccinei, bracteis persistentibus. Flores parvi. Fructus amplus, membranaceus.

**W. MIRABILIS** (Hook. fil. 1. c. p. 7). In desertis arenosis orae occidentalis Africae tropic<sup>o</sup> australis inter Mossamedes et Gabo Negro (F. Welwitsch! et Monteiro). Damara Land, prope Waaloisch Bay (T. Baines et C. J. Anderson ex Hook, fil.). — Naud. Kew. Hort. ann. 1862. p. 186 et 1863. p. 74; Groenl. Rev. Hort. ann. 1863. p. 117 et 429 cum icon.; Garr. Conif. edit. 2. p. 782. Tumboa Bainesii Naud. Rev. Hort. ann. 1862. p. 186. *Welwitschia Bainesii* Carr. 1. c. p. 783. *Toumbo* Incol. (v. s. comm. a Cl. Welwitschio et in Mus. Kew.).



Ordo CXCIX. CONIFERS (1). — Coniferae *Linn. Phil. bot. p. 28* (excl. Ephedra); *Juss. Gen. p. 411* (excl. aliq. gener.); *Mirb. in Mdm. du Museum d'Hist. Nat. de Paris, 13. p. 68* (excl. Ephedra).—Coniferae sect. Taxineae (excl. Ephedra), Cupressineae et Abietineae *Rich. Comment, bot. de Conif. et Cycad. p. 124. 137 et 145; Bartl. Ord. Nat. p. 94. 95.* — Cupressineae, Abietineae et Taxineae *Endl. Gen. pi. p. 258. 259. 261.* — Taxineae (excl. Ephedr. et Gnet.), Cupressineae et Abietineae *Spach Hist, des vég. phanér. II. p. 279. 303 et 355.* — Gonaceae; *Lindl. Key n. 232.* — Pinaceae *Lindl. Veg. Kingd. p. 226.* — Cupressineae, Abietineae, Podocarpeae et Taxineae *Endl. Conif. p. 3. 78. 205. 229; Carrière Conif. p. 3. 179. 433 et 493.* — Araucarieae, Abietineae, Cunninghamieae, Cupressineae, *Taxineae Henkel et Hochst. Nadelhölz. p. 1. 19. 209. 230 et 350.* — Gonifera *Parl. Fl. Hal. 4. p. 22; Decaisne et Le Maout Traits gén. de bot. p. 533* (exclus. Gnetaceis).

Plores monoici aut dioici. Amenta masculina terminalia, solitaria vel 2-plura fasciculata, aut axillaria solitaria, rarius subracemosa vel racemoso-paniculata, simplicia rarissime composita. Bractae (connectivum pi. auct.) plurimae, axi insertae, spiraliter dispositae vel decussatim oppositae aut ternatim verticillatae, plus minusve confertae aut imbricatae, basi saepissime lere in stipitem angustatae, apice dilatatae peltatae aut semipeltatae integrae vel rarissime lobatae, glandula resinifera dorso interdum praeditae, subtus vel lateraliter antheriferae. Calyx et corolla nulli. Stamina saepissime ad antheras reducta, filamentum brevissimum vel nullo. Antherae sub quavis bractea 2-plures (anthera 2-plurilocularis plur. auctor.), subglobosae, oblongae vel lineares, simplici vel raro duplici ordini dispositae, pendulae, uniloculares, loculo rima longitudinali antice vel postice aut rarius rima transversa antice dehiscente. Pollen saepius e cellulis duabus sphaericis cellula arcuata, pontis ad instar conjunctis compositum. Amenta feminina terminalia, solitaria vel 2-plura fasciculatim congesta aut varie disposita, e rachide sive axi, squamis aut bracteis involucrisve et pistillis composita. Squamae 4-plures, liberae vel basi aut totidem connatae, axi spiraliter dispositae vel decussatim oppositae aut ternatim vel quaternatim verticillatae, inferiores et superiores interdum steriles, e bractea foliacea aut coriacea et lepidio (sive organo proprie squamoso, quod ramos abbreviatos ex axilla bractearum ortos illorumque folia sive bracteas abortivas vario modo inter se connatas aut coali-



tas et saepissime induratas refert), nunc basi nunc maxima ex parte adnatis, in Abietineis nostris compositae; in Taxineis vero amenta feminea e rhachide et bracteis interdum carnosis et basi vel totidem adnatis et tunc receptaculum carnosum efformantibus, et involucri simplici vel duplici (aut bracteas supremas margine connatas refert), nunc abbreviate), nunc pistillum, urceoli modo, apice tantum saepe pervio obtegente conflata. Pistilla (ovula nuda plurium auctorum, gemmulae Endl.) 2-plura, rarissime solitaria, saepissime collata (radialia vel superposita, erecta, patentia, pendula vel inversa. Ovarium plerumque compressum aut subcompressum, uniovulatum, ovulo orthotropo vel rarissime anatropo. Stylus (ovuli tubillus pi. auctor.) brevis vel brevissimus. Stigma suborbiculare, saepe bifidum aut subbifidum, pervium. Fructus saepissime strobilaceus, primo, secundo vel tertio anno maturescens, aut drupaceus vel spurie drupaceus : strobilaceus e rhachide, squamis et nuculis, drupaceus vel subdrupaceus e bracteis supremis saepissime inter se connatis et involucrum simplex vel duplex efformantibus et nuculis conflatus. Squamae plurimae, raro 4-paucae, lignosae aut coriaceae, persistentes vel rarius a rhachide solutae, liberae aut basi vel totidem connatae, rarissime globulorum carnosum efformantes, spiraliter dispositae vel decussatim oppositae aut ternatim vel quaternatim verticillatae, imbricatae aut valvatim verticillatae, e bracteis basi vel maxima ex parte aut totidem adnatis, apice saepius sub mucronis vel appendicis forma manifesto, et lepidio indurato bracteis brevioribus, subaequali aut longiore, integro vel dentate apice aequali vel in disco aut in apophysi dimidiatam aut pyramidatam incrassato, apophysi apice umbonata, umbone centrali vel terminali, mucronato vel saepius mucronato compositae, saepius pro receptione nucularum basi excavatae, intus canalibus resiniferis interdum praeditae, apice demum saepe hiantes. Involucri simplex vel duplex, saepissime carnosum liberum vel basi aut totidem nuculis adnatum, raro membranaceum, interius, si duplex, exterius saepe nuculam obtegens vel illam tantum laxo amplexans. Nuculae geminae aut 3-plures, rarius solitariae, collaterales aut superpositae, erectae, patulae aut inverse, squamis saepissime breviores, convexae, angulatae aut compressae, rarius canalibus resiniferis notatae. Pericarpium saepius osseum, aut lignosum vel membranaceum, saepissime in alam vel in alas 2-3 tenues productum, rarius apterum. Epispermium tenue. Embryo (interdum in eodem semine embryones plures) saepissime in axi albuminis carnosum, carnosum-oleosum vel farinaceum et ejusdem fere longitudine, rarius in apice albuminis. Cotyledones 2, saepius profunde partitae unde videntur 3-15, germinatione epigeae vel rarissime hypogaeae. Radicula teretiuscula, saepius brevis vel brevissima, infera vel supera. — Arbores, rarius frutices, saepissime semperviventes, in temperatis frigidisque hemi-

spherii praesertim borealis et in montibus plagae aequinoctialis vastas et densissimas sylvas saepissime constituentes, in ora America\* boreali-occidentalis vegetabilium omnium giganteae, ob lignum, resinas quae a ligno, cortice strobilisque saepissime scatent, et nuculas nonnullorum specierum edules, magni in gentium totius orbis oeconomia momenti. Truncus saepius rectus, ramosus, ligno e cellulis porosissimis sive poris areola seu excavatione subrotunda circumscriptis notatis (quae vasa areolata Dicotyledonarum aliarum referunt) et aliquando (in Taxo) spiracula interna simplici vel duplici instructis composito. Rami saepius verticillati, ramuli teretes, complanati vel ob folia squamaeformia decussatim opposita et quadrifariam imbricata tetragoni vel subtetragoni, rarius fihyllodinei. Folia ut plurimum perennia, rarissime annua, spiralliter disposita vel decussatim opposita aut ternatim verticillata, basi vel maxima ex parte ramulo adnata et decurrentia, vel in ramulis abbreviatis gemina, terna, quina aut fasciculata, basi vagina scariosa cincta, saepissime linearia, rarius lanceolata vel late ovata plana, semiteretia, triquetra aut tetragona, facie inferiore vel rarius superiore aut faciebus omnibus stomatifera, stomatibus pauci-vel pluriseriatis crebrisve, saepe squamaeformia, interdum difformia, dorso saepius glandula resinifera notata.

Ordo naturalis nee in pluribus ordinibus juxta botanicorum hodiernorum sententiam scindendus, cum Cycadeis et Gnetaeis, quibus textura *Wgnosa* et pistilli (ovula nuda pi. auct.) dispositione praecipue valde affinis, plantas Gymnospermas dictas efformans, ad Dicotyledones inferiores, ni fallor, pertinens, et ad Casuarineas Betulaceasque summopere accedens. Confer opusculum meum cui titulus *Studii organografici sui formae et sui fructus delle Conifere in Annali del R. Museo di Fisica e Storia natural\* di Firenze per il 1865, p. 155 (1).*

### CONSPECTUS TRIBUUM, GENERUM ET SECTIONUM.

Tribus I. Abietnense. Flores monoici vel raro dioici. Strobili squamae 4-plurimae, liberae vel basi aut rarissimae totidem connatae, spiralliter dispositae vel decussatim oppositae aut ternatim vel quaternatim verticillatae; e bractea et lepidio basi vel maxima ex parte adnatis compositae, lignescentes aut coriaceae, imbricate, apice sequales vel apophysii incrassatae, saepe mucronatae vel appendiculatae. Nuculae geminae-plures, rarius solitariae, erectae, patentes vel pendulae, saepe 1-3-pterae, rarius apterae.

Subtribus I. ABAUCARIEE. Flores dioici. Amenta mascula Bractae spiralliter insertae Antherae 6-plures, saepius duplici (ordie disposita), lineares. Strobili squamae plurimae axi spiralliter insertae

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(1) De variis auctorum sententiis confer ad pag. 346. (A. DC.)

imbricatae, alatae vel apterae, demum solulae. Nuculae solitariae, pendulae alatae, ala altera brevissima, vel apterae. Gotyledones 2, integrae vel profunde partitae unde videntur 4, germinatione epigeae vel hypogaeae. Folia plana vel compresso-tetragona, saepe latiuscula vel lata, interdum difformia, spiraliter disposita vel subopposita.

1. ARAUCARIA JUSS. Strobili squamae e bractea coriacea, basi alata vel aptera, et lepidio tenui, brevior, totidem vel maxima parte adnato compositae, apophysi subrhombea, appendiculata. Nuculae solitariae, pericarpio coriaceo, aptero.

Sect. I. *Columbea*. Strobili squamae apterae. Lepidium manifestum. Cotyledones 2-k, germinatione hypogaeae. Folia ovata vel oblongo-lanceolata vix difformia.

Sect. II. *Eutacta*. Strobili squamae alatae. Lepidium distinctum. Gotyledones 4, sive 2 profunde partitae, germinatione epigeae. Folia difformia, ramorum sterilibus compresso-tetragona, florigerorum undique imbricata, plana, dorso convexa et carinata.

2. DAMMARA Rumph. Strobili squamae e bractea coriacea lata et lepidio multo minore adnato compositae, apicem versus incrassatae et sursumversae. Nuculae solitariae, pericarpio membranaceo, utrinque in alam producto, ala altera brevissima angusta et marginiformi.

Subtribus II. PINE<sup>A</sup>: Flores monoici. Amenta mascula. Bractae spiraliter insertae. Antherae 2, subglobosae vel oblongae. Strobili squamae plurimae, axi spiraliter insertae imbricatae, persistentes vel raro a rachide solutae. Nuculae 2, collaterales vel raro abortu solitariae pendulae alatae, ala solitaria, rarissime apterae. Gotyledones 2, profunde partitae unde videntur 3-15, germinatione epigeae. Folia linearia plana compresso-triquetra semiteretia, aut subtetragona, solitaria conferta, distiche patentia, in ramulis abbreviatis 2-5, rarius plura fasciculata.

3. PINUS Linn. Strobili squamae e bractea distincta vel basi plus minusve adnata et lepidio coriaceo vel saepius lignescente compositae, apice aequales vel apophysi incrassatae et saepe mucronatae.

Subgenus I. *Pinus* Endl. Strobilus secundo vel tertio anno maturus. Squamae, apice in apophysis dimidiatam vel pyramidatam incrassatae, apophysi vertice umbonata, persistentes. Nuculae alatae vel rarius apterae. Ramuli abbreviati. Folia gemina, terna, quaterna, vel quina, rigida, semiteretia, vel compresso-triquetra.

Sect. I. *Pinea*. Squamarum apophysis pyramidata, umbone centrali. Nuculae alatae vel rarius apterae.

- A. *Pinaster*. Folia gemina, semiteretia aut rarissime prope apicem ramulorum terna et compresso-triquetra, libera vel rarissime facie connata.
- B. *Tieda*. Folia plerumque terna, compresso-triquetra vel triquetra, rarius prope apicem ramulorum terna, quaterna vel gemina.
- C. *Pseudo-Strobilus*. Folia quina, rarissime quaterna vel terna, triquetra.

Sect. II. *Cembra*. Squamarum apophysis dimidiato-pyramidata, umbone terminali. Nuculae apterae vel alatae. Folia quina, rarissime quaterna, terna vel terna.

bubgenus II. *Sapmus* Endl. Strobilus pmo anno, raro secundo vel tertio maturus. Squamae margmem versus attenuatae Ramuli raro abbreviati Folia sohtana, dense spiraliter disposita aut subdisticha, ranssime in raiaulo abbreviato fasciculata, plerumque ngida, sessihd vel in pulvinis adnatis decurrentia aut breviter petiolata, plana vel rhombeo-tetraquetra.

Sect I *Cedius* Strobih squamae persistentes Bractee demum lepidio totidem adnatae Folia sessitia, perennia, in ramulo abbreviato fasciculata, tandem sohtana.

Sect. II. *Lanx* Strobih squamae persistentes. Bractee hber<£ vel tantum basi lepidio adnatas. Folia decidua, molha, plamusculd vel compresso-tetragona, in ramulo abbreviato fasciculata, tandem bohtana

Sect III *Pseudolanx*. Strobih squamae deciduae Bractee basi lepidio adnatae Folia decidua molha plamuscula, sessiha in ramulo abbreviato fasciculata, superiora sohtana *Pseudolanx* Gord

Sect. IV. *Picea* Strobih squamae persistentes. Bractee basi lepidio ddnatae. Folia sessiha vel brevissime petiolata subtetragona.

Sect. V *Abies* Strobih squamae a rachide persistente solutae Bractee lepidio adnatae vel hberae. Folia plana vel raro subtetragona, distincte petiolata.

Sect. VI. *Tsuga* Strobih squamae persistentes Bractee basi lepidio adnatae Folia plana, breviter petiolata

Subtribus III. TAXODIEJE. Flores monoici. Amenta mascula. Bractee axi spirahter msertde. Antheiae 2-5 raro 9, simplici ordine dispositdc. Strobih squamae plures, axi spirahter inserts, ranssime spica contracta verticillatae, persistentes, raro ab axi soluta? Nuculsc 3-9, ranssime gemmae vel abortu solitanae, erectae, patentes vel pendulae, aptera, vel alatae Cotyledones 2, raro profunde partitac, unde videntur 4-9 germatione epigeae Folia sparsa sive spirahter inserta, interdum subdisticha, ranssime m apice ramulorum plura verticillata, sdepms lmeana, raro squamaeformia.

#### A btrobih squamae spirahter dispositae

4 CUNNINGHAMIA. R. Brown Stiobili bquamae plures, imbiicatae, conaceae, mucronatae, lepidio adnato apice subtnlobo vix hbero duplo longiores Nuculae 3, erectiusculae vel erectae, utnriue alat\*, Pohd alteind, distiche pdtentia, conacea, linean-lanceolata, basi decurrentia

5 ARTHKOTAXIS Don Strobih squamae plures, imbricatae, conaceo-hgnosae, basi angustato stipitatae bractea lepidium supeiante Nuculae 3-5, raro paucioies, pendulae, utrinque alatae tolia spirahter dispobita, linbncata, basi vel maxima parte adnata

b SCIADOPYTIS Sieb et Zucc. Strobili squdmae plures, imbricatae, hgnosconaceae, e basi late cuneata in discum semiorbicularem rugosum dilatatae Nuculae 6 9, erectae vel in squamis infeioribus subpendulas, utnnque dlatce Folia in apice etprope apicem ramuloium plurd vciticilldta.

7 SEQUOIA Endl Strobih squamae plures approximatae, hgnosae, peltatae, e basi cuneata apice in discum fere trapezoideum rugosum dilatdtee Tsuculae 3-7, saepius 5, utrnaue dlatce. Folia spualitei msertd vel subdisticha, mlccut adnata, supcrne libera, lmeana, teretiuscula vd plana,

8. **CRYPTIOMERIA** Don Strobili squamx pluies, imbnatae, demum hiantes, pei sistentes sublignosae e basi cuneata in discum fere obovatum incrassatae, apice palmato 4-6-fidae Nuculae 4-5 vel pauciores, erectae utnque alatae Folia alteina, quinquefana, basi adnato-decurrentia, reliqua parte libeia, hneari subulata
- 9 **GLYPTOTROBUS** Endl Strobili squamae plures, imbnatae, demum hiantes et deciduae, sublignosae, e basi cuneata in discum pcrpendiculari, obovato ovalem incrassatae, disco e duabus partibus simul articulatis composito paito superacoronam semicirculnem et longitudinal)tor sulcalamapiceO-9cicnito mucronatam referente Nuculas 2 erects utnque alatae \*olia difToimia, ramorum et ramulorum pnmanorum sjuamaeformia, secundanorum linear-subulata, subtnngona
- 10 **TAXODILM** Rich Strobih squamae plures, arete connlventes, demum hiantes et deciduae, sublignosae, excentnee peltatap, stipite e basi tenuissimi suisuni inciassato dilatalo, marginc supenore plus minusve cremto-iugosae Nuculae 2, vel abortu solitariae, oblique erectae basi altenuatae, apterae Folia alterna approximata, distich L, lineana, brevia.

#### B Strobili squamae, spira contracta, verticillatae

- 11 **WIDDRINGTONIA** Endl Strobili squamae 4, lignosae, ciassae, basi connatae, subaequales Nuculae abortu saepe paucae, eictae utnque alatae Folia in lamis spiralter disposita, in ramulis subquadnfanam unbucita

Subtnbus IV, **CUPRESSEJE** Flores monoici, raro dioici. Amenta inascula. Braclea) decussatim oppositdj vel ternatim verticillatae Anthers 3-5, raro 2, subglohosae vel cblongae Strobili squamae 4-plures, decussaiim oppositae vel ternatim aut quaternatim verticillatd3, perbistentes, hberdc vel basi aut totideinconnatjj et tune galbulum carnosum eilormantes Nuculae erectae 2-3-pterae, ranus apterae Gotyledones 2, ranus profunde bipartit.T unde videntur 4, radícula supera Folia opposita, ternatim vel quaternatim verticillata, saepius squamgeformia, interdum m ramis complanatis difformia ranus hnearia.

#### A. Strobili squamae verticillatae

- 12 **ACTINOSTROBDG** Miq Squamae 6 hgnosss, circa axim pyramidatam verticillat«, aequales\*, e bractea foliacta et lepidio crasso subaequali adnatis conopositae, basi connatae, bracteis plunbus cinctae Nuculae ad basin squamirum 2 contigue superpositae., 2-3-pterae Folia ternatim verticillata, inferne adnata, apice libera
- 13 **FRENELA** Mirb Strobili squamae 6, ran sime 7-8 lignosae, subverticillatae, tres paulo longiores et saepe latiores, infra apicem saepissime apice bractee hbero mucronatre aut mucronulatae, basi connatae Columna nunc obsoleta nunc crassa saepe tncruris Nuculae plunmae plunsenatae, utnque alatae, ala altera ranssime mmore Folia ternatim vel raro quaternatim verticillata, adnata, apice summo libera.
- 14 **CALLITRIS** Vent Strobili squamae 4, lignosae, verticillatae, subaequales, infra apicem mucionatae basi connatae Columna nulla Nuculae 6, per tres ad faciem bquaniarum superpositae, utnque alatae Polia decussatim opposita adaata, apice libera

B Strobili squamae decussatim oppositae vel ternatim verticillatae, basi connatae vel hberae

- 15 **LIBOCBDRUS** Endl Strobih squamae 4, raro 6, sublignos®, maequales, 2 mfenores minores plerumque stenles, 2 supremae, si adsunt, in septum longi-

tadinale connatae, majores sive intermedia? feitile->, omnes supra medium vel infra apicem longiuscule vel breuiscule niucionatae. Nuculae 2 vel abortu solitanae, utnque alatae, ala altera angusta, altera maxima. Folia decussatim opposita, ramulorum quadntanam imbricati et squamseformia, difformid.

16. THUYA Tourn Strobili squamae 6-8 raro 12, subconaccae, quadnfanam Imbncatae, subinaequales, apice vel infra apicem mucionuhtae Nuculae ad basin squamarum majorum 2, vel abortu solitanae, utnque alatae. Folia decussatim opposita, quadnldiiam imbiicdti, squamaefoimia difformia.
17. IHUYOPSIS Sicb et 7ucc Strobili squam\* 6-10, sublignosae, apicc dildtato-subreflexae Nuculae 5, utimque anguste alatae Folia decussatim oppositd, quadnfanam imbncdta, squamaeformid difformia.
18. BIOTA Lndl. Strobili squamae 6-8, suhlignossc, infra apicem mucronatae. Nucuke ad basin squamirum majorum 2 \el aboitu solitanae, apterae Folia ramulorum decussatim opposita, quadnfanam imbiicata, squamaeformia, diiformia.
19. DIESELMA Hook, fil Strobili squamae 4, 2 ex ten ores breviores stenles, 2 mtenores majores fertiles. Nuculae 2 3, squamis longiores, late tnpterae. Folia arete quddiifauam imbricata, squamaeformia
20. MTZ-ROYA Hook, fil Strobili squamae 6, 3 vix extenores, breviores, stenles, 3 vix interiores, majores, fertiles, omnes conaceo-hgnosae, supra medium dorsi apituldae. Nuculae 3 ad basin squamarum major urn utrinque alatae. Folia decussatim opposita vel in idmulis terna, basi adnata.
21. CHAMACYPARIS Spach Strobili squamae 6-8, raro 4-12, tenues vel lignescen-tes aut lgnosae, peltatae, dorso mucronatae. Nuculae 2, collaterals, utnque alatde. Folia decussatim opposita, ranssime terna vel quaLema, squamaeformia, ran us difformia
22. CUPRESSUS Tourn. Strobili squamae 6-14, sublignosae, ezcentrice peltatae, dorso muciondtd3. Nuculas saspissime plunmae, plunseriatae, utnque alatde Folia decussatim opposita, quadnianam imbiicata.

C. Strobili squamae decussatim opposite vel ternatim verticillatae,  
inter sc coahtae et galbulum carnosum efformantes.

23. JLNIPERDS Linn. Galbulus e squamis carnosis 4-6 decussatim oppositis vel 3-9 ternatim verticillatis, et nuculis osseis distmctis vel ranssime in putamims speciem inter se coahtis drupaccus. Nuoulae 1-3, raro 4-8, libeiae vel ranssime inter se coahtae, nucem tnlocularem vel bilocularem referentes. Folia ternatim verticillata, hbera et acicularia, vel decussatim opposita et squamaeformia.

Tnbus II. Taxincjc. Flores dioici vel raro monoici. Fructus ex involucro siinplici vel duplici, Stepe carnosus, bracteisve simul conatis et nucula involucro bracteisve adnata, drupaceus vel involucro haud adnato spurie drupaceus aut exsuccus.

24. DACRYDIUM Soland. Flores dioict. Biacteae anthenfeiae apice dilatatae Fructus tandem erectus, biacteas insidens, mxolucro extenore laxo, abbreviato cinctus, inteiiore laxo, cainosulo vel conaceo, ore late hiante. Folia saepe difformia dcerosa, laxe vel arete imbneatae.
25. PH^ROSPHORA Arth. Floies dioici. Biacteae anthenferae dpice dilatatae. Antherae 2 Fructus erectus, involucro cainosulo laxo, mdigine alato anffukto. Folia squamaeformia, imbi icata
- 26 LEPIDOTHAMNUS Philppi. Flores dioici vel monoici? Bracteae dnthenferae, excentnee peltatae. Antherae 2. Nucula urceolo cupuhformi basi cincta Ramf sparsi. Folia minuta, squamdeformid, arete imbiicata.
27. SAXEGOTHEA Lmdl. Flores monoici. Bracteae anthenferde apice dilatato-

- acummatae. Antherae 2. Fructus carnosus, e biacteis simul connatis, apice libens compositus. Nucula molusa inversa Rami subverticillati. Folia sparsa conacea linearia.
- 28 PHYLLOCLADUS Rich Floras monoici. Bractee antheriferae, apice vix dilatatae Antherae 2 Nucula erecta, a basi ad medium urceolo vix incrassato cincta Rami et ramuli primarii verticillati, ramuli secundarii distiche alterni vel suboppositi, phyllodinei, phyllodni plus minusve lobatis Folia immuta squamaeformia
- 29 TAXUS Linn Flores dioici Bractee antheriferae peltatae, 5-8-lobae Antherae 5-8. Fructus subdrupaceus ex urceolo aucto, cupulam carnosam efformante et nucula compositus Rami sparsi toll a subconacea, nigrescens, subdischis, linearia vel ovali-oblonga.
- 30 CEPHALOTAXUS Sieb et Zucc. Flores dioici Bractee antheriferae apice vix dilatatae Antherae 2-3 Fructus drupaceus ex urceolo crasse carnosissimo adnato clauso et nucula compositus Rami verticillati Folia nigra subdisticha linearia.
- 31 TORREYA Arnott Flores dioici Bractee antheriferae semipeltatae. Antherae 4. Fructus drupaceus, ex urceolo carnosissimo fibroso, demum clauso et nucula compositus Rami saepe verticillati tolla conacea, nigra, disticha, e basi rotundata lineari-lanceolata
- 32 GINKGO Kaempf. Flores dioici. Bractee antheriferae apice vix dilatatae. Antherae 2 Fructus drupaceus, subglobosus, ex urceolo carnosissimo adnato et nucula compositus Rami verticillati Folia conacea, late subrhomboideo-flabelliformia, inciso-biloba vel irregulariter crenato-lobata, flabellatim nervoso-striata.
- 33 PODOGARPUS Hent. Flores dioici vel monoici. Bractee antheriferae apice paulo vel multo dilatatae. Antherae 2. Fructus carnosus, inversus, receptaculo carnosissimo saepe insidens

Sect. I. *Nageia*. Receptaculum carnosum. Folia opposita vel subopposita, late ovata vel ovalia aut oblongo-lanceolata, multinervia.

Sect. II. *Eupodotarpus*. Receptaculum carnosum. Folia sparsa, lanceolata vel linearia, uninervia.

Sect. III. *Stachycarpus*. Receptaculum carnosum nullum. Folia saepe disticha, linearia, uninervia

Sect. IV. *Dacrycarpus*. Receptaculum carnosum. Folia difformia linearia, compresso-tetragona.

Tribus I. *ABIETINAE* Erf. — Coniferae Sect. 2, Cupressineae et 3, Abietineae Rich. *Conif. p.* 137 et 145. — Cupressineae (Ordo) et Abietineae (Ordo) *Spach Hist. de vég. phaner.* 11. p. 303 et 355. — Ord. Cupressineae et Abietineae *Endl. Gen. p. L p.* 258 et 259, *Conif. p.?* et 79; — Pinaceae *Lindl. Veg. Kmgd. p.* 226. — Ord. Araucarieae, Abietineae, Gumnungiamiae et Cupressineae *Henk. et Hochst. Nadelholz p.* 1. 19. 209. 228.

Flores monoici vel raro dioici. Amenta masculina terminata vel axillaria, solitaria aut capitato-congesta, rarius subracemosa vel racemoso-paniculata. Bractee plurimae, axillares, spiritaliter dispositae vel decussatim oppositae aut ternatim verticillatae, saepissime imbricatae, stipitatae, apice dilatatae et saepe subpeltatae. Antherae 2-plures, simplices vel duplici ordine dispositae, subglobosae vel

lineares. Amenta feminea terminalia, solitaria vel 2-plura aggregata aut fasciculatim congesta. Squama; 4-plures, liberaj vel rarius basi aut totidem connatae, e bractea et lepidio saepe carnosio basi vel maxima parte adnatis composite. Strobilus secundo, tertio vel vel primo anno maturescens. Squamii\* 4-plurim;<sup>i</sup> liberfc vel basi aut rarissime totidem connate et tunc galbulum carnosum efformantes, spirahler dispositio aut ternatim vel quaterdatim verticillata<sup>1</sup>, lignescentes aut coriacea<sup>1</sup>, imbricatae, apice irquales vel apophysi incrassatit', saepe mucronatu vel appendiculatit', persistentes vel rarius a rachide solutaj, bracteis lepidio basi vel maxima ex parte adnatis. Nucula<sup>1</sup> gemina>plures, collaterales vel superpositae, rarius solitaria?, erects, patentes vel pendula', saepissime 1-3-pterico raro aptenu. Embryo in axi albuminis carnosio vel carnosio-oleoso, ejusdem fere longitudine, cotyledonibus 2, saepe profunde partitis unde videntur 4-15.

Subtribus I. ARAUCARIE.E.

Flores dioici vel raro monoici. Amenta mascula. Bractea} axi spiraliter inserta<sup>1</sup>. Antheraj 6-plures, ^a<sup>i</sup>pius duplici ordine disposita\*, lineares, uniloculares, loculo postice longitudinaliter dehiscente. Strobilus saepe magnus. Squama? axi spiraliter inserta\*, imbricata<sup>1</sup>, alata; vel aptera?, demum soluta\*. Nucula<sup>1</sup> solitaria\*, pendula<sup>1</sup>. Pericarpium utrinque in alam productum, ala altera brevissima, vel apterum. Cotyledones 2, integra<sup>1</sup> vel profunde partita<sup>1</sup> unde videntur 4, germinationis epigea<sup>1</sup> vel hypogea<sup>1</sup>. Folia plana vel compiesotetragoaa, saepe latiuscula vel lata, interdum ditlormia, spiraliter disposita vel subopposita.

I. ARAUCARIA Juss. *Gen.* p. 413; *Rich. Conif.* p. 153. *L'20 et 21; Endl. Cunif.* p. 1<sup>4</sup> et *gen. yL* p. 261; *Carr. Conif.* p. 413; *Gord. Pin.* p. 21; *Henk. et Uochst. Nadeihölts* p. 2. — *Dombeya Lam. III. t.* 828. — *Columbea* (a pluribus *Colymbea* script.) et *Eutassa Salisb. in Linn. Transact.* 8. p. 31ft. — *Altingiu Don in Loud. Hort. brit.* p. 406. — *Araucaria. ei Eutacla Link in Linnwa* 15. p. 541, 543.

Flores dioici vel raro monoici. *Masculi.* Amenta terminalia, solitaria vel gemina, cylindracea vel ovata aut oblongo-cylindracea, basi perulis cincta aut nuda. BracteaB plurimae, arete imbricatae, axi insertae, inferne angustatae et fere stipitatae, apice ovatae vel subrhombeae et sursum versae, subtus antheriferae. Antherae 6-plures. duplici serie dispositae, uniloculares, loculo lineari postice longitudinaliter dehiscente. *Feminei.* Amenta terminalia, solitaria, ovoidea, basi nuda vel foliis supremis saepe longioribus annuli ad instar cincta. Squamas plurimae, spiraliter dispositae, dense imbricatae, e bractea coriacea basi alata vel aptera, apice aut pendiculata et lepidio tenui, breviori, totidem vel maxima parte adnatis composite. Stylus brevissimus, reversum, basi annatum, ovatum vel oblongum. Stylus brevis. Stigma orbiculare, pervium. Strobilus magnus, subglobosus, ovatus vel emphico-globosus, basi nudus vel foliis supremis involucreto, secundo anno maturescens. Squamae plurimae, lignescentes, densissime imbricatae, ab axi solvendae, saepissime steriles, paucae fertiles, e bractea crassa et lepidio bractea angustiore et breviori, tenui,



totidem adnato vel apice tanlum libero compositas, cuneatae, apterae vel late alatae, apice incrassatas, apophysi subrhombea, canna transversa acuta ssepe notata et appendiculata, appendicula longiuscula acuminata recufva. Nuculæ solitariae, inversae, obovato-oblongae, squamisadnatis, apice libero. Pericarpium coriaceum. Embryo cylindræus, in axi albuminis carnosi ejusdem fere longitudine; cotyledonibus 2, integris vel profunde bipartitis unde videntur 4, semiteretibus, hypogeis vel epigeis; radícula cyhndracea, infera. — Arbores excelsae, pyramidatae, resinosae, in America australi et in insulis Oceani, tropicis vel subtropicis crescentes, sylvas vaslas constituentes. Rami 5-plures verticillati, fere horizontals vel subpenduli aut apice adscendentes, verticillis remotis vel remotiusculis. Folia spiraliter disposita, coriacea, nunc plana, nunc compresso-tetragona, in ramis ramusque sterihbus et florigeris difformia aut vix difformia, mucronata et seepe pungentia. Nuculae interdum edules.

Sect. i. GOLUMBEA — Genus *Columbea Salisb. I. c.*—Sectio *Golumbea Endl. I. c.*; *Carr. Conif. edit. 2. p. 596.* — *Araucana Link t. c.*

Strobili squamae apterae. Lepidium manifestum. Cotyledones 2,4, genninatione hypogaeae. Folia ovato-vel oblongo-lanceolata, vix difformia.

1. A. IMBRICATA (Pavon in Mem. Acad. Madnt. 1. p. 197), arbor excelsa, coma conica obtusa, ramis 5-12 crebre verticillatis subpendulis horizontahbusve, folns conaceis imbricatis patentibus ovato-lanceolatis acutis mucronato-pungentibus supra coneavmsculis subtus convexiuscuhs subcannatis lusco-viridibus, amentis mascuhs ovali-cylindræis, bracteis anthenferis ovato-acuminatis, acumine longo apice incurvo, strobilis magnis erectis folns supremis angustioribus lanceolato-hneanbus acuminatis basi cinctis subglobosis, squamis elongato-cuneatis appendiculatis, appendicula longa lmeaii-acuminata deflexd, nuculis obovato-omongis apteris. § In montibus Chile australis inter 36°-48° sylvas vastas constituens (Pavon! Dombey' Cl. Gay). — Lamb. Pm. edit. 2. p. 76. t. 45 e ledit 3. p. 106. t. 56. 57, Poppig Reise m Chili, 1. p. 400. et in Bot. Comp p. 351; Pmet. Woburn. p. Ib3. t. 35. 56; Loud. Arb. Brit. 4. p. 2432. f. 2286-2293; Link in Linnaea 15. 542; Antoine Conif. p. 107. t. 48-50; Endl. Conif. 186; Cl. Gay Hist, de Chile 5. p. 415, Carr. Conif. p. 416; Flor. des Serr. 15. p. 147. t. 1577-1580; Gord. Pm. p. 24, et Suppl. p. 14; Henk. et Hochst. Nadelholtz, p. 4. Pinus Araucana Molina Cnil. p. 182. Dombeya Chilensis Lam. Diet. 2. p. 301. Abies Aiaucana Poir. Suppl. 5. p. 35. Columbea quadnfana Salisb. in Linn, trans. 8. p. 315. A. Chilensis Mirb. in Mem du Museum, 13. p. 49. A. Dombeyi Rich. Cdnif. p. 86. t. 20, 21. Quadnfaria imbricata Manett. Colymbea imbricata Carr. Conif. edit. 2. p. 598. *Pehuén* et fruct. *Pmon* Chilens. Arbor 50-100 ped. alU, trunc© recto, basibus foliorum persistentibus squamoso, m arbonbus vetustis mferne longo tractu nudo, hgno albido, cortice polygonatim rimoso. Rami infenores usque ad terrain fere dependentes. Folia 3-5 cent, longa. 8-20 mill, lata, basi dilatata vix obhqua inserta. Strobili 12-14 cent, longi et fere lati. Squamae fertiles 6-6\ cent, longae, 17-19 mill, latae, utnnque valde convexae, apicem versus complanatae, appendicula 3-4 cent, longa, 3 mill, fere lata. Nuculae paulo minores quam m A. Brasihensi, 33-35 mill, longae, 12-13 mill, latae, edules. (v. v.)
2. A. BRASILIENSIS (A. Rich, in Diet, class. d'Hist. nat. 1. p. 512), arbor excelsa, coma rotundata demum effusa, ramis verticillatis subnonzontahbus ascendentibusve elongatis denudatis, ramulis in ramorum apicibus confertis brevibus subcorymbosisjfolns ronaceisconfertiuscuhs patentibus, cauhnis lanceolatis tandem retrorsum imbricatis, rameis obliquis oblongo vel ovato-lanceolatis omnibus apice acutato mucronatis, mucrone recto pungente supra conca-viusculis fusco-vmidibus subtus obsolete cannatis, junionbus subtus glaucescentibus, amentis mascuhs sohtarus geminisve crassis longis cylmdræis obtusis curvulu, bracteis anthenferis plurimis dense imbnatib, apice sub-

rhombeco obtuso sursum verso, strobilis magms eictis folns supremos magis approximate brevibus basi cinctis ovato-vel ovali globosis squarais elongato-cuneatis apice subrhomboideo-incrassatis transverse acute cannatis appendiculatis, appendicula reflexa lanreolato acuminata pungente nuculis obovato oblongis aptens J In Brasiliae montibus inter 23° 39' et 21° lat austr sylvaa vastas constituens, ad 1200 et in regionibus calidionibus ad 3000 ped elev (Aug StHil.! Riddi' Gaudich ' Eschscholtz' Therenin') — Raddi» in Atti della R Accad dei Geogof di Firenze 5 part 1 p 185, Lamb Pin edit 2 p 79 t 46 46 bis, et edit 3 p 100 t 58 j9 60, Loud arbor 4 2439, Pinet Woburn p 161 t 53-54, Link in Linnsea 15 p o43, Antoine Conf. p 111 t 51 53, Endl Conif p 185, Carr Conif p 41S Oord Pin p 23, Pad Note sur 1 Arauc Brasil in Bullet de la Société Botan de Fiance 8 p 85 Henk et Hochst Nadelholtz 2 Eichler m Mart H biasil fasc 33 35 p 426 t 110 111 112 Pmus dioica Veil Fl flum 10 t 55 56, malae Columbea angustifoha Bert ' Piant del Brasil p 7 et in Opusc scient di Bologn 3 p 411 A Ridolfiana Savi fil ' in Atti della terza nunione degi sciencz ital in firenze ann 1841 p 4i8 et 783 t 2 ^ in Giorn agi tosc 16 p 214 et in Giorn bot ital 2 p 52 Ridolfi Album di Ribbiani A Lindleyana Van Houtt hort Colymbea brasiliensis Carr Conif edit 2. p 596 Curt Brasil Pmheiro et fructus Pmhdio Lusit Arbor 70-100, mterdum 150 ped alta, trunco recto, ad nodos annullatim incrassato, ligno roseo fusco cortice e rubro-fusco, nmoso Rami 4-8-verticillati Jolia in plantis Junionibus omnia o\ali vel oblongo-lanceolata, attenuate acutata 3 5 cent longa 5 8 mill lata, ramoium et nmulorum in adultis oblonga \el ovuto lanceolata, I<sup>1</sup> 4 cent, longa, 4J-7 mill lata Amenta mascula 12 U cent longa, 18 20 mill lata Miobili 15 22 cent Iongi, 12-20 cent lati Squamap plerumqiu steriles, paucae fertiles crassiores intermixtae, haec 5-6 cent longae, 22 25 mill lata; utnnque con\exae et turgidag, prope apicem depiessae. Nucula\* 3 4 cent longae, 15-18 mill latae (v v)

{3, *Sanana*, folns glaucescentibus, strobilis folns supremis magis approximatim longionibus angustionibus et retrorsum versis basi involucrentis, stiobihis globoso ovahbus, squamis appendiculatis, appendicula longiuscula leflexo-uncinata latiuscula lanceolato lmean acuta pungente Culta in Horto Pisano Probabihter in Bohviae montibus non procul a *man* prope Cobijam inter 22 23° L A (Gaudich ') Araucana Gaudich PI. Exsicc in herb Webb A biasihensis Savi fil in hoit Pisan A Saviana Pad. 1 c p. 89 (v v)

Y, *gracilis*, folns confertissimis anguste linean-lanceolatis glaucescentibuii. In hortis A Brasiliensis gracilis Carr Conif p 415, Gord Pin p 24, Henk et Hochst 1 c p 4 A clegans hort A giacilis Van Houtte Folia 22-40 mill longa 1 J-4 mill lata (\ v sine fl et fiuct)

3 A RULEI (Ferd Mueller' pi exsicc), arboi ramis sub 4 \verticillatis, folns coriaceis undique dense imbricatis adpresso mcurvis oblongo lanceolatis acutiusculis ^el omusiusculis hiud pungentibus dor^o nervo crassiusculo longitudinalinah notatis et mtidis faci° planiusculis, amentis masculis crassis oblongis obtusis, biacteis anthenfens plunmis imbricatis apice late lanceolato-acunnato sursam verso, anthens 7 9 squamis late subrhon beis basi longe angustatis apice longe acuminato subulatis, nuculis In Nova Caledonia (Dufcan in herb Muell 1 herb Kew °), in montibus Kanala (Vieill ' n 1276) — Cord Pin Suppl p I<sup>6</sup>, Henk et Hochst Nadelholtz, p 7 Eutacta RHPI Verlot m Rev Hort 1866 p 277 Futacta Rulei polymorpha Tarr in XT Hort 1866 p 350 Lutacta Ruloi et Muellen Can 1 c p 392 cum Jinn~L Conif edit 2 p 605 et 607 Arbor m videtur tantum ^0 pedes alta~Tni?~ qu-c descnpsi ad lamos supenoies probabihter pertinent, I9 2> m.ii~ i/n~''~ 8-10 mill lata folia ramorum infenorum probabihter lanceolato~Pt~KIUI~' tid s. raxni, qm e Nova Caledonia in heibano Kewensi etiam r s s e r S r<sup>iv</sup> ad speciem nostram pertinent Species ut videtur polymorpha o7 TM~u~.l~? plantis v.vi^ descnbenda An hujiis sectionis^ (v s) ymorl)lla et mellus >>

4 A. BIDWILLI (Hook m London Jjurn of Bot 2 p ^ t 18-19), arbor excelsa, coma conica obtusa vel subhemibphaenca, ram is r; in 18-19), arbor nizontahbus, ramulis oppositis patentibus TOBpeidii, Whw'e S S 2 S S<sub>q</sub> apl

proximatis subdistichis patentibus ovato-lanceolatis acuminatis mucronalopungeutibus, supra convexiusculis fusco-yriridibus et nervo longitudinali vix manifesto notatis, subtus concaviusculis viridibus basi oblique insertiset decurrentibus, supremis subimbricatis ovato-acuminatis mucronato-pungentibus subtus convexis et subcarinatis supra concavis, amentis masculis sub-4 cylindraceis obtusis, bracteis antheriferis apice ovatis acutiusculis et subdenticulatis, strobilis magnis ovali-obovatis vel subglobosis, apice obtusissimo depressiusculo, squamis latis obovatis apicem versus incrassatis et sursum versis ibique dorso rugosis apice acutis, bractea squamis angustiore et brevioris eisque adnata, apice libero acuto sursum verso, nuculis magnis oblongis utrinque obtusis apteris. § In montibus Novae Hollandiae orientalis inter fluvios Brisbane et Burnett ad 27° L. A. (Bidwill! Leay! Hill!). — Antoine Conif. p. 106. t. 46. 47; Kndl. Conif. p. 187; Carr. Conif. p. 418; Gord. Pin. p. 22; Hill! in Cat. of the Natur. and Industr. Products of Queensland 1862. p. 15; Henk. et Hochst. Nadelhölzt. p. 6. Colymbea Bidwilli Carr. edit. 2. Conif. p. 601. *Bunya Bunya* inc. Nov. Holl. Arbor 100-150 pedes alta, trunco recto, ligno albido, cortice fusco subdecorticante. Folia 4-5 cent, longa, 9-12 mill. lata, suprema 17-18 mill, longa, 9-18 mill. lata. Amenta mascula 7 & 8 cent, longa, 9-10 mill. lata. Strobili 18-22 cent, longi, 15-20 cent. lati. Squamarum apophysis 7 cent, longa, 2 cent, lata, utrinque attenuata. Nuculae 4-J-5 cent, longae, 22-25 mill, latae, edules. In strobilibus, quos ego vidi, squamae haud longe mucronatae ut in icone Hookeriana. An hujus sectionis? (v. v.)

Sectio. n. EUTACTA. — Genus *Eutassa Salisb.* in *Linn. Transact.* 8. p. 315. — Gen. *Eutacta Link*, in *Linnaea* 15. p. 543; *Endl. Conif.* p. 186; *Carr. edit.* -j. *Conif.* p. 604. \*

Strobili squamae alatae. Lepidium distinctum. Cotyledones 4, sive 1 profunde bipartitae, germinatione epigeae. Folia diflbrmia, ramorum sterilium compresso-tetragona^ florigerorum undique imbricata plana dorso convexa et carinata.

5. A. CUNNINGHAMII (Ait. msc. ex Sweet. Hort. brit. p. 475), arbor excelsa, coma pyramidali, ramis sub-5 verticillatis remotis inferioribus horizontalibus subpendulisve superioribus patentibus apice ascendentibus^ ramulis alternis approximatis distichis subpenrlulis pendulisve, foliis parvis rigidis, ramorum steriliusculis patentibus compressis vix quadrangulis rectis vel rectiusculis mucronatis pungentibus fusco-viridibus, florigerorum undique imbricatis incurvis lanceolatis mucronatis dorso convexis et carinatis margine leviusculis, amentis masculis longis cylindraccis acutiusculis, bracteis antheiiferis, apice rhombeo-ovatis acutis vix denticulatis, strobilibus ovalibus, squamis cuneatis basi angustatis cum alis latis marginalibus rhomboideo-orbicularibus apice incrassatis apophysi subrhombea transverse acute carinata, appendicula longiuscula lineari-lanceolata acuminata reflexa. lepidio squamis valde angustiore et paulo brevioris eisque maxima parte adnato apice libero latiusculo acutiusculo et denticulato-ciliato, nuculis.... ↗ In Nova Hollandia orientali inter 14-297° L. A. sylvas vastas constituens ad Sinum Moreton!, ad Clarence!, Hichmond!, Brisbane! et Burdellin! fluviorum ripas, in sinu Rockhampton! etc. (All. Cunningh., C. Moore!, herb. Candoll.!, herb. Ferd. Muell.!). — Lamb. Pin. 3. t. 96; Loud. Arb. brit. 4. 2443. f. 2303-2305 et Suppl. 2603. f. 2545; Antoine Conif. p. 102. t. 43-44; Endl. Conif. P- 187; Carr. Conif. p. 419; Gord. Pin. p. 27; Hill in Catal. of the Nat. and Industr. Products of Queensland London 1862. p. 16; Henk. et Hochst. Nadel-Mltz. p. 9. *Altingia Cunninghamii* Don in Loud. Hort. Brit. p. 408. *Eutacta Cunninghamii* Link in *Linnaea* 15. p. 545; Carr. Conif. edit. 2. p. 6C8. *Eutassa Cunninghamii* Spach Hist. des Veg. phaner. 11. p. 362. *Moreton bay Pine* Angl. Austral. Arbor 150-200 ped., Ibrmosa, coma pyramidali saepe regular, resinam crystallinam copiosam scatens, cortice fusco-cinnamomeo, ligno ex albido-luteolo. Folia ramorum steriliusculis 15-20 mill, longa, 1^2 mill. lata, florigerorum 5-8 mill, longa, 1J-3 mill. lata. Amenta mascula 5-7 cent, longa, <7 mill. lata. Strobili 7 cent, longi, 4 cent. lati. Squamae mediae immaturae >iinealis 17-18 mill, longae, 11-12 mill, latae. Appendiculae 6-7 mill, longas. (v. v.)

(2, *longifolia*, joins longionbus patentissimis — Antome Conif t 44. i. 2 End]. 1. c.

y, *glauca*, folns ramulorum luniorum glaucis Cndl 1 c A glauca Antoin. Conif. p 105. t. 44 Culta in hortis. (\. v.)

6. A. EXCELSA (R Brown in Ait. Hort. KPW edit 2 vol. 5 p. 412), aibor excelsa, coma pyramidalis, ramis sub 5 verticillatis horizontalibus & remotis ramulis alternis approximatis distichis horizontalibus subpendulisve, folns parvis nigidis, ramulorum stenuum lemotiusculis patentibus compilato-tetragonis subulatis falcatis mucronatis haud pungentibus vmdibus, flongerorum undique imbricatis apice inflexis ovatis obtusis dorso carmatis margine seirulato-scarbris, amentis masculis sohtarus oblongo cyndraceis obtusis, bracteis antherifens apice ovatis acutiusculis margine denticulato ciliolatis, strobilis subglobosis apice depressiusculis, squamis anguste cuneatis margine late alatis apice incassatis, apophysi subrhombea transverse acute cannata, appendicula lineari-lanceolata acumata breviuscula recurva, lepidio squamis maxima parte adnato eisque multo angustiore et vix brevio apice hbero, nucis parvis obovato-oblongis squamae adnatis et inclusis ^ In insula Norfolk scopulisque communibus adjacentibus — Lamb. Pin. edit. 2 p. 81 t. 47. ex parte et 48, et edit. 3. p. 112. t. 61-62 ex parte, Pinet Wobuin p. 1-3 t. 50-al, Loud Arb. Bnt 4 2440 f 2297 2302, Antoine Comf p 99 t 38-42, End] Syn. p 187, Carr. Conif p. 420, Gord Pin p 29, Henk et Hochst. Nadelhol/ p. 11 Cupressus columnans Forst Flor austri n. 351 ex parte Dombeya excelsa Lamb Pin edit J. p 87. tab 39-40. Eutassa heterophylla Salsb in Linn. Transact 8 p 316 Altingia excelsa Loud. Hort Bnt p 406 Colymbea excelsa Spreng Syst. cur post, p 3h Eutacta excelsa Link in Linnaea 15. p 544 ex parte, Carr Conif. edit. 2 p 610. Norfolk Pine Angl Arbor formosi, resinosa, riuo-200-pedals Folia ramulorum Ntenum 8-12 raro 20 mill, longa 1-1/2 mill lata. flongerorum 3-4 mill longa 2-3 mill lata Strobilos integros non vidi Squamæ mediae sine alis 18-20 mill longae, 10-11 null latae Folia seminalia 4, sive 2 profunde bipartita, subaequalia, subconacea, patentissima late lineana, vix striata, apice subidentata, 35-40 mill longa, 6 mill lata (v. \ )
7. A. COOLHA (R Brown ex Don in Linnaean Transact 18. p 161), dibor excelsa, coma columnari, ramis sub 5 verticillatis bi-vel tri-verticillatis horizontalibus remotiusculis, ramulis alternis suboppositisve approximatis distichis horizontalibus subpendulisve, folns patentibus nigidis, ramulorum stenuum subapproximatis patentibus compilato-tetragonis subulatis bifurcatis mucronatis haud pungentibus tejiuibus (iridibus), flongerorum undique imbricatis apice inflexis ovato orbiculatis obtusis dorso carmatis margine vix «cabnuscus, amentis masculis ..., strobile elliptico-globosis, squamis obovato cuneatis Lum allis latis marginalibus subrhombeis apice incassatis lbique transverse et acute carmatis appendiculatis, appendicula lineari-lanceolata acuminata longiuscula recurva, lepidio squamis valde angustiore et paulo brevioribus eisque maxima ex parte adnato apice libero latiusculo obtuso ad margines denticulato-ciliato, nuculis parvis obovato-oblongis squamae adnatis > In Nova Caledonia (Cook Forst C. Moore' Duncan'), in Insula Pmorum (Coot, Forst. Vieillard ' n. 1279') in insula Observatory (Mat Gjllivia) et insula Amteiiia Novaem Hebridum ubi rara (C Mooie!) — Lamb Pin. edit. 2 p 81 t. 47. 1 A. et edit 2 p 81 tab. 54 excl. aly syn et pi Norfolk Cupressus columnans Forst Flor austr. n 351 ex parte A Cook Lindl » m Journ of the Hort Soc in Austr. tab. D, \*ndl Conif. p 188, Carr Conif. p 421, Goid Im p. 27 Hnt 267. Hochst Nadelhol? p. 12. A columnans Hook ' Bot Mag' 2fi\*? Flor. desserr. 7 p. 243 t 7-14. A subulata et A intermedia V. Bill f pi. exs. cc Eutacta Cookii, subulata, minor, Pancheru et humilis, Carr. Conif. edit. 2 p 612 614 615 Arbor 10 pedes alta, columnaris Folia ramulorum sterilium 8-12 mill. longa. 1-1/2 mill lata Strobili 10-12 cent. longi, 7-8 cent. lati. Squamæ mediae sine alis 32-35 mill. longae. 25-30 mill. latae Nuculae 20 mill longae, 8 mill. Utrp (v v)

II. DAMMARA *Rumph. Herb. amboin.* 2. p. 174; *Lamb. Pin. edit.* 2. p. 70; *Endl. Conif.* p. 188; *Hook. fit. Fl. of New Zeland* p. 231; *Can. Conif.* p. 424; *Gord. Pin.* p. 77; *Henk. et Hochst. NadelhiJltz.* p. 209. — *Pini spec. Lamb. Pin. edit.* 1. vol. 1. p. 61. — *Abietis spec. Poir. Diet.* 5. p. 35. — *Agathis Salisb. Linn. Transact.* 8. p. 311; *Aic/i. Com/,* p. 151. t. 19.

Flores dioici. *Masculi.* Amenta in ramulo brevi vel brevissimo ramo basi adnato vel libero axillaria vel extraaxillaria, solitaria, cylindracea vel ovali-oblonga, basi perulis cincta. Bracteas plurimae, arete imbricatae, axi insertae, inferne angustatae et fere horizontales, apice fere orbiculari sursum versae, subtus antheriferae. Antherae 6-plures, saepe duplici ordine dispositae, longae, strictae, uniloculares, loculo postice longitudinaliter dehiscentes. *Feminei.* Amenta subgloboso-ovata, in ramulo longiusculo vel breviusculo solitarie terminalia. Squamae plurimae spiraliter dispositae, dense imbricatae, e bractea coriacea lata et lepidio multo mindre adnato compositae, supra basin versus foveola leviter insculptae. Ovarium solitarium, inversum, basi adnatum lenticulari-compressum unilatum. Stylus brevissimus. Stigma suborbiculare. Strobili ovato vel ovato-globosi, in ramo longiusculo vel breviusculo, saepe squamoso, erecti vel patuli, solitarii vel gemini. Squamae plurimae, coriaceo-lignosae, dense imbricatae, fere horizontales, apicem versus incrassatae et sursum versae, demum ab axi solutae. Nucula sub quavis squama solitaria, inversa, libere pendula, ovata vel oblonga, compressa. Pericarpium membranaceum, utrinque in alam productum, ala altera brevissima, angusta et marginiformi, altera cultriformi, squamam aequante vel ejus marginem lateralem superante. Embryo ex Rich, et Endl. in axi albuminis carnosus antitropus, ejusdem longitudine, cotyledonibus 2 semicylindricis obtusis, radícula cyhndrica infera. — Arbores excelsae, in insulis Oceaniae tropicalibus et temperatis sylvas densas formantes, resinam copiosissimam scatentes. Truncus rectus, ligno albo, inferne longo tractu nudatus, superne ramosus. Rami subverticillati, horizontales vel subjacenduli, basi incrassati. Folia coriacea, subopposita, pier unique subdisticha, latiuscula, elliptico-oblonga vel ovata aut ovato-lanceolata, obtusa vel obtusiuscula, integerrima, enervia, striata. Species fere omnes parum uotae et botanicis peregrinatoribus commendandae.

1. D. ALBA (*Rumph. Herb. amboin.* 2. p. 174. t. 57), arbor excelsa, trunco recto, coma pyramidalis, ramis sub-4 subverticillatis horizontalibus subpendulis, ramulis subcompressis ad basin foliorum paulo incrassatis, foliis coriaceis suboppositis, in ramulis superioribus alternis subdistichis patentibus remotiusculis oblongo-lanceolatis obtusis, basi fere in petiolum brevem subcontortum angustatis leviter striatis, margine integro vix revoluto, amentis masculis solitariis alternis vel suboppositis in ramulo brevi ramis basi adnato erectis patulisve ovali-oblongis, bracteis antheriferis arete imbricatis, apice fere orbicularibus et denticulato-ciliolatis, antheris 8-24 fere duplici ordine dispositis, strobilis in ramulo crassiusculo longiusculo hinc inde squamis paucis transversis praedito erectis ovalibus apice rotundatis, squamis arete imbricatis euneatis apicem versus incrassatis apice rotundatis et acutis subinflexis, margine utrinque prope basin unidentatis, nuculis ovoideo-oblongis, ala laterali ovali-orbiculari marginem squamularum superante. ^ In regione media maritima insularum Moluccarum, in Amboina ubi sylvas efforinat (*Rumph. Labill.*), Celebes (*Blume!*), nec non in Java (*Blume, Zolling. I.*), Borneo (*Korthals, Beccari!*), et in insulis Philippinis (*Cuming n. 906!*). Arbor javanensis visci foliis latioribus conjugatis, *Dammara alba* dicta *Sherard in Raii Histor.* 3. *Dendrol.* p. 130. *Pinus Dammara Lamb. Pin. edit.* 1. vol. 1. p. 61. t. 38 et 38 bis. *Abies Dammara Poir. Diet.* 5. p. 35. *Agathis loranthifolia Salisb. in Linn. Transact.* 8. p. 312. t.;; *Blume Enum. pi. Jav.* p. 90. *Agathis*

Dammaia Rich Conif p 83 t 19 D onentahs Lamb Pin edit 2 p 70 t. 43 et 3 P. 97 t o4, Lndl Conif p 189, Carr Conif p 42o, Gord. Pin p 79 Henk et Hochst Nadelholz p 210 D Rumphn Presl Lpim bot p 23b Podocirpus Phihppeanus Benth pi exsicc *Dammara Malay* Arbpr excelsa Abietem Rumphio teste referens, resinam albam pellucidam copiosissimam a pictonbus nostns valde usitatam, *Dammara Puti* seu *Dammar Batu* in Amboina appellatam scatens, cortice e iubro cmereo trunco recto nudo superne tantum comam, respectu arbors, parvam gerens Folia bupia laete vindia, subtus palhde vindia, in arbonbus junionbus majora, 10 13 cent longa, 3-4 cent lata in ramis supremis 5-7 cent longa 1 1} 2 cent lata Amenta masc 18- 0 mill longa 9 mill latd Strobili 8-97 cent longi, 5-7 cent lati Squamae mediae 26 30 mill longae, 24-35 mill latae, ^n parte extenoie sui recta 7-8 mill altae (v v)

- 2 D ROBLSTA (C Mooie' pi exsicc), arbor, lamis subverticillatis hon/on-tahbub subpendulisve folns conaceis suboppositis subdistichib o^all lanceoldtis obtubis vel obtusiusculis basi subpetiolatis et subcontortis, supia nitidis, subtus in bicco levit^r sinatis, amentis masculis sessihbus solitarns vel oppositis cjlindraceutis obtusis curvuhs vel rectiuscuhs folio subdimidio brevionbub, biacteib anthenfeib arete imbiicatis apice bubrhombeis crassis dorso comexis \ix denticulatis anthens , strobilis in rimulo longiusculo patuhs ovalibus apice rotundato depressiusculo sqmmis lati» obovato-quadiatis basi cuneatis et margine pi ope basin utnnque dente elongato squamae basin aequante praeditis apicem versus mcrassatis apice ohtusi^simo subtruncato sursum \erso, nuculis obo\ato-oblongis comprebsis ala sublata rah ampla obovato ovali squamam aequante a maigine ipsiu^ remotiuscula i Ad fluviorum npas in hova Hollandia orientdli-boieali propo Wide Bay (C Mooie') D Brown in Catal of the Natur and Industr Products of Queensland 1862 p 16 Arbor 36 72 ped alti Rami.^ 10 \erticillati toha 8-10<sup>1</sup> cent longa 2<sub>1</sub> 4 cert lata \raenta miscula *Ik* 38 mill longa, 10 mill lata Strobili 8 9} cent lon,i 5 7J cent lati Squamae mediae 12 33 mill longae 3o 40 mill latae Nuculae 12-13 mill longce,6mill laUe Ala 18-20 mill longa, 10 mill lata (v s)
3. D OVATA (C Moore, pi exsicc ), arbor, ramis sub 4 subverticillatib subhoiizontahbus teretibus baM \ix inciassats folns conaceis suboppositis subdistichis ovato oblongis vel o\ato-janceolatis acutiusculis basi subpetiolatis et subcontortis vmdibus, amentis masculis strobilis magnis in ramulo breviusculo\* erectis o\ali globosis obtusis, squamis latissimis obovatis Mibhon/onialibus sub apice mcrassatis, apice rotund ito mte^io nuculis 5 In Nova Caledonia (C Mooiei George Bennet') — Gord Pin Mippl p 28 Arbor resinam albidam copiosim scatens, coitice cinereo Folia 10-12 tent longa, 2<sub>2</sub>-^| cent\* iata btr<sup>o</sup>LIn ^!~ cent longi, 10 cent lati Squamae mediae 40 42 mill latae, in parte eUenoie surrecta 5-5 J mill altae (\ v)
- 4 D OBILSA (Imdl 1 m Journ of the Hort ^oc 6 p 270), aibor excelsa, ramis verticillatis honzontahbus p tuhsve, folns subconaceis crebns subimbncalis suboppositis oblongis obtusibsimis \el obtusis margine revolutis, basi subpetiolatis et contortis, amentis masculis , ^trob hs in lamulo crasso breviusculo patulis ovato globosis obtusis ^quamis latis sub apice inciassato gibbosis et erectis apice obiusiusculo, nuculis <5 In insulis Aniteura et tnomango Novarum Hebndum (C Moore'; — Lindl in Paxt Flow Gaid 2 p I46cumicone Floi des Serreb, 7 p 274 cum icme Carr Conif n 42q Gord Pin p 79, Henk et Hochst N <delholz p 2Jfa Ar! or, uti D macrophylla D austiahb teste Moono, sylvarum m insulis Oceaniae DiinceDs Iruncus rectus interne denudatus, superne ramosus ramis loneis v|a| dis Folia b<sup>1</sup> vix 8 cent longa 22-30 mill lata Strobih 9.91 em<sup>o</sup>-lonai<sup>7</sup> 8 cent lati ipice haud depressi squamae mediae 42-44 mill ht\*\*~ m TM,|l extenore surrecta 7-8 mill altdc (v s) 1 uae, in pane
- S D MACROPhLLA (Ln dl 1 in Jouin of the Hort Soc 6 p 27H arbor excelsa, 1 inns veiticillatis, loins subconaceib remotiu&culis amtlis s'uboppositi oblongovel o^ato lanceolatis oblusiuscuhs margine subre\ofuiis basi subpetiolatis et subcontoitis, amentis masculis , strobilis in raraulo ciasso Ion-

- giusculo eiclis globoso-ovahbus apice rolundatis, squamis latis sub apice  
 incrassatis et trectis apice acutiusculis nucuis  $\nearrow$  In Vanikollo vel PP  
 rousu insula \rcipelagi Sanctae Crucis in Oceania (C Moore') — Hook M e ,  
 Can fonii p 430, Gord Pin p 78 Henk et JHochst ISadelhnt/. p. 21b  
 (exel syn D lobu&tae Moore) D Peiousn Hook in Journ of Botany and  
 Kew Miscell 4 p 115 t 4 Arbor 100 pedahs (Lindl ) Folia, ut wdentur  
 vindia, 13 lh cent longa, 4 vix 6 cent lata superiora probability mmoia  
 Stiobili 8-9 tent longi, 7-8J cent lati Squamae 4 cent iere latae, in paite  
 txtenoic surrecta 9-10 mill altae specn s meñus Illustranda sed a D robust\*  
 piscipue squamaium apice diversa ( \ s ramum folnfeium et strobilos inte  
 gros )
- 0 D ViutNSis (Seeman' in Bonpl 9 p 139) arbor excelsa ramis , folns  
 conaceis suboppositis subdistichis oblongo vel ovah lanceohtis obtusis basi  
 in petiolum bra em subcontoitum angustatis, supra (ut videntur) \indibus,  
 subtus glaucescentibus (in sicco), maigme subrevolutis, amentis masculis  
 sobtanis in ramulo longiusculo eiectis ovah oblongis obtusis, biacteis an-  
 thenferis apice suborbicutanbus denticulito ciliolatis, strobilis in ramulo  
 crasso longiusculo erectis ovato-globosis obtusis, squamis transverse ovalibus  
 basi parum angustatis apicem versus incrassatis et sursum versis apice icu-  
 tiusculis, nucuis  $\frac{45}{in\ Vtl\ sive\ *l}dj$  insuhs prope ISisanam et in mon-  
 tibus ad 300 ped elev ubi \idetur iara (Milne' Seeman 1) — Gord Pm  
 Suppl p 28, Henk et Hochst Nadelholtz p 216 Dakua Leki Vitiens Arboi  
 40-100 ped alta tolia 6-13 cent longa 1j-4c<sup>o</sup>nt lata Amenta masculi  
 16 17 mill lon^a 8 mill lata Strobih 7[-9 cent longi, 7 cent. Jati SquamT  
 mediae 26-28 mill lata?, in parte extenore surrecta 6J-8 mill altae. An D  
 longifoha Lmdl<sup>9</sup> (v s)
7. D AUSTRALIS (Lamb Pin edit. 2 p 73 t 44 et 3 p 102 t 55. ubi er-  
 ronee monoica picta), arbor excelsa tiunco recto, ramia subverticillatis ho-  
 nzontahbus ramulis obscure angulatis, folns conaceis «uboppositis vel in  
 lamis supenoiibus alternis haud distichis patentibus approximate oblongis  
 vel lanceolatis obtusis supiemis ovalibus vel ovah-oblongis apice subemargi-  
 natis, omnibus basi vix contorts se^sihbus enervus glaucis amtntis masculis  
 axillanbus solitarns alternis vel suboppo^itis in lamulo biev>ssimo lamis basi  
 adnato patulis cyhndraceo-oblongis obtuas, biacteis inthenfens arete lmbn-  
 ratis apiro fcio orbiculanbus denticulatis, intheris strobilis in rimulo  
 brevi VP! brevismmo crasso erectis patuhsve obovatis, squamis parvis oboviti  
 cuneatis apicem versus gibboso incrassatis apice obtusmsculo patulis nuculi-  
 cva'ibus ala paiva laterah marginem squamae non superante \$ In httoie  
 oiipntali \o\33 Hollandia? boreahs ad Sinum Mercurm propp fluvium lame-  
 sim (Banks et Soland), ad Uanft-iloa (All Cunningh'), in ^ova Zelaudi i  
 (RaouP Home' Capt Sir W Symonds') — All Cunningh' in Ann. of Nat  
 Hist I p 211, Loud Arbor bnt 4 244-) f 2310-2311, /uccar in Abhandl  
 der Mathem phys klass derBeihn Akad 3 t 1 1 21 et t 2 f 16 et 17  
 Endl. Conif p 190, Hook fil Flor of New Zeland p 231, (air Conifp 427  
 Naud in Fl des berres 11 p 7T cum icone, Gord Pin p 67 Henk ei  
 Hochst Nadelholt7 p 211 Agdtbis nistrans Salish in Linn Transact X  
 p 312 Podocarpus zamiaslohus A Rich H \o\ Zeland p 230 Kauri indi^  
 Nov Zeland Aibor80 100 interdum 140 H\*0 ped alta, lesinim copiosissi-  
 mim Kiun dictim sutens, trunco recto coitice crasso, li^no dlbo, coint  
 terminah, pro ratione plantae brevi \*oha infenora 4j-7 cent longa 9-12  
 mill lata suprema 14 2o mill longa, 8 11 mill lata Amenta mascula 18 I/  
 mill longa 7 8 mill lata Strobili 7 8 cent longi, 5 6 cent lati Squamae  
 mediae 22 25 mill latae in parte exienoio surrecta 9-10 mill altae Nucuis  
 Jion vidi (v v sine 11 et lruet)
- 8 D MOORII (Lind! in Journ of \ho Hoit Soc. 6 p 271), arbor JO-40  
 ped alta folns conaceis suboppositis patentibus approximate hnean-vel  
 oblongo knceolatis subfalcatis obtusis vel subemarginatis basi fere in petio  
 him subcontortis et decurrentibus enervns subtus ghucis margmibus in  
 sicco subrevolutis strobihis in lamulo longiusculo erectis parvis o\ah-obovi-  
 us, squamis paivis latis piope ipicem fere lotundatum et sursum versiin  
 bnboso mcrassatis nucula ala maigmem ^quamT superante , In No\ a

Caledonia (C. Moore), in Monte de Balada Vieillard! (Pl. de la Nouv. Caléd. n. 1280.) — Carr. Conif. p. 429; Gord. Pin. p. 78; Henk. et Hochst. Nadelhölztz n. 216 (excl. syn. D. ovata?). Folia  $6\frac{1}{2}$ - $7\frac{1}{2}$  cent. longa,  $5\frac{1}{2}$ - $6\frac{1}{2}$  mill, etiam ipso in ramulo lata. Strobili 6 cent, fere longi, 4 cent, fere lati. Squamæ mediae 14-15 mill, latæ, earum parte surrecta 5-6 mill, alta (v. s.j.).

*Species dubiæ.*

- D. LONGIFOLU (Lindl.), foliis longis strictis. In Viti vel Fidj insulis. — Gord. Suppl. p. 28. An eadem ac D. Vitiensis Seeman?
- D. MOTLEYI (Parl. in Enum sem. hort. bot. Mus. Florent. anno 1862. p. 26), arbor excelsa, foliis parvis 3-4 cent, longis 15-21 mill, latis oppositis basi in petiolum brevem attenuatis et vix contortis ellipticis apice fere acuminatis margine baud revolutis In insula Borneo prope Bangarraassing (Motley! 1857).
- 1). VEITCHII (Henk. et Hochst. Nadelhölztz. p. 216), foliis oppositis ovali-lanceolatis. In Japonia (Veitch). An Podocarpi sect. Nagejæ sp.?
- D. HYPOLEUCA (Moore in Henk. et Hochst. Nadelhölztz p. 217). In Nova Caledonia (C. Moore).

Subtribus II. *PINEM.*

Flores monoici. Amenta mascula. Bracterc axi spiraliter inserts\*. Anthera\* 2, subglobos;r vel oblongir, longitudinaliter vel transverse antice dehiscentes. Strobili squama<sup>1</sup> axi spiraliter inserlu<sup>1</sup>, imbricatje, sa'pius persistentes, raro a rhachide solutæ. NuculaB gemina;, collaterales, vel raro aborta solitarieC, peodiilæ. Pericarpium alatum. Cotyledones 2, profunde partitæ, unde videntur 3-15, germinatione epigeæ. Folia linearia, plana, compresso-triquetra, semiteretia aut subtetragona, solitaria, conferta ant disliche patentia, iu ramulis abbreviatis 2-5, rarius plura fasciculata.

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 III. PINUS Linn. Gen. edit. 2. n. 879; Endl. Conif. p. 81 et Gen. Plant, p. 260; Parl. Fl. ital. 4. p. 31. — Pinus, Abies et Lark Tourn. Instit. p. 58. V586.— Pinus et Abies Linn. Gen. edit. 1. n. 731,732; Juss.Gen. p. 414; Rich. Conif. p. 14. i. 147. t. 11. 12. J3. 14. 15. 16. 17. — Pizius, Picea, Abies, Larix et Cedrus Link in Linn.ra 15. p. 482. 516. 525. 333. 537. — Pinus, Abies, Cedrus et Larix Spach Hist. des règrt. phané'r. 11. p. 369. 403. 427. 431. — Tsuga, Abies, Picea, Larix, Cedrus, Pinus, Carr. Conif. p. 185. 195. 236. 269. 281. 291. •—Abies, Cedrus, Larix, Picea, Pinus, Pseudolarix, Gord. Pin. p. 1. 39. 123. 14. t. 162. 292. — Pinus, Larix, Pseudolarix, Cedrus, Abies, Henk. et Hochst. Nadelhblts. p. 19. 128. 139. 140. 147. — Keteleria Carr. in Rev. Hort. ann. 1866, p. 449. — Tsuga, Pseudotsuga, Keteleria, Abies, Picea, Larix, Pseudolarix, Cedrus, Pinus, Carr. Conif. edit. 2. p. 245. 256. 260. 265. 317. 351. 363. 366. 381.

Flores monoici. *Masculi.* Amenta solitaria, axillaria vel in ramulis abbreviatis terminalia, aut lateralialia spicata, saepe cupitato-congesta. Bracteæ plurimæ, axi insertæ, inferne angustatæ et fere stipitatæ, apice ssspe orbiculares et sursum versæ, subtus antheriferas. Antheraa 2, subglobosas vel oblongæ, uniloculares, loculo rima longitudinali aut subtransversa antice dehiscente. *Feminei.* Amenta terminalia solitaria vel fasciculatim congesta. Squamas plurimæ, e lepidio carnosio vel coriaceo et bractea tenui, brevioræ aut longioræ distinctæ vel basi adnata comDO-sitæ. Pistilla ad basin squamarum gemina, collateralialia, inversa solumma- ,idnata. Ovarium oblongum vel subglobosum. Stylus brevissimus.



Stigma orbiculare vel bifidum Strobilus globosus, ovatus, cotiicus vd cyhndraceus, secundo vel raro pmo anno maturescens Squamaj plu-  
 nmaB, conaceae vel ^jepius lignescenles, apice aequales vel apophysi  
 incrassatse, apophysi sa?pe mucronata, basi pro receptione nucularum  
 excavatae, persistentes et huntas vel ranus a rhachide solutse, bracteas  
 distinctae vel plus mmusve lepidio adnalae. Nuculas gemmae, collatera-  
 les vel abortu solitanae, inversae. Pencarpium osseum vel conaceuni,  
 basi in alam membranaceam productum vel apterum Epispermium  
 tenue, ficile separabile Embryo m ixi albuminis carnosio-oleosi, ejus-  
 dem fere longitudine cotyledonibus 3 15, lineanbus, germinatione epi-  
 gaeis, i idicula cylindraceo-coinca, infera. Arbores exeelsae, interduin  
 regni vegetabihs gigantes, paucaa irbusculae humiles saepis<ime sem-  
 pervirentes, resmosae, in temperatis et fngidis hemisphaern boreahs a  
 mans httoe aJ teiminum vegetdtionis arboreae provementes, in regione  
 montana saepe syhas den^as et vastas constituentes Truncus reclus  
 hgno albido Rami verticillati vel subverticillati, patntissimi vel patuli,  
 apice saepms adscendentes, coma saepissime pyramidah vel raro effusa  
 Folia hneana, plana, compresso tri^rona, semiteretia aut subquadrang-  
 gula, <3Bpissime ngida et mucronato-pungentia, solitini, conferta aut  
 distiche patentia, vel ob rimulorum abbrviatione gemina, tern i, qua-  
 terna vel quina aut plura fasuculata, basi vagina scanosa cincta

Subgenus I *PINUS* Endl *Conif* p 137 — Genus *Pinus* Lvnn  
*Gen edit 1 n 7\$*, *Juss I c*, *Spach Hist des veg phan6i* 11.  
*p 369, et pi aucloi*

Amenta mascula lateraiia, in infima ramulorum novellorum  
 parte congesta, mdeque in spicam compositam disposita, femmea  
 terminalia, sohtana vel fasciculatim congesta Strohilus secundo  
 vel tertio anno maturus Squamae conacea? vel hgnosae, apice apo-  
 ph)si dimidiata vel pyramidata incras&atde, apophysi \ertice umbo-  
 nata, persilentes Bracteae lepidio basi vel iere totidem adnatae,  
 Illoque semper brevjoies Nuculae alatae vel ranus apterae — Ar-  
 bores vel ranus arbuscula^, sempervirentes Gemma3 perulalae,  
 perulae numerosissimae per fiondescetiam a se m vicem remotae et  
 per totum ramum fohorum loco dispositae, membranaceae, aridae  
 Ramuh abbreviati Folia gemina, terna, quaterna vel quina, ngida,  
 semiteretia vel compre&so-tiiquetra, stomatibus m utraque facie m  
 series simplices, numerosas dispositis

Sectio i PINEA — Squamarum apophys^s pyramidata, umbone centrah Nuculae  
 alatae vel ranus apterae

A Pinaster — \*olia gemina, semiteretia, aut ianssime prope apicni ramulo-  
 rum teina et compresso tiujuetra, hbera vel ranssime lacie connata — *Pinus*  
 sect i *Eupitys Spach Hut de\* leg phaner 2 p 374.* — Sect *Pin ister et*  
*Pinea Endl. Conif p. 166 et 182 et pi auctor*

1 P MONOPHYLLA (Ton\* et Fremont in Report of the t\plonng expedit tr  
 the Rock^ Mount in 1842 and to Oiegon and Noith California in 184J 1844  
 p 319, t 4), arboi humihs, coma effusa, rarqis vei ticillatis pateatibus sub  
 deflexisve tortuosis ^agl nls bre\ibusfuscescentibus cito lacens, loins geminis  
 facie tonnatis bre^ibus ngidis tectis vel cuivulis subteietibuslaivibus mucro-  
 natis pungentibus glaucis, strobihis ovatis, squamarum apophysi pyi amidata

iecurva umbone truncato (Endl ), nucuis oblongis subangulatis pallidis dunnucillis dp tens 5 In elationibus Sienae Nevadae California^ ubi detexit cl Iremont, in Monte Jefferson in Cascade Range ad elev 6500 ped (Jeffrey) P. Fremontiana Endl Comf p 183, Cair Conif p 106, Goid ' in Journ oftheHort Soc 4 p 293 cum icone, Pin p 194, Henk et Hochst Nadelholz p 62 *Nut Pine* Angl -amenc Arbor saepe 20 ped alta lesinosa lolia gemina, in plantis cultis semper vidi in folium umcum conglutinata, k 1-1 cent longa, 1] mill lata huculae 12-16 mill longae, 7-9 mill latae (v v.)

- 2 P BOLANDERI, aibuscula, ramis verticillatis, squamis fulcrantibus lanceolatis acutis margme subfimbriato-ciliatis erectis, \aginis brevibus stinctis demum lacens, foliis geminis approximatis brevibus ngidis erecto patuis curvuis bemileretibus in sicco supra canaliculatis margine ux scabnuscahs mucronatis subpungentibus vindibus, strobilis 2-4 veiticillatis lunionibus in ramulo brew subcernuis subglobosis adultis subsesbihbus pendalis et ramo adpressis oblongo cyndraceis obtusis \el obtusiusculis curvuis vel rectiuscnhs, squamarum apophysii rhombeo quadrangul! elevato pyamidata, canna transverse acuta, lateie supenore convexo, umbone latiusculo piominente acuto mucionato, mucione longiusculo incimo, nucuis J In Californiae planie tibus prope *Mendocino* detexit cl Bolander P muicata?? var Boland pi exsic Arbubcula 10 15 pedes alta Folia 30 40 mill longa, \{ mill lata. Strobih saepe inciquilateri 5 J-6 cent longi, 2] cent lati. in sicco videntur e luteo-badu Squamarum apophysis latere extenore strobilorum saepe magis elelata, latere interiore prope basin saepe depresso-pyramidata, squamarum mediarum 5 10 mill longa, 7 8 mill lata mucio umbonis in squamis superioribus longiusculus fuscens Ab omnibus hujus sectionis speciebus stiobihis omnino diversa (v s)

- J I\* MIRICVTA (Don in Linn lians 18 p 441), aiboi niediocns coina o\ ita, iamis patuis, squamis fulciantibus lanceolatis acuminatis maigmc longe hmbnato cihatis connexis, vaginis longiu^culis cito fuscescentibus laceris, fohis geminis longis ngidis patuis semiterctibus supra leviter canaliculatis margine acabns mucronatis subpungentibus e vindi-glaucenscentibus, amentis mascuhs numerosis parvis cylindraceis in spicam densam longam congestis, bracteis anthenfens suborbiculuibus subcrenato-dentatis strobilis 2-6 \verticillatis junioubus in ramulo brevi horizontahbus subglobosis adultis subsesihbus subpenduhs \el horizontahbus ovatis, squamarum apophysii pviamidato subcompressa, in squamis inferioribus latens exterioris> saepe valde e^ato pyamidata, canna tians\erse acuta, lateie supenore convexo, umbone acuiLimto ianceolato mucronato-pungente, mucrone recto vel subincurvo, nuculis o\alibus utnnque convexiuscuhs nigns ala subtnpio bievionibus 5 In California ad *San Luis Obi&po* ad elev 3000 p 35° lat (Coulter), in montibus piope *Monterey* et ad *Mission de la PurissUna* (Hartweg) in *St&kyon Mountains* elev 7000 ped (Jeffrey), prope *Monteiey* (Bolander') — Lambert Pin 3 t 84 Antoin (onif p 32 t 14 f 1, Endl Conif p 363, Carr Conif p 161, Gord in Journ of the Hoit Soc 4 p 216 cum icone, Pin p 173, Henk et Hochst Nadelhulz p 00 P Idgauana Hartw<sup>f</sup> in Journ of the Hort Soc 3 p 217 et 22b P Murray ana Balf Oreg Comm ?p 2 cum icon Arbor 20 40 ped alta, cortice cinereo Folia 10 lo cent longa, 1 \ mill lata Amenta mascula <M1 mill longa, 2<sup>1</sup> 3 mill lata, in spicam 410 cent, longam disposita Strobih saepe inaequilateri-ovati, b 8 cent longi, 4-4J cent<sup>1</sup> lati, pnnum fusco-rufescens, dun subcineiei, squamae exteiores maiores eaiurn apophysis 7-9 mill longa 13 17 mill, lata (\ \.)

4. P PUNGENS (Michx Arbr. forest 1 p bl t 5 et North Amenc svlv 3 p 131 t 5), arbor, coma expansa, ramis subpenduhs, squamis fulcrJntihik lanceolato-acuminatis fimbriato cihatis con\cxis, vaginis breviuviiL q^iit0 iuscescentibus et laceris, foliis geminis interdum terms bieubus i.in^%:h contortis patuis semiteretibus maigine scabns crasse mucronatis vindibus amentis mascuhs bievuus oblongis obtusis congestis, bracteis antheriferis suborbiculanbus crenato-denticulatis, strobUis 15 Junionbis m^ramulo ciasso stiobilo ipso subaequali subceinuis subfflobos.s, adultis sessilibus vel MiUessihbushonzontahbus ^el subpenduhs ovatoconicis obtusis, squamarum

apoplysi <It vato [jiamidala iecU pitei te vel ad basin strohieh subrecutva canna Uans\ersa icuta, umbone conico longiusuilo icummato pungenie subuncmato nuculis parvis obovato oblon^is fuscis, ala lata dolabnforini subquadruplo brevionbus /> In elation bus montium Caiolime *Table Mouv tains* et *Grand lather* nee non in Virginia? montibus caeruleis, in Marjlandia (Ch More'), in montibus Pennsylvania (C Mrehan' comm a cl Canby) — Lamb Pin edit 3 p 34 t 17, Antoin Conif p 18 t 5 f 4, Lndl Conif p 166, Carr Conif 459, Goni Pin p 181, Hcnk et Hochst p 21 *TahU Mountain Pme* Angl Amenc Arbor40 50pod aha Folia 7 8 cent longa lj mill vix lata Amenta mascula 8 10 mill longa 2j3mill lata Strobili 6 8 cent longi, 5 6 cent lali Squamarum apophysis pallide badia vix luteola opaca, squamarum mediarum 10 mill longa, 15 16 mill lata Nuculae 5 6 mill longde, 4 null vix latae, fuscae et fere nigrescentes, aid, 1 > 16 mill longa, G 7J mill, lata (v v)

- 5 P. INOPS (Soland ex Ait H Kow edit 1 vol 3 p 367) arbor comi ( flusa, ramis toituosis squamis fulciantibus lanceohtis acutis margine hmbnatoconnexis, ^a^inis brovissimis cito Weens foliis gemmis bievibus ngidis subcontortis patulis semittittibus supra planis raaigme scabns bie\iter mu cronatis vindibus amtntis mascuhs plunbus congestis breviusculis cvhndra ceis obtusis, bracteis diithenfens suborbiculanbus ciholito denticulate, strobilis junionbus in ramulo strobilo ipso brevior aut subspquili cernuis subglobosis, adultis sessihbus vel subsessihbus 1-3 verticillatis patulis hon /ontahbus vel subpendulis lectis vel curvuhs oblongo conicis ootusiuscuhs squamarum apophysi subrhoroidea subpyramidata, margine supenore subcrenato, umbone mucromto, mucrone longiusculo subulato recto vel rectiusculo pungento nuculis ovoideis bisi angustatis, ala dolabnformi subtnplo brevionbus > In America boreali a devteia Hudsoms npa ad Larohnam in solo ando et arenoso — Lamb Pin edit. 2 p 21 t 14 et 1 v 1 p 18 t 12, Michx North Amenc sylv 3 p 129 t 4, Antoin Conif p 17 tab. 5 f 3, Lndl 1 Conif p 167, Carr Conif p 360, Gord Pin. p 167 Henk et Hochst Nadeln Iz p 22 P Virginian i Mill. Diet n 9 P vanabihs Lamb Pin edit 1 p 22 t 15 edit 2 p. 2o t 16 et edit 3 p 29 t 14, Antoin Conif p lo t ^> f 2 Lndl (omf p Ib8 *hm Jersey Pine, Scrub Pint* Angl Amenc Aibor mtudum 10 -iO-pedalis, cortice fusco, ligno e iubroluieolo Folia 4-^ cent longa 1 mill et paulo ultra litl Vmenta mascula 10 14 mill longa, 3 \ 4 mill lata Strobili 4-7 cent longi, 2 J-3-J cent lati Apophysis squamarum mediarum 10-12 mill lata, 6-7 mill longa (v. v)

- 6 P MITIS (Michx Arbr 1 p 52 t 3 ^orth Amenc S>lv 3 p 120 t 137) arbor coma subpyramidah, ^aglnls bieuusculis strictis persistentibus, folns geminis semiteietibus vel prope lamuloum apioem terms torn presso-tnquetns omnibus longiu^culib rigidis patulis margine scabns crasse mucronatis vindibus, amentis masculis plunbus congestis breviusculis cjlin dnceis obtusis biacteis anthenfens suborbiculanbus ciholato-denticulati", strobilis 1 2 junionbus m nmulo strobilo ipso subapquali erecto patulis ova hbus subglobosisve aduitis subsps<ilibu<; subpendulis ovato conicis obtusis squamarum apophysi subihomboidea subdepresso pyramidata, canna transversa pirum elevata acuta, umbone mucronato, mucrone bnvissimo pun gente subincur\o vel tectiusculo nuculis parvis o\oideis, ala lata dolabnformi subtnplo brevionbus 5 ^n America boreali a dextera Hudsoni npa ad fontes DelawaraB et sporadice usque ad Louisianam, frequentissime in Marylandia liUoiah solo ando pi ope St loins Missouri (Riehl, n 531) —Antoin Com! P 16 t 5 f 1, Tndl Tonif p 167 Can Conif p 361 Gonl Pin p 170, Henk et Hochst Nadelholz p 23 P vanabihs Pursh Fl of \oith Amenc j P 643 P echinati Mill diet n 12 *Yellow Pine Spruce Pine, Short-leaved Pme* Angl Amenc Arbor 50 60 pedalis, ligno compacto usitatissimo Folia 8 10 cent longa, 1J-1 J mill vix lata Amenta mascula 11 17 mill longa, 3, 4 mill lati Stiobih 4j-5 cent longi, 3 cent lati Apophysis squamarum mediarum 6-7 mill louga, 8 9 mill lata (v. s)

- 7 p HunsoNiCA (Poir Diet Focycl 5 p 339), arbor humihs, ramis iarn hori7Ontilibus vel subppndulis vaginis bre\ibus cito fusresrentibi set lac ens

foliis geminis approxiatis brevibus rigidis divaricato-palenlibus curvato-subfalcatis glaucescentibus subtu convexis viridibus margine scabris vel scabriusculis obtuse mucronatis, amentis masculis numerosis parvis subspicato-congestis oblougo-cylindraceutis obtusis, bracteis antheriferis semiorbicularibus subdenticulatis, strobilis 1-3, junioribus ovali-subrotundis subsessilibuserectis rectis, adultissessilibuserectis patulisve incurvis ovato-cylindraceutis acutiusculis, squamarum apophysi subrhombea nitida subpyramidata, carina transversa parum elevata latere superiore convexiore, umbone parvo breviter mucronato, mucrone obtusiusculo subreflexo, nuculis parvis apice oblique truncatis utrinque convexiusculis (nigris) ala tenui lata subtriplo brevioribus. 5 In America boreali frigidiore : in Canada hinc inde in rupestribus prope sinum Hudsoni (in Herb. Mus. Flor. I), in Nova Scotia!, in editioribus prope Flumen Columbia et in vallibus montium Rocky Mountains (Dougl. Bourg.), in insula Sitka (herb. Petrop.). Pinus canadensis foliis curtis et falcatis, conis medio incurvis Duham. Arbr. 2. p. 126. P. sylvestris ð divaricata Ait. Hort. Kew. edit. 1. p. 3. t. 366. P. rupestris Michx Arbr. forest. 1. p. 49. t. 2. North America sylv. 3. p. 118. t. 136. P. Banksiana Lamb. Pin. edit. 2. p. 7. t. 3. et edit. 3. p. 9. t. 3; Antoin. Conif. p. 8. t. 4. f. 2; Endl. Conif. p. 177; Carr. Conif. p. 381; Gord. Pin. p. 163; Henk. et Hochst. Nadelholz. p. 44. *Schrub Pine, Grey Pine* Angl. Americ. Arbuscula 2-10 pedes alta, resinosa. Folia 4-6 cent, longa, 1½ mill. lata. Amenta mascula 10-12 mill, longa, 3½ mill. lata. Strobili insigniter curvati, interdum fere uncinati, 4-5 cent, longi, 2-3 cent. lati. Squamæ exteriores majores, earum apophysis 9-11 mill, longa, 10-11 mill. lata; nuculae 2 i-3-J mill, longae, 2 mill, ratae; ala 8-10 mill, longa, 5-6 mill, lata, lineis fusciscentibus notata. (v. v.)

8. P. CONTORTA (Dougl. in Loud. Encycl. of trees 975. f. 915), arbor mediocris coma stricta, ramis numerosis horizontalibus, squamis fulcrantibus lanceolatis acutis margine membranaceis sublaceris, vaginis brevibus laxiusculis, foliis geminis approxiatis brevisculis rigidis erecto-patulis compresso-semiteretibus margine vix scabriusculis breviter mucronatis subpungentibus e viridi-luteolis, strobilis 1-3 venicillatis, junioribus ovalibus in ramulo brevi erectis, adultis in ramulo brevissimo pendulis subpendulisve, ovoideis obtusiusculis rectis vel curvulis, squamarum apophysi nitida pyramid ato-tetragona, carina transversa parum elevata acuta latere superiore convexiore, umbone mucronato, mucrone obtuso rectiusculo, nuculis parvis ovalibus subconvexis ala subtriplo brevioribus. ^ In America boreali-occidentali praesertim in maritimis et ad ripas fluviorum, sylvas densas saepe efformans, raro in montosis ubi usque ad 6000 ped. altit. ascendit. Frequens ad Cap. Desapointment et ad Cap. Lookout (Dougl.); in insula Vancouver (Lyll!), British Columbia (Lyll!), Rocky Mountains (Parry!), Columbia River et in California septentrionali (Newberry), in vertice Sierræ Nevadæ in montibus prope Walker's Pass (Soc. Oreg. ann. 1853. n. 740 et aim. 1854. n. 1478), prope Sonora (ex Torr.). — Endl. Conif. p. 168; Carr. Conif. p. 364; Torr. in Whipple's Report p. 85; Newberry Williamson's Report, v. 6. p. 34. t. 5. f. 11; Gord. Pin. p. 165; Henk. et Hochst. Nadelholz. p. 24. P. inops Hook. Fl. Bor. Americ. 2. p. 161 non Soland. Pinus Saskatchewanensis Hook. mss. P. Boursieri Carr. Rev. Hort. ann. 1854. p. 223 cum icone, Flor. des Series, 9. p. 200 cum icone et Conif. edit. 2. p. 475. Arbor 25-40 et in fertilibus 50-00 pedes alta, resinosa, coma fere conica. Folia 6-7 cent, longa, 1½ mill, lata, in sicco supra canaliculata, Strobili 3-5 cent, longi, 2-3 cent, lati. Squamæ exteriores majores, earum apophysis; 8-9 mill, longa, 7-8 mill, lata mucrone breviusculo rectiusculo, raro longiusculo et curvulo. (v. s.)
9. P. PINEA (Linn. Sp. pi. p. 1419), arbor excelsa, coma umbelliformi, ramis verticillatis corymboso-fastigiatis, squamis fulcrantibus ovato-lanceolatis attenuato-acuminatis superne reflexis fimbriato-ciliatis, vaginis brevibus strictis demum fuscescentibus, foliis geminis longis rigidiusculis patentibus subdeflexisve semiteretibus margine scabriusculis breviter mucronatis subdumgentibus viridibus, amentis masculis numerosissimis parvis in sDicam crassam oblongam dense congestis cylindraceuto-oblongis obtusis rectis vel curvulis bracteis antheriferis suborbicularibus subcrenulato-ciliolatis strobilis 2 ODDO sitis solitariisve, junioribus in ramulo crasso strobilo ipjp subaDquali erectit

vel eiccto-patentibus globosis, adultis in ramulo brevi aut brevissimo subhorizontalibus vel subpendulis magnis ovato globosis, squamarum apophysis crassa elevato pyramidata nitida an<sup>u</sup>lata angulis canndque trans<sup>l</sup>ersa vix prominentibus acutis, umbone subtetiaquetro lato planiusculo vel parum prominente mutico \el in squirms supenonbus submucronato, mucrone brevissimo subinflexo, nuculis geminis sohtanisve matins obovato-oblongis subingulatis osseis ala brevi lata obtusissima facile decidua longionbus \$ In arenosis mantimis et in colhbus praecipue aura mmina afflatis totius regionis Meditenanae, uln sappe sata, et in Africa boreah, Madeia et msulis Canarns in Lusitania (Brot Link' Welwit<sup>c</sup>h' n. 26), Hispania usque ad 3000 ped ele<sup>l</sup>at (Boiss) i)rovincns boreall orient exceptis (Cav Wilk Langc), ad radices de la Sierra de Segura (Bourg ' n 885), in Galln Mediterranea (Gren Godr alnque), m Itahae ora occidental<sup>^</sup> in agro Ravennate, ubi celebrem Pinetura enormat, in collibus prope /anclem et Herbitam (Guss), in Illyiaprope J himium (Noc 1138), in Dal m iti a. msula Mclada (Vis), m Pcloponneso (Sibth, Heldr'), m Creta, ubi tantum esse spontaneam opmatur Cl Endliuherus, in Bilhynia, Macedonia in Asia mmon (Tchihat) — Lamb Pin edit 2 vol 1 p 11 t 6 8 et edit 3 |o| 1 p 23 t 10 11, Antoino Com! p 20 t 3 i 2, Schouw in Ann des bcienc nat. J se> vol 3 p 236, Endl Conif p 282, Carr Conif p 402, Goid Pin p 179 c\ parte ct exclus plur syn, Henk et Hochst Nadelhol/ p 58 'Ptxuc, Homer Iliad XIII 390 XVI 483 Pmus Plin Hist. Natur XVI in P Madcensis Ten' in Ind sem. Hort Reg. ISicapol. ann 184<sup>^</sup>, Carr Conif p 400 *Ptnheiro* manso, *Pmheiro* negro, Iusn, *Pino* real, Hisp, *Pin d parasol*, Gall, *Pino da pwocchi* Hal Arbor resinosa, 50 75 pedes alta, coitice nmoso secedente cinereo fusco, ligno albedo, ramis corymboso fastigiatis, pnmains 5-4, secundarns 4-3 veiticillatis aut supiemis oppositis Polia 13-20 tent longa, ||-l mill lata Amenta mascula crassa, 8-10 mill longa, 2<sup>^</sup>-3 mill. lata. Strobih valde resinosi, resina alba, 11-13 cent longi, 7 10 cent lati Squamarum apophysis pnmum vmdis, dem fere castanoi colons, plus mmusvr elevata, umbo cinereus, mine depressus nunc plus minusvo prominens, mterdum submucronatus Apophy>is squamarum mediarum lo-18 mill longa, 22 25 mill, lata, nuculae lufae, 18 20 mill longae, 7-11 mill latae (v v)

P, *fragile*, nuculis fngilibus Passim culta cum specie P Pmea fragilis  
Nouv Duham 5 p 242 *Pmheiro mollar* Lusit. *Pino sliactamani*  
Ital

y. *Cretica* (Hort),<sup>^</sup>foliis tenuionbus — Endl 1 c.

10. P PINASTLR (Soland III Ait H Kew edit 1 v 3 p 367), arbor excelsa coma subpyramidali, umis verticillatis patentibus, squamis fulcrantibus late i ovato lanceolatis attenuato-acuminatis superne reflexis margine longe fimbriato ciliialis connexis, >agmis breviusculis laxiusculis uto fusciscentibus lacens, folns gemmis longis crassis ripjidis patulis vel patentissimis<sup>c</sup> emiteribus margine vix scabrusculis mucionatis pungentibus viridibus, amentis masculis oblongis obtusis numerosis longiuscnlis in spicam crassam oblongam congestis, biactus anthenfens subobicularlus denticulatis, strobib 4-2 raro 5 7 verticillatis tut sohtanis, junionbus ovahbus oblongisve, in ramulo crasso strobilo ipso brevior patulis vel erecto-patentibus, adultis III ramulo crasso et brevi subpendulis pendulisve oblongo conicis obtusiusculis rettiuscuhs squamarum apoph<sup>^</sup>si nitida elevato-pyramidata, canna transveisa in phcam acutam elevata, umbone lato compresso acuto subpungentt subincuivo vel recto, nuculis ovalibus oblongisve utnnque convexis ala culnformi apice truncato obtusa 3 4-plo brevionbus ^ In montosis et interdum in mantimis Europs australis in Lusitania (Link, Welwitsch'), Hispaniae in regione calida supenon et montana, in Sieira Bermeja, in montibus inter Estepona et Igualeja et supra Alfagai elev. 1200-4000 ped (Rambur ex Boiss), in Siorra de begura ubi frequens (Bourg f PI d Espagn n 886), in prov. Jaen (Blanco' n 300), in Galha occid et austrah (Lndress' Webb' Requien' Gren et Godr), prope Draguignan (Bourg'), in Italia in colhbus Ligunae mantimae frequentissima, in msulis Portus Lunaj et prope Viareggio (Bert), in Monle Pisano, xn Apennino florcentino, ubi syhas constituit, in litore etrusco, in Corsica (Soljirol, Bernard'), Cosyra (&uss') in Olympto Thessahco in

regione sup. sylvas constituens (Heldr.), in Djehel Msala piope Collo Algeriae (Coss.): nunc in pluribus Asiae Oceaniaeque plagis culta unde pluribus nominibus immerito appellata. Pinaster Caesalp. De plant, lib. 3. cap. 52. p. 150. Pinus maritima altera C. BAUR. 1. III. p. 322. Pinus sylvestris  $\beta$  Linn. spec. pl. p. 1418. P. Pinaster Lamb. Pin. edit. 2. p. 17. t. 9 et 10. et edit. 3. p. 21. t. 9; Antoin. Conif. p. 18. t. 6. f. 1; Schouw! in Ann. des Scienc. natur. 3<sup>e</sup> sér. vol. 3. p. 235; Endl. Conif. p. 168; Carr. Conif. p. 365; Gord. Pin. p. 176; Christ Europ. Abiet. p. 10; Henk. et Hochst. Nadelhölz. p. 25. 1<sup>a</sup>, maritima Poir. Diet. Encycl. 5- p. 337; De C. Fl. franc. 3. p. 273; De Not. Rep. Fl. Lig. p. 375. P. Laricio Savi Fl. Pis. 2. p. 353, Santi Viagg. 3. p. 59. t. I. p. nepalensis Royle et Hort. aliq. P. Latteri Madden. P. syrtica Thor. Prom. in Gascogn. p. 161. P. Novas Hollandiae, P. Novffi Zealandiae Lodd. P. St Helenica Loud. P. neglecta Low. P. Japonica hort. aliq. P. Chinensis Knight. *Pinheiro bravo* Lusit.; *Pin maritime* Gall.; *Pino Bermeyo*, *Pino Nevral*, *Pino Negral* Hispan.; *Pino salvatico* Hal.; *Zampiao* Gosyr. Arbor 60-80 pedes, alta, valde resinosa, cortice rubido-cinerascente vel fusco. Folia 12-20 cent, longa, 2 mill. lata. Amenta mascula 18-20 mill, longa, 4-4<sup>^</sup> mill. lata. Strobili 15-19 cent, longi, 7-8 cent. lati. Apophysis squamamm mediarum 10-13 mill, longa, 22-24 mill, lata, carina plus minusve elevata. Nuculae grandiusculaj, uinereo-fuscae, 7-8 mill. longa, 4<sup>^</sup> 5 mill, latse; ala fuscescente venoso-fusca. (v. v.)

p, *Hamiltoni*, strobilis cylindraceo-conicis. Probabiliter in Insula Madera ex Tenore ! P. Hamiltoni Tenore ! Cat. deirOrto Bot. di Napoli ann. J845. p. 90. P. Pinaster Hamiltonii Lindl. et Gord. in Journ. of the Hort. Soc. 5. p. 217; Carr. Conif. p. 365; Gord. Pin. p. 178; Henk. et Hochst. Nadelhölz. p. 27. Folia ut in specie. Strobili ejusdem longitudinis sed angustiores, 4-5 cent, lati, unde cylindraceo-conici. (v. v. cultam in horto Bot. inCapolitano.)

y *minor*, foliis paulo brevioribus, strobilis minoribus subpendulis. Cum specie praesertim in maritimis. P. Pinaster minor Lois, in Nouv. Duham. 5. p. 242. t. 72 bis. f. 1; Endl. Conif. p. 169; Carr. Conif. p. 36b; Gord. Pin. p. 178; Henk. et Hochst. Nadelholz. p. 28. P. Escarena Risso? Hist. Natur. des princ. product, de l'Europe. 2. p. 340. *Pin du Mans*, *Pin du Trochet* *Pin de Corlc*. Folia. 12-15 cent, longa. Strobili 7-13 cent. longi, 4-6 cent. lati. (v. v.)

6, *prnlifera*, strobilis minoribus, numerosissimis subcapitato-congestis. Cum specie interdum occurrit in Italia, (v. v.)

E. *Lemoniana*, strobilis terminalibus lateralibusque, junioribus in ramulo strobilo ipso subaequali aut longiore erectis, adultis subsessilibus erectis horizontalibus vel subpendulis, solitariis vel 2-3 verticillatis, minoribus. In hortis. P. Lemoniana Benth. in Trans. of the Hort. Soc. 2. ser. vol. 1. p. 512. t. 20; Carr. Conif. p. 168. P. Pinaster Lemoniana Endl. Conif. p. 169; Gord. Pin. p. 178; Henk. et Hochst. p. 27. Arbor diffusa, ramis distortis. Folia 12-14 cent longa, 2 mill, vix lata. Strobili conici vel conico-cylindracei, 6-11 cent, longi, 4-4<sup>^</sup> cent. lati. Varietas certe insignis. (v. cultam in vetusto horto soc. hortic. lond.)

11. P. HALEPENSIS (Mill. Diet. n. 8. Ic. t. 216), arbor coma effusa, ramis subverticillatis elongatis erecto-patulis adscendentibusve valde ramosis, squamis fulcrantibus lanceolatis acuminatis apicce reflexis margine longe fimbriato-ciliatis connexis, vaginis brevibus strictis cito laceris et fuscescentibus, foliis geminis rarius ternis longiusculis flaccidiusculis patulis vel patentissimis semiteretibus tenuissimis margine scabriusculis submucronatis viridibus, amentis masculis numerosis fasciculato-capitulatis patulis cylindraceis obtusiusculis, bracteis antheriferis suborbicularibus repando-denticulatis, strobilis 2-3 verticillatis vel solitariis, junioribus subsessilibus ovalibus erectis dein in ramulo longiusculo horizontalibus subpendulisve subglobosis, adultis in ramulo breviusculo subpendulis pendulisve conico-oblongis obtusiusculis rectis vel raro curvulis, squamarum apophysi subrhomboidali nitida lasevi depressa vel subelevata versus umbonem planum vel parura elevatum sjepe radiatim fissa, cariaa transversa vix aut ne vix prominenti acutiuscula, nucnlis

parviusculis oblongis ala 3-4-plo brevioribus. ♂ Per totam regionem mediterraneam a Lusitania ad Palaestinam et Africam borealem nec non in Georgia Caucasia. nempe : in Lusitania (Brot. Willkomm! Webb!), in Hispaniae regione montana inferiori Sierra de la Nieve, ulubique ad 2000-3000 ped. (Boiss.), in Sierra Pina di Merita (Webb!) et Barcinone (Webb! Bourg!), in prov. de Jaen (Blanco! n. 304), prope Hiopar (Bourg! n. 884), in insulis balearicis (Bolle!), Gallia australi ad Mare Mediterraneum (Gren. Godr. Benth! Alph. De C! Bourg! ipse!), hirc inde in Italiae ora occidentali prope Nicaeam, in Pineto Claverensi! in jitore etruscol etc., in Italia centrali et australi in sylvis spoletinis (Ottaviani). in viciniis cataractae Naris (Figr. Mazz!), inter Narniam et Interamniam (Rolli!), in sylvis montosis et raritimis neapolitais (Ten! Rabenhorst! Kuntze!), in Sicilia (Guss. 1 Bianco!), in insula Sti Petri Sardinian (Mull! Ph Thom. 1 Moris!), Gorgonia (Savi fil! Marcucci!), in insula Sacra, in Cosyra et Lopadusa (Guss!), in Lipara (Mandralisca!), Dalmatia (Vis. Petter! Portenschlag! Clement!), Graecia (Sibth. Zuccarini! Link! Heldr!), Cypro (Kotschy! Iter cilic. kurd. suppl. n. 472), in collibus Asiae minoris (Kotschy! Iter cilic. n. 419), in Syria prope Beyrout (G. Ehrenb! et Kotschy! Iter Syr. n. 558), Palaestina prope Hebron (Kotschy! Iter syr. n. 440), in Abascia (Kisch. herb.), yllaeo prope Alexandrian (Kotschy I Her Syriac), Algeria (DesC! Bov6!). 1\*. Murosolimulu. u. Duham. Arbr. 2. p. 120. P. (ienuensis) Cook. P. Halepensis Lamb. Pin. edit. 2. p. 14. t. 7. et edit. 3. p. 18. t. 7; Grisob. Spic. Fl. Rum. 2. p. 348; Antoin. Conif. p. 2. t. 1. f. 3. non bona; Schouw in Ann. des Scienc. nat. 3<sup>e</sup> serie, vol. 3. p. 237; Endl. Conif. p. 180; Carr. Conif. p. 303; Gord. Pin. u. 165; Henk. et Hochst. Nadelholz. p. 55. excl. syn. Jini brutiae Ten., Christ burop. Abiet. p. 16. P. maritima Lamb. Pin. edit. 2. p. 13. t. 6 et edit. 3. p. 16. t. 6; Brot. Kl. lus. \*2 p. 284; Griseb. 1. c. p. 348. P. Pithyusa Strangw. ex Gardn. Magaz. ann. 1840. p. 638; Carr. Conif. p. 395. P. Arabica Sieb. ex Henk. et Hochst. P. Carica Don, ex Carr. P. Abschastica Fisch. P. Abasica Carr. Conif. p. 352. Arbor resinosa, in maritimis saepe humilis, in convallibus altior, interdum 50-pedalis, cortice fusco-cinereo. Folia 7-9 cent, longa, J-J mill. lata. Amenta mascula recla vel curvula, 12-20 mill, longa, 3J-4 mill. lata. Strq-bili demum fusco-rubentes, 8-10 cent, longi, 3-J cent, lati, recti, raro curvuli. Squamarum apophysis nunc complanaia et prope umbonem radialim fissa, nunc elevata et integra quod in strobilis ipsius arboris mihi videre occurrit. Apophysis squamarum mediarum 10-13 mill, longa, 14-16 mill. lata. Nucula nigrescentes, parviusculae. (v. v.)

12. P. PYBENAICA (Lapeyr. Abr. Pi. Pyren. p. 146), arbor mediocris, coma effusa, ramis verticillatis patulis subhorizontalibusve torluosis, squamis fulcrantibus lanceolato-attenuatis acuminatis apice reflexis margine longe fimbriato-ciliatis connexis, vaginis brevibus strictis subpersistentibus, foliis gominis longis rigidiusculis patentibus tenuissimis semiteretibus margine scabris mucronatis subpungentibus viridibus, amentis masculis parviusculis numerosis fasciculato-capitatis vel in spicain oblongam subcongestis cylindraceis obtusiusculis, bracteis antheriferis suborbicularibus subrepandis denticulatis, strobilis 2-6 verticillatis raro solitariis junioribus subplobosis vel ovalibus in ramulo breviusculo erecto-patulis, adultis subsessilibus sessilibusve subhorizontalibus patulisve curvulis vel rectiusculis conicis vel ovato-conicis obtusiusculis, squamarum apophysi subrhomboidali nitida juxta umbonem radiatim fissa vel rugosa, carina transversa vix vel parum elevata acutiuscula. umbone latq subrhomboideo depresso mutico, nuculis grandiusculis ovali-oblongis utrinque convexis ala 2-3-plo brevioribus. ♂<sup>m</sup> montibus Europe australis et in Oriente, nempe : in regione montana Hispaniae centralis et austro-orientalis ad alt. 2000-3000 ped. ubi sylvulas vel sylvas vastas efformat (Cook, Garc. ex Lange), in Pyrenæis in vallibus de Plan, de la Pez (Lapeyr.) et supra Bagnères de Luchon (Carr!), in nemoribus Calabriae ad 2400-3000 ped. hinc inde solitaria (Ten!), in insula Cypro (Labill!), insula Creta (Heldr!), frequens in Monte Tauro Caramanico ad 2500-5000 ped. (Heldr!), prope Gullek ad 2-3500 ped. sylvas continuas constituens (Kotschy! Iter cilic. n. 420), in Syria prope Eden (G. Ehrenb! Kotschy! Iter syriac. 1855, n. 363), et in Bithynia ubi vastas conficit sylvas (Webb! et Parolini!). P. brutia Ten!

Syll p 47 et Fl nap 5 p 266 t 200, Lamb Pin torn 3 p 12) t 82. Antom Conif pi t. 1 f 2, bchouw in Ann des Scienc nat rsene v 3 p 238, Endl Comf p. 396, Bert Fl ital 10 p 263, Can Conif p 196, Gord Pm p 164 Christ 1 urop Abiet p 18 P Loiseleunana Cair.' Conif p 382 excl syn P PaAlasn Paiol ! H Bot Parol ann 1841 p 3 P Parohniana Webb' herb et in Cin Conif p 391 P Pyrenaica Carr ' 1 c , Lange Prodr Fl Hisp p 19 P Parohnn Vis » Illustr delle piante nuove dell Orto Bot di Padova Mem J p 7 t. 1 (Icon strobih matun non optima) Aiboies quas ex seminibus anno 1819 e Monte Ida Buhyniae a cl Parolino allatis vidi cult as in hoi to Bassanensi Parolimano, 40 45 pedes altae, cuma efTusa, ram is \*:> vel raro 6 verticillatis tortuosis flexuosis resinam albidam copiose e\su dantibus Folu 12-li, raro 18 cent longa, 1}mill vix ldt Strobih e\ obs cl Tenoru, etiam usque ad 20 verticillati, S 10 cent longi, 4 6 cent lati, rufescentes vel latere altero cinerascete, umbone cmereo n.pophysis squamarum mediarum 11 12 mill longa, 20-22 mill lata Ramulus cum stioiulo, quem obtinui a cl Carnero qui legerat in loco Pyienaeioiui hie citato, cum descriptione Peyrouisiana, nee non cum planus bithymcis adamussim convenit Botanici gallici pro planta Peyrouisiana van eta tern Pini Lancionis, quae in Pyrenaeis etiam crescit, halmeiunt ( v v )

13 P SYLVESTHIS (Linn sp pi p 1418 excl vai ) arbor exceNa coma subrotunda, ram is crebre verucillati^ asiciuleiiiiibus, squdtnis lulcrantibus Unceulato attenuate mirgme fimbrialo ciliatis connexis, vaginis bievibus stnctis demum fusciscentibus et lacens, folns geminis approxiraatis patentibus vel patentissim\* ngidis brevibus subcontortis semiteietibus margine scabris mucronatis pungentibus glaucescentibus, amentis masculis numtio^is paivis in spicam ovato conicam dense congestis oblongis obtusis vel obtusmsuulis subintegns, strobih solitanib gemmis teinisve, junionhus ovah globosis in ramulo uncmato strobilo ipso subaequali ad terram deflexis, adultis subsessih bus penduhs conico oblongis obtusiuscuhs»,squamaium apophysi subihombea opaca depressa vel subelevato pyramidata, canna trans versa vix aut ne vix elevata, umlone truncato lato mutico, nuculis parvis ovah oblongis utrinque corvexiuscuhs ala 3 | plo brevionbus \$ In Luropa arctica boreah et media, in Asia arctica et boreah occidentali, sylvas mgentes constituens Jn Lipponia usque ad 68° 20 prope Mauno' m Binmarkial JSovegial buecia' Fen nia' et Rossia arctica et boreah 1 per Scotiam' Angham' bermaniam' Helvetiam' Tyrohm et Transylvaniam, ad convalles /lpium et Pyrencoium, ubi ad 5000-6000 ped elev adscendit, et ad Sierra de Guadarrauia Hispaniap (Reut 1), ad Sierra Nevada (Boiss Del Campo'), nee non in Apenino hgustico' In Sibiria omni a montibus uralensibus ad altaicos • in Sibina oneniali et in Da\una' et piope fl Amur (Maxim n 23), in Sibina arctica ultia Ob<sup>u</sup> evanescit (Middend ex Trautty ), crescit autem in montibus laun<fi (^teven') in provincns caucasicis (M a Bieb alnque), in sylvis alUorum montium Cartiluuae (Szo\ ' n 44), Asiae minons (IchiliatchefT, alnque), Cappadociae pi ope Trape/um (Kotschy<sup>1</sup> Iter syr ann. 183 >), Armeniae (L Kochl), in Persia Lanstar\* (herb Boiss') —Lamb Pin edit 2 p 1 t I etedit 3 p I t 1, Rich Comf. t 11, Antoin Conif t 4 i I, Schouw in Ann des scienc nat. 3\* ser v 3 p 2\*1, Lndl Conif p 171, Carr Conif p 372, Gord Pin p 184, Christ Europ Abiet p 12, Henk. et Hochst Nadelholz p 38 P mbra Mill Diet n 3 P sylvestns et bctica Willd 1 herb P Mughus Tacq ' 1c rai. v 1 t 193 P Rigensis Desf Cat hoit Pans P Genevensis, Hagenovien sis, tortfrosa, monophylla, hort ahq p scinosa Lodd (at 1836 p 50 P squamosa Bosc P sylvestns argentea swv in Ann des Scienc nat 2<sup>e</sup> ser \om 2 1839 p 60 P Kochiana Klotzsch' P Armena et Pinus Pontica'' C Koch i in Tchihatchefl Asie min 2 p 4% et 499 Pin de Russie Pifi de Riga, Pm de Geneve Gall , Scotch hir Engl , Pino di Riga Ital Arbor 40-80 raro 100 ped alta, coma demum apice rotundata, cortice cmereo vel rubido Folia 2<sup>i</sup>-6, raro 7 7<sup>x</sup> cent longa, 1{-\ix 1' mill lata variant glaucescentia, glmca vel fore argentea Amenta mascula o-8 mill lonca 3 4 mill lata, e luteo-jurantiaca Stiobili ma^nitudme, forma et cololie val'n' 2 J-h cent longi, 1 j-i j cent lat Squamaium apoph^sis nunc compld<sup>2</sup> nata nunc elevato-pyramulata et ftre uncmata N iculne fuocse ala f^cescente. ( \ v )



p, *fastigiata*, ramis fastigiatis. Rara in horlis. Pinus sylvestris fastigiata Carr. in Flor. des serr. 11. p. 98.

14. P. MONTANA (Duroi Obs. bot. p. 42. ann. 1771), arbor, coma ovato-conica, ramis erebre verticillatis ascendentibus, squamis fulcrantibus lanceolatis attenuatis margine longe fimbriato-ciliatis connexis, vaginis breviusculis strictis demum fuscescentibus et laceris, foliis geminis raro in ramis sup re in is ternis brevibus rigidis subpatulis rectis vel curvulis semiteretibus margine scabriusculis breviter mucronato-pungentibus viridibus, amentis masculis numerosis parviusculis curvulis vel rectis oblongo-cylindraceis obtusiusculis, bracteis antheriferis suborbicularibus dentato-cristatis, strobilis solitariis vel 2-3 Taro 4 verticillatis, junioribus ovali-subrotundis in ramulo strobilo ipso dimidio brevioribus erectis, adultis horizontalibus patulis vel subpendulis subsessilibus ovatis vel ovato-conicis obtusiusculis, squamarum apophysi subrhombea planiuscula vel elevato-pyramidata subincurva vel elongato-rostrata et deflexa carina transversa elevata, umbone lato mutico vel mucronulato, mucronulo recto pungente, nuculis parvis ovalibus vel ovali-oblongis uirique convexis ala 2-3-plo breyioribus. § In subalpinis Europae mediae, inter 4000-7500 ped. elev. praesertim in calcareis, in humidiusculis abunde cum fluviis descendens, nee non in Carpatis inter 4100-5600 ped. elev., in Sudetis, in Pyrenaeis, et raro in Apenmino Liguria orientalis ad *Montenero* (Tur., Casaretto!) et in Aprutio in Monte Magella inter 5600-8500 ped. (Ten.! Guss.l Schouw), in Dalmatia incacumine montium *Vulebith* et *Dinara* (Vis.)- Pinaster Pumilio Clus. Pann. p. 15. Pinaster quartus austriacus Clus. Hist. 1. p. 32. Pinus tatarica Mill. mss. in h. Banks. P. sylvestris y montana Ait. H. Kew. edit. 1. vol. 3. p. 366. P. Mugho Poir. in Lam. Diet. encycl. 5. p. 386; Gord. Pin. p. 172. P. Pumilio Haenk. Beobacht. auf Riesengeb. p. 68; Waldst. et Kit.l Pl. Hung. 2. p. 160. t. 149; Willd! Sp. pi. 4. p. 495; Lamb. Pin. edit. 2. p. 5. t. 2. et edit. 3. vol. 1. p. 6. t. 2; Link! in Linnaea vol. 15. p. 490; Ten.! Fl. Neap. 5. p. 268; Schouw in Ann. des Scienc. nat. 3— sê; \, vol. 3. p. 232; Endl. Conif. p. 170; Carr. Conif. p. 369; Gord. Pin. p. 180; Henk. et Hochst. Nadelhulz. p. 32. forma humilis. P. Mughus Scop. Fl. Cam. ed., 2. t. 2. p. 247; Wahlb. Fl. Carp. p. 311; Koch Syn. fl. germ. et helv. edit. 2. p. 767. P. sanguinea La Peyr. Abr. p. 587 et suppl. p. 143 et 145. P. uncinata Ram. et De C. Fl. fr. 3. p. 726; Endl. Conif. p. 170 var. a et b; Koch syn. fl. germ. et helv. ed. 2. p. 767; Carr. Conif. p. 370; Henk. et Hochst. Nadelholz. p. 35. P. obliqua Saut. in Reich. Fl. germ. excurs. p. 159. P. humilis Link in Abhandl. der Berlin. Akadem. 1827. p. 168, 170. P. rotundata Link! 1. c. p. 171. P. uliginosa Wimm. in Arbeit, d. Schles. Gesellsch., 1837. p. 95. 98. P. Magellensis Schouw in Ann. des scienc. nat. 3<sup>m</sup>\* s6rie, vol. 3. p. 233. P. montana Christ Europ. Abiet. p. 11. Species valde variabilis, in con vailibus 36-45 raro 60 ped. alta, in subalpinis et alpinis 6-12-pedalis. Cortex cinereus, rimosus. Folia crebra approximata, 3-6 cent. longa, 11-1 i mill. lata. Amenta mascula 8-12 mill, longa, 3<sup>^</sup>-4 mill. lata. Strobili saepe 1<sup>^</sup>-2, raro 3-4 verticillati, ovati vel ovato-conici, dehiscentes subrotundi, 3-5 cent, longi, 2-2 % cent. lati. Squamarum apophysis plus minusve elevata saepe in parte exteriore magis elevata et subreflexa vel elongato-rostrata, rostro deflexo. Nuculae fuscae, ala albida. Omnes strobilorum et squamarum formas vidi ipsa in arbore. (v. v.)
15. P. LARICIO (Poir. Diet. Encycl. 5. p. 339), arbor excelsa, coma subpyram|dali, ramis verticillatis horizontalibus patulisve apice assurgentibus, squamis (tilcrantibus lanceolatis attenuatis margine fimbriato-ciliatis, vaginis breviusculis strictis demum fuscescentibus et laceris, foliis geminis longiusculis rigidiusculis patentibus vel patentissimis interdum subcontortis semiteretibus mjcronatis subpungentibus viridibus, amentis masculis paucis patulis rectis vel curvulis crassis subcylindraceis obtusis, bracteis antheriferis subqrbicularibus eroso-denticulatis, strobilis 2-4 verticillatis vel solitariis, junioribus <sup>ov</sup>aji-globosis in ramulo strobilo ipso brevioribus erecto-patulis, adultis horizontalibus subsessiUbus sessilibusve ovatis vel ovato-conicis acutiusculis, squamarum apophysi nitida subrhombea interdum radiatim fissa, carina transversa elevata, latere superiore convexo inferiore longitudinaliter grosse obtuseque carinato, umbone rhombeo depresso mutico, squamarum superiorum tantum

mucronulato mucronulo brevi recto, nuculis parviusculis ovalibus utrinque convexis ala 2-4-plo brevioribus. J In montibus Europae australis et orientalis et in Asia occidentali sylvas vastas efformans. In regione montana Hispaniae austro-orientalis in tractu *Serrania de Cuenca* (Willk.), prope *Riopar* (Bourg.), in Gallia australi prope *Draguignan* (Bourg.), in Calabria *alle Sile* (Brocchi! in herb. Webb, Ten!) et in sylvis *d'Aspromonte* (Guss!), in Corsica (Soleirol! Jord!), in Parnassi regione inferiore (Sartori!), in Taygeto elev. 4000-9000 ped. et in monte *Malevo* Peloponnesi, in Olympo Thessaliam (Heldr!), in montibus Idaei altioribus (Webb!). — Lamb. Pin. edit. 2. p. 9. t. 4. et edit. 3. p. II. t. 4; Schouw in Ann. des scienc. nat. 3<sup>10</sup> sér. vol. 3. p. 234; Gord. Pin. p. 168. P. Laricio var. a Poiretiana Antoin. Conif. p. 3. t. 2. f. 1; Endl. Conif. p. 179; Carr. Conif. p. 384; Gren. et Godr. Fl. de Franc. 3. p. 153; Henk. et Hochst. Nadelholz. p. 47; Christ Europ. Abiet. p. 15- et in Botan. Zeit. ann. 23. n. 27-29. P. Laricio (3 latisquama Willk. in Willk. et Lange Prodr. Fl. Hispan. 1. p. 18. P. mariiima Ait. Hort. Kew. edit. 2. vol. 5. p. 315- Arbor resinosa, excelsa, interdum etiam 100 pedes et ultra alta, trunco recto, cortice fusco resinoso, ligno albido-rubido pluribus usibus aptissimo. Folia 9-10, raro 12-14 cent, longa, 1 £ mill, lata, in plantis cultis vero longiora, 15-20 cent, etiam longa, et saepe contorta, rigidiuscula, viridia. Amenta mascula crassa, 15 mill, longa, 5-6 mill, lata, e viridi-Jutea. Strobili 5-7 cent, longi, prope basin 3 cent. lati. Squamae subtus nigrescentes, earum apophysis primum viridis, dein pallide badia; umbone saturatiore. Apophysis squamarum mediarum 7-8 mill, longa, 8-9 mill. lata. Nuculae cinerae, demum fuscae; ala valde variabilis, semilanceolata, oblonga vel subdolabriformis, albida, demum fuscescens (v. v.).

P, *tenuifolia*, foliis angustioribus et minus rigidis. In regione montana Hispaniae austro-orientalis, in Catalonia ad *Montserrat* et in montibus circumvicinis *Pino Halepensi* intermixta (Webb!) et prope *Cardona*, *Manresa*, *Tortosa*, *la Barata* ad *Berga* usque (Costa!), in Pyrenaeis aragonensibus in *Campo* (J. Gay! Bubani! <, Pyrenaeis centralibus (Gren. et Godr.), *Cebennis* ad *Saint Guilhemle Désert* (Can! Martins!). P. Pyrenaica Lapeyr. Abrég. suppl. p. 146 ex parte? P. Laricio (5 Pyrenaica et Y Cebennensis Gren. et Godr. 1. c. P. Monspeliensis Salzm. ined. P. Salzmanni Dunal! in Mém. de l'Acad. des Scienc. de Montp. 2. p. 81 cum icone, Carr. Conif. edit. 2. p. 494- P. Laricio angustisquama Willk. in \* Willk. et Lange 1. c. P. Laricio leptophylla Christ 1. c. Folia tenuia, 1 mill, fere lata (v. s.).

Y, *nigricans*, foliis crassioribus rigidioribus fusco-viridibus. In montibus Carinthiae, Styriae, Austriae inferioris! Moraviae, Galliciae, Transylvaniae, et Banatus (berb. vindob!), in Istria prope Flumium, alibique (Noé n. 1219. Tommasini!), in sylvaticis insularum Dalmatiae (Vis! aliisque), in montibus inter *Erzegovina* et *Montenegro* ad 5000 pedes elevat. (Antoin. pi. exsicc!), *Forojulio* (Fox Strangw.), et inter *Osopo* et *S. Agnello* in ditone veneta (Ten.), in monte *Magella*, in monte *Pollino* et *alle Sile* in Calabria ubi rara (Ten!), in nemoribus jEtnae (Guss! Phi-Jippi!). in Eubaea (Unger sec. Christ), Creta, in Olympo Thessaliai elev. 3500-4500 ped. et in Tauro Caramauico elev. 4000-5000 ped. (Heldr. 1), in Tauro *Bulghar Dagh*, elev. 3800-6000 p- (Kotschy! Iter cilic. n. 418). *Pinaster vulgaris* alter Clus. Pannon. p. 16. P. *nigricans* Host Fl. austr. 2. p. 268; Link in Linnaea vol. 1 & > 491; Ten. I Fl. nap. 5. p. 266; Bert. Fl. ital. 10. p. 262. P. Austriaca Hbss Anleit. n. fi. Monogr. der Schwarz. Föhre Wien 1831; Carr. Conif. p. 388; Gord. Pin. p. 162. P. sylvestris Baumg. Flor. Transylv. 2. p. 303. P. *Pinaster* Besser Flor. Galic. 2. p. 294; Ten. Syll. p. 476. ? Laricio Koch syn. Fl. jerm. et helv. edit. 2. p. 767. P. Laricio austriaca Endl. Conif. p. 179/ Henk\* et Hochst. Nadelholz. p. 48. P. Laricio *nigricans* Christ 1. c. P. *penzlii* Kotschy et Antoin. msc; Carr. Conif. p. 496. P. *Heldreichii* Christ! Kurop. Abiet. p. 11. P. *leucodermis* Antoin. in Oesterr. Bot. Zeitschrift aim. 1864. P. *Magellensis* Guss! et Ten. pi. exsicc. p. *Taurica* hort. P. *Dalmatica* Vis. Fl. Dalm. I. p. 199. in adnot. ad P. *nigricantera*. Folia 1 1/2 mill, vix lata (v. v.).

- o, *Pallasiana*, folus ut in var v strobis majonbus, squamarum apophysi saepe ladiatim fissa In montibus faunae occidentalis (Fisch ' Parreiss<sup>1</sup>) P mantima Pallas Index taur P Pinea Habhtz laur p 97 P Halpensis M a Bieb Fl laur Cauc 2 p 408 P Lancio M a Bieb buppl 3 p 623 P Pallasiana Lamb Pin edit 2 p 11 t S, non bona, Carr Conif p 189, Gord Pm p 175 P Lancio Pallasiana Indl Conif p 179 Folia 1}-1,4 mill lata Mrobili 7 8<eni lon^i, 4 cent vix lati. squamarum apophysis magis lata et saepius radiatim hssa quam in alns vanetatibus
- 16 P RESINOSA (Soland in Ait Hort Kew edit 1 vcl 3 p 367), arbori excelsa, cortice rubente, squamis lulcrantibus late lanceolato-acuminatis maigine firnbriato-cihaus connexis, vaginis longiusculis cilo fusrescenlibus <t lacens folus geininis longis ngidis patentibus seiniteietibus margine scabnuscus breviter mucronatis vindibu^ amentia masculis oblongo-cyhndra (eis obtusiuscus rectis vel curvuhs, bracteis anthenfens suborbiculanbus cienulato denticulatis, strobis 1-6 \erticillatis, junionbus in i tmulo brew erecto pituhs ovah globosis, adultis sessihbus subhoi izontahbus vel demum subnutantibus o\ato comcis obtusis rectis vel curvulis, squamarum apophysi subrhombea subelevato-pyramidata canna tiansversa parum prominente acuta, urn bone obtusissimo mutico, nuculis parvis ovalibus, utnnque convexis ala subculnfoimi subtnplo brevionbus % In America boreali a Canada' ad Pennsylvaniam' mtei 41 48° Lat solo stenh et arenoso — Lamb Pin edit 2 vol 1 p 20 t 14, et edit 3 p 27 t 13, Antom fonif p 7 t 4 f 1, Endl ' Conif p 178, Gord Pin p 183 excl syn P Loiseleunana Henk et Hochst Nadelhol/ p 45 excl syn Pinus canadensis bifoha, corns medns ovatis Duham Arbr 2 p 125 P rubra Michx hi North Amenc Sylv 3. p 112 t 134, Carr Conil edit 2 p 496 *lied Pine* Amenc Arbor 70-80 ped alta, trunco recto, aequah, ligno compacto, resmo&o, \alde durabili Folia 12-16 cent longa, 1J-1J mill lata Amenta mascula H-3 cent longa, i 7 mill lata Strobih 4 6 cent longi, 3 \ cent lati ApophyMis squamarum mediarum 7 9 mill longa, 12-13 mill lata isucuke nigrescentes, ala fuscescente (v v)
- 17 P DENSIPLORA (Sieb et Zucc ' Fl Jap 2 p 22 t 112j), arbor, vaginis brevibus cito fuscescentibus fohis geminis prope apicem ramulorum approxi mato penicillatis patentibus breviusculis tenuibus semiteretibus margine sea briusculis apice bieviter mucronatis ^ubpungentibus subglaucescentibus (Sieb ), amentis masculis numerous paivis ovato-oblongis obtusis in spicam densam longiusculam dispositis, bracteis anthenfens suborbiculanbus vix denticHatis, strobis solitarns vel subverticillatis, jumonbus ovali globosis in ramulo ciasso strobilum ipsum subaequante erectis, adultis parvis comcis obtusis in ramulo brevi nutantibus, squamarum apophysi subrhombea, canna transversa parum ele\ata acuta, umbone fare central! parum prominente in squa mis supenonbus submucronato, mucrone crassiusculo brevi recto, nuculis> o\alibus utnnque convexis ala subcultriformi obtusa subtnplo brevionbus ^ Per totam Japoniam, in prov austrahonbus ranor et passim culta, in medns imperil regionibus cum Pino Ma soniana passim syhas vastas eñormans i planitie ad 1000-2000 ped ilscendens (Sieb 1 Veitch' Schatmullerl n 163), Nangasaki (R Oldham'), Nippon (Perfetti') — P densiflora Endl ' Conif p 17\*, farr Conif p 376 MumyConil of Japon in Proceed ol the Hort ^>c 2 p 28b, Henk et Hochst Nadelhol/ p 31 P Japonic I Antoine<sup>9</sup> Conif p 23 P PineaGord Pin p 179 ex parte *Aha Matsu* Japon Arbor 40 pedes titL vel altioi, trunco teiete recto, cortice laevi cinereo fuscescente vestito Folia 6 11 cent longa, 1 IJ mill lata Amenta mascula 7 8 mill longa, 2-> mill lata Strobih 4^ -5 cent longi, 3 cent lati Apophysis squamarum mediarum 6 7 mill longa, 9 10 mill lata, cinereo fuscescens (v s)
- 1^ P IHUNBERGII, arbor ma^na, comi latissima, rami< patentibus, squamis fulcrantibus lanceolato acuminatis limbnaio ciliatis connexis, vaginis brevibus lacens, folus geminis longiusculis ngulis subcontortis semiteretibus, marpine scabns breviter mucronatis subpungentibus vindibus, timentis masculis cylmdraceis obtusiuscus in apice ramulorum subcapitato-congestis, bracteis autienleis suborbiculanbus repando dtnticuldtis, strobis solitarus (an sempi<sup>9</sup>), junionbus ovalibus in ramulo crasso strobilo ipso brewoie patentibus,

adultis in ramulo brevi subdeflexis curvuis vel rectis ovato-conicis vel conicis obtusiusculis, squamarum apophysi subrhombea depresso-pyramidata, carina transversa parum elevata acuta, umbone margini supenon approximato parum prommente mutico vel submucronato, nucuis ovali-sul(rhombis utnque convexis ala subculnformi subtnplo-brevionbus. § Per totam Japoniam vulgatissima in planitiebus et declivibus sylvas vastas constituens, in altionbus ad 3000 ped. elev. in fruticem Pini montanae in modum diminuitur (Thunberg, Siebold' Veitch' Perfetti'), in China (Bunge! n. 354). *Sjo* vulgo *Mats* Kaempf. Amoen. exotic. p. 883. *P. sylvestns* Thunb. Fl. Japon. p. 274 non Linn. *P. Pinaster* Loud. Arb. Brit. 2218; Gord. Pin. p. 176, non Soland. *P. rubra* Siebold in Verhandl. van het Batav. Genotsch. vol. 12 (ex Endl.). *P. Massoniana* Siebold et Zuccar. i Fl. Jap. 2. p. 24. t 113 114; Endl.! Conif. p. 174; Carr. Comf. p. 378; Murray Conif. of Japan in Proceed. of the Roy. Hort. Soc. 2. p. 278 ann. 1862, Henk. et Hochst. Nadelholz. p. 28 non Lamb. *Wo Matsu* et *Kuro-Matsu* Japon. Folia 10-14 cent, longa, 1 |-I, mill, lata, saepe vane contortt, \iridia. Amenta mascula 14-18 mill, longa, 3-4 j mill. lata. Strobih 5-6-^ cent. longi, 3-4 cent lati. Apophysis squamarum mediarum 8-10 mill, longa, 12-13 mill. lata. Nuculae demum mgrescentes, ala fusca. In plantis ipsa in Japonia cultis folia mterdum sunt vane gata. *Siraga Matsu* Japon., vel connata unde videntur monophylla. *Filots Matsu* Japon.

19. *P. MASSONIANA* (Lamb. Pin. edit. 2. p. 16. t. 8, et edit. 3. p. 20. t. 8), arbor excelsa, squamis fulcrantibus lanceolato-acuminatis fimbriato-ciliatis, fimbriis connexis, vaginis brevibus fuscescentibus, folns geminis valde approximatis erecto-patuis longis tenuissimis semitere\*ibus margme scabris breviter mucronatis subpungentibus vindibus, amentis masculis numerosis cyhydraceo-oblongis obtusis in spicam densam elongatam dispositis, bracteis anthenfens suborbiculanbus denticulatis, strobihis solitanis vel 2-3 verticillatis, junionbus ovalibus in ramulo strobilo ipso brevioribus erectis, adultis in ramulo brevi subnutantibus rectis ovato-oblongis ovalibusve obtusis, squamarum apophysi subrhombea depresso-pyi ami data, carina transversa parum elevata acuta, umbone subcentrali haud prommente mutico vel in squamis supenonbus vix mucronato, nucuis fere ovalibus utnque convexis, ala subculnformi subtnplo brevioribus. § In China (Linten' Gaudich' Fortune' n. 51. Phi-Hppil), Hong Kong (Perletti<sup>1</sup>) et forsitan in montibus Cochinchinae (Lour.). *P. sylvestns* Lour.? Fl. Coch. p. 679, non Linn. *P. Sinensis* Lamb. Pin. edit. 3. p. 47. t. 29; Antoin. Conif. p. 1.1. 1 non bona; Endl. Conif. p. 158 excl. pi. syn. Carr. Conif. p. 331 excl. pi. syn. Gord. Pin. p. 209 excl. pi. "yn. et plant, indie. Folia 14-18 cent, longa, 1 noill. vix lata. Amenta mascula 16-18 mill, longa, 3 mill. lata. Strobih 4-7 cent, longi, 3 cent, lati, recti. Apophysis squamarum e rubro-cinerascens, mediarum 6-7 mill, longa, 10-11 mill. lata<sup>1</sup>. Nuculae demum fuscae, 4-5 | mill, longae, 2-3 mill, latae, ala ex albido fuscescente. *P. Massoniana* Lamb, (non auctorum) a *P. Sinensi* non est sejuncta, folia enim in *P. Massoniana* sunt, ut in hac, tenuissima et longissima. (v. s.)

20. *P. MERKUSHI* (Jungh. et de Vriese' in Plant. Nov. Ind. Batav. Oriental, p. 5. t. 2), arbor excelsa, ramulis ascendentibus, squamis fulcrantibus lanceolatis acummatis parce fimbriato-ciliatis apice recurvis, vaginis longiusculis strictis persistentibus, folns geminis valde approximatis erecto-patuis longis tenuissimis in sicco supra canahculatis margme scabris breviter mucronatis subpungentibus, amentis masculis cyhydraceis obtusis in spicam densam subelongatam dispositis, bracteis anthenfens suborbiculanbus denticulatis, strobihis solitanis, in ramulo brevi erecto ovatis utnque attenuate squamarum apophysi subrhombea nitida radiatim rugosa depresso-pyrami<sup>7</sup> data, umbone depresso mutico, nucuis. . (Jungh. et de Vriese). ^ In Insulaj Sumatrae regione Battarum, in montibus Tannan-Hurung et Tobañ 3000-4000 ped. elev. (Jungh.!), in Borneo et probabiliter in aliis Arcipelajni indici insuis (Blume). — Bndl. Conif. p. 176; J\*rr Conif. p. 380, Gord. Pin. n. 160; Henk. et Hochst. Nadelholz. p. 43; De Boer Conif. Archip. indie. p. 5. P. Sumatrana Jungh. msc. Bot. Zeit. ann. 1846. p. 698. *P. Finlaysoniana* Wall. Cat. n. 6062; Blum. Rumphia 3. p. 216. *P. sylvestris* Finlays. Tusam Batlar

Species Pino Massonianæ sive Sinensi valde affinis et melius observanda sed vaginis longiusculis strobilis erectis et squamarum apophysi radiatim striata videtur diversa. Arbor, Junghuhnio teste, 100-pedalis et ultra. Folia 18-20 cent, longa, 1 mill, vix lata. Amenta mascula 18-20 mill, longa, 3 mill, fere lata. Strobilos non vidi. (v. s.)

21. *P. PERSICA* (Strangw. in Gardn. Magaz. 15. p. 130), foliis ternis quaternisve rigidis squarrosis, vaginis persistentibus laxis, strobilis cylindraceis obtusis, squamarum apophysi late rhombea nitidissima, carina transversa acutissima, urabone piano, tuberculo minimo supra carinam percurrentem sito (Endl.). In Persia australi. — Endl. Conif. p. 167; Garr. Conif. p. 330; Gord. Pin. p. 175; Henk. et Hochst. Nadelhölz. p. 61. An *P. Pinastri* var. ?
22. *P. ROYLEANA* (Jameson in Journ. of the Hort. Soc. 9. p. 52 cum icone; Can\*. Conif. p. 399), foliis geminis tenuibus canaliculatis contortis divergentibus, strobilis parvis oblongis obtusis laevigatis, squamarum apophysi angusta rugosa leevi, umbone duro apiculato retroisum uncinato (Lindley). In Nepalia inter 8-10000 ped. elev. (D. Royle). Sp. dubia. An cum *P. Khasia* conjungenda?.

B. *TJEDK* — Sect. *Tfida* Spach Hist. des végét. phanér. It. p. 387; Endl. Conif. p. 156 et auctor. — Folia pleruraque lerna compresso-triquetra vel triquetra, rarius prope apicem ramulorum terna, qualerna vel gemina.

23. *P. INSULARIS* (Endl. I Conif. p. 157), arbor, squamis fulcrantibus lanceolato-acuminatis fimbriato-ciliatis connexis, vaginis breviusculis strictis persistentibus, foliis ternis tenuissimis longis flaccidis compresso-triquetris in argine scabris mucronatis subpungentibus, amentis masculis numerosis in spicam crassam densam dispositis cylindraceis obtusiusculis, bracteis antheriferis suborbicularibus subintegris, strobilis 2-3 verticillatis junioribus oblongis, in ramulo brevi erectis, adultis in ramulo brevi horizontalibus vel subpendulis ovato-conicis obtusiusculis rectis vel curvulis, squamarum apophysi subrhombea subelevato-pyramidata, carina transversa elevata acuta, umbone parvo mutico vel in squamis supremis submucronato mucrone recto, nuculis — In Insulis Philippinis (Cuming! n. 956 Llanos!), in insula Luzon (Blanco). — Carr. Conif. p. 353; Gord. Pin. p. 193. Pinus Taeda Blanco Fl. de Filip. p. 767, non Linn. *P. Timoriensis* Loud.? Arb. Brit. 4. 2269. Folia 18-20 cent, longa, 1 mill, lata. Amenta mascula 18-22 mill, longa, 3-4 mill, lata. Strobili 6-7 cent, longi, 3-4 cent. lati. Squamarum apophysis magis lata quam longa. (v. s.)

24. *P. KASYA* (Royle msc. Gardn. Magaz. ann. 1840. p. 8), arbor, squamis fulcrantibus lanceolato-acuminatis fimbriato-ciliatis connexis, vaginis longiusculis strictis persistentibus, foliis ternis tenuissimis longis patulis compresso-triquetris dorso convexiusculis faciebus in sicco unisulcatis margine scabris mucronatis subpungentibus, amentis masculis parvis oblongis obtusiusculis in spicam laxiusculam elongatam dispositis, bracteis antheriferis suborbicularibus denticulatis, strobilis 2-3 verticillatis, junioribus subpendulis, adultis in ramulo brevi subpendulis parvis ovatis vel ovato-rotundatis, squamarum apophysi subrhombea subelevato-pyramidata, carina transversa parum prominente acuta, umbone parum prominente vel depresso vix mucronulato, mucronulo deorsum flexo deciduo, nuculis parvis obovato-rotundatis utrinque convexiusculis ala oblonga subtriplo brevioribus. ^ In Nepalia? in Khasya alt. 2-6000 ped. in regione teroperata et tropica (Griffith! n. 4995. Hook. fil. et Th.!). *P. Nepalensis* Pin. Wob. p. 34; Anjoia. Conif. p. 23. *P. Sinensis* Endl. Conif. p. 158 ex parte; Carr. Conif. p. 331 ex parte; Gord. Pin. p. 209-ex parte. *P. Khasyana* Hook. fil. Himal. Journ. 2. p. 282. *P. Cavendishinna* hort.? Arbor 50-60-80 pedes alta (Griffith, Hook. fil.). Folia semper terna, 16-21 cent, longa, 1 mill, vix lata. Amenta mascula 8-11 mill, longa, 3-3½ mill, lata, squamis fulcrantibus breviora. Strobili 4-6 cent, longi, 3-4 cent. lati. Apophysis squamarum mediarum 6-6 mill, longa. 11-14 mill, lata. Nuculae 4 mill, longa?, 3 mill, lata, albae, Ala fusciscente. (v. s.)

h. *P. LONGIPOLU* (Roxb. Fl. Ind. orient. 3. p. 651), arbor, ramis subverti-

- cillatis patentibus deflexisve apice adscendentibus squamis fulcrantibus lmean-lanceolatis attenuato acummatibus margine lonae fimbriato-ciliatis connexis, vaginis breviusculis laxiusculis lacens fohis terms tenuissimis longis patentibus demum pendulis compresso-tinquetis margine scabris mucronatis laete vinctibus, amentis masculinis longiusculis curvulis dense fasciculaio capitatis, bracteis antherifens suborbicularibus margine crenulatis, strobiliis solitariis vel 2-5 verticillatis junionibus subglobosis in ramulo breviusculo crasso erectis adultis ovato-conicis obtusis, squamarum apophysi tiifono pyramidata crassa recuna, umbone brevi obtuso, nuculis obovato-ovalibus utnque convexis ala oblonga obtusiuscula subduplo breMonbus i Fiequens i Himalaya tropica alt 1600 3000 ped ascendit usque ad 7 200 ped In Cachemira et Nepaln (Wall ' n 606-> et n 6063) in Cachemir (HugeP n 989), in Himalaya (HugeP n 510), in Bootan (Griffith), in Sikkim 1-2000 ped elev in legione tropica (Hook fil) Kumaon (Herb, fcerol ' Madden) —Lamb Pin p 32 t 22, Royle Hymal p 32 t 85 f 2, Antoin Conif. p 29 t 9, Link in Linnaea 15 p 50ff, Spach Hist des v6get phaner 11 p 390, Endl 1 Conif p 158, Madden in Journ. of the Hort Soc 5 p 228, Carr Conif Q 332, Gord Pin p 200, Henk et Hochst Nadelholz<sub>T</sub> p 72 excl syn P insularis *Cheer Pine* Angl Ind, *Tschelu*, *Tschir*, *Tschil*, *AiJ*, *Thama*, *Guier Koong*, *Teadong*, Indor Arbor 50-100-pedalis, resinam, in Kumaon *leesha* dictam, scatens, trunco cortice cinereo scabro Folia 19-28 cent longa, 1 raro 1-<sup>1</sup> mill lata Amenta mascula 14 20 mill longa, 4-5 mill lata Strobili 10-12 cent longi, 8 9 cent latt \pophysis squamarum mediarum 24-26 mill lata, 18-20 mill longa Nuculae 13-14 mill longae, 8 9 mill latae, ala fusca (v s)
- 26 P GERARDIANA (Wall msc Lamb Pin edit 3 t 79), arbor, coma densa, ramis erecto patulis ascendentibusve, vaginis breviusculis laxis deciduis folis terms rigidiusculis brevibus erecto patulis compresso-tinquetis margine scabris mucronato pungentibus glaucescentibus, amentibus masculis ovalibus\* vel ovalibus oblongis brevibus dense fasciculato-capitatis, bracteis antheriferis ovali orbicularibus fimbriato-lacens, strobiliis junionibus subglobosis in ramulo breviusculo crasso erectis adultis ovato oblongis obtusis squamarum apophysi pyramidata convexo plana recuna, umbone continuo valido acuto, nuculis oblongis subteietibus ala <5 In Himalaya temperata altitudine 5500 10800 ped, ad Kunawur (Hook fil et 1h') — Royle Himal p 32. t 8i f 2, Antoin Conif p 29 t 10, Indl » Conif p H9, Madden in Journ of the Hort Soc o p 23), Carr Conif p 333, Gord Pin p 19» Henft et Hochst Nadelholz p 74 P Neosa Govan msc *Rhee*, *Shunqtee*, Ac?/ r Indor Arbor quinqueagintapedalis Folia 6 9 cent longa, 1 <sup>1</sup> mill vix lata doiso convexa facie angulo prominenti notata Amenta mascula 8 10 mill longa, 4<sup>1</sup>-5 mill lata Strobili resinosi, 12 20 cent longi, 7-11 cent liti Squamarum apophysis facio supenore subcannata, squamarum mediarum 25 28 mill lata, 15 17 mill longa Nuculae 21 22 mill longae, 8 9 mill latae (v v)
- 27 P LOPHOSPERMA (Lindl ex Gord Pin Suppl p 69), arbor excelsa fohis terms' vel quinibus\*\* rigidiusculis longiusculis tinquetis ad angulos scabris subtus convexiusculis et subvinctibus, faciebus supenonibus plams glaucescentibus acuminato mucronatis subpungentibus, strobiliis globoso ovatis squamamm apophysi elevato pyramidata subrhomboidea nitida, carina transversa acuta, umbone subrhombico prominente mutico, nuculis obovato oblongis subingulatis utnque convexis osseis duns, ala brevis lata obtusa facile separabilis (nigra) In California mtenoie (Lobb') — Gord \* Pin Suppl p 69 P Torreyana C Parry? in Carr Conif p 326, Gord ? Pin p 200. Arbor P. Sabinianae facie Gord ?oha in plantis in vmdano Lown propo Londinum cultis terna, 8<sup>1</sup> 9 cent longa, 11-1<sup>1</sup> mill lata Strobili illos P Pineae fere omnino aemulantes sed majores, 11-12 cent longi 9 10 cent lati Apophysis squamarum mediarum 28-32 mill lata, 19-20 mill longa Nucula 18-20 mill long\*, 7 8 mill latae, ala brevi 7 11 mill longa, 9-10 mill lata (v v)
- 28 p SABIMANA (Doug<sup>1</sup> » in Compan to Bot Mag 2 p 15Q), arbor, coma expansa, ramis elongatis horizontibus vel subpendulis subdistortis apice ascendentibus, ramulis glaucis, squamis fulcrantibus ovato lanceolatis acuminatis fuscis ciliatis, vaginis longis laxiusculis demum lacens et fusus,

fohis terms raro quaterms rigidis longis patuhs subpenduhsve subsecundis compiesso tnquetns margine scabnuseulis mucronato-pungentibus e vindiflauescentibu\*, amentis masculis oblongo cylmdraceis obtusis subcongestis, bracteis authenleris suborbicularibus sunerciulato ciliolatis, stiobihssolitams dggregatisque in rarnulo breviusculo cernuis ovoideis obtusiusculis, squamalum apoplyysi ol(vito pyrimidati ancipiti recurva, umbone valido elongato dcuto mcuivo, nuculis . \$ In Ameru a Dorcali-occidentali sporadica, raro sylvas eflbrmans (Dougl ), m California ieie ubique, m valle Sacramento, in Coast Ganges alibique paullo supia mare, nee unquam in alpinis (rsewherry), m California ubi interdum vistas sylvas conslitmt (Hartw), in California, Sonoma, Auburn, Sienas ilibique (Ilolindei ') in rsovae Albionis jugo subalpino (Dougl ) — Iamb Pin edit 1 p 146, Hook H bor Amer 2 p. 162, Nutt. Sylv 1.p MO t 1M, Antome Conil p 10 t 11, Lndl Conif p. 159, Flor des Serr 9 p. 275 t 964, Carr Lonit p H4, Oord Pin p 208, Henk et Hochst p. 7\*, hn Bntan n II cum iconc, INewberry Report 6. p 19 f II, 'lorrey Whipple's report p 85, loney et A Gray Bckwith's report p 1 JO *Nut Pine White Vine, Sabme's Pinr* Angl Amenc Aibor 40 150 ped altd, e basi lamosa tolia 21 2 > cent longa, 1}-1J mill lata Amenta mascula 18-20 mill longa, 5 null lata Strobili 15-23 cent longi, 12 15 cent hti, ponderosi <sup>o</sup>quamarum lpophysis castanea, in squamis medns 17 21 mill longa, 30 J5 mill, basi lata. (v v)

2<) P CoULrtHi (Don ' in Linn Transict 17 p 440) arbor, coma expaosa, iamis vprtcilldtis horizontalil^us subdistortis, >agnns longis laxiusculis demum lacens et fuscis, folus terms raro quaternis vel quinis ngidis longis patuhs compresso-tnquetns ad ingulos scabus mucronato-pungentibus e vnidi glaucestentibus amentis mascuhs plunbus longis cylindraceis obtuse tongestis, bratteis antlienleris suboibicularibus crenulato denticulatis, strobilis solitariis subscsilibus pendulis coinco oblongis atutiusculis, squamarum apophysi elevato pyramulata ancipiti in umbonen longum lanceolato acuminatum uncinato incurvum et pungentem protracta, nuculis magrus oblongis angulatisala oblongaobtusissimd longionbus /> In California? montibusSanctde Luciae ad a Hit 3000 4000 peel cum P Lambei liana et alibi — Antoin Conil p 11 t 12 H, Lndl Tonif. p lbO, Carr Conif p 3tt>, Henk et Hochst Sadelholz p 7b P macroenpa Lindl ' in Bot Reg ann 1840 App p 61, Gord ' Pm p 201 Arbor niagna, robusta, 80 vel 100 pedahs, corticc spadiceo obducta Folia 21-25, raro JO cent longa, 1 | vix 2 mill, lata, dorso convexa, facie angulo plus minus\c piominente notata Amenta mascula 22-30 mill longa 6-7 mill lata Strobili valde resinosi, 25 28 cent longi, 10 11 cent lati Squamarum apophysis 21-35 mill umbone supputato longa, 10 U mill basi lata Nuculae 20-22 mill longae, 9 10 mill latae, et ala fuscae A P Sibiriana cui alfinis, stiobilorum longitudine et lorma nee non apophysi m umbonem longum Knceolato-acuminatum uncinato-incurvum protracta satis superque distincta (v v)

30. P. AUSTRALIS (Michx Arbr 1 p 62 t 6), arbor, coma expansa, ramis subverticillatis patentibus horizontalibusve apice ascendentibus, vaginis longiusculis apice circinnatis, folus terms longissimis tenuibus in apice nmulorum approximate patuhs pendulive compresbo-tnquetris margine scabns mucronatis subpungentibus laete vindibus, strobilis penduhs conico cylindraceis obtusiusculis curvulis vel rectiusculis, squamarum apophysi subrhombea subelevato-pyramidata, canna transversa acuta, umbone lato prommente mucronulato, mucronulo bre\i mcurvo, nuculis o\ahbus utnnque convexis ala oblonga subtnplo bievionbus ^ In stenlibus, nequaquarn veio >n paludosis, Amenciae borcalis a Virginia ad Flondam sylvas vastas etlorman^ p. palustns Mill Diet n 14, Lamb Pin edit 2 p 30 t 21, ft edit 1 1 p 41 t 24ct2) Antoin Conil p 23 t 6 f 2 P australis Michx M Nortli Amenc Sylv 3 p 131 1 6 Endl. Conif p 165, Can Conif p 345, Goid Pin p 187, Henk et Hochst Nadelholz p 65 P Palmien Manett *Long leaved Pme, Yellow Pine, Pitch Pine, Broom Pine* Angl Arapr Mbor resinosa, 60 70-pedahs et ultra, habitu pecuhan, hj?no commendatis- lmo et niulto mcumlato commercio Folia 2o 35 cent, longa, 1 ] mill ldttd btrobili 1 i-20 cent longi, 4 cent lati (v v)

- 31 P CANARIENSIS (Ch Smith in Buch Besch. der Canar. Inseln p 159), arbor excelsi, coma expansa, rarais \ ei ticillatis patentibus horizontalibusve apice frondosissimis, squamis lulcrantibus late lanceolato acuminatis recurvis longe fimbriatis, vaginis longiusculis stinctis apice liceris fimbriatis, loins terms longis tenuibus laxis compresso-tinquantibus maigine scabris mucronatis subpungentibus vindibus, junionibus gliucis, amentis masculis phinibus in spicam inssim lon^iusculdm di^positis bievinsculis obovato oblongis, bracteis anthenlens orbn ulinbuseroso ciliatis, strobis solitdrns? junionibus ovilibus oblongisve in ramulo brevi cra&so eiectis adultis horizontalibus vel subdeflexis rectis vel curvulis oblongo cvlindraccis oblusis squamaiaum apophysy subrhombouiah elevato pyramidata canna transvcsa acuta nmbone lato paium nrominente mutKO, nucuh oblongo obovatis utunq con\e\iusculis aid oblonga subduplo bicvionbus ^ In mnntihub ^iv mae Linn IIS et Palmje inter 4400 et 7>00 ped regionem peculiaiem constituent (Brouss 'Webb' Bouig ' ann 1801 n 52 J et ann 18v> n 1500) — De C ' PI i ir du Jaid dc Genève p I t 1 2, I inib. Pm edit J v 1 p. 40 t 28, Antoin Conif p l\ t IS, Webb et Berth Ph}t (anar & p 280 ithst 6, Indl'Conif p l()o, Cdi Conif p >48 Gord Pin p 191, Henk et Hochst Nadelhol7. p. 80 *Pinolea*, Cndi Aibor 60 80 pedes alta, hgno ponderosissimo, resinam copiosam sedtente l<olia 19-27 cent longi, I J mill lati. Amenta masculd 14 H mill longa, 5 mill latd Strohii resinosi, magmtudme^ani, 10 17 tent longi, >7 cent hti Apophysis squaindrum mediaium 1 \ 20 null lon<sub>0</sub>a 20 28 mill lata ^uculee et aid iusede (v \ )
- 32 P jFtFRE\i (Muui f Ores? Comm p 2 cum icon et Notes on Cahforn. Irees part 2 p 28 t 6 7), irbor excelsa, ldinis pendulis hon/ontabusve flexuosis, rairulis ascendentibus squamis fulcrantibus lancoldtis auminatis margine hmbmto-cihatis (onnexib, vi^inis breviusculis laus fuscis, f>lus terms longis ngidis pitulis compresso-tinquetns maigino scabris murrionatis pungentibus doiso vindibus fdie plauescentibus, strobilis hte ovitis ubtusis rectis, squamarum apophysy subrhombi elevato pyramidata subrecurva, canna transversa acuta, umoonc i)romintnte recurvo mucronito, nuculib ovilibus obtusis utnnque convexis ala oblongo-tulliifoimi obtusi subnplo brevionibus 5<sup>in</sup> Calilornn Ul 41 30 In Slnsl i Valle^ (Jrflre>'), in Scots Valley (Black) — Girr Goml p JS8 Gord' Pin p 198, Hcnk ol Hochst Nadelhol7 p 87, Murr Pin bntann part 5 cum icon Arbor l^O-pedalis, habitu peculiar tolina H-20 cent lonpn 1^1, mill lata Stiobih 15-18 cent lon^i, 10-13 cent lati Nucuhc dlbid? (v s)
- 33 P. IAEDA (Linn bp pi p 1419, ex parte) aibor coma expinsa, squamis fulcrantibus ldnceolato-dcumindtis apite recunatis maigine fimbuato-ciliatis, vaginis lonpiuscuhs stinctis defm lacens luscis f Ins terms longis ngidiuscuhs eiectis subpatuhsvo comprpsso-tinquantis maigine stabiiustuli\* broviler mucronatis subpungentibus Idete \indibus, amentis masculis plunbus longis subcapitato fasciculatis cylindraccis obtusis rectis vel cu<sup>n</sup>vulis, bracteis anihexferis suborbicularibus crenulato-ciholatis, stibbilis 2 5 vei ticillatis sessilibus recurvaio patentibus vel subhonzontdbbus ovato oblongis obtusiu'-cuhs, squamarum apophysy subrhmoiddli subcompresso-pyramiditi, cdiina trdnsvsa acuta, umbone mucronito mucrone rectiusculo acutn pungente, nuculis ovahobovitis utnnque convexis ala 1 ltd 3 4 plo brovioi ihu> 5 Jn Virginia? et Floridae sabulosis paludosisve, interdum sylvas vastas efloimuii\*, Delawan (Ganby'i — Lamb Pin edit I p 20 t 17 et 18 edit J p JO t H, Michx! rsorth Amenc. sylv \ p 15b t 9 Antojne Gonif p 25 t 7 f 1, Endl Conif p 164, Gdn Gomf p 344, Gord Pm p 210, Henk et Hochst Nadelholz p 65 P VirginianI tonuilolia Pluk Almag p 297 P folns teinis Gronov Virg p 152 *Iraukwansc Pine, lohlnlhj Pint*, Angl Amenc Arbor baud humis ut erronee dicitur a cl Lamberio et ab alus senptonibus sed sa?p( 80-90-pedahs, resinam copiosam et usititissimim scatens, hgno in Vnginia praeseitim ad construendd«» domos usitatissimo toha 16 20 cent longa 1 • VJ\ 2 mill lata Amenta mascula 20 45 mill longa, 5-b mill lata 'stiobili 8-10 raro 12 cent longi, 3 J 5 cent lati Apophysis squamarum mediarum 12-13 mill longa, 7 10 mill lata NuiuldP f>7 mill longae, 4-4} mill, latde, fuscae, ala lusca 25-28 mill, longa, 4-10 mill, lata (v. s)



- 34 P SEROTINA (Michx Fl Bor Amenc 2 p 205), arbor mediocns, coma expansa, lamis patentibus vel subhonzontahbus distantibus, vaginis brevibus stnctiuscuhs fusciscentibus apice albidis, folns terms longis ngidis erectis patulivse compresso tquetns margine scabnusculis mucronato pungentibus vindibus, amentis masculis plunbus subspicato congestis oblongo cylindraccis obtusis crassis, bracteis anthenfens suborbiculailbus crenulato ciholatis, strobilis subgeminis subsessilibus subpenduhs o\ato rotundatis \el ovatis, squamarum apophysii subtetragona subelevato-pyramidata canna tiansversa acuta, umbone apophysim continuante mucronato, mucrone brevi recto<sup>o</sup> deciduo, nuculis -5 in Pennsylvania et Carohnae paludosis stenlibusve mantimis — Michx North Amenc sylv 3 p 148 t 7, Lamb Pin edit 3 torn 1 p 35 t 18 Antoine Lonif p 27 t 8 f 2, Endl Comf p 163, Carr Conif p 341, Gord Pin p \*09, Henk et Hochst Nadelholz p 70 P Taeda p alopecuroidea Ait H Kew edit 1 vol o p 317 *Pond Pine* hort Engl Arbor 35 40 y>ed alia Tolia 12 20 cent longa, 1<sup>^</sup> mill lata Amenta mascula 17-18 mill longa, 6 mill lata Strobih 0-6 cent longi, 3J 4 mill lati Apophysis squamarum mediarum 7-8 mill longa, 10 11 mill lata (v s)
- 35 P BIGIDA (Mill diet n 10) arbor coma expansa, vaginis breviusculis demum lacens fuscis folns compresso-tquetns margine scabnusculis breviter mucronatis pungentibus vindibus, amentis masculis plunbus subfasci culato congestis cunulis vel reclis cylindraccis obtusis crassiusculis, bracteis anthenfens suborbiculanbus crenulato-denticulatis, strobilis 3 S verticillatis raro subsohtams junionbus subglobosis in lamulo strobilo ipso breviorerecto patentibus vel patentibus adultis in ramulo brevi vel brevissimo subpenduhs patu lsve ovatis obtusis, squamarum apoptnsi subrhomboidah subcompresso-pyramidata canna transveise acuta umbone breuter mucronato, mucrone reflexo pungente, nuculis parvis obovatis ala dolabnformi subqua druplo brevionbus <sup>^</sup> l<sup>n</sup> America boreali a Maine et a Lacu Champlam in Vermont ad montes Alleghanenses 44-38 gr lat solo arenoso vel paludoso, vastos tractus tegens vel cum Thuja occidentah commixta — Lamb Pin edit 2 p 28 t 19et20, et edit J p 30 t 16 17 Michx North Amenc sylv 3 p liO t 8, Anton Conif p 26 t 7 f 2, Lndl Conif p 164, Carr Comf p 342, Gord Pin p 207 Henk et Hochst Nadelholz p 68. P Taeda ngida Ait H Kew edit 1 vol 3 p \*68 P Frasen Lodd Cat ann 1836 p 50 P Loddigesn Loud Aibor Brit 4 2269 *Pitch Pine, Sap Pine, Sap Pine* Engl Amenc Arbor in stenlibus et boreahbus, Iocs humilis, 12-15 pedalis, in fertihonbus et australionbus 30-40 et interdum 70 80 pedes alta Folia 6 12 cent longa, ] \ 2 mill lata Amenta mascula 16 30 miU longa, 5 mill, lata Strobih 6 10 cent longi, 4 6 cent lati Squamaium apophysii opaca, Mibcinerea, mediarum 11-13 mill lata, 6 7 mill longa Nuculae 4 mill longae 3 mill vix latae, fuscae, ala fusciscente, 15-16 mill longa, 5 mill lata (v s)
- 36 P TUBERCLLATA (Don m Linn Transact 17. p 442), arbor coma subpyramidah, ramis ascendentibus erectivse, squamis fulcrantibus lanceolato-acuminatis margine fimbriato-ciliatis connexi>, vagina bre\iusculis stnctis demum Idcens, folns terms longiusculis ngidis erectis compresso tquetns margine scabns \el scabnusculis mucronatis vindibus, amentis masculis plunbus longiusculis cylindraccis obtusi\* curvulis vel lectis, biacteis anthen tens suborbiculanbus denticulatis strobilis 2 4\verticillatis vel solitarns sessi hbus pendulis oblongo cyhndraccis oblongivse obtusiuscuhs, squamarum apo physi subrhomboidah nitida depresso pj ramidata in squamis infenoribus latens extenons elevato pyramidata, canna transversa acuta, umbone depresso vel subelevato acuto mucronulato mucronulo sursum verso deciduo nucus in California, ad Monterey prope htus mans lat 36<sup>o</sup> (Coulter) in montibus Santa Cruz (Hartw ), Salmon River Mountains lat 41<sup>o</sup> (Soc Oreg ? anno 1854 n "00), in California (Bolander) —Lamb Pin 3 v 85, Antoine Conif p 33 t 14 f 2, Endl Conif p 162, Carr Conif p 338, Gord » m Journ of the Hort Soc 4 p 218 cum icon Pin p. 21<sup>^</sup> Henk et Hochst Nadelholz p 78, Murr Pm bntann part 9 P California Hditw in Journ of the Hort Soc 2 p 189 Arbor 20 50-pedalis lolia 12-lo cent longa, 1; mi n lata. Amenta mascula 15-17 mill longa, 4-4<sub>2</sub>

mill lata Strobih 11 16 cent loDgi, 3|-5| cent lati, maequilaten Squamarum mfenorum latens extenons apophysis valde elevato-pyramidata Apophysis squamarum mediarum 9-10 mill longa, 14-lo mill Tata (v s)

37 **P** INSIGNIS (Dougl msc ex Loud Arbor 4 p 2243 f 2132-2137), arbor coma subpyramidali, ramis 7-8 ^e^tCillatis horizontalibus patentibusve, squamis fulcrantibus late lanceolatis acum natis margine fimbato cihatis connexis, vaginis brevibus stinctis demum lacens folns terms longiusculis ngidis erectis compresso tnquetns margine scabns mucronatis subpungentibus intense vindibus, amentis mascuhs plunbus cylindraceis obtusis curvuhs, bracteis antbenfens ovah orbicularibus crenulato-denticulatis, strobihis 2-5 verticillatis, junionbus in ramulo crasso strobilo ipso subbreiore patulis ovalibus obtusis, adultis subsessilibus vel in ramulo brew crasso horizontalibus vel subpendulis rectis ovato-conicis vel oblique ovato conicis acutiusculis, squamarum apophysi rhomboidah depresso pyramidata nitida radiatim fissa, canna transversa ele\ata acuta latere supenore valde convexo, umbone planiusculo mucronulato, mucronulo brevissimo deorsum \erso deciduo, nuculis ovalibus utnnque convexis ala oblonga obtusa subtnplo brevionbus \$ In montibus Cahiforniae jsque ad 200 vel 300 ped supra mare, praesertim in Point Pmos prope Monterey (Dougl Coult Hartw Bolander!) — Antoin Conif p 27 t 8 f 1, Benth Voy Sulph p 55, Tndl Conif p 163, Carr Conif p 339, Ton\* Whipples Report p 85, Murr Notes upon Cahform Trees part 2 p 26, Gord Pm p 197, Henk et Hochst Nadelholz p 69 P radiata Don in Linn Trans 17 p 442, et in Lamb Pm 3 t 80, Antoin Conif p 33 t 14 f 3 Endl Conif p 161, Hor des Serres 6 p 43 cum icone, Carr Conif p 337, Gord Pm p 206 P California Lois \* Nouv Duham ^ p 243, Endl Conif p 162, Carr Conif p 353, Henk et Hochst. ISadelhob p 79 P adunca Bosc msc ex Endl , Antoin Lomf p 37 Arbor 30 60 pedes alia tolia crebra, 7-15 cent longa, 1 | mill lata Amenta raacula 12-17 mill longa, 3-J-4 mill lata, e luteo purpurascencia Strobih 10 13 cent, longi, 7 8 cent lati, mterdum majores, etiam ipso in ramulo, lo-16 cent longi, tl 12 cent lati Squamarum exteriorum et mferiorum apophysis ludit plus mmusve elevato pyramidata et latere supenore valde convexa Apophysis squamarum mediarum 12 lo mill longa, lo 20 mill lata (v v)

38 **P** PONDEROSA (Dougl in Loud Arbor p. 2243 f 2132.2137), arbor excelsa. coma expan&a ramis patentissimis vel subpendulis apice ascendentibus subcontortis, squamis iulcraniibus lanceolato-acuminatis margine fimbato cihatis connexis, vag ni& longiusculis stinctis dein lacens fuscescentibus, iolns terms longiusculis rigidis eiectis vel patulis ccmpresso-tnquetris margine scabns mucronato subpungentibus e \irili glaucescentibus, amentis mascuhs plunbus fasciculato cap 1 tat s longis cylndiaceis obtusis rectis vel curvulis, bracteis anthenieris suborbicularibus trenato-dentdtis, strobihis 3 4 verticillatis subsessihbus subpendulis rectis conicis vel conico c^hndraceis obtusiuscuhs squamarum apophysi subrhombea subelevato pyramidata radiatim fissa, canna transveisa acuti, umbone vahdo subrecurso nuucronulato, nuculis ovalibus utnnque convexis ala oblonga obtusa subtnplo brevionbus' ^ In montibus America? boreah occidentahs a Novo Mexico ad Montes stopulosos(Rocky Mountains), ^ylab saepe efformans In Novo Mexico frequens (Vks !), inter Pecos et Rio Giande (Bigelow), in Sierra Nevada California communis <Bigelow,Newbeny) , in Cal foimias montibus repionem supra P Sabinianam <sup>CONSISTENS (HARTW.), SUBULNA, AUBURN (BOLANDER!) AD NUVIOS SPOKAN, FLATHEAD ET AD CATARACTAS COLUMBIAE (DOUGL !), COLUMBIA RIVER (LYALL!) — Antoin Conif p 28 t 8 f , Endl Conif p 163, Carr Conif p 340, Newberry Williamson s Report 6 p 36 t 4 f 12, Gord Pin p 205, Henk et Hochst</sup>

Oouif P 3^6, Gord p<sub>in</sub> p 190, Henk et Hochst 1 c p<sub>K</sub> P<sup>5</sup>, Carrmanm lorr Bot Whipples Report p 141 P Beadslevi fi<sup>£</sup> EngelPhilos Journ ann 1805 p 286, Carr Conf. p 359 P Ben ^ <sup>ANN. New</sup> Journ of the Hort Soc 2 p 189, et 3 p 223, Hor d e s w <sup>4. > ?</sup> 216 cumic Carr Conf p 380, GoH in Journ of the Hort w<sup>4. > ?</sup> 216 icon, Flor des Serr. b p 80 cum icon, Pin p. IRfi B L I <sup>4 n P 21 ? o U m</sup> <sup>LOCUS: 1 c</sup> 93, Carr Conif

- p. 355. P Parryana Gord. Pm p 202, Henk. et Hochst Nadelholz. p 88, Carr Conif edit. 2 p 446. *Yellow Pine, Pitch Pine* Nov Mexic Arbor excelsa 100-200-pedahs folia 10-20 cent longa, 1<sup>^</sup>-2 mill lata. Amenta mascula 25-32 mill longa Strobih 10 11 cent longi. 4<sup>^</sup>-5 cent lati Squamarum apophysis plus minusve subelevato-pyramidata, e luteo-rubra, hneis fuscis radidtim uotaia, umbone subrecurvo, plus minusve mucronulato Nuculae 7-10 mill longae, <sup>^</sup> b mill latae, non breviter alatae, sed ala subtnplo brewores, ut ipse cl Engelm annus, qui nucas haud maturas pnum descnpsit, admnuit. Species ob soli natuiam, Newberry teste, valde \anabilis. (v. v )
- 39 P GREGGII (Engelm msc '), arbor mediocens, squamis fdlcrantibus lanceolato-attenuatis maiguie fimbnato-cihatis connexis, vaginis hrewbus stnctis demum lacens, folns tcinis ngidis brevibus compresso-tnquetns margine scabnusculis, ampntis masouhs paivius ulis oblongis in spicam brevem densam dispositis, hiacteis antherifrn suhorbiculmbus eroso denticulate, strobihis subsessilihus? pendulis? oblongis vel oblongo cylindriaceis obtusis, squamarum apophysi subrhomhoiddli nitula depresso pyramidata in squamis latens ex tenons elevato pyiamidata obtusa, lanna transvei<sup>d</sup>. acuta, umbone subdepresso mucronato, mucrone CM&SO brevi deflexo vel subnullo, nucuhs <sup>5</sup> In montibus mcxicanis prope Sullillo (*D' Gregg »J* Arbor 30-50 ped alia (Engelm msc) Folia 6-8 cent longa, 11 mill lata Amenta mascula 10 mill longa, 4j<sup>-r</sup>) mill lata Strobilus 9 cent longus, 3) cent latus Apophysis squimarum latens extenons major, earum mediarum 11-12 mill longa, 15-17 mill, lata Species P. 'leocotae affinis et meh us in plantis vivis Illustranda. (v s)
40. P. CUBENSIS (Gnseb. PI Wnght Cub in Mem Acad Amei Sc et Art |o| 8 p. ^30), arbor squamis fulrrantibus ovato-lanceolatis attenuato-acuminatis margine hmbnato ciliatis apice recurvis, vaginis bre\iuscuhs stnctis persistentibus, folns terms vel supenonbus geminis longis<sup>^</sup>imis ngidis compresso tnquetus marline scabns mucronatis subpungentibus, amentis masculis lon<sup>^</sup>is crassis cylindriaceis obtusiusculis suhcongestis bracteis antheriferis suborbiculanbus |i| eroso-denticuldtis, strobihis sohtanis vel geminis adultis in ramulo longiusculo recur\o pendulis ovatis vel ovato-conicis obtusiusculis, squamirum apophysi subrhombca suhele\ato-pyrdmidata, canni transversa prominenti acuta, umbone parum prominente mutico, in squamis supenonbus mucronulato, mucronulo Drevi recto, nucuhs . Tn editionbus Cuba<sup>e</sup> onentalis fiequens (Wright' n S98 1462), in Cuba (Franqueville<sup>1</sup>), ad Havanam (Ramon dp la Sagn i n 277) Folia 22 25 cent longa, 1J-2 mill lata Ampnta mascula 3] -4 \ cent, longa, 5-7 mill lata. Strobilum perfette maturum non vidi. (v s)
- 41 P. IEOCOTE (Cham et Schlecht in Linnaea 5 p 76 et 12 p 487), arbor excelsa, ramis patentibus apice ascendentibus squarais fulcrantibus lanteolato-hneanbus attPnuato-acuminatis margine fimbnato ciliatis connexis, \aginis breviusculis persistentibus, folns teinis ngidis longiusculis compresso-tnquetns margine scabus vel scabnusculis mucronatis pungentibus vindibus, strobilis 1-2, junionbus ovali-globosis m rimulo breu crasso eiectis, adultis in ramulo brevi vel brevissimo dpflexis rctis vel curvulis o\atis vel ovato-oblongis oblongis\e acutis, squamarum apophysi ->ubrhomboidea subdepresso-pyramidata, carina transversa parum elevata, umbone depresso mucronato, mucrone deflexo, nucuhs <sup>^</sup> In Montibus Mexici ad radices et adscensu montis Orizaba? (Schiede' n. 13), prope Real del Monte inter Zacueltepan et Rio Grande (C Ehr<sup>^</sup>nb ' n 1031.1080 1084 1086 1087, et n 1024 Roezl'), prope Ocotillo (Hartweg') in provmcia Oaxaca ad 9000 ped (Galeotti' n 17, Ghiesbreght'), inter Montem Ajusco et Las Cruces ad 10-11 000 ped et prope Moreha (Roe/1') — Lamb Pin edit 2 v 3 p 145. t 62, Spach Hist des veget phaner |l. p.400, Antoin Conif p 3> t 16 f S, Endl Conif p 156, Carr Conif p 328, Gord Pin p 211, Henk et Hochst Nadelholz p 83-P. Vilmonniana, P Bessenana, P Mulldiana, P micmcarpa Roezl<sup>1</sup> Cat des graines des Tonit mexic p 20 21 P Hugeln, P Galocote P intrrposita, p Mullenana Roezl' pi eisicc *Teocole* Mexican Aibor 60-120 et etiam 150 ped (Roezl) alta Folia 12-20 cent, longd, 1<sup>7</sup>-1 , mill. laU<sub>t</sub> compla-

- nala, carina parum elevata. Strobili 4-8 cent, longi, 2-2  $\frac{1}{2}$  cent. lati. Squamarum apophysis 7 mill. longa, 10-11 mill. lata. (v. s.)
42. p. PATULA (Schied. et Depp.! in *Linnaea* 12. p. 488), arbor, ramis patentibus apice ascendentibus lanceolatis attenuato-acuminatis margine fimbriato-ciliatis connexis, vaginis longiusculis persistentibus margine longe ciliato-connexis, foliis ternis quaternisve flaccidis tenuissimis longis carina parum elevata ad angulos scabris mucronatis, amenlis masculis oblongo-cylindraceis obtusiusculis dense congestis, bracteis antheriferis suborbicularibus erosodenticulatis, strobilis 1-5, in ramulo brevissirao pendulis subpehdulivse oblongis vel ovato-oblongis obtusiusculis curvulis vel recliusculis, squamarum apopliysi suhrhomboidea depresso-pyramidata, carina transversa parum elevata acuta, carina longitudinal! infera el interdum sup era vix conspicua aut convexiuscula, umbone prominenti in medio tuberculato, nuculis parvis obovato-oblongis basi acutis utrinque convexiusculis ala oblongo-lineari obtusu. subtriplo brevioribus. ^ In Mexici regione irigida ad Malpaysde la.loya, Las Cruces, inter Lerina et Toluca (Schiede! n. 1108), prope" Real del Monte (Hartweg! n. 442 et 443), in Mexico (G. Elirenb.! Karwinsky! Her mexic. n. 111. Udhe! n. 85, Roezl!), in provincia Oaxaca a! 6000 ped. elev. (Galeotti! n. 22), in monte Orizaba ad elev. 12 000 ped. (Heller!), ad 6-101)00 ped. elev. (Galeotti! n. 4.16. 22. 23), in nemore de la Deserta Vieja in valle Mexici (Bourgeau! n. 904), ad la Hoya ad elev. 7200 ped. in provincia Verae Crucis (Linden!).— Lamb. Pin. edit. 1. v. 3. p. 143. t. (1): Benth. Pl. Hartweg. p. 58: Antoin. Conif. p. 35.1.16. f! 2; Encil. Con if. p. 157; Carp. Conif. p. 329; Gord. Pin. p. 203; Roezl Cat. des Gonif. des Gonif. mexic. p. 33. P. subpatula Roezl! pi. exsicc. *Huajolote* Mexican. Arbor 60-80 ped. alta, ramis cortice cinereo subcaerulescente tectis. Folia plerumque terna, raro quaterna, 10-22 cent. longa, 1 mill. lata, carina parum elevata apicem versus scabra. Vaginae strictae, 18-20 mill. longae. Amenta mascula 17-20 mill. longa, 4-5 mill. lata. Strobili 7-11 cent. longi, 3-4 cent. lati. Squamarum apophysis 9-10 mill. longa, 11-15 mill. lata, pallida. Nuculae fuscae, 6-7 mill. longae, 2  $\frac{1}{4}$ -2  $\frac{1}{2}$  mill. latae, ala 17-18 mill, longa, 4-4  $\frac{1}{2}$  mill, lata fuscescente. (v. s.)
43. P. CHIHUAHUANA (Engelm.! Wiszl. Rep. not. 26), arbor vaginis breviusculis strictiusculis, foliis ternis geminisve raro quaternis (Gord.) brevibus rigidis compresso-triquetris margine scabris mucronato-pungentibus, strobilis parvis ovatis vel ovato-orbicularibus, squamarum apophysii subrhombea subelevato-pyramidali, carina transversa parum prominente acuta, umbone lato depresso mutico, nuculis.... J<sup>m</sup> montibus Novi Mexici alt. 7000 ped. ad Cosiquiriachi frequens (Wiszl.). — Carr. Conif. p. 357; Gord. Pin. p. 193; Henk. et Hochst. *Nadeinolz*. p. 86. Arbor 50 pedes alta. Folia 4-7 cent. longa, 1  $\frac{1}{2}$  mill. lata. Strobili 4  $\frac{1}{2}$  cent. longi, 2  $\frac{1}{2}$ -3  $\frac{1}{2}$  cent. lati. Squamarum apophysis cinereo-fusca, mediarum 7-8 mill. longa, 11-13 mill. lata. (v. s.)
44. P. CEMBROIDES (Zucc. in *Flora* 1832. p. 2), arbor mediocris, coma effusa, ramis patentibus subdellexivse apice adscendentibus, squamis fulcranlibus ovato-lanceolatis acuminatis margine subintegris nee fimbriato-connexis, vaginis brevissimis demum laceris, foliis plerumque ternis compresso-triquetris raro geminis semper brevibus rigidis primum erectis ramoave adpressis dein patulis curvulis rectivse compresso-triquetris margine laevibus mucronatis subpungentibus laete viridibus, strobilis parvis ovato-clobosis & n-bosisve, squamarum apophysii rhombea subelevato-pyramidata subreflypa <sup>ci</sup> rina transversa acuta, umbone lato depresso mulico, nuculis obovato-n<sup>W</sup>TM^ convexis subangulatis apteris (nigris). § In montibus mexicanis <sup>»i»»&»</sup> 8-10 000 ped. inter Zimapan et Real del Oro (Schiede!), Zimapaa et in <sup>WA</sup> Orizaba (Hartweg!. n. 440), S. Jose del Oro alibique (C. Ehrenb. n <sup>»»n</sup> Mexico (Aschenfaorn! n. 376, Roezl 1), prov. de San Luis rVerlpti? <sup>»»» I A?</sup> Conif. p. 182; Gord.! in Journ. of the Hort. Soc. 1. p. 236 <sup>cnmi</sup> p. 192 excl. syn. P. edulis Carr. Conif. p. 404. P. Llaveana <sup>S c h i P ^ q t r i u</sup> in *Linnaea* 12. p. 48« ; Antoin. Conif. p. 36. t. 16. f. 1. p. <sup>o - p de p p.</sup> Roezl Cat. de grain.de Conif. Mexic. p. 33; Henk. et Hochst. <sup>S. H. S. I P, 46.</sup> P. fertilis Roezl pi. <sup>JX</sup>sicc; Goru. Pin. p. 199; Henk. <sup>»»» h 2 1, 1 fi.</sup> p. 64 ex parte. P. osteosperma Engelm. 1 in <sup>W i z l M</sup> p. 407. Arbor 30 pedes alta, tortuL. Folia <sup>»»»</sup>ve curvula aut recta

vel rectiuscula, 3 4 cent longa, \* 1 mill lata, vindia Sfrobih 2 1-5 cent longi, 3 4 cent lati Squama rum apophysis rufesceas nitida, mediamm 10 15 mill longa, 12-22 mill lata Nuculae osseae, saepe abortu m quavis squama sohtanae ficie extenore nigrae, 13-15 mill longae, 8-9 mill latae edules et Pinones a Mexicams nuncupate (v v )

45 P EDULIS (En^elm I in Wisl/ Mem not 2), arbor mediocns, coma ef fusa, squamis fulcrantibus ovato lanceolatis acutis margme subintegns nee fimbriato connexis vaginis brevissimis deraum lacens, folns raro terms ot compresso triquems saepe geminis semiteietibus et in sicco in facie canaliculatis semper brevibus ngidis patulis curvulis rectiuseulis margme laevibus mucronatis pungentibus durso vitidibussupra albido glaucis, amentis masculis plunbus parvis oblongis obtusiuscuhs in spicam brevem dense congestis biacteis antheufens ovato orbiculdnbus subintegns, strobilis sessilibus subglobosis, squamarum apophysi el\ato pyramidata crassa subtetragofla apice truncata subieflexa, canna trdnversa acuta, umbone depresso subtetragono mutico nuculis in quavis squama geminis solitaiusve oblongis valde convexis subangulalis fuscis dunuscuhs aptens <y In No\o Mexico inter Cimaron et Santa Fc ficquens (Wis/1 ' n 53o), in Novo Mexico (C Wright ' n 1889) — Can Conif p 408, Ton\* in Sitgreavcs Report p 173 t 20 Arbor 10 20 raro 30 pedes alta, ^dl(^e resinosa toha raro teina, plerunique gemma, ngidioia et crassioia quam in P cembroide, 3-3^ raio 4 cent longa, 14 lj mill lata Amenta mascula in sicco rulescentia 6-7 mill longa, 2 } mill lata Strobilus k cent longus et fero litus squamirum apophysis lutescens nitida ciassa pyramidata subquadiangula apice truncata Nuculde 11 12 mill longae, 7 8 mill latae, fuscscntes, edules A Pino cembroide, cui a ffin is certe distincta (v s )

46 P PSEUDO-TAEDA (Ten Ind Sem H R Neap ann 1857), folns terms tenuibus ngidis elongatis (4 6 poll) ad ramorum summitatem pemcillatim conferlis, vaginis fimbmtis (3 4 lm ), strobilis rectis soli tan is patentibus ovahbus (2 poll long i poll lat), squamarum apophysi depiesso pyramidata umbonemucronato recto (1 lin ) vel subrecurvo, seminum aid acirciforrai obtusa (6 lin longa 2 lin lata) AP Taedd difftrt impiimis folns graciliimis, folio rum vagims multo bievionbus, strobilis parvis rectis nee 4 polhcdnbus deflexis, a P vanabili Lamb loins tenuissimis tuplo longionbus terms omnibus, nee geminis ternisque, strobilo ovato, umboneque mucronato diveisa deprehenditur Hasc Pirn species, quae toto coelo diffeil a Pino pungente, sub hoc nomine a meicatonbus accepimus (len 1 c) \*

47 P BUNGEANA (7ucc msc m Fndl Conif p 166), folns terms ngidis, fasciculis ad mnovationes verticillatim appioximatis, amentis stammis, ens intragpin mam termmalem comcam squamosam squamis membraniceo scanosis spadicis acutis In China boreah (Bunge) Rimulum vidi pedalem subsimplicem cortice gnseonitido, cicatncibus parumpiominulis iransversim rhombeis asperum, ad mnovationes pollicem v sesquipolhcem inter se distantes aliquantum incrassatum annulato rugosum, lbique fohorum fasciculis tnphjllis verticillatim approximatis onustum, cetera aphylluoi Folia tema, vix lineam lata, 2 3 longa, acuti, ngidissima dorso convexa, laeie acute cannata, margimbus icevia Gemmae terminales staminigera° dimidium pollicem longae, ovato comcae, dcutae, e squamis late ovatis, 4 l'neas longis aculis mtegerrimis spadicis mtidis coiuposiLas, amenta plunma stammigera includentes (Lndl)

C Pseudo Strobis — Sectio Pseudo-Strobis *Endl Conif p 151* — Folia quina, ranssime quaterna vel terna, tnquetra

^8 P MONTEZUMI (Lamb Pin edit 1 vol 3 p 149 t 64, et edit 3 vol 1 p 23 t 22), arbor excelsa, coma expansa, ramis verticillatis horizontalibus vel patentibus, ramulis crassiusculis, vagims longiuscuhs, squatm\* fulcrantibus lanceolato-hneanbus attenuato-acuminatis mdrgrine longe fimbriato-ciliatis connexis, folns quinis ngidiusculis longis triquetns ad angulos scabris mucronatis, strobilis 1 3, junionbus oblongis in ramulo brevi erectis, adultis conico-oblongis vei conico cyhndraceis obtusis cui vatis vel rectiusculis

sessilibus pendulis subpendulisve, squamarum apophysi rhomboidea radiatim rugulosa depresso-vel subelevato-pyramidata recta vel subincurva, carina transversa parum elevata acutiuscula, carina longitudinali vix vel parum praesertim infera conspicua, umbone lato prominenti mutico in squamis superioribus mucronato, mucrone brevi recto, nuculis parvis obovato-ovalibus utrinque convexis ala oblonga obtusa 3-5-plo brevioribus. § In montibus Mexici ad elevat., ut videtur, inter 8-12 000 ped., frequens inter 3480 et 12720 ped. (Humb. n. 3913), in monte Orizaba inter Perote et Hacienda de Tlachichuca (Schiede! n. 14), in mont. prope Real del Monte (Hartweg), prope Real del Monte, S. José del Oro et inter Zimapan et las Verdosas (C. Ehrenb. n. 1028. 1085, et 2), in montibus Popocatepelt, de Morelia et prope Zitacuaro (Roezl!), in prov Oaxaca ad 6000 ped. (Galeotti! n. 18. Ghiesbreght!), Coffre de Perote et in nemore de la desierta Vieja in valle Mexici (Bourgeau! n. 902), in Mexico (Uhde! n. 86). *P. occidentals* Humb. Bonpl. et Kunth! Nov. gen. et spec. 2. p. 4; Deppe in Linnaea 5. p. 76, non Swartz. *P. Montezumae* Schlecht. in Linnaea 12. p. 489; Antoin. Conif. p. 38. t. 17. f. 1; Spach Hist. des vég. phan. vol. 11. p. 401; Endl. Conif. p. 154; Carr. Conif. p. 317. *P. Devoniana* Spach l. c. p. 402; Antoin. Conif. p. 48; Endl. Conif. p. 153; Carr. Conif. p. 315; Gord. Pin. p. 221; Henk. et Hochst. Nadelhölz. p. 103. *P. Russelliana* Lindl. l. c. p. 63; Spach l. c.; Antoin. Conif. p. 49; Endl. Conif. p. 152; Carr. Conif. p. 314; Gord. Pin. p. 238; Roezl! Cat. de grain, des Conif. Mexic. p. 100; Henk. et Hochst. Nadelhölz. II. c. p. 105. *P. pseudo-strabus* Gord. Pin. p. 237, sed descriptio partim erronea. *P. Russelliana*, *filifolia*, *Tenangensis*, *macrophylla*, *Soulangiana*, *Troubezkojana*, *monstruosa*, *grandis*, *elegans*, *Bothiana*, *spinosa*, *Rumeliana*, *Boucheiana*, *Van Geerlii*, *Northumberlandiana*, *San Rafaeliana*, *Ketelerii*, *Dolleiriana*, *Van Houttei*, *Paxtonii*, *Thibaudiana*, *Haageana*, *Hendersonii*, *valida*, *Nesselrodiana*, *coarctata*, *bullata*, *Thelmannii*, *horizontalis?* *rubescens*, *Ortgiesiana*, *Rinzii*, *angulata*, *Aztecaensis*, *Zacatlanana*, *Michoachensis*, *magnifica*, *Ocampii*, *Zitacuarii*, *nitida*, *Verschaffeltii*, *Roezl* Cat. de grain, des Conif. Mexic. p. 10-17. 25. 26. 28. 29. *P. Tomacocensis*, *Pawlikowskiana*, *Ocote*, *Leroy*, *cornea*, *Roezl* Pi. exsicc. *Pino blanco*, *Pino Real*, *Ocote*, *Ocote blanco*, Mexican. Arbor resinosa, 60-100 ped. alta. Folia 20-30 cent, longa, 1j-1j mill. lata. Strobili 18-24 cent, longi, 6-9 cent. lati. Squamarum apophysis 15-18 mill, longa, 20-25 mill. lata. Nuculae parvae, nigrescentes, ala fusca, lineis longitudinalibus saturatoribus picta. (v. v.)

*p. macrophylla*, foliis longioribus. In Monte Ocotillo et in Cerro San Juan prope Tepic (Hartweg!), in montibus prope Ixtacihualt et alibi (Roezl!), in Mexico (Uhde! n. 87). *Pinus macrophylla* Lindl. in Bot. Reg. 1839. p. 63; Antoin. Conif. p. 49; Spach l. c.; Endl. l. c.; Carr. Conif. p. 315; Gord. Pin. p. 231; Henk. et Hochst. Nadelholz. p. 106. *Pinus Wincesteriana* Gord. Journ. of the Hort. Soc. 2. p. 158 (cum icon.); Carr. Conif. p. 315; Gord. Pin. p. 241. *Pinus Grenvilleae* Gord. in Journ. of the Hort. Soc. 2. p. 77 cum icone; Carr. Conif. p. 323; Gord. Pin. p. 225; Henk. et Hochst. Nadelhölz. p. 111. *P. Gordoniana* Hartw. in Journ. of the Hort. Soc. 2. p. 79 cum ic; Carr. Conif. p. 324; Gord. Pin. p. 224; Henk. et Hochst. l. c. p. 110. *P. Jostii*, *Carrierei?* *exserta*, *Roezl!* l. c. p. 15. 18. 27. *P. Wincesteriana*, *retracta*, *Backhousiana*, *Nee plus ultra*, *Roezl* r Pi. exsicc. *Ocote hembro*, *Ocote macho* Mexic. Folia 30-40 cent, longa. Strobili recti vel curvuli, squamarum apophysis nunc subelevata, recta vel subreflexa, nunc depressa.

*Y. Lindleyana*, foliis brevioribus, strobilis minoribus. In Mexico (C. Ehrenb. ) Prope Sumate sec. Gord., in Monte Ajusco et prope Pachuca (Roezl!) ? *Lindleyana* Gord. I in Journ. of the Hort. Soc. 5. p. 215 et Pin. P-n<sup>229</sup>. 5SV<sup>k</sup>. ?<sup>1</sup> Hochst. l. c. p. 112. *P. Richardiana*, *Planchoniana* inflexa, Wilsonn, *Decaisneana* *Roezl!* Cat. de grain, des Conif. Mexic. p. 18. 19. 20. Folia 13-22 cent, longa. Strobili 9-12 cent, longi, 1j-1j cent. lati. Species foliorum longitudine et crassitie. strobilorum longitudine et squamarum forma valde variabilis, et immerito in *Pinus* ab auctonibus divisa. (v. v.)

49. *P. HARTWEGII* (Lindl. in Bot. Reg. 1839. p. 62), arbor excelsa, trunco

recto, ramis horizontibus subpendulis laxis distortis, vaginis brevibus squamosis, squamis fulcrantibus lanceolatis attenuato-acuminatis margine longe fimbriato-connexis, folia 5-4-3 erectis patulisve rigidis breviusculis<sup>^</sup> canaliculatis ad angulos scabris mucronato-subpungentibus videntibus, strobili 1-4, junionibus oblongis erectis subsessilibus, adultis ovalibus<sup>-></sup> vel ovalibus-oblongis obtusis rectis vel curvulis subsessilibus pendulis subpendulisve, squamarum apophysi rhomboidea depressa vel subelevato-pyramidalata (violaceo-lusca vel nigrescente), carina transversa parum elevata acutiuscula, umbone breviter mucronato vel submutico, nuculis parvis obovato-cunealis umnque convexiusculis ala oblonga obtusa subquadruplo brevioribus. § In montibus mexicanis aequalit. P. O. ed. (Hartw.), 13-14 GG 0 ped (Roehl), in Monte Omaha elev 11000 ped. i. Schiede' n. 14), monte Campanano (Hartweg), prope Real del Monte (C Ehrenb.), in montibus Popocatepetl et Iztacihuatl (Roehl'), Coffre de Perote (Bourgeau'). — Antoin. Conif. p. 49, Spach Hist. des veg. phaner. 11. p. 403, Carr. Conif. p. 311, Gord. Pin. p. 22b; Henk et Hochst. Nadelholz. p. 107. P. Ehrenbergi Endl. Conif. p. 151, Carr. Conif. p. 311; Gord. Pin. p. 226. P. rudis Endl. I c, Cair. 1. c. P. Montezumae Gord. Pin. p. 232. P. Lown, robusta, Endlicheriana, longifolia, Hartwegi, rudis? scoparia, Iztacihuatl, resinosa, Standishii, ameoensis, aculeensis, Papeleui Roehl! Cat. de gram. des Conif. Mexic p. 18. 19. 20. 28. 30. 31. P. atrovirens, corrugata, frondosa, Geitneri, Krelagii, suffruticosa, Tlamacensis, Roehl! pi. exsicc. Arbor lesinosa, 40-50 (Hartweg), 100 (L. Ehrenb.), 120-150 pedes (Roehl) alta, truncato recto, ramis robustis. Folia ipsa in arbore nunc 5, nunc 4, nunc saepius 3, 10-20 cent, longa, 1 mill, lata, canna elevata subtriangula, aut triangula ipso in ramulo. Strobili 6-11 cent, longi, 3-5 cent, lati. Squamarum apophysis violaceo-rosea vel nigrescens, medio pleumque depressa, interdum parum elevata, umbone saepius mucronato raro submutico, mediarum 6-11 mill, longa, 10-14 mill. lata. Nuculae nigrescentes, ala fusca. (v. s.)

50. P. ARISTATA (Engelm. t Plant. Parry in Sillim. Journ. 24. p. 331 et in Trans. of the Acad. of Scienc. of St-Louis 2. p. 205 t. 5 6), aiboi medioens, in alpinis humilis et prostrata, iolus quinque confer Us erectis curvulis triquetris laevibus obtuse mucronatis laete videntibus, faciebus laxis longitudinalibus albidis glauca nolatis amentis masculis aggregate ovalibus basi bracteis paucis (4) subtulatis (Engelm.), strobiliis horizontalibus (violaceo-fuscis) ovatis vel ovato-oblongis obtusis, squamarum apophysi lumbosa parum prominente, carina transversa acuta, umbone parvo, arista lanceolato-subulata Jongiuscula recta, nuculis obovato-ovalibus utnque convexis ala latiusculis obtusa subduplo brevioribus. -j In subalpinis montium nivorum Americae borealis, Snowy Range, ad Pike's Peak alt. 9-12000 ped. detexit cl. Parry! — Henk. et Hochst. Nadelholz p. 417, Carr. Conif. edit. 2. p. 424 Arbor 40-50 pedes alta, in alpinis iere frutex prostratus, Pirn montanae nostrarum alpium aemulus. Folia 3-4 cent, longa, 1 mill, vix lata, albe resinosa. Strobili lesinosi, 8-9 cent, longi, 4 cent. Iere lati. Squamarum apophysis atro-violacea, mediarum 11-13 mill, lata, 8-9 mill longa, arista 6-7 mill, longa. Nuculae fucescentes, 6 mill, longae, 3-4 mill, vix latae, ala tenui. (v. s.)

51. P. FILIFOLIA (Lindl. in Bot. Reg. ann. 1840. p. 61), arbor, vaginis longis persistentibus fimbriato-ciliatis connexis, squamis fulcrantibus lanceolato-linearibus attenuato-acuminatis margine longe fimbriato-ciliatis connexis, folia quinque laxis flexilibus hinc inde triquetris ad angulos scabris mucronatis pallide videntibus, strobiliis conicis elongatis obtusis, squamarum apophysi hombei depiesso-pyramidalata apice callosa obtusa (Lindl.). In Vulcano del Fuego buatemilaB (Hartweg). — Antoin. Conif. p. 47, Lindl. Conif. P. 155, Carr. Conif. p. 320, Henk. u. Hochst. Nadelholz. p. 102 Arbor pulcherrima Folia 22-30 cent longa, 3-4 mill. lata. Vaginae badiae, 1-2 cent. longaB Strobilos non vidi. (v. v)

52. P. TENUIFOLIA (Benth. J. Plant. Hartw. p. 92. n. 620), arbor, vaginis brevibus stnatis, folia quinque rigidiusculis tenuibus longis triquetris ad angulos scabris mucronatis, strobiliis ovoideis obtusiusculis, squamarum apophysi plano-depressa subrhombosa margine parum crassata et rugosula,

carina transversa lineari parum prominente, carina longitudinali vix conspicua, umbone mutico, nuculis ovali-oblongis utrinque convexis alatis ala elongato-lineari obtusa 2-triplo brevioribus. § In montibus praeruptis Canales dictis, nee non ad pagum Chinanta prope Guatemala et in summo jugo Choacas prope Salama ad elev. 5000 ped. (Hartweg! n. 620). — Endl. Conif. p. 155; Carr. Conif. p. 319; Gord.! Pin. p. 204. Arbor 60-100 ped. alta. Folia 18-25 cent, longa,  $\frac{1}{2}$  mill. lata. Strobili 6-10 cent, longi, 5 J-6 cent. lati. Apophysis squamarum rufescens, mediarum 8-9 mill, longa, 7-8 mill. lata. Nuculae fuse a<sup>+</sup>, basi angustatae, 6 J-7 mill, longae, 3± mill, latae, ala 18-20 mill, longa, 4-5 mill. lata. ;v. s.)

53. P. LEIOPHYLLA (Schiede et Deppe! in Linnaea 6. p. 354 et 12. p. 490), arbor excelsa, coma pyramidalis, ramis horizontalibus apice subpendulis, squamis fulcrantibus late lanceolatis acutis margine fimbriato-ciliatis ennexus, vaginis longiusculis laxiusculis margine ciliato-connexis. foliis quibus? raro quaternis vel ternis rigidiusculis tenuibus longiusculis triquetris ad angulos scabiusculis mucronatis glaucescentibus, amentis masculis numerosis aggregato-subcapitatis ovali-oblongis apice rotundatis basi bracteis latis margine serratis et subfimbriatis suffultis, strobilis solitariis vel 2-4, junioribus in ramulo breviusculo erectis vel erecto-patulis subglobosis, adultis in ramulo brevi vel brevissimo subpendulis ovatis vel ovato-conicis acutiusculis. squamarum apophysis parum prominente subrhombea, carina transversa parum elevata acutiuscula, carina longitudinali intera parum prominente obtusiuscula, umbone breviter mucronato, mucrone recto deciduo, nuculis parvis ovalibus ala oblonga 2-3-plo brevioribus. § In montibus mexicanis ad 8000-11000 ped. elev. Inter Cruz Blanca et Jalacingo, prope Aganguio et in provincia Michuacan prope Tajiman (Schiede in. 1109), in Mexico (Hartweg! n. 441. Udhe! n. 83. 84. 87. 88. 89), inter Huajalote et Real del Monte (C. Ehrenb.! n. 1024) et prope San Jose del Oro (C. Ehrenb.! n. 1083), Real del Monte, prope Guajimalpa, Huisquiluca, Xochiltepec, inter Mexicum et Cuernavaca (Roetz!), in prov. Oaxaca ad 5000 ped. elev. (Galeottii n. 13), Coyote de Perote (Bourgeau). — Link in Linnaea 15. p. 512; Endl.! Conif. p. 155; Carr. Conif. p. 320; Gord.! Conif. p. 229. I, gracilis, Ehrenbergii, Comonfortii, Huisquilucaensis, verrucosa, Monte-Allegri, Decandolleana, Lerdoi, dependens, Cedrus, Roetz! Cat. de grain, des Conif. Mexic. p. 21. 22. 23. P. Ocote-Chino Roetz! pi. exsicc. *Ocote-hlanco*, *Ocote-Chino* Mexic. Arbor 60-90 pedes alta, et in editioribus 45-30-pedalis. Folia 8-20 cent, longa, 3-1 mill. lata. Strobili 44-6 cent, longi, 28-35 mill. lati. Squamarum apophysis e viridifusca; mucrone magis minusve conspicuo, deciduo. Squamarum mediarum 11-15 mill, lata, 10-12 mill, longa. Nuculae fuscae. (v. s.)

54. P. OCCAHPA (Schiede in Linn. 12. p. 491), arbor, coma expansa, ramis inferioribus subpendulis, foliis quinis rigidiusculis tenuibus longis triquetris, ad angulos crebre-serrulato-scabris mucronatis subpungentibus, strobilis solitariis in ramulo longiusculo horizontalibus subpendulisve ovatis acutis, squamarum apophysis nitida subprominente tetra-pentagona subrhombea, carina transversa acuta parum elevata, carina longitudinali inferamagis prominente, umbone suborbiculari depresso aut parum prominente mutico, nuculis alatis ala oblonga basi angustata 2-3-plo brevioribus. in regione calida et temperata Mexici inter Arica et Montem Torullo (Schiede, Hartweg), in Mexico (V. Khr. Vera Cruz ad 4000 ped. elev. ca. Toru. — Antoin. Conif. p. 39. t. 17. f. 2; Endl. Conif. p. 152; Carr.! Conif. p. 312; Gord. Pin. p. 235. P. occarpoides Benth. msc. ex Endl. l. c. forma strobilis minoribus. Pinus Skinneri hort.; Carr. l. c. p. 327. *Ocote macho* Mexic. Arbor 30-40 ped. alt. Folia 18-25 cent, longa,  $\frac{3}{4}$ - $\frac{1}{2}$  mill. lata. Strobili 5-10 cent, longi, 4-7 cent. lati. Apophysis 9-18 mill, longa, 12-16 mill. lata. (v. s.)

55. P. PSEUDO-STROBUS (Lindl. in Bot. Reg. ann. 1839. p. 63), arbor, ramulis vaginis longiusculis persistentibus margine ciliato-connexis, squamis mucronatis lanceolato-linearibus longe attenuato-acuminatis margine fimbriato-ciliatis connexis, foliis quinis tenuissimis longis triquetris ad angulos scabris mucronatis, strobilis 3-5 in ramulo brevi vel breviusculo pendulis subpendulisve ovatis ovalibusve obtusiusculis rectis vel curvulis, squa-



- marum apophysi rhomboidea elevato-pyramidata, carina transversa prominenti acuta subinflexa vel recta, umbone prominenti acutiusculo, nuculis ovalibus vel obovato-ovalibus utrinque convexis ala obovato-oblonga vel oblonga obtusa 3-5-plo brevioribus. <sup>1</sup> In montibus Mexici ad elev. 8-10000 ped. In mont. Aguanguco et Orizaba (Hartweg), in regione sup. montis Orizabae ad San Christobal (Bourgeau!), frequens in monte Tzompoli et prope San Mateo (Roetzl!) — Antoin. Conif. p. 48; Endl. Conif. p. 156; Garr.? Conif. p. 321. P. Hoseriana, Tzompoliana, Escandoniana, prasina, protuberans, heteromorpha, RegeliHia Roetzl! Cat. de grain. »ies Conif Meic p. 24. 27. 28. 29. P. Orizabae Gord. I in Journ. of the Hort. Soc. 1. p. 238 cum icon, et Pin. p. 235; Endl. Gonif. p. 156; Carr. Conif. p. 322. Arbor 50-75 ped. alta, ramis patentibus, apice adscendentibus. Folia 18-30 cent, longa, \$-1 mill. lata. Strobili 10-12 cent, longi, 6-7 cent. lati. Squamarum apophysis 8-9 mill, longa, 16-17 mill. lata. Nuculae parvae 4-6 mill, longae, 4-mill. latae, ala fuscescente. (v. s.)
56. P. OCCIDENTALIS (Swartz Prodr. p. 103 et Fl. Ind. occid. 2. p. 1230), arbor, ramulis erectis, squamis fulcrantibus ovato-lanceolatis acutis margine fimbriato-ciliatis connexis, vaginis brevibus strictis, foliis 5-4-3 rigidiusculis tenuibus longis triquetris ad angulos scabris mucronatis subpungentibus, amentis masculis paucis longis crassiusculis cylindraceis obtusiusculis, bracteis antheriferis subbrbicularibus denticulatis, strobilis solitariis in ramulo breviusculo cernuis conico-oblongis obtusiusculis, squamarum apophysi subrhombea plano-depressa radiatim rugosa, umbone foliaceo-rnucronato sursum verso. § In montibus insulae San Domingo (Swartz, Poiteau! Bertero! Schomturghf), in insula Cuba (Gord. herb.). — Lamb. Pin. edit. 2. v. 1. p. 40; Antoin. Conif. p. 40. t. 18. f. 1; Endl. Conif. p. 154; Carr. Conif. p. 318; Gord. Pin. p. 234. Pinus foliis qiinis ab eodem exortu Plum. Cat. 17. et PL Americ. p. 154. t. 161. .P. Cubensis hort.? Arbor 25-50 ped. alta. Folia versus apicem ramulorum conferta et subfasciculata, numero varia, saepe 4 vel 5, raro 3; 16-18 cent, longa, J-1 mill. lata. Amenta mascula 3J--4 cent, longa, 3-4 mill. lata. Strobili 4-4<sup>^</sup> cent, longi, 2 cent. lati. Apophysis squamarum mediarum 5 mill, longa, 7 mill. lata. (v. s.)
57. P. PAURYANA (Engelm.! in Plant. Parryan. p. 39, Sillim. Americ. Journ. 24. p. 332), arbor, squamis fulcrantibus late ovatis acutiusculis vel acutis margine membranaceis sablaceris, vaginis brevissimis cito laceris, foliis qualernis brevibus rigidis patulis rectis vel curvulis compresso-triquetris margin© scabris mucronato-pungentibus dorso viridibus facie albido-glaucis. In San Diego Californiae legit Dr. Parry 1 P. Llaveana Torr. Bot. Bound, p. 208- t. 53. P. quadrifolia Parry msc. Species mihi ramulo tantum nota et melius illustranda. An hujus sectionis?

Sectio II. CEMBRA. Pinus sect, in Strobis et iv Cembra *Spach Hist, des vég. phan&r.* 11. p. 394 et 398- — Pinus sect, vi Cembra et vn Strobis *Endl. Conif-* p. 138. 145.

Squamarum apophysis dimidiato-pyramidata, umbone terminali. Nuculae apterae vel alatae. Folia quina, rarissime quaterna, sena vel terna.

58. P. CEMBRA (Linn.! Sp. pi. p. 1419), arbor, coma lata ovali, ramis subverticillatis aJscendentibus tortuosis tuberculato-nodosis, squamis fulcrantibus lanceolatis obtusis vel acutis albo-marginatis subfimbriatis, vaginis squamis conformibus cito deciduis, foliis quinis interdum qiaternis vel senis prope apicem ramuloram abbreviatorum conferlis erectis rectis vel curvulis rigidis breviusculis, carina subtus prorainente triquetris margine carinaque scabris ~~scabris mucronatis viridibus, laceris utrinque juxta carinam fascia alba~~ longitudinali notatis, amentis masculis aggregatis subterminalibus oblongis obtusis, bracteis antheriferis adscendentibus apice breviusculo cristato, strobilis solitariis vel 2-2 subverticillatis fimbriatis quali elabaris in ramulo breviusculo erecto-patulis patulive, adultis subsessilibus subhorizontalibus vel cernuis ovalibus ovatisve obtusissimis basi umbilicatis, squarnis cuneatis apopnysi dimiuiata late rhombea apice obtusa et apiculata dorso convexiuscula et lonKiLutliualiter subrugosa facie concava inarainibun acutis plans

vel subreflexa, nuculis gemmis raro solitarns squami paulo brevionbus obovato-oblongis anguktis aptens \$ In toto Alpium jugo a Galloprovincia et Delphinatu ad Stynam pt Austnam partim sporadice oocuxrens partim sylvas effbnans alt 4000 6000 ped , in Garpatis valles intimas subalpmas sparsim incolit 3900 4800 p d non raro in Transylvania subalpina in Rossia boreah ran, trans Ju,um Uralense (Ermanf G Hiienb') per omnera Sibinam boiealem et alpinam frequens, in montibus altaicis 4000 6>40 ped gregana (Pallas' Bunge' G Ehren' ) — Limb Pin edit 2 p 3) t 23 et 24 et edit 3 p 48 t 30 31, Link in Linn 15 p 513, Spach Hist des veg pban 11 p 398, Schouw in Ann des sc nat 3<sup>md</sup> s6r ann 184i p. 238 Antoine Gonif p 4) t. 20 f 2, Tndl » Gonif p 141, Carr Conit p 23>, Gjid Pin 219, Christ Lurop Abiet p ^ Henk et Hochst Nadelhol/ p 122 Arbor 30 50 ped alta, interduna urmargines glacierum nuraihs et tortuosa, cortice rimoso gnseo scabndo, hgno molli et plunbus usibu\* praeseitim ad puenlia ludicra conficiendaaptissimo Folia 4 8 cent longa, 1 mill vel paulo ultia lata A nenta miscula 7 10 mill longa, 3J 4 mill lata Stio biLiddulU7 Scent longi,0-6cent lati Apophysis squamarum fusco violacea, maigme purpurascens, umbone albido iNuculse cinereo fuscae 12-14 mill longae, fi 9 mill, latae, edules (v v)

P, pumtia, prostrata vel fi itcosa adsur^ens omnibus partibus minor In Davuna<sup>1</sup> Silnria onentali' Kamtschatka, Insulis Cunlis et in America arctica ad sinum Kotzebuc Pinus loin\* quinis, cono e ecto njcleo eduli, et pumila, corns minonbus Gmel FI Sib 1 p 179 t 39 P Cembra pumila Pallas Flor Ross 1 p o t 2 f e-h, Endl Conif p 142, Led FI Ross 3 p 674, Reg et Tiling' M ajan p 120 P pygmaea Fisch 1 herb P Mandschunca Regel lent fl uss , Pinet bnt part 17 Stiobili 3 J-4J cent lon,\$i, ZJ cent lati Nuculae 7 8 mill longae, 6-6<sub>7</sub> mill latae (v s)

59 P FLEXILIS (James in Longsexped 2 p 27 et 34), arbor interdum excelsa, coma ovali, ramis infenonbus honzoritalibu^ supanonbus dds»cententibus, fohis quimis piope apicem ramulorum confertis erectis ngidis Drevisculus lectis vel curvulis tnquelus laevibu\* obtuse mucrorutis vindibus am^ntis masculis plunbus aggregatis subterminalibus ovahbus vel ovali globosis basi bracieis late ovalibus alb3 marginatis suffultis, earum braoteis apice cristate, stiobihis i 4 verticilhtis, junionbus ovali oblongis in lamulo brevissimo eiectis adultis subpendulis ovatis vel ovato oblongis obtusis, squamis crassis hgnc^centibus cuneatis, dpophysidi dimidiata orbiculan dorso conveva et laevi, facie in medio obtuse subcannata lateubus convexiuscula, maiginibus acutis plan is vel subincuivis, apice umbone subrhombeo bievi aoutiusulo notata nuculis squama subluplo brevionbus obovatis vel ovalibus utnn |ue convexis mirginibus obtusis pallidis aptens 5<sup>Jri</sup> subalpinis Montium Scopulosorum (Rocky Mountains), AmencaB boieahs a Novo Mexico ad 49 gr lat boreal sporadice proveniens nee unquam sylvas efformans in Sandia Novi Mexici alt 12 000 ped et in montibus San Francisco (Bigelow), Santa Fe (fendl ), Golojado (James, Parry' inter 7000 et 11000 ped ), Laramie Mountains (b Entfelmann) in montibus a Platte ad Bear River (Nutt), Wind River Moun tuns (Fiemont), Big Horn Mountains (Hayden), Rocky Mountains (LyallM Cisudc Mountains (Newbeny), in vrtice montium prope Foit Hope Fra sers River dd 7000 ped (Oreg Soc ') — i<sub>or</sub>r in Ann Lye N Hist' New York 2 p 249, et Report on the botan ot Whipple s Expedit p 80 Nnt7 Amenc Sylv Jp 107 fig 112, fcngJm I in Viili/ Mem p 89 et m, I rine of the Acad of Sc ot S Louis, 2 p 208 Carr Gonif p H<sub>o</sub>, G rd E?n p 224, Henk et Hoohst Nddelholtz p 126 P Lambertiana ft Hloek - m Amenc bor 2 p 161 P cembioides Newberry Rep on the Bot or.w.i. harason's Exped 16 p 44 fig ID non Newberry, Rep 1 on the Bot ... il... harason's Exped 6 p 44 fig ID, non Zucc P albicauli, Cngelm in J. is. oftheAcad ofSc ofs Louis, 2 p 209 P Shasta Garr Gonif edit i n Son Rocky Mountains White Pine Angl Amenc Arbor io 40 ped interHim<sup>r</sup> 60 80 et te,te Bigelow 100pped. alta, h,mo albo compacto,undimidealde Etilibus »ha 561 cent longa, 11 mill lata Amonta mascula r W mill lo a 5 mill fere lata Stiobiii resmosi, 6 10 cent longi, 4-V cent ISi SCUJSTB iuscae, apophysicrassalutcsLenti, 20-2) mill long\* 20 22 mill latde Nuculae luscae, 9 10 mill longa, 7 mill litp, edults Dfscnptio et figura Newbeny

cum planta nostra adamussim conveniunt, cortex trunci tan turn dicitur albo lacteus (v s)

60 P. PARVIFLORA (Sieb et Zucc ' H Jap 2 p 27 tab 115), arbor, ramis teietibus ramisque patulis angulatis pubescentibus, foliis quinque prope apicem ramulorum confertis rigidis brevibus (ultra rectis vel curvis aut con tortis trujunctis angulis scabris dorso videntibus faciebus fascia albida glauca longitudo notatis, amentis masculis minimis oblongis in spicam 1-2-pollicem dense congestis, eorum bracteis apice mucronatis mucrone brevissimo obtuso (/ucc), strobilis sessilibus subhorizontalibus rectis ovato vel ovali oblongis obtusis, squamis arete imbricatis conaceo lignescentibus late cuneatis, apophysi dimidia usque hombea dorso convexiuscula et leviuscula facie concavi apice rotundata umbone vix manifesto, marginibus cutis undulatis subincurvis derique cochleari concavae nuculis squama subduplo biemissis ellipticis vel ovali oblongis utrinque comexis marginibus arutiusculis marginis apuine (t ipice ad t(nui oblongi nucula ipsa subdimidio brevior notatis 5 In Japonia provinens 1 oreahbus circiter a 35° in insula Kunles usque 45 46° procedens (ex Siebold i), prope ledde et alibi ( Ihumb ), Nippon (Peifetti'), Jokohama (Mximowicz) — I ndl Comf p 138, Carr Conif p 292, doid Pin p 236, Murr ' in Proceed of the Hort Soc 2 p 272 fig 13 27, Henk et Hochst Nadclhol/ p 120 p Cembid 1 liumb Fl Jap p 2\*4, non Linn Go AUAO Sinens doyo Tiomatw, Japon Arbor mediocis Folid interlum (judtuna, 20-3) null longa 1 mill fere lata Strobili o 9 cent longi 1 5 cent Idti Squamae fuscae apophysis cinerea, 26-28 mill longa, 24 25 mill lata Nucul? nigrescentes, 10 14 mill longae, 7 8 mill latae, ala concolona A P Cembra satis superque distincta Nuculae alatae, nee apte t ut in descriptione Horde Japonede (v s)

61. P. XOHAIENSIS (Sieb et Zucc bl. Jap 2 p 28 t 116), arbor humilis, ramulis pubescentibus, foliis quinque prope apicem ramulorum confertis rectis rigidis longiusculis inquetis ad angulos scabris dorso videntibus facibus fascia albida glauca longifudmali notatis amentis masculis scissilibus orectis ovato cythraceis obtusis squinis arete imbricatis conacoj hnescentibus Idle cuneatis, apophysis sulnombea dorso convexiuscula ot longitudinliter rugosa facie concava imarginibus cutis subundulatis subreflexis dpice lero in ippendicem Idtin rotunditdm reflexam producti, nuculis squamula subduplo brevioribus ob(vito oblongis subangulatis ip( ns 5 In Koraiia, in Kamtschuka ad Portum SS Petri et Pauli et in insula Kordginsk (Siebold), in montibus Pakonae ( Ihumb ) Colitur in Japonia (Veitch' Peifetti') P Strobilus Thunb Fl Tap p 275 P Kornensis 1 ndl Conif p 140, Cdir Conit p 294, doid Pin p 227, Murray' sketch of the Conif of Jipon in Proceed of the Hort Soc vol 2 p 266 fig 1 12 Henk et Hochst Nu'elhol7 p 121 Jfai Sunq tsc Sinens Wumi Walsu Japon Arbor 10 12-pnddlis (Sieb Veitch) mteidum 30 33 pedes alta (Perfetti) Folia 8- cent longa 1 mill lata Strobili 10 li cent longi, 57-6 cent Idti Squamae sordide flavescens brunneae basi nigrescentes Apophysis squamarum mtdiirum 25 mill feie cum appendice longa, 28-30 mill lati Nuculae 15 17 mill longae, 9 11 null latv, cinereo fuscas et, ut videtur, cdules Descriptio <t figura strobili in Hora Japonica eironci et strobilo P laniflorae referendae quae tamen nuculis alatis net apteris gaudet (v s et v)

62 P. EXCELSA (Wall msc ), arbor excelsa, coma pyramidali, ramis verticillatis adscendentibus, foliis quinque prope apicem ramulorum confertis rigidiusculis laxis elongatis hiformibus canato inquetis angulis serrulato scabris obtuse mucronatis dorso videntibus faciebus fascia albida glauca notatis, amentis masculis parvis grandiusculis erecto patulis drcudto iscedentibus oblongi cylindricis obtusis, bractearum apice ovato obtuso crosso denticulato, strobilis 2 4 raro solitarius, junionibus oblongis obtusis in 1 imulo strobilo ipso subduplo longiore eiectis, adultis in ramulo longiusculo pendulis conico cythraceis obtusis subcurvis, squamis conaceo lignosis adpressis imbricatis cuneatis, apophysi dimidiato pyramidata dorso convexiuscula longitudinliter rugosa (t subemnata facie concaviuscula et in medio longitudinliter sulcata 4iiarginibus acutis subinflexa, umbone oblongo, nuculis ovulibus

vel obovato ovalibus utnque convexis marginibus acuiusculis alatis, ala oblonga apice oblique tiuncati nucula ipsd subduplo longiore squamis paulo brevior -5 In Scardo austnh in monte Pensteri prope Bitoham alt 2400 o400 ped (Guseb ' Helder '), cum Junipens mixta fruticosa, inde inter S400 5800 ped sylvam efformans (Gnseb '), et m ausinli et oc identali Himalayae jugo lntei >460 12000 ped (Madden), in Bhootan ubi densas constituit sylvas (C W Webb, Griffith<sup>1</sup>), in Nepalia (Wallichl Buchanan), durhwal et Sirmui, elev 7000 10 600 ped , paitim sylvas constituens partim cum Pmu longifoli I mixta in Cachemiro elev o 11 500 ped et in Sikkim, ubi culta, elev 6-10000 ped (Hook fil et Thomson') —Lamb Pin edit 2 p 40 t 26, link in Innaea H p 51<sup>r</sup>>, Spach Hist des ^ég6t phin p 11 p 196, Antoine Conil p 42 t 20 1 1, B-ndl ' Conif p 14-), Carr Conif p dOO, Mad len in Journ ol the Hort Soc 5 p 26§ Gord Pin p 222, Henk et Hochst ftadelholz p 90 P ptndula Gnlfjth Journ of Travels p 211 237 239 264 265 287 293 P Ghylla Lodd Ut 1836 p SO P (embravar fruticosa Gnseb Reis in Rumclien p 189 101 P Peuce Gnseb ' Spic Fl Rum 2 p 349 Fndl Conif p 144, Cair Conif p 299, Christ *bmop* Abiet p 9, Henk et Hochst 1 c p 128 P Dicksonu hort all ^ *Lum bhing* Bootan, *Chylla*, Nepal, *Kucl s Tschir rt Tihil* Gurhwal et Sirmur, *Wicpinq lxr* Angl peregrin Aibor excelsa in Himilaya 120 ISO pod interdum aha cortice ldevi vel nmoso plumbeo cineieo, ligno albo durabih, resma terebinthacea turgido Folia 10 12 cent longa, 1 mill lata Amenta mascula 16-18 mill longL, b mill laia,lutea Stibilibi 14 17 cent longi, 3 i 7 cent lali Squamae basi nigrescentes carum apophysis luteo fusca umbo fuscus Nucula fuscae 8 9 mill longa<sup>1</sup>, 5j 6 mill latae, ala |S 21 mill, longa, 8-10 mill lata. (v v)

63 P STBOBUS (Linn ' Sp pi p 1419), arbor excelsa, inferne simplex, superne verticillatim ramosa, ramis horizontahbus patentibusve comam pynmi daUm efformantibus fol is qumis prope apicem ramuloium confertis flarcidulis rectis elongato filiiormibus carmato tn {uetns ma''ginibus serrulate\* sc ibris obtuse mucronatis doisj vir dibus faciebus fascia albida glauca notatis, amentis masculis pluribus pnvis a&regatjs pitentiLus vel patentissimis rftctis ovali oblongis vel oblongo cjlindraccis ohtusis bracteaum apico ovato ohtuso vel acutiusculo biseto vel inciso-dentato, strobilis 1-3, junioubus oblongo cjlindraccis ohtusiuscuhs m ramulo stiolo ipso brevior vel subaequau erect s patuhsve, adultis in ramulo breviusculo pcndulis subfusiformicxhndrarcis graciliLu-. icutis curvulis, squamis conaceis cuneatis apophysi dimidiato-pyram data apice obtusa dorso convexiuscula et longitudinaliier subiugosa facie concaviuscula et in meJio longitudinalner sulcata marginibus acutis planis umbone subquadrangulo obtuso, nucus ovahbus vel ovah-oblongis utnque convexis margme acutiusculis aldtis, ala oblonga ohtusa subtruncata nuculis sub^iplo longioie, squamis paulo brevior § In Amenci boioali-onpnUli a Canadi 48 >0° Lat usque ad Montes Alleghanips copiosissime inter 47° et 43°, solo, imprimis. pinf,ui nee non in aienosis — Michx North Amenc Sylv 3 p 1)9 t 10, Lamb Pin edit 2 p 27 t 3<sup>r</sup>>, Link in JLinnaea 1<sup>^</sup> p 514 Spach Hist des vég. phancr II p 394 Antoine Conif p 4J t 20 f 1, Tndl ' Conif p U7, Cin Conif. p. 303 Gord Pin p 2S)j Monk et Hochst Nadeltu Iz p 92 *While Pine*, *Pumpkin Pine baphnq Pmt* Anglo Amenc , *Weymoutli Pme* Angl Arbor excelsa, 140-160 pedes, inteidum 200 ped alta trunco recto, cortice gnseo tandem rugoso, ligno albo molli et pluribus usibus aptissimo Folia 6 10 cent longa, 1 mill fere lata Amenta mascula 7 12 mill longa 4-5 mill lata e luteo et rubro vana StroWilli 10-15 cent longi 4 cent fere lati Squamae inlcne fuse\* apophys s flavofnsca, 30 f> mill longi, 15 17 mill lata umbo resin\* luteolae guttulas htillans Nuculae paivae fuscae 5^-6 mill longae 4 mill fere latae, ala fusca, lineis salurationbus longitudinalibus picta (v v')

64 V MONTICOLA (Dougl i rnsc), arbor, ramis verticillatis patontibus subpenduhsve, folns quinis ngidiusculis erectis breviusculis acute tnquetTis marginibus scabnusculis obtuse mucronntts vindibus faciebus fascia albida glauca notatis, amentis mascuhs , strobilis 1 T verticillatis, jumonbus oblongo-cyhndraceis obtusiusculis m ramulo strobilo ipso brevior vel sub

aequali erectis, adultis in ramulo breviter subpendulis cyndraceo oblongis basi angustatis apice acutiusculis curvulis, squamis subconaceis cuneatis adpressis apice subpatulis, apophysi dimidiato pyramidata dorso convexiuscula et longitudinaliter subcannata facie concaviuscula, margibus acutis planis, umbone subquadrangulo acuto, nuculis ovalibus vel ovali oblongis utrinque convexo margine acutiusculis alatis, ala oblonga apice oblique truncata nuculis subquadruplo longioribus, squamis paulo brevioribus & In America boreali occidentali in montibus ad Cañadas Columbia? Kettle balls et ad fluvium Spokane (Douglas) Columbia River (Lynch), in Innuity Mountains N Calif 7000 ped (Oregon 706') — Antoine Conif p 40 t 18 f 3, Lamb Pin edit 3, Endl Com I p 148, Car. Conif p 305, Gord Pin p 233 Henk et Hochst Nidelholz p 94 Arbor cortice cinereo fuscescente Folii 9-11 cent longa 2-4 mill lata Strobili 12-30 cent longi, 2-4 cent lati Squamae virentes et purpureo-anae, inferne castaneo fuscae, inferiores minores subcurvae, mediae et superiores adpressae, apice patulae, demum patulae, 20-21 mill longae Umbo compressus, resiniferus, luteo guttulas stillantes Nuculae parvae, fuscae 6 mill longae, 3 mill latae, albae fuscae, lineis saturatis pictae, 22-23 mill longa (v v)

60 P. MONTANA (Douglas in Linn Trans is p 500), arbor gigantea, truncato rectissimo, ramis verticillatis horizontalibus subpendulisve foliis quinque angulatis longiusculis acutiusculis marginibus scabris micronatis subpungentibus videntibus faciebus lineatis albae glauca notatis, amaris masculis approximatis ovatis basi bracteis scanosis ovatis concavis sulcatis strobilis junioribus erectis, adultis pendulis crasse cyndraceo conicis obtusis, squamis conaceis cuneatis adpressis, apophysi dimidiato pyramidata dorso convexiuscula laevi facie vix concaviuscula, in marginibus acutis planis, umbone lato obtusissimo, nuculis magis obovatis oblongis utrinque convexis marginibus acutis distans nuculis subduplo longioribus squamis paulo brevioribus > In America boreali occidentali 4 montibus scopulis (Rocky Mountains) idem Pinus et L Columbia River ad confines Mexici in Sierra Nevada California (Douglas Bridge n 293 Newberry), Sonoma (Bolander), inter 4i et 3v I. B. inter alias Pinus species sporadica nunquam sylvae constituens — Hook Flor Anur 2 p 161, Spach Hist des veg phanci 11 p #7, Nutt North Americ Sylv \* p 122 t 114, Antoine Conif p 41 t 19, Endl Conif p 150, (air Conif p 307, Loney Whipples Report p 5), Newberry Pacific R R Rep rt b Bot p 42, Gord Pin p 228, Henk et Hochst Nadelholz p 95 Sugar Pine Augl Americ Arbor 200 ped et intermedium, praesertim in binis Humboldt, 100 pedes alta Sequoiae giganteae feie aemula, trunco laevi columnarum distinctibus et pro plantae ratione brevibus ramorum verticillis nodosis, ramis superioribus non natis, ut in Pino Strobo occurrunt, longioribus, haec albo runci partim igne usti resinam inodoram, sticchantem, unde nomen vernaculum exsudentem loba 9-14 mill longa, 11 mill lati Amenta masculina 10-12 mill longa 6-7 mill lata, basi bracteis late ovatis obtuse concavis scanosis suffulta bracteis 40 cent longi, 8-12 cent lati paucis resinosis Nuculae magnae, nigrescentes, 12 mill longae, 10 mill latae, ala fusca, oblonga, oblusa (v v)

66 P. AYACAHUATE (( Ehrenberg in Schlecht Linnaea 12 p 492), arbor excelsa, ramis verticillatis patentibus, foliis quinque angulatis longiusculis hirsutis marginibus serratis vel scabris micronatis mucronatis videntibus faciebus laevibus glauca notatis, amaris masculis strobilibus 1-2, junioribus oblongis in ramulo strobilo ipso brevioribus erectis, adultis in ramulo brevi pendulis horizontalibusve conico cylindraceis obtusiusculis curvulis vel rectis, squamis conaceis apophysi dimidiato-pyramidata clongit recurva dorso convexiuscula longitudinaliter rugosa, facie firmiscula et rugulosa marginibus acutis umbone obtusissimo, nuculis ovatis vel obovatis ovatis utrinque convexis margine acutiusculis ala oblonga oblique obtusa nuculis sesqui duplo longioribus in montibus mexicanis, inter 7000 et 11000 ped nempe in Mexico septentrionali Cosquinidchi ubi raris (Wislizenus), in Sierra Madre, Ocampo, Durango, prope Tenango, in monte Popocatepetl (Roehl), in montibus provinciarum Chiapa et Oaxaca, Real del Monte (C. R. n 913), in Meuco (Uhde' n 92), in montibus

Guatemala (partweg). — Antoine Conif. p. 47; Spach H<sup>st.</sup> des vég. phanér. 411. p. 397; fendl. Conif. p. 149; Carr. Conif. p. 306; Gord. Pin. p. Jlfj; Henk. et Hochst. Nadelhölz. p. 96. P. strobiliiformis Engelm. in Wislitz. Mem. p. 102; Carr. Conif. p. 309; Gord. Pin. p. 238; Henk. et Hochst. Nadelhölz. p. 116- P. Don Pedri, P. hamata, P. Veitchii et P. Popocatepeltii Roetz! Cat. de grain, des Conif. Mexic. p. 31. 32. 33. P. Buonaparteae Roetz! Gord. Pin. p. 218. et Suppl. p. 73. P. Colorado, P. Durangensis Roetz! Gord. Pin. p. 218 et Suppl. p. 75. P. Loudoniana Gord. Pin. p. 230. *Ayacahuite* Mexican. Arbor resinosa, 100-130 ped. alta. Folia 11-16 cent. longa,  $\frac{3}{4}$ -1 mill. lata. Strobili 22-40 cent. longi, 7-12 cent. lati. Squamae 5 cent. fere longaj, 25-35 mill. latae, inferiores fere a basi recurvae, mediae et superiores adpressae, earum apophysi plus minusve reflexa, forma variae, in sicco lutescentes Nuculae 11-12 mill. longae, 8-9 mill. latae, fusciscentes, ala fusca, lineis longitudinalibus confluentibus saturatoribus picta, longitudine varia. Species strobilorum magnitudine et squamarum apophysi magis minusve elongata, in plures species immerito divisa. (v. v.)

### Subgenus II. *SAPINUS* Endl. Conif, p. 82.

Amenta mascula axillaria vel in ramulis abbreviatis terminalia, solitaria. Strobilus primo anno, raro secundo vel tertio anno maturus. Squamae coriaceae, marginem versus attenuatae, persistentes vel ab axi solutae. Bractae liberae vel lepidio basi aut rarissime totidem adnatae, illoque longiores aut breviores. — Arborea plerumque excelsa vel giganteae, sempervirentes aut foliis deciduis praeditae. Gemmae perulatae, perulis numerosis per frondescentiam a se invicem haud remotae, in ramulorum basi persistentes et in aonulum coarctatae. Ramuli raro abbreviati. Folia solitaria, dense spiraliter disposita aut subdisticha, rarissime ramulo abbreviato fasciculata, plerumque rigida, sessilia vel in pulvinis adnatis decurrentia aut breviter petiolata, plana et subtus utrinque juxta nervum medium stomatum serie fascia notata vel rhombo-tetragonain quatuor faciebus stoinatibus munita.

Sectio i. CEDRUS. Endl. Conif. p. 135. — Laricis species Tourn. Inst. p. 586. — Abietis species Juss. Gen. pi. p. 414; Rich. Conif. p. 147. t. 14. n. 1. — Cedrus Link in Linnæa 15. p. 537 et plur. auct.

Amenta mascula in ramulis terminalia, solitaria. Strobilus secundo vel tertio aano maturus : squamae persistentes. Bractae demum lepidio totidem adnatae. Folia sessilia, perennia, ramulo abbreviato fasciculata, tandem solitaria, pulvinis linearibus haud incrassatis ramo adnatis.

67. P. CEDRUS (Linn. Spec. pi. p. 1420), arbor excelsa, coma subpyramidali densa, ramis verticillatis horizontalibus, inferioribus subdependentibus, superioribus patulis vel erecto-patulis, foliis in apice ramulorum abbreviatorum et erectorum 30-40 fasciculatim confertis brevibus curvatis vel rectis rigidiusculis acutiusculis subquadrangulis lateribus subcompressis fusco-viridibus subglaucescentibus mucronatis, amentis masculis solitariis ereciis cylindraceutis superne attenuatis obtusiusculis, bracteis antheriferis stipitatis apice ovato obtuso erosulo-crenato, strobilis solitariis in ramulo brevi erectis ovalibus vel ovali-oblongis apice umbilicalis, squamis numerosis imbricatis sublignosis ex ungue cuneato subquadratis, dorso holosericeo-sublanatis superne in marginem truncato-rotundatum acutum fere apophysim dimidiatam dorso rugulosam efformantem productis bracteis parvis totidem adnatis squama muo brevioribus, nucufis obovatis basi aculis ala subquadrata multo brevioribus. ^ In monte Libano ubi vetustarum cerretarum infra nives perpetuas

paucae quoque adsunt arbores temporum biblicorum testes (Labill<sup>r</sup> G I hren berg I Boissier I Kotschy' dlnque), in Monte Tauro praesertim cilicico inter 4000 et 6<sup>^</sup>00 ped elev sylvas vastas constituens (Tchihatcheff, Kotschy' Pinard» Heldreich') et in Antitauro 3900-4200 ped (Tchihatch) In Monte Toungour in Algeria (Jamin) — Lamb Pin edit 2 vol 1 p >8 t VI et | p 89 t 51, Antoine Comf p n t 22 f I, Endl' Conif p H6 KeSpo; Theophr Hist plant 5 cap 8 Cedrus magna s Cedrelate Plin Hist Nat hb 13 cap 11 et lib 24 cap 11 Alta Cedrus Bellon Conif p | Cedrus Bellon Itin p 162 Lanx oentahs fructo rotundioie obtuso Tourn Inst p >86 Cedrus Lihani Barr Icon 499, loud Arbor Brit 4 p 2402 f 2267 2282, Pmet Woburn p U->, bpach hist Nat des veg phaner 11 p 427, Link in Linna-a 1, p 538, Carr Conif p 28\*, Gord Pin p 43 Pinet bntann Part 10 cumicone, Henk et Hochst Nadelholz p 144 Lanx Cedrus Mill Diet n J Lanx patula Salisb in Linn Trans 8 p 314 Abies Cedrus Poir Diet 6. p 510, Rich Conif p 62 t 14 et 17 Arbor resinam albidam, olim sub cednae nomine adhbros cedratos et, ut videtur, ad radavera antiquorum iEgyptioium prdeservanda usitatissimam scatens, 80-120-pedalis, cortice fusco-cinereo ligno molli, albido rubello, ad vetusta templa et naves conficiendas celebratissimo Rami inferiores elongati, subdependentes, apice terram attingentes, ramique sequentes fere arcuati apice subdependentes comam fere umbracuhleram efformant Folia H35 mill longa, 1 mill lata Amenta mascula 5 7 cent longa 15 mill lata, femmea 16 17 mill longa, 6 7 mill lata, oblongo cyhndracea obtusa, lepidia subhonzontalia, planiuscula, ovato-oiniculana, utnnque glauca, margine ciholata, bractee parvae ovatae acutiusculae, margine subdenticulalae, c vindi albae, lepidns multo breviores Strobih resinosi, 8-10 cent longi, ^) 7 cent lati Apophysis squamaum mediarum 4 cent fere longa et 5 cent lata Ala nacularum fere subquadrata, angulo interiore lecto, extenoie rotundato erosulo denticulato (v v)

(J, *glauca*, foil is glaucescentibus In Tauro cilicico fiequen& in ipso lucu sdncto Montis Libani (Kotschy') Cedrus Libam var argentea, Antoine et Kotschyl Iter cihc n 417 *Kateran Bajas Turcor* (v s)

y, *AtlanUca*, coma pyramidali, folns glaucescentibus, c \iridi irgenteis, atrobihis minonbus in ramulo hroviusculo erectis In Atlante piope In-ret, et in Monte Aurés ad J000-3J00 ped elev sylvas densas elloimans (Laml en!), in Monte loungoui prope Batna cum specie (J lmin), in Kaoy-ha3 Mnte Babo? (Cosson' Lambert'), pi ope Blidah (Durando'), in montibus edilionbus Al^enae (Guyon') Cedrus Atlantica Manetti Cat Hort Madoet sunpl p 8, Carr Conif p J85 Gord Pin p 39 P Atlantica Endl Conif p 137 Abies Atlantica Lmdl et Gord in Journ. of the Hort Soc 5 p 214 Cedrus Atncana Goid ex Knight Syn Conif p 42 Cedrus elegans Knight 1 c Cedrus argentea hort *Medad* \rab Arbor 120 ped alta, coma pyrimidali, lere Pun Atiietis facie Strobih b-7 cent longi, 4 1.5 1 cent lati Squama? minors, caeterum llhs P Cedn ommno similes, ipsoque tomento holosenceo dorso vestitae NuculaB obovatas, basi attenuata3, utnnque canalibus resinifens notata3 14 1 > mill longae, 9 7 mill latae, ala ut in specie (v v)

b8 P DEODABA (Roxb Fl Ind Or 3 p 651) arbor excelsa coma pynmidih ampla, ramis verticillatis, mferioribus <>ubdependentibus, supenonbus paluhs, omnibus apice ramuhsque elongatis penduhs, folus m apice ramulorum abbreviatorum patulis penqulisve sub 30 fasciculatim coniertis breviusculis rectis vel rectiuscuhs ngidiusculis obtusmsculis subquadranguhs latenbus subcompressis vindibus apice obtusiuscule mucronatis, amentis masouhs solitarns erectis oblongis vel oblongo-cylindraccis acutis, bracteis anthenfens slipitatis supeme ovatis apice rotundatis erosulo-denticulatis, strobilis solitarns in ramulo brevi erectis vel ramulo bifido geminis ovahbus vel ovah oblongis obtusissimis haud umbilicatis, squidmis numerosis imbiicatis sublignosis ex ungue cuneato tiansverse oblongis dorso glabnusculis superne in marginem truncato-rotundatum fere apophysim dimidiatam efformdatem products, bracteis parvis totidem adnatis squama multo brevionbus, nuculis obovatis hasi angustatis aU ohovato-tnan^ulan brevionbus § In montibus Himal<sup>3</sup>Y\*

et Thibeti ubi vastas conficit sylvas inter 5-10000, raro 12 300 ped. elevat In Cachemir (Winterbottom, Hugel), Kumaon (Wallich' n 0060), in Bhootdn (Griffith'), Simla (Hugel) n. 750, Hook, fil' inter 6-8000 ped.), nee non in Afghanistan (Griffith') — Lamb Pin edit 2 p. 68 t 42 et A p 93. t. 52, Antoin. Conif. p 59. t. 22. f. 2, Endl. Conif p. 135. Cedrus Deodara Loud. Arbor Bnt. 4. 2428 f 2283-2286, Pinet Woburn. 149 t 48. 49, Link in Linnaea 15 p. 538, Hoffmeist. in Bot Zeit. 1846. p 18"), Madden in Journ. of the Hort. Soc. 5. p. 256, Cair Conif. p. 201, Gord.<sup>1</sup> Pin. p. 40. et Suppl. p. 19, Pinet. bnt Part. 6. 7. 8 10 cum plumb icon., Henk et Hochst. Nadelholz p. 141 Abies Deodaia Lindl in Penny Cyclop. 9 Cedrus Libani var ? Hook, in Himalay Journ 1. p. 257 Cedrus indica De Chambr. *Devadara*, *Deodara*, *Dewar* fndor Arbor 150 pedes alta, resinosa, coitice cinereo, ligno ex albo-rubello Rami fere illos Pini Cedri aemulantes sed apice et ramis elongati et penduli. Folia longiora, 3-5 cent, longa, 1 mill, lata, nitidum glucescentia. Amenta masculina 2 J-TJ cent longa, 10-14 mill lata. Strobili non perfecti, 8 cent, feie longi, 1 cent lati Squamae minores quam in P. Cedro et transverse oblonga?, 2J mill. longa, 4 cent latae. Nucleae maturae albae, 16-17 mill longae, 7-8 mill latae Folia seminaria 10 (2 decempart.), erecto-patula, incurva, hinc-subulata, later alter subcompressa (v. v.)

Socio II LABIX Endl. *Conif.* p. 128. — *Lancis* sp. *Tourn. Inst* p 86. — *Abietis* sp. *Juss. Gen. pi* p. 414, *Rich. Conif.* p. 147 t 13 — *Lanx* Link in *Linnaea* 15 p. 533 et *pi. auctor.*

Amenta masculina apicibus feminarum foliiferis solitaria. Strobili primo anno maturus. Squamae persistentes Bractee liber\* vel tantum basi lepidio adnatae. Folia decidua, mollia, plumosa vel compressa et tetragona, in lamula abbreviate\* fasciculae, tandem solitaria, pulvices linearibus nee sursum incrassatis totis adnatis.

9. P. PENDULA (Soland in Ait. Hort. Kew. edit. 1 vol 3 p. 369), arbor excelsa, coma pyramidalis decuta lamis verticillatis horizontalibus vel (pendentibus, foliis 20-40-fasciculatis maiusculis mollibus inter 3-4 iridibus anguste linedibus obtusiusculis supra plumbis et sulco laevi notatis, subtus nervo casso longitudinali notatis, amens masculis oblongis obtusis, strobili parvis solitariis approximatis in ramulo brevi adscerentibus ovatis vel subglobosis, squamis paucis imbricatis subconatis ovatis vel orbiculatis concavis-ulis integris marginibus reflexis, bracteis late ellipticis obtusis vel bilobis dimidiatis cuspidatis, squama subnatis brevibus, nuculis parvis subobovatis oblongis alii semiovatis oblonga obtusa dimidio brevibus In America borealis a Sinu Hudsonis ad Virginiam borealem inter 41-50 L in solo saepe sphagnoso ad Sinum Hudsonis (Richards.), in Canada Labrador (Meyen) piope Okkak (Hohenack' pi. labr n 9b), in Lena-nova (Laplaie<sup>1</sup> Miss Bemton' in herb. Herb. Mus. Flor.), in Nova Brunswick et Nova Scotia, ubi sylvas vastas effonnat (Herb. Mus. Flor.), Maine et Vermont (Michx. Emerson') in New Jersey, Michigan (Clarckel), Pennsylvania et Virginia ubi rdnor et saepe in monosis (Michx') — Willd' Sp pi, Lamb. Pm edit 1 p 63 t. 39 et 3. p. 86 t. 49, Endl. Conif p 132. Abies foliis fasciculatis acuminatis setaceis diereis Gronov Virgn. p 13. P. lancina Duroi Obs. bot p 49. P. intermedia Dmoi Harbk ed. Pott 2 p 114, Wangenh. Beitr. p 42 t. 16. f. 3? . anx pendula alis in Linn Trans 8 p. JU, Pinet Woburn. p. 137 t. 46' f arr. Cornt. p 279. et edit. 2 p. J55 exel brevifolia Lanx tenuifolia Sdlisb\*. in Linn. Trans 8 p. 313. Lanx microcarpa Pinet. Woburn. 139 t 47, Hook! Fl. Bor Amenc. 2 p 164; Link in Linnaea 15 p 538, Can\* Conif p 27b', Gord' Pin p 129, Htnk et Hochst. Nadelholz p 137. Lanx americana Michx Arbor forest de Tamcr sept 3 p 37 t. 4 Lanx intermedia Lodd (at. 183) p 50, Link in Linnaea 15 p. 535, Pinet. Woburn. p 141, p mi. crocarpa Lamb Pin. edit. 2. p 56. t. 37 et edit 3 p. 87 t. 53- Meven PI. Labr p 30; Antoine Conif p. 54 t. 21 f. 1, Endl. Conif. p i;^ Abies Tenda et microcarpa Linil. et Gord. in Journ of the Hort Soc' S D 213 Lanx decidua y americana Henk. et Hochst Nadelholz p. 133 Lanx Fraseri



- Curtis. *TamaraCj Hackmatac, American Larch* Angl.-Amer. Arbor 80-100 pedes alia, ligno albo, durabih. Folia 2-4 cent, longa, ]-] mill. lata. Amenta mascula 8-9 mill, longa, 3 4 mill. lata. Strobih J J-2 cent, longi, 12-16 mill, lati. Squamae mediae 10-12 mill, longae, 8-9 mill, laiae, glabrae, nitidae. Nuculae albidiae, ala iusca. (v. v.)
70. P. DAVURICA (Fisch ' ex Turcz. CaV. Baik n. 1072), frutex vel fruticulus humilis, tiunco piostralo abbreviate) tortuoso, ramis brevibus adscendentibus (Trautv.), folns 20-JVfasciculatis parum inaeclu. libus vel in ramulis hornotmis sparsis mollibus laete vindibus angustissime lineanbus basin versus attenuatis obtusis vel obtusiusculis compresso-tetragonis faciebus sulco longitudinah laevi notatis, amentis masc subglobosis subpendulis slrobihs parvis solitariis approximatis in ramulo brevi pendulls fere ovahhus apice subtruncatis, squamis paucis nmbriatis cartilagineo lignosis nitidis ovato orbiculanbus truncato-emaigmaiis dorso convcxmsculis margine planis, bracteis ovatis lanceolatisvc acuminatis vel marginatis et cuspidatis, squama 2-4-plo brevionbus, nuculis obovatis utnnque convexiu<sup>c</sup>uhs ala semiovato-oblonga 3-4-plo brevionbus. 3 In Sibina aictica ad fl. Boganida sub 71 } et Nov,ija sub 72 { L (Middendorf) etonentah circa Jakutzk (Ruprecht), inDavuria (Pallas, Turcz.'), prope Ajan (Iihng'), prope fl. Amur (Maximovicz'), in insula Cadjak (LangsdorP). — Endl Conif. p 128, Led Fl. Ross. 3 p 673. Pinus Lanx amencana Pall. Fl. Ross. 1. p. 2. t. f. E. Lanx Davunca Turcz. Cat. Pl. Baic. in Bull. de la Soc. Imp. des Natur. dc Moscou 1848. p. 101, Tiautv. Imag. Plant. Fl. Ross p. 48. t. 32. et Mor. Boganid. in Middend. Reise 1 p. 148, farr. Conif. p. 270. et edit 2. p. 311 (excl. aliq. syn ), Gord Pin i> 123 (exel syn ); Henk et Hochst. Nadelholz. p. 138 Abies Gmehni Rupiecht Fl. Samoij. p. .% et in Beitr. des Huss Reich. 2. p. 56. Frutex in regionibus minus boiea-libus saepe 10-podalis. Folia 2V32 mill, longa, ^ mill, vix lata. Amenta mascula 6 mill, longa et fere lata. Strobih 20-25 mill- longi, 14-16 mill, lati. Squamap media? et mfenores inajores, 11-12 mill, longae, 8-9 mill, latae. Nuculae albidiae, ala fusca. (v. s.)
71. P. LIPIOLLPIS (Endl Conif. p 130, an excl. syn. Kaempf \*), arbor mediocris, folus solitariis confertis \el subfasciculatis pituli« vel patentissimis molhhus vindibus angustissime lineanbus basin veisus attenualis acutis vel obtusiusculis compressis subtu nervo prommenti longitudinal] notatis, amentis masculis .., strobilis parvis solitams uncinato-reflexis ovatis rotundato-obtusis, squamis parum numerosis imbricatis apice patulis et subreflexis subcartilagineis ovah-orbiculanbus basi parum attenuatis emargmatis velsubtruncatis, margine subundulatis, dorso convexiusculis et Witer stnatis, bracteis ovatis vel lanceolatis acutis vel cuspidatis subintegns, squama subduplo brevionbus, nuculis parviusculis obovatis ala semiovata obtusa paulo brpvionbus. § In Japonia sept. : in montibus Insulae Nippon inter 35-41° L in Monte Fakone cum Thuiopsi boreali et Pinu densiflora, frequens in insulis Jcvo et Kjrasto usque ad 48° L (biebold), in Nippon (Veitch' Perfetti'),<sup>Jokonomama</sup> (Maxim.) P. Lanx Thunb. Fl. jap p 275 (excl syn. L). Abies leptolepis Sieb etZucc Fl. japon p. 12. t. 103, 1 indl et Gord. in Jouin. Of the Hort. Soc 5. p. 213-Lanx jajomca hort, Carr. Conif p. 27?; Henk. et Hochst Nadelholz. p. 135. Lanx leptolepis Gord Pm. p. 128, A. Murr in Proceed of the Hort. Soc 2. p 633 *Kara matsu* Japon. Aiboi, habitu Laricis nostiatis, sed, ut videtur, minus alia et tantum 40-pedalis Ramuli glabn. 'Folfa 15 25 mill, longa, 1 mill, vix lata. btrobili 15-28 mill longi, 15-20 mill, lati' Squamae medi-<sup>f</sup>i 10-11 mill, longae et fere latae. Nuculas 3-<sup>^</sup>4 mill, longae, 2) mill, latae ala squamas aequante (v s)
72. P. LEDEHOURII (Eudl Conif. p. 1,n) y arbrer excelsa, coma pyramidali, foliis 20-35-fascici latis maequalibus patulis angustissime lineanbus basin veisus attenuate obtusis vel obtusiusculis supra plaiiusculis subtu<sup>^</sup> canna obtusa prominente notatis vindibus, amentis masculis ovali-subglobosis, braclois anthenfens subintegns, strobilis solitariis in lamulo bievi vel breussimo adscendentibus ovalibus obtusis, squamis paucis imbricatis conaceo-lignosis oibiculanbus apice rotundatis vel truncatis aut vix rctus-is aut rotundatis margjne subinflexo dorso convexis, bracteis ovabbus vel oblong<sup>is</sup> vix emarginatis denticulatis cuspidatis squamae vix dimidio brevionbus, nuculis....

§ In Rossia arctica et septentrionali! et in Sibiria omni! usque ad 66° Lat. ad fl. Jenisei (Middend.) in montibus altaicis! inter 2500-5500 ped., ad 4000 ped. elev. sylvas integras constituere incipit, in Mandshuria austro-orientali (Maxim.) Ruprecht Fl. samoj. cisural. p. 409. r. Larix rasil. Fl. Ross. 1. p. 1. quoad pl. sibir. P. Pseudo-Larix Steud. Nomencl. bot. 2. p. 338. Larix Sibirica Ledeb. Fl. alt. 4. p. 204; Link in Linnæa 15. p. 535; Trautv. in Middendorf Rcis. 1. p. 170; Carr. Conif. p. 274. Larix Ledebourii Ruprecht Beitr. zur Pflanzenkunde des Russ. Reich. 2. p. 56; Gord. Pin. p. 127. Larix Europaea Sibirica Loud. Encyl. of trees 1054. P. intermedia Lodd. Catal. 1836. non Duroi. Larix intermedia et Archangelica Laws, ex Loud. 1. c. 1055. Larix Altaica Fisch. msc. Larix decidua p rossica Henk. et Hochst. Nadelhölz. p. 132. I'yt vel Tetagatsch Sibir. Arbor Laricis nostratis aemula. Ramuli glabri. Folia 22-45 mill, longa, i-ii mill. lata. Amenta mascula parva, 6-7 mill, longa, 4-5 mill. lata. Strobili 27-30 mill, longi, 20-24 mill. lati. Squamae mediae 14-15 mill, longae, 12-15 mill, latae. (v. s.)

73. P. LARIX (Linn. Sp. pi. p. 1420), arbor excelsa, coma pyramidalis, ramis verticillatis subhorizontalibus aut dependentibus apice adsurgentibus, ^mullis elongatis gracilibus propendentibus, foliis 30-40 raro 60-fasciculatis inaequalibus patentibus vel patentissimis mollibus laete viridibus angustissime hnearibus obtusiusculis basin versus attenuatis supra convexiusculis et sulco levi longitudinali nolatis subtus juxta nervum medianum prominentem utrinque sulco levi albido notatis. ameniis masculis ovoideo-subglobosis, bracteis antheriferis cristato-pyramidalis, strobilis solitariis in ramulo brevi adscendentibus ovoideis vel ovoideo-oblongis obtusis, squamis numerosis imbricatis coriaceo-cartilagineis ovato-orbicularibus truncatis vel retusis margine planis dorso convexiusculis, bracteis inclusis vel exsertis panduiaeformibus dentatis cuspidatis squama plerumque subduplo brevioribus, nuculis parvis obovatis ala semiovata obtusa erosula vix duplo brevioribus. § In Alpibus Europae mediae. In toto alpium jugo a Delphinatu ad Styriam ubi inter 3000-5000 ped. densas sylvas constituit, saepe cum P. Picea et P. Abiete, interdum cum P. Cembra mixta! in montibus Carpatis! et Sudetis. In Apenninis semper vidi cultarn. — Lamb. Pin. edit. 2. vol. 1. p. 53. t. 35t edit. 3. p. 83. t. 48; Antoine Conif. p. 50. t. 21. f. 2; Endl. Conif. p. 133; Christ Uebersicht der Europ. Abietin. p. 8. Larix Plin. Hist. nat. lib. 16. cap. 19. Pinus alia cui soli folia decidunt hyeme Caesalp. De plant, lib. 3. cap. 32. p. 130. Larix decidua Mill. Diet. n. 1; Henk. et Hochst. Nadelholz. p. 129 excl. var. p et y. Abies Larix Lam. Illustr. t. 785. f. 2; Rich. Conif. p. 65. t. 13. Larix pyramidalis Salisb. in Linn. Transact. 8. p. 313. Larix Europaea De C. Fl. Franc. 3. p. 277; Loud. Arbor Brit. 4. 2350. f. 2258-2262; Mnet. Woburn. p. 133; Link in Linnæa 15. p. 534; Schouw in Ann. des Scienc. nat. 3<sup>ser</sup>. vol. 2. p. 241; Carr. Conif. p. 276; Gord. Pin. p. 124. Larix excelsa Link in Abhandl. der Berlin. Akademie der Wissenschaft. 1827. p. 182. Larix communis Laws. Arbor 80-100-pedalis, cito crescens, trunco recto, cortice cinereo, subtus roseo-rubido, levi, ligno ex albido-luteolo resinoso, pluribus usibus aptissimo. Ramuli glabri. Folia 22-38 mill, longa, 1-1 mill, viz lata. Amenta mascula 5-8 mill, longa, 5 mill., lata, saepe adscendentia. Strobili 28-40 mill, longi, 18-24. mill. lati. Squamae mediae 11-16 mill, longae, 9-15 mill, latae. — Plures extant varietates in hortis, ramis ramulisque pendulis (Larix Euroj)aea perdula Pinet. Woburn. p. 136); ramis dependentibus, apice prostratis, repentibus, alite. (v. v.)

74. P. GRIFFITHII, arbor, coma conica, ramis arcuatis apice pendulis, ramulis longissimis dependentibus, foliis 30-50 fasciculatis patentissimis stricte linearibus obtusis planiusculis utrinque juxta nervum longitudinale prominentem obtusum vix sulcatis viridibus, amentis masculis... strobilis solitariis in ramulo brevi vel brevissimo adscendentibus subcylindricis obtusis, squamis numerosis laxiuscule imbricatis subcartilagineis late orbicularibus subtruncatis, marginibus erosodenticulatis, bracteis exsertis obovato-spathulatis submarginatis longe lateque cuspidatis, cuspede reflexa squamis longiore, nuculis oblongis ala oblonga multo brevioribus. § In sylvis temperatis Himalayae orientalis interioris inter 8-12 000 ped. elev. In Bhootan (Griffith!), Sikkim (Hook. fil. et Thoms.), Nepalia orientali (ex Hook.).

- Lanx Guffithii Hook fil ! et Thorns I m Cathcart Illusti. of Himal. plants t 31, Mor. des Serres 12 p 165. t 1267 68, Henk et Hochst Nadelhol7 p 136 Abies Gnfhtbiana Lmdl et Gord in Journ of the Hoit Soc 5 p 214 Lanx Guffithiana Gord Pin p. 126, Carr Conit edit 2 p 3<sup>9</sup> Arbor 20 60 pedalis, trunco gracili, ligno molli albo, quod a rhibetanis *Sah* vel *Saar* dictum, ramulis glabns Folia 2(i- J5 mill, longa, 1 mill lata Strobili <sup>r</sup>> 6 cent longi, 18 22 mill lati Squamae mediae 11-12 mill Jongjp et fere latae (v s)
- 75 P LYALLII, arbor mediocns, coma pyramidah, ramis subhonzontahbus, lamulis junionbus dense aiachnoideo-lanatis canescentibus, ramulis gemmilenis ovdli-globosis, perulis brevissimis lmbncatis orlnuculanbus fuscescentibus maigine longe nmtridto-arachnoideis, folus 40 50-iasciculatis erecto patulis cunulis molliusculis anguste lineanbus obtusiusculis utnnque juxtd neivum vix piominentem obtusum sulco levi longitudinali in sicco notatis, amentis mdsculis oblongis obtusis femineis sohtuns subsessilibus reflexis? oblongis obtusiusculis squamis nuaicrosis imbricatis subcartilagineis suborbiculanbus apiLe rotundati\*- vcl subcmar^inatis margine longe iimbato-cilidiis dorso convexiusculis eL nervis vldidis a. basi leie ad ipu em rddiitim notatis, biacteis%jdtc ellipticis mirgine apicem versus crenulatis, nervo medic in cuspidem longam subulatam patulam squamis longiorem producto, nucuhs parvis -5 In Montilius ScopuIosis America borealis occidentals Cascade Mountains et Galton Manges ad 0000 7000 pe 1 elev 490 lit bor detexit cl Lyall' Ldiix Lydlln Pad in Enum sem Hoit Reg Mus Hor ann 186\*, Garden Phron. ann 1863 p 91b, Regel s Gaitenfloi ann 1864 p 244, Henk et Hochst Nadolhol/ p 417, Gdi r Lomf edit 2 p 3M Arbor 40 pedes alta \*oha 22 2} mill longd, -J { mill lata Amenta mascula 8 10 mill longa, 4 mill lata, leminea 4-5 cent longa, 2 cent fere lata Strobilos maturo^ non vidi A Pinu Nuttalln statuia vald humihore ramulorum junioium lana dense arachnoidea, foli s numeiosionbus, stiobilis majoribus, squamis inaigme longe fimhridto ciliatis et dorso exquisite nervosis satis supeique distinctd (v s)
- 76 P NUTTALLII, drbor excelsa, coma stnete pyrimidali ramis brevibus subhonzontalibus ramulis junionbus gl^nusculis, ramulis gemmiiieris subroturidis nigncantibus, loins sub-20-fiscicuIatis pilentibus recuusculis n^idiusculis anguste lineanbus basin versus dttuiaUs obtusiusculis ulrinqm juxta ncivuin longitudinalem piominentem obtusum sulco longitudinali in sicco notdtis e vindi-lutcolis, dmentis nusculis . . . , stiobihis pdiviuscuhs solitanis in ramulo longiusculo adscendentibus ovdto globosis, squamis pnunumerosis imbneatis subcartihgineN orbiculanbus sublruncdtis vtl paruin emargindtis rudi,int into<sub>n</sub>ro subreflexo dorso convexiusculis et sub vitio pubciulis, bracteis cxscitis ellipticis maigine fusccscente apicem veiaus cienulato-denticuldtis, nervo medio in cuspidem latam linean-lanceolatam acutdm subpatulam squama lun^ioicm producto, nuculis obovatis alaoblon^d obtusa duplo brevionbus j In Americde borealis Occident ills Montibus ScopuIosis inter 47 et 4i 40° ldt boi , lntei fluv lakima et Columbia ad 800 ped ele) et prope l'ort Colville (Lyall'), inter 11 Columbia et d(s Chutes Rivei (Newbeny) Lanx occidentalis Nutt North Amenc sylv 3 p 143 t 120, New berry in Williamson's Report 6 p 59 f 24,25 Linx amencana brpvi-folia Carr Comf edit 2 p 3Y7 Aibor 140 HO pede^ aha, lamis abbreviatis, ramulis rufescentibus Folia 14 17 20 iasoiculata, 20-27 mill longa, j mill lata Strobili 20 2> mill longi, 18-20 mill lati Squamae rufescentes mediae 8 mill longae et feie latae Nuculde albidae, ala palhda (v s)

<sup>s</sup>cctio in PSEUDOLARIX — Abietis species *Lxndl m Penny Cyclop* 1 p 34 — Genus Pseudo-ldnx *Gord. Fin* p 292, *Carr Comf edit* 2 p 363

Amenta mascula . . . Strobili squamae deciduae Bractee basi lepidio adnatae Rhachis tenuis, taidfem in fibras soluia Folia decidua mollia plamuscula sessilia, inferiora ramulo abbreviato fasciculata, supenoia sohtana

- 77 P KAEMPFERI (Lamb Pm edit 3 p vn), arbor excelsa, coma pyramidih, ramis verticillatis infenonbus suhonzontalibus, folus in ramis infpnonbus 15-20-iasciculatis patentissimis, in ramulis supenoubus sohtains spirsis

patulis, omnibus longiusculis mollibus rectis vel subfalcatis lineari-lanceolatis acuminatis supra convexiusculis viridibus subtus juxta carinam vix prominentem utnque leviter sulcatis et plaucis, marginibus subreflexis, amentis. . . . , strobilis solitariis, in ramulo brevi pendulis ovato-oblongis oblongisve obtusis, rhachide cylindracea obtusa in fibras demum soluta, squamis laxe imbricatis coriaceo-lignosis deciduis basi breviter stipitatis cordato-lanceolatis apice patulis et truncato-limientatis, bracteis parvis ovato-lanceolatis acutis margine vix denticulatis inferne adnatis squama multo brevioribus, nuculis prandiusculis obovato-ovalibus ala semiovato-lanceolata obtusa squamas subsuperante subquadroplo brevioribus. § In montibus Chinis orientali-borealis provinciae Che-Kiang ad 3000 ped. circ. elev. (Fortune!). *Larix conifera*, nucleis pyramidatis, foliis deciduis Kaempf. Amœn. exot. p. 833. *Abies Kaempferi* Lindl. in Penny Cyclop. 1. p. 34, et in Garden. Chronicle ann. 1854. p. 255. f. 455; Carr. Conif. p. 233. *Larix Kaempferi* Carr. in Flor. des Serr. 11. p. 97. Pseudo-*Larix Kaempferi* Gord. Pin. p. 2V2 et Suppl. p. 91; A. Murr. in Proceed. of the Hort. Soc. 2. p. 643; Henk. et Hochst. Nadelhülz. p. 139; Carr. Conif. edit. 2. p. 363. *Larix amabilis* Nils. Pinac. p. 84. *Kara Mats* Chin., *Seosa Mats* Japon., *Golden Pine* Angl., *Sapin dore*" Gall. Arbor 120-130 ped. alta, P. Laricis habitu. Folia 3½-7 cent. longa, 1 J-2\* mill. lata. Strobili G-7 cent. longi, 4-J-5 cent. lati. Rhachis alba. Squamae in sicco purpureo-fuscae, margine angusto temii subundulnto, mediae 30-35 mill. longae, 15-17 mill. latae. Nuculae 7-8 mill. longae, 4-5 mill. latae, ala fuscens. (v. v.)

P, *nana*, 1-2-pedalis. Culta in hortis chinensibus. *Kin-le-Sung* Ghinens.

Sectiu iv» PICEA Endl. Conif. v. 112. — Picea sect. 1' genuinae Link in Linnæa 15. p. 516. — Picea Carr. Conif. p. 236. — *Abies Don* in Loud. Arb. Brit. 4. 2293.

Amenta mascula versus ramulorum annotinorum apices subopposita. Strobilus primo anno maturus, squamas persistentes. Bractea basi lepidio adnatae. Folia sessilia vel brevissime petiolata, subtetragona, pulvinis decurrentibus sursum incrassatis, apice attenuato, libero squarrosus, cicatricibus rhombeis.

78. P. NIGRA (Ait. H. Kew. edit. 1. vol. 3. p. 370), arbor excelsa, coma pyramidalis, ramis verticillatis horizontalibus, foliis solitariis confertis undiiluo versis brevibus rectis vel curvulis rigidis tetragono-compressis obtuse mucronatis, faciebus sub vitro punctis albis notatis obscure viridibus, amentis. . . . . strobilis parvis solitariis vel subaggregatis in ramulo brevi pendulis ovalibus obtusis, squamis imbricatis cartilagineis obovato-orbicularibus mJirgine denticulatis et vix undulatis, bractea parva ovato-acuminata obtusiuscula basin versus dentata squamis multo brevioribus, nuculis parvis obovatis utrinque convexiusculis ala obovato-orbiculari plus quam duplo brevioribus. 5 In America boreali a Canada I Novo Brunsvig et Nova Scotia ad Montts Alleghinies et Montem Nigrura Carolinae inter 53 et 44° L. B. : frequens in regionibus magis borealibus ubi saepe vastas et densas constituit sylvas quam in austroribus, ubi praecipue montes ascendit; solum numquam semper praeviguit. — Lamb. Pin. edit. 2. p. 41. t. 27, et 3. p. 64. t. 37; Antoine Conif. p. 88. t. 34. f. 3; Endl. Conif. p. 115. *Abies Piceae* foliis brevioribus, conis biuncialibus laxis Mill. Ic. 1. t. 1. *Abies Mariana* Mill. Diet. n. 2. P. Mariana Du Roy Obs. bot. p. 38. *Abies denticulata* Poir. Diet. 6. p. 520; Michx. Fl. bor. Americ. 2. p. 206. *Abies nigra* Michx. Arbr. forest, de l'Amériq. sept 1\* p. 123. t. 11, ex parte; Loud. Arb. 4. 2312. f. 2225, 2226; Spach Hist' des vég. phanér. 11. p. 410 (excl. p. Pinet. Woburn. 97. t. 34); Gord. Pin n 7\* Henk. et Hochst. Nadelhölz. p. 191. *Picea nigra tiak* in Linnæa 15. p. 520. Carr. Conif. p. 241. *Pinus Marylandica* hort. Illa & Spruce, Double Spruce Angl.-Americ. Arbor 70-80 et interdum 90-100 ped. alta, trunco recto, ligno albo. Folia 7-15 mill. longa, 1½-1¾ mill. lata. Strobili fusco-purpurei, 20-36 mill. longi, 15-18 mill. lati. Squamae mediae 10-12 mill. longae, 10 mill. fere latae. Nuculae 2½-3 mill. vix longae, 1½ mill. latae, fuscae. (v. v.)

79. P. RURRA (Lamb. Pin. edit. 2. p. 43. t. 28. et edit. 3. p. GG. t. 38), ar-

bor, coma pyramidalis, ramis verticillatis horizontalibus, foliis solitaris confertis undique versis brevibus rectis vel curvulis rigidis obtuse tetragonis, obtuse mucronatis ad angulos vix indubis faciebus albo-glauciscentibus, amentis , strobilis parvis solitariis subsessilibus pendulis ovatis oblongis obtusiusculis, squamis imbricatis subcartilagineis late obovatis submarginatis saepe lacero bilobis margine integerrimis nucibus parvis obovatis utrinque convexis ala obovato-ovali plus quam duplo brevioribus ^ In America borealis, in Nova Scotia et in Tein-Nova Prunus americana rubra Wangenh Beitr p 71 t 16 f 80 P americana Gierten de Fruct et sem 2 p 60 t 91 Abies rubra Poir Lncycl b p 520, Loud Arbor Brit 2116 f 2218, Pinet Woburn 101 t 1>, Goid Pin p JI Honk et Hochst Nadelholz p 189 Abies nigra var Michx Arbi foies de l'Amer septentr 1 p 123 Picea rubra Link in Linnaei 1> p >2i, Can Cohif p 240 Abies alberta Cunningb ex Henk et Hochst *Red Spruce* Angl-Amenc Arbor hgnio rufescente Join 10 f mill longa, 11 mill vix lati Strobili 4-4-j cent longi, 13 1 > mill lati Squamae demum rubescentes, nitidae Nuculae luscidae, 2 1/2 mill longa, mgrescentes. (v s)

- 80 P ALBA (Ait Hort KPW edit 1 v 3 p 371), arbor coma pyramidalis, ramis verticillatis subhorizontalibus foliis solitariis confertis undique versis patentibus brevibus curvulis rigidis obtuse tetragonis obtuse mucronatis, angulis vix indubis, faciebus albo-glauciscentibus, amentis strobile parvis solitariis in ramulo brevi vel breviusculo pendulis ovali-oblongis vel ovali-cylindraceis, squamis subconatis imbricatis obovatis obtusissimis vel subretusis in te^ns, bractea parva obovato spatulata subdenticulata, squamis 3-4 plo brevioribus, nucibus parvis obovatis ovalibusve utrinque convexis ala obovato-oblonga 3-4-plo brevioribus ^ In Ainea arctica et borealis a 70 ad 45° L versus polum rano: plantieram incolam ausurum versus in montes ascendens Ad Cuprifumarium fluvium haud procul a man arctico (Kiobards) circa sinurn Hudsonis (Parsh), in Labradoria Iiope Okkak (Meyer<sup>1</sup> Hochst. pi Labiad n ^b c), in Canada, Nova Brunsvici Heib Mus florcht 1), in Nova Scotia (Pursh, Michx aluque), in Maine (Michx), prope Boston (Lmersop), in Rocky Mountains (Uourg) — Lamb Pin edit 2. vol 1 p 19 t. 2b et J. p 61 t j), Antoine Conif p 86 t 4 f. 1, Cndl Gonif p 112 Abies Canadensis Mill Diet n 1 P Canadensis Du Roi Obseiv but p 38, Wangenh Beitr 5 t I 12 P lav L Lbih Beitr \ p 24 P glauca Mouch Weissenb p 73 Abies alba Michx Flor amenc 2 p 207 et Arbor foies de l'Ambr septentr 1 p 1H t 12, Loul Aibor Brit 4 2\*10 1 2244, Pinet Woburn p 9T t H, Oord Pin p 2, Henk et Hochst Nadelholz p 188 Picea alba Link in Linnaei 1> p >19, C-irr Gonif p 238 Abies alba et caerulea hort *White Spruce* An<sup>1</sup>-Amenc Arbor resin im utilissimam scatens, 20-80 ped. alta folia 12-18 mill longa, 1 mill fere lata Strobili 14 cent longi, 1, 2(0) mill, laii Nuculae fuscae, 2 mill longae 1) mill fere latae (v v)

B, *arctica*, foliis crassiusculis, bractea triangulan (an. sempei<sup>3</sup>) Prope fretum Behning (Seem) Abies alba A Mun in Seem jourm 1867 p 203 c IC (noil vidi)

81. P ORIENTALIS (Linn. Sp pi p 1421), arbor excelsa, coma pyramidalis, ramis subverticillatis patentibus vel patentissimis, foliis solitariis confertis undique versis brevissimis rectis vel curvulis rigidiusculis obtuse tetragonis obtusiusculis fusco vix indubis, amentis masculinis femineis solitariis subnutantibus cylindraceis obtusiusculis, strobilis solitariis sessilibus subpendulis cylindraceo fusiformibus obtusiusculis, squamis conatis fere orbicularibus integris dorso superne striatis, bractea parva obovato orbiculari vel orbiculari emarginata vel integra <Integra squamis multo brevioribus, nucibus parvis obovatis utrinque convexis ala obovato-orbiculari Integra subtriplo brevioribus \$ I^montibus laun et Caucasi, sylvas densas saepe constituens prope Irapa^itum (loTirn Bouigeaul), frequens mte hapezuntum et Lizerum alt 4000ped (KotschyI Plant Trapez n 204 • GoedII Trapezunt 185) n 204), in j.lunbus Tauri et Antitaun montibus inter 2000 et 6600 ped iTchihatch), in Imeretiae montibus altioribus (Steven), in Mmgelia superiore inter Gunel et monies Ads(hanenses(Nomm)), in sylvis altiorum montium Cartilmidj et Gunel (Szovicsl 45 et 192) — Lamb Pin. edit 2. v 1

p 45 t 29 f a et edit 3 p 68 t 39 f a excl reliq icon, Bieb Fl tauicauc 3 p 624 Steven in Ann des scienc nat 2<sup>e</sup> sene vol U p 5> Antoine Comf p 89 t 30 f 1, Endl ! Co nf p 116 Led Fl Ross 3 p 671 ex parte excl pi Sibir 6t Dahunc 'EXitr] Tourn Voy du Levant 2 p 238 Abies onentahs folio brevi et tetragono, fructu minimo et deorsum flexo, Elate Graecomm recentiorum Tourn Coroll p 41 Abies onentahs Poir Encycl 6 p 518, Jaub et Spach PI orient 1 p 30 t U, Gord ^in p 9, Pinet bnt Part 14 cum icone, Henk et Hochst Nadelholz p 192 Picea onentalis Carr Conif p 244 Arbor Pinus Piceae aemula Folia breviora et minus ngida, 5-J-9 mill longa, J - \ | mill lata Strobili fusel, 6-8 cent longi 2-2] cent lati Squamae mediae, 12-13 mill longae et fere latae Nuculae nigrescentes, ala tenui (v v)

- 82 P OBOVATA (Antoine Conif p 96 t 37 f 2), aibor excelsa, coma pyramidata lamis subvertieillatis patulis, folns. solitarns confetis unlique versis brevibus eurvulis vel rectiuscuhs ngilis comprcso tetragonis apice acute mucionatis subpungentibus, amntis masculis , iemineis solitarns erectis oblongis obtusis, stiobilis solitarus subsesMhbus erectis ovahbus \el oblongo cyhndraeeis oblusis, squamis subcaitila^meis imbiicatis obovatis marginc supenore rotundatis mtégiis doiso laevibus, brae Lea laneolata a uta vel ovato-lanceolata mucronata margine dentato ciliata squamis 1-4plo bre Viore, nucuhs parvis obovato-ovalibus utnnnie convexis ala obovat}-oblonga subtnplo brevionbus ^ In Europa boieali-orientali et in Asia boieali In binnaickia onentah piope Colmejave (Th Fries'), per omnem Sibirnam, a Sibina uralensi (Grnel Pall G hhrenb Uiique), ad Sibirnam aictieam usque ad 69 H° L ad M Jenisci (Mi Id ex Tiautv ), ad regionom iltaiem a radice montium ad 4000 pel sylvis vistas efformans inde ad 5772 ped lanor (GTiel Pall Ledeb '), inDivurta (Georg Siev Tuicz '), in insuhs Kunils (Pill), Manchou III prope fl Amui (Maximovie? n 576) —Endl Conii p 119 P Abies Pall Fl Ross 1 p 6 excl syn Picea obovata Led ! Fl alt 4 p 201, Illustr t 499, Link in Linnaea 15 p 518, Cair Conif p 2^3 Abies obovata Loud Aibor bnt 4 p 2\*29, Gord Pin p 8, Henk et Hochst Nidelholz p H3 Arbor excelsa, Pini Piueaj facie Polia vindia, 14-18 mill longa, 1 mill fere lata Strobili 4 10 cent longi, 21-3 cent lati Squamae mediae 16-20 mill longae 11 12 mill laLfi in sicco lutescentes Nuculas nigrescentes, ala pallide lut<cente A Pinu oriental), cum qua a cl Ledebouno in Mora Rossica conlusa, fohoiium directione et torma, strobihisque ma]onbus iiecutnnque attenuatis s mpei et constanter erectis, squamis numerosionbus, dorso levibus, oeitc distincta (v s)

P, *Schrenkiana*, folus longionbus InSongana (Schrenk') in Sibinae altaicae deserto Songoro-Kirghisico (Sivers), in raontibus Alatau (Kai ot Kinl ') Picea Schrenki ma Fisch et Mey in Bjillet de l Acid de S Pctersbourg 10 p 2il Carr Conif J) 2Vi Pinus Schickiana Antoin Conif p 97, Fndl (onif p 120 Abies bhionkiana Lindl et Gord III Journ of the Hort Soc 5 p 212 Vinus onentilis p longiloha Led H Ross 3 p 671 Folia 2\* 27 mill longa (v s)

- 83 P PICEA (Duroi Obs bot p J7), arbor evcelsa, coma pyramidali, ramis subverticillatis patentissimis vel suhhouzontalibu? apice ast,urgentibus, mtenonbus subpendulis, supenonbus eiecto patulis erectile lamulis erectis vel subpendulis, folns solitams confetis undique versis brevibus lectis \el curvulis n^idis compiesso tetragonis brevissime mucronatis, ad aii^ulos laevibus, faciebus suo vitro minute ilbo pjnetatis amentis masculis 2-G subveiticiatis oblongis obtusis subpendulis folio hvngionbus, femmeis in ramulorum apice subsolitarns penlulis oblongo-cylindraceutis obtusis, squamis molhbus suboibiculanbus late omargnitis concivo reflexis biactca \ irva ovati ciliata apice subtiuncata longionbus, strobilis pendulis cylvmjiaecis vel cyhndiaceo-oblongis obtusis, squamis numerogjfcuui^ imbticalis subcaitila^meis concaviusculis nitidis e bisi cuneata rhombeis api-ce subemarginatis denticullisque, bractea parva oblonga dentato ciliata squamis multo breviora, nuculis obovato oMori,Ms utnnque convenj, ala obovuo-oblonga sub-3plo brevionbus 5 In Europa boreali et in montibus Euiopse mediaa sylvas densas et vastissimas constitucns In Lapponii tornonsi et 10s-

sica ubi extremum fere arborum limitem inter Muonioniskam et Kktskesuvandum 68° 10' attingere vidi, per Sveciam totam! et Norvegiam! Fenniam! et Rossiam septentrionalem! et mediam extensissimas sylvas efforinat, nunc sola nunc cum Pino sylvestri et Betula pubescente mixta; in toto Alpium jugo inter 4000-6000 ped., saepius cum P. Abiete et P. Larice, rarius cum P. Cembra, regionem sylvarum Alpium sempervirentem constituit; rara in Pyrenaeis borealibus; frequeris vero in Carpalhi exterioris subaJpinis usque ad 4500 pedes et in centrali a planitie usque ad 4700 ped. copiosissima, nee rarior in Germanica et Sarmatica planitie, ex Hispania, Graecia et Gauso exul. Picea Plin. Hist. Nat. 16. 10. Picea Latinorum J. Bauh. Hist. 1. 2. p. 238. Abies tenuiore folio, fructu deorsum inflexo Tourn. Inst. p. 685. Pinus Abies Linn. 1 Sp. pi. p. 1421; Lamb. Pin. edit. 2. p. 37. t. 25 et 3. p. 59. t. 35; Antoine Conif. p. 90. t. 35. f. 2. P. exoelsa Lam. Fl. Franc. edit. 1. v. 2. p. 202. Abies Picea Mill. Diet. n. 3; Spach Hist. des Weil. phaner. 11. p. 405. P. cinerea Rdhling Deutsch. Fl. 376. P. Baldensis Zuccagn. Cent. 1. n. 96. Abies excelsa De C. Fl. Fr. 3. p. 275; Rich. Conif. p. f. t. 15; Loud. Arbor. 4. 2293. f. 2212; Sebouw in Ann. des Scienc. nat. 3\* serif, t. 3. p. 329; Gonl. Pin. p. 3; Henk. et Hochsl. Nadelholz, p. 194. Picea vulgaris Link in Abhandl. der Berlin Akad. 1827. p. 180. Picea excelsa Link in Linnaea 15. p. 517; Can\*. Conif. p. 245. Pinus Picea Endl.! Conif. p. 11G. *Abeto rosso, Abeto di Moscovia, Ab to di Germania, Pezzo Jtal.; Pesse, Epicca Gall.; Fichte, Schwarztaunc, Feuchtanne Germ.; Kuosa s. Quosa Lappon.; Kuusi Fenn.* Arbor omnium in Europa excelsior, 100-160 ped. alta, truncò erecto, columnari et coma speciosissima sylvarum boreal him decus, cortice flexili, tenaci, ligno albido, compacto, in navium antennis conficiendis usitatissimo. Folia 14-22 mill, longa, 1 -J-2 mill. lata. Amenta mascula 15-25 mill, longa, 8-10 mill, lata, purpurascens, fminea 4-4-^ cent, longa. Strobili 12-15, raro 16-18 longi, 3£-4£ cent. lati. Squamae mediae 18-28 mill, longae, 16-18 mill, latae. Nuculae fuscae, ala albido-rufescente. — Plures extant in hortis varietates quae nominibus P. viminalis Alström iii Vetensk. Acad. Handling 1777, p. 310. t. 8. 9, P. Clanbrasilliana Lodd. Cat. 1836. p. 50, P. vel Abietis Carpaticae, nigrae, variegatae, aureae, rucronatae, pendulas, colummaris, sibiricae, denudatae, yirgatae, nanae, conicae, dumosae, elegantis, pygmae, strictae, attenuatae. concinnae, procumbentis, microphyllae, phylicoides, aliisque fuerunt insignita. — Jam inter recentiores cl. Endlicherus, cl. Duroi sententiam sequutus, nomen P. Piceae huic speciei quae Piceae Latinorum respondet, et P. Abietis nomen arbori quam pro Abiete Latini habuerunt, retinere censuit ad errorem in utrarum stirpium determinatione a cl. Linureo commissum sane corrigendum, (v. v.)

84. P. SMITHIANA (Lamb. Pin. 3. t. 88), arbor, coma pyramidali, ramis subverticillatis, ramulis gracilibus elongatis pendulis, foliis solitariis confertis undiqueversis patulis breviusculis rectis velcurvulis rigidiusculis compressotetragonis subulatis mucronato-siibpungentibus faciebus sub vitro minute albpunctatis viridibus, amentis mas\*culiscrassis oblongis obusis, bracteis antheriferis longè slipitatis superne fere orbicularibus et denticulatis, strobilis magnis solitariis subaggregatis subsessilibus pendulis oblongo-cylindraccis vel oblongis obtusis, squamis numerosis imbricatis coriaceo-lignosis late obovatis margine superiore rotundato inaequaliter fissis subintegrisve, bractea parva ovatti obtusa vel acutiusoula denticulata squamis multo brevior, nuculis oöovalis utrinque convexiusculis ala oboyato-oblonga apice erosula subtriplo brevioribus. § In regione temperata Himalaya? Occidentalis inter 6-11 000 ped., raro, ut videtur, in Himalaya orientali, frequens in Bhootan alt. 7800-10500 ped. (Griffith), rara in Sikkim 8-11000 ped. (Hook. fil. et Thorns!), Kislitever alt. 6-7000 ped. (Hook. fil. et Thorns!), Pir Paniohe et Cachemiro Hugel!), in Cachemiro (Winterbottom), in Gurwal (Hoffmeister). — wall. Pl. asiat. rar. 3. p. 24. t. 246. ic. mala; Antoin. Conif. p. 59. Abies Smithiana Forb. Pin. Woburn. p. 103. t. 30; Loud. Arb. Brit. 4. 2317. f. 2229; Spach Hist des vöu phané 11. n. 413. J. D. Hook Himal Journ. 2 n. 25. 32. 45; Madden Observ. on Himal. Conif. in Journ. of the Hort. Soc. 5. p. 238; Gord. Pin. p. 12. P. Khutrow Royle Illustr. of Himal. Bot. p. 353. t. 84. t. 1; Antoin. Conif. p. 94. t. 36. f. 2; Endl.! Conif. p. 122. Picea Morinda Link in Linnifca 15. p. J>22. Abies spinulosa Griffith Journ. of Travels p. 25\*). 265. 275.

- Picea Khutrow Carr Conif p 258 Pinus et Abies Morinda hort floto, Koo drow, Koondrow, Kutrow et Morinda Ind HimaL. Arbor 50-pedahs, interdum vero 100 150 pedes alia, P Piccae facie sed ramis valde longionibus, ligno albo usitatissimo praedita Folia 3 3}, raro 4 > cent longa, 1-i £ mill lata Amenta mascula 23-28 mill longa, 8 10 mill lata Strobih 9-12 cent longi, 3^ 4 cent lati, basi attenuati bquamae basi fusco purpureae, supeinc e luteo rufescentes, mediae 28-30 mill longa?, 18-23 mill latae Nuuilse > mill fere long\*, 2 ] 3 mill, latae, fuscae, ala subflavescenti rubra (v v)*
- 84 P POLITA (Antoine Conif p % t 3b f 1), aiboi excelsa, ramis . , folns solitanis conlertis undique versis crassiusculis ngidis brevibus curvulis tetra goms mucronato cuspidtis subpungentibus fjieibus sub vitio punctis albidis stomatosis notatis auentis masculis . , strobilis penduhs? ovalibus vel ovah-oblongis apice subrotunddtis, squamis numerosis imbncatis conaceo lignosis late qbovatis liierne subcuneatis apice subiotunddtis subintegns, brdctea parva hnean squamis sub 4-plo brevior, nuculis obo\ato ovahbus utnnque convexis, ala obovato oblonga ap ce eroso-denticulata plus qua in duplo brevior In Japonia, in jugo montiuji per pro\incias boreali-orientales Dewa etMatsu msulas Nippon excurrente, nee non in Corea, passim in Japonum lucis sacns culta (Siebold), Yokobama (Maxim ') — Cndl Lonil p 121 Abies iorano biebold in Verhandl van het Hataw Genotschap 12, p 12 Abies polita Sieb etZucc Flor jap 2 p 20 t 111 Picea polita Can Comt p 256 lo bi AJO, bin, Toranowo-momi Japon Species P Smithianffi dffinis seddistmcta Ramuli pulvinis crassiusculis honzonlalibus tubeiculati Folia 15-23 mill longa, 1 | mill lata Strobili 8 10 cent longi, 4j > cent lati Squamae media? li 24 mill, longae, 20 22 mill latae Nuculae fuscde, aid e flavo rufescente (v s)
- 85 P GOMMUTATA, arbor excelsa,coma pyramidah,ramis verticillatis inferioribus - hori/ontalibus, suprrionibus adscendentibus, folns solitanis confertis undique versis brevibus curvuus vel rectiusculis ngidis compiesso-tetragonis brevissime et obtusiuscule mucionitis, ad anguloi ldevibus, l^cicibus sub vitro albo punctatis, amentis masculis ciassis ovatis vel ovato cylindraceis. obtusis loins subaequalibus, bracteis anthenlens fere oibiculanbus dentato fimbriatis o\ato cylindiacis, strobilis solitarns honzontahbus vel dechnatis (Lngelm ) ovat vel oblongo cylindraceis obtusis squamis numeiosis imbncatis subcaitilagi neis obovato-ihombeis subiruncitis vel eraargmatis crenulato-eroris bracte i ovato-oblonga obtusiuscula inegulaiiter dentata squarna subtnplo bievior nuculis parvis ovalibus utnnque convexis a'a obovatd sesquibLevionbus ^ In montibus scopulosis a Novo Mexico ad fluvium Columbiae et Missouri lontes inter 8 120JO ped interdum vastds sylvas constituens ad 39° 41' I B (Parry' Ingelm ') Abies nigra Engelm ' in Sill Journ }3 p. 330, non Poir. Abies I ngelmanni Pany' in bt louis Transact 2 p 12 J Picea Ngel mdnni I ngelm i in bi Louis Transact 2 p 212 Arbor 60 100 pedes alti, ID editionbus humilis et fere fruticosa, cortice tenui rubello, ligno albo molh Hamuli puberuh, lamique pulvinis valde promincentibus tuberculaLi Folia 17 20 mill longa, 1 | 2 mill vix lata Amenti mascula 10 12 mill longa b-7 mill lata btrobili 5b} cent longi 2^-> cent lati, mituii purpuieu-fusci Squamae medix 10 18 mill longde, 12 mill latae Nuculae fuscse, ala fere violacea Cum alia Pun species sub nomint Ngelmann a Cantro sit recensita nomen hujus stirpis mutare coactus fui (v s)
- 86 P ALCOQUIANA, arbor exctlsa folns solitanis conleitis unlique versis brevi bus curvulis ngidis tetragonis mucronato pungentibus faciebus punctis albidis stomitosis notatis, amentis masculis crassis ovah-oblongis obtusis folio longionibus, bracteis anthenferis snorbiculanbus dentato limbntis, stio-bilis solitxnis subaggregatis sessilibus pen lulis oblongo cylindraceis obtusis rectis vel curvulis squ IUUS conaceo carlilagineis numerosis luibucatis ovah-obovatis vel ovah orbiculanbus doiso supeine stnatis, marline superiore subpatulo eroso denticuldto, brictea paiva basi line nI superne ovata acuminata et mirgme dentato fmbnUa, nuculis parvis obo\ Uo-oblongis ala obovalo oblonga apice subdenticulata 3 4-plo breuonbus ^ Jn Japonia m Monte Fusi-Jauia dd 6000 7000 ped elev (Veitch' Maxim), m insula Nippon (Perfetti') Abies Alcoquiiana Voitch' m fpisf, Jmrl i Gard fliru/i



12 Jdn 1861, Journ of Hort. K. March 1862 cum icone; Murray! Sketch of the Conif. of Jdpon in Proceed of the Hort. Soc. 2. p. 4\*26; Gord. Pin. Suppl. p. 8, Henk. et Hochst. Nadelholz. p. 185. *P. bicolor* Maxim.' *Picea Alcockiana* farr Gonif. edit. 2 p. 343 Arbor 100-120 ped. alta. Fo'ia 12-16 mill longa, 1½ mill, lata Amenta mascula 2 cent, fere longa, 6-7 mill. lata. Strobili 6-7 cent, longi, 3 cent. lati. Squamae in sicco rufescentes, margine supenore patulo in sectione certe singulares, mediae 16-18 mill, longae, 12-13 mill, latae. Nuculae 3-4 mill, longae, 1 j-2 mill, latae, fuse\*, ala fuscescente. (v. s.)

- 87 *P. MINZIESII* (Dougl i msc), arbjr excelsa, coma stneta pyramidalis, ramis subverticillatis patentibus apice ascendentibus supenonibus dscendentibus, foliis solitanis confertis undique versis brevibus curvulis vel rectis rigidis crassiusculis compresso-trigonis mucronato-pungentibus juxta nervum prominentem fascia albido-glaucoscente in utrdque pdgna notatis, amentis masculis crassis oblongis obtusis, bracteis antherifeis suborbiculatis cristatis, femineis oblongo cylindraceis obtusis curvulis, strobili solitani vel subgregariis subsessilibus subnutantibus cylindraceis revalibus obtusis, squamis numerosis irabncitis scinoso-cartilagineis ovatis vel subrhombicis obtusissimis vel apice producto obtuso aut submarginato eroso-dentato marginibus subundulatis, bractea parva ovato-lanceolata vel ovato-acuta vel obtusiuscula subintenticulata squamis multo brevioribus, nuculis minimis obovatis utnque convexis ala tenui obovato-oblonga obtusa erosula 2-3-plo brevioribus. 5 In America boreali-occidentali inter 57-40° Lat a mans litore ad 6000-7000 ped elevat., Sibina orientah, Davuna, Kamchatka et in Japoniae insulis borealibus, nempe . in insula Sitka (Mertens!), dd Sandwich sund (Merkius!), in insula Vancouver (herb Mus Flor.), prope fluvium Columbiae (Newberry, Lyall!), in Cascade Mountains 5000 ped elev. et in Reeky Mountains Galton Range 6000-7000 ped. (f yall»), m Colorado Territory (Parry!), in California (Tolanderi), in montibus raro m vallibus prope Ajan (liling'), ia Kamchatka (herb Fi^ch '), in Davurid uhinensi ad fl. Amur (Maximovitz! n. 581); in Japonia in insulis Jezo et Karafuto et culta in horns circa urbem Jeddo (Siebold), Jokohama (Veitchn, Fudsi-yama (Maxim !). — Lamb. Pin. 3. t. 89 et edit. 3 in app., Antoin fonif p. 85 t 33 f. 1 2, Endl Conif. p. 112. *Abies Menziesii* Loud AiborBnt 4. p. 2321. f. 2232, Pinet. Woburn. p. 93. t. 32, Nutt. North Amenc sylv 3. p. 131; Gord. Pin. p. 6, Henk. et Hochst. Nadelholz p. 187. *P. Sitkensis* Bong.' Veg. de Sitka p. 46, Hook. Fl. Bor Amenc. 1. p. 164; Endl Conif. p. 123 *Abies Sitkensis* Lindl. et Gord. in Journ. of the Hort Soc 5. p. 212 *Picea Menziesii* Carr. Conif. p. 237. *Picea Sitkensis* Carr. 1. c p. 260 *Picea Ajanensis* Fisch. Trautv. et Mey Fl. Ochot p. 87 in Middendorfs Reise, Carr Conif p. 259. *Abies Ajanensis* Lindl et Gord. in Journ of the Hort. Soc 5 p. 212. *Abies Meikiana* Fisch ' herb *Abies Jezoensis* Sieb et Zucc. Fl Jap. 2. p. 19. t. 110, Murr. Sketch of the Conif of Japon. in Proceed, of the Hort. Soc. 2. p. 496. ann. 1862, Henk et Hochst. Nadelholz. p. 199 *P. Jezoensis* Antoin. Conif. p. 97 t. 37 f. 1, Endl Conif. p. 120 *Picea Jezoensis* Carr. Conif. p. 259. *Abies microsperma* Lindl ' in Gardn. Chron. 12. Jan 1861, Veitch ' in Gardn. Chron. 5 April 1862, Murr. 1. c p. 430; Gord. Suppl. p. J2; Henk. et Hochst. Nadelholz. p. 186 *Picea microsperma* Carr. Conif. edit. 2 p. 339 *Tuitassilpa* Jnd.-Amer., *Jezo Matsu* Japon. Arbor procera, interdum centumpedalis. Ramuli, foliis delapsis, pulvibus valde prominentibus horizontalibus vel subdeflexis tuberculosis. Folia 12-16 mill, longd, 1½-2± mill, lata, pungentia. Amenta mascula incurva, 20-25 mill longa, 6-7 mill, lata : feminea 3-4 cent, longa, 15-17 mill lata Strobili 4-10 cent, longi, 2 J-3 cent. lati. Squamae flavescens, 17-21 mill, longae, 9-13 mill, latae. Nuculae omnium Pinuum forsan minimae, 2-3 mill, longae, 1½ mill, latae, nigrescentes, ala pallida. (v. v.)

Sectio ^ *ABIES* Endl. Conif. p. 89. — Genus *Abies* Link in Linnaea 15. p. 526; Carr. Conif p. 195. — *Picea* Don in Loud. Arb But. 4. 2329. — *Abies* sect. *Peuce* et *Piceaster* Spach Hist. des vég. phané. 11. p. 414.

Amenta mascula axillaria. Strobilus primo anno maturus. Squamae a rachide persistente solutae. Bractee lepidio basi adnatae vel hberae. Folia plana

vel rato subquadrangula, distinct petiolata, petiohs teretibus, basi incrassatis, pulvinis decurrentibus et supeme ultra cicatncem orbicularem productis, ideo rhombeis, saepe obsoletis el parum conspicuis,

88 P. BRACTEATA (Don in Linn Transact. 17. p 443), arbor excelsa, coma elongato-pyramidata acuta, trunco inferne nudo superne ramis verticillatis horizontalibus onusto, loins solitanis confertis subdistichis ngidis breviusculis rectis vel curvulis basi orbiculari-dilatatis supra basin toitis lineanbu\* vel lmean-lanceolatis planis acutis mucronato-pungentibus, supra vindibus nitidiusculis et linea depressa longitudinah notatis, subtus secus cannam crassam compldnatcim utnnque fascia alba notatis, amentis. . . . , strobilis soli tan is erectis subsessihbus ovalibus obtusis, lepidus unguiculdtis e basi cuneata reniformi-orbicularibus margme supenore subrotundato crenulato bractea cuneata apice tnloba brevionbus, lobis bractee laterallibus bieivissimis rotundaiis eroso-dentatis, intermedio longissimo lepidium multo superante recurvato foil is contormi sed angustiore, nuculis cuneato-oblongis angulatis, ala ohovata integernma tenuissima. ^ In montibus Sanctae Lutide Cdhfortiae alt 3000 ped. (Coulter, Br^ardsley, Budges! Lobb' W. Murray!), in montibus California 36° L. B alt 6000 ped (Dougl.), ad 2800 ped elev (Naudin). — Lamb. Pin 3. t 91, Antoin. Conif p 77 t. 30, Endl. Conif. p. 89 P venustd Dougl. in Bot. Mag Comp. 2 p. 152 Picea bracteata Loud Arb. bnt 4. 2348. f. 22^6, Gonl' Pin. p. 143, Laws. Pinet. bnt part 13 et 17 cum icone Abies bracteata Hook, et Arnott in Beechey p 394, Hook Ic t. 379, Bot Mag 1853. t. 4740, Nutt North Amenc. Sylv. 3. p. 137. t 118, Lindl- in Oaiden Chron 9 Jul 1854, Flor des Serr. 9. p. 109. t. 899, Carr Conif p 196, Henk et Hochst. Nadelholz. p. 167, Murr. Notes upon Californ Trees part 1. p. 1. t 1 et 2 Arbor 100-130-pedihs, cortice bddio. Ramuh rufuli, glabn. Folia 35-48 mill, longa, 2-3 mill. lata. Strobilos mtegios non vidi. (v. v.)

89. P NOBILIS (Dougl. msc), arbor excelsa, coma pyramidali, ramis verticillatis, inferioribus horizontalibuj\*, supenonbus pitentissimis vel patentibus, folns sohtams secundis sursum versis basi orbicular-dilatata obhquiter mseius supra basin vix vel haud tortis ngidis brevibus falcatis compresso-tetragonis obtusis vix mucronatis, supra prope sulcum longitudi^alem vindem utnnque fascia albida notatis, subtus prope canndro prominentem et nervis duobu< laterahbus vindibus fascia alba quadrifida notatis, amentis ... , strobilis magnis sohtams erectis sessilibus cylindraceo-oblongis obtusissimis, lepidus breviter unguiculatis obtuse tngularibus, margine supenore rotundato integro puberulo, bractea spdthulatd apice rtildta^o-bilobo eroso-lacero et in medio cuspidato, cuspidate longiuscula mu(ronata subas(endente et reflexa brevionbus, nucuhs ol)cuneatis anguldtis ala tenui dilatata margine supenorp erosuld brevionbus. J In Oiegonis et California montibus inter 6000-8000 ped elev. a Columbia npis ad Shasta Mountains (Dougl. Jeffrey^ Beardsloy, Murray) ~ Comp. to the Bot Mag 2. p 147, Lamb. Pin edit. .f. in app. cum icone; Antoin. Conif. p 77. t. 29 f 2 Hook' Fl. Bor. Am 2. p Ibi, Endl. Conif. p 90 Abies nobilis Lindl in Penny Cyclop 1 n 5, Link in Linnaea 15 p. 532, Spach Hist des vèg. phanèr U. p 419, Cair. Conif. p 198, Henk. et Houist. Nadelholz. p. 168. Picea nobilis Loud Arbor, bnt. 4. 2342. f. 2249-22">0: Encycl. of Trees 1047. f. 1962-1963, Nutt' North Amenc. Sylv 3. p. 136. t 117, Newberr. Report in Williamson's expedit 6. p 49 t 50 f 17; Gord Pin p 149 et Suppl p 48, Laws Pin bnt. pait. 1 cum icone Tuck-Tuck Indor Columb Arbor pulchernma, 200 oe^ des alta, coiuce cinnamomeo. Folia 20- ^6 mill, longa, 1\$ mill. lata.' Strobili 15-22 cent longi, 6-7 1 cent. lati. Lepidia mdrGINE nigncantia, a bractearum apice viridi et prope margines fuscescente fe^^ occultata. (v. v.)

90 P. FRASEHI (Pursh Fl. Bor. Amenc. 2. p. 639) f arbuscula, coma corapatta, folus solitdins confertis subsecundis basi parum tortis subcoriaceis brèvibus rectis vel curvuhs lineanbus planis obtusis retusis vel emarginatis, supra vindibus nitidis et sulco levi longitudinah notatis, subtus secus cannam vix prominentem utnnque fascia alba notdtis, amentis. . . . . , strobilis solitanib

conlortis erectis sessilibus ovalibus vel ovah oblongis obtusis, lepidns unguiculatific cuneato orbicularibus, margins supenore subintegro puberulo, bracte 1 cxserta late ovah orbicularan margme seiruJata apice emargmata et cuspi data arete reflexa subduplo brevionbus, nucuhs obcuneatis angulatis aid oblonga obtusa brevionbus 5 In montibus altionbus Carohnae (Fraser) et in Broad mountains Pennsylvania? —Lamb Pin edit 3 p 74 t 42, Antome Comf p 76 t 29 f 1, En 11 Conif p 91 Abies frasen Lindl in Penny Cyclop 1 n 5, Link' in Linnaea 15 p 531, Nuft North Amenc Sylv 3 p 139 t 119 Carr Conit p 200, Henk et Hochst Nadelholz p 169. Picea Frasen Loud Aib bnt 4 2\*40 f 224\* 2244, Encycl of frees 1044 f 1955 19)6, Gord Pin p 148 Abies balsdmea p b rasen Spach Hist nat des v6g phaner 11 p 422 *Double Balsam I* r Angl -Amenc Arbusculi decem pedahs } <oha 10-16 null lon^a, J^?-1 j mill lata, ludunt ietusa emarginata *H* in ramis supenonbus acutiuscula et lere obtuse mucronatd btiobilos mituros non vidi (v s)

91 P RELIGIOSA (Humb Bonpl et Kunlh' Nov Gen et Spec 2 p 5), arboi excelsa, coma pyramidah ramis verticilldtis ramulis suboppositis, fohis solitarns confetis «ubdistichis ngidis brevibus rectis vd curvulis lineaubus planis obtuMusculis calloso mucronatia su| ra lnet viridibus et suloo levi longituiinah notatis, subtus secus carman prominentem utnnque fascu argentei glaucescente notitis, amentis r lasculis ovalibus vel oblongo cylinuraceis obtusis folio subdimidio brevionbus, strobihsohtams erectis subsessilibus ovato oblongis obtusis, squamis ungiiculaiis ienifoirm-orbicularibus, mirgmesupenore rotundalo eioso-denticulato pubeiulo, prope unguem acute bidentatis, bractea exseita spathulata apice leie oibicularan mciso-serrato eniargmato bilobo et medio abruptim cusjudato aicte reflexo hrevionbus, nucu'is cuneato oblongis suban^ulilis ala dilitato-subtnangulan eioso-denticulata subaequa hbus \$ In montibus Mexici ct Guatemalae Inter Masantla et Chi'pantzigoele\ 4000 ped et prepe el Guard 1, inter Guchilaque et uibem Mexici (Humb' Bonpl 1 Hartw'), in lcgione fngida Onzabae ad arborum terminum (Schiede' 11 lo), in On/aba inter 8 11 ^00 ped elev (Galeotti' 11 2), inter 9000 10500 ped (Linden'), prope Real del Monte, in Ceiro de Oyamol et inter Moran a Omtlan (C Lhrcnb i), in montibus Angan^uio elev 8000 9000 ped (Hait we.), in MontP de hs Tiuces (Roe/1'), in nemoie de la Desierta Vieja vail Mexici (Bourgeau' n 1143), in Sierra \ladre (Seeman'), in Guatemala (Skinnei') - Schied et Depp' in Linnaea 12 p 486, Lamb Pin edit \* p 76 t 4J, Antoin Conif p 7o t 28 f 2 Tndl COIII p 92 \bics Idgiosd Schlecht in Linnaea ^ p 77, Lindl in Penny Cyclop 1 n 6, Spach Hist des v6g phaner 11 p 419, Carr. Conif p 202, Roezll Cat de Couif Mexic p 9, Henk et Hochst. Nadelholz p 170 Picea religiosa Loud Arboi bnt 4 IW f 22 7 et I ncycl of trees 1049 i 1965-1967 Gord Pin p 15 i **Pinus hirtella Humb Bonpl et Kunth 1 c, Schied et Deppe in Linnaea 12** p 487, Antoin Conif p RO, Endl Conif p 93 Abies hirtella Lindl in Penny Cyclop 2 Can Conif p 203, Roezl' 1 c Picea hirtella Loud Arbor bnt 4 2349 Abies glaucescens et 1 lapalcatudo Roezl' Catal ann 1858 V). p o, Henk et Hochst Nadelholz p 172 Picea glaucescens Gord Pin p 149 *Oyamel* Mex can Arboi Pmu Abieti et P balsameae similhma, interdum 150 pedes alta Ramuli hntelli vel glabnuscuh Toln 22 28 mill longi, li Ijvix2mill latd Amenta mascula 15 20 mill Jongi, 3 mill lata StruLIII valde resinosi, 9-15 cent longi 4-6 cent lati Squamae tenues, fuscscentes, 20-22 mill longae, 26 28 mflf latae, prope unguem utrmque dente acuto exquisite notat\* JNuculae et ala flavescens (v s)

p, *minor*, strobihsohtams minonbus 6-6^ cent longis, 3J mill latis In Mexico unde habui a cl Murray (v s)

92 P ABIFS (DU R01 Obsoi\ bot p iq), arbor excelsa, comi pyramidali, ramis subverticillatis hozizontalibus supeiionbus patentibus vel patentissimis, ramuhs suboppositis subdistichis junioribns puberulis, loins sol 1 tan is confertis subsecundis basi tortis patentibus ngidis brevibus rectis vel curvulis ot sublalcatis hneanbus planis obtusis A el emarginatis aut obtuse mucronatis, supia sulco laevi longitudmali nntatis (saturate viridibus), subtus juxta cannam prominentem uirmque fascia albido argentea notatis, amentis masculis

plummis subcongestis oblongo cylindraceis obtusis sessilibus subpendulis folio subbrevionibus, femineis in ramulorum supremorum apice sohtarns erectis cylindraceo-oblongis obtusis, bracteis suborbicularibus fimbriatis apice longe cuspidatis, cuspidate patentissimo-subreflexa, lepidinis crassiusculis subcordato-obicularibus subintegris bractea brevionibus, strobili erectis cylindraceis obtusis et fere truncatis, squamis e basi cuneata rotundato-dilatatis dorso prope marginem superiorum puberulo-tomentosis caducis, bractea exserta linearis-spathulata denticulato-cuspidata apice reflexa brevionibus, rachide recta subulata dentata, nuculis cuneatis angulatis ala latiuscula subcuneatobrevionibus. In montibus Europae mediae et australes a Pyrenaeis borealibus ad Caucasum In Pienaeoium hispanicorum legione montana et subalpina ad elev. 3000-5000 ped (Willk. Colm Webb ' aluquc), in alpinis frequens utroque declivio inter 2400-4000 ped. elevationem cum *P. sylvestris* vel cum *P. Larice* sylvas efformans, interdum ad 1000 ped. descendens, inter 400-1000 ped. altitud. supergrediens, in Apenninis minus frequens et saepe culta inter 3000-4500 ped. elevationem, et in parte australe ad 5500 ped. altitudinem ascendens, in Nebrodibus Siciliae prope verticem, ad Aenadem Pini ad 6000 ped. elev. lara et laro fructifera In Cis Alpes in sylva nigra elev. 3000 ped. gregaria nec ultra 50° L. B. nisi hinc rarius culta, paulo in Sudetis frequentior nec late in planitiem Sarmaticam evagatur In sylvis planitiarum australem Carpathorum circum habitantium non infrequens, inter usque ad 3000 ped. ascendit, in montibus Scythesibus usque ad 3000 terminum multo copiosior nec in subalpinis Transsylvaniae infrequens In regione montana Macedoniana, Thracica et Bithyniae sylvas constituit, in Monte Athos inter 4500-5250 ped (Fernaldsky<sup>1</sup>), in sylvis altae Caucasii (Marsh. Bieb.), in sylvis altiss. montium Adchar in jugo Gunel (Szovicz' n. 192). LXxrxj Theophr Hist plant. 3. cap 10 *Abies Catesalp* » de Plant, lib. 3. cap. 53. p. 133, et herb. tab. 10 n. 30 *Abies cornis* sursum spectantibus sicut in C Bauh Pin. p 505. *Abies taxifolia* fructu sursum spectante Tourn. Inst. p 585. *Picea* Linn. Sp. pi p. 1420, Lamb. Pin edit 2 p 50. t 32, et 3. p 70 t. 40, brev. in Ann. des scienc. nat. 2<sup>ra</sup> sèc vol. 11. p 55, Antoine Conif. p 68. t. 27 f. 2. *Abies vulgaris* Poir Diet suppl. 6. p. 514. *Pinus pectinata* Lam. Fl. franc. 2. p 202 *Abies alba* Mill Diet n. 1 *Abies taxifolia* Desf Cat Hort Pans, edit 3 p. 316 *Abies pectinata* De C. Fl. Franc. 2 p. 275, Rich. Conif p. 73 t 16 1 2, Link in Linnaea 15. p 526, Schouw in Ann des scienc. nat. 6<sup>ml</sup> sèc. vol. 3 p 239, Can Conif. p 205, Henk et Hochst. Nadelholz p. 174, Spach Hist des vég. phaner 1] p 415 *Abies Picea* Lindl. in Penny Cyclop, n. 1 *Abies excelsa* Link in Abhandl der Berlin Akad. 1827 p. 182. *Abies candicans* Fisch. msc. *Picea pectinata* Loud Arbor. bnt. 4 2329. f. 2237-2239, Gord Pin p 151 *Pinus Abies* Endl. Conif p. 0-; Christ Die Formenk. der Europaisch Pinus-Aiten p 1 *Picea Nordmanniana* Stev. in Bull. Soc nat Mosq ann 1838. p. 45 I. 2, et in Ann. des Scienc. nat. 2<sup>me</sup> sene, torn. 11 p 56, Antoine Conif. p. 74. t 28. f. 1. mala, Endl. Conif. p 93. *Abies Nordmanniana* Spach Hist nat des vég phaner 11. p. 418, Cair. Conif p 203, Henk et Hochst. Nadelholz p 172 *Picea Nordmanniana* Loud Encycl. of trees 1042 f 1950, Gord Pin. p. 150, Gronland in Rev. Hort ann 1860 p 172 cum icon. *Picea leucocarpa* Stev. in Bull Soc nat. Mosq ann 1838. p 44 *Picea orientalis* Fernaldsky Herb Rum. EXatoc Graec *Abies* Lat. *Abeto*, *Abelo bianco*, *Abeto comune*, *Abeto nostrale*, Ital *Silver* i\* Angl. *Sapin* Gallor. *Tanne Silbertanne* Germ. Arbor pulchra, resinosa, 80, interdum 100-150 ped. alta, cortice cinereo-plumbeo, oleum abietinum scatente, ligno albido compacto, ad navium malos et antennas conducendas aptissimo 1 solid 20-30 mill longa, 2-2 J- mill, lala, ludunt ipso in ramulo obtusa, emarginata vel plus minusve mucronata, rectiuscula vel cucullata et fere subulcata nunc subdisticha nunc et saepe in ramulis superioribus etiam sursum versa Amenta mascula 14-17 mill, longa, 5-6 mill, lata, lobis subaequalibus vel inaequalibus breviora, feminea 4-6 cent longa, 17-20 mill. lata. Amentum androgynum semel vidi, inferne lemneum, superne masculum. Strobili 14-20 cent longi, 4-5 cent. lati. Squamae mediae 20-25 mill longae, 23-32 mill latas Bractee strobilorum inerte lineares, superae dilatatae, suborbiculari-mar. Sine denticulis, interdum emarginatas et subbilobas, semper cuspidatas cuspidate longe, reflexas. Nuculae Jutescentes, ad H rubido-luteola breviores. Folia semi

{~~folia~~ rum que 5, interdum 4-7 verticillata, patentissima, hneana, apice subbiaentata (v v)

(3, *Cephalomca*, folus saepius\* apice mtegro plus minusve acutiusculo mucionalis In Cephalomae montibus legionem sylvaticam effbrmans (Heldr ' Mazzian' Ungei'), per Graeciam omnem inter 2500 5000 ped elevdtio- pem sylvas constituens, in Montis Parnassi Pbocidis regione media ad summa cacumma (Link, J Guicciardi'), in Monte Panakdiko Patns urbi jjnminente, in submontosis Achaiae, in mont Arcadiae centralism Monte Parneto AUicae et Taygeto Laconiae (Heldr ' herb graee norm n 601 802 80i et pi exsicc n 289 et 34oO), in montibus Atticae (Kotschyl Jter syr n 370), in sylvis cditionbus montium Puboede (linger!) Abies Cophdlonica Loud Arb bnt 4 2325 f 223o-2236, Link in Linnaea 15 p ^29, Carr Conif p 211, Henk et Hochst Nddelholz p 179 PCLd Cephdlonica Loud Lncycl oftreesbLOJ9 t 1940-1946 Gord Pin p 146, Laws Pinet bnt part 3tunicone P fephalonica Endl Cat H Vindob 1 p 218, et Cornl p Q8, Antomc Lonif p 71 t 27 f 1 Abies Apolh nis Link in Linn IS p 528, Carr Conil p 209 P Apolhnis Antoine Conif p 73 Picea Apollims Gord Suppl p 44 Ldws Pinet bnt pait > cum icont Abies Pandihaua Heidi i pi exsicc Abies Regmse Amalia<sup>1</sup> Heldr ' in Regel Gaitenfloia I860 p 313 t 1^61 p 28b Abies Pello- poiinosiacd Hancg Samen Kdtal ex Heldr Piced Kukunana Wenderth diePfldnz bot Garten p II Folia juniora lonf<iora, ludunt plus minusve obtusiuscule vel acutiuscule mucronata et vix mucionato pungentid btrobili nunc cyhndrdcei nunc cylindraceo fusiformes, brevioics vel longiores in eadem aiborc (v v)

93 P CILICICA ^Antoine et Kotschy' Oest Bot Wochblatt Dec 185} p 409), arbor exuensa, coma pyramidah, ramis verticillalis valde approximatis, mfe- nonbus honzonialibus, supenenbus sensim ascendentibus vel suberectis (Ant et Kotsch}), ramulis suhoppoitis sublistichis pubescentibus vel felab- nusculis loins soliUnis confertis subserundis basi parum tortis, rettis vel raio curvulis lineaiibus planis obtusis emarginatis, supra viridibus et sulto lsevi longitudinah notatis, subtus juxta cannam prominentem utntiue fascia albida praeditis amentia masculis , femineis erectis eyhndiaceis obtu- sis, brdteis suborbiculanbus fimbnato cilidtis, apice breviuscule cuspidato cuspide subreflexa, lepidns cras^iusculis suborbiculanbus subintegnS kractea subbreuionbus stiobilis erectis cylindraceis obtusis subtruncatisve squamis e basi cuneata t ansverse dilatdto oblongis margine supenore lotundatis lbi- que vix puberulis bractea inclusa 1 nean-spathulata breviter \*\*uspirata sub duplo longionbus nuculis grandiusculis obovato cuneatis angulatis ala lata cuneato-oibiculau margine cnspula subaequalibus vel paulo longionbus 5 ^" lauro ciliLico sylvas vistas constituens interdum cum Pmu Gedro associata, inter 4000 6500 pedum elevationem (Kotschy! Iter cihc n 41^ 339), in dechvio onentdh jugi Akddgh inter Ki/ildagh et fl Koikusu elev 4800 ped et in Antitauro inter pagos Sdrkantoglu et Tchedeme (Tchihatch ) in re- gione montana supenoie ad septentnonem pylarum (Balansa PI dOrunt ann 18 5) in Libano (Labill»), in regionibus Dame supra frden ad 5000 ped elev (Kotschy' Iter s\r n }70), in Aflghanistm (herb Griffith' n 356) *Abies* Cilicica Carr Conif p 229 H des Serr 11 p 6" cum icone, Ichitatch Asiemin bot 2 p 494 Henk et Hochst Nadelholz p l>7 *Picea* Cilicica Gord Pinet suppl p SO Pinus Ichugatskoi Fisch msc *Abies* Ichu- gat^koi Laws *Ileden* Jure Arbor 40 6^ ped alta, cortice cmereo Folia 25-3 •> mill longa vix 2 2J mill lata, saepissirae emaignala Amenta femi- nea Vi' cent longa, 11 12 mill lata btrobili 20 28 cent longi, 5 cent lati, in sicco rubentes Squamae mediaB 3 cent feie longae 4 cent feielatae Nu- oulae lutescentes, 13 14 mill longae, 7 8 mill laU\* ala e luteo-i ubella (v v)

94 P PINOAPO (Boiss in epist), arbori excelsa, coma pyramidah, ramis verticil- latis Vrde appioximatis infenonbus honzontahbus supenonbus patentissi- mib vel patentibus supremis eiecto-patentibus ramuhs suboppoitis subdisti- chis<sup>s</sup> l<injonbus glabns, folus sohtanis confertis patentissimis undique versi^ vol subdistichis ngidis brevibus iectis vel curvulis lineanbus planiiscuJi acutis vel acuhuluhs aut obtusis subretusisve basi orbiculan-subdiiaiau

haud tortis, supra sulco longitudinali destitutis, subtus juxta cannam prominentem utnque fascia albida notatis, amentis masculis plurimis subcongestis ovali vel longis oblongis sessilibus patentibus vel patentissimis folio sublobatis, bracteis antheriferis apice rotundatis immixtis in ramulorum supremioribus apice soctis erectis cylindraceis obtusis, bracteis «suborbiculanbus eroso denticulatis apice breviter cuspidatis, cuspidate pudente, lepidibus suborbiculanbus margine denticulatis bractea plus quam duplo brevioribus\*\*, strobilis erectis cylindraceis obtusis «saepe apice unidentatis, squamis e basi cuneata subinangulanbus margine saponore rotundato caducis bractea inclusa suborbiculatis basi angustatis imbricatis vix emarginata et mucronata multo longioribus, nucleis obovato cuneatis angulatis dimidia lata apice truncata margine exteriore subcrenatis brevioribus subaequalibusve *fi* In montibus Hispaniarum australis et Africae borealis in regione montana et alpina meridione Regni Granatensis occidentalis ubi sylvas conformat, in Sierra Bermeja supra Estepona, in Sierra de la Nieve (Boiss.) et vicinioribus in Monte feiro de ban Castovae provinciae Honda inter 3000-6000 ptd elev (Del Campo!), in Sierra de Yunquera (V. Ill. k.) in montibus Baboi et labor Kabihae orientalis mte 4300-5900 ped elev cum Pinu Atlantica (Krauss) pi alger select n 144 Coss. I pi exsicc. Iamb. herb) P. Pinsapo Antoine Conif p 60 t 2b. f 2, Endl. Conif p 109 Abies Pinsapo Boiss. in Bibl. univ. de Geneve an. 1838, in J. Lench. n 179 et Voy. en Espagne 2. p 84 t 167 169, Spach Hist. nat. des vég. phanéog. 11, p 413 Ca. I. Conif p 229 Flor. des Serr. 14 p 119 t 1437-1438, Willk. et Lange Prodr. Fl. Hisp. 1 p 17, Uenk. et Hochst. Nadelholz p 165 Abies Pinsapo var. Baborensis Coss. 1 in Rev. hort. 16 Avnl. 1866 p 14) Abies Numidica De Lannoy in Carr. in Rev. hort. 14 Mars et 1<sup>er</sup> Mai 1866 p 10b et 168, Conif. edit. 2 p 505 Abies Baborensis Coss. msc. Abies Hispanica De Chamb. Trait. prat. des arbres p 339 Picea Pinsapo Loud. Encycl. of trees 1041 i 19<sup>7</sup> 1948, Gord. Pin. p 1)6, Pinet. but. part 3 cum icon. *Pinsapo* Hispan. Strobili (*arajuelo*) dicti Arbor. resinosa 60-70 ped. alta, Pini Abietis facie. Folia vix, ludunt acuta vel acutiuscula et feie obtusa, 10-15 mill. longa, 1 vix 2 lata, ramulorum minus plana, confertiora, breviora et paulo latiora, saepe obtusa et subretusa. Amenta mastula intense purpurea, 10-12 mill. longi, > b mill. lata, basi squamis membranatis lacuis et in involucrium per plures annos persistens basi c. alitis circumdata. Amenta ferrea 4 cent. longa, 8-9 mill. lata. Strobili 12-15 cent. longi, 4-5 cent. lati. Squamae mediae 3-4 cent. longae, 2-3 mill. latae. Nuculae et alae palidae luteae (v. v.)

- 9) P. BALSAMEA (Linn. Sp. pi. D. 1421), arbor, coma pyramidalis, ramis subveiticillatis horizontalibus vel patentissimis, ramulis subdissectis, fulvis solitariis conicis subsessilibus brevibus rectis vel curvulis basi lata orbiculata supra basin tortis linearibus punctatis vel emarginatis aut emarginato-bicuspidatis, supra vix et sulco levi longitudinali «notata», subtus juxta cannam paulo prominentem fascia albida utnque notata, amentis masculis confertis ovatis oblongis obtusis pendulis folio brevioribus, femineis solitariis erectis subsessilibus, bracteis suborbiculanbus fimbriato-denticulatis apice longe cuspidatis, cusp. de recta, lepidibus crassiusculis suborbiculanbus apice late emarginatis margine denticulato tiliatis bractea brevioribus, strobilis oblongo cylindraceis obtusis, squamis unguiculatis dilatatis margine superiore retundito doiso puberulo bractea inclusai suborbiculanbus submarginatis fimbriato-denticulatis subduplo longioribus, nucleis *hs* § In Amenta boreali orientalis in Nova Scotia, Canada, Nova Anglia et Noveboraco boreali sporadice cum P. mgra et P. Cinadensi praesertim solo humido provemens nee non in cacuminibus jugi Alleghaniensis pt in monte Grand-Father Carolinae borealis — Lamb. Pin. edit. 2. D. 2 t. W. et 3 p. 72 t. 41, Antoine. Conif. p. 6b t. 26 f. 3, ubi bractea eiorum videntur exsertae Abies balsamea Mill. Diet. n. 3, Rith. Conif. p. 74 t. IA. in Linn. f. 5 p. 130, fan. Conif. p. 217, Henk. et Hochst. Nadelholz i. 1<sup>er</sup> t. Abies balsamifera Michx. H. Bor. Amer. 2 p. 207 Michx. fil. Arbr. i. 1<sup>er</sup> t. p. 145. t. 14 Picea balsamea Loud. Arb. bnt. 4. 2339 f. 2240-m. Y. Gord. P. n. p. 143 *Balm of Gilead* \*tr., *Bruam Fir* Angl. Ament. Arh. S. tr. S. S. vel quadraginta pedum altitudinem vix superans, cortice balsamum pretiosum apud Europaeos Balsamum canadense vocatum scateute. Folia 15-22 mill.

- longa, 1<sup>^</sup> mill lata Amenta mascula 7-9 mill, longa, 1 mill lata Strobili 10-12 cent longi, 3 cent feie lati. (v v)
- 96 P FIRMA (Antoine Conif p 70 t 27 bis) > aibor excelsa, coma pyramidalis, ramis subverticillatis inferioribus horizontalibus, ramulis suboppositis, foliis solitariis confertis & ubi < > stichis rigidis brevibus rectis vel curvulis aut subfalcatis linearibus planis basi peltato-dilatatis supra basin vix tortis apice rotundato vel emarginatis aut emarginato bicuspidatis, supra sulco laevi longitudinali notatis. subtus juxta cannam prominentem utrinque fascia alba notatis, amentis cylindraceis obtusis (Siebold), strobiliis solitariis in ramulobrevi deflexis nutantibus (Siebold) cylindricis obtusis rectis vel curvulis, squamis unguiculatis dilatato-reniformibus margine superiore rotundato irregulariter denticulato bractea late hinc superne paulum dilatato orbiculata et apice lanceolata recta subaequalibus, nuculis obovato-cuneatis aruulatis ala subquadraltera brevioribus ^ in Taponia (Siebold, Veitch) a Kiusiu austri. per insulas Sikok, Nippon, Jezo et Karafuto, nec non aliis Kunlium diffusa, frequens in insula Nippon provincis Matsu et Dewa alt 2000 3000 ped , in insula Kiusiu rarior in vallibus nivalibus et in Monte Swaoja prope Nangasacki alt 1800 ped (Siebold), Jokohama (Maxim) Abies firma Sieb et Zucc. Fl Jap 2 p 15 t 107, Can-Com! p 212 et edit 2. p 286, Lindl in Gaid Chion 1861, Veitch! in Gard Chron 1802, Journ of Hort 3 Dec 1861 p 194, Henk et Hoch > t Nadolholz p 178 Picea firma Gord Pn > p 147 Murr ' Sketch of the Conif of Japan in Proceed of the Roy Hort Soc 2 1861. p 3M Abies homolepis Sieb et Zucc Hoi Jap 2 p 17. t 108, Carr Conif P 215, et edit 2 p 290 P homolepis Antoine Conif p 78 t 31 f. 2, Endl Conif p 101 Abies bifida Sieb et Zucc Fl Jap 2 p 18 t. 109, Carr Conif p 213, et edit 2 p. 289 P bifida Antoine (Conif p 79 t. 31 f 2, Endl ' Conif. p 101 *Mnmi Japon Iiu Sin Arbor*, habitu Pini Abietis Folia 20 JO mill longa, 2-3 mill lata Strobili 10 12 cent longi, 3-4 cent lati Squamae mediae 18 20 mill longae, 23 28 mill latae. Ala nucularum fusca (v s)
- 07 P HOLOPHYLLA, arbor, foliis solitariis confertis subdistichis? rigidis brevibus rectis vel vix curvulis hinc planis basi peltato-dilatatis supra basin vix angustatis et subcontortis, apice obtuse mucronatis subpungentibus, supra sulco laevi longitudinali notatis, subtus juxta cannam prominentem utrinque fascia alba notatis, amentis masculis , strobiliis solitariis sessilibus erectis cylindraceo-oblongis? squamis unguiculatis transverse dilatato-oblongis margine rotundato integro, bractea obovato-orbiculata dentata cuspidata adpressa plus quam duplo longioribus, nuculis obovato-cuneatis ala subquadraltera subaequalibus In Mandschuria austro-orientali ad Pootung (Maxim) Abies holophylla Maxim • pi exsicc tolia 20-22 mill longa, 2 mill vix lata Strobili squamae mediae 17-18 mill longae, 27 28 mill. late. Nuculae et ala in sicco flavescentes (v s)
- 98 P BRACHYPHYLLA, arbor, foliis solitariis confertis in lamulis supremis sursum versis rigidis brevibus rectis vel curvulis linearibus planis basi peltato-dilatatis supra basin paulo angustatis apice rotundatis vel subemarginatis supra sulco laevi longitudinali notatis subtus juxta cannam prominentem utrinque fascia alba notatis, amentis masculis , strobiliis solitariis sessilibus erectis cylindraceo-oblongis obtusis squamis unguiculatis dilatato-leniformibus margine rotundato integro bractea infere lata lineari superne dilatato-orbiculata irregulariter dentata et apice breviter cuspidata subduplo longioribus, nuculis obovato-cuneatis ala subquadraltera subaequalibus In Japonia Hudsiamensis (Maxim) Abies brachyphylla Maxim ' pi exsicc tolia 10 17 null, longd 2 mill lata, ludunt integra et rotundata, vel submarginata aut bidentata Strobiliis quern vidi 8 cent longus 3 cent vix latus ^quam mediae ungue non supposito 9 10 mill longae, 20-21 mill hinc Nuculae nigrescentes; ala subaequaliter superne 1 itior Ab affim P firma squamis minoribus et praepue bractea stjuamis subduplo brevioribus facile distinguitur (v s)
- 00 P PINDROW (Royle Himalay D 304 t. 86), arbor excelsa, ramis verticillatis horizontalibus, foliis solitariis confertis subdistichis patentibus rectis

supra basin vix tortis coriaceis breviusculis linearibus planis apice bidentatis, supra viridibus nilidis et sulco longitudinali latiusculo notatis, subtus juxta carinam vix prominentem utrinque fascia albida notatis, in ramis superioribus utraque pagina argenteis (Don), amentis masculis cylindraceutis obtusis, strobilis solitariis erectis ovalibus, squamis unguiculatis late cuneatis margine superiore rotundato integro, bractea inclusa basi late lineari superne ovali profunde eraaiginata breviter mucronata margine dentata squamis subtriplo brevioribus, nuculis.... § In Himalaya occidentali! elev. 7500-9000 ped. Peer Punjal et Ca'chemiro (Hujrel! Winterbottom!), in Kumaon (Strachey et Winterbottom) ubi vastas constituit sylvas (Madden), Gurwal (Hoffmeister, Madden), Simla (Hook. fil.). — Lamb. Pin 3. t. 92; Antoine Conif. p. 62. t. 24. f. 1; Endl. Conif. p. 106. *Taxus Lambertiana* Wall. Cat. n. 6056. *Abies Pindrow* Spach Hist. nat. des vég. phanér. 11. p. 423; Carr. Conif. p. 221; Hcnk. et Hochst. Nadelholz. p. 162. *Picea Herbertiana* Madden. *Picea Pindrow* Loud. Arb. brit. 4. 2346. f. 2254-2255; Encycl. of trees 1052. f. 1790-1791; Madden in Journ. of the Hort. Soc. 5. p. 246; Gord. Pin. p. 157. *Picea Naphla* Knight in Loud. Encycl. of trees p. 1053. *Pinus Naphta* hort. Antoine Conif. p. 80. Arbor formosissima 80-190-pedalis. Folia 3½-8 cent, longa, 17-2 mill, vix lata. Amenta mascula 20 mill, circiter longa, 5 mill, lata. Strobilos integros Don vidi. Squamae mediae 30-32 mill, longae, 36-38 m. latae. (v. v.)

100. *P. WEBBIANA* (Wall, msc), arbor excelsa, coma pyramidalis, ramis verticillatis horizontalibus, foliis solitariis confertis subsecundis patentibus rectis vel curvulis supra basin vix tortis coriaceis breviusculis linearibus planis apice bidentatis, supra viridibus nitidis et sulco longitudinali notatis, subtus juxta carinam prominentem utrinque fascia nivea notatis, amentis masculis cylindraceutis oblongis folio brevioribus, strobilis solitariis erectis subsessilibus oblongo-cylindraceutis obtusis, squamis unguiculatis late cuneatis margine superiore rotundato integro supra unguem utrinque obtuse unidentatis, bractea inclusa late lineari superne suborbiculari emarginata et breviter mucronata margine denticulato-ciliata longioribus, nuculis grandibus oblongo-obovatis ala late obovato-truncata sublongioribus. 5<sup>III</sup> Himalaya inter 9700-13000 ped. elev., Kumaon (Wall. n. 6058 B. Strachey et Winterbottom!), Bhootan (Griffith), Sikkim ubi frequens et Kunawar (Hook. fil. et Thorns!). — Lamb. Pin. edit. 3. p. 77. t. 44; Antoine Conif. p. 61. t. 24. f. I; Endl. Conif. p. 106. *P. striata* Hamilt. msc. *P. spectabilis* Lamb. Pin. edit 2. v. 2 p. 3. t. 2; Don Prodr. Fl. nnpal. p. 55. *Abies densa* Griffith Journ. of Travels P- 258. 259. 265 ex parte. *P. tinctoria* Webb msc. *Abies Webbia* Lindl. in Penny Cyclop, n. 7; Pinet. Wobirn. p. 117. t. 41; Link in Linnaea 15. p. 533; Carr. Conif. p. 223; Henk. et Hochst. Nadelholz. p. 163. *Abies spectabilis* Spach Hist. des vég. phanér. 11. p. 422. *Picea Webbia* Loud. Arb. brit. 4. 2344. f. 2251-2253; Encycl. of trees 1051. f. 1968-1969; Madden in Journ. of the Hort. Soc. 5. p. 251. *Abies Chilrowensis* hort. aliq. *Chilrow*, *Oonum*, *Roisalla*, *Gobria-sulla*, *Doongshing*, Himal.; *King Pine* Angl.-indor. Arbor 80-90-podalis et ultra, resinam albam scatens, ligno compacto roseo. Folia 2-4½ cent, longa, 1 J-2 J mill. lata. Amenta mascula 18-23 cent, longa, 4-5½ mill. lata. Strobili resinosi, 11-16 cent, longi, 4 J-5 cent, lati, intense purpureo-violacei. Squamae mediae 22-29 mill, longae, 23-30 latae. (v. v.)

101. *P. SIBIRICA* (Turcz. Cat. Baikal. n. 1067), arbor excelsa, coma pyramidalis, ramis verticillatis horizontalibus deflexisve, foliis solitariis confertis subdistichis erecto-patulis supra basin vix tortis rigidis brevibus curvulis linearibus planis apice emarginatis vel obtusis et in ramulis superioribus acute mucronatis, supra viridibus et sulco levi longitudinali notatis, subtus juxta carinam prominentem utrinque fascia albido-glaucis notatis, amentis masculis strobilis solitariis erectis sessilibus ovato-conicis obtusis, squamis unguiculatis late cuneatis margine superiore rotundato denticulato ciliolato marginibus lateribus denticulato-himbriatis, bractea inclusa suborbiculari adice emarginata et breviter mucronata margine denticulata squamis plus aëam duplo brevioribus, nuculis obovatis angulatis, ala nuculis subsessilibus longiore. § In Rossia boreali et raedia-orientali, in Sibiria et Davuria montibus, in Kamtschatka et Mongolia. In Rossia prope Tscherdysk (Traulv.) et Vo-



logda (Fortunatow ex Trautv.), ad Volgam mediam (Claus), in Sibiria uralensi prope JekateriDenburg (Erman! Steven!), in montibus altaicis a radice ad altitudinem 2000 ped. rara, elevatione 2400 ped. frequentior, inde (rarscente sensim *P. obovata*) sylvas densas constituit, usque ad 5270 ped. adscendens (Ledeb.! Dimitry! Fisch. herb.! G. Ehrenb.!), ad fl. Jenisei usque ad 67½ L. B. (Middend. ex Trautv.); in Sibiria baicalensi (Gmel. Pall. Turcz.!) et orientali (Gmel.), in Davuria (Pall. Georg, Turcz.! Fiedler!), in Kamtschaika (Kraschenin.), in Mongolia ad fl. Amour (Maximowicz!). *Abies* foliis solitarii apice emarginatis Gmel. fl. Sibir. 1. p. 176. n. 27 excl. synonym. *Pinus* *Picea* Pall. Fl. Ross. 1. p. 7 excl. syn. et pi. caucas.; Kraschen. Kamtsch. p. 99. *Abies* *Sibirica* Ledeb. Fl. alt. 4. p. 202. ann. 1833; Carr. Conif. p. 225. *Pinus* *Pichta* Fisch. ex Loddig. Catal. 1836. p. 50; Endl. Conif. p. 108. *Picea* *Pichta* Loud. Arbor. brit. 4. 2338; Encycl. of trees 1043. f. 1951; Gord. Pin. p. 156. *Abies* *Pichta* Forb. Pin. Wob. 109. t. 37; Henk. et Hochst. Nadelhölz. p. 158. *Pinus* *Sibirica* Antoin. Conif. p. 64. t. 26. f. 1; Led. Fl. ross. 3. p. 669. *Pichta* Ross. *Ak-cherschal* Tatar. *Niu* Permiens. *Chadsura* Mongol. Folia 15-27 mill, longa, 1½ mill, vix lata. Strobili 7-8 cent, longi, 3 cent. lati. Squamae mediae 20-21 mill, longae, 22-24 mill. latae. (v. v.)

102. *P. AMABILIS* (Dougl.! in Bot. Mag. Comp. 2. p. 93), arbor excelsa, coma stricta pyramidalis, ramis crebre verticillatis horizontalibus, foliis solitariis confertissimis subsecundis *ercUo-putulis* curvulis vel falcatis aut *rectiusculis* brevibus rigidis linearibus *planiusculis* obtusis vel acute mucronatis et subpungentibus, supra nitidis fusco-viridibus, subtus juxta carinam crassam prominentem utrinque fascia glauca notatis, amentis masculis parvis ovalibus obtusis folio brevioribus, femineis oblongis obtusis, bractea concava fere orbiculari apice longe cuspidata lepidiis orbicularibus ciliolatis longiore, strobilis solitariis erectis subsessilibus cylindraceutis obtusis fusco-purpureo-violaceis, squamis patule adpressis brevissime unguiculatis suborbicularibus dorso rugulosis, bractea fere orbiculari dentata apice longe cuspidata squamis subduplo brevioribus, nuculis parvis obovato-cuneatis angulatis, ala lata margine superiore oblique rotundato et denticulato subtriplo brevioribus. In America boreali-occidentali montibus Lat. Bor. 44-46° inter 6000 et 7000 ped. elevationem sylvas constituens saepe cum *P. grandi* et *P. Pattoniana* nee non in Novo Mexico: In Cascade Mountains (Dougl. Newberry, Lyall, in Rocky Mountains, Galton Range (Lyall!), in Laramie Mountains (Hayden!), in Novo Mexico (Fendl.! Pl. Nov. Mexic. n. 829). — Antoine Conif. p. 63. I. 25. f. 2; Endl. Conif. p. 104. *P. lasiocarpa* Hook.! Fl. bor. amer. 2. p. 163; Endl. Conif. p. 105; Balfour in Jeffrey seeds p. 1. t. 4. f. 1. *Abies lasiocarpa* Lindl. et Gord. in Journ. of the Hort. Soc. 5. p. 210; Carr. Conif. p. 221; Murr. On syn. of var. Conif. p. 23; Henk. et Hochst. Nadelhölz. p. 161. *Abies amabilis* Forb. Fmet. Woburn. 125. t. 44; Carr. Conif. p. 219, Henk. et Hochst. Nadelhölz. p. 159. *Picea amabilis* Newberr. Report in Williamson's Expedit. 6. p. 51; Gord. Pin. p. 154. *Abies grandis*, *magnifica* et *bifolia*; Murr. 1. c. p. 18. 27 et 29. *Mareilp* Indor-Americ. Arbor 100-120 ped. alia. Folia 16-28 mill. longa, 2 mill. lata. Amenta mascula 6-8 mill, longa, 4 mill, fere lata. Strobili valde resinosi, fere duplo majores quam in *P. grandi*, 14-16 cent, longi, 67-7 cent, lati, apice rotundati. Squamae dorso fortiter striatae, mediae 25-28 mill, latae. Strobilum a Douglasio missum vidi apud Gordonum. Species a *Pinu grandi* satis superque distincta. (v. s.)

103. *P. CONCOLOR* (Engelm.! herb.), arbor excelsa, ramis verticillatis horizontalibus, foliis solitariis conferlis subdistichis paucissimis supra basin vix tortis rigide coriaceis brevibus curvis falcatis vel *rectiusculis* linearibus *planiusculis* obtusis vel *obtusiusculis* utrinque candidis, strobilis solitariis erectis subsessilibus *narviusculis* oblongis obtusis, squamis fere horizontaliter adpressis unguiculatis transverse ellipticis margine superiore rotundato subduplo paulo sursum verso, bractea late ovali-orbiculari superne denticulata haud truncata nee mucronata paulo longioribus, nuculis obovato-cuneatis angulatis ala lata subquadrilatera tenui subaequalibus. In Novo Mexico prope Santa Fe (Fendl.! Pl. Novo-Mexic. n. 828). *Abies concolor* Linnaeus. *Picea concolor* Gord. H. n. p. 155. Folia concolora, candida, senescendo fere viridia, subtus et saepe utrinque nervo medio longitudinali notata, 3|r5<sup>centic</sup>

10TIM fere 2 mill, lata. Strobih, quos habui a cl Engelmanno, 6-7 cent, longi, 3??31 cent, ITt., Squamae media 14-15 mill, long\*, 22-25 mill, lata Bractes lepidustertio breviores, majoies quam in Pinu grandi, haud emarginata nee mucronatae Ala m sicco rufescens (v. s)

10<sup>AA</sup> P GHANDIS (Douel' in Bot Mag Comp. 2. p 147), arbor exoelsa, coma  
 h v r' a m ? d a S <sup>is</sup> ~~horizontalis~~ <sup>horizontalis</sup> ibus, folus solitanis conieili, subdisti-  
 ēhis patent,ssimis supra basin vix toitis ngide conaceis brevibus rectis vel  
 rnrvuhs hneanbus planis apice obtuse emarginatis vel obtusis, supra nitidis  
 v̄m̄dibus et sulco levi longitudinah DOTatis, subtus juxta cannam prominen  
 [ēm utrinque fascia albida rotatis, amentis. . . . .], strobilis solitanis erectis  
 sessihbus parviusculis oblongis obtusis et depress^ vindibus vel fi-sco-vin-  
 dibus sauamis ie-e hoizor.tdhter adressis unguiculatis late cuneatis, mai-  
 c me surtenoie rotundato integro leviusculo paulo sursum verso, bractea obcor-  
 dato-emaiftinata margine irregulariter dentata apice breyissime mucronata,  
 sauamTs ti iplo brevionbus, nuculis obovato-cuneatis anguatis ala subquadn-  
 lXrrsubslualibus 5 In montibus America boreah-ocudentahs a fluvn Co-  
 Ci np?s \*d Cahformam, 44-41» Lat Bor , ubi sylvas densas sa3e^ cum  
 P Lambe ?ana et P ponderosa constituit supra 4000 ped. alt in Sierra  
 NevadTcahfonna (NeVberry), in Ulifomia (Lowe'), props fl Col^biam  
 (Douel<sup>1</sup>) Cascade Mountains m dechvio oriental. (Lyll') — Hook Fl. bor.  
 S p 163, Antome Conif p 63 t 25. f. 1 non bona, Endl. Conif.  
 P m Abies srandis Lindl in Penny Cyclop n.3; Nutt Sylv 3 p 134,  
 Can fw t. MO- Henk. et Hochst Nadelholz. p 160 Picea grandis INew-  
 £ Report<sup>m</sup> 2 Wlmamson's exped. 6 p 46. t 6, Gord Pin .p.155 , et PH  
 cea amabilis Goid M. c. p 154 ex partc. Picea Lowiana. Goid. i Suppl. p. 53.  
 Abies amabilis et Lowiana Murr On the «yn of var. Conif p 20 et 27 Abies  
 Goidon.TnacLr Conif. edit. 2. p. 298. Arbor 150 200 ped alta, Pini balsa-  
 2 facie coitilt fusco Folia 22-42 mill, longa, 2 mifi. lata. Strobih ieS1-  
 SST Pmo Celro sim,les sed minoies et oblongi, 6 8\*, iaio 12 cent, longi,  
 4-5 i cent ieié lati. Squamae mediaa 18-20 mill. longaB, 23-26 mill lata3 Stio-  
 bilium a cl Douglasio olim ad Gordonum missum vidi in Lown coUectione :  
 specimnla Dou|lasii in herbano Societatis Horticultu^ Londinensis exstant.  
 (v. v.)

105 P -EIFNOLEPIS, arbor excelsa, coma pyramidali, folns solitanis confertis  
 s^cundis rigidis brevibus ascendentibus subtetragonis obtuse mucronatis  
 vel subemlrginatis, supra vindibus et sulco leu longitudinalinotatis, subtus  
 juxta cannam valde prominentem ut.mque fascia glauca notatis, amentis . . .  
 strobilis sohtariis erect.s sess^libus parvis, squamis fere honzontahter ad-  
 pressis longiuscule unguiculatis superne subsemilunatis, <sup>mai/in</sup> <sup>t e M ^ n o n</sup> 7  
 iotundato lntero, braitea cuneata margme supenore eroso-denticulata apic-  
 ulataTuWonlonbus, nuculis obo.ato cuneatis angulatis ala transverse, dila-  
 te <sup>ib</sup> <sup>ibus</sup> <sup>^</sup> In J m a , in montibus Fubi-yama altit 6000 7000 ped.  
 d & \*?rv\*teW\*TM£) Aca Veitchn Lindl 1 in Canl. Chron 13 Jan.  
 1861, Veitch\* in Garden. Chron. 5 April 1862, Journ of Hort 1861 p. 52,  
 Murr Sketch of the Conif of Japan, in Proceed of the Ro> Hort. SOL.  
 1862. p 147, Gord Suppl p. 56 Abies Veitchn Henk. et Hochst. Nadelholz.  
 ). i6(T. Can. Conif. edit 2 p. 309 Arbor Pini Abietis, teste Veitchio,  
 l.,cie. Folia 15-24 mill longi, 2 mill \ix lala Strobih omnium Pinuum hujus  
 settionis parviores, 4 7-6 cent longi, 2-2^ cent lati, iusco-nigrescentes.  
 Squamae 7-9 mill longae, 14-15 mill lat<E. Nuculae albiae, ala magis lata  
 quam longa, nuculis bievior, bbtussissune truncata, nigiescens Cum cl.  
 Roezl aliam Pini spenpm sub nomine P. Veitchn evulgavent, nomen spe-  
 ficum Veitchn, mutato genere, retinere non potui. (v. s.)

Sectio vi. TSUGA Endl. Conif. p. 83 — Picea sect. 2. dehncentes Lm/c in  
 linnaba lb. p. W3. — Abies sect.iv Peucoides et V Micropeuce Spach, Hist,  
 dps veq phantr 11. p. 423 et 424. — Tsuga Carr Conif p. i85j et edit 2  
 n 243. — Keteleena Carr m Rev. Hort. arm 1866. p. 449, et edit. 2. p. 260  
 il pseudotsuga Carr. Conif edit. 2 p. 256.

Amenta mascula axillaria vel terminaha. Strobilus pnm anno maturus,

squamae persistentes, bractee basi lepidio adnatae Folia plana, breviter petiolata, petiolis basi semiteretibus, pulvis ramo adnatis, decurrentibus, sursum incrassatis, cicutibus semiorbiculatis vel sublunatis

106 P ISUGA (Antoine Comf p 2} t Z2 f 2), arbor mediocns, coma pyramidah ramis hon/ontabbus supenonbus apice pendulis folns solitanis approximatis subdistichis brewbus ngidiuscuhs rectis lincanbus planis obtuse emarginatis vel aculiusculis ad margines Iambus, supra vmdihus et sulco levi longitudinah notatis subtus iuxta carinam utimque ftsen albida stiicta notatis, amentis masculis , strobilis parvis sohtanis pendulis ovato-ellipticis, squamis paucis linbcatis demum patuhs tonaceis oibiculanbus integns vel subemarginatis dor o comexiuscuhs ef loviter sluati^, hracteis latis tiuncalis inogulaiiter bifidis denticullto-cihdtis squami subtnplo brevionbus, nuculis parviuscuhs obovatis ala oblonga obtusa subaequahbus 5 In Japoniae boreahs piovincus Matsu et Dewa intei 37° 40° L B (\*>iebold), in Iaponia (Vpitch') Yokohima (Maxim ') Pinus Araragi Siebold in Verhan derhng van bet Batav Genotsch n p 12 Abies IsugaSich et Zucc H Jap 2 p 14 t 100 Gord Pin p H H(nk et Hoch<t Nadelhol/ p 140 Pinus Isnga Lndl (onif p 8J Abies Araragi Loud ex Henk et Hochst Tsuga Siebol In fair Comf p 186 Isuga 'SUJL A Mun Skotch of the Coml of Japan in Proceed of the Hort Soc 2 p >08 Jsuga vel logo Matsu Jipon Aibor 20 2o pedahs lubitu P Canadensis Kami juniores glabn Stiobili 20 2o mill lonpi 15 18 mill lati Squamde mediae 9-11 mill longab et fere latae, basi breviter unguiculatae NUCUIT? fuscae, ala albida (v s )

p nan a (Meb et 7iuc 1 c ), trunco humili, 2-3 pedali, folns abbreviatis Ihne seu I ime l&uga Jipon Colitur in hortis Japonide.

107 P CANAUENSIS (Linn sp pi 1421), aibor excelsa, coma pyramidah ramis horizon tali bus supenonbus apice pendulis, folns solitams appioximatis subdisticlns brevibus rectis ngidiuscuhs planis lincanbus obtusis integns ad margines scabnuscus, ba I in peolum brevem attenuatis, supra convexiusculis sulco IPM longitudimh notatis nitidis etvindibus subtus iuxta carinam pauum prominentem utnque fascia albidi notitis amentis masculis parvis bub^lohosis ovatisve stipitatis, stiobilis prvis solitarus in rimulo brevi jondulis ovah vel ovito-oblongis oblusi-\*, squamis paucis imbricatis subconaceis obovato-orbiculanbus dorso convexiuscuhs et subiugosis margine sub lente eroso denticulatis, bracteis late ovatis truncato subbihdis obtusis \el acuminatis ciliato denticulatis squama 3-4-plo bievionbus, nuculis parvis oblongis basi angustatis ala oblongi obtusa concolon plus quam duplo bievionbus \$ In Ameicaboicah fngidjore aSinu Hudsonis ad raroluidm borealera, Montes Scopulosos et sinum Sitka<sup>9</sup> difTusa in Canada' Nova Biunsvigia' Nova Scotia' in distinctibus Vermont, Miine' et Now Hampshne' cum Pino nigri vasta et dcnsa pmeta eflormans, in Ohio (Diego') inde austrum versus rauror, in jugo Alleghany et in Massachusetts coti\dlidium loca frigida mcolit — Lamb Pin edit 2 torn 1 p 48 t 32, et edit 1 p 79 t 45, Antoine Comf p 80 t 32 f 3, Endl Comf p 86 Abies loins sohtanis confertis obtusis membranaceis Gronov Virgin p 191 P amencana Duroi Obs bot p 41 Abies Canadensis Michxf Arbr Porest de PAMcr sept 1 p 137 t 13 Rich Comf p 77 t 17 f 2 Bongard V6R do Sitka p 45, Pinet Woburn p 129, Loud Arb Brit 2m tncyrl of trees 103T f 193i, Gord Pin p 14 Henk et Hochst Nadelhob p 1 )3 Picea Canadensis Link m Lmnaea 15 p 524 Tsuga i anadensis Carr Comf p 189 Hemlock, Angl Amenc Verusse Gall -Canad Arbor 70 80 ped alta ramis inferioiibus saepe nivium pondere iractis, coitice aatate cineieo conano, ligno albo parum resinoso Kamuli juniores pubeiulo huti boha. 10 12 mill longd, 1J mill lata Amonta mascula 3 3} mill longa et fere lata Stiobili 17-20 mill longi, 10 12 mill hti Squamae mediae 10-13 mill longae, 9 10 mill latae Nuculae pallidae, ala tenui ^v v)

108 P MEHTENSIANA (Bongard! Veg dp bitka p 45), arbor excel si, coma py i imidih nmis hoiitontahbus, suppnonbus ipice pendulis, folns solitanis approximatis subdistichis brevibus loctis m(libus lincanbus planis obtusis uitegns ad margines crebre ciliatis basi in petiolum bievem attenuatis, su-

pra plan is sulco laevi longitudinah notatis et lacte vindibus, subius juxta can nani vix prommentem utnnque fascia albida angusla notatis, amentis , strobilis parvis solitarns sessilibus' pendulis ovah oblongis oblongisve obtu siusculis, squamis paucis lmbntatis demum patentibus conacpo-cartilagmeis oblongo-obovatis dorso convexiusculis et subiugosis ap ce rotundatis margme sub lente erosulo uholatis bracteis latis subtnlobis ciliato-denticulaiis squa mis subtuplo brevionbus, nuculis minutis oblongis ala oblonga concolon 3 4 plo brevioribus 5 I<sup>n</sup> America boreali occidentali In insula Sitka (Mertens' herb Msch 1), in n sula Vancouver (C. B Wood'), in valle fl Columbiaead 1300 ped elovat et Sumass Prune 49° L B (Lyall!), in Montibus scopulosis (Jeffrey I). III California Coast Range (Bolander'), ad upas fl Frazcn Cahfor niae (Bridges') — Endl Conif p 111 P Canadensis Hook ' Fl bor amenc 2 p 164 ex parte Abies Mrcrtensiana Lindl et Gord. Journ of the Hoit Soc D p 211, Cirr Conif p 232, Gord ' Pin 18 et ^uppl p 12, A Mun ' On the syn of vir lonif p 6, Henk et Hochst Nadelholz p li2 Abies taxifo ha Jeffr ex Murr Abies Bndgesn Kellog in Proceed of the Cali fom Acad ofnat sc 2 p 37 Abies Albertiana A Mun 1 c p 9, Laws. Pinet Brit Part 12 cum icon Isuga Mertensiana Cair Conif edit 2 p 2S0 *Lucatzin* Indor Cahfor , *Califorman Hemlock Spruce* Angl Amenc Arboi in regiombus australionbus 100 1 JO pod alta, pulchra, feie P Canadensis facie Ramuli juniores albidi, longiuscule piloso hirti Folia 13 16 mill longa, 2} mill vix lata Strobili 18 2> mill longi, 8 IS mill lati Squamae medi\*e 9-12 mill longae, 6 8 mill latae Nuculae et ala palbdae (v v )

109 P DUMOSA (Don Fl Nepal p 5-), arber excelha, coma subpyamidah patula ramis patentissimis subpendulisve, folus solitarns valde approximatis subdishchis patulis brevibus n, idulis planis linearibus oblusis basi in petio lum bievem subcanahculatum attonuatis ad margmes subreflexos serrulatis, supra convexiusculis vindibus et sulco levi lot gitudinah notaus, subtus juxta cannim prommentem utnnque lacteo glaucescentibus, amentis misculis parvis subglobosis stipitauis luho subbrevionbus slrobilis parvis sohtaius sessihbus subpendulis oblongo ovatis obtusis, squamis paucis laxiuscule im bueatis conacco cartilagineis orbiculant us, dorso convexiusculis et rugulosis, mirginesub lente denticulato ciliolatis, bractea 1 ita margine supenore rotun dita vel subtruncata ciliato fimbriata vel emarginata et cuspidate squimis J 4-plo bievio re nucus puvis oblongis ala oblonga obtusa ten 1 subtuplo brevioribus ^ In Himalaya\* regione temjjerata inter 8 10 000 pedes in BouUn (W S Web'). Gnihth'), in Nepalia in alpe Gosaingthan (Wall n 6001), Sikkim (Hook fil et Thorns') —Lamb Pin ed t 2 vol 2 p 7, etedit 3 p 80 t 46 P decidua Wall msc P Biunomana Wall PI asiat rar 3 p 24 t 247, Antoine Gonif p 82 t 32 1 1, Indl Lonif p 84. Abies Brunoniana Lindl in Penny Cyclop 1 n 9, Madden in Journ of the Hort Soc 6 p 24> Gord Pin p 13 et Suppl p 9, Henk et Hochsi Nadelholz p l>0 Abies dumosa Loud Aib bnt 4 2J25 f 2213 2234, Fncycl of trees 1036 f 19\*b 1937 Tsupa Brunoniana Carr Comf p 188 *lanq Sing* Boutan , *Silloo Uatarhee* Nepal Arl or 70 80 pedahs, fere P Ce drus facie sed ramis minus approximatis nmulis lunionbus ferrugineo-pu beruhs Folia 20 28 mill longa, 21 mill lata Strobili 20 2o mill longi, 12 1^ mill lati bqum<e mediae 10 12 mill longae et fere latae tfuculae et ala pallidne (v v )

110 P PATTONIANA aibor excelsa, coma pyramidah, ramis horizontahbus, folus solitarns conlertis undique versis\* vel subfasciculatis brevibus vix riffi diuscuhs lmeariibus obtusiuscuhs integris, ad margines Jaevibus vel apicem versus serrulatis basi in petiolum brevissimum attenuatis, supra laete vindibus et nervo longitudinah vix prominente obtuso notatis, subtus juxta cannam prommentem obtusam ulnnque punclis albidis sub vitro praeditis strobilis so litiins pendulis ovoideo vel oblongo cyhndiaceis obtusiuscuhs squamis late imbricatis domura subdeflexis conaceis oibitulan-cunealis, doiso convexius culis et rugosis margine rotundato sub vitro erosulo ciliolatis bractea lata teie orbiculata dentito-nliata breviter cuspidata squamis plusquam duplo bieiore nuwilis parviusculis obo)alis ah oblonga obtusa subtnplo lievio nbus ) In America bcieili occidentali in Cascade Mountuns Lat 42 44° ad

6000 ped.elev. (Jeffrey' Newbeiry), m Cahornide Scot's Mountain, Lat 41<sup>U</sup>, 20' (W Murr.i), m Mount Baker Range (Jeffrey'), in editionbus Sierrae Nevadae (Lobb). Abie>> Pattomi et Pattoniana Jeffrey 1 m Bot Exped to Oregon p. 1 cum icon Abies Pattomi Gord.' Pin p. 10. et buppl. p. 6, Henk. et Hochst. Nadelholz. p 151. Abies WiUiamsonn Newberry in Williamson's Report 6 p. 54 t. 7. Picea Caliioinica Carr.? Conif p. 261. Abies Hookenana A Murr I in kdinb. New Philos. Jouin. Apr. 18o5, Laws. Pinet bnt. Pait. 10 cum icon. Abies Hookenana et Pattoniana A. Muir ' On the Syn of vai. Conif. p. 12 et 13, Laws Pinet but part 3 cum icon Tsuga Hookenana Can. Comf edit. 2 p 252 Arbor pulchcma, 100 interdum 130 pedes alta, Pini Deodarae, teste Lobbio, habitu quodammodo affinis. Ramuh jumoies Uirtuh. Folia e luteo-vindid (iNewberry), 15-19 mill longa, 1|-1j mill, lata Strobili purpurascetes, 5^-7 cent, longi, 2 cent, fere lati bquamae mediae 10-12 mill, longae, 12 mill, lere latae, hiantes, praesertim supremae subdeflexae. (v. s.)

111. P. DOUGLASU (Sabm. msc), arbor gigantea. comi pyramidah, ramis verticillatis horizontalibus, ramuhs peruluhs, folns solitanis conlertis subdistichis rectis vel ourvuhs n^idiuscuhs plains linearibus obtusis integns supra basin orlnuculan-dilatatae contoilis, supra fusco-vmdibus nmdis et sulco laevi longitudinali notatis, subtus juxta cannam vix prominentem et complanatam utnque fascia albida notatis, amentis mascuhs solitanis approximatis ovali-oblongis obtusis folns subdimidio brevionibus, bractearum anthenferarum apice breviter lanceolato acutiusculo erecto, strobihis parviusuulis in ramulo brevi vel brevissimo penduhs solitanis subaggregatis oblongo-cyhydraceis obtusiusculis, squamis imbricatis subronaceis concavis orbiculat-subrhombis obtusissimis integns laevibus, bractea exserti dilatato-bifida, lacinus acuminatis margine extenoie eioso-denticulatis, nervo medio in cusp idem lacinas superantem producto, squamis longiore, nuculis ovah-oblongis utrmque acutis ala oblonga obtusa paulo bievionibus. § In \menca boreall-occidentah ab insula Vancouver et fl Columbia nps ad Sieiram Nevadam Cahlorniai nee non in Novo Mexico mtei 52 et 43° L. B. in litore mans et montium convalhub vastas et densissimas syhas efformans . in insula Vancouver (Herb Mus. Horent.), juxta npas Coluubiae (Dougl. Lyall'), Cascade Mountains (Newberr. Lyall'), Rocky Mountains (Parry'), in Sierra Nevada et prope fl Willamotte (Newben.), lomaes bay (Bolandei<sup>1</sup>), Colorado (Engelm '<sup>1</sup>)» in Novo Mexico (C Wright' pi. Nov Mex. n 1885), in Mexico pi ope Moran (Hartw.! n. 439), et Real del Monte (C Lhienb n. 919. Roezl') P taxifolia Lamb. Pin edit 2 p 51. t 3j. et edit. 3. p. 82. t. 47, Pursh Fl. BOL Amer 2 p. 640 P. Douglasn Lamb Pin. edit 2. vol 3. t. 90, Antoin. Comi p 84. t. 66. f 3, Hook I Fl. Boi. Amenc 2. p. 162. t 183, Nutt. Noith Amenc sylv. 3. p 129 t 115, Endl.' Comf. p. 87. Abie> Douglasn Idndl. in Penny Cjclop. 1 p. 32 Loud. Aib. but. 4. 2319. f. 2230, Encycl. Of trees 1033. f. 1932, Pinet Woburn. p. 127. t. 45; Newberry in Wilbamsn's Report 6 p- 54. t. 8, Gord.' Pin. p 15. et Suppl p 10, Henk. et Hochst. Nadelholz. p. 155. Picea Douglasn Link in Lmnaea 15. p. 524. Tsuga Douglasn Carr. Comf. p 192. Tsuga Lindleyana Roezl 1 Catal. de gram des Comf. Mexic. p. 8j Garr. Conil edit 2. p. 254. Abies Douglasn 'Standishiana Gord ' buppl p. 10 Abies Californica hort ahq Pseudotsuga Douglasn Can Comf edit. 2. p. 256 Douglas Spruce Angl -Amenc Arbor ad litora Mans Pacifici gigantea, 300 pedes et ultra alta, trunco recti^simo inferne saepe denudato, superne comam pyramidalem acutam gerens, hgno rubente. albarno albido, in Mexico 30-100-pedalis. Folia 22-28 mill longa, 1 i mill lata. Amenta mascula sohtana, erecto-patuaia, 13-15 mill, longa, 5-6 mill, lata, a basi ad medium perulis castaneis longe ciliatis involucrata. Strobib 5-8 cent longi, 3-3j cent lati Squamae mediae 15-25 mill, longae et fere latae. NuculaB b-7 mill, longae, 3-4 mill, latae. (v. v.)

P, *pendula*, ram is pendulis. In bortis. Abies taxifoha pendula Mass6 in Flor. des Serr. 8. p. 186.

112. P- FORTUMEL, arbor excelsa, coma ampla, ramis verticillatis horizontalibus, fohis solitanis appioximatis subdistichis patentibus ngidis rectis linearibus pla-

nis supra basin toitis, ramulorum inferiorum apice cuspidato-mucronatis »ub-pungentibus, ramulorum superiorum obtusis et iere lotuudatis, omnibus supra vindibus nitidis et nervo longitudinali vix prominenti notatis, subtus secus cannam vix prominentem utrinque palhde vindibus, amentis masculis numerosis subaggregatis parvis hneanbus obtusis folio brevionbu>>, strobilis solitarns in ramulo erectis cyhndraceis vel oblongis ovahbusve obtusis, squamis numerosis imbncatis conacpo-lignosis persi^tentibus e basi cuneata dilatato suborbicularibus, dorso rugosis, margine supenoie rotundato, marginibus laterahbus submembranaceis dentdto-lacens, bractea intera lineam superne suborbLculan emarginata et cuspidau dentato lacera longionbus, nuculis magnis obovato-oblongis ala margine supenore rotundata paulo bievisionbus. In China ad templum prope Foo-chow-foo invenit cl. Fortune (Fort ' pi. exsicc. n 50-52') Abies Fortunei Lindl. in Garden Chron. 1860, p 311; Henk. et Hochst. Nadelholz p. 183. Abies Jezoensis Lindl. in Paxton's Flower Garden Mai 1850. p. 43 et in Gardn Chion. 1850. p. 311, Flor des Serr. vol. 7 p 223 et 9 p 7 t. 858. cum icone, Gord Pin. p 17 non Sieb Picea Fortunei Murr. bketch of the Gonif. of Japan in Proceed of the Hort. boc 1862. p. 421 Keteleena Fortunei Garr Rev Hort ann 1866 cum icon, et Conif. edit 2 p. 260 Arbor, quam cl Fortuneus prope Foo fhow-Foo tantum vidit, habitu P Cedrus L Folia 25-30 mill, longa, 2 1-3 7 mill lata Amenta mascula 6 8 mill longa, 2 mill, vix lata. Strobili 7-18 cent, longi, 3 ^ -5 cent ^lati, pnum purpureo-violacei, dein fusciscenti-purpurei. Squamae mediae 26-30 mill longde, 24-32 mill lat<£. Nuculae.fusciscentes, 13 1) mill longae, 6-7 mill, latae dla pallide flava, margine intenore recto, extenore rotundato, erosulo. (v. v)

### *Species dubix.*

- P. DEFLEXA Torrey Report on the U. States and Mexican Boundary by W. H. Emory vol 2. ann. 1859. p. 209 In Andibus California (Parry). Sectionis Pineae
- P. KAMTSCHATIGA Endl. Gonif p. 135 In Kamtschatka ad Portum SS. Petri et Pauli. Abies Kamtschatica Ruprecht in Beitr. zui Pflanzenkund. des Russ. Reiches 2 p. 57 SeUionis Lanx A Pinu Dahunca strobilis quidquam majonbus et squamarum configuratione differre, et a P. leptolepi dnrsa esse dicitur. Endl
- <sup>fi</sup>. MAXIMOWICZII Picea Maximowiczu Ind. Sem Hort. Pelropoht. 1860. p. 33 Abies Maximowiczu Rob Neumann Cat 1860.
- P JAPONICA Picea Japonica Reg. Ind. Sem. Hort Petrop. 1865. p. 33
- <sup>J</sup> FINHONNOSKIANA Abies Finhonnoskiana Rob. Neum Cat. 1865.
- P. TSCHONOSKIANA. Abies T-,chonoskiana Reg in Ind. Sem. Hort. Petrop 1860, p. 32.
- Genus Veitchia, quod cl Lindleyus, ex ramulis a cl. Veitchio e Japonia allatis in Gardeners Chronicle Jun 12. 1861 evulgavit, suadente ipso cl. auctore, qui me olim monuit, tantum aliquise hujus sectionis Pirn speciei monstruositatem lefert ut ego ipse in herbano Lindleyano anno 1862 observaie potui, unde Veitchia Japonica delenda est

### *Species exclus.*

- P. ABIES Lour. = Cunninghamia Sinensis R. Biown.
- P ARAUCANA Molina = Araucana imbncata Pa von.
- P. CUPRESSOIDES Molina. = Libocedrus tetragona Endl.
- P. DAMMARA Lamb. =s Dammara alba Rumph.
- P. DioGA Veil. = Araucana Brasihensis Rich.
- P. LANCEOLATA Lamb. = Cunninghamia Sinensis R. Br.
- P. VERTICILLATA Sieb. = Sciadopytis verticillata bieb. et Zucc.

## Subtnbus III. TAXODIEJE.

Flores monoici. Amenta mascula. Bracteae axi spiralliter insertae. AntheraB 2-5, raro 9, simplici ordme dispositae, uniloculares, ioculo longitudinaliter dehiscencie. Srobili squamae plures, axi spiralliter insertae, ranssime spira contracta verticillatae, persistentes, ranus ab axi solutae. Nuculose 3-9, ranssime gemmae vel abortu sohtancL, erectae, patentes vel pendulae, apterae, angulatae, vel alatae, ahs ut plumum 2, angustis. Gotyledones 2, raro profunde partitde, unde videntur 4-9, germinatione epigeae. — Folia sparsa sive spiralliter mserta, Interdum subdistichd, ranssime m apice ramulorum plura, verticillata, saepius lineana, raro squamiformia.

## A Strobih squamae spiralliter dispositae

IV CUNNINGHAMIA R Brown in Rich Comf p 149 C 18, Endl Gen pi n 17% et Comf p 192, Carr Comf p no, Gord Pin p 54, lfenk et Jlochst Nadelholz, p 217 — Pini species Lamb Pin edit 1 vol 1 p 52 — Abietis speucs D( f Catal Uort Pans edit j p JSG — Belis Salisb m linn Tram. & p 31a — Raxopytis Nelson Pin p 97

Flores in diversis ramuhs monoici. Amenta mascula tcrminaha, plura, aggregate capitata, oblongo cyhndi icea, folns dbbreviatis cincta Bracteae plures, in xii filiformi spirahtr inseitae, stipitatae, ovato orbiculares, dentato-fimbnatae, subtus staminigerx Antherae 3-2, oblongdB, unilouulares, Ioculo postice longitudinaliter dehiscente Amenta feminea termmaha, 2 3 vel plura subf iscicu] it i subsessilia, subccrnu i, ovata, apice rotundat i, basi folns abbreviate cincta Squimae plures, spiralliter insertae, arete imbncatae, e bractei late ovata, mucronati lepidioque bnvissimo, carnosulo, subtulobo adnatis, compositae, liberae Pistilla 3, pirva, subhon/ontilid Ovanum lere orbiculare, utnnque convexum, marginatum, maigme obtuso Stylus bnvissimus, subnullus Sti^uia feie oibiculare, pervium. Strobilus ovato globosus Squamae plures, in axi spirahtr insertae, imbricatde, apice laxe patulae, conaceas, per-as-tentes, ovatae vel suborbiculares, mucronatae, infeine cuneatas lepidioque adnato, apice subtnlobo vix libero subduplo longiores NuculaB 3, erectiusculae vel erectaa, squamae adpressae, margine inter se superpositae, compressae, cum ala ovaes vel ovatae, apice emarginatae Pericarpium crustaccum, undique in alam angustam productum. Embryo in axi albuminis cainosi ejUsd^m longitudine Gotyledones 2, obtusae Ridelicula cylindracea, obtusa — Arbor chmensis, sempervirens Rami pn-marn verticillati, fere horizontals, secundarn distichi FoJia conferti, alterna, distiche p itentia vel [ att ntissima con icea, i igida, longa, linean-lanfolata vel linean-falcata, mucronato-pungentia, basi decurrntia, marginc vix serrulata, supra viridia et fere lucida, subtus juxta nervuin et marginem fascia albida latiu^cula notata.

C SINENSIS (R Brown in Rich Comf p 80 t 18 f 3). 5 In China austriore (Iacob Cunningh, Siaunton, Gaudich ' n 136, Fortune<sup>1</sup> n A3) et Cochinchina (Lour Gaudich 1) In Japonia culta — Hook. Bot Mag t 2743, Loud Arb But 4 244S f 2506 2307, Sieb et Tucc H Jap 2 P 7 t 103 104, Indl Comf p 193, Can Comf p 171, Gord Pin p W, Henk et Hochst Nadelholz p^ 218 Abies major sinensis, pectinatis Taxi folns subtus caesns, coins giandionbus sursum ngentibus, foliorum et squamum apicuhs spinosis Plukenet Amalth 1 t 351 f 1. Pinus Abies Loui fct Coch I p 270 exel svn P lanceohti Limb Pin edit 1 rol I.

p. 52. t. 34. *Abies lanceolata* Desf. Cat. Hort. Paris, edit. 3. p. 356. *Cunninghamia lanceolata* Lamb. Pin. edit. 2. p. 59. t. 37, et edit. 3. p. 96. t. 53. *Belis jaculifolia* Salisb. in Linn. Trans. 8. sp. 315. *Belis lanceolata* Sweet Hort. brit. p. 475. *Raxopytis Cunninghamii* Nelson Pin. p. 97. *Araucaria lanceolata* hort. *Sanshu* Chinens. *Liu-kiu-momi* et *Olanda-momi* Japon. Arbor 30-40-pedalis, *Araucariae Brasiliensis* facie. Folia 3-7 cent, longa, 2-4 mill. lata. Amenta mascula 10-15 mill, longa, 3<sup>^</sup>-4 mill, lata, lutca. Strobilus 3-4 cent, longus, 3<sup>^</sup>-4 cent, latus. Squamae mediae 15-18 mill, longae et fere latae. Nuculae 6-7 mill, longae, 5-6 mill, latae?, uti squamae, luteo-fuscae. (v. v.)

P, *glauca*, foliis ramulorum glaucis. C. *Sinensis glauca* hort.

### *Species exclusae.*

C SELAGINOIDES Zucc. = *Arthrotaxis selaginoides* Don.

C. GUPRESSOIDES Zucc. = *Arthrotaxis cupressoides* Don.

V. ARTHROTAXIS Don in Linn. Trans. 18. p. 171; Hook. Icon. t. 559. 573. 574; Hook. fil. in tond. Journ. of Bot. 4. p. 148; Endl. Conif. p. 193; Carr. Conif. p. 158; Gord. Pin. p. 29; Henk. et Hochst. Nadelholz. p. 219. — *Cunninghamia* sp. Zucc. in Sieb. Fl. Jap. 2. p. 9 in adnot.

Flores in diversis ramis monoici. Amenta mascula terminalia, solitaria, ovali-oblonga vel ovata, basi foliis pluribus cincta. Bractee in axi spiraliter insertae, imbricatae, semipeltatas, ovaes vel oblongae, margine denticulatae vel subintegrae, subtus staminigerae. Antherae 2, divergentes, oblongae, uniloculares, loculo longitudinaliter dehiscente. Amenta feminea solitaria terminalia subglobosa. Squamae plures, in axi spiraliter insertae, imbricatae, patulae, e bractea foiiacea lepidioque brevior, crasso adnatis compositae. Pistilla 3-6, lepidio inserta, pendula. Ovarium compressum. Stylus brevis, subcompressus. Stigma suborbiculare, pervium. Strobilus subglobosus. Squamae plures, in axi spiraliter insertae, imbricatae, coriaceo-lignosae, basi angustato-stipitatae, apice dilatatae, bractea lepidium superante. Nuculae 3-6, raro pauciores, e lepidio pendulae, compressae. Pericarpium vix crustaceum, utrinque in alam membranaceam latiusculam productum. Embryo in axi aluminis cardosi parci, cotyledonibus 2 (Hook, fil.).—Arbores vel arbuscula<sup>1</sup>. *Tasmanica*, sempervirentes, erectae vel depressae, ramosissimae, lycopodiformes. Rami teretes, foliis arete vel laxe imbricatis tecti. Folia basi vel maxima parte adnata. Gemmae nuda.

1. A. CUPRESSOIDES (Don in Linn. Trans. 18. p. 173. tab. 13. F. 2), arbor monoica ramosissima, ramis ascendentibus ramulisque confertis longiusculis tenuibus, foliis spiraliter dispositis arete imbricatis carnosulis adnatis apice tantum liberis ibique planiusculis ovato-rhomboides vel ovato-lanceolatis obtusiusculis, dorso acutiusculis carinatis viridibus, margine albido sub vitro vix ciliolatis, amentis masculis in ramulo longiusculo erectis oblongo-ovalibus obtusis basi foliis latiusculis obtusissimis cinctis, bracteis in axi spiraliter insertis imbricatis? ovalibus obtusis, margine denticulato-fimbriato, strobilis in ramulo longo subcernuis globoso-ovatis, squamis in axi spiraliter insertis imbricatis coriaceo-lignosis ovato-triangularibus acutiusculis basi angustatis et stipitatis, bractee apice libero lepidium crassum adnatum superante, nuculae sub-3 oblongo-linearibus compressis cum alis nuculae latitudinem superantibus quadraio-orbicularibus apice obtusis. J In *Tasmania* humidis secus fluvios ad lacus : Lake St.-Clair, Pine River prope Marlborough (Gunn n. 365), Pine River (Hook, fil.), in *Tasmania* (G. Stuart). — Hook ! Icon t. 559; Endl. Conif. p. 196; Hook, fil. in Hook. Lond. Journ. of Bot. 4\* p. 148; Flor. of Tasman. p. 354\*; Can. Conif. p. 161; Gord. Pin ! p. 30, et Suppl. p. 16; Henk. et Hochst. Nadelholz. p. 220. *Cunninghamia cupressoides*



- Zucc. in Sieb. Pl. Jap. 2. p. 9. *Arthrotaxi3 imbricata* Maule ex Gord. *Arthrotaxis selaginoides* hort. ahq. *Arbor 25-30* (Gunn), 20-45 pedes (Archer) alta. Rami teretes ascendentes; ramuli patuli erective, subdistichi, conferti, longiusculi. Amenta mascula basi foliis pluribus oblongis obtusis concavis imbricatis cincta, 4-5 mill, longa, 2 j mill, fere lata, in sicco e luteo-fuscescentia. Strobili 8-10 mill, longi et fere lati. Nuculae parvae, compressae, fuscescentes, 2 mill, vix longs et latae, basi subtruncatae, apice obtusae, subrotundatae. (v. v. herbam, sed flores et strobilos s.)
2. *A. LAXIFOLIA* (Hook ! Icon. tab. 573), arbor raonoica? ramosissima, ramulis erectis longiusculis tenuibus, foliis spiraliter dispositis laxe imbricatis carnosulis adnatis superne liberis crecto-incurvatis ovato-vel oblongo-lanceolatis acutis dorso conyexo-carinatis, amentis masculis. . . . ., strobilis globoso-ovatis, squamis in axi spiraliter insert is imbricatis coriaceo-lignosis ovatis acutis basi angustatis et stipitatis, bractee apice libero lepidium crassum adnatum superante, nuculis sub-4 sublinearibus compressis cum alis spongiosis nuculae latitudinem subduplo superantibus late ovato-ovalibus obtusis. § In Tasmania ad cataractas Meandris aliorumque fluviorum prope verticem Montium occidentalium ad 4000 ped. circiter elevationem (Gunn! n.369! Archer!). *Arthrotaxis laxifolia* Hook, fil. in Lond. Journ. of Bot. 4. p. 149, et Fl. of Tasm. p. 354; Endl. Conif. p. 196; Carr. Conif. p. 162; Gord. Pin. p. 30, et Suppl. p. 16. *Arthrotaxis Doniana* Park. Maule ex Gord.; Henk. et Hochst. Nadelhölz. p. 221. Species in plantis vivis melius illustranda. *Arbuscula 25-30 ped. aita* (Archer). *Arthrotaxi cupressoidi* similis. Ramuli tenues, erecti, subdichotomi, a foliis undique tecti. Folia in ramis longiora, magis decurrentia et laxius imbricata, 8-10 mill, longa, 3J-4 mill, lata, in ramulis 5-6 mill, longa. 2-2^ mill. lata. Strobili fusci, 16-18 mill, longi 15-16 mill. lati. Squamae sub-15, bractea lepidio vix angustior sed longior. Nuculae- 5-5 J mill, longte, 4-4^ mill, latae, alis spongiosis, rugosis. (v. s.)
3. *A. SELAGINOIDES* (Don in Linn. Trans. 18. p. 172. tab. 14), arbor monoica ramosissima, ramulis erecto-patulis erective breviusculis crassis, foliis spiraliter dispositis laxiuscule imbricatis carnosulis basi taciturn adnatis reliqua parte liberis erecto-incurvatis ianceolato-acuminatis, dorso convexo-carinatis, facie planis, marginibus acutiusculis, amentis masculis in ramulo breviusculo erectis ovatis obtusiusculis basi foliis Ianceolato-acuminatis cinctis, bracteis in axi spiraliter insertis imbricatis oblongis acutiusculis subintegris, strobilis in ramulo breviusculo erectis globoso-ovatis, squamis in axi spiraliter insertis imbricatis coriaceo-lignosis ovatis acuminatis basi angustatis et stipitatis, bractee parte superiore libera lepidium crassum adnatum multo superante, nuculis 3-2 oblongo-linearibus compressis cum alis nuculae latitudinem superantibus quadrato-orbicularibus, apice subemarginatis. § Ad cataractas Meandri ad 4000 ped. elevat, in rupibus basalficis, nee non ad rivulos montium occidentalium Tasmannias (Gunn n. 368!), ad ripas fluviorum regionis borealis, Macquarie River, etc. (Milligan! n. 774) — Hook.! Icon. t. 574; Endl.! Conif. p. 194; Hook. fil. in Lond. Journ. of Bot. 4. p. 148; Flor. of Tasman. p. 354; Carr. Conif. p. 159; Gord. Pin. p. 31; Henk. et Hochst. Nadelhölz. p. 220. *Cunninghamia selaginoides* Zucc. in Sieb. Fl. Jap. 2. p. 9 in adn. *A. alpina* Van Houtt. *Arbuscula 10-20 pedes* (Gunn) vel arbor 45 pedes (Archer) alta, cortice suberoso rimoso. Folia laete viridia (Gunn), 8-12 mill, basi non supputata longa, 2-J-3 mill, vix lata. Amenta mascula 4-5 mill. longa 2-j-3 mill, fere lata, in sicco luteo-fusca. Strobili fusci, 20-22 mill, longi et fere lati, unde majores quam in *Arthr. cupressoides*. Nuculae 3-3 i mill, longae et latae, fuses, alae dilutiores. (v. s.)

*Species dubia.*

- A. Gunneana* Hook.? in Carr. Conif. edit. 2. p. 207.

*Species exclusas.*

- A. AHAUCARIOIDES* Brongn. = *Dacrydium araucarioides* Brongn. et Gris.  
*A. TBTRAGONA* Hook. = *Microcachrys tetragona* Hoak. fil. et *Pherosphaera Hookeriana* Arch, ex parte.

VI. SCIADOPYTIS *Sieb. et Zucc. Fl. Jap. 2. p. 1. tab. 102; Endl. Conif. p. 198; Carr. Conif. p. 173; Gord. Pin. p. 301.*— *Taxi spec. Thunb. Fl. Jap. p. 276.*  
— *Pini spec. Siebold in Verhand. van het. Batav. Genotsch. 12. p. 12.*

Flores in diversis ramis monoici? Amenta masculina terminalia, subsessilia, capitato-aggregata, singula bractea arida perulisque basi cincta. Bractee plures, dense imbricatae, subpeltatae, late ovatae, margine subcrenulatae, subtus staminigerae. Antherae 2, oblongae, uniloculares, loculo longitudinaliter dehiscente. Amenta feminea solitaria, terminalia, basi perulis cincta. Squamae plures, axi spiraliter insertae, dense imbricatae, e bractea membranacea lepidioque carnosio subbreuiore simul adnatis compositae, liberae Pistilla 6-9, collateralia, margine sese tegentia. Ovarium ovato-oblongum, compressura. Stylus brevissimus. Stigma obliquum, pervium. Strobilus ovato-oblongus, secundo anno maturescens. Squamas plures, in axi spiraliter insertae, dense imbricatae, lignoso-coriaceae, e basi late cuneata in discum semiorbicularem rugosum, margine bracteam adnatae libero, plica lata transversali inferne notatum dilatatae. Nuculae 6-9, erectae, vel in squamis inferioribus subpendulae, squama adpressae et infoveolis ejusdemreceptas, ovaes, utrinque convexiusculae. Pericarpium coriaceum, utrinque in alam angustam, apice profunde emarginatam productum. Embryo in axi albuminis carnosus antitropus.— Arbor japonica excelsa, trunco erecto, ligno compacto albedo, cortice cinereo-fuscescente rimoso secedente. Rami alterni vel subverticillati, teretes. Ramuli crebre incrassato-nodosi, ad nodos foliiferi. Folia plura, in apice et prope apicem ramulorum verticillata, et in umbraculi modum horizontanter expansa, coriacea, longa, linearia.

S. VERTICILLATA (*Sieb. et Zucc. Fl. Jap. 2. p. 1. tab. 1. 2*). In regionibus orientalibus insulae Nippon Japonise, rarius in insula Sikok, passim per omnem Japoniam in lucis teraplorum culta. In Monte Kojasan Provinciae Rii (*Sieb. l.*), in collibus prope Konagawa (*Oldham! Scholtmuller! n. 167*), in Nippon (*Veitch! Maxim! Perfetti!*) — *Endl. Conif. p. 198; Carr. Conif. p. 174; Flor. des Serr. 14. p. 241-254, t. 1483-86; Gord. Pin. p. 302 et Suppl. p. 95; Murr. in Proceed. of the Koy. Hort. soc. '2. p. 719; Henk. et Hochst. Nadelholz. p. 201. Taxus verticillata Thunb. Fl. Jap. p. 276. excl. syn. Kaempf.; Spach Hist. des vég. phané. 11. p. 296. Pinus verticillata Sieb. in Verhand. van het Batav. Genotsch. I 2. p. 12. Kōja-Maki Japon. Kin Sung et Kin Sjo Chin. Arbor 80-140 pedes alta, coma pyramidalis. Rami horizontales, superiores patentes. Folia in nodis ramulorum 20-40 verticillata, patentissima, linearia, apice obtusa et subbidentata, viridia, supra nitidiuscula et sulco profundo exarata, subtus sulco profundo stricto niveo notata, marginibus obtusis, 9-15 cent, longa, 4-4½ mill. lata. Strobili in ramulo crasso brevi erecti, 7-10 cent, longi, 3½-5 cent, lati, juniores ovato-subrotundi, maturi ovato-oblongi obtusissimi. Squamae arete imbricatae, demum hiantes, mediae patentes, superiores erectae, inferiores subreflexae, fusco-rubentes, 3-4 cent, latae. Nuculae squamis subduplo breviores, 10-13 mill, longae, 7-8 mill, latae, undique badiae: alae nuculae multo angustiores (v. v.).*

VII. SEQUOIA *Endl. Conif. p. 197; Torrey in Repert. of Bot. of Whipple. Expedit. p. 84; Carr. Conif. p. 163; Gord. Pin. p. 303 et pi. auct.*— *Taxodii sive Lamb. Pin. edit. 2. p. 107. t. 48; Window in Californ. Farm, for 1854.*— *Welling-tonia Lindl. in Gard. Chronicle 1853. p. 823; Gord. Pin. p. 330.*— *Washingtonia Winslow I. c.*— *Subbotinae? spec. Spach Hist. des vég. phané. r. vol. 11. p. 533.*

Flores in diversis ramulis monoici. Amenta masculina axillaria, subteretia, subglobosa, perulata. Bractee in axi spiraliter insertae, approximatae, subpeltatae, late ovatae, acutae vel acuminatae, margine lacerae et

subdenticuldae, subtus stammigerae. Antherae 4-5, in squamis supenonbus 3, subglobo angulatae, uniloculares, loculo longitudinater dehiscente Amenta feminea in ramulo solitane terminalia, erecta. Squamae plures, spirahter insertae, imbricatae, e bractea erecto-patula vel ascendente lepidioque lato crasso crenulato apicem bractee haud attingente adnatis compositaB, hberae Pistilla 5-7, imbricata, subhonzontaha aut erecta. Ovanum oblongum, subcompressum Stylus crassiusculus, longiusculus, tubteres Stigma pervium, suborbiculare. Strobilus ovaliglobosus vel ovdhs Squamae plures, in axi spirahter msertae approximataB, demum hiantes, persistentes, hgnosae, peltataB, e basi cuneata apice in discum fere trapezoideum rugosum transverse cannatum in medio umbilicatum et apice bractee adnatae hbero longiusculo recto mucronatum dilatdae. Nuculae 3-7, saepius 5, squama adpressae, margine inter se superpositae, oblongo-hneares, compressae Pencarpium subcrustdceum, utnnque m dlam angustissimdm vel latiusculam basi subemarginatam productum Embryo in axi albuminis carnosi antitropus, ejusdem fere longitudine, cotyledonibus 2, bi-tnpartitis, unde videntur 4-6, radícula teretiuscula, supera.—Arbores Cahformcaegiganteae, trunco recto columnar^ cortice nmoso secedente, ligno compacto rubro. Rami pro ratione pldntae breves, subverticillati veldlterni, patentes, mfenores subpenduli subdeflexi Folia spirahter inserta vel subdisticha, inferne adnata, superne libera et patula, hneana, teretiuscula vel plana, apice mucronatapungentia.—Obs Nuculae certe axillares et squama adpiessae non infra ejusdem marginem superio^em libere pendula, sed in squamis inferioribus pro earum hiatum pendulae, in medns patentes, in supremis vero erectae.

1 S SEMPERVIRENS (Endl ' Conif p 198), arbor ramis subverticillatis patentibus inferionibus subdeflexis supenonbus erecto-patentibus erectisve, nmuhs subdistichis longiusculib angulalis, folns inferne adnato decurrentibus, superne hberis patulis subdistichis ngide conaceis persistent! bus hnean-subfalcatis, apice abrupte mucronato-pungentibus, supra vmdibiis lutidis et suluo levi longitudinal] exaratis, subtus juxta sulcum longitudinalem stom ltum fascia albida utnnque notatis, mteidum abbreviatis spiraliter imbncLti\*- Ian ceolato-acurainatis pungentibus dorso convexo cannatis, amentis masculis axil Ian bus in ramulo patulo breviusculo erectis, paucis subracemosis subglobois, bracteis plunes imbricatis approximatis subpeltatis late ovatis acutis vel acuminatis, mdigine lacens et subaenticulatis, anthers 3 5 subglobo angulatis, strobilis globoso ovahbus ovahbusve in iamulo strobiloipso brevior vel subaequali erectis, s(luamis plunbus, in axi spirdliter insertis peltatis, a basi cuneata apice in discum trdnverse trape/oideo oblongum dorso umbilicatum transverse vixcannatum, apice bractee adnatae hbero longiusculo linean-acuminato notatum superne et inferne rugosum dilatatis, nuculis sub-5 squamis paulo brevionibus compressis ovalibus ohtusis utnnque alatis, ala angustissima ^ InAmencdborealioccidentali,pr33sertim in montibus Novae Call form\* probabihter inter 34-42° lat boreal ad sinum Nutkaense (Men/ies ann J776, de quo valde dubito), in Nova Cahforn a (Dougl ' ann 183\*), in California (Hartweg<sup>1</sup> Boursier de la Riviere' Bolander') in montibus Sancta^ Crucis, et ,nope San Francisco (Murray), prope Oakland (Whipples Lxpedit ) -" Gray m Sillim Journ 2 ser vol 18 p 150 ex Torr Carr Conif p I<sup>64</sup>> Torr in Whipple s Expedit. p 84, Gord ' Pin p 303 et Suppl p 97, Newberry m Williamsson's Expedit 6. p 57, Seem ' in Annals and Magazin of Nat Hist March 1859 p 160 laxodium sempervirens Lamb Pin. cdii 2 P 107 t 48 et edit 3. p 120 tab 64 Hook M Bor Araer 2 P 1<sup>o</sup>\*; Henk et Hochst Nadelholz p 262 Taxodium Nutkaense Lamb herb Taxodii sp- Dougl in Bot Mag Comp 2 p 150 Schubicitia? sempervirens bpach Hist desveg phan6r vol 11 p 353 Sequoia gigantea Endl ' Conif P 1<sup>o</sup>W-<sup>z</sup> parte — Redwood Angl -Amenc Arbor Sequoiae giganteae et Pini /<sup>19</sup>uB<sup>ia</sup><sup>ae aemula, trunco cyhndracco recto, 200 \*00 pedes alto, diametro 1 o-iU ei in

celebn sub nomine Giant of the Forest arbore 55-pedali, obliqm rubn colons praestantiam plunbus usibus aptissima, cortice cinereo-rubente, nmoso, sedecente. Rami pro arbons altitudine breves. Folia 1^2 J mill lata, 10-20 mill, longa. Amenta mascula 7-8 mill, longa, 6 mill, lata, sed demum angustata et longiora, 9-10 mill. longa, 5-6 mill, lata, palhde lutea. Antherae in bracteis inferioribus 5-4, in supenoribus 3, palhde luteae. Strobilus 18-25 mill, longus, 15-18 mill, latus, fusco-nigrescens. Nuculae fusco-rubentes (v. v.).

2. *S. GIGANTEA* (Torrey in Sillim. Journ. 2. ser. vol. 18. p. 150, ex Torr. et Whipple's Exposit. p. 84), arbor ramis subverticillatis patentibus, inferioribus subpenaulis, supenoribus erecto-patuis erectisve, ramuhs longiusculis teretibus, folus spiraliter insertis, ramorum approximatis interne adnato-decurrentibus superne hbens patulis ngidis persistentibus lineariteretibus utrinque convexis margine obtusiusculis apice acutis mucronato-pungentibus glaucescentibus, ramulorum imbricatis basi adnatis superne libens vix patulis late ovato-acuminatis mucronato-pungentibus dorso convexo-cannatis, amentis masculis..., strobilis in ramulo recto strobilo ipso brevior erectis ovahbus, squamis plunbus in axi spiraler inserUs peltatis, e basi late cuneata m discum transverse trapezoideo-oblongum utrinque acutum dorso umbilicatum transverse acutiuscule cannatum, apice tjractae adnatae libero longiusculo hnean-subulato notatum superne et inferne rugosum dilatatis, nucuhs sub-5 squama subdiraidio brevionbus compressis ovahbus obtusis basi emarginatis utrinque alatis, ala nuculae latitudinem subaequante. § In Sierra Nevada California\* ad 5000 ped alt. et 38° lat. boreal, loco dicto Mammoth-Tree Grove, prope fontes fluviorum Stanislai et Sancti Antonii nee non in Mariposa et Fresno Groves (Herb. Mus. Florent.!), in California (Boursier de la Riviere'). — Dne! in Rev. Hort 1855. p. 9. 1.10. f. 1. et in Bull. de la Soc. Bot. vol. 1. p. 70; Carr. Conif. p. 116, non Endl. Wellingtons gigantea Lindl. f. in Gardn. Chronicl. for 1853. p. 823; Hook. Bot. Magaz. t. 4777. 4778; Flor des Serr. 9. p. 93. t. 892 843 et p. 121. tab. 903; Gord. Pin. p. 330. et Suppl. p. 106; Murr. Not on Calif. Trees part. 2. p. 9, Henk. et Hochst. Nadelholz, p. 222. Washingtona Cahfornica Winslow in Calif. Farmer for 1854, Hook. Journ. of Bot. and Kew Misc. 7. P. 29. Taxodium Washingtonmnum Winslow 1. c. S. rehgiosa Presl? Epim. Bot. p. 237. Sequoia Wellmtonia Seem. in Bonpl. 3. p. 27. 1855. in adnot. et in Annals and Mag. of Nat. Hist. March 1859. p. 165. *Mammoth Tree* Cahforn. Arbor vegetabilium omnium gigas et Florae decus, miras sylvas efformans, trunco columnan recto, 250-327 pedes alto, diametio 15-30-pedah, cortice fere cinnamomeo. Rami pro ratione plantae breves. Amenta mascula oblougo-cylindracea, acutiuscula, 12-14 mill, longa, 4-5 mill lata, eorum bractee apice longe acuminatae et erectae. Pistilla plerumque 7, roinuta, erecta. Strobili, quos e sylvia Mammoth Tree Grove obtinui, 4-7 cent, longi. 3-4^ cent. lati. Squamae 17-26 mill, latae. 6-9 mill, altae, violaceo-fuscae, in medio dorsi umbilicatae et mucrone hnean-subulato et fere setaceo, longiusculo, recto notatae, canna transversah elevata, acutiuscula, supra et subtus valde rugosae, margine subcrenatae. Nuculae in quavis squama 4-5, raro 6-7, in squamis supenoribus saepe 3, 6-7 mill, longae, 3-4 mill, latae, fuscae, ahs e luteo rubelhs. (v. v.)

VIII. *CRYPTOMERIA* Don in Linn. Trans. 18. 2. p. 166; Brongn. in Ann. des Scienc. nat. V sdrie, vol. tt p. 231; Sieb. et Zucc. Fl. Jap. 2. p. 41, Endl. Conif. p. 71; Carr. Conif. p. 153; Gord. Pm.p. 52.— Cupressi spec. Linn. fil. Suppl. p. 421; Thunb. Fl. Jap. p. 265.— Taxodn spec. Brongn. in Ann. de's Scienc. nat. 1<sup>ro</sup> sene, vol. 30. p. 183, excl. var. p.

Flores in iisdem ramis monoid. Amenta mascula in axillis foliorum anni praecedentis sessilia, prope apicem ramulorum in racemos breves conpresta, cylindracea, obtusa; bractee in axi spiraliter insert\* imbricatae, subpeltatae, late ovato-orbiculares, inferiores paucae minores atē riles, rehquae staminigerae. Antherar. 4-5, subglobosae, umlocnlarps' n~culo longitudmahter dehiscente. Amenta feminea in ramulo ?oS cūTo solitaria, terminaha, globosa. SquamaB plures. axi spiraliter inserta,

imbricatae, e bractea ramosa lepidioque subbreuiore, carnosulo, laciniato simul adnatis composite, liberæ, inferiores steriles lepidioque carentes. Pistilla 4-5, raro pauciora, erecta. Ovarium ovale vei ovali-oblongum, compressum. Stylus brevissimus, compressus. Stigma bidentato-bifidum. Strobilus globosus, primo anno maturescens. Squamæ plures, in axi spiraliter insertæ, imbricatæ, demum Mantes, haud deciduæ, sublignosæ, inferiores minores, steriles, reliquæ fertiles, e basi cuneata substipitatae, in discum fere obovatum incrassatæ, disco dorso infra medium apice mucronato subrecurvo marginibusque bractee crassæ et adnatæ liberis notato, apice palmato-quadri-sexidæ, laciniis rigidis subpungentibus divergentibus. Nuculæ sub quavis squama 4-5, vel pauciores, erectæ, subimbricatæ, obovato-oblongæ, compresso-angulatæ. Pericarpium crustaceum, utrinque in alam membranaceam, angustam, basi et apice submarginatam productum. Embryo in axi albuminis carnosi antitropus, ejusdem longitudine, cotyledonibus duabus, radícula teretiuscula, supra. — Arbor japonica et chinensis, sempervirens, excelsa, coma pyramidalis, cortice fuscescente, ligno levi albo. Rami patentes vel erecto-patentes, teretes. Folia alterna, quinquefaria, approximata, basi adnato-decurrentia, reliqua parte libera, erecto-patentia, lineari-subulata, falcata, acuta, rigida.

C. JAPONICA (Don l. c). In montibus Japoniæ meridionalis Inter 500-1200 ped. elevationem sylvas vastas constituens, aut rarius in valles descendens, et Chinæ ad 3000 ped. circ. elev. In Japonia (Siebold!), in Nippon (Perfetti!), in Jokohama (Schottmuller, n. 2041), Hakodate (Maxim.!), in Chinæ montibus prov. Che-Kiang (Fortune!) — Brongn. in Ann. des Sc. nat. 2<sup>e</sup> sér. vol. 12. p. 231; Spach Hist. nat. des Végét. phaner. vol. 11. p. 354; Sieb. et Zucc.! fl. Jap. 2. p. 43. t. 124 et 124 b; Hook. Ic. t. 668; Endl. Conif. p. 72; Carr. Conif. p. 154; Gord. Pin. I p. 52; Henk. et Hochst. Nadelhölz., p. 267. Cupressus chesaunensis juniperinis arcuatis foliis, clavatis galbulorum eleganter cristatis Pluken. Amalth. p. 69. San, vulgo Ssugi Cupresso-Pinulus resinifera, fructu sphaerico squamoso, pruni magnitudinis, seminibus paucis oblongis compressis spatulatis spadicibus Kaempf. Amoen. exot. p. 883. t. 48. Cupressus Japonica Linn. fil. Suppl. p. 421; Thunb. Fl. Jap. p. 265; Gaertn. de Fruct. 2. p. 65. t. 91. f. 5. Taxodium Japonicum Brongn. in Ann. des Sc. nat. 1<sup>re</sup> sér. vol. 30. p. 183. excl. yar. heterophylla. Arbor excelsa, 60-100 pedes alta, trunco rectissimo. Ramuli longi, ramulosi. Folia approximata, quinquefariam disposita, in femina adnata, superne libera et patula lineari-subulata, acuta, subpungentia, nervo longitudinali decurrente, subtus acute et supra obtuse carinata, indeque rhombo-tetragona, faciebus striis duabus stomatosis albidis inter carinas et margines obtusos notata. Amenta mascula 6-8 mill, longa, 2-2½ mill, vix lata, e luteo-iuscescentia. Stipes simplex, crassiusculus. Bractee alternæ, inferiores 2-3 vel 4 paulo angustiores et minores minus approximate steriles, superiores dorso convexiusculæ subcarinatae et fuscescentes, margine albido vix erosulo. Antherae luteas. Strobilus fuscus, 16-30 mill, longus et vix latus. Nuculæ squamis vix breviores, fuscae, ala dilutiore, 8 mill, longæ, 3-3½ mill, vix latas. — Occurrunt yar. horienses ramis brevioribus densioribus, foliisque late vix latibus C. Japonica et C. Lobbi hort.; et 2-3-pedalis, ramis brevibus patentibus, ramulis numerosioribus densioribus, foliis crassioribus et magis curvulis, C. araucarioides hort., C. nana, C. Japonica nana et pygmaea hort. (v. v.)

IX. GLYPTOSTROBUS findl. Conif. p. 69 (excl. sp.); Carr. Conif. p. 450 («\*/• sp.); Gord. Pin. p. 89. — Thuyas species Poir. Diet. Encycl. 5. p. 305; Staunton Embassy to China p. 436; Lamb. Pin. edit. 2. p. 115. — Taxodii spec. Brongn. in Ann. des Scienc. nat. 1<sup>re</sup> sér. vol. 30. p. 184 et V strie, vol. 12. V-<sup>16Mm</sup> — Schubertiae species Spach Hist. des Vég. phdn. 11. p. 352.

Flores in ramis diversis monoici. Amenta mascula in ramulis latera-

libus sohtanetermmalia, subglobosa BractesB imbricatae, excentnce pel-  
tatae, ovatae, subtussub stipite staminigerae Antheras 3-4, subglobosae,  
umloculares, locuhs longitudinahter dehiscentibus Amenta feminea in  
ramis laterahbus brevibus, pendula, ovata Squamae plures, in axi abbre-  
viato spiraliter insert®, imbricates, apice patulaa e bractea carnosula  
lepidioque brevior crenulato adnatis compositae, liberaa, infimaB stenles.  
Pistilla 2, collaterals, erecta Ovanum oblongo cylindraceutum, subcom-  
pressum Stylus brevissimus, cum ovano continuus. btigma truncato-  
bidentatum, ore late hiante Strobilus obovato-ov dis, secundo anno ma-  
turescens Squamae plures, in axi spiraliter insertae, imbricatae, demum  
hiantes et deciduae, sublignosae, mferiores brevissimae, apice mucronatas  
stenles, rehquae fertiles, e basi cuneata m discum perpendicularem  
obovato-ovalem mcrassatae, disco e duabus partibus simul articulatis  
composito, parte infera ma]on extus infra apicem mucronata, supeia  
coronam semicircularem apice 6-9 crenato-mucronatam et longitudina-  
hter sulcatam reference, intus foveohs duabus pro recipiendis nuculis  
exsculpto Nuculae ad basin squamarum fertihum 2, collaterals,  
erectae, ovah-oblongae, subcompressae, angulatae Pencarpium tenue,  
marginibus anguste alatum, basi in alam lanceolaUm nuculae longitudine  
productum —Frutex chinensis Ramisparsivelalterni, mferiores patentes  
vel penduli, supenores erecto-patuh Folia difformia, ramorum et ramu-  
lorum pnmanorum squamaeformia, ramulorum secundanorum linean-  
subulata, subtnghona, patentia

G HETEHOPHYLLUS (Endl Conif p 70) 3 \*<sup>n</sup> China (Staunton, Fortune<sup>f</sup>  
n 46), secus Mas pi ope Canton et Whampoa (Hance<sup>1</sup>) — Carr Conif p 151,  
Goid ! Pin p 89, Henk et Hochst Nadelholz p 265 Thuya lineati Poir  
Diet Suppl 5 p 305 Thuya hneata p lavandulaefolia Poir 1 c Thuya pensilis  
Staunton Embassy to China, p 436, Lamb Pin edit 2 p U5 n 51 laxo-  
dium Japoiucura p heterophyllum Biongn in Ann des Scienc nat 1" s6ne,  
vol 30 p 184 Taxodium heterophyllum Brongn 1 c Tixodium Japonicum  
Brongn m Ann des Scienc nat 2<sup>e</sup> sér vol 12 p 232 Schubertia Japonica  
Spach Hist des V6g phaner 11 p 352 Taxodium Horsfieldn Knight G.  
Horsfieldn hort laxus nucifera hort non Ththinb Cupressus nucifera hort  
Schubertia nucifera Denhaidt<sup>1</sup> in herb Vmdob Fiutex 6 9-pedahs Kami  
subteretes Folia ramorum ramulorumque pnmanorum distantia vel subap-  
proximata, adnata apice libero t>ubtriangulari acuto subadpre<sup>^</sup>so, dorso con-  
vexa, obscure vmdia, ramulorum secundanorum approximata basi adnata,  
reliqua parte hbera et patentia, subrecura, linean subulata, subtnghona  
vel Kterahter subcompressd, 6-10 mill longa, i mill lata, soidide vindia  
et demum rubentia Amenta mascula in ramuhs elongatis rectis erecta  
3<sup>J</sup>2-4 mill longa, 2-2£ mill ldt Bracleae margine erosae vel laceiae, dorso  
e vindi et luteo rubrae. Antherae luteae Amenta feminea in ramulis bre-  
vibus apicem versus mcrassdlis recurvis pendula, ovata, obtusa Eorum  
bractcae ovalas apice acuminatas, carnosulsa dorso leviter Cdnata et vin-  
des, margine apiceque integro ex albo-vindes, intus squama brevissima  
crenulata, luteola (lepidium leferente) auctae Strobih obovato-ovales ---;  
obovato oblongi parvi, 15-18 mill longi, 10-15 mill lati, e rubro fusir ' vel  
glauco subcaerulescentes, eiecti Squdm83 valde maequales, fusca3 fi-7, rore  
longaa, 3 mill, latae, ala basilan lanceolata, acuta/albidd. (v v) ' -.-. mill.

### Species exclusa

G PLNDULDS Endl = Taxodium disttchum var p Parl.

X TAXODIUM Rich m Ann duMweumiol 16 o OQR<sup>nvk</sup>  
p 143. t. 10, Endl Cnmr<sub>p</sub> p 66, Carr Conif<sup>v</sup> | T 1810 et Conif  
- Cupressi spec Unn s<sub>p</sub> pl p 1422 H<sup>^</sup> ^ J<sup>^</sup> Jrd Pin p 305  
— Schubertia Mirb

*in Nouv. Bull delaSoc Philom 3 p 123 arm. 1812 — Spach Hist de\*V6g phantr 11 p 347 — laxodn spec Brongn in Ann des Sctenc nat l's4r vol 30 p 177, Endl Gen pi p 259 — Glyptostrobi spec Endl. Conif p 71, Cair Conif p 152*

Flores in nsdem ramis monoici. Amenta mascula m racemum terminalem, ramosum, subpaniculatum disposita, subglobosa vel globoso-ovalia, demum stipitata. Bracteas decussatim opposite, quadnfanam imbricatae, semipeltatae, ovato-deltaeidae, subtus sub stipite stamigerae Antherae 3-9, subglobosae, uniloculares, loculis longitudinaliter dehiscensibus Amenla feminea sohtana vel 2 3 ad basin ramulorum subsessih, globosa Squamae plures, in axi abbreviato spirahter peltatim insertae, imbricatae, apice patulae, e bractea foliacea lepidioque crasso brevior adnatis compositas, liberaa vel inferiores connata Pistilla 2, parva, collateralia, erecta Ovanum subcompressum Stylus brevissimus btigma suborbiculare, subbifidum, ore late hiante Strobilus secundo anno maturescens Squamae in axi spirahter peltatim insertae, imbricatae, sublignosae, excenctnce peltatae, stipite e basi tenuissima sursum incrassato-dilatato et supra canahbus resinifens latis notato, dorso convexiusculae et apice bricteae adnatas libero prope medium mucronatae, margine supenore plus mmusve crenato-rugosae, pnmum margimbus arcte conniventes, demum hiantes et deciduae Nuculae ad basin squamarum 2 vel abortu sohtanae, oblique erectae, basi attenuata squamarum stipiti insertae, irregulariter tnedraB, anguhs acutis Pencarpmm hgnosum Embryo in axi albuminiscarnosi, parci antitropus, ejusdem fere lon^itudine, cotyleaonibus 4-9-partitis radícula teretiuscula, supera. Folia semmaha 4-9, lineana, patentia — Arbores boreah-amencanae, vastae, cortice rubro nmoso secedente, hgno albidQ demum rubescente Rami horizontales vel patentés, ramuh erecti, ascendentes vel penduh Folia alterna, approximata, disticha, lineana, brevia, sulco levi longitudinah utnque in nervo exarata, decidua vel subpersistentia

- 1 T DISTICHUM (Rich in Ann du Museum 16 p 258 et Conif p 143 tab 10), arbor monoica coma ampla xpansa ramis ramuhsque subhonzontahbus vel patentibus, folns decidms disticbis alternis patentibus approximate brevibus lineanbus acutis mucronulatis rectis vel subfalcatis sulco longitudmah in utraque pagina notatis laete vindibus, amentis mascuhs in racemum terminalem ramosum disyjositis parvis subglobulosis, bracteis ovato deltaeidae acutmsculis, anthers 3 5 subglobosis, strobis subsessilibus globoso-ovahbus vel globoso ovatis, squamis 10-12 spirahter insertis peltatis subtrapezoideis, apice bracteae adnatae hbero breviusculo acuto leflexo infra medium dorsi mucronulatis, parte supenore prope marginem irregulariter crenulata et rugosa, nucuhs 2 vel abortu solitams squamas subaequantibus tnedns, anguhs acutis (castaneis) 'f I<sup>n</sup> Amencae boreahs paludosis et ad fluviorum npas ab ora fluminis Mississippi in Louisiana ubi frequentissima in paludosis sub nomine Cypneres et a Florida usae ad 43 gr lat bor ubi rara Prope New Orleans (Drummond n 322<sup>f</sup> Lindheimer' Asa Gray'), Arkansas (Engelman n 1207<sup>f</sup>), Texas (Lindheimer), m Honda (Gabanis<sup>1</sup>), in Virginia et Carolina (Portenschldg'), in Marylandia (Canby') — Lamb Pin edit 2 p 116 t 63 ex Endl Brongn in Ann des Sc natur 1 s6r vol 30 p 182, Endl Conii P 68 excl pi mexic, Carr Conif p 144, Oord Pin p 10<sup>f</sup>, Hcnk et Hchst Nadelh lz p 2<sup>f</sup>) Shuborlia dislich 1 Mirl) Spaoli Hist des Vcfc phincr 11 p 349 excl pi mexic Cuprtssus virginiana fradescanti K<dy, Hi&t pi 2 1 p 408 Cupressus virginiana fohis Acacias cornigeraB panbus et deciduis Plukenet Aim ig p 125 tab 85 f 6 Cupiessus amencana Catesby Carol 1 p 11 tab 11 fupressus disticha Linn Sp pi p 1422, Michaux North Amenc sylv 3 p 197 t 151 — Bald Cypress Black -Cypress, White-Cypress Angl Amer Arbor excelsa, interduni 100 120pedahs, radicibus lime jnde geniculdtis, senescendo in columnas corneas 1 5 pedes altas, supra solum

productis, trunco conico, cortice fusco cmerascente, hgno rubente. Folia 10 17 mill longa, 1 mill plerumque vix lata Amenta mascula, parva, 2 mill longa etlata Strobih 20-32 raro 15 mill longi, 18-28 raro 15 mill lati (v v.)

p, *microphyllum*, folus brevionbus distichis vel subimbncatis ovato-lanceolatis In Luisiana (Hartm ') T mierophjllum Brongn 1 c p 182, Endl Conif p 68, Carr Conif p 148, Goid Pin p 308 Schubertia disticha Y Spach Hist des Vég phaner 11 p 350 — Occurrit in hortis vanetas insignis ramuhs erectis vel adscendentibus, subfihformibus, folus ramuli adpressis, brevibus, linean-lanceolatis (T adscendens Brongn 1 c Endl Conif p 69, Carr Conif p 184 Schubertia disticha p Spach 1 c p 349), vel ramuhs pendulis (T binense pendulum Pinet Woburn p 180 Glyptostrobus pendulus Endl Conif p 71, Bot Mag tab 5603, Carr Conif p 152 r Sinense Gord ' Pin p 309 Cupiessus Sinensis hort ahq ) In eadem planta folia inferiora saepe ut in specie Inflorescentia et strobili ut in hac (v v)

2. T MUCRONATUM (Ten ' Osserv su di una pianta Conif del genere Taxodium •Modena 1853 t 1 et 2), arbor, monoica, coma ampla expansa, ramis horizontalibus supenonbus patentibus, ramuhs pendulis, folns subpersistentibus distichis alternis patentibus approximatis brevibus lineanbus acutis vel obtusiusculis vix mucronatis icctis vel subfalcati-> unintrvns vindibus, amentis masculis in racemum terminalem ramosum dispositis majuscuhs globosovdhubus, bracteis ovato-deltoideis acutusculis anthers sub 8, strobih sub sessilibus ovahbus vel ovato globosis, squamis 18-20 spirahter insertis crassis peltatis subtrapezoideis, apice bractee adnatae libero latiusculo acuto recurvo prope medium dorsi mucronatis, parte superiore prope marginem grosse crenato-rugosis, nuculis 2 squamis paulo brevionbus subtnedns, angulis acutis (badns) <5 In temperatis MPXICI inter 5200 7000 ped altit in Siena Madre (Seemann'), inter Tehuilotepec et Tepecuacuilco, in planitie Tenochitillensi juxta Chapoltepec (Humb Bonpl), prope uibem Mexici in nemore Chapulte-pelt, ubi arbor sub nomine Cupressi Monte/umae a Mexicanis Ahuehete sive Cedrode Chapulte-pelt dicta, percelebns (Humb et Bonpl ' Bassi in herb flo rent ' Aschenborn'n 400 C Ehrenbeig' Bourgeau' n 246 ), ad tonentium npas Oaxacae ad 9000 ped elev et inter 4-7000 ped (baleotti'n 5 9 14), pi ope Tehuantepec (bcherzer'), ad npas Rio de Bochil in provinua Chiapas (Linden i), in Mexico (Karwinsky iter Mexic ann 1841 1342 n 1022) T distichum Humb Bonpl et Kunth' Nov gen et Spec pi 2 p 4 T Montezumae Decsn in Bull de la Soc bot de France, ann 18i4 vol 1 p 71 r Mexicanum Carr Conif p 147, Henk et Hochst Nadelholz p 261 T distichum Mexicanum Gord Pin p 307 T distichum pinnatum hort 1 pinnatum hoit ahq T virens hort Saomo Mexican Arbor excelsa, 70-100 pedes alta, tiunco in celebni Cupressi Montezumae arbore 44 pedes circuitus habente Ramuli saepe longiores quam in T di&ticha Folia magis vindia nerveoque longitudmah subtus paulo prominenti praedita, 6-12 mill longa, j mill lata, sed in plantis cultis etiam 15 mill longa et ||-2 mill vix lata Amenta mascula 3-4-plo majora, 6-7 mill longa, 3-3 | mill lata Strobih majores, 25-26 mill longi, 16 18 mill lati Folia seminaha lineana, obtusiuscula, supra convexo-cannata, subtus plana, patentia, vindia (v. v)

### *Species exclusx*

- T CAPENSE hort = Widdnngtonia juniperoides  
 T HETEROPHYLLUM Brongn = Glyptostrobus heterophyllus Endl  
 T HORSFIELDII Knight = Glyptostrobus hek< rophyllus Tndl  
 T JAPONICUM Brongn = Cryptomena Japonica et Glyptostrobus heterophyllus.  
 1 JUNIPEROIDES hort = Widdnngtonid juniperoides  
 T NUTKAENSE Lamb = Sequoia sempervncns Endl  
 T SEMPERVIRENS? Hook Icon = Abie« braoteata Don  
 T SEMPERVIRENS Lamb =r Sequoia sempervirens  
 T WASHINGTONIANDE Wmslow = Sequoia gigantea Torr



## B Strobih squamae, spira contracta, subverhçillatae

XI WIDDRINGTONIA Endl. *Cat Wort Vindob* 1. p. 209 et *Conif* p 31, *Carr. Conif* p 6i, *Gord Pin* p 312 — *Ihuyaesp Linn Mant* p 125—*Cupressi* sp. *Mill Diet* n 6 -*Junipen spec Lam Diet* 2 p 626—*hubertiae spec Spreng Syst veg* 3 p 890—*Pathylepsis Brongn in Ann des Scienc nat* 1 ser tol 30 p 189, *Spach Hist des Veg phancr* 11 p 346, *Endl Gen pi* p 259 n 1793 non Less — *Paiohnia Endl Gen pi Suppl* 1 p 1372 n 1793

Flores dioici (Endl). Amenta masculina in ramulo sohtana, termnaha, oblonga vel oblongo cyhndracea, mmuta BracteaB approximatae, spira contracta subdecussatim oppositae, subpeltataB, ovato orbicuhres, acuminatae (an in omnibus speciebus?), subtus stamini^erae Antherae 2-3, subgloboos®, uniloculares, loculo longitudinamter dehiscente Amenta feminea in ramulis laterahbus sohtane terminaha vel subspicata Squamae d, tyubverticillatæ, subaequales, patentes, e bractea fohacea lepidioque carnosulo breviorae simul adnatis compositae Pistilla ad basin cujusve squamas 5-10, uni bisenatae, erectae Ovanum compressum Stylus brevis, teretiusculus Stigni i ^uborbiculare, pervium Strobilus sub^lobosus Squamae k, lignosae, crassaB, spira contracta subverticillatae, basi conatae, subasquales^pnum valvatim conniventes, dein erectaB vel patulae infra apicem apice bractee adnatae libero mucronatae Nuculae abortu saepe paucas, erectae, utnque convexae, saepe apice acumatae Pencarpium subcrustaceum, utnque in alam membraDaceam superne dilatatum productum vel fere apterum. Embryo in axi albuminis carnosus antitropus, ejusdem longitudine, cotyledonibus duobus obtusis, radice teretiuscula, supera —Arbores vel frutices sempervirentes, cupressiformes, in Africa austrah, insula Maunt et forsitan in Madagascana mdignos, resinam odoratam in ramis et in strobilis scatentes, hinc plunbus usibus apto praeditae Folia in ramis spirahter disposita, in ramulis valde approximata et subquadranfanam imbricata, in stirpibus junionibus, Juniperorum Sibmae nostiae sectionis more, saepe aciculana et piana, in adultis et ramis ramulisque superioribus squamaeformia et dorso saepe glandulifera

1 W JUNIPEROIDES (Endl » *Conif* p 32), arbor monoica, cortice rufescente, ramis erecto-pitentibus vel pendulis teretibus ramulis breviusculis crassiusculis subteretibus glaucescentibus foliis in ramis ramulisque junonibus basi aliiLthi rehqua partf libens, patentibus vel laxe deflexis rigidiusculis confertis Us lueanbus planis mucronatis subternervibus glaucescentibus, in ramis ramulisque adultis squamiformibus valde approximatis subquadranfanam imbricatis ovali rhomboideis vel ovali lanceolatis acutis vel obtusis, dorso convexo-caimatis et glandula oblonga immersa interdum notatis, amentis masculis } stiobilis in ramulo laterah brevi 2 aggregatis subgloboosis (fusco rubentibus), squamis 4 basi conatis subdequahbus, 2 paulo majonibus oblongis rotundato obtusis, 2 apice obtusiusculis, omnibus dorso ad margines et apicem rugoso tuberculatis et infra apicem gibbere conico obtuso mucronatis, iacie in medio obtuse subcannatis et lateribus concavis, nuculis sub-2 ovatis utnque convexissubangulais alaangustissima J In montibus Cedernberg African australis ubi olim vastas sylvas efformabat, nunc minus obvia (Ecklon et Zeyher n 74 i Wawra, n 149) — *Carr Conif* p 64, *Gord Pin* p 334, *Henk et Hochst Mdelhol/ Cupressus juniperoides* Linn *Sp pi* p 1422 *Cupressus Africana* Mill *Diet* n 6 *Junipeus Capensis* Lam. *Diet* 2 p 626 *Schubertw to!*~*sis Spreng. Syst veg* 3 p 890 *fallitris arborea* Schrad ex Mey *P><jn /engeogr Dokum* p 73 et 170 *Pachylepis juniperoides* Brongn in *Ann des scienc nat* i ser vol 10 p 190, *Spach Hist nat des V<Sg pl>*~*all\*~u-* p 346 *Juniperus caesia* Carr ? *Conif* p 55 *Taxodium juniperoides* et *Taxo-*

- dium Capense hort Chamaecypans squarrosa hort aliq non Zucc *Cederboom* incol Arbor 15 20 ped alta, interdum altior, resinifera, resma lutea diaphanaodorata Strobih 22 24 mill longi et iere lati, hiantes fere 30 mill lati Nuculde lutescentes, 7 mill fere longae, 5-5 j mill latae, feieapterae (v s)
- 2 W COMMERSONII (Endl Conif p 34), ramis ramulisque patentibus gracilibus, folus ramorum approximate adnatis, apice libero vix patulo lanceolato acuminato, ramulorum squamae form lbus suDquadrifanam imbncatis ovato oblongis obtusiusculis, amentis masculis , strobilis in ramulo longiusculo solita rns ovo-globosis (fuscis), squamis 4crassis subaequalibus, 2 paulo lationibus ovahbus vel ovali-oblongis, 2 ovali-oblongis. omnibus acutis, dorso infra apicem vix gibbosis et apice bractee adnatae libero submucronulatis, prope marginem subtuberculatis, facie acute cannatis, nuculs sub-5 ovato-acummatis cum alis sursum magis ampliatis nuculae latitudinem superantibus obovatis apice emarginatis In insula Mauritu loco dicto le Héduit (Gommerson<sup>1</sup> n 1472), m Madagascar (ex Endl) — Carr Comf p 67, Gord Pin p 332, Henk. et Hochst Nadelholz p 29<sup>i</sup> Thuya quadrangulans Vent in Nouv Duham 3 p 10 Pachylepis Commersonii Brongn in Ann des scienc nat. 1<sup>o</sup> ser vol 30 p 190 Species a Widdringtonia cupressoide, cui affinis, ramis ramulisque patentibus, squamis dorso vix gibbosis, margine subtuberculatis, omnibus acutis, nucularum numero praecipue diversa Strobilus speciminis Commersoniam haud hians, 2S mill longus et fere latus Nuculae cum alis flavescens 9 mill longae, 5-6 mill superne latae (v. s.)
- 3 W CUPRESSOIDES (Endl Cat Hort Vmdob 1 p. 209 et Conif p. 33), frutex, ramis ramulisque erectis subfastigiatis, folus ramorum adnatis, apice libero patulo acuto, ramulorum squamiformibus subquadrifanam imbncatis ovato-oblongis obtusiusculis adpressis, amentis masculis oblongis obtusis, bracteis subdecussatimoppositis ovato orbicularibus apice acumuidtissubdenticulatis, anthens 3, strobilis in ramulo breviusculo vel brevi'fohtdriis vel 2-4 aggregatis ovato globosis demum subglobosis (nigrescentibus) squamis 4 crassis subaequalibus, 2 paulo lationibus ovahbus vel ovah orbicularibus apice acutiusculis, 2 oblongis apice subtruncatis, omnibus dorso laevibus infra apicem gibbe re obtuso subtus mucronato praeditis, facie crasse acuteque cannatis, nuculs 7 10 immaturis oblongo lineanibus, cum alis nuculae ipsae latitudinem superantibus obovato oblongis apice emarginatis <sup>^</sup> In Africa australi ad Caput Bonae bpei jltit 1000-3000 ped. frequens (Ecklon' n 56b, Drege n. 388o b. Scholl' n 828, Wawra' n 149)— Carr. Conif p 66, Gord Pin p 333, Henk et Hochst Nadelholz p 293. Thuya cupressoides Linn Mant p 125, Thunb Fl cap p 500 Thuya aphylla Burm Prodr p 27 Calhtns cupressoide\* Schrad msc mheib Drege, E Mpyer Pflanzengeogr Dokum p 126, l<sup>o</sup>, ex Lndl Calhtns stneta Schrad msc Pachylepis cupressoides Brongn in <sup>^</sup>nn des scienc. nat 1 ser vol 30 p 190. *Saprehout* incol Frutex 4-12-pedalis, ut videtur minus resiniferus, resma lutca Amenta mascula minutd, lutea, 3 mill vix longa, 1] mill lata Strobih matun hiantes 2<sup>^</sup>-28 mill longi, d<sup>^</sup>Sy mill lati Squamae crassiores et latiores quam in "W junipe-roide, laves, facie nitidae et magis fuscae, mucione dorsi minus prominente Nuculae<sup>^</sup>numerosiores et alis latis praeditae (v. s)

### *Species dubia.*

4. W. NATALENSIS (Endl Conif p 34), ramis ramulisque erectis, folus ramulorum squamaeformibus ovali-oblongis adnatis, dorso glandulosis, apice acutiusculis amentis femineis subspicatis, strobilis . Ad Portum Natal Africa australis (Gueinzus» Kraus' inheib Vindob) W Natalensis Carr Conif p 67 Gord Pm p 334, Henk. et Hochst. Nadelholz p 294 An cum W cupressoide coniungenda<sup>9</sup>

### *Species non descripta.*

- W. WALIICHII (Endl Conif. p. 34). *kd* Caput Bonae Spei. Speciem W cupressoidi affinom, sed certe diversam, nuper e Capite Bonae Spei missam commemorat Hooker hi in Lond Journ of Bot 4 p. 14[. An cum W cupressoide conjuDgenda?

Subtribus IV. *CUPRESSEJE*,

Flores monoici, raro dioici. Amenta masculina. Bractea) decussatim oppositae vel ternatim verticillatae Anther® 3-5, raro 2, subglobosae vel oblongae, uniloculares, loculo longitudinaliter dehiscente. Strobili squamati 4-plures, decussatim oppositae vel ternatim aut quaternatim verticillatae, persistentes, liberi vel basi aut totidem connatae et tunc galbulum carnosum efformantes. Nucleae plures, saepius 2-3-pteratae, saepe latiusculae subaequales vel altera valde major, rarius apterae. Cotyledones 2, rarius profunde bipartitae unde videntur 4, radícula supera Folia opposita, ternatim vel quaternatim verticillata, saepius squamiformia, interdum in ramis complanatis difformia, rarius linearia.

A Strobili squamati verticillum unicum efformantes, basi connatae vel liberae

XII. ACTINOSTROBUS *Miq Plant Preiss 1 p 644, Endl Conif p 39, Cart. Comf p 77, Gord Pin p 40*

Flores in diversis vel in eisdem ramis monoici Amenta masculina in ramulis lateribus solitaria, terminalia, globosa ovalia Bractea in axi ternatim verticillatae, sexfanatae, subpeltatae, suborbiculares, subtus stamigeratae Antherae 3, subglobosae, uniloculares, loculo longitudinaliter dehiscente. Amenta feminea in ramulis lateribus solitarie terminalia Squamae 6, circa axim pyramidatum verticillatae, aequales, plures patentibus, demum valvatim connatae Bractea liberae, cuique squamas oppositae bisinatae, eique adpressae. Pistillum ad basin squamarum 2, contiguae superposita, erecta, compressa. Stylus brevis Stigma .. STROBILUS subglobosus vel ovato-acuminatus, basi bracteis sterilibus plures cuique valvae oppositae bisinatis eique adpressis suffultus Squamae 6, lignosae, verticillatae, aequales, basi connatae, dorso convexae, facie acute caninatae, e bractea foveata et lepidio crasso subaequali adnatis compositae. Columna in fundo strobili erecta Nucleae ad basin squamarum 2, contiguae superpositae, erectae, subtriangulae, altera exterior dipterostachya, altera interior tripterostachya fertilis, sinibus foveam resimiferam gerentes. Pericarpium osseum in alas membranaceas latas productum, Embryo in axi albuminis carnosus antitropus, subtriangulus, cotyledonibus 2, radícula supera — Frutices Novae Hollandiae austro occidentales, ramosi. Rami ramulique triquetri, fere articulati Folia ternatim verticillata, inferne adnata, superne libera, anguste ovata

Obs. Strobili juniores, quos ante observationem de structura strobilorum Coniferarum divulgationem mihi videre non occurrunt, me certum fecerunt squamas Actinostrophi, ut in aliis Cupressis, bractea foveata et lepidio simul adnatis constare.

1 A PYRAMIDALIS (*Miq Enum pi Preiss 1 p 644*), frutex pyramidalis ramosissimus, ramis teretibus patulis vel erecto-patentibus, cortice cinereo secedente, ramulis patulis vel erectis triquetris, facibus unisulcatis vinctibus, folis ternis adnatis, apice libero bievii squamiformi ovato acuto-pungenti dorso convexo margine saepe scabro anguste ovato vel subrecurvo persistenti, amentis masculinis in ramulis lateribus brevibus erectis parvis globosovatis, bracteis ternatim verticillatis subpeltatis suborbicularibus margine subintrorsis, antheris 3, strobili in ramulo strobilo ipso breviori erectis vel subsessilibus subglobosis, basi bracteis plures adpressis ovatis rotundatis suffultis, squamis 6 aequalibus basi connatis oblongo-lanceolatis apice con-

mventibus, nucuis in quavis squama 2, altera diptera, altera triptera, ovato acuminatis, cum axis nuculae latitudinem subaequantibus late et profunde cordatis, dorso canalibus resimfens notatis, squama subaequalibus 3 In Novae Hollandiae austro occidentalis arenosis, hieme aqua salsa inundatis (Drummond' n 450, Preiss! n 1311), King Georges Sound (Roe!), inter Perth et King Georges Sound (W A Harvej') — 1 ndl » Gomb p 40, Carr Conif p 78, Gord Pin p 20, Henk et Hochst Nadelbolz p 305 Amenta masculaparva, 3 mill longa, 1-J mill vix lata Strobili 12-20 mill longi, 15-20 mill lati Nuculae 12-14 mill longae, 6-10 mill latae. (v v)

- 2 A ACUMINATUS (Parl Conif nov nonnull! in Index Sem Hort Mus Florent ann 1862 p 25), frutex? ramosus ramis teretibus, ramis inquetns strictis, folis terms ramorum et ramulorum inferiorum a basi ad medium fere adnatis superne hberis erecto patulis hneanbus acuminatis mucronato pungentibus, supra planis, subtus convexo canatis, margine scabris, ramulorum secundanorum maxima ex parte adnatis apice libero inx patulo mucronato-pungente, amentis masculis ovah-oblongis, bracteis late ovato acuminatis margine fimbriato dentatis, antheris 3, strobilis ut ramulo strobilo ipso brevior erectis ovato acuminatis, ima basi bracteis plunibus adpressis ovatis apice acute mucronatis suffultis, squamis 6 aequibus basi connatis erectis oblongis, apice in versus angustatis et patulis, lbique acuminato mucronatis, columna centies brevissima vel subnulla nucuis in quavis squama 2, squama subduplo brevioribus altera diptera, altera triptera, ovatis acutis, cum axis nuculae latitudinem subaequantibus, late cordatis ^ In Nova Hollandia occidentali inter flumina Moore et Murchison (J Drummond' ann 18 >J), Swan River (Drummond I n 22) ann 1854 totia ramulorum primanorum usque ad basin 7-8 mill longa, 1} mill vix lata Amenta mascula 3 mill fere longa, 2 mill lata, lutea Strobili 15-18 mill longi, 12-14 mill J&ti Squamae castaneae Nuculae cum axis 8-9 mill longae et fere latae (\ .

XIII FRENELA Mirb in Mem Mus 13 p 74 {excl sp atlant), Spach Hnl natur des i6g phanir li p 345 Endl Conif p 35 Carr Conif p 68, Hook fX Flor of Tasmania p 351, Gord Pin p 82 — Calhns Vent Nov gen Dec 1808 lhch Conif p 47-49 tab 18 n 1 et 2 (excl sp atlant) — Leichhardtia Shepherd Catal of Plants cultivated at Sidney p 15 nov R Brown — Octohnis Ferd Muell ' in Trans of the Philosoph Inslit of Victoria % p 20 cum icone.

Flores in ramis diversis monoici Amenta mascula in ramis ternata, solitana vel aggregato-fasciculata, oblonga vel oblongo-cylindracea Bractea ternata, sexfanata imbricata, subpeitata, ovato-orbiculares vel ovatae, subtus staminigeras Antherae 3-2, raro 4, umlooulares, subglobosae, loculo longitudinater dehiscente Amenta feminea in ramis solitane terminalia vel subaggregata Squamae 6, rarsissime 7-8, 3 extiores, 3 interiores, sexfanatae dispositae, erectae, apice patulae, e bractea foliacea et lepidio carnoso basi adnatis compositae, demum valtatim connatae Pistilla ad basin squamarum plunata, plunsenata, erecta, subcompressa Stylus ovarium continuans stigma orbiculare, subdenticulatum, hians Strobilus secundo anno maturescens, subglobosus Squamae 6, subverticillatae ima basi connatae, hgnosae, erecto-patentes, tres paulo longiores et saepe latiores, dorso laeves, rugosae aut tuberculatae, et apice bractea adnatae magis minusve prominentis libero saepissime mucronatae, aut mucronulatae, vel aetate obliterato-muticae aut submuticae. Columna nunc obsoleta nunc magis minusve elongata, crassa aut angusta\* tncrurib aut triquetra. Nuculae plunatae, plunsenatae, squamis minores' lenticular-compressae aut ovatae e+ subtriquetrae Pericarpium subosseum] utnque in alam membranaceam angustam vel latam productum, ala altera rarsissime minore. Embryo in axi albuminis carnosus antitropus, ejusdem longitudine, cotyledonibus 2' -3 (Endl. Hook, fil), radice tereti

supera. Folia seminalia 2, lineana, patentia — Arbores vel frutices semperwrentes, resinosae, in Nova Hollandia, Tasmannia et Nova Caledonia indigenaB, ramis teretibus, ramulis obtuse et alterne tnquetris vel raro tetraquetris, crebre vel crebnuscule articulatis Folia ternatim vel raro quaternatim verticillata, adnata, apice summo hbero persistentia eglan-aulosa, interdum in ramis mfenonbus evoluta, basi tantum adnata, rehqua parte libera, patentia et lineana. — Genus ob descriptionum de fee turn, nam peregrmatores specierum ab ipsis collectarum nomma tantum dederunt, extneatu difficilhmum et studus botamcorum Novae Hollandiae commendandum. In herbariis quae vidi et praecipue in Illo quod humanissime mihi communicavit claussimus Ferd Muellerus species omnes siccas quas extricare et desonbere quam melius mihi datum fuit nunc enumero non sine aliquorum synonymorum dubitatione.

- 1 F SOLCATA (Parl in Enum sem Hort Bot Flor ann 1862 p 23), ramulis crassiuscuhs erectis alterne tnquetris faciebus umsulcahs, folns ternatim verticillatis adnatis dorso convexo cannatis, apice surmmo hbero adpresso obtusius ulo, amentis miscuhs , strobihs in ramulo longiusculo erectis, globoso depressis (fuscis) opacis, squamis subaequahbus erectis subtnquetropyamidatis, 3 paulo majonbus obtusiuscuhb, J paulo mmonbus acutiusculis, omnibus dorso profunde sulc itis et vix rugulosis, infra apicem breviter mucronatis, mucrone subreflexo, nucuhs ovato tnquetris anguste alatis (albidis) In Nova Caledonia (Herb Hook) Strobili 12 13 mill, longi, 9 10 mill lati Nuculae 4 mill longae, 3 ] mill latae (? s)
- 2 F SUBCORDATA (Parlgja Enum sem Hort Bot Flor ann 1862 p 24), ramis teretibus, ramulis flfepluscuhs flexuosis alterne tnquetris, loins ternatim verticillatis adnatis^orso convexo cannatis, apice summo hbero adprtssu acutiusculo, amentis masculis , stiobilis in rdmulo brevi crasso erectis subcordato-glohosis (fuscis) opacis magis latis quam longis, squamis 3 majonbus corddto-o\* ahbus obtusis, 3 paulo brevionbus et angustionbus cordato-oblongis sublanceolatisveacutiuscuhs, omnibus dorso rugulosis et infra apicem ciasse mucron<itis, columna squamis subduplo breviora tnquetra, nucuhs late alatis , ala altera valde majore In Nova Hollandia au^tro occultentih ad King Georges Sound (Baxter!) Strobili 14 15 mill longi, 16 18 mill lati Nucularum alae vildc inaequales et in genere certe singulares, una fere oibiculans, altera adscendens oblon^a. obtusa, utraeque nuculae latitudinem multo superantes (v s)
- 3 F MAGLEYANA , arboi, coma pyramidali, ramis patentibus adscendentibu\*>ve teretibus, ramulis confertis erecto-patulis subdichotomis crebre articulatis, folns terms quaternisve, ramoium ngidis, inferne adnatis, reliqaa parte libens, patuhs lmean-acummatis pungentibus, subtus nervo valido longitudmali notatis, ramulorum folns ramorum conformibus vel maxima parte adnatis, dorso convexo-cdiinatis, apice summo hbero acuminato adpresso, amentis mascuhs ovatis obtusis, bracteis ovatis acuminatis, ant hens 3, strobihs in rdmulo breviusculo subnutantibus subglobosis sex octanguhs, squamis paulo inaequahbus, i 4 majonbus, i 4 paulo minouibus et angustionbus, omnibus cordito-lanceolatis acutiuscuhs dorso canahculatis et rugulosis, infra apicem apice bractee adnatae hbero acuto recurvo breviter mucronatis cohimna brevissi na subtnerun, nucuhs fertihbus saepe unialatis, ala laterah nucula ipsa multo latiore t) In Nova Hollandia orientali prope Port Macquarie ad Tacking Point detexit cl Maclay (herd Mull pi exsicc), in Nova Cambria austrah ad Hastings River (Ferd Muell 1), frequens in mantimis stenhbus |e| arenosis prope Brisbane (Hill) Leichardtia Macleyana bhepherd Catal. of Plants cultivat at Sydney ann 18^1 p 15, Gord Pm Suppl p. 40, Carr. Conif edit 2. p 75. Octochms Maclayana Ferd Muell ' in Trans ot the Phil. Inst of Victoria 2 p 20 cum icone, Carr Conif edit 2 p 790 Octochnis Backhousi Hill m Catal of the Natural and Industr Products of Queensland 1862 p 16 Amenta mascula 2-4 mill longa ex Ferd Muell Strobili 22 28 mlill longi Nuculas non vidi (v. s)

4. F. SUBUMBELLATA, arbor? ramulis confertis erectis subumbellatis alterne tetragonis, foliis omnibus? quaternis adnatis, dorso exquisite carinatis, apice summo libero obtuso. . . . . In Nova Caledonia (Herb. Hook!). Frenelae an novi generis species? Parl. Conif. Nov. in Enum. Sem. Hort. Keg. Florent. ann 1862. (v. s.)
5. F. PARLATOREI (Ferd. Muell. msc.), arbor, ramulis crebre articulatis, foliis ternis, maxima ex parte adnatis, dorso convexo-carinatis, apice summo libero acuminato adpresso, amentis masculis. . . . . strobili in ramulo crasso brevi subnutantibus ovoideis magnis, squamis 6 subinaequalibus, 3 majoribus ovali-lanceolatis, 3 vix brevioribus et paulo angustioribus lanceolatis, omnibus obtusiusculis dorso carinatis muticis, columna brevi tricurri (Muell.), nuculis in quaque squama 4-n partim sterilibus, partim fertilibus monoptericis, ala nuculis 2-3 longiore (Muell.). 3<sup>in</sup> Nova Hollandia orientali subiro-pica Darlington's Range, Queensland (Hill! in Herb. Muellierian.). Callitris Parlatorei Ferd. Muell. I Fragm. Phyt. Austr. 5. p. 186. Arbor sexagintapedalis. Ramuli et folia ut in Fr. Macleyanas forma foliis ternis. Strobilus, quem vidi, 29 mill, longus, 25 mill, latus. Squamae extus castaneo-fuscae, rugulosae, 3 majores 29 mill, longae, 11-12 mill, latae, 3 minores 27-28 mill, longae, in medio 8-9 mill, latae. Si a Frenelae Macleayanae forma strobilis hexameris foliisque ternis sit diversa in locis natalibus investigandum. (v. s.)
6. F. RHOMBOIDEA (Endl. Conif. p. 36), arbor, coma pyramidalis, ramis horizontalibus subteretibus, ramulis gracilibus subpendulis obtuse triquetris faciebus unisulcatis fusco-viridibus junioribus glaucescentibus, foliis ternatim verticillatis adnatis, apice tan tum libero acuto adpresso, amentis masculis solitariis vel prope apicem ramuli 2-4 approximatis parvis ovatis vel ovato-oblongis obtusis, bracteis ovato-orbicularibus, anthraxis sub-3, strobilis in ramulo breviusculo vel brevi aggregatis subglobosis supra deDussiusculis (fuscis), squamis 6, externe rugosis vel laeviusculis, dorso sursum gibbere conico apice mucronato vel submutico praeditis, mucrone recto pungente, 3 majoribus obovato-rhombeis, 3 minoribus ovali-rhombeis, columna brevi tricurri, nuculis ovatis, alis angustis vel nuculae ipsarum latitudinem superantibus (rubro-fuscescentibus). § Ad fluviorum ripas et in rupibus in Nova Hollandia austro-orientali, Tasmania insulisque intermediis : in New South Wales (herb. Muell. 1), ad Portum Jackson (Lesson), in Australia felici prope Port Adelaide (Hlandowsky I), Twofold Bay. Victoria Range, Mount Abrupt, Grampians (Ferd. Mueller!), Illawarra (Shepherd!), Cape Willeby, Pink Bay, Kangooro Island (Sealy!), in parte Tasmaniae orientali ad Oyster Bay (Backhouse, Olof I ^unn! n. 543, Milligan! n. 641), in insula Flinders (Backhouse, Milligan!), in insula Cape Barren (Milligan!) — Hook. f. fl. Tasm. p. 352; Carr. 1. c; Gord. Pin. p. 86. Callitris rhomboidea R. Brown msc. in «Rich. Conif. p. 47. t- 18. f. 1. Thuya australis Poir. Suppl. 5. p. 302. Cupressus australis Desf. l. Cat. Hort. Reg. Paris, ed. 3. p. 355, non Pers. Callitris cupressiformis Vent. Nov. Gen. Dec. n. 10. Fr. Ventenati Mirb.? in Mem. Mus. 13. p. 74. Fr. australis Endl. Conif. p. 37 ex parte; Gord. Pin. p. 83. Fr. triquetra Spach Hist. des veg. ph. in. 11. p. 345; Endl. Conif. p. 38; Carr. Conif. p. 70; Gord. Pin. p. 87. Callitris australis Hook. fil. in Lond. Journ. of bot. 4. S. 147. Oyster Bay Pine Tasmann. Arbor 25-70 pedes alta, interdum 120-pedalis (Milligan) vel in sterilioribus frutex 3-7-pedalis. Rami fragiles. Folia ternatim verticillata, viridia, persistentia, cortice cinereo adnata/ ramos sexfasciatis reddunt, fasciis tribus viridibus, demum rubentibus, tribus cinereis. Folia ramorum et ramulorum primariorum a medio ad apicem libera patentissima, lineari-acuminata, planiuscula. Amenta mascula 1j<sup>1</sup>-2<sup>1</sup> mill\* longa, 1j mill. lata. Wtea. Strobili luscii et fere nigricantes, H-12 mill\* longi, 13-14 mill. lati. Squamae vix rugosae vel leviusculae, tertio superiore gibbere conico, apice mucronato efpungente vel mutico prasdita, in strobilibus junioribus longiuscule mucronato-pungentes. Columna brevis, radiatim tripartita. Nuculae in ipso strobilo nunc anguste nunc late alatae, unde forma et latitudo variabilis, ideoque species imnrito in duas vel plures divisa. (v. v.)

p, *pendula*, ramulis pendulis. New South Wales (Vernon!). *Weevina Frenela* Angl. I<sup>ov</sup>. Holland. \*

7. *F. LANESCENS*, ramis teretibus, ramulis gracilibus brevibus erectis confertis subtortibus canescentibus, foliis ternatim verticillatis adnatis, dorso pruinoso-canescens, apice summo hinc adpresso, ramorum acutiusculo, ramulorum obtuso, amentis masculis oblongis obtusis, bracteis ovato-orbicularibus, strobili in ramulo breviusculo vel strobilum ipsum subaequante ejectis solitatis globosis (cinereo-fuscis), squamis 3 majoribus oblongis obtusis, 3 tertio brevioribus ovatis lanceolatis obtusiusculis, omnibus dorso convexis levibus vel sero rugulosis muticis, columna breviuscula obtuse triquetra, nuculis cum alis latis cordato-orbicularibus (marginatis). In Nova Hollandia austro-occidentali (Roe I), Swan-River (Drummond! Nov. 1843). Species quoad fructus Fienelae rhomboideae quodammodo affinis sed ab illa praesertim columna satis distincta et ab omnibus foliorum ramorumque canescens facile distinguenda. Amenta mascula luteola, 2-2½ mill, longa, 1½ mill. lata. Strobili 13-15 mill, longi et lati. Nuculae parvae, cum alis latis marginatis basi profunde cordatae suborbiculares, magis latae quam longae, 3½-4 mill, longae, 6-7 mill, latae (v. s.)
8. *F. DRUMMONDII* (Parl. Conif. nov. p. 2), frutei, ramis teretibus, ramulis crassiusculis erectis alveolatis triquetris, faciebus umsulcatis vmdibus, foliis adnatis dorso convexo-canalicatis levibus, apice hinc adpresso obtusiusculo, amentis masculis . . . . ., strobili in ramulo crasso valdeque apicem versus incrassato et strobilum subaequante aut superante erectis pleumque solitatis subglobosis (castaneo-fuscis) nitidis, squamis 3 majoribus oblongis obtusis, 3 minoribus paulo brevioribus acutiusculis, omnibus dorso laevibus, basin versus rugulosis et infra apicem brevissime mucronulatis, columna longiuscula obtuse triquetra, nuculis parvis alis nucula multoties latioribus (fuscis) 3 In Nova Hollandia austro-occidentali, Swan River (Drummond! n. 433) et australe, Salt River, Gaiden River, Fitzgerald River (in herb. Muell.). Fructus 10-pedalis. Strobili 12-13 mill, longi, 14-15 mill, lati, juniores dorso rugulosi. Nuculae et alae fuscae. (v. s.)
9. *F. ROEI* (Endl ! Conif. p. 36), arbor\* ramis teretibus, ramulis erecto-patulis eiectione crassis alveolatis triquetris, faciebus umsulcatis, foliis ternatim verticillatis adnatis, apice summo hinc adpresso obtusiusculo, amentis masculis . . . . ., strobili in ramulo longiusculo 1-2 erectis vel subnutantibus globosis (castaneo-fuscis), squamis crassis, 3 majoribus oblongis obtusis, 3 paulo minoribus ovalibus-oblongis-acutiusculis, omnibus dorso exquisite rugosis et infra apicem gibbato conico paulo obtusiusculo mucronatis, columna elongata triquetra, nuculis . . . . . In Novae Hollandiae austro-occidentali interfluvibus (Roe), Swan River (Drummond! n. 235, ann. 1841) — Can. Conif. p. 70, Gord. Pin. p. 57. Species ramulorum crassis ab omnibus facile distinguenda. Strobili immaturi ovato-globosi, eorumque squamis apice bractea adnata hinc longiusculo vmdibus sub apice insigniter appendiculatae. Strobili maturi 18-20 mill, longi et lati. Columna crassa triquetra, squamis paulo brevior. Nuculas maturas non vidi quas desunt in ipso specimen Endlicheriano. (v. s.)
10. *F. VERRUCOSA* (Allan Cunningham ex Mirb. m Mem du Museum 13. p. 74) t arbor? ramis teretibus, ramulis gracilibus confertis obtuse triquetris, faciebus umsulcatis vmdibus, foliis ternatim verticillatis adnatis dorso convexis, apice summo hinc ovato-triangulato acuto vel acutiusculo adpresso, amentis masculis 2-3 approximato-fasciculatis, bracteis antherifera ovato-orbicularibus denticulato-ciliolatis, strobili in ramulo breviusculo vel longiusculo superne parum incrassato erectis solitatis globosis subdepressis (cinereo-fuscis), squamis 3 majoribus ovatis-oblongis, 3 tertio brevioribus lanceolato-linearibus, omnibus crassis obtusis, dorso crebre minute et obtuse tuberculatis, columna brevissima subnulla, nuculis ovatis cum alis subaequalibus nucula angustioribus ovatis. In Nova Hollandia austro-orientali Murray-River (herb. Muell. I), in regionibus boreali-occidentali Colonia Victoriae (L. Morton'). *Marunna* Ind. Nov. Holl. *Murray Pine* Angl.-Nov.-Holl. Strobili 13-15 mill longi Nuculae castaneae, 2-3 pterae, 4-5 mill longae, cum alis 4-5 mill, longis. Frenela venucosa Endl. Conif. p. 37 quae in herbano Endlicheriano est, a nostra specie columna elongato-triquetra aliena, et species dubia. (v. s.)

- 11 F MOORII, arbor, ramis teretibus, ramulis gracilibus confertis obtuse tinctis faciebus unisulcatis glaucescentibus, folis ternatim verticillatis adnatis, apice summo libero, ramorum lanceolato-acuto subpatulo, ramulorum obtusiusculo adpresso, amentis masculis , strobili in ramulo breviusculo aut breviusculo superne parum incrassato erectis glabro ovatis (fuscis), squamis 3 majoribus ovato ovatis obtusiusculis 3 paulo vel subtertio brevioribus oblongo hinc obtusiusculis omnibus dorso crebre ruguloso-reticulatis et infra apicem apice summo bractea adnatae libero vix mucronulatis aut submuticis, columna brevi acuta, nuculis oblongo linearibus cum alis nuculae latitudinem multo superantibus profunde cordato orbicularibus ^ In montibus Novae Hollandiae orientalis ad Moreton Bay Glass House, Clarence et Richmond Rivers (Ch Moore') nec non in Deserto Darling River (Victoria Exped in herb Muell') Frenela verrucosa var laevis Moore' in Catal of the ^ature and Industr Products of New South Wales 1862 p 28 Arbor 60-90 ped alta, masculis in plantis vivis desinenda, sed strobilorum structura ab omnibus distincta Strobili 15-18 mill fere longi, 14-20 nulli liti, apice obtusiusculi Nuculae 4 mill longae turn alis valde dilatatis, tenuibus, flavidis et inferne productis 7-8 mill longae, S Id mill latae Huic speciei forte spectat Gallitua arenosa Sweet Hort Brit p 473 (F arenosa hort) sed descriptio speciminumque autpticorum defectu de ejus identitate ai fir ma re non a idto An Frenela glauca Mirb (Callitua glauca R Brown) huic referenda? (v s)
- 12 F ENDLICHERI, frutex? ramis patentibus subteretibus, ramulis subconfertis subgracilibus obtuse tinctis faciebus unisulcatis vmdibus, folis ternatim verticillatis adnatis dorso convexis apice summo libero adpresso obtusiusculo, amentis masculis , strobili in ramulo breviusculo vel longiusculo erectis solitariis globosis ovatis obtusis (fuscis), squamis 3 majoribus oblongis vel oblongo ovalibus obtusiusculis 3 paulo vel tertio brevioribus ovali-oblongis vel oblongo-lanceolatis acutiusculis, omnibus dorso longitudinater rugosis vel levibus et apice bractea adnatae libero brevi acuto patulo infra apicem mucronulatis, colorata bipervi tncruri, nuculis ovatis cum alis nuculae latitudinem subaequantibus vel superantibus cordato ovatis In Nova Hollandia orientalis (Allan Cunningham) ad Portum Jackson (D'Urville! ann 1826) et australem in montibus tuster s Range in rupestribus inter Owens et May days hills, Castlereigh River et Balooone (Ferd Muell I) Callitua fruticosa R Brown msc ex Rich *lr* fruticosa Endl Conif p 36 ex parte, sed descriptio partim erronea, nec herb , Carr Conif p 69 et Gord Pin p 84 ex parte Fr australis Tndl ' Conif p 37 ex parte et exel syn et pi Tasmann et herb ! Carr Conif p 72 ex parte Fr australis et rhomboidea hort aliq Species Frenelae Gunnii affinis sed rami graciliores, strobili minores globoso-ovales columna brevis tnciuns Rami cortice cinereo et loricis ternatim verticillatis vmdibus demum rubentibus, loricis sex alternis notiti strobili 18-20 mill longi, 15-18 mill lati Nuculae 4-5 mill longae, 5-7 mill latae, rufescenti lutcae Cupressus australis Pers Syn 2 p 580 est species dubia, nec probabiliter Frenelae species, nam folia dicuntur opposita si descriptio baud enonea Planta vero olim in horto Celsiano culta, ut ex specimine in liPibauo Pontanesisimo clare patet; ad F bunnii nostram sive australem R Br pertinet In herbjano Yndhchenano sub t fruticosa exstat *h* robusta a il Hueneho in Nova Hollandia austro-occidentali prope Preemantle lecta cum strobilibus junioribus (v s)
- 13 F GULIELMI, ramis teretibus, ramulis erectis vel erecto patulis subdichotomis gracilibus obtuse tinctis faciebus unisulcatis, folis ternatim adnatis dorso convexis apice summo libero bicipiti adpresso obtusiusculo, amentis masculis , strobili in ramulo breviusculo superne incrassato erectis globosis supra breviusculis (fuscis) nitidis, squamis 3 majoribus ovali-oblongis obtusiusculis, 3 tercio brevioribus et subdimidio antustionibus lanceolatis acutis, omnibus dorso convexis et laevibus muticis submuticisve columna acute triquetra acutiuscula nuculis ovatis cum alis nuculae latitudinem superantibus cordato-orbicularibus nigricantibus in Nova Hollandia australem prope bait-Lake ad Tungetta legit Princeps Carolus Gulielmus (in herb, vmdob sub nomine Callitua Preissn) Strobili juvenes subglobosi,



dorso exquisite reliculato-rugosi: squamae sub apice breviter mucronulatae. Strobili maturi omnino laeves, nitidi et squamae muticse vel submuticae. Strobili ipsi 13-14 mill, longi, 14-16 mill. lati. Nuculae magis latae quam longae, 4 mill. longae, 6-7 mill, latae. Frenelae Urvillei nostrae affinis aqua columna potissimum differt. (v. s.)

14. F. GUNNII (Endl. Conif. p. 38), frutex ramosissimus, ram is subteretibus erectis, ramulis erectis crassiusculis obtuse triquetris faciebus leviter unisulcatis glaucescentibus, foliis ternatim verticillatis adnatis, apice tan turn libero squamaeformi acutiusculo ad p res so, amentis masculis minutis globoso-ovalibus, in ramuli longiusculi apice subcapitatis, bracteis minutis submembranaceis ovato-orbicularibus, antheris 5-2, strobilis in ramulo brevi vel brevissimo solitariis vel subaggregatis ovatis vel ovato-globosis obtusis nitidis (fuscis), squamis 6, in plantis cultis interdum 7-8, oblongis obtusiusculis dorso convexis vel convexiusculis levibus vel subrugosis sub apice mucronulatis, mucronulo brevi recto vel muticis, 3 tertio vel subdimidio brevioribus et paulo angustioribus, columna brevissima subtricornata apice acuta, nuculis cum alis angustis late ovatis vel ovato-rhomboideis (nigricantibus). 3 Frequens in glareosis fluvii South Esk River Tasmanniae (Gunn! n. 542, Milligan! Mueller!), in Tasmannia (Stuart pi. Mueller!), — Carr.! Conif. p. 74; Gord.! Pin. p. 84. Callitris oblonga Rich.? Conif. p. 49. 1.18. f. 2. excl. habit. Callitris Gunnii Hook.! fil. in Lond. Journ. of Bot. 4. p. 147. Fr. variabilis Carr.! Conif. p. 75. Fr. australis R. Brown in Mirb. Mem. Mus. 13. p. 74; Hook. fil.! Fl. of Tasm. p. 352. t. 97. Fr. macrostachya hort. Gord. Pin. p. 85. Callitris macrdstachya hort. Native Cypress incolar. Frutex 5-9 pedes altus, erectus. Rami rubentes, foliis adnatis persistentibus virentibus, demum rubentibus, sexfasciati. Amenta mascula 1 j mill, longa et fere lata, lutea. Strobili 20-24 mill, longi, 18-20 mill. lati. Squamae longiores 20-23 mill, longae, 7-8 mill, latae, mi no res 14-17 mill, longae, 6-7 mill, latae. Nuculae 5 mill, fere lon-gae, 5-7 mill, latae. Nomen Frenelae australis, quod auctores omnes speciebus diversis tnbuerunt, nee Cupresso australi Pers. nunquam raferendum, delendum est. (v. v.)

p, *mucronata*, squamis omnibus prope apicem longiuscule et crassiuscule mucronatis. In Monte Mitchell (herb. Muell.) (v. s.).

15. F. MUELLERI, arbor, coma densa, ramis teretibus, ramulis erectis crassiusculis obtuse triquetris, faciebus unisulcatis, foliis ternatim verticillatis adnatis», apice tantum libero squamaeformi obtuso adpresso, amentis masculis parvis 2-5 raro solitariis ovato-oblongis oblongisve obtusis, bracteis antheriferis orbicularibus integris, strobilis in ramulo brevi vel breviusculo erectis patulisve solitariis saepe approximatis subglobosis (fuscis), squamis 6 dorso convexis laevibus vel rugosis, 3 majoribus oblongis obtusiusculis infra apicem mucronulatis, mucronulo recto, 3 minoribus tertio brevioribus angustis lineari-lanceolatis acutis, columna breviuscula acute triquetra apice acuta, nuculis oblongis bi-tripteris alis nuculse latitudinem subsuperantibus (nigricantibus). ♂ In Nova Hollandia orientali prope Port Jackson (in herb. Muell.), Sidney (Vieillard!), South Head (Thozet!) et austro-orientali ad Port Philip Heads (Mrs Backer! in herb. Muell.). Fr. fruticosa var. arborea Ferd. Muell. pi. exsicc. Arbor, ut videtur, formosa, 20-30 pedes alta. Amenta mascula 2-3 mill, vix longa, 1 j-1 j mill, lata, lutea. Strobili juniores ovali-globosi, glaucescentes, adulti 22-28 mill, longi, hiantes : columna crassa. Nuculae 5-6 mill. longae, cum alis 10-15 mill, latae. Ab affini F. Gunnii squama rum forma, columna nuculisque satis superque distincta. (v. s.)
16. 1\ ROBUSTA (Allan Cunningh. ex Mirb. in M6m. du Museum 13. p. 74), arbor, ramis horizontalibus teretibus, ramulis erectis confertis gracilibus obtuse triquetris, faciebus unisulcatis, foliis ternatim verticillatis adnatis, apice summo libero adpresso, jramorum acutiusculo, ramulorum obtusiusculo, amentis masculis 2-pluribus aggregatis vel raro solitariis oblongo-cylindraceis obtusiusculis, tracteis antheriferis temis crebre imbricatis ovatis vel ovato-rhombeis obtusis sublacero-ciliolatis, strobilis in ramulo breviusculo crasso 1-3 erectis vel subnutantibus subglobosis (castaneo-fuscis), squamis 3 majoribus oblongis obtusiusculis, 3 tertio minoribus ovali-lanceolatis acutis,

omnibus dorso irregulariter giosse obtuseque tuberculatis vel tantum rugosis, columna breviuscula crassa tnuetra, nuculis ovalibus basi truncatis 2-3-ptens, alis paulo inaequalibus nuculae latitudinem vix duplo superantibus 5 In Nova Hollandia austro-occidentali et austrah in arenosis prope Rocky-Bay et Woodmans point (Preiss' n. 1312), in mantimis Novae Hollandiae austro-occidentahs (Bynoe), in King George Sound (Baxter'), prope Freemantle (Hugel'), in insula Rottenest (Allan Cunnmgh. Preiss» n. 1310), in insula Bald (herb. Muell '), prope Adelaide, Enfield et Lake Torrens, Darling Rivei, Burdikin River (herb. Muell.'), in Nova Hollandia subtropica (Mitchell'), Kangaroo Island (Waterhouse!) — Endl. Conif. p. 37; Carr. Conif. p. 72; Gord. Pin. p. 86. Callitns robusta R. Br msc. ex Mirb. 1. c. Calitris glauca R Brown? in Mirb. 1 c F. glauca? Mirb 1 c Endl \* Conif. p 38, Can ? Conif. p 75, Gord \*.Pin. p. 84. Callitns Preissn Miq » in Plant. Preiss. 1 p. 643 Fr crassivalvis Miq.' btpn Nov. Holl. a Ferd Muell. collect, p. 11, strobilis haud vel parce tuberculdtis sed tantum rugosis, Callitns tuberculata R Brown msc ' Frenela tuberculata Mirb.? 1. c Marro colon, ins. Kottenest Aibor 20-30 p. alta (Preiss), Pun Cedn facie, cortice fusco, lamis horizontahbus. Amenta mascula 3-7 mill, longa, If mill. lata, lutea. Amenta feminea ahqua interdum abortiva, erecta, oblonga, obtusa, palhda, eorumque squamae 3, oblongo-lineares, facie concavae, doiso acute cannatae, stenles StrobiU 20-28 mill longi et fere lati, jumores ovato-globosi Squamae crassae, juniores infra apicem apice biactee adnat-£ libero subreflexo mucronulatae, maturaе muticae vel submuticae Nuculae et alae castaneae, 4j-6 mill, longae, 6-10 mill, cum alis latae. Species strobilis majonbus \el minonbus, squauis mdgisminus\ e tuberculdtis vel tantum rugosis et columna breviuscula vel parum elongata, obtusa vel acute tnuetra valde vanabihs, et m plantis vivis mehus Illustranda. (v. s.)

*Species dubix, plurimx indscriptz.*

- P. ARENOSA hort. = Callitns arenosa Sweet Hort. Brit. p. 473. In Nova Hollandia. An Frenela Moorn Parl ' .
- P. CALCABATA Cunningh. in Mirb. M6m. Mus. 13 p. 74. Callitns calcarata R Brown msc In Novae Hollandiae onentahs interioribus. F. encoides hort. Juniperus encoides Noisette ex Desf. Hoit. Paris edit. 3 p. 355. In Nova Hollndia.
- \*b COLUMELLARIS (Ferd. Muell. Fragm. Phyt austr 5 p. 198), folns terms adnatis, apice libero tnangulan, strobilis parvis globosis solitarns geminis ternisve conspicue pedunculdtis ba^i bracteis parvis tnangularibus, 3 brevionbus lanceolato-lineanbus, columna subdequali acuta tnuetra truncata, nuculis fere omnibus diptens. Ad ostmm fluminis Richmond's River (Henderson ex Muell.).
- F FOTHERGILLI hort. Callitns Fotbeigilh Loud. Encycl of trees 2464. Cupressus Fothergilh Pinet. Wob. p. 191 In Nova Hollandia
- F. JUNIPEROIDES. Octoclinis juniperoides Carr. Conif. edit 2. p. 790. In Nova Caledonia.
- F HLGELII hort.; Cdr Conif p. 73 Strobilis depiessis vel subglobosis, squamis maequalibus re^ulanbus, 3 alternis minonbus (Cdr 1 c). In Nova Hollandia, Callitns Hugel Knight Syn. Comf. p. 14, ex Cdr. In Nova Hollandia austro-occidentah (Gord Pin p. J5).
- F. PROPINQUA Cunninffh. in Mirb Mém. Mus. 13. p. 74. Calhtris propmqua R. Br msc. In Nova Hollandia onentah.
- F. PYRAMIDALIS'hort Callitns pyramidalis Sweet Hort.'Brit. 473. In Nova Hollandia. An Frenela rhomboidea Endl.?
- F. RIGIDA hort. Junipeius ngida Noisette ex Desf. Hort Pans. edit. 3. p. 355.
- P. TUBERCVLATA Mirb. M6m MUS. 13. p. 74. Calhtns tuberculata R. Br msc In Nova Hollandia australi An Frenela robusta?
- F VERRUCOSA (Endl. Conif p. 37), strobilis depresso-globosis, valvis muticis ex-

tus verrucosis, mltus tuberculatis, columna elongato-tinquetra, semimbus late alatis (Endl) In Novae Holldndiae on en Lai is intenoibus

*Species exclusa.*

F. FONTANESII Mirb. = Calhtns quadnvalvis Vent

XIV. CALLITRIS Vent Decad 1808 excl kpec Nov Holland , Spach Hist natur. des vegdt phani r vol II p 343, Rich Comf p 46 t 8 fig \ excl spec , Brongn in Ann sc nat. vol 30 p 189 excl spec , Endl Gen. pi p 259. n 1792 excl spec et Cnnif p. 40 Carriire Comf p 80, Gord Pin. p 37, Henk et Horhst Nadelholz p. 290 — Thuyae sp Vahl Symb bot.2 p 96 £48, Dpsf n atl 2 p 353. t. 252. — Frenelae sp. Mirbel m Mim. du Mus vol 13. P 74

Flores in ramis diversis monoici Amenta masc. in ramulis lateralibus terminalia, oblongo-cylindracea Bractea in axi decussatim oppositae, laxe imbncataB, excentnce peltatae, stipitulo crassmsculo, honzontah, demum deflexiusculo, lamina membranica, vindi, suborbiculan, subtus sub stipitulo staminigerse Filamenta nulla Antberae 4-5, subglobosa3, uniloculares, loculo longitudinahter dehiscente Amenta feminea in ramulis lateralibus solitane terminalia, bracteis paucis ster.libus adpressis infer ne suffulta Squamaa ^cruciatas, honzontalesjcarosae^btusaa, mtenores paulo minores, omnes e bractea foliacea lepidioque carnosulo aequilongo composit33. Pistilla ad basin squimaium majorum gemma, margine intpriore superposita, ad basin squarmrum minorum plerumque sohtarid7 omnia erecta. Ovanum ovile vel subiotundum, compressiuscnlum, superne margmato-angulatum. Stylus teres, crassiusculus, rectus, ovano brevior. Stigma ferp orbiculare, uti stylus pervium Strobilus subgloboso-tetragonus, quadnvalvis, valvis lignosis erectis matuntate patentiuscuhs, dor^o cannatis, infri apicem breviter mucronatis, facie convexo-angulatis, extenonbus lationbus Columna nulla Nuculae 6, per tna ad faciem valvuum majorum superpositae, erectas, oblongaa, superne attenuat83, dorso supia basin et ipicem versus foveohs resiniferis exculptde, margme utnnque in alam tenuem valvis aequilatam expansae Pencarpium cartilagmeum. Semen solitanum, oblongo-cyhndraceum, superne attenuatum. Testa tenuissima, basi pencarpio adhaerens. Embryo in axi albuminis pani cirnosi, ejusdem fere longitudine, cotyledonibus 2, bipartitis, oblongis, obtusis, dorso planiuscuhs, facie convexo-cannatis, radícula cylindracea Folia sennaha 2, bipartita, unde videntur 4, linpacia, patentissima —Arbor atlantica, sempervirens, cortice fusco, li^no fere cmnamomeo, in nodis a trunci ustione efformatis punctis nigrescentibus eximie picto Uimi sparsi numerosi dichotomi vel pinnatim bipinnatimve ramosi, compressi, articulati. Folia decussatim opposita, I amis ramulisque adnata, apice libera, glandulosa, mterdum aciculana, mucronato-subpungentia, basi adnata, rehqua parte libeia et patentia.

C QUADRIVALVIS (Vent. \ Decad p 10) 5 In colhbus Barbanae et in Atlantel In Mauritania circa letouan (Webb!) Thuya articukta Vahl! Symb bot 2 p 96 t 48, DesflFI atl 2. p 353 t 252 Freneia Fontanesii Mirb in Mem du Museum vol 13 p 74 Callitns quadnvalvis Rich. Coini p 46 t 8 fig 1> tndl. Conil p 42, Carnère Comf p 81, Gord Pin p 38, Henk et Houhst Nadelholz p 290 Arar Arab Arbor pyramidalis, 15-18 ped alta, lesinani Sandracdm scatens, ramis teretibus patentissirais, nmulis compiessis articulatis, a folns omnino teutis, vindibus, exsiccando fragilibus Folia detussatim opposita, ramis ramulisque adnata, apice libera et adpies&a, senescentu persistentia, marginalia dorso convexiuscula et sub apice acutmsculo glan-

dula oblonga prominenti lutescenti notata, lateralia plana, apicem versus dilatata et obtusa, ibique glandula minuta, subrotunda, pellucida notata, omnia margine ciliolata. Raro ad basin ramorum inferiorum inveniuntur folia acicularia, decussatim opposita, valde approximata, basi tantum adnata, reliqua parte libera et patentia, mucronato-subpuugentia, glauca, supra planiuscula, subtus convexa. et glandula oblongo-lineari a basi fere ad apicem notata. Amenta mascula luteo-fusca, 4-4 J mill, longa, 1-1 ^ mill, lata; feminea parva, viridia. Pistilla luteola. Strobili cinnamomeo-fusci, 12-13 mill, longi, 13-14 mill, lati, valvis lignosis erecti, 2 majoribus ovato-acutis, 2 minoribus ovalibus obtusis subtruncatisve et basi dorso profunde canaliculatis. Nuculae et alae fusciscentes, illae dorso glandulis resiniferis numero et situ variabilibus munitae. (v. v.)

*Species exclusae.*

- C. ARBOREA Schrad. = *Widdringtonia juniperoides* Endl.
- C. ARENOSA Sweet = *Frenela arenosa* hort.
- C. CALCARATA R. Br. = *Frenela calcarata* Mirb.
- C. COLUMELLARIS Ferd. Muell. = *Frenela columellaris* Ferd. Muell.
- C. CUPRESSOIDES Schrad. = *Widdringtonia cupressoides* Endl.
- C. CUPRESSIFORMIS Vent. = *Frenela rhomboidea* Endl.
- C. FOTHEBGILLI Jjoud. = *Frenela Fothergilli* hort.
- C. FRUTICOSA R. Brown? = *Frenela Urvillei* Parl.
- C. GLAUGA R. Br. = *Frenela glauca* Mirb.
- C. GUNNII Hook. fil. = *Frenela Gunnii* Endl.
- C. HUGELII Knight = *Frenela Hugelii* hort.
- C. MACROSTACHYA hort. = *Frenela Gunnii* Endl.
- C. OBLONGA Rich. = *Frenela Gunnii* Endl.
- C. PARLATOREI Ferd. Muell. = *Frenela Parlatorei* F. Muell.
- C. PREISSII Miq. = *Frenela robusta* Curfnigh.
- C. PROPINQUA R. Br. = *frenela propinqua* R. Br.
- C. PYRAMIDALIS Sweet. = *Frenela pyramidalis* hort.
- C. RODUSTA R. Br. = *Frenela robusta* Cunmng.
- C. STRICTA Schrad. = *Widdringtonia cupressoides* Endl.
- C. TUBEKGULATA R. Br. = *Frenela tuberculata* Mirb.
- C. VERRUCOSA R. Br. = *Frenela verrucosa* Cunningh.

B. Strobili squamae decussatim oppositae vel ternatim verticillatae, basi connatae vel liberae.

XV. *LIBOCEDRUS* Endl. *Conif.* p. 42; *Cl. Gay. Flor. Chil.* 5. p. 405; *Carrière Conif. j.* 84; *Gord. Pin.* p. 131. — *Dacrydii spec. Don ex Endl.* — *Juniperi spec. Lamb. Pin. edit. 2.* p. 116. — *Thuyae spec. Hook. Lond. Journ. of Bot.* 1. p. 571, 2. p. 199 et 3. p. 144; *JPapp. Nov. gen. et spec.* 3. p. 17; *Görd. Pin.* p. 321; *Henh- et Hochst. Nadelhote.* p. 282.

Flores in ramis diversis monoici, interdum dioici. Amenta mascula in ramulis lateralibus solitaria, terminalia, cylindracea vel ovalia et subtetragona. BracteaB in axi decussatim opposita, quadrifariam imbricataB, foliaceaB, ovato-deltaeideae vel suborbiculatae, subpeltata3 dorso sub stipite staminigerae. Anthrae 3-4, subglobosae vel oblongae? longitudinaliter dehiscentes. Amenta feminea in ramulis lateralibus solitario terminalia. Squamae 4-6, decussatim oppositae, erectae, e bractea

foliacea lepidioque carnosio oblongo brevior supra basin adnatis compositae, 2 inferiores minores steriles, et 2 supremae, si adsunt, inter se connatae, bracteis sterilibus paucis, foliis supremis saepe longioribus suffultae. Pistilla 2, collateralia, erecta, parva. Ovarium compressum, vix alatum. Stylus brevis, compressus. Stigma subbidentatum. Strobilus primo anno maturescens. Squamae 4, raro 6, verticillatae, subhgnosae, maequales, 2 inferiores minores, plerumque steriles, 2 supremae, si adsunt, in septum\* longitudinale connatae, majores sive intermediae fertiles, omnes bractee apice libero, longiusculo vel breviusculo supra medium vel infra apicem mucronatas, primum erecto-conniventes vel erectae, dein patulas. Nuculae 2 vel abortu solitariae ad basin squamarum majorum, interdum etiam inferiorum, erectae, oblongae, convexae, utrinque in alam membranaceam productae, ala, altera angusta, altera maxima, sursum expansa, squamas majores subaequante\* Embryo in axi albuminis carnosus, antitropus, ejusdem longitudine, cotyledombus 2, radícula teretiuscula supera.—Arbores semperviventes, interdum excelsae, raro frutices, in America australi et boreali-occidentali extratropica et in Nova Zelandia indigenae, cortice leviusculo, ligno albo vel flavido, compacto. Rami sparsi, crebri, horizontales vel patentes. Folia decussatim opposita, ramulorum quadrifariam imbricata et squamaeformia difformia, facialibus minoribus, adpressis, saepe glandulosis, marginalibus complicato-carinatis, eglandulosis, vel omnia conformia.

1. *L. DONIANA* (Endl. Conif. p. 43), dioica, arbor, ramis subteretibus honzon talibus tortuosis, ramulis oppositis distichis patulis compressis laliusculis, foliis decussatim oppositis, ramulorum secundariorum oblongis maxima ex parte adnatis, apice libero patulo ovato-acuminato pungente, ramulorum quadrifariam arete imbricatis, facialibus parvis adpressis ovatis acutis mucronatis, dorso obtuse carinatis et glandula lineari conspicua notatis, in ramuli facie superiore vinctis et nitidis, in inferiore carinatae aliter vinctiglauciscentibus, marginalibus multo majoribus complicate - navicularibus ovato-oblongis acutis submucronatis, a basi ad medium vel paulo ultra ramulum amplectentibus et inter se connatis, apice patulis, in ramuli facie superiore vinctis et nitidis, in inferiore fascia albida longitudinali notatis, et vinctiglauciscentibus, strobili in ramulo brevi erectis ovato-oblongis, squamis 4 decussatim oppositis sublignosis erecto-patulis maequalibus, 2 majoribus oblongis inferne parum angustatis, apice rotundato-obtusis, 2 minoribus oblongo-lanceolatis obtusiusculis, omnibus bractee inferne adnatae parte superiore libera lanceolato - acuminate spinescente arcuato - patentissima squamis subaequali aut paulo longiore supra medium notatis, nuculis ad basin squamarum majorum solitariis oblongis (fuscis), margine altero anguste alatis, altero apicem versus alatis, ala oblonga integra vel subdentata, nucula ipsa subduplo longiore, squamas majores subaequante. 5<sup>th</sup> Nov<sup>o</sup> Zelandiae ins. boreali et media in sylvis montium et juxta fluvios (Benett, Cunningham, Hugel! in herb. Vindob) : in montibus Huahine (Colenso!), in monte Nelson 6000 ped. elev. (Bidwill!). — Carr. Conif. p. 85 et in Rev. Hort. 1866. p. 230 cum icone; Gordl. Pin. p. 132; Henk et Hochst. Nadelholz. p. 283. *Dacrydium?* plumosum Don sec. Hook. All. Cunn. Bot. of New Zealand in Tayl. Ann. of Nat. Hist. 1. p. 213. *Thuya Doniana* Hook. in Lond. Journ. of Bot. 1. p. 571. t. 18; Hook. fil. Flor. of New Zealand p. 231-*Kawaka, Mokopiko* Nov. Zealand. Arbor 30 pedes alta, trunco diametro trinquipedum, ligno duro, fusco, cortice, more *Leptospermorum*, secedente. Rami teretes, denudati, cortice fusco, epidermide decidua tecti vel foliis sparsis emarcescentibus squamosis. Strobili 12-15 mill, longi, 6-8 mill, lati, basi bracteis ovato-lanceolatis acuminatis mucronatis pungentibus suffulti. Squamae fuscae, mitio erectae et apice subconniventes. Earum bractee a basi ad medium et ultra adnatae, reliqua parte liberae, mucronato-pungentes. Nuculae fuscae. (v. v.)
2. *L. TETRAGONA* (Endl. Conif. p. 44), monoica? arbor coma pyramidalis vel frutex, ramis teretibus patulis tortuosis, ramulis alternis subdistichis Drevi-

bus tetragomis, foliis decussatim oppositis, ramorum secundanorum maxima ex parte adnatis, apice libero patulo ovato vel ovato-lanceolato acuto subpungenti, dorso obtuse carinatis, ramulorum quadranam imbricatis basi tantum adnatis reliqua parte libens et patentibus ovato oblongis acutiusculis vel obtusis subpungentibus, dorso obtuse canalicatis et vmdibus, facie superiore canaliculatis et glaucescentibus, amentis masculis . . . , strobili in ramulo strobilo ipso longiore erectis ovatis, squamis 4 decussatim oppositis subligiosis, 2 majoribus obovato-oblongis obtusis, 2 minoribus tenente minoribus oblongo-lanceolatis obtusiusculis, omnibus margine papilloso-pilosis et dorso supra medium apice bractee hinc lanceolato-subulato spinosissime erecto-murvo squamis majoribus paulo brevioribus, minoribus longioribus aut subaequalibus notatis, nuculis ad basin squamarum majorum solitariis oblongis (fuscis), margine altero anguste alato, altero totidem alato, ala obliqua obovata obtusa nucula ipsa plus quam duplo longiore, squamas majores subaequante 5 In Chile australe et juxta Fretum Magellanicum in montibus Valdiviae (Bridges'), in nemoribus feretibus Provinciae Valdiviae usque ad 2000 pedum elevat (Philippi!), in Chiloe (Lobb'), in Fretum Magellanico (Colhoun'), Port Famine (King). — Cl Gay' Flor Chil 5 p 407. Paxt. Flow Gard 1 p 46 f 32, Carr Conif p 87, Gord Pin p 133, Henk et Hochst Nadelholz p 285 Pinus cupressoides Molina Chili p 316 Jumperus uvifera Don in Lamb Pin edit 2 p 116. Thuya tetragona Hook I in Lond Journ of Bot 3 p 144 t 4 Alerse seu Alerze Ring Voy of the Adventure and Beagle 1 p 182 Alerze Chilensis et Lahuan Araucan sec Gay Cipres non Alerze sec Philippi Arbor excelsa, 40-80 pedum alta in montibus Valdiviae, ob lignum plumbum usibus aptissimum excellentiam pretiosa, <ut juxta Fietum Magellanicum frutex dumosus. Folia 3 4 mill longa, 1± mill vix lata Strobili 11-12 mill longi, 5-6 mill lati, bracteis foliis supremis similibus sed paulo longioribus basi suffulti Squamae fuscae Earum bractee inferne adnatae, apice libero, fere ut in L Domana, sed brevioribus et erecto incurvo (v s)

- 3 L CHILENSIS (Lindl Conif p 44), frutex vel arbor, monoica aut interdum dioica, coma pyramidalis, ramis teretibus patulis tortuosis, ramulis oppositis distichis brevibus compressis, foliis decussatim oppositis, ramorum secundanorum elongatis, maxima ex parte adnatis, apice libero patulo ovato-lanceolato acuto, ramulorum quadranam imbricatis, facibus parvis adpressis ovatis obtusis vel obtusiusculis. dorso glandula oblonga prominente, et in ramulis facie inferiore lineis 2 albis stomatos lateraliter notatis, marginibus valde majoribus complicato carinatis oblongis obtusis, a basi ad medium vel paulo ultra ramulum amplexentibus et inter se connatis, apice patulis, in utraque ramulis facie hinc alba stomatosa imprpressa exaratis, amentis masculis in ramulo brevi erectis cylindraceis, bracteis late ovato-deltoidibus acutis, antheris 4, strobili in ramulo laterali strobilo ipso brevioribus subnatis oblongis, squamis 4 decussatim oppositis subligiosis erecto-patulis aequalibus, 2 majoribus ovali oblongis, a medio ad basin vix angustatis, apice subrotundatis, 2 subduplo minoribus ovato-lanceolatis acutiusculis, omnibus bractee apice libero patulo breviusculo et obtusiusculo paulo infra apicem notatis, nuculis geminis vel abortu solitariis oblongis (fuscis), margine extenore anguste alatis, intenore versus apicem et apice alatis, ala ovali obtusa, nucula ipsa subduplo longiore squamas majores subaequante >J In Chile australe valibus Andium inter 34 gradus lat austr ubi ad 2000-5000 pedum elevat. et ubi prope Valdiviam crescit in demissis, nempe in Andibus Chilensibus (Dombey! n 938 D' Gillies! Lobb» Cl Gay'), Andes de Antuco (Poppig n 249, Reynolds n 78'), Laguna de Rauca in Provincia Valdiviae (Bridges n 711 814!), in Andibus de Santiago, Conception et in Provincia Valdiviae (Philippi!), in declivitatibus Andium orientem spectantibus terrae Pehuenchorum (Lechler n 2887!), in Andibus de Chilian (Ph Germain M — Lindl in Journ of the Hort soc 5 p 35, Cl Gay Flor Chil vol 5 p 406, Carr Conif p 89, Gord! Pm p 131 et Suppl p 41 Henk et Hochst Nadelholz. p 283. Thuya cuneata Domb' msc Cupressiis thyooides Pavon msc Thuya Chilensis Don in Lamb edit 2 vol 2 p 114 Hook in London Journ of Bot. 2 p 199 t 4 Thuya andina Poppig Nov gen et spec 3 p 17 t 220 Cupressus Chilensis Gillies msc Cypres Chilensis Cypres y Len Araucan. Pro ratione soli frutex vel arbor, interdum excelsa,

60-85 petl. alta, trunco ad medium denudato, cortice nmoso, emerascente, ligoo flavido, coma pyramidah Cupressus facie. Amenta mascula numerosa, 3-4 mill, longa, 1J mill vix lata. SUobili cmnamomei, demum fuscscen-tes, 2 cent, leie longi, 8-9 mill lati Squamae intio adpresso-conimentes, demum erecto-patulae. Nuculae ejusdem colons strobiloium. (v y)

p, undiSj folns vindibus. L Chilensis undis hort; Carr. Conif. p. 89, Gord. Pin. p. 132. L. excelsa hort (v. v.)

Y, argentea, folns argenteis L. Chilen^is argentea hort (v v)

4. L DECURRE>S (Ton.! PI Ficmont p. 7. t 3, et Whipple Eipedit p 84), in iam 16 diversis nionoi&i, arbor coma conica, ramis terctibus patulis, ramulis altcinih distichis comprossis vindibus, folns decussatim oppositis, ramorum elongatis adnatis, apice tanlum libero brvix patulo ovato-aculo mucronato-pungente, rdmulorum quadnfanam arete imbricatis, faciaibus adpressis obovatis aculis mucionato-pungentibus, doiso convexiusculis et glandula oblonga haud prummente notatis, maiginalibus \ix longionibus oblongo-lanccolatis acutiusculis \el acutis et muonato-pungentibus, maxima ex paite adnatis, apice libero patulo, amentis masculis in lamulo elongato erectis ovalibus obtusis subtetragoms, biactcis suborbiculanbus subintegns, anthers 3, strobis in ramulo. . . . . pendulis ovato-oblongis (cinnamomeis), squamis 6 decussatim oppositis, 2 infenonbus rehquis multo vel dujlo mmonbus ovali-oblongis apice rotundatis, biactea oblongo-lanceolata obtusa supeine hbera leflexa plerumque subduplo brevionbus, 2 mtermediis lationbus o\ato-oblongis obtusiusculis doiso convexis et apice biactcae t<intum libero brevi aculiusculo patente mira apicem mucronatis, ficie inlerne concavn, 2 mtenonbus squilongis anguste lineanbus doiso plamusculis et intra apicem apice bractee mucronulatis inter se connatis et septum longitudinal em utnnque planum efformantibus, nucubs ad'basin cujusve squamae majons 2, mteidum abortu solitarns, oblongis (fuscis), margine extenore superne angustissime alato, ala elongata obtusa squimas longiores aequante, alis saepe confluentibus. Thuya Craigana Mbr. BoL exped to Oregon p. 2 cum icon. — Kewberry "Williamsons bxpedit. vol 6 |). 63. Ihuya giganlea Carr. m Flor des Serr 9 p 104 cum icon et Conif p 105 Gord. Pin p 321 et Suppl. p 102, Henk. et Hochst. Nadelholz. p 280 non Nuttal f; In America boieali-occidentali, in convallilms Montium "copulosoruin (Hocky Mountains) et Californi89 borealis inter ,i8 et 41 gi lat. bor , in California (Hartwegi n 1972 Bridges n. 292' Cuming' n. 292), Ranchena Creek, Mendocino (Bolandier D), in Sierra Nevada Calilormae (Whipple's Expedit), juxta npas fluvu Sacramenti (Hulse, alnque sec. Torr ). fciequens in montibus Calitorma) et bcopulosis austrahonbus (Newberry). White Cedar Cahforn Arbor excelsa, mterdum 120-1o0 pedes all.i, trmiLi diametro subsepLnipedali, 'huyae OL-cidentalis lacie, hgno compjdo. AmeiUa mascula luteola, 4-o mill, longa, 2{-3 mill lata. Sfcrobili semper ponduli, tcstibus Bigelow et Newbeny, erecti sec Torrey, omnibus huj«» generis majoies, 27-30 mill longi, 9-13 mill. lati, bracteis 2 stenhbus parvis ovato-acuminatis patentibus oppositis basi suffulti. Squamae 2 mfenoiies saspissime rehquis multo mmoies, mterdum tantum duplo minores et lunc infid apicem ut aha? bractee apice inucronatae. Squamae pnnum erectae, majores dein patulae. Nuculae iuscae, alis pallide luteohs (v. v.)

XVI. THUYA Tourn. Inst. p. 586. t. 358, Linn. Gen. n. 1079 excl. spec, Juss. Gen. p. 413 ex parte, Lndl. Gen. pi. p. 28 n. 1790 ex parte, et Conif v. 50, Spach Hut. da veg. phaner. 11 p. 337, Carr. Comf. p. 101. — Thuyae species Gord Pm. p. 321

Flores in diversis ramis monoici. Amenta mascula in ramulis latera- libus solitane terminaha, minima, subglobosa vel ovoidea, stipitata, sti- pite crassiusculo, columDaeformi. BracteaB paucaB, 4-6, in axi decussatim oppositae, quadnfanam imbncatas, suborbiculares, subpeltatse, subtus sub stipite stammiger®. Antherae 3-4, subglobosae, uniloculares, loculo

longitudinaliter dehiscente Amenta feminea in ramulis lateralibus sohtane terminata Squamae 6-8, raro 12, decussatim oppositae, quadrifariam imbricatae, erecto-patulae, e bractea foliacea et Jepidio cainoso subaequilongae adnatis compositae, liberae, infimae et supremae saepe stules PistiJla 2, collaterales, erecta Ovium suborbiculare, compressum, vix alatum, apice ietustum Stylus brevissimus, teretiusculus Stigma subbifidum, ore pervio Strobilus secundo anno maturescens, p. irvus Squamulae quidnfallam imbricatae, subconatae, subinaequales, ovales vel ovato-orbitales aut ovali oblongae dorsum convexiusculae, facie concaviusculae, bractae adnatae, apice summo libero, apice infra apicem mucronulatae, p. n. m. icte connitentes demum erecto patulae Nuculae ad basin squamularum majorum 2, collaterales, aut interdum abortu sohtanae, erectae, lentitulan compressae, utrinque in alam mcrnbianaceam nuculae ipsius latitudinem subaequantem productae, apice emarginatae Pencarpium tenue Imbiyo in axi albuminis cainosi acotropus, ejusdem fere longitudine, cotyledonibus v. earum divis 2-5, radicle teretiuscula supra Folia seminalia Arbores, interdum exhaerent, sempervirentes, in America borealis indigene, cortice nudo, emerscente vel fusco Rami sparsi crebri, patentes vel erecto-patentes, lamellae compressae Folia decussatim opposita, quadrifariam imbricata, f. c. dorsum glandulosa, marginalia naviculana, saepe eglandulosa

1 T. GIGANTIA (Nutt. Plants of the Rocky Mountains p. 52, et North America Sylva 3 p. 102 t. 111), arbor monoica, in imbricatis teretibus, lamellis alternis distichis longiusculis compressis, in facie superiore vinctibus et lucidis in facie inferiore pilulis vinctis Jus opacis, folia decussatim opposita lamioium quidnfallam subimbricatis longiusculis, maxima ex parte adnatis, \*apice acuminato mucronato subpungentibus pitulo, lamulorum quadrifariam arete imbricatis iacilibus adpressis obovatis apice breviter acuminato mucronatis dorso convexiusculis et glandula ovali vel oblonga depressa notatis, in areolaribus fere aequilongis navicularibus vel lanceolatis apice acuminato mucronatis strobilis in rimulo brevi vel brevissimo ucte reflexis ovato oblongis olivaceis squamis 8-10 de ussatum ovatis sitis quadrifariam imbricatis subfoliaceis inaequalibus, inferioribus majoribus ovalibus vel ovali orbiculatis, superioribus longioribus oblongis vel sublinearibus, omnibus bractae adnatae et margine distinctae apice libero brevi obtuso erecto vel palato sub apice mucronatis nuculae ad basin squamularum majorum 2 vel aboiliu olivaceis squamis hrevioribus compressis oblongo-ovatis cum alis nucula ipsa latioribus fere ovalibus et apice emarginatis, canalibus resiniferis meulariter praeditis In America boreali-occidentali ad fluvium Columbia ab ejusdem fontibus id est ostia, in insula Nutka (Menzies filii Douglas' Lyall' aluque), Suka (Myhus') et in California (in hibernia hisci!), in montibus Solorulosis (Newbery) in Japonia cum La (Maxim!) — Hook' Flor. Americae 2 p. 165, Spich Hist. des vég. phyt. 11 p. 342, Indl. Conif. p. 52. I. plicata Lamb. Pin. edit. 2. ] 114 n. 49. ex parte T. Douglas Nutt. msc. I. Menzies Douglas! msc. Carim Conif. p. 106, Oord' Pin. p. 111, Henk. et Hochst. Nidelhol. p. 281. Hiuyd Lobbn hoit' Phytopsis Stindishu dord. Sui pi. p. 100. Htnk. et Hochst. in Naiphhol. p. 289. Thuja idponia Maxim' p. c. sicc. v. Cypriss Nutkiens Aiber nobilis, 60-70' et in fertilioribus 100-200 pedes alta ligno albo, cortice mrescenti fusco, folia pulchra, frondes nonnullorum filicum aemulantibus Strobili cinnamomei, 12-14 mill. longi, 7-8 mill. lati biquaeriae supremae stules (v. v.)

2 T. Plicata (Donn Hort. Cmtabr. edit. 6 p. 249), arbor monoica, ramis patentibus teretibus, n. m. secundariis ob folia sicca persistentia ancipiti-compressis, ramulis alternis distichis longiusculis crassiusculis laevibus compressis in medio, in facie superiore lucidis, folia decussatim opposita, ramorum secundariorum et lamillarum quadrifariam imbricatis adnatis, apice libero, faciebus obovatis, apice subpatalo acutiusculo, dorso convexo-can-

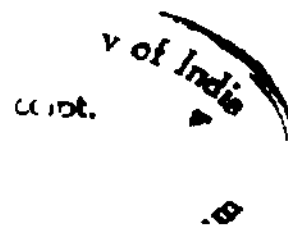


natis et glandula ovah-subrotunda prope apicem notatis, marginalibus naviculanibus late ovatis acutis mucronatis, apice submcurvo subglandulosis, amentis masculis minutis subglobosis breviter crasseque stipitatis, bracteis 4-6 decussatim oppositis peltatis suborbiculanibus integris, anthesis 3 4, strobilis in ramulo breviusculo nutantibus ovatis, squamis 6-8 decussatim oppositis quadranfanam imbricatis subconaceis inaequalibus, inferioribus ovah-oblongis vel ovahibus, superioribus sublongioribus angustis hincibus, omnibus bractea adnata leviuscula apice summo libera et acutiuscula vix brevioribus et vix angustioribus nuculis ad basin squamarum majorum 2 vel abortu solitariis illisque subduplo brevioribus compressis lineari-oblongis cum ahs nucula ipsa vix angustioribus oblongis et apice emarginatis canalicibus resiniferis irregulariter praeditis In America boreali-occidentali prope I return Nutkae (Menzies sec Nuttall, Haenke sec Presl) -- Lamb Pin edit 2 p 114 n 0 ex pane Endl Conif p 51 Carr Conif p 102, Gord I Pin p 525, Henk et Hochst Nadelholz p 277 T Wareana Booth Catal 1839 sec Endl r odorata Marsh Arb Amenc p 24\* sec Endl T asplenifolia hort' Species in hortis frequens sed indigena vix nota et melius in patria investiganda A T occidentalis cui valde affinis et cujus forte varietas hortensis, ramis secundariis ob folia marginalia, naviculana et persistentia compresso ancipitibus et fere alatis, ramulis crassioribus et longioribus, strobiliformibus paulo majorum squamis angustioribus praesertim videtur diversa (v v)

- 3 T OCCIDENTALIS (Linn ' Sp pi p 1422), arbor monoica, coma pyramidalis, ramis patentibus vel horizontalibus apice pendulis laxis teretibus, ramis secundariis foliis siccis persistentibus irregulariter exasperatis, ramulis alveolatis breviusculis distinctiusculis densiusculis compressis vix, in facie superioribus lucidis foliis decussatim oppositis, ramorum secundariorum quadranfanam subimbricatis adnatis apice libero acuminato mucronato subpatulo, faciebus oblongo spatulatis, dorso convexis et prope apicem glandulis 1-3 ovahibus prominentibus notatis marginalibus ovato-lanceolatis subnavicularibus, glandulis 1-2 ovahibus prope apicem notatis ramulorum quadranfanam arete imbricatis faciebus ovatis acutiusculis dorso convexiusculis et glandula subovata infra apicem rotatis, mirgmaibus paulo brevioribus naviculanibus ovatis acutiuscula submucronatis eglandulosis, amentis masculis minutis subglobosis longiuscule stipitatis, bracteis 4 6 decussatim oppositis peltatis fere orbiculanibus subintegris, anthesis 3 4, strobili in ramulo brevi vel brevissimo nutantibus parvis ovatis squamis\* 6-8, raro plunibus, decussatim oppositis quadranfanam imbricatis subconaceis inaequalibus, inferioribus ovahibus vel ovah orbiculanibus superioribus sublongioribus angustis hincibus, omnibus bractea adnata leviuscula apice summo libera et acutiuscula vix brevioribus et vix angustioribus, nuculis ad basin squamarum majorum 2 illisque brevioribus compressis oblongo hincibus cum ahs nucula ipsa longioribus oblongis et apice emarginatis canalicibus resiniferis irregulariter praeditis -f In rupestribus al torrentium, fluviorum lacuumque natis nec non in paludosis Americae borealis a Canada ubi frequentissima ad Virginiam et Carolinam ubi rari occurunt inter 45 35 gr kt bor — Gaertn Fruct 2 p 62 t 91, Michx North Amenc Sylv 3 p 225 t 156, Richard Conif p 43 t 7 f 1, Spach Hist des Vég phaner 11 p 339, Endl Conif p 51, Carr Conif p 103, Gord » Pin p 321, Henk et Hochst Nadelholz p. 278 Arbor vita; Clus. Hist 1 p 3b r Theoprasti Bauh Pin p 488 T obtusa Moench Meth p 691 Cupressus Arbor Vitas Targ Tozz Observ decad 2 p 51. Biota latanica Gord ' Pm p 36, et T Tatanca Gord >\*Suppl p 104 exel plur syn T Wareana hort ahq T Sibirica hort White Cedar Angl -Amenc Arbor 45 70 ped alta, trunco a basi ramoso erecto vel in paludosis fere arcuato, cortice cinerescenti-fusco nimoso intus roseo, albino albo ligno luteolo Amenta mascula minima, stipite amentum ipse superante praedita Bractea? concavae, dorso vides, margine albo Strobili cinnae momeo fusi, 9 1) mill longi, 7-8 mill lati. Squamae erecto patulae Nuculae piliferae luteolae. Plures hujus speciei adsunt varietates hortenses ramis densis T occidentalis densa Gord • Suppl p 103, foliis variegatis, aureis, argenteis T occidentalis variegata et argentea, Carr Conif p. 103, Gord. Pm P J24 (v v)

*Species exclusae\**

- T. ACUTA Moench = *Biota orientalis* Endl.  
 T. ANDINA Poppig = *Libocedrus Chilensis* Endl.  
 T. APHYLLA Linn = *Tamanx* Vahl.  
 T. ARCENITEA hort. = *Biota orientalis* Endl.  
 T. ARTICULATA Desf = *Calhtns quadnvalvis* Vent.  
 T. ALREA hort. = *Biota orientalis* Endl.  
 T. AUSTRALIS hort. = *Biota orientalis* Endl  
 T AUSTRALIS Poir = *Frenela rhomboidea* Endl  
 T CHILENSIS Don = *Libocedrus Chilensis* Endl  
 T. CHINENSIS hort = *Biota orientalis* Endl.  
 T. COMPAGTA hort. = *Biota orientalis* Endl  
 T. CoREANA hort = *Biota orientalis* Endl  
 1- CRAIGANA Murr = *Libocedrus decurrens* lorr  
 T CUPRESSOIDES hort = *Biota orientahs* Endl  
 T DONIANA Hook = *Libocedrus Doniana* Endl  
 T. ELEGANSSSIMA hort = *Biota orientalis* Endl  
 T EXGLLSA Bongard = *Chamaecypans Nutkaensis* Spach  
 T. EXGFLSA hort. = *Biota orientahs* Endl.  
 T FILIFORMIS Lodd. = *Biota orientalis pendula* Parl.  
 T. FRENELOIDES hort = *Biota orientalis* Endl  
 T. GIGANTEA Gord non Nutt = *Libocedrus decurrens* Torr.  
 T. GLAUCA hort = *Biota orientahs* Endl.  
 T. GRACUOLIA Knight = *Biota orientahs* Endl.  
 T. INTERMEDIA hort = *Biota orientalis* Endl.  
 T. JAPONICA hort = *Biota orientalis* Endl.  
 T- LINEATA Poir = *Glyptostrobus heterophyllus* Endl.  
 T- NANA hort = *Biota orientahs* Endl.  
 T NEPALENSIS hort. = *Biota orientalis* Endl.  
 T. ORIENTALIS L. = *Biota orientahs* Endl  
 T. PENDULA Lamb. = *Biota orientalis pendula* Parl,  
 T PENDULATA hort = *Biota orientalis pendula* Parl.  
 T. PENSILIS Stunt Lamb. = *Glyptostrobus heterophyllus* Endl.  
 T. PYGMEEA Veitch = *Chamaecypans obtusa* Sieb et Zucc.  
 T. PYRAMIDALIS Ten = *Biota orientalis* Endl  
 T. SPHEROIDALIS Rich =; *Chamaecypans sphaeroidea* Spach  
 T. STRICTA hort. = *Biota orientahs* Endl  
 T. TATARICA hort. = *Biota orientahs* Endl.  
 I. TETRAGONA Hook. = *Libocedrus tetragona* Endl.  
 T. VARIEGATA hort =. *Biota orientahs* Endl.



XVII. THUYOPSIS (1) *Sieb. et Zucc. Fl. Jap. 2. p. 32; Endl. Conif. p. 53; Carr. Conif. p. 110; Gord. Pin. p. 319; Henk. et Hochst. Nadelholz. p. 287.* — *Thuyae species Linn. Suppl. p. 420; Thurib. Fl. Jap. p. 2 (ft.) — Platycladi species Spach Hist. des Vég. phantr. vol. 11. p. 333.*

Flores in ramis diversis monoici. Amenta mascula in ramis lateraiibus solitarie terminalia, cylindracea. Bractea in axi decussatim oppositae, quadrifariam imbricates, suborbiculares, subpeltate, subtus sub stipite staminigerae. Filamentabrevissima. Antherae 3-5, elliptic<sup>^</sup>, uniloculares, loculo longitudinaliter dehiscentes. Amenta feminea in ramulis lateraiibus solitarie terminalia. Squamae 6-10, decussatim oppositae, quadrifariam subimbricatae, patenti-reflexae, e bractea foliacea lepidioque carnosio, crasso, brevior adnatis compositae, liberis, inferiores et superiores steriles. Pistilla 5, in basi cujusvis squamae erecta, libera, sessilia, fere biseriata. Ovarium ovatum, compressum, margine alatum. Stylus brevissimus. Stigma fere orbiculare, peryium, subbidentatum. Strobilus secundo? anno maturescens, e squamis lignescentibus patulis apice dilatato subreflexis, supra concavis, bractea adnatas marginibus apiceque elevatis notatis compositus. Nuculas 5, erectas, distinctas, oblongas, convexas, utrinque in ala angustam membranaceam productae, canalibus resiniferis praedita. — Arbor japonica, excelsa, sempervirens. Rami primarii verticillati, penduli, secundarii distichi et biiariam ramulosi, ramulique compressi a foliis omnino tecti. Folia decussatim opposita, quadrifariam imbricata, difformia, facialia minora, glandulosa, marginalia majora, eglandulosa.

T. DOLABRATA (Sieb. et Zucc. Fl. Jap. 2. p. 34. t. 119. 120). In montibus Insulse Nippon Japoniae (Thunb. Siebold, Veitch! PerietLi!), Nangasaki (R. Oldham!), Iokohama (Maxim.). — *Endl. Conif. p. 54; Carr. Conif. p. 111; Gord. Pin. p. 319; Henk. et Hochst. Nadelholz. p. 287. Thuya dolabrata Linn. Suppl. p. 420; Thunb. Fl. Jap. p. 226 excl. Syn. Kaempf.; Lambert Pin. app. p. 2. 1.1. Platycladus dolabrata Spach Hist. nat. des Vég. phantr. vol. 11. p. 317. Asunaro, Asufi, Hiba, Japon.; Bafom Ilak, Can-Si Hah, Sin. Arbor pulcherrima. Folia coriacea, facialia fere totidem adnata, apice tantum libera et vix patula, oblongo-spathulata, rotundato-obtusii, in facie rami superiore convexiuscula viridia, nitida et glandula lineari depressiuscula dorso notata, in inferiore secus carinam convexiusculam viridem utrinque fascia nivea stomatosa notata, lateralium majora, a basi ad medium fere adnata, complicato-navicularia, ovato-lanceolata, falcata, obtusiuscula, in rami facie superiore convexiuscula, viridia et nitida, in inferiore convexiuscula, fascia nivea lata ovato-oblonga stomatosa notata. Strobili in ramulo brevi aut strobilo ipso subaequali erecti, fusci, subglobosi, 13-18 mill, longi et lati. Squamae inaequales; inferiores et superiores minores et steriles, fere obovatae, basi angustatae et supra convexae, e bractea fere orbiculari rugosa, marginibus apiceque distincta et elevata lepidioque crasso carnosio, bractea parum longiore, apice dilatato-reflexo, compositas, patulae. Nuculae squamis breviores, cum ala angusta fere ovali-orbiculares, strobilorum colore. (v. v. sine floribus et fructibus, et s. cum amentis femineis et strobilis). — Occurrunt varietates hortenses foliis variegatis T. dolabrata variegata Gord.! Suppl. p. 100; foliis minoribus, quae e Japonia mihi communicavit D<sup>r</sup> Perfetti et quam vidi in hortis cum statura nana, T. dolabrata nana Gord.! Suppl. p. 100 et hort. T. laetevirens hort. Henk. et Hochst. Nadelholz, p. 289; Carr. Conif. edit. 2. p. 119. (v. v.)*

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(1) *Thuyopsis* in Sieb. et Zucc.; *Thuiopsis* in Endl. sed nomen originarium est *Thuya* in Tourn. et L.

*Species exclus.*

T. BOREALIS hort. = *Chamaecypans Nutkaensis* Spach.

T. STANDISHII Gord. = *Thuya gig* in tea Nutt.

T. TCHUGATSKOY hort. = *Chamaecypans Nutkaensis* Spach.

XVIII. BIOTA *Endl. Conif. p. 46; Carr. Conif. p. 91; Gord. Ptn. p. 32.* — *Thuyae spec. Linn. Gm. n. 1079. et plur. auct.* — *Pldtycladus Spach Hist. des Vig. phandr. 11. p. 333 excl. spec.*

Flores in diversis ramis monoici. Amenta mascula in ramulis laterali-  
bus sohtarie terminaha, subglobosa, demum manifesto stipitata. Biactea  
docussatim oppositae, quadnfanam imbricatae, suborbiculan-subpeltataB,  
subtus sub stipite staminigeraB Antherae 3-4, subglobosae, uniloculares,  
loculo longitudinahter dehiscente. Amenta femmea in ramulis latera-  
libus sohttne terminaha. SquamaB 6-8, decussatim opposiLaB, quadnfa-  
nam lmbncatse, erecto-patufae, e bractea fohacea et lepidio crasso basi  
fcubgibboso brevior adnatis compositae, Infimae et supremae saepe ste-  
riles. Pibtilia 2, collateraha vel abortu solitana, t'recto-patula. Ovanum  
o^ah-orbiculare, subtnquetrum. Stylus brevissimus, teretiusculus Stigma  
suborbiculare, fere obhquum, pervium. Strobilus secundo anno matu-  
rescens Squamas quadnfanam imbncdt33,sublignos33, ovaes vel obovafo-  
^ptiC33, superne parum mcrassalaa, apice bracteae adnatae libero infra  
apicem mucronataB, primum arete oonniventes, demum patulss Nuculae  
ad basin squamirum majorum 2.collaterdles, vei abortu solitarice, erectae,  
ovato-oblongae, teretiusculae, sutangulataa, apterae. Pericarpmm osseum.  
Ktnbryo in axi albuminis carnosu antitropu^, ejusdem fere longitudme;  
cotyledonibus 2,raro 3; radiculateretiuscula, supera. Folia seminaha 2,  
^raro 3,latiuscule lmearia, obtusa, patentia. — Arbor sempervirens, ramo-  
sissima, cortice demum m philyras fibrosas soluto, hi^no duo, rubente.  
Hami infenores subverticilliti, supenore\*^> sp.irsu, erecti, erecto-patentes  
^el pyramidatim assurg-entes Rdmuli distichi, compressi, utramque  
faciem luci asque advertentes. Folia ramulorum decussatim oppositd,  
quadnfanam imbVicata, faciaha plana, marginalia subndv)cularia, omma  
glandulosa.

B. ORIENTAIS (Endl i Conif p 47), arbor monoici, coma subronica, lamis  
mfeionibus subverticillatis, supcnouibus sparsis erecto-patulis assurgenti-  
busve, ramulis alternis disticliis bievibus compressis vindibut\* vel vindi gKiu-  
cesceniibus folis decussOIm oppositis, lamoiura secundanoruni quadnfa-  
nam bubinibrioatis ol)longft adnalis, «»pice libero ovato acuto sulipungpnte  
vix patulo, ramuloium quadnrinam imbneatis adndiis adpiessis, iacidlibus  
planis obovato-ihombeis obtusis, dor^o ^landula linearii notatis, marginahbus  
vix bievionibus subnaviculanbus ovdto-iiiouibpis obtusis, dorso .ipiccm veisus  
glandula ovali-oblonga notatis, amenlis masculis subglobosis demum mam-  
feste stipitatis, bracteis decussatim oppositis quddnUridm lmbnoatis subor-  
biculanbus, anthers 3 4, strobilus in ramulo brevi crectis obovato Mlobosis  
vel obovalo-elliptius fusco violaceis gkucis, squamis 6-8 decussatim oppositis  
quddnlariam lmbiicatis ]na)Udlibiis, lofeionbiib majonbus ovalibus vel obo-  
vato-ovalibus,9upremisdngustiset sajpe steulibus,omnibus infia ipicem apice  
bractede adnatos libcio uiucronalis, muorone lon^iusculo iecui\o-acuio sub-  
puugente, nuculis in squdmis majonbus geruinis vel abortu sulituns «=qua-  
mi»(iue 2-3-plo brevionibus obovato-obloagis toietiusculis subdngulatib'tuscis  
In China boreali et ID montibus insuUrum *Nippon* et *Sikok* J iponiaj passim  
culti in omm China et Japonia alusque AsiaB nee non Oceanias et'buropae  
regionibus. — Carr. Conif. p. 92, Gord I Pin. p. 32. Finoki altera,etc. Kaempt.

exot. p. 884. *Thuya orientalis* Linn.! Sp. pi. 1422 (ex herb. Kaempf. Amcpn. ubi sine fructu); Thunb. Fior. Japon. p. 266; Richard Conif. p. 40. t. 7. f. 2; Siebold et Zuccar. Flor. Japon. 2. p. 31. t. 118. *Thuya acuta* Moench Method p. 692. Cupressus *Thuya* Targ. Tozz. Osserv. dec. 2. p. 52. *Platykladus stnctd* Spach Hist. des végét. phaner. 11. p. 335. *Pian-Fa* Sinens. *Konotega-Siwa* Japon. Amenta mascula 2j-3 mill, longa et fere lata. Strobili 10-22 mill, longi, 10-18 mill. lati. (v. v.) — Occurrunt plures vanetates hortenses ramis pyramidatim assurgentibus, expansis, ramulis stnctis, elongatis, gracilibus, foliis vanegatis, argenteis, aureis, strobilis majonbus, longius mucronatis, unde nomma *Thuya pyramidalis* Ten.I in Mem. dell' Accad. di Napoli 3. p. 35. t. 2. *Biota pyramidalis* Carr. Conif. p. 9C. B. onentahs Sieboldii Endl. Conif. 1. c; Gord. Pin. suppl. p. 17. 'Thuya et Biota orientalis aurea, Verschaffelti, argentea, variegata, elegantissima, cupressoides, compacta, nana, antarctica, glauca, australis, Nepalensis, Tatanca, Japomca, Chinensis, Coraeana, excelsa, ctncta, freneloides, gracilifoja, intermedia, sed inter has varietas est insignis:

p, *pendula*, ramis ramulisque elongato-filiformibus pendulis teretiusculis, folns adnatis apice Unero ovdto-lanceolato obtusiusculo patulo, a basi ad apicem fere glandula elongato-hneari notatis. Fi-Moro, Juniperus julifera, julis squamosis, croceo polline refertis, baccis Sabinae angulosis Kaempf. jAmcen. exot. 5. p. 883. Cupressus *pendula* Thunb Fl. Jap. p. 265 non Lamb. Cupressus *patula* Pers. Syn. 2. p. 580; Mirb. in M6m. du Museum 13. p. 74. *Thuya pendula* Lamb. Pin. edit. 2. p. 115. n. 52 cum icone; Sieb. et Zuccar. Flor. Jap. 2. p. 30. t. 117. *Thuya filifonnis* Lodd. ex Lindl. Bot. Reg. ann. J842. t. 20. B. *pendula* Endl.! Conif. p. 49; Carr. Conif. p. 97; Gord.! Pin. p. 35, et Suppl. p. 18. Cupressus *finformis* et *pendulata* hort. *Thuya pendulata* hort. *Ito-Sugi* Japon. *Sisan* Sinens *Fi-Moro* Japon (forma nana). Varietas certe in hortis a semibus Biotae orientalis nata ut a cl. Carriero indicatum fuit et in China et in Japonia culta. Adsunt ramuli aliqui et folia ut in specie. Transitum a specie facile observatur in Biota orientah intermedia, cujus specimina etiam in herbano Florentino asservan curavi. (v. v.)

### *Species exclusa.*

B. TATAHICA Gord. = *Thuya occidentalis* L.

### XIX. DIESELMA Hook. fil.! Fl. of Tasmannia p. 353. t. 98.

Flores dioici. Amenta mascula in ramulis lateralibus solitarie terminalia, ovalia. Bractee imbricalae, breviter stipitatae, ovato-triangulares. Antherae 2, subglobosae, divergentes. Amenta feminea in ramulis terminalia, parva. Squamae k, 2 exteriores breviores steriles, 2 interiores fere duplo majores erectae fertiles. Pistilla iiLquavis squama 2-3, erecta. Ovarium ovoideum. Stylus brevis, teretiusculus. Stigma fere orbiculare, pervium. Nuculae squamis longiores<sub>T</sub> erecta<sub>B</sub>, tripterae, alis latis.— Frutex tasmannicus, ramosissimus, Dacrydii tetragoni facie; planta feminea prostrata, et mascula, ut videtur, erecta, 8-10 ped. aha, ab ilia remota. Folia arete quadnfariam imbricata, unde ramuli tetragoni, squamiformia, ovato-rhombea<sub>7</sub> obtusa, dorso convexo-carinata, facie concava, margine angusto membranaceo.

D. ARCHERI (Hook. fil. I. e.). *Microcachrys tetragona* Archer in Journ. of Bot. 2. p. 5, non Hook. fil. In montibus Tasmannias occidentalis ad 4-5000 ped. elev. (in herb. Hook » et Mueller!). Amenta mascula 3 mill, longa, 1 i - 2 nu<sup>^</sup>\* lata. Amenta feminea subglobosa, bracteis 2 extenoribus ovatis acutiusculis, 2 interioribus ovalibus, a pice rotundatis. Nuculae in bico rufescenti-fuscae, cum alis latis fere orbiculares, 2 mill, longae et fere latae. (v. s.)

XX FITZ-ROYA *Hook fil ' in herb Hook et m Bot. Magaz t 4616, Lindl in Paxton's Flower Gard. 2 p. 147 n 387, Cl Gay Fl Chil 5, p 410, Carr Conif n 108, Gord Pin p 81*

Flores dioici Amenta mascula solitana, terminalia, sessiha, oblonga. Bractee plures, ternae, imbricatae semipeltatae, ovatae, cannatae, integrae, subtus staminigerae Antherae 4, subglobosae, uniloculares, loculo longitudinater dehiscente. Amenta feminea solitana, terminalia Strobilus globosus, parvus Squamae 6, subverticillatae, 3 vix extenores breviores stiles, 3 vix interiores majores fertiles, omnes conaceo-hgnosae, bractee adnatae apice hberio squamis brevioribus supra medium dorsi apiculatae. Nuculae 3, ad basin squamarum majorum erectae Illasque vix superantes, margine imbricatae, ovato-oblongae, convexo-angonae, stylo longiusculo cyhndraceo, stigmatibus orbiculatis late pervio, persistente mucronatae Pencilium tenue, utrinque in alam latiusculam apice subbilobam productum Embryo .... — Arbor excelsa, in temperatis frigidisque Americae australis indigena, sempervirens, ramosissima Rami erecti vel deflexi, ramuli curvato-subpenduli. Folia decussatim opposita vel in ramulis ternis, laxe imbricata, basi adnata, in parte libera et patula aut erecto-patentia, oblonga vel ovata, plana

F PATAGONICA (Hook fil 1 c) In montibus Americae australis occidentalis in Andibus Chilensibus *Cordillera de la Costa*, provinciae Valdiviae alt 1200 (Lechler n 1448'), in sylvis uliginosis prope *Col Arxque* (Lechler n 1304), in locis turfosis nemorum provinciae Valdiviae et *Llanquihur* raro infra altitudinem 500 ped et prope *Corral* (Philippi' pi exsicc in herb Mus Florent), in Andibus prope *Chxloe* (Gl Gay), in Patagonia (Fitz Roy, Lobbl) — Lindl 1 c et in Journ fil the Hort Soc 6 p 244, Fl des Serr 7 p 130 cum icone, Cl Gay M Chil 5 p 411, Carr Conif p 109, boid • Pin p 81 *Alert e Chilens* (Philippi msc ) Arbor 80 100 ped alta, resinam Sand raceae similem scatens, cortice cinnamomeo-fusco, in laminas facile separabili Folia oblonga vel ovata, acutiuscula, dorso carinata, lineisque duabus depressis glaucis notata, fusco vincta, facie concaviuscula Amenta mascula lutea, oblonga, obtusiuscula, 6 8 mill longa, 2 2} mill latd Bractee obtusae Strobili 6 8 mill longi et lati Squamae vix interiores majores obovato orbiculares, in sicco rugosae, prope vel supra medium dorsi bractee adnatae, apice libero oblongo acutiusculo squama ipsa brevioribus et vinctulo apiculatae Squamae vix extenores duplo majores, ovato-oblongae, acutiusculae, bractee apice libero vix longiores Nuculae pallidae, cum alis migmae subdenticulatis, tiuculae ipsius latitudinem aequantibus aut vix superantibus fere orbiculares et utrinque emarginato-bilobae (v v)

XXI CHAMJECYPARIS *Spai^mst nat des veg phane'r vol 11. p 329, Endl. Conif p 60, Carr Conif ^mS2, Gord Pm p 48 — Cupressi sp Linn, Sp pi 1422 etpl auct — Ihuyae sp Rich Conif p 4b et ahq — Chamaepeuce Zuccar in Endl. Enchir. bot p. 139 — Retinospoia Sieb et luce bl jap 2 p 36, Gord Pm p 294.*

Flores in diversis ramis monoici Amenta mascula in ramulis lateralibus sohtane terminalia, cyhndracea, oblonga vel ovata Bractee in axi decussatim oppositae, quidnfanam imbricatae, foha^eae, ovato orbiculares vel ovatae, subpeltatae, dorso saepe glanduliferae, subtus sub stipite staminigerae Filamenta brevissima Antherae 2 3, subglobosae, uniloculares, loculo longitudinaliter dehiscente. Amenta feminea in ramulis lateralibus sohtane terminalia, bracteis strobilibus subnullis Squamas 6-8, raro 4-12, decussatim oppositae, patulae, e bractea fohacea lepidioque carnosio crasso brevioribus, basi supra adnatis compositae, hberse, 2 super-

nores mterdam stenles et connate Pistilla 2, collaterals, erecta. Ovd num ovoideum, ssBpe compresso-alatum Stylus subnullus, compressus Stigma bifidum vel bidentatum Strobilus pnrno anno matarescens, parvus Squimae tenues vel hgnesc nte> aul lignosae, suborbiculan-vel subparalleiippdi angulataa, peltatds, dorso supn medium apice bractae plus minusve mucronatde, saepe rugosae pnmum irctp conniventes demum hiantes Nuulae 2, collateiales, erectge, distinct® compressas, utnnque in alam membranaceam plus minus latam products, canahbus resintfens praaditae vel destitutdi Pncarpium vix rirtila^ineum Semen solitanum, cylindraceum Lmbryo in axi albuminis (arnosi, coLyledoni bus 2, radiculd terrtiuscula supera — Arboies, interdum excelsae, raro frutices sempervirentes, in tempeiatis et fn^idiusculis Japoni33 et Americas borealis prj3sertim niscntes, co^ticp leviusculo rufcscenti fusco kvel cmeieo, h\_nno albo fir mo Rami sparsi, rrabu, patentes, horizontales vei erecti, apice mtenlum nutantes b'oh i sepissimp dtcussatim opposita, ranssime terna vel qudtema, rdmuloium ut plunnum juadnfapiani lmbncata, squamaeformia Pt maxima ex parte adruta, nunc diffornia, kcialibus minonbus, margmahbus majonbus, nunc subconformia et conformia, ranssime acerosa, linearn, sjuirioso-potentia, saspissime glandulosa.

- 1 C SPHEROIDEA (Sp ich Hist des ve, phin^r vol 11 p 131), arbor, cortice ru/escenti fusco, coma pyi irmdali i inns crebris ereotis vel erecto patentibus tereLilms ramulis conleitis subdisLichs subgiaulibus brevibus a folus omni o tectis compressis wridibus, folus decasiatim oppositis ramorum ollongo lanceolatis, indximi ex paite idudtis apice libpio subpatulo icuto subpungente, doi^o miid apilEm ^linduld subi )tundi vel ltie ovdli promtnente notatis, ramuloium urte quddrifdridin lmbn^alis fdcilibu^ ovitis pi m usculis doiso
- 2 4 prone mediutu ^Idn luld pdrvd subrotunda noldtis marguulibus jblongo lan ceolatib ciunalo niviLuUribu? e^landulosus, omnibus ipice obtusiusculis vix mucionuldtis d Ipics^ius uhs strobilis numerosis aggieguis in ramulo brevi ereciis p irvib glolxjsis (demum violdceo fusus glduce^centibus), squamis 6 8 herbaceis, supid medium apice biaUce libero lon^iusculo lato dcutiusculo recurvo notatis, mu^irie supenore crenulatis (t niHexis nuouhs in quavis squama 2 pnvis oblon^is, cum ala ingusta vel idtiuscula ovdUbus (fuscis), candhbus re->iniferis nulhs > In palu io is mm finitimw Amencae boieali- onentalih ubi vulgatissimi, a Canada australion ad Garohnam septentrionalem mter 45 3a gr 1it bor — I n (M Comf p 61, Tair Comf p 133, Goid Pin p 49 Cupnssus narri maiiana, fructu cderuleo paivo Pink Mant p 61, Phyt t 345 f 1 Cupressus Ihyoides Linn ' Sp pi p 1422, Micliv North Amenc Sylv 3 p 207 L 152 ihuya sphaemddhs> Rich Lomt p 4o t 8 f 2 White Cedar vel Jumper An^luAmeuc Aibor inteidum 60 80 pedes alta diimetTo bi tnpeddh SLiobih 4 ) rnjBUili et fere longi Vanat in hortis folus giaucis (C Kewensis hoiL), var flBs (G vdnegdla hort), et nana (C nana hort) (v v)
- 2 C LVWSONIANY (Pul Stul sui lion e frutti delle Comf p 23 29 t 3 f 22-2 >), monoica' arbor ramis patentibus subteictibus rufei>centi-lui>ois, id- muhs disticlms pnnilim dtspoms compiessis vindibub, folns dccus^atim op- positis, ramoruip valdc\* dppioximitis linean oblongis mdxima ex parte adnatis, dpice libero subpatulo lanceolato-mucrondtq, dorso convexiusculis et fldndula longdhman et sxpe glandulis duabus lateralibus brevionbus notitis, ramu lorum quddufdrurn imbneatis, faciahbus ovatis plamus>culis, glanduU oblonga uit subiotundd depressiusculd prope medium dorsi notatis, margind libus convexo cannitis subnavituUnbus ovito oblongis dpice subpitulo acutis vel ticutiusculis mucro/iuldtis dorso e\_n^laudulosus dmerUis mast ulis numoio->is in dpice ldmulorum soluaius erectis ovan obi jn^is. subtetrLgonis obtu^is, biacteis late ovato oibiculxribus dou>o convexmsuulis et t>ub medio gldiiduld subrotunda notdtis, anthesis pierumque 3, strobilis numerosis subaggregatjs in ramulo brevi recto vel subincurvo parvis globosis (lusco-caeruleis vel c

vindi-violaceo-vdnegatis), squamis sub 8 decussatim oppositis inaequalibus, supra medium apice bractee hbero lato longiusculo acuto recurvo notatis, margine supernoie subcrenolato et vix inflexo nuculis in quavis squama 3-4, squamam aequantibus superantibusve, oblongis utrinque convexis et cum ala nuculae latitudinem utrinque subaequante iere orbicularibus, canalibus 2-3 resimfens oblongis notatis -5 In California (Bridges' n 289), in torrentium alveis inter 40 et 42 gr ldt (Gulielm Murray) Cupressus Lawsoniana Murr I Descrpt of the new Comf Trees from California p 11 t 9, Goid Pin p 62, Bot Mag t 5581, Laws Pinet bnt part 15 cum icon Chamaec Boursiern Carr Comf edit 2 p. 125 excl syn Decaisn Arbor interdum 100 pedes alta, diametro bipedah Amenta mascula 3-4 mill longa, 2 mill lata axis rectus, c^lindiacus, luteolus Bractee dorso fuscae, margine albido ^ntherae rubrae. Strobih 5-10 mill longi et tere lati Nuculae fuscescertes, aid dilutiore Variat folus vindibus vel glaucescentibus (v \ )

(i, *vanegata*, fohis e viridi et aureo vanegatis In hortis Cupressus Lawsonn fol var Illustr Hort 10 t 367

- 3 C NUTKAENSIS (Spach Hist des vég phanér vol 11. p 333), monoica, drboi, ramis divancatis pendulis subteretibus rufescentibus, ramulis distichis breviusculis a folis omnino tectis compresso tetragoms folus decussatim oppositis ramorum subimbricatis, e basi ovah-vel ovali oblonga et adnata, apice hbero patulo lanceolato mucronato-pungente ramulorum arete imbricatis, in facip superiore ramuh vindibus sublucidi^ in mfenore glaucescentibus opacis basi adnatis ovato acuminatis apice mucronatis patuhs faciahus pUnis, dorso glandula lmean depressa notatis, marginalibus cannato convexis subnavicularibus eglandulosis, omnibus facie interiore conca IUSCUIIS et glaucis, amenitis masculis in apice ramulorum solitarus erectis ovahbus obtusis, bracteis ovatis acutis integris, anthers 2, strobih solitarns in ramulo brevi recto vel curvulo erectis subpenduhsve globosis (e vindi et caeruleo fuscis, glaucescentibus tectis), squamis 4 b dpcussatim oppositis subaequahbus, supra medium apice bractee longiusculo acuto subrecurvo subpungente notatis, margine superiore subintegro, nuculis in quavis squama 2 squamam subaequantibu\* ovatis, utrinque convexis et cum ala nuculae latitudinem utrinque subaequante fere orbicularibus, canahbus resinifens nulhs 5 In America boreali occidentali ad \*inum Nutka (D<sup>l</sup> Scouder's), in Cascade mountains prope nives dehescentes ad 44 gr lat bor (Newberry) et in msuld Sitcha (Mertens' Barclay!) — Pndl i Comf p 62 Ledeb Fl Ross 3 p 680, Carr Comf p 134 Thuya e\celsa Bongard' Vcget de 1 lie de Sitcha p 46 Cupressus Nootkatensis Lamb Pin edit 2 p 113 n 48. Cupressus Nutkaensis Hook ' Fl boi am 2 p 165, Gord. Pin p 66 et buapl p 20, Newberr Williamsons Expedit vol 6 p 62 Cupressus amencana Trautv Imag plant M Ross p 12 t 7 ex Endl Chamaecypans excelsd Fisch herb » Thuyopsis boreahs Hort Carr Comf p 113 Thuyopsis Tchugatskoy hort Aibor excelsa, interdum 100 ped dlta, m alpinis humilior Amenta mascula 3] mill longa, 2] mill ldt Bractee dorso vindes, margimbus albae Antherae subrotundae, luteae Strobih 8 10 mill longi et lati *fffv* )

- 4 C pibittftA (Sieb et 7ucc ' in Endl ' Comf p. 64), arbor, cortice rufescenti-fusco, lamis horizontalibus teictibus rufescentibus, lamulis distichis brevibus a folis omnino tectis compressis, fohis decussatim o)positis, ramorum linean oblongis maxima ex parte adnatis doiso cannatis eglandulosis apice hbero patulo ovato-acuminato mucronato pungente, ramulorum quadfanam rnbii-catis, facialibus paulo minonbus ovato lanceolatis acuminato cuspidatis mferne adnatis, dpice libero subpatulo, in iamuli paite supernoie dorso convexiuscuhs et gUndula hnean-elongatd notdtis, in parte ramuh mfeuore secus caundm vix piomineitem \indcm et glanduld praeditam utrinque fascia nived stigmatosa longitudiuh notatis, marginalibus navicula cannatis ovatr-vel oblongo lanceoldtis acummato cuspidtis, inferne adnatis, supurne hbens et patuhs, in nmuh pdrle supernoie vindibus et convtxiuscuhs, in mfenoe concaviuscuhs, fascid mvca sligmatose laid longitudindh notatis et margine aniceque vindibus saepe eglandulosis, dmentis masculis brevibus oblongis obtusis, bracteis anthenfens ovato-orbicularibus subcienulatis, strobih nuxneiosis, in ldiuulo stiobilo ipso subaequah eiectis subglobosis parvis (fuscis)



squamis 8-12 decussatim oppositis subaequalibus vix lignescentibus, supra medium apice bractee lato brevi obtusissimo sursum flexo denique vix conspicuo notatis undique rugulosis. marginibus irregulariter crenulatis, nuculis in quavis squama 2 squamm subaequantibus ovoideis utnque convexis, cum all nuculae latitudinem superante fere traicverse ovalibus canahbus resinifens 2-plunbus bievibus irregulariter notatis 5 In montibus *Yokohama*, *Karagan* alnsque insulae *Nippon* laponiae promiscue cum Ch. obtusa (Siebold' R Oldham' Peifetti' Maxim').— Can Conif p 138. Retmospora pisifera Sieb et Zucc. Fi. jap. 2. p. 39. t. 122, Gord.! Pin. p 205. *Sawara* Jap *JCwa hak bin* Arboi praecedente minor et gradlior. Amenta mascula parva, 2-3 mill, longa, 1 {-1 7 mill. lata. Bractee antherferae dorso fuscencescentes. Antherae lutcae Strobili. parvi, 6-7 mill longi, 5-7 mill, lati, sicci globosi vel globoso-ovales Squamae tenuiores et pdrviores, magis luscae Nuculae fuscae, ala dilutiore. Ramuh in plantis sylvaticis interdum elongati et subteretes, et folia inferne vel basi tantum. adnata, reliqua parte libera, patuld et lanceolato Imcaria, acummatocuspudata. Occurrunt vanetates hortenses folns alicfuis aureis vel argenteis. Retmospora pisifera auiea et argentea Goid. 1 Suppl. p 94, 95. (v. v.)

- 5 C. OBTUSA (Sieb et Zucc. in EndU Conif. p. 63), arbor, cortice rufescenti-cinereo, lamis horizontibus teretibus rufescentibus, ramulis distichis brevibus a folns omnino tectis compressis, folns decussatim oppositis, ramorum elongatis hneanbus maxima ex parte adnatis dorso canatis eglandulosis, apice libero patulo ovaio-acuminato mucronato-pungente, ramuloiu Imbnacis crassiusculis, facialibus minoribus adpresbis a basi feie ad apicem adnatis ovato-rhombeis obtusis vel acutiusculis et mucronulatis dorso convexiusculis, glandu subiotunda prope medium notatis, in ramuli parte supenore vindibus et nitidiusculis, in infeiore basin versus utroque latere niveis, marginalibus a basi ad medium fere adnatis apice liberis ovato-oblongis subalacatis acutiusculis dorso convexis, in ramuli parte supenore vindibus nitidiusculis et glandulis 1-3 subrotundis prope medium aut apicem vel basin irregulariter notatis, in inferiore vel totidpm vel basi niveis et margem teriore hnea nivea angustata longitudinili notatis, amentis masculis. . . . . , strobilis solitarius in ramulo bievi vel brevissimo eiectis globosis (fuscis), squamis plerumque 8, raro 9-10, decussatim oppositis subinaequalibus erasbiusculis hgnosis, supra medium apice bractee lato breviusculo obtusiusculo sursum floxo notatis undique rugulosis, margine supenore submtegro, nuculis in quavis squama 2 squamam subasquantibus oblongis utnque convexis vel subtnquetns, cum ala nuculae ipsae latitudinem vix superante fere orbicularibus, canalibus resinifens plerumque 2. ^ ^n montibus insulae *Nippon* Japonic, sylvas amplis constituens (Siebold' R Oldham! Maxim !) — Carr. Conif p 136. Retmospora obtusa Sieb. et Zucc. Fl Japon. 2. p. 38 t. 121, Gord. 1 Pin p. 29 •> et Sippl. p 93. C Ketelen Stamlishl hort. quj; forma folns acutiusculis et mucronulatis. *Hmoki* (Arbor soils) Japon. Arbor 50-60, interdum 80 pedes alia. Strobili 9-10 mill, longi et lati Folia ramulorum supenoribus in plantis cultis interdum aurea si argentea (Retmospora obtusa aurea pygmaea Gord ' Suppl. p. 93 et 94). In hortis etiam occurnt pygmaea (Retinospori obtusa pygnidea Gord.' *Thuya pygmaea* Veitch), nec non ejus vanetas insignis folns fere omnibus linean-lanceolatis, dorso convexis vindibus, fache\* supenore concaviusculis, apice obtusiusculis et mucronulatis, patulis, unde ramuli videntur subteretes et crassiusculi folia nonnulla infenora saepe ut in specie (Reiinospora lycopodioides hoit.). (v. v.)

- ↳ C SQUAHROSA (Sieb. et Zucc' in EndU Conif. p 65), Irutex, ramis teretibus rufescentibus ramuhsque eiectis patuhsve vel nutantibus, folns ngidiusculi confertis terms subquaterniwe vel decussatim oppositis, omnibus inferne adnatis, superne liberis patuhsve aut patentirellexis, rarius in ramulis amenta ma'culd ferentibus brevionibus erecto subadpiensis et squamae foimi bus (Zucc.) lineanbus acutis mucronato-pungentibus, strpra planiusculis et sulco loneptudinah leviter notatis, subtus SPCUS nervum conveiusculum levem vindulum vix prominentpm fascia glauca stneta notatis, marginibus obtusis, amentis masculis sessihbus subglobosis, strobilis solitarius, in ramulo breviusculo erectis parvis globosis (fuscis), squamis 8-12 decussatim oppositis subinsequa-

libus, magis latis quam longis, prope medium apice bractee lato breviusculo notatis, nuculis in quavis squama 2 ellipticis sursum attenuatis, ala nuculis latiore, canalibus resinifens numerosis in^ulantei notatis In insula *Kiusiu* provincia *Figo* Japoniae, in sylvis montis *Sukejama* (Sieb.), *Yeddo* (Veitch\*), *Yokohama* (Scattmuller' Miximowiczl) — Can Conif p 139 *Retinospora squarrosa* Sieb et /ucc FI jap 2 p 40 t 12\*, Gord' Pin p 296, Can Conif edit 2 p 137 *Smobu hiba* Japon Folia 5 8 mill basi adnata non supputata longa, 1 mill lata SUobih 7-8 mill longi et lere lati — Var hort vanegata, loins albo maculatis, et encoides, ramis brevibus eiectis, loins saepe minoribus, *Chamaecyparis encoides* hort Carr' Conif. p 140. *Retmospora encoides* Goid 1 Pin. p. 294. *Nezu* Japon (v. v.)

### *Species dubix.*

- C LEPTOCLADA Henk et Hochst Nadelholz p 257. *Retmospora squarrosa leptoclada* Siebold in Gord Pin. p 297 *Retindspora leptoclada* Cair. Gomb edit. 2 p 139.  
C. PSEUDO-SQUARROSA. *Retmospora pseudo squarrosa* Carr. 1. c. p 140

### *Species exclusx.*

- C BOURSIERH Dne = *Juni perus occidentals* Hook.  
c THURIFERA Endl = *Cupressus thunifera* Kunth in H. B.

XII CUPRESSUS *Tourn fust p 358, Linn Gen j>l n 1079, Juss. Gen V 413, Rich Conif p 142 t 9, Endl Gen p 259 n 1791 et Conif p 55, Spach Hist nat des ligtt phandr vol 11 p 323, Carr Conif p 114, Gord Pm p b6, Henk et HochU Nadelhols p 230, Parl Fl ital 4 p 70* — *Juniper spec. Bonpl pi. exsicc.* — *Chamaecyparis spec. Endl Conif p. 62*

Plores in rarais diversis monoici. Amenta mascula in ramulis lateralibus terminalia, oblonga, oblongo-cylindrica, ovata aut ovata globosa firactae in axi decussatim oppositas, quadrifloras imbricatae, foliaceae, suborbiculares, subpeltatae, subtus sub stipite staminigeras Filamenta nulla Antherae sub quavis bractea 3-5 globoso-angulatae, uniloculares, Joco longitudo inter dehiscente. Amenta femina in ramulis lateralibus terminalia, bracteis stenibus nullis. Squamae 6-10, raro 11-14, decussatim oppositae, patulae, e bractea foliacea lepidioque carnosio crasso, breviori basi arete adnatis compositae, hinc, superiores stiles. Pistilla pluma, plunata, erecta. Ovarium ovoideum uniovulatum Stylus brevissimus, teretissimus, crassus Stigma fere orbiculare, perivium Strobilus secundo anno maturescens, e squamis lignescens suborbicularibus angulatis excentricis peltatis, dorso prope medium apice bractee plus minusve mucronatis et saepe umbonatis, primum arctis compositis demum insensibus compositis. Nuculae saepissime pluma, plunatae, raro paucae, erectae, distinctae, ovoideae YPI oblongae subcompressae aut angulatae Pencarpium osseum, utrumque in alam membranaceam angustam vel latam saepissime expansum. Semina solitaria, oblongo-cylindrica Embryo in axi albuminis carnosio, ejusdem longitudine, cotyledonibus 2-4, radice teretissima supera! Folia seminaria 2-3, raro 4, stete linearia, patentia aut patentissima.—Arbores interdum excelsae, vel frutices sempervirentes, in temperatis regionibus mediterraneae orientalis nec non Asiae occidentalis et Americae septentrionalis, praesertim in montibus Persiae, Indiae orientalis, Chinae, Mexici et Californiae lente crescentes, corlice longitudinae teretissimae ligno

flavescente compaclo, resina grate olente referto saepe pradiatae Rami sparsi patentes vel erecti aut fastigiati, ramuh a folns tecti saepe compresso-tetragoni Folia maxima parte adnata, apice libero squamaeformi decussatim opposita et quadnfanam imbiicata, glandula resinifera plus minusve manifesta dorso saepissime notata

1 C SLMPELVIRENS (Linn bp pi. p 1422), monoica, arbor excelsa, coma conico-pyramidarii, ramis strictis fdstigiatis confertissimis, ramuhs patuhs subdistichis compresso-tetragoms obscure vindibus, folns squamaeformibus decussatim oppositis arete Imbiicatis adpressis ovatis obtusis dorso convexis et supra medium subimpresso glandulosis, amentis mascuhs in ramulo longiusculo aut bievmsculo eiectis oblongo-cyhndraceis, bracteis quadnfaridm imbneatis suborbiculanbus obtusis ciliolatis, anthens sub-4, amentis lemneis in ramulo breviusculo subincurvo solitdne terminalibus subrotundis, piimum arete imbneatis et adpressis, demum ad basin squamae magis incrassatam subhonzontahbus deflexisve, squamis late ovato-orbiculanbus obtusis margine albo-ciholatis, strobilis in ramulo brevissimo subcernuo penduhs subaggregatis ovatis vel ovato-oblongis oblongisve obtusis apice subrotundatis magnis (cinereo-plumbeis), squamis 8-U quadnfariam oppositis peltatis subinaequalibus angulatis dorso convexis et lere umbonatis in medio mucronu latis, mucronulo ex apice libero bractee adnatae efformato bievi obtusiusculo rectiusculo, nucuhs sub quavis squama plunbus ovoideis vel obloDgis angulatis cum ala angusta fere orbiculanbus 5 — Oaertn Fruct. 2 p 64 t 91 f 5, Mill Diet n 1, Bert fl ital 10 p 275, Oord Pin p 67 Cupressus lemma Caesalp de plant lib i cap 55 p 134 Cupressus meta in fastigium convolute quae femina Plum Tourn Inst p 587 Cupressus sempervn ens a Linn 1 c, Loisel in Nouv Duham 3 t 1, Richard Conif t 9 Cupressus pyraraidahs Targ Tozz Obs bot dec Jjs p 53 Cupressus fastigiata De C fl franc 5 p 336, Lndl Conif p 57 Carrier Conif p 116, Henk et Hochst Nadehob p 2\*1 Cupressus conoidea Spad Xilogr 1 p. 189 *Cipressso*, *Cipresso maschto* Ital Arbor 70 80 pedes ilta ranns confertissimis strictis lastigiatis trunco dppressis (xttrne ramosis, comam conico pyramidalem apice acutiusculam effoi mantibus % Amenta mascula 58 mill longd, 2 mill vix lata Bractede doiso vuiles, demum palhde rufescentes Strobih magni, nucis fere magmtudine, 30 42 mill longi, 22 30 mill lati squamae 12-14, raro 10, dorso plus minusve mucronatae aut umbonatae, intus rules centes, lineis albis brevibus pictae. (v. v)

p, *honzonlalis*, comi pyramidah-effusa, ramis confertis honzontahbus vel mferioribus subpenduhs undique valde breviterque ramosis, i imuhs erectis patuhsve subdistichis Cupressus mas C\*salp 1 c Cupressus ramos extra se spargens quae mas Plinn, Tourn Inst p 587 Cupressus stm pervirens (3 Linn Sp pi p 1422 Cupressus horizontals Mill Diet n 2, Targ Tozz. Obs bot dec 3 o p 54, De C Fl franc. 5 p 336 tndl Conif p 56, Carnèi Conif p 115, Henk et Hochst Nddelholz 1 c p 230 Cupressus patula Spad Xilogr 1 p 193 Cupressus sempervirens nonzontalis Gord Pin p 68 Cupressus expansa, onentalis, thuy\*cfolia et Morey Tombay hort *Cipresso*, *Cipresso fmina*. Ital Stiobih, ut in specie, interdum subglobosi Utraeque vanetates habitant in montibus Cietde, Asiae minons, Sjnae, Persiae et Himalayde, per totam regionem mediterraneam et in Canarns in insula Nivarid, ad tumuld ornanda vel ob ligm excellentiam in colhbus passim cultae et hinc inde subsponsanae In montibus bphakioticis alt 4 5000 ped (Heldr 'n 1381) in colhbus calcaieis ad onentem pagi *Bouloukh* prope *Mersma* spontaneal (Balansal), in Monte Libano dd *Bsoherre* et circa cedretum sylvas in dechvibus valhs AnuJ)m alt 3500 ped conlstituit (Kotschy' Iter syr n 327), in Libano ad rupes supra pagum *Detr el Kamar* (Blanchetl n 264), in Persia (Auch Eloy n 1337), in Cachemiro (Hugel) (v v)

Y, *tphjprocarpa*, coma subpyiamiddli effusa, ramis hori/ontahbus ascendentibusque, mferioribus subp^nduh\* undique ramosis, ramuhs P<sup>lia;j</sup>ai11^ subpenduhs, secundarns subpatuhs, stiobih globosis, squamis 10 li

dorso convexis medio mucronatis, mucrone brevissimo obtusiusculo Cum specie promiscue invenitur in Monte Libdii Colitur in horto Regni Musei Florentini ubi nunc 70 ped alta Cupressus sphaerocarpa Pail i Index semm hort leg Mus. Flor ann 1860 p. 22. Strobili 23-28 mill longi et lati (v v)

3, *globuhfera* coma subpyramidah effusa, ramis confertis horizontibus, inferioribus subpendulis, ramis primariis valde elongatis pendulis, secundariis subdistichis, strobiliis globosis squamis 8-10 dorso convexis medio mucronatis, mucrone brevissimo obtusissimo Colitur in horto botanico reg Musaei Morent Cupressus globulifera Parl 1 c p 21 Strobili 22-26 mill longi et fere lati (v v)

c, *Indica*, coma subpyramidali effusa, ramis erectis assurgentibus, strobilis globosis, squamis sub-10 dorso convexis medio umbonatis et apice bracteae acutiusculo mucronatis In Nepal la et Kooloo Cupressus sempervirens indica Royle mss Cupressus Roylei Carr mss Cupressus Whitleyana hort, Carr Comf p 128, Gord Pin p 72 et Suppl p 27, Henk et Hochst Nadelholz p 245. Cupressus Doniana hort (v. v)

?), *umbiluala* coma cornea stneta, ramis patulis tetragomis, strobiliis ad apicem ramulorum primariorum subsolilarns subglobosis, squamis sub-10 dorso umbonatis ibique in medio mucronatis, mucrone lato obtusissimo brevissimo Prope Sidonem ubi forte culta legit cl Gaillardot n 1046 Colitur in h reg florent vulfo *dei Scmplici* Cupressus umhiluata Parl I. c p 21 Strobili 15-28 mill longi < t 2 > mill lere lati Vanelas certe insignis et melius in Oncnte mvestiganda (v v)

Stirps iamorum et rimulorum dnectione, strobilorum et squamarum forma maxime ludibunda unde ab auctonibus et praesertim a me ipso immento in plures species distmcta Sed observationes recentiores de strobilorum et squamarum nee non ramorum directionis vanahilitate certum mo fecerunt ab unica et tantum polymorpha specie omnes vanitates provenire, nam in eadem arbore ramos partim fastigiatos et partim patulos, strobilos ovato-oblongos, oblongos et globosos, nec non squamas nunc dorso convexas umbonatas et mucronatas, nunc tantum convexas et vix aut no vix mucronulatas, nunc lanter etiam umbonatas mihi videre occunt .

2 C TORULOSA (Don Prodr fl nepal p 55), monoica, arbor, coma pyramidata effusa, cortice brunneo secedente, ramis confertis assurgentibus teietibus, ramulis subpendulis subdistichis, secundariis teretiusculis, a foliis omnino tectis, e vinctis glaucescentibus, foliis oppositis, ramorum et ramulorum approximate, maxima parte adnatis apice libero ovato-triangulan acuto pungente subpatulo dorso convexis et glandula oblongo lineam impressa notatis, senescendo marcescentibus, ramulorum secundariorum squamaeformibus quadrifanatis adpressis ovato-rhombeis acutiusculis dorso convexis et supra medium excavato glandulosis excavatione sublineam, amentis masculinis in ramulo breviusculo aut longiusculo erectis oblongis subtetragonis obtusis, bracteis quadrifanatis late ovatis obtusis margine integris dorso glandulosis, aethens 3-4, strobilis ad basin ramulorum saepe 1-3 approximate vel solitarns, in ramulo brevissimo erectis subglobosis (e fusco-ceruleis) glaucis, squamis 8-10 quadrifanatis oppositis aequalibus peltatis orbiculatis angulatis medio umbonatis, umbone lato breviusculo obtusissimo rectiusculo, bractea lata squamis adnata apice vix libera mucronulata vel submutica, nuculis 4-6 in quavis squama ovoideis utrinque convexis, cum ala angusta fere orbiculatis \$ In Himalayae regione temperata inter 4500-8500 ped altim (Wallich n 6046 B.), in Bhootama (W S Webb') m Simla inter 7-8000 ped (Hook fil et Thorns') — Lamb Pin edit\* 2 vol 2 p 113, bpach Hist des vég phanog vol U p 329, Endl Comf p 57, Carrier Com' p 117, Gord Pin p 69, Henk et Hochst Nadelholz p 233 Cupressus pendula Griffith<sup>9</sup> Aegel bartend ann 1884 p 279 Henk et Hochst 1 c p 235 C torulosa et majestica Kmgbt Con/ p 19 et 20 C. Tournefortu Ten' Osserv sopra alcune specie di cipressi Modena 1803 cum icone, exel syn lourn et Duham Arbor pulchra, ramosissima, sub-

40-pedalis, mterdum magis data Ramuli et folia obscure virentia Amenta mascula 5 mill longa, 2 mill vix lata Bractee undes, fusco-punctatae margine albidae, dorso glandula subrotunda, pellucida in medio notatae Antheiae 3, globoso-angulatae, flavescens strobili 12 ID, mterdum 20 22 mill longi et iere lati, mterdum globoso-ovales Nuculae castanei colons (v v L)

Extant vanetates hoi tenses, loins vuidibus, Cupressus torulosa vindis hort, et nana Cupressus toiuosa elegans, nana et lehgiosa hoit

- 3 C CORNEYANA (Knight Comf p 20), monoica, arbor, ramis ramuhsae pmanis teretibus elongatis penduhs, ramulis secundarns alternis patulis subdistichis elongatis giacihbus a folus omnino tectis compiesso-tetragonis vindibus, folus docussatim oppositis, ramorum et ramulorum pumanorum approximate breubus maxima ex parte adnato decuientibus apice libero ovato-acummalo mucionato subpungente dcuium patulo, dorso convexis et glandula oblongo hneari \ix aut ne vix notatis, ramulorum secundanorum squamasfoimibus quadnfriam iml ncilis adpressis ovato rhombeis vel ovato acummatis obtusmscuhs mucroulatis convexiuscuhs glandula oblongi vix manifesta notatis, amentis masculis tn lamulo longiusculo erectis oiaibus vel oblongis obtusis, bracteis quadnfanam lmbncatib ovato orbiculanbus apice acutiuscuhs margine integris dorso convexiuscuhs, anthens 3 4 strobilihs ad basin ramulorum saepe 2 3 approximitis bubsessilibus vel in ramulo brevissimo erectis ovalibus vel o\ali-subglobosis (castanei colons, supra mucronem squamarum glaucis), squamis sub-10 quidnlanam oppositis subinae quahbus peltatis orbiculau-angulatis in medio mucionatis mucrone tx apice bracteaj lato bievi acuto et subpungente intuitivo eflbrmato, nuculis 4-6 in quavis squama ovoideis utunque coinexis et angulatis cum ala latiuscula fere orbiculanbus In China et lortasse in Japonia secund Gordon — Caineie Comf p 128, Gord ' Pin suppl p 2^, H(uk et Hochst ^ade^holz p 245 C graulis et cernua hoi t Junipcrus Chinensis Corneyana Gord • Pin p 117 Junjperus gracilis et pendula hoit ahq Cupressus torulosa Comeyana Carr Comf edit 2 p 121 bpecies C torulosae alfinis a qua piaeserlim lamis ramulisque ouimno pciuluhs, glandulis fohoiuim vix conspicuis, stiobilisue sapius ovahbus, haud umbonatis sed tantum apice bracte<f admtar hbcio inc irvo mucronatis et supra inucronem tantum glaucis videtur dutmcta btiobih 15 20 mill longi, 10 14 mill lati Speumina culta tautum vidi ideoque de patna ejusdem speciei respondere non possum (v v)

- 4 C GLAUCA (Lam Diet 2 p 243), monoica, arbor, coma effusa, ramis hon-7ontilibus subpenduhsve teretibus, ramulis pnrnarns patulis<sub>T</sub> secundains etiam patulis subquadnfanam iltrnis, a folus omnino tectib tetragonis, folus oppositis glaucis, nmorum et ra nulorum pmanorum subimbncatis maxima pane adnatis, apice libero patulo lanceolito-icuminato mucionato subpungente dorso convexis et glandula oblongo hnean notatis, senescendo marcescentibus, ramulorum socundanorum squ imaeformibus quadnfanam imbn catis ovato acuminatis adpiessis, apice vix patulo obtusiusculo mucionulatis dorso convexis et glanduta subrotunda ^el o\ili notatis, amentis masculis numerosis parviusculis in ramulo longiusculo vtl breviusculo erectis oviliohlongis obtusis subtetragonis, bracteis subtnangularibus acutiusculis dorso wpicem versus convexo-cirmatis, margine vix ciosulis anthens sub o, amentis lemmeis in lamulo breviusculo incurvo subceinuis, biactcis 8-0 quadn finam imbricatis ovato-acuminatis, facie ad basin incrassatis, doiso cannatis, margine latiusculo membranaceo stiobih ad basm ramulorum pnmanoium in lamulo longiusculo erectis vel subcernuis plerumque sohtains parvis globosis (luscis) gliucedine alba tecti, squamis plerumque 8 nisequahbus peltatis suborbiculanbus anffulads doiso convexis supi i medium mucronatis, bractee apice latiusculo et longiusculo acuto subpungente incurvo notatis, nuculis parvis numerosis ovahbus subobovatisve utrinque convexis cum ala latiusculi ovahbus vel suborbiculanbus (palhdis) In peninsula Indiae cina Goam — Brot Fl lusit 1 p 21b, bpach Hist natur des v6get phanci 11 p 328, Tndl Com! p 58, Henk et Hochst IN idelholz p 235 Juniperus ex Goa Herm inn Hort lugd batav p 346 Cupressus lusitanica patula fructu minore Tourn Inst p 587, Duham Arbr 1 p 198 C Lusitanica Mill Diet n 1, Willd ' Sp 4 p 511, Ten I Osserv sopra alcuni cipressi Modena

- 1853, Carnère Conif. p. 119, Gord ! Conif p. 63. *C. pendula* Hent. Stirp. 15. t. 18 non Thunb. nee Lamb. *C. Udheana* Gord. Pin. p. 71 excl. loc. nat; Carnère Conifei p. 128 loins tantum virescentibus. *C. Smensis* hort. Arbor 35-50 pedes alta, lohorum et strobilorum glaucescunt facili distinguenda. Rami rubri, lamellae virentes-glauci Amentum 3-4 mill, longa, 1<sup>^</sup> mill. Lamellae, eorum bracteae? dorso virentes vel luteolae margine luteolae. Antherae luteolae. Strobili 12-14 mill longi et fere lati, fuscis, glaucescentibus, glaucescentibus albae tecti Nomen *C. Lusitanae* quamvis antiquum sit haud retinui nam species haec in Lusitania non est indigena sed tamen culta. (v. v.)
5. *C. FUNEBRIS* (Endl. Conif. p. 58), monoica, arbor, coma effusa, ramis horizontalibus teretibus, ramulis paucis elongatis pendulis secundariis alternis subdistichis patulis compressis-angustis latis undibus, foliis ramulorum et ramulorum paucis oppositis adnatis-decurrentibus, apice hinc ovato-acuminato mucronato-subpungente patulo, dorso carinatis et glandula „ oblongo-linearibus baeve notatis, ramulorum secundariis squamiformibus, quadrifloris oppositis imbricatis adpressis ovato-acuminatis, apice mucronulato subpatulo, marginalibus majonibus carinatis vix glandulosis, facili adpressis, dorso convexis et glandula oblongo-linearibus notatis, amentis masculinis in ramulo brevi, amento ipso subbreve pendulis ovato-oblongis obtusiusculis tetragonis, bracteis late orbiculatis apice acutiusculis margine submarginatis arete imbricatis, strobiliis in ramulo brevi erectis pendulisve subglobosis globosis parvis (fuscis) glaucescentibus, squamis sub-8 quadrifloris oppositis subaequalibus angulatis peltatis dorso convexiusculis in medio mucronulatis, mucronulo ex apice libero bractearum adnatarum efformato incurvo vel rectiusculo, lugulosus, nuculis 3-4 sub quavis squama ovoideis subnatis, cum ala latiuscula fere orbiculata. § In China ad bustam et tumulam tantum plantata (Staunton in herb. Candolle Fortune I n. 45). Colitur etiam in Sikkim et in Bootan (Hooker I films qui putat ex Thibeto allata). — Carnère Conif. p. 120; Planch., in Flor. des Seirs 6. p. 90 cum icone, Gord ! Pin. p. 60 ; Henk. et Hochst. Nadelholz. p. 236 Weeping Lhuya or Lignum vitae Staunton Embassy to China 2 p. 445 t. 41. Cupressus pendula Staunton op. cit. 2. p. 525, Lduib. Pin. edit. 2. p. 124. t. 06, Loud. Arb. Brit. 4. p. 2479 f. 332, 2333 excl. syn. nom. *Tsian-soung* Sin. *Saksin* Mandch. Arbor elegans, bracteis baeve facie. 60-90 pedes alta. Amenta masculina et luteo-umbellata, 3 mill Jonga, 1 mill, vix lata Strobili 12-18 nulli, longi et fere lati Squamae plus minusve mucronulatae aut mucronulatae Folia seminalia 2, strobili linearibus, obtusiuscula, patentia. (v. v.)
6. *C. LINDLEYI* (Klotsch in Endl. Syn. Conif. p. 59), monoica, arbor, ramis teretibus patulis, cortice rufescente, ramulis erecto-patulis patulisve, secundariis a foliis omnino tectis subtetragonis crassiusculis glaucescentibus, loins decussatim oppositis, ramulorum laxo imbricatis oblongo-linearibus, maxima parte adnatis, apice libero ovato-triangulari acuto subpungente patulo, dorso convexis et glandula linearibus depressa notatis, senescendo marginatis, ramulorum secundariis squamiformibus arete imbricatis adpressis ovato-linearibus acutis dorso convexo-candentibus et glandula oblonga depressa in medio notatis, amentis masculinis in ramulo longiusculo erectis ovato-globosis subquadrangulis, bracteis quadrifloris imbricatis late ovato-orbiculatis acutiusculis dorso convexo-submarginatis margine submarginatis, amentis sub-J, strobiliis ad basin ramulorum paucorum in ramulo strobilo ipso breviter erectis pleumque solitariis globosis lugosis (fuscis) glaucescentibus, squamis 6-8 decussatim oppositis margine submarginatis peltatis subquadrangularibus subrugosis glaucescentibus in medio mucronatis, mucrone breviusculo obtuso ciliatis submarginatis, bracteis linearibus adnatis apice vix tantum libera, nuculis 5-8 in quavis squama oblongis utunque convexis vel angulatis cum ala angusta fere ellipticis. ^ In Mexico in *Anguio* et *Tlalpuexalia* (Hortweg n. 437), *Hacienda del Arenal* et prope *S. Fianci* & *co* (C. Hienbeig), *Lolucca* in Monte porphyneo Sancti Michaelis (Heller n. 413), in Mexico (Kawinsky Herbar. Mex. 1841, 1842 n. 1023J, in montibus mexicanis ubi frequens (Bassia in herb. Mus. Florent.), in Mexico (Berlandieri n. Ho9, Aschenbora n. 69U), prope *Tacubaya* in valle Mexici (Bougeault n. 245) - Carrier Conif. p. 123, Henk. et Hochst. Nadelholz. p. 238. *C. thunifera* Lindl. in Bot. Beechey 1839;

- Benth pi. Hartweg p. 57 exclus. syn. Humb. et Kunth. C. Knightiana Gord. Pmet. p. 61, et Suppl. p. 61; Knight? Syn. of Conif. p. 19. C. Coulten Forb.? Pinct. Woburn. p. 190. C. Karwinskyana Regel! Gartenfl. ann. 1857. p. 346; Henk. et Hochst. 1. c. p. 241; Can\*. Conif. edit. 2. p. 164; G Lusitanica Lindley et C. Knightiana Carr. Conif. edit. 2. p. 156 et 158. *Cedro, Cedro bianco del deserto* Mexicanorum. Arbor excelsa, 60-100 ped. alta. Amenta mascula 'i&-3jnill. longa, 1 j-2 mill, vix lata. Antherae lutes. Strobih 13-15 mill, longi et fere lati. Nuculae badiae. (v. |.)
7. C. BENTHAMII (Endl. Conif. p. 59), monoica, arbor, ramis teretibus ramulisque patentibus subdistichis, ramulis secundarns a foliis ommno tectis compresso-letragonii gracilibus viridibus, folns decussatim oppositis, ramorum et ramulorum pnmanorum valde approximatis et subimbncatis, late oblongis maxima parte adnatis, apice liocro late ovato-acuminato pungente patulo, dorso glandula oblongo-linear notatis, ramulorum secundanorum quadnfariam imbricatis subadpressis ovato-rhombeis vel ovatis obtusis muticis vel mucronulatis, mucronulo subpatulo, marginalibus obtuse cannatis, faciaibus compressis, omnibus dorso in medio glandula ovah vel oblonga depressa notatis, amentis masculis in ramulo longiusculo erectis oblongo-linearibus obtusis subquadrangulis, bracteisquadranam imbricatis ovato-orbicularibus acutiusculis margine subinterns, antheris 3-4, strobilis ad basin ramulorum pnmariorum in ramulo brevi strobilo ipso brevioris erectis plerumque numerosis subglobosis (rulescenti-fuscis glaucescentibus), squamis 4-6, raro 8, decussatim oppositis submaequalibus peltatis subquadrangularibus rugosis, supra medium mucronatis, mucrone longiusculo crassiusculo acutiusculo subincurvo, bractea latiuscula adnata a)ice vix libera, nuculis 5-6 ovatis utnque convex is vel subangulatis cum ala angusta suborbicularibus vel fere ovalibus. § In Moxico *el banco* (Haitweg! n. 434, C. Ehrenberg! n. 949), in regione frigida (C Ehrenberg! n. 9), in Mexico (Uhdel n. 69-72), in Provincia *San Luis* (Verlet!), in nemore de la deserta Vieija in valle Mexici (Bourgeau! n. 245) et in Orizaba ad *Cocolapan* (Bourgeaul n. 3258), in montibus *Santa Cruz de Kachequil* in Guatemala sec. Gord. — Car-nère Conif. p. 122; Gord.? Pin. p. 58; Henk. et Hochst. Nadelholz. p. 238. C. thurifera Schlecht? in Linnaea 12. p. 493; Benth.' pi. Hartweg p. 57. C. excelsa Scott ex Carr. Conif. p. 128; Gord.! Pin. p. 58; Henk. et Hochst. jNadelholz. p. 243; Carr. Conif. edit. 2. p. 160. C. Skinneri hort. C. elegans hort. C. aromatica GordJ Pin. p. 66. C. Lusitanica, Benthami et Udheana Carr. Conif. edit. 2. p. 155. C. Kewensis hort. C. Hugelii hort. C. Udheana hort. aliq. non Gord. C. Knightiana hort. aliq. non Gord. C. Cunninghamii hort. aliq. *Cedro bianco* Mexican. Arbor excelsa. Rami rulescentes, foliis persistentibus mgrescentibus superne tecti. Ramuli secundani \irides. Amenta mascula c rufo et luteo vana, 3-3\ mill, longa, 1^ mill, vix lati. Strobila 9-12 mill, longi et lati. Squamae in plantis cultis interdum numerosiores et arete imbricatae. (v. s.)
8. C. GOVPNIANA (Gord.! in Journ. of the Hort. Soc. 4. p. 295 cum icone et Pin. p. 60), monoica, frutex, coma pjramidali, ramis patentibus vel erecto-patentibus teretibus, ramulis primams patulis, secundariis ettam patulis deQuassatim suboppositis a foliis undique tectis subquadrangulis, foliis oppositis vindibus, ramorum et ramulorum pnmariorum approximatis, maxima parte adnatis, apice libero subpatulo ovato-acuminato mucronatd-subpungente, dorso glandula oblongo-linear notatis, senescendomaicescentibus, ramulorum secundanorum squamaeformibus quadnfariam imbricatis adpressis ovato-acuminatis ovatisve apice obtusiusculis dorso convexis et glandula ovali-subrotunda prope basin notatis, amentis masculis in ramulo breviusculo vel longiu^culo ereclis ovali-oblongis obtusis subquadrangulis parvis numerosissimis, hracteis orbicular-ovatis acutiusculis dorso convexiusculis et in medio depresso-glandulosis margine sbintegns, anthens 3-4, strobihis numerosissimis ad basin ramorum et ramulorum pnmanorum 2 approximatis vel solitarns, in ramulo bievi vel breviusculo erectis globoso-ovalibus subglobosisve (fere castanei colons), squamis 6-8 vel 10, quadnfariam oppositis, parum inspqualibus subpeltatis suborbicularibus irregulariter angulatis dorso medio umbonatis, umbone obtuso, bractea lata squamis adnata apice libera, rau-

cronem acutum subpungentem submcurvum in apice umbonis efformante, nucus ovoideis subnquetus cum ala angustissima fere cuneatis ^ in California prope Monterey non piocul a mare detexit cl Hartwpg' n 1971, in collibus andis prope Monteiey (Bolander!) — Can\* Conif p 12 > Henk et Hochst Nadelhob p 240 C California Carr ' U p 127, et edit l p 164 Juniperus aromatica hort ' C cornuta Can \* in Rev Hort 1866 p 251 cum icon Frutex o^oie fortiter resinoso pneditus, 8-16 ppd altus et forsantior, ramis lamuhsque pnmanis fusco rubentibus Amenta mascula l\ 3 mill longa 1\ mill lata lutea, eorum bractese dorso vindes, margine lutescentes Antherae luteae, ghboso-ingulatae Strobih 11-20 mill longi et fere lati Nuculae nigrescentes. (v v)

- 9 C MACROCARPA (Hartw ' in Journ Hort soc 2 p 187), monoica, arbor, coma pyramidata effusa, cortice fusco-ufescente, ramis patentibus subhonzontahusve teretibus lamulis patentibus vcl subpatuhs ciassiuscuhs a tollis omnino tectis subquadrangulis foliis vindibus oppositis ramorum et ramulorum pnmanorum maxima parte adnatis, apice hbero obtusiusculo mucronato-subpungente, dorso glandula hnean vel glanduhs laterahbus notatis senescendo marcescenlibus, lamulorum scundanorum squamaeforinibus quadnfanam arete imbncatis o\ato rhombeis obtusis adpressis supra concavusculis dorso comexo subcannatis et glandula ovah notatis, margimbus acutis et scabnusculis amentis mascuhs in ramulo longo vel longiusculo erectis ovato-globosismajusculis paucis, hcteis suborbiculanbus croso denticulatis amen Us femmeis globosis e bract\*Ms lepidnsque 10 12 decussatim oppositis adnatis compositis, bracteaum apice longiusculo acutiusuilo reilexo, strobilis paucis ad basin ramulorum pnmanoium 2 approximate vel solitams, in ramulo strobilo ipso brevior (PICIIS globosis ^castaneo fuscis) squimis 8-12 inaequalibus subpeltatis suborbiculanbus irregulariter angulatis dorso convexis vel concavusculis apice bractee tantum libero supra medium vel infra apicem mucronatis, mucrone crasso lato ohtuso subreflexo nuculis parvis numerosis, cum ala angusta oblongis fuscis ^ In nemorosis California prope Monterey (Hartw ' n 1970), ad Cypress Print alibique (Bolander') — Gord ' in Journ of the Hort Soc 4 p 296 cum iconp, Pin p tn Henk Pt Hochst Nadplhol/ p 239 C Lambeitiana hort Oojd ' pi exsicc , Carr Conif .p 124 et edit 2 p 166 C Harlwepii Can in Hor des Sen 11 p 98 et Conif edit 2 p 168 C K&inwaitdn hort Arbor 00-60 ped alta, \ Cedn facie Amenta mascula lutea, 4 mill longa, 3 3\ mill lata Strobih 20 28 mill longi et fere lati (v v)

(3, *fastigiata*, ^oma cornea, ramis fastigiatis In hortis Cupressus macrocarpa fastigiata Knight Conif p 20 (v v)

- 10 C MACNBIANA (Murr ' Descrpt of the Conif trees from California p 12 tab 10), frutex, coma pyramidah ramis patulis pnmain^ subteretibus rufescentibus, secundarns suboppositis, ramulis subdistichisbievibus subteretibus glaucis, folns lamorum pnmanorum et secundanorum maxima ex parte adnatis apice libens patulis et acutis, raraulorum quadnfanam oppositis imbncatis adpressiuscuhs basi adnatis oblongis marginalibus longionbus omnibus dorso convexis et glandula subrotunda prope medium notatis, apicem vcr&us mcrassato-ffibbis, apicp obtusiuscuhs, marginibus sub vitro ciholatis, amentis mascuhs , strobilis in ramulo brevi recto erectis patuhsve subaggregatis globosis, squamis 6 quadnfiriam oppositis peltatis subaequalibus angulatis doiso convexis et in medio umbonatis umbone crasso Ion giusculo curvulo, nuculis sub T sub quavis squama parvis suborbiculanbus subangulatis vix alatis ^ In montibus Shasta CahforniT ad 5000 ped elevationem (Jeffrey, Murray') —Gord Pin p 64, Carr Conif edit 2 p 165 C glandulosa Hook ex Henk et Hochst Nadelholz p 241 Frutex 6-10 ped sec Gord Amenta mascula ot strobilos in planta viva nondum vidi (v v)

- U C THURIFERA(Humb Bonpl etKunth' Nov spec et gen 2 p 3), monoica<sup>9</sup> arbor ramis patentibus mlenoribus apice reflexis, lamulis subdistichis brevibus teretiuscuhs. folns ramorum terms subimbncatis, ramulorum decussatim oppositis quadnfanam imbricatis omnibus oblongo-lanceolatis, mferne adnatis superne patulis acuminatis mucronato-pungentibus, dorso convexis



et in sicco glandula depressa lineari-oblonga prope medium notatis, amentis masculis numerosis in ramulo recto longiusculo erectis oblongis obtusis, bracteis late ovato-rolundatis obtusiusculis dorso convexis, strobili in ramulo brevi erectis vel subcernuis globosis (fuscis glaucescentibus), squamis 6 decussatim oppositis crassiusculis lignosis, prope medium apice bractee libero bievi obtusiusculo patenti-reflexo notatis, leviusculis, nuculis in quavis squama 2-3 fere obovatis convexo-inquetns aptens. § In sylvis Mexici prope Tasco et Iohuitotepec alt. 5500 ped. (Humb Bonpl.), in Mexico, Michoacoa? (Udde n 547'), Oaxaca (Udde n 550!), in Sierra Madre (Seoman'j. Juniperus thunbergia Humboldt' in herb. Willd. n. 3956. Chamzecypaus thuifera Endl' Conil p 62, Can. Conif p. 135; Gord. Conif p. 50. Cedro Mexic. Strobili 10-13 mill longi et fere lati. Species squamarum et nuclearum pencepio osseo, alis destitute, praeditarum structura a Chamaecyparum aliena et inter Cupressus adnumeranda. (v. s.)

*Species dubia.*

C. ATTENUATA Gord. Pin. p. 57 = C. nivea hort. In Shasta California. An varietas C. Govenianae?

*Species exclusae.*

- C. APRICANA Mill. = Widdingtonia juniperoides Endl.
- C. AMERICANA Catcb. = Taxodium distichum Rich.
- C. AMERICANA Trautv. = Chamaecyparis Nutkaensis Spach.
- C. ARDOR VITAE larg. Tozz. = Thuya occidentalis L.
- C. AUSTRALIS Desf. = Frenela rhomboidea Endl.
- C. AUSTRALIS Pers. = An Frenelae species?
- C. BACCIFORMIS Willd. herb.\* = Juniperus phoenicea L.
- C. CHILENSIS Gillies. = Libocedrus Chilensis Endl.
- C. COLUMNARIS Forst. as Araucana Cookn R. Br.
- C. COLUMNARIS Forst. = Araucana excelsa R. Br.
- C. DISTICHA L. = Taxodium distichum Rich.
- C. FILIFORMIS hort. = Biota orientalis pendula Parl.
- C. FORTIERGILLI Pmet. Woburn. = Frenela FortiERGILLI hort.
- C. JAPONICA Thunb. = Cryptomena Japonica Don.
- C. JUNIPEROIDES L. = Widdingtonia juniperoides Endl.
- C. LAWSONIANA Murr. = Chamaecyparis Lawsoniana Parl.
- C. MACROSTACHYA hort = Frenela Gunn Endl.
- C. NOOTKATENSIS Lam) = Chamaecyparis Nutkaensis Spach.
- C. NUCIFERA hart. = Glyptostrobus heterophyllus Endt.
- C. NUTKAENSIS Gord. = Chamaecyparis Nutkaensis Spach
- C. PATULA Pers. = Biota orientalis pendula Parl.
- C. PENDULA Thunb. = Biota orientalis pendula Parl
- C. PENDULATA hort. = Biota orientalis pendula Parl.
- C. SADINOIDES H. B. K. = Juniperus tetragona Schlecht.
- C. SINENSIS hort. = Taxodium distichum var. Parl.
- C. TCHUGATSKOY hort. = Chamaecyparis Nutkaensis Spach.
- C. THUYA Targ. Tozz. = Biota orientalis Endl.
- C. THUYOIDES L. = Chamaecyparis sphaeroidea Spach.
- C. THYOIDES Pavon. = Libocedrus Chilensis Endl.

C. Strobili squamae decussatim oppositae vel ternatim verticillatae, inter se coalitae et galbulum carnosum efformantes.

XXIII. JUNIPERUS Linn. *Gen. pl.* n. 1134; Ju. «. *Gen. pi.* p. k3; *Gxrtm. Fruct.* p. 62. tab. 91; *liicHard Conif.* p. 137. tab. 5. 6; *Endl. Gen.* p. 268. n. 1789 et *Conif.* p. 7; *Spach in Ann. des scienc. natur. T se'r.* vol. 16. p. 282 et *Hist. des v&rj. plian.* vol. M. p. 305; *Carrier., Conif.* p. 1; *Gordon Pjnet.* p. 91. — *Junipfci-us et Cedrus Tourn. Inst.* p. 588. tab. 361. — *Thuaecarpus Trautvett. Imag. plant.* p. 11. — *Arceuthos, Juniperus et Sdhina. A nlo me die Cupress-Gatlung* p. 3. 8. 35.

Flores dioici aut in ramis diversis monoici. Amenta mascula axillaria vel in ramulis lateralibus terminalia, globosa, ova<sup>a</sup>ia vel oblon<sup>a</sup>, interdum tetragona. Bractese in axi decussatim oppositae vel ternatim verticillatae, laxiuscule imbricatae, subfoliaceae, suborbiculares, dorso interdum f<sup>?</sup>landu. Jiferae, subtus sub stipite staminigerae. Filamenta nulla. Antberae subquavis bractea 3-6, sublyboso-angulatae, uniloculares, loculo longitudinaliter dehiscente. Pollen sphaericum, Jssve. Amenta feminea axillaria vel in ramulis lateralibus sohtarie terminalia, bracteis paucis adpressis sterilibus basi suffulta. Squamae <sup>a</sup>-6 decussatim oppositae, vel <sup>3</sup>-9 ternatim verticillatae, patulae, superne steriles, e bractea foliacea J<sup>?</sup>epiaioo<sup>ue</sup> carnosulo subaequilongo arete adnatis compqsite, basi con<sup>n</sup>atae. Pistilla erecta, parva, ad basin squamarum inferiorum <sup>(</sup>mina, collateralia, inter se remotiuscula, ad basin squamarum superiorum plerumque e solitaria. Ovarium fere orbiculare, bublenticulare vel compressum. Stylus brevissimus, teretiusculus, crassus. Stigma fere orbiculare, pervium. Galbulus secundo anno maturescens, e squamis carnosus et o J<sup>?</sup>uculis osseis distinctis vel rarissime in putaminis speciem inter se coalitis, drupaceus, vertice umbilicatus, laevis vel apicibus bractearum distinctis tuberculatus, 1-3 raro k-8 nuculas gerens. Nuculae erectae, sub<sup>an</sup>gulatae vel angulatae, distinctae vel squamis adnatae aut rarissime inter <sup>Sc</sup>coalitae nucem trilobularem vel bilobularem referentes, juxta basin <sup>V<sup>Q</sup></sup>prope medium foveolis resiniferis exculptae. Pericarpium osseum. Semen solitarium, oblongum, superne saepe attenuatum. Integumentum tenuissimum, facile separabile, basi pericarpio adhaerens. Embryo in axi albuminis carnosus ejusdem fere longitudine, cotyledonibus 2 (interdum 3, Spauh) oblongis, obtusis, plano-adpressis; radícula teretiuscula, supera, apice albumini adhaerens. Folia sciminalia 2 vel 3? linearia vel lineari-oblonga, obtusiuscula, patentissima, planiuscula.—Arbores sempervivescentes, plus minusve odore aromatico praeditae, interdum elatae, vel frutices dumosi, in temperatis et frigidiusculis hemisphaerii borealis crescentes, ad hemisphaerio australi exules; cortice saepe succedente; ligno rubro, albino albo. Rami saepissime sparsi, ramulis subtriquetris vel a foliis tectis, teretiusculis vel subquadrangulis. Folia ternatim verticillata vel quadrifariam opposita, libera et acicularia, pungentia, eglandulosa, plus minus patentia, basi articulata, vel ramis ramulisque adnata, apicetanium libera et squamiformia, glandula resinifera dorso saepissime notata.

Sectio II. OXYCEDRUS *Spach in Ann. des scienc. nat.* 2<sup>m</sup> série, ml ig. « 282, *etlht. des vdg. phan.* vol. 11. p. 307; *Gord. Pinel.* p. 91.— *Junipenis 'Tourn.* h, sl. p. 588. t. 361.— *Caryocetlnis et Oxycedrus Endl. Conif.* p. « (, <). *Carrieré Conif.* p. § et 10. — *Arceuthos et Juniperus Anloine Cupress-Gaitung* p. 3. 8.

Flores dioici. Amenta mascula et feminea axillaria, folio breviora, bracteis et squamis ternatim verticillatis. Nuculae plerumque 3, rarissime inter se coalitae, nucem trilobularem efformantes. Ramuli triquetri vel subtriquetris. Folia libera, ternatim verticillata, acicularia, rigida, pungentia, basi articulata, plus minusve

patentia, eglandulosa, supra saepissime juxta nervuin medianum utrinque canaliculata et glauca, subtus convexo-cannata et vindia

1. J. DRUPACEA (Labill ' Pl. syr decad 2. p 14 t 8), dioica, arbor, cortice cinereo, trunco erecto ramoso, ramis subteretibus erectis vel patuis, ramulis subtnquetns, folns ngidis terms approximates, niferne adnato-decurrentibus reliqua parte hbe<sup>p</sup>is, patentibus vel patentissimis lanceolatis acutis vel acuminatis mucronato-pungentibus quandoque obtusiusculis, supra leviter canaliculatis et juxta nervum longitudinalem latiusculum vix prominentem vindem utrinque fascia albida notatis, subtus convexo cinnatis nervoque longitudinali prominēnii notatis vuidibus, margimbus obtusiusculis vmdibus eglandulosis, amontis masculis in ramulo brevi erectis sohtane termmalibus parvis subglobosis, galbulib drupaceis magnis subglobosis vel ovalibus (e c<sup>f</sup>iruleo rufescentibus), rore glauco adpersis, squamis b raio 9, tnfanam imbncatis connatrs, bractearunr margine apicque acuto subreflexo libens, nuce subov. na magna tnloculan, oculis parvib, nuculam solitanam gerentibus, nuculis ovato oblongis, testa loculorum fundo adhtyienti Jj In montibus Onentis inter 2000 5000 ped elevationom nunr sylvas constituens nunc inter Pinos et Quercus dispersd in monte Malevo Laconian onentalis ubi ranssima (Heidi ' Oiphanides'), monte Olympo (^chmidf), Tauro Caramanico a Karaman ad Elmeneck (Heidi '), m Bnlgar Dagh (Kotschy'), in Gulak-Boghas (Boiss '), supra Pylas Ciliciae (Balansa' n 820), m Montp Cassio, Djebel Lacara, Syn«e (Labill ') et in Antihbani monte Herman (Kotschy'), m monte Libano prope Cedreta (Boiss I herb ) I«xtat etiam in herb Boiss ex msuhs Gafda et Gaidouromsi insulac Cretif\* adjatentibus a cl Heldreichio lecta n 1470, sed sub hoc nuraero J. macrocarpam tantum ex nsdem insulis misit Holdr — Endl Conif p 8, Carr. Comf p 8 Arceuthos drupacea Ant et Jiotschy' Oester bot Wochblatt 3 Aug 1854, Antome Die Cupressm Gattung p 1 var a et p t I 5 Habkel fiuctus toto Onente notissimus Arbor usque ad 30 ped alta Folia 15-20 mill longi, J 4 mill lata. supenora brvivia confertiora et quandoque obtusiuscula Fructus dulces, eaules, 18 25 mill longi, 15 22mill lati (v v)
2. J. MACROCARPA (Sibth Fl graec prodr 2 p 26i)» dioira, frutex \el arbuscula, cortice cinereo-rubro, trunco ramoso, ramis patentibus vel patentissimis teretibus, superioribus ramuhsque ^ubpendulis tnquetns, anguhs prominentibus obtusi^, folns terms approximate patentibus vel patentissimis lineari-lanceolatis mucronato-pungentibus, mucrone obtuso, basi supra gibboso incrassatis, supra plamusculis et linea viridi longitudinah angusta vix prominente notatis, reliqua parte albo fasciatis, subtus acutiusculc cannatis margimbusque angustatis obtusis vindibus eglandulosis, amerftis masculis ovahbus oblongisve obtusis subsessihbus folns subduplo brevionbus, bracteis ovato-orbicularibus obtusiusculis margine basin versus denticulatis dorso cannatis, anthers sub-5 subglobosis, galbulis solitams subsessihbus laterahbus pendulis erectisve magnis folio longionbus |e| subdequahbus (e rufo caerulescentibus, opacis rore glauco suffusis), bquamis 3, raro 6, tnfanam dispositis arete connatis vix infra apicem apiculati^, apiculo acuto, nuculis plerumque 3 ovatis obovatisve compresso angulatis vel subtnquetns, margine apicpm versus acutis et su be margin at is , in mantimis praesertim arenosis regionis mediterraneae a Freto Herculis ad Synam in Lusitama (Link<sup>1</sup>)\* Hispama Gaditana (Fée! Webb' Boiss '), prope Valentiam (Bourg • Willk<sup>1</sup>), in Comitatu mcnsensi (Maunoir'), in litore lunensi (Bert<sup>1</sup> De Not'), ad promontionum Noli (Baghetto<sup>1</sup>), in mantimis jEtrunae frequens in sylvapisana (Savi' Giannini<sup>1</sup> ego ipse'), ad Ostiam Tibens prope Portum (Webb<sup>f</sup> Rolh'), in arenosis Terracinae (Fioinil), in litore Cumaee Neapoli (Ten<sup>r</sup> Guss. I Helder. I A Rich. 1), in fruticetis mantimis Gargani (Guss Gasp.)\* m Isina inter Tergestam et Duino ad Nabresinam et prope Polam (Tommasinil), ad Fiume (in herb Boiss.), m msula Crepesa (D<sup>r</sup> Graf), in Dalmatid (Pappafava), Sicilia inter Gatanam et byracusas (Guss ' ego ipse, Philippi<sup>1</sup>) et prope Caromam (Mandrahsca'), in Sardinia (Moris), prope Piscinas (Ascner-son'), inThracia et Bithynia (Gns ), Graecia (Sibth , Orph 1 Helder ' Sprunn.' herb Boiss), m msula Melo (in h Willd » et Lefevre in h Kunth), m insulis Gaidouronisi et Gafda Cietae meridional! pioximis (Heidi ') in in-

\**Juniperus Rhodi* (Beig'), in Syria prope *Ain* et *Asafir* (G Ehrenb ), m Onente (Labill ' ), in Algenae arenosis mantimis inter amnis *Oued el Kebir* ostium et *Djidjelli* (Coss') — Reichb Ic fl germ et helv cent XI hg H46, Antoine Cupress Gatt 10 t 8 J Oxycedms L herb » non Sp pi , R<sub>1</sub>C<sub>b</sub> Conif p 39 t 6 f 1 , Schouw in Ann so nat ann 1845 p 244, Endl 'onif p 10, Carnère Conif p 13, Bert Fl ital 10 p 382 var a J Oxycedius pLam. Diet encycl 2 p 625 J Biasolettn Link' in Atti della V Uiu mone degh suenz ital in Napoh p 878, Antoine 1 c t 28 J umbilicata Gren et Godr Fl de Franc 3 p 158 in adnot ad J Oxycedrum J Willkommn Antoine Cupress. Gattung p 9 »t 7 J sphaerocarpa Antoine 1 c P 11 t. 10. J Attica Orphanid pi exsicc J. Oxycedius Ai tome 1 c p U t 11 lo Fiutex vel arbuscula 9-15 pedes vel ultra alta Folia 12 18 mill longa, 2 mill lata Amenta mascula ovalia vel oblonga, 4-7 mill longa 3-3} mill lata Fructus 12-15 mill longi et fere lati, juvenes apice tncuspulati, adulti subglobosi vel globoso ovales, e rufo-plus mmus\e fusco caerulescentes et glauci folns subaequales vel longiores Jumpeius Oxycedrus L Sp pi certe ad speciem sequentem pertinet quamvis m hujus herbano specimen J macrocarpae noslrae floibus fructuque carens sub nomine J Oxyedri asservatur (v v.)

P, *Lobeln*, galbulis ovahbus subturbinatis In mantimis Neapoli (Tenore!) et ad Lacum Fusaro (A Rich' in herb Kunth) Apuliae prope *Lesina* (Gasp ), Siciliae austrahset onentahs, *Comno*, *Scoghtti*, etc (Guss ') in Jstia(sec Endl ) J maximus illyncus, caerulea bacca Lob Ic I p 225 J oblongata Guss pi exsicc J Lobeln Guss ' Syn ft<sup>1</sup> sic 2 p 635, Antoine Gupress Gatt p 8 t 6 J maciocarpa Endl Conif p 10, Garnere Gomf p 11 Lst cei te vanetas J macrocarpde, nam fructus globosob et ovales vel subturbinatos saepe in eadem planta vidi (v v )

3 J OXYCEDHUS (Linn Sp p 1470), dioica, frutex ve^ raro arbuscula, cortice laevi e rufescenti-cmeio trunco erecto ramisque teretibus patentibus vel ^lectis, ramulis secundanis brevibus erectis vel patentibus tnquetns, angulis prominentibus obtusis, fohib terms approximatis patentissimis lineanbus ^ucionato pun<sup>o</sup>entibus mucrone acuto, supia prope nervum medianum parum prominentem vindem leviter bisulcatis sulcis albo fasciatis, subtus dcutiuscule cannatis, carina leviter sulcata, margimbusque obtusiusculis vi<sup>1</sup>idibus e glandulosis, amentis mascuhs globoMs subsessihbus paiviusculis Joho 2 o-plo brevionbus subjequalibusve, braoteis suborbiculanbus maigine eroso crenulatis, anthem sub-5 subglobosis, galbulis solitains subsessihbus laterahbus parvmculis folio brevionbus subglobosis rufescentibus nitidius- ('Uhs sub apice cujusve squamas glaucescentibus, squamis 3 vel 6 mfra apicem vix apiculatis, apiculo acuto erectiusculo, ramulis 3 2, raro 4, vel soh-tarns late ovatis vtl suboibiculanbus subtnquetris superne compressis, margme apicem versus acuto subcmargmatis ^ In collibus et montosis andis I^uiopae australis et Orientis in regiombus quercuum fagorum et Abietis quandoque etiam in subalpims usque ad 6000 ped eltvationem vel in Olea rum regionem descendens nee non in Africa boreah et in Madera, nempe in editionhus Maderue (herb Boiss !), in Lusitaniae arenosis trans Tag urn braesertim prope *Setubal* (WelwitschI), inter Ghiclana et Porto Real (Willkomm), in Hispamae legione rrontana et alpina (Webb' Del Campo' Boiss I Bourgeau' Reuter'), in Fyrenaiis onentalibus (De C' Pndress' Bourgeau' tranquevine'), in Gallia ausliah (De C' alnque) in comitatu NiCdeensi' Li-guna occidua et onentah' iEUunas montibus' Apenninis' lepinis' (Rolh!), ^rastutns (Guss'), in monte Gaigano (Ten'), Illyna (h Kunth), m reg' austral Istnae (Iommasini' Not'), m insulis baleancis (Cambessed f), Corsica (Gren et Godr), Sardinia (Thomas' Moris'), in monte Malevo Laconia? (Orphanid 1), in roonte Pametho Attitaa et in montis Parnassi et Maenahs \*egione abietina (Heldr '), nee non in montibus Matedoni\* (Fnedenchst ') fhraciae et Bithyniae (Gris ), in Candia (Brug Olivier' et Boiss herb ), Naxd (Oliv»), Chio (Orphanid'^ prope Nicjmediam (Aucher Lloy n 5336), in Uuro (Coqueb » in herb Webb) lauro Cihciap Bul^ai Da^h mtei 3400-4500 Ped (Kolschyi), in monte Heinion alt 600U ped in Gulek Boghas (Boiss ' Kotschy'), in Ibenah (Stev '), fauna et Caucaso (M a Bieb t Beaupi6'

Fischer herb.!) et in Libano (Labill.!) prope Beyrouth (Blanchet), in Syria; loco *Dank* (Kotschy!), in Algeria vulgaris (Lambert!). — Rich. Conif. p. 39. t. 6. fig. 1; Reichb. 1c. fl. germ. et lielv. cent. 11. fig. 1145; Bert. Fl. it. p. 882 var. *Oxycedrus* Clus. Kar. Pl. hist. p. 39. *J. rufescens* Link in Flora ann. 1846. p. 579; Endl. Conif. p. 11 excl. var. B; Carrière Conif. p. 14 excl. var. A; Antoine Cupress Gattung p. 18. t. 23-25. *J. tenella* Antoine 1. c. p. 20. t. 27. 29. *J. Mursciliann.* Stev. pi. exsicc! ex Nixita Tauriie, Antoine 1. c. t. 30, fructus magnopere in icoue aucti. Frutex usque ad 9 ped. altus, interdum arbuscula. Folia 15-20 mill, longa, raro in sterilibus breviora, 1-1 1/2 mill, vix lata. Amenta mascula 3 mill, fere longa et lata. Galbuli magnitudine valde variables, nunc parvi, 6-7 mill, longi et 5-6 lati, mine majusculi, 11-12 mill, fere longi et lati, maturi rufescentes vel e rufo-fusci, nilidi. Nucula; in fructibus parvis saepissimo solitarie et raro paucae. *Juniper* us *Oxycedrus* L. ad plantam nostram pro synonymis allatis certe spectat quamvis sub hoc nomine iirhujus herbario *J. macrocarpa* Sibth. ut jam monui extat. — Specimen nuderense, quod vidi in herb. Boissieriano, folia habet obtusiuscula et fructus apice acute triquetros; planta viva melius observanda. (v. v.)

4. *J. CKDIUS* (Webb Phyt. canar. 3. p. 277. t. 2. fig. 1. 2. 3), dioica, arbor, ramis patentibus arcuatis pendulis, ramulis breviusculis ex albido-glauciscentibus triquetris, angulis prominentibus obtusis, foliis ternis approximatis vel subdistantibus ascendentibus lineari-lanceolatis vel oblongo-linearibus obtusiusculis vel acutis vix pungentibus, supra canaliculatis juxta nervum longitudinalem prominentem utrinque fascia lata glauca notatis, subtus convexo-auriculatis glauciscentibus vel pallido viridibus, marginibus obtusis laevibus eglandulosis, amentis masculis ovatis obtusis (Webb), galbulis lateralibus terminalibusque solitariis gnrnliusculis folio subaequantibus globosis fusco-aurantiacis glauciscentibus demum nitidis, squamis 3-6, 3 majoribus apice elevato-marginatis haud apiculatis, nuculis 1-1 obovato-orbicularibus vel subtriquetris superne compressis, margine apicera versus acuto vix aut ne vix emarginato. § In regione subalpina et in convallibus altioribus insularum Canariensium ubi olim diffusa nunc sparse crescens; in Nivaria prope Orotava (Ch<sup>1</sup> Smith! in h. l) e C), a-1 Canadas del Pico de Teyde (Webb! Bourgeau!) et prope Guimar (Bourgeau!), in insulae Palmae summo jugo (Cli. Smith! in h. Do C), in monte Pico de C<sup>1</sup>dro, in cratere la Caldera et in Canariae crate re primaevae cui nomen *la Caldera de Tiraxana* (Bourgeau!), olim in insula Gomera (G. Bolle ex Antoine.) *J. Codrus* Carrière Conif. p. 12; Antoine Cupress Gattung. p. 14. t. 16-19. *J. Webbii* Carrière! Conif. p. 13. Arbor excelsa. Folia 8-14 mill, longa, 1 1/2-2 mill, vix lata, ludunt acutiuscula vel obtusiuscula. Galbuli juniores caerulescentes demum fusco-aurantiaci, glauciscentes et nitidi, 9-12 mill, longi et lati, propter nuculas exsertas interdum minores unde videntur tricuspидati, -ut saepe occurrit in *Juniperis*, quae forma *J. Webbii* Carr., ut ex herbarii Webbii ipsius inspectione certitudinem habeo, refert. (v. s.)
5. *J. BREVIFOLIA* (Antoine Cupress. Gattung. p. 16. t. 20-22), dioica, frutex vel arbor, ramis numerosissimis teretibus patentibus vel patentissimis, ramulis brevibus patentibus triquetris, angulis prominentibus obtusis, foliis ternis subimbricatis lineari-linearibus vel ovali-linearibus obtusiusculis vel obtusis vix pungentibus, supra concavis juxta nervum viridem haud prominentem et apicem non attingentem utrinque fascia glauca subargentea notatis, subtus convexis nervo canali valde prominente obtuso notatis, pallide viridibus eglandulosis, marginibus obtusiusculis levibus viridibus? amentis masculis ovalibus oblongisve obtusis folium subaequantibus, eorum bracteis ovatis acutis, galbulis lateralibus solitariis, in ramulo brevi erectis vel subnatis majusculis folio sublongioribus subglobosis fusciscentibus, squamis 3-4 arcte connatis apice elevato-marginatis haud apiculatis, nuculis saepissime 3, raro 2, ovato-oblongis triquetris acutis. i) In sylvaticis montosis insularum Azorensium inter 1500 et 4800 ped. : in insula Fayal (Hochst.! p. 124. Guttnick!), in insula Terceirae et Pico ad 2000 ped. elev. (Güttmckl), in insula Santi Michelis (Hunt!), in insulis Azoricis (Hewett Watson! n. 242). *J. Oxycedrus* var. *brevifolia* Hochst.! Fl. azor. p. 26. *J. rufescens* I), brevi-

folia Tndl Comf p 11 Carn6r Conif p 14. bpecies formosa, folus exsiccatis lore argentea Folia 6-11 mill longa, 22 J mill lata. tructus matun e rubro iuscescentes, 6 9 mill lati et fere longi (v. s )

- 6 J COMMUNIS (Linn f Sp pi p IVJO excl var y), dioica, frutex vel arbor, cortice lufescenti-cineio secedenU lamis patentibus subpenduhsve mt p^nduhs subteiclibus, ramulis brovibus ereotis vel patentibus tnquafis, angulis prominentibus obtusis, basi inciissitis, loins terms subippioximatis patentissimis aut patentibus rigidis lineinbus, apice acuminitis mucronato pungentibus, mucrone acuto, supia leuter cmaliculatis et fascia subcuntmua alba notatis subtus obtuse cmnatis cinna levitei sulcata, muginibus|ie obtusis vindibus egl u| lulosis, aiuentis mascuhs ovali globosis vel o\ah ohlongis subsessilibus paivia lolio 2-4 plo brevionbus, bracteis late ovatis longiuscule acuminatis mtogns, galbulis sohtarns numerosis literilibus subsessilibus puvis folio 3 4° raio subluplo bievionbus subglobosis (atro violaceis subnirfncantibus subglaucescentibus), sjuimis 3, laro 6 aide connatis infia apicem apiculatis, apiculo brevi acuto rectiusculo, nuciilis 3 vel mo 2 aut sohtarus ovali oblon^is obtuse tnquetns, apice obtusiusculis fuscocentibus ») In aylvaticis feie Europae totius a Lapponia Rossia, I ennia, Norvegif, Svua ubi picesertim frequens in regioibus abietina et fagorum et ab Anglia per ^ermamam, Oalliam, Helvetian! el iyiolim ubi vul^atissimi, ad Lusitaniam, ^bi m jugis iltionbus Hciminn el beiez non inlr0juons, nro in Hispania ^bi prdesLitim in montosis Sierra Nevadi (B)iss ' ) in l^yronaeis onptalibus, copiosa in Alpibus omnibus et Apemunis usquo ad 4000 vel 5000 ped altitudinem supra mare, in monte Olympo Thessilij, in subalpinis Mac donicB <t Ihiacifl in ( upatis per omiia pineta, in 1 luna, Gauciso Armenia? nante Ararat (bzwics), in omni Sibiru, in Divuna et KamUchatka, noc non in Amenta boieah ubi Ian nee videliu indigf>na —WiUd bp pi 4 p 8>J ^>4, Rich Conif p il t 5, Endl Conif p 1> var a, Cirncr Conif P 21 vai a, Antoine Gupress Gatlun^ p 2b t 38 42 Species pro loci natuia et elevatione valde vanabihs idooque immenio in mult is species dwisa, nunc irutex 3 6 ped nunr arbor 20 4) pedes alta, nunc hunulis ^t nana et fere pro^trata Folia 14 2S, raro K) mill longa, 1 ' fore ad X mill lata fascia alba fere contigua vel prope basin mt usque ad meium noivo VII. idi haud prominente noiata (yalbuli 5 7 mill, nunc paulo majores, 8 10 mill longi etlati, folus 3 4 plo nro subduplo bie\i iros, ludunt plus minusve globosi vel supia depressiusculi pnmum vnuli-glaucescentes, dein atro-vio-acei vel atro-rubidi, demum subnigrescentes (v v )

P, *fastigiata*, ramis acUccndentibus shictjs fisti^iatis, folus bievioribus In hortis J Suecica Mill Diet n 2 J Hispanica Booth sec Tndi 1 c J communis p H spxnica nt ð arboroscens Tndl 1 c J comraunis vir buecica Gairu r Com! p 22 I communis Suecica et Hybeuuci Gord Conif p 94 Frut< x vel arbor conica, Cupressi semperviventis vanetatem fastigiatam habitu quodammddo referens (v v )

Y, *reflexa*, lamuhs longiuscuUs pendulis In Guna legit cl Wittman. Goltur in horlis J comraunis y C mcasicj I ndl 1 c eid syn Bieb J com munis B leflexa Carrier 1 c J oblonga Gord I Gonif. p 98, e\ d in omnibus syn Bieb et aliorum J Wittmanniana Stev I PI exsicc Antome ( upress Gatt p 2<sup>1</sup>) t )6 (v v.)

6, *oblonga*, ramis patentibus, folus appioxitnatis supia neivo \iudi vix prominente a basi ierc ad medium vel ullia notatis, gilbuhs globosovahbus globosisve, apiculo brevi subreflexo, nucuhs solitams, iaro 2 In Caucasi onentahs colbbus apncis et in Caucaso cisalpino Cabudinico circa acidulam Naitsana (M BiPb), Karibi^h (Szovicsl), prope Tabisch (O A Mey ' in herb Boiss ), ad rupes montium ditionis Swant in Georgia caucasica (Hohenack ') J oblonga Bieb H taur cauc 2 p 426 et 3 p. 034, Antoir. Cupiess Gattung t 34, Carr Comf edit 2 p 19' (v v)

e, *hemispha,ncaj* humilis, CcEspitosa, folus subimbncatis patentibus, saepe nervo medio matfis prominulo notatis amentis masculis ovali oblongis folus subduplo bre\ion[us, galbulib globobis bjepa majonbus, fohib semel

longionbus In sylvaticis regionibus fagorum et in apicibus montium a Graecia ad Africam borealem, nempe in Monte Parnasso Graeciae (Guicciardi' Heldr'), in Calabria ad Aspromonte (Ten' Guss • Pasquale') in Siciliae Nebrodilms et yLtna (Presl Guss' Duby' et ego Ipse), in declivio boreali montium IJurdjura Algenae (Cosson') J hemi«pbaenca Presl' Dehc prag p 142, Schouw Conii ital in Ann sc nat 3 ser 3 p 243, Ten' Fl nap 5 p 282, Guss' Syn t| sic 2 p 634, Endl Conif p 12, Carrier Conif p 17, Antoine Cupress Gatt p 29 t 43 i c Juniperus nana hemisphaenca Carr Conif edit 2. p 16 Characteres allati valde vanabiles etum in ipso specimine, videtur tantum vanetas a statione orta (^ v)

5 *alpina* (Gaud M helv 6 p 301), frutex decumbens, foliis subimbricatis curvulis rectisve patentibus lanceolato hincanbus, fascia albida vel nivea subcontinua amentis masculis foliis pleiumque semel brevionibus subaequalibusve, galbulis ovatis vel subglobosis folia subaequantibus aut illis brevionibus In subalpinis et alpinis Europae, Asiae borealis et Africae borealis nee non in America arctica et borealis In montibus Finmarchiae! Lapponiae! Norvegia! et Sueciae ubi frequenter legi Scotiae, in Lusitania in cacumine montium frequens (Lmk') in Pyrenaeis in Hispania regione alpina et nivah inferiore Sierra de la Neve, Sierra Tejada et Sierra Nevada alt 4000 9000 ped (Boiss »), in Sierra de Guadana (Lange' Boiss'), Sierra de Segura (Bourg'), nee non in Asturnis in jugis montium ditissimorum Pico de Anas (Du Rieu') in toto Alpium jugo inter 4000 7000 ped' in Apennino Ugustico', lucensi', mutinensi' bononiensi' in Pradetibus, 4000 7000 ped' in Monte Renoso Corsica\* (Req' in herb Boiss'), in editis montium Sardiniae (Balbis' herb De (Ph Thomasl b De C), in summit jugis montium Dalmatiae, in monte Parnaso (Guicciardi' Heldr') in regione alpina Thracide Pt Macedonia? 4200-7200 peti in Olympo Bithynico (Aucher-Elov'), in Imolo (Boiss'), in cacumine montis Ischatyrdagh launae (Slev) in Caucaso (herb mu florent'), in monte Argaeo Cappadociae inter 0000 6600 ped elev (Balansa'), in Peisia (Buhse), in montibus Uralibus (G Ehrenb >) in omni bibiria subalpina et alpina (Kaiel et Kiriloff' Turcz > herb Pallas' herb Jisch'), in montibus altaicis (Ledeb' Pohtoff' Dimitry'), in Kamtschatka (Kraskenimkow), in Mandchoua prope Ajan (Lihngf), in Himalaya occidentali alt {900 11100 p (Hook fil' et Thoms') In montibus Djurdjua Al^eru (Cosson') In America arctica et borealis, in Groenlandia ad Sinum Hudson is, in Canada (Rafinesque! herb De C, herb Mus florent 1), ad Lacum Huronum lacum Winepeg et Saskatchewan (Bourg') ad lacum Michigan (Engelm'), Boston (Dutton' in herb De ('), in provinc Noveboracensi, Maine in fenanova (De la Pylaie'), in Labradoria (herb B(iss), Columbia britannica (Douglass! Lyall'), Novo Mexico (Fendl' n 836), in insulis Sitcha (herb Petrop') et Vancouver (LyalI) J alpina Clus Hist pi 1 p J8, Gien et Godr Fl de Franc 3. p 187 J nana Willd 1 Sp pi 4 p 854, Endl Conif 13, Cdrnere 1 c p 18, Goid 1 c p 97, Antoine Cupress Gatt p 30 t 43 f A B D et 44 45 J Canadensis Lodd Lit 1036 p 47, Camer Conif p 20, doidon Pin p 92 J dealbata? Loud Fncycl of trees 1090, Lndl Lonii p 30 Carr Lonit p 54 J depiessa btev' pi exsicc e lauria J ArgdJd Bakns pi exsicc ex Argae'a I orma, directio et coloi foliorum in pdgria superiore plus minusve albus vel inveus nee non gdlbuloiuin lorma et magnitudo summopcre variant sic ut s^epe dubium sit si planta ad speciem, ad vanetatem nostram \*8 aut ad vanetatem hanc spectit Iransilum a specie mihi facilius paluit in itinere scandmavico ex innu-mens plantis observatis quara in Alpibus et Apenninis (v v)

7 J RIGIDA (Sieb et Zucc fl. jap 2 p 109 t 125), frutex vel arbusculi, dioica, ramis teretibus patentibus, cortice fusco, ramulis breviusculis patentibus vel pendulis inquetis, angulis prominentibus obtusis foliis\* temis approximatis patentibus rigidis icctis anguste linedribut»subtinetni.iiiucronato-pungentibus, mucrone obtusiusculo, supra anguste et profunde canaliculatis et ut videtur glandulis, subtus canalicatis et juxta canaliculatis

piomioentem utnque in sicco sulco levi notatis marginibusque obtusiusculis palhde vindibus eglandulosis, amentis masculis ovah oblongis obtusis brevibus, l)racteis ovato acuminatis galbuhs solitarus numerosis lateralibus prope basin ramulorum subsessilibus parvis folio subtnplo brevionibus globosis apice tlcvato triquetns lusco caeruleis vel subnigrescentibus ghu- cedine tecus, squamis 3 arete connatis infra apiccm apiculatis, apiculo brevi obtusiusculo subreflexo, nucuhs 3 2 oblongis compresso angulatis ant trique- tns vel sohtarns ovato elhptius aut suborhicularibus leute triquetns, apiu obtusiusculis pallidis ^ In Japonia (C Wnghl' Veitch') in msula Nippon frequens in jugo Hakone dicto ad 3000 3450 ped elevationem (siebol(1), in Rocky Island, lomo Suwonada (R Oldham), circa Jokohana (Maum !) — Endl Conif p 17 Cainère Conif p 24, AnloineCupressGittung,p 26 t 37 J commune Thunb H jap p 264 exel syn Prutex 2 ^ pedalis, mine aiborescens IS 20 pedes dlta, P Deodarae facie, folns 13-19 mill longis, 1 mill vix latis facile distmguenda Galbuh parvi, 6 mill fere longi el lati (v %)

8 J CONFERTA (Pail Nov Conif p 1), ramulis brevibus, folns terms imbricate patulis ngidis curvulis hneanbus subtriquetus mucronato pungentibus supra canahculatis et sulco longitudinali albedo notatis, subtus comexo cannatis el juxta cannam utnque sulco levi notatis eglandulosis, gdlbuhs piope apicem ramulorum sitis globosis fusco c eiulescentibus ghuCEDINE tectis, squamarum apiculis obhteratis In Japoma (Wright' in h Hook ), ad Hakodate (Maxim ) Juniperus litoralis Maxim ' pi. exsicc Tohd 12 16 mill longa, 1 1-1^ mill lata Galbuh 9-10 mill longi et lati A Junipero ngidi folns crassionibus, confe tmibus magis tngulanbus et galbulis majonbus^ exacte globosis, non apice elevato triquetns et lcvis praecipue distincta Species in plantis vivis quam ego ipse potui in herbarn Hooknani speumimbus melius Illus- tranda (v s)

^ ' TAXIFOLTA (Hook et Arnott' Beechey voy p 271) arbor, dioica, ramis tere- tibus rufesc<sup>o</sup>ntibus ramulis lon<sup>u</sup>iscul s dpendentibus patulisve triquetns, dngulis prominentibus obtUbis full is terms approximatis patulis ngidiusculis curvuhs vel rettiusculis hneanbus mucronato-subpungentibus, muc one obtu- s>iusculo, supia leviter canahculais et s cus nrvum longitudinalem angustum vindem paium prommentem fascia albedo-glauescente notatis subtus con- vex is et nervo longitudinali crissiusculo oblu<sup>o</sup> notatis maiginibusque obtusis vindibus, eglandulosis, amentis ^miscnhs T galbulis sohtarns lateialibus terminahbusque subsessilibus pirviuscuhs ioho subduplo brevio- nbus subg obo<is, apice elevato-tnquetns (lusco caeruleis) glaucedine tectis", squamis 3 6 arete connatia infia apicem apiculatis, apiculo brevi obtusiusculo reflexo nucuhs 2 1 ovahbus vel oblongis obtusis subtnquetris compressive maigmibus obtusiuscuhs fusciscentibus In *Bonin Sima* (C Wright' see mdni) et in insula *Loo Choo* Chinae (C Wright!), in China (Fortune' n 47) J taxifoha Sieb et Zucc M jap 2 p 109, Endl (onif p 17, Cainere Com! p 2<sup>s</sup>), Antoine Conif Galtung p 26 I ngidd Gord Pinet p 99 exel syn et habit fcoha 10 16 mill longa, 1 fc 1 J mill lata Galbuh 6 11 mill longi et lati (v v)

**Section SABIN A Spach in A nn dc\ scienc natur 2'sine 101 lb p 291, et Hist des viq phan tol 11 p 31J, Endl Conif p 17, Carriere Conif p 25, Antoine Cupress Gattung p 30 — Pedrus Tourn Inst p 588 t 36f — Juniperus sect II Sabina et III Cupressoides Gord Pin p 101 ee 115**

Flores monoici vel ranssime **dioici** Amenta ma<cula in ramulis lateralibus termmaha, feminea in ramulis latPiahbus term naha, incuiva bracteis squa- misvp bilanam ranssime tnlarwm dispositis Nuculae 1 \* rare plures distinctae vel ranssime 2 mterdum accidentahter coalitae Hamuli i f)In s tecti teretius- cuh vel tetragoni Poha ternatim ve ticilldta \el quadnfanam opposita, plerum que ramis ramulisque maxima ex parte adndta, apice hbcro, ssepe mucronulato dorso glandula resinifera notata, ranssime eglandulosa.

10 J RECURVA (Hamilt m Don Prodr fl nepal p ^) frutex vei arbor mo-



noica, coma \$ffiisa subpyrartiidata, rainis teretibus, cortice cinnamomeo secédente, rarâuhsque sabtnquetns viridibus recurvato dependentibus, folus terms irabricitis ramulos tegentibus erectis ngidiusculis inferne adnatis reliqua parto liberls linean lanceolatis mucronato-pungentibus, supra cana licuÛtis et fascia glauca laia continua notatis, suhtus convexo cannatis et stllco angusto a basi ad medium vel ultia nolitis vindibus, rnargimbus acutis abldis leviuseulis, anoentis nnsclus ovalibus obtusis suhcernuis, bracteis ovato-orbicularibus obtusis dorso plants margine mtegris, galbulis solitarns erectis subses-silibus ovali oblongis (olivaceo fuscascenubus) subglaaescenti bus mtldis folio longionbus, sjuamis 6 bifanam disposals aicte connatis infra apicem apiculatis apiculo longijsculo acuto patulo, nucuhs solitarns oblongis obtusis magms, putamim crasso In Cacnerair, in Nepihd (Wai llch' n 60'i3), in Bootan ((rririith' n W87) et in S kkim ad 10-12000 ped elevationem (Hook fil U Thorns ') Frutex val arbor etiam 30 ped. altd (Hook fll ) Folia i-6 mill longi, 1 mill vix lata Amenta mascula 3-3 | mill longd, 2-2 i mill lata, corum biacle dorso virides, margine albiddL vel pur pureo van\* GUBuli 7-10 mill loii^i, U-4 mill lati, in plantis culti» 10-13 mill longt, 5J 6 mill Uti, pruno vuides, dein olivaceo fuscscntes, subglauoes>centes nitidi Nuculam semper vidi solitarum (v v)

p, *wuarnata* frutex decumbens lamosissimus, folus paulo lationbus, curvwwis In Boutamae et Nepali\* alpinis ad 9-12000 ped elevationem in Snnaghur (Willich n 60'43), in Kitswar, alt 12 000 ped (Hook fil ct Thorns i) In Japoma\* (Veitch) 1 squimata Hamilt Don in Lamb Pin. edit 1 vol 2 p 17, edit 2 vol 2 p H3, Prodr H nep p 6T, bpacli in Ann sc nat 2\*sér vol 16 p 291, fendl Conil p 18, Carrier Lmif Q 28, (Jord Pin p 110 F recurvi p squamata Hook pi exsico J. Oensa Gord ' Suppl Pmet p 32 J Limbertiana <t rigid i Walhch msc lantum vanetas e soli elevatione orta torma et color fructus el nuculae ut in specie, folia in ipso specimme inveniuntur leniiora vel cmssioia, recta vel curvula (v v)

It J. PSEUDO-SABINA. (Fisch et Mey in Am mad ad ind 8 bem h petrop p lo), monoica, frutex, coitice cinerpo secedente, ramis teretibus erecto-patentibus, ratnulls a folus arete imbricitis tectis tetragoms crassiusculis longiusculis erectis vel subpatulis subpendu isve, foliis ramoium ot interdum lamulorum piimanorum tcrni> valde appioximatis et subimbncalis adnalis, apice libero mucronxto-pun^enti ddpiesso vel subpatulo, et glandula oblongo-linein notatis, ramubrum secundmorum arete unbricatis quadnfaridm oppositis Ovd-to-rhombeis obtusiusculis vel obtusis dorso convexis vel obtuse subcannatis et glandula oblongi infra medium notatis, amentis masculis ovalibus vel ovah subrotundis obtusis, eorum bracteis late ovato orbicularibus obtusis dorio subcinnatis, gilbulis in lamulo brevi incurvo subceinuis ovoideis obtusis subnigiAcnriiibus nitidis, squamis 3 quadnfuiam opposiis infra apicem ipiculatis apiculis longiusculis ct latiusiulis ovatis patulis vel subinflexis, nucula solitma magna ovata utrinque cotivexa obtusa -5 In bibinae, Davunae?, Songan-s alpihus et in Himalaya in Sibina altdici (Ledeb I et herb petropolit )? m alpihus baicalensibus (Pall Furc/ '), Urgudei (Turcz<sup>1</sup> herb Mscli ')»<sup>m</sup> t^vuru? (Pall lurcz ), in Sjn^aride Alpihus Alatiu frequens (Karelin ct KhloffP) in monte larbagdtai (SchienkI), in Himalayse reglone alpina mtor qooo et U200 ped, Ituhoi all 0000 et Sikkim alt. d^OO-12000 p (' Sibim> Hook hi et llioms I pi exsicc ), lola Ku maon lit 1H00 pel ot Rimkin lhibet Ut 1J >() p (R btracley ct Winter bottom') Bootan (Gnlfith») supra Ranam alt 12000p (Jacjuem ') J excelsa Bieb<sup>9</sup> Wallich list n bO'il I squamatd Gord Pin ]» 110 ex parte I Wdlhclwana H)ok ' ttl herb Kew I Sabma Led Fl alt 4 p 298 ex parte J pseudo-Sibuid I ndl Conif p 21, Led FI ioss ] p 682, Garner Comf j> ü Species a J Sabma valdc distincta nee cum aliqvia conlundenda Amenta macula 2 2i mill longa, 1 j vix 2 mill lata Galbuli 10-12 mill longi, 6 8 lati (v v)

12 J DAVURICA (Pall Fl ross 2 p H t 5S exel syn Gmel<sup>N</sup>, clioica\* frutex decumbens cortice cihereo secedente, ramis teretibus patentibus vel

patentissimis, ramulis a foliis arete imbricatU tectis subquadranguhs longiusculis subgracihbuspatpntissimisvel subpenduhs, folns ramorum terms adnatis apice hbens acutis adpressis dorso convexis, ramulorum quadnfanam oppositis squamaeformibus imbriatis adpressis ovato rhombeis obtusiusculis vel acutiusculis submucronulatis dorso convexis et glandula oblonga prominenti in medio notatis, saepe evolutis et tune basi tantum adnatis reliqua parte hbentis patulis approximate hnean-subulatis, mucronato subpungentibus, supra canaliculatis et fascia albida? continui notatis, subtus convexis, glandula lineiri in medio notatis vel eglandulosiT amentis masculis . , galbuhs in ramulo galbulo ipso subseiuiali vel brevior erectis vel subcornuis solifirns laterahbus parvis subglofcosis vel subturbinatatis (lusco caeiuleis) glauoedme tectis, nucuhs 1 4 ovato oblongis vel oblongis subrotundisve utnnque convexis obtusis (e luteo-fuscesceniibus) nmdis basin versus sulcatis 5 ^n Stbiria altaica, in sabulosis flam 1 ins Katunja (Bunge sec Led) in bitcalensibus et sayinensibus jugis altissimis prope Udinium sec Gmel. (Pall in bprb Petropoht ) et circa Dutscherskoi (Georgi sec Endl), in Davuna (Pall Turcz !), prope fl Amour (MaximoVicz') et prope Nelkan in montibus (Filing<sup>1</sup>) J Davurtca Ledeb Fl lit 4. p 299 et FJ ross. S P 683, Regel et Tiling' Fl Ajan ^ 119, Endl Conif p 19, Carrter Comf. p 30 Folia evoluta 6-7 mill longa, |-| mill lata, Galbuh ^>6 mill, diam , nunc monopyrem, nunc nuculas 2-4 gerentes, unde forma vana nuculae etum in hac specie interdum evsertae (v s )

- 13 J SAUNA (Linn Sp pi p 1472 exel var jj etexel pi loc), monoica, frutex, cortice secedpnte cineieo ramis teretibus ereUis, vel humilis ramosissima ma diffusa, ram is foliis undique tectis teretiuscuhs longiusculis gracilibvis vindibus erectis patulisve, folns ramorum terms, maxima ex parte adnatis, superae hbens et patulis lanccolato lineanbus apico acutiusculis mucronato-MiDpungentibus ramulorum quadnlinim oppositissu.bimbnc.itis rhombeis vel rhombeo hnceolatis acutis vel obtusiusculis mucronulatis, dorso convexis et prope medium glandula ovah notatis, saepe evolutis basi adnatis reliqua Parte hbens paiulis rectis hneanbus acutis et mucronulatis, supra plamusculis glauus, subtus convexis et prope medium glandula oblongo hneaii notatis, vindibus marginibus obtusis, amentis masculis erectis ovalibus apice rotundatis bracteis suborbicularibus, dorso planis et in medio glandula subrotunda notaiis interns, galbulis ^ohtarus, in ramulo gaibulo ipso bie\iore recurvo pen luhs, globoso-ovahbus vel subglobosis (atio Laeruleis), glaucedine alba tectis, squamis 4-6 quaffrifanam opposite arete connatis infra apicem breviterapitulalis, apiculis in galbulo matuio oblueratis, nuuulis 2-1, raio 3 4, ovalibus ovatisve utnnque tonvexis marginibus obtuse apice obtusiusculis nitidiuscuhs In resione abietma et subalpina Europae centiahs et austral is ad 40^0 5100 pel elevationem, in Caucaso, Sibi ia omni, Davuna, Songacia, et America boieah In Vallesiae Valle sanoti Nicolai alusque locis (Bergerl Dnantl in h De C Coquebert' de Montbret' in h Webb, Lereich' jn h Boiss f), in Delphinatu(Requic<sup>1</sup>ii Gand ' alnsque), in Pyrenaeis (h Webb'), in Hispaniae Sierra de la Nieve, Sierra Nevada en U Girtejuela abunde sub ^inu sylvestn et m parte supenore 5S00 8 >00 p et in Sierra de Tojox (Boiss ' Del Campo'), m Airagonia australi (Willkomml n 4bb), in monte Cramont (ego ipse) prope Gourmayeur (herb Kunth I Alph De L !) et Cogne in valle Augustae Prcionae (Guesta') m alpihus pedemontanis ad col d Abues (Rostan'), m Cenisio (Bouigeau'), in Sahsburgo, in Tyroh austrah (MonUni' i^acchini'), in Camiolia (Koch), in Apenmmo Ligunae albiogaumensis (Frasverso), m Piceno in monte Vettore (Orsuni) et a Gasteil Manardo (MarzianNti»), m Praetutns in monte Cornu et Magella (Ten.' Gus^ ! Orsini') Ill ^almatae montibus Vallebith et Biokovo (Vis) in Rossia media (Glaus) et ^astral! ad lanaim (Pall 1 Stev 1 Blum'), in launae alpims editioentms (li °e L ') in provinces caucasicis ocudent alt 12 300 p (C A Meyen 3leph in herb' Willd<sup>1</sup> hPi'b Mus Florent'), in montibus !3eschtai (herb · Kxsdh0i!) in Sibma uralensi aHaita (Pall I Diin'tryl), bainlensi et in Davuna (Pall ') in Songana (Bungel Schrenk'), in Amprica in rerra nova (Lapylaie'), ad ^uvium Saskatschawan (Bourgeau!), ad lacum Huronum (Endl, Pail Fl. ross 2 p 15. t, 56 fig G. DJ. — Michx p bor. amer 2. p 246, Endl Conif p 23 var A etB, Carnere Conif p 35 J. Lycia Pall T- c 2 p 14

t. 06 f B J excelsa Willd ' sp pi 4 p 852 non Bieb J repens Nutt Gen amer 2 p. 24 > J foetida a Sabina et y multicaulis Spach in Ann sc nat 2<sup>e</sup> str vol 16 p 29) I prostia Pers Syn 2 p 632, lorr Comp ?6\* Endl Conif p 18 J Hudsonica Lodd Cat 183b. p. 48 J Sabini M S humilis Hook Fl bor amei 2 p 166 J Sabina et J Sabina tamansci folia hort Fruticosa vel aiborescens, saepe humilis, et prostrata, praesertim in alpibus vel subalpinis, foetida Amenta mascula 2-2] mill Jongi, 1 1 J mill lali Bractee eorum dorso vmdrs ot glandula subrotunda notatae, margine lutescentes Galbuh pnum ovaes, fuscipscetes et apiculis longiusculis subtuberculati, demum sublobosi vel globoso-ovales, atro-caerulei, glaucedine tecti, apiculis plus minusve obliatis 6-8 mill, longi, >6 mill, lati Nucula? saepissime 2, vel solilanae raio 3-4, badiae (v v)

- 14 J E\CEL\*A (Bieb ' Fl taur cane 2 p 24 >), arbor, monoica, coma pyramidali cortice cfeito secedenlp, ramis terelibus erectis patuisve, ramulis folis tectis teretiusculis breuiusculis gracilibus glaucescentibus erectis patuisve, folis ramorum et Lamulorum pnanioium terms adnatis apite hbero ovato-acuminato p'dtulo, dorso glandula oblongo lineam notat's, ramulorum superiorum squamaeformibus quadrfanam oppositis vel terms irubnatis adpres sisvfeldjiLe patulis ovato rhombis acutiusculis submuticis \cl mucronulatis dorso convexis et glandula ovah vel subrotunda infra vel propp medium notatis, amentis masculis erectis vel subcermiis ovahbus obtusis eorum bracteis suboibiculanbus apice rotundatis, dorso convexis et depiesso glandulosis, margin\* subintegro, galbulis in lamulo brevissimo subincurvo vel recto sohtarum numerosis subaggregatis (nigrescentibus scd glaucedine alba te^tis) globosis, squamis 4, raro 6, quadrfaniam oppositis infra apicem apiculatis, apiculis brevibus obliatis in galbulo maiuro fere obteialis, nuculis 6 4 oblongis ovatisve angulatis obtusis (fere castanpis) nitidis In montibus Orientis ab insula 1 basso per Asiam *Mi nor em*, Tauuam et Cauasum ad Syriam m, Arabiam et Peisiam In insula Thasso ubi cum Pinu Iancione sylvam excelsam et amplam a hore pci declivitatem msulae occidentalem extensam (Gnseb '), in Asia minore (Ichihatchetl' n 563), in monte Sipylolydide (Boiss' T herb), in summitate montium Caramaniae (O lvier ' herb pans), in monte Iaiio Caiamams inter Kaiaman et Irmeneck syhas tToimdns cum queicubus ad elev ^000 3^00 p et in montibus Faun Isaunci (Heidi'), in CILII 1 III summitalibus montium supn pylas (Balansal n 8U), in laun cilicici alpinibus Bul'ar Dagh dispoisi et frequenselev 4000 6400 ped (Kotschy'n 414), Mesogis supra Fialles (Boiss '), in Cuia (Pinai(>!), Gulek Bo^has (Boiss ' n 114) in sylvaticis montis Ak-dagh frequens (Bourgeaul ann 1860), in Syria Djebel Chpr et in monte Libano (Labill ' Boiss 1 Kotschy'), frequens in regione Acaba Pt Dschinina alt 4 >0) p et in monte Libano alt 6510 ped (Kotschy'n 229) in summo monte Makmel (G Ehrenbeig' Heib berol), inter Airiete et Dnn el Achm u (Boiss ' beib), in Arabia ad Djebd Akidar prop\* Mascitum (Aucher-Iloy'), in Tauna (Pallas' Bieb Siev ' LeveillU '), in piovmcii rossica Kaiabajfh (S/owics' n 244), in Caucaso cahdiore ad montium lateia mondionaha (Bieb ' in h Link), in Armenia (G Koch'), piope Baihout (figure '), in subalpinis Kurdistan (h Noel), in Persia (Buhspj) piop% Morch Mahall 1 et in rupestribus mentis Kuh Daena Persiae australis alt\* 1000 p (Kotschy!), in Belouchistan et Afghanistan (Stocks' n 898) — J sabina var taurica Pall Fl ross 2 p 1 > J excelsa Lndl Conif p 2 > exel pi-Himal, et tai P Carner Conif p 39 p pirteetexcl pi syn J. foetida e exels 1 Spach in Ann sc. nat 2 sei vol xvi p 297 extl svn ameiic J Oil veen Carntic' Conif p 57 J isophyllos, loima galbulis minoribus, et I P<sup>o</sup>lycarpos C Kooh'in Tchihattheff Asiae mineuie bot torn 2. p. 492 Sabina exceUa Antome Cupress Gattung p 45 t 60 exel syn Hoylei et pi. H<sup>h</sup> mal Sabina polycarpo^ Ant 1 o lab G3 Sabina isophyllos Ant 1 c t h't Cpflius orientalis, laelidissima, aiboi excels 1 seu Sibina oripntalis, fructu paivonigio lourn Cuioll. p 41 *Ardihch* Tatans Arbor 9-1 >p alti rimulbs tenuius, breviusculis, subdistictis, glaucescentibus, et galbulis maioribus nigricantibus, glaucedine tectis, facile distinguenda Folia minorum quim in J foetidissima et glarululosa Amenta mascula 2-2 • et vix 3 mill Jonga 1 4'-2 mill, lata Bractee doiso vindes et glandula depressa fere umbilicata<sup>4</sup>, margine lutescente-, vel albidke Anther\* palhde lute\*. Galbuh 9-12 mm longi

et lati, globosi, juniores e vindi-lutei glauci, maturi nigrescentes, glaucedine tecti. (v v)

^ . J. KETIDISSIMA (Willd » Sp pi 4 853), monoica, arbor \el irutex, cortice cinereo, ramis teretibus ramuhsqut folus tectis subtetragonis breviusculi^ crassiuscuhs eiectis patuhsve, lulus ramorum terms ramul mmque pnmanorum quadnfanam oppositis adnatis, apice libero o^dto vel Jdnceolato-acuminato mucronato-pungenie inourvdo-patulo, dorso convexis vel obtusp carinatis eglandulosis, ramulorum secundanorum quadnfanam oppositis vel terms lmbncatis adpressis squamaefoimibus ovato-rhombeis acutiusuihs dorso convexis superne gibbo tnquetns eglandulosis vel glandula oblonga mimrcsU notatis, interdum fere acicularibus mlerne adnatis superne libeMs patuhs lanceolato-acuminatis mucronato-pungentibus doiso acute cdiinatis et glandula lesimfeia notatis, amentis masculis erectis vel subcernuis globosis ovalibusve, eorum bracteis suborbicularibus dorso convexis subglandulosis margine miegris, galuhs in ramulo lecto breviusculo aut Iongiusculo eiectis sohtanis numerosis globosis vel ovoideis obovatisve iusco-purpureis glaucescentibus, ^quamis 4 6 quadnlanam oppositis infra apicem apiculatis, apiculo lato brevi obtusiusculo subpersistente, nucuhs 1-2, lan>sinie 3, magms ovatis subiotundisve obtusib basin veisus saepe sulcatis palhdis. 3 In Graeciae, Macedoniae, Asiae minons, Synae, Caucasi et Armenian montibus In sylvis abietims Mortis Painassi alt 4^00 ^>000 p et Peloponnesi alt 4500 ^>000 p. (Heidi ' n 341'i, Heib graec noim n 542), in monte Malevo Lacomae (Orphanidesl n 3215), in monte lympjuesto Ihcssaliae (Samantani et Guicciardi! Helder ' pi exciss n 2001), in monte Delph \*uboeae, MI Matedoina peninsulae Actae, in montis Athonis sylvia Lancionis alt 3o00 4500 (rnednchsthal, Griseb ')> in Olympo bithynuo (Sibth ), in monte Olympo Insulae Cypn et in Syna (Kotschy'), in plensque Asiae minons montibus (Aucher Elroy'), in Taun tilicici jugis Hddsc Inn alt 5000 p., rdio elevatione fi000 in valle Agatsch Kisse frequentior, inde rarescente Jumpeia drupaced turn J excelsa, Cedro Libani passim commixta usque dd 6500 p elevationem ascendens (Kotschy' 417-413), in lauro cihcico supra pylids (Bdlidsa' "• 830), Gulek-Boghar (Boiss ), in Syna (Labill I), in monte Libano (J Hook et Hanbury' ad 6200 p Ungei' in herb, vindob '), ad prod vcs andos prope pagum Jal^nsdam Kaiabach occidental is (Hohenack I), in lbena (hcib Fiach.l Wilmsen' in h De C '), in Aimenia (G. Koch') inter Tiflim et Envan (Tourn ) *Sehvi Ardytsch* vel *lack ArdyUch* lurcorum — Endl Gonil p. 24, Carrier. Conif p 39 excl. pi. syn J. Sdbina Sibth et Smith Fl graec prodi ^ P« 264 ex loc natal Juniperus orientahs loetidissima, arbor excelsa seu Sabina orientahs, folus aculeatis louin. Coroll p. 41, Voyag. du Levant 2. P 238 J loeuda squarrulosa SpLch in Ann sc nat 2. s6r. vol 10 p 300. Aibor vel frutex 9-12 p. altus, a J oxelsa lamuhs ciassis, folus majonbus, apice patuhs, mucronato pungentibus, plerumque eglandulosib et galuhs lusco purpureis, saepissime 1-2 nuculas majusculas geientibus praecipue et facile distmguenda Galbuli forma VHUI, ut plunnum subglobosi, nuculas 2 interdum vidi in unam bilocuUrem, loculis monospermis, coalitas quod transitum Juniren Oxycedn et babm«p sectionum dd J diupaceam demonstrat Folia lamoium ot ramulorum interdum feie acicularid, inferne ddnata, superne libera, patuua, lanceolalo acuminaU, muciondto-pungentid, dorso supeine acute canndta, glanduld re^imfeid mdgis conspicud (v s )

16. J. PROCERA (Hochst. in Schimp pi Abyssin n >37 et 919), monoicd a"boi, lamis teretibus, ramuhs d foln» lmbncais tectis teretiuscuhs breviuscuhs grdcihbus erectis \el patulis, loins rdmorum teirns et rdmulorum pnmanorum decussatim oppositis infeine adnatis supeine libens lanceolato-acummdtis mucronato pungentibus subadpiessis doiso convexis ^t glanduld hnean elongdta depies&a notatis, rdmulorum secundanoium decussatim oppositis quadnfanam imbncatis squamaefoimibus minutis subpalulis ovafilanceolatis acutmscuhs A el acutis submucronulatis doiso convexis et glandula oblonga depressa infra medium notatis, amentis masculis m ramulo dmento ipso brevior aut longiore erectis parvis subglobosis ovato orbicularibus obtusmscuhs dorso convexis margine subintegns, galuhs in ramulo galbulo ipso saepe brevior \el longioie erectis sohtanis laterahbus parviuscuhs sub-

fflojbois, in sicco fusco-yioiaceis, glaucedine alba lectis, squamis 4-6 quadri-fariam oppositis arete connatis apice apiculatis, apiculis brevibus obtusiusculis subadpressis demum obliteratedis, nuculis 2-3 majusculis o vat is acutis, dorso convéxis, facie planis vel convexiusculis, marginibus obtusiusculis pallidis. J In Abyssinia inter saxapropethe latchekanne, in regione Choho et in prov. Ouodferate (Quartin Dillon et Ant. Petit sec. Rich.), prope Enchedcap et in pfovincia Agatae (Schimp!), nee non in Arabia felici in vertice montis Saber (fiotta!).— A. Rich. Fl. abyss. 2. p. 278; Endl. Conif. p. 26; Carrier. Conif. f. 42; Gord. Conif. p. 105. Sabina proccra AntOine Cupress. Gattung. p. 36. t. 47. **Arbor excelsa, J. excelsæ M. Bieb. affinis sed ab illa satis superque distincta. Amenta mascula fuscescentia, 1½-2 mill. longa et fere lata, raro 2½ mill. longa et 1-2 mill. lata Galbuli in genere parvi 5-7 mill. longi et lati.** Nuculas sæpe vidi exsertas, ut frequenter occurrit in Juniperis. A J. Phnnicea, cujus forte varietatem arboream existimare propensus erat cl. A. Richard, toto COPO diversa, (v. s.)

17. J- PHENICEA (Linn! Sp. pi. p. 1471), roonoica aut dioica, frutex vel arbor, cortide e hjbido-cinereo secedente, ramis teretibus erectis aut subadscendentibus, ramulis a foliis tectis subteretibus longiusculis subgracilibus erectis aut ascendentibus patulisve, foliis ramorum ternis adnatis, apice libero acuto adpresso, dorso convexo-carinatis, ramulorum primariorum ternis et secundariorum sæpe quadri-fariam oppositis squamaeformibus minutissimis arete adpressis itnbricatis ovato-rhombeis obtusis, dorso convexis et in medio glandula oblonga subdepressa notatis, amentis masculis in ramulo breviusculo erectis ovalibus oblongisve obtusis, eorum bracteis suborbicularibus dorso convexis margine sublntegris, galbulis solitariis in ramulo brevi erectis vel subsessilibus numerosis subglobosis (fusco-rubris) vix glaucescentibus nitidis, scjuamis 6 vel raro 8 quadri-fariam oppositis arete connatis infra apicem apiculatis, apiculis brevissimis obtusiusculis demum obliteratedis, nuculis 3-6 ovatis sultri(fuelris obtusiusculis fuscis. 5 In aridis, in rupestribus et collibus inari prpximis Europae mediterraneae a Lusitania ad Tauriam, nee non in Africa boieali et in insulis Canariis et Maderae, praesertim in regione olearum, quandoque in montium locis calidioribus usque ad regionem subalpinam adscendens. In fruticetis Lusitaniae (Schousb. in herb. Willd.), in ericeis niyssiponae oppositis trans Tagum (Link!), ii; Sierra de S. Luiz (Welwitschl.) in hispania prope Gadem (Picard!), inter Calpem et Malacam (Clus.), in aridis calidis regionis montanae et alpinaj inferioris, Sierra de la Neve (Hacnsel, Prolongo), Sierra Tejada, Sierra Nevada, bierra Prieta (Rambur sec. Boiss.), prope Tunquora et Bonanza (Willkom!), in Pinal de Puerto Santa Maria (Bourg!), in insula majore Balparum (Catnbess.); frequens in Gallia meridionali, in insulis Sto3chadibus (Lortet! et in herb. Jord!), per totam oram Italiae occid. a Niceae maritimis ad Brutiam nee non in Monte Gargano et in Japygia (Ten. Guss!), in Corsica (Ph. Thomas! in h. De C.) ubi videtur min. > obvia; frequens in Sardinia et in Sicilia et fere in omnibus parvis insulis malis Tirrhene, Sardiniae, iEtruriae, Neapoli et Siciliae adjacentibus usque ad Lopadusam (Calcara!); in Istria prope Fluvium (Dietrich! in herb. Musberol.), et in insulis Lossino (Tommasini! Noé!) et Crepsa (Noé!), in Dalmatia (Petter! Clementi! Vis. Viv. in herb. berol.), in Epiro (Pappafaval), Cephalonia (herb. vindob.), Leucadia (M. nzzari!), in Graeciae maritimis (Link! Heidr. Kotschy! alilque), in insula Melo (Beaupre\*), insula Paros (Schwarz! in h. Willd!), insula jEgina (Heldr.), in Creia (sfeb.), in insula Rhodi (von Berg! in herb. Mqs. berol.), in Lycia herb. Webb!), in monte Cara non V. ab oppido Dschedda (W. Schimp! Unio itin. 1837, n. 752); in Tauia (Stev. in herb. Musberol.), in Algeria, in Atlante et collibus incultis (Desf. Bové!), in provincia Constjtiug (Buvry! in herb. mus. berol.), prope Medina et Batna (Balansal), in marjtnnis Tunctanae ad Loghona (Kralik!), et circa Tropolim (Dickson in ne. Wgbb!), in Mauritania prope Rabat et Magadore (Webb!), in Nivana et Pa[ ubi ra-a (Webb!) et in Gomera Barranco de Hermignaet Hierro (Bourg! in Madra (Mason!). J. Lycia Linn. Sp. pi. P-1461. J. phoenicia Willd. P-jfh p. 855 ei Cupressus bacciformis herb I J. tetragona Moench Meth. 699. J. nicea Guss. Pi. rac. p. 370. t. 62 et Syn. fl. sic. 2. p. 634; Spach in Aim. sc. p. serr. 2- vol. 16. p. 302 excl. pi. syn.; Endl. Conif. p. 30. var. A et b; Caffil yonif. p. 51. var. A et B; liord. Pin. p. 118. Juniperus bacciformis Gam

Gonjf. p. 56. Sabina Pfreepicea Antoipl. Cupress Gattung p. k% \. 57 et Sabina Lycia I c p. 44. t. 59. Frutex vel arbuscula, dense caespitosa, usque ad 3 vel etiam 12-15 ped. alta. Folia in ramorjm parte infera saepe evolvuntur in sectione Juniperi Oxycedii, et tune basi adnata, reliqua parte libera et patula, linearia vel lineari-lanceolata, 5-8' mill. longa, 1 -J mill. lata, linearta, mucronata, subpungentia, supra juxtannervum longitudinalern prominentem obtusum uirique sulcata, subtus convexa et suico longitudinali a basi fere ad apicem notata. Ament<sup>a</sup> mascula 3-5 mill. longa, 1<sup>^</sup>-2 mill. lata. Galbuli globosi aut subglobosi, magnitudine varii, 8-14 mill. longi et lati, immaturi duri, raaturi molles; caro luteola. Nuculae numero etiam varies 3-6. Juniperi Lycias specimen in herbano Linnaei desideratur. (v. v.)

p, *turbinata*, galbulis ovatis vel subturbinatis. In collibus et aridis maritimis Hispaniae, Italiae, Siciliae, Dalmatiae et Algeriae cum specie mixta et probabiliter in omnibus locis ubi species habitat. In Baeticap pineto prope Bonanza (Willk.), in jEtruriae maritimis all'Alberese (ego ipse!), in Brutia prope Roselo iGuss<sup>1</sup>), in Sicilia prope Seccia (Gaspar. I Guss. I Tineo! Sorrentino!) et Montallegio (Guss.), in Dalmatiae insula Crepsa (Noe\*), in insula Lopadusa (Labill.) in maritimis Atticae (Orphanides!), in insula Cypro (Kotschy!), in Algeria prope laBerhaya (Bovel) et Batna (Bourg. ^jin Gomera (Bourg.) et in Fortaventura (Delaroche in herb. DeC!) J. oblongata Guss. pi. exsicc. J. turbinata Guss! Syn fl. sic. 2. 'p. 634, Brtt. Fl. ital. 10. p. 386. J. oophora Kunze! in Flora 1846. p. 637. Sabina turbinata Antoine Cupress Gattung. p. 41. t. 56. Est certe varietas J. Phoeniceae, nam ipso in specimine vidi galbulos globosos et ovatos vel subturbina- tos. (v. v.)

Y, *monstruosa*, nuculis partim exsertis. In Sierra de Segura (Bourg. 1) in Gallia australi prope Telonem (in herb. Webb.). J. phoenicea var. fructibus spinosis Cosson! in Bourg. pi. hisp. exicc. ann. 1850. (v. s.)

18. J. THURIFERA (Linn. Sp. pi. p. 1471), frutex vel arbor cortice fusco secedente,\* ramis patentibus vel patentissimis teretibus, ramulis a foliis tectis subtetragonis breviusculis gracilibus e vindi-glauciscentibus patentibus, foliis ramorum ternis vel saepe quadrifariam oppositis, a basi ad tertium superiorem adnatis, superne vel apice tantum liberis et patulis, ovato-vel lanceolato-acutis acuminatisve mucronato-pungentibus, dorso glandula oblongo-lineari impressa notatis, ramulorum nri manorum foliis ramorum similibus et secundariorum quadrifariam oppositis, his squamaeformibus imbricatis ovato-vel lanceolato-rhombeis apice acutis vel acutiusculis mucronulatis et patulis, dorso convexis ecarinatis glandula oblonga impressa notatis, amentis masculis oblongis obtusis, bracteis ovato-orbicularibus obtusiusculis dorso convexis et glandula notatis, margine subintegro, galbulis in ramulo breviusculo erectis solitariis (fusco-caeruleis subnigrescentibus) glaucescentibus sublobosis, squamis 4-6 quadrifariam oppositis arete connatis infra apicem apiculatis, apiculis brevibus acutiusculis demum subobliteratis, nuculis 3-2 vel raro 4 ovato-orbicularibus dorso convexis, iacie planis vel ^ubtriquetris obtusiusculis fuscescentibus. § In Lusitania, Hispania et Algria prae-ertim in maritimis. In Lusitania ad Promontorium sacrum, Capo di S. Vincenzo (Link!), in Hispania ad pedes de la Sierra de Segura prope Yeste (Boure n. 880); in Algeria prope Medinae planitiem (Balansa! pi. d'Algeria n |c|%' Coss.) — CarriSre Conif. p. 97 excl. pi. syn. et loc. Juniperus Hispani?'. Lam. Diet. encycl. 626. p. J. fctida I thurifera Spach in Ann. sc. nat o-"I-4 vol. 16. p. 298 excl. pl. syn. et plant. mexic. J. sabinoides Endl. Conif. p. 24, non Gris. et quoad pl. hispan. excl. plurib. synonym. J. Bonatiana Vis. Illustr. plant. nuov. o rare dell' ort. bot. di Padova mem. 3. p. 13. tav. 1. J. cinerea Garr. conn. eäu. 2. p. 35. Frutex vel arbuscula usque ad 15 n V. T-rea saepe evolvuntur et tune pars eorum superior libera est lolhrinp ^ a. a. I\*oi'a et acuminata, apice pungens. Amenta mascula 3-4 mill W\* T-g! 5 P tdl a lata. Galbuli 7-11 mill, bngi et fere lati. (v. v.)

19. J. CHINENSIS (Linn. Mantiss. p. 127), dioica, arbor aut frutex, cortice rufescenti-cinereo secedente, ramis ramulisque subtetragonibus longiusculis subgracilibus erectis patulisve, foliis ramorum ramulorumque inferiorum ternis vel

oppositis, nunc bquamaeformibus adnatis, apice hbero acuto adpresso, nunc evolutis basi adnatis, reliqua parte libens patulis linear lanceolate acummatibus mucronato pungentibus, supra juxta neivum longitudinalem prominulum utnque sulcatis, sulcis fascia albida n tatis subtusconvexiusculis et glandula lmean-elongata depressa notatis margmibusque obtusis vindibus raniorum et ramulorum supenoium squamaefoimibus quddrifanam oppositis imbn-catis adpres<sup>is</sup> rhomboideis obtusis vel obtu<sup>iuscuhs</sup> suborn ronulatis dorso convexis et glandula o\ah vel oblonga depiessam medio vel piope medium notatis, vmdibus, amentis masculis oblongis obtusis in ramulo amento ipso brevior aut longiore erectis, biacteis orbiculanbus dorso ronvexis margine integns, galbuhs in lamulo galbulo ipsc bieMOie aut subaequali eiectis vel subceinuis obovato globosis supia dej rosso subemaigmitis (c vindi mbellis), glaucedine densa fannacea alba tectis, squamis 4 8 bifanam dispositis arete connatis infra apicem apiculatis apiculo paiuh acutiusculo mierdum sub-nullo, nuculis 2 J raro 4 > vel solit<sup>um</sup> ellipticis vel oblongis obtusmsculis vel ODusis \el subtiiqueiis utnque conuxis anguhs acutmsculis iuscescentibus nitidis -j In Himilr<sup>de</sup> redone temperata in China ei Japunia In Himalaya (Webb' sub nomine J excelsae Bieb n 604D), in Cachemiro alt 6 6900> et in Hubeto occidental alt <sup>100</sup> 11000 p (Hook fil et Thorns '), in Nepaha m Bo>tan (Gnlfith), in Karaiun alt 10 JOO p (Strackpy et WinteibottoraNm hero Hook) Kooloo (Gord » herb), in China (herb peiiop Fortune n 48') in insula Hong Kong (Hance '), in Japonia (Ihumb Siebold), in Corea (Siebold') — Siel et Zucc Fl jap 2 p 109 t 126 127, Lndl Conif p 21, Carnei Gonif p 31, Gord Pin p 115 bort J 13ai badensis et Vuginica Ihumb M jap p 264 exel syn J dimoipha Roxb <sup>9</sup> t ind -I p 839, Lndl Gonil p J1, faniur Conif p S9 J cernua Poxb Fl ind d p 839, Endl (nnif p 31, Carnei e Conif p 32 J Reevesnna hoit aliq I flagelliformis hort T Thunbergn Hook et Arnott ad Beech<sup>y</sup> p 271 J btruthiacea Knight Conif p 13 Hort J religiosa Royle<sup>III</sup> Himal 1 p tol, Carriere 1 c p 41 boid' Pin p 107 J excelsa Lndl 1 c p 25 quoad pi Himal Cainti 1 c p 39 quoad pi Himal J Cabiancae Vis ' III piant ruov 0 rar dell ort bot di Padova mm 3 p 14 ttv 2 Sabma Cabiancae Antoine 1 Cupies Gattung p 41 t S4 Juniperus» Japonica hort, Carr Conif edit 2 p J1 Arboi, usque ad 60 75 p et ultia alta in editionbus procumbens vel nana Planta mascula a feinima diffoimis, coma pyramidal), ramis erec Us, folus praeseitim in plmtis cultis saepius aciculanbus Amenta mascula 4-5 mill longa, || 2 mill latu Galbuli ludunt globosi aut subglobosi Aelobovati aut tuibinati nee non nucularum numero et forma Earuai magnitudo etiam vin it nam nunc 5 7 miJ longi, 6-7 mill lati, nunc 8-11 mill longi et 7 10 mill lati (v v)

- 20 J SPH<sup>ERICA</sup>. (Lindl in Paxt Flow gard 1 p 58 f 35), monoica, aiboi, ram>s teietibus erecto-pdtulis, lamulis a folus tectis subquadrangulis bicviusculis ciassiusculis eiteUs ;atuhsv loins lamoium lamuloiumque pnmanorum terms maxima ex paite adnatis, superne libens acuminatis acutiusculis subpatulis, ramulcium supenoium <sup>am</sup>quamapiormibus quadnlanam oppositis imbricatis suhpatulis oblongo rhombis obtasis vel obtusiuscuhs, dor**O** con\exo-subcannatis et glandula o\ah subiotunuave infra medium notatis amentis masculis in ramulo amento ipso bievior aut longiore eiectis vel subternuis oblongis obtusis, bractei> orbiculanbus apice lotundatis doiso convexis et piope basin glandula subrotunda notatis, maigine subintegns, gdlbuhs in ramulo brevi eiect s solitams subglobosis (fusco-violaceis?) squamis b arete connatis sub apice apiculatis, apiculo brevi acuto, nuculis 3 (an semper?) o\alibus subrotundisve utnque convexis vel subtnquetns obtuse fuscescentibus In regionibus Chinae boreahbus (Fortune'n 49) J sphaenca Lamér Conif p 51, Goid Pin p J10 A J Chinensi differt llonbus monoicis, ramis crassionbus brevicubus, subtetragoms, folus subpaiulis et glanaüa ovali vel subrotunda prope basin praeditis, et praecipue galbuhs ma-joriDUS, Klducedine alba far nacea haud tectis, etc Amenta mascula 6 V, m<sup>11</sup> longa, 1' mill. Uta Galbuli 8 10 mill longi et lere lati (v v)

- 21 J VIRGINIANA (Linn Sp pi p 1471), monoica, arbor vel frutex coma effusa subovata, cortice cinereo secedente umis subveiticiMatis horizontalibus

ramulis primariis teretibus patentibus subpendulisve, secundariis a foliis undique tectis subquadrangulis viridibus patentibus, foliis ramorum et ramulorum primariorum ternis, maxima ex parte adnatis, apice libero subpatulo oblongo-lanceolato acuminato subpungente, dorso glandula lineari-elongata notatis, ramulorum secundariorum squamaeformibus quadrifariam oppositis imbricatis adpressis ovato-rhombeis vel ovato-lanceolatis acutiusculis submucronulatis, dorso convexis et glandula ovali vel subrotunda prope medium notatis, amentis masculis in ramulo breviusculo erectis ovalibus obtusis, bracteis suborbicularibus obtusissimis, dorso vix carinatis, margine integris, galbulis in ramulo recto galbulum ipsum aequante vel superante erectis solitariis numerosis ovalibus vel ovali-globosis subturbatinatisve obtusis parviusculis (fusco-violaceis), glaucescine densa alba tectis, squamis 4-6 bifariam dispositis arete connatis vix apiculatis, nuculis 1-2 parviusculis ovatis obtusiusculis angulatis nitidiusculis. § In Americas borealis orientalis scopulis rupibusque a sinu Hudsonico ad Novum Mexicum, Texam et Floridam nec non in America bor. occid. ubi rara. In sinu Hudsonico (h. Hook!), in Canada (herb, flor!), prope lacum Ontarium (Sheppard!), in rupestribus prope Big River, Missouri (Kiehl!), prope Boston et in Pennsylvania (in herb. Webb!), New-York (herb, berol!), Kentucky (Hook!), Massachussetts (Oakes!), in Novo Jersey et Delaware (Conby!). Rocky mountains (Gord! in h. Hook.), prope urbem Mexici (Bassi!), prope Zuni in Novo Mexico occidentali (h. Hook!), in Novo Mexico (Fendl! n. 835 et n. 835 b.), in Texas (Menzel! Berlandier 1 n. 2079, Matthes! n. 105), St-Louis (Engelmann!), prope Rio Colorado et alibi (sec. Torr. et Asa Gray), in Florida (Cabanis! in h. mus. berol!), in Columbia et in insula Vancouverii (Lyll!). — Michx. Sylv. 3. p. 221. t. 155; Rich. Conif. p. 37. t. 6. f. 2; Endl. Conif. p. 27 ex parte; Carrière Conif. p. 43 ex parte; Gord. Pin. p. 112; Henk. et Hochst. Nadelholz. p. 335. J. Virginiana, J. Schottii et Cnamberlaini hori. *Red Cedar*. Frutex vel arbor usque ad 36-45 p. alia, ligno odoroso, rubro. Folia viridia, interdum evoluta et linearia, mucronato-pungentia, supra canaliculata et lascia albida continua notata, subtus obscure carinata et viridia. Amenta mascula 2<sup>^</sup>-4 mill, longa, 1-J-2 mill, lata. Galbuli forma et magnitudine varii si nuculam solitariam vel nuculas duas gerunt, ovales vel subglobosi aut interdum nuculis divaricatis apice subbilobi et fere lurbinati, saepe 5 mill, longi, 3-4 mill, lati, sed interdum majores, 7 mill, longi et fere lati. Squamae omnes interdum magis apiculatae, apiculo acuto. (v. v.)

P, *giauca* (Carrière Conif. p. 45), foliis glaucis. Colitur in hortis. J. glauca hort. J. glauca Willd, hort. berol. enum. suppl. p. 67; Link Enum. alt. 2. p. 435; Endl. Conif. p. 31. J. Virginiana glauca Gord. Pin. p. 113. J. Virginiana cinerascens hort. (v. v.)

y, *Bedfordiana* (Knight Conif. p. 12), ramis patentibus ramulisque gracilibus subpendulis, foliis laete viridibus. J. Bedfordiana hort. J. gracilis Endl. Conif. p. 31; Carrier. Conif. p. 55. J. Gossainthanea Lodd. Cat.; Lindl. et Gord. in Journ. Hort. Soc. lond. S. p. 202; Carrière Conif. p. 56. J. Virginiana Barbadosensis Gord. Pin. p. 114 excl. nonn. syn. J. Virginiana pendula hort. In honis. Folia nunc obtusiuscula nunc acuta, mucronulata. Varietas horticola ab India orientali omnino exul ideoque immerito J. Gossainthanae nomine insignita. Alias hujus speciei varietates foliis variegatis, caule humili, ramulis pendulis in hortis coluntur. (v. v.)

22. J. OCCIDENTALIS (Hook. Fl. bor. amer. 2. p. 166), monoica, frutex vel arbor coma effusa, cortice rubido secedente, ramis subverticillatis horizontalibus patulis pendulisve ramulisque primariis teretibus, secundariis a foliis undique tectis subteretibus, foliis ternis, ramorum maxima ex parte adnatis a pice libero acuto subpatulo mucronato subpungente, dorso convexis et eland la oblonga vel oblongo-lineari notatis, ramulorum squamaeformibus atcp imbricatis adpressis ovatis acutis dorso convexis, paulo infra medium vel sum-a basin glandula oblenga notatis, amentis masculis in ramulo breviusculo vel loDgiusculo erectis ovali-subrotundis subquadrangulis, bracteis orbicularibus rotundatis, dorso planiusculis et glandula infra medium notatis, margine integris, galbulis in ramulo brevi erectis solitariis numerosis ovali-subglobosis



vel obovato globosis obtusis majusculis (ufescenti-fuscis), glaucedme alba tectis, squamis 6, raro 9, tnanam disposals arete connatis infra apicem apiculatu, apiculo brevi obtuso subpatulo vel iefle\o, nuculis 2-1 majusculis ovatis utnnque convexis vel latere aliero plants acutiuscuhs pallidis nitidiuscuhs 6 Frequens m Amencae boreahs occidentals rupestnbus andisque a California et No\o Mexico ad Columbianam nee non in plaga onentah montium scopulosorum nempe in Sierra Nevada et ( ascade Mountains a flumme Pit ad Columbianam (Newberry), in Sieirae Nevadaee editionibus (Soc Oreg ' ann 1854 n 1475, Jefliev'), in Monte S Bernaidmo (Lobb« in herb Hook '), ad Columbiae cataractas, Kettle falls (in herb Hook ' ) > et ad Clamath Pivei lat 43 (Soc Oregon ann 18<4 n 743) m montibus Novi Mexici (Whipples expedit in h Hook Fendl n 834 C Wright' n 1850 et 1890), prope Bill, Williams Mountain et in collibus Occidentilibus non procul a flumme Coloiado California (Torr » in h Hook ), in California (Budges' Cuming' n 291), Ceiros Island (Bolander'),—I ndl Conif p 26, Carrier Conif p 42, Torrey Whipples report p 86; Newberry Repoit p 59 t 10 J excelsa Lewis in Pursh Fl bor amer. 2 p 647 n 290 et 291 Chama?cypans Boursieni Dne' m Bull delasoï bot de Fiance I p 70 J Andma Nutt North amer sylv 3 p. 95 t 110 I tetragona var osteosperma loir ' in Whipples Exped p 8S, non Schlecht. J dealbata hort aliquor non Loud J. Californica Carnere Conif p 58 J pyriformis Lindl hort Frutex vel arbor saepe 30 45 p raio 60-7S P alta, J Virginians facie, sed lignum, Newberry tesle, album, de quo valde dubito Harm crassiores et sublercles frolia juniora vix aut ne vix glandulosa, demum magis glandulosa quam in lunipero Virg niana Amenta mascula 2^3 mill longa 2 mill It re lata Galbuli 8 9 mill longi, 7-8 mill lati, nunquam iusco-caerulescentes Nuculae duplo tnplove majores. (v v )

23 J PACHYPHLEA (Torr ' Whipples Report p 8>), monoica, arbor ramis tere tibus, cortice albido secedente, ramulis subdistichis confertis bieviuscuhs obtuse tetraponis, folns terms squamaefoimibus aicte imbricatis adpressis ovato-rhombeis, doiso convexo-cannatJs et glandula ovah subrotundave in medio nolatis, apice acutiuscuhs mucionatis, amenlis mascuhs , galbuhs m ramulo brevi erctis subglobosis mijuscuhs (rufescenlibus) glaucedme alba tectis squamis 9 tnfa/iam dispositis aicte connatis sub apire apiculatis, apicuh inmutis acutmbeculis, nuculis 3 In montibus Zum Novi Mexici occidentilis (liigelow in h Hook a cl Foireycomm) I Sabma pachyphla?a Antoine Cupie^s Gattung p. 39 Galbuh dulccs, 12-1 ) mill longi et lere lati Specie^ in plants vivis melius observanda, J occtdentah \alde affinis et forsã ejus vanetas (v s )

24 T BFRMUDHNA (Iinn sp pi 1471) monoica, arbor, cortice iusco rubro, lamis leretibus ereclis vel liorizontaibus aut subpenduhs, ramulis a folns un dique tectis subquadranguhs longiuscuhs crassmsculis ereclis patulise, folns ramorum et ramuloiuru pnmanoium terms mferne adnatis, apice vel superne hbens ibique subpatulis, lanLeolato-acuminatis mucronatis subpungentibus glandula liucan depress a basi ierc ad apicem notatis, ramulorum secundanorum terms \el quadnfanam oppositis squamaeformibus arete imbricatis adpressis oblongis vel oblongo-Janc olatis acutiuseculis aut acutis dorso convexis et glandula oblongo lineari \el sublincan depressa a basi fere ad apicem \el ultra medium notatis, vel folns ramorum el ramuloium fere omnium evolufN hneari-subulatis mferne tintum adn itis, reliqua paite hbens el patuhs, mucronulato subpungentibus, supra leviter canaliculatis glaucms, subtus convexis et glandula lineari depress a basi fere ad apicem now. tis amentis mascuhs solitarns oblongis obtusis subquadranguhs, bracts suljcibiculanbus acutiuseculis, dorso convexis interns, galbuhs in ramulo galbulo ipso sublongiore erectis solitaru\* parviuscuhs subglohosis (e rubido-caerukscenubus) gliucedine levi tectis, squamis 6-8 quadnfanam oppositis arete connatis vix apuulatis, apiculo brevissimo obtusiusculo adpresso demum lcre obhtprato, nuculis 2 4 parus suborbiculanbus ovatisve lenticulanbus ontiiBis obtuse costatis mlidiuscuhs fere badns ^ In insulis Bermudianis, BarData et m Jamajca ubi m montibus frequens et probabiliter in ali» Antillarum et Bahamarum insulis nee non in Florida In Bermuda (Holton ^ in h Hook ), miirtlna Sti-Georgii (Holton' n 226) — Willd'Sp pi 4, p 8o1,

Endl. Conif. p. 29; Hook, in Lond. Journ. of Bot. 1. p. 141. t. 1; Carrière Conif. p. 49. *Biota meldensis* Gord. Pin. p. 37, forma foliis acicularibus. *J. harbadensis* Cupressi folio ramulis quadratis, Pluk. Aim. p. 201; Phytogr. t. 197. f. 4, bona, forma foliis squamaeformibus. *J. Barbadensis* Linn. Sp. pi. p. 1471, et Willd.! Sp. pi. 4. p. 851, forma foliis squamaeformibus. *J. Virginiana* ex parte Endl. Conif. p. 27 et Carrier. Conif. p. 43, forma foliis squamasformibus. *J. Bermudiana* Herm. Hort. lugd. bat. cat. p. 345. t. 347, forma foliis acicularibus sed galbuli erronee valde majores descripti ac picii. Folia evoluta 6-10 mill, longa, § mill, vel vix mill. lata. Amenta mascula 3-4 mill, longa, H mill. lata. Galmili 6-7 mill, longi, 6-9 mill, lati, variant globosi, globoso-ovales vel globoso-turbinati. Species ob foliipnim evlutionem in duas immerito divisa sed de eorum identitate ex speciminibus in herbariis Linnaei, Willdenowii aliorumque et ex plantis vivis nee non galbulis ab insulis Bermudianis acceptis certus sum. Planta foliis acicularibus sub nomine\* *Thuyae meldensis* vel hybrida, *Biotae mcldensis* aut *Juniperi hybridi* in hortis colitur. (v. v.)

25. *J. MEXICANA* (Schiede in *Linnaea* 5. p. 77). monoica? arbor, comapyraraidali, cortice cihereo secedente, ramis teretibus patentissimis vel patentibitibus, ramulis a foliis arete imbricatis subquadrangulis erectis patulisve rectisvelcurvulis, foliis ramorum et ramulorum primariorum ternis lanceolato-acuminatis inferne adnatis. apice patulo mucronato-subpungente, dorsoconvexis supra basin ad medium et glandulaoblongaprominente notatis, ramulorumsecundariorum quadrifariam oppositis squamaeformibus arete imbricatis ovato-lanceolatis vel ovato-rhomheis acutis mucronatis dorso convexo-carinatis et prope basin glandula elliptica prominente notatis, rarissime evolutis et liberis patentibus linearibus acuminatis mucronato-pungentibus, supra canaliculatis, subtus convexiuscule carinatis et glandula lineari a basi fere ad apicem notatis, marginibus obtusiusculis, amentis masculis in ramulo lorigiusculo erectis ovalibus obtusis sub-4-angulis, bracteis suborbicularibus obtusiusculis margine subdentulatis, galbulis in ramulo brevissimo subsessilibus erectis ovoideo-globosis (rulescenti-luscis) glaucescentibus, squamis 6 quadrifariam oppositis infra apicem apiculatis, apiculo latiusculo acutiusculo patentisubdctlexo, nuculis 3-4 ovatis obtusis ulrinque convexis anpulisve fusciscentibus nitidiusculis. § In monlibus mexicanis alt. 6800-11000 ped. Ad Llanos de Perote (Schiede 1), ad Mineral del Monte (C. Ehrenb.!), Real del Monte (Hartweg! n. 433. Galeotli! n.12), Zimapann (Aschenbora!); frequens in montibus prope Chihuahua (Wislizenus! n. 229), Sierra Madre (Seeman! in h. Hook.), in Mexico (Berlandier! n. 1169). *J. Mexicana* Schlecht. in *Linnaea* t. 12. p. 494; Endl. Conif. p. 28; Carrier. Conif. p. 47; Gord. Pin. p. 104. *J. Deppeana* Steud. Nomencl. edit. 2. p. 835. *J. foetida* y *thurifera* Spach in *Ann. Sc. nat.* 16. p. 298 ex pane et excl. pi. syn. *J. gigantfta* Roehl Cat. p. 8; Gord. Pin. p. 122. *Sabina Mexicana* Anioine Conif. p. 38. t. 51, et *Sabinagigftitea* p. 36. t. 48 et 50 fig. A-L. *Sabina* Mexican. *Arbor* 20-30, raro 70-90-pedalis, resinam copiosam Sandracca; stmitem scatens. Galbuli majores quam in *J. tetragona* saspe ovoideo-glohosi, interdum irregulariter globosi et subturbinati, 12-14 mill, longi et 10-12 mill, lati (v. v.)

*Hi. J. TETRAGONA* (Schlecht. in *Linnaea* 12. p. A95), dioica? frutex cortice rufescenti-fusco secedente, ramis teretibus procumbentibus, rfftnulis a foliis undique tectis tetrgonis brevibus crassiusculis eroclis vel eurvulis iridibus, loliis ramorum primariorum et saspe secundariorum ternis, inferne lontró tractu adnatis, superhe liberis, lanceolato-linearibus acutiusculis mucronatis et patulis supra planis et subglaucescentibus, dorso obtuse carinatis et subra basin glandula ovali notatis, marginibus acutis albidis scabriusculis, ramulorum quadrifariam oppositis squamaeformibus arcle imbricalis adressis'' ovato-rhombeis apice incrassato-gibbis, dorso convexiusculis et pronè basini plaridula ovali interdum vix conspicua notatis, amentis masculis'' in ramulo breviusculo vel longiusculo cernuis ovalibus obtusis tetragonis eorum bracteis suborbicularibus obtusiusculis subintegris, galbulis in ramulo brevi vel brevissimo erectis vel subcernuis solitariis numerosis subglobosisffusco-violeceis subrufescentibus), glaucedine alba tectis, squamis 6-4 bifariam dispositis infra apicem apiculatis, apiculo brevi latiusculo obtusiusculo patentis,

nucuh 3-4 ovatis oblongisve obtusis obtuse angulatis fuscescentibus. § In edition bus montosis Mexici alt 9000-12 810 ped ad vegetalionis huilem In Monte Coffre de Perote, juxta Pmaliuitepeque (Humb , Bonpl ') ad Mineral del Monte, prope Real del Monte (C Lhrenb ' Hartweg' n 436, Berlandier! n. 1169), Pic d'Onzaba (Linden' Galeotti' n II) — Endl Conif p 29, Carrièr. Conif p 50 , Gord Pin. p 120 Cupressus sabinoides H. B. et K \ov. gen et spec. 2 p 3. Junipeius Mexicana Spr Syst 3. p 909. Sabina tetragona Antoine Conif. p 40 t 53 Frutex 3-6-peddilis Amenta mascula 4 mill vix longa, 1^-2 mill lata. Bractee fuscae, margine albido. Galbuli irregulariter subglobosi, 5 9 mill, longi et fere lati. Nuculae parvae, mteidum exseitae (y v)

27. J. FLACCIDA (Schlecht m Lmnaea 12. p 495), monoica? arbor, tortice mfes cente secedente, ramis ramuhsque teretibus laxis patentibus nutantibus vel penduhs, ramulis gracilibus vindibus, folns ramorum et ramulorum pmario- rum terms, lamulorum secundanoium quadnfanam oppositis omnibus ugi- dis, abasi ad medium fere et ultra adnatis, superne vel apice tantum libens patulis et oblongo-vel hnean-lanceolatis acummato mucronatis pungentibus, supra planiusculis subglaucescentibus, subtus tonvexis laete vindibus et glanduli linean-oblonga notatis, margine acutiusculis albidis, amentis mas- culis in ramulo longo vel bieMUSculo erectis oblongis acutiusculis subquadranguhs, bracteis ovato acuminatis doiso con\exis et subcannatis margine hya- linis integris, galbulis in lamulo galbulo ipso brevioribus erectis vel subcernuis sohUnis sparsis subglobosis vel globoso-ovalibus (e rubro-violaceo fuscis), glaucedme tectis, squamis 6-8 aicte connatis quadnfanam oppositis infra apicem apiculatis, apiculo acuto pungente dellexo demum subobhtherato, nu- culis 6-6 ovatis obtusis angulatis nitidis £ In Mexico alt. 5500-7000 ped. ad Atonilco el Chico (Schiede \*ec. Schlecht), prope Rejfla (G Ehrenb ' Hartweg' 430) et Atsholoya (C. Lhrenb.'), ad Zimapan (Aschenborn'), in montibus provmciae Oaxacae (Galeotti h. Hook'). — Lndl. Conif p 4^5, Carnere Conif \) 48, Gord.' Pin p 3 J. foetida 6 flaccida bpach in Ann sc nat vol 16 p 300 Sabina flaccida Antoine Conit t 49 et ^0 fig. M-T Arboi 20 30 pede^alta, lesinam optimam Sandraccam scatens Folia mi erne ram is ramuhsque adnata fere ut in Frenchs Amenta mascula pdllide lutea, 3-4 mill longa, 1^-1 | mill. lata. Galbuli 11-12 mill longi, 10-11 mill. lati. Squamae gilbulorum immaturoium sub apice grosse et obtuse gibboso-tuber- culatae, infra apicem apiculatae, apiculo acuto mucronato pungente deflexo, sed demum iere laeves unde galbuli laeviuscuh (v v)

### *Species dubix.*

- J. CFRBOSIANUS (Kellogg in Proceed of the Cahlorn Acad of natui sc 2. p 37), arbuscula, ramis honzontahbus patentibusve densis, folns paivis sex- lanam imbncatis adpressis ovatis acutis dorbo glandula oblonga notatis, amentis mascuhs mmutissimis cinnamomeis, galbulis oblongo-ovoideis de- mum obscure tnquetns (fusco-violaceis), squamis b-8 oblongis subpeltatis dorso excentnce prope tertium supenorem mucronatis, mucroe erecto vel raro recurvo, nucuh 3. In Cerros Island Cahiforniae detexit D<sup>l</sup> J. A. Veatch.
- J. PLOCHYDERMA ^Torr in Repert of an exped. down the Zani and Colorado River by Capt. L Sitgieaves p 12 t. 16) Arbor, trunco vahdo humih ramis patentissimis praelongis, cortice aliquot crasso rugoso, sicut in Quercu. In Mexico in montibus Zum (Sitgreaves) Sabina plochyderma Antoine Cupress Gdltung p. 40 t. 52.
- J. \*BA.GFANS Knight Conif p 13.
- J AL&A Knight Conif. p. 13.
- J AQUATICA Roxb Fl ind. 3 p. 839, fruticosa folns solitarns lineanbus disti- chis haud mucronalis Then (song Chin. Habitat ad Cantonem Sinarum, in ^£6cribus incultis oryzeta separantibus Species certe non hujus generis el probabiliter Glyptostrobo vel Taxodio referenda.
- J. PROSTRATA Risso Europ. mend. 2. p 459 Habitat in Europa australi.
- J. HACEMOSA Risso Europ mend 2 p. 459 Habitat in tuiopa australi

*Species exclusx.*

- J. AROMATICA hort. = Cupressus Goveniana Gord.  
 J. CMSik Carr. = Widdringtonia.  
 J. CAPENSIS Lam. Diet. 2. p. 626 = Widdringtonia juniperoides Endl.  
 J. ELATA Roxb. = Dacrydium elatum Wall.  
 J. ERICOIDES Noisett. = Frenela ericoides hort.  
 J. GRACILIS hort. alic[. = Cupressus Corneyana Knight.  
 J. PENDULA hort. aliq. = Cupressus Cornpyana Knight  
 J. PHILIPPSIANA Wall. = Dacrydium elatum Wall.  
 J. RIGIDA Noisett. = Frenela rigida Hort.  
 J. RIGIDA Wall. = Dacrydium elatum Wall.  
 •I. THURIFERA Bonpl. = Cupressus thurifera Kunth.  
 J. UVIPERA Lamb. = Libocedrus tetragona Endl.

Tribus II. TAXINEA Rich. *Mém. Conif. p. 10.* — Ordo Taxacea\*  
*Lindl. nat. syst. ed. 1836. p. 316.* — Ordines Podocarpea? et  
 Taxineae *Endl. Conif. p. 203 et 231.*

Flores dioici vñ raro monoici. Amenta mascula axillaria sive in ramulo brevi vel breviusculo ex axillis foliorum orto terminalia, simplicia vel composita, rarius terminalia, solitaria vel 2-plura fascicuiata. Bracteae antheriferae apice plus minusve dilatatae, interdum peltatae vel semipeltatae. Anthene 2-8, pendula?, subglobosae vel oblongeae, unilocuiare, loculo longitudinaliter dehiscente. Amenta feminea in apice pedunculorum solitaria vel 2-pauca approxiinata aut varie disposita, e rhachide et bracteis interdum carnosis et basi vel totidem adnatis et tunc receptaculum carnosum efl'ormantibus, et involucri simplici vel duplici, nunc abbreviato, nunc pistillum omnino includente, apice tantum pervio, composita. Pistilla erecta aut inversa. Fructus erectus vel inversus, ex involucri simplici aut duplici saepe carnosus bracteisve simul connatis et nucula involucri bracteisve adnata drupaceus vel involucri haud adnato spurie drupaceus aut exsuccus. Pericarpium osseum vel fere osseum. Epi-spermium tenue. Embryo in axi vel in apice albuminis carnosus aut farinaceus, cotyledonibus 2, radícula saepius supera. — Arbores vel frutices resinosae, sempervirentes, interdum excelsae aut giganteae\*. Rami primarii stuppe verticillati.

XXIV. DACRYDIUM *Soland. ex Forst. Pl. escul. p. 80; Lamb. Pin. edit. 1. p. 93; Rich. Conif. p. 127. t. 2. f. 3; Endl. Gen. pl. n. 1801, et Conif. p. 224; Hook. fil. Fl. of New Zealand p. 233, et Fl. of Tasmania p. 357; Carr. Conif. p. 485; Gord. Pin. p. 73; Henk. et Hochst. Nadelholz n. 405. — Allania Colenso in Lond. Journ. of Bot. 1. p. 301. — Allania Sp. veg. 3. p. 890. — Microcachrys Hook. M. in Loud. Journ. of Bot. 1. p. 100. — Microcachrys Hook. M. in Loud. Journ. of Bot. 1. p. 100.*

Flores dioici. Amenta mascula terminalia, solitaria, ovoidea, oblonga, vel cylindracea, parva. Bracteae antheriferae saepe plurimae, confertae, sti-

pitibus brevissimis, apice dilatato, sursum verso. AntheraB 2, uniloculares, loculo subgloboso, extrorsum dehiscente. Flores feminei in ramulo longiusculo recto vel incurvo saepe solitarii, interdum 3-9 in spicam strictam laxam dispositi. Rhachis crassiuscula. Bractee carnosulae, uniflorae Pistillum in media bractea vel prope apicem ejus sessile, inversum, duplici involucro cinctum. Involucrum exteras brevius, et bracteola sohtana efformatum, subcupuliforme, intenus et bracteis 2 margine connatis composition, utnuculiforme, apice in collum brevem vel brevissimum, ore hiantem, production. Ovanum ovoideo-oblongum. Stylus brevis, crassiusculus. Stigma subdilatatum vel subbifidum. Fructus tandem erectus, bractee insidens, involucro extenore laxo abbreviato basi cinctus, intenus laxo carnosulo vel conaceo, ore late hiante. Nucula minuta, ovoidea vel oblonga. Integumentum fere osseum. Embryo in apice albuminis farinosi vel granulati, cotyledonibus 2. — Arbores vel frutices semperviventes, in India orientali, Tasmannia et Nova Zeelandia indigent ramosissimi, ramis saepe pendulis. Folia saepe difformia, acerosa, laxa vel arete imbricata.

1. D ERATUJ (Wall Cat n 604), arbor excelsa ramosissima ramulis corymbosofidistigatis, foliis sparsis laxa vel arete imbricatis, densis elongatis angustissime linearibus tetragonis acutis mucronato subpungentibus, alus brevibus ovatis hinc obtusis muticis vel mucronatis, amentis masculis linearibus cylindricis obtusis, bracteis antheriferis ovatis acutis vel acuminatis, antheris 2 sublobosis, feanais nuculisque in ramulo longiusculo erecto solitariis lateribus, nuculis ovatis obtusis, marginibus denticulatis. In Pulo Penang (Wall n 604) Roxb, Craudich in Singapore (Sir R. Schomburgk) in Borneo prope Sarawak (Blume 1 Beccard) et in Sumatra (Jungh.) — Hooker in Load Journo Botanic 2 p 144 t a, Endl Conif p 226, Blume Rumph. 3 p 221 t. 172 B f 1, et C f 2, Can (onif p 488, Gord Pin p 70, Henk et Hochst Nadelholz p 40) De Borei Conif Arohip ind p 29, D Junghuhnii Miq pi Jung! I p 4 et Fl Ind bat 2p 107 > planta juven Juniperus Philippiana Wall msc 1824 Juniperus nigra Wall in herb, bieb Juniperus elata Roxb. Fl Ind 3 p 838 Lycopodium diboieum Jungh et de Vries in Blume 1 c. Gambur Sumatr Arbor pyramidalis Folia iciculana, 9-12 mill longa, 1-2 mill vix lata Amenta mascula 7-10 mill longa 1-14 mill vix lata, laticia Nuculae 5-6 mill longae, 2-2.5 mill latae, in sicco vinctulae (v s).
2. D BLAGRUI, arbuscula elevatissima, omnia umbelliformi, ramis densis, omnibus dense foliatis, foliis sexfanam dispositis erecto patulis cuivulvis, hinc setatis lateribus acutis mucronato subpungentibus, amentis masculis ... , nuculis in apice ramulorum solitariis. sessilibus ovatis orbicularibus margine obtusis glabris, involucro extenore basi cinctis 5 In summo vertice montis Poe prope barawa in ins Borneo ad 6000 ped elev detexit Beccard qui mini benevole comm Arbuscula 12-1: > peJ alta a D elato coma umbelliformi, ramis crebrius, foliis omnibus conformibus, dense sexfanam dispositis, linearibus, mollibus, et nuculis sessilibus, crassioribus et ovatis orbicularibus failed stingendi Nuculae 3-4 mill, longae, 2-2.5 mill latae in sicco fuscae (v v)
1. D CUPRESSINJM (Soland in Forster' PI ex c p. 80 Poir p 92), arbor excelsa, ramis ramulisque elongatis pulcherrime pendulis, foliis sparsis subdecussatis oppositis squarrosopateniibus vel late imbricatis compresso-tetragonis subulatis mucronato-subpungentibus basi decurrentibus palmbus vinctibus, amentis masculis oblongis obtusis, bracteis antheriferis late ovato-acuminatis, antheris 2 sublobosis, (in masculis nuculisque in ramulo longiusculo apice cernuo solitariis, nuculis ovoideo-oblongis tertio inferiore urceolocinctis) In Nova Zeelandia media australe, sylvas vasuos efformans (Forster! Ledgerbey' Hooker dP aluque) — Limb Pin edit 2. p 117 t. 51, et 3 p 135 t. 69, Rich. Conif. p. 16 t 2 f 3, A Rich Fl Nov Zel p. 361 i A Cunn iti Ann of Nat Hist 1 p 214, Endl Gonif p 225 Hook.

- fil. Fl. of New Zealand p. 233; Carr. Conif. p. 486; Gord. Pin. p. 74; Henk. et Hochst. Nadelhölz. p. 405. *Thalamia cupressina* Spreng. Syst. veg. 3. p. 890. *Rintu* Nov. Zealand. Arbor pulcherrima, 80 pedes (Hook. fil.), 200 ped. (Forster) alta, coma pyramidali, ramis elongatis pendulis. *Kolia ramorum juniorum* longiora, 4-7 mill, longa, £ mill, lata, seniorum 2-4 mill, longa. *Nuculae* 3-3-J mill, longae, 1-H mill, latae, apicem versus apice bracteolarum decussatim oppositarum et aunatarum exasperatae, orè pervio. (v. v.)
4. D. LAXIFOLIUM (Hook. fil. in Lond. Journ. of Bot. 4. p. 143, et in Hook. Icon, t. 815), fruticulus ramosissimus prostratus elongatus gracilis, foliis basi decurrentibus, inferioribus remotiusculis laxe patentibus linearibus obtusis, supra in sicco canaliculatis subtus convexis, supremis brevioribus imbricatis ovatis vel ovalibus obtusis, dorso convexo-carinatis, amentis masculis. . . . ., floribus femineis nuculisque in ramulo longiusculo erecto solitariis, nuculis ovalibus apice mucronatis, mucrone brevi incurvo, basi urcolo cinctis. *fr.lu* Novae Zealandiae montibus Tongariro et Nelson ad 6000-7000 ped. elev. (Bidwill! n. 5 et 133), Haliuine range (Golenso!). — Endl. Conif. p. 225; Hook. fil. Fl. of New Zealand p. 23i; Carr. Conif. p. 487; Gord. Pin. p. 76; Henk. et Hochst. Nadelhölz. p. 406. *Rimu* Nov. Zealand. sec. Bidwill. Fruticulus alpinus, fere Empelri nigri facie. Folia inferiora 21~3 mill, longa, 1 mill, vix lata, suprema 1-£-2 mill, longa, J mill. lata. *Nuculae* rubrae, 2^-.' mill, longae, 2 mill, fere lutae, laeves. (v. s.)'
5. D. COLENSEI (Hook. Icon. t. 548), frutex vel arbuscula, polymorpha, ramis patulis erectis prostratisve, foliis laxe vel arete imbricatis vel undique patentibus, aliis lineari-elongatis obtusis patulis, aliis crassis brevissimis ovato-oblongis obtusis cariarito-trigonis adpressis, nunc in eadem planta nunc in plantis distinctis, amentis masculis brevibus, bracteis antlieriferis ovatis, antheris 2 subglobosis, lloribus femineis nuculisque in ramulo longiusculo erecto solitarie lateralibus, niiculis parvis ovalibus subcompressis mucronulatis, involucre exteriori basi cinctis. In montibus Novae Zealandiae borealis et mediae, Dusky Bay (Menzies), in montibus Tongariro et Rahuine (Colenso!), in montibus prope Nelson ad 4000-6000 ped. elevat. (Bidwill!). — Endl. Conif. p. 226. *Podocarpus?* biformis Hook. Icon. t. 544. (v. s.)
6. D. KIRKII (Ferd. Muell. in litt.), foliis ramulorum sterilium lineari-elongatis obtusis patulis, ramulorum fertilium arete imbricatis lale rhombeis obtusis dorso obtuse carinatis margine scariosis adpressis, nuculis lateralibus parvis ovalibus subcompressis, margine in sicco obtusiusculo et elevato, involucre exteriori brevissimo subnullo. In Nova Zelandia nuperime detexit Th. Kirk (Muell! pi. exsicc). A *Oacrydio Colensoi* Hook., cui valde affine, foliis ramulorum sterilium longioribus et nervo minus prooistente notatis, ramulorum fertilium latioribus et margine scariosis, carina minus prominente, nuculisque haud mucronulatis et involucre exteriori vix nullo videtur satis distinctum (v. s.)
7. D. FRANKLINII (Hook, fil., in Hook. London Journ. of Botany 4. p. 152. t. 6, et Fl. of Tasmania p. 357. t. 100. f. A), arbor excelsa, coma pyramidali, ramis patentibus, ramulis pendulis breviusculis filiformibus, foliis alternis crebre imbricatis adpressis rhombeo-ovatis acutiusculis dorso carinatis viridibus, amaritis masculis cylindraceutis obtusis, bracteis antheriferis ovatis obtusis subdenticulatis, antheris 2 subglobosis, floribus femineis 3-9, in ramulo longiusculo apice subcernuo in spicam parvam linearem brevem dispositis, nuculis minulis involucre exteriori basi cinctis ovoideo-oblongis compressis obtusis mucronatis, mucrone brevi obtuso recto, rj. In Tasmaniae plagis australibus et occidentalibus ad fluvium Huon, ponum Macquarie, alibique (A. Cunningh.! Gunn! Milligan! aliique)..—Endl. Conif. p. 227; Carr. Conif. p. 490; Gord. Pin. p. 75; Parl. Stutlu organogr. sulle Conif. p. 19. t. 5. f. 40-54; Henk. et Hochst. Nadelholz. p. 408. D. Huonense All. Cunn. 1 pi. exsicc. *Huon Pine* Colon. Angl. Arbor 80-100 pedes alta, trunco recto, ligno in architectura navali commeniatiissimo. Amenta feminea stricta, 4-8-raro 3-9-  
flora. Rhachiscrassiuscula. Bractea laxiusculae, carnosulas, subrhombeo-ovatae, dorso carinatae, basi decurrentes, virides, margine vix membrariaceo, paucae inferiores et 2-3 supremae steriles, reliquae fertile. Involucrum exterius

e bracteola sohtana subcupuhiormi eflormatum, postice fissum, ore nregulanter crenulatum, carnosulum, pallide luteum mteriuse bracteolis 2, margine connatis compositum, utnculiforme, subinfiatum, pis ilium mcludnns, apice m collum brevi<sup>^</sup>siraum hiantem, ore subbihdo productum carnosulum, pallide luteum, ore interdum rubente Ovanum solitanum, propp apicem brae teae sessile, inveisum, ovouleo oblongum, liherum, mvolucn inteioiis longitudinem fere aequans Stylus brevis, cid<sup>^</sup>siusculm Stigma obtusurr bidum Nucula pallide lutea (v v)

- 8 D TFTRACONLM fputex prostiatus ramosus, ramu<sup>s</sup> e folns arete imbricalis tetragon is loins arete quddnianain imbricatis squamaeformibus ovatis obtusis dorso tonvexis facie concavis margme scabnusculis amentis masculis ovah-oblongis obtusis ramulo vix lationibus, bideteis antheniens ov ito-orbicularibus obtusis margme erosis et c Uolatis, anthers 2, amentis femmcis in rdmulo longiusculo solitane terminahbus erertis ovalibus obtusis bracteis aide imbricatis mcvivis ovato rhomboideis obtusis, nuculis minutis ovoideis tnvolucio extonon a basi ad medium unctis J In cacumine montium lasman nicp occidentalium (bunn<sup>1</sup> Archei<sup>1</sup>) Arthrotaxis > tetidgoni Hook' Icon t >60 Miucachrys telragGna Hook fil » in Lond Jouin of Bot 4 p hO M of Tasminnu p 3 >8 t 100 B, et Bot Mig t >576, Li dl Conif p 228 Urr Conif p 63, t ord Pin p 134, Henk et Hochst Nadelholz p 40<) Carr in Rev Hort 180G p J69 cum icone Phaefosphjera Hookenana Archei in Journ of Bol 2 p 52 ex pirte Amenta miscula j-4 mill longa, 1-1 | mill lata feminea 4 mill, longa, 2 mill lata, fructifera ex icone Bot Mag videntur majora, carnosuld et lubra (v s)
- 9 D TAXOIDES (Brongn et Gns in Ann des sc nat V<sup>0</sup> scr torn 6 p. 245), arbuscula, comi conica, ramis subverticillatis (Panch), ramis novelhs purpurascensibus, folns alternis approximatis falcatis obtusis, bdsi attenuatis et subcontortis, supra et subtus nervo longitudinali notatis, amentis masculis sohUius vel 3<sup>^</sup> in racemum compositum approximatis axiUanhus terminahbus\p subsessihbus vel in ramulo brevi, bracteis anthenfens *afii,e* subtuangulanbus In syhis montium <sup>^</sup>ovae Caledonia, prope Bdhde (Vieill , n 1219 Deplanche 1860), ad npas paludosa\* montis Cougni dicti (Panch , ann 1866) Podocarpus taxodioides Carr Conif edit 2 p 657 Folia 12-22 mill lon<sup>a</sup>, 2-3 J mill lata (v s sine 11 et fruct)
- 10 B AhaUCAHioiDrs (Biongn et Gns in Ann desse nat 5<sup>''</sup> strie Bot torn 6 p 24<sup>^</sup>) arbor ramoHssinia, ramulis cvectis crassi<sup>^</sup>, folns spirahter dispositis lmbncdtis Lonaceis basi adnatis, ichqua parte libens eiecto-incui vis ovali-oblongis apicb lutundatis dorso convtxo carmalis, amentis masculis terminalibus erectis cylindraccis obtusiusculis, bracteis anthenfeis plunbus plunfanam imbricatis ovato-lanceolatis acutiusculis erectis apice incurvis, dorso corvexis, maigme revolutis, fructibus In andis montis dicti tfowt *Dore* (Pancher) et in montibus Kanala in Nova Caledonia (Vieill ! n 1277) Arthrotaxis araucanoides Biongn pi exsicc Dacrydium arthrotaxoides Carr Conif edit 2 p 697 Amentd mascula 12-11 mill longa, 2'-3 mill latd (v s sine fruct)

*Species excluse*

D PLUMOSUM Don = Libocedrus Donuna LndJ

I) USTUM Vieill = Podocarpus usta

X\V. PHEROSPHERA *Aicher mJoum of Bol* 18 JO, I 2. p 52, *Hook, frl II of Tasmannia p Jo J t 99*

Flores dioici Amenta niacula tcrnnnalia, solitarja, subglobosa, parw Bracteae anthenferaB imbncatae, stipilibus brevissimis, apire dilatato, sur&um veiso Antheras 2, umloculares, locule subgloboso, extrorsum dehiscentcs Amenta feminea in ramulo longiusculo recurvo solitane terminaha Bracteas laxe imbncatae, carnosulae, subnaviculares Pistillum prope basin bracteae sessile, nnico involucro cinctum, involucro utnculi-

foimi, laxo, apice in collum brevem, ore late hiantem, producto. Ovarium inversum, globoso-ovale Stylus brevissimus Stigma suborbiculare, pervium Fructus ovoideus, erectus, involucre cainosulo laxo, margine alato-angulato Nucula inclusa ovah-oblonga Integumentum fere osseum —Fructus prostratus, ramosissimus, iamulise foliis arete quadrifanatis tetragonis, Diselmae Archen et Dicrydium tetragoni ramulos aemulantibus Folia squamaeformia, parva, ovato-rhombica, obtusa, dorso convexo-cannata, margine ciliolata

P. HOOKERIANA (Archib. 1 c pro p) In montibus Tasmaniae prope Lake St Clair (Gunn) Microcachrys tetragona feminea Hook fil in Lund Journ of Bot 4 p 10 P. Hookeriana ejusdem H of Tasmania p 109. Amenta masculina 2-2.5 mill longa 2 mill vix lata, lutea Bractae antheriferae suborbiculatae, magis latae quam longae, margine subdenticulatae \*nidus immaturus 2 mill fere longus, 1-1.5 mill latus Confer ad Dacrydium tetragonum (v b)

XXVI LEPIDOTHAMNUS *Philippi in Lymxa, 30 p 730*

Flores dioici vel monoici? Amenta masculina parva, ovoidea, terminata. Bractae antheriferae paucae, excentricae peltatae Anthod. 2, subglobosae, pendulae, uniloculares, loculo longitudinaliter dehiscente Amenta feminina solitaria, terminata Bractae paucae, inferiores majores steriles, superiora fertiles, uniflora, flore urceolo cupuliformi basi cincto Ovarium sessile, erectum Nucula urceolo cupuliformi basi cincta, apice pervia. — Frutex ramosissimus, ramis confertis Folia minuta, squamiformia, arete imbricata, dorso convexo canaliculata et prope apicem gibba

Characteres a descriptione et nomine in Linnaea allatis desumpti nam plantae, quas possideo, amentis masculinis et femininis omnino caesant Videtur genus Taxo affine sed melius in plantis vivis illustrandum.

L. ONKI (Philippi 1 c p 731) In Chile provincia Valdivia, Colloclava Pedalata (Philippi pro chilensis n 906) et in montibus Archipelago Chilensis dicti usque ad 2000 pedum elevatissimo frequentissimus (Philippi pro Chilensis admittit)

XXVII SAXE GOTHICA *Lindl in Paxt Flow Garden ami 1801 o2 V HI, etw. Journ of the Hort Soc G p 2) 8 cum tcon, Cl (idyll (hii > p 411, Carr Comf p 481, Goid Pin p 100, HenL U Hoc list Nadelholz p 410*

Flores in ramis diversis monoici Masculina Bractea antherifera apice dilatata acuminata, reflexa Anthera 2, unilocularis, longitudinaliter dehiscentes Feminae Amenta in ramulo longiusculo subcapitatae Bractae plures, lanceolatae, inferne connatae, superiores et superiora steriles, 1-2 fertiles uniflorae Pistillum inversum, dupli involucre inclusum. Involucrum extensum laxum, ventre fissum, mlenus apice perivium Fructus cirrhosus, e bracteis simul connatis, apice liberis compositus. Nucula inclusa, inversa (Descript ex Lindl et day)—Arbor chilensis et patagonica, sempervirens, 30 pedes circiter alta Rami patentes subverticillati, subpenduli Folia bipinnata, coriacea, linearia, plana, subfalcata, supra fusco viridia nervo longitudinali munita, subtus juxta nervum longitudinalem vix prominentem utrinque fasciata albida notata, basi fere in petiolum brevem angustata et subconnata. Genus in partibus vivis illustrandum

S. CONSPICUA (Lindl l i e) In provincia Valdivia et Chiloe in nemoribus praeertim humidis sparsim (Lobbl Cl Gay' Philippi) et in Andibus Patagonicis (Lobbi), Saxe-totliae\* conspicua H. de Berr. 7 p 83 cum icon



Cl. Gay! 1. c; Carr. l 1. c; Gord.! 1. c; Henk. et Hochst. 1. c. *Maniu et Pino Chilens.* (y. s.)

XXVIII. PHYLLACLADUS L C. *Rich. Conif.* 129.\*. 3; *Hook. Icon.* 6. t. 549. 550. 551, A. *Rich. Fl. Nov. Zeland.* p. 363; *Endl. Conif.* p. 234; *Hook. fil. VI. of New Zealand.* 1. p. 234; *Carr. Conif.* p. 498; *Gord. Pin.* p. 139; *Henk. et Hochst. Nadelholz.* p. 370. — *Podocarpi sp. Labill. Nov. Holl.* 2. p. 71. t. 221. — *Biownetera Rich. msc.* — *Robertia Rich. msc.* — *Thalamia Spreng. Anleit.* 2. p. 218.

Flores in ramis diversis monoici. Amenta mascula terminalia, 2-plura, fasciculata vel solitaria, cylindracea. Bractee antheriferae plurimae, axi insertae, breviter stipitatae, apice vix dilatatae et sursum versae, dentatae vel integrae. Antherae 2, subglobosae, pendulae, uniloculares, loculo latere longitudinaliter dehiscente. Amenta feminea rhachide carnosae bracteisque alterius carnosae, basi adnatis, superne libens, inferioribus 2-4 fertilibus, unifloris, superioribus paucis sterilibus composita, in spicam vel racemos terminales disposita, floribus basi urceolo cinctis. Ovarium erectum sublentiliforme. Stylus brevissimus. Stigma subbidentatum vel oblique truncatum. Nucula erecta, ovali vel ovato-orbiculans compressa apice stylo et stigmate persistente mucronulata, a basi ad medium urceolo vix incrassato cincta. Pericarpium fere osseum. Embryo in axi albuminis farinaceo-carnosi; cotyledonibus 2, brevissimis; radice cylindrica, supera. — Arbores vel arbusculae, coma stricta. Rami et ramuli pinnati verticillati, horizontales vel patuli, ramuli secundarii distiche alterni vel suboppositi, phyllodinei, phyllodiis conaceis, flabellatim vel pinnatim venosis, folia aliorum Asplenium simulantibus, plus minusve lobatis, interdum confluentibus. Folia minuta squamiformia.

1. P. TRIGHOMANOIDES (Don in Lamb. Pin. edit. 2. app.), arbor, ramis teretibus, ramulisque pinnatis subcompressis verticillatis horizontalibus subdeflexisve, ramulis secundariis distiche alternis phyllodineis, phyllodinis coriaceis rhombo-cuneatis vel obovato-cuneatis penninervis lobato-pinnatifidis sublobatisve, lobis truncatis dentatis, foliis parvis setaceis, amenis masculis pluribus subsucculatis erectis cylindricis oblongis, bracteis antheriferis apice subdilatatis aculis vel obtusis integris dealatisve, antheris 2, amentis femineis in racemos verticillatis patentibus demum patentissimos subdeflexos dispositis, e rhachide carnosae et bracteis alterius carnosae rhachide basi adnatis, 2-1 inferioribus floniferis, superioribus 2-4 sterilibus compositis, stigmatibus subbifidis, fructibus plerumque 2 in glomerulum carnosum aggregatis vel soctatis, nuculis ovalibus compressis margine acutis mucronulatis, urceolo erosodenticulato a basi ad medium cinctis. In insulis Novae Zelandiae borealis juxta Tamesin Bay of Islands, Wangaroa, etc (Banks, Solander, All. Cunningham, Golenso, Hook. fil. 1 Edgerley). — All. Cunningham in Ann. of Nat. Hist. 1. p. 211; Hook. Ic. i. 549. 550. 551; Endl. Conif. p. 225; Hook. fil. Fl. of New Zealand p. 235 excl. syn.; Rich. Conif.; Carr. Conif. p. 499; Gord. Pin. p. 142, Henk. et Hochst. Nadelholz. p. 371. *Tanekaka, Toa-Toa* Nov. Zealand. Arbor se xaginta-pedalis, truncato stricto. Rami et ramuli primarii basi fere nullo modo inorinati et fere articulati. Phyllodia pinnata viridia, dein sordide fuscescens, in ramulis superioribus obovato-cuneata vel obovato-oblonga, sublobata, et prope apicem ramulorum confluentia. Amenta mascula 10-12 mill, longa, 2-2<sup>1</sup> mill, lata, lutea. Bractee in fructu carnosocrassatae, cupulam fere ad basin nuculae erformantes. Nucula 3 mill, longa, 2 mill, lata, fusco-violacea, urceolo carnosulo albo. (v. v.)

(*J. glauca*, phyllodinis inferioribus subtus glaucescentibus. Culta in hortis. *Phyllocladus glauca* b. ort.; Cdr. Conif. p. 502; Gord. Pin. p. 140; Henk. et Hochst. Nadelholz. p. 373.

*Y. alpina*, arbuscula, phyllodinis obovato-cuneatis vel obovato-oblongis

lobatis, racemis femineis abbreviatis, et fere globum carnosum efformantibus. In montibus Novae Zelandiae borealis et mediae (Bidwill, Colenso), ad 6000 ped. elev. (Bidwill) *Phyllocladus alpinus* Hook. fil. *Fl. of New Zealand* p. 235; Carr. *Conif.* p. 501; Gord. *Pin.* p. 139, Henk. et Hochst. *Nadelholz.* p. 373. Uti recte suspicatus est cl. Hookems filius haec est tantum *Ph. trichomanoidis* vanetas alpina.

2. *P. RHOMBOIDALIS* (Rich. *Conif.* p. 130 t. 3. f. 2), arbor, ramis ramisque primariis angulatis verticillatis patentibus, ramulis secundariis distichis alternis vel oppositis phyllodineis phyllodis conatis ex plurimum phyllodiorum conjunctione efformatis rhomboideis vel rhomboideo-oblongis aut subcuneatis incisio-serratis flabellatim lineatis, foliis parvis lanceolato-acuminatis, amentis masculis 2-pluribus fasciculatis vel solitariis parvis cyathaceis obtusis, bracteis antheriferis apice subdistichatis aculeis vel obtusis integris dentatisve, amentis femineis in spicas breves verticillatas patentes dispositis rhachide adnatis, apice tantum liberis, 3-4 inferioribus flonibus, superioribus stenilibus et inter se plus minusve connatis compositis, stigmatibus oblique truncatis, fructibus 2-3 in glomerulum carnosum aggregatis vel solitariis, ruculis ovali globosis corapressis margibus acutiusculis mucronulatis, involucri urceolato crosodenticulato plus minusve a basi ad medium vel ultra cinctis. In *Tasmania* (Labill.), frequens, in sylvis, praesertim in montanis humidis et australibus (All. Cunningham. Hook. fil. Archer' alnque). — C. L. Richard. *Conif.* p. 130. t. 3 f. 2; Endl. *Conif.* p. 235; Hook. fil. *Fl. of Tasman.* p. 358, Carr. *Conif.* p. 500; Gord. *Pin.* p. 141. *Podocarpus aspleniifolia* Labill. *I. Nov. Holl. specim.* 2. p. 71. t. 221. *Sclisbuna Billardieri* C. L. Richard msc. P. Billardien Mirb. in *Mem. du Museum* 13. p. 76. *Thalamia aspleniifolia* Spreng. *Syst. veg.* 3. p. 890. *P. aspleniifolia* Hook. in *Journ. of Bot.* 4. p. 157; Henk. et Hochst. *Nadelholz.* p. 371. *Celery topped Pine* et *Adventure Bay Pine* Colon. Arbor 15-60 pedes alta, coma stneta. Phyllodia *Asplenifolia* similia, e ramis phyllodineis simul confluentibus efformata. Nucula 2 i - 2<sup>^</sup> mill, longa, vix 2 mill, lata, superne fusco-purpurea, inferne albida, urceolo albo. (v. v.)
3. *P. HYPOPHYLLA* (Hook, fil. in Hook. *Icon.* t. 889) arbor vel arbuscula ramis ramisque primariis verticillatis, ramulis secundariis distichis alternis phyllodineis, phyllodis anguste ovato-rhombeis vel ovato-oblongis basi oblique cuneatis fere in petiolum attenuatis crenato-lobatis, lobis oblongis obtusis crenulatis subtus glaucis, lamularum floniferarum obovato-cuneatis profunde emarginatis bilobisve, lobis lobulatis, flonibus femineis in sinu phyllodiorum superiorum sessilibus, ramus in ramulis terminalibus, spiculis brevissimis 2-3-floris (Hook. fil.). In Borneo, Kim Balu ad 8000 ped. elevat. (Low), in monte Pae prope Sorawak ad 3000 p. elev. (Beccan'). *Phyllocladus hypophylla* Carr. *Conif.* p. 501; Gord. *Pin.* p. 140; Henk. et Hochst. *Nadelholz.* p. 372. Arbuscula vel arbor 10-30 ped. alta. vix nota et melius illustranda.

XXIX. *TAXUS* *Tourn. Inst.* p. 362; *Linn. Gen.* n. 1135; *Juss. Gen.* p. 412; *Uich. Comf.* p. 131. 1.1; *Spach Hist. des vig. phaner.* 11. p. 290; *Endl. Gen. pi. n.* 1799, et *Conif.* p. 242; *Carr. Comf.* p. 516, *Gord. Pin.* p. \*uo- Henk. et Hochst. *Nadelholz.* p. 352; *Parl. Fl. Ital.* 4. p. 94. — *Verataxi Nelson Pin.* p. 168.

Flores dioici. Amenta masculina axillaria, solitaria, parva, in ramulo brevi vel brevissimo patula vel cernua aut subpendula, basi bracteis decussatim oppositis involucriata, subglobosa, simplicia, axi apicem versus bracteis antheriferas gerente. Bractea antherifera haud numerose confertae, stipitatae, peltatae, supra in medio umbilicatae, 5-8-lobae. Antherae 5-8, pendulae, subglobosae vel oblongae, uniloculares, postice longitudinaliter dehiscentes. Fl. feminei. Amenta axillaria, bracteis imbricatis cincta, uniflora, flore urceolo brevissimo, cupulsaformi, demum incre-

scente basi cincto Ovanum erectum, ovatum. Stylus brevissimus, cum ovano continuus Stigma orbiculare, pervium. Fructus subdrupaceus, ex urctolo aucto cupulam carnosam efformante, et nucula erecta apice pervia compositus Pencarpium osseum Embryo teretiusculus, in axi albuminis fannacto-carnosi, fere dimidiam eius longitudinem sequans, cotyledonibus 2, brevibus, obtusis, radícula crassiuscula, apice attenuata supera — Arbores vel frutices sempervirentes, in regionibus temperatis et frigidiusculis hemispliaerii boreahs crescentes, cortice in laminas secedente, albarno albido, ligno (an in omnibus speciebus?) rubro Rami sparsi, folns basi decurrentibus anguhti Folia subconacea, n<sup>o</sup>idiuscula, alterna, approximata, subdisticha, lmearia vel ovali-oblonga, saepe falcata, plana, bi eviter mucronulata, basi m petiolum brevem vel brevissimum subcontorti, supra nervo longitudinali et subtus juxta nervum longitudinalem utrmque fascia stomatigera notata

1 r BACCAT\* (Linn Sp pi 1472), arbor vel ftulex ramosissimus, ramis sparsis patentibus, ramulis brevibus subpenduhs, folns approximatis alternis distichis hneanbus falcatis acutis breviter mucron Uis, basi in petiolulo bievem subcontortis, supra dtrovindibus et nervo longitudinali vix prominentemente noUtis, subtus juxta neivum longitudinale vix piominentem utnnque lascia e vindi glaucescente notdtis, margine obtusis vix revolutis, amctis masculis in ramulo brevissimo patuhs vel subpenduhs. axi bracteas propnas subaequante, bricleis antheiliens peltatis sub-7-lobis, antliens sub 7 gemm c proprias perulis late ovatis obtusi-\* dorso convexis, fructibus in ramulo brevi vel brevissimo patuhs subpendulisve, cupula subglobosa nucularum suba. quj. nte vel supeante, nucula ovali apice tere acutd -5 In sylvis Europae centrali\* et austi Uis ab insulis bntanmcis<sup>1</sup> Norvegia<sup>1</sup> Svecia<sup>1</sup> et Rossia media ad Hispaniam<sup>1</sup> Saidiniam<sup>1</sup> Siciliam<sup>1</sup> Graeciam<sup>1</sup> et Caucasum I hinc mde in regione quercuum et fagorum, in regionibus austrahonibus montos adscendens usque ad 1600 ped in Alpibus<sup>1</sup> 4000 ped in Apenninis<sup>1</sup> 4 5000 ped in Pyrcnaei>J 5-6000 ped in montibus Hispaniae austrilions, in insults A/oncis ubi o<sup>o</sup>im frequentissima, nee non in lauro cilitico elev 4000 ped (Kotschy Itr cilic n 422, et Bahnsi<sup>1</sup> pi orient n 811) et in Afnci boreali in raontibus Djurdjura Al<sup>o</sup>enae (in heib Boiss ) in Armenia (Szovitzl n 610) in monlibus Himalayae ubi frcequens id elev 6000 ped (sec Jdcquom ), in Cachemno, in Nepalia et Kamoun (Walhch<sup>1</sup> n 6054 A et B), in Bhootdn (Gnlflthl n <sup>r</sup>>002), inbikkim elev 7 10 000 ped et in Khasia elev 5 6000 ped (Hook ill et lhoms '), prope flum Amur (Maximovicz') Taxus Plin Hist nat cap 16 n 20 H 1 ixus bacciti Rich Conif p 19 t 2, Loud Arb Brit 4 2066 1 19811991, Encycl oi trees 939 f 1751, 1702, Spach Hist deb veg phinAr 11 p 292, Schouw Conif d Italic in Ann des Sc nat Avnl 1840. p 246, Lndl Conif p 241, Carr Conif p 517, Gord Pin p 111, Henk et Hochst Nadelholz p J>2 laxus nucifera Wall Tent. H Nep 44 t 57 exel syn ldxus virgata Wall pi exsicc Taxus Nepalensis Jacquem pi exsicc faxus Wdllichiana/ucc in Abhandl der mathem physie. Klasse derbayr Akadem 3 p 801 t 5 Endl Conif p 244, Can Conif p 524, Gord Pin p 117, et Suppl p 99 Henk et Hochst Nadelholz p J>8 lasso Hal //Gall Yew Angl 2 *ibenbaum* Germ Aibor mediocns vel ingeris interdum fiutex, coma diffusa fusca, cortice cinereo, pnum laevi, demum in laminas secedente albarno albido ligno rubro in Alpibus piaecipue ul paivam bitoloiem supellectilem conficiendum usitatissimo tohaper Mstentia, 18 28 mill longa, 1] 2] mill lata, ludunt acuta acuminata vel obtusiuscula, semper breviter mucronata Amenta mascula 6 7 mill longa, J null lata corum bricteae in coipusculum subglobosum dispositae axim fere dequantas Biactearum antheilferuum lobi 7 6 tructus 8 11 mill longus 9 12 mill latus Cupula carnosae, rubra Nucula ohvaceo fusca, punctulata, 6 7 mill longa, 4 4] mill lala (v v.)

Plures exstant in hortis vanetates, loins vanegatis, aureis, argenteis, Taxus baccata variegata auiea, vanegata alba et aigentea, elegantissima hort, ramis hQnzontalibus, Taxus baccata horizontals, ramis horizontalibus apice

pendulis etramis pendulis, Taxus baccata Dovastonn, Tacksonn, recurvata et pendula hort, rami\* erectis, Taxus baccata pyramidalis et subpyramidalis hort, ramis fistigiatis folnsque sparsis longionhus, laxis baccata fastigiata hort, Taxus hybernica Mackay H hybein p 260, nana, monstruosa, cupula lutea, ahaeque varns nomimbus ab hortularns insignitae

- 2 1 GLOBOSA (Schlecht<sup>1</sup> in Linnaca U p 496), arbor mediocns, folns subappoximatis alternis distichis lincanbus falcatis planis mucronato cuspidatis, basi in petiolum breviusculum subcontortis, supra nervo longitudinalinah prominente i otatis subtus juxta nervum longitudinalem vix piommentem utrtm que in sicco vix sulcatis, marginibus vix revoluiis, amentis masculis in ramulo brevissimo patuhs? axi bracteas propnas subaequante, bracteis anthenfens peltatis 6 7 lobis, anthens 6-7, fructu 5 In Mexico in Monte Real del Monte et terro de las ISabajas (C Lhrenb<sup>1</sup> n 817), in Mexico (Haitweg!<sup>1</sup> n 4J8), in provincia Vera Cruz (Linden<sup>1</sup> n 7), Oaxaca (Gunningh<sup>1</sup>) Arbor 20 ped altasec C Hirenb Folia 20-33 mill longa, 2<sup>^</sup> 2 \$ mill lata. Amenta mascula 4 5 mill longa, 2<sup>^</sup> 3 mill ldtā (v s ;
- 3 T. CANADENSIS (Willd Sp pi 4 p 856), frutex ramosus, ramis erecto patulis apice subpenduhs, foil is brevibus subapproximalis altornis distichis lineanbus subfalcatis planis mucronato cuspidatis, basi in pctiolum hrevem subcontortis, supra atiovindibus et nervo longitudinal! notatis, subtus juxta nervum longitudinalem prominentem utnnque fascia e vindi-gliuccscente notatis, marginibus acutiusculis subrevohitis, amentis masculis in nmulo brevissimo patulis subpendulisve, axi bractpas propnas <equante, bracteis anthenfens peltatis sub-5-lobis, anthens 5, fructibus in ramulo brevissimo vel brevi patulis subpendulisve, cupuli nuculam subaequante nuculis ovatis apice acutis punctulatis <5 In rupestnbus et umbrosis Amcncae borealis a Canada ad Mary landiam et Virginiam (Michx Muhlenberg<sup>1</sup> Kinn<sup>1</sup> Canby<sup>1</sup> ilnque) — Pursh H Amenc sept 2 p 647, bpach Hist des v(£ phin6i 11 p 295, Endl Comf p 243, Carr. Conif p 522, Goid Pin p 314, Henk et Hochst Nadelholz p. 357 laxis baccata minoi Michx M Amenc 2 p 245 T baccata Hook Fl Boi Amer 2 p 167 ex parte 1 procum\*jens Lodd. Cit 1836 p 67 Prutex saepe humilis tohi 11 20 mill longa, || 2 mill lata Amenta mascula 4 5 mill longa, 2] mill lati Hiactearum anthenferarum lobi 5-4 Nuculas 7 mill longaB, 41 mill latae (v s)
- 4 T. BRVFIFOLIA. (Nutt Sylv 3 p 86 t 108), arbor, interdum excelsa, ramis erectis vel erecto patulis, ramulis patulis subpendulisve, folns brevibus subapproximatis alternis distichis lincanbus subialcatis plants abrupte rucronatis, basi in petiolum hrevissimum subcontoitis, supra e vmdi luteolis et nervo longitudinali piominenti notatis, subtus juxta nervum longitudinalem vix piommentem utnnque fascia e vindi luteolapallidi notatis, maiginibus obtusis subrevolutis, amentis masculis in ramulo brevi ceinuis vel subpendulis, axi brdtctas piopms subduplo superante, bracteis antlieiifens ptUatis sub-6 lobis, inthens sub 6, Iructibus ovalibus margine supeine acutis mucronatis, mucrone obtuso ^ In Amcuci boroah occidentali piaepuc in montibus ad fluviorum upas vel in sylvis cum Pinuum spciebus mtermixta ^ In California (Hartwegi n 1973, Bridges<sup>1</sup> n 288, Bigelow<sup>1</sup> Bouisier), in ville Willametto (Newberry), Devil s C inon (Bolande-'), in montibus Scopulosis (Nutt) Cascade Mountains (LylM) prope fl Columbia (Dougl), in insuh Vancouver (Lyll) — Newberry in Williamson's Repoit p (>0 fig 26 sed flores mascul non exacti T. baccata Hook Mor Bor Amenc 2 p 167 ex parte T Lindleyana Murr in Edinb New Philos Tourn 1855 p 294, Lawson Catal. 1855 p 15, Carr Conif p 523, Gord Pin p 31b, Henk et Hochst Nadelholz p 360 1 Boursien Carr Hev Hortie 1854 p 228, ot Conif p 523 Western Ieto Angl Amenc Arbor 40-60 ped sec. Nutt, 50 7 > ptd sec Newberry, 15 25 ped sec Bolander alta, cortice fusco in laminas secedente bo lia 12-20 mill longa, 2 mill fere lata, petiolo brevissimo lutco. Amenta mascula 7-8 mill longa, 2-2 J mill lata Axeos pars interior bracteis propms duplo longioi, qua nota ab affini 1 Canadensi lacile distinguitur Iobi bracteae anthenferas plerumque 5-6, interdum 7-8 Fructum maturum non vidi (v v)

- & T COSPIDATA (Sieb. et Zucc Fl Jap Fam. Dat 2 p. 108, ettl Jap. t 108), arbor mediocns, folns approximatis alterms subdistichis linearibus rectis vci vix falcatis planis abrupt<sup>0</sup> mucronatis, basi in petiolum breviusculum subcontortis, supra convexiusculis vindibus et nervo longitudinali piominenti notatis, subtus juxta nervum longitudinalem parum prominentem utnque fascia e vindi luteola notatis, margmibus obtusis surreflexis, amentis masculis, cupula, nuculis ovato-orbicularibus utnque convexis margine apicem versus acutiusculis vix mucronulatis punctuldtis In Japonia in Insula Jezo uln videtur culta, Iokoham (Miximovucz') — Fndl Gonif p 243, Carr Gonif p ^23, Gord Pin p 315, Henk et Hochst Nadelholz p 358 *Ararap* Jipon Arbor 15-20 ped lltid lcolid 18-33 mill longa, 23 3 null lata, petiolo luteolo
- 6 T TARDIVA (Laws ex Henk et Hochst Nadelhol/ p 3G1), frutex an arbor' iamis subverticillatis hon/ontabus vel pitentissimis ramulis subdistichis subpcnduh<sup>^</sup>, folns lterms suhappiovimatis ovah-oblon<sup>^</sup>is \el oblongo hnearibus rectis plinis utnque obtusis mucroiatis, basi in petiolum bievem subcontortis bievibus, supra trovindibus lucidis et neivo lon<sup>^</sup>itudinali piomnente notatis, subtus juxta nervum longiitudinalem vix pronum nteni utiunque fascia e vindi-glaucescete notms, margmibus obtusiusculis amentis masculis . ...j cupulanuculamaequante, nuculis obovato compressis vci obovato-tnquetris subretusis apice mucnatis mutrone crassiusculo pir\o punctulatis In Japonia (-Mcbold) — Knight Conif p Si Cephalotixus tardiva Sieb msc Fndl Conif p. 239 *Taxus baccata* adpressa Rev Hort 18>S p <H f 8 T baccata microphylla Jacques, ( arr Conif p 161 T panifoja Wendvorth Conif p 42, Henk et Hochst \adel< Iz p 361 T adpressa et breviolia hort Folia 6-10 mill longa, lj-3 mill lata, petiolo concolon Fructus brae teas latissime orbiculaies, palhdo vindes, cupula jzloboso cimpanulata, ruhra Nucula fusco-violacea 1 lanta in Japonia mehuf intestiganda et forsm Faxi cuspidats vine las loins hrevionbus nam in 1 amis eiusdem plantae folia vidi brevia, ovaha vel ovah oblonga, et lineana, falcata vel sublalcata, 23-26 mill longa ^v v pi fem )

*Species dubia.*

- 1 MONTANA Nutt in Journ Acad Philadelpb 7

*Species exclusx*

- 1 BACCATA fhuuh = Cephalotaxus drupacea Sieb. et Zucc  
 T FALCATA Thunb = Podocarpus filcata H Brown  
 T HARRINGTONIA Knight = Cephalotaxus pedunculata Sieb et Zucc  
 T INUKAJA Knight = Cephalotaxus peduncul Ua bieb et /ucc  
 T LATIPOLIA Thunb = Podocarpus rhunbergu Hook  
 T MACROPIVLLA Banks = Podocarpus Thunbergu Hook  
 T NUCI\*ERA hort = Glyptostrobus heterophyllus Endl  
 r NUOIFERA Linn = Torreya nucitera Sieb et Zucc  
 T TENUIFOLIA Wickstr = Podocupus cornea Rich  
 f TOMLNTOSA Thunb = Grubbia rosmainifoja Borg  
 T. YERIdLLATA Thunb. = Sciadopytis veitioillata Sieb et Zucc

XXX CEPHALOTAXUS Sieb et /ucc in Fndl Gen pi supp 2 p 27, Fndl Conif p 217, Carr Conif p 507, Gord Pin p 44, Henk et Hochst Nadelholz p 361, Nelson Pin p 166 —Taxi spec Thunb 11 Japon p 275.

Flores dioici. Amenta masoula axillam in ramulo brevi vel longiusculo, saepe superne inciassato, bracleis decussatim oppositis vel bubternatim imbricatis tecto, supremis majonbus, cernua \el pen-

dula, subglobosa, composita, axi ramoso, teretiusculo, amentulis 6-9, subglobosis, basi bracteola suffultis. BracteaB antheriferae stipitatae, apice vix dilatata. Anther® 2-3, quarum 2 laterales et altera, si adest, antica, e basi partis bractee assurgentis pendulae, oblongaB, obtusae, uniloculares, postice longitudinaliter dehiscentes. Amenta feminea in apice ramulorum 1-3 approximata, composita, amentulis 1-5, basi bracteis imbricatis involuata, in stipite amentulis ipsis brevior vel subaequali, subquadrangulo subcapitata. BracteaB pistilliferae 8, decussatim oppositae, prope apicem stipitis approximatae, erecto-patulae vel adpressaB. Pistilla sub quavis bractea 2, axillaria, collateralia^sessilia, erecta, superne diver^centia, urceolo carnosulo, ovato, compresso-lenticulari, apice pervio inclusa, plerumque abortiva. Ovarium parvum, subglobosum. Stylus subnullus. Stigma fore orbiculare, late pervium. Fructus drupaceus ex urceolo crasse carnosulo, adnato, clauso et nucula compositus. Pericarpium osseum, laBve. Testa tenuis, albumini adhaBrens. Embryo teretiusculus, parvus, in axi albuminis carnosulo; cotyledonibus 2, brevibus, obtusis, radícula cylindræa, supera. — Arbores japonicae et chinenses. Kami primarii verticillati, horizontales vel patentissimi, secundarii suboppositi, distichi, patentissimi vel subpenduh, foliis basi decurrentibus subangulati. Folia rigida, approximata, altei navel subopposita, subdisticha, linearia, recta vel subfalcala; plana, cuspidata vel mucronata, basi in petiolum brevissimum subcontorta, supra nervo longitudinali exquisite prominenti et subtus juxta nervum longitudinalem prominulum utrinque fascia glaucescente vel albida notata.

1. *C. PEDUNCULATA* (Sieb. et Zucc. Fl. Japon. Fam. nat. '2. p. 108 et Fl. Japon. 2. t. 133), arbor, ramis sub-4 verticillatis, patentissimis, ramulis subdistichis patentissimis vel subpendulig, foliis rigidiusculis sub'ipproxiraatis alternis subdistichis linearibus subfalcatibus acuminato-mucronatis basi in petiolum brevissimum subcontortis, supra vindibus et nervo longitudinali prominenti no tat is, subtus juxta nervum longitudinalem vix prominulum utrinque fascia albido-glaucâ notatis, marginibus obtusiusculis vix revolutis, amentis masculis in ramulo longiusculo amentum ipse subaequante biacteato, bracteis decussatim oppositis pendulis subglobosis, amentulis sub-7 ovalibus subrotundisve, bracteis antherifens apice vix dilatatis acutis bkidisve, antheris 2-3 oblongis obtusis, fructibus.... 5 In Japonia (Siebold). — Endl. Conif. p. 238; Can\*. Conif. p. 508; Gord. Pin. p. 47; Henk. et Hochst. Nadelholz. p. 362. *Taxus Harnngtonid Knight* ex Pin. Woburn. 217. t. 03; Loud. Encycl. of trees p. 942. f. 1753-1754- *Taxus Inukaja Knight* Conif. p. M. Arbor 20-25 peâ. Rita. Folia 5-7 7 cent, longa, 4 mill, fere lata. Amenta mascula 8-9 mill. loni?â ct fere lata. Amentuld basi bractea ovata, acutd vel apice obtusa et subdilatata, concava, albida, amentulum ipse aubaequante sufTulta Bractee antheriferae paivae, basi an^ustalae, liberae et iere horizontales, apice ascendentes, plus minusve manifestis, acutae aut bifid as. Antherae pallide luteae. (v. v.)
2. *C. FORTUNEI* (Hook.! Bot. Magaz. t.4499), arbor, ramis verticillatis horizontalibus subpendulisve, ramulis subdistichis subpendulis, foliis ngidmsculis subapproximatis alternis vel suboppositis subdistichis lincari-lanceolatis subfalcatibus acumnidto-cubpniatis subpungentibus basi in petiolum bieviissima subcontortis, supra vindibus et nervo longitudinali piominenti notatis, subtus juxta nervum longitudinalem vix prominulum utunque fascia albida notatis, maigmibus obtusiusculis baud revolutis, amentis niasculis in ramulo brevi bracteato patulis subglobosis, amentulis pan is suliglobosis, biacteis antheriferis parvis acutiusculis, anthens 2-3 fere oblongis obtusis, fructibus 2-3 in quoque ramulo ovah-oblongis aj'ice breviter mucronatis, nuculis oblongis utrinque acutis marginibus obtusiusculis. 3 in China boreali (Fortune! n. 43-44). — Carr. Conif. p. 509; Planch, in Flor. des berr. 6. p. 51. t. 555; Gord. Pin. p. 46; Henk. et Hochst. Nadelholz. p. 364. Arbor 40-60

pedes alta Folia 4-6  $\frac{1}{2}$  cent longa, 4 4 ] mill lata Amenta mascula minora quam in C pedunculata, ramulus amentis ipsis 2-4-plo brevior Fructus 22 23 mill longi, 10-12 mterdum 15 mill lati, pnnum glauci, demum ohvaeo fusci (v v)

- 3 C DRUPACEA (Sieb et Zucc Flor Japon 1 am nit 2 p 108, et Fl Japon 2 t 130 131), arbor, lamis 3-i verticillatis hori7ontah1bus, ramuhs subdistichis subpendulis folus ngidiusculis approximitis alternis subdistichis lmeanbus vel hnean-falcatis cuspidatis basi in peliolum brevissimum subcontortis, supra vindibus et nervo longitudinali prominenti notatis, subtus juxta nervum longitu linalem vix prominentem utrinque fascia glaucescente notatiaQ margmibus obtusiusculis haud revoluiis, amentis masculis in ramulo brevi bracteato, bracteis subternitim imbricatis subpendulis subglobosis, amentulis 6 8 p irvis subrotundis, biacteis ai thenfens apice clongatis, an thens I 3 oblongis obtusis, fructibus drupaceit plerumquc solitarns penduhs ovdlibub obtusis bisi paullo angustatis, nuculis oblongis utrinque acutis marginibus acuti>>simis i \n j\_aP nia j)\_roPP Nangasaki culta et spontanea (Siebold, R Oldham I Maxim ') et in montibus usque ad 2000 ped elev (Siebold), in montibus Kimagona (Veitchl), in insula Tsusima (C Wilfoid') — Endl Comf p 2V), Cair Conif p MO Gord Pin p 45 et Suppl. p 21, Henk et Hochst Nddelliol/ p Mid laxus bdcita Thunb Fl Japon. p 275 excl syn C. Foitunei lemma hort aliq Podocirpus diupacea hoit aliq Kja Raboitu, it Momi no hi Japon Arbor 20 )0 pod alta, coitice fusco, secedente Fohn 20 45 mill longa, 2 J{ mill lata, petiolo subconcolon Amenta mascula 6 7 mill longa et fere lata, ramulo longiora Antherae luteae. Fructus rubro fusci, 22 30 mill longi, 14 18 mill lati (v v)

*Species dubix.*

- 4 C UMBRACULIFFRA (Sieb msc inTndl Comf p 239), ramis verticillatis horizon tali bus ramulis bubdislicns suboppositis patentissimis vel subpendulis, folus rigidis ippioximatis suboppositis subdistichis lineanbus vel hnean subfalcatis cuspidatis bisi in pen lum bievissumum subcontortis, supra vindibus et nevo longitudinali angusto prominenti notitis, subtus juxta nervum longitudinaline obtuse prom nulum uinnque fascia glaucescente notdtis maigini-bus obtusis subrevolutis, amentis misculis in ramulo amento ipso breviora cernuo bncteat, bracteis ^ubternatim imbricat s penduhs subterminahbus subglohosis amentulis 7 ^) subglob >sis, bracteis inthprifens apice acutis vel .icuminatis anthers \ 2 ob ongis obtusis, iuctibus in Japorna (Sieb ) — Nadelh fan Conil p )IO, Gord Pin p 47, Henk et Hochst p 364 \*olia2-5 rent longa 3 mill vix lata Amenta mascula in planta juim tantum vidi flonfeiam pauca, m apice ramulorum subtern main, basi bricteis ovatis, acutis dorso caiinalis, concavii, albidis fero mvolucratd Anthers pallule luteae fructus ex cl Gordomo fere nucis magmtudine, ovaes, acuti (v s)
- 5 C SUMATRANA (Miq Ind bat 2 p 1076), arbor folu\*. subdistichis, pctiolo brevissimo decurrente, hneanbus acutis, subtus valide uninervus et dense stomatifens, gemmis sessilibus peulatis, peiulis extimiscannatis, flonbus , fructibus -5<sup>ln</sup> Sumatra occid ad I ort de Kock, vensimiliterad 3000p elev (Teysm ) — De Boer Comf Archip Ind p 32 species ramul tantum nota

XXXI TORRrYA/imoM in Ann of Natur History 1 p 126, Hook Icon vol 3 e 2 \2 2H Endl Gen pi suppl 2 p 27 et Comf p 240, Carr Comf p 511, Gord Pin p U6 —Podocarpi pec Pers Syn 2 p 6J3 — Caryotaxus Zuccar msc , Henk et Hochst Nadelholz p 365 — I oetataxus Nelson Pin p 167

Flores dioici Amenta mascula axillana, solitana parva, subsessilia, bracteis propriis decussatim oppositis involucrata, subglobosa, simplicia, axi apicem versus bracteas anthenferas gerente BracteaB plures, confertap, stipitataB, semipeltatae. Antherae 4, e margme extenore pendulas, oblongse, postice longitudinaliter dehiscentes. Amenta femmea axil-

laria, solitaria, gemina vel terna (Endl.), bracteis imbricatis cincta, uniflora, flore urceolo carnosulo apice pervio incluso. Ovarium erectum, inclusum, urceolo basi adnatum, ovatum. Fructus drupaceus ex urceolo carnosulo-fibroso, demum clauso et adnato et nucula compositus. Peiicarpium osseum, urceolo adnatum. Testa membranacea, albumine carnosulo, fere ruminato adhaerens. Embryo parvus, teretiusculus, in axi albuminis, cotyledonibus 2, linearibus, radícula teretiuscula, supera. — Arbores semper virentes, in America boreali calidiore et in China et Japonia indigene. Rami plerumque verticillati et ramuli suboppositi, patentissimi vel subpenduli, foliis decurrentibus angulati. Folia coriacea, rigida, alterna<sup>7</sup> disticha, e basi rotundata lineari-lanceolata, recta vel subfalcata, supra convexiuscula et enervia, subtus juxta nervum longitudinalem complanatum utrinque sulco levi angusto notata, cuspidato-mucronata, pungentia, basi in petiolum brevissimum subcontorta. Amenta feminea melius in plantis vivis illustranda.

1. T. GRANDIS (Fortune! in Gord. Pin. p. 326), arbor excelsa, ramis verticillatis patentissimis, ramulis suboppositis patentissimis vel subpendulis, foliis coriaceis rigidis alternis approximatis lineari-lanceolatis rectis vel vix falcatis brevibus cuspidato-mucronatis pungentibus, basi in petiolum brevissimum subcontortis supra convexis viridibus nitidis, sulco longitudinali levi vix notatis, subtus juxta nervum longitudinalem complanatum et viridem utrinque sulco levi angusto notatis, marginibus obtusiusculis, fructibus ovalibus acutiusculis late lacunoso-reticulatis. 3 In China; borealis montibus Che-kiang (Fortune!). *Caryotaxus grandis* Henk. et Hochst. *Nadelhölz.* p. 367. *Fitchou* Chin. Arbor 60-80 ped. alta, coma umbraculifera (Fortune). Folia in specimine Fortuneano 1ft-18 mill, longa, 2 J- mill, lata, sed in plantis culta 18-30 mill, longa, 3-4 mill. lata. Fructus juniores parvi, ovati, acutiusculi; maturi vero ovales, 28-30 mill, longi, 16-18 mill, lati, extus fere lacunoso-reticulati. (v. v.)
2. T. NUCIFERA (Sieb. et Zucc! *Fl. Japon.* 2. t. 129), arbor mediocris, ramis verticillatis alternisque patentissimis, ramulis suboppositis subdistichis, foliis coriaceis rigidis solitariis remotiusculis patentibus subdistichis lineari-lanceolatis, rectis vel subfalcatis cuspidato-mucronatis pungentibus, basi in petiolum brevissimum contortis, supra convexis atroviridibus et nitidis, subtus juxta nervum complanatum et viridulum utrinque sulco levi angusto albido notatis, marginibus obtusis viridibus, amentis masculis . . . . ., fructibus ovalibus vel oblongis acutis longitudinaliter substriatis. 5 In montibus insularum Nippon et Sikok Japoniae ubi etiam culta. Sieb. et Zucc. *Fam. nat.* 2. p. 108; *tendl. Conif.* p. 240; *Can\**. *Conif.* p. 112; (*lord. Pin.* p. 328, et *Suppl.* p. 208. *Fi*, vulgo *Ka/a*, *Taxus nucifera* Kaempfer *Amosn. exot.* p. 814-815 cum icon. *Taxus nucifera* Linn. *Sp. pi* p. 1472; Thunb. *Fl. Japon.* p. 275; Gaertn. *de Fruct.* 2. p. 65. t. 91; Rich. *Conif.* p. 21. t. 2. f. 3 non Wall. *Podocarpus? nucifera* Pers. *Syn.* 2. p. 633. *Caryotaxus nucifera* Zuccar. *msc.* Henk. et Hochst. *Nadelhölz.* p. 366. *Foetataxus nucifera* Nels. *Pin.* p. 168. *Podocarpus Coreana* Van Houtte? Arbor 20-30 pedes alta. Folia 20-30 mill, longa, 3-4 mill. lata; Fructus oleosi, 21-35 mill, longi, 14-16 mill, lati, fere cinnamomei, saepe leviter longitudinaliter striati, apice plus minusve acuti basi mucrone brevi praediti. (v. v.)
3. T. TAXIFOUA (Arnott in *Tayl. Ann. of Nat. Hist.* 1. p. 130), arbor, ramis verticillatis patentibus, ramulis suboppositis subdistichis, foliis coriaceis rigidis solitariis approximatis patentibus subdistichis lineari-lanceolatis cuspidato-pungentibus, supra convexiusculis viridibus et nitidis, subtus juxta nervum complanatum et viridulum utrinque sulco levi angusto albido notatis, marginibus obtusis viridulis, amentis masculis subsessilibus subglobosis, a basi ad medium perulis ovatis mucronatis carinatis involucrentibus, fructu ovali acuto. ^ In Florida media in rupibus calcareis ad ripam orientalem Appalachae prope fluvios Flint et Chattahuchi confluentes nec non ad Flat Creek Appalachae et AspalagaB (Torr. *Rugel!*). — Hook. *Icon.* t. 232-233; Endl



Comf p. 941, Nutt. North Amenc Sylv 3 p 91 t 109, Carr Comf. p. 514; Gord Pin p \*29 Caryotaxus taxifoha Henk et Hochst ISadelholz. p. 367 excl ab omnibus syn Taxi montdne Nutt Foetataxus montana Nelson Pm. p 167 Torreya montana hort Arbor medicns, 20 40 ped alta Folia 22-30 mill longa, 2-2 | mill lata Amenta mascula in axillis folioium solilana, valdeapproximatd, 8 mill longa, 3 mill Uta, palhde lutea Fructus 20-24 mill, longus, U 16 mill. Iatus (v s)

- 4 T CALIFORNICA (Torr in New York Jo urn Pharm 3 p. 49, et Whipple's Report p 84) arbor, coma p>ramidali, ramis verticillatis honzontahbus penduhsve, ramuhs suboppositis subdistichis subpenduhs, folns conaceis ngidis solitarns appioximatis pitentibus subdistichis Imean Idnceoldtis acuminato mucronitis pungeniibus, hisi in petiolum brevissimum contoitis, supra oomexiusculis virulibus et nitichs, subtus juxta nervum longitudindlem haud prominentem  $e_L$  vuidulum sulco levi angusto dlhido notatis, marginibus obtusis subr^flexis vindulis, amentis masculis subsessihbus oblongis, a basi ultra ad medium perulis orbicularibus concavis mvoLucratis, fructu magno ovali ^ In California\* montihus (Shelton qui primus detexit), in editis Sierrae Nevadae (Lobh' Bigelow'), m montibus man hmtimis prope San tiacisco ubi potius rara sec Newberry, in California (Bolandeii) — Newberry in Williamson's Report 6 p 61 t 27 T Mynstica Hook i Bot Migaz 1854 t. 47-80, Flor dcs serr 0 p 175 t 92^, Carr. Comf p S15, Ooid Pm p. 327 Murr Notes upon Califoin Trees part 1 p 7 t 3 Caryotaxus Mynstica Henk et Hochst Nadolholz p 168 Foetataxus Mynstica Nelson Pin p 168 *Cahfornian Xulmcq* Angl Arnenc Arbor 40-80 ped alta Polia in plantis juni nbus 5 6 cent longd, ) Jj mill lata, m idultis 3 'i cent longa, 2 J 3 mill lata, in rimulis supenonbus lo 20 mill longa, 2 mill feie Uta Fructub 28 40 mill longi, 2 cent lati, apice mucione brevi putditi (v v)

### *Specks exclusa.*

T HUMBOLDTII Knight = Podorarpus taxifoha Humb et Bonpl

XXXII GINKGO *Kaempfer. Amoen exot p 811, 813 cum icon, I inn Want 2 p )H 314 —Sahsbuna Smith m Lmn Tians 3 p 330, Rich Comf p 133 t 3 et I Ins Endl fan pi n 1803, a Comf p 23b, Carr Comf p. 503, Cord Pm p 2^8, llenk et Hochst badclholz p 37} — Pterophylus Nelson Pin p 16 J*

Flores dioici Ament i mascula in apice ramorum abbreviatorum 3-6, subveiticillata, pedunculata, laxa, subrcflexa, oblongo-lineana, singula ex axilla bractee sive perulaB amplaj conca\ ae scai losae erumpentia, foliorum juvenium fere \erticillum mcludentia BracteaB antbenfeiae plunmae, confertae, subhizontales, longe stipitdas, apice vix dilatatae Antheras 2, e bractearum apicis facie postica pendulae, demum divancatae, oblongaa, obtusubculas, uniloculares, loculo postice longitudinaliter dehiscente Fl feminei in pcdunculissimhcibusvel apice bi tnfidisfasciculatis, sursum crassionbus et apice in discum subcupulaefoimem productis soh-tane terminales. Urceolus carnosus, subglobosus, depres&iusculus, apice pervius Pibtillum eiectum, inclusum Fructus drupaceus, subglobosus, urceolo camosjO vix adnato et nucul i compositus Nucula ovata, acutiuscula, marginibus acutis Pencarpium osseum bemen a basi fere ad medium pencarpio adnatum. Testa tenuis tmbryo cylindraceus, m axi albuminis carnosi, ejusdem fere longitudinis, cotyledombus 2, longis, crassiusculis, obtusis, intus sulco lon^itudinah notatis, radícula brevissima, mcrassata, supera Saepe embryones 2-3in quoque semme (Endl.). —Arbor in China indigena et in Japonia passim cu lta, trunco stneto, coma pyramidah. Rami verticilati, patentes, secundarn penduli. Ramuli al-terni, breves, tuberculiformes, apice foliferi. Folia 3-5, verticillata, patula,

conacea, late subrhomboideo-flabelliformia, in petiolum longmsculum, supra planiusculum subtus convexiusculum et basi submcrassatum angustata, Inciso-biloha vel irregulariter crenato-lobata, flabellatim nervoso stnata, supra vindia, subtus stomatibus praedita et subglaucescentia.

1 G BILOBA (Linn 1 c ) In fhma hinc inde aci terapla et in Iponia ubi culta — Thunb H Jap p 3)8, Gouan Descnpt du Ginkgo biloba Montpell. 1812. cum icon Jacq fil Ueber den Ginkgo in oesterr Med Jahrb 1819 cum ic , De C in Bihl Univ de Geneve 1821 vol 8 p 130, Delile Premiere re'colte des fruits du Ginkgo du Japon en France in Bullet de la Soc d'Agnc du He>dultNov etDec 181> Ginkgo vel Gin an, vulgo Itsjo Kaempf 1 c Salisbuna adianthifolia Salisb 1 c , Rich 1 c , Bungp Enum pi Chinas bor p 62 Loud Arbor Bnt 4 2(H4 f 1992 Sieb et Zucc Hor Japon Fam nat 2 p 109, Fl Japon t HG, Carr 1 c Goid 1 c Hank et Hochst Nadelholz p 374 Pteiophyllus Ginkgo Nelson Pin p 1|^rbor excelsa, 80-100 ped. dlta Amenta mascula 15 2> mill longa 6 mil^Ji Bracteaum anthenferarum apex vindulus Antheiae luteae Fruttus 3 cent fere longus, 26-28 mill latus Nuculd 20 2o mill longa, 14-17 mill lata ( v v )

XXXIII PODOCARPUS L'Hent msc , Kunth in Ilumb et Bonpl Nov Gen et sp I p 2, Rich Conif p 124 Endl Gen pi p 262 n 1800, et Comf V 206, R Brown in Vonf Plant Jav Rai p 37, Carr Conif p 436, eted 2 p 643, Gord Pm p 2fa8,/len/c et Hochst Nadelholz p \*77 -Taxi species Thunb Willd — lumpen species Roxb Paion — Nageia Gaetrn de Fruct 1 p 191 t 39, Gord Pm p 130, Carr Conif ed 2 p 635

Flores dioici vel ranus m ramis diversis monoici. Amenta mascula terminaha vel saepius axilliria, sohtana aut plura in pedunculo comnium fasciculata, basi bricteata autnuda, cyhndracei, obtusa, crassiuscula vel fihformi-graciha Bracteae antbenferas plunmae, confert33, stiptibus brevibusvel brevissimis, apice pirum vel vix dilatatae Antheraa 2, uniloculares, loculo subgloboso exirorsum dehiscente Flores femmei pauci, spicati, spica ranssime hxa, saepissime abbreviata, 1-2-flora, tracteis saepius cum rhachide carnosae evolutis et solo apice libens, vel rhachide cainoso incrassata, ebracteata, Iructibus receptaculum succosum praebentibus, 2 mferioribus mterdum libens Pistillum inversum, mclusum, duphci involucro cinctnm Involucrum extenus interior! adnatum, integrum vel lateraliter fissum, interius urceolatum ore hiantc Fructus carnosus, inversus, receptaculo carnosae saepe insidens, subglobosus vel o^soideus, saepe apiculatus Permrpium osseum Lmbryo in apice albuminisfannacei —Arbores exct lae vel ranus frutices semperviventes, in extratropicis hemisphasrn australis et in China et Japonia frequentes, m tropicis Asiae, Amencae, Oceaniae et in Africa ranores Folia conacea vel gida rinssime opposita vel subopposita et tune multmervia, late ovata vel ovali-aut oblongo-lanceolatn, saefissime sparsa, approximata aut conferta, unmervia, lanceolata lut line ina, saepe acuta et mucronata aut spmulosa, interdum dimorpha, lineana et compresso subtetragona, subtus juxta nervum ranus utnnque stomata gerentia

Genus extneatu difficilhmuih et nuno specimmibus in herbarns asservatis flonbus vel fructibus carentibus incomplete cogmtum, unde botanicis viatonbus commendandum

Sectio i NAGEIA Endl Conif p 207 — Genus Nageia Gaertn Fruct l r Goid L c, Carr I c. \* L .

Flores monoici vel dioici Receptaculum carnosum, e spicae abbreviate saepissime uniflorap fbachi, cum bracteis apice tantum hbens connata formatum Folia opposita vel subopposita, late ovata vel ovah aut obloniro-lanceolata' muUmervia, utnnque vel subtus tantum stomata gerentia

- 1 *P NAGEXA* (R Brown ex Mirb m Mem Mus 13 p 75 76), arbor monoica, ramis patentissimis subpendulisve, folns oppositis vel suboppositis erecto-patulis conaceis ohlongo-lanceolatis subacuminatis, basi angustati\* et subcontortis, integerrimis multinerviis vindibus nitidis, amentis mascuhs in pedunculo comrauni axillan 3 5 bubracemosis cylindraceutis (Endl), fructibus grandiuscuhs globosis ^ In Japoma, trequens in montibus Katsuga provinciae Samato msulae Nippon (Kaempl fhunb , Sieboldj, Nankasaki (Maxim ') — Sieb et Zucc fl Japon Fam nat 2 p 109, et flor Jap t 13i, Endl Conif p 207, Garr Conif p 437, Henk et Hochst Nadelholz p 378 Na vulgo Nagj, item Tsikkura Siba, Laurus juhfera folio specioso enervi Kaempfer Amoen exot 773 cum IC 874 Mynca Nagi Thunb fl Japon p 76 Nageia Japonica Gaertn deFruct 1 p 191 t 39, Gord Pin p 137, et Suppl p 41 Carr Conif ed 2 p 635 *Nagi* Japon Arbor ut videtur 30-90 ped alta Folia 5 7 1/2 cent longa, 14 22 mill lata Jructus atropurpureus, glaucedine tectus, U 18 mill A u s et fere latus (v s)
- p, *variefKr* (hort), folns vanegatis Culta m hortis japonicis et europaeis *Nageia Japonica vanegata* Gord Suppl p 42
- 2 *P LATIFOLIA* (Wall Plant As rar 1 p 26 t 30), arbor monoica (Hook), medioens, ramis horizontalibus patulisve vel subpenduhs, ramulis teretibus compressis, folns suboppositis vel oppositis erecto patulis patulisve conaceis ovalibus vel ovah-lanceolatis acuminatis, basi angustatis et subconlorlis, integerrimis multinerviis laete vindibus, amentis mascuhs 2 'j in apice pedunculi longiusfuh dxillans fasciculatis patentissimis crassis cylindraceutis obtusis, bracteis anthenfens ovato acuminatis denticulatis, anthen 2 oblongis, peduncuhs fructiis uniflons patentibus, receptaculo basi bracteato longionbus, fructibus grandiuscuhs globoso-ovalibus receptaculo longionbus et lationibus \$ In raontibus Punduae in Bengaha onentah (Wall • n bOoO), m Bengaha onentah in Birma Malay Peninsula (Griffith'), in Khasia ad 3000 ped elev (Hook fil et Thorns') — Hook'inLond Journ ofBot 1 p 6^8 t 23, Endl Conif p 208, Garr Conif p 440, Henk et Hochst Nadelholz p 379 *Nageia latifoha* Goid Pm p 138 *P 7amlaefolia* hort *P pinnata* hort nonn Arbor ut videtur 20 30 pedes alta Folia 10 16 cent longa, 2 | 4] cent lata, raro 18 20 mill lata Amenta mascula IT 21 mill longa, i 7 mill lata brae teae anthenferae vindes, anthprae luteae Pedunculus amentis ipsis subapquahs vel paulo brevior, e tereti compressus, vindis Pedunculus fructifer 10 11, raro 14 mill longus Receptaculum 8-9 mill longum, 5 6 mill latum Fructus 10 18 mill longus, 14-15 mill latus, maturus puipureus (v v)
3. *P BLUMFI* (Endl Conif p 208), arbor excelsa, folns oppositis vel suboppositis patulis conaceis ovah lanceoktis subacuminatis basi angustatis et subcontortis, integerrimis multinerviis, amentis mascuhs in pedunculo brevissimo axillan 3 7 fasciculato-racemosis cylindraceutis obtusis, bracteis anthenfens suborbicularibus apice acutiuscuhs denticulatis, fructibus grandiuscuhs globobis (Blume) \$ In sylvis montis Salak insulae Javae (Blumel Kollmann<sup>1</sup>), in sylvis montams Javae (7olhng ') — Carr Conif p 442, Henk et flochst Nadelholz p 380 *P latiloha* Blume Lnum pi Jav p 89, de Boer Conif Arch ind p 13, non Wall *P agathifoha* Blumo'Rumph 3 p 217 t 173 *Nageia Blumel* Gord Pin p 135, Carr Conif ed 2 p b40 *Kibirna* Sund Arbor 70-80 pedahs Polia 9 10 cent longa, 25 h mill lata Amenta mascula fere in axilla fohi subsessiha inaequaha, minus crassa quam in *P latifoha*, 13 18 mill longa, 3 4 mill lata Fructum non udi Species *P latifoliae* valde affinis et mehus in plantis vivis Illustranda (v s)
- 4 *P BECGVRII*, arbor excelsa, folns oppositis vel suboppositis patulis conaceis ovahbus vel o'ah oblongis, apice acutis subacuminatis obtusiuscuhs vel rotundatis, basi breviter angustatis et subcontortis, integerrimis multinerviis, dmentis mascuhs fructibus sohtams in apice pedunculi brevi erectis, grandiuscuhs globosis (glaucedine tectis)quam receptaculum crassum brevionbus et angustionbus ^ In bornei locis humidis prope Sarawak, ubi rara, legit cl Beccan. *Caju Meddambulu* Malay. Arbor nobihs, ad antennas naviumconficiendaspraestans Folia3-5cent longa, 13-20mill lata,luduaptapiçe acuta vel subacuminata, obtusiuscula aut rotundata. Fructus exacte gioDOsi, ib

mill, diam., nigrescentes rore glauco tecti. Receptaculum maturum crassum, superne paulo latius, squamis pluribus praeditum, violaceum. (v. s.)

- 5\* P. MINOR, arbuscula, ramis confertis erectis vel erecto-patulis, foliis coriaceis alternis confertis oblongis obtusis subrotundatisve sessilibus, basi vix contortis, subtus (in sicco) sulcis paucis profundis exaratis, amentis masculis 3-4 brevibus crassiusculis oblongis obtusis in apice ramulorum subspicato-fasciculatis, bracteis antheriferis apice parum dilatatis et obtusis integris.... Ad ripas lacus Arnaud in Nova Caledonia (Vieillard! n. 1275). Nageia minor Carr. Conif. edit. 2. p. 641. Folia 15-20 mill, longa, 3J-4J mill. lata. Amenta mascula 5-6 mill, longa, 2£ mill. lata. (v. s. sine fructu.)

*Species dubias hujus sectionis\**

6. P. CUSPIDATE (Endl. Conif. p. 207). Nageia foliis oppositis ellipticis, basi angustatis, apice longe cuspidatis, subtus tantum stomata gerantibus..... Habitat verisimiliter in Japonia, in horto vindobonensi culta (Endl.).—Gord. Pin. p. 136; Carr. Conif. ed. 2. p. 637. Ad Nageiam veris. referenda.
7. P. GRANDIFOLIA (Endl. Conif. p. 208). Nageia foliis oppositis oblongo-lanceolatis multinerviis calloso-marginatis stomata utrinque gerentibus. Habitat verisimiliter in Japonia, in horto Hugeliano culta. Differt a Podocarpo latifolia foliis majoribus crassis rigidis, ramis rubicundis, gemmis obtusis (Endl.). —Gord. Pin. p. 137; Carr. Conif. ed. 2. p. 638. Est forsitan var. P. Nageiae.
8. P. OVATA (Henk. et Hochst. Nadelhölz. p. 381), frutex vel arbuscula, ramis patentibus subpendulis, foliis oppositis vel suboppositis patulis subcoriaceis ovato-orbicularibus ovatisve cuspidato-acuminatis, basi angustatis et subcontortis, 4-4.7 cent, longis, 32-35 mill, latis, viridibus, supra nitidis, multinerviis. In Japonia prope Yeddo (Fortune I). Nageia ovata Gord.! suppl. p. 42. P, *variegata*, foliis variegatis. Nageia ovata variegata Gord.! Suppl. p. 43.

Sectio II. EUPODOCARPUS Endl. Conif. p. 208.

Plores dioici. Receptaculum carnosum e spicae abbreviate, saepissime uniflorae nati, cum bracteis carnosis apice tantum liberis coalita formatum, bracteis 2 inferioribus interdum liberis. Folia sparsa, approximata vel conferta, lanceolata vel linearia, uninervia, stomata subtus tantum gerentia.

9. P. CORIACEA (Rich.! Conif. p. 14. t. 1. f. 3), arbor, foliis sparsis approximatis patentibus coriaceis rectis vel vix falcatis lanceolatis acuminatis, margine vix revolutis, basi angustatis et subcontortis, supra nervo longitudinali obtuso vix prominente notatis, amentis masculis..... pedunculis fructiferis solitariis receptaculi apice bih'di fere longitudine, fructibus imminaturis subulobosis apiculatis, apiculo brevi obtuso vix obliquo, receptaculi latitudinem subaequantibus. In insula Montserrat Antillarum (Rich.!), in montibus Jamaica (Mac-Fadyen). —Hook, in Lond. Journ. of Bot. 1. p. 6b6. t. 21; Endl. Conif. p. 210; Carr. Conif. p. 445; Gord. Pin. p. 272; Henk. et Hochst. Nadelhölz. p. 383. P. Antillarum R. Brown ex Mirb. in Mem. Mus. 13. p. 75. P. Yacca Don in Loud. Arb. brit. p. 388? Taxus tenuifolia Wickstr! Fl. Guadeloup. in Vetensk. Acad. Handl. 1827. p. 79. Yacca Jamaic. Folia 5-8 cent, longa, 9-10 mill. lata. (v. s.)
10. P. SELLOWII (Klotzsch in Endl. Conif. p. 209), foliis sparsis approximatis coriaceis lanceolatis acuminatis acutis vel obtusiusculis, basi fere in petiolum brevem angustatis et vix contortis, margine planis, supra nervo longitudinali parum prominente et vix canaliculato in sicco notatis, amentis masculis solitariis sessilibus longiusculis tenuibus cylindraceis obtusis basi bracteif. bracteis antheriferis apice dilatatis ovatis acutis subinteffris, Dednmi: s. s. tiferis solitariis 1-2-floris, receptaculo brevioribus, fructibus immaturis deis, receptaculo apice bifido paulo brevioribus et latioribus (Sellow! Claussen!).—Tul. in Mart. Fl. bras. fasc. 33-35, p. 431 et t. 114. Frutex 20-30 ped. ex Tul. Folia 4-12 cent, longa, Amenta mascula 17-24 mill, longa, 2 mill, lata, lutea. (v. s.)

(1) Nomea rectius esse *Selio* quondam legi. (A. DC)

- 11 *P. SALICIFOLIA* (Klotzsch et Karsten in Endl Conif p 209), arbor, folns sparsis approximatis patulis conaceis lanceolatis attenuate acuminatis, basi fere in petiolum brevem angustatis et subcontortis, margine vix revolutis, supra nervo longitudinali obtuso vix prominente notatis, amentis masculis sohtarus pedunculatis cylindratis obtusis bracteis anthenfens apice dilatatis semiorbicularibus dentato cristatis (Klotzsch) pedunculis fructiferis unifloris receptaculo apice bilobo longioribus, fructibus ovoideo globosis apiculatis, apiculo brevi obtuso vix obliquo, receptaculo latioribus In montibus Columbiae inter 6000 et 7500 ped. elev (Funk et Schum' n 430 et 8>7) — Carr Conif p 444, Gord Pin p 282, Henk et Hochst, Nadelholz p 382. Folia 8-12 cent, longa, 8-9 mill lata Fructus 7-8 mill longi, 6 mill lati (v. s.)
- 12 *P. PUBIFLORA* (Hook' Icon t 624), arbor excelsa, ramis sub-4 verticillatis horizontalibus vel subdependentibus, folns sparsis confertis patulis obverse lanceolatis obtusis cum mucrone obtuso, basi angustatis et subcontortis, supra nervo longitudinali obtusi crassiusculo notatis, vix utraque concoloribus (Hook'), amentis masculis , pedunculis fructiferis solitariis unifloris, receptaculo apice bilobo brevioribus, fructibus immaturis subglobosis apiculatis, apiculo brevi obtuso vix obliquo, receptaculo longitudinem et latitudinem subaequantibus (Hook') -5 In nemoribus montosis Jamaicae ad 2000-3000 ped elevat (Purdie) — Lndl Conif p 210, Carr Conif p 446, Gord Pin p 281, Henk et Hochst. Nadelholz p 18\* *P. Jamaicensis* hort Arbor 120 pedes et ultra alta, et nemorum montium Jamaicae decus (Purdie) Folia 3-12 cent longa, 15-20 mill lata (v. v. sine fl.)
- 13 *P. MAGROSTACHYA*, arbor, folns sparsis valde approximatis patulis valde conaceis oblongo lanceolatis obtusis, basi breviter angustatis et subcontortis, margine levolutis, supra nitidis et nervo longitudinali canaliculato notatis, amentis masculis sohtarus sessilibus crassis cylindricis obtusis basi bracteatis, bracteis anthenfens apice dilatatis fere orbicularibus vix denticulatis, pedunculis fructiferis solitariis unifloris, receptaculo apice bifido longioribus, fructibus oviformibus globosis apiculatis, apiculo brevi obtuso vix obliquo, receptaculo longioribus et latioribus In Columbiae montibus Prope coloniam lovar (Emm' n 1287), in provinciis Nevada ad 8000 ped. elev (Funk et Schlim' n 1631 bis), in Columbia (Karsten) Ab allinibus Americae speciebus longe valde conaceis, brevioribus, supra nitidis et amentis masculis crassis, fructibusque oviformibus facile distinguitur. Folia 2-5 cent longa, 9-11 mill lata Amenta mascula 20-26 mill longa, 5 mill lata Fructus 10-11 mill longus, 7 mill vix latus (v. s.)
- 14 *P. OLEIFOLIA* (Don' in Lamb edit. 2 p. 121, et ed 3 n 72), arbor, longe conaceis rectis lanceolatis acutis, basi angustatis et subcontortis, supra nervo longitudinali canaliculato notatis margine revolutis, amentis masculis sohtarus sessilibus cylindricis uncinatis basi bracteatis, bracteis uncinatis apice dilatatis semiorbicularibus integerrimis (Don), pedunculis fructiferis axillaribus unifloris, receptaculo bilobi fere longitudine, fructibus oviformibus breviter apiculatis levibus, receptaculo longitudinem et latitudinem subaequantibus In Chili\* (Pavon'), in Peruvia, Tatanara in sylvis (Lechler n 2074!) — Lndl Conif. p 209, Cl Gay M Chil 5 p 403, Carr Conif p 443 Gord Pin p 280, Henk et Hochst Nadelholz p 482 Podocarpus (hilaris Lechler peruv n 2574 exel syn Rich Arbor frondosa) Folia 3-5 cent longa, 6-8 mill lata Pedunculus fructifer 6-10 mill longus Receptaculum bilobum, 6-9 mill longum, 5 mill fere latum Fructus 6-8 mill longus, 6-8 mill latus. (v. s.)
- 15 *P. SPRUCEI*, folns sparsis confertis erecto patentibus conaceis rectis lanceolato-linearibus acutis mucronato pungentibus, basi fere in petiolum brevem angustatis et contortis, supra nervo longitudinali canaliculato notatis, margine in sicco vix revolutis, amentis masculis , pedunculis fructiferis sohtarus unifloris, receptaculo oblongo apice inaequaliter bilobis fructibus, fructibus immaturis globosis, receptaculo latioribus et subbrevioribus In Andibus asquatonicis (R. Spruce' n 5519) *P. glomerata* Don > Spruce peruv exsicc. Folia 3-4 cent longa, 4-5 mill lata, in sicco lutescentia Pedunculus

fructifer 3] mill longus Receptaculum 4 mill, longum, 2] mill vix latum  
Fructus immaturus 3] mill longus et fere latus Species ab affinibus satis  
superque distincta (v s)

16 P THUNBERGII (Hook m Lond Journ of Bot 1 p 657 t 22), arbuscula  
folns confertis patulis conaceis rectis vel subfalcatis oblongo lanceolatis obtu-  
sis mucronatis basi fere in petiolum brevem angustatis et subcontortis, supra  
nprvo longitudmah obtuso prominente notatis maig ne in sicco vix levolutis,  
amentis masculis sohtarns sessihbus crassiusculis oblongo cylindraceutis obtu-  
sis basi bracteatis bracteis antheiifens apicc dilatatis o\ato orbicularibus  
dentatis, peduncuhs fructifens solitarus urufions bievivibus rerepticuh apice  
bulentati fere longitudme, fiuctibus ovah globo«is haud apiculdtis glanducis  
receptaculo longionbus et lationbus In Capite Bonae Spei (Ihumb Beigius!  
Ickl et Zeyh') —Endl Conif p 217 Can Conit p 469, Gord Pin p 284,  
P.tppe S}1\ Capens p 32, Henk et Hochst Nadelholz p }9B laxusma-  
crophylla Banks msc m herb Jacq e\ Lndl laxus latifolia Thunb H Cap  
ed Schultz p i47 Podocarpus Utifolia R Br in Horsf Pl Jav Rar p 40  
non Wall *Geelhout* colon ¥olia 2 \-3 J cent longa, 6 9 mill Uta Amenta  
mascula 7-8 mill lon^a, j mill vix laU Peilunculus fructifer 3 4 mill lon-  
gus Receptaculum 3 4 mill longum et fere latum Fiuctus 9-10 mill lon-  
gus, 7-8 mill fere latus (v s)

17 P CHILINA (Rich in Mem Mus 16 p 297 et Conif p 11 t 1 f 1)  
arbor mediocns ramosissimI folns spirsis ipproxim itis conaceis subfalcatis  
linean-lanceolatis acutis subpungentibus basi uigustatis et subcontortis,  
supra nervo long tudinah obtuso notatis, margine \i\ levolutis amentis  
m isculis in apice ramuloium 3 > ag^re^atis lineari filiformibus elongatis  
basi biacteatis bracleis anthuciferis apice subnull s pedunoulis fructifens  
uniflons receptaculo plus rjuam duplo longionhus fruttibns o\ali oblongis  
apiculatis, apculo Ireviusculo vix obhjuo obtusj levibus recepticuli lon^i-  
tudinem subr jua Uibus jl oque l itionbus ^ In Pciuvn (Dombey') m Chili  
(Pwon' D)mbeyl O ly) in (ardillcra de Maule (Ph GeimanI), ranor in  
(Iull australis sylvib subalpinis ad Antuco (Poppigl n 2 > >) in provincia de  
Afnque (Lechler' n 467) in Vildiua et in msula dplRty (Philippi' n 208)  
—Lndl Conif p 212, bay 'Fl Chil \*' > p 402 Can Conil p 448, Goid Pin  
p 270, Henk et Hochst Nidelhulz p 3»8 P sali^na Don in Umb Pin  
t-dit 2 p 120 et J n 71 *Maniu, Pino chilens* Aiboi 40-60 ped altd, ramo  
sissima Poha 7 10 cent longa )8mill hta Amenta mascula / J cent longa,  
l|-1]mill liti I edunculus fructifer 12-1 > mill longus Receptaculum b  
null longum, 1] vix 2 mill latum tiuctus 7 mill longus, i]mill Utus (v s)

P, *glauca*, folns glaucis (Philippi, pi. exsicce) In Cordilhera de Linaies (v s)

18 P FALCATA (R Brown ex Mnb in Mem du Museum H p 7>), arboi,  
folns spirsis subapproxim uis subdistichis subcon iccis suhfilectis lineaubus  
acatis mucionato subpuii^entibus bisi diigusUUs et contoitis, aracntis nids-  
culis . , pedunculis liuctite is solitai us uniflons lecepUculo apice  
subbilobo longioribus, fructibus ovah globo^i-s receptaculo longionbus et  
multo ldtionbus In Capite Bonde Spei (Ihumb Eckl et Zeyher' n 3) —  
Lndl Conif p 219, Cirr p 472, Gord Pin p 28b, Henk et Hochst Nadel  
holz p 400 Uxus dlcata Ihumb 11 (dp edit Schultz p D47 kolia > 10  
cent longd >7 mill ldti Pedunculus fructifer 0 7 mill longus R(ccepta-  
culum 4 mill longum, vix 2 mill latum \*iuctus immatuLUs lsevis, 6-8 mill  
longus, 4]- ) mill latus Species vix nota et melius Illustranda (v s)

19 P MANNII (Hook f in Journ proceed Linn soc 7p 218), folns anauste  
elongato lanceolatis 3->pollic lon^is 2 4 lin laus lente fdcitib acuminatis  
mucionatis uninervns utrmque lucidis In insula S Thoma? Afuceae occid  
altit 7)00p (Mann) R imuli tenues dngulati Folidsubdistichi, conacea nervo  
latiusculo petiolo basi scmittere Valde affinis P tdlcatx Br, nee forsan di-  
veisa, sed folia multo latior, longiora, luci la fliccida, utrmque stomatiLreid,  
quod ex Endl in P falcata deest Diflert a P elongata folns majonbus, Tuci-  
dis, acuminatis Omnia ex verbis cl Hook i

20. p ELONGATA (LHent mpc ex Rich Conif p. 1) 1.1 t 2), arbor inter-

dum excelsa, ramis verticillatis patentibus ramulis angulatis, foliis sparsis approximatis couaceis subfalcatis linearilanceolatis acutis subpungentibus basi angustatis et subcontortis supra nervo longitudinali obtuso prominenti notatis, marginibus revolutis, amentis masculis solitariis sessilibus erectopatulis longiusculis cylindraceis obtusis, bracteis antheriferis subspathulatis apice obtusiusculis dentatis, pedunculis fructiferis solitariis unifloris receptaculo apice bilobo sublongioribus sed multo angustioribus, fructibus globoso ovalibus vix apiculatis, receptaculo longioribus et latioribus 5 In Capite Bonae Spei (Drège, Eckl et Zey n 4) Frequens in nemoribus Knysna (Pappe) — Endl (onif p 218, Can Comf p 470, Gord Fin p 273, \*t Henk et Hochst Nadelholz p 98 ex parte, Pappe Syh Capens p 32 laxus elongata Soland in Ait H Kew edit 1 vol 1] p 415 Taxus Capensis Lam Encycl 3 p 229 P. piuinosa Eckl et Zeyb. pl exsicc *Outemqua deelhout* colon Aibor 30 70 pedes alta, cortice tenui cinereo. ligno luteolo (Pappe) Folia 4 5j cent longa, 4 > mill lata, subtus, ut videntur in sicco, glaucescentia Amenta mascula 18-20 mill longa, 1-4 mill lata Pedunculus fructifer 3 mill, longus Receptaculum 3 4 mill longum, 2 J 4 mill latus Fructus 7-8 mill longus, 7-8 mill latus. (v s)

21 P. MEYERIANA (Endl Comf p 213), aibor, coma expansa, ramis verticillatis patentibus, lamulis angulatis, foliis sparsis approximatis conaceis subfalcatis late linearibus subpungentibus, basi angustatis et contortis, supra vix sulco longitudinali notatis, marginibus revolutis, vix revolutis, amentis masculis solitariis vel 2 3 in apice pedunculi sive lamuli bracteati brevissimii fasciculatis erecto patulis brevibus crassiusculis cylindraceis obtusis, bracteis antlieriferis fere obovatis apice acutiusculis subdenticulatis, pedunculis fructiferis solitariis unifloris, receptaculo longioribus et vix angustioribus, fructibus grandiusculis globosis haud apiculatis In Capite Bonae Spei (Kiauss! Eckl et Zeyb n 2) — Cair Conil p 472 P. elongata L. Mey DISC (x Endl Gord Pin p 27 J, et Henk. et Hochst Nadelholz p 398 ex parte, Eckl et Zeyb pi exsicc Folia 3 5 cent, in ramis superius 18-30 null longa 4 7 mill lata basi contorta. et fere phyllodium adinstri fidei diids lateales babentia Amenta mascula 7 11 mill longa 2 j vix 3 mill lata Bractea antlierifera. vix revoluta, margine piceo apicem denticulatae obovatae, flavescens Pedunculus fructifer (> 7 mill longus Receptaculum 2 mill longum, pedunculo vix crassius Fructus 10 14 mill longus et fere latus, ut videtur, glaucescentia (v v)

22 P. LAMBERTI (Klotzsch in Endl Comf p 211), arbor, foliis sparsis confertis patulis conaceis anguste linearilanceolatis acutis, basi angustatis et subcontortis, margine vix revolutis, supra nervo longitudinali canaliculato notatis, amentis masculis haud bene evolutis in apice pedunculi axillaris longiusculis fasciculatis cylindraceis obtusis basi bracteatis, pedunculis fructiferis unifloris receptaculo apice bifido longioribus fructibus immaturis parvis subglobosis brevissimè apiculatis, receptaculi longitudinem superantibus illo latioribus 5 In Brasilia (Sello<sup>1</sup>) — Cdir Comf p 447, Gord Pin p 27b, Henk et Hochst Nadelholz p 384, Tul in Mart fl bras 33-35 t 11 > Arbor vasta Folia 20-30 mill longa, 2 J 7 mill lata Pedunculi amentorum masculorum 8 mill longi Fructus immaturus 4 mill longus et latus (v \*)

23 P. ANGUSTIFOLIA, foliis sparsis confertis ovatis angustiusculis lectis anguste linearibus acuminatis mucronatis pungentibus, basi angustatis et subcontortis supra sulco longitudinali notatis, marginibus planis, amentis masculis in apice pedunculi fasciculatis longiusculis 4 5 idiusculis brevibus inaequalibus cylindraceis obtusis basi bracteatis, bracteis antlieriferis apice vix manifeste obtuso subdenticulatis, fructibus . . . In Bolivia (Budge's ann 1846) Species P. glomeolatae affinis a qua praecipue differt foliis minus angustis, angustioribus et longioribus 3 6 cent longis 1 \ vix 3 mill latis, sulco in pagina superiore magis manifesto, junioribus subtus haud glaucis, amentis masculis paucioribus brevioribus aequalibus, bractearum antheriferarum apice vix manifesto Pedunculus amentorum masculorum 8 mill longus Amenta mascula 3 vix 6 mill longa (v v sine fructu)

24. P. GLOMEOLATA (Don in Lamb. Pin edit. 2. p 121 et 3 n. 73), arbor, foliis

- sparsis confertis patulis, ngulis lectis vel subfalcatis lmean-lanceolatis acutis mucronato-pungentibus, basi angustatis et subcontortis, margine subrevolutis, iupra nervo longitudmali vix canaliculato notatis. junionbus glaucis, amentis masculis in apice peduncuh axillans longiuscuh sub-sex iasciculatis cyhndraceis obtusis breuusculis, basi bracteatis, bracteis antheufens apice vix dilatatis ovah-orbicularibus dentato-cnstatis, fructibus. . . . . Jn Peruvia ad Panao (Ruiz et PavonI) Junipeius ngida Pavon' msc P ngida Klotzsch' in Endl Conif p. 211, Carr LOP if. p 417, Gord Pm.p 282;Henk et Hochst. Nadelholz p 384 FoLa 25-35 mill longa, 3j-4 mill, lata Pedunculus amentorum masculorum 11-12 mill longus Amenta mascula 5-9 mill longa, 1 j-1 ] mill, lata, lutea (v. s.)
- 25 P NUMGENA (Lindl in Paxt. Flow. Gard. aim. 1851-52 2 p. 162. f 218, et in Journ of the Hort Soc 6 p 264), arbor, folns confers patulis conaceis rectis lanceolato linearibus acutis mucronatis pungentibus, basi angustatis et subcontortis, margine revolutis, supra vindibus et nervo longitudmali obtuso piominente notatis, subtus secus ncrvum longitudmalem latum vix prominentem utnnque fascia alba notatis, amentis masculis. . . . . , pedunculis fructifens uniilons brevissimis, fructibus ovoideis obtusis, rceptaculo paulo longionbus et lationbus. In nemonbus chilensibus provinciae Valdiviae, praesertim in editis sparsim (Plulippi'), in Coidilleia de la (osta in regione Fitzroyae Patagonicae (Lechler! n. 1447), in Ghiloe (Gay) — Cl. Gay Fl. Chilen. 5 p 404, Carr. Conif p. 4'>0; Goid Pin p 280, Henk. et Hochst. Nadelholz p 382 P nubicola Makoy ex Henk et Hochst Aibor, teste Gayo, excel&a Folia 2-J-4J cent longa, 3}-4 mill lata. Pedunculus fructifer 15-2 mill longus. Receptaculum 7 mill, longum, 3 mill, latum. Fructus 8-9 mill, longus, 0-7 mill latus (v s )
- 26 P. ARISTULATA, folns sparsis approximate patuhs conaceis rectis lanceolato-linearibus spinuloso-anstatis pungentibus, Dasi angustatis et subcontortis; Mipia nervo sulco leu longitudmali exarato notatis, margine ux re\olutis, amentis masculis sohtarns breviter \el bievissime pedunculatis breviusculis crassiusculis cyhndiaceis obtusis basi biactcatis, bracteis anthenfens apice late ovato-orbicularibus subdentculatis, peduncuhs fructifens solitarns umflons leceptaculo apice bilobo bievionbus, fiuctibus ovoideo oblongis crasse lateque apiculatis, receptaculi longiludinem sequantibus sed lationbus In Cuba onentali (Wright' n. 1461 et 3788) P. Purdieana \ar parvifolia Gnseb ' PI Wright Cub in Mem Acad Amenc Scient Nov Sei vol. 8. p 530 excl. syn Hook Folia 2 1-5 cent Jonga, 6-7 mill lata, in speciminibusn. 3788 angustiora et fere lineana, 4-5 mill lata. Amenta mascula 8 1J mill longa, 3-4 mill, lata, ludunt pedunculo breu vel brevissimo suffulta \el fere sessiha. Pedunculus fructifer 2-3 mill, longus Receptaculura 4-7 mill longum, 2-2 \ mill latum. Fructus 8-9 mill, longus, 4 5mill latus, apiculaius, apiculo lato crasso compresso obtuso, 2 mill fere longo A P. Purdieana longmque diveLsa (v s )
- 27 P SPINOLOSA (R Brown ex Mirb. in Mém du Museum 13 p. 7)), arboi, fob 19 sparsis approximatis patentibus conaceis lmeaiibus acuminatis mucionato pungentibus, basi angustatis et subcontortis, supia nervo longitudmali obtuso prominente notatis, margine subrevolutis, amentis masculis parvis in apice peduncuh bievvis vel brevissimi glomeratis hnean-cylindraceutis obtusis, bracteis anthenfens apice minuto vix dilatitatis obtusis subdentatis, peduncu<sup>l</sup>lis fiuctifens ad basin ramuli axillans superne foliosi racemosis bractea saua<sub>u</sub> mreformi subtensis, iceptaculo cylindnco subcleavato monospermo loiiffinn<sup>u</sup>bus (Endl.) In Nova Hollandia onentali (Cale\') — Lndl. Conif n \*M<sup>u</sup> Cari Conif. p 4)3, Gord Pm p. 283, Henk. et Hochst Nadelholz p<sup>u</sup> «7' Taxus spmulosa Smith in Rees Cyclop, n 7 P. pungens Calcy mst Don<sup>u</sup> in Lamb Pin edit 2. p. 123, et 3 n. 76 P. e\celsa Loddig. Caial 18)6 S<sup>u</sup> n<sup>u</sup> Fnja 2-5 J cent, longa, 2 3 \ mill, lata, supra, utudentui, nitida Amenta mascula<sup>u</sup> 4-6 mill longa, 1 {- J / mill, lata Fructus non vidi (\. s ) Amenta mascula<sup>u</sup>
28. P. NOVA CALEDONIA (Vieillardl in Biongn. et Gns Ann des scienc nat. .Vser. Bot torn 6 p 2V2), aibuscula, coma subpyiamidali, ramosa lamisfastigiatis, folns conaceis icctis \el |i| cui\ulib linear lauceolatis', basi -en-



sim angustatis, apioe acutis, haud pungentibus, supra et subtus nervo medio longitudinali notatis, margino revolutis, amentis masculis gemmis axillanibus subsessilibus, pedunculis fructifens solitanis uniflora, fructibus ovalibus laevibus (nitidis), receptaculo apice bilobo? brevionibus et angustationibus. In Nova Caledonia ad ripas rivulorum Porta et Dembea (Vieill ! n. 1266. Pancherl ann. 1865-66. in Herb. pans.). — Carr. Conif. edit. 2. P. rivulans Panch. msc. Folia 4<sup>^</sup>-7 cent, longa, 3i mill. lata. Fructus 7-8 mill, longus, 4 mill, fere latus. (v. s.)

29. P. DROUYNIANA (Ferd. Mull, fragm. phyt. austr. 4. p. 86. t. 31), fohis sparsis oonfertis erecto-patentibus subconaceis rectis linearibus acuminato-mucronatis subpungentibus, basi breviter angustatis et subcontortis, supra nervo longitudinali obtuso prominente notatis, subtus glaucis, margine in sicco vix revolutis, amentis masculis. . . . ., pedunculis fructifens solitanis unifloris, receptaculo crasso oblongo apice valde inaequahter bilobo, basi bracteis 2 brevibus lanceolatis patuhs stipato subbrevionibus, fructibus magnis globoso-ovatis acutiusculis apiculatis. In Nova Hollandia austro-occidentali prope flumen Tom Rivei (herb. MuellJ). Folia 5 } -6 } cent, longa, 3 mill. lata. Pedunculus fructifer 11-14 mill. longus Receptaculum 14-15 mill, longum, 5-6 mill, latum. Fructus 16 18 mill, longus, 12 mill, latus. (v. s )

30. P. TOTARA (Don in Lamb. Pin. edit. 2. app.), aibor excelsa, ramis patentibus, foliis sparsis approximatis patentibus valde conaceis rectis vel subfalcatis linearibus acutis vel acuminatis mucronato-pungentibus, in ramis superioribus acutiusculis, basi fere in petiolum brevem angustatis et contortis, supra sulco levi longitudinali notatis, margine planis, viridibus, amentis masculis solitanis sessilibus patuhs breviusculis cylindraccis obtusis basi bracteatibus, bracteis antheriferis apice dilatatis ovatis obtusis eroso-dentatis, pedunculis fructifens 1-2-floris, receptaculo subgloboso brevionibus, fructibus immatuns oblongis vel ovalibus. . . . . In Nova Zelandia boreali et media (A. Cunn. in Raoull Edgerley Hook. ril.). — A. Cunn. Bot. of N. Zeal, in Tayl Ann. of Nat. Hist. I. p. 212 excl. syn. Dacrydii taxifoln Hook, in Lond. Journ. of Bot. 1 p. 572. t. 19; Endl. Conif. p. 212, Hook fil. Fl. of New Zeal. 2. p. 233; Carr Conif. p. 461; Gord. Pm. p. 285, Henk. et hochst. Nadelholz. p. 386. P. Bidwilli Hoibrenk in Endl. Conif. p 213 et Hort. Totara Nov. Zealand. Arbor 80-90-pedalis, cortice fibroso, ligno rubro. Folia 14-33 mill, longa, 3-4 ] mill. lata. Amenta mascula 7-10 mill, longa, 3 mill. lata. Fructus maturos non vidi. (v. v.)

SI. P. PARVIFOLIA, fohis parvis sparsis confertis patulis conaceis rectis lineari-oblongis acutis mucronatis subpungentibus, basi fere in petiolum brevem angustatis et subcontortis, supra sulco laevi longitudinali notatis, margine vix revolutis, amentis masculis. . . . ., pedunculis fructiferis solitanis unifloris receptaculo oblongo-)inean subsequialibus, fructibus immatuns ovoidefc acutiusculis receptaculo sublongioribus sed lationibus. In Nova Hollandu (A. Cunn. in herb. Candoll.). Species ab affinis satis superque distmcta. Kami et folia in sicco lutescentes. Folia 10-14 mill, longa, 21-27 mill. lata. Pedunculus fruclifer 2<sup>^</sup>-3 mill, longus. Receptaculum 21-2f mill, longum. Fructus immaturus 3<sup>^</sup> mill, longus, 2 J-2i mill, latus. (v. s.)

32. P. NEBIFOLIA (Don in Lamb. Pin. edit. 1. p. 122 et 3. p. 74 quoad pi. Nepal.), arbor, ramis verticillatis horizontahibus, inferioribus subpendulis, supenobnibus patuhs, folns sparsis patentissimis vel patentibus coriaceis lanteolatis acuminatis, basi fere in petiolum attenuatis et vix contortis, margine revolutis, supra fusco-vindibus et nervo longitudinali parumprominente notatis, subtus palhde vmdibus et nervo longitudinali latiusculo obtuso notatis, amentis masculis solitanis cylindraccis obtusiusculis lectis }e| curvulis basi bracteatibus, bracteis antheriferis apice papvo ovato integro vix dilatatis, fructibus ovatis, in pedunculo longiusculo sohtane subpendulis, receptaculo carnosoblongo fructus latitudinem asquante, basi bracteis 2 setaceis brevibus dependentibus praedito. In Himalayas montibus : in Nepalia (Wallicbj 6052 A), in Khasia aa 2000-3000 pedes et in Sikkim ad 3000 ped. elevat. (Hook, fil. et Thoms.). — R. Brown in Horsf. Plant. Jav. rar. p. 40; Endl. Conif. p. 215; Carr. Conif. p. 458; Flor. des serres 8. p. 49. t. 768; Gord. Pin. p. 279; Henk. et Hochst.

- Nadelholz. p. 391. *P. macrophylla* Wall! n. 6052 A, non Don. Folia 10-20 cent, longa, 9-18 mill. lata. Amenta mascula 25-28 mill, longa, 3<sup>^</sup>-4 mill, lata. (v. s.)
33. *P. BRACTEATA* (Blume *I* Enum. Pl. Jav. p. 88, et Rumph. 3. p. 214. t. 712), arbor dioica, ramis patpntibus, folns sparsis approximatis vel subverticillatis coriaceis lanceolatis acummatís, basi iere in petiolura attenuatis et vix contortis, margine revolutis, supra nervo longitudinali prominente et subtus nervo longitudinali minus prominente notatis, amentis masculis . . . . ., peduncuhs fructiferis uniflons, receptaculo cylindraceo basi bracteis 2 seta-  
ceis patulis vel subdependentibus praedito longionbus, fructibus ovoideis grandiusculis receptaculi fere longitadine sed lationbus. In montibus Javæ occidentalibus sylvas efformans (Blume, Zolling.'), in monte Santubong Pic ad 2000-2700 p. in ins. Bornei (Beccan). — Endl. Conif. p. 216 excl. syn. Rumphn et pi. Amboin ; Carr. Conif. p. 459; Gord. Pin p 210; Henk. et Hochst. Nadelholz. p. 391; de Boer Conif. arch. ind. p. 16. Species *P. nerrifoluc* affinis sed receptaculo fructibus angustiore facile dishncta. Folia 9-13 cent, longa, 10-12 mill. lata. Pedunculi 10-22 mill, longi. Receptaculum 8-9 mill, longum, 2-2 7 mill, latum. Fructus 10-11 mill, longi, 8 mill, fere lati, fusco-violacei. (v. s.)
- P. brevipes* (Blume! l.c.), pedunculis fuctiferis receptaculi fere longitudine.
34. *P. POLYSTACHYA* (R. Brown in Horsf. Plant. Jav. rar. p. 40), arbor, foliis sparsis patentibus vel erecto-patulis coriaceis lanceolatis acummatís vel acutis margine vix revolutis, basi fere in petiolum angustatis et vix contortis, supra nervo longitudinali vahdo et subtus nervo longitudinali parum prominente etsulcatoin sicco notatis, amentis masculis sub tern is folio multo brevionbus, bracteis ovatis mtegnis, pedunculis fructiferis axillaribus solitanis brevibus vel breviusculis, fructibus immatuns ovoideis receptaculo subaequahbus et lationbus. In Singapur etin Prince of Wales Island ubi vulgo *Wax Dammara* colonis dicitur; in Sumatra (Blume! Beccan), et in mantimis Bornei prope Sarawack (Beccan') — Endl. Conif. p. 215; Carr. Conif. p. 460; Gord. Pin. p. 281; Henk. et Hochst. Nadelholz. p. 391. *P. macrophylla* Wall 1 pi. exsicc. ex Singapur n. G052 B, non Don. *P. nereifoha* Don in Lamb. Pin. edit. 1. et 3. p. 74 ex parte. Arbor magna, coma frondosa. Folia 4 1-8 cent, longd, 6-11 mill. latd. Pedunculi fructifcn receptaculo saepe breviores. Brae-  
teae ad basin receptaculi 2, erects, lanceolato-hneares. (v. s. sine fructu mature)
35. *P. LEPTOSTACHYA* (Blume! Rumph. 3. p. 214), arbor, ramis subverticillatis patentissimis, folns sparsis approximatis coriaceis rectis vel subfalcatis lan-  
ceolatis acutis, basi fere in petiolum attenuatis et vix contortis, margine vix revolutis, supra nitidis et nervo longitudinali prominente, subtus. nervo longitudinali minus prominente notatis, amentis masculis 1-3 cyhndraceo-  
filiformibus longis, bracteis antheMens apice parum dilalatis ovatis obtusia vel acutiuscuhs subdenliculatis, fructibus „\_\_\_\_\_”<sup>^</sup>. In montibus insulsp Boi-  
nei (Blume'). — Carr. Conil. p. 461, Gord. Pin. p. 277; Henk et Hochst. Nadelholz. p. 392; De Boer Conif. arch. md. p. 19, t. 2. Arbor 40-50 ped. alta. Folia 9-12 cent, longa, 11-13 mill. lata. Amenta mascula 20-24 mill, longa, 2 mill. lata. (v. s)
36. *P. RuMPinr* (Blume! Rumph 3. p. 214), arbor excelsa, foliis sparsis approxi-  
matis vel subverticillatis coriaceis late lanceolatis acummatís, basi fere in  
petiolum brevem angustatis et vix contortis, margine vix revolutis supra  
nervo longitudinali prominente et subtus nervo longitudinali vix prominente  
notatis, amentis masculis . . . . ., pedunculis fructiferis brevibus  
ns, receptaculo turbinato fructu angustiore, fructibus 19<sup>^</sup> valis Javosis  
(Rumph. Blume). \$ In montibus Amboinae clatlonbus Rumph etm Nova Gui-  
nea (Zippel. Blume' herb.). - Carr. Conii. p. 461; Gord. Pin" . n. 2; Henk.  
et Hochst. Nadelholz. p. 393; De Boer Conif. aich. ind p. 16. Lignum  
Emanum Rumph. Herb. Amboin. p. 47. t. 26. *Cerbera neriifoiia* Pinn in Bijdr.  
nat. Wetensch. 5. p. 178. EssoyUmboin. Arbor 60-9<sup>^</sup> p H t a, tmnw  
recto, cortice rufo' li<sup>^</sup>no flavescente. Folia obscure vindia, 1<sup>^</sup>-2i cent.  
longa, 18-23 mill. lata. Amenta mascula et fructus non vidi (v s)

37. *P. TEYSMANNI* (Miq. Fl. ind. bat. 2. p. 1072), arbor, foliis sparsis subverticillatis coriaceis rectis vel subfalcatis late lanceolatis acuminatis, basi in petiolum attenuatis et subcontortis, margine vix revolutis, supra nervo longitudinali prominente subtus nervo longitudinali parum prominente notatis, amentis *m* asculis. . . . ., fructibus. . . . . In Sumatra occidentalis regione littorea ( Teysmann!), in monte Poe ad 3500 p. et ad radicis montis Gunung Mattang rope Sarawack ins. Bornei (Beccari!). - D e Boer Conif. arch. ind. p. 14. t. 1. Folia 9-14 cent, longa, 18-20 mill. lata. A P. Rumphii; cui affinis, foliis brevioribus, basi longius angustatis diversa. Flores nee fructus hactenus observati. (v. s.)
38. *P. AMARA* (Blume! Enum. pi. Jay. p. 88, et Rumphia 3. p. 213. t. 170), arbor gigantea, coma expansa, ramis verticillatis patentissimis, foliis sparsis approximatis patentibus coriaceis lanceolatis acuminatis vel acutis aut cuspidatis, basi in petiolum angustatis et subcontortis, margine in sicco revolutis, supra nitidis et nervo longitudinali canaliculato notatis, subtus nervo longitudinali parura prominente praeditis, amentis masculis brevibus cylindraceis basi nudis, in apice pedunculi brevissimi plerumque 3, bracteis antheriferis apice parum dilatatis ovato-rhombeis subintegris, fructibus grandiusculis globosis. . . . . \$ In nemoribus elatis montium Javae occidentalium ad Salak, Gede, alibique (Blume I). — Endl. Conif. p. 217 ; Carr. p. 465; Gord. Pin. p. 258; Henk. et Hochst. Nadelhölz. p. 395; De Boer Conif. Arch. Ind. p. 20. *P. bracteata* Zoll! pi. exsicc. in herb. Cand. et Boiss. *P.?* *Dulcamara* Seem.? in Bonpland. 9. p. 253. *Araucaria laurifolia* hort. germ. Arbor 200 pedes fere alta, teste Blumeo. Folia 6-11 cent, longa, 7-11 mill, lata, ab affinibus nervo canaliculato in pagina superiore facile distincta. Amenta mascula, quae in specimine Blumeano nondum bene evoluta, 8-9 mill, longa, 2 mill. lata. Fructus in plantis Zollingerianis 17-20 mill, longi et lati, e violaceo-nigrescentes. (v. s.)
39. *P. NEGLECTA* (Blume! Rumph. 3. p. 213), arbor excelsa, ramis verticillatis oppositis et distichis, foliis sparsis approximatis subdistichis coriaceis rectis vel subfalcatis lanceolatis acuminatis vel acutis, basi in petiolum angustatis et subcontortis, margine subundulatis et vix revolutis, supra nervo longitudinali prominente et subtus nervo longitudinali parum prominente notatis, amentis masculis fasciculatis cylindraceis basi bracteatis breviter pedunculatis, fructibus. . . . . <sup>^</sup> <sup>ln</sup> montibus Javae occidentalibus ad 5400 ped. elev. ad Karang, prope Pangharanghu, Patuha et alibi (Blume!). — Carr. Conif. p. 467; Gord. Pin. p. 278; Henk. et Hochst. Nadelhölz. p. 396; De Boer Conif. Arch. Ind. p. 21. *P. Junghuhniana* Miq. Pl. Jungh. 1. p. 2. Arbor centumpedalis et ultra. Folia 8-9 cent, longa, 9-11 mill, lata, margine plus minusve undulata. (v. s. sine flor. et fruct.)
40. *P. CHINENSIS* (Wall.! List n. 6051), frutex vel arbuscula, ramis verticillatis patentibus apice assurgentibus, foliis sparsis approximatis rectis patulis coriaceis lineari-lanceolatis acutiusculis, basi angustatis et subcontortis, margine subrevolutis, supra fusco-viridibus et nervo longitudinali obtuso prominente notatis, subtus pallide viridibus, amentis masculis 1-pluribus sessilibus breviterve pedunculatis longiusculis cylindraceis obtusis, bracteis antheriferis apice parum dilatatis ovatis vel ovato-orbicularibus subintegris, pedunculis fructiferis solitariis uni-raro bifloris, receptaculo basi bracteolis 2 setaceis patulis suffulto oblongo apice subbilobo subaequalibus aut brevioribus, fructibus ovoideis receptaculo subbrevioribus et vix angustioribus. 5 In China et probabiliter in Japonia ubi in hortis culta (Sieb.! Perfettl) — Endl. Conif. P- 215; Blume Rumph. 3. p. 216; Carr. Conif. p. 457; Gord. Pin. p. 271, et Suppl. p. 87; Henk. et Hochst. Nadelholz. p. 390. Ken-sin item Senbaku vulgo Inu-Maki i. c. Maki spuria Kaeinpf. Amoen. exot. p. 780. *Taxus chinensis* Roxb. Hort. Beng. p. 73. Juniperus *chinensis* Roxb. Fl. Ind. orient. 3. p. 840. *P. macrophylla* B Maki Endl. Conif. p. 216; Blume Rumphia 3. p. 216. £• Makoja Pin. Wob. p. 218. *P. Makoyi* hort. Lov. Blume! 1. c. *P. Maki* Sieb. et Zucc. Fl. Japon. t. 134. *P. Vriesiana*, *Miquelia* et *Koreana* hort. aliq. ><sup>ru</sup>: tex vel arbuscula, trunco recto, cortice cinereo. Rami breviusculi, ramuli subangulati, virides. Folia 4-8 cent, longa, 4<sup>^</sup>-7 mill, lata, juniora subdus glaucescentia. Amenta mascula sessilia vel in apice pedunculi reviv

breviusculi erecta, 18-35 mill. longa, 2-2} mill, lata, lutea. Pedicellus fructifer longitudine vanus, nunc receptaculo subdequahs vel paulo longior, nunc brevior. Receptaculum 10-12 mill, longum, 7-8 mill. Utum, violaceo-nigresceDS. Fructus 9-10 mill. longus, 7-8 mill, latus. An P. macrophyllae vanetas? (v. v.)

41. P. MACROPHYLLA (Don in Lamb. Pin. edit. 2. p. 123, et 3. n. 75), arbor ramosissima, ramis confertis assurgentibus, foliis sparsis approximatis patulis conaceis rectis vel subfalcatis lanceolatis acutis vel obtusiusculis, margine in sicco *XIK* revolutis, supra viridibus et nervo longitudinali prominente notatis, subtus pallide viridibus margine planis, amentis masculis sohtariis vel 3-5 sessilibus cylindraceis basi bracteatis, bracteis anthenfens apice parum dilatatis ovahbus obtusis subintegns, fructibus ovoideis, receptaculo bracteis 2 setaceis patulis suffulto. \$ In Japonia prope Nangasaki ahbique vulgaris. (Thunb.l), prope Yeddo (Veitch'), in insula Nippon (Perfetti!). — Sieb. et Zucc. Fl. Jap. fam. nat. 2. p. 108, et Fl. Jap. 1.133 non Wall.; Endl. Conif. p. 216 excl. var. B; Can. Conif. p. 463; Gord. Pin. p. 278; Henk. et Hochst. Nadelholz. p. 393. Sin vulgo Maki, Sen bon Maki i. e. Maki legitima, item Ksa-Maki, i. e. Maki foetens Kaempfer Amoen. exot. p. 780. Taxus macrophylla 'lhunb. Fl. Jap. p. 276; Banks Ic. Kaempf. t. 24 ex Endl. *Maki* Japon. Arbor 40-50 ped. alta, cortice cinereo. Folia 6-10 cent, longa, 7-9 mill. lata. Amenta mascula 21-40 mill, longa, 2<sup>^</sup>-3 mill. lata. (v. s. sine fructu.)
42. P. ELATA (R. Br. ex Mirb. in Mém. du Museum 13. p. 75), foliis patentibus coriaceis late lineari-lanceolatis obtusis vel obtusiusculis obtuse mucronatis, basi angustatis et subcontortis, margine in sicco levolutis, supra viridibus et nerro longitudinali leviter sulcato notatis, subtus nervo longitudinali prominente notatis, amentis masculis subsolitanis approximato-congeslis longis crassis cylindraceis obtusis rectis vel curvuhs, bracteis anthenfens ovato-orbicularibus integris, pedunculis solitariis monospermis receptaculura cylindraceo-subulatum aequantibus, seminibus globosis (Endl.) In Nova Hollandia orientali (R. Br.), Rockingham's Bay (herb. MuellJ). — Endl. Conif. p. 213. Folia 10-13 cent, longa, 8-10 mill. lata. Amenta mascula 16-25 mill, longa, 5 mill, lere lata. (v. s.)
43. P. ENSIFOLIA (R. Brown ex Mirb. in Mém. du Museum 13. p. 75), foliis sparsis remotiusculis patentibus coriaceis rectis vel subfalcatis elongato-lanceolatis obtuse mucronatis, basi angustatis et subcontortis, supra nervo longitudinali obtuso prominente notatis, margine subievolutis, amentis masculis . . . . ., fructibus . . . . . In Nova Hollandia oientali tiopica ad promontionum Grafton 17° Lat. austi. (Allan Cunnmgh ') — Endl. Gonif. p. 21. >; Can\*. Conif. p. 456. P. falcata A. Cunn pi. exsicc. Species vix nota, nam nulla Browni descriptio, et in specimine Cunninghamiano, quod vidi, flores et fructus carent. Folia fere Podocarporum omnium longiora, 20-27 cent, longd, 14-16 mill. lata. (v. s.)

*Species dubix vel nobis ignotx, hujus sectionis.*

44. P. CURVIPOLIA (Carr. Conif. p. 450), arbor robusta, foliis alternis approxiraatis coriaceis rectis ovali-oblongis obtusis, basi in petiolum brevem attenuatis, supra laete viridibus nitidis et sulco levi longitudinali notatis, margine revolutis 5-12 cent, longis (Carr.) Patna ignota. P. antarctica hort. P. Humboldtii hort. ahq. P. Purdieana hort. aliq. non Hook.
45. P. LETA (Hoirb. in Endl. Conif. p. 214), foliis undique patentibus lineari-subfalcatis mucronatis uninervns, subtus juxta nervum utrinque linea tralauco vmdi notatis, perulis obtusis (Endl.). Habitat in Nova Hollandia orientali.
46. P. AFFINIS (Seem. Fl. Vit. p. 266), foliis sparsis approximatis erecto-patuis coriaceis rectis oblongis vel oblongo-lanceolatis obtusissimis, basi ancustatis et subcontortis, supra nervo longitudinali prominente notatis, marffinibus in sicco revolutis. . . . . In insulis Viti vel Fiji lopit cl. B. Seemann! P. elata? Seem, ohm, pi. exsicc n. 574 non R Br. Folia 3-4 cent, loni?a, 7-8 mill, lata. (v s. sinp fl. Pt frurt)

47. *P. DISCOLOR* (Blume Rumph. 3. p. 213), arborexcellsa, ramis verticillatis, foliis sparsis approximatis lineari-lanceolatis acutis vel acuminatis mucronato-pungentibus, supra fusco-viridibus et nervo longitudinali prominente notatis, subtus glaucis. . . . . (Blume). In nemoribus editis montium vulcaniconim insulae Javee ad Tjërimai, Teribon (ex Blume).
48. *P. EURHYNCHA* (Miq. Fl. Ind. Bat. 2. p. 1074.), foliis alternis petiolatis > e basi acuta elliptico-lanceolatis, subabrupte longe anguste vulgò subobtusè acuminatis, margine in sicco subcrispulis, costa utrinque prominulis, subtus pallide stomatiferis, floribus....., fructibus. . . . . In Sumatra occidentali apud Battang Barus (Teysmann) De Boer Conif. Archip. ind. p. 24 tab. 3. f. 2. An hujus sectionis?
49. *P. THEVETLEFOLIA* (Blume Rumph. 3. p. 213), arbor 36-42-pedalis ramosissima, ramis divaricatis subdichotomis, foliis sparsis approximatis patentissimis coriaceis rectis vel falcatis, linearibus vel lineari-lanceolatis obtusis vel acutis, basi angustatis et subcontortis, 3-8 cent, longis, 6-9 mill, latis, supra nervo longitudinali parum prominente notatis concoloribus, pedunculis fructiferis filiformibus, receptaculo turbinato oblique truncato, fructibus ovalibus (Blume). In rupibus maritimis Novae Guineae (Zipp.).
50. *P. ENDLIGHERIANA* (Carr. Conif. p. 468), ramis verticillatis, foliis alternis approximatis patentibus coriaceis rectis vel subfalcatis late lanceolatis, apice attenuates, basi fere in petiolum brevem angustatis planis subundulatis, supra pallide viridibus et nervo longitudinali prominente notatis, subtus pauidioribus . . . . . In Nepalia? *P. neriifolia* hort. (non R. Br.) ex Carr. *P. nobilis* hort.
51. *P. JAPONICA* (Hort. Bqgor ex Siebold in Ann. de la Soc. d'Hort. des Pays-Bas 1844. p. 36 et 35), foliis lineari-lanceolatis elongatis obtusis crasse coriaceis rigidis, gemmis perulatis albidis (Eodl.). In Japonia (Sieb.).  
*P. elegantissima* (Gord. Suppl. p. 89.), foliis variegatis. Gulta in hortis.
52. *P. CORRUGATA* (Gord. Suppl. p. 88), foliis rigidiusculis erecto-patulis rectis vel subfalcatis 7-8 cent, longis, 3-5 mill, latis, supra nervo longitudinali obtuso prominente notatis, utrinque ex albo-luteo variegatis. . . . . Culta in Japonia et Angliae hortis. (v. v.)
53. *P. KORATANA* (Sieb. in Ann. de la Soc. d'Hort. des Pays-Bas aim. 1844. p. 35), foliis confertis erecto-patentibus subcoriaceis rectis vel vix falcatis linearibus acutis obtuse mucronatis, margine revolutis, supra fusco-viridibus nitidis et nervo longitudinali prominente notatis, subtus juxta nervum complanatum utrinque fascia alba glaucescente notatis. In Corca, in Japonia  
• hortis cuha. *Cephalotaxi pedunculatae* Sieb. probabiliter adscribenda, ut recte suspicatur cl. Carrière, qui folia disticha in ramis olim vidit. Folia 5-6 cent, longa, 3-4 mill. lata. (v. v.)

Sectio III. STACHYCARPUS *Endl. Conif. p. 218 ex parte.*

Flores dioici, spicati, bracteati, bracteis saepe omnibus praeter unicam supremam effoetis. Receptaculum carnosum nullum. Folia saepe disticha, linearia, uninervia, subtus tantum stomata gerentia.

54. *P. TAXIKOLIA* (Runth in Humb. Bonpl. Nov. gen. et sp. pi. 2. p. 2. t. 97) > arbor, foliis sparsis approximatis distichis coriaceis subfalcatis vel rectis, late linearibus obtusis vel acutis mucronatis subpungentibus, basi subabrupte fere in petiolum brevem angustatis et subcontortis, supra nitidis fusco-viridibus et sulco longitudinali notatis, margine subrevolutis, amentis masculinis numerosis brevibus breviter pedicellatis vel subsessilibus horizontalibus remotis oblongo-cylindræis oblusis, bracteis antheriferis apice late rjionbeis acutiusculis subcarinatis scarioso-marginatis, spicis ramulos terminantibus 2-3-floris abortu monospermis, fructibus ovalo-subglobois umbonatis (Endl.) -5 in Andibus neruvianis in Monte Saragum, Quindiu ad 6600-7800 ped. elevat. (Humb. Bonpl. n. 5855 et 3382, in Columbia (Moritz! n. 392), in Columbiae montibus provinciae Mena; au

- Culata ad 8000 ped elev. (Funk et Schlim f n. 1538), in Andibus Bogotensibus prope pagum Pacho ad 7200 ped. elevat. frequens (Tnana!). — Rch. Conif. p. 15. t. 29. f. 1 B. C; Endl. Conif. p. 219, Carr. Conif. p. 473; Gord. Pin. p. 288; Henk. et Hochst. Nadelholz. p. 400. Taxua montana Willd. in V. 4. p. 857. P. montana Lodd. Cat. 1836. p. 37. Torreya Humboldtii Knight Conif. p. 51. Dacrydium distichum Don in Lamb Pin edit. 2. p. 120. Arbor sexaginta-pedahs, coma expansa, cortice fusco. Folia 10-15 mill, longa, 2-2' mill lata. Amenta mascula 3-4 mill, longa, 1)-2 mill, vix lata. Fructus non vidi (v. s.)
55. P. FERRUGINEA (Don in Lamb. Pin. edit. 1. app.), arbor, folus distichis approximate falcatis hneanbus acutis, basi angustatis et contortis, supra nervo longitudinah obtuso prominente notatis, margine revolutis, amentis masculis sohtanis sessihbus patulis longiusculis cylindraceis obtusis basi bracteatis, bracteis anthenfens apice dilatatis ovatis acutis subdentatis, pedunculis fiuctiis uniflons squamosis fructu brevionbus, fructibus grandiusculis ovahbus glaucis. § In Nova Zeelandia boreali (Banks et Solander, A. Cunn. Edgerley' Ho^k hi ! W. Stephenson!), in insuld Steward(Godey!). — A. Cunn. in Ann. ot Nat. Hist. 1. p. 212; Hook. Ic. t. 542; Endl. Conif. p. 220, Hook. fil. Fl. of New Zealand p. 232, Carr. Conif. p. 475, Gord. Pin. p. 287, Henk. et Hochst. Nadelholz. p. 401. Miro, Main, New Zealand. Arbor 40 60 ped. alta. Folia exsiccata fere ferruginea, 13 30 mill, longa, 2-3 mill, lata. Amenta mascula folus subsequaha, 10-13 mill, longa, 2 mill. lata. Fructus 15-16 mill, longus, 10-11 mill, latus, e rubro purpuieus, glaucedine tectus edulis. (v. s.)
56. P. NIVALIS (Hook. Icon. t. 582), fruticulus ngidus lignosus, folus undique patenti recurvis linean-oblongis mucronatis, dorso costa crassa, amentis masculis pedunculatis terms basi bracteolatis, anthen muticis, drupa exsucca? (Hook. et Hook, fil.) In Novae Zeelandiae boreahs monte Tonganco prope nives perpetuas (Bidwill), in veitice Ruahinc Range (Colenso). — Endl. Conif. p. 214; Hook. fil. Fl. of New Zealand p. 232; Carr. Conif. p. 455; Gord. Pins. p. 279; Henk. et Hochst. Nadelholz. p. 388. Species imperfecte nota et forsitan P. ferrugineaB vanetas alpina ut suspicatur cl. Hookerus hlius. (v. s.)
57. P. SPICATA (R. Br. in Horsf. PI. Jav. Rar. p. 40), arbor excelsa, folus sparsis subdistichis approximatis conaceis rectis vel subfalcatis lineanbus obtusis ^el obtuse mucronatis, basi vix angustatis et subcontortis, supra nervo longitudmah obtuso prominente notatis, marginibus subrevolutis, amentis masculis numerosis brevibus sessihbus horizontahbus remotiusculis linean cylm. draceis obtu&is in spicam longam disposals, bracteis anthenfens apice late ovatis acutis, fructibus subsessilibus globo^is parviusculis. § In Nova Zeelandia boreali et in parto boreali Novae Zeelandiae mediae (Banks et Soland Raoull Hook, fil. 1 Edgerley!) — Hook. Ic. Plant. t. 543, Endl. Conif. p. 221; Hook. fil. 1 Flor. of New Zealand p. 232, Carr. Conif. p. 476, Gord. Pin. p. 287\* Henk. et Hochst. Nadelholz. p. 402. Dacrydium taxilolium Banks et boland' msc., Lamb. Pin. edit. 2. et edit. 3 n. 69. Dacrydium Mai A. Cunn. in Ann. of Nat. Hist. 1. p. 213. Mai, Matau Nov. Zealand. Arbor 80 ped. alta. Folia 6-13 mill, longa, 1 Hi' mill, lata. Amenta mascula 3j-4 mill, lonea 1 It mill, vix lata. Fructus 5-6 mill, longi et ferelati, in sicco viokceo-nikrescpn tes et rugosi. (v. s.) "»biescen-
58. P. ANDINA (Popp. msc.), arbor mediocns, ramuhs erecto-patent. W 1 eieictis, folus confertis, supenonbus subdistichis patentibus vel nat ^... ve/ crassiusculis ngidis rectis lineanbus acutis mucronatis subpuneefmih, SSI mis nonbus obtusiusculis, basi sessihbus in lamulo stnctc decurppntI S, SUPeii gine planis fusco yinuibus, amentis masculis plunbus bieviuscni. sessill)lls > patentibus vel subhorizontalibus crassiusculis oblongo-cyl nH aCeiS obtusis, prope apicem ramuloium spicato-fasciculatis, bracteis antW?rl ovatis acutis vix denticulate, fructibus paucis in spicam I, I Is apice late boisapiculatis, apiculociasso recto obtuso 5 In Chih austr^ ifP? si jio all gloff Pavon! Dombeyf Pop. Rigi), in Andibus de Chilian Vph. fllsAndl^ us (Ruizf ped. elev. (Philippi), f. va! In. a au Flumen ih e id ^ M 1 ) 7 \*P (Philippi) et prope coiomam Anque (Lechler! n, ^ j g ^ E n ^ ^ m f J e m)

Cl. Gay Fl. de Chili 5. p. 403; Carr. Conif. p. 474; Gord. Pin. p. 286; Henk. et Hochst. Nadelhölz. p. 407. *Taxus spicata* Dombey msc. ex Mirb. in M6m. du Museum 13. p. 76. *P. spicata* Pöppig Nov. gen. et spec. 3. p. 18. *Prumnopytis elegans* Philippi! in Linnæa 30. p. 371; Henk. et Hochst. Nadelhölz. p. 369. *Lleuque* Chilens. Arbor 10-20 ped. alta (Pöppig). Folia 15-28 mill, longa, 2 mill, fere lata. Amenta mascula 5-7 mill, longa, 2-2 i mill, lata. Pedunculus sive ramulus fructifer flexuosus, angulatus. Fructus subsessiles, erecto-patuli, bractea foliacea suffulti, e violaceo nigrescentes, 10-13 mill, locgi, 9-10 mill. lati. (v. s.)

59. *P. ALPINA* (R. Brown ex Mirb. in M6m. du Museum 13. p. 75), frutex vel arbuscula, ramis patentibus, foliis sparsis approximatis vel subdistichis patentibus coriaceis rectis vel subfalcatis parvis linearibus vel lineari-oblongis obtuse mucronatis subpungentibus vel obtusis, basi fere in petiolum angustatis et subcontortis, supra sulco longitudinali notatis, marginibus planis, amentis roasculis sessilibus solitariis vel subfasciculatis breviusculis cylindraceis obtusis basi hracteat, bracteis antheriferis apice dilatatis lanceolatis obtusiusculis, fiuctu parvo, pedunculo carnosio apice inaequaliter oblique bifido (Hook, fil.) j In montibus Novae Hollandiae-austro-orientalis, in alpbibus Victoria, in montibus Buller et Hotham (Mueller), et in montibus Tasmaniae ad 3-4000 ped. elev. Mount Wellington, Malborough, Western Mountains (Gunn! Archer! Hook. fil. 1 Stuart!). —Bennett in Horsfield Plant. Jav. Rar. p. 40; Hook, fil.! in Lond. Journ. of Bot. 4. p. 150, et Flor. of Tasmania p. 356; Endl. Conif. p. 214; Carr. Conif. p. 456; Gord. Pin. p. 268; Henk. et Hochst. Nadelhölz. p. 389. Frutex vel arbuscula interdum 12-13 ped. alta (Archer). Folia 5-16 mill, longa, 2 mill. lata. Amenta mascula 6-9 mill, longa, 2-2.] mill, fere lata, luteola. Bractearum antheriferarum apex fere in cornu productus, antherae globosaj. (v. s. sine fructu.)

p, *Lawrencii* (Hook. fil. Flor. of Tasmania p. 356), foliis acuminatis pungentibus. In montibus Tasmaniae ad River Mersey prope Mount Gopr (Lawrence, Archer). *Podocarpus Lawrencii* Hook. fil. in Lond. Journ. of Bot. 4. p. 151; Endl. Conif. p. 214; Carr. Conif. p. 455; Gord. Pin. p. 217; Henk. et Hochst. Nadelholz. p. 389.

#### Sectio iv. DACRYCARPUS Endl. Conif. p. 221.

Flores riioci. Receptaculum carnosum e rhachi ebractea formatum, uniflorum, floris secundi rudimento foliaceo. Folia difformia, linearia, compresso-subquadrangularia, in ramis junioribus disticha, in senioribus undique imbricata, omnia undique slomatibus instructa.

60. *P. DACRYDIOIDES* (A. Rich. Flor. Nov. Zeel. p.358. t. 39), arbor excelsa, coma pyramidali, foliis parvis linearibus compresso-subtetragonis mucronatis basi decurrentibus e viridi purpureo-fuscis, ramulorum juniorum distichis patulis curvis Jalcatis, seniorum minimis undique imbricatis rectis, amentis masculis in apice ramulorum solitariis erectis oblongis vel oblongo-cylindraceis obtusis, bracteis antheriferis apice dilatatis oblongo-lanceolatis acutis et submucronatis, fructibus solitariis ovoideo-globosis apiculatis, apiculo brevi vix obliquo, laevibus, receptaculo sessili sublongioribus et latioribus. § ^n Nova Zeelandia boreali, solo juxta rivos coenoso, sylvas densas efformans. (A. Cunn.! Raoul! Quoy! D'Urville! Home! Hook. fil!). — Endl. Conif. p. 223; Hook. fil. Fl. of New Zeal. p. 233; Carr. Conif. p. 479; Gord. Pin. p. 290; Henk. et Hochst. Nadelholz. p. 403. *Dacrydium thuyoides* Banks et Soland. msc. *Dacrydium excelsum* Don in Lamb. Pin.; A. Cunn.! in Ann. of Nat. Hist. 1. p. 213. *Podocarpus thuyoides* R. Br. in Horsf. Plant. Jav. p. 35. *Dacrydium ferrugineum* et fuscum hort. Arbor 150 (Hook, fil.), 200 ped. (A. Rich.) alta, ligno molli, albo, cortice griseo-albescente. Folia ramulorum juniorum 3 1/4 - 7 mill. longa, 2/3 - 1 mill. lata, seniorum 2-3 mill. longa. Amenta mascula 4-5 1/4 mill. longa, 2 mill. lata. Receptaculum 2-2 1/2 mill. longum, 1-1 1/4 mill. latum. Fructus 4 mill. longus, 3-3 1/2 mill. latus. (v. s.)

61. *P. USTA* (Brongn. et Gris in Ann. des sc. nat. 5<sup>c</sup> s6r. v. 6. p. 243), frutex ramosissimus, foliis alternis remotiusculis squamseformibus acutis, basi lata

- decurrentibus, ramulis junionibus fastigiatis fohiscruie imbricatis rufis arbusculam ustam simulantibus, amentis masculis axilfanbus soli tan is obi on gocyndraceis in ramulo erectis, bracteis anthenferis apice dilatato triangulanbus, fructibus subsessilibus parvis globosis m sicco mgosis exapiculatis. 3 In sylvis montium Novae Caledoniae prope Diane et Poila (VieillU n. 1267). Dacrydium ustum Vieill. pi. exsicc; Carr. Conif. edit. 2. p. 697. Fructus 2j-3 mill longus. (v. s.)
62. P. CUPRESSINA (R. Brown ex Mirb. in Mém. du Museum 13. p. 75). arbor excelsa ramosissima, ramulis gracilibus, foil is paivis mucronatis basi decurrentibus, ramorumjuniorum distichis patulis curvulis subfalcatis lineari-lanceolatis compresso-tetragonis, seniorum brevionibus adpressis lanceolatis dorso cannatis. amentis masculis . . . , fructibus sohtariis globoso-ovatis laevibus vix apiculatis nitidis receptaculo sessili longionbuset latioribus. 5 In insula Java (Blumel ZollmgJ n. 2262), Sumatra (leysmann'), in Borneo austrah in monte Sakumbang (Korth.), monte Poe ad 3500 p. et monte Gunong Wah ad 2000 p. in Borneo bor. (Beccari!) — Benn. in Horsf. Pl. Jav p. 35. t. 10; Endl. Conif. p. 222; Carr. Conif. p 477; Gord. Pin. p. 289 et suppl. p. 90; Henk. et Hochst. Nadelholz. p. 403. P. Horsfieldii Wall, list n. 6049. P. imbneata Blume enuin. Pi. Jav. p. 89. *Kiputne*, *Kimerak* Sund. Arbor usque ad 180 ped. alta. Folia ramorum juniorum 5-11 mill, longa, 1-1J mill. lata. Fructus 6-7 mill, longus, :>J-6 mill, latus. (v. s.)
63. P. CUMINGII, arbor ramosissima, ramis confertis, folns parvis mucronatis basi decurrentibus, ramorum juniorum distichis patulis ialcatis lmeari-lanceolatis compresso-tetragonis, seniorum brevioribus subadpressis curvulis linean-subulatis, amentis masculis . . . , fructibus solitarns globoso-ovatis (nitidis) apice mucronatis, mucrone crasso longiusculo cuivo obtuso receptaculo sessili longionbus et latioribus. In insulis Philippmis (Cummg! n. 803), prope Manilla (Barthe<sup>1</sup>) Folia in sicco nigrescentia, ramorum juniorum 6-9 mill, longa, 1 mill. \ix lata. Fructus 3j-5 mill, longus et fere latus, in sicco palhde lute us. (v. s.)
- 64? P. TENUIFOLH, arbor, ramulis erectis curvulis, folns ramulorum juniorum alternis approximatis distichis lineari-subfalcatis compressis, ramulorum seniorum linean-subulatis dorso convexo-carinatis, omnibus basi decurrentibus, apice mucronulatis. In sylvis montium Novae Caledoniae ad Poila (Vieill. n. 1260). Dacrydium elatum tenuifolium Carr. Conif edit. 2. p. 693. Dacr>dium tenuifolium Parl. msc. Kami graciles. Folia lamulorum junioium tenuia, 9-12 mill, longa, 1 null, vix lata. P. dacrydioidi affinis sed omnino diversa. An Dacrydii species? (v. s. sine fl. et fruct.)
- 65? P. VIEILLARDIT, arbor, ramulis crebns corymboso-Jastigiatis, folns ramulorum juniorum parvis sparsis subdistichis patulis subtetragonis glaucescentibus, ramulorum seniorum sparsis adpiessis convexo-carinatis, omnibus basi decurrentibus, apice mucronato-subulatis, amentis masculis solitarns terminahbus erectis lineanbus, bracteis antherifpiis ovatis mucronato-subulatis. In rupestnbus ad ripas fluvii prope Poila in Nova Caledonia (Vieill. n. 1262). Dacrydium elatum compactum Carr. Conif. edit. 2. p. 693. Dacrydium Vieillardn Parl. msc. folia ramulorum juniorum 6-8 mill, longa, J mill, lata. Amenta mascula 6-12 mill, longa, M^ mill. lata. An Dacrydn species? (y. s. sine fl. et fruct.).

*Species exclusae.*

- P. ASPLENIIFOLIA Labill. — Phyllocladus rhomboidalis Rich.  
 P.? BIFORMIS Hook. = Dacrydium Colensoi Hook.  
 P.? DIEFFENBACHII Hook. Ic. pi. 574. = Veronica tetragona Hook.  
 p. DRUPAGEA hort aliq. = Cephalotaxus drupacea Sieb.ct Zucc.  
 P.? NUCIFERA Pers. = Torreya nucifera Sieb. et Zucc.  
 P. PAISMBAHICA Miq. Fl. Ind. bat. suppl. p. 589, ad alium ordinem et Boerii <sup>W. Rein ex</sup> *ooeni* sententia probabili referenda.  
 P.? TAXODIODES Carr. = Dacrydium taxoides Brongn. et Gns.  
 P. ZAMI^FOUns A. Rich. = Dammara australis Lamb.



Ordo CG. GYGADACEÆ (1). — Filicum et Palmarum gen. *Adam*, *Jam.* 2, p. 21, 25. — Filicum div. III, *Juss. gen.* p. 16. — Ordo inter Filices et Palmas, *Vent. tabl. règne végét.* 2, p. 68. — Filicibus aut Palmis? affines *Juss. et Rich. rapp. à Vlnstitut.* 15 *messid.* XI (1803) in *Pet. Th. hist. veg.* (1804) p. 12. — Gygadeæ *Pers. ench.* 2 (1806) p. 630, aut (fide *Kunth. in H. et B. nov. gen.*) *Rich. in Pers. I. c.*; *R> Br. prodr. Nov. Holl.* p. 346; *Rich. mdm. Conif. et Cycad.* p. 173, t. 24-28; *Miq. monogr. Cycad.* 1 vol. in-fol. 1842, c. ic. 8, *EjUSD. gen. et sp. Cycad. in Linn.* 1843, v.  $\backslash l > p. \S l S, \text{addit.} \text{ibid.} \text{v. } 18, \text{p. } 96, \text{collect, nov.} \text{ib.} \text{v. } 19, \text{p. } 411, \text{t. } 1-7, \text{v. } 21, \text{p. } 563, \text{t. } 6, \text{EjUSD. prodr. Cycad. in-} 4^{\circ}$  (1861); *Regel in Bull. soc. nat. Mosc.* 1857, v. 1, p. 163; *Euhler in Mart. fl. bras. fasc.* 34, p. 410, t. 108, 109. — Cycadaceæ *Lindl. nat. syst. ed.* 1836, p. 312. — Cycadeaceæ *Endl. gen.* p. 70; *Lindl. Veg. Kingd.* p. 223.

Flores dioici, in strobilos ebracteatos dispositi. *Masculi* e squama strobili plana vel incrassata aut varie peltata, subtus (id est extus) polliginera constantes. Loculi numerosi, a basi squamæ usque versus medium undique vel utroque latere nervi medii absque ordine approximati, genesi nondum sufficienter cognita, evoluti superticie squamæ sessiles aut brevissime stipitati, elliptico-quadrati, rima longitudinali dehiscentes, saepius 3-4 stellatim conjuncti, raro discreti, pollen continent. Grana pollinis materie ubi generata diu inclusa, ellipsoidea, subangulosa, hyalina, tubo pollinico ipsa intima interiore. Flores *feminei* e folio eyoluto (spadix) aut saepius squama plana vel incrassata vel apice varie peltata constantes, in strobilo adpressi. Ovula aut plura secus stipitem spadiceis utroque latere inserta, erecta, aut utroque latere squamæ solitaria et tunc reflexa, omnia atropa (ut quidam aiunt orthotropa), sessilia et interdum basi immersa, rarius e funiculo brevissimo pendentia, integumento simplici, apice versus micropylum in tubum brevem attenuato, parte suprema nuclei serius exsiccatione in operculum deciduum mutata. Spadices vel squamæ in strobilomaturo plus minus segregatae, interdum patenti-reflexae. Semina ovoidea, nunc subcostata, plerumque glabra et laevia, integumento tunc mutato, extus tenui et colq-rato, sub epidermide carnosio, et sub carne putamen non validum praebente, unde semina quasi drupacea. Endospermium copiosum, carnosum, demum (exsiccatione?) corneum. Embryo abortu saepius unicus, exilis; radícula filo suspensorio persistente continua; cotyledonibus 2, oblongis, plerumque paulo inaequalibus, basi apiceque distinctis, medio etiam in germinatione cohaerentibus, plumula distincta. — Arbores pie-

(1) Auctore Alph. de Candolle

rumque mediocres vel humiles, nunc etiam trunco minimo hypogaeo; habitu Palmarum, necnon Filicum arborescentium; olim in Europa, a tempore deyonico ad cretaceum vigentes, nunc solum in regionibus tropicis et subtropicis sparsae; specierum area geographica acte limitata, generibus etiam, uno excepto, in parte unica orbis crescentes, Truncus vel caudex vulgo indivisus, ex apice vegetans atque vestigiis foliorum diu asperatus et cicatratus; ligno in circuitu accrescente, stratis raro distinctis nee unquam anno unico respondentibus; medulla copiosa, amylo farcta, in pluribus iibris lignosis percursa. Perulae imbricatae (folia imperfecta) ovatae vel ovato-acuminatae, exteriorem partem gemmae constituentes, in singula innovatione externe itecatae. Folia perfecta perulas in evolutione sequentia, cum hisce per series continuas (altioris numeri, ut f&, |-J, etc. ex Eichlero) disposita, persistentia, stipulis orbata, petiolata, pinnati-rarius bipinnatisecta vel pinnaticomposita, segmentis vel (propter pasim articulatam) foliolis in eodem folio plerumque alternis vel oppositis, mediis majoribus, nervatione in singulo genere constante, nempe nervo centrali unico, vel nervis subparallelis pluribus passim bifurcatis, vel (rarius) nervo centrali aliisque laterilibus bifurcatis penninerviis; vernatione rhachidis recta vel inflexa vel circinatim involuta, segmentis foliolisve recte imbricatis vel circinatis, nunc secus neryum centram plicatis. Strobili saepius pedunculati, cylindrici vel ovoidei; mares solitarii vel plures, in gemma non centrales; feminei solitarii, interdum vere centrales et tunc vegetatio per axim ulterius progreditur (de quo conf. ad insignes Rheedii icones, v. 3. t. 49 et 20).

Quibus causis theoriam ill. Brown de ovulis nudis admisi jam supra (p. 346) enunciavi, argumentum vero in Gycadaceis praecipuum nunc, praeentibus eel. v. Mohl, Eichler, aliisque, premere oportet. Hoc est in vera natura qrgani cui insident corpora nunc ovaria nunc ovula dicta. Manifestum apparet in Cycade spadices fructiferos medium occupare quo ad lormam, inter folia omnino evoluta et squamas fructiferas, axi laterales, aliarum Cycadacearum, iirmatque dispositio vasorum ex ill. v. Mohl (Verm. Schnft. p. 207. 208) similis in spadice et in rhachide foliorum Gycadis. Nunc, folia evoluta in hoc ordine sunt vere folia, eodem jure ac perulae iis juxtapositae. Immerito enim eel. Link (Ausgew. Abbild. 1.1. f. i. 2) perulas *sub* petiolis foliorum figuravit, quas cl. Eichler (Pl. bras. 1. c), cl. Miquel (in epist., nee olim in Monogr.) et recentius cl. Carruthers (in epist.), ex vivo, ad seriem ipsam foliorum pertinere viderunt. Organa ideo, plus minus evoluta, sed omnia morphologicè folia in Gycadaceis vocanda, sunt : 1° perulae squami formes initio vegetatioms plantae aut ^novationum; 2° folia petiolata frondosa; 3° squama interdum basi pedunculi videndee • 4° spa'

dices strobili feminei Gycadum, apice expansi et lobati; 5° squamæ fructiferae aliorum generum et polliniferae omnium. E folio, praesertim e margine (ut in Cycade), ovula in div. plantis nascuntur, non ovaria seu carpida, et si quaedam prolificatio folii adest, plan tula polyphylla vel pedunculus flore onustus esset potius quam ovarium monophyllum.

E descriptionibus et iconibus hucusque divulgatis squamae turn pollinigeræ quum ovuligeræ bracteola externa omnino carent, unde bracteis Dammaræ, Araucariæ, etc., id est foliis conferendæ sunt, nee Jepidiis Pinorum, id est prophyllis ramulorum. Cl. Gottsche vidit in Macrozamia et Encephalarto (Bot. Zeit. 1845. p. 374), ego in Cycade masculo scrutavi. Character tamen in quibusdam generibus adhuc firmandum.

Nondum rite cognita manet formatio loculorum quibus pollen includitur. Cl. Miquel (Ann. sc. nat. ser. 3, v. 5, 1845, p. 201) genesim omnino superficialem descripsit, quum ex verbis paucis et figuris ab Heinzel (de Macrozamia, in Nov. Act. nat. Cur. 21. pars 1. p. 2J2. t. 13. f. 2) et Regel (Bull. soc. nat. Mosc. 1857. v. 1. t. 3. f. 11. et t. 4. f. 14) loculi intra parenchyma paginae inferioris potius nascentur, epidermidem rumpentes, quod si observatione firmatur loculos vere, nee antheras ut quidam dixerunt, indicaret. Eorum praeterea numerus variabilis, situsque irregularis, antheris male respondet, nee neganda similitudo squamarum mascularum Coniferarum ubi, ex insigni monstro a cl. Mohl observato (Verm. Schrift. p. 45. t. 1), loculi pollinigeri ex ipsa squama sub epidermide prodeunt.

Praeter hsec nondum satis observata, quaestiones inultae memorabiles, hodie solutae supra in caractere Ordinis et Gymnospermarum enunciatae, in operibus supra citatis (p. 346) et sequentibus praesertim investigandae sunt:

De evolutione tola in Cycadaceis : Karsten, *Oryanogr. Betracht. d. Zamia muricata*, in *Abhandl. Akad. Berl.* 1856. p. 193-219. t. 1-3.

De germinatione: *Pet. Th. hist. v6g. iles*, p. 4. t. 1; *Miq. in Linn.* 21. p. 503. t. 6.

De structura caulis : *Brongn. in Ann. sc. nat. ser. 1. v. 16.* p. 389. t. 20. 21; *Link Ausgew. Abbild. 2. t. 1*; *Mohl in Abhandl. Akad. Munch.* 1832. et in *Verm. Schrift. p. 195*; *Miq. Stamm d. Cycas*, in *Linn.* 1844. r. 18. p. 125. (. 4-6, gallice (absque tab.) in *Ann. sc. nat. ser. 3. v. 5.* p. 11.

De dispositione et anatome nervorum in foliis : *Kraus, ueb. den Ban d. Cycadenfiedern*, in *Pringsh. Jahrb.* 4. p. 305. t. 19-23.

De inflorescentia et interpretatione squamarum in strobilo : *Mohl ub. die mannl. Bluth. d. Conif. in Verm. Schrift.* p. 45; *Gottsche in Bot. Zeit.* 1845. p. 370.

De similitudine pollinis in Cycadaceis et Coniferis : *Gottsche I. c.* p. 309.

De ovulo et embryone : *Miq. in Ann. sc. nat. ser. 3. r. 3.* 1845. p. J<sup>^</sup>; t. 8 et 9; *Gottsche, I. c.*; *Karsten I. c. {extr. in Bull. soc. bot. Fr.* 1857. p. 95JJ, A. *Gris, in Bull. soc. bot. Fr.* 1860. v. 13. p. 10.

Cycadacearum fossilium hucusque cognitarum enumeratio adest in *Miquel, Prodr. Cycad.* 1861. p. 28.

## CLAVIS GENERUM DICHOTOMA.

- |   |   |   |  |
|---|---|---|--|
| 1 | } | Folii segmenta 1-nervia Strobil spadicis apice fohacei, fructibus secus spadicis stipitem 2-plunbus. . . . . I. Cycas                 |  |
|   |   | Folii segmenta vel lohola plunnervia. Strobil squamae fructiferae limbo orbatae, fructibus tantum duobus Confer ad numerum. . . . . 2 |  |
|   | / | Folia sine articulatione, bipinnatisecta. . . . . IV Bowenia  |  |
| 2 | } | Folia sine articulatione, puinatisecta. . . . . 3   |  |
|   |   | ( Folia foholis articulatis composita. . . . . b  |  |
| 3 | ) | Segmenta pennnervia. . . . . II Stangena.   |  |
|   |   | I Segmenta parallele plunnervia. . . . . 4  |  |
|   | ( | Ovula fumculo bre i suspensa. Squamae masc. et fern. planae. . . . . VI. Dioon.   |  |
| 4 | ] | Ovula sessilia. . . . . 5   |  |
|   |   | Squamae masc apice obtusae, truncatae, femineae late peltatae. . . . . III, Lncephalartos.  |  |
| 5 | { | Squamae masc. et fern, apice acuminatae. . . . . V. Macrozamia  |  |
|   |   | Squamae masc. plans, obtusae, femineae apice ciassae, truncatas. . . . . VII. Microcycas.   |  |
| 6 | { | Squamae masc et fern apice incrassatae, peltatae, non cornutae. . . . . VIII Zamia  |  |
|   |   | Squamae masc. et fem. apice incrassatap, bicornuta? .. IX. Ceratozamia.   |  |

## DISTRIBUTIO GENERUM GEOGRAPHICA.

- Genera** amencana Dion, Microcycas, Zamia, Ceratozamia  
 — afncana : Slangena, Lncephalartos  
 — australasica Bowenia, Macrozamid.  
**Genus** cisiatico-australidsico-africanum Cycas

Tribus I. *CYCADEJE*. — Cycadineae *Miq. prodr. Cycad. p. 5*.

Ovula e margine cujusve folii floralis (spadix dicti) 2-plura, distantia, erga basim folii suberecta. — Segmenta folii vernatione circinata, nervo unico centrali praedita. Strobilus femineus terminahs, vegetatione ejus axis anno sequente progrediente.

<sup>1</sup>. *CYCAS* *L ffort Cliff, p. 482, et gen. n 1122 (sine char.), Jws gen. p. 16, Smith in Trans linn.soc 6 p 31?, t 29, Pet. Th hist teg d Trance, etc. p. 1-22 t 1 et 2, Br prodr Aoi Holl p. 347, Rich mim Comf et Cycad. p 197. t. 24-26; Hook Bot maq. t. 2963. 2964, Endl gen p 71, Miq monogu Cycad. p 21 U 1 et 2, Comment, phytogr p 110, lmn. 17 p 680, etc — Palmae sp. Breyn, Herm, etc — Todda Panna Rheedc Malab. 3 t 13-21; Adans fasr 2 p 25*

Strobil masculi squamae imbncataB, cuneatae, subtus crebre locuherae, apice sdspius acuminatae Feminei spadices imbricati, ab axis Basi gradatim patentes, crassiusculi, stipite lineari, inde oblongo-obovati medium versus m margine stipitis utroque latere ovula 2-5, alterná vel opposita, plus minus immersa, distantia, suberecta gerentes, hmbo stenh pmnatilobo. — Arborea asiaticae, australasicae, et insularum Africas onentalis, ligno stratis paucis distmctis (Rheed. 1. c. t. 20 *Miq. in Linn. 18. t. 5*): folns pinnatisectis, segmentis 1-nprvnc '«»«»' secus petiolum in spinas mutatis; vernatione rhachidis recta segmen-torum circinata; strobilo masculo \*n gemma lateralr femineo post flores in centro vegetante (Rheede Malab. 3 t. 17. 20. [ ] 5).

\* Fructus dense tomentosi.

1. *C. REVOLUTA* (Thunb. fl. jap. p. 229), segmentis fol. numerosissimis linearibus spinoso-acuminatis margine revolutis, infimis abbreviatis ad spinas versus basim folii transeuntibus, fl. masc. . . . , inflorescentia feminea dense fulvo-tomentosa, stipite spadiceo crasso fructus 2-6 obovoideos apice emarginatis velutinos in inferiore parte gerente, limbo ovato, segmentis crebris linearibus subincurvis extremitate valde acuminata glabris. 5 In Japonia, et cultura per regiones calidiores dispersa. In hortis Europaeis plerumque feminea. — Smith in Trans. Linn. soc. 6. p. 312. t. 29, 30; Hook, in Bot. mag. t. 2963. 2964 (excl. syn. Seba); Miq. monogr. Cycad. prodr. p. 6, 17; Oudem. tentat. pour rétablir le *C. inermis*, p. 100. t. 2 et 3. Tessio Japon. Kaempfer Amoen. p. 897 (sine descr.). Arbor calappo ides sinensis Rumph. Amb. 1. p. 92. t. 24 (ubi sol. folium male fig.). Truncus crassus, humanae altitudinis, vestigiis foliorum diu vestitus. Folia  $\frac{3}{4}$ -2 metr. longa; rhachi sub-4-angulata, subtus convexa, glabrescente; segmentis plerisque oppositis, mediis majoribus 6-18 cent, longis, 4-6 mill, latis, glabrescentibus, nervo subtus prominente, margine integerrimis (quapropter ic. Sebae erronea vel exclud.), inferioribus abortivis numero variabili. Spadices 6-10 cent, longi, tomento ex plur. auct. griseo, ex specim. meis (hort. com. Harrach et h. Taurin.) et ic. Sm. et Hook, fulvo vel ferrugineo. Fructus armeniacis subsimiles, minores, lutei, velutini, obovoidei, 1½-2 cent, longi, extus coriacei, demum glabrati. — Monstra adsunt trunci polycephali in Vrolik n. Verh. Ned. Inst. 12. p. 193. t. 1. et denuo a Goepf. Denks. Feier Schles. t. 10. figurata. (v. s.)
2. *C. INERMIS* (Lour. fl. Coch. 2. p. 776, excl. syn.), foliorum segmentis numerosissimis linearibus spinoso-acuminatis margine revolutis infimis abbreviatis, petiolo saepius inermi, fl. masc. . . . , inflorescentia feminea dense fulvo-tomentosa, stipite crasso fructus 2-6 ovoideos acutos gerente, limbo oblongo compresso segmentis crebris lanceolato-linearibus acutis usque ad apicem tomentosis. 6 In Cochinchina sylvestris (Lour.) et culta in h. Amstelod. — Miq. Anal. bot\* ind. 2 (1851). p. 28. t. 3 et 4. *C. revoluta inermis* ejusd. Prodr. (1861) p. 16. *C. inermis* Oudem. Notice sur une plante fern, du *C. inermis* (1861), ejusd. Tentative pour rétablir le *C. inermis* (1867) in Arch. néerl. L 2 et 3. Ex Miq. et Oudemans petioli interdum, in plantis junioribus, spinosi. Folia fere *C. revolutae*, ex Oudem. segmentis paulo latioribus (5 milli nec 6½ mill, latis), ex ic. Miq. forsitan tardius glabratis. Fructus ab initio acutiusculi, nunquam apice emarginati, indumento ablato luteo-aurantiaci. Fasciculi vasofum (ex cl. Oudem.) duo qui juxta putamen penetrant in plures ramos divisi, nec in 2 ut in *C. revoluta*.

\*\* Fructus glabri, vel juniores pilosi et adulti glabri.

5. *C. CAMINALIS* (L. sp. p. 1658, quo ad plant. Rheed.), elata, petiolo angulato rhachi terete, segmentis oppositis vel alternis linearibus lanceolatis acuminatis subfalcatis margine planiusculis, imis subito in dentes spiniformes breves rectos abbreviatis, strobilo masc. ovoideo sessili, squamis e basi obovato-deltaeideae longe acuminatis acumine pubescente, spadiceo fern, longe lingulatis supra medium 2-10 fructus gerentibus in laminam ovatam longe acuminatam dentato-lobatam desinentibus, fructibus junioribus pilosis demum ab apice glabratis. ^ In Malabar locis mont. vel arenosis (Rheede) et Ceylona (h. Herm. ex Miq.; Thwait. l. n. 3689), jam a. 1700 in hort. anglie introducta. (Hook.). — Hook. bot. mag. t. 2826 et 2827 (excl. syn. plur.); Miq. monogr. p. 27, prodr. Cycad., p. 7. 17; Thwait. enum. Ceyl. p. 294. Todda Panna Rheed. Malab 3. p. 9, cum ic. insign. 13-21. (Icones Lam. ill. t. 891, Descourt. fl. Ant. 6. t. 449, et Diet. sc. nat., t. 310. 311, e div. Rheedii et Rumphii tabulis forsitan mutuatae, sequo jure ad *G. circinalem* et *C. Rumphii* referenda sunt. De tab. Rich, confer ad *G. Thouarsii*). Truncus ex Rheede 10 metr. altus. Folia 2-3 metr. longa; petiolo circ. ½ metr.; segmentis majoribus 20-25 cent, longis, 9-18 mill, latis, ex ic. Rheedii dentibus omnibus brevibus rectis. Squamae masc. ex specim. Thwait. 5-7 cent, longae, incluso acumine uncinato 15-20 mill, longo, pars inferior supra leviter pu-

bescens vel glabra Spadices (ex eod specim ) 1 decim longi. ferrugineo-tomentosi, lamina 5-6 cent longa Fructus matun (ex IC Rheecf) magn o\i columbini (v s)

P, *Javana* (Miq monogr Cycad p 28 t 2 f 1, spadices, t 1 f t, u, ovuli) petiolo subterete In Java (Blume), Sumatra et Borneo (h. Mus. Lug. bat) ? ex Miq 1 c et in Lmn 17 p 698

- <sup>^</sup> G RUMPHII (Miq in Bull sc phys et nat Need 1839 p 45), petiolo oh tuse tngono, rhachi terete, segmentis oppositis linean lanceolatis acuminatis subfalcatis margine paulo revoluiis (an semper<sup>9</sup>), inns subito in dentes breves rectos abbreviate, strobilo masc ovoideo breviter stipitato (an semper\*), squamis cuneiformibus extrema parte lata bieviter acuminatis intus et acunaine pubescentibus, spadicebus fern elongatis angustis supra medium fructus 3-5 gerentibus lamina ovata vel oblonga acuminata dentato-lobata, fructibus. glabnuscuh  $\text{\pounds}$ ln ins Moluccensibus fere omnibus (Rumph Miq ) in Ceylona (Thw ! exs n 3862) an spontanea? (in Enum ncn memorata) — Miq Comm s Sylloge (1840), p 120, Anal ind 2 p 32 t 5 f A et B (squam masc), Monogr Cycad p 29, Linn 1843 v 17 p 688 fl Ind <sup>fc</sup>at 2 p 1077, Linn 1745 p 589 t 2 (de fl fern ) Olus calappoides Rumph Amb 1 p 86, 87 t 22 23 (e\cl pi (cleb) C circinalis Roxb <sup>n</sup> ind 3 p 744 (excl syn Lour) et pi auct (non 1 ) C cucinahs Mori tzil n 1161, Veiz p 52 (fol tamen pallidionbus tenuionbus forsan junionbus, tiunco elato, acumine squam non longiss) G circinalis var angustifolia Miq Comm p 119, quae C Wallichn ejusd Monogr p 32 (fide ipsius in Lmn 25 p 589 et in Prodi ) Zamia Corsoniana G Don in harden Mag jul 1842 p 371, sine descr foln (quae ex autopsia com masculi duthentici in h Soc Lmn Lond a cl Carruthers hum me comm. est certe Cycas et vensimiliter praesens propter formam squamae masculae) Tiuncus 3 4 metr altus Folia saepius us C circmalis breviora, segmentis minus numerosis Squamae misc (e\ specim Thwait) 5 cent longae, mcl acumine unci J<sup>a</sup>to, 12-15 mill longo, ut in C circiriah e basi lata pioveniente sed multo brevior Spadices fern ferrugineo-tomentosi, quam in C circinali ingushores, laminae lobis magis irregularibus saepiusque acuminatis Characteres <sup>e</sup> strobilo stipitato et foima laminae forsan non satis constantes, sed forma squamarum masc mchus defimta videtur Absque flor masc a C circinali <sup>V</sup>U in h<sup>^</sup>rb. distinguenda (v s)

P, *Timorensis* (Miq Comm p 125), segmentis inferioribus oppositis, supei alteims multo brevionbus In Timor (h Mus par ') — Floies et fi ign (v fol)

- <sup>^</sup> <sup>c</sup> ANGULATA (Br prodr hov Holl p 348), petiolo tetragono, ihachi feic usque ad apicem ancipiti, segmentis lanceolato-lineanbus muticis imis abbreviatis ad spmas transeuntibus, squamis strobili masc basi cuneatis apice acuminatis inlus p losulis spadicebus fem pubescentibus hnean-lanceolatis basi angustatis medium veisus 6-10 flons lamina inde ovato-acuminata Inegulantei dentato-lobata, fructibus glabris subglobosis 5 In Novae Hollandiae intratropic regione man piounid — Bauci ic med in Mus bot Vindob , Miq monogi Cycad p 26 t 2 f d-e (ic, Bauen mutuatae) Piodi Cycal p 6. 16 Arbor satis alta Stiobilus mas ovoideo-ellipticus' Squamae ultra medium anthen vestitae. Stiobilus fern masculino 40-00 ] on - 8ior, pedunculo compiesso, fructibus jun globosis in medio spidicis distan- Ubus, basi rhachi immersis, lamina longe aoummata, acumine ex ic ~~Mit~~<sup>4</sup> glabro

- <sup>6</sup> G MEDIA (Br prodr Nov. Holl p 348), petiolo brevi et rbachi sunra nla nmscuh subtus convexis, se,mentis numeiosissimis hneanbus acumm<sup>at</sup>i margine vix revolutis imis ibbieviatis ad spinas transeunlibus, mflo<sup>r</sup>r<sup>^</sup>o<sup>n</sup>tif masc , spadicebus fem pilosuhs linean lanceolatis basi anBik<sup>t</sup>at<sup>i</sup>f<sup>i</sup>ff<sup>?</sup> medium 2-6 flons lamina inde bre\i ovato-acummata dentato-Inhnto<sup>r</sup> St<sup>^</sup> <sup>L</sup> tibus glabris j In No\ne Hollands intiatropic legiene mari  $\ll$  Bauei ic med in Mus bot Vindob , Miq monogi p 26  $\overline{T}^{\wedge} | r^{\wedge} \cdot xI T^{\wedge} T$  t 3 (tota plauta) icon Lauen mutuatD3 CjUSD Prodi Cv<sup>^</sup>d  $\overline{u}^{\wedge} P \overline{u}^{\wedge} M_{ii}$  Truncus 3-4 metr. dlus cylindncus, annulatus, interdum <sup>^</sup>ice P<sup>r</sup>amos<sup>t</sup>

Polia meti et ultra longa elliptico-lanceolata, petiolo solum 3 dec longo, segmentis plensque (medis-) 20 cent longis, 1 cent latis, inferioribus spinosis paucis Spadices fem reflexi, 22-23 cent longi, lamina soium 4-5 cent longa Fructus inatun ovoidei, feie magmt o\i galhnacei

p, *inermxs*, pctiolo non spinoso — Ad Port Essington (Armstrong 380 in h Hook) G media Miq in Linn 19 p 412, Monogr 1 c.

- 7 C GRACILIS (Miq over de Cycad Nieuw Holland, m Meded Akad Wet Natuurk Deel 15), petiolo spinoso, rhachi dorso crasso convexo antice lectangulo piommente, segmentis hneanbus spinoso-acutis margme incurvulis lunionbus subtus floccoso-pubens, squamis strobili masc anguste cuneatis lamina stenli rufo-lanata breviter spmosa terminatis, spadicibus fem 2-4-angulatis utnnque 3-4-ovulatis praesertim versus apicem gnseo-lanatis lamina stenh parvi obovato-rhombea supeine serrulata apice acutata In Nova Hollandia boi or versus fl Burdikiu (F Mueller) Segmenta infenora breviora media 9-8 poll longa, vix 2 lin lata, hrma bqiamae masc pollice paulo longiores, angustiores quam in aljis, lamina crassiuscula, pallide rufo tomentella, quam pars pollmilera tnente minore, vei in infeioribus subaequah Spadices fem 7-7 J poll longi Ovula glabra I ructus obovouleo-elhpsoidi, 1 J poll longi
- 8 C SIAMENSIS (Miq m Dot Zeit 1863 p 334), folm novellis hirto-pubcscentibus, segmentis crebns anguste linean-lanceolatis pungenti-acutis planis, medus majonbus, lmis valde dbbreviatis ad spinas tianseuntibus, fl masc , spadicibus pedunculato-spathulato-obovoideis lobis laminae excptis ochraceotomentosis biovulatis, lamina terminah rhombeo-ovata pectinato-pinnatifida acummata vel acuta, fructu juniore glabernmo 5 In legno Siam, prope Kan-Boene (Teysm ) Iruncus humihsin specim obs non 3 ped altior, basi dilatatub, apice contractus Folia lanceolata, 1J-2J ped longa, 2J-2| lin lata Spadice^ 2-4 poll longi, lamina rehquum longit aequante Cohtui m horto Rheno-trajectino

### *Species minus notx.*

9. C CEJEBICA (Miq comm p. 126), petiolo inermi, segmentis fol anguste lanceolatis, fructilbus in scapo paucis In ins Celebes — Miq monogr p 31, fl Ind bat 2 p 1077 Oulus cahppoides e Celebes Rumpb Amb 1 p 87, et (fide Miq sed discrepant a descr ) t 20 21 Tabula 21 a C Rumphu (t 23) non nisi segmentis paucionbus et petiolo inermi diftert el spinas in dlus affinibus desunt, sed t 20 strobilum masc fructu Ananasbae sub-similm, squamis confertis doiso abrupte acuminatis satis pecuharem exhibet
- 10 C GLAUCA (Miq monogi p. 80), petiolo obtuso tngono spinuloso, segmentis utnnque 50 60 lineari linceolatis rectis aut foliatis undulatis adultis etiam glaucis Patna ign Cohtui in horto Lugd bat — Miq prodr Cycad. 1861 p 7 17 Juvenilia specimina C circinalis, ex cl auctoie, saepe glaucescentia, sub hoc nomine in horlis erronee C glauca vocantur, de quo confer ad Miq comm p 132, et prodr Cycad p 17
- 11 C RiuMiNiANA (Regel Gartenfl 1863 p 16, cum fig arbons) E Philippine (Porte) culta in hortis Mosc et Verschaffelt — Lem III hort 1864 t 405 (arbons) et misc sub t 410 Truncus 6 8-ped Ex IC et descr plantae ubi flores et fr ignoti, nihil a C Rumphu vel C circinah dnsum perspicio
- 12 C THOLARSII (Br. prodr. fl Nov Holl p 347, sine descr ), petiolo scmitiete spinoso, segmentis lineari hnceolatis subfalcitis, squamae strobili masc apice acuto adcidente quam basis cuneata locuhgera quater breviorc, spadice fem 4-7-ovulato, lamina late lanceolata acuminata crenata — Dicitur e Madagascar (an spon^ ^ an culta?), sed insignes obs cl du Petit Thouais de germinatione m Mauntio mstitufc fuerunt, monentibus Juss et Rich in Pet In hist veg p 12, ideo patna mcerta C cncm-ili\* Pet Th hist veg (1804) p 2 t 1 et 2, non Linn C Madagaswriensis Miq comm p 327 » qui senus nompn antenus Biovnn accepit F\ forma squamae masculaega Pet. Th. figuratae iterumquc ut videtur in Rich Conif. et Tycad t 1b)

non diversa species esset a *C. Ruinphn*, dum *Richardi* t 24, omnino *C. circinalis* veram reddit An specimina solum cuita *C. Rumphii* in insulis africanis vidit du Petit Thouars? Hisce dubns motus amiciss Brongmart interrogavi num specimina Madagascanensia authentica in herbanis Mussei Pansiensis adsmt, et sequenti modo respondit 1° In herb du Petit Thouars unicum specimen adest femineum et cum germmatione vel folns junionbus, sine onginis cognita aut schedula auctoris, 2° in herb. Commerson specimen ddest scptum « *C. circinalis* L. Sambre de Madagascar. Au Reduit J769, » et folia cum schedula Desfontaines, « Madagascar Commerson » ideo onginis non certae et speciei dubiae, 3° Bonin *Cycadem* in ins Comores legit, ad Anjouan, Mayolte, sous les crêtes du Qualay, n. 2891. Haec *C. circinalis* in herb vocatuV. — Species ideo in Madagascar non certa, tantum magi3 quod *Rdduil* est locus in Mauntio, sed m Comores vere spontanea. Num sit *C. Rumphii*, \el *C. circinalis*, vel propna species, hoc u I terms Pansns mvestigandum esset Spadix femineus *crenatus* m icone Pet Th figuratus a formis indicis omnino differt

13. *C. UNDULATA* (Desf Cat horti par 1820, sine descr.), petiolo toto piloso, segmentis foln lmeanbus undulatis acutis herbaceis, flore et fr ign Patria jgn Culta in h. pai — Gaudich \oy Freyc. p. 434 An una e praeced.^ ait cl Miq prodi *Cycad* p. 7.

*Species dubix, mihi ignotx.*

- C. DILATATA* Griff. \  
*C. JENKINSIANA* Griff. ( Notulae part. iv.  
*C. MACROCARPA* Griff. \  
*C. PECTINATA* Herb angl.

*Species non descriptx.*

- ? *SPECIOSA* Don in Ann of nat hist 5 (ex Miq.), sine descr.  
 ^ *SQUIRROSA* Lodd cat sine descr. e\ Miq.

*Species exclusx.*

- C. CVFFRA* lhunb = *Encephalartos Caffei* Miq  
 c \* *HYPOLEUCA* Presl Epim p 238, e Lucon, est *Oidinis* di\ersi, probabiliter Palmarum, ex Miq. prodr *Cycad* p 17  
 c « *RIEDLEII* Fisch ined. et Gaudich voy Fieyc. p 434 = *Macrozamia* Preissu

Tribus II. *ENCEPEALAKFEJE*. — Tribus *Stangerieae*  
 et *Encephalarteae* *Miq. prodr. Cycad*, p. 5.

Ovula 2, supra basim cujusve squamae femmesB utroque latere symmetrice disposita, reflexa. — Medulla fibns lignosis percursa. Folia pmnati- vel rarius bipmnatisecta, segmentis pleruniqu nervuhs in medio parallelis plunnerviis, rarius penninerviis- vernatione non circinata.

Subtribus 1. *STANGERIEJE*. — Tribus *Stangerieuj* *Miq. I. c.*

Segmenta foli<sub>i</sub> penninervia, Vernatio rh<sub>achis</sub> et segmentorum plicata.



II STANGERIA *Th Mooie Natal Ferns, in Hook Journ of bot 1853 v 5 p 228, J Smith ibid 1854 v 6 p 88, J D ffoofc in Bo\* mug t 5121, Mxq prodr Cycad p 9 cU8* — *Lomanae sp XuTwe in Linn 10 p 152, 506 v 18 p 116* — *Cycadaceae sp J Smith (1852) m Seem, bof flerafd voy p 235*

Strobili masculi squamae imbricatae, basi late cuneiformes et subtus crebre locuhgerae, a medio ovato-acutae stenles. Locuh obovato-quadrati, breviter stipitati. Squamae strobili feminei forma masculinarum, sed breviores, magis concavae, basi utnque in cavitate ovulum recondentes. Semen ovoideum, sessile. — Arbuscula in Africa australi indigena. Trunco brevi, napiformi, vix cinctisato, peruis ovato-acutis, cihatis, fohorum segmentis oppositis vel alternis, sub-12-jugis, oblongo-lanceolatis, acuminatis, basi angustiore non articulatis, petiolulatis vel sessibus pauloque decurrentibus, a medio spinuloso serratis nervo centrali donatis cum nervis crebrius ex eo egredientibus, fere perpendiculanibus, plensque semel, rarus bis basi bifurcatis, juxta marginem cartilagineum anastomosantibus aut ad dentes pervenientibus (in Bot. mag. bene descnptis, male fig), vernatione in Ordine anomala, ubi (ex auct.) pars extrema fohi mitio abrupte secus petiolum reflexa, segmentis mutuo oppositis, longitudinater plicatis. — Flores et fructus fere Macrozamia; segmenta fohorum nervo centrali praedita, ut in Gycade, nervis vero Jateribus transversis et vernatione ab aliis Gycadaceis omnino distincta, unde primo Filix generis Lomanae dicta

S PARADOXA (T Moore 1 c) Prope Port Natal (Gueinzus, posted Stranger, etc), nunc in horto Kew alique culta. — Jlook f, J Smith II cc Loraana coriacea et Lomana eriopus Kunze I c. Truncus in horto Kew pedalis, basi angustior. Perulae 10-15 mill longae lataeque. Folia >7 decim longa, petiolus 2-2i decim longus, dorso teres, ima basi tomentosus, alibi glabei (vel glabratus?), segmenta glabra, 7-15 cent longa, 2J 4 cent lata, conacea, in IC Bot mag opposita et pleraque sessilia, in specimine meo (culto) alterna, mfenora petiolulo 7-8 mill longo, supra sebsiha, decurrentia, nervis lateralibus supra magis quam subtus eminentibus, non pellucidis, pagina infer ad lentem paulo lepidota. Pedunculus mas 4 cent longus, unieio tomentosus. Strobili cylindrici, mas 14-15 cent longus, 3 cent latus, parte superiore et externa squamarum cinereo-tomentosa, femineus 5-8 cent longus (v s masc comm a cl Seem)

Subtnbus II. ENCEPHALARTEJE. — Tnbus Encephalarteae *Miq. I. c.*

Segmenta folii parallela multimeria. Vernatio rhachidis et segmentorum recta, imbricativa.

III. ENCEPHALARTOS *Lehm pug 6 p 9, Be Vnese in Ann sc nat ser. 2 v 10 p 152, Miq monogr Cycad p 39 t 1 f u\*, t 2 f V\* H\*, Ejusd Ann sc. nat ser 3 v J p 203, Lmn 17 p 709, 19 p 417 t 5. Prodr p 8 18.* — *Zamia sp Jacq Fragm t 25 26 27 28 29, Gxrtm {met 1 t 3 - Arthrozamia Reichb comp n 751 [sine descr] fide Vnese I c*

Squamae strobili masculi patentibus, subtus vane locuhferae, extremitate stentibus pinis, non latiore, obtusa vel conico-truncata, subquadrata. Squamae strobili feminei pedunculato-peltatae, sub peltis crassis rhombo-quadrangulis biovulatae, peltis in strobilo externis, juxtapositis, maturitate parum segregatis, uno aogulo superiore, uno inferiore, 2 lateralibus. Semina ellipsoidea, subcostata, putamine e segmentis plunibus

demum coactis formato. — Arbuscula Africanae, foliis pinnatisectis, segmentis parallele multinerviis, vernatione rhachis et segmentorum distincta, imbricata Squamae masculae ejusdem strobili aut undique in inferiori parte subtus locustulae, aut utroque latere nervi centralis.

1 E CYCLOPHYLLOIDES (Lehm pug 6 p 13), trunco lanuginoso sensu glabrato, petiolo rhachique cinereo pubescentibus, segmentis oppositis alternisque lineari-ovatis integris punctatis glabris nervis marline reticulatis, strobili utriusque sexus stipitatis tomentosis demum glabratis, masculorum squamis cuneatis obtusissimis, femina squamis cuneatis facie externa late imbricatis diu juxtapositis 5 In Africa australi interioribus, ex parte in monte Windvogelberg, alt 4-5000 p (Dortge fide Lehm), in regione Tambooko (Lekle et Meyh ex eod) — Miq monogr Cycad p 43 prodr 8 18 Zamia cyclophylloides Jacq fragm p 27 t 25 26 E Jendenci Guilielmi Lehm pug 6 p 8 t 1-3 Cl Miq Identitatem plantae olim in h Vindob cultae (Z cycadifoln. Jacq) cujus folium vidit et plantam a Lehmanno I Jendenci Guilielmi nuncupatam nunc affirmat tomento caudicis et segmentorum foliorum pro aetate speciminis et foliorum variante immixta basi et apice attenuatus Folia 2-J-pedalia, rhachi semilevitate, segmentis mediis longioribus 3-S poll longis, nihil subtus incumbens evanescentibus Srobilus masculinus (a Lehm obs et fig) 8-12 poll longus, stipite 2-3-poll suffultus, femineus 10-12 poll longus\*\*, pedunculo paulo brevior Semina aurantico-iubra, inter squamas fuscas partim videnda

2 E LEHMANNI (Lehm pug 6 p 14), trunco glabro, petiolo rhachique obtuse tetragonis, segmentis suboppositis linearibus vel late lanceolatis pungenti acutis pruinosis glaucis integris vel raris 1 dentatis, strobilo masculino oblongo breviter pedunculato, femina 5 In terra Caffrorum Africa australi (Ecklon & Ohm et nunc in hortis culta — Otto et Dietrich allg Gartenz 1836 n 28 p 217 (ex cit Miq), Miq monogr p 47 Regel Gartenfl 1865 p 197 t 477 Zamia Lehmanniana Ecklon et Zeyher in Otto et Dietrich allg Gartenz 1833 n 20 P 188 E Mauntiaius Miq monogr p 48 (fide ipsius in Prodr Cycad p 19) Truncus ovato-cylindricus Folia nascentia pilis sparse deciduis obsita, metrum longa, segmentis majoribus 14 16 cent longis, 1 cent latis Strobilus masculinus 30 cent longus, squamarum facie externa (ex IC Regel) rhomboidea diametro majore longitudine, quum ex Miq monogr transverse majus dicitur

p, *spinulosus*\* (Miq in Inn 19 p 420), juniorum speciminum segmentis omnibus spinuloso-dentatis E spinulosus Lehm in Tijdschr nat Gesch 4 p 420 t 7 f B, Miq monogr p 50 Probabiliter status juvenilis, ex Miq prodr (1861) p 19

& F LONGIFOLIUS (Lehm pug 6 p 14), trunco glabro demum Plano, petiolo rhachique tetragonis supra piano depressis, segmentis nuncupatis lanceolatis sordide viridibus plerisque obtusis muticis integrisque infimis saepe 1 3 dentatis margine subrevolutis, tomento detergibili in rhachi segmentis jungera evanido, strobili masculini sessilibus elongatis subacutis, squamis patentibus usque ad 1/2 longitudinis cuneatis apice conico-quadrangulo fusco truncato femina 7) In Africa australi, olim in hortu Schoenbrunnen descriptus et nunc in hortis sub nomine cultus — Miq monogr p 64, prodr p 19 Zamia longifolia Jacq fragm 2 p 28 t 29 Segmenta foliorum circiter 1/2 utroque latere, plana, plerumque alterna (ex descr Jacq) Strobilus masculinus sesquipedalis

p, *revolutus* (Miq monogr p 55), segmentis foliorum margine revolutis

Y, *angustifolia*\* (Miq monogr p 66), segmentis angustioribus planis & Inflorescentia ut in var p ignota

6, *Hookeri*, segmentis foliorum anguste lanceolatis acumatis intenso viridibus (non glaucis) rhachique glabris 5 Circa Graham's Town in hortu hinc introducta h Gaffer Hooker bot mag t 4903 (non Lehm) eadem quam E longifolia Lehm agnoscit cl Hooker, sed iconem E Caffin in Act Ups non viderat, indeque errore simpliciter suspicatus erat A specie Thunbergii differt trunco altiore et praesertim aegmentis foliorum non loricatis

Strobilius mas sessilis est in IC Hook ut in veio E longifolio, qui pedunculatus in E Caffro, sed in var p E Gaffn jam pedunculus adest et forsitan character non validus Cl Miq iconem Bot mag ad E longifolium refert

- 4 E CAFFER (Miq monogr Cycad p 53, quo ad plant. Thunb), non elatus, petiolo tnuetro glabro, segmentis alternis glabris lanceolatis basi adgustiore torsis apice acutis, junionbus dente alterove auctis adultis Integra, strobilo masc cylindrico pedunculato, squamis subtnquetns apice obtusissimis umbilicato-rugosis glabris, femineo ovoideo elongato pedunculato, squamis patentibus subquadranguls obtusis latenbus in hamum quadiangulum productis 5 In Africa australl, terra Hottentorum —Miq prodr p 20, non Hook Cycas Caffra Thunb in Nov act Soc sc Upsal (1775) v 2 p 284. t 5 Zamia Cjcadis L f suppl p 443 Ex descr et ic rhunbergn truncus, demum altitudine hominis, non dicitur pilosus, folia spithamam ad ulnam longa» segmentis poll ad digitum longis, strobilius mas spithamaeus, pedunculo palman, squamis cuneatis, a basi ad J longitudinis locuhgens, strobilius fern major, subpedalis, pedunculo ut in mare, squamis basi cuneatis, umbone fere plicatis, supremis ovatis, absque hamis

p, *brachyphyllus* rhachi paginaque mfer segmentorum arachnoideo-pubescentibus nunc glabratis strobilis masc «?essilibus, fem . 5 In Africa austr ad Visch-nvier (in horto Ultraject pnmo introd ) Cycas villosa heib Van Royen E brachyphyllus Lehm cat h Hamb 1836, Lehm et Vnese Tijdschr nat Gesch 4 p 414 t b f A-E, t 7 f A-F (quam ic non vidi), Miq monogr p 49, Vnese in Fl serr et jard 3 1847 misc n. 59 c ic Zamia cycadifolia Lodd cat et PI Dreg ex h Caffra Miq prodr 1861 p 20 Character e pubescentia vanabihs, monente cl Miquel Strobili masc (ex ejusd monogr, p 50) sessiles Segmenta foln ut in specie torsa

- 5 E HORRIDUS (Lehm pug 6 p 14), trunco glabro vel lanuginoso, rhachi petioloque tetragoms glabris, segmentis oppositis 'vel alternis prumoso-glaucis vmdibusque lanceolate forma variabilih mtegris vel acute dentatis pungenti-acumematis, strobilis breviter pedunculatis, masc elongato-cylindraccis, fem ovoideis, squamarum relta quadrangulan torulosa fusca utroque latere hamata 5 In Africa australi intratropic. — Miq monogr p 57 t 2 f\* (strobilius mas), Not sur l'E horridus in Ann sc nat ser 3 v 10 p 366, excl. ^a^ lanugmosa, rijdschr nat Gesch 6 p 90 t 3 et 4 (ex cit ipsius in Prodr p 21) Zamia hornda Jacq fragra p 27 t 27 28 1 Van HallH Vnese in lijdscr nat Gesch 2 p 422 t 10 (fide Miq cit) E nanus Lehm Tijdschr 4 p 421 t 8 f C (fide cit Miq), Miq monogr p 60 Zamia tn-cuspidata hort in Verh z Bef Gartenb 5 p 186<sup>9</sup> (ex Miq prodr p 21) E horridus tnspinosus Hook bot Mag t o371 Valde polymorpha saltern m hortis, ut probavit cl Miq Vanat praesertim pubescentu trunci, colore foliorum eorum longitudine dentibusque raagnis vel brevibus vel bifurcatis vel uullis

p, *lahfrons* (Miq in Ann sc nat 1 c), segmentis lationbus infenonbus saepius integris — Miq monogi p 59, ubi descnptio fusa % latifrons Lehm in Tijdschr nat Gesch 2 p 424 t 9 f A, B, v 6 t 3 (ex cit Miq in Prodr Cycad p 21)

- 6 E ALTENSTEINI (Lehm pug 6 p 11 t 4 et 5), trunco glabro, petiolo rhachique subcylindncis segmentis plensque oppositis lanceolatis glabris intense vnmfibis acumine dentibusque paucis in utroque latere acutis pungentibus, slrobilo masc ovoideo-elongato, squamis patentibus medn& quad rang ularibus et inde in conum truncatum stenlem desinentibus, supenonbus o\ato elongatis apice obtusis squamis fem obo^atis txtremitate omnium pubescente o i<sup>Q</sup> Africa australi eitratropicalah ad lambookis (Eckl etZeyh) —Miq <sup>monO^r</sup> P ol, Linn 19 p 420 t 5 (de strobilo masc et semine) Prodr p 10 22, Oudem meded Enceph Alt 1863 p 1 Zamid spinosa Lodd. cat (fide Miq; I Marumii Vnese Iijdschr nat Gesch 5 p 188 (ubi segmenta <sup>mar^r</sup> sup. integro) Truncus cylmdricus Segmenta foln state arbons minus aen-tdta, longu et latit vanantia Strobili masc 1-2-ped (in horto Hamn JI Squamae mediae in parte infer et media crebre loculigerae, infer et super

angustiores, nunc in inferiore parte a re is 2, nunc in extrema parte undique subtus oculigeræ, ex insigni tab. Miquelii.

P, *eriocephalus* (Vriese Descr. pi. nouv. Jard. Leyde, cum descr. et tab. 2 coloratis), trunco sursum lanuginoso. Character perstat, ex Oudem. meded. 1863. p. 5. Ex icone strobili masc. 50 cent, longi, pedunculo 11 cent, fulti, cylindrici, aurei, juuiores lanuginosi, adulti glabri.

### *Species dubix.*

7. E. PUNGENS (Lehm. pug. 6. p. 13), trunco. . . . rhachi foliorum teretiuscula glabra, segmentis longe linearibus spinoso-acuminatis integerrimis saturate viridibus rigidis planis subtus striatis, fructu.... Patria ign. — Miq. monogr. Cycad. p. 42 (excl. syn. Tillii), ejusd. Linn. 19. t. 4 (ubi folium ex h. Willd.). *Zamia pungens* Ait. H. Kew? (ex Miq. prodr. p. 18). Sub nomine *pungens* yariae sp. in hortis coluntur ex Miq. 1. c.
8. E. TRIDENTATUS (Lehm. pug. 6. p. 13), trunco glabro, petiolo rhachique teretiusculis glabris antice subcanaliculatis, segmentis alternis et superioribus suboppositis 14-16-jugis linearibus apicem versus irregulariter incisotridentatis integrisve glabris subsulcatis. 5 In Promont. Bonæ Spei? (Willd.), olim in horto bcol. — Miq. monogr. p. 45. t. 6 (ubi solum folium), prodr. Cycad. p. 19. *Zamia tridentata* Willd. sp. 4. p. 845.
9. E. ELONGATUS (Miq. in Bull. Need. 1838. p. 11), trunco glabro, petiolo rhachique obtuse tetragonis junioribus pilosulis adultis glabris, segmentis infer, alternis super, suboppositis longe lineari-lanceolatis apice spinoso-acuminatis integris (nunc prope apicem 1-dentatis), junior, in facie postica et margine pilosulis, adultis glabris, fl. et fr. . . . 5 Ex interioribus Africa? australis in hort. Rotterd. et Parmentier cultus. — Miq. comm. phyt. p. 110 t. 13 (folior.), monogr. p. 46, Tijdschr. nat. Gesch. 10. p. 70. t. 8. f. A, prodr. p. 19.
10. E. LANUGINOSUS (Lehm. pug. 6. p. 14), trunco humili plus minus lanugine illoccoso pallido vestito, foliis glabris petiolo rhachique tereti-subtriquetris, segmentis alternis oblongo-vel elliptico-lanceolatis pungenti-acutis integris vel margine 1-3-dentato-lobatis saturate viridibus, strobilis. . . . J In Africa australi extratrop.; olim Vindob. cultus. — Miq. monogr. p. 56, pr/bdr. p. 20. *Zamia lanuginosa* Jacq. Iragm. 2. p. 28. t. 30- 31. E. Caffer Lehm. pug. 6. P- 14, et Miq. monogr. p. 53 (non *Cycas Caffra* Thunb. qua? Knceph. Caffer Lehm. et Miq. *olim*), fide Miq. prodi (1861) p. 20. E. horridus var. lanuginosa Miq. in Ann. sc. nat. ser. 2. p. 367 (ex ipso in prodr.). Ex descr. et tab. Jacquini truncus subglobosus, quamvis 12 annos vetustus, omnino lanuginosus (lana perstante ex Lehm. in lit. ad Miq.); segmenta infima integra, media niajora et suprema saepius dente valido acuto vel dentibus 2-3 acatis latere inferiore aucta, minime torsa. Strobili (ex Miq. prodr. p. 9, an vere plants Jacquinianae?) masc. elongati, angusti, glabri; feminei puberuli?

### *Species flor. et fruct. ignotis.*

- E. VILLOSUS Lem. 111. hort. 1867, misc. p. 79.  
E. GHELLINCKII Lem. ibid.

### *Species exclusx.*

- E. DENISONI F. Muell. = *Macrozamia Denisoni*.  
E. \*RASERI Miq. 1863 = *Macrozamia Preissii*.  
E. LATIFOLIUS Steud. = *Zamia latifolia*.  
E. MACDONELLII F. Muell. = *Macrozamia Macdonellii*.  
E. MIQUELII F. Muell. = *Macrozamia Miquelii*.  
E. PAULI GUILIELMI F. Muell. = *Macrozamia Pauli Guilielmi*.  
E. PREISSII F. Muell. = *Macrozamia Preissii*.  
E. POMILUS Steud. = *Zamia pumila*.  
E. SPIRALIS Lehm. = *Macrozamia spiralis*.

IV. BOWENIA Hook f Bot. Mag t 5398 (plantx masc), Seem, Journ of bot I p 197, F Muell fragm phyt austral 5 p 171 — Dracontium All Cunningh ohm m herb

Squamae strobil masculi axi perpendiculares, confertae, obovato-cuneatae, subtus medium usque locuhgerae, apice latiore truncato et diametro transverso longiore hexagono. Squamae strobil feminei (ex F. Muell) deltoideo rhombeo, peltatae, crassae, angulis peltatae. Stipite longo semina ovato globosa — Arbuscula humilis, Novae Hollandiae, foliis bipinnatisectis, segmentis primariis paucis, secundariis ternatis quinatisve, alis oppositis, secundariis parallele multinerviis — An genus servandum? Vix dicendum si flores masculi et feminei vere usque Encephalartos similes, ut affirmavit etiam F. Mueller, nam divisio limborum varietatibus videmus in genere admodum naturae, ut Clematis, Ranunculus, Aconitum, Begonia, Manihot, etc. Adsunt tamen quaedam diversa in flore masculo, ex squamis adpressis cuneatis, pelta hexagona, peltae femineorum non sufficienter sunt cognita, semen non dicitur costatum, et putamen forsitan altera crescit, quibus causis genus provisorie admisi

B. SPECTABILIS (Hook. f 1 c). In Nova Hollandia, ad Endeavour River sub 15° lat austr (A. Cunn.), Buckingham Bay (Hill) et culta in horto Kew Dracontium polyphyllum A. Cunn. ohm exsicc fruncus sive caudex humilis pro parte hypogaeus carnosus, subcylindricus, torulosus. Petiolae ovatae, baeves. Petiolus ima basi lanuginosus, teretiusculus. Limbus circumscriptus suborbicularis, segmentis primariis paucis, petiolulatis, inferius ternatisve, superius oppositis, secundariis oppositis interternatisve, utrinque 6-8, plus minus sessilibus, dimidiato-ovato-vel lanceolato-acuminatis, 8-10 cent longis, 3 cent latis, minime articulatis, latere superius convexo, altero rectiusculo et interdum 1 dentato, nervis (ex IC) circiter 12-15, basi apiceae curvatis. Strobili stipitati, ovoideo cylindrici, masculi 2 cent longus, 1 cent latus, obtusus, squamis obovato-cuneatis, subtus usque ad medium linea centrali excepta loculigeris, peltis tomentosis. Strobilus femineus (ex Muell) squamis deltoideo-rhombicis, peltis peltatis pollicem latis vel paulo latioribus, stipitibus longis. Semina pollicem longa.

V. MAGROZAMIA Miq Monogr Cycad p 36. f. 4 5, Linn 17 p 703 t 2. v 19 p 410 t 2 1 prodr p 8 18 — Zamiae sp. Sauss. prodr., R Br prodr Nov Hool p 348, Hemzeldiss in Nov Act Nat Ber 21 p 220 10 13 — Encephalartos sp. Lehmann p 6 p 12 — Encephalartos § Maciozamia Miq in Cycad Nieuw Holl in Medea Akad (1863) — Encephalartos sp. F. Muell in Trans pharm soc Viet 2 p 90 — Zamiae subgenus Encephalartos F. Muell fragm Austral 5 p 172

Squamae strobil masculi imbricatae, subtus locuhgerae, extremitate utrinque stenae acuminatae vel acuta, membranaceae. Squamae strobil feminei basi pedunculatae, medium versus incrassatae et utroque latere 1-ovulatae, superne in acumen elongatum cum vicibus imbricatum desinentes. Semen ovoideum, subcostatum, micropyle stellata crinata (Miq in Linn. 19. t. 3 f. h), putamine crasso, laevi, homoganeo, apice stinato — Arbusculae saepius humiles, e Nova Hollandia, foliorum segmentis hinc lanceolatis, parallele multinerviis, basi non articulatis sed prope axillam saepe calloso-glandulosis; vernatione rachis et segmentorum strobil linbncativa.

Encephalartis valde affines, nec nisi acumine squamarum vere diversae. — Pars locuhfera squamarum masculinarum in 2 areas nervo medio divisas vel indivisas, quod in Encephalartis interdum in eodem strobilo accidit.

§ 1. *Segmenta foliorum basi prope axillam calloso-glandulosa. Squamx acuminatw; mascularum, pars fertilis in duas areas utroque laterenervi segregatas.* — Encophalartos, § 1, Macrozami & Miq. *Cycad. Nieuw. Holland.* (1863); ? 6.

1. *M. SPIRALIS* (Miq. Monogr. p. 36. t. 4. 5, excl. ic. Baueri), trunco humili petiolo rhachique subtus convexis supra plano-depressis, petiolo margine passim dentato-spinoso, segmentis lineari-lanccolatis pungenti-acuminatis, nervis inferiorum 8-9 superiorum paucioribus, strobis gjabris, masc. squamis rhombeo-obovatis cuspidato-acuminatis, fern, squamis e basi obconica angulosa subito expansis peltatis crassis apice in acumen lanceolatum productis. *fr* In Nova Wallia australi a sinu Moreton ad Portum Jackson (Br., F. Muell.). — F. Muell. phyt. austral. 1 p. 41. *Zamia spiralis* Salisb. prodr. p. 401; Br. prodr. Nov. Holl p. 348. *Encephalartos spiralis* Lehm. pug. 6 p. 13; Miq. *Cycad. Nieuw Holland*, p. 6. Folia glabra, segmentis utnque circiter 30, alternis oppositisve. Strobih breviter pedunculati. Masculus oblongo-cylindricus, semipedalis; femineus crassior; squamis 8 cent, longis, pelta 6-7 cent, lata, hamata, acumine adscendente elongato 1-2 cent, longo obtuso. Denticuli petiolorum in ic. Miq. figurati, interdum deficientes? (ex silentio auct.), videntur segmenla abortiva, ut in Cycade.

P, dipZomera, segmentis plensque ultra medium vel profundius vel basi tenus in lacinias duas mmime divergentes divis. — In montibus Wambunglu ad fl. Castelreagh (G. Moore). *Encephalartos spiralis* var. *diplomera* F. Muell. fragm. phyt. austral. 5. p. 172.

2. *M. PREISSII* (Lehm. in Cat. h. Hamb. 1842), trunco 3-5-pedali superne lanuica obtecto, petiolo passim denticulato rhachique obtuse 4-angulis, segmentis numerosissimis pungenti-acuminatis glaucescenti-subpruinosis, nervis circiter 15, strobilo masc. juniore lana fusca vestito, squamis medium usque obovatis inde longe acuminatis, feminei glabrati squamis e basi obconico-angulosa subito expansis peltatis crassis apice in acumen elongatum margine undulatum acuminatum productis. £> In Nova Hollandia austro-occidentali (Preiss exs. ri. 1313), ad sinum Stokes (Maxwell). — Lehm. pug 8. p. 31, ubi descr. fusa; Heinzel in Nov. Act. Acad. nat. Cur. 21, pars. 1. p. 203. t. 10-13, ubi descr. anatom. et diss. fusa; Lehm. pi. Preiss 1. p. G45; Miq. in Linn. 19. p. 415. t. 2 3 *M. Frasen* Miq. monog. *Cycad.* (1842) p. 37, sine descr. *Encephalartos spiralis* Miq. monogr. (quo ad fig. Bauero mutuatas, ex Miq. 1863). *Cycas Riedlei* Gaudich. it. Freyc. p. 434. *Zamia cycadifolia?* S. Brunn. in Flora 1825 \. 2. p. 733 c. ic. *Encephalartos Preissii* F. Muell. in Quart. Journ. Pharmac. Viet. 2. p. 90. *Encephalartos Fraseri* Miq. *Cycad. Nieuw Holland*, p. 6. Species ex opt. descr. et ic. cognita. Segmenta foln circiter 70 utioque latere, mlieriora allerna, sup. saepius opposita, media majora 9-11 poll, longa, strobih bre\iter pedunculati, b-12 poll, longi, ovoidei \el subcylindriici. Acumen squamarum, praesertim masc. quam in *M. spirali* longius, in eodem strobilo vanans.
3. *M. OLDFIELDII*, trunco...., rhachi foliorum semitereti-triquetra dorso crasse convexa, segmentis densis patulis latiuscule linearibus plerumque falcatis spinoso-acutis deorsum anguste decurrentibus siccatis glaucescentibus supra enervii9 subtus 8-10-nemis margine incurvis, strobilo masc. Ilh *M. spiralis* simili. — In Nova Hollandia austro-occid. vensimiliter in interioribus (Oldfield). *Encephalartos Oldfieldii* Miq. *Cycad. Nieuw Holl.* p. 8. Segmenta fohi 5-4 \ poll, longa, 2-1 i lm. lata, basi antrorsum obsolete callosa, ngida, cra^sa, apice parum contracto spinoso-acuta, suprema valde abbreviata et angustiora. Strobilus mas (in specimine segregatus, ideo non certiss ), pedunculo 8 A poll, longo, sub strobilo ipso leMter piloso, strobilo 4 i poll, longo, 2i crasso, squamis spinoso-acutatis, 10-11 lin. longis, 5 l<sub>in</sub>. Jans.
4. *M. MIQUELII*, trunco \_\_\_\_, petiolo basin versus lanato-tomentoso, rhachisursum spirahter torsa, segmentis late clongato-hnearibus subflaccidis superioribus nonnunquam apice acute 2-3-dentatis infenoiibus in dentes spinilormes

mutatis, strobilo masc cyhndnco glabro, squamis rhombeo cuneatis infenobus submuticis, medus perbrevis cuspidatis, supenobus in cuspidem lamina brevioribus productis — In Nova Hollandia ad ostium fl Richmond (C Moore), sinum Moreton (Hill), fl Fitzroy (Thozet) *Encephalartos Miquelii* F Muell fragm phyt austral 3 p 38 Rhachis fol nonnunquam parce pilosula Segmenta numerosa, medium veisus 5 8 lin lata longiora •£ 1} ped. longa, tenuiter stuata Strobili masc<sub>m</sub> 6 10 poll longi, 1-1 ^ poll lati Squamae saepius | poll longae. Fern ign

§ 2. *Segmenta foliorum basi non callosa Squamae breviter acuminatae, masculinarum pats polhmfera continua*, — *Encephalartos*, § 2, *Miq Cycad. Nieuw Holl. p. 9.*

5 M DENISONII (Moore et Muell in Muell fragm austral, 1. p 417), trunco elato, petiolo basi faho-tomentellocaeterum glabro semi cylindrico-quadrangulo, segmentis numerosissimis lineari lanceolatis falcatis 12 15 nervis basi lata non callosa infenobus oppositis sup alternis, strobili masc longi squamis cuneiformibus apice secunformi rotundatis vertice saepe breviter apiculatis, feminei squamis pedicello-peltatis, pelta transverse compressa in cuspidem brevem conaceam recurvam senceo velutnam excurrente 5 In Nova Hollandia or extratrop austrahore, ad 11 Manning (Stephenson), fl Barnett (C Moore) smum Moreton (Hill) et usque ad Expedition range alt 1000 2000 p (Gregory) *Encephalartos Denisonii* F Muell in Quart Journ Pharm Viet 2 p 90 *Miq Cycad Nieuw Holl p 9*, ubi cum *Lepidozamia* Reg (infra genus X) tanquam ^ 2 generis *Encephalartos* recensetur fiuncus 20-ped tolli ex *Miq 7 12* ped longa, petiolo 2-3-ped segmenlis usque ad 240, medns majonibus 10 poll longis, 6 hn latis Strobilus masc ex *Miq saepius 7-12* poll longus, 4 7 latus, oblongo-ovoideus, squamis externe tomentoso-gnseo-fuscis, subtus dense locuhgens. Strobilus fem 1' ped longus, ovoideus, squamis supra medium cano fuscis tomentosus, acumme inferiorum lamina brevior, superior um lam in am aequante. Semina fere 1J poll longa ellipsoide globosa, obtuse angulata Fandem sp esse ac *Lepidozamia Peroffskiana* Reg, cujus folia vidit, suspicatum cl Miquel, sed hujus flores, fructus et patna ignorantur, ideo dubiam in calce oidinis lelmqui.

g 3. *Segmenta foliorum basi non callosa. Squamae breviter pedicellate breviterque acuminatae, masculinorum area fertili apice biloba*. — *Vernatio foln subspiraliter torta*. — *Encephalartos* § 3. *Paradema Miq Cycad. Nieuw\* Holl p. 12*

6 M PAULI GUILIELMI (F Muell Fragm phyt austral 1 p 86. 243, et 2 p 179), caudice subterraneo turgido petiolo basin versus lanato, rhachi supra plamuscula, segmentis numerosissimis saepius anguste hneanbus acutis mferne subquadrangulis, strobilo masculo glabro squamis ovalo rhombeiformibus rarus deltoideis vel orbiculatis basi unguiculatis supra partem polliniferam incrassatis, feminei squamis glabris semilunato lemformibus e medio turgente subito in acumen patens breviter productis — In Nova Hollandia ad sinum Moreton (Hill), in reg montana Expedition range (Gregory) et fl Mackensie et Maranoa (Cobham) *Encephalartos Pauli Guillemi* F Muell in Quart Journ Pharm soc Viet 2 p 91, *Miq Cycad Nieuw Holl p 12* Caudex dense cmereo-lanatus, saepius spithamaeus Folia 2-3 ped longa, pmo pilosa, venatione subspiraliter torta Segmenta circiter 80 utroque latere, non callosa, 6-10 poll longa, 1 2 hn latta, 3-4 (ex *Miq 5*) neivia, juniora apice argute pauci deniata, nunc late hneana Pedunculus fructifer 4 poll longus, praeter basim attenuatam dense lanato tomentosus Strobilus 6 poll longus, lamina squamarum tnplo longitudine sua latior Squamae utnusque sexusmextremitate strobili breviuscule acuminatae Semina unculi

*Species dubia.*

7. *M. MACDONNELLII* (Ferd Muell. fragm. austral. 2. p. 179), segmentis foli lanceolato-hneanbus sursum angustatis acutis planis maigine subtus leviter mcrassatis conaceis utnnque concolonbus et stomatifens subtus nervis 6 obsoletis 2-8 poll, longis 2 hn latis (supiemis multoties mmonbus) basi latmscula leviter callosis, flore et fi.... In Nova Hollandia centrah ad fl Neales in Macdonnell-range a peregnn. Stuart detecta et tune Palma dicta. Encephalartos Macdonnellii Ferd. Muell. fragm. austi. 5. p. 497 sine descr.

VI. *DIOON* (errore Dion) *Lindl. Bot. reg 1843, append, p. 59; Miq. epicr, P- 289, Linn. 19. p. 414. 21. p. 567, Cycad. qudd. amer. m 1 erh. Ned Instit. ser. 3. i? 4. et seorsim m-4° p. 7. t 3 et 4, prodr. Cycad. p. 10. 22, Lem. dl horhc. (1855) v. 2 misc. p. yi c. descr. et 2 icon — Platyzamia Zuccar. pi. n. yasc. 5. p. 23 (inAbh. bayer. Akad. 4) p. 23. t. 4.*

Squama strobili masculinae planae, imbricatae, obovato-cuneatae, per majorem partem subtus locuhgerae, apice strobili ovato inflexo extus lanato. Squamae strobili femineae laxae imbricatae, e stipite brevi longe ovato-acutae, extus lanatae. Ovula utrinque extremitatibus stipitis hamati funiculo minimo pendentia. Semen (ex Lem) subprismatico-ovoideum, membranaceo conaceo, pulpam parcam obvolvante, nuce tenui subhgnosa. — Arbuscula mexicana; foliorum petiolo spinoso; segmentis longissime lanceolatis, pungenti-acutis, integris vel passim subdentatis, parallele multinerviis, basi latiore sulcata non articulata, inferne decurrente juxtapositis vel subconnexis; vernatione strobili, imbricata; semine eduh.

**D. M. EDULE** *Lindl., Miq., Lam. 11. cc. Platyzamia ngula Zuccar 1 c Zamia Maeleni Miq. ohm in Linn 18 p. 97* In Mexici locis viciis militei montanis, non indicatis et cultum. Truncus 1-2-metri, saepe ascendens. Folia junioia pilosa, vena glaberrima, 3-4-ped. longa, rhachi supra plana, subtus convexa, segmentis circiter 100 utroque latere, 12-17-nervus, medius majonibus oppositis, circiter 4 poll, longis, 3-4 hn. basi latis, inferioribus ad dentes secus, basi folium transeuntibus strobili breviter stipitati, primo erecti, demum prostrati; longis cent longi, lana alba flavescens obducti, masculi cylindrici, femineo-ovoideo-elongati. Mans squamae circ 10 lin. longae, usque ad { longit. subtus. lenticulis, squamis medius dense locuhgens, superius inferius in linea media ut apice nudis. Squamae femineae majores, margine undulatae, extus undique vel apice excepto longe lanatae. Semina (ex Zuccar) magnitudine nucis Juglandis

P, *imbriatum* (Miq. prodr. p. 10), segmentis superius imbricatis circiter 10-nerviis. D. *imbriatum* Miq. antea

Y, *angustifolium* (Miq. prodr. p. 10), segmentis angustioribus 8-nerviis approximatibus, junctibus versus apicem serrato-spinosis. D. *angustifolium* Miq. antea. D. *aculeatum* Lem. (qui sensus hasce foimas ejusd. speciei affirmat.

*Species dubia.*

**D. STROBILACEUM** (Lem. ill. hort. 10, misc. p. 4), ...., strobilo masculino, ovulis squamis longe spatulatis. Cult. in horto Dallière, Gandavensi, anno 1863.

**Tribus III. ZAMIEM** *Miq. Prodr. Cycad. p. 5 (excl. Dioon).*

Ovula 2, supra basim cujusve squamae femineae utronum J\*\*\*\*\* metrics disposita, reflexa. - Medulla vasculosa Ugnos Don per! rsa (ex obs. in Zamia). Folia composita, foliolis nempe basi K-cula utroque latere rhachis disposita, parallele multinerviis. Vernatio rhachis recta vel paulo inflexa, foliolorum S i t i S.



VII. MICROCYCAS. — *Zamiae* sectio *Microcycas* Miq. in *Van Houtte Fl. serr. et jard.* 7- p. 141 {fructif. tunc ign.}. — *Zamia* sp. Miq. *prodr.* p. 26; *Griseb. cat. pi. Cub. Wright*, p. 217.

Squamae strobili masculi plans, imbricatae? crassiusculas, a basi ad mediam partem cuneatas et subtus crebre loculigeras, a medio ovatae, steriles. Squamae strobili feminei laxae juxtapositae, axi perpendiculares, superiore majore parte drupam irregulariter sulcatam simulante, nempe ellipsoideo-costatae et sulcatae, extremitate truncata vel obtusa, inaequaliter (in sicco?) bullata, basi in stipitem brevem angustata, stipite utrinque in apice semen ellipsoideum sessile gerente. — Arbuscula Antillana; trunco humili, medulla...; foliis elongatis, foliolis numerosissimis, basi parum angustiore articulatis, longe linearibus, acuminatis, integerrimis, nervis parallelis, vernatione... — Ex habitu et foliis tantum a *Zamiis* diversam existimavit cl. Miquel et sectionem vocavit (quam serius in *Prodr. Gycad.* non memoravit); nunc fructificatione cognita, genus inter *Dioon* et *Zamiam* apparet, a priore diversum foliolis basi segregatis et articulatis, squamis femineis pinguibus, apice contundatis et seminibus ut vulgo sessilibus; a *Zamia*, squamis masculis planis, non peltatis, femineis pelta multo longiore.

M. CALOCOMA. — *Zamia calocoma* Miq. *ll. cc. Regel* in *Bull. soc. nat. Mosc.* 1857. v. 1. p. 191; *Griseb. cat. pi. Cub. Wright*, p. 217, sine descr. — Ex insula Pinorum in hort. Amstelod. introd. (Miq.), e Cuba in hort. Petrop. (Reg.); in Cuba fructificantem legit cl. Wright! n. 3193. Ex specimine meo Wrightii: folium 9 decim. longum, ubique pube tenuissima evanescente oculo armato conspersum; petiolo 1 decim. longo, subtus tereti. Foliola alterna et opposita, utrinque 80, patentia, invicem basi 5-10 mill, distantia, majora (media) decim. longa, 7-8 mill, lata, margine revoluta, nervis basi 9-10, medio 13-14, apice 6, dein 3, fasciculis vasorum 2-3 in cicatrice 4-5 mill, longa. Strobili masc. forma mihi ignota. Squamae (segregate) 18-20 centim. longae, 9-10 mill, medio latae; parte fertili centim. longa, supra glabra, subtus undique oculis vestita; parte sterili cinereo-tomentosa, supra in nervum crassum medio inflata. Strobilus femin. 2 decim. longus, cylindricus? (in specimine sectus), pedunculo cinereo-tomentoso brevi? suffultus. Squamae 2 cent, longae, stipite 4-5 mill, longo, reliqua parte 15 mill, longa, 9-10 mill, lata, costis irregularibus, latere sup. magis convexo, apice aut planiusculo subquadrangulo, aut contundato-sinuoso, pallide pilis stellatis tomentoso. Planta culta foliola minus numerosa (60-70), breviora (8-9 cent, longa, ex Miq. in *Fl. serr. et jard.*); angustiora (5-6 mill, ex Miq. *prodr.*) praebuit, sed caet. omnia quadrant. — (v. s.)

VIII. ZAMIA I. sp. pi. p. 165, *gen. ed.* 1764. n. 1227; *Rich. mem. Conif. et Cycad.* p. 198. t. 27. 28; *Lehm. pug.* 6. p. 2; *Miq. monogr. Cycad.* p. 63, *prodr. Cycad.* (1861) p. 11. 23; *Eichler in Mart. Fl. Bras. fasc.* 34. p. 414, t. 108. 109; *Karsten diss. de Zamia muricata in Abh. Akad. wiss. Berlin* 1850. p. 193. etc.

Squamae strobili masculi axi perpendiculares, pedicellato-peltatae vel cuneiformi-peltatas, oculis pollinigeris sub pelta dispositis, interdum inde secus stipitem in duabus areis segregatis vel rarius confluentibus acervatis, peltis mutuo adpressis, facie externa convexa vel plana cum faciebus 6 (nunc \*\*?) obliquis, quarum transversae longiores. Squamae strobili feminei pedicellato-peltatae, peltis adpressis, externe planis vel conyexis, hexagonis, transverse elongatis, subtus biovulatis. Semina ovoidea, sessilia (1). — Arbusculae, nunc humillima, trunco etiam

(1) In *Z. furfuracea* breviter funiculata (si error non subit in t. 1969 Bot. mag.) ut in genere *Dioon*, a quo caeterum squamis omnino differt.

hypogaeo, Americas, medulla fasciculis vasorum non percursa (Miq in Linn 1844, v 18, p 142, Kaist. 1. c 1856), perulis e basi lata acuminatis, ssspius prope apicem utrinque dentatis, nec ut in omnibus alus generibus integris, petiulis saepe sparsim aculeolatis, rhachi vernatione apice recta vel levissime incurva, foliis manifeste basi articulatis, vernatione imbricativa, nervis parallelis, integris vel denticulatis; strobilis masculis interdum plunibus, squamis superioribus strobilus subcoactis. —Aculei secus petiolum, quando adsunt, minime ut in Gycade e segmentis inferioribus abortivis, sed sparsi et interdum frequentes.

## Sectio i CHIGUA.

Peltae squamarum masculinarum superne inflatae, heptagonae, facie nerape una extenore cum sex alis lateralibus obliquis, stipite lato — Foliola lata v latiuscula, plus quam 7-nervis

## \* Petioli aculeolati

1 Z CHIGUA (Seem Bot Herald p 201 t 43), petiolo crebre rhachi parce aculeolatis junionibus tomentosis foliolis altissimis numerosissimis longe lanceolatis acuminatis obsolete denticulatis glabris circiter 16-nervis, strobilo masc cylindrico elongato apice obtuse cuspidato, pelta squamarum tomentosa face superiore parva plana subquadrata foliolis lateralibus 4 6, stipite crasso utrinque loculos gerente, strobilo fem multo majore obtuso 5 In insulis osti fl San Juan isthmi Danen (Seem ) nunc culta in h Kew et forsitan ad Veraguas alt 5-7000 p. (si planta Warsz. eadem). — Yates in Seem 1 c Z Lindleyi Warsz in A. Dietr in Otto et Dietr allg. Gartenz 19 p 146 (ubi descriptio nimis brevis ex cit in Bot Zeit 18<sup>4</sup> p 327) Z Lindleyana Warsz apud Wendl 1 c. p <sup>3</sup>? Z Lindleyi Miq prodi Cycad p 24, quoad plant Seem Truncus cylindricus 20 cent altus Folia majora 1 m 20 longa Tothola utroque latere 66, patentia, nervis in medio 16, basi minus numerosis, apicem versus ad margem fere omnibus tendentibus, acumine mic Seem (ex specim h kew ) integro acuto, ex desc denticulato Strobili <sup>m</sup>asc 13 16 cent longi, pedunculo multo longiores Utrouque latere squamae duae series loculorum, singulae 4 loculis.

<sup>^</sup> Z SPARTFA, petiolo crebre rhachi parce aculeolatis junionibus tomentosis, foliis oppositis raris alternis numerosis longe lineari acuminatis apice 3 4 denticulatis glabris rigidis 7 10-nervis, strobilo masc cylindrico elongato <sup>a</sup>pice , pelta squamarum tomentosa, facie superiore transverse elongata subquadrangula medio depressa faciebus lateralibus minoribus, stipite utrinque loculifero, strobilo fem crasso tomentoso cuspidato <sup>^</sup> 5 In Mexico mend prope Acayucam, Verapa, Ghimalapi (specim botanici Hispan a cl Alaman a 1832 comm ) vulgo Izuklx. Mordicationi serpentum antidota Pars infera speciminis truncata, solida, 3 cent lata Folia sex, perulis lanceolatis, 2 3 cent longis, fulvo tomentosismixta, circiter 3 decim longi Petioli 4 5 cent <sup>\*o</sup>ngi, irregulariter aculeis rectis 1 2 mill longis vestiti, subtus teretes, pube demum evanescente. Foliola utrinque circiter 20, consistentia spartea, glabra, 2<sup>^</sup>30 cent longa, 4 5 mill lata, basi ipsa angustiora, margine revoluta, denticulis apice manifestis, nervis subtus magis distinctis Pedunculus mas fulvo tomentosus 7 cent longus, flexuosus Strobilus mas in specim Incom Pletus Peltae crebrae, 4 mill transverse Ion ae, facie externa plana <sup>9</sup> (siccata in medio depressa), lateribus 6 obliquis transversis longioribus Pedunculus fem 3 \ cent longus, tomento brevi pubescens Strobilus fem in specim incompletus, pedunculo aequalis/, 2j cent latus, cuspidate 5 mill longa peltis transverse 7 8 mill longi <sup>^</sup>, mutuo adpressis, in medio depressis, margine oblongo anguloso subsexangulatus (v. s)

<sup>3</sup> Z SKINFRI (Warszew in Otto et Dietr. Gartenfl 19 p 14g c 10 xyio<sup>10</sup>T) petiolo rhachique aculeolatis, folioli oppositis v alternis oblongis utrinque acutis conaceis nitidis a medio ad apicem spinuloso serrulatis, nervis subtus prominentibus supra depressis plensque bifurcis strobilis masc 3-4 aggregatis

gatis elongato-cyhdricis et breviter pedunculatis femigineo-pubescentibus, squamis cuneato-peltatis tomentosis, facie superiore plana parva in medio subconcaua, lateralibus 6, stipite utroque latere locuhgero, fem. . . . 5 In isthmis Panamensi ad Veraguas (Warsz) et Danen (Seem.)' — Seem. bot. Herald, p. 202, Yates ibid. p. 252; Hook. bot. mag. t. 5242; Miq. prodr. Cycad. p. 12. 23. Foliola saepius 4-juga, majora 29 cent, longa, 8 lata, nervis circiter 26 in medio folioli, basi fere in 2 fasciculos confluentibus, iteratim dichotomis, centrabbus ad apicem lateralibus ad dentes tendentibus, rhacbi jump re pubescente. Peduuculi squamas lanceolatas non superantes. Strobilus aempedalis, cyhdricus.

\*\* Petioh inermes.

4. Z. POZPPIGIANA (Mart, et Eichl. in Fl. bras. fasc. 34. p. 414. t. 109), caudice prostrato radicante, petiolo inermi acute triquetro glaberrimo, foliolis 12-1 k-jugis falcato-lanceolatis acutis glaberrimis ultra medium argute serrulatis multinervns, strobilis masc. longe cylmdraceia pedunculo multo longionbus obtusis, stipite peltarum obovato lato utrinque anthenfero, pelta umbonata cum facie superiore plana heptagona, fem. . . . if-§ In provincia do Maynas alto Peruviae orient., supra arbores collapsas tanquam parasitica (Poepp.). Caudex orgyalis, apice erectus, cicatnsatus. Folia ulnana; foliolis suboppositis, 16-37 cent, longis, 2-4 cent, latis, basi paulo angustatis, neivis 30-40 exsiccatione apparentibus. Strobilus masc. 27 cent, longus, 4 cent, latus, pedunculo 67 cent, longo puberulo. Squamae 14-senatae; stipite piano, nervo medio excepto a basi ad apicem subtus fertili; pelta angustiore pubescente extus visa\* faciem planam oval em cum 6 lateralibus praebente, id est ut in Z. Cbigua.
5. Z. BOLIVIANA, caudice hypogaeo cylindraceo, petiolo inermi subtus tereti, foliolis suboppositis 10-18 jugis linean-lanceolatis acuminatis glabns integns v. ad apicem paucidentatis, strobihns pedunculo vix longionbus, masc. cyhdncis obtusis, squamis cuneiformi-peltatis, pelta transverse quadrato-hexagona puberula subtus ubique antherigera, fem. oblongis crassionbus acutis, squamis pelta transverse hexagona medioque subdepressa margine praesertim tomentosa. In Bohvise prov. Chiquitos et in campis Brasiliae prov. Matto-Grosso (Wedd.) Ceratozamia? Boliviana Brongn. in Ann. sc. nat. ser. 3. v. 5. p. 9. Z. Brongniartn Wedd. in Ann. sc. nat. ser. 3. v. 13. p. 248. t. 4 (quae iter. in Fl. bras. fasc. 34. t. 108); Miq. prodr. Cycad. p. 13. 25 (Nomen specificum regulae 57 a Congr. bot. par. sancitae contranum) Rbachis folior. gracilis, glabra. Foliola 2-3 decim. longa, 1 cent, circiter lata, basi angustata, conacea, margine revoluto. Strobih bolnarii. Mas 5-7 cent, longus, squamarum parte infra omnino loculigera, stipite peltaque crassis, facie super, plana, transverse elongata, sub-4<sup>fc7</sup>-angulan. Strobilus fem. 14-18 cent, longub, 5 cent, latus, peltaexterne visa magnit. ^ulgari, erga semma subtus tenuis, in medio depressa nee umbonata ut in alus. Pedunculus mas tomentosus \* fem. glabnusculus.

#### Sectio 11. EUZAMTA.

Peltae squamarum muscularum superne vix inflatae, subconvexae, p<sup>lus</sup> minus hexagonae, faciebus lateralibus nullis aut vix distinctis, stipite saepius angusto.

\* Petioli aculeolati.

6. Z. FLRFURACEA (Ait. Hort. Kew. ed. 1. v. 3. p. 477), petiolo aculeolato, rhachi subinermi, lolihs obovato-oblongis v. obverse lanceolatis a meaiq ad apicem spinuloso-serrulatis apice obtuso v. acute» pilis minimis supra ei in rhachi petioloque parce subtu^ dense furfuraceis, strobilo masc....»<sup>fem</sup> ovoideo-elongato tomentoso apice stenh acuto, squamis pelta transverse hexagona. 5 E Vera Cruce Mexici jam anno 1691 in horto Hampton Cour\* mtrod. — Bot. mag. t. 1969; Miq. monogr. p. 66, Linn. 17. p. 735, V<sup>00\*</sup> Cycad. p. 12 24. Palma Americana, etc. Pluk. ph>t. t. 103 f. 2 (folium), ci t. 309. fig. 5; Herm. parad. p. et t. 210. Ex icone Bot. Mag. plantae tern. truncus fere nullus, ex descr. 1-2-pedalis, ex ic. 309 Pluk. cyhdncus. r<<

liola opposita v. alterna, utrinque 10-13, extremitate magis serrata et interdum daequaliter repando-lobata (ic. 309, Pluk. et specimen bejol. a Miq. descr.), coriacea. Mas olim in Anglia obs. Strobili fem. ex ic. Bot. mag. 5-10 cent, longi, luteo-furfuracei, stipite longiores. Squamae basilares acuminatae, nunc lobatae, stipite strobili aequales, flavo-fuscae. Ovula ex ic. Bot. mag. stipitata, ut in *Dioon*, cujus caet. diversa.

p, *Treicii*, petiolo crebre spinoso. Olim in horto angl. culta. Palmifolia fructu clavato polyspermo Trew pi. sel. t. 26. Planta fem. trunco destituta, strobilo obtuso, pedunculo squamis inferioribus longiore. Strobilus masc. seorsim pictus acutus, peltis convexis cinereo-tomentosis. Auctores constanter ad speciem retulerant, sed cl. Miq. prodr. Cycad. p. 24 diversam suspicatur. Aculei certe crebriores, at character in ordine variabilis.

7. *Z. MURICATA* (Willd. sp. 4. p. 847), petiolo glabrato parce aculeolato, foliolis 6-U-jugis alternis et suboppositis oblongis v. obverse oblongis oblongove lanceolatis acuminatis basi angustatis a medio ad apicem obscure spinuloso-serratis, strobilis masc. et fem. pedunculatis tomentosis, squamis masc. . . . . femineis pelta hexagona transverse latiore. 5 In America merid. ad Porto Cabello (Humb. et Bonpl.; Karsten n. III, fide Klotzsch). — Miq. monogr. P- 65 et 66. t. 7. (ulri solum fol.), in Linn. 17. p. 733 (excl. var.), prodr. Cycad. p. 24; Vriese in Ned. Kruidk. Arch. 1. p. 162, Ann. sc. nat. ser. 3. Y- 6. p. 359, Descr. et fig. pi. nouv. (c. descr. et tab. pict. fem.); Klotzsch in Linn. 20- p. 458 (masc); Karsten diss. de *Z. muric.* in Abhandl. Akad. Wiss. Berlin 1856. p. 193 c. ic. Truncus glaber. Petioli teretis aculeoli numero admodum variabiles. Strobili 8-10 cent, longi, cylindrici, apice subacuto, Pedunculo glabro paulo longiores.

P) *picta* (Miq. in Wiss. Tijdschr. 1. p. 198), petiolis crassioribus magis pubescentibus, foliolis albo-maculatis. In Guatimala et Mexico? (Miq. prodr. p. 12). Culta. Flos ign.

8? *Z. LODDIGESII* (Miq. in Tijdschr. nat. Gesch. 10. p. 73), rachis subspinulosa, foliolis erecto-accumbentibus longe lanceolatis v. lineari-lanceolatis basi paulo angustatis apice acuminatis coriaceis a tertia parte v. medio usque ad apicem serratis, fl. . . . In America, forsitan ad Caracas? (hort. Loddig.). — Miq. in Ann. sc. nat. ser. 2. v. 19. p. 316, Linn. 19. p. 417. t. 7. fig. b, c (foliola). *Z. serulata* et *Z. Caracasana* Lodd. Cat. (absque descr. ideo nomina cassa, quae cl. Miq. despiciere potuit). Foliola 19 cent, longa, 15-18 mill, lata, nervis 22-27, margine parumper incrassato, dentibus apice confertioribus.

P? *Leiboldii*, foliolis apice truncatis v. obtusis. 5 E Mexico in hort. Lech- rianum Lipsiae introd. Leibold. *Z. Leiboldii* Miq. in Linn. 19. p. 425 (ubi descr. fusa a cl. Kunze). Hanc sirailem suae *Z. Loddigesii* ait cl. Miq. in Prodr. Cycad. (1861) p. 24, sed foliola in praesenti obtusa, et floribus *Z. Loddigesii* ignolis nihil affirmandum mihi videtur. Ex descriptione *Z. Leiboldii* in Linn. 1. c. truncus 5 poll, altus, squamis lanceolato-acuminatis, griseis, junioribus ferrugineo-hirsutis; petioli semiteretes, 8-11 poll, longi rhachisque fusco-pubescentes; foliola opposita v. alterna, utrinque 14-22, patentia v. subpatentia, 11-6 poll, longa, 5-6 lin. lata, nervis 30 et ultra; strobilus fem. pube brevi cinerascete tomentellus, conico-acutus, 5 cent, longus, pedunculo duplo longior; squamae pedicellis brevibus, peltis transverse quadrangularibus vel rhombeis.

9. *Z. LATIFOLU* (Lodd. Cat. n. 687), petiolo rhachique puberulis parum acutis, foliolis plurijugis obovato-oblongis obtusis coriaceis pallide viridibus a I longitudinis ad apicem et praecipue in apice spinuloso-serratis nervis prominentibus parallelis circiter 30 basi apiceque incurvatis, flore . . . In America calidiore, olim apud Loddiges culta. *Z. muricata* var. obtusifolia Miq. in Tijdschr. nat. Geschied. 10. P. 21, Linn. 17. p. 733. 19. p. 425. t. 7. a (foliol.), Prodr. p. 24. *Encephalartos latifolius* Steud. nom. ed. 2. . . . .

\*\* Petioli inermes. Foliola latiuscula, plus quam 10-nervia.

10. 2. *INTEGRIFOLIA* (Ait. Hort. Kew. ed. 1. v. 1. p. 478, non Rich.), foliis gla-

- bris, petiolo inermi, foliolis e basi angustiore oblongis v. obovato-oblongis apice obtuso serrulatis, strobilis rufo-tomentellis, masc. cylindrico acutiusculo, squamarum peltis convexis, fern, cylindrico-ovoideo cuspidato. 5 In Florida (Hort. Kew.), Cuba orient. (Wright! pi. Cub. n. 1463), S. Domingo (Jacq.), et Jamaica (Purdie in hb. Hook.), et in pluribus hortis. — Jacq. Icon, rar. 3. t. G36 ; Bot. mag. t. 1851; Miq. monogr. p. 67, Linn. 19. p. 427, prodr. Cycad. p. 25 (non Rich.). Truncus humilis. Petiolusex Jacq. et specim. Cubano supra sulcatus (ex Bot. mag. quadrangularis sursum bisulcatus, ex Miq. in Linn. 17. tri-v. subquadrangulus antice bisulcatus). Foliola alterna, raro opposita, utrinque 7-16, majora 10-18 cent, longa, 1<sup>^</sup>-3 cent, lata, nervis circiter 35, coriacea. Pedunculi 3-6 cent, longi, tomentosi. Strobili masc. 6-7 cent, longi, ex ic. Jacq. bracteis ovato-lanceolatis alternis sterilibus mferne donati, squamis fertilibus peltatis extus convexis fusco-tomentosis, fern, multo majores, 9 cent, longi, fusco-tomentosi, peltis ut vulgo transverse hexaedris. Drupa ex Jacq. rubra. Specimina cubana in h. meo et Boiss. ab iconibus differunt foliolis numerosioribus (utroque latere 12-16, nee 7-12), margine manifeste revoluto, extremitate contundata inaequaliter dentato-lobata, pilis castaneis pedunculi et squamarum caudicis suberectis (nee patentibus ut in ic. Jacq. aut nullis ut in ic. Bot. mag.). Videtur tamen species ut dixit cl. Griseb. pi. Wright, p. 530. (v. s.)
11. *Z. KICKXII* (Miq. monogr. p. 71. t. 8. f. A, fol.), foliis glabris, petiolo inermi gracili, rhachi subterete, foliolis alternis v. suboppositis numerosis non longis e basi angustiore lanceolato-ellipticis versus apicem obtusiusculum margine praesertim inferiore serrulatis, strobilo masc. cylindrico elongato acuto pedunculum laevem aequante, squamis tomento brunneo vestitis. — In Cuba unde in hort. Gandav. introducta. — Miq. prodr. Cycad. p. 14. 26. Foliola utrinque 24, omnia fere patenlia, infima minora, media longiora, 5 cent, longa, 1 cent. lata. Strobilus masc. 5 cent, longus, 1 cent, latus.
12. *Z. MEDIA* (Jacq. Hort. Schoenbr. 3. t. 397. 398), foliis glabris, petiolo inermi tereti, foliolis numerosissimis (utroque latere circ. 24) longe lineari-lanceolatis apice acuto obsolete serrulatis, strobilis pedunculo tomentoso parum longioribus, masc. cylindrico-ovoideo acutiusculo, peltis subconvexis, fena. crassiore subcylindrico cuspidate obtusiuscula superato, squamarum peltis late transverse hexagonis fusco-tomentosis. — In India occidental (Jacq. ex specim. hort.), in Hispaniola (Bert.! in hb. DC). — Willd. sp. 4. p. 396; Miq. monogr. p. 68, prodr. Cycad. p. 25 (non Bot. mag.). *Z. integrifolia* Rich\* mem. Conif. et Cycad. p. 191. t. 27. 28 (non L.). Foliola 13-14 cent, longa, 6-8 mill, lata, nervis parallelis approximatis circiter 20. Pedunculi 4 cent, longi, interdum ex ic. Jacq. et ic. Reich, fere nulli, squamis basilariibus acuminatis duplo longiores. Strobilus mas 5 cent, longus, 1 & cent, latus, peltis transv. ovalibus fusco-tomentosis; fem. ex ic. Jacq. 9 cent, longus, 5 cent, latus, cuspidate centim. longa, squamis paucis adpressis, pel la 15 mill, transverse longa, faciebus lateralibus sex. (v. s.)
13. *Z. FISCHERI* (Miq. in Hort. Houtteano p. 20), petiolo teretiusculo antice sub<sup>1</sup>piano juniore hirtello, rhachi subsemiterete supra foliola in mucronem pil<sup>o</sup> sulum producta, foliolis paucis inferioribus alternis super, oppositis lanceolatis acuminatis basi attenuatis parum inaequaliter margine superiore magis recto ad  $\frac{1}{2}$  longitudinis argute serrulatis, nervulis 10-15 versus basin dichotomis, strobilis, ... Verisim. ex America merid. in hortis Petrop. et Vafi Houtte culta. — Miq. in Linn. 19. p. 428. t. 7. f. d (fol.), prodr. Cycad. p. 26. Anno 1847 in Linn. cl. Miq. ad hanc retulit iconem Commelyni Hon. t. 58, quam Aiton *Z. debilem* vocavit; serius in Prodr. Cycad. eamdem iconem potius ad nraesentem sp. refert, quamvis foliola aliquid longiora et angustius serrata in icone appareant. Caudex *Z. Fischeri* junior hypogaeus. Petiolus in<sup>2</sup> basi subvaginans uirique stipula quadam parva fere tota instructus, aetate<sup>3</sup> glabrescens, 5-5<sup>^</sup> cent, longus. Rhachis 4-7 cent, longa, glabra v. subglabra. Foliola utrinque 3-6, acuta, 4-6<sup>^</sup> cent, longa, 1-11 cent. lata, inferiore latere fere a basi serrata, altero versus apicem. — Stipulse<sup>2</sup> in Ordipe ignotae, e nguri<sup>3</sup> nimis interiores, id est in axilla, pro stipulis videntur.
14. *Z. DEBIUS* (Ait. Hort. Kew. ed. 1. v. 3. p. 478, non Lodd.), petiolo triquetro

compresso inermi, rhachi canaliculata, foliis paucis linearibus patentirecurvis muticis apice serrulatis, fl. et fr. . . . In India occidentali. Palma humilis non spinosa ins. Hispanohe Comm. hort. 1. p. ill. t. 58. Ex illo unico synon. a cl. Ait. cit. planta glabra est, foliis paucis, utroque latere 6, alternis, longe lanceolatis, basi angustatis, apice acuiis, prope apicem serratis, 7 cent, longis, 1 cent, latis. — Ad hanc valde dubiam speciem cl. Miq. (Mon. p. 71. t. 8. f. b) specimen cultum retulit, cujus foliola satis cum ic. Commelyni conveniunt, sed duplo numerosiora sunt. Z. integrifolia Rich! Cycad. t. 27 quam dubitanter cl. Miquel ad praesentem refert, aliena videtur propter foliola valde numciosa et acutiora, sed sane magis a Z. integrifolia Ait. foliis acutis et strobilis obtusis femineisque sessilibus differt. Mihi videtur Z. media. — Z. debihs Lodd. bot. cat. t. 155 foliola numerosiora (15-20 utroque latere), anguste lineana, non patentia praebet, inde et foisan alns charact. male cognitis valde diversa. Confer ad Z. stnctam.

15. Z. MEXICANA (Miq. prodr. Cycad. p. 13. 28), perulis petiolisque basi tornentosis, his tngonis ineimibus glabns hie illic sub\enucellosis, foliis plunjugis suboppositis anguste lanceolatis rectis \el leviter cuivulis acutis vel acutiuscuis ngide conaceis saturate vindibus a medio ad apicem spinuloso-serrulatis densinerviis, strobilis.... E Mexico in hort. introd. Foliola nunc<sup>9</sup>~juga, 3-4 poll, longa, 6 hn. fere lata.

<sup>16</sup>- Z. psruDO-PARASInca (Yates in Seem bot. Herald p. 202, et ed. 2. pagmae 25.3), caudice cylindnco, foliis lanceolatis sinuoso-falcatis integeriimis glabris basi acutis apice cuspidatis, nervis medio 18 vah'Jis bis bifurcatis, strobilo\_\_\_ in prov. Panama (Wars/i.) et latere onentali Andium Peiuviae (h. Hook.). Arborum truncis insidens. Foliola in specim. panamensi 35 cent. \*o nga, 4 cent, lata; in peruviano 52 cent, longa, 3 cent. lata. Unica species, <sup>a</sup>U cl. Yates, piaeter Z. Skinnen, ubi nervi sub limbo piominentes.

\*<sup>7</sup>- Z. PUMILA (L Sp. p. 1659, excl. syn. et Suppl. p. 443), petiolo inermi furfuraceo-pubescente, foliis obovato-oblongis apice obtuso integris v. obsolete ^errulatis, strobilis ellipsoideis obtusis pedunculo paulo majonbus externe fusco-tomentosis, peltis convexis fere hexagonis femineis lationbus, ^f-s In Honda (Pursh, Torrey) et India occid. (Sims ex hort. angl.). — Sims Bot. mag. t. 2006; Miq. monogr. p. 67, prodr. Cycad. p. 25. Z. media Sims Bot. <sup>ma</sup>g- t. 1838 (non Jacq.). Z. integrifolia Pursh fl. Am. sept. 2. p. 648 (non ^t.). Encephalartus pumilus Steud. nom. ed. 2. Plantae Linnaei oon nisi vera-<sup>\*s</sup> « foliis lineaiibus obtusis » cognitae typus est ^e^islmltte^ Z. purcila <sup>fi</sup>ot. mag. t. 2006. Altera tab. 1838, a Miq. adjuncta, propter foliola lineana Potius quam obo\ato-oblonga minus certa videtur. Ex ic. 2006, petioh terete^, basi furfuracei. Foliola 5-7 cent, longa, 5-8 mill, lata, numero utnnque 18 20, pedunculus mas 5 cent, longus, squamis basilanbus lanceolatis vix longior, cum iis pubescens; strobilus 4i cent, longus, 3 cent, latus, ellipsoideus. Bene quadrat cum specimine masc. in herb. Lhent., nunc meo, sub nom. \*• pumilae, ubi pctiolus et rhachib furfuraceo-pubescentes, forma foholorum <sup>T</sup>ere obovato-oblonga, sed numerus eorum minor (utnnque 12). Anlherae ibi <sup>P</sup>r totam superficiem inf. peltae acervstae In ic. 1838 strobilus fem. 9 cent, longus, 4£ cent, latus. Species vulgo humihor quam affines videtur et foliis <sup>m</sup>monbus. (v. s.)

18. 2. PYGMEA (Sims Bot. mag. t. 1741), pusilla glabra, caudice hypogaeo, loliis abbreviatis, petiolo inermi, foliohs oppositis et alternis 3-10jugis e basi obhq<sub>ua</sub> subcuneata o\ali-oblongis vel ovalibus obtusiusculis a medio serratis, <sup>s</sup>trobilo masc. ovoideo-subgloboso longe pedunculato, pedunculo perulis ataué strobilo duplo longiore, fem.... ^ Ex India occid. in hort. introd. — Mm Ujonogr. p. 70, prodr. Cycad. p. 14, 26. Tota planta ex ic. et descr. Simiſli <sup>o</sup>ab bernma, perulee lanceolatae. Folia 13-19 cent, longa; petiolo 7 cent lon\*o <sup>J</sup>ef i; foliis medns majonbus, 3 cent longis, 1 cent, latis. Pedunculus <sup>mas</sup> jnnexus, 4 cent, longus. Strobilus 2 J cent, longus, peltis m centro fuscis — an tomentosis? contra dictum Simsii « planta glaberrima ». <sup>1Ubc1\*</sup>

P» WngKtii, pedunculo masc. erecto cum perulis et strobilo manifeste iusco-tomentosis, stiobilo longit. peduncuh. In Cuba fWnffhti <\*icm 7 Pygmaa Gnseb. pi. Cub. Wright, p. 217. Foliola 3-3 j cent; lon^a, 8-10

mill lata, utnque 5-8. Strobilus masc 2 ; cent, longus, vix cent, latus, peltis hexagoms subconcauis, faciebus lateiahbus fere nulhs. (v. s.)

19. Z. OTTONIS (Miq. in Linn. 17 p 740), pusilla, caudice tuberoso fusiformi, folus glabris, petiolo inermi, foliolis alternis et supremis oppositis 9-14-jugis oblongo-vel obovato-lanceolatis obtusis versus apicem praesertim in margine inferorc argute senulatis, stiobilo masc cylindnco fusco-pubescente pedunculum pubescentem longitudine aequante, squamarum pelta late hexagona, strobilo fem sub^labro crasso cuspidato, pedunculo abbreviate ^ I<sup>n</sup> sylvis Cafetal Fundadoi ins. Cuba (Otto n. 36) — Miq. Cycad. quaed. amenc.in Act Inst. sc. class, pby. 3<sup>o</sup> ser. v 4 p. 4 t. 2 (fide Miq), Klotzsch in Linn. 20 p. 458. Caudex 6 cent, longus, 4 latus Folia 33-66 cent, longa. Fohola majora 4 5 rent, longa, 12-16 mill. lata. Pedunculus 4 cent longus, pilis fuscis et albis subadpressis pubescens Strobilus mas feie 4 cent longus, peltis Irregulariter hexagoms bre\i-tomentosis. Stiobilus lem. 4 cent, longus, 2} latus, pedunculo solum centim longo.
20. Z. TENUS (Willd. sp pi. 4 p 846), foliis glabris petiolo inermi tereti-triquetro, foliolis alternatim vel subopposite approximatis anguste hnean-lanceolatis apice obtusiusculo integris vel prope apicem obscure 1-2-dentdtis, strobilo masc. cyhndraceo, squamarum peltis quadranguhs in medio brunneis, ad marginem gnseo-tomentosis, fem.... Ex ins. Bahamensibus in hort. mtr. — Miq. monogr. p. 72, in Linn. 19. p. 428. t. 6 (ubi pars foln tantum), prodr. Cycad p 14 et 26. Ex cl Miquel, qui specimina m h Willd. vidit et ejus desentpt. coirexit, petioh teretiusculh, antice rhachisque bicanahculati. Fohola numero propter statum sptcimims incerto, ex Willd sub-14-juga, ex fragmento herb numerosiora, media majora 16-17 cent, longa, 8-9 mill, lata, conacea, ngida, nevis 13-15, margine revoluta, basi ipsa angustiora. Area an\* thenfera utnque infra peltam. — Folia fere Microcycadis, sed flores masc. omnino Zaniiae.

\*\*\* *Petioh inermes* Fohola hneana, 10-3-nervia.

21. Z. FLOBIDANA, petiolo anguloso ima basi dense senceo-tomentoso inde et rhachi pilosulis, foliolis plensque oppositis 14-jugis lineaiiDus basi angustatis apice obtuso 4-5-denticulatis 7-10-nervns supra glabus subtus pilosulis, strobilo masc..., fem. cylindnco obtuso, peltis transverse ovali-sexanguhscum pedunculo intense ferrugmeo-tomentoso — E Florida sub nom- e\identer erroneo Z. mtegnfoliae a cl. A Gray, a. 1839, comm. Folium 25 cent longuna. Petiolus 10 lin longus, siccus icostatus, basi ppi spatium cent longum fulvo-tomentosum, pilis in rehqua parte ut in rhachi et pagina infer, foholorum sparsis, molhbus, demum rans Rhachis gracihs, angulosa. Folia approximata, recta, oblique secunda, omnia 8-9 cent, longa, 3-5 mill hn in medio lata, margine rvoluta, nervis praesertim subtus distmctis, denticulis callosis Pedunculus fem. 16 mill longus et ultra? (sectus in specimine). Strobilus intensius castaneo tomentosus, 2£ cent, longus, 2 cent latus, squamispaucis, pelta centim longa. (v. s.)
22. Z. ANGLSIIFOLIA (Jacq. coll 3. p. 263), folus adultis glabris, petiolo subtus tereti, foliolis utnque 4^0 plerumque altemis anguste hneanbus apice obtusiusculo obsolete serrulato-verruculosis basi \ix angustatis medio 6-8-nervus, pedunculis erectis rulo-pubescentibus, strobilis longitudine pedunculi? masculo cjhndnco acutiusculo rufo-tomentoso, peltis rotundato-hexagonis, femineo crassiore obtuse cuspidato, peltis iransverse hexagoms fusco-tomentosi>. if Ex insulis Bahamensibus in hoit. \indob introd. (Jacq ) et in Cuba (Wright n. 3191 et 597 partim, ex Gnseb cat pi. Cub p 217. sine descr.). — Jacq IC. rar. 3. t 636, Miq monogr Cycad. p 73 (quoad specim. Willd), Cycad. quaerl. amer. p. 1. t. 1 f A (folium plantae Jacq.), prodr Cycad p. 1<f 26 Sata in horto vinaob. floruit jam 4<sup>o</sup> anno. Caudex ovoideo-conicus, radicem fusiformem superans, perulis ex ic. Jacq. glabns sed ex desentpt. villosis, e basi lata longe acummatis. Fohola pauca m folus extenonbus, 15 2C utroque latere in intenoribus, s?epius patentia, media majora 15-20 cent, longa, 3-6 mill, lata, denticulis apicis 2-3-4. Strobih ex ic. Jacq. 5-6 cent. Jongi, masculus centim. latus, fem. multo crassior.

- 23, *Z. YATE<sup>C</sup>H* (Miq Cycad. quaed amenc p 2 t 1 f. C ), trunco humili demum laevi, petiolo subtus tereti juniore basi bubpilosu, foliolis alterms vel suboppositis utnque 5 6 anguste lineanbus glabns acutis prope apicem dentibus manifestos 1-3 serrati\* 5-7-neivns, stiobilo masc stipite suo longiore conico-cylindnco, peltis convexis angulosis rubiginoso-hirtellis, fern. . § ex America calidiore in hortis Belg et Amstelod introd —Miq prodr Cycad p 15, 27 Iruncus 2] poll Ion gus, in feme cjilindncus, ladicem fusifoimem superans, superne mcrassatus Perulae ovato-acummatae, pilosulse, apice dense fusco hirtellae Petiolus 4 10 cent, longus foliola remota, 10-18 cent longa, 3 6 mill lata, ba\*i ingustiora albida Strobilus masc 2 cent, longus Peltae squamarum subtus in duabus areis anthenferae, brevitei stipitatae
24. *Z. STRIGTA* (Miq Cycad quaed amer p 3), petiolo tereliusculo, foliolis plensque suboppositis utnque 14 24 anguste lineanbus subaequilongis utnque praescitum aj ice angustatis integemimis vel sub apice acuto vel obtusiore 1-2 denticulatis tenuiter T 3-nervns, strobihs Ex America calidiore Amstelodami introd —Miq prodr Cycad p 15,27 *Z. angustilolia* Miq ohminWiss en Nat Tijdschr 1 p 204 (non Jacq ) *Z. debilis* Lodd Bot cab t 155? (non Ait) Truncus, pan us elhpsoido globosus, 2 poll altus Perulae ut m *Z. angustifolia* et *Z. iatesu*, sed paulo glabnores Petiolus 2-5 lin longus, nunc leviter compressus Fohola inferioia subopposita, supenora lere opposita et conTeitiora, omma plerumque antrorsum vergentia, media paulo majora, 4 12 cent longa, 2 mill lata, adpectu 3-nervia, ad lentem in medio 5 nervia
- 25 *I. MULTIFOLIOLA*, foliis in petiolo et lhachi pihs demum evanescentibus pubescentibus, petiolo subtus tereti, foliolis alterms vel oppositis utnque 40 60 anguste lineanbus subaequilongis acummatis Integernmis 3-nervns, pedunculis pu'be erecta senceis stiobilo brevionbus, masculo cylindnco peltis contundatis subiotundis fusco-tomentosis, femineo duplo crassiore brevifir obtuse acuminato peltis transverse hexagonis fusco-tomentosis ^f-5 In Cuba orientali (Wright' 597 m h meo et Boiss ) / stncta Gnseb cat pi Wright P 217, sine descu (sed partem alt specimmum ad *Z. angustifolium* Jacq re<sup>ert</sup>) Cum nulla specie Miquehi quadrant nostra hpecimina Ab omnibus differunt numero foliolorum 43 in spei lmine meo, 61 in S| ec h Boiss , utroque latere folu torma et nervis foliolorum magis / angusU>simae Miq quim<sup>al</sup> is simihs, sed in ilia flores ignoti Peiulae basi 2-3 cent longa, senceae, acuminatae Petiolu^ 20-30 cent, longus, supra canaliculatus Rhachis peiolo longioi Foliola media paulo majora, 11-12 cent longa, 1^-2 mill lata, nigida, patentia, basi vix angustiora, margine ut vulgo levoluta, lbi et apice<sup>ca</sup> -Hosa, nervis bene utnque distinctis Pedunculi 4 6 cent longi, pube cinere<sup>re</sup> ^, masculi gracilioies, flexuosi Strobilus mas 6 cent longus, 1} cent latus, acutiusculus, fem non longior duplo crassioi, peltis centim transverse lon<sup>as</sup> s, planis vel exsicc in medio depressis (v s)
- 26 ^ *ANGLSTISSIMA* (Miq Cjcad quaed araer p 4 t 1 f B, folu), petiolo basi PHosulo caeierum glabio subtus tereti, foliolis oppositis vel alterms utnque ^irciter 12 angustissime lineanbus acutmscu is integemimis supra trinervus, strobihs § Ex America calidiore in hort Belg et Anntelod introd. —<sup>Mi</sup> q prodr Cycad p 15,27 Truncus 5 cent, longus, mferne cyhndricus, superne mcrassatus Perulae lanceolatae carnosae, pilosulae. folium glabrescens i'oliola gramineo vmdia, media majora 12-15 cent longd, 1} mill lata, nervis supra solum pcrapicuis.

*Species dubia*

- 27 z *GALEOTTI* (Vnese in Tijdschr nat Gesch 1845. p 23, ex Duch rev. bot. 1845 p 211), rachi subtereti glabra elongata, foliolis oppositis e basi angustiore oblongis Integernmis longe acummatis fere dimidiatis uno latere con<sup>o</sup> altero recto apicem versus utnque attenuatis — E Mexico in hort<sup>Am</sup> stel introducta.

*Species exclusx.*

- z CALOCOMA Miq = *Microcycas calocoma*.  
z CORSONIANA G Don -= *Cjcas Rumphn* ?



- Z. CYCADIFOLIA Jacq. = *Encephalartos cycadifolius*.  
 Z. CYCADIFOLIA Lodd. = *Encephalartos Caffer* (J.  
 Z. CYCADIS L. f. = *Encephalartos Caffer*.  
 Z. HORRIDA Jacq. = *Encephalartos horridus*.  
 Z. LEHMANNIANA Eckl. = *Encephalartos Lehmanni*.  
 Z. LONGIFOLIA Jacq. = *Encephalartos longifolius*.  
 Z. MAELERI Miq. olim = *Dioon edule*.  
 Z. PUNGENS Lodd. = *Encephalartos pungens*.  
 Z. SPINOSA Lodd. = *Encephalartos Altensteinii*.  
 Z. SPIRALIS Sal. = *Macrozamia spiralis*.  
 Z. VILLOSA Gaertn. = *Encephalartos sp. incerta*.  
 2. VILLOSA h. Van Roy en = *Encephalartos Caffer*.

IX. CERATOZAMIA *Brongn. in Ann. sc. nat. ser. 3, v. 5. p. 5. t. 1* (excl. C. Boliviana); *Regel in Bull. soc. nat. Mosc. 1857. p. 186. t. 3 et 4; Miq. prodr. Cycad. p. 10 et 22.* — *Dipsacozamia Liebm. mss. ex Lindl. veg. Kingd.*

Strobili masculi squamae axi perpendiculares, ultra medium obovato-cuneataa subtusque dense loculigerae, inde angustiores crassiores steriles, extremitate pianiuscula bicornutaB, cornubus erga strobilum lateralibus. Strobili feminei squamae estipite crasso utrinque ovulifero peltatae, peltis mutuo adpressis externe subconvexis, transverse hexagonis, in medio bicornutis, cornubus erga strobilum lateralibus. Semina ovoidea, sessilia.— Arbusculae Mexicanae; trunco abbreviato, medulla...; petiolis nunc sparsim aculeolatis; foliolis manifeste basi articulatis, saspis oppositis, longe lanceolatis, nervis parallelis, integris; vernatione folii (ex Miq.) circinata, foliolis nascentibus imbricatis. Strobilorum squamae fere ut in *Zamia*, sed masculae minus incrassatae et omnes bicuspidataa, unde adspectus in Ordine proprius.

1. C. MEXICANA (*Brongn. 1. c. p. 7. t. 1*), petiolo ima basi villosa caeterum glabro subcylindrico praesertim versus basin aculeolato supra et rhachi vix aculeolatis, foliolis multijugis longe lanceolatis basi angustatis apice acuminatis iniegerrimis coriaceis multinerviis, strobilis masculis pedunculo tomentoso multo longioribus cylindricis acutis. 5 - 10\* (• E Mexico (*Ghiesbreght*) in hort. paris. introducta. — *Miq. prodr. Cycad. p. 11, 23. C. brevifrons Miq. in Tijdschr. v. Wiss. en Nat. Wet. t. p. 41* (ex se ipso in *Prodr. Cyc.*). Truncus ovoideus, humilis. Folia metrum longa. Petioli 30-40 cent, longi. Foliola opposita, subfalcata, 13-20-juga, 30-32 cent, longa, 25-26 mill, medio et basi 18 mill, lata, acumine integro acutissimo, nervis (ex ic.) 18-20. Strobiles mas 1 decim. longus, 4 cent, latus, cornubus squamarum lateraliter divergentibus. Strobilus femineus (segregatus in specim. mexicano inde non certiss.) duplo longior, triplo crassior, pedunculo ex ic\* glabro.
2. C. KOSTERIANA (*Reg. in Bull. soc. nat. Mosc. 1857 p. 187 c. ic. x 10gr.* plants ett. 3 f. 6, t. 4 f. 22), foliis nascentibus hirsutis deinde glabris, petiolo semitereti inermi rhachique teretiusscula antice bisulcatis, foliolis multijugis suboppositis longe lanceolatis basi angustatis apice acuminatis iniegerrimis, coriaceis, strobilis masculis pedunculo brevi attenuato cylindricis acutis. 5 - 7 E Mexico (*Karwinsky*) in hort. petrop. introducta. Truncus humilis inferne cylindricus, apice squamis onustus et ovoideus. Folia 1 m. 30 longa. Petiolus 30-40 cent. longus. Foliola utrinque 40, approximata, subfalcata, 30 cent. longa, 13 mill. lata, nervis parum distinctis. Strobilus mas 8 cent. longus, 1 1/2 cent. latus. Squamae congeneris.

*Specie\* dubiz (1).*

- \* G. MIQUELIANA (H. Wendl. Ind. Palm. p. 68), folns novellis pruinoso-glaucis pilosisque, petiolo versus basin parcissime aculeolato, foliolis pauci (juniorum 5-) Juff's oppositis vel suboppositis e basi cuncata subdimidiato-obovatis abiuplè a cuminatis, margimbus Incrassato-subrevdlutis, mferiore prope apicem repande saepe grosse 1-dentato. In Mexico.— Miq. prodr. Gycad. p. 11, 22. Foha (ex Wendl.) 3| pedalia; fohohs Vjugis, 8-9 poll, longis, 2j-3 poll, latis. Foliola plantae adultae juvemh latiora, quod in alns sp. contranum.
- 2- G. LONG\*OLIA (Miq. Wis. en Nat. 'lijdschr. 1. p. 42), petiolo conferte rhachi sparse aculpolatis, foliolis multijugis inaequaliter elongato-lanceolatis subdi-BQ'diatis, corns.... In Mexico. — Miq. epicr. p. 290, prodi Gycad. p. 11, 22. Folia cue. 3^-pedalia, foliolis utrinque 15-16, pedaliDus vel paulo longion-^us, pollice paulo lationbus instructa.  
P» minor (Miq. prodr. 1. c). C. intermedia Miq. antea.
- \*. G. ROBUSTA (Miq. 1. c p. 42), petiolo crasso subcylindnco aculeolato, foliolis Janceolatis subaequilatens (nascentibus valde falcatis), margine sup. versus j>asim, inferiore versus apicem convexioie, corns.... In Mexico. — Miq. prodr. Jj c. G. Mexicanae valdopere, nimis forsan affinis. Indumentum peulorum aenstus ac diutius persistenb, fbliorum 43 ped. longorum petiolus et rhachis Crassa, die aculeatus, foliola pleraque opposita, utnnque 30-32, subaequilatera, Classa, 10-6 poll, longa, 1-2 Tlata, itaque breviuscula.
- 4. G. LATIFOLIA (Miq. Tijdschr. 1. c. p. 206), petiolo cylindnco aculeolato, folio- Jis multijugis subaequilongis lanceolatis plensquc subaequilatens, infenonbub inaequilatens (margine inf. convexioie prope apicem smu excisis, infra sinum ^re obtusd-undentatis, marginibus incrassato-subrevolutis, cono.... In Mexico. — Miq. prodr. Cycad. p. 11, 23. Petioh glabri. aculeis crebna vel h ans. Foliola4-5 poll, longa, i-1 ^ poll. lata.

*Species exclusa.*

- C. flOLiviANA Brongn. = Zamia Bohviana.

GENUS DUBIUM.

- X. LEPIDOZAMIA Regel in Bull. soc. nat. Mosc. 1857. p. 182.184, c. ic. xylogi. PtoWct, et t. 4. l'. 20. 21 (fohorum); Miq. prodr. Cycad. (86l) p. 10. 22. — \* & cephalartos § Lepidozamia Miq. Cycad. Nieuw Holland (1862) p. 9.

Flores et fr. ignoti. — Truncus humihs, ovoideus, squamis onustus. Pulvae carnosas, stipulaeformes. Folia segmentis non articulatis, alter-<sup>s</sup> et suboppositis, numerosis, lon?e lineari-JaQceolatis, integris, basi non an^us^oribus ibique decurrentibus, acumine acutissimo, vernatione re^t^laribricativa. — Ex America, verisim. e Mexico, in hort. Petrop. jnt. iroducta Habitus Zamiae vel Geratozamiaa, sed segmenta foliorum ut m D: ioon decurrentia.

- L. P<sup>ROPI</sup>SKYANA (Regel 1. c). Truncus^ ped. altus. Folia 6 ped. longa. Pe- Dedp<sup>US</sup> Inerm<sup>S</sup>, glaber, 2 ped. longus Segmenta appioximata, sublacata, fol<sup>m</sup> tonga, 4 hn. lata, nervis subtus distinctis, numero.... — ci. Miquel lerun<sup>dit</sup> & comra., quae ab us Macrozambiae Denisonn in paucis dif- fic<sup>nem</sup> angustiora solum, recta, 100 (nec 1215) marvia, et inde conspe- verr<sup>S</sup> i<sup>US</sup> P<sup>edtur</sup> >^ed Honbua et fructu Lepidozambiae ignotis et eius oncfne llis > milit<sup>er</sup> amencana, nihil ut mihi videtur affiimandum. An Diöon?

(1) Infauste divulgatae, nam sme flore Tel fructu Geratozamia a Zamia non differt.

## DICOTYLEDONEARUM ORDINES OMISSI

### VEL INCERTJE SEDIS.

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**Ordo XI bis. RESEDACEJE (1).** — **Capparideae Adans. Fam. des pi. p. 407 pro p.; Wilbrand (1834) Die natürl. Famil. p. 29 pro p. — Violarieae Batsch Tabl. affin. p. hi pr. p. — Capparideis affines Juss. Gen. pi. p. 245; Jaume St-Hil. Expos. des fam. nat. 2. p. 5. — Tetradynameae C. Coilocarpicae s. Resedese Reichb. Consp. regn. veg. n. 4823-4824, excl. n. 4825 et 4826 (1828). — Resedaceae DC. Théorie elem. id. 1. p. 214. n. 31 (1813), cd. 2. p. 244. n. 17; Lindl. Collect. 22, ej. Mr. p. 106, Nixus plant, n. 52, et Kcy to struct, physiol. and System, n. 42, nee non Veget. Kingd. p. 348 tip. 356; R. Br. Observ. to Oudn. Denh. et Clappert. p. 22; Rudolphi Syst. orb. veg. p. 62; Bartling nat. p. 258; G. Don Syst. vol. 1. p. 286; / Hess Uebers. d. Phanerog. nat. Pflanz. Fam. p. 41; Hensloiv in Trans. of the Cambr. Phil. soc. v. 5. part. 1. 1833; Horaninow Prim. lin. Syst. nat. n. 14; Marlius Consp. regn. veg. p. 49; Meissn. Gen. pi. p. 18; Endl. Gen. pl. p. 895; Webb Phyt. Canar. p. 101; St-Hil. in Annal. Soc. roy. oVOrléans XIII et Deuxième Mém. sur les Re'se'da'cees 1837; Spach Hist. des Veget. Phan. vol. 7. p. 93; Vaucher Hist. phys. des pL d\*Europe vol. 1. p. 311; Le Maout Alias elem. p. 114; Petermann DeutschL Flora p. 66. t. 12; Buchenau in Schlechtend. Bot. Zeit. 1853. p. 361; Payer Traite' d'Organog. veget. comp. 193. / 39-40; Müll Arg. Monogr. d. Re'se'd. in-k°. p. 1-239. t. 1-10. fig. 1-133 (1857); Hook. et Benth. Gen. pi. vol. 1. p. 110 el p. 970.**

**Flores hermaphroditi v. abortu partiali casu polygami. Calyx liber, laciniee basi connatae, persistentes v. marcescendodecidua?, aestivatione aperta se haud tangentes. Petala libera, evoluta aut nulla, hypogyna aut raro pengyna. Stamina hypogyna aut raro perigyna; antherae liberse, aperientes 2-loculares, introrsae; grana pollinis libera, longitrorsum 3-sulcata. Ovarii superi carpodia Jibera aut saepius in ovarium l-locu)are connata. Stigmata sessilia. Placentae parietales aut centrales aut depresso-centrales. Ovula campylitropa, in placentis parietalibus pendula, micropyle introrsa, "in centrali erecta micropyle extrorsa. Fructus evalvis. Semina exalbuminosa. Embryo arcuatus; cotyledones incumbentes, semicylindricae, radícula non latiores; plumula indistincta. — Herbae annuse v. bieimes, saepe duratione perennes iactae, raro normaliter perennes aut ma-**

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(1) Auctore Joh. Müller, argoviensi.

jore longitudine lignescentes, rarissime frutices elati, vulgo circ. pedales v. bipedales, praesertim in regione temperata circa mare Mediterraneum et Rubrum crescentes, caeterum etiamsi minore numero in Europa, media, in India orientali ad Caput Bonae Spei et in Nova California vigentes. Radix nunquam peculiariter evoluta, radicellis distichis. Caules vulgo herbacei, cum foliis succo parco aquoso e gustu cruciferaceo praediti, rarius inferne v. undique lignescentes, nunquam volubiles. Folia alterna, simplicia, indivisa v. ex parte v. omnia ternatim v. biternatim aut etiam pinnatim secta, basi minute denticuliformi-2-v. rarius 4-pluri-stipulata, basi non articulata, vernatione plana. Inflorescentiae terminatae, indeiinitae, sc. flores racemosi v. spicato-racemosi, a basi inflorescentif apicem versus gradatim evolutione progredientes Flores saepissime irregulares, latere superiore magis quam inferiore evoluti et cujusvis verticilli organa eodem latere praecociora, vulgo completi et polyandri et disco excentrico v. saepius unilaterali (superiore latere) praediti, lutei, ochroleuci et albi, nunquam rubri, nee caerulei aut violacei. Galycis laciniae herbaceae, 4-8, cum petalis alternantes, superior impar reliquis vulgo minor. Petala vulgo unguiculata, ad unguem saepissime late membranaceo-appendiculato-dilatata, quoad laminam raro integra, saepissime 3-partita; laciniae vulgo dissimiles, intermedia lineari-spathulata lateralibus multoties angustior, aut laterales in lacinulas laciniae intermediae sub-similes divisae et lamina turn primo intuitu pluripartita; numero vulgo cum laciniis calycinis quadrant, in Oligomeride tamen duo tantum superiore latere adsunt et in Ochradeno omnino deficient. Discus a tubo brevi staminali peripherice v. saepissime tantum superiore latere formatus, in nonnullis deficiens. Stamina 3-40, in Randonia distincte perigyna, in reliquis omnibus hypogyna. Antherae juveniles 4-loculares, dein 2-loculares, oscillantes, apertae mox deciduae; filamenta decidua aut sub fructu juniore diu persistentia, semper angusta, appendicibus destituta. Ovarium saepius 3-4-merum, rarissime dimerum, ante foecundationem apice apertum, postea in aliis clausum, v. saepius in aliis apertum et in fructum apice late hiantem siccum sed evalvem mutatum, vulgo multiovulatum, raro in carpodia libera l'ovulata solutum, vulgo apice 3-4-dentatum, inter dentes quasi infract; -3-4-lobatum et ad lobos infractos supra placentarum apicem quasi pendulos papilloso-stigmatosum. Ovula e tegumentis duobus et nucleo composita. Fructus siccus aut in Ochraieno quoad parietes demum succulentus, apice hians (Coilocarpium Reichenb.) aut c'ausus. Semina hippocrepica, testa subcrustacea lapvi v. scrobicuiato-rugosa, epidermide tenuissima tecta. Embryo cavitatem sperminali replens, saepe tamen abortivus vndtem semims

Affinitas ordinis olim valde vexata hodie cum Capparideis et

Cruciferis clare apparet quibuscum Resedaceae toto habitu, crescendi modo, inflorescentia, quasi magnitudine et consistencia et sapore partium et numerosis characteribus optime quadrant, et inter utrumque ordinem systematice inseranda\* sunt.

*Conspectus diagnosticus tribuwn et generum.*

Trib. I. CAYLUSEA. *Carpidia libera, placenta centrali-basilaris, ovula erecta.*

1. *Caylusea.*

Trib. II. ASTROCARPE/E. *Carpidia libera, placentae parietales uniovulatae, ovulum pendulum.*

2. *Astrocarpus.*

Trib. III. RESEDE^E. *Carpidia in ovarium 1-loculare connata, placenta parietales multiovulatae; ovula pendula.*

Subtrib. I. RANDOMS. *Petala et stamina perigyna.*

3. *Ilandonia.*

Subtrib. II. RESEDINEJE. *Petala et stamina hypogyna.*

4. *Reseda.* Petala laciniis calycis isomera. — Fructus apice hians.

5. *Oligomeris.* Petala 2, laciniis calycis pauciora. — Fructus apice hians.

6. *Ochradenus.* Petala nulla. — Fructus apice clausus.

**Trib. I. CAYLUSEfi.**

***Carpidia libera, baid ovuligera. Placenta centralis basilaris, inter bases carpidorum sita. Ovulo erecta. — Genus unicum.***

I. CAYLUSEA Aug, *St-Hilairein Annal.Soc. d'Orlans XIII; deuxieme me'm. sur les Mstdafos p. 29 (1837); Meissn. Gen. pi. p. 342; Al. Braun in Flora 184J. I. p. 281; Endl. Gen. plant. n. 5014; Spach Hist. des Végdt. Phan. vol. 7. p. 105; Payer Traite' d'Organog. vtg. p. 108. t. 39. fig. \k\Mull.Arg. Monoyr. liosed. p. 225. U 10. fig. 132. 133; Hook. et Benlh. Gen. pi. vol. 1. p. 111; Boiss. Flora orient, vol. 1. p. 43o. — Hexastylis Ra/in. Flor. tellur. (1837?), non Hexastylis Rafin. Neogen. p. 3 (1825), qu<r ad Aristolochiaceas pertinet. — Resedae sp. auct. nonnull.*

Flores petaligeri. StamiDa hypogyna, peripherice inserta. *Carpidia libera, intus hianti-apefta. Ovula vertice^thalamii inserta, erecta, s. placenta basilaris centralis, inter bases carpidorum sita. — Herbae annuaR v. perennes, circiter 1-2-pedales, parce ramosae, foliosae, integrifoliae, albifloias, circa mare Rubrum et in insulis ad Gaput Viride vigentes, inflorescentia et structura florum, praeter organa foBminea, cum genere Reseda quadrantes, foliis integris cum sect. Luteola, floribus quoad verticillos exteriores pentamens cum sect. Leucoreseda fere congruentes, ab omnibus totius ordinis structura gynaecii, carpidiis vacuis s. situ ovulorum summopere distinctaB. Galycis lacinae persistentes, "inapquales, superior reliquis brevior. Petala cum laciniis calycis alternantia, superiora ad inferius more Resedarum gradatim simpliciõra et minora, basi membrana unguiculari aucta. Discus evolutus. Tñala-*

mium infra et supra discum distincte cylindrico-elongatum, Stamina situs et structura nee Don grana pollinis ut in Reseda Carpidia 6 v. ranus<sub>5</sub> ventricosus-na\iculana, apice demum calloso-indurata, margine ciliala. Ovula circ. 10-18, in pulvinulo placentan centrah erecta, neo ut in rehquis genenbus demum pendula.

1. C. ABYSSINICA (Fisch. et Mey in Ind VII sem. hort. Petropol p 43, 1840), bracteis 1 neanbus elongatis junionbus longius exsertis, lacmiis petalorum elongatis angustis, lacinulis linearibus superne angustatis, spminibus parvis grossius undulato-rugulosis (?) v. © In Abyssinia altit 5000-7000 ped ubi in campis lucidis cultis et mcultis et in convalhbus viget et Merrerat ab incolis nuncupatui (&alt I m hb Mus Londin Schimp n 103' 1'37 I in var hb ), circa Adoua (Schimper') et circa Aikh6 in prov Choa (ex A Rich 1 c). — Linnaea 18\*1 BeibL p 10b, Walp. Repert vol 2. p 754, Al. Braun in Flora 1841 p 281, A Rich Flor abyssin p 14, Müll Arg. 1 c p 229, t 10 fig 133 Reseda Abyssinica Fresen in Beitrage 3 Flora v. Abyssin p. 107 R pedunculata R Br. Vermischt Schnft trad Nees v Lsenb vol 1 p 248 (nomen) Caules erecti, stncti, simplices v. parce tantum ramosi, leviter acute angulosi, palhdi, in angulis papilloso-bolia 4-6 cm longa, 5-10 mm lata, lineau lanceolata, apicem versus sensim attenuata apice obtusiuscula, glabra, haud papillosa Rdccmi stncti, demum valde elongati, apice lorgiuscule comosi, evoluti rehquam partem folngeram plantar aequantes Bractee 3 mm subaequantes, Infeior^s interdum majores et subfoliaceae Pedicelli sulcati, in anpulis papilloso-muncati, bracteis paulo breviores, sub fructu haud elongati Cdlycis laciniae 2j mm longap, v superior paulo brevior PeUla Sj-4 mm longa, lacinia supenorum media linear-spathulata, lacinulae lineares haud spathulatap lacimam mediam subaequantes v. inferiores breviores, omnes superne leviter sed perspuue angustatae Stamina 10-13, filamenta papilloso-aspera. Carpidia ut in C canescente sed paulo majora Semma 1',-U<sup>mm</sup> aequantia, I e. multo majora quam in ilia et testa haud laevis (v. s. et v cult)
2. C. CANESCENS (Sf Hil Deuxième M6m sur les Reséd. p 29), bracteis lanceolato-ovatis breviusculis junionbus haud longe exsertis, lacinus petalorum breviuscuhs, lacinulis spathulathis, seminibus minimis laevibus (j^InAiabia, iEgypto, et in insuhs Cap Vindis — J A Schmidt Beitrage zur Flora dor Cap Verd Ins p 270, Webb in Hooker Nigerfloia, p 101 et in Append to theSpicil Gorgon in Hook Journ ofBot 1850 p ^10, Miill Arg 1 c p 226 t 10 fig 132, Boiss Flor orient vol 1 p 436 Reseda cdiiescens L. byst. ed Murrey, p 368 (1774), non ej Spec plant, Vahl Symb vol 2 p 52, Willd Spec pi \ol 2 p 877 pr p, Delile Flor aegypt p 15, Decaisne Florul smaica p 51 Res hexagyna Forsk Hoi aeg^pt et Descnpt pi Flor ae^pt-arab Cent 2 p ^2 (1775) Res podocarpos Viv Uecad 4 plint aegypt p 7 (1830), Pr si Rppert bot p 5J Res Mtditeirdnea L lib (ex Webb in Hook Nigeiflora p 101), non ej Mantissa p S64 Hexistylis canescens Bafin Floia tellur N 106, Hexastyhs Arabica Rafin 1 c Radix plus minusve multicaulis Caules ncriter ses juiperidles, ramosi v ranus simf)liLes, plus minus'e erecu, inlerne papilloso hispiduli, superne papilloso-muncati Folia 1-b cm longa, 2 8 mm lata, lineaii lanceolati, utnnqub brevitei aitenuata, mdrgrme saepius undul td, in ipso margine et in costis pipilloso-munculata Kacemi demum vdlde elongati, fecti, juniores, dpice hdud distincte com( si. Bracte<p lanceoldto-ovatae, i . e ambitu multo ldtioies quani in specie proecedente et multo bieviores, sc circ 1 mm longae, nedicellos subaequantes Pedicelli 1-1J mm longi,s ib fructu haud elongati Calvtis laciniae quamin pro?cedente brevioies, obtusiores ct ambitu latiore^ Petala 2^ J mm longi, supenora quam inprocedcnie minus prolunde,sc circiter usque dd tertiam partem tn-partna, lacunae ldtiales in lacinuUs 2-J-partna, ldunulae. laciniae mediae similes sed niinoies, in C Aby sinica auum quoad foimam dissimilej\*. Discus ut in ilia excentntus, papilloso-lnitellus Stimina 12-14 hlamenta papil oso-hi-pidula Caipidia Cl>L 2 mm lunga bemina 1 mm lohga laevu sed inteidum mmuiissime papilloso-Swdbiella, testd lamem semie/ laevis' — A pioecedente praeler habiium, folia paDillosa, lormamque petalorum et

magnitudinem et formam brae tear um facillime et certe distmguitur setnibus laevibus multoque minonbus Haec species ludit —a *ngida*, caulibus folnsque ngidiuscuhs, f jlms parcionbus circ 2 cm longis margme cnspis In yEgypto et m montibus sinamcis frequps G canescens a rigida Müll Arg 1 c Monstrose denique occurnt *prohfera*, flonbus \ane verticillato prohrens In deserto sinaitico — b *foliosa*, cauhsbus folnsque minus ngidulis, folns circ 3 cm longis numerosionbus In Arabia, yLgypto medittnanea, et in insuhs Cip Vind G canescens *fi foliosa* Mull Aig 1 c —c *glabrescens*, jntule ramosa subflaccidd feie omnino glabrata Ohm in horto monspel culta G cane&cens pp glabrescens Mull Arg 1 c Haec forma glabntie partium pmo intuitu ad speciem proecedentem accedit, sedfolus patuh et praeseitim semimbus statim discernitm (v s)

### Tnb. II. ASTROCARPEJS.

*Carpidia hbera*, ovuhgera. Placenta panetahs, unioviolata. Ovulum pendulum. — Genus hujus tnbus unicum.

II ASTROCARPUS Neck *Flem bot vol 2 p 243* (1790), *Duby Bot gall %ol 1 p 67*, *Meissn Gin plant p 18*, *Endl Gen plant JV o013*, *Spach Hist des ve'get Phan tol 7 7) 10i*, *Vaucher Hist phys des pi dTurope^vol 1 p 417*, *Payer Oiganog vdget p 199 t 40 fig 1-26* Mull Arq *Manage Reied p 218 t 10 fig 130 131*, *Hook et Benth Gen pi tol \ p 111* — *Sesamella Reichenb Consp regn teg N 4823* (1828), *Bartl Ord nat pi p 2^8* — *Reseddesp I* — *Sesamoides Tournef Elem 10I 1 p 336 t 3o8*

Flores petdhgen, stimina hypogyna penphence irserta, carpидii libera mtus hunti-aperti unioviolata, ovulum in placenta panetali cujusvis carpидii insertum pendulum — Herbae perennes, habitu specimina nunc majora nunc minora Resedae glaucae referente^, in I uropi calidiore mendionah et occidentah a planitiebus usque ad montes editiores vigentes, praeter ovarn structuram, sc carpидia hbera unio-vuldta fere cum Resedas sect Glaucjreseda quadrantes, mtegnfolias, albiflorae Calyces 5 partiti, lacinia superior lehquis minor. Petala lacinnis cilycis isomera et nscum alternantia, more Resedae ad ungues membranaceo dilatata, supenora 3-partita, laciniae laterales in lacinulis saspus 3 lacmiae mediae similes sed saepius paulo minores divisae, re- quorum lamina more Resedae latere infenore gradatim simplicior Discus evolutus Thalamium inter basin calycis et discum distincte elongatum Stamina circ 7-15, circumcirca ovana hypogyne inserta, quoa i structuram ut in Reseda Ovana ^-6, saepius peUhs isomera usque opposita, apice in cuspidem stylarem abeuntia, dorso apice plus minusve alte gibbosa Ovula ut m genere Reseda *Carpidia* matura demum horizontaliter radiantia, sicca. Semina Resedae

A SESAMOIDES (Duby Bot Gall vol 1 p 67) ^ In peninsula iberica, Galba mediterranea et submediterranea Italia occidental!, Coisica et Sardinia, a planitiebus calidis sabulosis usque ad cacumina nivalia ascendens et magnitudine partium et modo crescendi multo vanans, ut ex formis enumeratis earumque synonymis patet Chnracteie-\* enim quibus olim duce cl J Ga, species duas in Monograph Resedae distinxi iterum exarauu subjectos haua constantes inveni imo in quibusdam speciminibus pyrenaicis plunesque i eodem flore oscillantes et incertos observavi

a *purpurascens* (Duby 1 c) ^aulibus elationbus pedem dimidium circ semel v bis v ter aequantibus erectis e basi plus minusve procumbente adscendentibus \ subprostratis, fohis angustis, racemis elongatis apice sensiro anpjustatis staminibus circ 2-15, fiiamentis papillosis, c U ^ @ stylan gibbeiem alte convexum sub flonbus vulgo vix superante -\* "J lusitania et Hispanw multis locis lecta d planitiebus usque ad regionem





sed planta humnlior et folia distinctius rosulata, obscurus vindia, ut in sequentibus (v s)

- 8, *stellatus* (Duby 1 c) caudicibus prorepentibus apice multicaulibus et rosuhtim folngens, caulibus humilibus flaccidis subflexuosis racemis pro planta elongatis laxiusculis obtusis «staminibus circ 8, carpids subglabns ?f In Pyrenaeis praeserum onentalibus (a mult s lect ') Reseda sesamoides Gouan Hort reg montp p 229(1762) DC Flor franc vol 1 p 725 (quoad loc Pyren ) et Icon pi Gall rar p 12 t 40 quoad fig 3, Lapeyr Hist abreg p 269 Bergcrct Flore des Pyren p 276 *Astrocarpus sesamoides* J Gay in Schultz Archiv 1844 p 33, Gren et Godr Hoi de I<sup>r</sup>anee vol 1 p 1%. Colmeiro Cat method Barcelon p 18 A sesamoides Q Gajanus Mull Arg 1 c p 221 Caules saepius \* > 12 cm longi interaum multo majore longitudine superne flongen Folia infenora 2 4 cm longa, longe attenuate, cauha rehqua tantum 5 6 mm longa et circ 1 mm lata Flores praeter indicata ut m praecedentibus ( \ s)
- e, *alpmus* (Sahs in Hora ratisb. 1834 vol 2 p 73), pumili, folns dense rosulatis spithulatis, caulibus fere aphyllis, racemis brevibus obtusis staminibus circ 8 \*f In Corsica, in montibus eaitiontus Coscione (Salis 1 i), Rotondo (Bernard' in hb DC ) Reseia p>gmaea Scheele in Hora ratisb 184J 2 p 42G *Astrocarpus interruptus* Boreau troisieme notice sur les pi Cors rec pai B£vehtre p \* (18S9) Caules 2 4 cm longi, gracilts, folns tantum 1-4 parvis aucli Racemi seraipolhcares (v s)

### Tnbus III. RESEDEM.

**Carpidia in ovanum 1-loculare connata. Placentae panetales. Ovuk pendula.**

#### Subtnbusl. RANDONIJE

**Petala et stamina pengyna. — Petala laciniis calycis isoraera. Discus evolutus**

III RANDONIA *Cosson in Bull de la Soc boi. de France, vol 6 p 331 (1859) , et in Ann des sc nat, 1864 p 277 t 21, Hook rt fienth Gen pi 111*

Petala laciniis calycis isomera pengyna, discus calyci adnatus, stamina pengyna penphenca basi corona petaloldea parastaminah cincta, carpidia in ovanum ]-loculare connata, placentae panetales, ovula pendula, capsula apice hians — Suffrutex algenensis, dumosus, ramosissimus, glaber, glaucus, ramis virgatis teretibus Fo»ia mox decidua, indivisa, angusta, glauca Racemi spiciformes, angusti I lores unibracteati, albido-ochroleuci, caeterum completi Calyx cupulan hernisphaencus, lacinias 8 gerens, persistens, basi gamosepala cum disco connatus PetaK 8, omnia late unguiculan appendiculata, laminae unguiculares imbricatdp, hmmaa limbales omnium 3 paititaa v. infenorum ex parte obsolelas, liciniae intermedias omnium lineares, laterales autem superiorum cnstato-multifidaa et mfenorum intrpmedias conformes aut deficientes Discus pengynus superiore latere tantum evolutus, lunans, carnosulus, ohvaceus, calyci adhaerens Stamina pengyna, circiter 16, filamenta libera, extus circumcuca inter bases eorum et ungues petalorum, superiore latere inter bases et discum pengynum, coronula tenuiter membranaceauctasunt, haec coronula, s discus interiorGoss , consistentia et colore albo a disco unilateral! pengyno differt pt cum laminis ungmculanbus petdlorum quidrat brevis ebt, superiore Jatere tamen perspicue longior, undique iobata lobis incis, antheras Resedae.

Ovarium e carpidiis 2 v. rarius 3 formatum, apice ante et post foBundationem hians. Placentas cum dentibus 2 v. rarius 3 ovarii alternantes. Ovula in placentis biserialia, pendula. Capsulae siccae, apice hiantes, oligospermse. Semina Resedas.

R. AFRICAN\* (COSS. in Bull. soc. bot. de France, vol. 6. p. 392). \$ In Sahara algeriensi australiore, in prov. Cirtensi, Algeriensi et Oranensi, ubi praesertim ad v. prope palmeta in argillaceo arenosis et gypsaceis viget (KraliK n. 19!). — Coss. in Annal. d. sc. nat. 1864. p. 277. t. 21. Suffrutex 5-10 dm. altus. Caudex sublignosus, fusiformis, multiceps. Caules numerosi, viridi-ochracei, ramuli glauci, teretes, recti, ngidi, diametro demum pennam anserinam aequantes, juniores 10-40 cm. longi, tenuiores. Folia 2-6 mm. longa, cito decidua, obovata v. spatulata, obtusa v. calloso-apiculata, integra, crassiuscula, in ramulis subadpressa, sessilia, basi stipulari-bidentata. Flores in racemos angustos rigidos dispositi, inodori. Bractee pedicellos florigros breves superantes, lineari-oblongae, concaviusculae, basi more foliorum bidentatae. Pedicelli calyce fructigero breviores, sensim in calycem abeuntes. Calycis lacinae vix inanuales, apice rotundato-obtusae. Discus minute papillosus. Corona parastaminiialis (disci duplicis pars interior membranacea) tenuiter membranacea, hyalino-albida. Petala calycis laciniis subduplo longiora, omnia lamina unguiculari limbo multo ampliore praedita, cum filamcntis marcescentia. Ovarium ellipticum, basi haud attenuatum, 2-v. rarius 3-dentatum, minute papillatum. Capsulae 2J mm. longas et 1a ^, globoso-ellipsoideas, papilloso-hirtellaj, membranaceo-conaceas, 4-6-costatae. Semina 1J mm. longa, i. e. pro minutie capsularum magna, laevia. (v. s.)

### Subtribus II RESEDINEJE.

Petala et stamina hypogyna. — Petala laciniis calycis isomera aut iis pauciora aut nulla. Discus evolutus aut nullus.

IV. RESEDA *Linn. Gen. pi. ed. 1. p. 58. n. 447 (1742); Gaertn. Fruct. vol. 1. p. 369. t. 76; Juss. Gen. pi. p. 245; Neck. Elem. bot. vol. 2. p. 242; Lam. Illustr. t. 410; Vcntenat Tabl. III. p. 122; DC. Flor. fr. vol. 1. p. 724; Tristan in Annal. Mus. vol. 18. p. 392. t. 21; Mcissn. Gen. vl. p. 18; Endl. Gen. pi. n. 5011; Petermann. Deutschl. Flor. p. 66. t. 12. fig. 89; Hook. et Benth. Gen. pi. vol. 1. p. 112; Mull. Arg. Monogr. Resed. p. 96. t. 1-9. ~ Reseda, Phyteuma et Luleola Magnol. Prodr. p. 15 (1689). — Reseda et Luteola Tournef. Elem. rot. 1. p. 335. t. 238 (1694) et ej. Institut. p. 423; Boerh. Hist. plant, p. 333. — Kesedd, Pectanisia, Tereianthes, Arkopoda J?ofinsque Flor. tellur. n. 702-705 (c. 1836). — Reseda, Eresda, Luteola Spach Hist. des Vgti. Phan. vol. 7. p. 97-103 (1839).*

Petala laciniis calycis isomera hypogyna, stamina hypogyna periphere circumcirca ovarii basin inserta corona parastaminali destitute, carpidia in ovarium 1-loculare connata, placentae parietales, ovula pendula, capsula apice hians. — Herbas annuae aut biennes, rarius perennes, in hemisphaerii septentrionalis parte temperata et subtropica, praesertim circa mare Mediterraneum et mare Rubrum crescentes, saepius circ. sesquipedales, plus minusve ramosae. Caules saepius e radice plures erecti v. e basi arcuato-ascendente suberecti, teretes v. decursu foliorum leviter angulosi v. tantum striati, cum ramis apice in racemos abeuntes. Folia alterna ut in toto ordine basique stipulis vulgo duabus exiguis subulato-dentiformibus saepius ochraceo-pallidis praedita, semper ut in ordine simplicia, ambitu autem nunc integra nunc ternatim v. bi-ternatim 3ecta, nunc pinnatim v. bipinnatim secta, membranacea, haud decidua v. marcescendo decidua. Racemi terminales, simplices, multiflori, plus minusve elongati. Flores 1-bracteati, hernia-

phroditi v abortu partiah haud normali tantum hinc inde etiam polygarni, aïm, ochroleuci aut lutei, nunquam rubri, nee cserulei, vulgo inodori, in R. odorata autem suaviter etiamsi quomodo forlitter odorantes, in ahis obiter odorati Calycis lacimae 4-8, saepius 4-6, in calyce tetramero omnes sublaterales, in pentamero una superior et 4 laterales, in hexamero una superior, una inferior et 4 laterales, integrae, herbaceae, nunc persistentes nunc deciduas Pelala cum lacimis calycis alternantia, ad unguem vulgo in membrinam apice saepe incurvo-ieflexam dilatata, in latere ilorum supenore magnitudine et divisione magis quam in infenore evoluta, 3 fidd v 3-partita, lacimae laterales petalorum superiorum vane radiatim divisas v integrae et lacinia intermedia vulgo multo latiores, in petalis infimis autem v omnino obsoletae v angustiae et forma quasi ad laciniam intermedidm petalorum superiorum reductae Petala intermedia dein cujusvisflons inter supenora et mfenora medium tenent, I. e parte supenore ut in petalis supenonbus, infenore ut in mferionbus evoluta sunt Limina appendicantans petalorum dein etiam a petalis supenonbus ad mfenora gradatim minus evoluta est Gynophorus distmctus Discus vulgo evolutus. Stamina 7-40, filamenta libera v. subhbera, antherae oscilhntes, 4 loculares, apenentes 2-loculares, longitudinahter introrsum bmmosae, loculi longitrorsum cohaerentes Grana pollinis longitrorsum 3 sulcata, eporosa, laevia GV-^j mm longitudme aequantia) Ovinum 3 4-merum, 3-4-dentatum, ante et post foDtundationem apice hians, inter dentesapico inflexum etstigmatosum. Placentae cum dentibus alternantes, incrassato-costiformes Ovula 2-4-senaria, sessiha Capsulae polyspermdae, in omnibus siccae Semina reniformid, exdlbuminosa Lmbryo curvatus, radioula cotyledombus semicylimncis circiter aequilonga et aequilata Plumula inconspicua

*Conspectus diagnosticus sectxonum.*

- I. LEUCORESEDA Ovanum 4-raerum, placentae integr<£ — Folia pinnatim secta Flores albi v ocluoleuci
- II RESFDASTRUM Ovanum 3-merum placentae inte^rde — >oha Integra aut divisa, non pmnalisecta Mores ochroleuci et lutti
- III GLAILORESLDA Ovanum 4-mcrura, placentae superne bifidae — tolia integra Calyx 5-6 merus Mores albi
- IV LUTLOLA Ovanum 3-merum placenta? superne bifidae — \*olii intcgn. Calyx 4 mcrus Flores lutei

Sect i iHConisLDA DC in *Duby Bot (jail lot 1 p 67(1828) Gren et Godr Fl del raneae to/ 1 p 189 pr p Mull Arg Monoqr Rosed p 99* — Rpsedaj sect Re^cdina liurhenb ex Peteimann, *Veutschl 1 lor p 67 (1849)* — Genus Treianthus liafinesque *Ilor tellur n 701 pr p (cue 18J6)* — Genus Lresda Spach *Hist des Vigel Phan vol 7 p 97 (1839)*

Flores 5-6-men Petalorum superiorum hrnina usque ad medium v bievius 3-loba Ovanum tetnmerum, 4-uentatum Placenta; integrae, tcnues Capsulae 4 dentalae — Fon pinnatisecta \ lanus bipinnitisecta Flores albi v ochroleuci Calyces et filamenta omnium persistentu et semina papillo^o asprula Capsulae erectae — Sectio haec a rehquis generis etsimul a toto online foliis pinnatim seclis pnma ironte discernitur

o Stamu a circiter 18 Ovula 4-senalia — 1 oli i radicali i bipinmtim secta in reliquis hujus soctioms pinnatim secta

1 R niiiNNATA (Willd Inum pi hort berol vol 1 p 499 1809; folns radi-ldlihus hip nmtispectis bisi utnnque pectinltim niultulenticulatis potalis late

appendiculatis, lamina petalorum superiorum tenente 3-loba, disco evoluto, capsulis oblongato-obovoidicis ore contractis breviter 4-dentatis. *Qj* v. (2) In *Hupania* prope Ardnjue/ (hb. Willd. l. Lgdsta' Oitega' Bourgeau n 22771 Reutei') et in Sierra Estepone et Malacitana (Boissiei') — Spreng Syst. vol. 2. p 464; O. Don Gen syst vol 1 p. 289, Mull Arg. Monogr Resed p 107. t. 6 fig 87 (exclus. (3) Caules vulgo e udice solitarii, validi, 2-4-pedales, basi saepe diametro usque 1 cm. aequantes, simpliciter v. superne pauciumosi, subteretes, \ decursu foliorum leviter angulosi, in angulis saepius minute papilloso Folia ex maxima parte radicalia, haec 10-20 cm longa, medio 1/2-1 cm. lata, profunde bininervis, caudice inferius radicalibus minoribus, superiora parva, omnia plus minusve papilloso-hirtella et canescentia, laminae primariae secundariae angustae, rigidulae. Racemi longissimi, compactiflori, saepius 1 cm. lali Bracteae 3-4 mm longae, lanceolatae, acutae, pedicellis etiam sub fructu brevissimos plures superantes. Calyces hexameri. Petala in genere maxima, superiora 6-7 mm. longa, lateralia et inferiora subcontorta sed minora Anthemiae 1/2 v. fere 2 mm longae, apice asperae Capsulae, 12-18 mm longae, parte papillose. Semina 1 mm. longa, brunnea (v s)

(5. Stamina 6-12. Ovula 4-8.)

2. *R. BARRETTII* (Bertol Flore ital. vol. 5 p. 32 m adnot exclus. syn. Barr ), lobi basi utrinque paucidentulatis, petalis late appendiculatis, lamina petalorum superiorum tenente lobata, disco evoluto, capsulis subcylindricis ore latiuscule apertis breviter 4-dentatis (*Qj* v. (2) In arenosis montium Hispaniae altit 2000-6000 ped. et in Sierra de Gador (Boiss ') H. undat Boiss. Voy en Espagne p 78. I 20, non L. U. bipinnata (3 baetica Mull. Arg. Monogr Resed p 109. Radix multicaulis, subtenuis. Caules erecti pedales, suberecti, simpliciter v. unum alterumve idem gerentes, graciles Folia fere omnia radicalia, caulina pauca et minora, radicalia 7-10 cm longa, simpliciter pinnatisecta, laciniae angustae Racemi demum perlongi, circ. \ longitudinis lotius caulis occupantes, graciles, subaxillares Bracteae lineares-subulatae, oblongatae, demum deflexae. Pedicelli fructigeni abbreviati. calyce duplo breviores, crassi. Calyx 5-merus, 2^ mm. longus, l. e multo minor quam in *R. bipinnata* Petala 4 mm longa, similiter ac calyx multo minor quam in specie praecedente. Capsulae 10-13 mm longae, 4^ mm laevae, subacute tetragonae Semina ut in praecedente — *R. bipinnata* propter numerum staminum disceinitur statura minore et graciliore, foliis simpliciter pinnatisectis subglobosis basi paucidentulatis, laciniis longe tenuioribus, calyce et petalis minoribus et capsulis magis cylindricis angustioribus. (v. s )

y. Stamina 7-13. Ovula 2-8

\* Capsulae subcylindricae. — Petala distincte appendiculata.

3. *R. ALBA* ( L. char, emend.) petalis appendiculatis, lamina petalorum superiorum circ. \ longitudinis lobata, disco parvulo, capsulis subcylindricis ore leviter contractis \ \ (2) in regione mediterranea latissime dispersa, dein, sed lanus, in Europa Occidentali usque ad Butanniam magnam nec non hinc inde fortuito in Gaimima meridionali et media et in Hollantia faeterum ad Caput Bonae Spei et in India orientali introducta viget — Mull. Arg. Monogr Resed p. 100-107 *R. suffruticulosa* L. Spec. pi ed. 2 p 645. *R. fruticulosa* Reich. Syst. veg 2 p 436 *R. undata* DC. Flor franc vol 1. P- 726 (non L.) *R. ochiacea Mconch* Method, p 58 *R. miscia* Ten. Flor. ncp Prodr p 28 *R. mynophylla* ejusd. 1 c *R. Hooker* Guss. Enum pi man p 28 et 401. *Tereianthes undata*, l. iuticosa et *T. alba* Rafin. Flor. tellur n. 703 Species vilde ludibunda, et nomina hie enumerata, saltem 4 parva, a varis auctonibus \ane interpretata \anoque sensu admissa, unde synonymia vanetatum inextimabile chaos Diagnoses et descriptiones Linneanae e synonymis veterum, iconibus pro specimenibus herbarum conscriptae aut synonymis aut iconibus haud omnino congruae Conf ad Mull. Arg. Monogr. p. 100-107 ubi synonymia completior et expositio vanetatum et lorum satis extensa. Icones meliores sub nominibus praecedentibus sequentes sunt: Jacq. Icon rar. /ol. 3 t. 474, Fngl. Bot t. 26J8, Reichanb.

Jconesfl Germ vol 2 t 101 fig 4447 4448, Sibth et *bm* Moi graec t 459 (sed dneUio capsularum et foima petalorum eironea) Caules e radice solhani v pauci vulgo I 2 pedales erecti v ireuato ddescendeiiteb siraphces v pauciramosi, leuiier angulosi Folia 5-15 cm longa, amlntu lanceolata, radi-caha basi utnnque d is tauter 1-3 denticulaia, caulini ibidem 1 denticulata Racemi demum elongiti, leucanthi v interdum decolorantes in ochroleucum vergentes Bractee circ 5 mm longae, | mm latae, pnmum alabastia longius comoso superantes, hyalino marginatae Pedicclh vulgo 5-6 mm longi, graciles, decagoni, fructigen vahdiores sed vix longiores Calyx 5-merus, lanisime 6 merus Petald m formis nncranthis 6-7 mm longa, in formis vulgaiihus circ 5 mm longa supenora cujusvis flons rehquis paulo majora et dd ungues latius appendiculata Stamina 10 13, saepissime II 12 Antherae 2 mm sequantes Grana pollinis fere duplo longiora quam lata ( ,<sub>3</sub> mm longa) Ovanum turgidc 4 dcntdtum v subinde casu 3-dentatum obtuse tetragonum, basi angustatum Ovula in quavis placenta circ 10, bisenaha Capsulaj circ 10-12 mm longee, sefipe subincurvae Semina 1 J mm longa — Variat ludit-que statura, tonsistentia partium, colure fohorum et rauliura, ambitu folio lum et eorum laciniaium et praesertim etiam magnitudine florum — Insuper ludit \* *brempe*s folns paucilobatis fructibus fere sessihbus subabortivis ® In Italia inferiore prope Biretta (Bruni' in hb DC) Haec forma pi imo idtuitu cum R undata \* dboitiva convenit gracilitate, minutie floium et brevitate pedicellorum, sed capsulae ad R albam pertinent (v s )

\*\* Capsulae obovoideae

4. R KURDICA. (Boiss Flor orient vol 1 p 426) petahs obsolete appendiculatis tnlobis, disco evoluto (2) In subalpinis Kurdistamae Perbioae piope Mendeh (Noe n 11Gb' in hb Boiss ) Caules ex eadem radice plures, humi'es, vix scmipedales, ddescendenti-eiecti, gracilts, glabn Folia, inferioria circ 5 cm. Jongd, di^tanter pumatisecta, lacunae sublineaies v hnean lanceoldtae, nunc obtusae, nunc acutde, obscure glauco virides, glabrae, marginc autem papilloso asperulae Racerni dense flongen, basi laxiores, circ longitudine foliorum, flongen 12 mm lati, obtusiusculi, apice brevitua comosi Brae tea. subbneares, 3 mm longae, albidd3 Pedicelh 1-2 mm longi, calyce multo bie-viores Calyx 3 J mm longus, lacunae lanccolatae, hyahno-maignatae Petala 4-5 mm longa, alba, siccando hinc mde luteola, lobi laterales integri aut bilobi Discus angustus, marginc papilloso hirtellus Stamina 10, iilamenta longiuscula Ovanum obovoideum, vahdiuscule 4 dentatum, tota superficie papilloso-asperum — Species hucusque tantum speciminibus flongris nota e^t et d R undati characteribus fume diagnostics scgiegan nequit, sed ex habitu absque ullo dubio distincta est Pnma fronte en m speciminulum credens R albae, nec specierum sequent mm sed stamina 10 et ovanum ambitu multo latius est A proxima R undata L dein dignoscitur loins parvuhs, laci-nna angustis, race in is lationibus, calycis lacinnis et petalis majonbus A R decursiva et R propinqua longius distat (v s )
- 5 R UNDATA (L Spec pi ed I p 644, exclus syn Barr et fruct), petahs obsolete v non appendiculatis trilobis, disco evoluto, capsulis objvoideis oie ipso contractis brevitei commvener 4 dentatis (1) v © v ^ In montanib saxQsis et in pascuis andi>> Hispamae mediae et austrahs (Boi^sl Bourgeau n 10S8' 1694' 227o Willkomm n 474!) — Vabl Symb 2 p J2 R Gayana Boi^s Voyage en I sp p 7f, t 1 (icon pulcherrima) Colneiro Apuntes p. 27, Wdlp Repert vol 2 p 752, Mull Arg Monogr. p 111 t 6 hg 89 R suffiuticulosa Willk in Flora ratisb 1851 p 598 Kadix annua et biennis v casu etiam perennis et turn magis multicauli- Caules saep us e radioe pauci, qesquippdales | bipedales, erecti v e basi adscendente erecti, simplices v pauuramosi, lcussime angulosi, glabn, nitiduh Folia radica-ha 10-20 cm longa et 1 | 2) cm lata, caulina autem multo minord, llorum ldciniffi utnnque 8-15, cauhnorum pauciores, sublanceolatae, s<fipius undu-lata», praesertim in folus supenonibus, ubi angustiores Racemi demum longissimi, flongen laxiusculi Bractee circ ) mm. longae, supra bas m i nam latdJ, pedicellos florigeros aequanteb Petala 3) 4 mm longa, 3-loba, lobus intermedius rehquis angustior Discus evolutus latiusculus, glaber, maigine

- papilloso ciliolatus. Stamina Saepe 10, filamenta brevia Capsulae b8 mm longae, obtuse tetragonae, ore ipso, nee sub ore ut in R propinqua, contracta Scmina j mm longa, minutissime et crebre tuberculato-aspera — Ludit \* *abortiva*, foliorum lacinnis paucioribus angustioribus v foliis floribus indivisis, race mis angustioribus pediculis angustioribus, capsulis oligospermis v vacuis saepe subdifformibus (£) In horticulis colta (hb DC 1) R Gayana aa abortiva Müll Arg 1 c p 114. (v s)
- b R. *recurva* (Forsk Flor aegypt p 67), bracteis spathulato-lanceolatis, petalis obsolete v non appendiculatis circiter usque ad medium 3 lobis albis, disco rudimentano, capsulis obovoideis ore late apertis, seminibus crebre minute tuberculato-asperis (7) In desertis parti septentrionali mans Rubn adjacentibus (Boiss 1 G Lhrenb ') et in deserto aynaco (Olivieri) R alba Del Fior aegypt p 16 (non L) R eremophila Boiss Diagn ser 1 n 8 p 54, Walp Annal vol 2 p 30, Mull Arg Monogr Resed p 109 t 6 fig 88 R propinqua Boiss Hor orient vol 1 p 421 non R. Br Caules e radice saepe plures, multifructiferae, erecti v suberecti, simplices v pauciramosi Folia pleraque radicalia 1 3-pollicana, decursive pinnatisecta, cainosulo membranacea, glauco vinda, lacinae utroque latere o 10, subovatae, vix obtusae, foliorum caulinarum lineam lanceolatae et longiores. Racemi densiflori, elongati, demum laxiores Bractae 3 4] mm Tonga?, basi longe attenuatae, excepto nervo pellucidis, vix descentes pedicellos florigeros longius superantes Pedicelli florigeri abbreviati, fructigeni 1 2 mm longi Calycis lacinae 6, circiter 2<sup>1</sup> mm longae, oblongo ovatae, obtusae, late hyalino marginatae Petala superiora 3 1/2 mm longae, calycem demum inter se sequantur Discus aut rudimentarius v subinde nullus Stamina 7 10 Ovarium teres, basi longius stipitato attenuatum, dentes apice lacen Capsulae ut in R alba sed breviores nia isquobovoidae binae 1 mm longa, maturantur et dense echinulato-aspera — Ludit *abortiva* floribus minoribus subinde, capsulis abortivis (i) In palmetis Gabes Africae Tunetensis (Kralik' in hb Boiss) — A R propinqua differt pedicellis calyce deflorato brevioribus, bracteis spatulatis non sensim acummatas nee sub flore albidis, floribus minoribus, petalis longe profundius divisis et albis nee ochroleucis, ore capsularum et seminibus, a H undata L prima fronte disceitur statua humili, pedicellis, floribus minoribus et ore capsularum. (v s)
- 7 R PROPINQUA (R Br Observ Oudn Denh et Clappert p. 22), bracteis lanceolato-subulatis, petalis non appendiculatis breviter 3 lobis ex albo ochroleucis, disco nullo capsulis obovoideis sub ore contractis divergentibus 4 dentatis, seminibus sublaevibus (j) v (2) In Africa mediterranea prope Inpoh (ex R Br). in glaucosis circa Biskra (Bdlansa n 876'), in ruderalibus prope Gabes (Kralik n 141) — G Don Gen syst vol 1 p 289, Mull Arg in Schlechtend Bot Zeit 1816 p 33, et Monogr Resed p 114 t b fig 90 Caules e basi radiatim breviter procumbente suberecti, flexuosi, simplices v rarius parce ramosi, vix pedicels et superne majore parte florigenae stant angulosi, nitidi cum reliquis glabris Folia inferiora 10 1) cm longa v fere dimidium caulem aequantia, 1/2-1 cm lata, distanter pinnatisecta, lacinae suboppositae, 5-10-juga, decurrentes et in rhachi adscendentes sublanco-latae, obtusae Racemi densiflori, deflorati laxiores et demum valde elongati Bractae 2-2 1/2 mm longae, albidae, nervo nudi perscurfi, pedicellos florigeros subaequant, fructigenae breviores, sensim a basi decumant L Pedicelli eiccto patenti, fructigeni 2] mm longi, fructigeni paulo longiores Cdlyx Ut in R undata L Petala circ 4 mm longa, inter se magnitudine et forma fere aequa, oblongo-obovata, basin versus cuneato-angustata, lobi tantum 1/2-1 mm longi, subovati, obtusi Stamina 10 Capsulae 8 9 mm longae, l e paulo majores quam in R undata L et divergentes nee conniventer et longius declinatae binae 1 mm longa, paulo majora quam in R. decursiva et vix perspicue tuberculato-aspera (v. s)

Sect li RESEDASIRUM Duby Bot gall vol 1 p 66 (1828), Koch Sim ed. 1 V 10J, Gren et Godr riore de France tol 1 p 187, Peterm Deuchhl Flor. p 67, Mull. Arg Monogr hesed. p. 116 — Hesedae sect. Reseda Endl.

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(*Jon. pi. n. 5011. b. pr. p.* — Reseda Spach *Hist de\ Vege't. phane'rog. vol. 7. p. 97.* — Reseda et Pectanisia Rafin. *Flor. tellur. n. 702 el 704.*

Flores 6-5-meri v. rarius 7-8-meri. Petalorum supenorum lamina profunde 3-partita. Ovanum 3-merum, 3-dentatum. Placentae mtegrae, tejnies. Capsula\* 3-dentatae. — Folia nunc indivisa, nunc ex parte sunt omnia divisa, nunquam pinnatim secta. Flores albidii, ochroleuci v. lutei. Calyces et filamenta in alus persistentia, in alns (Jecidua. Semina superficie vana.

*Dispositio specierum hujus sectionis.*

- § 1. Calycis laciniae persistentes. Semina haud laevia. — Flores arc. 16-20-andn.  
 A. Filamenta diu persistentia. sp. 8.  
 B. Filaraenta mox dccidua. sp. 9-19.
- § 2. Calycis laciniae persistontes. Semina laevia.  
 A. Filamenta diu persistentia sp 20.  
 B. Filamenta mox decidua. sp. 21-29.
- § 3. Calycis laciniae deciduae. Semina lanvia.  
 A. Filamenta mox decidua. sp. 30-38.  
 B. Filamenta diu persistentia. sp. 39-40.
- § 4. Calycis lacuniae decidude. Semina haud laevia.  
 A. Filamenta dm persistentia. sp. 41.  
 B. Filamenta mox decidua. sp. 42-48.

§ 1. *Calycis lacinix persistentes. Semina haud Issvia. — Ovula in quaque placenta circ. 7-10, biserialia v. irregulariter 2-serialia. Capsulx amplx, demnm pendulx. Semina in genere magna v. majuscula 3',-11 mm. longa.*

A. *Filamenta diu persistentia. — Ovarium in calyce sessile.*

8. R. AIUBICA (Boiss. Diagn. 1. p. 6), laciniis calycis sub fructu vix ampliatis, laciniis lateialilms peUlorum usque ad medium 6-8-fidis lacinulis lineari-obovatis, capsuls pendulis subglobosis oie leviter constrictis acute 3-4-dentatis basi rotundatis. 0) "n Persia ausrali Abouschir (Kotschy n. 1\*271), in desertis circa mare Rubrum (Aucher n. 2619' Schimper n. 50)! Boiss.! Kotschy! et «iln), in regno I unctano prope Gabes (Kralik n 36' 371 ') et in Algenae ditione M/ab (Kralik n. 19. a'), Zickel (Ch Martins!). — Walpers Report, vol. 2. p. 754; Mull Arg. Monogr. Resed p. 124 t. 6. fig. 93 incl. p et Y; Boiss. Flor. orient, vol. 1. p. 426. H. tetragyna Forsk. Fl. aegypt. p G6<sup>2</sup> et ej. Desenpt. pi, aegypt. p 02? R. pia?turvisa Mull Aig. 1. c. p. 232. Tota prueter capsulas mag is mflatas et lilamenta sub fiuctibus junionbus dm persistentia similis R. odoraue. Radix gracilis. Caules nunc solitani nunc plus minusve numerosi, crecti, \ adscendentes, v. etiam ut m forma culta, quam nomine R. praeteivisae designavi, insigmtter radiatim procumbentes et apice tan turn adscendentes, sponte nascentes vix pedales, in hortis europ. cultilJ-2^ pedes attinjentes, graciles, subangulosi. Folia vulgo2J cm. longa, in speciminibus cullis usque > cm. longa, infima Integra, rehnuatcinatim secta; laciniae angusta?. Flores in racnum brevisculum, sub Iructu vulgo elongatum dispositi, similes us R. odoratae. Bractea? 2-\-3 mm. longae. Pedicelli 3-6 mm. longi, calyce subduplo longiores, demum recurvato-subpenduli. Calycis laciniae 3 mm. longae, oblongo-obovatae, moie foliorum parce papillosae v- glabrescentes, margine hyahnae, sub fructu nee reflexae nee ampliatas. Petala 2 \ -3 mm. longa, in speciminibuscultis usque 3^ mm. longa, late appendiculata; inferiorum lamina ad laciniam mtermediam sunenorum reducta. Filamenta cue. 21 sub anthens paulo dilatata, basi perspicue monadelpna. Anthrae 1 mm. longae, ellipsoidea. Ovanum basi baud distincte stipitato-an-

gustatum et hoc caractere in genere insolito distinctum, nunc 3-nunc 4-merum. Capsulae 8-12 mm. longae. Semina 1<sup>^</sup> mm. longa. (v. s. et viv. cult.)

B. *Filamenta mox decidua.*— *Ovarium in calyce basi stipitato-angustatum.*

a. Laciniae laterales petalorum superiorum profunde partitae.

\*• Lacinia petalorum superiorum intermedia et lacinulae lateralium conformes, lineares.

9. R. ALOPEGUROS (Boiss. Diagn. 8. p. 55), laciniis calycis sub fructu modice accrescentibus, laciniis petalorum superiorum in lacinulas lineares perangustas 7-9 partitis, lacinulis laciniae intermediae conformibus, capsulis subpendulis inilato-subglobosis ore latiuscule apertis acute 3-dentatis, seminibus in genere maximis. (i) In Palaestina prope Gaza, Ramlah, Sichem, in cultis (Boiss.). — Walp. Annal. vol. 2. p. 31; Mull. Arg. Monogr. Resed. p. 121. t. 6. fig. 91; Boiss. Flora orient, vol. 1. p. 426. Caulis 1-2-pedales, basi ramosi, cum foliis et inflorescentiis undique papilloso-hirsuti. Papillae piliiformes 2 mm. longae, obtusae, basi ampliatae. Folia 4-7 cm. longa, v. in specimenibus Genevae cultis usque 15 cm. attingentia, inferiora indivisa, lanceolato-spathulata, obtusa, media et superiora usque ad medium ternatim v. rarius bitermatim secta, basi stipulari-bidenticulata; laciniae lineari-lanceolatae. Racemi floriferi latiusculi, apice longius comosi, sub fructu valde elongati et laxiores. Bractee 3-4 mm. longae, lineares, pedicellis floriferis subduplo breviores, hyalino-marginatae. Calycis laciniae anguste lineari-spathulatae, sub fructu 6-7 mm. longae, superne 1 mm. latae. Petala superiora 4-5 mm. longa; lacinulae tantum circ. 4 mm. latae. Stamina circ. 20; filamenta sub antheris perspicue latiora et asperula. Ovarium obovoideum. Ovula in quaque placenta tantum circiter 7, biserialia v. irregulariter triserialia. Capsulae ferel<sup>cm</sup>-longae, ad angulos papilloso-serrulatae. Semina 3-3.5 mm. longa, scrobiculato-rugosa, iis sequentis similia, sed radícula tamen minus elongata. — Species petalorum structura insignita. (v. s. sp. et cult.)

b. Petalorum superiorum lacinia intermedia lineari-spathulata, lacinulae autem laciniarum lateralium lineares.

10. R. ARMENA (Boiss. Diagn. 1. p. 5), laciniis calycis sub fructu haud accrescentibus, lacinulis petalorum superiorum utrinque 5-6 linearibus perangustis laciniae intermediae haud conformibus, capsulis demum pendulis subglobosis ore latiuscule apertis breviter 3-dentatis, seminibus in genere maximis. (i) In Armenia (Aucher n. 23761 2616. in hb. Boiss. et nc.). — Walpers Repert. vol. 2. p. 754; Mull. Arg. Monogr. Resed. p. 123. t. 6. fig. 92; Boiss. Flor. orient, vol. 1. p. 427. Caulis 18-25 cm. longi, rigidiusculi, valde ramosi, basi duriusculi, flexuosi, decursu foliorum lineis pallidis prominentibus notati, caeterum teretes, cum omnibus reliquis partibus glabri. Rami divergentes patentes, superiores reliquis sensim multo breviores. Folia 12-14 cm. longa, ovata indivisa, lanceolato-spathulata, crassiuscula, glauca. Racemi floriferi breves, demum valde elongati et laxi. Bractee 1.5 mm. longae, obovatae, obtusae. Pedicelli floriferi 1-3 mm. longi, sulcato-angulosi, fructiferi circ. 6 mm. aequantes, horizontales v. delto-patuli. Calycis laciniae 3-3.5 mm. longae, lineari-spathulatae. Petala 3 mm. longa; lacinula? superiorum undique tantum 1-1.5 mm. latae, 1.5 mm. longae; lamina inferiorum ad laciniam intermediam superiorum reducta. Stamina circ. 18; filamenta a basi paulo latiore sensim angustata. Ovula in quaque placenta circ. 6, biserialia v. irregulariter triserialia. Capsula 12 mm. longa et 10-11 mm. lata, nonnihil pachyderma, ad latera praesertim secus placentas distincte ramuloso-venulosa, caeterum laevis. Semina 3 mm. longa; radícula apex hilo non approximatus. (v. s.)

c. Lacinia intermedia et lacinulae petalorum superiorum conformes lineari-spathulatae.

1<sup>n</sup> Antherae apertae subglobosae. Semina 3 mm. longa— Petala calyci vix aequilonga.

H. R. BALANSA: Mull. Arg. Monogr. Resed. p. 119), calycis laciniis sub fructu



non amphatis, petaliscilicyci subaequilongis, lacinnis laterahbus petalorum sup\*-riorum in hcinulas circ 6 lineas spathulatas dmsis filamentis sub anthers demum subglobosis non lationbjs capsulib penduhs subglobosis ore latius apertis breuter 3 dentatis, seminibus in genere maximis (2)? In Asia minore cilicica secus nvulum Guzel-Dere prope Mersma (l&lansa n 768' — Boiss Flor orient vol 1 p 428 Caules 3-4-pedales vage patenter ramosi, firmi, teretes, cum rehquis partibus glabn, nitiduli Rami ramuhque graciles, elongati, Wrce fohosi Folia 2 10 cm longa, omnia ternatim v ranus biternatim secta, laciniac lineas lanceolatae Racemi demum vilde clongati apicc obtusi Bractee 1<sub>1</sub>-2 mm longae, lmean-lanccolatae, sensim acuminatae, apice obtusee Pedicelli flongen 4 mm fructigen circ 8 mm longi Calycis lacini<fi 5-6, circ 4 mm longae, sub fructu 6 mm attingentes et ambitu angustiores, sc lineas spathulatae Petala tantum cue 3 mm longa quoad formam ut in R macrospeima Stamina circ 16-20, antherae vix j mm longae 0\anum obovoideum, obtuse tngonum apice divergenter et acute 3-cuspidatum Ovula in quaque placenta 5-7, bisenaha Capsulae 12 mm longae, similhmae ns R Armenae, sed latere non venulosae Semina J mm longa (v s )

2° Anthers apeitae oblongatae Petala cilicyci vix aequilonga v eoleviter longiora Semina 2-2} mm longa

12» II INODORA (Reichenb Icon Floi Germ vol 2 p 22 t 99 fig. 444) b ), calycis lacinnis sub fructu non amphatis, petalis calyci subaequilongis, 1 acinus laterahbus petalorum supenoium in lacinulas arc 4 lineas spathulatas diMsis, filamentis sub anthers non lationbus, capsuhs subpenduhs clavato-obovoideis acute 3-dentatis ore late apertis, seminibus magnis ®v (|v ? In saxosis circa Danubium circa Ofen et Pesth (a mult lect I), in Moldavia prope Galit/ (Guebb ), Pudolia austrah (Besser<sup>1</sup>), in Bessaia prope Cbaba et in 1 hracia scptentrionah (Fnvalds ex Gnsch ). — Walp Report vol 2 p 752, Mull Arg Monogr Resed p 139 t 7 fig 99, Boiss Floi orient vol 1 p 428 R raeditenanea Sidler Verz p 61 (nonAuct), A F Lang ^num pi Hungar p 8, Besser Tnum pi Volhui p 46, Host Floi austi vol 1 p 569 (exel syn et desenpt e Jacq Collectan 1 p 569 mutuat ), Ledeb Flor loss 1 p 236, Reichenb Mor excurs 2 p 696, Gnsch Spicil Rumcl vol 1 p 241 Caules s&pius vi\ pedales mfernc circ 2 mm crassi, simplices v inforne pauciramosi, erecti v e basi breviter procumbente erecti, vulgo btiiictiusLuh v stncti, undique densiuscule folio&i, decursu foliorum minute angulati et in angulis cum rchquis partibus marginahbus papilloso-scabnduli, ceterum glabn Fohn mlenoia mdivisa, 6 0 cm longi 6 8 mm lata angust lanceolato spathulata, acuta, basi longe ittcnuita, media et supenoia teinatim secta et giadatim brevioia, lacunae lineas lanceolatae, acummatae, terminahs laterahbus suboj)positis fere duplo longior Racemi flongen breviuscuh, sub fructu 3 5 cm longi Biactcae 3 4 mm longae, hneares Pedicelli flongeri 4 6 mm longi prolundesulcati, fructigen duplo longiores, vix iecurvo penduh Calycis lacinicE 3 \ demum 5 mm longae, lineas spathulatte, demum non amphatje sed piulo longiores, albido maiginatae PetaU 4 mm longa, laciniac fatcialcs supenoium saepissime 4-paitita<sup>3</sup>, intumediamp longiudmc vulgo bis a?quantcs Stamina s<jepius 16, antherae ovoidtse, J mm longae apice asperulai Ovarmm obovoideum, obtuse tngonum, longius et gracihus 3 dentatum Ovula bisenaha, in quaque placenta ssepiUs 6 8 Capsula subacute tngona, ad angulon papilloso senulala, submembranacea Semina 2j mm longa — Occunit magis scabndula et capsuhs bieviusi 3-dentatis, quae R microspeimi p Anatohca I isch et Mey Ind sem hoit petrop 1839 n 2283 et R modoia (3 macrospeima eorund 1 c 1840 n 2211, s R inodora p Anatohca Boiss Hor ouent vol 1 p 428, in Anatolia inter Sa franbol et Tokat lecta. (v s )

13 R ORIENTALIS (boiss Flor orient vol 1 p 427), calycis laciniis sub fructu distincte elongatis, petalis cilyce brevionibus, lacinnis lateralibus petaloium supenorum in lacinulas 4-5 lineas spathulatas superne quam basi multo latiores rhvisis, filamentis sub anthers lationbus capsuhs demum penuuJis oblongo obovoideis acute tndentatis ore latmscule apertis, seminibus <sup>su ^ ma 11</sup> gms ® v (D In cultis aienosis Palirstind} ad Gazd (Boiss<sup>f</sup> Kotschy n 1241; ,

- Joppen (Bove n 462') Berythum (Gull ') R maciosperma y onontilis Mull Ar<sup>^</sup>, Monogr Rescd p 135 Caules vulgo inirapcdalcs inttidum pedpm semel v sesqui -equantes nunc erecti, nunc e bdsi plus minus procurbente adscendentes, infeine picEsertim valde ramosi, levitei angulosi cum folns et inflorescentia pipilloso hirtelli lota ccterum quoid caules folia, flores ci Cdpsulas valde similis R macrospernn (R melian) etnmsi cbaractenbus pccedenti minus smnli affimoi Cdlycis lacini i demum modici sed distincte tdmn accrescunt, flongeri 4 > mm longa?, fiuctigen 0 8 mm. tqantes Petala alitei divisa quam in R media Semina tantum 2 mm longa A K Phyteuma pracsertim flonbus brachypetahs et foimd petaloium diversa (v s)
- 14 R MEDIA (Lagiscd ISov gen et spec p 17 n 222, 1816), calycis laciniis sub fructu vix acciescentibus, petilis calycem circ aequantibus, launns lateralibus petdloium supenorum in Idcinulas 5 8 linean spatbul itas supine quam basi latiores divisio, filamentis sub mthens non lationbus capsuhs domum pendulis oblongo obovoideis acutt 3 dtnUtis ore lp\iter contrauis, seminibus magnis (T), (2) v ^ In Lusitiniact Hispania mcnJionali virile locis (Link! Welwitsch n 517' Boiss ' Guthnick! Willkomm n 558!) R maLrospcima Reichenb in Floid iatisb 1830 1 p 130, Walpeis Repeit vol 2 p 752 Mull Arg Monogr Resed p 133 t 7 fig 97, exclus var y R Phyteuma Brot Flor lusit vol 2 p 30i non L R difformis Moench Method Suppl p 22 ad hujus deformationern spectare uduetur et desenpt ex pnte ccrte mcoirecta Gaules e radice solitarn v s^pius pluies, erecti v saspus basi breviter detumbentes n^iduli v saepius plus mmusve flacciduh, parco lamosi foliosi, turn folns undique pilis dlbis 1 mm longis subluisuti, sepius pedem dimidium SLS JUI dequantas f oha 1 j - 5 cm longa, 3 8 mm Jala, infenora indivisa, linean v lanceolato-spathulata, obtusa, nunc obscurus nunc laetius v. cinerascenti vindia, maigine v etiam undique in pagina nunc parcius nunc S{arsius papilloso-scabiidi \ hirtella, Laulina ternalim v etiam biternatim secta, v hmc inde non divisa, Idcini L later lies linean Idnccolatde v ovato-lanceolatae, subacutae Racemus flongei densus, demum niodioe elongatus basique turn laussimus Bracleae 2 ram longae ] mm lat e linean-lanceoldtae, pedicellis flongens duplo v fere tnplo breviores Pedicelli sub fiuctu nonnihil mcrasdti, enciter5 (> mm longi Cahcis launtao 3 3j mm longr, superne J-{, infeine 4' mm litr, sub fiuctu 4 mm attingentes, i e vix distincte majores Petala supcii )ra J 4' mm longi, mfciorum Idmina ad laciniam liitermediam supcnoium reducta et ad unpuem minute appendiculata Disci hypo^yrn excentnci pipill c ipice Cdpitito clavatp , mm longitudine atlin^entes Stdmina circ 21 Ovinum acute 1 deniatuin Ovula in quaque placenU 7-10, bisemha Capsulae l| cm longee Semina 2^ mm longa, caeterum ut in praecedentibus duibus — Specimina culta ludunL ovarns pro majore parte tetnmens R macrospeima p tetragyna Mdll Arg ^ c p 415, et spontanee occurrit folioium lobo terminali iteium semel v bis ternato secto, quahs prijsertim m Hispania calidiore mantima occurrit, et cui pertmet K macrospeima 8 subpinnatissecta Mull Arg 1 c p 136, s R Phyteuma p hirsuta Boiss Voy p 77 (v s)

3° Antherae apertae oblongatae Petala calycem sesqui v bis aequantia Semina 2-2j mm longa

- 15 R PHYTEUMA (L Spec pi ed 1 p 449, 1753), calycis Ucmus sub fructu amphalis potalis calycem flongerum circ sesqui v iere bis aequantibus, lacinnis lateralibus petalorum sup( riorum in Ucinuhs ciro 5 peiangustas linean subspathulata^ superne quam basi paulo tdntum latioros divisio filamentis supia medium lationbus, capsulis demum pendulis oblongo obovoideis bievitei 3-dcnlatis ore parum constrictis, seminibus submmnis (l) v (D v if In sabulosis Algeriae circa Oran (B jvé') et in Asia mindie cilicica (Balansa n 7^3') et dein per totdm Turopam meiidionalem, a Rossia austrah usque ad Lusitaniam et Galliam mediam et occidentdlem, nec non Dartem australi, om imperil austnaci et Helvetiae occupans ec usque ad Belgium septentnonem versus progrediens — G Don Gen Syst vol 1 n 280, Jacq \*lor austi \ol 2 p 20 t 132, Gaeitn FruU vol 1 p \$\$, ReUpnh Icon Mor.Geim'etHelv.vol 2 p 22. t 99 flg 4443 (petala manca K Dietr.

Deutschl. Floi. vol. 3. p. 4. t. 3, Boiss Flor orient vol 1 p 427, Ten. Flor. napoht. vol. 4. p 2>6, Bertol Flor ital vol 1 p. 33, Brot. Flor Lusit. vol. 2 p. 306, DC Fl fr. vol 1 p. 727, Gren et Godr Flor de France vol 1. p. 187, Gaud Flor. helv. vol. 3 p 270, Mert et Koch Deutschl. Flor. vol. 3. p 381, Ledeb Flor ross. vol 1 p 235 R calycinahs Ldm. Flore fr. vol 1. p 204 (1778). R odoratd Guldenst. Her v 1 p 422 (ex Ledeb 1 c ) R. Tournefortu Schult. Observ. in Linn. Spec pi p 89 (1809) R Aragonensis Loscos et Pardo Ser. inconf Arag. p 14 Pectamsia Phyteuma Rahnesque Flor. tellur. n 1704 (1836). Caules e radice tnnui sohtani v e cra^sioie plus mmusve numerosi, erecti v adsc^ndentes, saepiusspithamei v etiam elatiores, ramosi v. rarius simplices, interne pdesertim folios, glabu v. angulis papilloso-asperu. Folia 3-6 cm. longa, inferiord spmper et interdum omnia mdi-visa, anguste lanceolato-spathulata, rotundalo-obtusa, media et supenora vulgo ternatim secia, laciniae subspathulatae Racemi flongen brevis, densiflon, demum valde elongati Bracteae 2 mm longae, anguste lanceolatae, siccae apice incurvae, maigine ut omnos Inflorescentiae paries papilloso asperae. Pedicelli 3-6 mm longi, fructigen 8-10 ram. aequante\*\* Calycis lacmide sub flore 3-4 mm. longae, spathulatae, demum 6-10 mm loriffde Petala circ. 5 mm longa, saepius lacunas calycis sesqui aequantia, inteidum Pds paulo tantum superantia v in calyce majusculo, praesertim in sppcimimbus robustionbus vix c is aequantia. Stamina saepius 17, hlamenta supernc latiuscula. Antherae 1} mm longae. Ovanum obtuse tngonum, obtuse et turgide 3-v ranus k dentatum. Ovula bisenalia, in quaque placenta 6 10 v saepius 8. Capsulae 12-15 mm longae, acutius tngonae, laeves v. ad angulos papilloso-asperae Semina 2 mm. longa, radícula modice elongdta, vertice a hilo distans. — Species lacinnis cilycis sub fructu ampliatis vulgo recogn.tu facilis et in specimimbus minus clans e filamentis suerne evidentr subdilatis, magnitudine seminum et piassertim forma petalorum discernenda est (v s )

16. R. COLLINA (J Gay in Lxploitd scientif de l'Algene t. 71 fig 2, icon pulherr ), calyns lacinnis sub fructu modice accroscentibus, petals calycem fere bis aequantibus, lacinnis late rah bus ptlalom supenoium in lacinulas 7-8spathulatas dmsis, filamentis superne paulo Idtionbus capsulis pendulis globoso-ovoideis ore modice contractis brevissime tndentatis, semibus magms \*f In collibus incultis, agris sabulosis et in arenosis mantimis A1 gen as prope Oian (Balansa n 202' Reuter' Munby') — Mull Aig in Schlechtd. Bot Zeit. 1856 p 34 et Monogr. Resed p. 127 t 6 fig 94. Radix vulgo lignescens et multicaulis, vensim etiam jam primo anno, ut aliae species hujus generis, caulem flongerum gerens Caules 20-25 v. ranus usque J5 cm attingentes, e basi breviter procumbeite aut solum circa caudicem breviter radiatim depressa erecti v. adscendentes, ramosi, dense foliosi, glabri. Folia 4-7 cm longa, infenora indivisa, lanceolato-spathulata, 7-10 mm lata , rehqua ut analoga in R. Phyteuma ternatim v ranus hi ternatim secta, orania glabra, basi utnnque bidenticulata Racemi flongen circ 3 cm longi, demum elongati Biacteae 2-2J mm longae, lmeari lanccolatae, margine hyalinae. Pedicelli flongen 3-4 mm aequantes, fructigen duplo longiores Calycis laciniae 2\ mm\* longae, lanceolatae, obtusae, diversicolores, sub fructu 4 mm longae Pelala 3}-4 mm. longa, lacinia intermedia lacinuhsconiormissid ussubduplo brevior. Stamina circ. 20, filamenta laevia. 0\ar mm cylln(l^lco-o^oldeum, obtuse tugonum et breviter tndentatum, laeve, glabrum. Semma 2-2 J mm. longa. — A R. Phyteumate capsulis et petalis distincta. (v s )

4° Antherae apertae oblongatae. Petala calycem sesqui aequantia. Semina 1j mm. longa

17. R. NEILGHERRENSIS (Mull Arg. in Schlechtd Bot Zeit. 1856. p. 34), calycis lacimis sub fructu ion amphais, petalis calycem sesqui aequantibus, lacini's lateralibus petalorum supenorom in lacmulao circ 6 linean-spathulatas divis, filamentis superne lationbus, capsulis pendulis obovoideis ore leviter constnctis bre\iter 3-dentatis, semibus maiuscuhs. ®<sup>9</sup> In montibus Neilghemes Indiae Onentahs (Hohenack pi Metzian. n Illy') — Mill' Arg Monogr. Resed p 131 t 6 fig 9< Caules circ peddles v paulo altiores. tenues, subflaccidi, inferne prostiati, caeterum adscendentes, parcc lainosi,

in angulis superne praesertim papilloso-asperuli, laxe foliosi. Folia 3-5 cm. longa, inferiora et media indivisa, anguste lanceolata, circ. 7 mm. lata, apicem et basin versus subaequaliter angustata, superiora nonnulla ternatim secta, quorum lacinae linean-lanceolatae. Racemi floriferi densi, mox autem valde elongati et laxissimi. Bractee 2 mm. longae, ovato-lanceolatas. Pedicelli floriferi 6 mm. longi, fructiferi circ. 9 mm. aequantes. Calycis lacinae circ. 3 mm. longae, lineari-lanceolatae, demum reflexae, haud distincte accrescentes. Petala 5 mm. longa, similia iis sequentis, sed lacina intermedia lacinulis brevior. Stamina circ. 17; filamenta basi  $\wedge$  mm. lata, sub antheris autem  $\wedge$  mm. lata. Ovarium obovoideum, obtuse trigonum, basi parum attenuatum, fere undique minute asperum; dentes e basi conica subcylindrici, ovario duplo breviores, erecti, truncati, apice laceri. Ovula in quaque placenta saepius tantum 6, biserialia. Capsulae ut in *R. Phyteumate*, sed minores, ambitu magis oblongatae quam in *R. odorata*, divergenter 3-dentatae. Semina ut in *R. odorata*, sed radícula rector et paulo longior. — Flores majores sunt quam in simillima *R. odorata* et filamenta omnino nlia. (v. s.)

18. *R. ODORATA* (*L. Spec. pi. ed. 2. p. 646. 1762*), calycis laciniis sub fructu non ampliatis, petalis calycem sesqui aequantibus, laciniis lateralibus petalorum superiorum in lacinulas circ. 6 lineari-spathulatas divisas, filamentis superne non latioribus, capsulis demum pendulis obovoideis ore leviter constrictis breviter 3 (-4)-dentatis, seminibus majusculis. ® Sponte crescentem olim prope Mascar Algeriae (ex Desf.), in iEgypto (ex Hall, Zinn, Linn.) et in Syria (ex Delile) indicabant, ubi recentioribus naud obvia, et patria vera, unde jam anno 1751 (ex Boissier de Sauvage *Méthod. pi. hort. Montp. p. 194*) in hortos europaeos introducta erat, hucusque dubia. Hodie species cuicumque grata ubicumque in hortis et oil is colitur. — Linn. *Syst. pf. vol. 2. p. 435*; Poir. *Hist. des pi. vol. 6. p. 193*; G. Don *Gen. syst. vol. 1. p. 288*; Delile *Flor. fgypt. p. 15*; Desf. *Flor. atlant. vol. 1. p. 376*; Munby *Fior. d'Algér. p. 47*; Bot. *Mag. vol. 1. t. 29*; Dietr. *Doutschl. Flor. vol. 3. p. 5. t. 3*; Reichenb. *Icon. Flor. Germ. vol. 2. p. 22. t. 99. fig. 4444*; Buchenau in Schlechtend. *Bot. Zeit. 1853 cum ic*; Payer *Traité ri'Organogénie végét. p. 198. t. 39. fig. 1-13*; Müll. *Arg. Monogr. Resed. p. 128. t. 6. fig. 95*. Radix annua, tenuis v. subinde Raphanorum more incrassata. Caules saepius infrapedales, *toliosi*, debiles, inferne v. decumbentes y. adscendentes, interne vulgo patenter ramosi. Folia aut omnia aut inferiora tantum indivisa, lanceolato-spathulata, superiora saepius ternatim secta, omnia subflaccida, margine laevia y. papilloso-hirtella, media reliquis vulgo majora. Flores in racemum breviusculum obtusum dein multo laxiorem dispositi, parvi, odorem sui generis suavem sed nonnihil gravem caeterum cuique gratum spirantes. Bractee 2-2½ mm. longae, lineari-lanceolatae, obtusiusculae. Pedicelli 4-6 mm. longi, fructiferi 7-10 mm. attingentes. Calycis lacinae sub flore 2-2½ mm. longae, lanceolato-spathulatae, dein 2½-3 mm. longae. Petala 2½-4 mm. longa; lacinulae superne duplo quam basi latiores. Stamina circ. 21; filamenta 4 mm. longa, asperula; antherae saepe rubellae. Ovarium ovoideum. Ovula in quaque placenta 7-12, irregulariter 3-2-serialia. Capsulae 7-9 mm. longae, 4-6 mm. latae, inflato-obovoideae y. ovoideae, ad angulos minute papilloso-asperulae. Semina 1½ mm\* longa, similia iis *R. Phyteumatis*. — Etiam in ollis culta occurrit : — *suffrutescens* (*R. odorata p suffrutescens Bot. Reg. t. 227.*), caulibus multo longioribus inferne lignescentibus, foliis integris. (v. s.)

P Lacinae laterales petalorum superiorum semilunatae y. semiovatae, extus inciso-ibbatae, nee profunde in lacinulas divisae.

19. *R. JACQUINI* (Reichenb. *Icon. Flor. germ. vol. 2. p. 22. t. 99. fi<> 4445*) calycis laciniis sub fructu paulo ampliatis, petalis calycem superantibus, laciniis lateralibus petalorum superiorum semilunatis, filamentis sunerne baud latioribus, capsulis demum pendulis oblongo-obovoideis ore leviter constrictis et breviter 3-dentatis, seminibus majusculis. ® v. ® v. X in Dalmatia circa Spalato ad muros (Portenschlag!) et in Gallia meridionali circa Mendam, Pont du Tarn, in vineis calcareis prope St-Jean du Gard St-Ambroix, Anduze, le Vigan (Prost! Lecoq! etc.). — Lecoq et Lamôthe *fat rak p. 89*; Gren. et Godi, *FL de Fr. p. 188*; MOU. *Arg. Monogr. Resed. I 141*.

17. fig. 100. *R. alba* St-Amans Flor. Agen p. 187 (ex descript.). *R. medilenanea* Jacq. Collect. vol. 1. p. 147 et ej. Icon rar. vol. 3. p. 5. t. 475 (IC. bona), non aliorum. Radix ana, saepe incrassata et multicaulis. Caules saepius vix pedales, e basi breviter procumbente erecti, simplices v. paucè ramosi, glabri, subnitidi, inferne haud raro saepe papillosi. Folia circ. 4 cm. longa, inferiora indivisa, lanceolato-spathulata, subobtusata, margine subundulata, laevia v. margine papilloso-denticulata, media et superiora ternatim socata. Racemi ampli, apice tomosi, floerigen saepe 2-3 cm. lati, sub fructu demum aalae elongati et circ. semipedales. Bractee 2-2 J mm. longae, lineares, hyalino-marginatae. Pedicell. florigen in genere longissimi, 8-15 mm. apertae Calycis lacinae 2 imm. longae, lanceolato-spathulatae, obtusae, demum distinctae, sed minus quam in *R. Myrtu-nata*, ucre-scentes. Petala superiora 4 mm. longa, lacina intermedia hinc-spathulata, lateralibus amplis semilunatic uiciso-lobatis subduplo brevior. Stamina circ. 20. Ovarium obovoideum, basi sensim angustatum. Ovula 4-8, in quaque placenta 6-8. Capsulae 14-18 mm. longae, quam in *R. Phytumate* vulgo longiores, paulo graciores basi que longius angustatae. Semina 1 i mm. longa, caeterum ut in *R. Phytumate*. — Species in hoc § 1 forma pentaloium insignita, quo caractere cum omnibus speciebus sub § 2 enumeratis subquadrat. (v. s.)

§ 2. *Calycis lacinae sub fructu persistentes. Semina lxxia.* — Petalorum superiorum lacinae laterales in omnibus semilunatae, repanda v. lobata\* v. raro irregulariter partitae, nunquam regulariter (ut in § 1 mos est) in lacinulas angustas divisa). Semina nunquam ultra 2 mm. longa, saepius 1-1 f mm. longitudine aequantia.

A. *Filamenta sub fructu diu persistentia.* — Stamina 10-12. Ovula in placenta 4-6.

20. *R. GLOBULOSA* (Fisch. et Mey. Ind. sem. hort. bot. petrop. 1837 ex Linnæa 1838 Litt. p. 167), petalis calyce subduplo longioribus, lacinae lateralibus petalorum superiorum semilunatis extus repandis, filamentis superioribus non latioribus, capsula demum inclinatis depresso-globosis hexagastriacis longius sub ore arete constictis et in collum terminalem subcylindricum acute 3-dentatum abeuntibus, semmibus majusculis. 0. In desertis Caucasicis, in ditionibus Krabach et Schirwan (Hohenack.), in Georgia (Wilmsoni), Talysch (Turcz.) et in Armenia boreah (fide cl. C. Koch.) — Walp. Repert. vol. 2. p. 753; Hohenack. Enum. p. Talysch p. 145, et in Bull. Soc. mosc. 1838. p. 381; Ledeb. Flor. ross. vol. 1. p. 236 C. Koch in Linnaea 1841 p. 705; Muller Arg. Monogr. Resed. p. 194. t. 9 fig. 120; Boiss Fl. orient. vol. 1. p. 430. Caules caerulei, pedales, stricti, parce iamosi, decussis foliorum leviter angulosi, K<sup>bn</sup> v. in angulis parvis papilloso-dentati, nitiduli, rami elongati, erecto-patuli. Folia 1-2-pollicaria, inermia ignota, forte integra, reliqua ternatim secta, lacinae hinc v. lineares-spathulatae, laterales v. indivisae v. usque ad medium et ultra bifidae\*, breviter subcallosae acuminatae. Racemi 2-5-pollicares. Bractee circ. 4 mm. longae, lineares, a basi sensim angustatae, demum totae subhyalinas. Pedicell. florigen 5-6 mm. longi, fructigen 8-10 mm. aequantes. Calycis lacinae circ. 2 mm. longae, lanceolatae, obtusae, demum reflexae. Petala superiora 4 mm. longa; lacina intermedia parva, lineares-spathulata, lateralibus late semilunatis duplo brevior. Stamina breviter monadelphica. Ovula in placenta quaque 4-6, quorum 2-4 superiora demum lertia, reliqua abortiva. Capsulae 4 mm. longae, 4-5 mm. latae, profunde 6\* sulcatae, inter sulcos turgide ventrescas, basi abrupte brevissime stipitatae. Semina 1 mm. longa, laevissima, nitida. (v. s.)

B. *Filamenta mox decidua.* — Stamina 15-20. Ovula in quaque placenta 8-40.

a. Ovula in quaque placenta 8-12. Capsulae subglobosae aut obovoideae.

1° Capsulae pendulae v. subpendulae.

21. *R. PAPILLOSA* (Mull. Arg. in Schlecht. Bot. Zeit. 1856 p. 38), calycis lacinae

mis sub fructu minimis, petalis calicem superantibus, lacinus hterihbus  
 S o m m supenorum semilunatis eitus repando-sublobat.s, fillamentis  
 S^ruh ,T◀mP?na leviter lationbus, ovario dense papilloso, capsulis demum  
 pēnduTs obōvo^de.s sub ore mod.ee constrict\* dem in tubulum truncatum

ditionis tunetanae prope /aghouan (Kralik n 372' in hb.  
 DC ) — Mull Aig Monog Resed p 1 Caules e radice  
 lignosa plures, circ semipedales v etiam nunc humiliores et erectiores,  
 nunc longiores et magis e basi subprostra laculi, sub-  
 an diametro fere tota << S S & a æquantes

ternatim secta Flores ochroleuci potius quam pure lutei Bractee 3 J-4 mm  
 long\* hnean-lanccolatdB, persistentes et margine plus minusve subinciso-  
 d e n K Calycilauil. 2 2i mm long\* s^ab^frucU^ n^fla S^s  
 3 4 mm longa, lacmia intermedia supenoi urn lmean-spatnolata, lateraies  
 semilunatae, in infenoribus autem lacinias mteimediae conformes, sc linean-  
 spathulatae sunt Stamina saepius 16 Ovula in quaque placenta 8 10, bisenalia  
 Capsula maturae 5 6i mm longas 4i o mm latae Semina Ij mm longa —  
 A ^ u m t o differt calyoe fructigero minore, forma petalorum supenorum et  
 capsularum et semunbus multo minonbus (v s )

22. R DimyEANA (J Gay in Explorat scientif de l'Algérie t 74 fig 1,  
 pulcbrerctwcis facinus sub fructu paulo acresentibus parvis lacinis late-  
 Hifus Vtatorum supenorum semifunatis integns, ^T.SSS'StZ  
 lationbus, capsuls demum subpenduhs elhpsoideis ore taa^ » ^ w  
 diveicenter 3-dentatis, seminibus majusculis ® v (2) In Algeria (ixpior  
 S in sylvi de Lambtsc (BaUnsal in lib Boiss) -Mull Aig m  
 bcbTcc' tenS B'ot Zc.t 1806 p d et Monog. Uesed p^71i Caules ex eadem  
 nrtipp h «»DIUS Plurts circ semipedale«?, adscendentes v sonidiu ma^is  
 erequ, SSSs^ p to V glabri n.tiauh Folia 4 cm longa ^ ^ » » -^  
 dimlin pt ultra breviora, inferiora indivisa, lanceolato-spatnuiata, superne  
 fir^ mmi Uta rotundato-obtusa, margine plana, rehqua ternatim secta,  
 lacinae lanceolatae v subspathulatae, subæquales v terminalis longior,  
 margine undulatae Racemi florigeri cuc 1 cm lati, breviusculi, obtusi, apice  
 vix comosi, demum elongati Bractee circ 2 3 mm longæ, spathulatae, ob-  
 tusæ, diu persistentes Pedicelli 5 6 mm longi, fructigeri vix longiores sed  
 magis patentes Calycis lacinae 2 3 mm longæ, sub fructu demum 3 3' mm  
 longæ, i e leviuscule accrescentes figura petalorum fere ut in R lutea  
 sed lacinae laterales margine exteriore integræ, et petala inferiora 3-lacinata,  
 lacinae subæquales angustæ Stamina circ 18 Ovarium obovoideum obtuse  
 trigonum dentibus 3 turgidis subacutis depresso-divergentibus instructum  
 et secus angulos papillis vesiculæformibus longitrossum scritis obsitum  
 Ovula in quaque placenta 8, distantia Capsulae gibboso undulatae Semina  
 2 mm longa (v s )

2° Cap^ulae erectae

>> R BCSSXHB: (Mull J in Sc \* ^ % ut g ^ } X S Z S £  
 du,s calycs lacim^ . \* J j s e \* ^ ^ an ? t u s superne .nc.so lotahs hlaments  
 Z ? l lacinis, teialib J j s e \* ^ ^ an ? t u s superne .nc.so lotahs hlaments  
 superne haid hationou^, capTuIsobovo.deis Sreivissrae Jdcntat.s ore late  
 Cahiram et Su(a (J)olssier) —  
 In A yp inferiore inter  
 M^uT^A, ? Mo@ogr Res-d. P 175 t 8 hg 117 R Cahirana B» Bo.ssien  
 Boiss FlSr orient vol 1 p 430 Radix parvula, multiceps C^ules in spe-  
 ciminulo unico viso 10-1) cm longi, simplices % basi ramosi e basi bieviter  
 de^umbente erecti, parce foliosi glabn Folin inferiora 2 3 cm longa .n-  
 rtfvfa soathulita apice lotundato-obtusa reliqua ternatim secta lacimae  
 ThimilUolanceolaUe, terminalis obtusa v omnes acutie Hores in racemos  
 bipvissdispositi,albiutvideturi. Dractee 3 mm longæ linean subuktæ, sub  
 fructu deciduae Pedicelh 4\*» mm IOIRI dem paulo longioies Calycis  
 laciniaecuc 1mm longæ, rlabrae v dorso papilloso gnseas Petala ^jmm  
 longa, inferiorum hmna asqualitr 3 partita, laciniee hnean spathulatae v

latorales sublineares Stamina ore 17 Anthers minute papillose ut in sequente, ovoideae, || mm longae Giana polhnis globoso-ellipsoidea, -^ mm longa, 1 e ab us &equentis forma et magnitudine ommno diversa Ovanum basi giacihter st pitatum ut in sequente Capsulae maluiiae ignotae, immaturae parvae, undique glabrae (v s)

24 R CAHIRANA (Mull Arg Monogr Rpsed p 176), bracteis sub fructu per sistentibus, calycis iacinns lineau oblongis petala subaequantibus petalorum supenorum lacmiis laterahbus semilunatis extus superne inciso-lobatis fila mentis superne lationbus, capsuhs obovoideis brevissime 3 dentatis ore sub constctis, seminibus paivulis (T)<sup>9</sup> In Xgjpto infenore in monte Mokattam prope Cdhiram (Kotschy n 534' in hb Boiss) — Doiss Flor orient vol 1 p 430 excl vai (J Caul is unicus \isus, nisi ramus, pedahs, adscendens, parce ramosus usque ad racemos fohosus, giaber, nitidulus glaucescens, rami iertiles 3-4 polhcares toha infeiiioia et medi i indivisa, saepius 5 8 cm longa et 12 18 mm lati, i e majuscula lanceolato-spathulata, membranacea, glabra sublundo glaucescentia maigine jlana, supenora 2-3 cm longa et ternitim secta, hciniae angustae, acummitae Racemi albiflon 1] cm lati, abbiaviati, obtusi, fructigeri semipedales Bractee 5 mm long\*, hneari subulatte latius hy ilino marginatae Pedicelh flongen 5 mm longi, fructigeri circ 7 mm aequantes Galyc s laciniaB non spdthulatae Petala 3-3 i mm longa Stamina cue 18, hlamenta sub anthens perspicue dilatata, laevia, anthers pi| illoso-asperulP. Giaiaa pollinis elongato ellipsoidea, tantum •jVmm longd I e m Oidine minuttssima Ovula in quaque placenta cue 8 10 (apsulae cum stipite cue 9 mm longae, 4 5 mm lat<£, truncatas, epa-pillobde bemina tantum 1! mm longa, Idevissima Ridiculae apex hilo valde ap]i)ximatus (v s)

25 R RAMCISSEFMA (Willk Strand-und Steppengew d iber Halbins p 10''), bracteis deciduis, calycis Iacinns hneait-spathulatis petala sequantibus, lacmn^ 1 iterahbus petalorum supenorum semilunatis extus re] and is capsulis obovoideis obscuie tndentatis apicc contract is ?f In Hispama (Willk) — Mfill Aig Monogr Resed p 193 Caules ramosissimi arc bipedales, rami erecto patuli flexuosi Folia inferiora indivisa, lmean-spathulata, reliqua tornatim secta v ramealia subinde indivisa, laciniae linean-lanceolatae, Integra? v bi-tnftdae, sordide virentes, margine et subtus in costis muncatim asperae, caste rum cum tota planta glabiae Racemi elongaii laxiflon demum sub fructu pedales et longioies, plus mmusve flexuosi Pedicelh flongen patentissimi, sub fructu magis erecti, semper firmi Flores majoies quam in R ciecti, sed parvi, luteoh Petalorum liieiiorum lamina ad laciniam mtei-mediam supenorum leducta et sujerionbus multo minoi. Iacinns calycis cum paite ungmculaii subaequilonga Capsulae lmmauiap sub ore clau^o strangu-latae Semma remformia, nigrescentia, lasvissima (ex Willk 1 c) — Occurrit dem ut alias plure\*- huius genens m Inrtis praesertim subabortiva (R ramo-sissima oca ibortiva Mull Arg 1 c p IO4),cauhbus tenuionbus subdecumbentibus omnibus partibus minonbus, cd] sulis subaborlivis, quah adsenbenda est R ramo<issima Pourr mWilld Fnum pi hoit reg brol vol 1 p 499, Spreng Syst vol 2 p 464 excl syn Iagasc (v s)

b Ovula in quaque placenta circ 12-15 et ultra Capsules cyhndraceae

1° Filamenta superne haud latiora.

26 R NEGLBCTA (Mull Arg Monogr Resed p 178) Iacinns calycib petala aequantibus, Iacinns lateralibus petalorum supenorum late semilunatis extus profundius inciso-lobatis, filamentis superne haud lationbus aspens, capsulis erectis obovoideo-cylindraceis oie late apeitis truncatis et minute 3-denticulatis, seminibus parvuhs (T) et (2) In saxosis Algenae prope Biskra loco dicto Ras-el ma (lamin') et in argilloso arenosis ad Oued Segnr inter Guerrara et Bernan (Krahk n 20') Caules ex eadem radice plures, saepius vix semipeda-les, suberecti \ basi breviter decumbente^, giaciles, parce ramosi minute parceque papilloso-aspen v superficie laeves, subopaci Folia inferiora 2-2i cm longa, superne 4 mm lata, spathulata, lehqua ternatim v ex majore parte biternatim secta, lacinias hnean-lanceolatae, utnnquc attenuatse, circ

2<sup>1</sup> mm latae, v foliorum summoium duplo angustiores et ambitu lineares Mores parvi, luter, in racemum circ 15 mm latum, demum elonpatum dispositi Bractee 3J mm longae lantan subulatae, tenues, dorso obscurus vnidi excepto pallidae Pedicelli flongen 4 4J mm longi, patentes, fructigen cue 6 mm aequantes, erectiores et apice leviter arcuato deflexi Calycis lacunae 3} mm longae, anguste lanceolatae Petala JJ mm longa, lutea, lacinae late i lies lit in R Boissien, i e piofundius inciso lobatae Stamina circ 16. Grana polhnis subglobosa, nee ut in H. lutca elongato ellipsoidea Ovula in quaque placenta 20-25 Lapsulae 12 mm longae, mmores quam in sequente Semina tantum 1 mm. longa, omnino simiha us R lanceolatae —Pnmo intuitu Specimina refert parvula R lutei sed insignitcr differt forma petalorum, magnitudine capsularum et semnum nee non ovulorum numero (v s)

27 R LUThA (L Spec pi ed 1. p 449), lacinnis calycis pelala subaequantibus, lacinnis lateralibus petalorum superiorum late semilunatis extus iepandis filamentis superne baud lationbus minute asperulis, capsulis cylindriLO obovoideis breviter et acutiuscule 3 dentatis ore demum latiuscule apertis, seminibus majustubs (T)v (g)v if Species cresut ab Oran Afncae septentnonahs per jEgyptum, Persiam, Palaestinam, Kossiam mendionalem et mediam, Galiciam usque ad Varsoviam, sporadice in Posnia, et per German lam septentnonalem, Bataviam usque Bntanmam Magnam prdestitim IU tro onctalem et usque Aberdeen sub lat 57° et in reliqua Luiopa ocudentah nee non ma jore copia in Europa australioie et media intra bunc circulum sita — Similiter ac alias species vulgares geographice late distributee simul locis altitudine et situ maxime diversis etiam haec numerosas formas piaebet pnmo intuitu. satis diversas, quae autem charactenbus hoc in ordine specificis optime congruunt Praestantiores sunt

a, *vulgans* (Mill Arg Monogr Resed p 185), cauibus 1 3-pedahbus vahdiuscuhs, folns longiusculis prater infima teinatim v biternatim v hinc inde subntern itim settis, lacinnis obtusiusculis, racemis subamplis 1\*2-2\ cm latis apice subobtutis calycis lacinnis majonbus 4 4 mm longis petalis 4-5 mm longis ®— if Vulgaj-is in paite septentnonali et media terntoni speciei, meridiem versus laiescens et aliiscum vaneta tibus mixta v ab us omnino expulsa R lutea L 1 c G Don Gen syst vol 1 p 289, Ien Hor nap vol 4 p 2^6, Beitol Flor ital vol 5 p 26, Brot Hoi lusit vol 2 p 305, DC Fl franc vol 1 p 727, Gren. et Godr Flore de Fr vol 1 p. 188, Gaudin Hoi helv vol 3 p 269, Mert et Koch, Deutschl Flor vol 3 p 380, Ledeb Flor loss vol 1 p 236, —Jacq Flor austr vol 4 p 28 t 3>3, Bulhard Herb, t 281, Engl Bot t 321 Lam Illusti t 410, Reichenb Icones Hor Germ vol 2 p 22 t 100 fig 4446, Dietr Hoi boruss vol 11 t 778 et ejus Deutschl Hora vol 3 p 5 t 4 Caules in iadicc soliiaru aut saepius plus minusve numerosi, foliorum et bractearum decuisulevis^ime angulosi, in anguh- v lanus etiam in mtcivallis papilloso asperuh, caeterum glabn, infeine pallidius supeine obscurus \uides Flores lutei, longiuscule pedicellati, in laccmum demum 10 2o cm. longura dispositi Bractee cue 4 mm longae, subpersistentes, line in lanceolatae, sensim sed obtuse acummatae, latiuscule albido marginatae Pedicelli flongen circ 4-5 mm longi, fructigen baud dMincte lon\_eiores Stamina circ 20 Grana pollinis elongato ellipsoidea Ovanum secus placentas extus papillosum Ovula in quaque placenta 10 14 Inegulanter 4-3- v. 2 senalia Capsulae saepius 12 mm long<p Semina ut in omnibus sequen tibus vanetatibus 1J mm longa, laevissima nitida — Hapc ludit *enspa* (Mull Arg 1 c p 187), lacinnis foliorum angustionbus magisque cnsptis, racemis subdistincte mmonbus ® et (2) In Gallia australi, insula Ischia (Guss ') et m pascuis desertis Bern Zid piope Gabes (Krahk') R lutea p *enspa* L Spec pi p 449 (v s et v)

P, *minor* (Mull Arg 1 c p 188) cauibus quam m « breuonbus, folns brevionbus minus glaucis maigine unduhtis, lacemis perspicue angustionbus apice magis acutis, flonbus paulo minonbus Q— Jf in Hispa ma in Gallia circa Dieppe (hb reg berol ') et secus la Drance près d'Avignon (hb DC !) in Sicilia (hb Kunth ') et in Rossia australi ad



Lenkhson (Fischer' in hb DC) — Hsec dein occurnt *hispidula* (Mull Arg 1 c) ||x pedahs cauibus tenuibus inferne prffisertim undique papilloso hispiduhs (*i*) Inter Narbonne et Perpignan Galliae austrahs (hb DC'), — *elflatida* (Mill Aig 1 c), caulibus elongatts debilibus pirce ramosis, folus membnniceis flaccidis saepius simpliciter ternatim sectis, lacinus angustis elongatis margine dense papilloso-sermlatis (T)• ¥ In Hispaniae montibus Honda (Boiss') (v s)

Y, *slncta* (Mill Arg 1 c), caulibus plus minusve stnctis subsimplicibus elongatis, folns biernatim v subternatim sectis, lacinus angustis acunnatis margine subundulatis ct papilloso aspens, racemis stiictis elongatis longe acuminatis quam in a multo angustionbus ct flonbus quam in ilia minonbus, ovanis ct capsulis longius et acutius 3-dentatis quam in reliquis vanetatibus 0—*if* In regione mediterranea inter segetes Fstramaduræ (Wehvitsch n 447!), in Algarvia (Link' in lib beiol), in Algena (Bov' in hb DC) et in argillosis msuli Zante (Maigot n 3341) — 1 udit *mucronulata* (Mull Arg 1 c) ovarns ct capsulis papillosis (T)— ^ In Italia mfeuoie (Guss •) R mticionulata Tin. Cat Hon. Pan 1828 p 280, (Guss Prodr Suppl p 147 et bynop\* p 529 R lutea b Guss Piodi Mor Sic vol 1 p 538 (v s)

ô, *mantima* (Mull Arg 1 c), ngida basi sublignosa decumbente difluse ramosissima glabia v minute et parce papillo^a glauca, folus rigidis crassiusculis maigine plams ternatim sectis, lacinus subangustis obtusis v. foliorum supenoium calloso acuminatis plus minusve abbreviate, racemis quam in a paulo angustionbus, axi racemorum firmiore, cipsuhs magis truncatis (T)—*if* In sabulosis mantimis Galhae occidentals, Sables d'Olonne (hb DC'), et in Sardinia prope Caghan (E. Thomas' in hb DC.) Medium tenet inter var a et £. ^v. s)

E, *suffruticulosa* (Mull Arg 1 c p 189), caulibus vix pedahbus basi suffruticuloso induratis rigidis cum loins glaucis, folus ex majorc parte indivisis margine plans supenonbus ternatim sectis, lacmns aculis, capsulis valde abbrtviatis vulgo tantum 4-6 mm longis truncatis minute 3-dentatis ore arcte constnctis inflato-ellipsoideis sublaevibus 2)—*if* In Lusitania cnca Ohsiponem (Link' in hb berol) (v s)

C, *Oentahs* (Mull Arg 1 c), ramosissima ngida fere omnino glabra glauca, ramis snl)fastigiatis, loins ternatim sectis, lacinus fere hneari-spathulatis ngululis margine vulgo plams, I ace mis ut in \ar p, capsulis ut in var a sed vulgo epapillosis Q)—*if* In Persia multis locis (Auclicie' Buhse') j m Milo (Leière in hb reg bcrol), cuca Damascum (Hammer-schmith' in hb Boiss) et in Tauri alpibus Bulgai-Dagh (Kotschy n. 333 d') — Haec et sequens ludunt capsulis nonnullis nutantibus R clausa Mull Arg in Schlechtend. Bot Zeit 1856 p 39, Monogr Resed p 192 (v s)

7), *ngida* (Mull Arg 1 c). caulibus ngidissimis erectis simplicibus v parce ramosis pallidis nitidulis minute muncatis cum folns glaucis, folns rigidis pallide glaucis margine plams saepius simpliciter teinatim sectis, lacinus mfenorum spathulatis supenorom anguste lanceolatis mucronulatis, racemis flonbus et capsulis ut in var p (T)—*if* In Peisia pi ope Kaiadagh (Buhse' in hb Boiss) — A piaecedente var differt ngidiUte eximia, colore pallido et capsulis brevionbus (v s)

6, *orthostyla*, caulibus circ pedahbus vane ramosis glabnuscuhs cum foln& glaucis, folns ternatim sectis lacinus anguste lanceolatis v feie hneauspathulatis subobtusis v superiorum foliorum b^ iter acuminatis margine plams, flonbus ovarns et capsulis ut in \ai p, sed filamentis magis hi\* pidulis ®— *if* In Podolia (Besser'), La Cmee (Leveill6 in hb reg berol), in Bosnia (Sendtnei n 768'), ad flumen Cyrum fC Kochl i» bb berol), in Kurdistan (hb berol 1), nee non in Sohs templo Belbck Syna3 (G Ehrenb' in hb beiol) R orthostyla C Koch in Linnaea 1845 p 705, Ledeb Fior ioss vol 1 p 771 R luteae 0 Besscriani MU Arg 1 c — A var p differl coloie glauco, fohoium ngidioium margine piano et lacinn\* lationbus (v s)

- i, *divergens* (Müll. Arg. 1. c), caulibus circ. bipedibus infeme divergen-  
ter ramosis, ramis subdiffusis in usque firmis cum foliis glaucis, foliis  
ternatim sectis subpatulis glabris margine planis et minute asperulis,  
lacinis linearis-spathulatis v. anguste lanceolatis, reliquis ut in b ortho-  
styla. ®— *if.* In ditone sedenensi (hb. reg. berol. 1). Hic pertinere  
videntur R. gracilis Ten. Viag. in Bas. Calabi. (1827) p. 122, et R. laevi-  
gata G. Don Gen. Syst. vol. 1. p. 280, sed haec synonyma nondum certa.  
— Occurrit dein: *streptocarpa* (Müll. Arg. 1. c. p. 191), capsulis tortis  
curvato- et subventricoso-difformibus. Q— "*if.* In arenosis ad lacum Beyl-  
kehr Lycaoniae (de Heldreich! in hb. DC. et Boiss.), prope Smyrnam  
(Balansa n. 413!) et circa Bayruth (G. Ehrenb.! in hb. leg. berol.).  
(v. s.)
- x, *pulchella* (Müll. Arg. 1. c. p. 191), caulibus arc. pedibus adscendenti-  
bus inferne ramosis subglabris cum foliis glaucis, foliis glabris margine  
planis et minute et dense papilloso-denticulatis, laciniis linearibus apicem  
versus vix latioribus v. inferiorum spathulatis circ. 1½-2 cm. longis bre-  
viter acuminatis, racemis gracilibus angustis 5-20 cm. longis quam in  
var. p paulo angustioribus, petalis 2½ mm. longis intense luteis, capsulis  
quam in (3 paulo brevioribus ad angulos minute papillosis. (1)—*2f.* In Gal-  
lia australiore prope St-Jean (Lecoq!), in monte Donato ad todinas Gypsi  
Italiae inferiorum (Gennari! in hb. Guss.), in monte Tauro (Kotschy. 568!).  
— Hic pertinere videntur R. gracilis Reichenb. Icon. Flor. Germ. vol. 2.  
p. 22. 1.102 fig. 4446 b (non Ten.), R. lutea v. gracilis Hausm. Flor. v.  
Tyrol. p. 105 et R. tenuifolia Wallr. Linnaea 1840. p. 674. (v. s.)
- X, *Lecoqii*, subdivincato-ramosissima, caulibus subpedibus gracilibus cum  
foliis glaucis, lamulis tenuibus, foliis rigidiusculis glabris margine planis  
et minutissime papilloso-denticulatis, laciniis linearis-lanceolatis v. linearis-  
spathulatis breviter acuminatis v. mucronulatis circ. 1-li v. rarius 2cm.  
tantum longis et 1½-3 mm. latis, racemis quam in var. precedente an-  
gustioribus breviusculis acuminatis, floribusquam in precedentibus var.  
minoribus, petalis 2 mm. longis quoad foemina autem nunc varietatis  
a quadrantibus, capsulis 5-7 mm. longis fere laevibus, seminibus abortu  
paucis caeterum magnitudine et forma cum his varietatis a convenienti-  
bus. ®— 2^ In Arvernia secus vias prope St-Ambroix et Suy de Crouil  
(hb. Lecoqian!). R. gracilis Lecoq et Lamoignon Ca^lais. p. 90 (non Ten.  
nec Reichenb.). R. lutea v. gracilis Gren. et Godr. ^ore de France vol. 1,  
p. 188i Müll. Arg. Monogr. Resed. p. 191. (v. s.)

## 2° Filamenta superne latiora.

- ^8. H. TRUNCATA (Fisch. et Mey. Ind. 4. sem. hort. petrop. 1837), laciniis calycis  
petala fere aequantibus, laciniis lateralibus petalomm superiorum late semi-  
lunatis repando-sublobatis demum ex parte irregulariter in lacinias circ. 5  
spathulatas ex parte geminatim altius cohasiente. divisas, filamentis superne  
latioribus papilloso-hirtis, capsulis erectis trigono-ellipsoideo-cylindricis  
hasi haud cuneato-angustatis ore truncato late aperto minute 3-dentatis,  
seminibus majusculis. 0). In Natolia (Fisch. et Mey. 1. c), in 'lauria (Traut-  
vet. ex Ledeb.), in Macedonia, septentr. (Griseb.). — Linnaea vol. 12. 1838  
Litt. p. 67; Ledeb. Flor. ross. vol. 1. p. 236 et 772; Griseb. Spicil. Rumel'  
v. 1. p. 242; Walp. Repert. vol. 2 p. 753; Müll. Arg. Monogr. Resed. p. 182\*  
\* 9- fig. 119; Boiss. Flor. orient. vol. 1. p. 429 incl. var. p. Cistus circ' ses-  
quipedales, erecti v. suberecti, parce lamosi, laxius iohosi, teretes undique  
longiuscule sed parce papilloso-hirtelli, ohvaceo-virides. Folia 3-5 cm. longa  
subfalcata, inferiora indivisa, spathulata, reliqua ternatim v. biternatim secta  
lacinae lanceolatae, breviter acuminatae, 2-3 cm. longae et vulgo 4 mm  
v. superiores minores. Racemi breves, obtusi, fructigenae circ. 20 cm lon-  
gioribus semper papilloso-hirtis et species hoc characteris primo visu i R. lutea  
discernenda. Flores intense lutei. Bractaeae 2 } mm. longae, linearis-lanceolatae  
sensim attenuatae, demum omnino albiccae, firmae foliaceae. Calycis lacinae  
valde inaequales, linearis-lanceolatae, obtusae. Petala superiora 3½ mm longa  
inferiora tantum 2½ mm longa, horum lamina simplex linearis-spathulata!

Stamina 18-20, filamenta papillis pihfonmbus cyhndncis subiectangulalim insidentibus hirtella, caeteium minutius aspera Ovula in quaque placenta 14-16 Capsulae 10 f) mm. longae, 5-7 mm latae, longo tractu aequilatae, acute tngonae, maturaie oie fere edentatae lateque apertie, extus undiquepapillosae Semina ut in R lutea — AH lutea praeter for mam et indumentum hlamentorum recedit petalis et capsulis (v s)

29. R CRYSTALLINA (Webb Phytogr Canar p 102 t 9), lacinns calycis petala fere aequantibus lacinus laterahbus petalorum superior urn semilunatis extus repandis, filamentis superne lationbus papilloso scabns, capsulis erectis elongatis tngono-cylindncis basi subcurva cuneatis oie truneato minute 3-dentato latt apeitis, seminibus majusculis (1) In Cananensium insula Lance rota (Webb' in hb DC), in aivis prope Villa de San Miguel (Bourgeau n 326') — Walp Repert vol 2 p 7^3, Müll Arg Monogr Resed p 179 t 8 fig 118 R Lancerotae Webb ol ex Del Ind sem hort monsp p 27 Radix tenuis Caulcs saepius semipedales A paulo altiores, nunc solitaru nunc pauci, simplices aut pirce lamosi, acute angulosi, glaucescentes glabn. inleine densius foliosi tolia inferioia indivisa, vix 2-2J cm longa, lanceoldto-spathulata, reliqua 4-6 cm aequantia el 3 8 mm lata, ex majorc parte terna tim secta, lacimae lateialcs terminah linean lanceolata paulo breviores, indivisap v usque ad tertiam v quartam pattern bipartitae. Floies intense lutei, in raccum brevem circ I7 cm latum obtusum demum elongatum dispositi Biactes 2-3 mm lougae, persistent\*?\*, c basi latiuscula linean-lanceolatde Pedicelh flongen cut 8 mm. longi, fructigen 1 cm a>quantcs, ngidi Calycis laciniae 2]-3 mm lonp<fi, sub fructu 4 mm attingentes, linean v lanceolato spatmlatae Petala 3-3] mm longa, intense lutea, lacunae intermediae laterahbus subduplo breviores Petala inferiora tantum 2 mm longa, lamina ad lacimani intermediam petalorum supenoium redueta btamina 14-17 Ovula m quaque placenta cue 16 20 Capsulde IIs R lanceolatae similes, sed magis tiuncato-apertae, circ 18-20 mm. longtc Stmina ut in R lanceolata sed tantum 1' mm longa — A prajcedentibus bujus § jam pnmo mtuitu differt capsulis valde oblongatis (v s)

§ 3. *Calycis lacmix mox decidux. Semina Ixvia.* — Capsulae omnium erecta<sup>1</sup> bemina omnium parva, sc. 5-1 | mm. longa. — Petalorum sup< Aorum laciniae laterales pra> ei [ ni>rem nunquam semilunatd\*.

A *Filamenta mox deadua*

a. Laciniae laterales petalorum supenorurn seoulunatae — Capsulae elongatae

30. R LANCEOLATA (Lag Gen et spec p 17), petalis calycem dimidio supeiantibus, lacinns Uteralibus petalorum suptnoium semilunatis repandis undulatis, capsulis cyhndncis elongatis ore contractis breviter 3 ientatis, senunibus numerosissimis parvis (1) v (2) In Hispaniae montosis Siena de Gador Sierra lejeda de Lujar et S dienida (Boiss ' Webbl Willk ' et Bourgeau n 1087<sup>f</sup>) — Webb Itei hispan p G6, Boiss Voyage en Espagne vol 2 p 74 et 1 t 19 (pulchre) Willk in Flora 18nl, p 597 R constneta Lange Descript icon illustr pi hisp p 6 t 8 Caulcs in radice sohtarv v gemini v pauci, elati 2-4-pedales, validi, erecti, valde vngato-ramosi Folia 8-10 cm longd et 5 20 mm lata, fere onima indivisa, lanceolaio v lineai l-spathulata, glabra, glauca, apice calloso-acummata, sum ma ex parte ternatim secta, lacinns linean lanceolatis Flores albi, speciobi, longiuscule pedicellati, in lacemum longum apice comosum, sub fiuctu sesquipedalem dispositi Bractcae 4 mm lorjgae linearcs mox docidu<e Pcdicelli 6-8 mm longi araciles, subhonzon tales, li ictigen 1 cm longi ei arcuato adscendentes Calyx 6-8 merus, lacinicL 3-3J mm. longa?, oblongatae, byahno maimatde Petala supenora4nim longa Stamina circ 24 filamentd Idjvia, antherae elongato ellipsoideiB Ovula in quaque placenta 40-60, satis legulanter imbncatim 4-senalia, 1 e cum us, R tomentosae magis numerosa quam alibi in genere Capsulae 2 cm longdJ, 1 e in genere longissimae, erectae, obtuse tngonae, Ideves Semina 1-1¼ mm

longa. — Species in genere valde distincta est longitudine capsularum et numero ovulorum et staminum — Interdum occurrere videtur magis luxuriosa pedicellis longioribus et calycis lacinis longioribus tardius persistens tibus minusque bene capsulas normales proferens, qualem cl Lange sub R constricta icone speciosa 1. c illustravit (v. s.)

fi Lacinae laterales petalorum superiorum profunde in lacinulas angustas  
divisae, non emarginatae

1° Lacinulae petalorum hinc spatulatae Ovula in placenta biseriata.  
Capsulae cylindricae

31 R SCOPARIA (Brouss ap Willd En m pi hort berol vol 1 p 499), folis omnibus indivisis, bracteifoliaceis, pedicellis longem rectis patulis, lacinis lateribus petalorum superiorum in lacinulas hinc-subspathulatas 6-7 divisas, capsulae elongatis cylindricis ore breviter 3 dentato subcontractis, seminibus minutis ^f In insulis Canariensibus (Broussonet Ch Smith Bourceau n 811 Webb v Buch) — G Don Gen Syst vol 1 p 287, Walp Repert vol 2 p 751, v Buch Beschreib d Canar Ins p 166, Webb Phytogr Canar vol 3 p 103 t 10 (pulchre) (aulces ex eadem radice valde numerosi, circiter semipedales v illoies, a basi dense lamosissimi, inferne perennes et lignoscentes graciles sed rigidula, tectis gubn, basi pillidi, caetium cum ramis ohvaceo vides Rami densi, suffruticem dumosum formantes, tenues, 1 mm crassi Folia omnia indivisa, 2 ^ cm longi, 1 mm. lata lineana apice rotundato obtusa, rigidula, olivacea, lamulorum versus racemos sparsim in bracteas conversa Flores in racemum breviusculum laxiflorum dispositi Bractea, elongatae, folis subconformes sed minores Pedicellus longem circ 3 mm longi, fructigen 6-7 mm aequantes Calycis lacinae 1-2 mm longae angustae ovatae, non marginatae Petala superiora 3-3 mm hinc tonga Mimina tunc IS, filamenta hinc subulata, lutea, antherae elliptico-ellipsoideae. Ovarium utrinque attenuatum laeve Ovula in quaque placenta circ 12-16 Cellulae 10-12 mm longae, 4-4 mm latae breviter subobsoletae 3-4 rarius 4-dentatae biseriatae tautum 1 mm longa, cellulae us R strictae simillima (v s)

32 R SIRICTA (Pers Enchir vol 2 p 10 1806), folis praeter infima densis, pedicellis longem capillaceis arcuato recurvis calycis lacinis petala aequantibus lacinis lateribus petalorum superiorum in lacinulas 4 hinc spathulatas divisi, capsulae erectis cylindricis ore contracto brevissime 3-dentatis, seminibus parvis.

a *Reutenana*, caulis elationibus, folis biterminatis v subternatis sectis, lacinis angustis spathulatis patentibus, capsulae cylindricis, seminibus 1, mm longis (i), (2) v 'if In arenosis Algeriae circa Oran (Reuteri Munby Balansa n 201 pr p ») et in fruticibus circa Mostaganem (Balansa. 23) R Reutenana Mull Arg in Bot Zeit 18)6 p 37 et Monogr Rtsed p 168 t 8 fig 113 R stricta Munby Flor d'Alger p 47 Radix superne saepius in caudices caudicos abiens fovea 1J 2-pedalis, e basi et inferne Margato ramosi infere brevissime papillose -tomentosi v demum subglabris, subflexuosi usque ad racemos foliosi folia 5-6 cm longa Calycis lacinae 2-2J mm longae Capsulae hinc longae (v s)

S. *brachycarpa*, caulis elationibus, folis biterminatis v subternatis sectis lacinis spathulatis patentibus, capsulae oblongo-obovoidi, seminibus 1, mm longis (i), (2) v -f In arenosis prope Oran cum var a Balansa n 201 pr pi) R. Reutenana p brachycarpa Mull Arg I. c p. 167 (v s)

v *araciln*, caulis vix pedalis simplicibus, folis caulinis simpliciter ternatis sectis, lacinis angustissime hinc-spathulatis, capsulae breviuscule cylindricis, seminibus 1 mm longis ^f— if. in collibus ardis prope Gabes (Krause PI tunetan exs n 189!) R Reutenana Y gracilis Mull Arg. 1 c (v s)

o *genuina*, caulis circ pedalis parce virgato-ramosis, folis medius et superioribus ternatis v rarius hint mdc biterminatis bectis, lacinis

lineari-lanceolatis non v. vix spathulatis minus patentibus, capsulis cylindricis, seminibus 1 mm. longis. (1) v. (2). In Hispania pluribus Jocis (Lagasca! Rcuter! Bourgeau n. 10901 22761 Willkomm. 534!). R. stricta Pers. finchir. 1. c. R. saxatilis Pourretap. Willd. Enum. pi. hort. berol. 1. p. 500 (1801!); G. Don Gen. Syst. vol. 1. p. 289. R. erecta Lagasca Nov. gen. et. sp. p. 17. n. 221 (1816); Colmeiro Apuntes p. 27; Willk. in Flora ratisb. 1851. p. 597. R. ramosissima G. Don Gen. Syst. vol. 1- p. 289; Kunze Ind. sein. hort. lips. 1846 et in Linnaea 1851. p. 163. Caules saepius c radice solitarii, teretes, decursu foliorum leviter angulosi, laxe foliosi, superne cuni rainis glauui. Folia 3-6 cm. longa, *tola* superficie brevissime papilloso-lomentella, glauca, usque ad medium in lacinias 3 angustasacutiuscultas 2-27 cm. longas et 1£-3 Him. latas divisa. Flores ut in *tola* specie in pedicellis eleganter arcuato-recurvis penduli, in racemos angustos laxifloros dispositi. Pedicelli gracillimi, circ. 4 mm. longij florigeri vix £ mm. crassi, i. c. capillacei et longe tenuiores quam alibi in Ordine, laevissimi, glabri, lutescentes. Calycis laciniae superiores 1 mm. longae, inferiores? mm. subacquant. Stamina circ. 18; filamenta lineari-subulata, brevissime papilloso-asperula; antlienc clongato-ellipsoideaG. Grana pollinis globoso-ellipsoidea. Ovula in quaque placenta saepius 14-16. Capsulae 8-1\*2 mm. longae, 3 mm. la toe. Semina lsvissioaa, nitida. (v. s.)

- e, *Funkii* (Willk. Strand- und Steppengeb. der iber. Halbins. p. 104), caulibus subpedalibus, foliis mediis et superioribus ternatim sectis, laciniis haud spathulatis, capsulis oblongo-obovoideis 7-9 mm. longis, seminibus 1 mm. longis. 0—\*f. In collibus sabulosis maritimis ad Roqueta prope Almeria (Bourgeau n. 1089!) et circa Baza (Funk ex Willk. I. c). — Miill. Arg. Monogr. Resed. p. 169. — Haec analogae varietati p. (v. s.)

2° Lacinulse petalorum superiorum lineari-spathulatae. Ovula in placentis 3-4-serialia. Capsulae obovoideae.

33. R. DRAGTEATA (Boiss. Diagn. 6. p. 22), calycis laciniis petala semiaequantibus, laciniis lateralibus petalorum superiorum usque ad basin in lacinulas 4 lineari-spathulatas divisas, capsulis erectis pnrvis obovoideis ore contractis breviter 3-dentatis, seminibus minutissimis. (i) - ^ - I<sup>li</sup> Oriente inter Mossul et Bagdad (Olivier 1), ad Euphratem (Cliesn. 1 iul 193!), in Persite variis partibus (Kotschy 144! 214-a! Buhse! Bunge!), in Beludschistan (Stocks!) et in Afghanistan (Griff.!) — Miill. Arg. Monogr. Resed. p. 154. t. 7. fig. 107 incl. var. p; Boiss. Flor. orient, vol. 1. p. 433 (exclus. var. p Ghabbisea, quae ol. fructu cognito ob petala superiora tantum 3-lacinulata segreganda). Caules semipedales usque sesquipedales, praesertim inferne ramosi, orecti v. adscendentes, rigiduli, densius foliosi. Folia basi longe in petiolum attenuata, absque petiolo circ. 1 £ cm. longa et licm. lata, lanceolato-rhombea, cum ramis et caulibus plus minusve papilloso-scabrida, superiora ternatim secta; laciniæ lineari-lanceolatae, acutæ, laterales terminali breviores et angustiores. Flores navi in racemum angustum sniciformem 5-6 mm. latum apice longius comosum dispositi. Bractea 4 mm. longae, lineares, el basi longe acuminatae, margine hyalinae, diu persistentes. Pedicelli brevissimi, sub fructu 2-2i mm. attingentes. Calycis laciniae vix 2 mm. longae, ovalo-lanceolatae, oltusiusculas, margine late hyalinae, 3-nerviae et eleganter reticulatira nervulosae. Petala 3 mm. longa; latinise laterales superiorum omnino usque ad basin in lacinulas laciniae intermediae conformes divisa, unde limbus primo intuitu regulariter 9-partitus. Stamina circ. 12; filamenta sub antheris non dilatata; antherae ellipsoideae. Ovula in quaque placenta 12-20, irregulariter 3-4-seriata. Capsulae 5 mm. longae, iis R. Alphonsi similes, sed ore magis contractis et multo longiuspedicellatae. Semina -f mm. longa, laevissima. (v. s.)

3° Lacinulae petalorum superiorum dimorphae, interiores spathulataB, exteriores lanceolatae aut lineares et multo minores. Ovula in placentis 3serialia. Capsuleu cylindrico-obovoideO3 aui clavatas.

34. R\* HAUSKNECHTII, calycis iaciniis petala vix semiaequantibus, laciniis late-

ralibus petalorum superiorum usque ad basin in lacinulas 4-5 dimorphas divisas, lacinulis superioribus linearibus spatulatis extensibus linearibus abbreviatis capsulis erectis parvis cylindricis obovatis ore subcontracto obiter tridentatis, seminibus minutissimis. In Persiae deserto cetero ad pedem montis Smgarae (Hausknecht in Boiss) Gaulesibus sive piceo lignescens adscendens, arbor sesquipedales, inferne ramosi, caeterum simpliciter v. superne ramosos paucos gerentes, graciles, subvirgati teretes, imbricati palhi, glabri, usque ad racemos densiuscule foliosi. Folia omnia angusta linear-lanceolata, utrinque angustata, inferiora 1-2 cm longa, reliqua 4-5 cm longd, in axillis saepe ramulos abbreviatis brachyphyllis foliis fasciculata simulantes gerentia, breviora diametro 1 mm longiora 2-2 mm. Effluvia glabra, glauca. Racemi graciles, decimetralis v. demum pedales, florigeni 7 mm longi, subdensiflori, juniores apice longe acuminati et bracteis exsertis flaccidis comosi. Bracteae sublineares, 3 mm longae, longe acuminatae, pallidae mox deciduae, basi longiuscule subulato bidentatae. Pedicelli florigeni vix 1 mm longi teneliter sub fructu cuciter duplo longiores et firmiores, semper erecto patuli. Calycis laciniae elliptico-linearibus, 1-1 mm longae, mox deciduae. Petala 3 mm longa pallide lutea, lacinia media lacinulis lacinarum lateraliu similis nscitur 'cuculooga, aut lacinulae extensae inferiores breviores et superne vix distincte spatulatae, petala lateralia et media scundum litem generem vulgarem quoad magnitudinem et numerum pariter deorsum. Stamina 17-18. Filamenta tenuia, laevia, 2-2 mm longa, antherae 1 mm longae, laeves. Discus adscendens, ovatus, fere recurvus, non nisi sub lente acernna quodammodo papillosum. Ovarium labrum placentae circ 14-ovulatae, ovula 3-serialia. Capsulae circ 5 mm longe 3-3 mm latae binae - 1 mm longa. — Nulla cognita. Urubus halitus huic proprius accedit nisi R macrobotrys, quae tamen characteribus Ravionibus pluribus differt (v. s.)

- 35 R PRUINOSA (Del Hor pgypt p 15), laciniae calycis petalis asquilingis, laciniae lateralibus petalorum superiorum in lacinulas dimorphas spatulatas et dentiformes divisas, capsulis erectis vix mediocribus cylindricis clavatis basi longe angustatis apice truncatis ore late apertis bisseriatis 3-dentatis, seminibus minutis. (2) In desertis Egypti inlenens (Del, Sieber) ad mare Rubium (Husson), in Arabia petraea ad Wadi-Usait (Boiss) et in deserto contermino Palaestinae (Boiss) — Spreng Syst vol 2 p 464, G Don Gen. Syst vol 1 p 189, Wilp Repert vol 2 p 752, Mull Arg Monogr Resed p 177 t 8 ng 109, Boiss Flor orient vol 1 p 433. Cules cue pedales, infra medium circ 2 mm crassi, rigidi, erecti, fragiles, simpliciter v. superne parce ramosi, foliosi, teretes, glauci, cum foliis undique papillis majusculis albidis glandulis mucato-asperis. Folia 2-3 cm longd, 2-4 mm lata dividua, linear-lanceolata, rigidula, fragilia, pauca superiorum ternatim secta. Flores albi, parvi, in racemum spiciformem sub fructu elongatum ordinati. Bracteae 3-4 mm longae, 1 mm longae, lineari-lanceolatae, albidae-marginatae, demum grosse papilloso-denticulatae. Pedicelli florigeni vix 1 mm longi, crassi, fructigeni 2-4 mm longi. Calycis lobulae, 1-2 mm longae et medio fere 1 mm latae, hyalino marginatae, more biclearum papillatae. Petala 2-2 mm longa, in genere valde minuta. Stamina circ 18, filamenta linear-subulata, laevia, antherae ovoides, apice truncato tuberculato aspeie. Grandae polnis subgloboso-ellipsoideae. Ovula in quodque placentae cue 2-3. Capsulae 8 mm longae, apice late aperto quasi obiter lobatae. Semina 1 mm longa, laevissima. — Ab affinis structura petalorum, numero ovulorum et forma capsularum praeter indumentum validum cinerascens facile distinguitur (v. s.)

<sup>1</sup> Lacinulae petalorum superiorum non spatulatae. Ovula 3-4-serialia. Capsulae subglobosae.

- 36 R BONGEI (Boiss Hor orient vol 1 p 433), petalis calyce brevioribus, superiorum lamina 3-partita laciniae lateralibus linearibus brevibus disco excentrico, ovano 3-dentato, capsulis subglobosis basi non angustatis apice late truncatis ore latius aperto subdentatis, seminibus parvis. (2) In Persia inter Isphahan et Teheran et in regione montana piope Sebsewai prov Kho-

rassan (Bunge<sup>1</sup> in hb Boiss ) Caules cue sesquipedales, erecti v ranus adscendentes, firmi, cum folns cinerascenti-glauci, laevigati parce ramosi. Rami adscendentes Folia omnia mdivisa, lanceolato subrhombea \ supenora hnean-lanceolata acuta, omnia basi angustata, undique minute papillo<sup>o</sup>-asperula, saepius 3 cm longa, infenora et media oirc 7-10 mm lata, superiora 5-2 mm lata, margine Sdepe nonmhil undulata Racemi tenues, sub fructu longissimi Bracteap circ 6 mm longae subulato lanceolatae, sensim acuminatae, mox deciduae Pedicelh flongeei 3 mm longi, sub fructu i mm aequantes Calycis laciniae maequilongc, majores 3] mm longae, petala longiuscule superantes, oblongato ellipticc, obtusae hyalino marginatae Petala parva, ad unguis late appendiculata et quoad laminam msigmatr reducta, lacinia? laterales sublineares, hiud spathulatae, quam intermedia conformns vulgo 2-4-plo bievlores subinde subobsoletae Discus excentneus bene evolutus, crassiusculus Stamina cue 18, filamenta supeine non latiora, laevia, antherae ovoideae, apice minute aspeiulae Ovanum laeve Ovula in quaque placenta cue 8 10, uregulanter tnsenalia Capsule circ 6 mm latae et 5 mm longae, I e. parvae, feie globosae, basi in calyce haud distincte stipitatae Semina 1 { mm longa, vindula (v s)

- 37 R MACROBOTRYS (Boiss Hor orient vol 1 p 413) petalis calycem minimum bis aequantilms lacinns lateralibus petalorum supenorum in lacinias 3-4 sublineares haud spathulatas divisas intermedia bievir nbus disco excentnco, capsuhs subglobosis ore subedentato contractis basi stipitiformi angustatis, seminibus paivis Q)\* In Persia piope Ispahan (Bungel in h. Boiss)  
 , Caules 2 J-pedales, erecti, hrmi, densius virgato ramosi, cum folns et ramis densius papilloso asperuli Rami tenues, in racemos gra^ilhmos longissimo\* sensim acuminatos abeuntes *bohi* omnia mdiusa, lanceolito v linean-spathulata, 3-2 cm longi superne 6 2 mm lata, obtu^a, ngidula Racemi demum bipedales BracteT exigua?, vix 2 mm aequantes, praeter ueivum vnidulum albidae, mox detulua; Ptditelh dbbreviati, flongen calycem exiguum aequantes, fructigen vix 3 mm longi Calyusldciniae I ] mm longas, ovatae \ obovatae, obtusae, hyalino maiginatac, mox deciduae PetaW parva, late appendiculata, quoad formam cum us R Buhseanae satis quadrantia, sed appendice un\$uiculan rersp latiore prsedita. Lamina inferiorum ad lacimam mtermediam dimmutam supenorum rducta Discus penphence undique sed supenore latere amphus evolutus Stamina circ 18, filamenta laevia 0 van urn basi longiuscule stipitilormi angustatum Ovula in quaque placenta circ 16 20, dens&, 4 senaha Capsukc > mm longae et totidem latac Semina ] mm. longa (v s)

5<sup>o</sup> Lacinulae pctorum supenorum non spathulata? O\ula in placentis 4-serialia. Capsulie obovoideae stamina circ 30 (in rehquis sub 1<sup>o</sup>-5<sup>o</sup> enumeratis circ 12-18).

- 38 R TOMENTOSA (Boiss Dngn 1 p 4), foliorum limbo bdsi ufnnque pinnatim 1-2-lacinulato, calycis lacinns petala subaequantibus, lacinus lateralibus petalorum supenorum usque ad basin in lacinulas 6-7 perangustas hneaies divisas capsuhs orectis oblongo obovoideis apice contractis acute et longiuscule \ dentatis seminibus paivulis Q) In Cappadocia ad Fuphratem (Aucher n 2615' 2616' 2618') — Walp Repert vol 2 p 753, Mull Aig Monogr Resed p 149 t 7 fig 105, Boiss Flor orient vol 1 p 4\*2 Caules pedales A sesquipedales, simplices v basi panciramosi, suberecti, densius fohosi, in parte folugera pilis albis elongatis more foliorum hirsuti Folia 2-5 cm longa, incomplete biternatim divisa, sc laciniae infimae pnonis ordinis mdivisae aut bipartitan termmalis us multoties amplior bnsique iterum ternatim secta cum lacinia terminali maxima, 3 4 cm longa supeine 6 12 mm lata, laterales 10-1 > mm longae et 1 i mm latae Flores pam, numcrosi, in racemum elongatum densiflorum angustum apice comosum dispositi Bracteae 5-7 mm longae, angustissime lmeares, pallidae, mox deciduae Pedicelh vix 1J mm longi crassiusculi, glabn, fructigen 2 {-3 mm attmgentes Calyx 7-8-merus, lacinie demum deciduae lanceolato-spathulatae, obtusae, 3 3 f mm longae Lacuna intermedia petalorum supenorum hnean-spathulata, lacinuhs dissimilis Discus hypogynus semiorbiculans. Stamina circ 30, quo caractere spec es here ab omnibus totius sectionis distinguitur, filamenta superne non latiora, anthei i ellipsoideae Ovanum glabrum OvU in quaque placenta

circ 16, subirregulariter 4-senaha Capsulae vix 8 mm longae, us R Aucheri similes sed acutius 3-dentatae Semina 1 j mm longa. — Species indumento, foliorum forma et numero staminum valde insignita (v s)

*B. rilamenta dm persistentia.*

- 39 R AUCHERI (Boiss Diagn 1 p 5), lacinnis calycis petala semiaequantibus, laciniis laterahbus petalorum supeniorum in lacinulas 4-5 lineas spathulatas divisas, capsulis erectis oblongo obovoideis v subpinniformibus ore contractis obscure indentatis, seminibus mimmis (2) v ^ In Mesopotamia prope Mossul (Aucheri) el in Persia austrah (Kotschy) — Walp Repert vol 2 p 754, Mull Arg Monogr Resed p 146 t 7 fig 101, Boiss Hor. orient vol 1 p 434 Caules sesquipedales v bipedales erecti, stncti, subteretes, pallide glaucescentes, laeves v rarus asperuli, foliosi, rami mfenores cauiformes, stnctiusculi, omnes flongen Folia 3 5 cm longa omnia mdivisa, lanceolata, acuta glabra Flores numerosi, lacemum foi mantes ut in R Alphonsi Pediceloh flongen 1j-2nim longi fructigen vix 3 mm longi Calycis laciniae 2 mm longae Petala 1-4 mm longa, ochroleuca ut udetur Appendix unguiculans petalorum apice vix ultra basin laminae productus nee ulla parte producta recunatus Discus hypogynus excentneus, supenore latere magis evolutus •Stamina 16-18, filamenta diu persistentia, superne baud latiora, tavia, antherae oboxoideae, basi cordatae Ovanum subpynforme Ovula bisenaha v obscure tnsenalia, in quique placenta circ 13-18 Capsulae circ 7 mm long<fi, in lacemo imbcatae Semina £ mm longa — Ludit foliorum limbo rotundato obovato, R Aucheri (3 rotundifolia Mull Arg 1 c p 147 a cl Kotschy prope Mossul lecta, et cauibus ramisque papilloso-asperuhs, R Aucheri p asperuld Boiss 1 c in Persia onentah a cl Buhse lecta (v s)
- 40 R MURICATA (Presl Bot. Bemerk p 8), lacinnis calycis petala hiud aequantibus\*, lacinnis lateralibus petalorum supenorum usque ad basin in lacinulas 3 lineas spathulatas dmsis, capsulis eicctis ellipsoideis truncatis ore late apertis breviter et obtuse 3 dentatis seminibus mimmis ty In desertis ad radices montis Sinai (Schimp n 101'), in Arabia petraea (Schimp n 1843') et in I alaeind \*euis mare mortuum (Boiss !) — Mull Arg Monogi Rcsld. P 159 t 8 fig 110, Boiss Hor orient vol 1 p 431 Radix crassi, lignosa Caules vulgo fere peddles simplices v infeme pice ramosi, stnctissimi, iecti et erecu, teretes, densius loliosi, undique papillis mmutis crebie sed Jnmutissime muncati Folia 1J-2 cm longi, omnia stneta, glauca, more caulium crebie subfannaceo-muncata anguste lintan lanceolata, media et supenora autem terratim secta et 2 4 cm longa, laciniae angust«E, utnque atfcnuatae acut33 Flores mediocres, in racemum stnctissimum angustum acuminatum apice comosura dispositi Bractee 4 4] mm long«c, hnean-knceoldtae a basi sensim acuminata3, late albo-marginatap Pediceloh florigen 1 mm tantum aequantes, fructigen 1 J mm longi, unde etiam lacemus fruct'ger \alde angustus Calycis laciniae 3 ram longae, lanceolatae, obtu^ae, nya-^no nidrginat i Petala 4-4 \ mm longa btimina tire 16, filamenta persistentia superne haud latioia, anthtn ellipsoideo Ovanum obovoideum, ad basin dentium isubdivergentium constnetum Ovula in quaque placenta circ 8 12, bisenalia Capsulae 5-7 mm lon gas, 4 mm ldtaj, haud papillosae Semina i mm lonca — Habitu specimina stnUiora majora simulat Oligomeris subulatae — Quod in Monogr Resed p 161 dubitanter pro vanetate p canescente habui propter stamina mox decidua d specie separandum est et sub P^pno nomine specifico )uxta R pruinosa inserandum ent, sed speciminula Wusque non sulliciunt Caetcrum pr-csentis peciei et praesertim etiam R. stenostachyae specimina juniora simulant, at fructus paiiter juveniles R. stenostachyae magis oblongati et basin versus angustiores sunt (v s)

§ 4. *Calycis lacinix decidux Semina scrobiculato-aspera*  
(in *R. Bulmana* el *R. amblyocarpa dm Ixvia*).

*A. i damcnla dm persistentia*

41. R. MICROCARPV (Mull Arg. in Schlechld Bot Zeit 1856. p 35), calycis Acinus petala sub&upeiantibus, lacinnis lateralibus petalorum supenorum in



lacjDulas 3-4 Imean-spathulatas divisis, capsulis parvis erectis basi angustatis globoso-obovoideis ore valde contractis obscure tndentatis, serninibus subparvis Q) In Persia circa Karadagh (Buhse') et inter Ispahan et Teheran (Bunge'j —Mull Arg Monogr Rcsed p 148 t 7 fig. 104, Boiss Hord orient vol 1 p 431 Caules circ scsqipedales v bipedales, eiekti v e basi indurascence subprocumbLnte adscendentcs, ^,iaciles, simplices v parte mfeiore ramulis vulgo brevibus aucti, usque ad racenios mediocnler ioliosi, teretes, cum reliquis partibus glabn folia saepius 6 cm longa, 8 12 mm lata, omnia indivibd, quoad Iaminam obovato-v lameolato spathulita, breviter acuminata, basi longe in petiolum altenuata, ngidula, supenora caulina et rameaha reliquis subduplo bieviora, omnia nonnihil calloso-maignata Racemi fructigen cue pedales, pedicelli floies aequantes Calycis lacini\* elhptico-lanceolatce, late hyahno marginatae Petala supenora Jpaitita, laci niae Uterales usque ad basin in lacinulas parti tac Discus hypogynus excen- tncus, glaber Stamina circ 18, iilamenta hnean-subulata, 2 mm longa, laevia Capsulas ^)-7 mm longae, 4]-5 mm lata?, globoso-pynfoimes v fere globosac, supernc obtuse mlerneautem acute tngonac, cum placentis altcma tim a basi usque ad apicem profunde Impiessae, glabrae et laeves Semina 1 \ mm. longa, minutissime puncticulato-foveoldta. — Ad R Auchen et H Alphonsi accedit (v t>)

B *Filamenta mox decidua.*

a Stamina 40-60

- 42 R. TOMENTOSA (Cosson in Bull de la Soc bot de France v 6 p 392, 1859), calycn licinns petala subTquantibus, petalorum supenorum hcinns laterah- lms valde abbreviate subcnstdto-8-12-partitis intermedia lata spathulata, stamini}us 40-60 capsulis ( rectis subcyhndncis longiu^culis oio levitei contracto 3 dentatis, seminibus parvis (2) v ^ In rupestnbus et petiosis calca-rcis cipnus convillium Sab ire Algcnensis in ditione Mzab hinc indo (Kralik n 21!) Radix biennis \ indui itione, ut saepe in genere occurrt, perennis Caules e ladico pauci, 1 J pedales, erecti v suberecti, basi tantum v inferne ramosi v saepius subsimpiices et basi dcin baud i iro ciudicuhs stenhbus aucti, tota longitudme cum loins, rhacln laccmorum et pulicellis pilis patentibus submollibus griseis breviter villosi tolia inferior\* 7-9 cm longa, circ 10 mm lata, lanceolata, obtuse acuminata, basi longe in potiolum angustata, supenora giadatim duplo et ultra minora, omnia indivisa v suponoia non- nulla profunde tcinatim sccta Bacemi spiulormcs, apite corrosi BraoteaJ circ J mm longo subhneares, Ionge acuminata, ilaccidcC, albidae^ mox decidua? Pedicelli 2-2 J mm longi, sub fiuctu enciter 4 mm jjquantea, va- lidi Calycis lauiiidecirL J J--4 mm lon^<e, lanccolato-ov itdt acuminatEV acu- t-f, 1 Uius hydhnno-maignat'o Petala heima intermedia lata spathnlato obovata submde obiter lobatd, et lacinns laterahbus valde abbreviatis vix nisi alam latiusculam cnstato-1 lcinulatam formantibus in toto Ordine insignita Fila- menta elongata tenuia, anthers ehipsoideai Ovula |i quaque placenta cir- ciler 40, 4 senalia. Capsulae densae jumoies secus placentas pube^centcs, ca3 toium glabrae, matura 15 mm longae, 7 mm Utae, leptodermea. Semina 1 mm longa, biupnea, crebre tuberculato aspeia — Species mdumento pu- tium, forma petaloiurn et numcro staminum valde insigniU, CcLteium liabitu ad R Alphonsi, R Auchen accedens (v s)
- 43 R ELATA, calycis liunnsa petalis Ionge suporatis, petalorum supenoium lacimis laterahbus Q 8 partitis intci media sjiathulata excrdenc, lacmulis lateiahum dimorphic interiore unica spithulata reliquis mu'to bievionbuset lineanbus, staminibus circ 40, capsulis erectis subcyhndncis longiusculis ore leviter contracto suocornuto tndentatis, seminibus mediocnbus -^? I^n Afnae regione Maroc prope Keira, altit 3000 ped (Bdlansa' in hb Boiss , sub nomine admissa a cl Cosson sched insciipt) Caules elali, mtegr i a me non visi Kami circ 2 podales, valetudme, strns longitiorsis et folns intogns angustis Rcsedam Luteolam simulantcs I oln k-8 cm longa, 6-8 mm lata, basi breviuscule m petiolum angustata, apice subobtusa, cum lamis flongens olivaceo vindia, margine pUna, pnmo intuitu glabra, sub lente brevissimo

puberula, inferiora et media omnia integra, summa trisecta. Racemi speciosi, subpedales, macranthi, apice bracteis longe exsertis lanceolato-linearibus longissime acuminatis praeter nervum viridem albidis glabris mox deciduis longe comosi, sub floribus bene evolutis 2 cm. lati. Pedicelli 3-4 mm. longi, firmi, cum rhachi inilorescentia? et ovario brevissime villosuli, fructigeri subrecti, haud elongati. Calyx 6-partitus, circ. 4 mm. longus; laciniae lanceolatae, acutae, latius albo-marginatae, undique glabrae, mox deciduae. Petala calyce dimidio et ultra longiora, 6-8 mm. aequantia, lutea, demum ochroleuca; inferiora ad laciniam intermediam spathulatam et laminiulam basilarem minutam reducta. Lateralia inferioribus similia sed latere superiore lacinula breviuscula lineari munita. Stamina saepius circ. 40; filamenta longiuscula, laevia, superne haud latiora; antherae oblongatae, apice laevi rotundato-obtusae, 2 mm. longae. Discus majusculus, ovatus, acutiusculus, margine recurvus. Ovarium 2-v. saepius 3-dentatum, cylindricum, papilloso-subvelutinum, apice 3-dentato glabrum. Placentae 2-3; ovula irregulariter 3-serialia, in quaque placenta circ. 18. Capsulae immaturae tantum visa, 10-12 mm. longae. Semina immatura levissime sed crebre aspera. — A proxima *R. tomentosa* differt floribus, indumento variarum partium diverso, floribus majoribus luteis, petalis, numero ovulorum et seminibus majoribus. (v. s.)

b. Stamina circ. 18 (in spec. 47 numero ignota).

1° Laciniae laterales petalorum omnium indivisae, intermediae similes.

44. *R. ALPHONSI* (Müll. Arg. in Schlechtend. Bot. Zeit. 1856. p. 35), calycis lacinii petala paulo superantibus, petalis omnibus consimilibus aequaliter in lacinias 3 consimiles latius lineari-spathulatas divisas, capsulis erectis ellipsoideis ore truncato late aperto obiter tridentatis, seminibus parvulis. (2). in *Flora Algeriae ad Oued-Biskra prope Biskra* (Il. Balansa exs. n. 875! in hb. DC. et Boiss.). — Müll. Arg. Monogr. Resed. p. 144. t. 7. fig. 102. Caules 2-4-pedales, valde speciosi, erecti, parce ramosi, teretes, cum foliis glabri et glauci, densius foliosi. Folia inferiora 5-6 cm. longa, superiora 4-3 cm. aequantia, vulgo omnia indivisa, anguste lanceolata, longe apicem obtusum versus attenuate, basi brevius angustata, versus racemum sensim in bracteas abeuntia, interdum unum alterumve superiorum ternatim sectum. Racemi magni, 4-8 cm. longi, dense subgrandiflori, apice comosi, dein sub fructu valde elongati. Bracteae 4-5 mm. longae, praeter nervum viridem albidum, longe acuminate, mox deciduae. Pedicelli floriferi 5-6 mm. longi, apice incrassati, sub fructu vix longiores. Calycis laciniae 3-4 mm. longae, spathulatae, valde deciduae. Stamina circ. 18, 3-5 mm. longae; filamenta lineari-subulata, laevia; antherae 1-1.5 mm. longae, i. e. in genere satis magnae. Ovarium obovoidum, obtuse trigonum, laevius. Ovula in quaque placenta circ. 25, 4-5-serialia, arete imbricata. Capsulae 5-8 mm. longae, 4-5 mm. latae, pro magnitudine plantae et inflorescentiae parvulae, glaucae, basi in stipitem 1/2 mm. longum attenuatae. Semina 1 mm. longa. (v. s.)

2° Laciniae laterales petalorum superiorum in lacinulas angustas divisae.

45. *R. BUHSEANA* (Müll. Arg. in Schlechtend. Bot. Zeit. 1856. p. 36), lacinii calycis petala aequantibus, lacinii lateralis petalorum superiorum in lacinulas 4 haud spatulatas divisas, placentis 10-12-ovulatis, capsulis erectis obovoideis ore latius apertis obiter et late 3-dentatis, seminibus subparvis. (1). In Persia variis locis (Buhse! Bunge!). — Müll. Arg. Monogr. Resed. p. 161. t. 7. fig. 111 inclus. var. P; Boiss. Flora orient, vol. 1. p. 432. Radix crassiuscula, lignosa, multicaulis. Caules sesquipedales v. bipedales, spartioidei, virgato-ramosi, glauci, cum foliis glaberrimi. Rami stricti, foliis delapsis primo visu aphyllii, apice in racemos 2-4 dm. longos abeunt. Folia 2-5 cm. longa, superiora gradatim minora, pauca, sublineari-spathulata, obtusa, basi tongo attenuata, rigidula, omnia demum decidua. Flores videntur ochroleuci, anguste racemosi, in racemis subfasciculatim approximati. Bracteae 4 mm. longae, lineari-lanceolatae, late albido-marginatae, ad apicem racemorum comoso-exsertae, deciduae. Pedicelli floriferi 4 mm. longi, fructigeri 5-6 mm. longi, fructus quantes. Calycis parvi laciniae; tantum 2-2.5 mm. longae, oblongatae, obtusae, \*

late hyahno margmata? Discus hypogAnusexcentncus, fere orbiculans Stamina circ 15, filamenta linccinsubuhta, lapvia, anthera<sup>1</sup> obovoideac Capsulaj circ 6 mm longi Semina 11 ram. longa, dupio majora quam in R amblyo«arpa, piimum laevn, dem, quando fuscescunt, distincte sed minute aspera — Species habitu spatioideo insignita (v. s.)

46 R AMBLYOCARPA (Fiesen Beitr zur Flora v Abyssin p 108, 1837), laciniis calycis petala xquantihus, lacinus laterahbus petalorum supenorum in lacinulas 2-3 ligulifonnes haud -''Thulatasdmsis, placentis 20-25-ovulatis, semibus minutissimis ^C v ^ In Abyssinia (Schimper in lib Senkenberg, specim a cl Freson desenpt aJ Dr Geylemiss '), in \alle Zacca/e supenore, in regione Dscha-Dscha (Schimper n 1448'), et in saxosis Mawrr (-'Jumper n 24') nee non in rupibus prope Pageros (Schimp n 2257!) R lunda Mull Arg Monogr Resed p 152 t 7 fig 106 Hie etiam spectare videtur R Quartiniana A Ricn. Flor Abys<sup>o</sup>n 1 p ]], 1847. Caules e radice lignosa solitari aut plurcs, 1-5 pedales, firmi inferne plane hgnescentes, parce ramosi v simphces, densius fohosi Folia 4 8cm longa, majora 15 20 mm lata, ex maxima parte jndivisa, basin versus longe angustala, cum ramuhs breviter rt dense papillosula, obscure vIndia, siccando lunda Flores albi, in racemum vix 1 cm latum, densiflorum, demum valde elongatum dispositi Bractea<sup>1</sup> > cm longae, lineaii lanceohter, ad apicem racemi longe exsertae, excepto neivo lutescenli-hyahnaj Pedicelli 1½-2 mm acquantes, ngiduh. papilloso-tomentelli, fructigen demum 2-3 mm. longi Calycis lacuna? 2) mm longae, lanceolatae, obtusae, anguste hyalno-margmat\*, rcticulalo-vcnosae Petala 2J 2½ mm longa Stamina cire 17, filamenta linean subulata, lecvm, anthers am bit u longiores quam alibi in genere, subtnplo longiores quam latae Ovula dense imbnata Capsulx 6-7 mm longs, basi angustat<sup>^</sup> inr acerao imbnatd<sup>1</sup> Semina tantum ;, -fa mm longi, dm pilhda et laevia, doin vindebcentia, demum nigncantia et turn L cbre verrucoso aspera — Habitu ad R Alpbonsi et R Authen accedit, sod pulchre distincta (v s)

47 R STENOSTACHYA (BOJSS Diagn 1 p 5), lacinnscaljcis petala suba)quantibus, lacinus later ilibus petalorum supenorum m lacinulas 5-5 linean spathulatas divisas, capsulis erectis cl a vato obovoideis basi angustatis ore truncato late aperto breviter 3 dentatis semmibus mmuti<sup>^</sup>simis (?) v © In Anatolia fAucher n 2£2J') et in vallibus sinaitjcis (G Ehrenb • in hb berol) —Walp Repert \ol 2 p 754, Mull Aig Monogr Rcsed p 156 t 8 fig 108, Boiss Floi orient vol 1 p 431 Caules Scppius fere peddles, stncti, rrecti, basi pau ririmosi, caeterum simphces, usque ad medium densius fohosi, cum foln<sup>s</sup> pipillulis suogn<sup>^</sup>eis densiu«« minuto muncato-asperuh tolia cue 1 l<sup>^</sup>cnQ. longa 1-2J mm lata, I e \alde angusta, infenora et supenora indivisa, media expaite ternatim secta cum lacimisangustis, omnia stneta, ngidula, tmerascpti glauca, infenora reliquis rmjora Flores in genere minutissimi, numerosi, subsessiles, m spicam perangustam stnetam demum sub fructu [0 15 cm longam dispos ti Bractcap anguste lanceolatae, late albido marginatae, deraum deciduap Pedicelli ilongen vix J mm aequantes, fructigen saepius taniurn 1 mm longi Calycis lacinae 1 • -2 mm longaa, lacinulae late rales utroque latere \ulgo 4, lacim-p intermtdiaa similes sed paulo breviores. Stamina cue 17, filimentaangustjssima, anthra? ovoideae Chanum cylm\* diimm, basi angustatum, undique papilloso asperum Ovula in quaque pi\*<sup>11</sup> centa circ 25-J5, tn-v subirregulariter 4 senalia Capsulap 6 mm long\* Semma 1 mm. longa, crebre tubeicukto-aspera — Similis R pruinosa et h-muricatas, pra?sertim semmibus ab us disimguenda (v s)

48 R YANNEZII (Cutanda Flor comp de Madud y su provinc p 151), « ^ a u , cescens, suffruticulosa, ramis virgatis sulcatis, folns infenonbus oblongis io petiolum attenuatis, caetens apice tnfidis integrisve linearibus mucroulatis pKms, pedunculis longissimis gi lcillimis erectis, floubus minimis breviter pediceliatis brae tea linean setacca longiore decidua suffultis, calyce 5-partito, petahs ., fructibus obverse pyramidatis mflatis tngonis rugosis apice truncatis 3 apiculatis J In Hispama media » (ex Cutanda 1 c)

Seel in GLAUCOBESEDA DC in Dvby Sot gall lot 1 V \*<sup>7</sup> O<sup>^28</sup>) ^<sup>ult</sup>  
Ar& Monogr liesed p 196.—Resedas sect Lcucorcseda Gren. et Godr lion

*de France vol 1 p. 189 pr p. — Luteolae sect Leucophrys Webb Oha hispan p. 19 — Genus Iereianthes Jtofin Flor tellur. n 703 pr p (1836)*

/J\*<sup>res6</sup> \*<sup>me</sup>u Petalorum superiorum lamina 3-loba Ovarium 4-merum j-dentatum Placentae superiorae bilobae, tenues Capsulae 4-dentatae — toha haud divisa Flores albi Calyces et filamenta persistentia. Semina laevia.

« Capsulae ore cum insertione cuspidum depressae — Calyces basi coma  
Folia basi 4-8 denticulata

49 R VIRGATA (Boiss et Reut Diagn pi nov Hispan p 6), foliis basi 4-8 denticulatis, calycibus basi conicis, cuspidibus ovario duplo brevioribus, capsulae ore depressis basi subattenuatis, seminibus minimis ^ In Hispania media et in Lusitania, in arenosis et ad margines agrorum nec non in regionem montanarum ascendens (Duf » Lagasca' Reuter' Vogel' Bourgeau n 2274') — Willk Spicil in Schlechtend Bot Zeit 1847 p 237, Colmeiro Apunt p 27 Mttll Aig Monogr Resed p 199 t 9 fig 122 R glauca Brot I loi lusit vol. 2 p 307 Radix hirsuta, crassa, multiceps Caules pedales v sesquipedales, prope basin diametro 2-2½ mm aequantes, erecti v e basi ascendente erecti, firmi, teretes, pallide arillaceo glaucescentes, glabra Folia 1-5 cm longa, fere tota longitudine 1-1½ mm lata, infima reliqua duplo triplo breviora, rigidula, strobilata, omnia a basi fere usque ad medium utroque latere 1-3 v rarius 4 denticulata, denticuli stipulares 1-1½ mm longi, distantes, subsetacei, stramineo argillacei v subhyalini Flores siccantes nonnihil pubescentes, firmes sed graciliter pedicellati Bractae anguste lanceolatae Pedicellae, pedicellos longiores aequantes, 2-2½ mm longae Calycis lacinae ovato-angustatae, inferiores circ 1) mm longae, longiores quam in R glauca Petala 3-3½ mm longa, superiorum lamina pro J longitudinis 3-loba, lobi omnes indivisi, ovato-angustati Lateralia et inferiora v inferum (si calyx 5-lobatus et corolla 5-petala) exappendiculata et omnino indivisa, lineari-spathulata Stamina circ 16 Capsulae distincte majores quam in R glauca et quodque carpodiarum supra basin cuspidis elevato gibbosum, unde capsulae ore insignite depressae Semina tantum 1 mm longa — Haec occurrit aboriginaria (Mull Arg 1 c p 200), omnibus partibus tenuibus, magis divaricatis-ramosa, floribus polygamis ex parte abortivis, petalis saepe omnibus indivisis, capsulis minoribus olivaceo-viridibus saepius abortu rudimentarum. Hortorum filia (hb DC) — Species haec a reliquis QUJUS sectionis primo intuitu capsulis ore valde depressis graciliter 4-cuspidatis, pedicellis apice obconice in calycem abeuntibus et foliis basi vulgo 4-6-denticulatis distinguitur (v s)

P Capsulae ore contractae, non autem depressae — Calyces basi non conici.  
Folia basi 2-4 denticulata.

\* Ovarium longitudine cuspidis bis v fere bis aequans

<sup>50</sup> R COMPLICATA (Bory Flor nevad n 122), foliis basi 2-denticulatis, calycibus basi rotundatis appendice petalorum cum alis altius connata, cuspidibus ovario duplo brevioribus, capsulis ore haud depressis in calyce haud distincte separatis, seminibus minimis ^ In Hispania in regione nivali Sierra Nevadae altitud 4000-9500 ped , unde in vallis nonnihil descendit (Boiss 'Willk n 182' Bourgeau n 1091' Bunk') — Bory in Annal gen 3 p 13 Oiss Voyage en Esp p 78 t 22 (pulcherrime), Kunze in Flora ratisb 1846\* P 64, Mull Arg Monogr Resed p 200 t 9 fig 123 Luteola complicata Webb Iter hispan p 67 et Otid hispan p. 19 t 14 (icon pulchra) Caulis radice hirsuta numerosissimis, quasi caespitem intricato ramosum formans iuperne simplicis, 1-2 pediculis, inferne diametro 2 mm aequantes, e basi ascendente erecti, glauci, glabri Folia vulgo 2 cm longa, v superiora breviora, 1) 2 mm lata, linearia, glauca, glabra Mores fere sessiles, saltem brevius pedicellati quam in R virgata, in racemos angustos dispositi Bractae abbreviatae, sub fructu demum 2-2½ mm attingentes et pedicellis fructiferis aequilongae Calycis lacinae 1) mm longae, 1) mm latae Petala 3-4 mm

longa; superiorum lamina 3-loba; lobi laterales bipartiti. Basis laminae supra lineam separationis ad alas utrinque usque ad apicem cum appendice connata est et sacculum apice apertum format, unde appendix unguiculans semper erecta nee apice recurvata. Haec structura baud alibi nee in sectione nee in toto ordine occurrit. Stamina ut in *R. glauca*, sed grana pollinis similiti examinata globoso-nec elongato-ellipsoidea. Ovarium basi breviter attenuatum. Capsulae 3 mm longae\*, superiorum 3 mm latae, truncato-obovatae, multo brevius 4-cuspidatae quam in *R. glauca* et in calyce non longiuscule stipitatae. Semina 1 mm. longa. (v. s. et v. cult.)

\*\* Ovarium cuspidibus aequilongum.

51. *R. GLAUCA* (L. Spec. pi. ed. 1. p. 449), foliis basi 2 denticulatis, calycibus basi rotundatis staminibus 14, antheris globosis, cuspidibus ovarium irquantibus subulato-conicis, capsulis ore haud depressis in calyce longiuscule stipitatis, seminibus parvis. In Pyrenaeis et gallicis et hispanicis hinc inde. — Pon. Diet. 1. n. cycl. n. 13, Lapeyr. Hist. abicg. p. 268; Beigeret Flore des Pyren. p. 276, Benth. Cat. Pyr. p. 115, DC. Flor. franc. vol. 1. p. 725, Gren. et Godt. Fl. de France vol. 1. p. 189; Mull. Arg. Monogr. Resed. p. 196. t. 9 fig. 121. *Tercianthus glauca* Raf. Flor. tellur. n. 703. *Luteola glauca* Webb. Otia Hispan. p. 19. Radix ut in tota hac sectione lignosa, crassa et multicaulis. Caules saepius serripedales v. paulo longiores, 1-1½ v. rarius usque 2 mm. diametro aequantes, in caespitem densum approximati, graciles, ascendentes, glabri, glauci. Folia 1½-2½ cm saepius aequantia, anguste linearia, basi albidobidenticulata aut abovato exstipulata. Racemi virgati, demum elongati, leucanthi. Bractaeae 1½-2 mm. longae, e lata basi ovato-lanceolatae. Pedicelli fructigeni 1½ mm. longi, crassiusculi. Calycis lacinae 6-5, arc. 1 mm. longae, oblongo-ovatae. Petala 4-5 mm. longi, ob breviter calycis longe exserta, lamina superiorum 3-loba, lobi laterales saepius bipartiti. Stamina saepius 14, antherae sublatis longae, quam in reliquis hujus sectionis paulo minoribus, tamen 1 mm. longae. Grana pollinis elongato-ellipsoidea. Capsulae 1 mm. longae. Semina 1 mm. longa, in c. majoribus quam in duabus praecedentibus. Occurrit forma \* *abornata* (Mull. Arg. 1. c. p. 198), floribus minoribus viridis, petalis multo minoribus, capsulis subabortivis minoribus viridis. — f. Hoitorum filii (hb. DC. et hb. Willd. fol. 9226p.1). (v. s.)
52. *R. Genuensis*, foliis basi 2-4 denticulatis, calycibus basi subinaequale rotundatis, staminibus 10-14, antheris ellipsoideis, cuspidibus ovarium aequantibus conico ovoidibus acutis, capsulis ore haud depressis in calyce subsessilibus, seminibus minimis. \*f. In Hispaniae monte Sierra de Gredos altit. 9000 ped. in Picode Almanzon (Graells, Cuianda), et in pascuis lapidosis Sierra de Majaleina prope Placencia (Bourgeju n. 2396' in hb. DC. et Boiss.) R. virgata vai. Giedensis (ut et Willk. in Willk. Pugill. plant. nov. penins. pyren. p. 95. Caules e radice crassa lignescens valde numerosi, cae. 5-10 pollicares, pro sectione viridi, viridi, undique cum rhachi laciniarum crassiores (quam in praecedente, cum viridis partibus glabris, argillaceo-glaucis, insiniliter biachyphyllis. Folia tota longitudine caulium iasciculati, scilicet in axillis lamulum pulviniformem ad folia 8-reductum gerentia, foliis pulvinulorum conformia usque aequilonga v. paulo longiora, tantum 5-8 mm. longa, 1-1½ mm. lata, linearia, acuta, rigidula, ovaceo-glauca. Bractaeae ut in praecedente. Flores ut in praecedentibus sed breviter et valide pedicellati calycibus basi minus regulariter rotundati et quam in *R. glauca* lere duplo majores. Petala superiora 5 mm. longa, usque praecedentium hujus sectionis conformia, imo haud appendiculata et imbricata. Stamina numero satis ludentia, tere 10-14, in paulo superiore racemi saepius 10-12. Antherae majores et ambitu longiores quam in *R. glauca*. Capsulae quoad formam ut in *R. glauca*, sed longe viridius 4-cuspidatae quam in 3 praecedentibus. Semina ut in *R. virgata*, i. e. minora quam in praecedente. — Species typo biachyphylo et cuspidibus ovarium msigmta, petalis et seminibus cum *R. virgata*, capsulis caeterum cum *R. glauca* quadrans. (v. s.)

Sect. iv. LUTEOLA. DC. in *Duby Bot. gall.*, vol. 1. p. 67; *Endl. Gen. pi.* n. 5011 a, *Koch. Syn. ed. 2.* p. 103; *Gren. et Godt. Vire de France* vol. 1. p. 140,

*Peterm Deutschl Flor p 66, Mull Arg Monogr Resed p 202 — Genus Luteola Spach Hist des Veg Phanerog vol 7 p 103, Webb Phytogr Canar p 106, her hisp p 67 et Oria hispan p 19 — Genus Arkopoda Rafinesque Flor tellur n 705.*

Flores 4-men Petali supenons lamina 3 lobd Chanum tumerum, 3-dentatum Placentae superne bilobae, mcrdssatae Capsulae 3 dentalae — Folia haud Qvib4« lores lutei. Calyces et filamenta persistentia Semina Ia3via

53 R LUTEOLA (L Spec pi ed 1 p 448) fohis indivisis angustis, calyce 4-partito, lamina petali supenons 3-loba, staminibus cue 25, capsulis depiesso-obovoides undulato rugosis ore contracts acute et valide 3-cuspidatis, seminibus laevibus paivuh

a, *Gussonn* (Mull Arg Monotr Resed p 207), cauhbus elatis, fohis utrinque attenuate margine undulato-cnspatis, flonbus majonbus, petalo supenore 4i 5 mm longo superne amphoie, capsulis longiuscule et acute 3-cuspidatis ® In Italia inferiorc (Guss !), in peninsula iberica prope Algarve (Bourg(au n 1782'), et in Algeria prope baidd (Balansa n 674f) R enspata len Syllog p. 232(1831), non Link (1822), Hor Ndpol vol 4 p 2>6, Gusson Prodr Fl sic vol 1 p 537, Suppl p 46 et ei Synops vol 1 p )28 R Gussonn Boiss Dngn sei 2 n 1 p 49 R LuteoU Munby Hor d Alger p 47 Hoies quam in rehquis paulo mdiores, caeterum mini specidu differt (v s)

p, *austrahs* (Mull Arg 1. c), cuilibus minus elatis minusque stnctis, fohis angustis acutiusculis margniL undulato cnspis, flonbus quam in e vulgan persj leue majonbus at minonbus quam in a Gussonn, tdpsulis longiuscule tt acute 3-cuspidatis (2) In insulis fananensibus (Webb, Convent' Bouigcm n 251!), et in ruderatis U anis Baeticae (Wtbb) Luteola tmctona v austrahs Webb Phyt Canar p 10b et ej Itei hisp p 67 Petali supenons lobi latiores quam In e vulgan, capsulaBut in a (v s)

Y, *amencana*, cauhbus elatis substnctis, fohis obtusmscuhs margine haud unduhtis, flonbus mediocnbus, petalorum lobis angustis, cipsulis longius tncuspidalis (1)-® In Mexico (Andncux n 530' Berlandiei n 695' et Ghiesbrecht n 1031) Folia et flores ut in e vulgan, fructus ut in a et p (v s)

6, *enspata* (Mull Arg 1 c), cauhbus minus ehtis minusque stnctis, fohis obtusis margine modicc unduldtis vix cnspdtis, flonbus vix distmcte quam in e >vulgan majonbus, lobis petali supenons htiuscuhs, capsulis brevius i cuspidatis (i)-(i). In I usitanid ^Linkr Gutlmick'), Hispima (Haensler' VogeL'), in Ihracia (tnwaUsky» in hb Reichcnb) et m jTgyptomediterranea (AucheI) R uispata Link Tnum pi. hoit berol 2 p 8 (1822), Dictr byn voi 3 p 29 R pseudovirens Hampe in Flora ratisb 1837 1 p 232 R. Luteola y pseudo vncns Mull Arg 1 c p 207 Hujus lohí marline minus enspata sunt quara in a Lt /i Capsulae ut in e vulgan lormam pseudo virentcm quim ol in Monogr Rosed distinxi, a prxsente vanctate non differt nisi'' lobis laterahbus petah supenons profundius, circiter usque ad medium bifidis Sed loin laterales quoad hoc etnm in alus var hujus speciei et in alus spetiebus hujusgenens haud pauum ludunt (v &)

e, *vulgans* (Mull Aig 1 c p 205). cauhbus elatis stnctis plus rainusve vahdis, fohis obtusis margim hiud undulitis, petahs li-4mm longis, lobis petdh supenons angustis, capsulis hreviuscule 3 cuspulatis (D-®) In aienosis et plireosis scus nvulos vias et muros et in dggenbus negltctis planitieí praescrúm et bine mdc in monies usque ad 3 5000 ped ulscndens, pci toiam Luropam meridionalcm et mediam, et huic inde seplcnlnondllm veisus sitis piogiediens, terminum SLptcntnondlem prope Aberdeen ltingens In A nj pto dtin hec v ir eti im crescit (Acerbi' in hb DC) et m Amenea soptoitiiondh (t m Chili miioducti viget et hinc inde dcin sub coelo mitioie Jiuropt m'ndionalis et occidentahs pio usu tmctorum cohtur Vide loca speiaha numerosa in mea Monog-

*Resed.* p. 20<sup>r</sup>). — *Reseda Luteola* Auct., Schkuhr Handb. vol. 2. p. 7. t. 129; Svensk Bot vol. 2. t. 82, Engl. Bot. vol. 5 t 320, Drev. et Hayne Choix p. 37. t. 99, Dietr. Deutschl. Floi. vol. 3. p. 5. t 4 et ej Floi regn boruis. vol. 6 t 4\*20, Reichenb. Icon. Flor. Germ, vol. 2. p. 20 t 99 fig 4442, Peterm. Deutschl Flor p 67 t 12 fig. 89, Bertol. Flor ital. vol 5 p 24; DC Flor fi. vol 1. p 725, Gren. et Godr. Flor. de France vol. 1 p. 90, Gaudin Flor. helv. vol 3. p 268, Mert et Koch Deutsch. Flor. \ol. 3. p. 380, Koch Syn. p. 89, Ledcb. Flor. loss, vol 1. p. 235. *R. glauca* luchw Casp Cauc. p 24. *R. undulata* Gilib. Hoi. hthuan. vol 5 p. 210 *R. sahicifoha* Gray Nat. airangm of Bnt. pi vol 2. p. 660. *Arkopoda Luteola* Rafin Flor. tellur n. 705. *Luteola tinctoria* Webb et Berth. Phyt Canar. p. 106, Salisb Prodr. p. 345 *Luteola resedoides* Fuss Flor transsylv. p 86 Caules ex ea\*lem radice saepius soliiarn, saepius 2-2J-podafes, nunc 4-5 pedcs attingentes, virgatoramosi, rami numerosi, slricti, fohosi, in racemos angustos demum longjssimos abeuntes. Folia 5-7 cm. longa, 8-12 mm lata, linean-lanceolato-spathulata v iniennora arnbitu latiora, basi longe attenuata, circ 2-4 mm. supia basin stipulis 2 dentiformibus j-J mm. longjs pallide rubellis munita, margine ca3teium laevia, undique glabra Racemi flongen longe obtuse acuminati, fructigen 1-2-pedales Biactae 2j-3j mm. longae, demum 5 mm aequantes, c lata basi tnangulan subulatae, prater nervum latiusculum vindem pallida?et subhyahnae, in apice racemorum longiuscule comoso-exscrtae. Pedicelli flongen 1J-2 mm aequantes, fere 1 mm crassi, sensim in calycem abeuntes, fructigen vix longiores. Calycis lacinur 2 supenores piofundius inter se liberae, oblongo-ovatae, obtusae, 2 mm attingentes, anguste subhyahno-marginatae. Petalum supieius cuneato-obovatum, 3 fidum, lobus intermedius integer, laterales saepius bifuh v bipartiti, baud laio unus alterve brevius v altius cum intermedio coliaerens et petalum turn minus iegulare et a lege petalorum Resedacaium pnao intuitu aberrans, appendice unguiculan 1 mm longa, concava maigine glabra munitum Petalum infeium ad lobum intermedium supenons reductum v. utnnque minutius 1-lobum Filamenta linean-subulata, 2-3 mm. longa. Antberae tantum &-4<sup>j</sup> mm. longa?. Ovarium ovoideum, proiunde 3-sulcatum, dentes turgidI, erecti. Ovula in quaquo placenta circ. 10 Capsulae 4 mm longae, 6 mm. latae v ambitu migi^globoasae, longitroisumprofunde 3-sulcat<c et transversim undulato-rugosoj Semina 1 mm. longa, maturafusca, radiculahilo \aldc appioxi-mata. — Hujus forma abortiva est — *virescem*, cauhbus debiljbus dillusc ramosis, folus parvis, fionbus laxjus racemosis tenuius pediccllatis, petalis lineanbus spathulatis parvis, ovarus pro parte aboitivis et capsulis multo mmonbus quae in horto genevensi olim colebatur (hb DC '). R<virescens Hornem. Hort hafn. p. 501. *R. Luteola* oca abortiva Mull. Arg. l. c p. 206 (v s. et v.)

£, *dimerocarpa*, cauhbus humilionbus gracihbus minus stricte ramosis, folus paivus margine uhdulais, flonbus paivis, petalis 3-3 J mm longis, capsubs e carpidus duobus tantum formatis parvis elongato-bicuspidatis. *Q.* Ad fodinas antiquas Ingurtosu Sardiniae inter Iglesias et Oustano (Dr P Ascherson' in hb DC ). Caulis a me visus basi vix 3 mm. diametro aequans, vix sesquipedalis, rami tenues Folia 2}-3j cm. longa, 2-4 mm lata Capsulae jbsque cu<5pidibus vix 3 mm. longae. — Vaneias constantia numcn carpidioium msign'ta, caeteium praeter folia margine haud plana etfoimam petaloium ad e vulgans formam virescentem characteribus et habitu optime accedens Capsulae tamen proportionem longius bicuspidadffii potius cum a Gussoni affinitatem demonstrant. (v. s.)

V OLIGOMERIS *Cambess emend., Harv Flor cap vol 1 p. 64; Hook et Benth. Gen. pi. vol \ p, Ji2- - Dipetdlia Rafin Flor. tellur. n. 707. - Hie pertinent. Oligomeiis Cambess — Itesedella Webb et Berth. — Ellimia Nutt. — Holopetalum Turcz — Resedas sp Ail. et Del.*

Petala 2, lacinnis calycis anisomera, stamina hypogyna, carpidia in ovarium 1-Joculari apice hians connata, placentae panetales, ovula pen-

dula.— Herbse annuae, biennes et perennes y. sutfruticulosaB, in Cap. Bonas Spei, Asia austro-occidentali, Africa mediterranea, in Canariis et in Novo Mexico vigentes, humiles, ramosae v. ramosissimae, plus minusve dense foliosae, vulgo stenophyllae, glabrae, glaucae, quodammodo Resedo3 glaucae similes, sed vulgo rigidiores. Folia haud divisa. Racemi anguste spiciformes- Flores unibracteati, parvi, albi. Calyx persistens, 2-5-partitus; lacinia? 1-3 in calyce 2-^partito suppressione deficientes, una superior axin inflorescentia3 spectans. Petala duo axin inflorescentiaB spectantia, exunguiculata, haud appendiculata, normaliter libera, integra v. repandosublobata. Discus nullus. Thalamium inter calycem et ovarium non elongatum. Stamina 10-3; filamenta libera aut brevissime ttionadelpa. Ovarium 4(-5)-merum, 4(-5)-dentatum; dentes cruciatim duo laterales, unus posterior et unus anterior. Capsule siccae, apice hiantes. Semina in omnibus notis laevia. — Genera Oligomeris Camb. et Holopetalum Turcz. ol. in Monographic Resed. distincte admissa, nunc praeunte cl. Harv. in unum Oligomeris Harv. libenter conjungo. Genus valde naturale Dipetaliae Raf. conforme, sed Oligomeris prioritare gaudet.

Sect. i. HOLOPETALUM Harv. *Flor. cap. vol. 1. p. 64.* — Geniis Holopetalum Turcs. Decas gen. in *Bull. soc. mosc. 1843. p. 51* [non DC.] qu;c sect. *Monoxmix inter Geraniac.*) el *ibid. 1852. p. 180* nee non *I. c. 18<sup>e</sup> 4. p. 330; Midi. Arg. Monogr. liesed. p. 208. t. 9. fig. 125-127.* - *Reseda sp. Ail.*

Stamina 10, circumcirca ovarii basin peripherice inserta.

\* Capsulae subglobosae,

1. 0. DIPETALA, petalis oblongato-obovatis integris, capsulis subglobosis. J Ad Prom. Bonae Spei late difflusa. Kuseda dipetala Ait. Hort. Kew. ed. 1. vol. 2 p. 132 (1789), ed. 2. vol. 3. p. 153; Valil Symb. 2. p. 52; Willd. Spec. pi. vol. 2. p. 878; G. Don Gen. syst. vol. 1. p. 287.

a, *Capensis*, caulibus 1-3-pedalibus virgalo-ramosis firmis, foliis caulinis (6-)9-15mm. longis acutiusculis. (Thunb.! in lib. upsal., Kcklon n. 113!). *Reseda capensis* Thunb. Flor. cap. ed. Schult. 1823. p. 402 (Ovarium in ipso specim. Thunb. est tetragynum!). Holopetalum pumilum p majus Mull. Arg. Monogr. Resed. p. 210. Oligomeris Capensis ft virgata Harv. Flor. cap. vol. 1. p. 64 pr. p. Dipetalia Capensis Ralin. Flor. tellur. n. 707. (v. s.)

p, *virgata*, caulibus paucipollicaribus v. subpedalibus lenuoribus, foliis circ. 6-9 mm. longis acutiusculis v. acutis. (Burke! Zeyher n. 33!). Holopetalum pumilum MULL. Arg. 1. c. p. 209 pr. p. Oligomeris Capeosis p virgata Harv. Flor. cap. vol. 1. p. 64. pr. p. (v. s.)

**γ, pumila, caulibus paucipollicaribus tenuibus, foliis 6-9 mm. longis obtusis. (Drège n. 7533! Barchell 2013!). Holopetalum pumilum Turcz. Dec. pl. non descript. in Bull. soc. Mosc. 1843. n. 61. Mull Arg Monogr Resed p. 209. t. 9. fig- 125. Oligomeris Capensis a pumila Harv. 1. c. p. 65. Caules ramosissimi, 3-10-pollicares, infernc lignosi, rigidi, diametro 3-8 mm. aequantes, cum ramis valde ramulosis dense foliosi, glabri, ochraceo-cinerascentes, apice cum ramulis glauco-virides. Kamuli decursu foliorum leyiter angulosi, glabri. Folia lincaria, fere tota lomritudine aequilata, integra, glauca, glabra, margine asperula, erecta, in ramulis imbricata. Flores hermapbroditi v. nonnulli unisexuales, foeminei aut masculi turn cum hermaphroditismixti, in racemum spiciformem densum 1-3 cm. longum dispositi. Bractee calyce paulo breviores persistentes ovatae, acuminatae, late byalino-marginatae, demum arcte réfractse Calvx 1-14 mm. longus. Petala 2, 2 mm. longa, inter se libera intern' more congenerum exappendiculata, lacimias calycis longe supefantia. Stamina normaliter 10, brevitermonadelf ha; filamenta petala beneaequantia Ova-num sessile, ovoideum, tetragonum, vertice ad basin cuspidum arcte**



constrictum, glabrum. Ovula in quaque placenta saepius 6-8, more sequentium biserialia. Capsulae circ. 3 mm. longae, subdepresso-globosae, secus placentas valde impressae; cuspides ovarium ipsum fere aequantes. Semina  $\frac{1}{2}$  mm. longa, laevia, nitida. (v. s.)

2. 0. SPATHULATA (Harv. Flor. cap. vol. 1. p. 65), petalis oblongo-ovatis integris, capsulis subglobosis. J? Ad Prom. Bonae Spei, in planitie et in collibus ad Garip, infra 600 ped. (Drège! in lib. DC, Boiss. et in hb. reg. berol.). Holopetalum spatulatum. Turcz. in Bull. Soc. Msc. 1854. p. 330; Mall. Arg. in Schlechtend. Bot. Zeit. 1856. p. 39 et Monogr. Resed. p. 211. t. 9. fig. 126. Rami abscissi visi, subnigrescentes, simplices, subrecti, densissime foliosi, rikiiduli, diametro 2-3 mm. aequantes et circ. 12 cm. longi, cicatricibus foliorum dense notati, glabri, cinereo-glauci. Folia visa 10-13 mm. longa, superne saepius 2-3 mm. lata, spathulato-lanceolata, carnosulo-rigida, pallide glaucescentia, erecta, imbricata, margine asperula, basi subadnato-ovatisipellata. Flores hermaphroditi et polygami, in racemum spiciformem sub fructu densissimum circ. 6-9 cm. longum et 6-8 mm. latum dispositi, subsessiles, parvi, albi. Bractee persistentes, oblongo-ovatae, acutae, calyci sequilongae, praeter apicem hyalino-marginatae. Calyx ut in 0. dipetala. Petala 2-2 $\frac{1}{2}$  mm. longa, calycem paulo superantia, ovata, rotundato-obtusa, infra medium perspicue dilatata, integra, exapplanata. Stamina, ovarium et ovula et semina ut in praecedente. Capsulae 3-3 $\frac{1}{2}$  mm. longae, dentibus 4 acutis triplo longiores, sub dentibus minus quam in praecedente arete constrictis, (v. s.)

\* \* Capsulae oblongo-obovoideae.

3. 0. BIRCHILLI (Harv. Flor. cap. vol. 1. p. 65). petalis oblongo-obovatis, capsulis oblongo-obovoideis. "if- v. 5? Ad Caput Bonae Spei (Burchell n. 1850! 2549! in hb. DC). — Holopetalum Burchelli Müll. Arg. in Schlechtend. Bot. Zeit. 1856. p. 39 et Monogr. Resed. p. 212. t. 9. fig. 127. Caules aut rami abscissi tantum noti, 1-2 dm. longi, inferne diametro 1 mm. aequantes, simplices v. parce ramosi, subrecti, teretes, glabri, densiuscule foliosi. Folia 7-10 mm. longa v. superiora breviora, fere tota longitudine 1 mm. lata, innearia, semicylindrica, suberecta, glauca, glabra, basi stipulis subulatis deciduis munita. Racemi spiciformes, 3-4 cm. longi, 5 mm. lati, demum 3-4-plo longiores, floriferi apice obtusi, vix bracteis comosi. Bractee 2 $\frac{1}{2}$  mm. longae, ovato-lanceolatae, sensim acuminatae, hyalino-marginatae. Pedicelli vix perspicui. Calyx ut in 0. dipetala, sed longe major; laciniae 2-2 $\frac{1}{2}$  mm. aequantes. Petala 2-3 mm. longa, in 0. dipetalae quoad formam similia, subpersistentia. Stamina 2 $\frac{1}{2}$  mm. longa. Capsulae 5-6 mm. longae, tereusculae v. leviuscule tetragonae, sensim in dentes 4 obtusos vix 1 mm. superantes abeuntes. Semina ignota. (v. s.)

Sect. II. RESEDELLA Harv. Flor. cap. vol. 1. p. 64. — Genus *Oligomeris* Cambess. in Jacquem. Voy. dans l'Inde vol. 4. p. 24. t. 25 (1834); Endl. Gen. pi. n. 5012; Müll. Arg. Monogr. Resed. p. 213. t. 10. fig. 128-129; Boiss. Flor. orient. vol. 1. p. 435. — Resedella Webb et Berth. Phyt. Canar. vol. 3. p. 107 (1836) t. 11 (1838). — Dipetalia Rafinesque Flor. tellur. n. 707 pr. p. (1836). — *Ellimia* Null, in A. Gray Flor. North Amer. p. 125 et 669 (1838). — *Rcsedae* sp. Del.

Stamina 3 (-4 ex cl. Harv. 1. c), latere superiore florum sita, cum petalis duobus alternantia.

\* Capsulae oblongo-ovoideae.

4. 0. DREGEANA (Müll. Arg. Monogr. Resed. p. 216. t. 10. fig. 129), calyce 5-sepalo, petalis ovato-lanceolatis integris, capsulis oblongo-ovoideis superne attenuatis, seminibus parvis. Ad Promont. Bonae Spei, ad Zwartkey altit. 4000 ped. (Drège! in hb. DC. et hb. Boiss.). — Harv. Flor. cap. vol. 1. p. 64. Reseda Dregeana Presl Bot. Bemerk. p. 8. Resedella Dregeana Müll. Arg. in Bot. Zeit. 1856. p. 39. Radix lignosa, crassiuscula, multicaulis. Caules 12-25 cm. longi, firmi, erecti v. e basi arcuato-adscendentes, teretes, leviter striato-angulosi, glabri, glauci, inferne saepe ramulos breves steriles dense foliatos

gerentes. Folia caulina 1-1 | cm. longa, lineana v. anguste lineari-spathulata, acuta, integra, glabra, glauca, basi minute stipulata, ramulorum, stenium saepius 1 cm. vix aequantur, ad apicem horum ramulorum comosoapnioximata. Flores spicato-racemosi, subsessiles, parvi. Bracteis persistentes, linean-subulatae, calyces subduplo superantes, basi elongato-bidenticulatae. Calyx 2-3 mm longus, petala superans, lacinae persistentes, lanceolato-ovatae, hyalino-marginatae. Petala circ. 1} mm. longa, penninervia. Stamina lit in 0. subulata. Ovarium 4-cornutum. Ovula bicornia, in quavis placenta circ. 10-16. Capsulae 6-7 mm. longa, tetragastreae, secus placentas sulcato-impressa, laves, dentibus 4 circ. triplo longioribus. Semina 1 mm. longa, hippocrepica, laevia, nitida. (v. s.)

\* \* Capsulae depresso-globosae.

5. 0. SUBULATA (Boiss Flop, orient, <sup>TM</sup> 1 p. 43: >), cauce 2-4-scipalo, petals oblongo-ovatis superne incando-lobatis, capsulis depresso-globosis, seminibus minimis. © v. © In India orientalis (Fildgew, Th. Thomson), Afghanistan (Griseb. in Beludchistan (Stokes) in hb. Boiss.), Persia australi ad fontes calidas prope Dalechi (Kolschy n. 119' in hb. DC), Arabia petraea (Schimper n. 2411) in Aegypto mediterranea (Del' Ehrenb. Wiest n. 324 etc.), nec non in insulis Canariensibus (Webb Bougeau n. 327' 1252') et demum in Novo Mexico (C. Wright n. 1321' in hb. Boiss.). Reseda subulata Del' Flop actvDt n. 1^ H813}. K. linifolia Vahl in Hornem Hort bafn. p. 501 (1813). R. thidens Vis. Decad. pi. a3g>pt. p. 6 (1830), Presl Hepert bot. p. 53 R. oh gandra Ldgew in Hook Journ. of Bot. vol. 2. p. 283, 1840. R. fechimpon l' resl Bot. Bemerk. p. 8 (1844). Oligomeres glaucescens C. Imbess. in Jacquem. Voy. dans l'Inde v. 1. 4. p. 24. t. 2b (1834) 0 dipetala Turcz. in Bull. Soc. imp. Mosc. 1854 p. 330 0 dispersa a Dehleana, p. Webbina et y muncata Mull. Art? Monopp. Resed. p. 214 216. t. 10. n. 128 Resedella subulata Webb et Berth. Phyt. Canar. vol. 3 p. 107 t. 11 (1836) 1 Uimia ruderalis Mitt. in A. Gray Flop, of Isoith Amer. p. 125 et p. 69 (1840), A. Gray in Plant. Wngbtian p. 16. Radix tenuis, annua v. biennis, vix perennis, vulgo multicaulis. Caules erecti v. e basi arcuato-ascendentes, saepius lamosi, altitudine valde ludentes nunc paucipollicares mine pedales aut sesquipedales, glabri, laevi. Folia longitudine et copia valde ostillantia, 1-4 cm. longa, 1-1 mm. tota, glabra glauca. Rarius magis herbaceo viridia. Flores exigui, spicato-racemosi. Bracteis 1-2 mm. longae, e basi triangulatae-acuminatae, late lincano-marginatae, persistentes. Calyx fere omnino sessilis, quoad numerum partium reductus. Petala 11 mm. longa, diu persistentia, saepe inter se altiuscule connata alba. Filamenta subulata, mox petalorum diu persistentia. Ovarium sessile 4-cuspidatum, 4-sulcatum. Capsulae 2 mm. longae, laeves v. obovato-ovoides papilloso-mucatae. Semina minutissima, accurate 1 mm. longa laeva in zlatx|s numero satis ludentia, similiter ac ovula saepe in dneis's evniens eiusdem speciminis numero vilde in Constantinia. — varietates 3 in Monocr. Resedac. 1. c. a me distinctas magna copia speciminum Herbarii exaratae senare baud utile duxi, etiamsi extremis formis inter se primo MSU longe divertit, differentia enim ramis subliles sunt et certe non satis constantes species caeterum ludit. - abortiva, floribus minoribus sub-Pohcamis l' d' s' uis nine inde abortivis evolutis autem quam in forma normalium To Viburspecimina culta tantum nota sunt (lib. DC. Boiss. et hb. Arol 1. Tessedella dipetala Webb et Berth. Phyt. Gujar. AOL. 3. p. 107. Ohgomenis Turcz. in Bull. Soc. imp. Mosc. 1854. p. 330\* Ohgomenis dispersa ad abortiva Mull. Aig. 1. c. (v. s.)

<sup>VI</sup>. OCHRADENUS Del. emend. — Hic comprehenduntur Ochradenus Del. et Homalodiscus Bunge.

Flores apetalae, stamina hypogyna peripherice inserta, carpodia in ovario in loculare apice hians connata, ovula in placentis pendentibus pendula, fructus siccus aut subbaccans clausus. — Frutices et suffrutices circa mare rubrum et in Persia australi crescentes, altitudinem humanam

semel v bis et ultra attingentes, v humiles, valde ramosi, rigidi, rami ramulique stncti, ngidi, recti, palhdi v argillaceo-vindes, juniores glauco-vindes Folia indivisa, Integra, hnean-spathulata, parvula, glauca, glabra Inflorescentias spicato-racemiformcs, elongatae Flores unibracteati, vindi-lutescentes, hermaphioditi v abortu etiam poly gam 1. Calyx 6-5paititus, lacimarum una superior, una inferiori v in calyce 5-partito suppressa, reliquas 4 lateres Discus valde evolutus, excentncus, aut regulans. Stamina 10 30, filamenta hncan-subulata, decidua, antherae ut in Reseda Grana polhnis us Resedae et ordinis totius conformia. Ovanum tnmerum, apice hians ut in Reseda, tempore fecunda tionis autem ctpostei clausum, apice tndentatum, dentium 1 superior, 2 lntenon-latcrilcs Phcentae cum dentibus 3 ovari' alternartes, mal-tiovolatae Ovuld, semma, albuminis defectus et embryo ut in Reseda, sed capsulae ip<-as apice non hiantes, caeterum ut in Reseda intus late cavac, et fructus nunquam baccatus, nunc siccus ut in Reseda, nuno succulentus et turn spune baccans

beet i HOMALCDISCUS — Genus Homalodiscus *Bunge sched cum charact apud Boiss Flor orient 101 [ p 422 — Resedae sp Boiss Diagn , Mull Arg Monogr Reted*

Capsulae maturae non succulentae — Discus tenuis — Genence abOchradeno Del distinguinequit Capsulcp cum junionbus Ochradem baccati dicti quadrant, et iuctus 0 baccati nunquam veia, haccae sunl Discus autem orbiculans aut excentncus, aut unilateralis, docente Reseda Buhseana, digmlate genenca caret

\* Discus oibiculans

1. 0 Boissirni, fionbus 18-25- indus, capsuhs ovoideis mflatis siccis 2f In Persia austiah (Auohei n 4179'), inter Kerman et Yc/d (Bunge<sup>1</sup>) Homalodiscus Ochiadeni Boiss Flor orient vol 1 p 422 Reseda Ochradeni Bous. Diagn ser 2 n 1 p 4<sup>1</sup>) Mull Arg Monogr Rcsed p 14 i t 7 íng 101 Planta dumosa sesquipedahs v bipcdalis, dnancatim ramosa, scopana Caules crecti ugidi teretes, glaltri, lann numciosi, fere omnes eandem altitudmem attingentes, praeter bracteis squamiformes feie omnino denudati, in racemos anguste cylindncos spiciformcs laxc pauciilios corymboso-dispositos abeuntes Folia ] 1 J cm longa lanceolato-v linean-hpathulata v etiam lineana obtusa integia omno glabra, basi minute stipulan bidenticulata, mox decidua Racemi fructigeu semipedales, laxi Bracteas 1 1] mm tan turn longiE ovatae, subobtusae haud marginitae, subpeisistentes Pedicelli fructigen 2-\*) mm longi Calycis laciniae 6, 2 mm longoe, aequale>>, obovata? ovataeve, iotundato-obtus<e, domum deciduae Discus hypogjnus circulans, legulans, maigine reflexus et lacinias calycinas zetrorsura depnmons (apsulx 9 12 mm. longae, in calyce sessiles, tenuitei membranacede, more Rutacearum tenuitei glanduloso punctatae, apice contracts ct lero clausae, minute et acute tncuspidatdc Semina majuscula, 2 2j ram longa, laevia, pall id J. miciopyle a lulo subdistans (v s)

2 0 MINOR, flonbus 12-18-andns )f In Pcisia inter Ispaban et leheran ad Gas (Bunge<sup>1</sup>) Homalodiscus minor Bunge in Boiss Flor orient \ol 1 p 42J Similhnius 0 Bois^ien, sed duplo humihoi , racemi speciinum visoruai minus «unt hxiflon sed specimma lpsa. juniora ex cl Bunge uno mense quam species piaecedens senus florentia, labitusdein ex cl viatore alius Spocimina caeterum flongera tantum nota sunt quae ab us praecedentis praecti numeium stain mum nee forma nee magmtudine n^c consistcntia nee colore partium distingui potueunt ( \ s )

\*\* Discus excentneus, fostice lalior

J 0 AUHLRI (Boiss Diagn ser 2 vol 1 p 50), flunbus 2) JO andns (apsu lib oblongito-obovoi<k is 2L in Anbi p ipgno Mascite (Auchi n 4178') —

Moll. Arg. Monogr. Resed. p. 96. t. 6. fig. 85. Homalodiscus Aucheri Boiss. Flor. orient, vol. 1. p. 422. Caules 2-j-pedales, suoparii, stride ramosissimi, denudati, glauci, glabri. Ramuli rigid i, recti, parce foliosi. Folia lineari-spathulata, similia iis Ochradeni baccati. sed paulo breviora, i. e. pollicaria. Bractee minimae, deciduae. Racemi laxiflori, fructigeri circ. pedales. Pedicelli 1 mm. longi, validi, teretes, subfructu haud elongati. Flores majores quam in Ochradeno baccato, discus autem minor. Stamina mox arcuato-deflexa, 3 mm. longa; filamenta infra apicem leviter dilalata basique supra discum breviter monadelphia. Capsulae 7-10 mm. longae, subteretes, laeves, basi broviter attenuatae, apice obtusae et breviter 3-denticulatae. — Specimina barbariorum similia iis Ochradeni baccati, sed numerus staminum et forma capsulae praetor consistentiam capsulae maturse omnino dilTerunt. (v. s.)

Sect. ii. EUOCHRADENLS.— Genus Ochradenus *Del. Flor. wgypt. p. 15. //.* *JV. Bot. t. 31. fig. 1* (1813); *Rcichenb. Consp. n. 4823*; *Bartl. Ord. nal. pi. p. 258. n. 145*; *Meissn. Gen. pi. p. 18*; *Spach Hist. vdgdt. Phandrog. vol. 7. p. 196*; *Endl. Gen. pi. n. 5010*; *Müll. Arg. Monogr. Besed. p. 92. t. 6. Jig. 84 (exclus. 0. Aucheri)*; *Hook, et Benlh. Gen. pi. vol. 1. p. 112*; *Boiss. Flor. orient, vol. 1. p. 423.*

Capsulae demum succulentae. — Discus crassus.

4. 0. BACCATUS (Del. Flor. aegypt. p. 15. H. N. Bot. pi. 31. fig. 1), floribus 10-12-andris, capsulis subglobosis demum succulentis, J In desertis totius /Egypti (Del.! Sicb.! Kotschy n. 938! Boiss.! etc.), in Abyssinia (G. Ehrenb. in lib. berol.), ad meridiem maris mortui (Lowne), in Arabia pctraea (Schimp. 305! 307!), in deserto sinaitico (Hové n. 149!), in Judaea ad Jericho et Engaddi (Mich.), nee non in Persia australi (Kotschy n. 159!). — Sprcng. Syst. vol. 2. p. 446; G. Don Gen. Syst. vol. 1. p. 290; Decaisne Flor. sinait. p. 81; Mull. Arg. Monogr. Rosed, p. 94. t. 6. fig. 84; Boiss. Flor. orient, vol. 1. p. 422. Gaules circ. 10-20-pedales, subvirgato-ramosissimi; rami divaricato-ramosi, elongati, strieli, rarauis hornotinis numerosis obsiti, circ. 3 mm. crassi, cum ramulis glabri. Folia circ. 2 cm. longa, 1-2 mm. lata, subreflexopatula, ima basi saepius stipulis denliculiformibus ochraceis munita. Racemi demum valde elongati, vix 5 mm. lati, erecii, rigidi. Bractee pedicellos 1<sup>^</sup>-2 mm. longosbenc aequantes v. dimidio superantes, lineari-lanceolatae, obtusae, glabrac, vix hyalino-marginatae, basi utrinque acute stinulari-unidentatae, demum deciduae. Pedicelli superne sensim in calycem dilatati. Calycis laciniae majores 1<sup>^</sup> mm. longae, oblongo-ovatae, obtusae. Discus crassus, depresso-conicus. Filamenta 2-2<sup>^</sup> mm. longa. Antherae oblongo-ovoideae, superne subattenuatae, obtusae, basi cordatae, laeves. Ovarium basi abrupte attenuato-stinitatum. Ovulabiserialia, in quaque placenta circ. 4-6. Capsulae subinflatae, subbullato-rugulosae, apice obiter 3-dentalae, subcoiaceo-membranaceae, juniores ut in speciebus praecedeniibus, demum turgescentes et carnososucculentas, matura 4-5 mm. longae. Semina aliortu circ. 10, ovoideo-reniformia, primo intuitu kevia, sed vere tamen obiter gibboso-rugulosa, longitudine 1<sup>^</sup>-1<sup>^</sup> mm. aequantia. — Ludens potius (juam varians : — scandms, omnibus partibus vegetalivis et floralibus paulo minoribus, floribus abortu subunisexualibus. 3 <sup>191</sup> <sup>Aralia</sup> Felice prope Djedda (Schimp.!) et in Beludchistan (Stocks!). O. baccatus p scandens Miill. Arg. 1. c. p. 95; Boiss. Flor. orient, vol. 1. p. 422. Est forma subabortiva, quisiles in Rcsedae spocibus nonnullis et in Oligomeride etiam occurrunt. — Hanc forniam dein cl. G. Ehrenberg (hb. berol.) ovariis in cornua 15 ram. longa 1-2i mm. lata medio subconstricta apice subindurata monstrose evolutis in insula Forsan Sinus Arabici legit, quam in Monogr. 1. c. sub 0. baccato pJ monstruosa descripsi. (v. s.)

Ordo XIV bis. LACISTEMACEJE (1). — *Viperissp.auctorumolim.*  
 — Lacistemaceae *Mart. nov. gen. et sp. bras. I. p. 154* (anno  
 1824). — Urticaceae, lit. e, Lacistemeae *Reichb. consp. p. 8<sup>^</sup>*  
 (1828). — Lacistemacoae *Lindl. nat. syst. p. 183, veg. Kingd.*  
*p. 329; EndL gen. p. 291.* — Lacistemeae *Meissn. gen. p. 357 el*  
*258.* — Lacistemaceae *Schnizl. in FL bras. fasc. 30, p. 279, c.*  
*ic. (ubi egrgia monogr.)*

Plores spicati, hermaphroditi (saepe tamen steriles), bractea  
 lata, bracteolisque 2 interioribus linearibus inclusi. Sepala  
 0-6, sil'pius 4, libera, petaloidea, persistentia, uno antico saepe  
 majore, uno postico saepe minore, aliis lateralibus in aestiva-  
 iiohe exterioribus. Discus sepalis brevior, subcarnosus, margine  
 inflexo varie et obtuse lobatus, saepe inaequalis. Stamen disco  
 antice insertum, in crura loculos 2 segregatos gerentia apice  
 divisum, persistens. Pollen (ex Schnizl.) ovale, laeve, rimis 3  
 instructum. Ovarium superum, uniloculare. Stylus apice stig-  
 mata 3, minima gerens, uno postico. Ovula 3-6, versus apicem  
 loculi in parieLe pendentia, anatropa, funiculo incrassato.  
 Fructus drupaceo-capsularis, epica^rpio carnosulo, endocarpio  
 sicco, valvis 3 medio placentiferis dehiscens. Semen abortu  
 unicum, pendulum, arillo completo carnosulo cinctum; testa  
 Crustacea, chalaza percursa. Albumen copiosum, carnosum.  
 Embryo rectus, centralis; radiculacylindrica, elongata; cotyle-  
 donibus ovatis, planis, facie adpressis, nervosis. — Frutices vel  
 arbusculai, in America meridionali intertropicali crescentes;  
 fqliis alternis, distichis, persistentibus, breyiter petiolatis, pen-  
 ninerviis, nervis secundariis paucis, tertiariis crebris a centrali  
 et a secundariis divergentibus, parenchymate saepe pellucidoet  
 tune quasi punctato; stipulis lanceolatis, caducis; spiculis sim-  
 plicibus, pluribus ex eadem axilla et aetate diversis, inde lon-  
 gitudine variantibus, raro petiolo longioribus, floribus approx-  
 imatis, minimis, bracteis margine eroso-ciliolatis, inferioribus  
 sterilibus.

Variationes in eodem ramo frequentes sunt: folia acumine  
 acuto vel obtusiusculo, basi acuta vel obtusa; numerus etlon-  
 gitududo spicularum in axilla; denique (sed rarius) sepala 5-6,  
 vel 4-5-fi, in proximis floribus. Stylus plus minus elongatus,  
 inde forsán flos fertilis an non.

Discus a sepalis admodum differt, et forma irregulari, con-  
 tundata, atque consistentia axis continuatio potiusquam folia  
 corollina mihi videtur. — Ovula abortiva supra medium parietis  
 in fructu adsunt, uno interdum praeter semen paulo evo-  
 luto.

Inflorescentia amentacea et flos equidem valde simplex Mo-

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(1) Auctore Alph. De Candolle.

nochlamydearum, sed vera affinitates videntur, ut plures dixerunt, cum Bixaceis, Samydaceis Violaceisque, propter ovula Parietalia; praesertim cum priore ordine, propter praesentiam **arilli**, nee deest punctuatio foliorum Samydaceas quodammodo revocans. Discus et placentatio Resedaceis quoque proxima.

Lozania Seb. Mutis, jam in Prodrumo (3 p. 30) memorat, sst forsan Lacistema ex cl. Planchon (Ann. sc. nat. ser. 4. v. 2. p. 265). Obstant tamen plura in descriptione: calycis tubus subventricosus, stigmata subcapitata, semina 6 (quorum 3 saepe abortiva), fundo papsulaj inserta, flores pedicellati, basi bracteola lineari suffulti.

Gharacteres ordinis.

UCISTEMA Sw. prodr. (1788) p. 12, ft. Ind. occ. 2. p. 1091. t. 21, Mart., Schnizl. U. cc.— Nematospermum lhch.inAct. ioc. hüt. nat Par. (1792) p. 105. — Synzyganthera Run et Pav. prodr. (1794) p. 137. t. 30. — Didymandra Willd. sp.it. p. 971.

### § I. Sepala 4-6.

\* Folia serrata, glabra.

• L SERRULATUM (Mart.' nov. gen. 1. p. 156. t. 9J), fohis lanceolatis acuminatis basi angustatis saepius acutis, margine remote serratis, spiculis petiolo plerumque longioribus, sepalis 6-5 lanceolatis acuminatis passim dentatis, antico basi latiore, ovano glabro. Inhasiliae prov. Rio Janeiro (Mirt.' PohM Sello! Langsdorff' Lund' Lhotskyl), et prov. Fernanbuco (Schornbium in h Mait ') — Schnizl. in Fl. bras. 1. c. p. 286. Glabcirimum. Petioh \*2 lin longi Umbi saepius 2-4 poll, longi, 8-15 hn. lati, nunc UUoies (3J poll, longi, 20 lin. lati, in specimine Selloi ex Ypanama inh. M<irt) autobovati (in spccim. •Lund, in h. nieo), dentibus vanabilibus, interdum rans biovilmsque. Sopalum anterius tngul.in-lanceol.itum, utnnque 1-dentatum, bracteam viYMiperans, alii giaditim minores. Discus amplus, 4-lobus. Fructus obovato-tnquetrus, fclubstipitatus, apite mucionulatus, 3-4 lin. longus. (v. s.)

W L. \*LORIBUNDUM (Miq. in Linn. 18. p. 24), folus obovato-oblongis abiupto longmscule acuminatis basi cuneatis raio subiotundatis lepandis ACISUS apicem repando-denticulatis spiculis petiolo lon^ior'bus, sepalis...., fiuctu 5 IVope Paramaribo (Focke). Ramuh compressi, ^kbri. Petioli breves. Limbi 9-14 cent, longi, 4-5] lati, utrinque glabn, ngide crassiuscuh, membranei, costis utnnque circ. 5, junioies sublanceolato-oblongi, 3 cent longi. Sti-Pula3 5-6 mill longas, lmean-lanceolatap, ciliolatae. Spiculae 5-12 aggregatae, }~2 cent, longae. De flore nihil cognitum. Capsuld. juvenilis substipitato-subglobosa.

\*\* Folia mtegra, glabra.

3. L. MYPICOIDES (Sw.! prodi. 2 p. (12), folns ellipticis vcl elliptico-oblongis °btusiuscule vcl acute auminatis basi obtusis vel acutis tenuiter membranace»s, spiculis petiolo saepius longioribus, sepalis 4 late lanceolatis seirulatis. ^ In Panama (Sutton, Hayes' 751 in h Mart ), Jamaici (SwJ in h DC. et Maitius, Purdie' in h. Boiss ), ad Ibague (Goudof in li. Boiss.) , m prov Bopotae (Tnana! Hartw.l 1386 in h. Mait.), Popayan (H. et B. nov. t?ön i' P- 272), Peruviaet Chili (Ruiz et Pav. in h. Lamb, nunc in h. ber. fide Schnizl )' Guyana Gallica ubi Ire(juens (Poit. f Sagot' 544, Lepneup ! 31(5) BelKica' (Kappler» 1629 in h. Boiss) et Anglica (Schomb.t 551 in h meof 'et Boi^s, 550 in h. vind ex Schnizl.), ad flumen Ama/onum (Mart. »), propo Bara Prov. Rio Negro (Spruce! 1731). — Sw. fl. Ind. Occ. 2 p.' 1093 t 21 (anal, mediocr.), Schnizl. 1. c p. 282. t. 81. f. 3. 'pfper fasciculare

Rudge IC pi Guy t 4 L elongatum Schnizl Me (ev specimne Sprucei quod Maitiano simile videtur, sepala denticulata, omnino praesentis speciei, observa\i, spiculae omnium specimnum ad maximum 6 lin longae, saepius 3 4 ncc 10 ut dixit cl Schnizl) L oblongum Spreng byst 1 p 124, e Brasi ha fide speciminis sic nuncupati in h Zuccai nunc reg monac Pipci aggregatum Berg in Act helv 7 p 131. t 10, iide Sw Nematosperejorum laevigatum Rich m Act soc hist nat Par 1 p 105 Rami juniores saepe flexuosi Petioli 1, 4 lin longi Limbi 3-4J poll longi, 1-2 poll lati nervis terti irns subtus tenuibus sed distinctis Sepalum anticum saepius obovatum, omnia quam inplerisque speciebus latiora atque dentata Discus amplus Fructus clhpsoides, 3 4 lin longus, stipite 1 lin longo (v s)

(?, *stipitatum*, fructu longius slipitato In Guyana belgica (Wullschldgel in h Mut ubi L mjncoides dicitur a cl Schnizl. Stipes fructus 1-2 lin longus, ipso fiuctu brevior Vix vanetas (/ s)

- 4 L INTERMEDIUM (Schnizl <sup>f</sup> 1 c p 282 t 81 f 2 anal et fol), folns elliptico lanceolatis obtusiuscule icuminatis prope petiolum obtusis vel acutis, spiculis gnubus petiolo brevioribus vel aequilibus, sepalis 4 6 lineam lanceolatis integris stylo perfecto \alde exseito ) In Brasilia ad Rio et Bahia (Sello, h bci , ex Schni/1) in prov Uahiae (Blanch » 2191), etprov Para (Mart <sup>f</sup> h monac ) Petioli 3-4 lin longi Limbi 4-6 poll longi, 1}-2] poll lati, margine (in sicco) revoluti, nervulis subtus paucis emmentibus lolia juniora ad petiolum ot nervis subtus paucis pubescentia, adulti glabra Spiculae 6 8, lineis 3-8 longae, propter stylos exsertos pmo ad aspectu undique iculeclis donatae Bnctea concava, obtusissima Sepali gracilid ex Schni/1 6, sed solum 5 vel 4 in plunhus herb monac et Blanchetn inveni, unde vnsimiliter 4 6, in flosculis femin saepius 4? Discus brevis, sub-4-lobus. Fructus subglobosus, bieviterapiculatus, ex unico obs 2] lm longus (v s)
- 5 L UONUSTUM (Schnizl 1 c p 281 t 77) folns majusculis ellipticis obtusiuscule acuminatis basi in petiolum attenuatis, spiculis petiolo brevioribus vel cequalibus, sepalis lineam-lanceolatis integris, fructu majusculo ^ In prov Bahi T iLhotbky in li bcr , id in li Jf », Bhnch ' 122) Petioli 4-8 lm lon^i Limbi \* > 7 poll longi, 2 2) poll lati, nwgine (in sicco) revoluti Spiculc 6 8 in axilla petiolo sub<Lquales Bra<tea3 latde, ovatae, glabrusculae, bepala 4, lanceoldta ex Schni/1 , sed ex specimibus meis Lhotskyi 6, lineam-hncpohta, utin plensque BlanLhctn 1 ructus ex specim Lhotskyi obovoideo-tngonus, 3-\*) lm longus, obtusiusculus vel breMter mucronulatus, subsesilis An solum var I intermedii<sup>9</sup> Unicam speciem legisse videtur Lhotsky, qucp ex specimibus meis de numero sepalorum cum beiohn non quadriat, sed character lor an vagus (v s)
- 6 L ANGLSTUM (Schni/1 1 c p 28J t 80), folns oblongo-lanceolatis acute vel obtuse acuminatis basi sxpius acutis membranceis, spiculis petiolo brevioribus vel rquilibus , sepalis 4 subasquibus obovato-ellipticis denticulatis j In regione Para (Schomb n 1092 in h vindob, ex Schnizl ), e Para sub num 1092 sine nom coll aut e Surinam a Wullschldgel sine numero (ex h Mart I ubi L angustum >ocatur) Petioli J-0 lin longi Limbi 4 5 poll longi, 10 IT lin Idli, mir^ine (in sicco) moluti Spiculae tenues Bractea concava, obtusa (noc ut in ic acuta), subciliato erosa bepala omnia crenulata (nee ut in ic anticum solum) Discus amplus, obscure 4-lobus, Jobis 2 antice et postice veisis, sepal i hinc fere aequans (v s)
- 7 L BLANGHINI, folns clongato ellipticis acuminatis basi longe in petiolum angustatis membranaceis, spiculis petiolo brevioribus, &epals 6-5 anguste lanceolatis integris () In prov Bahiae montibus Jacobma dictis, ad Mentiba (Blanch ' iD22) Glabernnum, etiam in novellis Petioli 4 5 hn longi Limbi 4 6 poll longi, 10-16 lm lati, non propne oblongi propter nurgines non panlleclos, icumine obtusiusculo vel acuto Spiculæ 1 12 in eadem axilla, ex specimne 2 4 lin longae, \nsimihter interdum longiores Bractea concava, obtusissimd Sepild antenord quam bractea sublongiora Discus medioens, obscuie lobatus Ovanum pilosum, in plunbus flonbus fertile videtur, sed junius I x fohit, pmo adbpectu L angustum, sed spiculis brevioribus et pis

sertim bractea integrid, bracteois angustionibus sepalsque diversissimum (v s)

- 8 *L. BECURVUM* (Schnizl 1 c p 283 t 81 f 4 de fol etanal), folns o\ato ellipticis acumine obliquo basi obtuse angustatis, spiculis petiolo subbreuiouibus, sepilis 6 1 nean lanceolatis, fructu subgloboso stipi\to *b* In Brasilia a Rio de Janeiro ad Bahiam (Sello in h ber n 776 ex Schnizl 1 c , Sello<sup>1</sup> 776 in h Mart sub nomine errore scpto? *L. rostratum* Schnizl ), ad Porto Bello (Billberg ex Schni/1 m h Mart ubi tamen noninveni), Guyana bnt (Schomb in h ber ex eod ), ad Maynas (Poepp in h vind ex eod ) et Sun nam (Sphttgēib in h \md e\ eod ) Petioli 2-4 lin longi Limbi 4 Spoil longi, 1-} poll lati, nervis lateralibus 4-5, margine apicem versus subdentito (ex descr ), integro (ex ic et specimine 776 h Mart ) Folia nascentia subtus adpresse pilosa, ex specim cit h Mart Sepala late lanceolata (ex descnpt), anguste lanceolata (ex ic et specim cit), antice bractea longiore (v. s in h Mart)
- 9 *L. conixrEUM*, foliis ellipticis acute et anguste acuminatis basi obtu9is hrmis, spiculis petiolo longionibus, sepalis 4 antice Jaterahbusque late ovatis cienu latis postice ovato mininio ;> Ad Rio Negro Brasiliae, prope San Carlos (Spruce<sup>1</sup> coll 185\*4, n J082; Rami glabernmi Petioli 2 3 lin longi Limui 3 Tpoll longi, 1-1 ] poll lati non pellucidi, nervuhs tamen subtus eminentibus mai-gine (sicci) levoluti acumine saepe obliquo Pih sparsi, brevissimi, adpitsi, in pngina infer loliorum juvenilium Racemi plerumque pauci in axilla 3-12 lin longi passim iructus 2 4 praebentes Bractea flons cujusse concata margine subintegra Bracleolae hneares Sepalum anticum quam bractea sub longius Pructus junior o\oidcus, glaber, vix 2 lin longus, teres (v s in h meo, et Boiss )

\*\*• Folia Integra pubescentia vel parce pilosa

- 10 *J. LUCIDUM* (Schnizl » 1. c p 282 t 79 et 81 f 5), folns ellipticis obtusiuscule vel acute acuminatis basi obtusis vel acutis supri glabriusculis subtus petiolis nmulisque pilis minimis adpressis pubescentibus, spiculis peliolo s ibaequahbus, rhachi pilosa, sepalis 6-4 subulato lanceolatis, anlucis denticulate, fructu subgloboso costato pissim piloso (} In prov Rio Negro prope Barra (bpruce' anno 1851, n 1844 in h Df , Boiss t Marl) Pelioli J lin longi Limbi 4 o poll longi, L5-20 lin lati non pplucidi, in sicco palhdi, imbecissima al lentem etrun in adultis videnda Spiculae 2 \*> lineas 3G lon^ae pubescentes Floirs magis quam m alus sp distincti Briiciea obtusa, naedio brevissime mucronata (minus quam in ic cit) Sepalum anticum brie team vix supeians, lateiaha similia mag s denticulata (nee Integra ut in ic ), posticum minus Fructus 3 hn longus (v s)
- 11 *L. PozppiGii*, folns ellipticis obtusiuscule vel acute acuminatis basi nbtusis vel subacutis supra glabriusculis subtus in nervis et petiolo ut m ramuhs pilis minimis uipies^is pubescentibus, spiculis petiolo subaequahbus, sepalis 4 aequalibus obovatis subitutus passim dentatis fructu o\oideo breviter stipitato glabnuscule. ^> In rogonibus mternis Amenciae mend (Poepp ' 2735) Petioli 3 lin longi Limbi 2 3 poll longi, 9 12 lin lati, nervis lateralibus utnniue solum 3, tertiarns ut vulgo crebns, parenchymate opaco, margine On sicco) revoluto, pilis extra norvos subtus vix sublente poispicuis aut nul lis Spiculae 4 lin longae, densiflorae Bracteaoblusa Sepila Iatioraquam vulgo «<sup>j</sup>n genere et praesetim similia, bractea vix longiora Discus mediocn«, sub lobatus Ovanum glabrum Iructus junioi 4 lin longus (v s)
- \*2 *L. PURPUREUM*, foliis elhptico-v oblongo lanceolatis acuminatis basi saepius acutis membranaceis integris vel remote repando subdenticuhtis, supia gla bns, subtus in nervo pi lis adpressis paucis pubescentibus, spiculis petiolo non longionibus sepals 3 (postice deficiente) oblongo lanceolatis denticulatis subaequahbus, fructu stipitato glabiiuscule 5 In Peruviae umbrosis Muna pt Pillau versus Chacahuassi Syn/yganthera (genus) Ruiz et Pa\ prodr p 137 • 30 Synzyg purpureaR etPav » sy\*« p 273 Didymandia purpurea Willd »P p 971 Rami cinerci ghbn Ramuh etiam gl bn Stipulae lanceolaU



- 3 lm. longae, adpresse pilosae, caducae Petioh 3 hn iongi, supra glabn, subtus passim pilosi Limbi 3-4 poll longi, 1 1J poll lati pilis ut in L Poep-pign, \*ed ranonbus, nervis non crassis, late alibus utrinque 0-6 Spiculae 1 8, confertiflorae Biactea late ovata, eroso denticulata Bracteolae 2, minimae, lineares Sepala inclusa Discus maximus, bracteam fere aequans, antice fis-sus, alibi obscure lobatus Ovanum minimum ?ructus cum stipite 1 lm longo semipollicans junior obovoideus obtu«us teres Flores ex uno amento, pluresapern, ubi constanter sepala 3 vidi, ovano tunciuniore glabnusclo mcluso ? vetustiores fructigen non divert videntur. Affinis L myncoidi et Poep-pign (v specimen authent in h Boiss )
- 13 L POLYSTACHYUM (Schnizl • 1 c p 284 t 78), folns elliptxco acuminatis basi obtusis vel rarius acutis utrinque in ner\o subvelutinis alibi glabuusculis, ramis petiohsque pubescentibus, spiculis crebns petiolo longioribus, «epdhs 4-6 lmeai lanceolatis subaequalibus acuminatis passim denticulatis, fructu . fr In vicinibus Santarem prov Para (Spiuce' sine num in h meo et Boiss sub n 220 in h vind et monac ) Folia hinc in speciminihus deflexa Petioli 2 lin longi Limbi 3-5 poll longi, 1 2 poll lati, margine integro revoluti, opaci Spiculae in axilhs foliatih et defoliatis plummse, parum distan-tes, 6-8 lm longae Discus parvus (v s)
- 14 L PUBE^CENS (Mart ' nov gen 1 p 155 t 94) , folns obovato-v elliptico oblongis acuminatis basi acutis vel obtusis mtegn vel ad apioem subdentatis supra glabnusculis subtus pubescentibus, spiculis petiolo sublongionbus, sopalis 4 5 lanceolat s acuminatis margine sub lenticuhtis, fiuitu subsessili otoirioo tnquetro mu lonulato glahrato 5 In Brasilia fiequens (Lund<sup>1</sup> 257, Wedd i 751), piov Rio de Janeiro (Mart ' Gaudich' 1073,Casar ! 166i, Gomez<sup>1</sup> Widgren 423), prov Minas Geraes (Gardn '5180 Ackermann' in h Mart), Para (Mait Spruce' sine num in h Boiss ) — Schni7l 1 c p 285 t 87 f 2 et 81, f 6 Petioh 3-5 lin. longi, pube&centes Limbi 3-6 poll longi, 1 2 poll lati, supra in nervis breviter velutina, alibi glabn vel passim pilosa, subtus ad nervos praesertim tomentosa, margine (in sicco) re-voluta, nunc passim subdentata Stipulae lanceolatae, acuminatae, 5 6 lm\* longae, dorso pubescentes Discus 3 4-lobus Fructus 4-5 hn longus, subses-silis (v. s )
- 15 L tinPTicuM (Schni/1 lc p 285), foli9 elhpticis breviter acuminatis basi rotund itis supra lasvigatis, subtus simul cum costispube densa obsitis, spicu-lis numerosis, sepalis 6, fructu breviter stipitato tuangulan elongato-turbi-nato vix mucronato glabio — In Brasilia, loco nat ign (Pohl in h vind n 4400, Sello in h bei ) R muh dense pubescentes Petioli 4 hn longi Limbi mtpgeriimi, subiepandi, costis laterahbus f 7 Spiculae 10 15, solita magnitudme generis Flores (ex cl auct ) squamulis 8 lineanbus flexuosis, unde suspicor2 bracteolae et 6 sepala Discus 3 lobus, lobis emarginatis, sub aequalibus, tnanKulanbus. Ovinum pubescens Fx cl auc'ore valde affinis L grandifolio, folns tamen minonbus et liuctu glabro, sed flos diver9issimus videtur et mi hi I pubescenti propioi apparet.

## § 2 *Sepala nulla Folia mtegra pubescentia.*

- 16 L GRANIPOLIUM (Schnizl 1 c p 284), folns elbpticis vel oblongo ellipticis acuminatis basi obtusis vel acutis supra parce subtus copiose pubestentibus mtegn, spiculis plummis petiolo longionbus folio delapso diu perstantibus, flonbus dissitis, sepalis nullis, fiuctu ovoideo triquetro mucronato pubescente 3 In Guyana galhca fiequens (bagotl 111 Lepneui 1 318, etc), ad Surinam (Hostcuann' P66 in h Boiss), in pro? Rio Negro (Spruce' 1778 in h DC et Boiss quod Schnizl nescio qua ciusa ad L pubescentem retulit), alibi in Brasiln (Gardn n 1266 ex Schnizl) Rami petiolique fulvi, pubescentes Pe-tioli 2 3 lin longi Limbi 3-6 poll longi, J 3 poll lati, vix pellucidi, margine (in sicco) revoluti, luniores fulvi Spiculae 5 6 lin longae, graciles, in parte ramorum defoliata frequentiores, vetusti dissitiflon Bractea late ovata, brac-teolae 2, anguste lineares, ligulatae, mflexae, bractea multo longiores Sepala nulla Discus parvus, sublobatus \*ructus 4 5 hn longus, subsessilis, atioiu bens (ex Sagot) Habitus L pubescentis (v s )

*Species exclusx.*

L. ALTRRUM, Spreng syst. 1. p. 124 (L. Berterianum Schult. mant. ad vol. I. p. 66); sp. e St. Domingo a Bertero allata> fide speciminum Berteroi in b. meo et h. monac. = *Mynca altera* Gas. DC. (1).

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(1) MYRICA ALTERA, foliis breviter petiolatis obovato-oblongis apice obtusis et subobtusis basi longe cuneatis versus apicem passim dentatis utrinque globosis, amentis masculis solitariis. bractea obovato-subrotunda margine ciliolata dorso glandulosa, bracteolis 2 liberis ciliolatis, staminibus 3, filamentis post antbesin elongatis exsertis liberis, femineis simplicibus solitariis bractea conl'ormi decidua, bracteolis 4 ovatis obtusis ciliatis dorso aureo glandulosis, ovarioovoideo apice attenuate, stigmatibus 2-3 plerumque 2. 3 <sup>in st. Do<sup>^</sup>"<sup>^</sup>'</sup> Ramuli petiolique juniores partim pilosi. Folia (incluso petiolo 0<sup>m</sup>,003 - 0<sup>m</sup>,004 longo), 0<sup>m</sup>,05-0<sup>m</sup>,06 longa, 0<sup>m</sup>,011 - 0<sup>m</sup>,016 lata. Amenta petiolo sublongiora. Fructus ignoti. — Species post sp. 16 in ProdromoXVI, sect. 2. p. 150, in sectione prima generis collocanda. (Gas. DC. y. s. ctdescript.)

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Ordo LXXII. HALORAGEE, supra in *Prodr.* 3. p. 65. — GUNNEREJE (Tribus HALORAGETS addenda) (1).

Urticis affinis *Juss. gen. p.* 405. — Artocarpearum genus *Bartl. ord. p.* 105. — Urticearum trib. *Misandreae Gaudich. voy. Freyc. p.* 512. — Urticaceis affin. *Gunneraceae Endl. gen\* p.* 1376 {anno 1840?}; *Hook. f. fl. ant. 2. p.* 273, *Brnth. et Hook. f. gen. p.* 676. — Araliacearum gen. *Lindl. veg. Kingd. p.* 781. — Halorageae subordo *Gunnereae Blume Mus. Lugd. bat. 2. p.* 99. — *Gunneraceae Ag. fd. syst. p.* 329. t. 24. f. 9 (ovulum); *Le Maout et Decsne, traile de bot. p.* 254.

B'lores hermaphroditi, monoid vel dioici, saepius in spiculas secus rhachim vel spicam dispositi, femineis (quando monoici) in inferiore parte sitis. Calyx bilobus, lobis erga axim spiculae antice et postice sitis (2). Petala obovata, caduca, 2, cum lobis calycinis allernantia, velpetalum unicum, vel petala nulla, in flor. iemineo semper carentia. Stamina fl. herm. et masc. duo, petalis opposita, serius persistentia; filamentum lineari; anthera erecta, biloculari, rimis 2 lateralibus vel subintrorsis dehiscente. Pollen laeve, tetragonum (ex *Unit.-St. explor. exped. t.* 79). Ovanum in ft. herm. et fem, inferum, uniloculare; ovulo ex apiceloculi pendente, anatropo. Styli, sive stigmata 2, basi plus minus coalita, linearia, papilloso-pilosa, staminibus et petalis subppposita. Drupa minima, ovoideo-compressa, putamine crustaceo. Semen pendens : albumine copioso, carneo-oleoso. Embryo minimus, obovoideus, inferne breviter bilobus. — *Herbae elatae, modo Rhei vegetantes, vel humiles et tunc plerumque stoloniferae, in humidis hemisphaerii australis et regionum tropicalium sparsae; foliis et scapo e squamis membranaceis rhizomatis surgentibus; petiolis elongatis; limbis palminerviis, rotundatis, lobis brevibus vel margine crenatis Uentatisye, nervis lateralibus prope petiolum in ipso margine limbi sitis; spiculis bracteatis, floribus singulis plerumque nudis. Flores non satis in statu juniore cogniti; petalis delapsis facile apetali videntur. — Olim Urticaceis adjunctum genus, quoderroneum probavit, jam anno 1838, cl. Bennett, in egregio opere infra citato; dein Araliaceis, a cl. Lindley; serius Halorageis ab ill. Endlicher et praesertim a cl. Hook, f., mediante genere australasico Meionectes Br. (3). Situsflorum erga axim,*

(1) Auctore Alph. De Candolle.

(2) Ex Gray in *G. petaloidei*, ex me ipso in *G. perpensa* et *G. bracteata*.

(3) Characteres *Meionectis* omnino cum *Gunnera* conveniunt, sed stamina 4 adsunt, quorum 2 petalis opposita, 3 alterna, et ovarium biloculare. Confer aa *Hook. f. m Hook. ju. t.* 306. *Fl. Tasm. I. p.* 123, et *Benth. et Hook. f. gen.* 1. p. 675.

et partium floris invicem, **in omnibus non satis cogniti.** — Transitus frequentes inter flores dioicos et monoicos (*G. cordifolia*), et inter petaligeros et apetalos (*G. monoica* et *G. tagellanica*, certe affines), unde genus ne quidem in subgenera dividendum esse videtur, saltem ex characteribus hodie cognitis.

GUNNERA Linn. Mant. p. 16 c<sup>^</sup> 21, amoen. 7. p. 495; Juss. gen. p. 405 el 452; Ruiz et Pav. fl. per. 1. p. 29. t. 44; Benn. in Horsf. pi. rar. jar. p. 71-74. t. 15; Endl. gen. p. 285; Hook. f. fl. ant. 2. p. 273; Blume Mus. L. B. 2. p. 99 et 170. — Perpensum Burm. prodr. Cap. p. 26. — Panke Feuiltte. — Misandra Comm. ex Juss. 1. c. — Disomene Banks et Sol. ex Forst. Comm. Gott. 9. p. 45. — Misandra et Gunnera Gaudich. voy. Freyc. p. 512. — Milligania Hook. f. in Hook. ic. t. 299 {serius ab ipso aucl. relict). — Pankea, Pseudo-Gunnera, Gunneropsis, Gunnera, Misandra, Misandropsis et Milligania, OErst. plant, nov. Centro-Americ. p. 6, in naturh. Form. Vidensk. 1857.

### § 1. Flores hermaphroditi. — Herbse elatae,

\* Flores petalis donati. — Gunneropsis (Erst. 1. c.

1. *G. PETALOIDEA* (Gaudich. voy. Freyc. p. 512), foliis orbiculari-reniformibus obsolete et obtuse lobatis margine subdentatis reticulato-rugosis supra glabrusculis subtus in nervis nervulisque pilosis, petiolis sparse muricato-punctatis pilosis, scapo foliis longiore, spiculis approximatis basi bractea linearisuffultis, lobis calycinis ovato-triangularibus apice subdematis. <sup>^</sup> In insulis Sandwich Haivaii? (Gaudich.), Maui (Un.-St. exped.) — A. Gray Un.-St. expl. exped. 1. p. 629. t. 78 et 79 A. Habitus *G. Chilensis*, serl petala adsunt, et inflorescentia laxior. Limbus 1½-2 ped. latus, lobis latis. obtusis; petiolus limbum subaequans. Scapus et pedunculi pilosi. Inflorescentia *G. macrophyllae*, sed flores hermaphroditi. Bractea 6-9 lin. longae, lineam latae. Petala 2, cucullata, undulata, tarde decidua.

p, *Kauensis*, fere glabra, bracteis brevioribus. In Kauai (Un.-St. exp.).

2. *G. BRACTEATA* (Benn. in Horsf. pi. Jav. rar. p. 75), foliis orbiculari-reniformibus, lobis plurimis obtusissimis margine cartilagineo-denticulatis, adultis utrinque glabris, junioribus supra sparsim subtus ad nervos uervulosque pilosis, spiculis secus rhachim bracteis foliaceis lineari-oblongis basi angustatis dentalis elongatis intermixtis, floribus plerumque monopetalis, lobis calycinis ovato-acutis apice fimbriatis intus crassis. *Jfi* In insula Juan Fernandez (Bert. l. n. 1463, sub nom. *G. scabrae*). — Blume Mus. L. B. 2. p. 102. *G. scabra* Phil. in Bot. Zeit. 1856. p. 643? *G. insularis* id. ib. (fl. ign.), forsan eadein sp. junior. Exoptimo specim. ad. Bert. comm. petioli 9-12 poll, longi, juniores pilosi, adulti glabri. Limbi 6-10 poil. lati, adulti firmi. Spiculae graciles, 2-6 poll, longae, basi nudae. Bractea 1-2 poll, longae, adpresse pilosae. Flores sessiles, hermaphroditi. Petalum saepius unicum, 2 lin. longum, obovato-cucullatum, diu erectum, serius patens, (v. s.)

\*\* Apetali. «« Pankea (Erst. 1. c.

3.-*G. INSIGNIS*, foliis maximis subrotundis cordatis, lobis plurimis acutiusculis inaequaliter serrato-dentatis, supra verrucoso-scabris, subtus ad nervos nervulosque pilosulis, scapo post anthesin valde elongato, cilycis laciniis dentiformibus elongatis basi excerpta caducis. *f>* In Costa Rica, alt. 6-8000 ped. Pankea insignis (Erst. plant, nov. Centro-Americ. 1857. p. 3. Rhizoma horizontal, crassum, squamis 8-9 poll, longis, 3 poll, latis, apice laciniatis tectum. Limbus 4 ped, latus, 1 1/2 ped. latus, breviter multilobus. Flores hermaphroditi conn. scapum in spiculas numerosissimas congesti. Scapus florifer 1-1 1/2 ped., fructifer 4-5-pedalis. Spicula fructif. 6-7-poll. Bractea basi spiculae lanceolatae, 1 1/2

- poll, longse, apice subserratae. Flores vix lineam longi. Dentes calycis ex desc. stamina subaequant, ex phrasi anthers dimidio breviores. Petala ex cl auct. nulla. Fructus compressus, vix lineam longus.
4. *G. CHILENSIS* (Lam diet 3 p 61), folns orbiculati-reniformibus 5-13 lobatis, lobis ovato-acutis irregulariter dentatis, supra sparsim et petiolo muncato-scabris pilisque passim intermixtis, subtus in nervis nervisque pilosis, saepe saepius in his brevioribus spiculis approximatis calyce bidentato. *if* In humidis Americae meridionalis Caraocis (Purdie ex Hook t. fl ant 2 p. 273) per Peruviam (Dombey! 924 ex h Mus par.), Boliviam (Mandon' 598) et Chili (Kunth, Bert. 1039) usque ad archipelagum Chonos (Darwin in Hook cit.) — Lam. ill t. 801, a, (Iconi Feuill mut), Benn in Horsf pi Ja'an rar p 75, Gay fl-Chili 2. p. 3b3, Bl. Mus L. B. 2 p 100, Panke anopodophylh folio Feuill Journ obs 2 p 741 t 30. *G. scabra* Ruiz et Pav fl per 1 p. 20 t 44. *G. pilosa* Kunth in H et B nov gen 2. p. 24. Caudex nunc maximus, etiam ulnans ex R et Pav. Petiolo 6-10 poll, longi; limbi saepius 9-15 poll lati Scapi etiam 2-6 ped ex Ruiz et Pav. sed vulgo breviores ex specim. meis et icone Cel Darwin, folia 8 ped lata vidit, in insulis Chonos, sed species non certissima. An una e spec in Juan Fernandez ciescentibus? (v. s)
- 5? *G. COMMUTATA* (Bl. Mus L. B 2 p 100), folns cordato reniformibus sinuato angulosis eroso-denticulatis utrinque subpubescentibus et in nervis subtus petiolisque submuncatis, scapi spiculis fructifens elongatis subsessilibus bractea hinc suffulsa. — In Chili (sub nom *G. scabra* a Mus par miss) Folia 6-5 poll lata scapi fructiferi 4-7 poll longi Differt a *G. Chilensi* forma foliorum, et praesertim spiculis magis elongatis et bracteis latioribus Ob rachim spicium fructif per pollicera fere ad apicem attenuatam nullam, hic masculos antea flores iuisse, eamque igitur monam esse suspicatus est cl. auctor
- 6? *G. PELTATA* (Phil in Bot Zeit. 1856 p. 643), caulescens, caule 2-3-pedum arecto simpliciter ex apice folia et flores emittente, foliis magnis peltatis concavis lobatis lobis acutis dupl. dentatis rugosissimis supra scabris petiolo nervisque munitis, spica lem. composita, pedunculis partialibus hliiformibus elongatis. — In ins. Juan Fernandez, Caulis crassitie lemons humani, cicatricosus Petiolo 2-3-pedales Limbus 1-3 pedum, supra tuberculis siccitate albidis inter nervos asperimus Nervi majores sicut petiolo muricati. Pedunculi partiales 6 poll, fere longi.

## § 2. Flores unisexuales.

Monoici, masculi, petaligen

A. *Herbw elatx* — *Gunnera* et *Pseudo-Gunnera* OErst. I. c

7. *G. PERPENZA* (Linn. Mant p. 121), folns longe petiolatis orbiculato-reniformibus cordatis crebrius crenatis dentatisve supra glabris subtus in nervis et nervulis petioloque pilosis, scapo folia superne, spiculis in imbricis superne approximatis bractea oblonga persistente stipatis, calyce bidentato. % In Promont. Africae australis, locis humidis — Thunb. fl. cap. ed. Schult p 32, Tinning in Linn amcen ac 7. p. 495; Bot. mag t. 2376; Harv et Sond fl cap 2 p 571 Benthum Africae Calthae palustris folio Pluk Phyt t. 18 Perpensum blitisperrum Burm prodr Cap p 26 Petiolo 12-18 poll, longi Limbi 6-12 poll, lati, crenis nunc rotundatis, nunc longioribus ovatis. Scapi 2-3 pedales, passim pilosi, ad longit in spicam mutati Bractea 2-3 lin. longae obtusae, apice lepidotae. Spiculae inf. fere sparse, bractea longioribus. Petala fl. masc. 2, obovata.
8. *G. MACROPHYLLA* (Blume bijdr p. 513), folns amplius orbiculato-reniformibus margine repando-sublobatis crenato-denticulatis supra sparsim subtus in nervis nervisque pilosis, petiolo spicisque fulvo-hirsutis. scapo folia sequente ramis approximatis bractea oblongo-lanceolata suffultis, lobis calycinis lanceolatis basi ovata persistente ^ In Java inter 5 et 7000 p. alt (Bl., etc., Zollf n 1954) et Sumatra (Miq in plant Jungh p 70) — Benn. in Horsf pi Jay rar p 70 t 15 (ubi pili foln male distrib.), Bl. Mus. L. B. 2. p. 501.

G erosa Bl m Verh Batav Genootsch 10 p 81, fide Mm Herha >TM<sup>OH</sup> Petioh 1 2 pedales Limbi 6-16 poll lati Mores masc petah\* 2 t J ^ L cihatis cucullatis caducis donati Flores aliquot hermaphroditi interdum adsunt, ex cl Benn (v s)

B HerbsL humiles, stoloniferac. — Misandropsis GEnt I c.

9 G MONOICA (Raoul m Ann sc nat ser 3 v 2 p 117) pusi'la stolonifera, foliis orbiculauhus cordatis minimis 3-5-lobis crenato dcentatis supra sparsim subtus ad nervos petuloque pilosis, scapis folia sub<equantibus, flonbus ex axilla biactae Unceolatae, fern subsessilibus, masc breviter pedunculatis petaligens, lobis talycinis amlorum lanceolatis subcihato fimbriatis X in Jfova Zelandia — Raoul Choix pi N Z p 15 t 8 (ubi flos masc malefic), Blume Mus L B 2 p 103 et 176, Hook f fl New Zel 1 p 65 Habitus hydrocotyles Vegetatio G Mdgellanica, sed monoica et petahs donata Petioh 6 15 hn longi, limbi 3 6 lin lati, crenis obtusis vel medio acutis Stolones glabriuscul Flores fem stylis longis hneanbus, masc petalis cucullatis, Cduuissimis, fimbriatis (v s)

10 ? G PROREPENS (Hook f Fl Nov Zel 1 p 66) surcuJosa parce pilosa ^el giabrata folns longe petiolati venari vel ovato oblongs obtusis basi subcoi-aatis vel in petioJum angustatis crenatis, floni us n spicam elongatam dispositis ? , o n ? , va Zelandia Vu' g o m <ijor quam G monoica, 1-10 poll afta Surcuu 4 8 poll longi vilidi Petioli 4 S poll longi, limbi 1 2 poll subp-losi Sc>PI In 61 Ud f > h lu m D ru P\* sessiles laxe spicats, rubra Flores ignoti r pi Or. Ren S O k f , m ' , Int 2 P TM ' » TM t est ^ G monoica, ex ipso auct in F' N Zel

\*\* Monoici vel saepius dioici, apetalis Heiba humihs - Milligania Hook f olirn, (Erst 1 c

11 f. n y CRD OLLA (H o) f FI q smai, p 125 humills follis brevit ei petiola - tis ovato vel subeordato lotundatis obtusis >lsure crenatis supra glabns sub- tus in nervis petiolisque hirsutis, scapo masculo (nunc androgyno) folns sub- rraut orveclne o minore, 10, Ml X5'' >^ in > q iaf bus oblong s^ hat V, , pe L & nullis 2f In Tasmanniaeseu Van Diemen humidis alt 3 M)0 ped sociahs Mulli ga > ^ C 0 d l a T f S H o k I C X ^ m i i t a t o n o m l i S . ' . S k t U S n r - S i P n l T a l A U S p l a d t l \* I I I I s ^ > o l o n e s n u l l . J o i n p a e n U a . p e - Uolo6-12 lin longo limbo 1 1 ; poll longo ex ic serrato, ex desc. m FI Tasm crenato I loies masc spicati subsessiles, antheise 1-2, subsessiles bibraeat\* (ex Hook .n calyx^ ) Flores fem in cipitulum condensati, auJ mterdum basi spicae masc sparsi Lobi caljc.s 2 aiftice et postice siti, ad- junctis interdum 1 2 minonbus Bacca rubra, magnitudme afbT

\*\*\* Dioici, apctah Herbae humiles et stolonifera - Misandra Gaudich 1 c, Of>1 c (pro parte)

12 G LOBATI (Hook f.Flant 2 p 274) humihs, stolonifera, folns orbiculareniformibus 5-9 crenato lob^tis conaceis, in nervis subtus pilosis marmne obscure ciliatis, petiohs stngoso hirsutis, scapo masculo folia subaequante lem brevior, flonous ebractois apetalis mascuhs subpedicellati^ femme.Q sossihbus, lobis calycims ovatis obtusis if Jn monlibus Terras igneae rara A GraymBot Unit St exal. Exped 1 p 632 t 79,11 Habitus S MonoiS, seddioica Petioli 3 - 5 lin longi pilis ereUis, puipureis limbi 3-9 lin It, 5 7 vel m stenlibus9 13 lobi, lobis obtusis GiKx fl masc e lobis 2 filifmm hneanbus glabns constans Styh basi subconnati et lbi mcrassati

13 0 MAGULANICA (Lam diet 3 p 61, ill t 801 f 2), humihs, stolonnifera, Joins orbiLulan-reniformibus crenatis supra glabnscuhs <ublu, m ..... , petioloque plus minus pilos s, scapo masculo Toha superante ipminai , ne k V I S viore, flonbus apetahs masc se us lhachim breviter peduncuUhe ! ? n L n ^ latis, fem sessilibus lobis calycims lanceolatis ^ In Si Mai sive falkad (Comm i Dury i), leira del Fuefo, (Hwk f) i ^ lan (Lechl t 158), ChL det La l r i o W o 1 a t (Ga, n C 1 Sorate Bol-

\i>alt. J300-3J00 *m* (Mandonl & 97) et prope Antisana (James ')• — Blume Mus. L B 2 p 103, Hook f ft ant 2 p. 273. Mi sand ra Co mm heib. G ph catdVahlen 109 G Falklandica Hook IC t 489 et 490 Folia 1-2 A } poll ldtā, petiolo 1-3 poll longo, plus minus profunde cordata Scapi masc 2 } 3 poll, alti, race mo spiciformi terminati Antherae hneam fere lengae, filamento longiore\* Styh filiiormes, pilosi, olongati (v s )

14. G. INTGRIFOLIA (Blume Mus Lugd bat 2 p 171) humilia, stolonifera, folus reniformibus crenatis supia glabns margine subciliatis subtus in nerus petiolisque pilosiusculis, scapo masc Coins longiore fern lireviore, flonbus apetalis, mascuhs brevissime pplUcellat<sup>^</sup><sub>J</sub> lobis calycinis hneam lanceolatis *If*- Ad f re turn Magellamcum Disomene Forst Comm Gotting 9 p 45<sup>^</sup> Bankb et Soland. ic med in Mus Banks G Magellanicaesynon ex Hook t fl ant quod negat cl Blume, ex sptcimme aulhentico in h Vmdob Folia o7 hn longa, b P lm lata, petioio 5 8 lm longo, grosse creinta phcata Diupae magn pisi minuti, rulae Nomen pessimum. S[>ecies vix seivanda vuletui

*Species non descnpta.*

G MANICATA horti linden, ex Belgic. hortie 1867 p 10» E Campos de Lage Brasilia? mend. (Libon)

*Species exclusa.*

G. SONCHIPOLIA Mirb (fide Steud nom ) seu Panke sonchifolia Willd — Fran-coa sonchifohd Cav , supra 7 p 777

Ordo XXIX bis. ANCISTROCLADEJE (1). — Malpighiacearum genus *Am.* in *Nov. Act. nat. cur.* 18. pars 1. p. 325. — *Ancistrocladeje* *Pawl.* in *Am. sc. sc. naU. sér. 3\** v. TM. : ?? 317;; *Schnizl. ic. fam. fasc. 17. (ic. e div. iconibus).* — Dipterocarpearum genus *Benth. et Hook. f. gtn. p. 191.*

Calycis tubus brevis toro vix distinctus; lobi 5, aestivatione quincunciali, interiores paullo majores, post anthesim magis quam exteriores accrescentes. Petala 5, lobis calycinis alterna, juxta eorum basim inserta, basi subcohaerentia, aestivatione sinistrorsum vel dextrorsum (in eod. ramo) contorta. Stamina 5-10, petalis alterna, vel alterna et opposita; filamenta basi planis cum petalis paullo adhaerentia, supra liliformia bbera; antherse erectae, biloculares, loculis fere introrsum rimis longitudinaliter dehiscentibus, connectivo non apiculato. Ovarium inferum, 1-loculare. Stylus liber, crassus, persistens. Stigmata 3, oblonga, stylo subaequalia, rigida. Ovulum unicum, fundo loculi insertum, anatropum, globosum, sinuoso-sulcatum. Fructus ex calycis tubo lobisque accretis prffsertim constans. Semen globosum, intra cavitatem inferam ovarii, spermodermio tortuosolobato cerebriformi. Albumen in arinaceum sinus spermodermii implens. Embryo (ex Thwait. loc. infra cit. et Benth. et Hook. in Journ. Linn. soc. 7. p. III, non antea in Gen. plant.) radícula infera, obtusa, crassa; cotyledonibus ovatis, subfoliaceis, divergentibus, radícula paullo brevioribus. Frutices ex Asia meridionali, srboliferi, scandentes saepius glabri, uncis circinatis sub nodis ramulorum sitis-foliis alternis, frequenter apice ramulorum aggregatis. Penninerviis, integris, petiolo nullo vel brevissimo, saepe lepidoto-punctatis, vernatione (ex Thwait.) convolutis; stipulis nullis, racemis axillaribus vel subterminalibus, foliis brevioribus/bracteis alternis, minimis, caducis, pedicellis brevissimis.

Affinitates majores cum Dipterocarpeis non neganda, tamen pluribus characteribus magni momenti different, nempe: stipulis nullis, lobis interioribus calycis, nee exterioribus, magis accrescentibus (quod hue usque prater visum); stigmatibus multo majoribus; et prffsertim ovario (etiam in alabastro) uniloculari, ovulo unico basilari, unde radícula infera; tandem albumine copioso. Ex hisce affinitates adsunt cum quibusdam Olaceis, et analogis tantum cum Gyrocarpeis (Lauracearum), Verbenaceis pluribus, Combretaceis, Malpighiaceis, Polygaceis aliisque, ex calyce accreto, characteribus in singulo ordine non constantibus et in diversissimis apparentibus. Minor videtur analogia cum Anonaceis et Myristicaceis e semine ruminato,

(1) Auctor Alph. De Candolle.



nam in hisce ordinibus testa laevis et processus solum ex endoplevra, dum in praesenti ordine spermodermium totum lobos et sinus gignit, quod in Dipterocarpeis eodem modo, sed moderate, accidit. Inter Dipterocarpeas propius sistit genus Anisoptera, propter ovarium inferum et stylum pinguem.

ANCISIROCIADUS Wall list n 1052, W Arnott I c , Planchonl c , Thwait in Ann and mag of nat hut Febr ISTS et in Trans /inn soc 21 p 225 t 24 [deevolut flons et fr optima), Wight ic t 1987 — Woimia Vahl in Act soc Copenh 1810 v 6 p 104 (non Rottb) — Bigamea Endl gen, n. 6095

Characteres ordims.

### § 1. Stamina quxunque

1 A VAILLII (Am in Nov Act nat cui pars 1 p 325), glaber, folns obovato-oblongis obtusis <sup>^</sup>el acufis basi sessili angu''te attenuatis, supra passim albidopunctatis punctis dem depressis obscuus, subtus fere epunctatis, race mis gracilibus teimindlibus folio brevionibus, \ racteis minimis ovato lanceolatis, Fob is calycims oblongis obtusis calycis fructifen tubo turbinato juxta lobos decurrentes sulcato, lobis oblongis majonibus dimidio longionibus <sup>^</sup> In Zeylania (rbw 'n 1000) — Ihw in Tians Linn soc 21 p 226 t 2k Planch 1 c p 317 Woimia hamata Vahl in Act soc hafn 6 p 104 Bi gamea Endl gen n b(95) folia 3 5 poll longa, 9-18 lin lata Petala calyce duplo longioia, ovata, luteo albida Calycis fructifen tubus 5 6 lin longus, ex decurrentia loborum obtuse costatus, lobi inaequales, 3 majores (quo um unus maximus 12-18 lin. longus), 2 minores (quorum minimus \*) 6 lin longus), omnes obtusi, paucmeivu, erecto-divergentes (v s)

### § 2 Stamina decent (1).

\* Glabn.

2. A HEYNEANUS (Wall list n 7262, ex h Heyne), folns obovato-oblongis acutis vcl obtusiuscuhs tasi sessili longe tt anguste attenudtis jumonbus lere epunctatis, adultis utnnque dlbido punctaii<?, pamculis ramos uncigeros termmantibu? ioho bievionibus, bractois e basi la<sup>a</sup>ovato-acutis, calycis lobis ellipticis obtusis fructifen tubo anguste obconico sub sinubus sulcato, lobis obovato oblongi\* obtusis } paullo majonibus <sup>^</sup> In foncan (Sioks etc , ex specimine a cl Hook f et Thorns comm), Courtallum et Malabar (Wight) — Wight ic t 1987 Folia fere A extensi, basim versus angustioia Bractee paulo latiores et obtusiores videntur, \*cd in specim mancae Calycis fructiferi tubus J lin longus, absque decuncentia loborum, sod contra sulcis cum lobis alternantibus, lobi majores 12 18 lin , minores 9 12 lin longi (v s)
- 3 A EXTENSUS (Wall i list n 1052» 1 et 2), folns obovato oblongis subacutis basi sessili longe ingustatis et subaunculatis utnnque albidopunctate paniculis terminalibus lohobrevionibus, bracteis ovato acutis, calyti\*<sup>1</sup> lobis ellipticis obtusis, fructifen tubo anguste ob onico non sulcato, lobis obovato oblongis obtusis / duplo raajonibus In Martaban circa Amhfr&t (Wall' I0o2 1), ad Meigui (Griff in h Hook et Planch ) et Pundua (Wall i 1052 2) — Planch 1 c p 308 A Wdlichu Planch lb p 319 (quae 1052 2 Wall , sed disenmen frustia quaesivi inter specimina mea 1 et 2 numen 10o2) Fx I0o2 1 (magis perfecto) folia 4-9 poll longa, 1-2 poll lata, punctis planis demum medio depiessis, bractee <sup>1</sup>/<sub>5</sub> lin longae, subcihatae ramus 'ateralis elongatus, hamos validos passim geicns, alabastra 4 hn longa, calycis fructif tubus 4 lin longus, lobi paullo decurrentes, externi 9 lin , mterni 12 lin longi, ex desentp cl. Planchoa interdum longiores (v s)

(1) In ultimis sp nondum cogniU

- 4 A PINANGJANUS (Wall.' list n 1054), lous obovato-oblongis obtusis vel longe et obtuse acummatis basi sessih longe angustatis, supra albido punctatis, subtus non punctatis, paniculae teimmalis folio brevions ramis gracilibus, bracteis lanceolatis, flonbus . . , fructu.. . — In ln&ula Pinang ^el Penang. ~-Planch 1 c p. 318 Folia magnitudine et consistentia ut in P extenso, margine basi similiter revoluta, non vero subaunculata. Bracteee ±-{ lin. long®, acuminatae, ciliolatae. (v s)
- 5 A GRIFFITHII (Planch 1 c p. 318), fohis angustis basi in petiolum bievem sensim attenuatis apice acummatis non punctatis, paniculae terminahs ramis gracihhus flexuosis, bracteis gemims subulatis pedicellos bieves utnnque stipantibus et fere superantibus, flore.... , fruci. ... — Ad Mergui (Griff, in h Hook ). Species distinctissima Rami valde tortuosi, cortice subeioso, bine llhnc cicatriLibus petiolo-um latis notati Folia 8 10 poll longa, vix 1-1J poll, lata, nitida, tenuia, leticulo ncrvuloium tenuissime puberulo, petiolo 7-8 lin longo, supra piano. Bracteolae margine subundulatae, breves, persistences, fuses.
- C A STELLIGEHUS (Wall I list n 1053), folns obovato-oblongis acutis vel obtusiuscule acuminatis basi sessih anguste attenuatis subaunculatis, junioiibus non punctatis, adultis utnnque albido-punctatis, panicuhs terminalibus toho brevionbus, bracteis e basi bta o\ato-acutis, flor. .. ., iructu ex lobis patentibus subaequalibus elliptico oblongis stelliformi — In prov Maitaban Kami saepe tortuosi, ex specimme unci rans. Folia 4 8 poll, longa, 1 2 poll lata, saepius acuta Racemi 1-2 poll longi biacteis caducis 1 2 hn. longis ciliolatis Fiuctus in spccimine unicus, tubo calycis minimo (rupto?), lous externis4, internis h lin. longis, 2-3 lin latis, obtusis, rotatis (nee ut in alus sp, erecto-divergentibus), centro umbonato foisan imperfecto. fv. s)

\*\* Novelhs pubescentibus (Species obscura).

7. A.? SAGITTATUS (Wall ' list n 1055), novellis pube plerumque stellata fulvo-castaneasenceis, fohis obovato - oblongis bieviter acummatis obtusisvo basi angustata juxta petiolum brevissiuum acute aunculato sagittatis raro cum petiolo continuis glabiatis, flore . . , fructu . . — E Singapore (Wall 1. c ) — Planchon 1 c p 310) Ftues infeior fol in \ernatione externa lamuli que pube castanea obtecti, facie inteina fol tune unereo-pubesLente Folia 8-9 poll longa, 1 } - 2 poll lata, acumine bie\i atuto vtl obtuso vel nullo in lous ejusdem lami, petiolo aunculisque proximis 2 Un solum longis, pagma supenore adulta non omnino ppunctata, sed passim d( presso-ingro punctulata, inferiore minus glabrata epunctata Nervi laterales numerosissimi, tertiaris vix distinctis (v. s)

Ordo XXIXter. DIPTEROCARPEJE(I). — Guttiferis affines *Juss. gen. p. 258.* — Aceris affines *Gaertn. f. suppl. fruct. p. 52. t. 186. 187. 189.* — Tiliacearum gen. *Spreng. syst. 2. p. 558.* — Laurineae, d, Pterigieal\* *Rtichb. consp.p. 87(1828).* — Diptero-carpeae *Blume Bijdr. p. 222 (1825), ft. Jav. Dipter. (?4 pag. t. 6), Mus. Lugcl. bat. 2.p. 28. U 6-8; Lindl. nat. syst. ed. 1830. p. 42; Meissn. gen. p. 35 et comm. p. 27 (excl. Lophira); Endl. gen. p. 1012; Schnizl. icon, [am. t. 213; Benth. et Hook. f. gen-p. 189 (excl. Ancistroclado et Lophira).* — Diptero-carpineae *Kostel. med. pharm. Fl. 5. p. 1940 (1836).* — Dipteraceae *Lindl. nat. syst. ed. 1836. p. 98, veg. Kingd. p. 393.*

Calyx 5-partitus, rarius 5-fidus; tubo a toro et peJicello saepius aegre distincto; lobis quincuncialiter imbricatis, post anthesin nunc aequaliter, saepius inaequaliter accrescentibus (lobis 2 vel 3 in dispositione spirali prioribus demum rnajoribus), raro non accrescentibus Petala 5, lobis calycinis alterna, tori margine inserta, basi plerumque paulo cohaerentia, aestivationein eodem ramo jilternaLim dextrorsum et sinistrorsuni contorta. Stamina prope petala toro inserta, interdum 5 petalis alterna, vel 10, saepius 15 (et tune 10 subverticillatu, alternatim petalis alterna et opposita, et 5 interiora sepalis opposita), interdum 20-35, vel etiam ^; filamenta basi dilatata; antherae erectae, biloculares, loenlis introrsum vel lateraliterrimislongitudinalibus apice dehiscentibus, valvisexternis saepe majoribus; pollen globosum, laeve; connectivunn apice plerumque in appendicem vel setani productum. Discus nullus. Ovarium saepius liberum, nunc toro semi immersnm, nunc omnino inferum, 3- (raro 2-) locale. Stylus terminalis. Stigma acutiusculum vel subcapitatum, saepius obscure 3-lobum. Ovula 2 ex angulo cujusve loculi pendentia, anatropa, raphe introrsa epitropa. Fructus plerumque indehiscens, raro valvis 3 ab apice septicide dehiscentibus, abortu monospermus, rarissime casu dispersus, ovulis abortivis persistentibus, quando inferus, lobis calycis plus minus accretis, quando superus illis interne cinctus ut superne coronatus, lobis 2-3 in pluribus tune valde accretis elongatis aliformibus. Semen inversum, ovulis abortivis superatum exuviisque parietum irregulariter insculptum vel penetratum. Testa tenuis; pericarpio saepe pro parte adhaerens. Albumen O. Gotyledones, crassa<sup>1</sup>, carnosae, inaequales, lobato-plicatae vel contortuplicatae, versus radiculam lobatie. Radicula supera, cylindrica, cotyledonibus brevior, plus minus inclusa vel paulo exserta, in fructu stfpe germinans. — Arbores plerumque elatae, in Asia meridionali,

praesertim in insulis frequentes, unica africana (Monotes), succo resinoso copioso scatentes, pilis ubi adsunt plerumque ffxsciculatis; foliis alternis, penninerviis, integris vel rarius repando-crenatis, nervis tertiarns plerumque transverse parallelis; stipulis in gemmam ovoideam vel oblongam juxta folium initio clausis, apertis cadentibus; racemis axillaribus, nunc Paulo supra axillaribus, et terminalibus; bracteis caducis vel nullis, flonbus saepe fragrantibus, albis vel roseis vel luteis, <sup>s\*</sup>pius aliquot lmeas longis, nunc majoribus; petalis plerumque exlus pubescentibus.

Dispositio staminum in diversis generibus nondum satis conita, praesertim ubi 10 adsunt. ExVaticaaffini Thw. et Pentecme situm firmavi a Blume Mus. Lupd. bat. 2. t. 7, et Korth. Kruidk. t 8 figuratum.

Ordo Ghlenacis et Ternstroemiaceis manifeste affinis, mediantibus Ancistrocladeis etLophiracaJB, dequibus in praesenti vol. confer. Omnes caeterum in cohorte admodum naturali auam Lindlej (Key, 1835) *Guttales*, Endlicher (Gren. 1836) *Guttifras* et cl. Benth. et Hook. 1. (Gen. 1862) *Gutlilfevales* vocaverunt.

Genera omnia invicem proxima, e staminum numcro et forma naturali modo yptime definita Character enim ex ovano infero vel libero tiansmones offert; lobi calycis \ ine accicti (quod in diversissimis ordinibus adest), et fructus <sup>In</sup>delnscens aut dehiscens, mediocntei cum alns caracteribus et habitu <sup>ve</sup>niunt, sed st^mlna, theoretice majons momenti, pncipium divisioms sine ambage praebent.

CLAVIS GENERUM ARTIFICIALIS.

1	{	Stamina 20-100. Confer ad numerum. . . . .	2	
		Stamina 10 vel 15. Confer. . . . .	5	
		Stamina 5. Fructus carnosus, lobis calycinis vix accretis. . . . .	XIII.	Monoporandia.
2	{	Antherae filamento longiores. . . . .	3	
		Antherae fihmento multo breviores. Lobi cal accreti aequales. . . . .	VI.	Monotes.
3	{	Lobi cilycis fructifen vix accreti, aequales. . . . .	VII.	Vatena
		Lobi calycis fiuctiTen 5 (omnes) accreti. . . . .	I.	Dryobalanops.
		Lobi calycis fructifen 3 accreti. . . . .	X.	Shoiea
4	{	Lobi calycis fructiien 2 accreti. . . . .	4	
		Fructus liber. . . . .	H	Dipterocarpus.
5	{	Fructus inierus. . . . .	HI.	Anisoptera.
		Stamina 10. Lobi calycis 2 in fructu accreti. . . . .		Petalandra.
		Stamina 10(\el 15 <sup>2</sup> ). Lobi calycis in fructu non persistentes. . . . .	IV.	Pachynocarpus,
6	{	Stamina 15. . . . .	6	
		Loculi anther, connectivo plus minus producto adnatae. . . . .	I	
7	{	Loculi anther, apice bifidi, a connectivo lbi producto distincti. . . . .		Pentacme.
		Lobi calycis fructifen 5(omnes) vix accreti. . . . .	V.	Vatica.
		Lobi cdlyus fructifen ,j accreti. . . . .	ix.	Doona'
		Lobi calycis fructifen 2 accreti. . . . .	XI.	Hoped!

I. DRYOBALANOPS *Grrtn f fruct* 3 p 49 t. 186, *Cokbr astat res* 12. p 535 c ic ; *Jack in Hook comp* 1 p 264 *Hayne Arzn qew* 12 < 17, *Korth Verh ov de nat ge\*>ch Oost Ind* p 67, *Vnese dp Kampferb von Sumaha* (Leyd 1851), c %c , *Id in Nederl Kruidk Arch* 6, pp87 c %c , *Id (anj wein /fofo/ Journ* 1852 p 336 /ddf/ ^ fl /sur le Camphner etc 4% 1858 c 2 ic. //oofc *Journ of bot* 1852 p. 200 285, I 7 8, *Oudem m Ann sc nat ser* 4 v 5 p 90 \* 4 — *Shorea sp JJoib* — *Pterygium Correa in Ann Mus* 10 p 159 I 8 f 1 — *Camphoiae sp TMyne in fleyw prodr* p 9

*Galycis tubus fere nullus, lobis nempe pedicello senus incrassato insertis (ttunc transverse basi sulcatis, lobi obovato obiongi subaequales et subaequahter accrescentes Petila r>asi pauio cohaerentia Stamina 35-45, processibus partim connatis mserta (potius forsan filamenta basi connata<sup>9</sup>), filamentis libens, brevibus, anthers lonje lineanbus, basi et apice < mar^inatis, valvis aquahbus, connectivo ultra loculos in apiculum producto Ovanum hberum, 3-loculare Stylus elon^atus Sti, rma subcapitatum Fructus e suprema parte pedicelli incrassata, hemisphenca, mtus spongiosa, lobis calj^inis accretis et capsula constans. Capsula glandiformis, lignosa, basi obtusa, toro inserta lbique processibus staminigens persistentibus cmcta, valvis 3 tarde delnscens, panetibus loculorum tune pro majore piite destructis, columella solum irregulari e fundo surgente Semen plerumque unicum (raro semma 2) cavitatem capsulaB implens, ejus paneti paulo connatum, acolumella superne irregulariler ramosa modo nucis Juglaodis penetratrum, ovuhs abortivis circa verticem seminis persistentibus (Benth. in Hook Journ 1852. p 206 t 7. f 4) Arbor exctlsa, resinosa, camphonfera, foil is integris, nervis laterahbus crebns, stipuhs lineari lanceolatis, fugacibus, flonbus axillanbus et termmalibus, subpaniculatis, calyce colorito, embryone capsula aperta propter spermodermium ruptum denudato, radícula saepe in capsula germinante — De flore confer pidesertim ad DoVnese, M6-moire t 2, de fructu ad eurodem et ad Ouâemans 1 c cujus descnptio columcllae optima mihi videtur, nee tamen ipsius interpretatio.*

D CAMPHOR A (Colebr 1 c) § In Sumatra (Golebi Jungh Jack, etc) et Borneo (Motley, ex Hook Journ 1852 p 201) — Hayne, Korth dc Vnese, Hook , Oudem ,1 c , *Miq fl Ind bot* 1 p 499, eiusd Sumatra, ed perm p 68 *D aromatica Gaertn* 1 1 c *Shorea camphonfera Roib fl ind ed* 1832, f 2 p 616 *Pterygiura teres Correa* 1 c *Camphora Sumatrensis W ten Rhyne* 1 c *Dipterocirpus Dryobalanops et D tres Meud nom ed* 2 *Folia ovato-acummata, glabcrnma, petiolo* 1 et 2 cent longo, limbo 6-7 cent longo, J-4 cent lato *Aldbastrum* 2o mill longura *bepala centim longa Petala us longiora, alba (ex Mill), supra basin ovato lanceolata Procossus staminiferi* 2 3-senales (Vnese), ovato-acuti *Antherae* 7 mill longae *Capsulae sepala accreta obovato oblonga, 7 10 cent longa, parte incrassata pedicelli 9-10 mill longa, 19-25 Uta, saepe vermcoso sulcata Capsula* 2-3 cent longa.

### *Species exclusa.*

D< BEticBA Korth — *Hopea?* sencea

II DIPTEROCARPUS *Gaertn f fruct* 3 p 50 t 187 188, *Blume fl Jav Dtp-ter t* 1-6, *Mus Iugd bat I p* 3T, *Korth. Verhand naturgeschied nederl Kruidkundc* p 50 t 5. — *Caryolobis Gxrtn fruct* \ p 215 t 45 P 4 (*certeordinis, sed semine solum cognilo genus aubium*) — *Pterygium Correa, m Ann Mus* 8 p 397 — *Mocaneiae sp Blanco fl Fihp ed* 1

*Cilyx* 5-fidus, tubo mfundibuhformi, hbero, lobis mdequalibus *Petala* basi paulo cohSBrentia *Stamina* GO, bisenata ex Bl. et ex ic Korth,

sed vensimibter obscure plunsenata, filamenta bievia, basi dilatata libera vel subcoahti, antneraB hneaiēs, flhmento multo longiores, valvis aequahbus, connectivo in cuspidem et interdum acumen longum producto Ovarium liberum, 3-loculare Stylus filiformis, apice integer Vel 3-dentatus Nux lignosa, intia calycis tubum accretum libera, lobis calycinis accretis, duobus praesertim lon^issimis, oblongis superata, 1-ranus 2 sperma Semen pencirpn vertue adnatum Radicula paulo prominens —Arbores exccKae, folns integns vel Jate crenato-repandis, racemis pauciflons axillanbus, flonbus majusculis, albis vel albidoro-seis, odore suavi, petal is extus velutims, lobis majonbus calycis fructifen saepe coloratis, basi 3-5-nervns, nervulis praeterea binuosis plunmis. — Uuicum genus in ordme ubi tubus calycis supra pedicel-lum sive torum mamfes>te extensus videtur, sepahs ideo vere basi inter se connatis.

§ 1. *Calycis tubus laterahter non costato-alatus.*

1 D LiEVis (Ham in "Wem soc Trans 6 p<sup>4</sup>\$99), ramulis jumonbus compressis, folus ovatis vel oblongo-ovatis acutis basi retusis utnnque nitidis, \enis numerosis prominptibus, petiolo glabio, tubo calycis fructifen sub-v(ntnco o vix «AD limbo contracto tereti, nute ovoidca terete 5 ID India, ad onentem Bengalis, ubi oleum sylvcstic (wood oil) praebet — Cl Hook et Thorns sub nomine D laevis Ham (dubitatim) specimen c Chittagong mise-runt, ubi petiolus glaler, longit ignota (ruptus), calyx et petala externa m-cano tomentosa, pilis minimis stellatis senus in calycc evanescentibus, fructusign

P, *Roxburghn*, ramulis leretibus 5 Ad Chittagong, Pegu, etc , ubi oleum aylvpstrc p'-zebet D turbinitus Roxb PI Coiom 3 p 10 t 213, Fl Ind ed 18U p 612 (non Gaeitn , neu Roxb in herb meo et horto Talcutt 1829) Hanc icontm synonymon suo D lanvi ait Hamilton quod ex des-tnptione minis brevi non dij ditandum I x ICOIII et descr Roxburghn ramuli teretes glabn (lound smooth), petioli 7 lin solum longi trassi, sulcati, limbi 6-7 poll longi, 3-4 poll lati, stipulae sesquipollic oblongae obtusae, extus pubescentes, racemi i-S-flon, folio brewores, tubus calycis obovoideus vel tuibinatus, teres, lobi majoiesi in floie 6 8 lin longi, obovato - oblongi, acutiustuli minore^ tngulaies, acuti, petala obovato oblonga, 15 lin. longa, alba, nux intra tubum calycis teres An pubes flonmisa?

2 D TURBINATUS (Gaertn f fruct 3 p.11 t 188), ramis junionbus teictibus, loins ovatis acutis utnnque piaesclrim in marline pubescentibus, venis parum prominentibus numerosis, petiolo pubescente, tubo cilyus fructifen turbi-nato sub lobib valde contracto teieti nuce ovoidea 6 8 sulcata 5 In Chittagong ubi pro ligno, nee oleo, usitata —Him in Wein soc trans 6 p 299 (non Roxb pi Corom ) (1 Gsertnei fructum, nee folia et flores, cognovit, inde dubium in astcinum Ca5tera cvphrasi nirais brevi Hamiltonis Sequens foima vensimihter eadem sed plunbus in specie ignotis soparatim adnumeio

P, *petiolarisj* ramis junionbus compiessis sulcatis, folns lunionbus solum in nervis subtus tenuiter velutims ', In horto Cdlcuttensi, anno 1819 D turbinatus Roxb ' in h Lamb nunc in meo, Wall I anno 1819 comm (non Roxb phnt Coi ) K<imi juniores inoano-pubescentes, sicci angulosi et sulcati Stipulae 6 8 lin longae extus intano-pubescentes apice villosae Petioli 12-15 hn longi (ideo gemmis mullo lonjjiorts), juniores mcano-pubescentes, senus glabrati Limbi ovato acuti mtcgri, 6 7 poll longi, 3 4 poll lati adulti ghbn. Junioies in nervo medio et lateiahbus pulveru lento \elutini cdeterum glabn Racemi sTpms > Mori petioJosublongiores, glabn Calyx tfLibratus, tubo tuibinato, lobis majonbus linoan oblongis, fa hn longis 1-1 i lin latis, minionbus acutis Petala oblonga, 18lm longd, externe velutina Fiuctus iconi Gaertn 188 confoirais, glabei,

tubo ovoideo 9 hn longo apice constncto, alns majonbus ^ i -4 poll longisoblongis trinervns nei vis laterahbus brevihus, secundarns uebus, lobis minor bus ovitis obtusis 3 4 lin longis erectis Ovanum pubescens stnato suldtum Si veic D turbmatus Gaerln , ut ex fructu videtui, characteri spcuficus in longitudine petioli, quam Ham non memoravit, esset (\ s)

- 3 1) GBANDiPOiuis (Miq in Ann Mus Lug! bat 1 p 214, ex h Teysm ), no\ellis petiolis nerv >que pnmarns pube stellata minuta densa et simplici mtermixta plurabeo-gnsei obductis folns a basi conhta subqumqucnerui\* ovatis \el ovato oblongis obtusiu^cul s crenalo ielandis utunque j raesertiff subius et in nervis stellato-pubescentibus, cdlycis tul>o obconico, fructifero ^ In legno Sum Hamuh ciassi tuberculati, cito glbnn Pclioh 2 3 poll longi, limbi 7-M poll longi, 5 7½ poll lati, sicci pubescentes junioiespube in ncrvisalbu intc Stipulae 3 3J poll longa<sup>1</sup>, 21m paullo latiores, extus dense pubescentes Neivi laterales utrinque uiutei 12 tnbus infimis bdsilmbus, vihdis subtus trnnsveise venoso renculaii Calycis tubus 3 lin longus lobis mijonbus hneanbus, minonbus subovihlus, omnibus gnseo-tomentelhs Pclala obovata, circ polhcana, dorso tomentella Ovanum velutum
- 4 D OBTUaiFOLius (Miq Ann Mus Lugd bit 1 p 214, ex Tey«m herb), novellis dense hirto iirsuiis folns 1 levitei peliohtis magnis ovatis \el ovato-oblongis obtusib basi iotundalis ibi grossiusundato crenatis supra pube ranore subtus in nervis piapscrtim pilis stellatis ot simpheibus tomentoso piibe^centibus calynsiuctil\*!! paiceglobosi lubo subgloboso i<LMS imo apice conslncto, lobis iiajonbus obverse lanceolatis obiusis ad medium subtun^rvus 5 \*n rcgno Siam Hamuli mox gUbrati cylnndnci Novella ex petioli pube stellata etpilis simpheibus patulis gnscis flavidulis vel fuscule de^olonbus dense mol lterque hiita Petioii 18 21 hn longi I«olia 7 12 poll longa, 4 7 poll latd, grosse undato cremli subtus in sicto pallida fuscrcsceniia )juniorum nervis albuo Imsutis lubu cil Iructif 18 lm longus lobis rplcatis, majonbus 4 pull longis, minonbus late ovatis
- D mspinus (Ihw dit ' En pi /eylan p 33), ramis junionbus gemmisque rufo bispidissimis loins amplis elliptins bn viter acutis cordatis repandis, petiolo bievi et ner\o tentiali utnnque lulo hispidis, fasciculis brevionbuspilo mm supra evanescentibus subtus iili<luc persistentibus calyce mcano pubescente clongato fruttifen tubo sphaenco-pynloimi tereti leproso, ljbis majoubus obovatu-oblongis ^ In Ceylonse distr Saflngan (Ihw ' 2903, ct pro pule J40>) Gemmae ovoideo obiongae 9 hn longae Petioli 1 2 poll longj Limbi 0 1) poll lon<sub>n</sub>i 5 9 poll lati adulti supra nervo medio excepto fere flabiati, subtus in leivis ct nervjllis stellato pilosi Calycis florentis tubus non teres, in sicco subinaequalis, 9 lin longus, 4 9 lin latus, obovato-oblongus lobis majonbus line an oblongis fiuctifm tubu^ 15 hn longns, pollicem latus superne constnetus, ahs maionbus m spocimine inaequalibus 4 et 6 poll longis (ex Ihw 6-7 poll), basi plunnervns, minonbus lOtundatis, ahs et tubo [ illis fasciculatis «dpressis sparsis sordide pubescentibus. (v s)
- 6 D OBLONGLS, ramis junionbus pemmis petiohsque pihs ngidis nitentibus hispid is, fob is oblongis breviter acuminatis basi rotundatis supia ad cotam et venas pnmanis hirsulis, cilyce mcano leproso > angulato, fructu . \$ In Ceylona prope Ratnapura (Jhw 340J pro paite) D oblongifohus ThW en pi /eylan p H (non Blume) Racemi supra axillares, sohtarn, simphees, 2 4-flon, hispido leprosi Folia ^-7 poll longa, 2/ 4 poll lata, petiolo 1-2 poll longo t lyx breviter pedicellatus Diversitas a D hispido «x verbis cl auctous non patet, calyx enim in flore pi ions nervos T obtusos, lobis alternos, ex specimine meo (a ramo equidcm segiegato) praebet
- 7 D TRINERVIS (Bl cat h Buit p 78), folns ovahbus acutiuscuis basi subrotundatis repando cienatis gemmisque lineanbus atienuatis glabns, calycis fructifen lobi« mijonbus oblongo lanceolatis obtusis tnnervibus minonbus ovatis obtusis 5 In Java occid alt 2-iOOOp —• Bl bijdr p 213 Fl 'ay 1 c p |i t 1, Kortb 1 c p 61 Petioli 2 2J poll longi, glabn Lirabi b-12 poll ct ultid kngi 4-7 poll lati, conacei, nervo medio subtus pube

**DIPIEROCARPUS DIPIEROCARPE ^ (AUCIOH ALPH DC ). 609**

- minuta stellatd vestito Calyx incano-tomentosus, pilis brevibus stellatis ahisque longionbus simplicibus fructifici pnonbus orbatu Alae fructus majories 6 8 poll longae, neivis lateralibus parum distinctis ceitialibus erases
- p, *elegans* (Bl 11. Jav p U), folus bdsi subcoidatis, gemmis longionbus Inprov Bantam — Hassk pi jav iar. p 270
- 1 *cane see it\** (Bl 1 c ), loins minonbus ad costara sublus incano-subpul) Lscentibus, lacemis elongitis In monit baldk — Lx Hassk pi jiv ]> 270 Petioh vix poll longioies, hmbi 10-13 poll longi, pihs simplicibus
- h D PETUSUS (Bl cat Buit p 77), foljis ovahbus acutis basi rotundalis repande crenatis ad costam subtus petiohs ramuhsque pubescentibus, gemmis conico-subulatis villosis, talycis fructile l lobis majoiibus oblongis letusis nervis > subaequdhubus \$ In Java occid cum D tnnervi — Bl bi\di p 223 fl Jiv l c . p1\* t 2 toliaiereD tnneivis falycis fructif lobi maioies 8 9 **poll** longi, apice rotundati vel emarginati, minores vix polhcares, ovati vel ovato-oblongi, obtusissimi
- 9 D SPANOGHFI (Bl ft Jav 1 c p 16 t 3), folns ovahbus obtusiuscuhs basi rotundatis ad costam subtus petiohs ramuhsqm pubescentibus subiepandis, gemmis conico-dtienuatis villosis, calycis iructifen lobis mijonbus ollongs obtusis > neivns In Javae prov Bantim — tolia fere D tnnervis k<uUu> lobi majories 7 unc longi, oblongo-spathulati, obtusi minores vix semipollic , ovato-rotundati
- 10 D. LinoBAiis (Bl bijdr p 224, fl lav 1 c p 17 t 4), Joins ovdhbus acutis basi subcordatis ad costdm utnnque pubescentibus subrcnandis, gemmis oblongo conicis senceo villosis calycis fructilen lobis majoriDUs elongdto lanceolaiis obtusis t ncivus \$ <sup>ln</sup> htore Javae australis et Nusae Kambangdn — Petioh e\*»quipoll Limbi 7 9 uncias longi, 4 > unc lati Lobi tdlycis fru til md)ores dodrantdles, subinaequdles, I ' uric Idti, obtusiusculi, basi dngusliores, minores vix ] unc longi, ovalo oblongi, obtusi
- 11 D GHACLI (B) hijdr p 224 fl Jav 1 c ] ) \*20 t o), folns ovali oblongis acutis bdsi obtusis integns sul>tus stellato pubescentibus, gemmis lineinbus tomentosus, cilyus fructifen lobis mdjonbus oblongis obtu&is tnntMis ) In Java interiore — Fohd ilores et fiuUus qunm in D tnneivi ct afhn multo minores Petioli vix pollicares Limbi 3 4 poll longi, 1 J 2 poll liti, mdrgine undulati, supn lmtio pube brevissima adpersi, dem gldbraii subtus pilis stellitis pubescentes Anstae stammum giacillimae tructus, qudm in D tnnerivi dimidio minores Tubus globosus, laevigatus. Lobi minores ovdti, obtusi
- 12 D HASSPLTII ^Bl fl Jav 1 c p 22 t 6), loins ovahbus dcutiuscuhs basi subcuneatis repando crenatis, jumoribus utnnque pihs simplicibus tipiessis pubescentibus deinde glabns, gemmis hnean attenuatis glabns, calycis iructi fen lobis md oribus oblongis obtusis tnnervns \$ In Javae montosis p^o^ Bantdm (Ha^sclt in Bl ) btipulae el inde gemma glabeinmae quo chir I) tnneivi proxima sed lobi minies Irutlus multo bieviores et reilexi Petioli 1J poll Limli k\ 7 poll longi, i/ 4 poll kti Rdcemi petiolo longiores Talycis tubus exteme glaber, intus ad faucem senceus, lobi puberuli, minores in liuctu auncuhlormes
- 13 D BAUDII (Korth 1 c p 59 t 5), folns obovato-vel ovah-acutis baM subcordatis vel obtusis repandis, adultis supia in costd pilosis subtus pube stellata senceis et in nenis gilvo-stng isis gemmis tyldraiLis obtusis cum ramuhs petiuhsque stellato-lnisutis, calycis liiictifen lobis majonbus oblongis nbtusis tnnervn« -5 In Sumatra dd MehnUng —Miq ft **hd** bat 1 pait 2 p 497 Petioli 3 poll longi, limbi 21 poll longi, 12 poll lati Calytis tubus xterne pihs stelltdtis dense vestitus, interne glaber, lobi dense pilosi Corold losea, lobos mdjores calycis aequans Calycis huUifen lobi majores 0 poll longi, minoies subrotundi, obtusissimi, erecti
- 14 D IAMPURAN (Korth 1 t p 63) folns ovah oblongis bicviter atuiiniiatis subcoiditis integns utnnqur pis^beitim in costi et secus margines petioloque stelltdto hiibus, gemmis c\lnulrdLeis obtusiuscuhs cum ramis stellato busu



tis, calycis fructifen lobis majonbus linean-oblongis obtusissimis vel retusis trinervns ^ In Borneo ad fl Banlto — Miq fl Ind bat 1 pait 2 p 498 Folia 20 poll longa 9 poll lala petiolo Stipulae 11 hn longae, extus fusco pilosae intus glabine Cdlycis fructifen tub is glabre, lobi majoies 13 poll longi, 3 lati, glabn, minores obtusissimi, subrotundi 2 poll longi, glabn

5 D PENTAGONJS, folns ovalibus ovdtisvc acutiuculis basi oblusis npandis, supra ^labris subtus in nervo medio et costis appresso pulerulis gemmis sutulatis ramuhsque glabnusculis, calyce basi 5 sulcato utnque ghbro, lobis majonbus linem oblongis obtu«is donse pubes( entibus j In Borneo ad monies Pamatton et Balaran — D Hasseltn Korth 1 c | 6i (non B1) D qumquegonus Bl Mus Lugd bat 2 p 36 (nomine latino-giaeco mutdido) Fructus maturus videtur ignotus Cl Blume, qui vensimilitei specimen vidit diversam sp a suo D Hasseltn dixit Lobi minores cdlycis tnangulaies, acutiuculi

16 D VERNICPLUUS (Blanco fl Fihp ed 2 p 314) folns hte lineolatis subtus pubescentibus, cilyre 4->gono fructifen lobis 2 mijonbus mi norifcus rotundatis ^ In Philipjims ubi vul'o Balao Pinuo, Malipaho et resinam odoiam praebet Mocdnen vermciflui Bhnco fl Pi lip od 1 p 450 Petioh breves, Insi et ipice mflati Pani ulae spicii rmes terminales Corolla campanulaia, longitudme fere calycis, piofunde 5-partita Stamini plusjuun 20 Anthers subulatap exanatae lubus calycis carnosus, ovanum libeium gerens Nux fere avellan<e

§ 2, *Calycis tubus (pixscilim fructifer) coslato-alatus*

17 D MAYAIW (Blanco fl Filip ed 2 p 313 et p 315), folns o\ato lanceolatis htis integns mcmbranac^is pptiolo brevissimo, panicuhs tormin llibus, lobis cilycinis lanceolatis 2 sublongionbus, fructu 4 In Pbilippinis Mocamra Mayapis Bl inco 11 I ilip oi 1 p 448 Slu rea Mlyapis Bl Mus Lugd bat 2 p 6S Stimina plunmi filflmentis bicvissirais inthens lon{e dnstatis quod omnino generis Stylus ciassus, quod AmsoptcrdC, sed ovanum certe hberum ex cl auct p 315

18 D COSTATLS (Gaertn f fruct 3 p 50 t 187 non Uoxb ) lamubs teretibus pubescentibus, folns ovatis icutiusculis repuidis I reviter petiolitis supra glatns subtus et petiolo pubescentibus, calycis fructifen ghbn sub^lobosi i)ice parum constncti costis Tqualibus p mm eminentibus lobis majon)iiis ol longis 5-ner\iis, mmmribiis ovatis, omnibus bisi aunculitis nuce struta 5 In Inpurae austnlis mantimis, vulgo B ngalensihus Icla daijau (Ham) — Him in Wern soc trans 6 p 299 Folia in adulla arbore 6 poll longa, 4 poll lata in jumoie duplo fere mnjon sti ulae ^emmdcec geminT oppo sitifoliae, sublimares, i)ubescetes Ricemi 3-4-flon Floies ign tructus LC-curate dehn in Gdcitu ex cl Ham I x iconc tubus 9 lui lonjjus, 8 1 latus, costis acutis ncivo pimum majonbus, lobis majonbus 4 poll

19 D ZFYLANICT s (rhwiit en /eyhn p 33) gemmis ullois feirugmeis, folns ovatis vel oblongis brevitei et obtuse acuminaiis p^tiolo longo costaque leprosis caaterum glabns, calycis fructifen tubo urceohto 5-fostato, lobis majonbus ohlongi<sup>4\*</sup> mmonbus ovatis omnibus IUIlculatis nervis 3 vel obscure quinque > In /oylonia ill 3000 p , ubi resinim et o cum sylvcstie piaebet (Fhwiit In 1921) — Gemma in specimine pollicans Petioli 15 20 lm longi Limbi 4-5 poll lonm nervis lateialibus utnque 1 >16 Racemi axillares, solitani, propp bisin bihdi, 6-12-flf)n, ad lamulorum ipices aggregati, leprosi Peaicelli tubo calycis cimpanulito piulo breviores Cal\x llorens cine reo-sublepidotus, tubo J lm longo Petal i 7 lin lon^a hructusJeieD costati Gaertn , a quo differt tubo. apice constneto Costae pa-um prominentenes, feie nerviformes Lobi minores pollic , majores 6 poll longi, oeivis primanis ab alns parum diversis (v s )

20 D ANousriFOLIUS (Wight et Am piodr 11 penins ind p 84), novelhs pilosis, folns lmearibus oblongis acummatis bisi rotundis subtus pilosis, stipulis parvis hirsutis, tubo calycis 5-costato subpiloso 5 Ad Chittagong, U+II

Ileeya gujrum \ociur et bilsamum oleum sylvestre, cum alus speciebus praebet D costatus Roxb fl ind ed 1832 v 2 p 6H (non G^rtn ).  
Speciem distinctiorum cl Wight et Arnolt ex \erbis solum Roxburghu hie trans-ci iptis Novella, folia subtus et calyx *hauy* anglice dicuntur, quod stride pilosus, significat

- 21 D INCANUS (Roxb fl ind ed 1832 v 2 p G14), novellis pilosis, fohit, ovatis obtusis basi paulo angustis molibus villosisque, racemis folio amido brevioribus tubo calycis \* > alato -5 \*<sup>n</sup> Chittagon^ ubi \ulgo Guijun vocatur et oleum sylvestre (wood oil) modo D laevis praebet D alatus Wall list n 9<sup>f</sup>\*, fide cl Wight et Arnolt prodi fl pemns ind p 84, et eadem for<lan sp ac D costatus Gaertn — Ex fragmentis in h meo numen 95 i Wall pauca wdnda Hac\* solum notanda ramuli, petioli racemique emereo-pubescentes pilis stellatis bievssimis, petioli p^llicares, limbi 4 poll longi, i poll lati, bievitor icuti vel obtusi, repandi, supra glabrati, subtus in nervis cinereo-pubescentes, nervis tertiarns venisque stellis mmimis pilorum sparsis pilosulis, flores et fr ignoti.
- 22 D ALATLS (Roxb fl ind td 1832 v 2 p 614, non Wall) novellis pilosis, folns ovato oblongis vel ovato-cordatis acuminatis supra glabns subtus scabns maigine ciliaus, lubo calycis 5-alato j In ins Mascas et ora vicma, Pegu, etc , ubi oleum sylvstnj piaebet (Roxb ) Nihil amplus cognitum — Ad hanc speciem roforendum videtur 1° D scaber Ham in Wern soc trans 6 p 300, e montibus Tnpurae austnlis ubi umi subancipites, stnati, pilis fuscis barbati, folia formi ut supri pihs fasciculatis utnque scabra, 4\* poll longa 2 poll hta petiolo bievissimo barbato, spica 4-9-flon, pedunculo barbato, calyx \* > cuinatus sciber pilosus, subplobosus lobis majoribus oblongis 2° D alatus Miq Ann Mus L B 1 p 211 (ad sp Roxb cum dubio relatus), e regno Siam ulu novelli et potioh gnseo hirsuti, mhs longionibus, appressis, pubcm stellatam occultantibus, petioli 6-9 poll longi, limbi 7-11 poll longi, 2 \ -k\ poll lati, supi i pube simplici in pnendiymate adsp( rsi, pilos simplices stellatosque m neivs ma]onbus ranores cito deji-cientes, subtus in nervis pilis appressis obsiti stelhtisque in cosK media Gemmae petiolura dequanles Calyus fructifen pihs stellatis simpheibusque paucis instructi, tubo pollice longiore, obovoideo, 5-alato, lobis majonbus lanceolalis, obtusis, basi 3-neivns
- 23 D LAMELLATLS (Hook f in Trans Linn Soc 23 p 1^9), ramuhs petio-lisque gracilibus dense tomentosis, folns oblongis acuminatis subtus dense stellatim tomentosis fructu crobfe lamellato, lamellis undulatis, calycis lobis foluceis late hneanbus ipice rotundatis 5 In ins Libuan orae sept Borneo (Motley) D Bauln Koitli afhnis, differt fructu lamellato Folia juniora J poll longa, petiolo \ olhcom longo, torrento fulvo, maigine senceo piloso, bagina super pihsa, demum glabrati, ml mlis stellitis pruserlim ad \cnas tccu Fiuctus purpureus, 0 poll longus Calycis tubus globosus, 9 lin latus, lobis 2 venosis fere 1 poll latis
- 4 D MOTLEYANUS (Hook f in Trfens Linn. Soc. 23 p. 169), ramuhs ultimis pulveio puberulis, petiohs longis gracilibus, limbis foliorum ovatis basi roiundatis ^el lato cuneitis acuminahs obscuie undulatis costa subtus scncea caeieium glabetnmis veins utrinque circiter 16, cilycc ol longo ghbro, fructu In ora sept Borneo (Motley) et ins Philippine (fuming n 1073) Anisoptera? Tuicz in Bull boc mosq 18i8 v 1 p 2^8 (nde num cit Guming) IohaHIOpoll longa, 4 ioil lati Peduncuh 2-J-flon (lexuosi, H poll longi, gncilcs, glabeinmi Palyx fere poll longus, teti lpteius (ex Hook sed veieim liter casu monsti ) Goiolla 1 i poll longa, petalis lin latis — Plant lm Cummin 1073, a cl Hook similem dictam, vidi in h Boiss et cum descuptione non omnino quadrat Sic miln apparet rami, racemipelio-lique tenuissime lepidoti, senus glabn. Petioli 2-2 J poll longi, limbi 6-7 poll <sup>loi</sup>gi, 4-5 poll lati, breviter dcuminati, adulti ut mqc glibeinmi GemmaB flonferae oblongo-acummataa, 1^ lm lon^aa, mcana?, apice senceae Calyx <sup>11</sup>orens 1 \ poll longus, tubo lamellis uruiul ltis costato lobis inaequalibus 5, o\ato oblongis foiolla sesquipoll 0\anum liberum Snnilitudmem specim fu ~~ungrtan~~ cum Motleyano iterum afhrmat cl Benth in lit 1867 (v s)

- 1) D. GRANDIFLORUS (Blanco 1 illp ed 2 p 314), folns ovatis acutis subtrenatis glibns, calyce oblongo alis 5 costato et lobis linearibus 5-ido, calycis fructifcn lobis 2 decretis hntolatis J-nerviis. 5 In Philippinis, ubi vulgo Apiton vel Hdpilon et itsmam Maltpiho dictam, ut D vumfluus, praebet Mocmeia grand]Hora Blanco fl K-ili el 1 p 41 D Blancoi Blume Mus. 1 ugd bat 2 p 3\*) Racemi lei mmale> bracteis 2 lanceolitis amph\* stipati, ilonbusque bractea rainore donatis Petala lanceolata Stamina circiter 30 Anthrae subulatae, exanatae Nuxin calyct libera
- 2b D GRIH-ITHII (Miq Ann Mus lugd bal 1 p 21J), folns e basi late IO tundata ovatis acutis undilato-repandis petiolo longiusculo pubescente utnneque pr<Eserlim supra lucidis, calycis fructifcn gldbtrnmi tubo obovoideo globoso o dlato, If his majoribus miximis suhspathulatis obtusis basi trinervns In prov Meipui (Griffith n 978 in h Hook) Folio l in sicco dngulati, 1-2' poll longi Limbi feie S-6 poll longi 2J-4 poll lati 3oidide, subtus palhdus pubescenLes, adulti glabn, nervis lateialibus ulnque 12-15 Calycis fructifcn loin majores subsemipedales, minores ovati, leviter rephcati
- 27 D GONORTEUS (Iurcz in Bull SJC raosc 1863 v 1 p <S76) ramulis tompressis gemmibque veluiniis, folns peuolatis ovato oblongis in acumen obtusuni breviiei aitcnuatis supra ^libris subtus praesetira dd venas stelltopul)escentibus calycis fructifcn tubo S angulato, angulis late ilatis lobis majonbus tnciviis — Ad Moulmeyn (Guff 19, aut numero inverso 61)
- 28 D CORDATUS (Wdll<sup>f</sup> list r 916), ramulis compres^is stnabs gemns peliolisque gldbnuisculis petuhs gemma multo longionbus, limbis late ovato dcutis subcordiis repandis utnque glabns, (lore , calycis fiurtifei passim pilis stelhtis minimis con>persi, tubo gl(boso basi cordato lateralitei grosse 6 alato, lobis majonbus oblongis obtusis basi J-neivns 5 Ad Taong Jjong et Prorae regni Birmmorum Gemma 6 lin lon&^a longe conica idmuli petiolique 3 | poll longi, non nisi oculo armato rudimenli pubis tenuis simae rarae piaebcetes Limin 10 11 poll longi, 8 poll lati, subtus costa valida et nervis utnque 13-H tminenlibus, cum nervulib tiansversis donati Fubus cdlycis fructifcn pollicem longus latusque, alis marginalibus amphb, 4 lin latis, lobis maionbus S | poll longis, V9 lin latis, mmonbus aunculatib obtusis An (ex Wall) D tubetculatus Roxb ? (v s)
- 29 D INSIGNIS (Thwait ' Zeylon. p 34) lamis junionbus gemmis petiohsque fulvo-hirsutis loins ovali-oblongis mevitcr acuminatis basi obtu>is, su<rd glabns, subtus in nervo pnmano et secundarus pilis longis simpliubus adpressis pilosis caelerum gldhris calycis subsessihs glabn tubo S an^ulato, angulis per totam longitudinem lato membraniceo alatis , In Zeyl' nice pro\ baffngan (Thwait n M06' m h meo et Boiss quo ad specim fl inl) Pill novellorum et petioli stellati at(jue alu longiorcs, simplices, subpatentes Petioli 7-9 lin longi, gemmis ovoideis solum 2 hn longi\*? Limbi 4^)' poll longi 1^ 2-J-)oll lati subinteg, ner\is liter utnque 12-13 subtus eminentibus, teriianis multo minonbus glabns Rdcemi ^upra-axillaics, 3 j lion basi bnsuti Calyx flonns tubo ohovoideo-oblon^o, 9 hn longo alis lati ralibus undulatis hneam latis, lobis md|onbus oblongis, 8 lin longis, minorib rotundatis, 2 hn longis, margine subvelutinis Fructus ignotus (v s)
- 30 D SCABRIDUS (Thwait en Zeylon p 34), ramis , pemmis , petiohs pilis rigidis adpressis hirsutis, fohis linear-oblongib bievitei acuminatis bisi sul angustatis, <sup> glabns, subtuspube&centiaslellaiisparsascabiidiscostaque pilisngidib aapressis hirsua, cil^cis fructifcn tubo subsphLnco parce leproso, oostis 5 per totam longitudinem membraniceo alatis, lobis majoribus ohlongis bisi i-nervus 5 In Zeyloma ad Hitnapuri fThwait n 3406, pro pirte, quoad fruct m h meo et Boiss) Ex cl auctore folia circiter 7 poll longa, 2 J poll lata, petiolo 9-hn Fiuctus (ex h DC Boiss) pedicello 1) hn longo, pubescenie, tubo elhpsoideo, 9-10 hn longo, 8 lm lato stellis planis, spais a calyce I) ini>ignis(subeod num distnb) distmcto, costis undulatis, 1' lin lais lobis maionbub ^4 poll longis, glabrib, bdsi angustatis, minonbus aunculatis, 2 3 hn longis Nux ovoidea, pubescens (v s)
- il D GLANDULOSUS (fhwait' en pi /eyl p 34) rarais luuionbus ^tmiuis | etto isquc stellis minimispiloiuinU pilib simpheibuslongionbus lulvo-pubes-

centibus, folns ovatis acummatls basi obtusls vel subacutls repandls junion bus puberulsl deinde supra et subtus inter nenos glabratis calyce stelhto velutino lateraliter 5 nervio, fructifero sparaim leproso tuboellipsoideo brevitei costato-alato, lobls majonbus oblongls basi -wlcivn\* 'y In /eylonn (Thwait • n 2090) Fetioli 6 8 lm longi, secundo anno glabrati Limbi 3-5 poll Ion<i, J2-25 linn lati, pilis ui in puolo duplicis generis, supr<i uto evancscptibus subtus coloratis (mitio flavls, dein rubns, tandem nigns, ex Jhwait), quod ex sicco vix apparet Gemma<sup>1</sup> 3 4 lm longae, conicae Racemi axillares, 3 4 flon, stellato velutim Cal>x pedicello lineam longo, tubo infundibuliformi, basi obtuso, 4 lm longo, costis obtusls, fructifen tubus 8 lin longus 6 latus, costis membranaceis, Jim latis, basi attenuatis, lobls mijonbus 3 4 poll Ion gis, minonbu\* ovatis, 3 4 lin longis (v s in h meo et Boiss j

- 32 D Lown (Hook in Trans Linn soc 23 p 160), ramulis ciassls ciebie annu- latis ultimis velutino-tomentosis demum glabratis, folns ovais obtusls basi rotundatis vel obscure coidatis integernmis transverse undulatis, petiolo ciasso costa nenisque subtus prominentibus dense tomentosis, cahce dense tomen- toso tetraptero, alis undulato crispatis — In ora sept Borneo (Low; Ramuli ob stipulas delapsas annul m, internodiis 6 9 lm longis Petioh | ollicnres Limbi conacei 8 10 poll lorgi nervis latenhbus cum ccMa ftie uvulum rectum formantibus Peduncuh 2 poll longi, crassi 3 4-flon Cal>x pdtin f) longus Corolla dense tomentosa

*Species non satis notx.*

33. D BALSAMIFER (Bl Mus Lu?d hit 2 p 37) folns e bnsi obtusa vel subcor- data oblongis obtuse acumnidtis subiepindis chartaceis supra glabns subtus in nervo medio et venisappiesso-pubescentibus, gemmis subulitis ramulisque glabns — In Borneo Folia 8 11 poll longa, 2<sup>1</sup><sub>t</sub>-4 poll, lati potiolo 9 >1 lin lata.
- 14 D FLONGATUS (Korth 1 c. p 62), ramulis novellis dense fusco-pilosis, folns ovalibus vel ovah oblongis hrevitei acummatls basi roiundati\* vel subcorddtis repandis s ipra glabii<- subtus p aesertim in nervis dense pilis adpiessls hi 1 sutis, geminis linean oblongis fusco pilosis, calyce 'y In Borneo ad fl Bd ntto et montem SikocmbanK — Bl Mus Iugd bat 2 p M<sub>2</sub> Miq fl Ind bat 1 part 2 p 498 Petioh dense pilosi, 8 12 lin (Bl ) longi Limbi 15 2< poll longi et 6 8 poll lati (Bl ) StipulT hnedii oblongae intus glabrae, obtu sissiracC.
- 35 D FLRHYNCHUS (Miq fl Ind bat suppl I p 48i), ramulis teietibus petiohs stipulis coslisque ioliorum subtus (pitLscitim media) ippresse pilis longis le uissimis subhirsutib dcmum glabn scentihus, folns e basi lite cuneata lan teoldto-oblongis ibiupte longiter acummatls undito repandis, flonbus.. Iructu. . In Bdnnga Petioli 3 4 lin longi Limbi 7 10 poll longi 2 \ poll supra medium lati, cito glabrati, neiws latenhbus utnnque 10 18 Stipuh terminahs pollicans
- 36 D. FURVUS (Bl Mus Lugd bot 2 p 37), folns e basi rotundata vel subcor- data ellipticis lanceolatisve breviter acummatls subintp^ernmis, junionbus utnnque villosiusculis, ddultis supia giibns subtus stllato tomentosus et in nervo medio et venis fusco husutis gommis conicis obtusls ramulisque fuivo-villosis — In Philippine (Penottet) Join conacei, 4-8 poll longa, t-3l poll lata, petiolo 9-12 lin longo An (ex cl auct ) a 1) veinicifluo Blancu distinctus<sup>9</sup> An D thunfei Blantoi '.
- H D MARGINATLS (Korth 1 c p ^4), ramuhs pilis Tasciculatis dense fusco-pi- losis, folns oblongoovihbus obhngisve cuminitis basi ohtusiuscuhs vel emarginatis mtégiis, junionhus margine supiani nei\o medio subtus in nei- vis praesertim dense pilosis, ddultis feio glabns gommis cylindraccis obtu^is dense pilosis 5 In Borneo — Bl Mus Lugd bit 2 p n Fetioli dense pi- losi, i lm (Korth) 12-15 lm (Bl ) longi Limhi couacti, 30 poll longi et 8 lin lati (Korth ), 5 J-11 poll l^ngi et 2 3^ poll lati (ex Bl) Stipule 8poll, longae, )-4-nervi?p, ootusiusculap intus glahrae

- 38 D OBLONOUS (Bl Mus Lugd bat 2. p 36), lous e basi obtusa ohlongis vel elhptico oblongis obtuse acummatls lepindls glabns vel in nvo medio ct venls subtus appresso pubscntibus gem mis cylndraceis obtusiusculis ramuhsque fusco-tomentosis 5 In Borneo Jolia 6 9 poll longa, lf-1 poll lata, petiolo 9 12 lin longo, cornea
- 39 D PILOSIS (Koxb fl ind ed 1832 v 2 p 61S), novrllls hir»utis {fery hairy) folns petiolatis oblongis acammatis basi rotundatis subtus pilosis (hairy), stipufis admodum iongis hirsutis ^5 In. <sup>1ns</sup> Mascal — Cl Wall list W, specimina ex Attran habuit, quae hujus speciei suspicatus est, mihi ignota
- 40 D TUBFR CILVrus (Roxb fl ind ed 18J2 v 2 p GI4), tubo calycis sphae nco tulmcuhs <sup>r</sup>» extus sub sinuhus disposals — Ad ( luttagong — I \ liisce paucis verbis nescio qua cau a cl Wall specimina sui D corddti (list n 9o6) eamdem speoiem esse susjucatur
- 41 D ^ALIDUS 'Bl Mus Lugd bat 2 p 36), foliis e basi rotundita vel sub cordata clliptius acutis \L\ obtuse ipiculat s repnnriis tnns\erse plicatis gla bns \el m medio neivo supra convexiusculo utriique et costis subtus appnsse pubscntibus, gcmms cylndraceis obtusis ramuhsque pih-> poncillatis stup peis \$ In Borneo toha 1-2 ped ,7 11 poll lata, petiolo 2 2}-poll, conacea, firma

*Species nomine solum cognits*

- D GRANDIFLORLS Wall list, i\ 9o7 (non Blanco) — Ex Attran.
- D. \ESTITUS Wall list, n 954 D alato Roxb affinis — Tavoy

*Species e genere, forsan ex ordine excludenda*

- D POLYSPERMUS (Blanco fl \*ilip ed 2 p 312 et 315) Folia alterna, ovalo-oblonga, membianacla glabi i, petiolo brevissiino Panicula tenninalis, parviflora, jf dicellis bicvissimis Calyx hbei, lobis ovatis in fructu actietis, praisetim 3 externis Corolla calyce tn plo longioi, petalis 5, extus pubscntibus Stiraina infra 10, corollam inter et ovium inseila corolla breviora, alicmatim inaequalii AntherP quadratae, seta longa toiminatae 0\anum globosum, angulosum stylus subuhtus Stigma simplex Bacta? 2Mocuhns, semimbus quibusdam in singulo loculo ^ In Philippims vulgo langih Mocancia polyspoimi Blanco fl Flip 1. p 448 Hopea lan^ihBl Mus Lu^d bit 2 p J) A Dipteroaipo ct Hopea differt numcro loborum majorum in fructu a Shorei numero staminum Propioi ess>U Doonae, sed si fructus \erc polyspermus ex ordine excludendus
- I). PALOSAHS (Blanco fl Filip ed 2 p 312), foliis acuminatis, stipulis latis ^ In Philippine D polyspermo fere simihs Aide luctus superi magna

*Species exclusa.*

- D DRYOBALANOPS Steud = Dryobalauops Camphora
- D Guiso =? Amsopteia Guiso
- D MALAANOMAN Blanco = Shored Malaanoman
- D MANQACIAPOI Blanco = Anisoptera Mangacbapoi
- D PLAGATUS Blanco = Anisoptera plagata
- D TFRLS Steud = Dryobalanops Cimpbora
- D TiiumiLRA Blanco = Anisoptera thunfera

III AMSOPTFRA Korth *verhand natur geschied Nederl krunlkund* < p 65, I G, Blume Mui> Lug hat 2 t 6 —Mocaneiae sp Blanco fl /></> ed I — Antheiotnclu lure\* xnBullsoc MOM 1846 2p 505 [fide Buith a Hook qpn 1 p J92)

Cdlycis tubus brevis, toro ddnatus, lobis maequahbus. Stamina ∞, saepius 30-35, bi-quadnsenalia, fiamcna brevid, tiliformia, antherae

valvis extenonibus (ex Benth et Hook f 1 longionibus, connectivo ultra loculos longe anstato Ovanum inferum vel semi-inferum, 3 loculdfe Stylus ovoideus vel oblongus, o\ mum «upeHim simulans, apice 3 lolfes. Nux tubo calycis accreto infera, lobis calycis 2 maximis oblongis, 3 minonibus lanceolatis sup» rati — Arbores elatae, folns ut in Dipterocarpis, racemis paullo supra-axillanibus et tfrminimalibus piuciflons, flonibus albidis — Onnia Dipterocarpi, sed fructus inferus Ovaiium forsā mterdum pentamerum ex dubia sp A lanceolata

- 1 A THURIFERA (Bl Mus lugd bat 2 p 42), lamulis pedunculisque subangulosis tenuitei [ ub scentibus, folns clhpticis oblongis-e bitvitei obtuse aouminatis basi obtusis, supia glahns, subtus in nervis pUioloque tenuiter pubescentibus peduncuhs axillanibus folio aequahbus \ lunflois flore , calycis\* fructifen pul\eiuleiUo-\elutini tubo globoso lepioso asperato lobis majonibus oblongis basi mgustatis )nensus ) In Philippims ubi vulgo Li\aan et e tiunco resinam odoiam albam usililim pi\jebet Mocanea thunfcra Blanco ft Filip p 44b Diptcioeirpus thurifer Blanco fl tilip ed 2 p SO Petioli 7-15 hn longi, demum glabn, linibi 2-4 poll longi 1 2 poll lati, firmi nervis laterilibus utmqe 13-14 cum centiah glabrescentibus, paionchymate oculo armalo tenuisbime granuloso Petal I (ex Blanco) hneana ( alyx iuctifer pedicello hn longo, tubo S hn lato ovium omnino mltiuni tenente, lobis majonibus 2^ poll lon^r s oblubis minoiibus lanceolatis eitctis 4 hn longib (v s comm a cl Llanos )
- 2 A COSTATA (Kortn 1 c t 6), ramuhs compressis pubescentibus folns ovahbus vel obovitis acutis vel brcvitei atuminatis basi rotund illis vel sulcordatis ranssime acutiusculis supra glabns purpuraceo-puberulis, calyce profunde 6-iido extus pubescente lobis ovato-acutis Iruttileii lobis majonibus oblongis trinervns -5 In Borneo id Montem Sikoemban^ — Bl Mus Lu<d bat 2 p 42 Folia (ex Bl) ^ - 7 poll lon,?i i{ ij poll Utd, petiolo fa 12 hn longo pubescente Pedunculus axillaris ejusque lami compressi pubescentes Coi lla Stamina 25 I ructus apieo peduntuli folio brevions vel subaequahs pendens, pubescens, tubo liemispliaiiico turbinato j lin longo, lobis majonibus J ^ poll lon^is, flajejjcnlibus minoiibus, lanceolatis, scinipolhembus
- 3 A MARGINATA (Koitrn 1 c p 66 t 6 ubi anal soluui), ramuhs compressmsculis lusco Inprosis loins ovahbus vel ovah-oblongis acutiusculis basi obtusis tiuncitis \el subcoidatis utiinque glabns gemmis ovato-acutis pubescenlibus, cilyce profunde hdo, exiis pubescente lobis tnangulanibus acutis j etahs obovatis, fructu i^m Boineo ad montem Pamatton — Bl Mus Lugd bat 2 p 42 \*olia (ex Bl ) 2-3' poll longa, 1-1^ poll lata, petiolo 4 6 hn longo ghbiusculo Nervi (ex Koitli )dislintes Pedunculus axillans fusco pubescens, compiessus lamis tetragorns vel tugonis, dense pilose Petah extus paitim pubescditu Stimuli 2o, connectivis in lunmini acummatissimim productis O\anum semi infeium, 5 sulcitum, pubescens
- 4 A IOL^ANIRA (Bl Mus lugd tot 2 p 42 t 6), folns ovihoms vel ovah-oblongis acutiusculis vel obtusis 1 asi lotundatis vel subcoidatis venosis glabns, ffoiibus poly indus, cahce txtus pubescenle piolunde T lido, lobis ovato-lanceolatis petalis oblongis In No\& Guinea 1 olia 2 fa poll longi, 1 J poll lati, petiol 0-18 hn lonfeo I \ icone calyx J hn longus, lobis obtusiusculis, petala lobis cilycinis (Juadi uj lo longioi a 1 mcol ito oblonfea, ( biusiusLuI I, staminaqu i lruj hci sene disposit i, calycis liuctifen tubo pubciulo hcmisphae nco lobis glabnuscuhis majonibus angusU oblongis, tiincrvns, ) poll longis, minoiibus lanceolatis, 3-4 lm longis

*Species admodum dubix(l).*

- 5 A BANTAMFENSIS (Hassk Retzia 1, p 140, Hort Bogor 1 p 10<sup>4</sup>), folns c basi acuta nunc obtusiuscula oblonpns brevitei acuminatis conaeis subtus lepidod-

(1) Anisopteias cum dubio memoiat cl Turcz m Bull soc mosc 18<sup>8</sup> v 1, p 259, sine nominibus specihcis e plantis donng javan i ipon n° 60 ct 100 sea ex paucis verbis \ix hujus ordims videntur

- Us supia nitidus, calycis fructifen Jobis 3 nenns lepidoto-punctulatis 2 longionbus subieflexis 5 In Javae occid prov Bantam Vatica Bantamensis Ijenh et Hook f gen p 192 (num plantam authent vid non dixerunt) Pitala oblongo-hnceolata, apice inflexa et ciliolata Stamina 15 Antherarum connectivum in mucronem brpvem pioductum Calycis lobi subcolorati — Differt a gpnpre numero parvo sfiminum defectu aristae in anthera Pt forsan ovano non infero, et enim fiuclum dicit cl luctor calvcis tubo patelhn suffultum An stylus incrassatus Anisoptcrap pro ovano descnptus\*\*
- 6 A LANCEFOLATA (Walp Ann 1 p in), folus petiolatis pennnervns acunnatis margine undulato integns gl ibns, pamculis lertninalibus compositis calycibusque tomentelhs In insula Luejon (Cummgn 882) Antherotnche lanceolati Iurc7 in Bull soc Mosc 184b 2 p 50) Anisopterae\* sp Benth et Hook (en 1 p 192 Ex hisce Mores et habitus ab Anisopiera nequaquam differunt, sed fiuctus ignotus, stylus cras^us pio ovano et sn^rmti pro stybs descnpta Gynaecium nunc 1 nunc 4 merim viderunt cl Benth et Hook quod Furcz 5-merum dixit.
- 7 A Guiso, folns ovatis elongatis integns glabns firmis nervis subtus prominentibus petiolo brevissimo flonhus parvis paucis in panicula lohis calycis fructifen 1 4 majonbus -7 In Philippinis Mocanera Guiso Blanco fl. Filip , ed 1 p 449 Dipterocarpus Guiso Blanco fl Filip ed 2 p 31J et H ) Shoiea Guiso Bl Mus Lugd bat 2 p Vi Flores A plagatae lobis calycis fructifon paulo majonbus, fructu supens ex cl auct p II<sup>o</sup>)
- 8 A MANG\CIAPOI, folns lanceolalis acummatis nembranaceis, petiolo brevissimo, neivis subtus prominentibus, pamculis nxillinbus pauciflons paniflons -5 In Plnlppinis Mocanera Mmgachipoi Ulnnco 11 Pilip ed I p 4 >0 Dipierocarpus Mangachipoi pjud. od 2 p 112 oi 31S. shored MangdchipoI Bl Mus lugd bat 2 p Vi Valde dlfinis A Guiso, floie et fiuctu A plagatae
- 9 A<sup>?</sup> PALMBAMCA (Miq fl Ind bat suppl 1 p 48<sup>a</sup>), ramulis petiohs costulis foil )rum subtus (t costa media supra pilis plensque stellatis ochncnti furlorellis, folns e basi rotundau subearginata elhptico oblongis acummatis intergermis pergduaceis costis utnnquo 211% floubus fiuctu In Sumatua orient prov Palembang Petioli circiter pollicares Limbi 9 11 prll longi, 3-4<sup>a</sup> lati, utnnque lucidi
- 10 A PLAGATA (Bl Mus Lugd bat 2 p 42), folns lanceohtis interns glabu-\* brevissime petiolatis, norvis lateral bus subtus 1-glandulosus, racemis ixill inhus, calycis fiucLifen iobis 2 majonbus sesquipollicaiibus J mnnoribus ) In Phihppinis Mocinera plagata Bhrcu fl Pilip p 447 Dipierocirpu<> plagatus ejusd ed 2 311 et JI<sup>a</sup> Insignis, Lt cl Blanco, ex Ljindulis lohorum demum hiantibus et tune plagas simultantibus, unde nomen Nilnl simile in Vnisoptens, sod quidam characteres cum us comeniunt et \*)nim calyx malm us, adhtrens, monophyllus profunde 5-fidus, lobis iolundi'iscarnosis extenoribus inter 10l es tegentibus Stamina plus quam U) circa basin ovaru, fijam brevibus, anthers tetragonis compressis, dnstatis Ovanum centro lions 4-angulaie, stylo nullo (an stylus crassus pro ovano desenptus?) StigmUi videntur2 acuta Nux semen unum 5-partitum tenens

### *Seclio Amsopierx<sup>9</sup> Hopea? Genus novum?*

Differt ab Am^optera staminibus paucis, apice bre\i apiculatis et forsan<sup>9</sup> ovano libero? a Hopea, ovano forsan' infero, nam cl luctoi nihil de caractere affirmavit F\ nomine genenco ovanum inferum, ex verbis « Iructus basi calycis tubo cinctus » potius hberum, ut ex nomine genenco Vaticae s^enus a cl Benth et Hook f adhibito

- 11 A \*> MELANOXYLON (Hook. f in trans Linn so^ 23 p 160), lamulis teretibus glibus, folns ovatis oblongisvp apice angustdto obtuso, basi rotundatis utnnque glabns, nervis secundarus tenuibus, pamculis loho bievionbus piuciflons, pedunculis pedicellis calycibusque fulvo-tomentosis, staminibus sub 12, conno two ipice bre\itpr acuminato stylo gracili J In Borneo id

**Labuan** (Motley). Vatica Melanoxyton Benth. et Hook. f. gen. p. 192. Folia coriacea, 3 poll, longa, petiolo 6-8-lin., utrinque glaberrima, venis inconspicuis. Flores nutantes, 4 lin. expansi, podicellis gracilibus. Sepala lanceolata, dense tomentosa. Petala oblonga, basi contracta (non imbricantia). Stamina brevia; filamentis brevioribus, late triangularibus; antheris oblongis. Fructus globosus, basi calycis tubo cinctus, stellato-tomentosus, 4 lin. diametro, calycis fructif. lobis omnibus accrescentibus, stellato-pubescentibus, 2 raaximis, lineari-oblongis, 2 poll, longis, 9 lin. latis, 3-nerviis, pubescentibus, obtusis, caeteris lineari-lanceolatis, 6 lin. longis, uno interdum alii\* paulo majore (ex Henth. in lit. 1867).

**IV. PACHYNOCARPUS** Hook. f. in *Trans. Linn. soc.* 23. p. 159. t. 22; Benth. et Hook. gen. p. 192.

Calycis tubus brevissimus, toro adnatus; lobi lanceolati, vix basi imbricati. Stamina 10-15; filamenta libera, vix basi latiora; antherae ovato-oblongae, filamentis sequales, valvis externis majoribus; connectivum breviter apiculatum. Ovarium toro basi lata paulo immersum, parte majore liberum, pubescens, 3-loculare. Stylus brevis, crassus. Stigma crassiusculum, 3-lobum. Fructus subglobosus, 3-sulcatus, 3-locularis, crasse coriaceus, indebiscens, e tubo calycis accreti cum ovarii basi (tunc praecipua) adnata consians, lobis calycinis oblitterates genitalibusque delapsis superne areola lata coronatus. — Arbor elata; foliis integris; racemis axillaribus et terminalibus, multifloris, floribus fr. grantibus.

**K UVBONATUS** (Hook. f. 1. c.) ff In Borneo, ad Labuan (Motley). Petioli 5-6 lin. longi. Limbi ovato-lanceolati, obtuse acuminati acutius, coriacei, glaberrimi, 4-6 poll, longi, 1-3 poll, lati, nervis lateribus utrinque circiter 7-8. Racemi paniculati, 1-3 poll, longi, cinereo-pubescentes. Flores 6 lin. longi. Calyx pubescens. Petala obovato-oblonga, calyce quadruplo longiora, dorso puberula. Stamina ex div. floribus obs. 10-13-l. (Benth. in lit. 1867.) Stylus glaber, lobos calycis longitudine non superans. Fructus 9 lin. longus, glabrusculus, pericarpio resina alba scatentc, seminis testa tenui adhaerentc.

**V. VATICA** Linn. *Mant.* p. 152; 5m. *ic. ined.* Linn. t. 36; Lam. *ill.* t. 397; DC. *prodr.* 1. p. 517; Blume *Mus. Lugd. bat.* 2. ;. 30. t. 7. — *Ketinodendron* Korth. in *Verhan. Ned. Kruidk.* p. 55. t. 8. — *Valeria* sect. *Isauxis* J4r/t. in *Ann. ofnat. hist.* 1839. p. 155 et in *Wight, ill.* 1. p. 88. — *Isauxis* Thwait. *en. Zeyl.* p. 37. — *Vatica* sect. *Isauxis* Benth. et Hook. f. *gen.* 1. p. 192; Thwait. *en. Zeyl.* p. 404. — *Stemonoporus* Thwait. in *Hook. Journ.* 18; >4.t (i. p. 59. t. 2. *EjUSD.* *en. Zeyl.* p. 37. — *Valeria* sect. *Stemonoporus* Thwait. *m. Zeyl.* p. 402. — *Seidlia* *Kostel. med. pharm. Flor.* p. 1945. — *Pterantbera* Blume *Mus. Lugd. bat.* 2. p. 30.

Glycistubus brevissimus, toro adnatus; lobi aestivatione subimbricata, vel manifeste imbricata. Stamina 15; filamenta minima, basi latiora, nuncibi connata; antherae filamentis longiores, oblongae, valvis exterioribus majoribus; connectivum saepius in acumen loculis brevius productum. Ovarium basi lata insertum, liberum, 3-loculare. Stylus linearis, apice in stigma ovoideum, obscure lobatum incrassatus, vel acutus. Fructus liber, ellipsoideus vel globosus, coriaceus, valvis 3 ab apice vel irregulariter dehiscens vel indehiscens? monospermus, tubo calycis non accreto suffultus, ejus lobis non vel parum accretis, subpatentibus vel Patentibus vel reflexis longior aut brevior. — Arbores elatae vel mediores, foliis integris; racemis interdum pluribus ex eadem axilla; floribus albis vel albido-luteis, fragrantibus.

Genus a *Vateria* certe diversum propter numerum et formam stami-



num, et a Shorea, Hopea, alnsque propter lobos calycis aequaliter sub-acrescentes aut non acrescentes. Ex diversis charactenbus in sectiones naturales dividendum, sed fructu maturo hactenus in plunbus speciebus ignoto provisorie sequenti modo dispositum.

§ 1. *Antherw ronnectivum apiculo brevi terminatum. Stylus apice incrassatus. Fruclus verisimititer omnium regulariter dehiscens.* — Genus vel sectiones Vatica et Isauxis, pro parte, et Retinodendron, auctorum.

\* Fructus calyce aucto subpatente non longior.

1. V LANCEAFOLIA (Bl Mus Lugd bat. 2 p. 'M) ramis junionbus petiohsque pulverulento-velutirus cito gldhratis, folns e basi acula ldnceolatis saepius acurainatis glabus, race mis flonbusque extern\* m axilla 1-J folio brevionbus, lobis uilycis ovato-acutis, capsuld elhp^oidca. 5 In Sillet et Chittagong Valeria idncedjfoli i Hoxb. fl Ind ed 1812. v. 2. p. 601 Vatica lauceolata. Wall 'list 4405, Wi<sup>d</sup>ht et Arn prodi fl penins. p. 84 (enore pro ldncedefoha script). Retinodendion ldn)defohum Korth. in Verhand Ned Kiuidk. p. 55. (ubi nomer solum). Seullid lanteaofolia Koslel. allg. med. pharm. Mora p 1<sup>45</sup> Arboi mcdioens Rami teretes IVtiMi 4-G hn. longi. Limbi 4-8 poll, longi, 1-3 poll Idti, pdllidi, nervis subtus initio subvelutinis, cito glabiat, secunddnis ulnnquo 11-14, tertianis et quatern leliculatis Calyx in alabastro 1-1 \ hn longus, in fructu (ex Roxb.) valde acuetus Pptala 5 hn. longa, oblonga, alabdsro obtuso. Filamenta l<sup>></sup>, ovatoacuta, minima Acumen connectivi loculis muLlo bicvius Capsula (ex Roxb.) niagmt. OM columbim.
- 2 V. PAICIFLC v (Bl Mus Lugd. bat. 2. p M t. 7), rdmulis subcompressis fusco-lepidolis, loins e basi aculiubcula elliptic^ vol elliptico-o))longis obtuse acummatiss vel oblusiusculis supra nitidis subtus sparsim lepidotis, race mis axillanbus ramosis brevibus sparbim lopidotis, (.Uycis extus dense lepidoti lobisovatis subdLUtis, fructu . . . ,5 hi Sumatra. Retinodendron pduuilojurn Korth 1. c. p 58. Vdlena pducifloia Walp. rep. 5 p 12G. Folia (ex Bl.) 3^-6 poll longa, 16-iiOhn. lata, pctiolo 5-fi hn longo. Gcmnde compieess<e, obtusae, dense gnseo-lusco-lepidol\*! Petald hndri-oblonga, obtusa. extussublepidota. Stamina ut in V hassak disposita connecclivum glandula aculiuscula (ex Blume), obtusiuscula (ex IC.) terminatum.
- 3 V. ZOLLINGERIANA, rdmis junionbus petiohs racemisque pube brevi cinerea lepidotis, folns ovato-\eloblango lnceolatis basi dcutis \el obtusis dpice obtusiuscule v&l acute angustatis, junionbus sparsim steilato pilosis dein glabns, racemis axillanbus et termindhbus pamculdtis folio subapquahbus, calycis extus unerco-lepidoti lobis lanceoldtis, liuctu. .. J In plantis Javdnicis Zol-hng sub n. 1079, sine loc nat Omnid V. pducifloiai in hi. Mus t. 7 figurda, forma et dispositio staminum, rorolld calyx simihi, s(d pelioh paulo longioles (5-9 lin), peduncuh longiores, terminahs saltern folium apquans, stigma ovoideum obscure lobalum, nee truncatum vel depressum ut in icone, quod forsane errorc pirtons Tolia junioia spdrsim pills stellatis minimis conspersa, tito glabrdta, neiMs secundams utrmque 5 7 Petala 5 hn. longa, extus cineieo-lepidotd. Connectivum apice acutum (v. s)
- 4 V ROXBURGHIANA (Bl. Mus Lugd bat. 2 p. 31. t 7), ramis petiohsque paulo lepidotis, iolns e basi rotunddt vel ielusd ovdto-vel elhptico-oblongis dcutis vel obtusiuscuhs supra glabns subtus tenuissime granulato-velutinis, nervis lateiahbus utnnque 10-11, racemis in axilla 1-3 pell \*lo subdequahbuscalycibusque incano-velutinis, Cdlycis fiucliferi lobis dmphatis patentibus late o'alo-acutis 5 In peninsula huhde (Wight) et /e>lonid (Ihw ' n. t04). Vatica Roxburghiana Wight ill 1 p 87. 88, Ic. t 26 Vatica Roxburghiana 'Ihw.l enuni |> 404 (pnus, p. U7, Isauxis Roxburghiana ejusd ) Petioh 12-l<sup>></sup> hn longi Limbi 0 poll lori^i, 2 ' poll 1 iti, conacci, neivis teitiarus etqualcinanis subtus eminentibus ictituldlis, pube dd lentem \idenda. Calyx 2-3 hn. longus, obcomcus, piofunde 5-fidus, lobis ovato-aculis; fructilen (ex ic.

Wight) Iobi 9 10lm longi, 5-nervn \*iuctus(ex IC )ovoidei acutus, 3 sulcatus, inde vens dehiscent, calyce auro aequahs (v s specimen flor jun a Wight comm )

> V. AtFiNiS (Thw ' enum pi. Ztylan p 404), ramulis glabns folns e basi obtusa vel sul)acuta o\ato-\cl oblon<sub>o</sub>-lanceoldtis obtuse acuminalis supia ct petiolo felabns subtus junionbus tenuissime sparsim puLeiulis dein glibns, ncrvislateralibusutnnque 5 7, racemis inaxillis 2 et terminalibus folio brevioribus peduncul s paice pe icellis ct alabaslns dense tenuiU r incano-velutinis, Cdhcis' fructiferi lobis impliatis late ovati-» -5 In Zeylonia (Iliw ' n 341b) Isalix Roxburghiana Thw enum p 3 (nomin dein muUto), non Vateiid Hoxburghiana Wight Fctioh 6 lin longi Limbi conacei 4 5 poll longi, 15 18 hn lati, nervistertianis et quatern^nis subtus \* mientibusieticulisadlentem pilos breves j assim milio praebentibus Pedicelli lions 3 lin , fructus 4 hn longi Calyx'lorensobconicus, ux 2 lin longus, pro!unde 5-hdus, lobis ovato-acutis, fructifer 4 5 'in longus Glabescens, lobis laulo inflexis, iructum sub^lobosum velutum tegens Petala oblonga, obtusa, extus velutma (v s)

\*\* Fructus calyce non acreto patente multo longioi

6 V RASSAK (Bl Mus Lugd Bat 2 p 31), ramulis dense fusco-lepidotis, fo His e basi obtusa vel rotundata ranu^ acuta oblongis vel Imceoldto-oblongis acumin itis supia gldlnis subtus tenuissime stellato ltpidotis, paniculis IXIU-nbus et subtermmalibus laxis elongatis dense lepidous, calyus pul escentis \*j fidi lobis ovdto acutis paum crescentibus 5<sup>ln</sup> Borneo ubi lesiiam piapbt Retinodendron Rassak Koith Veihand nat Iresih ISedeil p 56 t 8 1 olid 5-13 poll longa, 1 i I pc 11 ldt, petiolo pollic Pctldd 5 lin longa (t\ icono, ndm signd in textunon intell ), alba, bæ»i flavestentid, oblongo-obovdta /n-thera vilvis extenonbus majonbus, connectivo ^landuld truncata vel dcutius cula termindto hructus junior ovoideus, calycis lobis tuplo longior

fl, *subcordata* (Bl 1 c ), folns e basi rotunddia vel subcoiditd ol longis (5-15 poll , 2-4^ poll ldtis petiolo 10-14 lin ), brevilei obtuseacumindtis vel obtusiusculis, veins magis distinctis, cdpsuld obtusiore

7. V OBIONGIFOLIA (Hook f in Irans I inn sor 2] p lfaO), idmulis robustis puberulis, folns longe pctiolatislinuui-oblongih oblongo luiCLolatisvoabiupt dcumindtis coiiaceis utimque t,l«ibernmis, paniculis oiectis axill inhus terminalibusque folio bitvionlus flonbusque ienugineo pnbescentibus, petahs hneanbus ^ In Borneo sept (Low) V Rassak similib difleit ramis lobus tis folns lationbus, magis oblongis, dbiu]te dcumindtis Longms ppliolatis pmiculis plunllons ferrugineo pubescentibus petalisque hrednbus Petioh 2<sup>1</sup> poll longi tolia valde conacea, 7r9poll longa, 3 poll lata, subtus palhdd Mores fere b lm longi

\*\*<sup>9</sup> V. CHINENSIS (Linn Mant p. 152 242, non V Sinensis Blanco), idmulis obsolete anguldtis pulveulento incanis, folns e basi obLusa vel subtoidata ovato-oblongis glabns, petiolo incano paniculis axillanbus iolio subaequalibus pulverulento-niLanis, calycis profunde 'j fidi extus pulverulento incani lobis fanceolatis fructu ^ In China ex L exSm) — Sra ic, ined Linn t 3b, Lam ill t 39" (pia?ced niutudia) , DC prodr 1 p 517 Pan li unuales (Sm ) ex icone 9-12 lm longi Iimbiexic 4-6 poll IOIKI, 2-2 } poll lati obtusi vdsudcuti nevis ldtterahbus uliinque 12-14 Pedicelli 4-5 lin longi Calyx obconicus, ex ic 3 lin longus Petdla obovato oblonga, extus partim in rana, 8 lin. ex ic longa Connectivum apiculo gracili, acuto oculis multo brcviore ternnatum Invis Wight et Arn prodr. p 84, differtaV lacciera Wight nervis fohorum et brevitate appendicis connectivi

§ 2. *Connectivum apiculo breviterminatum. Stylus acutus. Fructus irregulariter dehiscens, nunc indehiscens, calyce patente vel reflexo non accreto axil vix accreto longior.* — Genus vel sectio *Stemonoporus auct., pro parte.*

\* Pedunculi multiflori.

9. V. SCABRIUSCULA, ramulis petiolisque lepidoto-subtomenlosis, foliis oblongo-lanceolatis obtuse acuminatis basi obtusis supra glabris subius scabriusculis lepidotis vel subglabris multinerviis, racemis axillaribus et terminalibus, bracteis calyceque tomentosis lepidotis, lobis calycinis lanceolatis, fructu . . . .  
In Zeylonia (Thw. n. 3708! 3452). Vateria (Stemonoporus) scabriuscula Thw. en. Zeyl. p. 404. Petioli 5-7 lin. longi. Limbi 3-10 poll, longi, 1-2} poll, lati, nervo centrali supra depresso, nervis secundariis subtus parum eminentibus, utrinque 20-25, adjunctis intermediis minoribus, tertiariis minimis. Racemi in specimine pollicares, nondum evoluti, ideo bracteis ovatis obtusis 2-3 lin. longis vestiti. Genitalia Vatica, slaminum apiculo oculis brevior (v. s.)
10. V. WIGHTII, foliis ellipticis obtusis vel brevissime apiculatis basi rotundatis vel subcuneatis glabris subtus leniter scabridis, racemis folio brevioribus. lobis calycinis oblongo-lanceolatis extus >uberulis (Thw.! 3415). Stemonoporus Wightii Thw. en. Zeyl. p. 37. Vateria Ceylanica Wight ill. p. 88 (fide Thw., nam folia obovata obtusa retusa differunt). Vateria, Wightii Thw. en. Zeyl. p. 403. Petioli 1-3 poll, longi, cito plabrati, apice incrassati. Limbi 5-12 poll, longi, 3-6 poll, lati, nervis secundariis 20, subtus validis, laniariis transversis. Racemi ex specimine meo 1-4 poll, longi; pedicelli 2-lin. Calyx 3-4 lin. longus. Petala calyce non vix longiora, glabriuscula, oblonga. Antherae longe lineari-lanceolatae, scabridae, puberulae, valvis inaequalibus, connectivi apice brevissime acuto. Fructus junior ellipsoideus, 8 lin. longus, 6-sulcatus, verrucis planis fulvis tectus, lobis calycinis reflexis vix auctis, nempe 3-4 lin. longis. (v. s.)
11. V. DISTICHA, ramulis teretibus fulvo-tomentosis, foliis coriaceis glabris oblongis rosstrato-acuminatis basi rotundatis, paniculis axillaribus terminalibusque glabris, junioribus imbricato-bracteatis, bracteis distichis late ovatis adpresse fulvo-sericis, fructu . . . .  
In Zeylonia (Thw.! 3707). Vateria (Stemonoporus) disticha Thw. en. Zeyl. p. 404. Folia circiter 5 poll, longa, 1-2 poll, lata, nervo medio supra depresso, secundariis utrinque circiter 12, tertiariis transversis crebris parallelis, petiolo 4 lin. longo, juniore pulverulento-velutino. Gemmae in specimine meo magis ovoideae, 4 lin. longae seu elongatae 9 lin. longae, squamis ovatis 2-3 lin. longis obtusissimis sericeis intus glabris tectae. Racemi juniores pollicares, 5-7-flori. Bractee caducae, ovatae, 2 lin. longae, ciliatae, caet. gibbae. Alabastra obovoidea, glabra, bractea obovata subciliata tecta. Stamina 15, apiculata, vidi, ex alabastris junioribus (v. s.)

\*\* Pedunculi 3-1 flori.

12. V. RETICULATA, ramis junioribus petiolis pedunculisque pulverulento-subvelutinis, foliis ellipticis seu ovalis obtuse acuminatis basi rotundatis, supra glaberrimis, subtus nervo medio puberulis nervis secundariis paucis et tertiariis reticulatis glabris, pedunculis serepissimis unifloris petiolo multo brevioribus, flore glabriusculo, lobis calycinis ovato-lanceolatis, fructu ovoideo arculo-trisulcato. § In Zeylonia (Thw.! 3414). Stemonoporus reticulatus Thw. en. Zeyl. p. 38. Vateria reticulata Thw. ib. p. 403. Petioli 7-15 lin. longi; limbi coriacei, 2-6 poll, longi, 1-2} poll, lati, acuminati 3-6 lin. longo in speciminibus meis. 6-12 lin. ex Thw., nervis secundariis 8-9. Pedunculi 3-4 lin. longi. Calyx 4 lin. longus, glabriusculus. Petala calyce vix superantia, ovato-acuta, glabriuscula. Antherae 2 lin. longae, scabridae, puberulae, valvis valde inaequalibus, puncto obtusiusculo glabro apice terminatae. Fructus ovoido-acutus. In specimine meo 14 lin. longus, 10 lin. latus, 3-sulcatus, passim verrucosus, lobis calycinis reflexis non auctis. (v. s.)

10 V LYMLULYTV, ianns petiohsque scdbndo veutinib, folns ldnceolatis vel oblongo lanteolatis obtuse acummatis basi cuneatis supra ^libiis nervo medio eminente secundanis pauus depressis, subtus fjabnusculis nervis valdt orai nentibus peduncuhs sajpissime unifloib o In Zeylonia (Ihw ' n 2658) Memonoporus ldnceolatus Ihw en /eyl p J8 Valeria lanccolati Pn\ il) 401 Aiborparva boll i 4<sup>J</sup> 8' poll longd (icumint 4-8 lm lon^o) I ; -3 poll ldt, nervis s>ecundams cnutei 8 pdrenchymate ad lentem cipbre albidopunctato klibro nevo medio subtus scibndo volutino )ctiolo ) 12 lm longo ipice incrdssato L\ flore segrp^ato h bi cilyus lmean lanteoliti, acununati, 1, lm longi extus vclutmi st}lo icuto longiores l<ruLtiis nondum maturus globosus k lm 1 dliis, J sulcalus \errucis plains areolatus, lobis tdlycinis lanceolatis 3-4 lm longis, partim reflexis, partim patentibuD, glabnustuhs (v s )

'4 V CANVLICILATA limis junioul us petiol^que scabndo vtlulmis, loins oblongis hnceolilis vel lincan lanceolatis | lus minus abrupte obtuse acuminisbdM rotundat^elsubcuneatissupnglalinusculis costacaniculata subtus scabndo-pubeinlis pedunculis saepissime uniflons dm bracteatis calyceque luho-subt mcnlosis j In /cylanu (Ihw 'n 441 \) Stemonopoius cn aliculatuj> Ihw tn /eyl p 38 Vitena canahculata Ihw ib p 40J Arboi mediotns Petioli 6 18 lm lon<sub>n</sub>i Limbi 4 (• poll lon^i (dtumine circ blin) Ij-2' hn lati nervis supra (in sicco) depiessis, secundanis circitei ulrinque 12 Caljx J-4 hn lon<sub>n</sub>r<sup>us</sup>, bracteis ovato-lanceoldtis, saepius > lobos sub cilyce simulantibus Filarm nta bieviissima Anthei L longe line in lanceolate, scahro puberula. VIIMS vilde in Lqudlibus Connectivum dpice bie\issim acuminatum Stylus sunulitus (\ s )

15 V PITIOLARIS lamis junionbus petiohs el peduncuhs brevissime scabropubeiulib loins oblongis abiupte et obtuse acummatis basi rotundatis vel subcuneatis supra lawbus subtus scabndis l-e\ibus\e, petiol lon^o npite inflato pednnculis 1 3 lions petiolo bip\ionbus \$ in /eylonia (Ihw ' n 31<sup>r</sup>>1 Stemonurus petioluis Ihw en p 38 Vatena petiohns Ihw lh p 403) Arboi mediocns Fohd 6-10 poll longd icumino 6 9 lm longo, 2-2j poll latd nevis stcundirns vilidis circitei j} petiolo 1 \* poll longo. PeduiiLuli in spocimine aut truncati dut 2 3 hn solum longi Pedice h 1 > hn. ( dlycis lobi 3 lm longi, ovato-oblon^i, obtusi, extus brevissime pubescentes (astera ign (v s )

Ib V RIGID\ rainis junionbus petiohs calyceque extus tenuissime lepidotopuberuhs, folns ellipticis oblongis\e apice rotundatis vel subapicu atis basi cuneatis vel cuneato rotundalis utunque pilis bievihus spams pubei uhs ]>edun (uhs saepissime uniflons petiolo multoties bievionbus 5 In 7o>lonia (Ihw<sup>f</sup> n 2645). btemonoporus ngidus Thw pn /evl p 38 \alern ngida Ihw ib P 403 Folid 6\ il poll longi 1 }-2<sub>4</sub> lala ri^ida, nevis scunddiis validib cncitei 9 peli >lo 4 8 hn loi go Pedunculus in spetiniine meo 2 hn longus, unifloius Lobicalyus I lm lon^i, oh on^i, oblusi concavi Pttiliubtuhs simi obov ita, calyce paum lonfei id, externe pilis stellatis conspei&a Antheia? apiculus locuhs multo bicvioio ovato ldnceolatus (v s )

'7 V OBLONGA, ramis pttiolis peduncuh^que pulverulento pubeiulis, folns obiongis obtusp suhacum natis ol tusi \e bisi lotunditis gldbiis ] liicintniis Didiincuhs 1 4 flons huctu jcloboso ] sultit) cilycc iefle\o vix longioie \$ In /eylonia (Ihw ' n 20\*0) Stcmoi opoms oblongiiohms 1 nw in /cjl p J8 Vdliid oblongifolu Ihw ib P ^03 l^olii + (,) poll longa, 1J 2j poll ldt, nevo centrah subtus subpubeiulo semndariis urciter 8, petiolo 4 0 hn longo Racemus fiuctiler in specimine sesquipollic tructus > G hn latU5>, \errucis lulvis plains tectus lobs calicinis iefle\is 4 hn longis ollongis extrrne subpubescentibus Nomen mutandum ciat piopter Vdticam oblongi-foham Hook f (\ s )

'8 V im\AITESII, folns ovato ol longis acumin iti- basi rotundatis pauunemis KduiicuhssdLpibsnntu/Jifloris > InZejlonid (Ihw n 2430) Stcmouiusdlfinis Ihw rn /ejl p 38 Vatena dlhnis ibid p 403 (non Vatica dfhnis Ihw ib i) 404) Folia 1-4J poll longa aouminc circ. 6 hn longo 1' 2' poll lata, re\is SLtundariis uti nqnc cncitu 8 petiolo 0 8 lm longo

§ 3 *Antheis oblusissymae, connectivo minime producto.**Stylus acutus.*

\* Fructus calyce reflexo non accreto subaequahs

19 V ACUMINATA, rainiilis petiolisque parce scabndis, folus lanceolatis vel oblongo-lanceolatis gradatim (ranus subito) obtuse acuminatis basi obtusis glabns, nervo centiah subtus passim puberulo, racemis axillanbus folio brevionbus 1 6 flons, lobis ovato-lanceolatis extus tenuissiae pubescentibus, fiuctu pirvo glohoso 3-sulcato ^ In Zeylania (Thw » n 3474, 3?95' 3G87') Vdterifl (Siemonurus) acuminata Ihw en Zeyl p 40 J, non Hayne Folia 4 I poll longa 4-2 poll (ex Thw) lata nervis secundanis utnnque 10 16 pttiolo 9 18 hn longo, apice incrassdto Slipulae (ex fliw) falcato lanceolatae, 3 hn longae, } hn latae, cito deuduae Bractae lanceolatae, deuduae Calyx 3 3J hn. longus, pedicello sublongior Petala oblonga, calycem vix superantia, extus subpubescentia Stamina omnino V Gardnen Stylus acutus. tructus junioi 3 hn latus, toiuulosus, subpubescens, lobiscalycimpreflexis noil longior (v b)

\*\* Fiuctus junior calyce patente vix accreto brevior, maturus

20 V GARDNERI, ramis Junioribns petiolis racemisque vix tenuissime puberuhS lohis ovatis conaceis glabns obtuse acuminatis basi rotundatis vel subcordatis, racemis axiuanbus et terminahbus folio hrevioribus 5-6-7-flons S I\* Zeylonu (Ihw ' n 1920) Stemonoporus Gaidnen Ihw in HOOK Journ 18^ p 68 t 2, In /eyl p 38 \atena fbtemonoporus) Gardnen Tjurd lb p ^03 Petioh 6 12 hn longi Limbi 3-0 poll longi, 1{-2j poll lati, ner'is secundanis atnnque circiter 10, subtus validis, tertiarns reticulatis emmentibus Racemi compressi Pedicelli 2-1 hn longi Calyx o partitus, lobis oblongo-ovatis obtusis, 3 hn longis, glabnscuhs Petala elliptica, calyce vix lo<sup>n</sup> giora, alba, gfahra Stamina 1) lilamenta ima basi coahta, dein hbera, nu nima antherae oblongae, submcurvae, filamentis multoties longiores, 1| hn longae, basi obtusissimae, apice obtusas, vdhis extenonbus multo lationbuset apice longionbus atque lbi involutis, exteine ad lenlem scabndo pubciuhs, connectivo non distincto, apice minime producto Ovarium semi-immersuin> glabrum Stylus fihfoimis glaber, stnatus, acutus Fructus ignotus, sed lo<sup>bl</sup> calycini post anthesin \ix aucti, subaequales, campanulali, elhptici (v. s)

*Species dubix.*

- 21 V CORDIFOLU (Thw enum Zeyl p 404), glabra, ramulis teretibus, foj<sup>11</sup> nitidis oblongo-vel ovato-lanceolatis acuminatis obscure et minute reticulato\* venulosis basi rotundato-cordatis, nervis secundanis utnnque circiter id au><sup>as</sup> saepe glanduhfens § In /eylann (Ihw n 3726) Kolia 5-7 poll long\* 2-3 J poll lata, petiolo polh can Inflorescentia ignota
- 22 V MOONII, folus angu&te lanceolati\*: basi cuneatis supra laevibus, subtus a<sup>d</sup> costam nervosque laterales cum petiolo tereti p^osis stipuhs longis linear<sup>1</sup> lancoolatis ngidis persistentibus, peduncuhs uniflons in fohoram delapsoiu<sup>m</sup> axilhs intei stipulas i orsistentibus — In Zeyloma (Moon fhw n 17 %) ^' monoporus Moonii Thw en 7eyl p 39 Vatena Moonii Ihw lb p 403 F...<sup>a</sup> 6 10 poll longa 1 2 poll lata, petiolo circiter polhc ^tipulae 8 10 ^ ^ ^ S ?, Ex inalysi flons inaperti cbaracteres omnino Stemonopon (supra ^ 2 v<sup>8</sup> ticae) excl Thwaites fiuctu vero ignoto et habitu ab alns sp valde diverso Stipulae persistentes a Dipterocarpeis ahquid ahenum videtur
- 23 V NITIDA, ramulis gracilibus glabns, folns ovatis \el ovato-lanceolatis longe et obtuse acuminatis basi rotundatis vel subcuneatis utnnque gia<-<sup>11</sup> nitidis subtus reticulatis, peduncuhs uniflons petirlo brevionbus, caiyo-<sup>1</sup> fpuctifen lobis lanceolatis pitenUbus 5 In 7eylonia(Thw » n° 3483) ^temono-<sup>1</sup> porus nitidus Thw en Zeylon p 39 Vatena nitidi Ihw ib p 403 Arc-<sup>1</sup> medioens Petioh 4-> hn longi Limbi 2] Jj poll longi (icumine 5-6 >1<sup>1</sup> longo), 8 13 hn lati, nervis secundanis circiter 6, adjunctis mtermediis m

loribus numerosis e centrali similiter ductis, tertiariis minimis. Flores ten-  
 \*ructus junior globosus, 3J lin. lalus, teres, subleprosus, lobis caiycinis's lin'  
 lo ngis, extus scabriusculis, intus glabris. An Monopora? (v. s.)

^ V. VENDLOSA (Bl. Mus. Lugd. bat. 2. p. 32), foliis oblongis lanceolatisve  
 Mnque obtuse attenuatis venuloso-reticulatis. — In Borneo ubi Kaju Kassa  
 v ocatur. Folia 3-4 poll, longa, 1-1½ poll, lata, petiolo 2-3 lin. longo.

*Species fere ignotse,*

Cl. <sup>up</sup> Wiquel Fl. ind. bat. suppl. 1. p. 486, sequentes species, floribus fructuque  
 sftotis, ex foliis tantum, ad Vaticam cum dubio adjunxit : V. EXIMIA et  
 v STIPULOSA, e Sumatra, V. SUBLACUNOSA, e Bangka. Folia l. c. descripsit.

*Excludendae sed generis incerti, forsan ordinis diversi.*

— Pteranthera Blume (nomen delendum).

v <sup>AS</sup> SINENSIS (Blanco fl. Filip., ed. J. p. 401, non V. Chinensis L.). Arbor elata.  
<sup>di</sup> alterna, lanceolata, integra, glabra, coriacea, petiolo brevissimo. Pani-  
 culæ axillares. Calyx 5-partitus, lobis acutis; 2 majoribus. Petala 5, alba,  
 calyce quadruplo longiora, linearia, hypogyna. Stamina 15, hypogyna; fila-  
 menta brevissima, basi lata, apice acuta, fisolitaria, 10 cum iis alterna, per  
 paria opposita; antheræ apiculatæ, planæ, 4-alatæ (4-valves?). Ovarium libe-  
 rum, medio globosum, depressum, 5-lobum. Stylus brevis. Stigma depressum  
 lobis 3 et plus. Drupa seminibus 3-5. In Philippinis. Pteranthera Sinensis  
 Blume Mus. Lugd. bat. 2. p. 30. Nil a Vatica diversum existimant cl. Benth.  
 et Hook. gen. p. 192, sed in Vatica fructus lobis inaequalibus includunt. An alas  
 fructus 5 duae? Tunc Hopea esset. An ovarium 5-loculare et semina 3-5? Tunc  
 alieni ordinis.

v JANGACHAPOI (Blanco fl. Filip. ed. 1. p. 401). Arbor maxime elata. Folia  
<sup>ra</sup> ovato-lanceolata, integra, glabra, subcoriacea, petiolo brevissimo.  
<sup>ur</sup> es paniculati. Calyx, corolla staminaque ut in V. Sinensi Blanco, antheris  
<sup>ero</sup> non alatis fvalvis inapertis?). Drupa globosa, non carnosâ, nuce tenui  
 pocuian<sup>^</sup> seminibus 3. Caetera ut in V. Sinensi Blanco. Calycis lobi iniqua-  
 3 2 majores. — In Philippinis. Vatica apteranthra Blanco fl. Filip. ed. 2,  
 p. 281 (nomine mutato propter Dipterocarpum Mangachapoi I<sup>^</sup>usd.). Pteran-  
<sup>ra</sup> a Mangachapoi Blume Mus. lugd. bat. 2. p. 30. Vaticae sp. ex Bentliam et  
<sup>o</sup> K. f. gen<sup>o</sup> p, 192. Cum V. Sinensi Blanco generis et imo ordinis incerti.  
 No men Blumei characteri contrarium!

*Specks exclusæ.*

- v. <sup>AP</sup> AFRICANA Welw. et Kirk = Monotes Africanus.
- v. <sup>ANT</sup> ANTAMENSIS Benth et Hook. = Anisoptera Bantamensis.
- v. <sup>LAG</sup> LAGACERA Wight et Arn. = Shorea laccifera Wall.
- v. <sup>U</sup> UaiPOLIA Steud. = Shorea laurifolia.
- v. <sup>J</sup> JIPIDOTA Korth. = Shorea lepidota.
- y. <sup>MEL</sup> MELANOXYLON Benth. et Hook. f. = Anisoptera Mdanoxylon.
- y. <sup>OB</sup> OBUSA Steud. = Shorea robusta. /
- y. <sup>O</sup> OVALIS Korth. = Shorea ovalis. '
- v. <sup>J</sup> JOBUSTA Steud. = Shorea robusta.
- v. <sup>rc</sup> «BAGATA Wight et Arn. = Shorea penicillata.

vi. MONOTES. — Vatica? sp. Welwitschet Kirk in Iterb., Welw. ic. ined.

Ca yx tubo brevissimo, toro adnato, lobis quincuncialiter imbricatis.  
 Stam<sup>na</sup> <sup>nur</sup> ner osissima (70-80); filamenta elongata, anguste linearia,  
 exter<sup>ora</sup> <sup>^</sup> reviora, interiora pauca (ssepe? interdum?) sterilia; antheraa

minimæ, filamentis multo breviores, o)atcc, loculis mtroisum sitis, vdlvis <Lqualibus, connectno m apiculum ovdtum pingue loculis subdequalr producto. Ovanum superum, hispidum 3-loculare. Stylus cylindnco-fusififormis, glabernmus, apice brevissime 3-lobus. Lobi calycim infructu accreti, sub#quales, nuce ovoidea acula tnplo longiores. Semen. — Arbor ex Africd intertropicdh, folns integris, racemis axillanbus, abbre vidtis — Nomen ex ^OVCOILS solitarius, guia procul a patrid vulgari Djpterocarpearum crescit — Differt a Vatica numero indefinito std-minum et filamentis longissimis, a Vatica longitudme filamentoruro et fructu mdehiscente, a duobus genenbus calyce magis decreto Propius sistit Shores, ubi vero lobi duo calycis acciescunt Ab omnibus Djpterocarpeis differt longitudine filamentorumetparvitate antheiarum.

M AFRICANUS J In Africa mtertropica australi, nempe in Benguela (Weh\ ') et versus /anibesi (Knk, fide Welw in Jit) Vatica Africana Welw et Knk mss, Welw ic nond edn J x lamulo flonfero sequentia vidi loha approximaia, jietiolo centim longo, subterett pubescente Umlo obov lto, J6 cent lon^o, 2 3 cont hto, integro, pennineivio, costis utnnque 10 II, ner\* vulis tcilidins leticulatis eminentibus, pagind super gldbnuscula, infci in nervis stellato-i ubescente Rdccmi vel cymulae paiolo aequales aut sublongioies, biiutcis ppdiLLlisque fulvo tomentosus Calyx 1 mill longus, phvlli\* ovatib, extus fulvo tomentosus, intus subsonccis Petala 7 null longa, oblonga> cestiv contorta, extus parce sencea intu-.abasi us^ue dd medium pihs longi\* erectis> senceis vctita Siamina media et interiora externis longioi i, > 6 mill longa, gldbra, diithens } mill solum Jongis In fra^menti mei floubus stamind quaeddm inteio" a stculia vidi, forsdn cdsu ionuitoquum cl Welwitsch tt pictoi in pra upuis specimiiiiibus non videimt Ovanum pilib erectis dlbis Uctum, ubi o)uld h uidtiuptt, epitropa, oidirnsvidi Nux lnniduid centim\* longti, lobis subpdtciitibii^, membianaccis, 2 i tent longis bdsi 4 o medio i nervns ettraiiib\oise leticuldtis (V frdgmptum iloul ctfiig sine dnal a cl Welw comm.) — Descriptiones et icon mox divulgndd3 a cl Welw et in Hook et (Sliv fl Air trop consulendae

VII VATERIA L gen ed 2 n 514, Gartn f fruct 3 t 189, Blume Mus Lugd bat 2 p 29 t 4, Benth et Hook f gen 1 p 198 (excl Stemonuro) — Vateria, sectio Iuvataria Arnott in Ann and mag of nat. hist 1839. p 13 — Hemiphractum Purcz in Bull Mosc. 1859 p 262

Gdlyx tubo brevissimo, toro adnato. Stamina numeroissima (40-60); filamenta minima, anther<e elon^atae, linenres, filamento multo long<sup>10</sup>\* res, loculis basi breviter sdccatis, extremitate connectivo adndtis vel oi\* fidis. Ovanum libtrum, 3 loculare. Stylus filiformis, acutus G)uia carnosa, vdlvis 3 ab apice dehiscens, monospermd calycis lob s paten- tibus parum accretis basi stipati, us longior. — Arbores elatae, copalli- ferae, racemis axillanbus et termmalibus, flonbus albis, antheris pubes- oentibus ut in quibusdam Vaticis.

#### Sectio 1 Paenoe — Genus Paenoe Rheede Malab

Lotuh antherarum apicem usque connectivo dtummato adnati, \dlvisexten<sup>o</sup> nbus majonbus

1 V MALAB(RICV (Blume Mus Lugd bat 2 p 20), nmis junionbus g e m ^ racemisque dense slellato pubescentibus, folns e bdsi obtusd vel iailu?, eCfl K U', ginata elhpticis obtusis vel subacutis glabns (gldbiatis?), lacemis axiUan et terminalibus lohosublongionbus, olycis lobisovato lanceolatiN <-xus Prax beilim pubescentil)Ui>, petalis calyce \i\ longionbus ovatis > TnMildbai, ubl rrsinam Copal praebet Paenoe Rheed Malab \ t to V Indica Roxb Y<sup>1</sup> Toiom 6 I 288 (non L) ejusd fl Ind ed 1832 v. 2. p bO2, Ldm ill I<sup>113</sup>

(Rheediomutuata), Hayne Arzneigew 11 p 6 t S (Roxb Corom mutuata), Wight ill I t 36 Wall i hst 3670 B ex h Hajne, excl ubique syn ad V. acuminatam Hayne iefei Chloroxylon Dupa la Buchan journ Mysoie 2 p 476 (fide Blume) Differt a \ acjminata Hayne 1° patna Indica, nee Zeyldnicd, 2° folns minus icutis, saepius obtusis, 3° anthersdpice simpLcibus acuminatis Hie ultimus char in ordme fere genencus. (v s)

Section Hemiphractum *Benth et Hook f gen 1 p 194* — Genus Hemiplm-  
tum *Turcz in Bull soc Mosc 1859 p 262 (anthera ibi male descripta)*

Loculi antherarum apice distincti, singuli acuminati, Valvis aequodibus, connectivum non productum

2 V ACUMINATA (Hdyne Arzneigew 11 p 7), limis junionbus petiohs ^cmmis racemisque st°Uis pilorum crassis caducis ferru^ineis obductis, folns cbi I obtusa vel subcorddta ellipticis bieviter acumnidtis sul tus in nervis fuiluriceis demum utnnque glabratis racemis axillanbus ot teiminilibus folio sub longionbus, calycis lobis ovato lanceolatis extus praesertim tomentosus petalis calyce vix longionbus ovatis 5 I'' /ejlonn (Kong Burm, Vin Royenjhw ' n 1918) V Indicd Linn Sp p 714 n /eylon n 204, Gdertn f fiuct 3 p 5J t 189 (excl ubique syn Bheed), Blume Mus Lugd bdt 2 p 29 t 4 (excl s>n Lam) Ihw ' en pi Zeyl p 37 (excl syn Wght), nonThw ib p 403 Elaecarpus copallifeius Rctz obs 4 p 27, Vahl symb J p 67 (excl syn Rheed) Heraiphractum ovyandrum lurcz in Bull soc Mosc 18)9 v 1 p 262 (fide Benth et Hook f gen 1 p 194, qui vensimihler phntim Hohen 2182 viderunt) Petioli 1 2 poll longi Limbi fa 18 poll longi, i-b poll lati, nervis lateialibus utnnque 20 22 btipulde ex specimine meo Ihw b lui longae, ex Thw pollicares Pedicelli 3-6 lin longi Calyx 5 lin lon^us Antherae numerosissimae, 1 nge hnear^s basi bisaccatai, apice ex looulis se<sup>o</sup>i \*gatis bifidae, pube minima ad lentem scabnusculae btylus acutus Fiudus accurate in Gaertn i fi^uiatus tide Ihwaitesn, et ibi elhpsoideo obo\atus, mucronAtus, 3-sulcatus, I valvis, calyce non accreto leflexo multotios Ion gione Cl Hayne jam anno 1830 et scnus Blume diversitatem e\ iritliens 1 V Indjca Roxbuigh observavciunt Prajsens est vei 1 V Indici L qudp Inn usque solum in /eylonia reperta tuit ct ergo male *Indica* vocari potest (v « a cl Thw comm)

### *Species dubia*

V FLEXUOSA (Lour foch ed WillcJ I p 407), r«imis llexuosis, loins lancto latis glabns racemis laxis terminalibus, floie ilbo pai\o, capsula rubra, In sylvis GochmchinDe. Omnii in chai conveniunt nisi « anthersr subio-  
tundae »

### *Species citlui*

- v VGUMINATA Ihw = Vatica acumin il 1
- v AtFiN.sIhw — Vatica Tjiwaitesn
- v CANALICULATA Thw = Vatica canahculatd
- v CFYLANICA Wight = Vatica Wightu
- v CORDII-OLIA Thw = Monoporandia coidif jli 1
- v DISTICHA Thw = Vatica disticha.
- v ELEGANS Thw = Monoporandra elejans
- v GARDNERI Thw = Vatica Gardnen
- v\* LANCE^FOLIA Thw = Monoporandra lancc<filoli 1
- v LANCEOLATA Thw = Vdtica lanceol it 1
- v LANCEOLATA Wall = Vdtica lanceaefoh 1
- v MOONII Ihw = Vated Moonu
- v NITILJA Ihw = Vated nitiId
- v OBLONGUOLIA 1 hw = Vatica oblongiluli 1



- V. PAUCIFLORA Walp = *Vatica pauciflora*  
 V PETIOLARIS Thw = *Vatica petiolan\**  
 V. RETICULATA Thw = *Vatica reticulata*  
 V RIGIDA L'Her = *Vatica rigida*  
 V ROXBURGHIANA Wight = *Vatica Roxburghiana*  
 V. SCABRUSCULA Thw = *Vatica scabruscula*  
 V WIGHTII Thw = *Vatica Wightii*

## VIII PEMACML.

Calyx tubo brevissimo Stamina 15, filamenta minima, ovato-acuta, antherae elongato-haerens, filamenta multo longiores, loculis basi breviter saccatis, valvis k subasquibus, apice subulatis, connectivo in setam rigidam, in anthesi extus flexam valvarum apices subulatos extremitatibus longitudine dequalem uesinente Ovulum liberum Stylus filiformis, apice breviter lobatus Fructus — Arbor asiatica. — Nomen a *TOEVI* (quumque, et *axfr*), cuspis, propter antheras apice connectivo et valvis k subulatis, ideo acumimbus quinque terminatas — Differt i *Vatena* numero staminum, a *Vatica* longitudine et forma antherarum, nec non habitu. Fructu ignoto forsitan a duobus generibus diversa *Kx* anthesi sectio nova *Vatense* videtur, sed praetermisso caractere numero staminum in ordine constante et validissimo, *Vatena* et *Vatica* conjungenda essent, quod naturae, meo sensu, omnino contrarium.

P SUAVIS — In *Martaban* *Hopea* (an *Shorea*?) *suavis* Wall 1 list n 9 Bami Petiole 9 U lin longi, glabrusculi Limbi ovatoacuti, basi obtusissimi, 4-6 poll longi, 2-3 poll lati, membranacei, plumbeni, nervis lateribus utrinque 10-12, teitarius parum clisindis Ratemi folio subbreiores, graciles, glabri compressi i Pedicelli 1-2 lin longi Calyx 2 lin longus, lobis evidenter quincunciatibus, lanceolato obtusis, extus et margine vix ac ne vix puberulis Petala in alabastrum ovoideo aoutura, 5 lin longum tontorta, expansa ovato oblonga externe paullo stellato-pubescentia Filamenta libera, \ lin longa Antherae 2}-J lin longae (inclusis acuminibus valvarum ^-1 lin longis), connectivi seta orunnea (v s)

IX DOONAZIO in *Hook journ of bot* 1801, v 6 t 12, v 4p 7, *Benth et Hook, f gen* 1 193

Calycis tubus brevissimus, tubo adnatus Stamina 15, filamenta basi dilatata in tubum cohaerentia, apice filiformia haerentia Antherae oblongae, quadrangulares filamenta subbreiores, loculis extremitate supera libera. acutis, valvis aequibus, connectivum ultra loculos in appendicem lineari clavatam, rarius linearem, rigidam, coloratam productum Ovarium 3-loculare Nux ovoideo acuta, indurata, intra basin loborum calycis arete inclusa libera, lobis tubus valde accretis, obovato oblongis, erecto-divergentibus, duobus minoribus, a basi ovata haerentibus — Omnes *Zeylanicae*, glaberrimae, foliis obtuse acumatis, ramis racemisque gracilibus habitu communi — *Shorea Siamensis* Miq (infra, p 631) hic forsitan referenda

1 D ZEYLANICA (Thw ' in *Hook journ* 18\*)! v 3 t 12 et 4. p 7) glabra, foliis lanceolatis obtuse acumatis basi longe angustatis et margine revolutis, nervis lateribus vix distinctis, racemis axillaribus et terminibus folio subrevionibus. calycis lobis ovato oblongis obtusis, fructifera lobis majoribus e basi ovata ovato-oblongis irregulatis crenulatis repandisve -5<sup>m</sup> *Zeylanica* (Thw in 2-423)—Thw in *Zeyl* p J4 Rami graciles teietes Petiole 4-5 lin longi, graciles Ugabi 2-2i poll longi, 9 lin lati Rameini multiflori, bracteis

- mmimis caducis pedicels 2-4 lin longis Calyx 2 lin longus, lobis vñhle inaequahbus ad lentem ciholatis Petala dois) [ditim senced uboviti cahcc vix dimidio longiora Antheuj oculis apicn icutiuscuhs d)iso passim pube-  
 rulis Connectivum linean clivatum, oculis subbrevious Stylus junioi gla-  
 bnusculus, senus<sup>9</sup> (ex IC) pilosus Calycis fructifen basis ovoidea 3 lm  
 longa, lobi majores 9 10 lin longi, 3 lin lati (v s)
- 2 D A?FINIS (Thw ' en pi Zeyl p 35 et 403), glabra, folns lanceolatis vel  
 lincan lanceolatis obtuse acuminatis basi obtusis nervis lateralibus vix distinc-  
 tis, racemis axillanbus et terminahbus folio subbrevious, calycis lobis  
 obo\atis obtusis, fructu . , In Zeylonia (Ihw ' 3409 et 3712) Petioli  
 3-4 lin longi, vahdiores qudm m L> Zeylanica, cui valde affinis Iimbi 2 3  
 poll longi, 9 11 lin lati Racemi, pedicelli et petala ut in D Zeylamca Lobi  
 cdlycis latiores Stamina oculis longionbus, caetcrum similibus Stylus junioi  
 glaber, deinde pilosus (v s)
- J D NERVOSA (Ihw en Zeyl p 35), glabra, folns ovatis vel ovato-lanceolatis  
 vel ellipticis obtuse acuminatis basi obtusis vel subiculis nenis subtus validis  
 racemis folio brevionbus pauciflons, calycis lobis obovato oblong s, fructifen  
 lohıs majonbus e bisi ovata obovato oblongis obtusissimis > In Zeylania  
 (Ibw I n 3410) Petioh 5 hn longi Limbi 3 4 poll longi (acumine jñ lin  
 longo), 15-20 lin lati nervis lateralibus utnnque 9 10, subtus magis eminenti-  
 busquam in plonsque sp Pedunculi 1 2 polhc , compressi, 1 5?-flon Pedit-  
 celli 4 lin longi Calyx i lm longus Fructus lobi majores 12 15 lin longi  
 (incl. basi ovata 3 lin), 4 5 hn lati, multineivn, apice subdentati vel mtc-  
 gn (l s)
- † D TRAPIZIFOLIA (Thw I en Zeyl p 35), ramulis petiohs ncemis quejunio-  
 bus tenuissime puberulis dein glabratis iolns ellipticis obtuse et brevitei  
 acuminatis basi obtusis glabns, racemis teiminahbus et axillanbus folio bre-  
 vionbus, calycis glabn lohıs obovato oblongis obtusis, fiuctifen lobis majon-  
 bus supra basim ovatam oblongis margme rppandis ^ In Ze>ldnia (Ihw '  
 n 3341) Rami graciles Petioli 4 lin longi Limbi 2 J-J4 poll longi, 9-14  
 lm lati, extremitate sdepius abrupte, interdum bensim attenuati, nervis late-  
 ralibus utnnque 14 16 d teitiarns reticulatis parum diveisis Pedicelli gla-  
 bnusculi 2 3 lin longi Cdlyx i hn longus TiuUus lobi calycini majoies  
 basi ovata semipolhcan, mde angustiores, supra 1 1 '-polhcares et 4 o hn lati  
 nux ovoidea, acuta, nitida, partem ovatam loborum majoium superans, lobi  
 minores calycis e basi ovata in cuspidem linearem desmentes, nuce vix bre-  
 viores (r s)
- ▷ D CONGESTIFLORA (Thw.l en pi Zeyl. p 35), rdmuhs petiohs racemis que  
 tenuiter pulveulento-pubescentibus, loins ovato obi ngis obtuse acuminatis  
 bisi obtusis vtl subcomatis racemis praesertim terminihbus multifljns  
 lobis calycis glabnuscuho obo\ato-oblongis, Iruenren lobis majonbus maequa-  
 hbus e basi ovate obovato oblongis ^ in Zeylonia (Ihw I n 3411) Petioh  
 \*\* 5 hn , limbi 3-0 poll longi, 1^2 poll lati glabn, nervis secundarns utnn-  
 que 12 14 bene distinctis, teiUanis reticulatis Rac(mi paniculati 2-3 poll  
 longi ramis extremis iulvo pubescentibus flonbus congestis majuscuhs, pedi-  
 celhs felabi s I 2 hn longis Calyx 1 J-2 hn longus, lobis valde inaequalibus  
 Petila losea ? 2 5 In longa ampla Connectivum in appendicem linearem  
 obtusam Joculis multo bievioiem reflexam extensum Lobi majores ot in eodem  
 fructu 15 30 hn longi (Inclusa basi o\ata G hn longa), J5 hn lati, glabn,  
 duo minores e basi ovata hneaies, G-8 hn longi Nux ovoideo acummata,  
 9 hn longa (v s)
- 6 D MACROPHYLLA (Thw ' en 7eyl p 402), rami-\* jumonbus pilosuhs cito gla-  
 bratis folns maju^cuhs ellipticis obtuse et bicviter acuminatis vel obtusis basi  
 iotun<latis cito glabratis, racemis folio subaBquahbus glabns, calycis glabn  
 lobis ellipticis cito accrescentibus obovato oblongis, fructu f In /oylana  
 (Ihw I n m\*) Petioh 5 11 hn Longi glabn Limbi 4 8 poll longi, 2-3 poll  
 lati, conacci, nervis lateralibus utnnque 13 14, iubtusjuniores tenuissime pu-  
 bescentes Kacemi saepius compressi squamis mho tomentosis, 21 neas longis  
 inferne connatis caducis basi cincti cicatncibus transversis ciebnis lbi senus  
 insculpti. Pedicelli 2 hn longi (alyx junior 3 hn lf<igus, lobis externis

- obtusissimis Internis ovato acutis Petala elhptica, dorso sencea, lobos talyois vix superantia Antherae 2 lm longae, appendix connectivi loculorum apices dim id 10 superans, clavata, in aulopsia caduca (v s)
- 7 D OVALIFOLIA (Thw\* I en Ze}l p 402) glabn folus ovatis longe a obtuse acuminatis basi rotundatis latemis pauciflons folio multo brevionbus petiolo longionbus calycis lobis jm lonbus obovatis, fructu ^ In /eylonia (Ihw ! S^l) Rami teretes, divancati Petioh 3 hn lon^i Lirabi 1 \ 3 poll, longi (inci icui/iinc 4 6 In lonpo), 9 18 hn lati nervis lateiahbus utnnque circiter 8 Racemi plenque axillaies, nunc (ex Ihw ) folio subaequalcs, p>>dicelhs 2 ; 3 hn longis, gracihbus A. la bast ra obovoidea, glabi i, 2 lin longa (v s)
- 8 D GARDNERI (Thw ' en p Joj, ramis> racemisque glabns, folus o\atis vel ovato lanceolatis obtuse ct breviter acuminatis basi obtusis vel subacutis supia glabns subtus glabratis, racemis folio aequahbus vel longionbus multiions, lobis calvcinis ovatis Iructifen <supra basim ovatam obovato oblongis. > In Ze^lani i (Ihw ' n 1911) Petioli 6-7 hn longi Limbi I 3 poll longi, 9 18 lm lati, coiacei, neivis later ihbus utnnque circiter 12, csetens crebre reticulatis | agina mler junioie tenuissirae pnbescente, dein glabra Pedicelli lineam lon^i Calyx 2 hn longus, glab( r Petala calyce duplo longiora externe seritea Loculi antherarum quam in affimbus paulo breviorcs, connectivi appendix non ut in alns clavata, sed lineaus ct acutiuscula, locuhs paum brevior, ca3 tens omnibus Doonae Stylus pubescens a pice tiuncato sublobatus Pars ovoidea fiuctus 3 lin longa, lobi iuajores 9 10 lm longi, 3 4 hn lati

*Specie\* jei e ignotse*

- 9 D GORDIOLU (Thw en Zeyl p 3i), folus oblongis abrupte acuminatis cordatis subtus nitidis neivis nervuhsque prominentibus 5 ^n /eylonia (Thw n 1340) Folia 3 4 poll longa (inci acumine circiter 6 hn longo), 1^2 | poll lata, petiolo 3-5 hn longo Flores et fructus ignoli
- 10 D VENULOSA (Thw en Zeyl p 402), glabra folus oblongis vel ovato oblongis obtuse rostrato acuminatis supia crebernme et valde prominentim venulosis medio canahculatis basi sub-5 phnervns iotundatis -f In Zeylonia (rhw n 3673) Arbor magna, ramuhs nigiescentibus toha 2-3 poll longa, 1 ] poll lata, nervis utnnque urcitei 7, petiolo ^ hn longo Mores et fructus ignoti
- X SHOREA Roxb in Gartn f fruct 3 p 47 t 186, Roxb pi Corom 3. t 212, BlumeMus Lugd bat 2 p 32 I 8, Benk et Hook f gen 1 p 193

Calyx tubo brevissimo Stamina 20-100<sup>9</sup> (Scepius 35-50), filamenta basi hgulati, apice fihformia antherae ovatdp vel oblong®, valvis loculorum ajice frequenter paucipilosis, extenonbus paulo majonbus, connectivo in setam vel mucronem penicillatum locuhs breviorcm desinente Ovanum hberum, 3-loculare Stylus apice attenuitus, integer vel subtnlobus Galycis iructiferi tubus non accretus, lobi tits valde aucti, e basi ovata obovato-oblongi Fructus intra basin loboium calycis arete inclusus, liber, mdehiscens vel (ex Ga&itn f et ex specimine meo S oblongifohaB) demum in valvas ruptus — Arbores eldtde, racemis axillaribus et terminalibus, lobis calycinis mamfeste imbricatis, maequahbus

- 1 ↳ ROBI STA (traetrn f Iruct 3 p 48 t 186), ramuhs angulosis stnatis petiohs que pulverulento-subvelutinis, loins e lasi cordata ovatis elhpticsive brevitei acutis vel obiuse acuminatis vel obtusis, junionbus utnnque spaisim stellato pubeiuh, adultis glabns, racemis folio subaequahbus calyceque mcano pubescentibus, calycis lobis ovato-acutis fiuctifen tubo minimo lobis accretis P hasi ovata obovato-oblongis, tnbus sublongionbus valde lationbus > In mon tibus Indiae sepL^dd Morung (Roxb ), JII Nepalia (Wall ) et Tavoy (Wall

- n 965), propter lignum usitata — Roxb pi Corom 3 t 219, fl Ind P<1 1832. v 2 p 615, Wall ' list 96-. Shorea flonhunda Wall' list 964 Vatica robusia Steud nom, ed 2 Petioli 8-9 poll, hmbi 4 8 poll longi 2 n poll lati, subrepandi, nervis lateribus utrinque 10 11, caetens mirra's crebre reticulatis. Stipulae ovato-acutae, 4 lin longae, extus pubescentes Calyx florens, 1 lin longus Petala alba 4 > lin extus velutina Stamina filamentis ligulatis, antheris ipice pilosis, connectivo penicillato v s a Wall in h m<sup>3</sup>o, ex horto cdleutt in h Boiss )
- 2 S. OBTUSA (Wall 1 list n 966, excl specim), folns e basi acuta vel obtusa obovato vel elliptico oblongis obtusis subrepandis, supra glabrusculis subtus in axillis nervorum lateralium et passim in nervis stellato-pubescentibus, petiolo tenuissime velutino, ramulis pedunculis calyceque externe incano velutinis, lobis calycinis ovato icutis, fructu 5 In Martabania — Bl Mus Lugd bat 2. p 32 t 8 Vatica obtusa Steud \* nom ed 2. Petioli 5 8 lin longi, pulveulonto subincani Limbi 3 \~1 poll longi, 1 i 3 poll lati juniores supra ^ensim stellulato-velutini, adulti enim in nervo centrali et passim vestigns pubis minimae donati, subtus in parenchymate glabn, nervis secundarns uinque urciter 15, tertiams multo minoribus, a quaternanis vix dissimilibus Racemi folio breviores, multiflori Calyx florens lineam longus Petala 1 lin longa, extus velutina, oblonga Stamina 25-20 Filamenta basi latiora Connectivum apice penicillatum, minus quam in IC Blumei productum (v >)
- 3 S. LFUCODOTRYA (Mia Ann Mus Lugd bat 1 p 215), folns a basi acuta vel lato-cuneata ovalibus vel subovatis obtusis integerrimis chartaceis, supra lucidis pube raia stellata decidui subtus stellato pubescentibus in axillis nervorum barbellati\*. paniculis dextrillibus dense incano tomentellis, calycis extus dilbo tomentelli lobis ovatis dectis — In regno Siam (leysm) Petioli pollicares vel breviores Limbi J-4 \ poll long), obtusissimi nervis utrinque 13-15 Flores in ramis infloresc secundi, brevissime pedicellati Petala vix 2 lin longd, extus albo-tomentell ^tiinma circitor 20, antheris lato ellipticis, utrinque obtusissimis connectivo producto paucipilo Lobi 3 calycis majores, unde vensimiliti fructilen aae J mdiores quae omnia Shoreae
- 4 S. SFFANJC\* (Bl Mus Lu<sup>r</sup>'d bat 2 p. 3i), folus e basi cordata vel obtusa ovato acutis vel obtusis. supra in nervo medio tomentosulis, subtus nellatopuberis paniculis nmul^que ochraceo tomentosis calycis irucufen lobis 1 niajonbiis oblongis acutis bdsi m<sup>n</sup>'ustatis. -j in Moluccis Dammara Selanicid uids Rumphli Vmb 2 p 108 t 56 Unona? selanira DC prodr 1 p 91 bngelhardtia Selanui Bl 11 Jav Jugl p 8 Hopea Selanica Roxb tl<sup>-</sup> ind ed 1832 \ 2 p 010 Hdssk cat h Bogor p 209 Miq fl Ind bat 1 pars 2 p 504 Arboi copiose resinosa tolid (in ic reducta) ,-8 noli longa 2 2i poll lata, ex ic dectid, c descr obtu a, supra glabn, subtus rugosa dicta Rac<sup><</sup> mi teimm ties, spithainam longi I obi majores in fructu numero 3, inde Shorea, nee Hoped
- p, lahfohn (Bl lb) folns latiorAiiiv, I ngelhardtia spicata Bl fl jav. quo ad syn Heib Amb Dammai i Selaruca femina Rumph 2 109
- ) S. IEPIDOTA (Bl Mus Lugd bat > p 32), ramulis compress fuscis dense le^rosis, folus e bdsi obtusa vel subtruncata, ovabus vel elliptico oblongis dectis \el brevitci acunniidtis rdniia obtusis, supra glibns, subtus petioluque lepiosis, piniculis < hiaceo tomentosulis > calycis lobis ovato-dectis pxius tomentosis intus pubesi entibus inaequalibus Iructu. ^ In Sumatra Vatica Iepidota Kor th Verhand nat Gesch ned Kruidk p 73 Petioli i 7 lin longi Limbi 2 ^-0 poll longi 1 2{ poll lati Gemmae corapiessap, ialcatae, ovatae, stipuhs extus leprosis j-7-neivns Paniculae axillarea, bidcteis minutis subrotundis flores sessiles Ovanum pubescens, loculis 2, inter lum 4 ovulatis, ex Koith
- 6 S. OBLONGIFOLIA (Thwait<sup>f</sup> en pi Zeyl p J6), rimuhs angulosis stnatis petiolis pedunculisque minute subvelutinis, folns e basi cordatd \el tiuncita oblongis obtuse acuminatis neivo sublus minute pulveulnnto velutino caetium glabns, janiculis axillanbus ot ternuilliliis folio subbievionLus secund

- difloris, calycis incano-velutini lobis ovatis obtusis, loculis glabris, connectivo apice setis 3 terminate, calycis fructiferi lobis e basi ovata obovato-oblongis, tribus duplo longioribus. § In Zeylonia (Thwait. n. 3005). Petioli 6-12 lin. longi. Limbi 3-6 poll, longi, 1<sup>^</sup>-3 poll, lati, nervis lateralibus utrinque 14-15, tertiariis et quaternariis vix distinctis. Callus (gemma abortiva?) inter folium et basim dilatam pedunculi. Gemmae ovoideae, acute?, pubescentes. Flores 3-6 in raniulo quoque inflorescentiae sursum versi. Calyx 1J lin. longus, lobis obtusissimis, intus glabris. Petala 4 lin. longa, flava, extus velutina. Stamina 80-100; filamenta ligulata, appressa, apice filiformia; antherae filamento breviores, setis 3 terminatae, seta media longiore. Calyx fructifer utrinque, praesertim basi, pilis minimis stellatis pulverulento-pubescentibus, tubo nullo, lobis basi ovata 4 lin. longis, dein angustatis, majoribus 3 hinc obovatis, 18-20 lin. longis, 6-7 lin. latis, minoribus 2 oblongis, 9-12 lin. longis, 2-3 lin. latis. Capsula ovoidea, pubescens, intra basim calycis occultata, 8 lin. longa, 3-valvis, monosperma. Radicula saepe e capsula sursum elongata. (v. s.)
7. *S. PENICILLATA*, ramulis angulatis striatis, foliis e basi cordata vel retusa ovatis subacutis\_\_\_\_, paniculis axillaribus et terminalibus folio aequalibus vel sublongioribus secundifloris, calycis extus pubescentis lobis ovatis obtusis, staminibus circiter 35, loculis vertice ciliatis, connectivo in cuspidem linearem apice pilosam producto, calycis fructiferi lobis e basi ovata oblongo-obovatis, tribus duplo longioribus. § In India? peninsula. Vatica Tumbagaia Wight et Am. prodr. p. 84 (excl. syn. Roxb.); Wight ic. 1. t. 27. Ex icone petioli 9-12 poll., limbi 2-3 poll, longi, 18-27 lin. lati, apice obtuse et breviter acuminati, nervis lateralibus 10-12, juvenescencia nulla aut (verisimiliter) praetermissa; inflorescentia et Mores *S. oblongifolia*; Tliw. (pubc omissa?); stamina 33; filamenta ligulata, apice filiformia; acumen connectivi et loculi aut male figurati, aut a *S. oblongifolia* diversi, loculis nempe apice pilosis, apiculo medio non mediocri, fasciculo pilorum terminate\*; fructus fere *S. oblongifoliae*.
8. *S. TUMDUGAIA* (Roxb. fl. ind. ed. 1832. v. 2. p. 617, non Wight), foliis ovato-cordatis longe petiolatis, paniculis terminalibus, staminibus circiter centum\* antheris barbatis. § In montibus Balaghat ubi resinam praebet. Saul Tumbagaia Roxb. in E.Ind. C.Mus.t. 1566. Verisimiliter *S. oblongifoliae* Thwait. affinis, sed iumeritis staminum diversissimus et plura ignota. Tabula ined. cum praecedentibus sp. conferenda.
9. *S. LISSOPHYLLA* (Thwait. en. pi. Zeylon. p. 402), ramulis compressis petiolis racemis glabriusculis, foliis e basi obtusa vel subcordata ovatis breviter et obtuse acuminatis glabris, racemis axillaribus et terminalibus folio non longioribus, calycis incano-velutini lobis rotundatis, fructu.... § In Zeylonia (Thwait. n. 3407). Petioli semipollicares. Limbi 3-5 poll, longi, 1j-3 poll, lati, coriacei, glabri, nervis lateralibus utrinque 7-8, tertiariis minimis. Pedunculi in sicco nigricantes, stellis pilorum rudimentariis sparsis ad lentem videndis. Pedicelli lineari longi. Calyx florens lineam longus. Petala 4 lin. longa, oblonga, extus incano-velutina. Stamina circiter 35; antherae filamento breviores, loculis apice paticipilosis, connectivo pilis penicillatis terminato. (v. s.)
- Species dubiz.*
10. *S. LACCIFERA* (Wall, list 967)', glabra, foliis ellipticis obtusis basi subcordatis vel obtusis coriaceis, paniculis folio subaequalibus ex axillis foliorum delapsorum ramis flexuosis, calycis glabri lobis ovato-acutis, fructiferi basi globosi lobis oblongis obtusis quorum 3 aliis dimidio fere longiores. J 1<sup>o</sup> montibus peninsulas Indiae. *S. Talura* Roxb. h. beng. p. 93, fl. ind. ed. 1832. v. 2. p. 618 (nomen vulg. dubium). Saul Jallarea ROXD. ic. ined. in Mus. E. I.C. t. 1567. *S. robusta* Roth nov. sp. p. 221 (non Roxb.). *S. Roxburghii* G. Don in Mill. diet. p. 813? (ex Wight et Am.). Vatica laccifera Wight et Arrj. prodr. p. 84, Wight ic. t. 164. Ex icone Wightii petioli 4 lin.; limbi 3-3i poll-longi, 18-20 lin. lati, nervis later, utrinque circiter 10; inflorescentia glabra; ranii ejus secundarii et tertiarum cnrvi, floribus mine breviter (1 lin.), nunc

longe (4-6 lm) errore? delineatis, petala oblonga; filamenta basi ligulata • antherae connectivum longe subulatum, calycis fructiferi tubus ovoideus lobis lbi male figuratis. Stamina 12 in icone, unde vensimiliter 15 essent sed tunc nulliusgenens cogniti, nain fructus a Vatica et Hoped differt IndVnumerus staminum forsitan ultra 15 ut in Shoreis A Vatica Chinensi L non diversa ex Wight et Am. prodr, sed hujusce fructus ignotus, et appendices staminum omnino differunt

U.S. MALAANONAN (Bl. Mus. Lugd bat 2 p. 34), folns ovato-lanceolatis latis subtus albidis, calycis fructiferi lobis oblongis inflexis, 3 majoribus 3-pollibus ^ In Philippinis. Mocarera Malaanonan Blanco fl. Filip, ed I p. 858. Dipterocarpaceae Malanonan ejusd. ed 2 p 312 et 515 Nux ovoidea, libera ex Blanco ed. 2. p 312, non vero ex p 315 Lobi accreti numero 3 a Dipterocarpo et Anisoptera differunt.

12. S. OVALIS (Bl. Mus Lugd bat. 2 p. 31), ramulis pihs fasciculatisbirsutulis, folns e basi obtusa emarginata vel cuneata oblongo ovalibus vel ovahbus acuminatis, supra in nervis medio toraentosis, subtus steliato pubescentibus. 5 In Borneo ad montera Pia\vin Vatica ovalis Korth Verhand. nat Gcsch. Nederl. Kruidk p 73 Petioli 6-12 lin longi Limbi 8-14 poll longi, 4-5 poll lati Gemmae compressae, ovatae, obtusae. Stipulae ovatae, obtusae, extus fasciculato-pilosae, intus glabrae, 7-nerves.

13. S SIAMFENSIS (Miq Ann Mus. Lugd bat 1. p 214), ramis glabrusculis, loins elliptico-oblongis acutius (uhs junionhus supra glabns subtus petioloque tomento stellato gilvescenti-gnseis, panicuhs axillanhus folio nunc longionibus pilis simplicibus patuhs spaisim pubescentibus, lobis calycis ovatis, fructiferi spathulato-lanceolatis obtusiuscuhs 3 paulo majoribus. — E regno Siam (Teysm.). Folia nevis lateralibus 12-15 Calyx imbiicatus, externe puberulus marginibus ciliolatis Petdla in alabastrum ovato-acutum, 3 lin Jongum' extus praesertim apice pubescens convoluta, lutea. Stamina 15, inaequalia, filamentis brevissimis, antheus hncanbus, locuhs apice cuspidatis, valvulis satis manifeste inaequalibus, connctivo in processum fihforrai leretem loculos circiter aequantem, leutei puherum vel si^bglabrum resolutum. Stigma, parvum, subpeltatum, obtuse subtnlobum Alae fructus non matun 1-2 poll longae. Non Shorea, si vere stamina 15, non Hopea, si lobi calycis fructiferi majores numero 3 An Doona

14. S ? STIPULARIS (Thwait en. pi Zeylan. p. 36), ramulis teretibus, folns e basi rotundata vel subcoidata oblongis breviter acuminatis lasvibus, stipulis ttagnis ovatis subobliquis striatis dm peisistentibus, calycis fructiferi lobis sursum dilatatis tibus majoribus, 5 In Zeylonia (Thwait n. 3408; Arbor JQgens Petioli 12-14 lm longi. Limbi 4-6 poll longi, 2-4 poll lati. Stipulae 6-11 lin longae, 4-7 lin latae Calycis fructiferi lobi majores 5-5 { poll longi, M poll, lati, 11-14-costati, duo minores 3^4 poll longi, 5-6 lin lati, 6-8-costati Fructus subsphaencus, apice conico acuto Flores ign.

*Species ubi numerus staminum ignotus et genus ideo dubium.*

15. S. LEPROSULA (Miq fl ind. bat. suppl. ]. p. 487), innovationibus stellato-leprosis, folns a basi obtusa vel rotundata elliptico-oblongis vel oblongis biemtei acuminatis vel sphacelato obtusatis, supra junionbu^ pihs stellatis teneriniis inspeis adulti> glabus, subtus petioloque fuifure denso brevi stellato chraceo-cineiascentibus, panicuhs paucirameis, flonbus sessilibus, calycis fructiferi lobis 3 majoribus spathulatis obtusis basi ima dilatati^ fructum dmplescentibus — In Sumatia Sh. lepidotae affinis Petioli 6 lin lonci Limbi 3-4 poll longi, 1 ; -1 ] poll lati, nervis secundams utnnque circ 14 s''btus pihs stellatis ^ahdionbus iuscis cum alus mixtis. Calyx maturus parcellato-puberus, lobis 2 nanis

16. S LUCIDA (Miq fl Ind. bat. suppl. 1 p 487), petioln inflorescentia calycibusque fructiferis, pills stellatis luifure-s mox ghbratis, loins e basi rotundata vel oblique subtruncata ellipticis ^el ovato-oblongis obtusiuscule subapiculatis pergamaceis, calycis fructiferi lobis lmean-spathulatis basi attenuata fructum includentibus, 3 majoribus subtrifloris — In Sumatra Folia 3-5

poll, longa, supra nitida, subtus pallida, discolora, parallels valide costulata, costia glabris, parenchymate tenuissime reticulato-venoso, exilissime lepidotulo. Sepala (fructus?)\*basi non imbricata. Flores ignoti.

*Species fere ignotx.*

S. LONGISPEHMA (Roxb. fl. ind. ed. 1832. v. 2. p. 618), mice subcylindrica. In ins. Prince of Wales. Nomen latino-graecum delendum. Omnia ignota.

Sequentes, e Sumatra, floribus fructuque ignotis, in Miq. fl. Ind. bat. suppl. 1 p. 487 et 488 enumerantur : S. PURPUREA, MTENS, PALEMBANICA, SUBPBLTATA. De ramis et foliis confer I. c.

*Species nomine tantum cognita.*

S. LAURIFOLIA Wall, ox Steud. nom. ed. 2. Vatica laurifolia Steud.

*Species exclusie.*

- S. CAMPIORIFERRA Roxl). = Dryobalanops Camphora.  
 S. Guiso Bl. = Anisoptera Guiso.  
 S. MANGACHAPOI Bl. = Anisoptera Mangachapoi.  
 S. MAYA pis Bl. = Dipterocarpus Mayapis.  
 S. SQUAMAT.<sup>^</sup> Benth. et Hook. f. = Hopea squamata.  
 S. TRINERVI<sup>^</sup> Banks = Dipterocarpus turbinatus.

XT. HOPEA Jloxb. pi. Corom. 3. p. 7. t, 210, /?. ind. ed. 1832. v. 2- p. 609; Blume Mus. Lvgd. bat. 2. p. 34; Wight ill. 1. p. 88. t. 37; Benth. el Hook. f. gen. 1. p. 195 {non Hopea) L. qwc sectio Symplocos, nee Hopea Vahl, qua' Pladera in Gentianaceis. — Hoppea Endl. gen. p. 1014 (errore typ.). — Petalandra Hassk. liort. Bogor. sive Retzia (1858) p. 104; Miq. fl. Ind. bat. 1 pars et 2. p. f)04.

Calyx tubo brevissimo. Petalain aestivatione apice oblique induplicata. Stamina 15; filamenta inferne ligulata, apice attenuata; antherae filamentis ssepius breviores, valvis subaequalibus; connectivum apice in npiculum brevem aut setam loculis adnatis longiorem productum. Ovarium liberum, 3-loculare. Calycis fructiferi tubus non auctus, lobi duo valdo accreti, e basi ovata obovato-oblongi. Nux inter basim loborum calycis arete inclusa, libera. —Arbores, racemis axillaribus et terminalibus, nunc pluribus ex eadem axilla, saepius secundifloris.

§ 1. *Calycis lobi manifests imbricati. Anthers filamentis breviores. Stylus acutub vel subacutus.*

\* Connectivum breviter apiculatum.

1. H. ODORATA (Roxb. pi. Corom. ||. t. 210), ramulis junioribus puberulis cito glabr.itis tereiibus, fo 1 iis petiolo gracili puberulo ovato-obiongis obtusis vel obtuse acuminatis basi strpius obtusis utrinque glabris, racemis incano-tomentosi axillaribus et lerminalihus folio brevioribus multifloris, calycis incano-tomentosi lobis obtusis, fructiferi parce puberuli lobis majoribus oblongis 7-9-nerviis quJim minores sextuplo longioribus. 5 InBengalia orientali (Roxb.), ad Moalmine (Heller! n. 63).—Korth. Verhand. nat. Gesch. Kiuidk. p. 7.) t. f. 15-21 (fructus). H. faginea h. Calcutta (ex Lemann in b» Boiss.); Wall, listn. 963. Ramuli pendentis, non compressi. Petioli semipojj-Limbi 2-4 poll, longi, 12-18 lin. lati, etiam juniores glabri, nervis secundarus utrinque 10-11, glandulis interdum(raro)in axillis nervorum. Rami infloresc.

secundiflori. Pedicelli *i* lin. longi. Calyx 1-1<sup>^</sup> lin. longus, lobis intus glabris. Petala pallide flava, oblonga, falcata, utrinque puberula, calyce duplo longiora. Stamina 15, corolla dorso subcoalita, connectivis apiculatis. Calycis fructiferi parce pubescentis lobis majoribus \|. poll, longis. (v. s.)

S *vasta* calycis fructiferi lobis majoribus amplioribus 11-13-nerviis. <sup>^</sup> In Martaban et Tenasserim. H. *vasta* Wall.! list, n.962, quam valde affinem H. *odorata* dixit. Rami, folia, flores omnino H. *odoratae*. Lobi majores fructus 20-22 lin. longi, 6-7 lin. lati (nee 18-21 lin. longi, 4-5 lin. lati ut in a), sed pro latitudine variat numerus nervorum in H. *odorata*. (v. s.)

\*' Seta connectivi loculis longior (1).

2. H. DISCOLOR (Thwait.! en. pi. Zeylon. p. 30), ramulis teretibus tenuissime leprosis glabrescentibus, foliis abasi acuta vel obtusa lanceolatis longe obtuse acuminatis paucinerviis, supra glabriusculis, subtus petioloque tenuissime ferrugineo-leprosis, racemis axillaribus folio brevioribus subleprosis, lobis calycinis ovatis obtusis, calycis fructiferi lobis majoribus obovato-oblongis 7-nerviis. 5 In Zeylonia (Thwait. n. 3125). Ramuli et pedunculi in sicco nigricantes\*, glabriusculi. Petioli 3-5 lin. longi. Limbi 2 $\frac{1}{2}$ -3. J poll, longi, 8-13 lin. lati, nervis secundariis utrinque 5-6, supra impressis et subvelutinis, subtus prominentibus, tertiaris vix distinctis, acumine 6-7 lin. longo. Bracteolae squamiformes ovatae, {- lin. longae. Calyx cum pedicello 2 lin. longus, lobis extus pubescentibus. Corolla 2-2 $\frac{1}{2}$  lin. longa, extus pubescens. Stamina 15, seta rigida duplo loculis longiore terminata. Calycis fructiferi glabriusculi lobi majores 18-30 lin. longi, 4-7 lin. lati. (v. s.)

3. H. JUCUNDA (Thwait. en. pi. Zeyl. p. 403), glabriuscula, foliis <sup>^</sup>si obtusa vel subacuta late ovatis ellipticisve in cuspidem angustam obtusam desinentibus paucinerviis saepe in axillis nervorum subtus glandulosis, paniculis axillaribus et terminalibus folio subaequalibus, lobis calycinis late ovatis obtusis margine attenuatis, fructu. . . ;<sup>s</sup> In Zeylonia (Thwait.! n. 3709). Ramuli non compressi. suMeretes, in sicco nigricantes. Petioli 3-4 lin. longi. Limbi (ex Thwait. i <sup>^</sup>5 poll, longi, inclusacuspide 9-12 lin. longa), 1-2. J- poll, lati, non nisi oculo armato subtus tenuissime in nervo velutini, nervis "lateralibus utrinque 3-4, tertiaris parum distinctis, glandulis (potius insecti plaga?) in axillis quorundam nervorum paginae infer, ellipticis pubescentibus. Calyx cum pedicello 2 lin. longus, extus tenuissime pulverulento-puberulus. Petala 2-<sup>^</sup>3 lin. longa, supra basi extus velutina. Connectivi arista loculis quadruplo longior. Ovarium glabrum. (v. s.)

p *modesta*, foliis minoribus. In Zeylonia H. *modesta* Thwait.! exs. n. 3710.

\*H. *jucundiffi* var. Thwait. en. p. 4n3. Petioli 3 lin. longi. Limbi 1 $\frac{1}{2}$ -2 poll. longi (incluso acumine 4-7 lin.), 9 lin. lati, quam in a minus lirua. Alabastra juniora similia. Setae connectivorum minus elongatas, sed forsitan nondum perfecte. An species? (v. s.)

4. H. WIGHTIANA (Wall, list n. 6295), ramis junioribus petiolistjue fulvo-lepidotis, foliis e basi obtusa ovato-oblongis obtusis vel subobtusis utrinque glabris coriaceis racemis axillaribus folio brevioribus glabris, bracteis lanceolatis pedicello longioribus, lobis calycinis elongato-ovatis obtusis glabris, calycis fructiferi lobis 2 maioribus oblongis obtusis. 5 In peninsula India (Wight cat. n. 961), prov. Concan (Stocks a nook, t. et nomms. comm.) — Wight et Arn. prodr. p. 85; Wight ill. p. 88. t. 37 (ubi error in numero stam.). Ex descr. in Prodr. penins., fructus *capsularis* esset, quod ex icone non patet, et ex affinis spec. non verisimile. Habitus, flores et lobi duo solum aucti Hoppae sunt. Ex specimine Stocksii, rami crassi, petioli 4-6 lin. longi, validi, angulosi, sordide leprosi; limbi 3-6 poll. longi, 1-3 poll. lati, nervis secundariis utrinque 9-10, tertiaris et quatern. reticulatis; racemi ex eadem axilla plures; calyx lin. longus, lobis 2 in flore majoribus; petala aëstiv. oblique inflexa, extus pubescentia, 3 lin. longa; seta? connectivorum loculis 4<sup>u</sup> longiores. (v. s.)

(1) Habitus et inflorescentia Doftinae, sed fructus bialatus.



- 5 *H. GLABRA* (Wight' et Am prodr fl penins ind p 85), ramis junionibus petiohis et inflorescentia glabns folns e basiobtusa oblongis obtuse acuminatis, racemis in axilla plunbus folio longionbus, lobis (alycinis elongato ovdtis obtusis iructu 'y In peninsula Indiae (Wight' n ihO, specimen Imperfectum) Raraus iectus, passim angulosus, glaber, crebre lenticellis palhdis minimis maculatus Petioli 3-4 lm longi, vetusti transverse m'e'osi Limbi 3^-4 poll Ion 11, 12 15 lm lati, nerus secundanisutunque 8 9, utraque pagina gl a be in mis Racemi duo ex sin^ula axilla (plures ex cl a net), in specimine folio non longiores subcompressi vel angulosi Calyx omnino *H. Wightianae* Caetra dehcientia (v s)
- 6 *H. BALANGLRAN* (Korth ' in Verhand nat Gesch ned Kruidk p 74 t 7 f 1-14), ramis junionibus subcompressis pedunculis petiolisque lepidotovelutims fulvis, foil is e basi oblusa ovato-oblongis acuminatis supra glabns subtus tenuissime lepidoto velutims flavic intibus, race in is folio aequahbus veJ brevjonbus lobis calycinis lanceolatis extus senceis alabastns acutis fiuclu . > In Borneo, ad flu men Pattai Kami secundo anno teretes, cinerascentes Peti)h 9 lin longi Limbi 4-6 poll longi, 1} 2 poll lati conacei, nervis secun Urns utrmque 11-13, tertiaris parum distinctis, pagina in\ palhdd, sub lente, ut novella, stellis minimis pilorum ubique lepidota Pubes calycis et petalorum multo longior, e pilis simplicibus subadpressis uneieis constans Calyx r)-partitus, 1 4 lin longus, lobis inaequalibus intus glabns Petala calyce 3° 4°longioia, oblonga, intus glabra, in aestivatione torsa, nee milexa Stamina \i, seta connectivi locuhs paulo longior I^oima aldbastn est polius *Shoreae*

§ 2 *Of^cis lobi vix imbncati Antlierx filamentis longiores.*  
*Stylus apice cupitato-tnlobus*

- 7 *H. ORANDIFLJRA* (Wall ! list, n 958), ramulis petiohis et inflorescentia dense fasciculis pilorum fulvis furfuraceis, folus oblongis vel oblongo-lanceolatis obtusis vel dcutis basi saepius obtusis utnnque glabns, racemis mullifloris folio brevioribus, lobis calycims utnnque tomentos lanceolato-oblongis calyce fructifero glabrato lobis 2 majonbus obovato-oblongis S-nervns alns triplo fere longionbus ^ In Martaban Petioli 4 8 lin longi Limbi 3 5 poll longi, 12 20 lm lati, nervis secumlams utunque 10 12, terliains et qualernarus ciebie reticulatis Calyx 3 lin ljnqus, tubo vix lin Ion go lobis obtusis Petala 5 6 lin longa, extus tulvo-velulma Stamina 15, hlamentis minimis, connectivo apice in glandulam subacutdm brevem producto Fiuctus admodum glabn, cum vestigiis passim tomenti pntini furluracei, tubo calycis lere nullo, lobis majonbus 2 poll longis 5-7 lin latis, minonbus 7-9 lin longis, oblongis, utnnque angustatis, sub-5-nervus Propter numerum alarum non *Vatica* nee *bhoiea* (v s)

*Species dubiw.*

- 8 *H. DRYOBANOIDES* (Miq fl. Ind bat suppl 1 p 492), glabra, folns brevissime petiolatis subabrupte vel longiuscule obtuse acuminatis basi breviter acutis vel obtusis ellipUus vel ovato ellipticis, calycis liuctiicu lobis 2 majonbus hneau spathulUis hasi dilatata capsulam amplectentibus In Sumatia o cid Ramuh et petioli ad lenlem pulvere palhdo conspeisi, mox glabrati Folia 2 3 poll longd, 10-12 lin laid, firmiter chartacea, vuais densis tenernmis, paucis passim distinctionbus ad axillas tumidulis tanus subpeiforatis Lobi calycis fructif 8-10 lin longi, 6-8 nervn, ties nani concavi *Dryobdlanopsi* *Camphoide* perquam simihs resinam flavido-hyalmam fundit
- 9 *H. EGLANDULOSA* (Roxb fl Ind ed 1832 v 2 p 611), folus ovatis oblongis obtuse acuminatis .5 Fmontibuslippeiaceph in hort Calcutta mtrod Difleit ex Roxb a *H. odorata* cortice unereo nee intense brunneo, ramulis non pendentibus et defectu glandularum in axillis nervorum sub folio >ed arborem junioiem solum \idit el glandulae in it 210 Roxb. pi Corom ut m specimibus meis *H. odordtae* saepius desunt
- 10 *H. MICRANTHA* (Hook f iniians Linn soc 23 p. 1b1), minute lepidota,

ramulis nigris, foliis coriaceis elliptico-ovatis ovato-lanceolatisve caudato-acuminatis subtus petiolis pedunculisque paroe puherulis, paniculis brevibus axillaribusque terminalibusque, floribus dense secundis, calycibus cereis, fructu....  
*S* In ora sept. Borneo ad Labuan (Motley). Truncus resinam pnebet. Folia 2-2± poll, longa, subgrisca, subtus cinerea, petiolo 3-4 lin. longo. Racemi 9-12 lin. longi. Flores 1-1½ lin. longi. Petala oblonga, basi connata, dorso sericeo-tomentosa. Stamina sub-12, ex cl. auctore, inde verisimiliter 15. An appendice donata?

11. *H. SANGAL* (Korth. in Verhand. nat. Gesch. Ned. Rruidk. p. 75), ramulis subteretibus glabris fuscis recentioribus compressiusculis vel subtrigonis, foliis oblongo-ovatis obtuse ncurminatis basi hinc rotundatis illinc angusiatis, supra petioloque elabris, subtus glabriusculis vel subpubescentibus in axillis nervorum glandulosis. *S* IN BORNEO AD RIPAS BARITO. Flores et fructus ignoti. Supputatæ ovatae, minutæ, caducæ. Folia 5 (poll. ? centim. ?) longa, 10 lata. Folia potius 0j-6 poll, longa, 1j-z pōn. iaia. penoio 0 lin. longo ^nae mum. IUUS. i~. o. 2. p. 34, dimensiones enim a cl. Korthals quodam signo indicatae ex aliis speciebus mihi cognitis a mensuris vulgo usitatis differunt).
12. *H. SCAPHULA* (Roxb. fl. Ind. ed. 1832, v. 2. p. 611), foliis ellipticis glabris integris, paniculis terminalibus, staminibus margine receptaculi expansi ovarium gerentis insertis. ^ In insula Mascal.
13. *H. ? SERICEA* (Bl. Mus. Lugd. bat. 2. p. 35), ram is teretibus pubescentibus fuscis, foliis e basi obtusa vel acutiuscula ellipticis cum acumine obtuso, in axillis venarum subtus pubescentibus, supra in nervo medio sericeo-velutinis, gemmis oblongis ohtusis pubescentibus, flore...., fructu. . . In Borneo ad montem Balaram. Dryobalanops? sericea Korth. in Verhand. nat.i&sch. Ned. Kruik. p. 72. Folia (ex Bl.) 2-3 J poll, longa, 1-1 j poll, lata, petiolo 3-4 lin. longo.
14. *H. SQDAMATA* (Turcz. in Bull. soc. Mosc. 1858. v. 1. p. 239), squamis stelligeris tota tecta, foliis oyatis vel ellipticis breviter obtuseque acuminatis basi truncatis vel subcordatis, supra nervo medio pubescentibus, extra nervum glabris, subtus in nervis stellato-squamatis, paniculis axillaribus et terminalibus folii longitudine, calyce tomentoso. In Philippinis (Guming n° 883). Shorea squamata Benth. et Hook. f. gen. p. 193. Folia plus quam semipollicaria (sic). Flores sessiles. Bractee alabastris longiores, ohtusissimae, deciduze. Petala cxtus pilosa, calyce duplo lon^iora. Stamina 15; filamentis brevissimis; antheris subrotundis, parvis, appendice multo brevioribus, unde Shorea non videtur, ut ex numero staminum. An fructum viderunt cl. Benth. et Hook. f.?

### *Fere ignotae.*

Cl. Miquel, fl. Ind. bat. suppl. 1. p. 489. 493, sequente9 species floribus et fructu ignotis, ad genus cum dubio reiert : *H. DIVERSIFOLIA*, *H. FAGIFOLIA*, *H. GRACILIS*, *H. MARANTI*, *H. MENGARAWAN*, *H. MYRTIFOLIA*, *H. SINGKAWANG*, *H. SIRANDA*. De ramis foliisve conf. l. c.

### *Nomine tantum cognitae.*

*H. GRATISSIMA* Wall, list n. 960. E. Singapore.

### *Species exclusae.*

*H. FLORIBUNDA* Wall. = *Shorea robusta*.

*H. SELANICA* Roxb. = *Shorea Selanica*.

*H. SUAVIS* Wall. = *Pentacme suavis*.

*H. TANGILI* Bl. = *Dipterocarpus polyspermus*.

XII PETALANDRA *Hassk hort boqnr p 10f* — *Hopeap sp Benth. et Hook f gen p. 193*

Calycis tubus brevissimus Stamina 10, libera, per pana ima basi cohaerente petalorum inserta, filamenta basi dilatata, antherae filamentis subaequales, ovatae, basi cordatae, apice emarginatae, connectivo lobi in setam anthera dimidio longam producto Ovarium hberum, 3-loculare. Stylus apice truncatus, staminate punctilormi Fructus indehiscens<sup>9</sup> monospermus, lobis calycinis accretis obtectus duobus praer rrim valde extensis, obovato-oblongis — Arbor Javana, altitudme mediocris

Situs staminum ex descriptione non sufficienter cognitus. Vensimiliter stamina 5 adsunt petals alterna, et 5 us opposita., si per pana gemmiferum aut per parid rrim ante singulum petalum opposita, tunc aliquid in ordine anomalum, valde distinctum esset Casterum numerus staminum in toto ordine valde constans videtur, saltem quando infra 20, et caractere illo pro genere non admisso, plura confusa sunt genera

P MICRANTHA (Hassk 1 c ), 5 In sylvis altionibus montis Salak, Javae occid SULCUS resinosis, suaveolens Kamuh juniore>> angulati, minute pulverulento tomentosi Stipulae lineares, acutae, 4 millim longae extus stellato canescentes Petioh 9 11 mill longi cano-tomentosi Limbi ovati aut ovato-oblongi aut ovati oblongi acuminati basi acutiusculi vel obtusi, 6j-1 1 centim. longi 4-6 cent lati mtegn, supia plabnuscuh, subtus pube minutissima luli obtecti, Dervis secundanis 3-10-jugis Racemi axillares, folio dimidio breviores, tomento stellato minuto obducti, flonbus secundis erectis, subsessilibus Calyx vix 2 millim longus, lobi. ovato-oblongis, extus canescenti-tomentosis internis mmonibus Petala albida extus toraentosa, 3 mill longa, lassi cohaerentia nee coniuta Stamina ] millim longa, loculis ab apice dehiscensibus, valvis 0\anum glabrum Calycis fructu lobi majores 8-nervi, 4 cent longi.

XIII MONOPORANDMA *Thw in Hook joum 6 18i4 p. 69 % 2 f B , Benth et Hook f gen p. 194, Thw en pi /eyl p 39* — *Valeria sect Monoporandra hjusd ib p 404.*

Calyx tubobrevissimo, lobis subaequalibus Stamina 5 petals alterna (ex sp n 1 obs ), filamenta brevissima, basi dilatata in anulum minimum coalita; antherae oblongae, pubescentes, connectivo apice calloso non producto, loculorum valvis extensibus multo longioribus et lationibus involutis Ovarium hberum, 2-loculare (ex Thwait), 3-loculare (ex Utnth et Hook.), loculis biovulatis. Stylus subulatus Fructus globosus, carnosus, indehiscens calyci reflexo vix aucto apud msi dens bemen unum, radícula supera, cotyledonibus crassis maequibus — Arbores Zeylanicae altitudme mtdiocn , folns distichis, integris, paucis nervis, racemis axillaribus, piniculatis vel paucifloris, flonbus flavescensibus k 5 hn latis — Stamina feie Vaticae, sed numero in ordine msigni

1 M FLIGANS(Thw in Hook joum 1 c t 2), ramis junioribus petiolis pedunculisque lepidoto puberulis, folns lanceolatis longe et obtuse acuminatis basi obtusis vel acutis glabris lobis calycinis lanceolato-oblongis oblongis iacem paucifloris iolio brevibus o In Zeylanica (Thw ' n 371) Vatena elegans ihw en j) 04 Petioh 4 lin longi Limbi 2 2] poll longi (m\l acumiK 6 lin ), 9 12 lin lati, nervis (in sicco) utnque prominentibus Kauini graciles (alyx hla'inusculus, 1 J hn. longus Petala ovato-cliptica, gUbra calyce non duplo longiora Pruttus 4 > 1m latiK, globosus, non sulcatus areolis planis m b lente incrassatus, lobis calycis reflexis 2 lin longis ( \ s )

**MONOPHANDRA. DIPTEROCARPEIK (ALCIOR ALPH. DC). 637**

2. M. CORDIFOUA (Ihw in Hook, Journ. 1. c. p. 70), ramis junioribus petiolo pedunculisque tenuissime puberulis, foliis ovatis vel oblongis longis et obtuse acumatis basi cordatis vel rotundatis superne costa et seepissime nervis secundariis depressis. subtus prominentibus, iacernis multifloris foliis brevioribus. 5 In Zeylania (Ihw in n. 2647) Thw en. p. 39 Valena cordifolia ibid, p. 404. Folia 2-4 poll longa (incurvata 6-12 lin), 1-2 J poll, lata, petiolo 4-11 lin longioribus. \* sine fructu.)
- «\*. M. LANUOLU (Ihw » en. Zeyl p. 10) gUbrd, lobis lanceolatis longe et obtusiuscule acumatis basi obtusis, nervis utrinque prominentibus, pedunculis paucifloris. 6 In Zeylania (Ihw. n. 3412). Valeria lanceifolia Thw en /eyl p. 404 Rami graciles. Petiolo 3-4 lin. longi Limbi 1-2 poll, longi (incurvata 4-8 lin), 7-11 lin. lati, nervis lateribus cernis inaequalibus, leucanis reticulatis (v. s. specim. sine fructu.)

*Genus obscurum.*

- XIV. SUNAIMEA Griff, notul. 4. 56 (ex Benth. et Hook. Ken. I. p. 1/2 cit). "Species amica Merguensis ex descr. auctoris veusimiliter ad Vaticanam rele- « renda est » dicitur U. Benth. et Hook., sed in Valita calyces fructiferos aequales admittunt, et inde dubium. Pars IV Gutt. notul. liiiauste mihi de- hinc

Ordo XXIX<sup>ter</sup>. LOPHIRACEJE. (1) — Guttiferarum genus *Leprieur* olim in herb. — Dipterocarpearum gen. *Guill. et Perrott. fl-Seneg. p. 109. t. 24.* — Lophiraceae *Endl. gen. p. 1014; Lindl. Veg. Kingd. p. 395 (c. fig. aliis muL).* — Marcgraviaceae. genus *Ag. f. Theor. p. 121.* — Dipterocarpear. genus *Bent/i. et Hook, f. gen. p. 192.*

Calyx tubo brevissimo; lobis 5, imbricatis, exterioribus majoribus et deinde magis accrescentibus. Petala 5, lobis calycinis alterna, hypogyna, aestivatione contorta. Stamina QO, libera hypogyna, pluriserialia; filamenta linearia; antherae erectae, lineares, filamento multo longiores, biloculares, loculis rima laterali ex apice dehiscentibus. Discus 0. Ovarium liberum, 1-loculare, elongato-ovoideum, in stylum desinens. Stigmata 2, lineari-acuminata, minima. Ovula plurima (9-10), placentae centrali ovoideae ovario multo breviori adfixa, linearia, uncinata, micropyle infera, raphe centrum ovarii spectante, evolutione ideo apotropa. Nux coriacea, stylo persistente fusiformis, monosperma, lobo exteriori calycis accreto subaequalis, lobo altero exteriori (secundo in serie) multo magis accreto brevior. Semen erectum, ovulis abortivis et exuviis membranaceis placentarum basi cinctum, ovoideo-acutum, teres, exalbuminosum. Radicula infera, minima; cotyledones ovato-oblongae, acuta<sup>3</sup>, piano - con vexae, carnosae, radicula multo longiores. — Arbor africana, glabra; foliis alternis, penninerviis, nervis secundariis crebris parallelis, integris, breviter petiolatis; stipulis mini-mis, caducis; paniculis terminalibus et axillaribus; floribus majusculis, flavis.

Media forma inter Dipterocarpeas, Guttiferas et Ternstroemiaceas. Calyx ex lobis exterioribus, fere ut in Dipterocarpeis accrescens, corolla staminaque subsimilia, sed ovarium 1-loculare, placenta centralis, evolutio ovulorum diversa, radicula infera et cotyledones diversissimae, unde magis quam plures ab omnibus admissi ordines differunt. Habitus et nervatio foliorum fere ut in Calophylleis Guttiferarum, ubi ovarium similiter uniloculare frequenter adesse videtur, sed folia Lophir\* alterna, stipulacea, aestivatio corollae diversa et cotyledones diversissimae. Afiinis tandem Bonnetiis Ternstroemiacearum (Benth. et Hook. f. gen. 1. p. 187) habitu, foliis, aestivatione corollae, secl diversa stipulis, forma staminum, ovario 1-loculari, seminibus et embryone. Analogia adest ovarii et fructus cum ^Egyceraceis.

LOPHIRA *Gaertn. f. lfruct. 3. p. 52. t. 188. f. 2; Guill. et Perrottet I c.*

#### Gharacteres ordinis.

L. ALATA (Gaertn. I. c. J. 5<sup>In</sup> sylvis humidis secus Gambiam et Casamanciam (Guill. et Perr.), ad Sierra Leone (Smeathra.!) et Oware (Beauv. inli. Deless.)-

(1) Auctore Alph. De Candolle.

— Guril et Perr 1 c L Africana G Don gard diet 1 p 812 L simplex ejusd lb (fide Hook f et Benth in Fl nigt p 575) Arbor 25-30 ped Folia pleraque alterna (quaedam in ramulis feic opposita), 4-8 poll longa, JJ-2 poll lata, obovata, oblusa vel cmarginata, in petiolum 4-12 lin. longum angustata, nervis secundariis crebernis a tertiarns reticulatismagmt paum diversis (quod in ic omissum) Stipulae lanceolatae, 2 lin longae Paniculd folio brevior, bracteis minimis dentiformibub Lobi calycis luniores (ex ic ) ovatoacuti, inaequales, senus exteriores oblongi multinervn obtusi, interiores minoresovato rotundati Petala calyce duplo longiora, obcordata, 6 lin longa Nux cum stylo 15-18 lin longa, teres, lobo calycis maximo 2-3 poll longo, altero accreto pollican, caetens 4 lm longis (v s)

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Ordo LXV<sup>bi8</sup>. MON[iv]IAGE,E(l) —Urticarum genera *Juss. gen. p. 401.* — Monimieae *Juss. in Ann. Mus. 14. p. 116- 135.* — Monimieae et Atherospermeae *Rob. Brown gen. rem. p. 21. -\** Monimiaceae *Endl. gen. p. 313; Tul. in Ann. sc. nat. ser. 4. «.3. ;. 29, Ejusd. Monogr. Monimiac. in Arch. Mus. 8. p. 273, t. 25-34, atque Fl. Bras. fasc. 20.*

Flores plerumque dioici vel monoici, raro bisexuales. Perigonium lobis uniserialibus (calyx), aut bi-pluriserialibus (calyx et corolla V); tubo in fl. femineis saepius ventricosus, fauce frequenter processu centro perlorato (velum) partim occlusa. **Stamina tubo perigonii inserta, plerumque c<sup>^</sup>, nunc pauca, antheris bilocularibus, interdum vero loculis apice confluenti<sup>\*</sup>bus.** Staminodia nonnunquam staminibus interiora. Ovaria in fl femineis et androgynis plura, saepe co, intra tubum perigonii acervata, inter se libera, unilocularia, 1-ovulata; stylis longe linearibus, nunc subcoalitis, apice attenuatis. Ovulum in singulo ovario uuicum, erectum aut pendulum, anatropurn- Fructus e perigonio accreto et drupis vel achaeniis constans; perigonium tunc plerumque subcarnosum persistens, interdum capsulare, longitudinaliter aut circumscisse dehiscens; drup<sup>0</sup> interdum exsuccac, endocarpio tenui vel ligneo. Semen alburnosum. Embryo axilis, plerumque minimus; radícula **cyln**— «Jrica; notyledonibus ovato-ellipticis, facie adpressis vel frequenter divaricatis. —Arbores, arbusculae vel frutices, plerumq<sup>^</sup> sempervirentes et fragrantés, pilis saepius iasciculatis, <sup>tr1</sup> Lerristropicalibus, praesertim americanissparsae; in Africa continentali hucusque jgnotae; foliis oppositis (saepe in eodem spe<sup>\*</sup> dnjine ternis \vl dissociatis), rarissime alternis, penninervi<sup>?</sup>\* saepissime glanduloso-punctatis; stipulis nullis; inflorescenti<sup>^</sup> definitis, axillaribus et terminalibus, pedunculis frequenter e<sup>\*</sup>. axilla vel e trunco communi in axilla fqlii geminis, bractei<sup>s</sup> caducis, floribus mediocribus vel parvis, ingratis.

Ordinis affinitates veras cum Calycantheis et Rosaceis, n<sup>Q</sup> c non Dilleniaceis et Magnoliaceis, jam anno 1809 indicavit <sup>w</sup> Jussiaeus, momento tamen nimis gravi concessio analog<sup>la</sup> fallaci floris cum inflorescentia Ficus vel Dorsteniae. Habit<sup>J</sup> s<sup>la</sup> odor, et interdum stamina, Lauraceas memorant, sed pisti<sup>la</sup> **simplicia sunt plurima, nee in unum concreta. Cel. Un<sup>?</sup> e<sup>j</sup>** (Veg. Kingd. p. 295) classem, non sine causa, proposu<sup>it</sup> t<sup>^</sup> Monimiaceis, Mynsticaceis, Lardizabaleis, Schizandracei<sup>3</sup> Menispermaceis, atque eodem anno (1855) cl. Hooker tū- et Thomson (Fl. Ind. p. 164) Monimiaceas non sine causa **prope** Anonaceas, inter Myristicaceas et Menispermaceas **collocave-** runt.

iExtoxicon Ruiz et Pav. prolr. p. 13!. t. 29, Hook. icj-<sup>vl</sup>—,

Baillon Euph. 660 t. 27. f. 26-33 (iEgotoxicum Decaisne in Bull. soc. bot. 1858. p. 214, et Ann. sc. nat. ser. 4. v. 9. p. 278) ab Elaeagnaceis recedens, ut dixit cl. Schlecht. in Prodr. J4. p. §1G differt ab Euphorbiaceis, ex pluribus auct. et praesertim Baillon 1- c. et Muller arg., nee (invito cl. Decaisne) melius Monimiacis adscribendum mihi videtur. Hisce enim repugnant: perianthium manifeste duplex, glandulae lunulatae cum staminibus alternantes, et praesertim ovarium unicum centrale bioyulatum. Villaresiae Illicinearum, moneutecl. Miers (ex Benth. in Hook, Journ. 1854. p. 372), affine (1).

*Series tribuum et generum.*

- Trib. I. SIPARUNEA Antherae vane dehiscentes. Ovana in ventre pengonn ficiformis, indehiscentis inclusa, sublibera. Ovulum erectum, radícula ideo infera.
- Antherae opcruchs dehiscentes. . . . . 1. Siparuna.  
Antherae nmis dehiscentes. . . . . 2. Palmena.
- Trib. II. TAMBOURISSE^E Antherae rim is dehiscentes. Ovana in panete crasso pengonn hciformis, indehiscentis immersa, eo adnata. Drupae senus ibi mdulantes. Ovulum ex apice ovarn pendens, radícula ideo supera. . . . . 3. Tambounssa.
- ^rib. III. MoNIMEEF Antherae rimis dehiscentes Ovana in ventre pengonn ficiformis vel subglobosi, demum dehiscentis inclusa, hbera. Ovulum pendens, radícula supera.
- A. Pengonium m fructu ab apice fissum.  
Stamina numerosissima, antheris biloculanbus. . . . . 4. Monimia.

^ (1) Liceat hie characteres generis JEXTOXICON adjungere ne arbor insignis in Prodromo deficiat.

. t)ioicA. *Flos masculus*. Alabastrum obovoideo-globosum, crebre lepidotum, tunica externa (pars externa calycis?) irregulariter saepius a basi ad apicem rupta, demum modo calyptrae infra bifidae caduca, sepala (pars interior calycis?) saepius 5, imbricata, rotundata, concava, glaberrima Petala 5, sepalis longiora, diutius persistentia, obovato-spathulata, apice enspato-crenata, nervo medio intus percursa, m asstivatione mflexa Staminas (aut 5-7 ex Decaisne). Petals mterna, iis multo breviora; antheris apice filamenti biloculanbus, inorsum nmis dehiscentibus. Glandulas filamento breviores, obovato-bilobae Fassae, staminibus alternae, insertione intiores. Ovani rudimentum hberum'. \*femmes. Tunica externa similis; sepala similia, saepe pauciora. Stamina plus minus stenilia. Glandulae majores. Ovarium liberum, ovoideum, lepidotum, biloculare, oculus geminis ex apice locuh pendentibus anatropis. Stylus, ovario brevior, glaber, hneans, in alabastro recurvus, apice lobulis erectis bifidus. \*ructus elhpsoides, mdehiscens, subcarnosus, abortu monospermus. Semen aibuminosum Embryo radícula supera, cylindrica; cotyledonibus foliaceis, anpressis, ovatis, subcordatis, radícula sublongioribus. — Arbor chilensis, lepidota, folis txstipulatis, alternis, oppositis ternatisve, breviter petiolatis, elhptis oblongisve, integris, persistentibus, subconaceis, supra nudis, subtus crebre bipid? tils, lcp>d>bus argenteis, centro ruiis; racemis axillanbus, simplicibus, brevioribus; fructu venenoso.

3. P13 NCTATUM Ruiz et Pav. — In prov. Concepcion, Valdivia (Phil. 182), Valparaiso (Bert. 1786) etc., a'plerisque lecta (v. s.)



- Stamina uiciter 10, anthers subremformibus 1-loculanbus. . . . . 5. Ehippiandra
- B Pengomum in fructu circumscisse dehiscentis  
 Stamina 12-40, anth. hippocrepicis, 1-loculanbus. . . . . 6 Mollinedia.  
 Stamina 4, anth. 1-loculanbus. . . . . 7 Wilkiea.  
 Stamina 4, anth 2-loculaiibus. . . . . 8 Matthaea  
 Stamina 5-7, anth. 1-loculanbus. . . . . \* 9. Kibara.
- Tnh IV HEDYCARYEJE Anthers nmis dehiscentes Ovana pengonio patente, saepe polyphyllo, inserta, in urupas mutata. Ovulum pendens, radicula supera.  
 Lobi peng numerosi, mteriores (petala) persistentes, accrescentes Stamina 7-10... . 10. Hortoma.  
 Lobi pong 7-8 Stamina numerosiss Cotyledones ad prcssae, radicula longit djuales . . 11. Hedycarya.  
 Lobi peng numerosi Stamina numerosiss Cotyledones valdc divergentes, radicula multo longiores. . . . . 12 Peumus.
- 1 rib V. ATHEROSPERMEA. Antherae operculis dehiscentes. Ovana pengonio patente inserta, in acha)nia mutati Ovulum erectum, radicula infera  
 Flores umsexuales Lobi peng. 5-12 Stamina 5-12, extenora longioia. Pengomum in fructu 2-4-lidum. . . . . 13 Laureha  
 Flores umsexuales Lobi peng saepius 8 Stamina 8-16, anthers mtrorsis. Pengomum in fructu cupuliforme. . . . . 14 Atherosperma.  
 Flores hermaphroditi. Lobi peng 6 Stamina 6-plur , anthers oxtorsis. Staminodia. Pengomum in fructu fissum Achaenia caudata. . . . . 15 Doryphora

### *Dispositio synoplica.*

Magis naturae consentanea esset dispositio tnbuum et generum circularis, nam pnma et ultima tnbus, pengonio femineo et fructu diversis»iinae, ovulo pendente et (saep) operculis antheiarum conveniunt Sejuenti modo disposita\*: afinitutes optime apparent

Siparunese.	Atherospermeae.
Tambounsseae	Hedycaryede.
	Monimieae

### Tribus I. SIPARUNE&.

- Ovaria in ventre perigonii ficiformis, indehiscentis inclusa, sublibera. Ovulum erectum, radicula ideo infera. Anlhera) saepius operculis debiscentes.

I. SIPARUNA *Aubl. Guy. 2. p. 864. U 333 (anno 1775): Juss. gen. p. 443; Crueger in Linn. 20 p. Hi, sne in Ann. sc. nat. sir. 3 v. 7. p. 376. — Citrosma Ruiz et Pav. prodr. (1794) p. 134 t. 29, Syst. 1 p. 2b 3, /ndl. gen. n. 2017, Alph. DC in Seem, Journ. of bot. 18(S. p. 219 — Citrusnw Tut. in Ann. sc. nat. sir. 4 v. 3 p. 32» Monogr. Momm in Arch. Mus. 8\* p. 273. t. 28-30, Fl. bras. Momm. p. 293.*

Flores sdepe dioici. Perigomum subglobosum, obconicum vel obovovideum, apicu poro vel ore crenulato vel lobis (saepe 5-6) coronatum, ad

fauces plus minus constuctum et lbi velo mterno ssepius partim clausum canahculo veh gemtaha mcludente nunc angusto aut conico vel latiore' Stamina nunc pauca (4-6), nunc mdefinita, sub fauce pengonn vel infra inserta, superposita; filamentis saepius membranaceis, libens aut coah-tis, extenonbus saepe stenlibus, anthers exiguis, prope apicem filamenti introrsum valvulis duabus dehiscentibus. Ovana infera, 4 20, singula in smguhs pengonu femmei locuhs irregularibus recondita et cum parietibus dorso frequenter adnata, ovoidco-elongata, m stylum sensim desinentia styLs omnium per canahculum. veh aut libens aut subcoah-tis coalitisve' Velo mterdum adha&rentibus, apice libens et plus minus exsertis. Ovu? lum e basi ovam erectum Fructus bacciformis, nunc fere exsuccus. subglobosus, mterdum calhs tarde echinatus, nuculas putamme osseo Vel fragih, lsevi, rugoso aut echinato tenens Albumen carnosum oleosum, çopiosum. Embryo minimus, radícula infera; cotyledonibus divergenti-ous. — Frutices vel arbuscula in America intertropicali vigentes speciebus geographice et charactenbus arete limitatis, odore gratò ex matene quadam ubique sparsa, folus saepius oppositis, nunc terms vel quaterms, saepe dissouatis, glanduhs plus minus pellucidis scatenti-?us, cymuhs geminatim axilJanbus, semel aut repete aichotomis, aortu saepe symmetries, umsexuahbus aut bisexuahbus, flonbus mas-cuhs tune extremis.

lectio i. CONULEUM — Genus Conuleum Ach Rich inMdm.Soc hist nat Pai IT^i \* - 1 V 827^ P i 9 1 ^ 4 7 7 e, 25 (ubl fo c corrigenda), Endl. gm. n 2114, Schlecht in Prodr 14 p 608 - Citnosmai sp (cum dubio) DC ohm in herb , Tul {certc et cum opt descr ) monogr. Monim p 368

Cymæ ^lsexuales Flores masculu hobo voidei, apice poro solum apert], velo destituti, fem.nci elongati, supra ovana constucti, pengomo mde calyptr, foimi obtuse comco poro termmalis aperto, velo angusto elongate mcluso. Styli coaliti, — Habitus llaeagneae, folus tamen oppositis

1 S DECIPILNS, abunde lepidifera, folus ovalibus vel obovato-oblongis acuminatis vel raro obtusis basi acutis vel longe dtenuaHs integns lenidibus subtus et in petiolo crebnonbus, cymisi bisexualibus petiolo aeualibus vel longionpus saepius bifurcatis lixinons pallide et crebie lepidotis, nonbus masc paucis terminalilms obovoideis obtusissimis, icmineis elongato ovoideis supra meaium con^tntib, stylo apice ex«erto 5 In Guyana gallica (Rich Martin' 5>agot'846) Conaleum GuyanenseA. Rich ] c , Schlecht in Prodr 1 c Citnosma decipiens Tul monopi p 368 Petioh 10 IS null longi Limbi 8-20 cent longi, 4-7 cent lati, vetusti supra lepidibus orbati Cmap vane ramo^a pedicellis 4-6 mill longis Flores interne etiam lcpidoti Masculi rin, 3-4 mill longi, genitahbus inclusis velo nullo fem duplo longiores, velo fistu liformi incluso Fiuctus obovoideus, cent longus, basi acutus, apice calyptra diu coronatus, ex Rich tandem calyptra orbatus (v. & )

Sectio 11. CITRIOSMA. — Citnosmae lore omnes auct et Siparuna Aubl.

Cymæ saepius unisexuales, imo fiequentor dioicae Flores masculu ore saepius lobato, saltern maigine undulato aperti, velo saepe donati, feminu suisum lobis saepe amphonbus, saltern crenis termindti, non conici, intus velo ssepius aucti. Styli liben aut coalitU.

A. Dioicx, filamentu liberts, perigonio haud echinato.

\* Tomentosde.

2. S. ERYTHRocRPA, fulvo-tomentosa, folus obovatis cuspidato-acuminatis jongmscule petiolatis eroso dentatis supra sparsis pilosm subtus fulvo-tomen-losis, cymuhs fem 1-J-flons petiolo muHoliew bievionbus, pengonioc impa

nulato 5-6-fido, lobis ovato-acutis patentibus fructu subobliquo subsphaerico rubro. ( ) In Brasilia\* mont. Orgaos prov. Rio (Vauthierl 566). Citriosma erythrocarpa Tul. in Ann. sc. 1. c. p. 32, Monogr. p. 314 (excl. syn. Mart. msc. fide Tul. in Fl. bras. p. 295). Rami jun. petiolique fulvo-tomentosi. Petioli 1-3 cent, longi, limbi 8-12 cent, longi, 4-6 cent, lati, basi obtusi vel acuti, tenues. Lobi perigonii 1-3 mill, longi. (v. s.)

3. S. OBOVATA, foliis breviter petiolatis obovato-oblongis vel lanceolatis acute acuminatis basi saepius acutis crenatis vel denticulatis utrinque asperulotomentosis, cymulis masc. exilissimis erecto-patentibus petiolo brevioribus multifloris, floribus cxiguus 1-2-andris, femineis brevioribus 1-3-floris, peri\* gonio dense luteo-tomentoso, fructu pyriformi. (y In Brasiliae sylvis prov. Rio de Janeiro (Mart.! Gardn. 373, Lhotzky !J Citriosma obovata Gardn. in Hook, journ. 1843. p. 343, fide Tul. monogr. p. 432. Citriosma oligandra Tul. in Ann. 1. c. p. 32, monoKr. p. 315. t. 28, et Fl. bras. 20. p. 296. t. 82 (ubi II. fern, solum fig.). Ramuli dense tomentosi, luteo-virentes. Petioli 1J-3 cent, longi, limbi 10-14 cent, longi, 3-5 cent, lati, basi acuti, obtusi vel sub emarginati, irregulariter et minutissime denticulati aut crenato-denticulati. Cymæ masc. ter quaterve dichotomae. Perigonium calyciforme, 4-5-lobum, lobis acutis. Cymæ fern, paucifloras, floribus majoribus, lobis perig. triangulari-ovatis, intus glabris (v. s.)

p, *dblusifolia*, foliis apice rotundatis vel obtuse attenuatis. — In montibus Orgaos (Guillem.! 964). Citriosma oligandra Tul. I.e. Petioli in eod. ramo 5-15 mill, longi; limbi 4-9 cent, longi, 2-4 cent. lati. Fructus cent, latus, torosus (v. s. in h. Mus. par.)

4. S. CUJABANA, cinereo-tomentosa, foliis obovato-vel elliptico-oblongis breviter acuminatis basi saepiue obtusis minute et obsolete denticulatis, cymulis masc. petiolo subbrevioribus patentissimis, perigonii tandem late aperti dentibus 4-6 brevissimis, cymulis fern, contractis, perigonii dentibus triangulari-acutis intus glabris. 3<sup>m</sup> Brasilia versus Cujaba (Mansol Mart.! Sello), prov. Fodinarum (Claussen I 160, 131, in h. Boiss.! Wedd.! 1537 et 896 pro parte, de quo conf. ad S. Estrellensem). Citriosma Cujabana Tul. in Ann. p. 33, Monogr. p. 317, Fl. bras. p. 297. Frutex orgyalis, ramis jun. foliisque subtus fulvo\* tomentosis. Petioli 5-15 mill, longi; limbi 6-12 cent, longi, 2-5 cent, lati, basi cuneati v. rotundati v. cordati. Perigonium masc. glqbooso-calyciforme, 3 mill\* longum, velo ultra dentes protracto, glabro. Stamina 8-12?, exterioribus majoribus, subexsertis. Fructus globoso-obovatus, parce tomentosus. (v. s.)

p, *Goyazana*, foliis obovato-cuneatis basi subcordatis. — In prov. Goyaz (St. Hil.! 894 in h. Mus. par.)

y, *plebeia*, foliis obtusis vel subacutis, staminibus paucioribus. \$ In prov. Minarum (St-Hil.! 56 in h. Mus. par.). Citriosma plebeia Tul.! in Ann. sc. nat. 1. c. p. 33, Monogr. p. 318, Fl. bras. Monim. p. 297. Arbuscula biorgyalis. Petioli 5-15 mill, longi. Limbi basi cuneato-rotundati. Velum glabrum, ut in a. dentes supcrans. Stamina (ex Tul.) saepius sex, exterioribus subexsertis, quum in a saepius 8, eliam (ni erraverim, ait cl\* Tul.) 10-12. Rami, folia, pubes, magnitudo florum simillima. (v. s.)

5. S. LANGEOLATA, foliis longc lanceolatis Lrevisissime petiolatis acutissimis obsolete et minutissime denticulatis, cymulis masc. petiolo longioribus pendulis contractis multifloris, perigonii dentibus aequalibus erectis brevibus et obtusatis, fern.... £> In Brasiliae prov. Minas Geraes (Gardn. 5179). Citriosma Ian<sup>n</sup> ceolata Tul. in Ann. 1. c. Monogr. p. 319, Flor. bras. fasc. 20. p. 298. Dioica videtur. Rami dense tomentosi, sordide luteo-virentes. Petioli 1-1-J mill-longi; limbi 12-18 cent, longi, 3-5 cent lati, basi obtusa attenuati, utrinque molliter tomentosi. Cymæ centim. longae. Perigonium 5-6-dentatum, velo imperfecto glabro erecto dentibus brevioribus, parietibus copiose glandulosis. Stamina 6-8. S. Apiosyce proxima, sed folia longe lanceolata.

6. S. ESTRELLENSIS, rufo-tomentosa, foliis ovatis obovatis oblongisve acutis vel brevissime et saepius obtuse acuminatis minute eroso-denticulatis, cymulis petiolo subbrevioribus, masc. multifloris, fern, paucifloris, dentibus perigonii 5-6 brevissimis obtusis utrinque pubescentibus. j In montibus Estrellae prov.

Rio de Janeiro (Selio) et S. Paulo (Mart I obs 605 in h Acad) Citnosma Estrellensis Tul in Ann 1 c p 3, Monogr p 320, Fl bras. 20 p 298 'excl syn Wedd ) Citr erythrocarpa Mart msc (nonlul), Frutex orgyahs, ramis, petiohs folnsque subtus rufo-tomentosis Petioh 12-20 poll longi, hmbi 7-9 cent longi, 2-4 cent lati, basi angustata obtusi vel acuti Dentes peng ex Tul utnque tomentosi, specimina Wedd in h meo et Mus par sub n 896, ubi intus glabri, ad S Gujabanam ideo potius referenda, (v s)

7. S. RUFICEPS, folus ovatis breviter a cum mat is eroso-denticulatis, cymis masc ... ., fem petiolo brevionbus erectis 1-3-flons, pengonn tomentosi lobis amplis ovatis 3 In Brasilia mend (Sello in h ber ) Citnosma ruficeps 1 ul ir Ann. 1 c. p. 34, Monogr p 321, Fl. bras, p 299 Rami jun., pptioh hmbique subtus rufo-tomentosi Petioh 10-15mill longi, hmbi 7-10 cent longi 4-5 cent Uti, dentibus inaequalibus, sinubus latis Pengonium fem obcomco calycmum, rufo-velutinum, lobis 5-6, velo in medio glabro tumente et introphcato tubum brevem et reconditum fingente
- 8 S APIOSYCE, cinereo-tomentosa, fohis amplis oblongis vel oblongo-lanceolatis aculis vel acute acuminatis basi acutis vel obtusis obsolete et\age crenulato-dentatis vel mtegnns longe petiolatis, cymis petiolo duplo brevionbus, masc multiflons, pengonn lobis ovatis obtusis vel subacutis, fem pauciflons lobis majoribus ^Frequensm Brasiliae prov Rio de Janeiro (Mart ' Gaudich ' 77 et 1087, Vauthier 43, Casaretto 1627! Wedd 379, Widgi 487, et 488' Gardn 832, Sello, Pohl' etc )ctllheos Bahiensium (Luschnath' in h Mart) VulgoCidreira, propter odorem. Citnosma Apiosyce Tul<sup>f</sup> in Ann 1 c p I Monogr p 322 t 28, Fl bras fasc 20 p 299 t 82 f 1 Rami, petioh limbique subtus rufo-velutini Petioh 3-5 cent longi, hmbi 15-20 cent longi, 6-8 cent lati, tenues Pengonium masc urceolatum, lobis 4-6 mtus glabiis, fem lobis intus tomentosis Fi uctus pynformis, magnit cerasi, luteolo-tomentellus. (v s)
9. S PELLITA, tota densissime rufo-tomentosa, folns obovalis vel obovato-oblongis obtusis^imis vel breviter acuteque acuminatis eroso-crenulatis nervis lateralibus paucis, cymis masc , fem pauciflons petiolo subbr\ionbu% pengonn dentibus late ovatis subacutis utnque tomentosis. 5 In Bohviae sylvis udis prov Ynquisivi, alt 500-2000 m (Wedd 1 4194 in h Mus par et h Mart). Citnosma pelhta Tul ' in Ann. 1 c , Monogr p 324. Aibuscula circiter biorgyahs Folia saepius dissociata, inde alterna, opposita vel ternata, petiolo 10-25 mill , limbo 8-12 cent longo, 5J-8 cent lato, basi attenuate, juniore subtus aureo, nervis lateralibus utnque 5-6 Pengonium globosocalyciforme, tympano sive membrana crassa in medio piommulo (v s)
10. S FULVA (Alpb DC in Seem journ 1865, p. 219), tota dense rufo-tomentosa, folus elhpticis vel elliptico-oblongis acutis basi obtusis vel subacutis eroso-denticulatis, nervis lateralibus utnque 10-13, cymis masc . , ltimi neis petiolo subaequahbus, fructu pynformi-globoso, limbo patente pengonn obtuse 5-6-lobo coronato ^In Peruvia onentah prone Tarapoto (Spruce<sup>f</sup> 4361) Rami petioh nervique fohorum subtus tomento fcrevi rubigmosi Folia opposita'vel subsparsa Petuh 15-20 mill longi Limbi 9-15 cent longi, 5-6 cent lati, utrinque pubescentes Cymae 3-4-Porae Pedicelh fem junioies 5 mill , fructus fere matun 2 cent, longi Flores U mill 1 iti Fructus cent longus 'latusque, etiam intra lobos tomentosus Lobi late ovati, 1-2 mill longi Velum circa stylos conicum, breve, tomentosum Affinis S pelhtae Pih breviores, in folus et flonbus paucioies (v s)
- 11 S ASPERA, folus oblongis obtusatis basi rotundato-emarginatis brevissime petiolatis obsolete denticulatis, denticulis apicatis, cymis masc , fem petiolo vix longionbus pauciflons, pengonn dentibus obtusis J In Peruviae nemonbus circa Chinchao, Muna, Pillao Citrosma aspera Ruiz et Pav. m sched h Delcss , Tul monogr p 324 Ci rosma tomentosa Ruiz et Pav syst p 260? Frutex 4-ulnans Rami luteo-fulvi Petio l 5 mill longi, hmbi 12-15 cent longi, 4-6 cent lati, instar ramorum et petiolorum densissime fulvo-tomentosi, obtusi vel brevissime ^cuminati Pedicelh fl fem 8-10 mill longi. Pengonium urceolato - pocuhforme, undique tomentosum, velo crasco lato et

- ore prominulo pervio. Styh 8-10, liben, canahculum vu excedunt. Flos masc. 10-12-andrus a R. et P. dicitur.
12. S. POLYANTHA, sordide denseque albido-tomentosa, folns amplis elongato-ovovatis minutissime crenulatis, pedunculis masc petiolo longionbus, pengonn urceolati lobis ovatis, stamimbus numerosis, filamentis ligulatis ovalo-  
acutis subglandulosis.  $\xi$ et.  $\wedge$  In Boliviae prov. Sanctae Crucis (Castelnau n.41) Citosma polyantha Tul "in Ann 1. c p 35, Monogr p 326 Petioh 25-35 mill longi, Iimbi 18-23 cent, longi, 7-9 cent, lati, acutiuscuh velobtusi, supra glabrescentes, neivia tamcn semper dense pilis brevibus stellatis tomentosis, subtus valde to men to si, norvis secuntjdriis piesso ordine dispositis Cymae pedunculate 3-5 cent, longs, pedicellis 6-10 mill longis. Pengomum 5-8 mill. Ion gum, intiis glabrum, veloangusto et occultato. (v s. in h. Mus. par.)
13. S. FRIOCALYX, dense fulvo- vel aureo-tomentosa, folns amplis late ovatis acuminatis hisi abrupte cuneatis grosse eroso-dentatis, cymis petiolo el on gat o brevionbus laxe piuciflons, pengonu amph lobis late rotundis obtusissimis utnque tomentosis, stamimbus paucis  $\wedge$  In Peruvia circa Chinchao (Dombey el Rivero in h par.) Citosma encalyx Tul ' in Ann 1. c r Monogr p 327 Folia oppositi, 10-20 cent longa, 5-12 cent lata, tenuia, supra pilis vulgo solitarus, subtus pilis stellatis tomentosi, petiolo 3-6 cent longo Cym< 8-1 mill longae, pedi^ellis masc 5 mill longis. Pengomum utnusque sexus globoso-urceolatum, dcnssissime luteo-tomentosum, lobis 4-6. Stamina saepius 6 Velum tomentosum (v s in h Mus. par ).
- 14 S. GESNmioidbs, fulvo- vel ranus cinereo-tomontosa, folns amplis ovatis Tel ovato-ohlongis ncuinatis minute ei obsolete denticulatis lanus submtegris, cymis petiolo longionbus bracteis longis divancatis apiceque laxiflons, perigonu lobis ovatis obtusis vel subacutis intus et velo glabris, stylis longe coalitis ultra conuui veil iltiusculum excscitis et apice dissociatis t> In Andibus Qumduensibus Novae Gianatdp (Humb et B '), piope Ibague (Goudof 4, in h Boiss), in Monte Qimidiu (Linden I n 1140) Citosma gesnenoides Kunth in H rt B nov gen dm 2 p 172, Tul monogi p 328 Folia 15-25 tent longa, 8-12 cent lata, petiolo 1-3 cent longo aureo-tomentoso, nervis secundrirus utnque circiter 13 vldde tomentosis, Pengonium urccolatum. (v s. in h. pai et h Boiss.)
- 15 S. MACROPHYLLA, fulvo-tomentosa, folns late ovatis vel ovato-elhpticis acummatis basi obtusis obsolete dentalis supra in venis subtus ubique iulvotomentosis, cymis petiolo subeequidhbus pengonu extus densissime tomentosi lobis oblongis \el late ovalis () In Andibus Quinducnsibus Novde Granatae (Bonpl ) Gitrosma microphyllum Kunth in H el B nov gen 2 p 172; Tul ' mon p 329 Citiosma pyncarpa Ruiz et Pav syst p. 2d'4<sup>9</sup> (quae peruviana, e Guchero, Chmchao, etc ) Arbor novo granatensis, folns 15 20 cent longis, 8-10latis, petiolo 2-3 cent lon^o Racemi 1-2 cent longi, 1 ^)-flon Pengomum utnusque sexus urceolato-ovatum, femineum densius tomentosum lobis intus glbns Velum femin crassissimum, medio pervium et concum Ab alns recedit in eo quod ovana pluia in septis nee panetibus pengonii in sident, S limomodora, ubi flores fern ignoti, caeterum valde affinis Stamina 6-8 (v s in h Mus par )
16. S. LIMONIODORA, tomento aureo-fulvo, folns supia spirsis longis solitanis subtus crebi is fascicuktis, folns amplis obo\atis late eilipticis vel lanccolatis acuminalis bisi cordatis margme (roso-dentalis, pilis supra sparsis longis solitarus, subtus crebns fasciculdtis, pedunculis masc petiolo suhlongionbus subumbellatim multiflons, pengonn longe altenuati parcissime pubenti-, lobis 3-6 late ovato-acutis mtus glabris () In Peruvia (Dombey' m h. pai., Poepp 1961, pro pirte; Pav.I in h Boiss sub nomine div ined , Gl Gay! in n-par ), prope San Govan (Lechlei» 2^62),m Peruvia or prope Tarapoto (Spruce') n. 4553, in h. Mart , specimini Lcchl simill) Citrosma limoniodora Ruiz et Pav msc in h Webb sub n 904 Citrosma dentata Ruiz et Pav syst. p 264\* (peruviana e ClnnchdO et Pillao) Gitr dentdtum Poepp. et Lndl nov gen. i. p 48, Popp n. 14 1228 in b ber (partim ex Tul qui mixtam aij cum S. Amazonum), non Poepp. in h meo, ubi diversiss. planta. Folia m

vulgo in genere opposita, 15-25 cent longa, 8-12 cent lata, petiolo 8-25 mill in eodem ramo, dentibus interdum in crenas mutatis Cymae *i* 3 cent longae Pengonium obconico calyciforme, elongatum, lobis 3-6 Stamina pauca, 5-6 ex Tul, 10 in spec Pavtm Lx specimine Lechlen fructifero lobi pengoniales ovati, obtusi, patentes, intus glabni, styli plunmi, apice hben, exserti, finitius pynformis, centim longus, externe pihs stellatis brevibus pubens, ex cyma longitudine petioh solitarn (v s)

- 17 S ASPEROLA, fulvo-pubens, pihs brevibus stellatis, folns petiolo gracih oblongis obtuse et breviter acuminatis basi cordatis supra minute punctato scabnusculis subtus mollibus et cinereo-pubentibus, cymulis petiolo Drevionhus pauciflons, perigonn masc dentibus s crenis obsoletis, feminei lation bus semiorbicul itis, ovarus numerosissimis § In provincia amazomca Maynis alto (Poepp ' u 1961 pro parte) Citnosma asperula Tul 1 m Ann sc nat 1 c p 35 Git Amazonum Tul Monogr p 332 (nomine sine causa mulato quum G aspera ahud nomen ait) Folia ternata, saepe dissociata, 8-10 cent longa, 4-5 cent lata, integerrima aut vix et obsolete undulato-crenata, utnnque brewssime pubentia, petiolo 8-10 mill longo Pengonium masc obconicum Confusa saepe in herb ut in specim Poeppig cum S hmoniodora, sed pili hreviores et folium minus cordatum (v s in h. Mus. par)
- 18 S SESSILIFLORA, rufo-toDoentosa, folns ovatis vel ovato-elhpticis breviter et obtuse acuminatis basi rotundatis breviter petiolatis obsolete denticulatis, flonbus femnieis glomeratis et subsessilibu\*, perigonn fem hemisphaenci limbo nullo ore prommente parce pubescente, ovarus numero9issimis styhs apicem versus breviter coalitis J<sup>ln</sup> tadibus montis Quindiu Novae Granatae, Dague inter et Cuesta di lohma Citrosma sessiliflorum Kunth in H et B nov gen 2 p 174 C sessihfloia lul monogr. p 333 Folia basi obtusa aut non nihil cuneata, 7-10 cent longa, 4 b tent lata, utnnque densissime molliterque hirsuto-tomentosa et luteo fulva, petiolo 5-10 mill longo CymulaB 4-8 mill longae, bipaititae, singulo ramo 1-5-floio Pengonium 3 mill longum, velo conrcq parce piloso, intus glabrum, loculamentis circiter 20. An b. molli prior<sup>9</sup> (v s in h Mus par)
- 19 S NEGLECTA, rami" pilis fasciculatis adpressis hispido-tomentosis fulvisqur, folns elliptico-oblongis utnnque cuneatis obtuse crenato serratis crassis amplis opacis, adultis supra glabns subtub dense sordideque tomentosus, cymis petiolo dense tomentoso subaequdlibus erectis multiflons subglibns, pengonii mabculi globoso urceolati crassique lobis latis et obiusissimis, stammibus 40-60 et ultra inclusis 3 In Peruvia circa Loxa (Bonpl I n 3364 in h. par) Citnosma neglecU Tul in Ann sc nat 1 c, Monogr p 334 I<sup>1</sup> rutex dioicus, ramis crassii Folia opposita vel terna, 12-15 cent longa, 5-7 cent lata, petiolo 1-2 cent Gymae simplices vel dichotomae, flonbus pedicello 6-10 mill longo suffultis A Kunthio praetervibd Mixta in h Willd cum S gesnenoide Ab analog is discernitui flonbus globobis, crabsis, glabns, dentibus amplis toronatis (v. s. in b Mus par.)

\*\* Pubentes.

20. b. SUAVEOIENS, pilis fasciculatis raolhbus non densis, folns terms vel qua terms obovatis vel obovato lanceolatis breviter acuminatis deorsum longe attenuatis eroso dentitis, cymis fem petiolo longionbus pauciflons mox glabratis, pengonu crasbi calyoiformis intus glabn extus glabnusculi lobib amphs 5-6 ovato-rotundatis et obtusibimis 5 Piope Cuzco, versus oppidulum S Anna (Wedd ' herb 4760) Citnosroa suaveoiens lul 1 in Ann. 1 c. p 36, Monogr p 335 Novella mfo tomentosa. Folia 10-18 tent longa, 5-9 cent lata, petiolo 1-3 tent longo, utnnque inmo piloso tomentosa, supra demum glabuta Lobi pengoniales majores 3 '+ mill, longi, patntissimi, velum late perforatum. Ovana 10-12, styhs hberK. Fructus rubn. (v. s. m h. Mus par et Mart)

- <sup>21</sup>\* S RIPARIA, novellis aureo-tomentosis, ramis sparsis pilosis, folns obovato-vel oblongo lanceolatis bieviter acuminatis basi obtusis vel ranus acutis tenuibus eroso-denticulatis subt'is et petiolo pihs fasciculatis non crebre pubescentibus supra glabrescentibus, cymis petiolo longiusculo brevionbus vel

subaequahbus, pengonu utriusque sexus lobis 5-6 obtusis inlus glabns valde revoluter tubum tomentosum tegentibus, ovams paucrs ^ In Mexici udis et temperatis, prope Huatusco (Ghiesbr \* 1843 n 8), Talapa, Mirador, Plan del Rio (Gal \* 1840 n 269), Orizaba (Botteril 904 et 974) Citnosma npana Tul 1 in Ann. sc 1 c p 36, monogr p 336 Rami foliosi, pilis fasciculatis paucis. Folia 10-17 cent longa, 4-6 cent lata, petiolo 1-2] cent longo, nervissecund. 10-12, tertiaris transversis Flores masc 4-5 mill longi latique, pedicelhs 2-10 mill longis Velum glabrum medio solum apertum Flores fern in cyma pauciores, forma similes Genitaha omnium apice pxserta Fructus globosus, nuculas 3-4 fovens (v s)

p, *Sumichrasti*, glabruscula Ad Orizaba (SumichiastI 974) Novella ut vulgo, pilosa, sed folia glabrescentia Lobi pengonu tubo parce piloso minus reflexi (v s)

- 12 S GLABRESCENS, tandem glabiata, folus ovatis vel ovato-oblongis acuminatis basi obtusis obsolete crenulatis, cymis petiolo brevioribus paucifloris pedunculo abbreviato pedicellis elongatis, lobis pengonu rotundatis ^ In Maitimca (bieb 284' et 28b), Trinitate (Sieb I 331 in h DC, ex specimine manco), Dominica et St Vincent (Griseb fl bnt. w Isl p 9). Citnosma glabrescens Presl bot Bemerk p 110, non Mart; Tul monogr p 337 Rami juniores sparsim fasciculis brevibus pilorum sublepidoti, tlein glabrati Folia 10-17 cent longa, 4-8 cent lata, petiolo 1-3 cent longo, tenuia, fasciculis pilorum breviorum cito evanescentibus Pedicelhs graciles, 2-5 mill longi, pedunculo saepe longiores (v s in h Boiss et meo)
- 23 S PANAMENSIS (Alph DC in Seem Journ 186<sup>e</sup> p. 219), ramis ex fasciculis pilorum minus sparsim punctatis, folus ellipticis vel obovato ellipticis obtusiuscule acuminatis basi acutis margine undulato-subcrenatis, supra pilis raris plerisque solitanis longiusculis tandem nullis donatis, subtus petioloque fasciculis minus pilorum conspersis parenchymate tenuissime granulato, cymis petiolo duplo longioribus cernereo-pubescentibus, pengomo masc obovato, fern obconico, lobis 5 inaequalibus ovatis obtusissimis utrinque pubescentibus b Circa Panama (Hayes\* 671 in h Boiss et Mart) Folia 6-15 cent longa, 3-6 cent lata, petiolo 6 mill longo pube stellata minima subtus perstante Pedunculi gemini, multiflori, unisexualis, pedicelhs 3-5 mill longi Mores 1 mill longi, crebre pubescentes Masc lobis minus Stamina 10-12, libera, exserta, filamentis basi latis, a medio filiformibus Velum minimum Femina lobis parvis, vcllo minus pubescente Oidria 5-8? Styh coaliti, apice exserti Cum S Guyancensi, nescio quo casu in herb conclusa. (v.s)
24. S. ANDINA, mox glabrata, folus amplis breviter et obtuse acuminatis basi rotundatis obtuse crenulatis -> cymis masc petiolo subbrevioribus, pengonu masc late obconici lobis brevibus latis rotundatis obtusissimis, fern fr In montibus Oaxacae (ab Andibus propne dictis valde remotis') alt usque ad 1000 m (Galeotti 1840, n 7184) Citr. Andina lul in Ann Sc nat 1 c et Monogr p. 338 Novellh furfuns minutissimis, scilicet pilis brevissimis fasciculatis crenatis sparsim onusti demum glabri \*oha 12-15 cent, longa, 6-10 cent lata, tenuia, petiolo 2-4 cent longo Cymae masc 1-2 cent longae Pedicelhs gracillimi, 5 mill longi, pedunculo communi longitud/ subaequah misidentes An a S glabrescente diversa' (v spec impert in h Mus par)
- 25 S LAGOPUS, ramis parce hirtellis, folus o)OAdto oblongis breviter acuminatis basi obtusis vel acutis versus basim paucidentatis cacterum integris adultis fere glabris, petiolo supra peculiariter et densissime rufo tomentoso, cymis masc petiolo duplo brevioribus paucifloris, pengonu limbo dilatato crasso obsolete crenato, fpm i) In montibus Quinduensibus Novae Granatse (Goudot' p 5 in h Mus par) Citnosma Lagopus Cul' in Ann 1 c p 37, Monogr p 339 Rami pilis rufulis divancatis simplicibus aut raris fasciculatis parce conspersi, demum glabrati oha 15-20 cent longa, 7-10 cent lata, tenuia, juniora pilis stellatis sparsim donata, adulta subtus glabrata, supra pilis plerisque solitanis passim conspersa, petiolo 1-2 cent longo, a tergo vix pubente, a fronte pilis aureis erectis dense consito, modo pedum lepons Pengonium obconicum (v s in h Mus par)

- 26 *S. CHRIDOTA*, parce pilis minimis fasciculatis fulvis aspera, foliis obovatis vel obovato-lanceolatis breviter cuspidatis basi cuneatis et margine revolutis medio denticulatis postea subintegris supra glabrescentibus, cymis petiolo aequantibus vel subbrevioribus, pectore turbato late aperto, masculo integro, femineo lobis 5-6 obtusis brevibus. *b* Ad fluvium Uaupes, prope Panure (Spruce i 2778) *Citrosma chindota* Tul in Ann. 1. c. p. 37, monogr p 340 Fasciculi pilorum punctiformes. Folia 8-12 cent, longa, 5-6 cent, lata, petiolo 8-15 mill longo, tenuia Cymae masc. 8-10-florae, fem pauciflorae. Fructus pendens, obovoideus, centim. longus, torulosus (v. s.)
- 27 *S. SUBINODORA*, ramis novellis hispidulis, foliis ovato-oblongis vel oblongo-lanceolatis acutiusculis subintegris vel crenulato-dentatis brevissime petiolatis mox utrinque glaberrimis, cymis raris densifloris petiolo sublongioribus, pectore lobis semiorbicularibus, fem ... ^ In Peruvia circa Chacahuassi. *Citrosma subinodora* Ruiz et Pav. » syst 1 p 26''), 'lul monogr. p 11. Fasciculi pilorum in ramulis raris, pilis gracilibus Folia 12-15 cent, longa, 5-6 cent lata, petiolo 5-8 mill longo glabrescente, tenuia, margine passim callo minimo denticulata, ad petiolum angustata vel (in eodem ramo) obtusata etiam auriculata Pectore ovato-calyculiforme, extus hispidulum, lobis 5-6 partibus tandem reflexis (v. s. valde imperf. in h. Boiss )

\*\*\* Hirta-pilosae.

- 28 *S. KUNTHII*, hispida tomentosa pilis plerumque solitariis fulvis, foliis ovato-vel obovato-oblongis amplis acutis basi subacutis vel obtusis vel subcordatis crenulato-dentatis, cymis fem paucifloris petiolo sublongioribus brevioribusve, pectore extus tomentosi urceolato-turbinati limbo brevi 5-6-crenato intus glabro (> In Nova Granata, circa Hundam (Bonpl., Goudot in h. Mus. par.), in prov. Hundam Manquito (Linden' 1175). *Citrosma grandiflorum* Kunth in H. et B. nov gen 2. p 172 (nomen mutat quia flos non magnus) *Citrosma Kunthii* lul ! in Ann 1 c, Monogr p 242 Pili m raro patentis, in petiolis et nervis crebriores, breviores Folia 15-20 cent longa, 5-10 cent lata, petiolo 8-10 mill longo, tenuia, nervis utroque latere 10-11, extra nervos sparsim pilosa Flores fem 3-4 mill longi. Fructus junior pyriformis, pilosus. (v. s. in h. Boiss. et Mus par.)
- 29 *S. HISPIDA* (Alph. DC in Seem Journ 1865, p 210), hispidissima, pilis plerumque solitariis in ramis nervis petiolisque longioribus, novellis abunde fulvo-sensilis, foliis obovatis vel obovato ellipticis acutis crenulato-dentatis basi acutis, cymis fem petiolo brevioribus, pectore obovoidei extus dense tomentosi lobis 5 ovatis bicribus intus glabrescentibus, fructu pyriformi hispido ^> In Peruvia orient, prope Tarapoto (Spruce' 424\*) et Bolivia sept in valle Tipuani (Wedd 1 in h. Mus par) Rami pilis longis lufis peipemhicularibus hispidissimi Petioli centim longi Limbi 5-10 cent longi, pilis utrinque sparsis et in nervis praesterea longioribus Flores fem 14 mill longi, ideo floris *S. Kunthii* duplo minores lobi erecto-innexi. Velum cylindricum, breve, crassum. Styli 6-8, m unum coaliti, ultra velum libere, graciles, lobos pectore non superantes. Fructus (ex specim. Wedd) centim. longus. (v. s.)
- 30 *S. AURICULATA* (Alph. DC in Seem Journ 1895, p. 210), pilis plerumque solitariis fulvis vel cinereis hispido-tomentosa, foliis obovatis breviter acutis remote denticulatis prope basin abrupte angustatis. et ipsi basi lobis duobus latis acutis auriculatis supra pilosis subtus tomentosis, floris . fructibus obovoideo-sphaericis fulvo hispidis lobis inaequalibus oblongis intus pilosis crenatis. ^) In Peruvia orient, prope Tarapoto (Spruce' 426). Pili ramorum lufi, longi. Petioli 5-8 mill longi Limbi 15-20 cent, longi, 8-12 cent lati nervis later utrinque 13-14, parte angustiore basin versus 1-2 cent longaj 1-2 cent, lata, marginibus parallelis, auriculis quadratis a petiolo distantibus tomento subtus et in petiolo longo denso fulvo Fructus solitarius (in specim. segregati), pedunculo 5 null, longo, pedicello terminali vix longiore, fructu centim longo, omnibus lufis hispidis Lobus unus per^istens, erectus 3 mill longus, alius partim destr^ Us. (v. s. m h Mart) /
- 31 *S. AMPLIFOLIA*, hispida, foliis maximis ovato-acutis basi subcordatis a basi



- maequaliter et crebre dentatis, pilis subtus fasciculatis supra sohtanis, flonbus umbellatis, pedunculo pilis brevibus tomentoso petiolo brevioris, ejus ramis pedicehisque pilis nifis intricatis longis hispidissimis, pengonn tubo obconico hispidissimo, lobis 3-4 ovato-oblongis dorso passim pilosis intus clabns amphis — In NovaGranata (Tnana<sup>1</sup>) Rami ignoti Petioh 4 cent longi, dense fulvo tomentosi Limbi 25 30 cent longi, 20-22 cent lati, nervis later utnque 17-19, tertiams reticulatis Peduncululus (insertione ign) 2-3 cent longus, tomento ut in pctiolis, rami inflor subumbellati, 2-4 cent longi, apice 3 flon, pediceloh evoluti 4 5 mill longi Pengomum totum centim longum Lobi 3-5 mill longi, erecto patentes Velum faucem tegens, glabrum Stamina inclusa, orciter 7 9, filamentis inaequalibus, libens, planis, elongatis, antliens apice filamentorum mtrorsis, filamento multo brevioribus (v s in h cl Tnana)
- 32 MUTISII, ramis teretibus spai sim fulvo-pubescentibus, pilis fasciculatis brevibus folns ovato vel lanceolato oblongis acuminatis basi obtusis supra glabrescentibus subtus parce m nervis stellato pilosis obsolete crenatis dentatisve cymis femineis petiolo sublongioribus, pengonn extus fulvo tomentosus lobis amphis obtusis demum patenti revolutis J In Novae Granatae prov Bogotensi (Mutis, Bonpl<sup>1</sup>, Linden<sup>1</sup> 1187) Citnosma Mutisii Kunth in H et B nov gen 2 p 170 Folia ternata vel spaisa, 8 15 cent longa, 3-5 cent lata, petiolo 5-10 mill longo, subconacea, mirgine (m sicco) revoluta, supra frequenter bullata Peiffonium fulvo tomentosum, lobis intus glabns Fiuctus globosus (v s in h Mus par et Boiss)
- 33 S TBIAN<sup>1</sup> (Alph DC in Seem journ 186), p 210), ramis teretibus fasciculis brevissimis piloiium conspersis, folns oppositisellipticis utimque obtusis vel subacutis pilis brevibus fasciculis spiralis supra evanescentibus obscure crenato dentate, cymis femineis petiolo subaequalibus fulvo pubescentibus, pengonn hemisphaerico-tubinati extus pubescentis limbo brevissimo crenatolobato patent? intus veloque hemisphaerico glabris, styhs exsertis ^ In prov Bogotensi Novae Granatae (Inanal) Novella fulvo velutma Petioh 5 10 mill longi, fulvo tomentosi Limbi 7 cent longi 3 4 cent lati, demum subconacei et supra nitidi Pedunculus in axilla gemini 1 3 flon, pediceloh pedunculo brevioribus, 2-3 mill longis Flons 3 4 mill longi Velum convexum, limbo raimmo basi cinctum Styh coaliti, pauci, ultia velum manifeste exserti, unde ut magnit veh et lobis limbi minimis a S Mutisii differt (v s a 1 riana comm)
- p, *latifoha*, folns amphonbus tenuioribus, pengomo parce piloso — In prov Bogotensi (Tnana<sup>1</sup>) Specimen unicum limbo 8 11 cent longo, 5-6 cent lato nervis minus quiminadistinctis, cymis glabris An e loco subobscuris vel humidis? (v s)
- 14 S OVALIS, ramis rufo tomentosis, pilis solitariis vel fasciculatis, folns oppositis vel terms ovato-ellipticis obtusis vel acutis basi obtusis et saepe cordatis denticulatis utnque in nervis pilis fasciculatis vel solitariis fulvo tomentosis extia nervos pilis brevissimis solitariis minute conspersis, cymaepauciflorae petiolo longioribus, pengonn masculi subpilosi lobis ovatis -5 In Peiuvit montibus, circa Muna, Tambo nuevo, Sanapataet Playa (Ruiz el Pav 1) Citnosma ovalis Ruiz et Pav syst p 266, Tul monogr p 344 In sicco paulo nigrescens Folia 6-9 cent longa 3 4 cent lata, petiolo 5 6 mill longo, nervis lateribus utnque circ 10 Cyme mast graciles pedicelohs 4-8 mill longis, pengonico obconico calyiformi 1-1 mill longo h ructus [ex spetim Pav in h Bois3) globosus, 10 mill longus, glabrusculus, pedicello centim longo insidens (v s)
- 35 S FOLIOSA, ramis dejise fohosis, novellis fulvo tomentosis, adultis subglabratibus, folns oblongis acutulis basi rotundatis obsolete minuteque duplicato dentatis seu crenatis initio subtus molliter tomentosis dein subglabratibus, cymis brevissimis 1 3 flons, pengonn feminei dense fulvo tomentosi limbo angusto glabro 5-6 dentato ^ In Brasilia mend circa Yparrena (Sello, B 2152 C 2136 in h bei) Citnosma foliosa Tul in Ann 1 c p 38, Monogr p 346 \*oha opposita, longe oblonga vel elliptico oblonga, 8-12 cent longa I 5cent

lata, petiolo 6-10 mill longo, tenuia, pube subtus aureo-fulva, pilis fasciculatis. Pedicellh 2-4 mill, longi.

+\*\*+ Lepidotae.

- 36 S LEPIDOTA, tota lepidota, lepidibus latis et submarginatis, foliis oppositis ovato-vel lanceolato-oblongis acuminatis obsolete denticulatis basi cuneatis, cymis petiolo triplo longioribus, flonibus longe pedicellatis, pannonibus globosorum-urceolati lobis amplis obtusis ( ) In montibus Novae Granatae? (Bonpl. ), prope Ibague (Goudot. n. 1, in h. par.), in prov. Bogotensi (Inana. n. 1004) Citrosma lepidota Kunth in H. et B. nov. gen. 2. p. 170, 1. ul. Monogr. p. 346. Rami lepidibus pelufoimibus, ambitu non nihil eroso ciliatis, luteo-rufescentibus, confertissimis. Folia 10-20 cent longa, 4-8 cent laeva, utrinque lepidibus adpressis luteo-fulvis minute punctata, petiolo 1-2 cent longo. Pedicelli florum masc. et fem. 12-20 mill longi, e pedunculis 3-6 cent longis. Pannonium intus parce, exius copiose lepidotum. \*ructus globosus (v. s. in h. Mail. et Mus. par.)
- 37 S GOUDOTIANA, lepidifero tomentosa, lepidibus ciliatis ad fasciculos pilorum saepe transcurrentibus, foliis ovato-vel lanceolato-oblongis acuminatis dentatis vestitionibus nunc integris basi obtusis vel acutis breviter petiolatis, cymis fem. petiolo multoties longioribus, flonibus longe pedicellatis, pannonibus globosorum-urceolati lobibus obtusissimis patentibus imo reflexis (y. In Novae Granatae monte Quindiu (Goudot'), ad Alto del Mdebi 12 (Linden i. 105^), in prov. Manquiti (Inana) Citrosma Goudotiana Iul. in Ann. sc. nat. ser. 4. v. 3. p. 18, Monogr. p. 348. Folia ternata, opposita vel sparsa, 8-12 cent longa, 35-55 mill lata, petiolo 10-12 mill longo cuspidato acuminata, subcomplanata, utrinque sparsim fasciculis pilorum lepidoto-punctata. Pedunculi fem. 3-4 cent, pedicellh centim longi. Lobi pannonibus intus glabris. \*ructus globosus (v. s. in h. Boiss. et Mus. par.)

\*\*\*\*\* Glabra

- 38 S LAURIFOLIA, ramis glabris, foliis obovatis vel elliptico-oblongis obtuse acuminatis glabris integris vel obsolete serratis postremo subconatis supra nitidis margine levolutis, petiolo brevi ciliato, cymis masc. glabris petiolo longioribus, pannonio glabro, limbo subnullo integro vel obscure dentato, staminibus seorsim longe exsertis. ^ In Novae Granatae montibus prope Ibague (H. et Bonpl. Goudot. n. i) Citrosma laurifolia Kunth in H. et B. nov. gen. 2. p. 171, Tul. monogr. p. 340. fitr. oblongilolia Ruiz et Pav. syst. p. 266? (quae forsitan S. Mutis?) ex ful. 1. c. Foln. Of. posit. I, terna vel spirata, integra, crenulato-dentata vel serrata, limbo 6-12 cent longo, 2-5 cent lato, 5 mill vix longiore. Cymae 15-20 mill longae. Pannonium obovatum, deinde turbinatum (v. s. in h. Mus. par.)

**B** *Dioica, ramis monoicis, staminibus liberis, pannonio echmato [saltern femineo].*

- V) S PETIOLABIS, dioica, fere omnino glabra, foliis quaternatim verticillatis lanceolato-oblongis breviter acuminatis basi itenuitibus longe petiolatis grosse et rufescentibus serratis pedunculis femineis petiolo dimidio brevioribus subsiniferibus, pedicellis longis gracilibus quasi umbellatis pannonii echinatis dentibus oblongo hinc anibus, stylis exsertis. i) In Novae Granatae Andibus Quinduensium Citrosma i. petiolare Kunth in H. et B. nov. gen. 2. p. 171. Citrosma petiolans Iul. Monogr. p. 150. Rami crassi tetraedrici, glabri. Folia 5-5.5 poll longa, 2.1-2.2 lin lata, supra glabra subtus in nervis pilis raris longis solitariis pilosa petiolo 1.5 poll longo, glabro. Flos masc. ign. tenueus (male in Kunth descr.), pedicello 5 mill longo pedunculo cent longo pannonio urceolato-globoso, tuberculis glabris echmato, lobis 5-6, eiectis, stylis 1-6, liberis. Ad S. echinatum accedit (v. \* in h. Mus. par.)
- 40 S MURICATA, dioica, ramis pedunculis folisque subtus et petiolis dense fulvo-tomentosis, lacinis ternatis longo lanceolatis acutis basi acutis vel obtusis crebre senulatis supra in parenchymate glabrusculis, cymis petiolo subaequalibus, flonibus longiuscule pedicellatis, masc. polyandris non echmatis, pannonio hemisphaerico pubescente, femineo demum subgloboso echmato

- glabriusculo, echinis obtusiusculis, lobis oblongis, stylis divaricato-recurvis. 5 In Peruvia (Dombey!), versus Muna et Acomayo (Payon! in h. Boiss.), in Andibus Ecuadorensibus (Spruce! 5196). *Citriosma muricata* Ruiz et Pav. fl. per. et Chil. prodr. t. 29 (ic. anal.), syst. p. 265; Tul.! monogr. p. 351. Folia 12-25 cent, longa, 3-8 cent, lata, petiolo 25-35 mill. Ion go. Pubes fere lanuginosa. Cymae 2-4 cent, longae. Flos masc. (cl. Tul. ifcnotus) ex specimine Pavonis hemisphaericus, 5-6 mill, latus, extus paulo pubescens, margine subdentatus, staminibus 35-40, filam. lingulatis latis, valvis obovatis. (v. s.)
41. *S. ECHINATJL*, dioica, ramis pedunculis petiolis foliisque subtus pilis fasciculatis rufo-tomentosis, foliis oppositis breviter acuminatis basi cuneatis vel rotundatis minute inaequaliter dentatis, vetustis utrinque bullato-rugosis, supra pilis plerisque fasciculatis pubescentibus, flor. masc. oligandris (6-8-andris), cymis fem. paucifloris petiolo brevioribus, perigonio turbinato-urceolato echinato, echinis longe linearibus et in vertice piliferis, limbi lobis obovato-oblongis obtusis, stylis recurvis. & In Nova Granata ad montem Quindiu (Bonpl.!), prope Ibague (Goudot!) et Los Gallegos (Linden! 1056). *Citriosma echinatum* Kunth in H. et B. nov. gen. 2. p. 173. *Citriosma echinata* Tul. monogr. p. 353. Petioli 1-4 cent, longi. Limbi 9-16 cent, longi, 3-7 cent. lati. Perigonii processus multo exiliores quam in *S. muricata* et apice pilosi. (v. s.)
42. *S. HOLTONI*, monoica, ramis dense ferrugineo-tomentosis, foliis oppositis sparsive ovato-vel obovatis acuminatis basi cuneatis minute erosodentatis supra pilis solitariis vel fasciculatis pubescentibus subtus et petiolo fasciculis pilorum rufo-tomentosis, cymis masc. petiolo sublongioribus, fl. masc. fasciculis pilorum extus conspersis, lobis margine extus revolutis, cymis fern, monocarpis petiolo brevioribus, perigonii subglobosi echinis longe linearibus apice stellato-pilosis. *f*) In Nova Granata Quinduensi prope flumen Tuluam (Holton! 771). Petioli 15-20 mill, longi, limbi 9-12 cent, longi, 4-5 cent, lati, supra pilis adpressis longiusculis sericeis, nervis subtus crebris ferrugineo-tomentosis. Cymae masc. duae cum feminea una saepius in eadem axilla dispositae. Flos masc. 2 mill, longus, 5-fidus, tubo ovoideo, lobis erectis elliptico-oblongis ex plicatura fere acutis. Velum lobis multo brevius, glabrum. Stamina 8-10, inclusa; filamentis liberis, latis; antheris filamentum subacqualibus. Fructus globosus, 10-12 mill, latus, apicibus exceptis glabriusculus. (v. s.)
43. *S. BUDLEIA-FOLIA*, dioica, ramis dense tomentosis, foliis oppositis late ovato-ellipticis acuminatis basi cuneato-rotundatis minute erosodentatis sive crenulatis, supra pilis solitariis pallidis adpressis villosis, subtus et petiolo densissime fasciculis pilorum fulvis vel pallidis tomentosis, cymis masc. petiolo sublongioribus, floribus polyandris, cymis fem. brevioribus, perigonii urceolato-globosi echinis longe linearibus apice stellato-pilosis, lobis masc. subacutis fem. obtusis. 5 In provincia Quito (Hartw.! 1377). *Citrosma budleiaefolium* Benth. pi. Hartw. p. 250. *Citriosma budleiaefolia* Tul. mon. p. 353. Rami initio rufi, postea pallescentes. Folia 12-16 cent, longa, 6-10 cent, lata, petiolo 2-3 cent, longo. Stamina (ex Tul.) 15-20. Ovaria 4-7. Pubes simplici paginae superioris folii a praecedentibus differt. (v. s.)
- 44? *S. APICIFERA*, dioica, aureo-pilosa, pilis conferto-fasciculatis, foliis oppositis late obovatis acuminatis basi cuneatis vel obtusis grosse serrato-dentatis tenuibus, supra sparsim pilis vulgo simplicibus, subtus pilis perigonii fasciculatis copiose in venis pubescentibus, cymis masc. petiolo aequalibus, perigonii oligandri urceolato-calyciformis lobis amplis late obovatis acutiusculis intus glabris, femineis.... 5 In prov. Pasto ditionis Ecuador (Jameson 450 in h. p. & less.). *Citriosma apicifera* Tul. in Ann. sc. ser. 4. v. 3. p. 38, Monogr. p. 354. Ex cl. auctore « ejusdem gregis (perigonio, ut videtur, haud echinato n<sup>o</sup> obstante) atque *Citr. muricata*, *echinata* et *budleiaefolia*, sed floribus oligandris (stam. 6-8) pubisque natura nullo negotio ab eis distinguitur/» Folia tamen grosse inaequaliter dentata dicit. Petiolo 2-3 cent.; limbi 18-20 cent, longi, 8-10 cent. lati. Stamina 6-8. — An perigonium femineum echinatum?
45. *S. BIFIDA*, dioica, ramis gracilibus fasciculis pilorum rufis sparsis, foliis oppositis oblongo-lanceolatis acuminatis basi saepius acutis integris, supra nervo excepto glabrisculis, subtus in nervis rufo-tomentosis alibi sparsim pilosis,

racemis femineis petiolo sublongionibus simplicibus velbifidis tomentosis multiflons, pedicellis mmimis, pengonio ovoideo tomentoso apice constncto breviter dentato, fructu subgloboso «parsim echinis conicis brevibus aucto. 5 In prov. Maynas Brasiliae occid (Poepp » 2131, B, 3189, et in h Boiss 2391, B) Citrosma bifidum Poepp. et Endl nov. gen. 2 p 48, Tul. ? monogr. p. 355. Folia 8-15 cen\* longa, 3 > cent lata, tenuia, pihs paginae sup. paucis fasciculatis vel solitams; petiolo 10-16 mill, longo, supra valde rufo-tomentoso. Flores secus pedunculos approximate, 2 mill longi. Carpida 3-4. Fructus 1-2 cent, latus, paulo pubescens, processibus carnosus vagis. (v. s.)

C *Dioicx,, filamentis ttaminum plus minus coalitis.*

46. S. MOLLICOMA, fasciculis pilorum brevissimis rufo-tomentosa, folns amphs ad petiolum longiusculum cuneatis vel ran as obtusis integris vel minutissim denticulatis, cymis petiolo brevionibus; pengonu campanulas limbo integro vel obsolete 5-6-crenato, stammibus 4 inUusis plus minus coalitis, pengonu feminei lobis amplis rotundatis ^) In Brasiliae occid sylvis pnmaevis, ad cataractas fluvn Tapura prov. Rio Negro (Mart herb.), in prov Maynas alto (Poepp. 2145). Citrosma mollicoma Mart! herb.; lul.' in Ann sc I.e., Monogr p 356 Citr dentata Poepp. in h. Mus. vind, fide cl. Tul. (non R et Pav nee Poepp. no\ a gen ) Tomentum brevissimum, velutinum. Petioh 3-6 cent longi, hmbi 20-30 cent, longi, 8-12 cent lati, in eodem ramo mte-gri vel denticulati, tenues. Cymae masc. parviflorae, masc. pauciflorae. (v. s. in h Mart)

47 S MOLLIS, tota dense molhterque pilis fasciculatis tomentosa ac fulvo-virens, folns late ovatis vel ovato-ellipticis atummatis basi rotundatis obsolete denticulatis breviter petioldtis, cymis masc. iterato dichotomis multiflons petiolo subaequahbus, pengonu masc limbo subnullo, stainimbus circitei 5 vane\* coalitis, cymis fern brevionibus pauciflons, pengonu limbo amphore patente integro vel subcrenato 3 U In Nova Granata circa Hondam et S Annam (Bonpl 1), piope Combayma (Goudot 'n. 2), prope San Pablo (Holtonl 283). Citrosma molle et C. dubium Kunth in H et B. nov. gen. 2 p 173, 174. Citr. mollis Tul' Monogr p 378 t. 29 (IC. anal) Citr pyncarpa Willd herb (non R et Pav?) ex Tul I. c Frutex volubihs Folia 8 20 cent longa, 5-10 cent, lata, utnnque dense tomentosa, petiolo 8 20 mill, longo Stamina vulgo 5, breviter exserta, 4 filamntis coahra, qumto (an semper?) hbero interno. O\ ana 20-25. (v. s )

D. *Monoicx (sxptus<sup>9</sup>)j stamimbus liber is, stylis longe coalitis exsei Us.*

48? S. PCEPPIGHI, parce in ramis et pagina inferiore folu pilis fasciculatis brevissimis conspersa, folns elhptico-vel obovato-oblongis acuminatis basi obtusis integris supra gldbns subtus praBter pilds tenuissime et crebre punctatis, cymis masc . . fern petiolo subbrevoiibus pauciflons, flonbus majustulis, pengonio extus mtusque cinereo-pubescente obconico 4-fido, lobis ovatis obtusis divergentibus j) In Brasiliae bor. occid. provincia Maynas (Poepp. 2060 et 20661) Tetratome lepidota Poepp. et Endl. nov. gen. 2. p. 47. Citnosma Poeppign Tul in Ann. sc 4 v. 39, Mon. p 359 Nomen vetustius fere fdlsim, quia fasciculi pilorum vix lepides dicendi et in prassenti sp. fan. Folia 18-22 cent longa 6-9 cent ldtta, intus vens punctata sed non pellucide in nostro speciminej petiolo 10-10 mill longo. Flores fem. sessiles, 5-6 mill, lonai forma flons Daphnes Velum conicum tomentosum. Locuh numerosu Styfl in columnam coahri Folia omnmo S Guidnensis An monoica' (v. s.)

49 S. AMAZONICA (Mart » herb), fasciculis pilorum in novellis rans minimis cito evanescentibus, folns elhptico-oblongis bre\iter acuminatis basi obtusis vel acutis integris supra glabns subtus grabnusculis glabnsve in parenchymate praeter puncta pellucida tenuissime et inconspicue cinereo-punctatis, cymis saepiusunisexualibus P<sup>ellolo</sup> brevi «q<sup>u</sup>alibus vel longionibus rufescenti-subvelutinis, pengonu obconici 4-lobi lobis divergentibus intus glabns ovatis obtusis, leminei majonbus, rucuh... i) In prov. Para, ad fluvium Mogu (Mart. 1). Citnosma Guyanensis var. nuda Tul. monogr. p. 361, Fl. bras.

Momm p 307, pro parte Saepius dioica? tolia quam Guianensis paulo minor, saepius basi cuneata, magis pellucide punctata, minus cmereo punctulata, glabnora, petiolo simih Differt praesertim lobis pengomi evolutis divergentibus Stamina plunma, exserta Specimen adest fl. masc valde evolutis, 3 4 mill longis, tubo basi obtuso, ubi fiores jun S. Guianensi similiores, tubo basi acuto (v s)

50. S GUIANENSIS (Aubl Guian 2 p 86D t 333), novelhs ex pihs fasciculatis rufo-pubescentibus, folus ovato oblongis ellipticisve breviter acuminatis basi obtusis mtegnis adutis supra glabns subtus parce pubescentibus tandem glabnuscuis et in parenchymate piaetei puncta pellucida crebre cinereo punctatis cymis uni-vel bi^exualibus petiolo brvci aequahbus vel sublongionbus tubescenti cineieis multiflons pengonio obovoidco limbo connivente obsoleto subcrenato, nuculis muncatis ^ In Ameiica mend latius quam adest sp extensa, nempe in valle Mgdalenensi Novae Granatae (Goudot') Villaucenio (Inanal), msula Tunitatis (Grueger), Guyana bnt (bcbomb 6691 404' 728' 1107 ex Sul), baUva (Hostm 382 ex Tul, Wullschl 833 in h Mart '> gallica (Aubl Perrott ! Le Pneui I Sagot' 'jJI) in Mdranhao (h Mart'') — Lrueger m Lmn 20 p 113 Citnosma Guianensis Tul mon p 361 M bras p 307 (excl syn S Amizomcae) Pelioh 5 8 mill longi, crassi, limbi 8 15 cent longi, 4 7 cent lati (v. s)

p, *glabrewens.*, saepe dioica, pube ranore, folus saepius basi cuneatis, petiolo gracih sublongiore — In sylvis prov Rio Negro, Bahiae et Minas Geraes (Mirt 1) Bdhia3 (Gasar ' 2154) Minas Geraes (Claussenl 159 Gardn 5178 in h Boiss) foisan in Guiana gall (ex spec 857 Sagot, valde imperfecto), id Rio de Janeiro (Vauthier' 169, Mertens in h Mait')> in alie lipuaiu Boliviae sept (Wedd 1 in h Mus par) Gitiosma Guianensis et C Guianensisnudd (pLO parte) Tul' mon p 361 et 362, b\ bias Momm p 306 et 307 Petioli 1 2 cent longi, limbi 7 1 > cent longi, tennes, inde }>untU pellutidd magis distincta Lobi pengonu fere obsoleti et nutulae muncatae ut in vera S Guianensi (v s)

Y, *lonyifolia*, folus lanceolatis acuminatis basi obtusis In Brasiliae prov Matto-Grosso (Gaudich ! 292, m h Mus par)

- 6, *diverget nit folia* (ful 1 c), in sicco lutescens, fasciculis pilorum quam in a urebnonbus, velo flons feminei dentes pengonu superante, ovarns paucionbus — In Brasiliae prov Pernanbuco, Piauby et Ceara (Gardn ' 29o2 184 J, in h DC Boiss ot 1842, m h Boiss), Goyaz (Pohl, ex Tul) Angelina diveigentifoha Pohl in h Vind ex Tul Citnosmd oligocarpa Mart hcib ' Saepius monoica Color in herb pallidior quam vulgans Folia similhma Ovana6 8, nee ut in vulgan 8 12 (v s)

- 51 b CAMPOBUM, nmis jumonbub sordide pihs fasciculatis ruo tomentosus, folus brevissime pctiolatis oblongo vel obovato-ellipticis oblusis vel brevissime cuspidato acutis basv obtusis mtegfis, pihs fasuculdtis supra sparsis evanescentiibus sublus crebusrufis cyrais brevissimis tomentosus, pcngonio globoso ore dngusto ex dentibus minimis 3 6 erectis subrostellato stamimbus subinclusis 5 Jn Brasiliae campis apertis prov Tocantms (Wedd i 2432) Citnosma camporum Tul' in Ann sc ser 4 v \*. p 39, Mon p 363, b\ bras p 307 Volia ijipioximata 8 12 cent longa, 3-5 cent Uta, petiolo 4 5 mill longo subconacea man/ine (in sicco) revoluta Cymae pcfcolo subbreiores uni vel bisexuales. blores minimi, dei^tibus pengonu obtusis. Stdmina (ex Tul) 8 12 ovana 6 8 (v s in h Mdit et Mus par)

- 52 S REGIN\*.; ramis saturate rufo-tomentosis, folus breviter petiolatis longt ovato-ellipticove oblon^is acuminatis bdsi rotundis in costa superne rufo-tomentosis subtus pallide tomentoais, cymis petiolo longionbus adpresse tomentosus flonbusmasc pedicellatis, fem subsessihbus, pengonio masc obconico ore aperto repando, fem ovato-vel ovato globoso ore subcrenato, stanainibus 6 inclusis ovarns vultfo 4 i) Jn Bnsiha [h Deless) Citnosma regmae Tul in Ann sc, Monogr p 364 t 30 (fig anal), H bras Momm p 308 t 83 f 1 (anal solum) toha 18-20 cent longd, 5-7 cent lata, petiolo 10 1^ mill longo, pilis supra fasciculatis vel soli tarns spdrsis evanescentiibus fymae umsexudles, 3-4 cent, longae.



*Species dubix.*

57. *S. ALTERNIFOLIA*, foliis alternis oblongis obtusis integerrimis subtus villosis, calycibus subsessilibus aggregatis et tetracarpis. — In Brasilia (Sello). Citriosma a He mi folia Spreng. Syst. 2. p 545. Cl. Tul. qui herb, vindob., ber. et monac. vidit prorsus ignota. Folia in hoc genere interdum dissociata et ideo alterna-adsunt.
58. *S. BRASILIENSIS*, ramis teretibus foliis oblongis utrinque attenuatis denticulatis subtus stellato-pubescentibus calycibus aggregatis tetracarpis. — In Brasilia (Sello). Citriosma Brasiliensis Spreng. Syst. 2. p. 545. Cl. Tul. ignota.
59. *S. DISCOLOR*, monoica, foliis oppositis oblongis alternato-acuminatis basi obtusis integerrimis glaberrimis, supra nitidis, subtus in costa, ramulis et inflorescentia pube stellato-lepidota scabridis, pedunculis abbreviatis multifloris, superiore masculo, pedicellis cymosis, perigonis pentagynis tandem monocarpis. § In America merid. centrali prope Ega. Citriosma discolor Prepp. et Endl. nov. gen. 2. p. 48. Frutex ramis pube stellata flava minuta sparsa scabridis. Folia pollicem dissita, 4 poll, longa, lineas 13 lata, petiolo || lin. longo. Pedunculi petiolo dimidio longiores, lepidoti. Stamina 10-12, filamentis ovali-lanceolatis, basi cohaerentibus. Ovaria 5, monostyla. Fructus globosus, ruber. Drupa extus sulcata et tuberculata, durissima. Odor olei citri.
60. *S. GLAHRA*, foliis breviter petiolatis oblongis utrinque attenuatis glaberrimis subtus discoloribus parallele venosis ac rare dentatis, pedunculis ternis trifloris abbreviatis. — In Brasilia (Sello). Citriosma glabra Spreng. Syst. 2. p. 545. Forsan Mollinedia ex cl. Tul., sed prorsus ign.
61. *S. LINDENI*, fruticosa, ramulis ruís teretibus minute hirtellis, foliis oppositis ellipticis acuminatis minute denticulatis basi acutis brevissime petiolatis utrinque glabris subtus pallide viridibus, glandulis pellucidis citriodoris, floribus. . . . In prov. Santae Catharinae Brasilia?. Culta apud Linden. Citriosma Lindeni Seem. Journ. of bot. 1864. p. 343. Folia 1 | poll, longa, 1  $\frac{2}{3}$  poll, lata, petiolo lineam longo.
62. *S. obLONGIFOLIA*, frutex, foliis oblongis acuminatis integerrimis, staminibus plurimis. In nemoribus peruanis ad Chicahuassi. Citrosma oblongifolia Ruiz et Pav. prodr. p. 266.
63. *S. PANICULATA*, foliis alternis oblongis opacis glabriusculis acutis integerrimis, ramulis teretibus ferrugineo-tomentosis, pedunculis paniculatis elongatis. — In Brasilia (Sello). Citriosma paniculata Spreng. Syst. 2. p. 545. Cl. Tul. qui herb, vind., ber. et monac. vidit ignota. Eadem suspicatur (Mori. P. 372) quam Lauracea quaedam Selloi sub nomine Citriosmae dimidiata in Herb. ber.
64. *S. PAUCIFLORA*, ramulis compresso-tetragonis, petiolis foliis subtus pedicellj<sup>9</sup> floribusque velutinis, foliis oppositis e basi plus minus acuta obovato-oblongj<sup>s</sup> acutiusculis vel subobtusis minutissime denticulatis membranaceis nervis utrinsecus 13-17 supra subglabris, pedicellis petiolo duplo brevioribus plerumque solitariis vel binis rarius compluribus unifloris florem ter superantibus. 5? In Portobello isthmi Panamensis (Billberg). Citrosma pauciflorum Beauv. ling primitiae fl. Portob. p. 146. Petioli pollicares et ultra. Limbi 6-9 P<sup>o</sup>it<sup>#</sup> longi, 4-5 poll. lati.
65. *S. RADIATA*, monoica, foliis oppositis longe petiolatis obovato-elliptic<sup>s</sup> acutis basi cuneatis denticulatis supra scabro-pubescentibus subtus petiolis rainulisque dense ac molliter tomentosis, racemis axillaribus numerosis fasciculatis, perigonis masculis ovato-urceolatis, fern...., fructibus depressis. 0 <sup>^n</sup> sylvis prov. Maynas. Citrosma radiatum Pcepp. et Endl. nov. gen. 2. P- <sup>^</sup> Habitu S. thecaphors, inflorescentia petiolorum longitudine similis, abunde diversa pubescentia densissima mollissima fulvida foliorumque forma. Folia semipedalia, 3 | poll, lata, petiolo 2 poll, interdum longiore. Perigonia parva, Fructui lente minor, limbo persistente medio apiculatus ibique aurantius. A» Citr. tomentosa Ruiz, et Pav.? (ex cl. auct.)

66. S. THEA, fruticosa, ramulis nifis sub-4-angulis hirtellis, foliis oppositis oblongis acuminatis basi in petiolum pubescentem attenuatis undulato-denticulatis utrinque glabris subtus paljidoribus, peliolis rufis, floribus... In prov. Santae Catharinae Brasiliae, culta in horto Linden. Citrosma Thea Seem, Journ. bot. 1864. p. 343. Folia 3 poll, longa, pollicem lata, petiolo 2 lin. longo, glandulis pellucidis odorem gratum Theae spargentibus.
67. S. THECAPHORA, monoica, foliis oppositis longe petiolatis obovato-oblongis acuminatis basi acutis remote denticulatis supra glabris, subtus ramulis et iuflorescentia stellato-pubescentibus, racemis axillaribus mimerosis fasciculatis, perigoniis masc. ovato-urceolatis decandris? i' emineis trigynis tandem monocarpis. 5 In sylvis primajvis prov. Maynas. Citrosma thecaphorum Poepp. et Endl. nov. gen. 2. p. 48. Habitus S. bifidae. Rami subscondentes, obtuse tetragoni. Folia semipedalia, 2 poll, pnulo latiora, petiolo 1 | poll, dense pubescente. Pedunculi pauci, axillares, et postea folio delapso laterales, cymam sessilem fingentes. Piores fern, masculis mixti. Perigonium maris ex basi latissima ovata urceolatum, acutum, pubescens. Stamina breviter excerta. Perig. fcm. fere lenticulare, depressum, limbo e centro eminulo acuto coronatum, lente angustius, luteum.
68. S. TOMENTOSA, foliis oblongo-ovatis serrulatis tomentosis, staminibus 10-12. § In Peruvia ad Chinchao, Muna et Pillao. Citrosma tomentosa Ruiz et Pav. Syst. p. 265- Forsan (ex cl. Tul.) S. sessiliflora?

II. PALMERIA F. Muell.! fragm. 4. p. 152 el 5 p. 2. — Hedycaryae sp. Tul. Monogr. p. 409. f. 34. \*

Fiores dioici, apetalii. *Masculi* perigonio calycino, 4\*5-fido, pateriformi, lobis inflexis, deltoideis. Stamina plurima, toro conferte inserta; filamento vix ullo; anthera lanceolata, pilosa, biloculari, rimis introrsum dehiscente. Grana pollinis (ex Muell.) globosa, scabrida, haud valvato-dehiscentia. Flores *feminei* perigonio subgloboso, apice minutissime pervio ubi summitates stylorum brevissime exseitte. Ovaria plura, glabra, in stylum capillarem sensim desinentia. Fructus depresso-vel pyriformi-globosi, sycioidei, obscure obtusanguli, ostiolo haud ampliato clausi, extus puberuli, intus copiose pilosi. Drupae liberae, 12 x, a) nanr.inres. rarius abortuunicse, intra pp.rie-nimm inllisafi, nyniden-globosæ, subangulatæ, glabræ, punctato-subasperæ, carne tenui, putamine osseo crasso. Semen erectum, basi cavitatis affixum, embryone.... — Frutices australasici; foliis oppositis, integris; cymis axillaribus. — Differt ab Hedycaryeis ovulo erecto, ab Atherospermeis ovariis demum drupaceis, ab hisce duabus perigonio femineo clauso. Kx illo chara«tere et ovulo erecto ad Siparuneas pertinet, ubi tamen dehiscentia antherarum a Siparuna plane distinguitur.

1. P. SCANDENS (F. Muell.! fragm. 4 p. 152), cinereo-puberula, foliis elliptico-acuminatis basi acuminatis raro angustatis, cymis masculis folio dimidio brevioribus, staminibus 15-16 in centro tori deficientibus. 5 U Ad sinum Rockingham Novae Hollandiae orientalis. Altissime scandens. Petioli 5-6 mill, ramiqne tomento brevissimo, cinereo, stellato tecti. Limbi 7-9 cent, longi, 3-5 cent, lati, supra ab initio fere glabri, subtus brevissima pubescentes. Cymae paniculatae, cinereo-pubescentes. Pedicelli 3-4 mill, longi. Perigonium 4-5 mill, latum. Stamina vix'puberula. Pollinis grana (ex Muell.) iis Tambourissae Moninae, Mollinediae et Atherospermatis satis similia, nee eorum Hedycaryae instar 4-valvata. Perigoniura femineum magnit. pisi minoris. Fructus pedicello 1½-4 lin. longo (ex Muell.) inserti. Drupae 2-2} lin. longae, in h. Kew. saepe vacuae ut vidit cl. Mueller, (v. s. in h. Kew. descriptio tamen potius ex cl. Muell.) —
2. P. JUCEMOSA, ramis initio emereo-tomentosis vel lulvellis, foliis ovatis vel oblongo-lanceolatis acuminatis b'si cuneatis, cymis masc. folio brevioribus, staminibus numerosissimis. 5 In Nova Hollandia orient. (Baume in h. Mus,



par., Hflgel m h. Vind.) *Hedycarya racemosa* Tul. Monogr. p. 409. f. 34. An a praecedente diversa? Vidi in n. pans et alteram sp. senus in n. Kewensi, ergo simul conferre non potui. Ex icone limbis fororum basi angustior quam in *P.* scandente, stamina simihte pilosula, in toro toto inserta, 60 et ultra ex cl. Tul., quae in altera sp. certe minus numerosa et in centro tori deficientia. Fructus ign. (v. s. in h. pans.)

Tribus II. *TAMBOURISSME*. — *Amborea* B Tul. in *Ann. sc. nat. ser. 4. v. 3. p. 29.* — JSycioideas seu *Amborea* Tul. *monogr. Monim., p. 295.*

Anthemismis dehiscentes. Ovaria in perigonii crassissimi formis parietibus sepulta, totaque eo adnata, slyhs solum liberis. Drupse in parenchymate natae mdulantes. Ovulum pendulum, radícula ideo supera.

III. *TAMBOURISSA* *Sonnerat voy. Ind or. ed. 1782. v. 2. p. 237. t. 134. ed. 2. vol. 4. p. 405. t. 134; Gmel. Syst 2 p. 16* — *Tamboure-cissa* *Hac. hist. Madag. (1661) p. 133* — *Ambora* Juss <jcn (1789) p. 401, *hndl. gen. n. 2014; Tul. monogr. Momm. in Arch. Mus 8 p. 2*<sup>4</sup> — *Mithndalcd Comm. tried; Schreb. gin. (1791) v. 2 p. 783.* — *lamboul* *Poir. diet. 8 (1806) p. 565.*

Flores dioici vel monoici. *Mascuh.* Perigomum ficiforme, ore in vertico obtusissimo dentibus minutis *k* coalitis aut vix discietis subclausum, panotibus carnis demum divisis 4-6-fidum vel partitum. Stamina crebre secus panetem pengonji inserta, plus minus extrorsa; filamentum brevissimo in connectivum abeunte; anthera biloculan, nmis 2 longitudinalibus dehiscente *Femmei.* *Pencarpium* subsinnle, ore paulo latiore nudo vel obsolete lobato, carpella plura mtra panetem inteinum et cum eo connata fovens. Styli conico-lmeares, e foveohs ubi ovaria adsunt emersi, intra pericarpium inclusi. Ovulum in singulo ovano ab apice pendens. Fructus e pengomo accreto, subcarnoso vel carnososuberoso, et drupis constans. Albumen carnososuberoso. Embryo radícula supera, cotyledonibus elhpLicis, mutuo adpressis (non vero in IC. 25. f. 2. Tul. Monogr. speciei ignotae, dubid<sup>3</sup>). — Arbores fruticesve mascarenhenses et javanenss; folns oppositis, ranus alternis integris: flonbus axillariibus vel terminahbus soli tarns vel racemosis.

\* Folus opposite tornatibvc.

1. T. QUADRIFIDA (Sonn. 1 c t. 134), glabernma, folns ellipticis obovatis oblongis\c obtusis basi saepius acutis, floribus masculis racemosis sohtanibvc, pedicollis< petiolo sublongionibus pengomo demum profunde 4-fido, antheiisS oblongo-ellipticis obtusis, fem .., fructu late turbinato obovoideo medio dcpresso. *b* In Maunlio' et Dorbonid (Commers '), nee non Madagasci (nde solum Sonn 1 c). *Ambora quadnfida* Poir. diet 7. p 6G', ill t 784 (a bonn mutuata); Tul. mon. p 297 Mithndatea quadnfida Willd. s> 1, p 27 Koha 5-9 cent longa, 3-4 cent, lala, peliolo cue. centimetrum longo, menibianaccd, nenis lateialibus subimmersis mihimis Racemi masc mterduoa 2-3 cent lon^i, llonbus soipius oppositis pdicello 5-10 mill, lon^o, \el ilores sohtani pedicello cent longo. Pengonium 12 14 mill, longum, mitio obovouleo oblongum, apice acuto minute 4-dentato, dein 4-fido. Fiuctus ex ic< desentptus (v. s)
2. T. ILPTOPHYLLA, iamis adultis glabns, folns anij]hs ovato-oblongis acuti& tembus utrinque glabns petiolo longiusculo, flonbus racemosis vel ianus soliUius, pengomo masc. demum 4-paitito, staminibus linean-aoutis, lorn discuideo globoso. ^) In ins. Comorei Mdyotte et Anjouan (Boivin in h W|i>

- par et Jaub ). *Ambora leptophylla* Tul in Ann sc. nat. ser 4 v 3 p 29, Monogi p 298 t. 25 Pubes in ramulis novellis cinered, cito evanescens Folia 10-20 cent longa, 6-8 cent lata, ab initio glabra, basi attenuata petiolo 2-4 cent longo Pedicelli 13 cent longi, sohtau vel in racemis alternis Bractee in femmis foliaceae, in masc squamiformes minimae Stamina surra fere ananthera, connectivo elongato Pengonium fern nunc puberulum.
- 3 T. *AMPLIPOLIA*, glabra, folns amplis ovato-vel elliptico-oblongis auitis, floribus racemosis vel solitanis, pengonio masc demum 4-6 partito, anthers sessilibus ellipticis obtusissimis, fiuctu globoso glaberrimo. () In Mduntio 1dm-boure Cissd Flac. hist. Madag. p 133. c ic. (dubit. ex Tul). *Mithndatea amplifolia* Boj. hort maur. p 290. *Ambora amphfoha* Tul. 1 monogi p 290 folid 15-25 cent longa, 6-9 cent, lata, basi cuneata, petiolo vahdo 5-10 mill longo, tenuia, mdrgine pkna vel (invito cl. Tul) revoluta. Rim\* dnteraium ex cl Tul comventes, quae in praecedentibus conniv vel discreti. Fructus Mus par et cl Franquev )
- 4 T *Ficus* ramis recentibus fulvo-tomentelhs folns opposit.s torn.s vel dissociatis oblongo lanceolatis acuminatis giacihter et longiuscule petiolatis alabns, floribus masc ficiformibus crassis extus tenmtei pubescentibus dentum 3-4-partitis, antnens longe hneanbus acutis connectivo brevionibus, fein *Olin s>hisJav<B* (Lesch ) Amboia \*icus ful i in Ann. sc ndt. l! c y'v' ) ?c 5n gU ifi 30 MoQO1(\* Foha TM 12 ce »t- longa, 3-4 cent kta, petiolo 15-20 mill longo: infrd medium exilion mnixi Pengonium ore minimo nudo Anlhaiae loculis discretis Mamma suprema stenha. (v s. in h Mus. par )
5. T *PURPUREA*, glaberrima, ramis exilibus, folns oblongo-lanceolatis obtuse acuminatis basi cuneatis subeveniis mdigine non nihil revolutis subcoruceis flonbus masc .. , femmis sohtane teiminahbus fructu globoso carnosij magno demum larerato-paitito ^ In insuld Santae Marci Mddecassium (Beinier, Boivin in h Mus par) *Ambon purpurea* Tul in Ann MC ndt 1. c , monogr p 301 t lb I-oha stncte opposita, 5-6 cent longa, 18-25 mill latd in petiolum centim longum atenuata Pedunculus terminalis longit petiolorum. Fiuctus magnit ovi galhnacei, la3vis, purpureus.
- C. T *RELIGIOSA* glaberrima, folns ellipUco-oblongis obtusissimis marcine nervosis et revolutis admodum conace.s cym.s masc terminahbu, veldx. lldnbus -n-flons, pengonio globoso pynfoimi ore punctiformi nudo antheris ovato-oblongis sessilibus, fructu solitano glotoso pynformi. ^ In Madagascar (Commers, Boivin in h Mus pir.), insula Nossibe (Perville lb ) et Borboma (Rich ) *Ambora religiosa* Tul in Ann scfnat 1 c , monow u 302 t 27 Folia 8-10 cent longa, 3-4 cent lata, basi breviter cuneata Ltmlo 12-15 mill longo. Anther\* loculis distinctis, conneUrvo non e p^to
7. T. *NLGICTA*, glabeiima, folns oblongis vel obovato-oblongis obtusis imo ct retusis basi autem dtteniato-cune it.s margine planis non tonaceis, flonbus masc.. , racemo fern longo crasso, pengonio obovato-oblongo mmutissime et obtuse mucronuhto - In Mauntio (Labill in h Webb nunc Floient) Amboia neglectd Tul monogi p 432 Folia 6-10 cent longa, 30-45 mill, lata, vems exilibus Floies fern brevitei pedicellati, supeiposite m racemo lerni vel gemini. Mucro peigonu e squamulis coahtis , panes internus lutco pubens Habitus T. rehgiosae
8. 1. *TETRAGONA*, gUhepnma, ramis tetragonis et m angulis subalatis, folu anguste oblongis vel lanceolatis breuter acuminatis bdsi longe attenuate breviter petiolatis subeveniis in margme revolutis, racemis masc bievibus densiflons, flonbus sessilibus () in Mauntio (Gomm , Boivin in h Mus par et Jauberl) *Ambora tetragona* lul. in Ann sc. nat. 1. c p. 30 monosr p 302.
- J. 1. *BOIVINII*, glaberrima, folns amplis ovdto-acutis vel elliptico-oblonim acuminatis basi rotundatis vol cord itis crassis conaceis margino plainis, fiuctibus sessilibus sohtane axillaiibus globoso discoideis crdssissimis lateque apertis. fr In Madagascar, prope SdncUm M mam (Boivin in h Mus. par.) nee non Mauntio et Comores (fideBojer). *Ambora Tambounssa* lul Mbnojr. p. 303.

- Mithridatea Tambourissa Bojer hort. Maur. p. 290 (excl. syn., ex Tul.). Folia 8-15 cent, longa, 6-8 cent, lata, petiolo 15-25 mill, longo.
10. T. ELLIPTICA, glaberrima, foliis late ellipticis obtusissimis margine planis coriaceis basi cuneatis, floribus...., fructibus solitarie axillaribus breviter pedicellatis crassis late apertis. () In Borbonia (Boivin in h. Mus. par. et Jaub.j. Ambora elliptica Tul. in Ann. sc. nat. 1. c. p. 31. Folia 10-15 cent, longa, 7-9 cent, lata, petiolo 15-20 mill, longo. Fructus pedicello vix centim. longo inserti, carnosolignosi, drupis aurantiis.
11. T. SIEBEI, ramis...., foliis...., racemis masc. amplis dense fulvo-velutinis compositis, alabastris ellipsoideis pedicello subbrevioribus fulvo-velutinis apice lobis erectis quorum 2 exterioribus breviores coronatis demum 4-6-partitis, antheris sessilibus ovato-elongatis obtusis. i) In Mauritio (Sieb.! ft. Maurit. 2. n. 31G). Ambora tomentosa Sieb.! sched. (non Bory). Ambora Sieberi Tul. in Ann. sc. nat. 1. c, Monogr. p. 304. Panicula 2 decim. longa, tomento brevi luteo, ramis divaricatis. Pedicelli alterni vel sparsi, patentes, 1-2 cent, longi. Bracteas.... Bracteolae minimae, caducae. Alabastrum centim. longum. Lobi terminales 1-3 mill, longi, elliptici. Stamina innumera, transversa, sessilia. Loculi antherarum apice non confluentes. (v. s.)
12. T. VESTITA, dioica, ramis teretibus dense fulvo-tomentosis, pilis simplicibus vagis dense iraplexis, foliis elliptico-lanceolato-ve-oblongis brevissime et acute acuminatis basi cuneatis margine integerrimo revolutis venis paucis laxis, utrinque in costa venis petioloque brevi fulvo-tomentosis. f) Provenit ut opinor ait cl. Tul. in Borbonia. Ambora vestita Tul. in Ann. sc. nat. 1. c, monogr. p. 306. Specimen authenticum floribus fructu orbatum in h. Mus. par. repositum, simile mihi apparuit cum arbore mauritiana herb. Rich. (sub nom. ined. Amboraj multiiflora?) a cl. Franqueville mecum communicata, ubi scq. char, video : Kami teretes et inflorescentia ex toto fulvo-velutina, pilis minimis intricatis crebris. Folia 5-7 cent, longa, 2-3 cent, lata, petiolo cent, longo, utrinque obtusa vel subacuta, undique pilis brevibus adpressis solitariis vel fasciculatis velutina, sero supra paulo glabrescentia. Cymae masc multiflorae, ramis divergentibus. Bracteae et bracteolae minimae, lanceolatae, opposite. Perigonium 5-8 mill, longum, obovoideo-oblongum, obtuse 4-costatum, apice angustatum et lobis 4 erectis ellipticis quorum 2 exteriores longiores coronatum, fauce crassa subclausa. Stamina transverse posita; antherae subsessiles, quadrato-elongatae. Perigonium femin. (in specim. segregatum) subglobosum, 10-12 mill, longum, lobis 2 mill, longis erectis varie inaequalibus apice umbonatum, pariete interno breviter piloso, pistillis crebris, basi immersis, stylis liberis lusiformibus glabris. Differt solum foliis magis pubescentibus et forsitan aliis char, in flor. et fr. ignotis.

\*\* Foliis alternis.

13. T. ALTERNIFOLIA, glaberrima, foliis alternis late ellipticis acutis vel obtusis basi rotundatis tenuibus, floribus masc. caulinis ficiformibus, antheris breviter stipitatis lineari-linguiformibus. () In Mauritio ad radices montis (Boivin in h. Mus. par.). Ambora alternifolia Tul. in Ann. sc. nat. 1. c, monogr. p. 305. Kami graciles. Folia 8-15 cent, longa, 5-9 cent, lata, petiolo 10-15 mill\* longo, breviter obtuseque acuminata vel obtusissima, quandoque acute ietusa, margine plana integra vel obsolete obtusissime subcrenata, venis prominentibus. Flores masc. solitarii videntur, pedicello 15-25 mill, longo. Perigonium obtusissimum, mucrone autem exiguo e dentibus 4 decussatim coalitis erectis terminato, utrinque glabro. Antherae loculi connectivo breviores, postici sive extrorsi.

### *Species obscura.*

14. T. OBOVATA, glaberrima, foliis oppositis saepius dissociatis et propterea sparsis Ute obovatis acutiusculis inferne attenuatis longiuscule petiolatis suocoriaceis subtus exiliter venosis ac in margine integerrimo non nihil revolutis. — In Mauritio (Boivin in h. Mus. par. sine flor.). Ambora obovata Tul. in Ann. sc. nat. 1. c, monogr. p. 306.

*Species exclusa.*

MITHRIDATBA CYBIOSEA Willd. = Rubiaceae, ex Tul. monogr p. 306.

Tribus III. *MONIMIEM* Tul. in *Ann. sc. nat. ser. 4. v. 3. p. 32* (excl. *Siparuna*). — Monimiacearum Subordo Monimieae Endl. *gen. p. 313* (excl. *Ambora*). — Monimieae seu Drupaceae Tul. *monogr. Monim. p. 306* (excl. *Siparuna*),

Ovaria in ventre perigonii libera. Ovulum pendulum, radícula ideo supera. Drupae in perigonio fisso vel circumciso vel demum patente distinctae.

IV. MONIMIA. Pet. *Th. hist. veg. Afr. austr.* (1804) p. 35. U 9; Tul. *monogr. Monim. in Arch. Mus.* 8. p. 307. t. 29.

Flores dioici. MASC. Perigonium ovoideum, serius irregulariter 4-6-partitum. Stamina mnumera, parietem mternum pengonn vestientia, filamentis utroque latere glandula stipitata capitato-disciformi donatis; antheris ovoideo-quadrangularibus, locuhs longitudinaliter introrsum ^Jina prope connectivum dehiscentibus; pollme subgloboso, papillis Punctato. FEM. Perigonium ovoideum, ore angusto 4-6-dentato, dentibus erectis brevibus. Ovana 6-8, panete interno piloso pengonn inserta, sessilia, fusiformia, stylis gracilibus, apice exsertis; ovulo Dendente. Fructus e pencarpio carnosos tandem Jacerato et drupis liberis mclusis putamine osseo constans. Embryo minutus; radícula supera; ^otyledombus late divergentibus. — Frutices ex insulis Africa australis orientahs; folns oppositis, integns; cymis axillanbus plunflons. — Affines *Siparunae*, sed dehiscentia antherarum diversissima.

1 M. OVALIFOLIA (Pet. *Th. hist' veg.* p. 35 t. 9 f i), folns coriaceis obovatis basi cuneatis margme anguste revolutis, supra sparsim stellato-pilosis scabus demum glabratis, subtus dense et adpresse stellato-lepidotis. 5 In Mauntii montibus alt media. — Tul. 1 c. p. 309 Rami pihs stellatis tomentosi Folia (incluso petiolo 2-3 lin. lonpo) 2-3 poll, longa, 1-1 3/4 poll lata, obtusa velobiuse cuspidata Cymulae fem. folio multo breviores, bracteis obtongis obtusis fugacibus. Flos singulus ovoideus, 1-1 ^ lin. longus, pedicello minimo insidens, stellato-pilosus. Flores masc. ign. Fructus globosus, 6-10 mill latu^ (v. s)

P *Boryana*, petiolo longiore (4-5 hn. longo). Sine loco nat. a Bory in 'h. DC.

^ M ROTUNDIFOLIA (Pet. *Th.*<sup>f</sup> 1 c. f. 2), folns late ellipticis vel orbicularibus basi obtusis vel subcordatis margine plains, supra sparsim stellato-pilosis scibns demum glabratis, subtus dense et adpresse stellato-pubescentibus, antheus eglandulosi. 5 In montibus deraissionibus Mauntii (ex Comm Boj. mTul cit) et editionibus Boiboniae (Pet. *Th.* ' alnq. lb ). *Ambora tomentosa* Boryi vov. 1 P- 31 \* u EtJ<sup>enia</sup> VIII<sup>osa</sup> Pon. diet, suppl 3. p. 124, fade DG<sup>r</sup> prodr. p 286 *Myrtus villosa* Spreng Syst 2. p 487. Ex specimine meo cl. Bory ldmuli petiolique fulvo tomentosi Tomentum male in icone figuratum, pihs nempe m pagina supenore manifeste fasciculis inaequahbus, in inf. pallidis, m utraque longioribus quam M. ovalifohe Petioli ez specimine, 4 8 hn. longi, hnibi 2-3 poll longi, 1/2-2 poll, lati, molles, obtusi vel obtuse cuspidati Flores masc. majores quam^I. ovahfohae, 3 hn. longi. Bacca ovato-globosa, 8-10 mill. laU. (v. s.)

3- M CITRINA (Tul. in *Ann. sc. nat. ser. 4. v. 3. p. 32*, *monogr. p. 311*), foliis ovato orbiculatis subcordatis brevissime et acute mucronatis margme planis, utnque molhter stellato-tomentosis, subtus citrinis vel palhde cinereo-citri-

nis, antheris copiose glandulosis pallidis. § In Borbonia (Gaudich ) > forsanique Mauntio (fide spccim Commers in h par onginis non certissimae) Rami hirtello-tomentosi et aureo fulvi Folia 6 9 cent lata, 7 10 et quod excedit longa, petiolo 6 10 mill longo hirsuto-tomento^o Pamculae masc hirtio tomentosae, folio duplo breviores, pedicellis 2 3 mill Filamenta glandulis minutis, antherae a tergo glandulis mtimis soatentes (v. s in h. Mus. par )

V. EPHIPPIANDRA *Decmeim Ann se. nat. set A. v 9. p. 278. t 7, et in lit\* adAlph DC*

Dioica. *Flores mascul.* Pengonium globosum aut breviter pynforme, pmo clausum, lobis k obtusis superpositis, quorum 2 extenores, dein patens, profunde 4-fidum, smubus nempe nssis. Stamina mtra tubum pengonn et senus divisionibus inserta, sessiha, 2 vel 3 in quaque divisione superposita, nempe k in divisionibus antice et postice sitis, 6 in laterahbus, antherao sessiles, transversae, subreniforme\*', umloculares, nma supera dehiscentes Pollen sphaBncum, tenuiter grinulosum *Feminei* (ex dehn cl Decsne in lit) Ovanaplunma, exi<sub>r</sub>ua<sub>7</sub> in receptaculo patenformi (basis pengonii circumscissi?^ confertim sessilia, cyhndncopnsmatica, obtusissima, carnosia Ovulum umcum, pendens, anotropum Fructus — Arbuscula Madagascanensis, habitu Myrti, folns oppositis, integns, persistentibus; flonbus masc. m axilhs saepius solitams, nunc geminis, pedicellatis.

E. MYBTOIDEA (Decsne I c). — In prov Emirnensi (Goudot! in h. Mus par)' Rami jumores petioliquit ox pills brevibus solitarns unerei Folia ovata, obtusa, ngiduU, 10 16 mill longa, 8 14 mill, lata, nervis secundams paucis tertianis Indistinttis, petiolo ) 3 mill longo PcdiLch misc A 5 mill longi Perigonium mas quando patens centim latum, glabrum, divisionibus oblongs lobis terminalil us obtusis Antberae infenores 4 in bisi divisionum ^ertdCll-UtT, LsetPns us parallels Discus ovan i gerens centim latus, margino integei (unde circumscissus? ut saepe in Urdine) Ovana 30 40 Styh null' (v s. masc)

VI MOLLINEDIA *Hutlet Pflv. prodr. (1794) p 72. t 1% syit 1. p 142, Tut in Ann sc nat. set kv 3. p k0, Monogr. Monim. in Arch. Mus 8 p H>> II bras Monxm p 312 — letratome Poepp et Fndl nov. gen, 2 (1838) V 46*

Flores unisexuales, plerumque (semper?) dioici, apetalii Perigonium subglobosum \el turbinatum, raro campanulatum, 4-lobum, lobis plerumque inflexis, praesertim 2 intenoribus<sub>7</sub> margme saapissime dentatis, masculum totum deciduum<sub>7</sub> fcmmeum circumscisse prope basim t<sup>u</sup>^! sectLim. Stamina 12 40, pengonii masculi ventrem occupantia, superposita, hbera, filamentis brevissimis, antheris ovato-hippocrepicis, obtu-bissimis, 2-lobis<sub>7</sub> nma unica lata apertis. Ovana 11 fern, vulgo numerosissima, toro sive fundo persistente pengonn inserta, liberi, inclusa\* stylo brevi obtuso Ovulum in singulo ovano pendens, anotropum Fructus ex ovarns mcrassitis, o\oideis, drupaccis vel exsuccis in toro convexo constans Semen albumine copioso, vix oleoso, radícula supera, cotyledombus radícula brevionbus, facie sibi mvicem apphcitis -" Arbores frutesve ex. Amenca mterropicali; folus saepius opposit<sup>is</sup> nunc terms, plerumque a medio spaisim acute dentatis; cymis secij<sup>s</sup> ramulos opposite digestis, vel ramulo abbreviato axillanbus, cymu<sup>t</sup> nflons, bracteis minimis caducis.

§ 1. *Perigonii masculi lobi plus minus inxquaks, cxtcrnis ereclo-incurvis integris, internis introflexis sxpius longionbus et margine dentatis.* — *Folia plerumque aculeato-dentata.*

1. M. OVATA (Ruiz et Pav. syst. p. 143), ramis novellis minutissime senceo m. pubentibus palhdis, folns late ovato-elhpticis breviter acuminatis acutis basi fñ tundatis ultra medium remotissime serratis aut totis integris subtus paicißiml puberuhs, cymis petiolo duplo et ultra longionbus, masc 3-Hons minute sēñ ceo-pubentibus. lobis perigonii intenonbus longe appendiculatis, toro fem ēf carpidns argyreo-senceis. 3 In Peruvia prope Cluncliao (Pav in h. Deless \ of prov. Maynas Brasiliae occid. (P(Epp i 2216, 2824 in h \ind.) — Tul Monócē p. 377 Foha 10-20 cent longa, 6-10 cent lata, tenuia, juniora argyreo-se- ncea, adulta supra, glibra, petiolo 6 10-mill. Alabastrum masc. obcōnicum superne depre<sup>^</sup>sum, mtus glabrum. Lobi inter, in appendicem angustam lacel ram vel mtegram basi sappius bidentatam Piotracti. stamina 32-36 Pedicelh fem. 12 mill, longi, pedunculo longiores. Fructus |uniores e toro planiusculo 1-2 cent, lato etcdrpuls innumensovouleis constant (v. s in h. Mus. par.).
2. If HEPANDA (Ruiz et Pav. syst. p 142), saturate denseque rufo-tomentosa, foliis amplissimis late ovato elliptiois breviter aut obsolete acuminatis medio passim subdentatis bullato-repandis adultis supra admodum glabratis, cymis fructifens vix petiolo longionbus, toro dense rufo-tomentoso, drupis 'subses- sibbus tandem glabratis, putamine hgneo. 5 \n Peruvia. circa Cluncliao — Tul. Mon. p 376 Rami tomento bievi, e pilis simtilicibus vestiti, dein ffla- brati. Folia 15-20 cent, longa, 7-10 cent. Jata, ultra mndium obsoloto remo- tissime dentata, petiolo cent longo, supra bullata et nervis impiessis Gvmy pauciflorae? Di-upas ovatap, subacuta, 15-20 mill, longae, parcc ruio-mlosæ aut subglabrae. Adest in h. Webb, et berol.
3. M BRASILIFNSTS (Tul. mon. p. 378), ramis lunionbus dense tomentos ful- vis vel cincraccis, folns ovatis obovatis vel oblongo-lanceolatis breviter acu- minatis remote supra basim aculeato-serraiis ütnnque pnmum adpresso tomentos. s dein supra glabns, peduncuhs fem petiolo subffiqu., lbus vel lon- gionbusj fructifens monocarp.s, pengonio fem. extus senceo, lobis ext. ovato- acutis, inter, brev.onbus obtus.ssimis, drup.s ovo.dcis fulvo-toraentosis toro valde convexo insertis } In BrasiliT prov. K.o, montibus Serra ^nirii ^rhntffi in h monac ), Orgaos (Gu.ll 1 943), prov. Si PauU m mon Te s, Trã dõ Mãi (Mart ! limb.), in Brasilia (Wedd 1 sine num. a Mus p<T comñ ^ Cit?osma Schottiana Spreng. syst 4, app. p. 407. Frutex dioicus Folia 8 T cent lonTa 3-6 cent. Lata, petiolo 7-10 mill, longo, a c u l o i , g r £ ^ e c r e n i s s u r g e n t i b u s , pihs plensque solitams Ex spec.mine Wedd pengonium lcm. (a Tul non visum), lobis intenonbus bre\issimis, non appondicnlatis. Fructus unior 10-20 mill, latus, patenformis, ovana innumera praebens, dem (ex spec.m 0^3 Gaudich.) e toro valde convexo et drupis paucis 10 12 mill, longis con- stans (v. s )
4. M. GBACILIS (Tul.' in Ann. sc. nat. ser. 4. v. 3. p. 41), ramis lunionbus dense tomentos fulvis, folns oblongis vel lanceolatis acuminans basi cuneato attenuatis remote supra basim aculeato serratis, ütnnque pnmum adpresso senceo-pubentibus, dein supra glabns, cymis petiolo Jongionbus, masculi 3-flons, pengonio obconico, lobis extPr. ovatis obtusissimis inflexis intr longionbus introflexis margine unduldto dentatis, flonbus fom. soliUnis lohW perigonii extenonbus ovato-tngulanbus inter obtusissimis integris driini innumens minimis basi pilosis. § In editionbus montium Lstrella nrnv iim de Janeiro (Wedd I 890). — Tul. mon. p 378, PI bias. Monim n ft B. TM I exiles. Folia 8-15 cent, longa, 2-6 cent, lata, petiolo 5-7 mill. lon % nērvvnttP subtus lulvo-tomentosis. Flore, masc. 3-4 mill, longi, extus sericp. siamlrS U-24. Torus pengonio delapso plamusculus, 6 mill, solum latus druDw'dSisis areolas medio glabras simulantibus. (v. s) "«s,arupis densib
5. M NIGRESCENS (Tul. in Ann sc 1. c. et Monogr. p. 388), ramis TMVP11IS mli<< rans adpressis subputentibus nto glabratis, fohls oblong. TM^ e T p t c X ceolatis acuminatis babi cuneatis ultra medium remote serratil, , W . b u s

- parce albido senceis, adultis glabns, cymis 3-flons paucis in nasi ramorum oppositis, pengonn globosi extus glabnuscule lobis externis late ovato-rotjndis subacutis, internis longionibus liguformibus truncatis et subintegris 5 In Mexici prov Oaxaca, prope Tenejapa (Ghiesbr 61 in h Mus par' et Webb) Folia 8-12 cent longa 2-4 cent lata, petiolo vix 10 mill longo Cymse singulae pedunculo cent m longo, e bractea ovata obtusa nigrescente caduca exeuntes, pedicellh 6-8 mill longi Stamina 30-40 Fructus ign (v s in h Mus par)
- 6 M MURINA (Tul in Ann sc nat 1 c P 43), ramis novelhs senceo-fulvellis adultis glabernmis fohis oblongis vel ellipticis vel lanceolato-oblongis utriusque acutis remotissime utria, medium denticulatis mitio tenuissime senceo-puberulis demum glabernmis, cymis masc petiolo sublongionibus senceo-puberulis pauciflons pengonn obconico globosi lobis exlemis obtusissimis mttgiiis mternis lationibus et h<sup>u</sup>la 1 icero-dentata longa teiminatis i) In Gunna gall \ersus Cayenne (Martin n 34 in h DC), in insula Tnnitatis (Purdie! a cl Hook cum Mus par coram) et Brasihx scrra da Boa Vik>ta prov Rio(h Mart!) — lul monojr p 389, Fl bras Momm p 318 Folia 12-16 cent longa 4-6 cent lata, nunc Integra, plus minus acuta petiolo vix cent longo P\*ditelli 6-8 mill longi Stamina 24-28, ex Tul Specimen brasil mh Mart vidi fructiferum, toro convexo, 15 mill lato, polycarpo, drupis exsuccis, cent longis, ovoideis, adpiesse pubescentibus, pallidis (v s)
- 7 M VIRIDIFLOPV (Tul ! in Ann sc nat 1 c p 43), lamis junionibus parce gnseo-pul entibus dein glabratis, iohis oknato-vel elhptico-oblongis acute acuminatis basi cuneatis apice remote parceque serratis junionibus utrinque albido-pubentibus deinde glabernmis, cymis masc petiolo longionibus, peiigonn ohconici lobis externis late o<sup>a</sup>to-t<sup>a</sup>langula<sup>l</sup>bus inteinis introflexis sub apice bi lentatis et ulti a repando-lacens 5 In monlihus prov Oaxaca Mexici (Gal '7172, etfructif Botten918) — Tul monogr p 390 Folia 8-12 cent longa, 30-45 mill lata, petiolo centimetro bievioie glabro Cymae masc 3 florae, vulgo 4 decussatae in basi inno\ationum minute adpresse senceo-luteolae, pedunculo 12 IS mill longo, pedicellis 5-6 mill longis Pengonium adpresse senceum Stamina saepius 24 f x specimine Bottcri fiuctus stipite 10-12 mill longo insidens, e pedunulo et pedicello subbreviore constante, toro planiusculo 8 mill lato, drupis ellipsoideis cinueo-tomentosis, 8 mill longis (v s in h Mus par)
- p, *glabra* ramis fclusque (novelhs forsan exce[Us] glabns, pedunculis et pedicellis ngulis, pcuxomo misculo majore extus gUbrato — Circa Orizaba (Botlen' 979m h Mus par) Petioh in eod ramoi-10 mill longi limbi 6-9 cent longi 2-3 cent lati Peduncuh et pedicellh non gric les ut in M undifloriet flores 5 mill (n<sup>o</sup> 4 mill) longi, pilis \ix persistentibus. (v s)
- 8 M PCLUCENS (Tul ' in Ann 1 c p 43), in recentissimis parcissime pubens dein glab-rnma fohis ovato-ellipticove lanceolatis acuminatis basi cuneatis supra medium obsolete remote grosse vel breviter dentatis vel intogris tenuissimis, cymis glabernmis masc petiolo sublongionibus, pengonn obovato-globoc'i lobis externis ovatis acutuhs internis inflexis hgula brevi angustissimio<sup>a</sup> basi bidentata metis 5 <sup>n</sup> Brasilia mend v gr cnca Rio de Janeiro (SellOf Beynch!, Guill) — lul monogi. p }92, Fl bras Momm p 320 Fo>a 6-8 cent longa, 25-40 mill lata, copiosissime glanduloso punctata, petioio 4-6 mill Cymae terminales \el axillares \el e\ lmis innovationibus ortae Brae\* teae bracteolasque linean acutae breves, pubentes, caducae Pedicellh 3-4 D<sup>III</sup> Pengonium obovoideum, glabrum, lobis brevibus (v s in h par)
- 9 M ELLIPTICA, glabernma, fohis ellipticis vel obovato ellipticis acuminatis basi longe cunealis breviter petiolatis mirgme subrevolutis, in apice remote dentatij, cymis petiolo multo longionibus, masc in cymas saepius 4 <sup>tn\*</sup> / <sup>o</sup> / <sup>a</sup> <sup>s</sup> divisis, fem 1-pauciflons, pe igonio masc obovoideo, lobis subaequalibus ovatis apice obtusis callosisque, internis versus apicem subdentatis, toro fruc\* ti<sup>a</sup>ero convexo parvo, carpidus 8-10 ellipsoideis utrinque acutiusculis junio-nibus adpresse pilosis matuns glabns 5 In Brasihae prov Rio de Janeiro Irequens (Lund' 557, Gardn ,Sello', etc) Tetratome elliptica Gardn in Hoo<sup>a</sup>

- jour 1842 p 530, n 162 (fide specim in h Webb a Tul vistt M mtiHa  
 Tul I m Ann sc nat (1854 \* p 43 t 32, Monogr p 302, Fl bras Momm  
 p 320 t 84, f 2 Folia 4-7 cent longa, 2 3 cent lata, in petiolum 3 8 mill  
 longiim Jonge attenuata, nervis crebns Peduncuh masc abbreviati ramos  
 Inflos, 10-15 mill, longos gerentes, pedicellis 3-4 mill longis, bracteis  
 minimis Fructusinh Mart 12-15 mill longi, glabn (v s)
- 10 M UTRICULATA (Tul' in Fl bras Momm p 319 t 85), glabemma, folns  
 ovato oblongis acummatibus basi cuneatis versus apicem remote serratis subco-  
 naeis, cymis masculis terminalibus vel axillaribus petiolo longioribus, cymulis  
 3-flores, pedunculo elongato oblongo basi attenuate apice obtuso brevissime  
 dentato dentibus 2 externis semiorbiculatis, 2 internis recte truncatis  
 productionbus <sup>^ m</sup> Prov Rio de Janeiro ad Macahe (Luschnath in h Mart' et  
 Peckott anno 1860 ib n Folia 18-20 cent longa, 7-8 cent lata, petiolo  
 15-20 mill longo Pedicelli fl masculi 10-20 mill longi, folios JUR 8 mill,  
 dein 12-15 mill longi 3-5 mill lati Stamina numerosissima Fructus (e  
 fragments segregate, cl Tul ignotis) ovoideo-oblongi, elongati, 2-3 cent  
 longi, centim lati, glabni, basi quam apice obtusiores, toro convexo, cent  
 lato, glabro circiter 9 simul inserti, non stipitati, saepius in specim vacui.  
 (v s in h. Mdit)
- 11 M TRIFLORA (Tul' mon p 394), ramis novellis tomento brevissimo fulvis,  
 folns oblongo vel obovato lanceolatis acutis vel acummatibus basi longe cuneatis  
 margine subrevolutis integris vel remote versus apicem dentatis, junioribus  
 utrinque pubescentibus, dein glabris, cymis fulvo tomentosis\*, masculis 3 floris pe-  
 tiolo longioribus, pedunculo late globoso cxtus puberulo, lobis ovatis subge-  
 quibus uno ex internis subdentato 3<sup>in</sup> Brasilia mend (bello' 321) et  
 Sta Catharinae (bt Hil' 333 in h Mus par), mont Orgaos (Viuthier' ^9),  
 Minas Geraes (Ackermann in h Mart') — Tul' h bras p 322 Citrosma  
 triflora Spreng syst 2 p 544 Folia 4-8 cent longa, 15-25 mill lata, petiolo  
 6-10 mill longo, PMS solitariis fasciculatis supra cito evanescentibus  
 Cymae masculae in parte inferiore ramulorum frequentes bracteolis lanceolatis  
 caducis Peduncuh 5-10 mill pedicellh 4-6 mill longi Flos masculus 4-6 mill  
 latus, lobis saepius incurvis, in specimine Minas Geiaes patentibus (an casu\*?)  
 Stiminal 2 16<sup>7</sup> Ovarid circiter 20 Ex specimen fructu St Hil drupae glo-  
 sosae, glabrae, 5-6 mill longae, toio valde comexo 10 mill lato piloso m-  
 sertae (v s)
- 12 M CLAVIGERA (Tul » in Ann sc nat 1 c p 44) ramis gracilibus novellis  
 dense fulvo tomentosissimis idullis glabris folns obovato-vel rhombeo lanceola-  
 tis acutis vel acute acummatibus ultra medium remote dentatis integris margine  
 subrevolutis, junioribus senceo tomentosissimis pube fulva minima, cymis  
 masculis 3-flores fulvo tomentosissimis, pedicellis clavatis, perigonni ulrin-  
 formis dentibus internis obtusissimis mtpgns 5 In prov Sti Paul Bi isili L  
 end (Sello in h ber et par) — Tul monogr p 396, Fl bns Momm  
 P 323 \*oha deorsum attenuata 5-7 cent longa, 15-30 mill lata petiolo  
 5-8 mill longo Cymae pedunculo cent longae, pedicellis 6-8 mill longis,  
 apicem versus paulo crassioribus Pedunculum breviss 4 dentatum Ovana  
 20 (v s in h Mus par)
- 13 M SERICIFLOBA (Alph DC in Seem jour 186), p 220), ramis cito gla-  
 bris, folns lanceolatis acummatibus basi cuneatis supra basim remote serratis  
 margine paulo revolutis subtus in nervis petioloque pubescentibus, cymis  
 masculis multifloris pubescentibus, pedunculo clavato adpresse senceo, lobis exter-  
 nis obtusissimis, inter in appendicem retroflexam ovatam fimbriato den-  
 tata obtusam extensis fructibus 4-5 ovoideis glabris perigonni basi convexa  
 glabra insertis — In sjlvris pro Rio de Janeiro (Freire Allemao') Rami  
 subteretes Folia 8-12 cent longa, 3-4 cent lata, petiolo 5-10 mill lon-  
 go Juniora subtus in parenchymate pubescentia Cymae masculae e basi communi  
 axillares, cymulis trifloris Hos cum pedicello 4 mill longus Stamina circi-  
 ter 24 Peduncuh fem 2-4 ex axillis fohorum vctustorum, 1-2 cent longi,  
 aeiio ohm bracteati, gniciles, glabni, monocarpi Basis perigonni persistens  
 2 mill, lata Drupae exsaccaae, 8-9 mill longae, sessiles, acutiusculae (v s  
 comm. a cl Fr Allemao)



14. *M. UMBELLATA* (Tul. monogr. p. 397, Fl. bras. p. 324), ramis gracilibus dense rufo-tomentosis, foliis lanceolatis acuminatis basi longe attenuatis supra basim laxe serratis, junioribus utrinque parce sericeis cito glabratibus, cymis masc. et fern. paucifloris umbelliformibus, floribus longe pedicellatis pubescenti-cjneris, lobis perigonii masc. subjequilongis, externis ovato-acutis, internis angustioribus introflexis margine repandis, carpidiis numerosissimis fulvo-sericeis vertice glabris. £) In Brasilia merid. (Sello in h. ber.). *Citrosma umbellata* Spreng. syst. 2. p. 545. Folia 7-12 cent, longa, 25-35 mill, lata, petiolo 6-10 mill, longo, fulvo-tomentoso, demum glabro. Cymæ masc. e cymis trifloris, nunc solitariis, nunc paucis (2-5), in paniculam umbelliformem dispositis, axi 5-7 mill, longo, pedunculis 12-20 mill., pedicellis 10 mill. longis. Stamina circ. 30.

15. *M. SELLOI*, ramis novellis petiolis nervisque subtus molliter et brevissime tomentosis cinereo-fulvis, foliis ellipticis breviter acuminatis basi acutis vel obtusis basi excepta remote aculeato-serratis supra glabris subtus sparsim pilosis demum extra nervos glabris, cymis 3-floris nunc 6-8-floris petiolo brevi longioribus pube cinereo-fulvis, perigonii masc. lobis exter. ovato-acutis, interioribus retroflexis repande fimbriato-dentatis, fem.... 3 In Brasilia, prov. Babia (Sello, in h. ber., indeque in h. Mart. sub dicto nom. Spreng.), Ilheos (Mart.) et mont. prov. Rio de Janeiro (Houllet! in h. Mart., Guill. n. 62). *Citrosma Selloi* Spreng. syst. 2. p. 545, fide h. ber. a Tul. *M. cinerea* Tul! mon. p. 380, fl. bras. Monim. p. 316. Rami cito glabrati. Folia opposite vel subsparsa, 10-15 cent, longa, 6-8 cent, lata, petiolo 6-10 mill, longo, dentibus ut in uffin. e crenis vel margine abrupte surgentibus. Flores masc. obconici, extus adpresse pilosi, 5 mill, longi. Stamina 35-48 ex Tul., sed pauciora interdum suspicor. (v. s.)

p, *obovata*, foliis plorisque obovatis brevissime acuminatis basi cuneatis. — In Ilheos (Mart.) Ipsius rami folia quaedam vulgaribus similia. (v. s.)

16. *M. FLORIBUNDA* (Tul! in Ann. 1. c. Monogr. p. 381, Fl. bras. p. 317), ramis novellis petiolis nervisque subtus molliter et brevissime tomentosis cinereo-fulvis, foliis ellipticis vel obovato-ellipticis breviter acuminatis basi acutis vel obtusis basi excepta remote aculeato-serratis supra glabris subtus sparsim pilosis demum extra nervos glabris, cymis masc. 2-8-floris petiolo brevi longioribus pube cinereo-fulvis, perigonii masc. abbreviati 4-hdi lobis vix inflexis, exterioribus ovato-acutis, inter, subsimilibus margine eroso-dentatis, fern.... Y) In Brasilia Enire dos Morros (Pohl! in h. Monac. et Mart, ex h. vind.). *Tetratome cinerea* Gardn. in Hook, journ. 1845. p. 136? (quam cl. Tul. dubitatum ad *M. Selloi* refert). Ex speciminibus Pohlii rami foliaque omnino <sup>^</sup> Selloi, sed flores in cyma numerosiores, minores (3-4 mill, longi), magis aperti; staminibus ideo patentibus, numero 26 ad maximum, nunc paucioribus. (v. s.)

17. *M. RACEMOSA* (Tul! mon. p. 382), novellis cinereo-puberulis cito glabratibus, foliis oppositis ternis quaternisve oblongo-lanceolatis acuminatis basi longe attenuatis apicem versus remote serratis adultis utrinque glabris, racenais axillaribus saepius solitariis petiolo multoties longioribus cinereo-pubentibus, ramulis lateralibus oppositis trifloris, perigonii masc. lobis exterioribus ovatis, interioribus duplo longioribus introflexis ovato-oblongis margine basi grosse dentatis dein repando-laceris. 3 In Peruvia orient. (Poepp. 1577). *Tetratome racemosa* Schlecht. in Linn. 20. p. 114. *Tetratome triflora* Po3pp. et Endl. nov. gen. 2. p. 46. t. 163 (ubi infloresc. male fig.). Folia 12-15 cent, longa, 3-5 cent, lata, petiolo 6-8 lin. longo. Racemi (nunc apice frondescentes et ideo rami potius vocandi) multiflori, 3-6 cent, longi; brachiis divaricatis oppositis 3-»9" ris. Bractese lineares, 4-5 mill, longae, oppositae, unde flores 2 laterales <sup>1</sup> cymula. Pedicelli 7-10 mill, longi. Flores masc. obconici, cinerei, 3 m<sup>ill</sup>. longi. Stamina circiter 20. (v. s. in h. Boiss. et Mus. par.)

18. *M. IBAGUENSIS* (Tul. I in Ann. sc. nat. ser. 4. v. 3. p. 41), ramis novellis tomentosis sordideque fulvis, adultis glabris, foliis ovato-acutis vel oblongis longe acuminatis remote a medio serratis adultis utrinque glabratibus, cymis masc. breviter racemosis fulvo-sericeis bracteosus, perigonii obovato-oblongo lobis exterioribus triangulari-rotundis, inter, angustioribus uno truncato altero

- digitato, cymis femineis depauperatis solitariis demum fructibusque glaberrimis.** *♂* In frigidis Novae Granatae versus Ibague (Goudot! in h. Mus. par.). — Tul. Mon. p. 384. t. 31. Folia basi plus minus cuneata, 10-20 cent. longa, 35-50 mill. lata, petiolo 8-10 mill. longo. Cymae masc. 15-20 mill. longae, bracteis 5-8 mill. Stamina circiter 24. Drupae subexsuccae, 15-20 mill. longae, in Tul. **l. c. figuratae, toro valde convexo 10-12 mill. lato insertae.** (v. s. in h. Par.)
19. *M. LONGIFOLIA* (Tul. in Ann. sc. nat. ser. 4. v. 3. p. 41), ramis junioribus petiolis et inflorescentiis tomentosissimis fulvis, foliis oblongis acuminatis basi cuneatis a medio remote aculeato-serratis supra glabris subtus adpresse pilosis et in nervo tomentosissimis, cymis masc. petiolo brevi subaequalibus 3-floris, pedunculo fere nullo, perigonii lobis subaequalibus exterioribus ovatis obtusis, inter, introflexis margine fimbriato-laceris, carpidiis crebris in maiore parte glabris. *b* In Brasilia<sup>^</sup> prov. Rio (Gaudich. 108, Sello in h. Kunth, etc.), in Serra de Bon Vista (Luschn. in h. Mart. a Tul. nuncup.). — Tul. Mon. p. 385. t. 31, Fl. bras. Monim. p. 317. t. 84. f. 1. Folia 12-15 cent. longa, 25-35 mill. lata, petiolo 10-15 mill. longo. Pedicelli masc. (ex Tul.) 3-4 mill., fem. 10-15 mill. longi, pedunculolongores. Perigonium extus sericeo-tomentosum. Stamina 25-30. (v. s. in h. Mart.)
20. *M. BOLIVIENSIS* (Alph. DC. in Seem Journ. 1865, p. 220), novellis...., foliis ovato-acuminatis basi acutis raro ellipticis breviter acutis coriaceis glabris a medio remote serratis, cymis masc. axillaribus multifloris petiolo vix longioribus sparsim adpresse pilosis, floribus obovoidicis glabriusculis, perigonii lobis externis late ovatis subinflexis, internis paulo longioribus introflexis **ellipticis** margine crenatis. *♂* In valle Tipuani Boliviae sept. (Wedd.). Arbor 4-5 met. alta. Rami adulti validi, teretes, glabri. Petioli 8-15 mill. longi, glabri. Limbi 9-15 cent. longi, 6-7 cent. lati, saepius grosse nunc obsolete et breviter dentati, nervis lateralibus praecipuis utrinque 5-6 tertiariis distinctis. Pedunculi adulti glabriusculi, cymas oppositas 2-6 trifloras gerentes. Bractee ovatae, millimetro minores, basi pedicellorum patentes, fugaces. Pedicelli 3-5 mill. longi. Flores 5 mill. longi. Stamina circiter 20. (v. s. in h. Mus. par.)
21. *M. MACBANTHA* (Tul. in Ann. sc. ser. 4. v. 3. p. 42), ramis acutis glabris, foliis oppositis ternisve ellipticis utrinque breviter cuneatis ultra medium remote et minute dentatis adultis supra glabris subtus sparsim adpresse pubescentibus, cymis masc. trifloris fulvo-tomentosis petiolo multo longioribus quasi in umbellam digestis, perigonio crasso subploboso 4-fido, lobis subaequalibus externis, acutiusculis integris, internis in apice introflexi margine 6-8-dentatis, staminibus numerosissimis. *♂* In Novae Granatae sylvis editis, prope Bogota (Linden! n. 850 in h. Mus. par.). — Tul. Monogr. p. 386. Folia 8-10 cent. longa, 4-6 cent. lata, petiolo cent. longo. Cymae masc. triflorae 3-5, in rachis communi brevi (nempe centim. longa), pedunculis 2-3 cent., et pedicellis 12-18 mill. longis. Perigonium cent., latum. Stamina 40-50. (v. s. in h. Mus. par.)
22. *M. TOMENTOSA* (Tul. monogr. p. 402), fructu foliis ellipticis oblongis acuminatis basi rotundatis ultra medium remote denticulatis supra junioribus adpresse pilosis dein glabris subtus ramulisque ferrugineo-tomentosis, cymis masc. pedunculis prope basim ramulorum oppositis 3-floris tomentosissimis, perigonii turbinati lobis externis ovatis acutis, internis appendice denticulata auctis, pedunculis fem. 1-floris, achaeniis oliviformibus glabris. *♂* In sylvis Popayan, Tetratome tomentosa Benth. pi. Hartw. p. 250, sine num. Folia petiolata, 4-5 poll. (11-13 cent.) longa, 1½ poll. (4 cent.) lata. Pedunculi masc. semipoll. (12 mill.) longi; pedicelli 2-3 lin. (4-6 mill.) longi. Perigonium 3 lin. (6 mill.) longum. Achaenia nudaerosissima, 9 lin. longa (2 cent.), brevissime stipitata.
23. *M. CAMPANTILACEA* (Tul. in Ann. 1. c), ramis exilibus et fulvo-tomentosis, foliis elliptico-lanceolatis longe acuminatis basi cuneatis in apice modice serratis, junioribus fulvo-tomentosis demum glabrescentibus, cymis fem. unifloris fulvo-tomentosis petiolo multo longioribus, perigonii amplius basi obtusissimi lobis brevibus obtusissimis. *♂* In montibus Quindiu Novae Granatae (Goudot!). — Tul. Monogr. p. 387. Folia 14-16 cent. longa, 4-6 cent. lata, petiolo 6-12 mill. longo. Cyma fem. in basi vel supra basim ramulorum novellorum decussatim et remote oppositas (numero 4-6), bractea ovato-acuta bre-

vissima decidua singulae stipatae, pedunculo uniuscujusque 4-6 cent. Ion go, bracteolis minimis ovato-acutis apice pedunculi, floribus lateralibus abortivis, pedicello 6-8 mill, longo. Perigonium cent, longum, late ovoideum. Oyaría numerosissima, obconico-cuneiformia, sericea, in vertice glabra. (v. s. in h. Mus. par.)

p, *Trianxi*, flore femineo longiore angustiore.— In prov. Mariquitae (Triana!). Perigonium supra basim hemisphaericam serius ruptam cylindricum, in integrum 10-15 mill, longum, medio 5 mill, latum, nec ut in a 9-10 mill, longum, 7 mill, latum. Specimina utriusque unica inh. Mus. par. adsunt.

24. M. WIDGRENII (Alph. DC. in Seem, journ. 1860, p. 220), ramis fulvo-tomentosis, foliis oblongo-obovatis vel oblongo-ellipticis utrinque subacutis a medio modice serratis, supra glabris, subtus fulvo-tomentosis tardeque glabrescentibus, cymis femineis monocarpis petiolo multoties longioribus, floribus... ., perigonii basi fructifera convexa sericea 8-12-carpa, fructibus ovoideis sessilibus pilosulis. *fy* In Brasilia prov. Minas Geraes (Widgren! 367 in h. Mart, ab ann. 1845, ubi mixta erat cum *M. laurina*). Folia 8-9 cent, longa, petiolo 7-9 mill, longo, nervis tertiariis subtus distinctis, basi magis quam apice angustata, apice obtusa vel subacuta. Pedunculi axillares et subterminales, saepius gemini, e trunco minimo communi 4-6 cent, longi, pedicello proprie dicto supra squamulas bracteolares 3-4 cent, longo. Perigonii basis convexa centim. fata, dense albido-soricea. Fructus saepius 10-11, sicci, 8-10 mill, longi. Affinis *M. campanulaceae*, sed certe diversa. (v. s.)

25. M. ELEGANS (Tul. I in Ann. sc. 1. c. p. 44), ramis exilibus, junioribus fulvo-tomentosis, foliis parvis rhomboideo-lanceolatis utrinque longe acutatis ultra medium grosse et remote aculeato-serratis supra in nervo et subtus ubique pilis simplicibus initio fulvo-tomentosis dein glabratis, cymis masc. gracillimis sericeis, perigonii globosi exigui lobis externis elliptico-rotundatis, internis latioribus ligula angusta ropando-laccra introflexa terminatis. J Tn prov. Sti Pauli Brasiliae merid. (Gaudich. in h. par.), prov. Bio de Janeiro (Sello in h. ber. et par.) — Tul. in Fl. bras. Monim. p. 324. Folia 35-55 mill, longa, 10-15 mill, lata, petiolo 4-6 mill, longo. Cymae masc. 3-florae. 2-6 ima parte ramulorum oppositae, 10-15 mill, longae, pedicellis 3-5 mill. Stamina 8-12. Species gracilis, foliis parvis basi longe cuneatis facile agnoscenda. (v. s. in b. par.)

§ 2. *Perigonii masculi lobi clongati, demum patentes subxquales.*  
— *Folia integerrima.*

26. M. LIGISTRINA (Tul. in Ann. sc. nat. 1. c. p. 44), glaberrima, foliis obovato-lanceolatis acutis vel breviter acuminatis in petiolum brevem longe atenuatis subcoriaceis supra nitidis, cymis masc. axillaribus vel terminalibus folio multo brevioribus, perigonii late campmulati 4-fidi lobis ovato-lanceolatis demum erecto-patentibus subequalibus omnibus integris, fern \_\_\_ In Brasilia merid. (Sello 1037 et 13, vi, -1122 in h. ber. et Kunth.). — Tul. Monogr. p. 373. t. 33, Fl. bras. Monim. p. 321, t. 86. Folia 35-45 mill, longa, 15-25 mill, lata, margine subrecurva integerrima, acumine brevi obtusato submucronulato. Pedicelli 4-5 mill, longi, pedunculo ideo duplo triplove longiores. Bractess et bracteola) lineari-lanceolatae, cito delapsae. Alabastrum anguste ovato-oblongum et subacutum. Lobi subpatentes, non inflexi, tubo longiores. Stamina 24.

*Species dubie.*

27. M. LANCEOLATA (Ruiz et Pav. prodr. p. 143), frutex, foliis oppositis ternisque lanceolatis superne dentatis. — In nemoribus Chinchao Peruvias.

28. M. LATIFOLIA (Tol. Mon. p. 402), foliis ellipticis apice serratis breviter acuminatis basi obtusis supra glaberrimis subtus imprimis secus nervum tenuiter pubescentibus, petiolis brevissimis, pedunculis axillaribus solitariis erectis trifidis, perigonio masc. turbinato-campmulato, staminibus 32. 5 Ad Ega

Brasilia bor. occ. *Tetratome latifolia* Pcepp. et Eadl. nov. geu, 2, p. 47.  
Forsan (ex Tul.) *M. ovata* Ruiz et Pav.

*Species exclus.*

M. HUGELIANA Tul. = *Wilkiea Hugeliana*.

M. MACROPHYLLA Tul. = *Wilkiea macrophylla*.

VII. WILKIEA F. Muell. *Account of some new Austr. plants in Trans, phil. but. Viet. 2 (1858) p. 64.* \* - *Hedycaryae* sp. *All. Cunn. in Ann. ofnat. hist. 1 p. 215.* — *Mollinediae spec. Tul. monogr. p. 401.*

**Perigonium masculum globosum, carnosum, ore minimo transverse crenato; crenis 2 exterioribus obtusissimis, 2 interioribus minoribus obtusis, cum duplicationibus carnosus sub crenis transverse dispositis (stamina sterilia Tul.— Velum aliarum Monimiac?). Stamina k, crenis supposita, in tubo perigonii inclusa, subsessilia; antherae ovato-compressae, rima lata unica sursuni dehiscentes. Perigonium femineum (ex F. Muell.) subglobosum, apice perforatum, demum circumscissum; ovariis numerosis, sessilibus; stylis nullis; stigmatibus depressis, conicis. Drupae (ex cod.) perigonio carnosae insertae. Embryo (ex eod.) minutus in albumine copioso. — Arbores australasicae; foliis oppositis; cymis axillaribus, parvifloris.**

1. W. MACROPHYLLA, glabra, foliis ellipticis oblongis ovatisve integris vel remote aculeato-dentatis subacutis, cymis petiolo subaequalibus. 5 In Nova Hollandia orientali (All. Cunn. & Leichard). *Hedycarya macrophylla* A. Cunn. in *Ann. ofnat. Hist. 1 p. 215.* *Mollinedia macrophylla* Tul. *Monogr. p. 401.* W. calyptrocalyx F. Muell. 1. c. Kami jun. loliisque in herb, flavicantia, glaberrima. Folia 7-12 cent, longa, 5-6 cent, lata, petiolo 4-5 mill, longo, chartacea, nervis nervisque crebris distinctis, ex eodem ramo integra vel modo tricuspidata. Cymae petiolo subaequales, gracillimae, glabrae, in axillis supremis solitariae vel geminae, 5-7-florae, pedicellis 1-2 mill, longis. Bractae ovato-acutae, vix mill, longae, caducas. Flos masc. 1 mill, latus, glaber. Ovaria ex char. gen. in F. Muell. non glabra, ex cl. Tul. glaberrima. (v. s. in h. meo et h. Kew.)

2. W. HUGELIANA, novellis fulvo-tomentosis, foliis oppositis ternisve oblongis vel oblongo-lanceolatis serratis vel duplicato-dentatis coriaceis adultis glaberrimis, cymis petiolo longioribus. 5 In Nova Hollandia orient. (All. Cunn. et Hügel in h. vindob.) *Mollinedia hugeliana* F. Muell. in *Ann. sc. nat. i. u. p. 399.* Ramuli tomento fulvo brevi densissimo tecti, dein glabri. Folia interdum dissociata, 8-15 cent, longa, 25-40 mill, lata, colore citrino, dentibus nunc exiguis, mucis nunc maxime et pungentibus, petiolo 6-10 mill, longo. Flores masc. ignoti. Perigonium fem, ore 4-crenato, subglabrum. Drupae basi persistente pubescente perigonii insertae, globoso-ellipticae. Cotyledones adpressa?. (Vidi fragmenta. in h. par. sed descriptio ex Tul.). An eadem ac *W. macrophylla*? et enim specimina sub hoc nom. a F. Muell. in h. Kew. fere omnia foliis ramisque pilosis gaudent. Aut una sp. aut duae interdum confusae.

VIII. MATTHEA Blume *Mus. Lugd. bat. 2. p. 89 U 10.*

**Flores dioici. Perigonium depresso-turbinatum, ore serie duplici squamularum k oppositarum subclausum. Masc. Stamina 4, inclusa; filamenta brevissima; antherae ovoideae, biloculares, loculis rima longitudinali dehiscentibus. Fern. Ovaria plurima, inclusa, pressione angulata. Ovulum unicum in singulo ovario, pendulum, anatropum. Stigma sessile, subclavatum. Drupae carnosae, pedicellatae, angulatae perigonio**

sub grossificatione transverse fisso, demum discoideo-convexo, carnosio, umbellatim insidentes Semen mversum, albumine carnosio. Embryo axihs, radícula clavata, supera, cotyledonibus parvis, planis. — Frutex Archipelagi mdici, folns oppositis, breviter petiolatis, oblongis vel oblongo-lanceolatis, acuminatis, integernmis vel ad apicem remote serrulatis, glabns; floribus axillanbus, fasciculatis vel subumbellatis — Non nisi dehiscencia antherarum a Kibara difleire videtur.

M. SANCTA (Bl. 1. c). In Borneo, Sumatra, etc

IX KIBARA *Endl. gen* (1837) n 2016, *Hook f. et Th fl %nd* 1 p 165, *Tul. monogr Momm in Arch. Mui* 8 p 40 J, *Blumc Mus Luqd* 2 p. 88 t. 9. — *Biongniartia Blume Bi)dr* 2 p 435 (non prior *Kunlhn*) — *Sciadicarpus Hassk in lora* 1842, *Beibl* 2 p 20, *EjUSD. plant. Jav. rar. p.* 209, *cat Bogor alt p* 8b

Flores monoici (ex Bl.)- *Masculi* lobis squamiformibus rotundis erecto-inflexis numero 8? per pana cruuatim nnbricatis (1) Stamina (ex eod.) 5-7, inclusa, filamenta complanato-tnquetra, antherae parvae, filamentorum apice obtuso adnatee, umloculares, nma transversah valvis 2 masqualibus dehiscentes Flores *feminei* ovoidei, bracteis minimis 2 laterahter stipati, apice lobis squamiformibus rotundis erecto-inflexis numero 6, per pana cruciatim imbricatis, 2 extenonbus cum bracteis remotis alternantibus, 4 interioribus deorsum in processus carnosos mferne intra foveolas stigmata tegentes productis, superne lobulo seu dente lobo opposito minimo auctis Ovana in inieriore parte pengonu acervata, oo, hbera, ovoideo-elongata, pilosa, styhs brevibus sti^matibusque obtusis parum distmctis inclusis Ovulum in smgulo ovario pendulum, anatrosum. Fructus e toro (pengonio circumscisse delapso) et ovarns mcrassatis liberis ovoidcis pilosis obtusiuscuhs constans. Albumen carnosum, copiosum Embryo axihs, cylindnco-conicus; radícula supera, cotyledonibus minutis, apphcatis — Arbores asiaticse, folns oppositis, breviter petiolatis, elhpticis, amplis, a medio remote nunc parce dentatis, cymis axilianbus et terminalibus, multiflons, unisexudlibus; floribus parvis, aurantiacis; fructibus (jumonbus saltern) Anonaceam referentibus. — Flos femineus, ex specimmibus Zoll. descnptus, cum IC et descr. cl. Blume non admodum convenit, sed figure imperfect\*. — An species omnes diversae?

1. K CORIACIA (Hook et Ih. 1 c) folns elhptico vel ovdto-oblongis acutis vel ohtusiubcuhs [c] suhacummatis conaceis versus apicem remote scrntis supra glabns subtns pilis solitarns sparsim puberulis, cymis subpaniouulatis Bron-gmartia conicea Blume I c Kibara Blumei steud nom ed 1840 Sciadicarpus Biongnaitu Hissk 1 c — In montosis Javae (Bl Zoll 1107), Sumdtrae (Miq Sum p 157, sine descr ), peninsulcE Maldccensis (Giff in Hook et Ih ) Kami jumores petioh ct mllorescentid pilis bievibus velutina 1 olid 1> ^ cent lon<sup>r</sup>d, 10-15 cent Uta, p^tiolo 5-20 mill longo, membrdnacei pellucide punctatd, dcumiiK brevi obtuso, nervis laterahbus utnnque 5 6 praeci-puib, junioid paice pilis iohtanis pubescentia Cymae petiolo multo longiores, limbo multo breviores, fulvo-tomentosae, pedicelhs centim longis Pengonium i-4 mill longum Ovana jam d pengonio denuddta 2 mill loDga — Flores ex spcciminc Zollidgen descnpsi, semen ex Hassk (v. a )

P, *pubescens* (Bl in Mus L B. 2 p. 87), folns subtns stellato-pubescenti-

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(1) FX figura In Mus L B lobi 8 per pana lmbncati ab externo id mteinuflj flons adsunt, cum 8 alns interioribus pei verticillos quatuor dispositis, quo« ex descnptione et flore fenuneo vix intelligo.

bus. — In Java. — De arbore Sumatrensi cl. Miquel ait folia pilis vel simplicibus vel stellatis, quod in speciminibus Zoll. et Kollmann in h. Boiss. non video.

- 2 K CHARTACEA (Bl. Mus L B. 2. p 89), folns elliptico-oblongis acummatis chartaceis versus apicem repando-serrulatis utnque glabns, flonbus simpliciter racemosis. — In Sumatra. Folia 9-14 poll, longa, 3-5 poll lata, petiolo 6-9-lin.

6 *apiculata* (Bl. lb ), folns ovalibus vel elliptico-oblongis 8-13 poll, longis, 3-6 poll latis, acutis vel breviter apiculatis, versus apicem repandis vel repando-serrulatis. — In Sumatra.

- 1 K OBTUSA (Bl. ib), folns ellipticis obtusis vel retusis Integerrimis vel ad apicem repandis chartaceis glabris in nervo medio subtus puberulis, flonbus simpliciter racemosis vel subumbellatis. — In Celebes. Folia 3-4 poll, longa, 1-2 poll, lata, petiolo 5-6-lin.

*Species non satis cognita.*

4. K. cuspidata (Bl. ib ), folns ovalibus ellipticisve (9-12 poll, longis, 4-7 } poll, latis, petiolo 5-6-lin ) obtusis vel retusis Integerrimis vel ad apicem repandis glabns in nervo medio subtus puberulis, flonbus simpliciter racemosis vel subumbellatis. — In Celebes

Tribus IV. HEDYCARYEM.

Antheris rimis dehiscentes. Ovum perigonio patente, saepe polyphyllo, inserta, in drupas mutata. Ovulum pendens, radícula superiora.

- X. HORTONIA Wight ex Am. in Ann. zool. bot. 2 (1838) p. 545, Wight in t. 1997 et 1998; Hook et Th fl. ind. 1. p. 166, Tul Monogr. Momm. mArch. MM 8. p. 425.

Flores polygami, alii androgyni, alii unisexuales (quidem certe mere feminei, ex Tul.), tubo fere nullo, phyllis plurimis imbricatis, quorum exteriora (sepala) 2 externa, duoque us interiora ovata, basi subconnata sive a pedicello non distincta, vix accrescentia, persistentia; interiora (petala) 16-20, hinc perianthes incito accrescentia, obovata vel oblonga vel hinc, sepalis multo longiora, patentia, marcescentia Stamina 7-10 (ex Hook. et Th ), 8, plurimae pauciora (ex Tul.), intrapetala subverticillatis in toro inserta, libera; filamenta linearia, extus basi glandulis 2 macrocephalis sive (evolutis) appendiculis cuculiformibus stipitata, his longiora, antheras filamenti apice adnatae, extrorsae, biloculares, loculis longitudinaliter dehiscentibus. Ovum numerosa vel pauca, ovoideo-oblonga, in stylum apice hinc et simplicem attenuata, toro plurimum inserta. Ovulum in singulo ovano pendulum, anatropum. Ductus obovato-compressus, basi stipitem attenuate, putamine tenui. Albumen carnosum, oleosum, copiosum. Embryo minutus, axillis, radícula superiora; cotyledonibus paulo divergentibus, perispermis valvis parallelis. — Frutices indici, odor; folns opposites, integris, tenuiter pellucide punctatis, nervis secundariis majoribus paucis cum aliis minoribus tertiariis petentibus, inde folia fere triplici-vel quintuplino-nervia; stipulae nullae; cymis axillaribus; flonbus pallide flavis, illicia referentibus.

Nexus inter Mommiaceas et Magnoliaceas, Dielleniaceas atque Ranunculaceas, equidem in serie orjanorum thalamiflorum, petalorum praesentia, glandulis juxta stamina et dentibus extrorsis a Mommiaceis memis

recedens. Gl. Wight tres, Hook, et Th. unam, Tulasne duas, Thwaites unam et forsan duas species admiserunt, sed transitionibus mihi hucusque non cognitis (ex paucis speciminibus) tres provisione servabo.

1. *H. acuminata* (Wight ic. t 1998, fig. dextr.), folns anguste lanceolatis longe acuminatis 3 in Ceylona, prope (jalle, altit mediocris) (Thwait I u<sup>m</sup> 1026). H. flonbunda vai angustifolia Thwait enum. Zeyl p. 12 Cl Hook Kih et postea cl. fulasne cum H. flonbunda junxerunt, nequidem lanetateiu dixerunt; Thwaites autera magis quam ovahfoha ab ea distinctam ait Floies mm ores, pedunculi gracilioes Petioli subsimiles, gracihores tantum Limbi 12-14 cent longi, I j-do mill Idti, basi attenuate nervationo ut in H. flonbunda, sed nervis laterahbus ex forma folli migis obliquim (v. sp. Thw. in h. DC el Mait).\*
1. *H. florimunda* (Wight ic t 1997), fohib elliptico vel oblongo acuminati\*. \$ In editionibus insule Ceylan (Thwut » 1027) H. flonbunda var acuminata Thwait enum Zeyl p 12 Kami juniores tenuissime lepidoto-cinerei Petioli cent longi, imtio sublepidou, Umbi glabn, 10 13 cent longi, 3 b cent lati, basi plus minus cuneati Gymæ petiolo duplo inprove longiores, ex pihs mi<sup>m</sup> nimis stellatis passim cinereo lepidotae, 6 10-florde, bracteis ovato-lanceolatis 2 3 mill longis, pediceih 1-2 cent longis Alabastra globosa, extus passim lepidota Petal a h-10 mill longa, mteioribus longionibus angustionibus Drupæ 14 mill, longae, glabrae, brevissime stipitdtce (v. sp. fhwait in h. DC. Bois ; Mait)
3. *H. ovalitoua* (Wight ic t. 1998, fig. sinistr), folns late ellipticis vel late ovatis obtusis vel brevissime acutis conaceis. 3 l<sup>n</sup> editionibus insule Ceylan (riiwait' 159) — ful raonogr. p. 428 H. flonbunda var ovalifoln Hook et III. 11 ind 1 p. 166, Fhwait. en Zeyl, p 12. Novelliparus bimelepidoti Petioli ut in H. flonbundaj sed ciabsioies, hmbi (ex specimine ULICO) 5 8 cent longi, )-5 cent lati, opaci (in alas punctis pellucidis), nervis tertiaris in junionibus distinctis, deinde vix perspiciendis Floies ut in H. floriDunda. Fructub simihs (v. sp. Thw in h. Mart, et meo).

XI. *HEDYCARIA* J et G Forst char, gen p 127. t 64 {dextragra. et sem et-ion), Linn yuppl p 67, Juss gen p. 401, Lam. ill 4. t. 827 (ic rorst. mutuata), Raoulchoix N. Zel. t 30, Hook, f fl. N. Zeal. 1. p 218, Tul. monogf in Arch Mw > 8. p. 405. t. 34

Flores dioici *Mascult* pengonio calycino patente, lobis 7-8 bisenatis dispositis. Stamina O-J, in toro sive fundo pengonn acervata; filamentis vix ullo, anthesis oblongis, pilosulis, biloculanibus, introrsum, lateraliter vel nimis 2 dehiscentibus. Grana polhnis (ex F Muell-fragm. 4 p 152) laevia, in valvas dissidentia. Flons *femmi* pengonium masculo subsimile, lobis brevionibus. Ovanac<sup>^</sup>, in toro acervata, ovoideo-oblonga, stylo ovoideo obtuso terminata. Ovulum ex angulo superiore pendens, anatropum. Drupae subglobosae, saepius stipitatae, e basi pengonn tunc convexi divergentes, came tenui, endocarpi<sup>o</sup> carneo Semen albumosum. Embryo axillis, semine brevior, radícula supera, cyhndna, cotyledonibus radiculam aequantibus, ellipticis, in utro adplicitis (ut recte dixit cl. Tul.), margine manifeste crenato-serratis (quod ab omnibus et in iconibus praetermissum). — Frutices vel arbusculae Australasiae et Novo-Zelandicae, sempervirentes; foliis oppositis, dentatis; cymis axillaribus. — Semen hucusque in H. arborea solum cognitum.

1. *H. arborea* (J et G Forst gen 1776 p. 128. t 64), ramis junonibus pubescentibus fulvis, foliis ellipticis oblongis obtusis vel acutis basi cuneatis supra basim lomote dentatis vel serratis junionibus utrinque subtomentosis de j<sup>m</sup> glabris, cymis tomentosis pilosis petiolo longionibus, pengonio masc. v. hemisphaenco 7-8-fido, lobis ovato-lanceolatis, fem brevius lobato r > |n Nova?

Zelandiae ins. sept et media. H. dentata G. Forst. prodr. (nsiR) n 71 A. Rich. fl. N. Zel. p. 354, Raoul! choixpl. N Zel p. 30 t. 30 (excl. syn Veer\*? Hook. f. Fl. N. Zel. 1. p. 219, Tul. monogr. p. 406 Zanthoxylum Nov<7P>, landiae A. Rich. voy. Astrol. Fl. Nov. Zel p. 291 t. 33 (embr male fi7|? p<< tior 6-15 mill. lodgi, hmbi 5-10 cent, longi, 2-3 cent iati, denticul<S> mimi' mis callosis. Anthers 25-40, puberulae. Drupae 3-8, ovoideae, subcomDresVaT centim. longae, stipite 3 4 mill, longo. (v s.) " ^ressa,

p, *scabra*, ramis cortice transverse nmoso, petiolis brevionibus, limbo Dame dentato vel mtegro. — In Nova Zelandia ad fl. Ken Ken. H. scabfa A Cunn ! in n DC, in Ann of nat hist. 1. p. 216, quze a cl. Hook f. mera H dentata dicitur. Petioli 3-8 mill, longi. (v. s)

2. H. AUSTRALASICA, novells subsencis, folns ellipticis vel oblongo-lanceolatis acummatis basi acutis ultra basim serratis vel dentatis adultis glabns, cymis masc. et fern 8 10-floris subsencis petiolo duplo longionibus, flonbus masc. lobis 8 ovato-triangularibus interioribus et ext. asqualibus, flons fern, lobis simihbus demum retlexis, drums mimmis elhpsoideis dense m toro acervatis sessihbus. 5 vel 5 In Nova Hollandia austrcententah, a cap. Otway et mont. Disappointment usque ad promont. Wilson H. dentata var. Australasica Sonder in Lmn. 28 (1856) p. 228 (fide F Muell. qui ad Sond. plantam mis.). H. Pseudo-morus F. Muell in Trans phil mst Viet 2 (1858) p. 62, plants of Viet. 1. p. 22. t. suppl. 2 Folia ex ic. in eodem ramo latitudine valde varian- tia, petiolo 5-28 mill, limbo 5-12 cent longo, 2-6 cent. lato. Pedicell masc. et fern 4-6 mill, longi. Flos masc. 6 7 mill, latus. Antherae subpubescentes ex ic. introrsae, ex descriptione laterahter dehiscentes. Fructus subglobosus\* circ. centim. latus. Diupae vix 2 mill. longiores.

P, *angustifoha*, folns angustionibus. s In Austi aha orient, prope Port Jak- gon, in mont. Caeruleis (R. Cunn.!). H. angustifoha Cunn. I in Ann of nat. hist. 1 p 215. H. Cunnngami mi i monogi p 408. H. Pseudo-morus F. Muell. pro parte (specimen in h. Mus. par.). Petioli 7-15 mill, lonffi tenues, glabri, hmbi 6-7 cent, longi, 15 25 mill. Iati. Stamina ex specim' h. vmd. a Tul. obs.) circiter 40, in alabastro extrorsa, vix doiso pubentia! Specimen femmeum H. pseudo-Mon in h. par. cum nostro H. angustifo- hae Cunn. convenit (v. s. fern d cl. R. Cunn. comm.)


3. H. DORSTENIOIDES (A. Gray in Seem, journ. 1866. p. 83), folns fere membra- naceis ovatis oblongisve plerumque integernmis longius petiolatis, racemis terminahbus 5-7-flons, receptaculo cum pengonio peltato-disciformi mar- gine submtegermmo, masculo glabro supra anthers mnumens dense vestito, connectivi apice dilatato truncato quam locuh angusti latiore, fructifero supra pubescente, drupis haud stipitatis. — In insulis Fidji et ins Samoa (Wilkes exped ) Ex fragmentis flor masc. a ill. Gray comm discussjunior centim. latus.

p, *denticulata* (A. Gray 1. c), foliis membranaceis ranter dentatis denticu\* latis. In Samoa ins.

### Species exclusce.

H. HIRSUTA (Spreng. pug. p. 94). E Bengalia =i fiuphorbiacea, ex Tul. monogr. Monim. p. 410, quae cl MULLER, Arg., prorsus ignota.

H. RACEMOSA Tul. = Palmena scandenb.

XII PEUMUS Molina Saggio sull. stor\* nat. Chili (1782) p. 185 et 350 fare/ spec)), *Pars. ench. 2. V* , Meissn. gen. p. 324 et Comm. 236. — Ruizia Pav. prodr. p. 135. t. 29; Endl gen. 2019, icon, t 21 (won Cav.) — Boldea Juss. m Ann. Mus. 14. p. 134 (m Endl. synonymon Ruizia, (Boldoa|crir>tum) • Tul. monogr. p. 410. — Boldoa Lindl. hot teg. 1845. t. 57; Cl. Gav ft 'rhil' S' P 351; Lindl. veg. Kmgd.p. 298 t. 205. - Boldu Feuillte journ' bbs- plani, medic, p. 11 (pro majore parte, non t. 6, qu<r certe ynht udetur L&aracea Boldu a Neay) et Meissti. prodr. 15 t>ect. 1. p. 67 nuncupata)

Flores dioiciil/ascM/i. Calyx subcampanulatus, 5-fidus, lobis ovatis. sub- naequalibus, aestivauone quincunciali. Petala calycis fauci inserta, vulgo



7, imbricata, pro parte cum lobis calycinis alterna, obovata vel lineari-oblonga, sepalis sublongiora, patentia. Stamina numerosissima, toto calycis tubo interne pilosoinserta, partim inclusa; filamentis basi ligulatis, sub medio utrinque glandula planiuscula auctis, supra gracilibus; antheris filamentis brevioribus, bilocularibus, introrsis, rimis 2 longitudinaliter dehiscentibus. *Feminei*. Calyx ut in masculo, lobo tamen interno petaloideo. Petala 10-12, calycis faucibus inserta, exteriora majora obovata lobis calycinis minora, interiora lineari-oblonga breviora. Ovaria 3-4? ovuideo-elongata, in imo calycis tubo recondita, libera, tomentosa, in stylum brevem geniculatum papillosum desinentia. Ovulum in singulo ovario pendulum. Calyx circumscissus deciduus. Drupa 3-1, toro piloso insertae, ovoideae, brevissime stipitatae, parce carnosae, endocarpioosae. Semen albumine oleoso, carnosum, copiosum. Embryo minimus; radícula supera; cotyledonibus valde divergentibus, radícula multo longioribus. — Arbuscula *Cbilensis* sempervirens, fragrans; foliis oppositis, ovato-ellipticis obtusis, integris, sparsim (praesertim subtus) verruculis pilosis consitis; cymis axillaribus et terminalibus, multiloricis, tomentosis. Lauracea sub simili nomine cognita et a Feuille commixta, primo ad spectum foliis glaberrimis nervibusque reticulatis divertit.

P. BOLDUS (Mol. 1. c.). ff. Frequens in prov. Santiago (Germain!), Valparaiso Bert.), Concepcion (PHL!) Valdivia (Gaudich. 203), in cordill. de Rancho (Lechl. 766), etc. *Poumus fragrans* Pers. 1. c. *Ruizia fragrans* Pav. 1. c. *Boldoa fragrans* Gay 1. c. Tul. 1. c. Petioli 3-5 mill, longi; limbi 2-6 cent. longi 1-3 cent, latij coriacei. Cymae folio breviores. Calyx externe lomento cinereo velulinus. (v- s.)

*Species exclusae.*

P. ALUA Mol. }  
 P. FRAGRANS Bert. } = 13oldu Gbilanui Nees, Meisan. prodr. xv sect. 1. p. 67\*  
 P. MAMMOSA Mol. }  
 P. RUBRA Mol. }

Tribus V. *ATHEROSPERMEAE* Tul. mon. *Monim.* p. 414. — Ordo *Atherospermeae* R. Broion gen. rem. p. 21. — *Monimiaceae* subordo II *Atherospermeae* Endl. gen. p. 314. — *Atherospermetif* seu *Achainiophora* Tul. I. c.

Antherae operculis dehiscentes. Ovaria perigonio patente inserta. Achirnia plumosa, libera, perigonio accreto, varie fissis vel ruptis et patente inserta. Ovulum erectum, radícula infera. — Arborea australasica vel chilenses, fragrantia.

XIII. *LAURELIA* Juss. in *Ann. Mus.* 14. p. 134; *Endl. gen.* p. 1378; *Hook. f. fl. N. Z.* 1. p. 218. t. h. Gay *ft. Chil.* 5. p. 353; *Tul. monogr. Monim.* p. 414. *Pavonia Ruiz at Pav. prodr.* p. 127. f. 28 [non Cav.).

Flores uni-vel bisexuales, dioici vel monoici. *Masculi*. Perigonium tubo obconico-hemisphaerico, lobis 5-12, bi-pluriseriatis, exterioribus sub brevioribus. Stamina 5-12, libera, imbricata, externis longioribus perfectis filamenta ligulata, utroque marginis infra medium appendice subcarnosaaucta; antherae biloculares, dorso adnatae, valvis lateralibus 2 a basi ad apicem dehiscentes. *Feminei* et *androtjyni*. Perigonium tubo longiore. Ovaria plurima, pariete interno piloso perigonii inserta, libera, inclusa, fusiformia et in stylum linearem elongata. Ovulum e basi erectum.

turn. Fructus e perigonio indurato, tandem in segmenta 2-4 ab apice fisso, et achaeniis gracilibus linearibus pilosis constans. Albumen carnosoleosum. Embryo minimus; radícula infera; cotyledonibus facie applicitis (ex Tul.), divergentibus (ex IC. Hook. f. et descr. Gay fl. Chil.). — Arbores elatse, grate odoraë, Ghilenses vel Noyo-Zelandicae; foliis oppositis, obovato-oblongis, obtuse serrato-dentatis; cymis axillaribus folio brevioribus, pubescentibus. — Thiga Spreng. (Salix chilensis Mof) quae *Theige* in Mol. hist. nat. chili ed. gall. p. 140, est Salix Humboldtiana Willd., de quo confer p. 199 et 684.

\* Flos femineus lobis inaequalibus, exterius multo brevioribus.

1. *L. SEMPERVIRENS* (Tul. monogr. Mon. p. 416), foliis obovato-oblongo-ovato-lanceolatis, perigonii feminei lobis dissociatis remotis. § In Chili, a 34° ad 42° lat. (Gay fl. chil. 5. p. 355, Lechler! 264, Phil! 280, Dombey! 982, etc.). *Pavonia sempervirens* Ruiz et Pav. prodr. fl. per. t. 28 (anal.), syst. 1. p. 253. *L. aromatica* Poir. dict. suppl. p. 313. *L. crenata* Poepp. exs. 3. n. 135. *L. serrata* Bert. in Merc. chil. 15 jun. 1829, Philippi! exs. Novella tenuiter pubescentia. Folia subcoriacea, 3-7 cent. longa, 2-4 cent. lata, in petiolum, 5-10 mill. longum attenuata, obtusa vel acuta. Flores dioici, interdum monoici. Cymæ petiolo longiores, cum perigonio sericeo-pubescentes. Lobi floris masculi ovati, subæquales, 3-4 mill. longi, utrinque pubescentes (ex flore 4 externi et 4 intus alterni, in aliis numero div.). Floris fem. lobi externi recurvi, minimi, ovato-acuti vel squamiformes, variabiles, interni sæpius oblongi, 4-5 mill. longi. Capsula 18 mill. longa. Semina in spec. meis sterilia. (v. s.)

\*\* Flos femineus lobis subaequalibus.

2. *L. NOVÆ ZELANDIÆ* (Cunn. in Ann. of nat. hist. 1. p. 381), foliis obovatis vel obovato-ellipticis, lobis perigonii obtusis, perigonii feminei tubo elongato lobis paucis confertis. § In Novæ Zelandiæ insula sept. et proxima parte mediæ. — Hook, f. fl. N. Z. 1. p. 218. t. 51, Tul. monogr. p. 417. Novella tenuiter pubescentia. Folia *L. sempervirens*, acutius vel late obovata, obtusissima, marginem non solum dentata sed crispato-undulata. Cymæ petiolo longiores, cum perigonio sericeo-pubescentes. Flores dioici, monoici vel polyami. Lobi floris masculi 5 ovato-elliptici, tubo fere nullo inserti, utrinque pubescentes, extus præsertim cinerei, 3 mill. longi. (v. s.)

XIV ATHEROSPERMA(1) *Labill. Nov. Holl. 2. p. 74. t. 224; Endl. gen. p. 314*  
*TuUnmogh. Monim. p. 418; Hook. I fl. Tarn. l. p. U [excl. syn. gen.]*

Flores uni vel bisexuales, monoici vel dioici, bracteis 2 ovatis primo complexi *Masculi*. Perigonium lobis sæpius 8, duplici serie insertis, externis maioribus. Stamina 8-16, perigonii fauce et parete interno sericeo-pilosis inserta, inclusa; filamenta ligulata, basi squamis oblongis sæpius feminis extrorsis comitala; antherae late obovato-quadratae, continuae, loculis 2 extrorsum valva a basi ad apicem dehiscentibus. *Feminei* Perigonium tubo majore, lobis 8 subsimilibus, squamis intimis brevioribus triplici vel quadruplici serie acervatis. Ovaria plurima, imo tubo inserta inclusa, sphaerica, fusiformia, stylo elongato subgeniculato. Ovulum in basi erectum. Fructus e perigonio amphato, cupuliformi, integro constans, lobis majoribus destitutus, squamis internis accretis inaequalibus et radiatim patentibus. Achaenia pluniosa, cupulam latam apice superantia. Semen adhaerens. Albumen carnosoleosum. Embryo exiguus; radícula infera; cotyledones divaricatae. — Arbores Australa-

(1) Ex etymologia nomen neutrum est, ut voluit C. U. Tulasne, sed Latini arbores feminei generis vulgo J. ab. unum, et Labillardière ita consult.

sicae excelsae, folns oblongis, lanceolatisve acuminatis, dentatis vel integris, inflorescentia axillan, defimta.

- 1 A MOSCHATA (Labill Me), ramis fulvo-tomentosis, fohis anguste lanceolatis integris vel iemote grosse serratis, flonbus sohtarns magnis tomentos unisexualibus ^ In Tasmania (Labill, Gunn ! 531) et Australiaaustro-orientah (Hook f fl Tasm 1 p 12) A integrifolium Cunn. in h und (fide lul). Ramuh tetragon i, cinereo-velutini folia 3 5 cent longa, 6-12 mill, lata, in petiolum 3 4 mill longum attenuata, conacea, supra pilosa etnitida, subtus cinereo-pubescentia Flores masc 8 10 mill longi latique, pedunculo subaequales Lobi extus sencei, externi ovato-acuti, interni angustiores subbreviores Fructus cum achaenns 12-15 mill longus, tubo pengonn dense senceo 6 7 mill longo late cylindndP, ore lobis? et squamulis plummis valde inaequalibus lineaii-lanceolatis leilexis vel erectis tubo brevioribus utimque adpresse senceis cincto. Achdenia propter lobos leflexos exserta (v s in h Boiss )
- I A MICRANTHA (Tul in Ann sc nat 4 v. 3. p 46 et monogr p 421. t 34), ramis adultis glabernmis, folns oblongo-lanceolatis serratis glabris (adultis saltern), cymis multiflons folio subaequalibus, flonbus exiguis androgymis extus subgkbns \$ <sup>in</sup> Australia onentah versus Port Jackson (Fraser, Gaudich ). Folia 10 15 cent longa, basi cuneata Cymae composite, bracteis et bracteolis eziguis caducis lanceolatis Hoies 3-4 mill longi Lobi ezterm 5 6, late ovati, internI 5-8, duplo longiores, oblongo acuti. Stamina 5-8. Stammodia 10-12 Styli (e\ Tul) non laterales

### *Species exclusa.*

A Sassafras Cunn = Doryphora Sassafras

XV DORYPHORA Endl gen n 2022, icon t 10 {ubi fig. N corrigenda), Lmdl veg Kmgd p 300, fig 208 (ubi n 1 comq ), Tul. Monogr. Momm\* p. 422 — Learosa lieichb nomencl 2612, fide Endl gen suppl 2. p 35.

Flores bisexuale\*. Pengonium mfundibulifoime, tubo brevi, lobis6 bisenatis, subsimihbus, lanceolatis, tubo multo longionbus; uno verticilh externi (calyx) extenore, verticilli interni (corolla) pnonbus alternis, lobis simihter imbricatis Stamina fertiha 6-8(raro plura), extrorsa, tna extenora lobis externis opposita; filamentis ligulatis, basi utroque latere appendice discoidea auctis, loculos 2 valvis a basi ad apicern dehiscentes gerentibus, connectivo ultra loculos in caudam linearena longissimam glabram producto, glanduhs 2 lunuldtis, basi caudae supr<sup>a</sup> loculos positis Staminodia 4-6, staminibus subsimiha, ahaque mtenora 8-12, multo breviora, e squama tomentosa in filamentum glabrurti attenuata constantia Ovana 6-8 (ex Tul.), numerosiora (interduni, ex Endl ),libera, glabra, fusiformia, in stylos pilosos, apice vero glabros, hneares abeuntia. Ovulum erectum. Fructus (ex IC. cit) e pengonio incrassato, ovoideo, demum hinc longitudinahter fisso, et achaenns plummis pilosis elongatis vix apice exsertis constans. Embryo mmutus, in axi albuminis carnosi, radícula infera, cotyledombus divancatis. ~ ~ Arbor australasica; folns oppositis, ovato-vel obovato-oblongis, serratis, cymis pauciflons, axillanbus.

D. SASSAFRAS (Endl. icon t 10). In Australia orientali (All Cunn ») — Tul .1 c p 424. Atherosperma Sassafras Cunn ohm m herb Flonbus exceptis gia\* bra Folia 5-10 cent longa, 2-4 cent lata, subacuta, basi Integra cuneata, petiolo 5 mill longo Pedunculi axillares petiolo sublongiores, apice bracteas 4 ovatas minimas in involucrum 2 mill, latum connatas gerens, lbique 3~"01 n, pedicelhs 1-2 mill longis Tlos externe piaesertim senceus, vix cent, iongus. Stamina vanabilra, nunc 1-glandulosa (v s. flonf)

**Ordo? LXXIVbis. CRYPTERONIACEAE (I).— Henslowiaceae** *fruct. bot.* 1834, in text, adu 1686; *Nat. syst. ed.* 2. p. 173; *Veg. Kingd.* p. 570. — Henslowiaceae *Mart, consp.* (1835) n. 77. — Lythariacearum gen. *Meissn. gen.\** (1836-43) p. 118 et comm. p. 84; *Planch, in Hook, journ. bot.* 1845. p. 475. — Salicineis affines, Henslowiaceae *Endl. gen.* p. 291; *Schnizl. ic. fam. U 99 bis.* — Salicineis affines, Crypteroniaceae *Endl. gen. svppl.* 4. 2. p. 36.

**Characteres sequuntur sub Crypteronia.**

CRYPTERONIA *Bl bijdr.* (1826) p. 1151, *Mus. bot.* 1. p. 243; 2\* p. 123; *Endl. gen. suppl.* 4. *Vart-2-P-88* ~ Hensl. <> *wia Wall, plant, as. rar.* 3. p. 13. 1, 221, *Endl. gen.* n. 1905; *Planch. I. c.* (non *Henslowia* Blume in *Sanfolaceis*). — *Henslowia Lindl. Bot. reg. ad t.* 1686 et alibi; *Miq. fl. ind. bat.* 1. p. 715. — *Quilamum Blanco fl. Filip. ed.* 1. p. 851.

Plores dioici vel rarius polygami. Calyx cupuliformis, lobis 5 (raro 4), aestivatione valvari. Petala 0, sed stamina 5 (raro 4), perigynā, inter lobos calycis petalorum sedem occupantia. Filamenta fl. masc. elongata, in aestivatione inflexa; fl. fem. minima-antherae introrsae, biloculares, reniformes, connectivo crasso loculos gerente. Discus 0. Ovarium liberum, biloculare. Ovula plurima, in medio septi acervata, anatropa. Stylus cylindricus, persistens. Stigma obtusum, medio saepe depressum, obscure 2-lobum. Capsula basi calyce persistente cincta, tarde valvis 2, medio septileris, basi et apice cohaerentibus dehiscens. Semina plurima, infra medium septi inserta, adscendentia, funiculo brevissimo, chalaza apicali in appendicem cellulosa producta, Albumen 0. Radicula infera; cotyledones ovatae, facie adpresso, radicula paulo longiores. — Arbores et arbusculae in Asia merid. et insulis proximis crescentes; foliis oppositis, simplicibus, breviter petiolatis, integris, penninerviis, exstipulatis; paniculis terminalibus et axillaribus, racemos simplices saepius 5, uno terminali, aliis oppositis, gerentibus; floribus parvis, breviter pedicellatis vix coloratis; pedicellis basi bractea stipatis. Inflorescentia et fructificatio habitu *Cunoniae*; folia et inflorescentia etiam *Gombreti*.

*Alzatea* Ruiz et Pav., genus supra (Prodr. 2. p. 10) *Celastrineis* adscriptum, *Grypteroniae* valde affine videtur, monente olim sagaciss. Blume. Stamina pauca, sepalis alterna praebet, quod rarissimum, sed anatome seminis desideratur. — *Abatia* Ruiz et Pav. (supra, Prodr. 1. p. 503) hic interdum approximata, *Bixacea* ex aliis (*Meissn. gen.*), valde recedit numero et insertione staminum, atque ovario uniloculari. — *Raleighia* *Gardn.* in *Hook, journ.* 1845. p. 97, *Planch, ib.* p. 476, quae ex *Gardn.*

Bixacea, Grypteronieis aff. ex Planchon, Samydea ex Hook, et Benth. gen. 1. p. 634, differt staminibus, ovano uniloculan et albumine.

Crypteronieae (ordo vel tribus) a plerisque mine Lythriaceis adnumerantur. Non vero sine causa, dixit ill. Endlicher (suppl. 4) « ob stamina cum perigonii simplicis laciniis alterna aubiae manent affinitatis. » Et affinitate admissa cum Lythriaceis, diversitas gravis adest: petala in stamina mutata et stamina vera deficientia.

\* Folia subtus pubescentia.

1. *C. PUBESCENS* (Endl. gen. suppl. 4. part. 2 p. 39), ramis tereibus glabris, ramis obtuse tetragonis puberulis, lous ovato-ellipticus basi saepius obtusis apice saepius acutis, supra glabris, subtus parce pubescentibus, calyce intus dense tomentoso. 5 In insula Penang (Wall pi. as., list n. 4904) et circa Tavoy (Wall. list 4904, C, sub n. 8566 in adnot.) Henslowia (Crypteroma?) pubescens Wall. pi. as. rar. 3. p. 14. t. 221, list 4904, Planchon 1 c. p. 477 t. 16. f. B Folia J-4 poll, longa, 1-2 poll, lata, petiolo \*\*4 hn. longo, pilis subtus bievibus mollibus sparsis in nervis crebrioribus Paniculae racemi numero 3-7, folio aequales vel longiores, undique cinereo-velutini. Bractea plicata, pedicello interflum aequales. (v. s.)

P, *affinis*, fructibus minus confertis fere duplo majoribus, pube pulverulenta rufescente, nee ut in prore palide lutescente. In prov. Mergui (Guff in h. HOOK.). Henslowia (Crypteroma?) affinis Planchon 1 c. p. 477. *C. affinis* Endl. 1. c. Differt (ex Planch.), lous memoianaceis, nervis tenuibus, caetium subtus pubescentibus vel glabris. kx U. Benth. (in lit) qui specimen Hook, vidit, sine dubio eadem sp. ac *C. pubescens* hic vensimiliter referendum specimen meum 557 Wall cat. ined. Itin. birm., e Tavoy, propter folia subtus pubescentia, alia vero sub eodem numero in herb. authentico glabra sunt et ad *C. Hookeri* referenda ex cl. Benth. in lit.

\*\* Folia glabra.

2. *C. GLABRA* (Endl. 1. c), ramis teretibus ramulisque subteretibus glabris, foliis obovato-vel ovato-ellipticis obtuse acuminatis basi cuneatis utrinque glaberrimis, paniculis tenuiter puberulis, masculis folio longioribus, fere brevioribus. 5 In Sillet Indiae or (Wall ' list n. 4901). Henslowia glabra. Wall, plant, as. rar p. 14, Schnizl. IC. lam. nat. t. 99 f. 1-9 (ex specimine lem. Wall, in h. Mart.), Planch 1 c. (excl. specim. philippin ^). Ramuli ex specimine masculi Walchneri MX angulosi, folia 4 poll longa, 1J-2 poll, lati, basi angustati, nervis lateribus lobi eiga centrali valde obliquis, apice saepius obtuse cuspidatis, rarius (ut in ic. Schnizl.) subacutis; racemis paniculae gracilibus, numero saepius 5, bracteis lanceolatis, pedicello brevioribus, calyce patente, utrinque puberulo, lobis triangularibus tubo brevioribus. Ex ic. Schnizl. flos fem. cum stylo non linea longior.— Cl. Planch, specimen philippinense Cuming in h. Hook, sub n. 794 (ab alio 794 Cuming. dissimile, ex Benth. in lit), aliaque Cuming sub n. 1376 (si lit. cl. Benth. recte intelligo) hic letulit, et equidem arbor Sillettianae similia essent ex Benth., sed mea 1316 Cuming diversa videntur (v. s.)
3. *C. CLMINGII* (Endl. 1. c), polygama? ramulis crassis acute tetragonis, foliis glaberrimis, paniculis magnis ramosissimis, floribus majusculis.— In ins. Philippinis (Cuming, absque cit. numen in Planch., Cuming 794. excl. specimine supra cit. ex Benth. in lit) Henslowia (Crypteroma?) Cuming Planch, 1. c. t. 14. t. C. (ubi flos solum). Cl. Planch addit. folia subtus reticulato-nervosa, quod in omnibus up. video. Ex cl. Benth. in lit. ramuli non semper angulosi, folia lata valde conacea.— Num. Cuming 1376 in h. meo non male cum descr. brevi convenit, et differt a *C. glabra* Wall lous basi vix cuneatis, flore fem. paulo majore, calycis dentibus longioribus. Fructus

cinereo-velutini, cum stylo linea longiores. Propter confusionem num. in hisce Cummgii plantis cavendum.

4. *C. LEPTOSTACHYS* (Endl. 1. c.) glaberrima, ramis teretibus, ramulis tenuibus obtuse tetragonis, paniculiffi ramis gracihbus elongatis, flonbus mmutis interrupte subglomerato-sparsis, In Philppimis (Cummg n. 1464). Henslowia (Cryptroma?) leptostachys Planch. 1. c.
5. *C. HOOKERI*, ramis subteretibus ramulisquo tetragonis glabris, foliis ovato-vel obovato-ellipticis utnque obtusis glabornmis, paniculis (fern.) folio subaequahbus tenuiter velutinis. 5. Cnca Amherst (Wall. 8066) et Moalmine (sub n. 14471 forsan Gnffithii, cum adnot. a Wall, mecum comm.). Henslowia Hookeri Wall, list 8566. Folia 3 poll, longa. 2 poll. lata, petiolo 3-4 lin. longo, obtusa vel obtuse et breviter apice angustiora, basi adultd obtusa, et ideo nervis laterahbus erga centralem perpendicularibus, quod a *C. glabra* diversum. Flores fere *C. glabrae*, sed fundus calycis magis pubescens et lobi breviores quam in ic. fl. fern, in Schnizl. (v. s.)\*
6. *C. WALLICHII*, ramis teretibus ramulisque tetragonis glabris. foliis obovato-ellipticis obtusis vel obtuse acuminatis basi longe cuneatis glabernmis nervis subtus crassis, paniculis (masc.) longitudine foln, calyce mtus et ovano abortivo dense senceo-villosis. 5. Circa Tavoy (Wall. n. 000 cat. ined. itin. bum-nunc in h. typico Kcw. non inveniendus ox Benth. in lit.), toia 3-4 poll, longa, 20-24 lin. lata, petiolo 4 lin. longo, ncr\is latewlibus prope petiolum magis quam in *C. glabra* obliquis et crassionibus. Racemi masc. saepius 5 in mnicula, densinon? Bractee lincan-subulatae, pedicello subbreviores. Calyx patens, breviter dentatus, pube interna palhda copiosa. Stamina 2 lin. longa (v. s.).
- C. PANIGULATA* (Blume bijdr. p. 1151), ramulis tereti-cotnpressis, foliis breviter petiolatis ellipticis vel elliptico-lanceolatis obtuse acuminatis basi ut plunmum acutis subcoriaceis glabris, paniculae ramis elongatis gKibnuculis. 6. In sylvis Javae occidentalis. - Bl. Mus. 2. p. 12. ^ Henslowia paniculata Miq. fl. Ind. bat. 716. Folia ex Bl. 3j-6 poll, longd, 1k1 poll, lata, petiolo 2-3 lin. longo.—An cum alns spec, ex speciminibus authenticis comparata?

*Species dubia.*

8. *C. LUTEA* (Bl. Mus. 2. p. 123), foliis lanceolatisiglabris breviter petiolatis. j In Philppinis ad Angat. Quilamum luteum Blanco fl. Filip. ed. 1. p. 851. Verisimihter una e spec. Cumingianis.

**Ordo? XCV bis.** HELWINGIACEAE (1).—Helwingiaceae *Morren et Decsne in Bull. Acad. Brux.* 1836, n. 5. p. 169; *Decsne in Ann. sc. nat. ser. 2. v. 6. p. 69. t. 7*; *Meissn. gen. p. 323. 328, ib. cemm. p. 240*; *Endl. gtn. suppl. 2. p. 71*; *Ag. fil.theor. p. 310* — Hamamelideae trib. Hamameleae, subtrib. Helwingieae *Gardn. in Hook, journ.* 1849. p. 323. — Glassis Garryales, ordo Helwingiaceae *Lindl. veg. Kingd. p. 296. c. fig.* — Genus **Araliacearum Benth. et Hook. f. gen. p. 933.**

Gharacteres generis.

HELWINGIA *Willd. sp. 4 p. 716.* — *Osyris sp. Thunb.*

Flores dioici, epiphylli. Calyx 3-5-partitus; lobis ovatis, aestivatione valvari, deinde patentibus, tandem in fl. fern, deciduis. Petala nulla. *FL masculi.* Stamina totquot lobi calycis, iis alterna; filamenta sublinearia; antheraB erectae, filamento breviores, biloculares, rimis 2 (ex iconibus et ex *Decsne*, invito *Zuccar. in descr.*) introrsum dehiscentibus. Pollen laeve. Discus interior, carnosus, 3-5-sublobatus, lobis obtusissimis, cum staminibus aalternantibus. *Feminei.* Ovarium inferum, 3-5-loculare, loculis erga lobos calycis uniovulatis. Stylus loco disci brevis, conicus. Stigmata 3-5, ovato-lanceolata, patienti-recurva, supra papillosa, erga lobos calycis verisimiliter alterna (ex fig. 6 *Sieb. et Zucc.*, et fig\* 8 *Decsne*, non ex fig. 4 ejusd.). Ovula ex angulo superiore cujusve loculi pendentia, anatropa, raphe externa. Drupa subglobosa, 3-5-sulcata, stylo persistente coronata, indehiscens (forsan loculicide dehiscens, ex *Zucc.*)« *Pyrenae crustaceae, rugosas.* Semina funiculo brevi appensa, testa tenui, albumine copioso, carnosio. Embryo minimus, superus; radícula breyissima, supera; cotyledonibus obtusissimis, con\* v%oxis.— Frutex humilis, japonicus: foliis alterms, stipulaceis, breviter petiolatis, penninerviis, dentatis; floribus parvis, ex coadunatione pedunculi cum nervo centrali epiphyllis, masculis 4-5 juxtapositis breviter pedicellatis, femineis 1-3 subsessilibus, pedicellis ebracteatis; fructu magnitudine pisi.

Analogia conspicua cum *Dulongia* (*Rhamnearum*) ex inflorescentia epiphylla, sed situs ovulorum diversissimus, ovarium inferum, etc. Affinitates potius cum *Hamamelideis* et *Araliaceis*, jam monente cl. *Decaisne*, cum *Cornaceis*, ex cl. *Agardh fil.*, non obstante mihi videtur praBsentia in hisce vul^ari petalorum, nam stamina *Helwingias* calyci alterna petala mutata dici possunt. Evolutio ovulorum ut in *Cornaceis*, nee ut in *Hamamelideis* et *Araliaceis*. Ex ovulo ut ex defectu petalorum propiores videntur *Cornaceis* quam *Araliaceis*. Plura caeterum de symmetria floris hodie ignota dohium forsan solvent. — *Garryaceae* omnino diversae.

**H. JAPONICA** (*Dietr. fide Steud. nom.*), — In montibus elatis *Kiusiu et Nippon Japoniae* (*Sieb. l. c.*). *Osyris Japonica Thunb. fl. Jap. p. 31, ic. dec. 3. t. 1.* *H. rusciflora Willd. en. 4 n. 716.* *Morren et Decsne in Bull. acad. Brux. 5. p. 5*; *DecsYie in Ann. sc. nat. ser. 2 v. 6- p. 69. t. 7*; *Zucc. in Sieb. if. jap. p. 164. t. 86.* Rami glabri. Petioli 3-12 lin. longi; limbi ovato-acuminati, J^asi acuti, 1J-3 poll, longi, 8-15 lin. lati, glabri, setis apice dentium (ex *Decsne*,

—^~^\*

inter dentes (ex Zucc). Stipuls petiolo breviores, glabrae, setaceo-fissae, laciniis filiformibus, caducae. Flores virescentes, prope medium hmbi a nervo discreti, coadunatione visibili (ex Decsne).

*Ignota, excludenda.*

H. POPULIFOLIA (Spreng. pug. % P. 89). In Bengaliã. Rami cano-pubescentes. Petioli alterni, pollicares. Linfti ovati, integernm, stellato-pubescentes, incani, triplinervi, 3 poll, longi, 2 poll, lati, acuminati, basi subtruncati, pilis subtus rarioribus. Spicae axillares et terminales, compositae. Calyx 3-partitus, laciniis acutis patulis. StigmaU 2, plumosa, atropurpurea.

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# ADDENDA ET CORRIGENDA<sup>(M)</sup>.

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De Cupuliferis, Corylaccis, Juglandaceis, Myricaceis et Platanaceis, jam fine anni 1864 divulgatis, sequentia in diversis recentioribus operibus inquirenda (2)

## CUPULIFERIE (supra p. 1-123).

De Ordine generatim : (*Ested, Sur la classification des Clones. In-H<sup>o</sup>. 1867.*  
pe speciebus javanicis : *Oudemans, Annot. critic, in Cupulif. nonnullas javanicas. In-k<sup>o</sup>. Amstelod. 1865.*

De Quercus sp. Kitaibelianis : *Kanitz addit. ad flor. hungar. p. 49-51.*

De Quercus sp. Heuffelianis : *Kanitz, Gesrhirkte der ungar. Botanik, p. 170-179.*

De Quercus sp. Americae bor. : *Gardener's chronicle 1866. p. 364.*

Quercus sp. novae orientales : *Kotschy, Ueb. Libanonund seine Alpine Flora, 2<sup>o</sup> J-4<sup>o</sup>. p. 37; Ejusd. Die Sommerfffa des Antilibanonj m<sup>o</sup>4<sup>o</sup>. p. 18, X\.* Confer a<sup>(1)</sup> : *Bull. soc. bot. France 1865, JltSO.*

Quercus coccinea var.? microcarpa, Q. obtusiloba, var. breviloba, et Q. acutissima, in *Torrey, Mexic. bound. Survey p. 205-207.*

Quercus castaneaefolia Mey. et Q. pseudosuber Santi, ambae in Algeria crescentes : *Alph. DC. in Bull. soc. bot. Fr. 13. p. 51.*

Q« Clivia Denh. in *Pasq. cat. ort. nap. 1867, p. 87. E Neapoli.*

Q- costata *Blume, supra p. 93.* — Confer ad *Oudemans in Ann. sc. nat. 1864, p. 378.*

Q- dasystachya *Miq. Ann. Mus. L.B.l.p.121.*

Q- echinata *Torr. in Bep. Senat. 4. p. 137.*

Q- glauca *Thunb. — Miq. Ann. Mus. L. B. 2. p. 212.*

Q- gracilis *Lange (Q. Ilex, supra p. 39).* — Conf. ad ejus descr. et ic. in *III. v. 19. t. 3i.*

Q« Hex. De var. confer ad *Martrin-Donos et Timbal, Bull. soc. bot. Fr. II. p. x, anno 1868 divulg.*

Q- iijermis *Kotschy, Ins. Cypren p. 216.*

Q- occidentalis *Gay — Willk. in Bull. Congr. bot. Amsterd. 1865. p. 203.*

Q- Pbyllireoides *A. Gray — Miq. Ann. Mus. L. B. 3. p. 207.*

Q- Ravenscroftiana *A. Murray in Garden, chron. 1866. p. 1018. c. fig.*

Q- Robur *L. — De variet. conf. ad Martrin-Donos Flor. Tarn. p. 641, 642.*

Q- sessilifolia *Bl. — Conf. ad Miq. Mus. L. B. 3. p. 207.*

P<sup>o</sup> Castanea vulgaris *Lam. — De var. conf. ad Clos Bull. soc. bot. Fr. 1866.*

Pi 117, linca 6, Quercus acutissima, lege.... acuminatissima.

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Vl<sup>o</sup> uct<sup>o</sup> re Alph. DC.  
tun<sup>o</sup> assi<sup>o</sup> in hisce operibus Prodrumi censurae adsunt, quibus pro parte tantum assentior.

*Fagus obliqua* var. *Valdiviana* A. DC. supra p. 119. Recentius sub **nom.** *F. Valdiviana* a cl. Philippi in *Linn.* 33 p. 236 descnpta.

*F. Moorei* *Ferd. Mull, fragm. phyt. austral.* 5 p. 109.

## JUGLANDACEÆ (I).

P. 134. lin. 8 adde : *Miq. Flor. Ind. Bat. vol. 1.* p. 840.

P. 135. in synonymis *Juglandis* lege : *Wallia Alefeld in Bowpland.* 1861. p. 335 *pr. p.*

P. 138 speciebus non satis notis adde : *J. CINEREO-NIGRA* Wender. in *Linnaea* v. 29. p- 728, quae vensimihter hybnda *J. cinereae* et *J. nigiae*.

P. 139. Ad *P. fraxinifoha*, dele \* *Juglans fraximfolia* Lam. diet. 4. p. 502, et post, Lankoran, inter loc. nat., lege : (Hohen.' in hb. DC )

P. 142. synonymis *Caryae* adde : *Wallia Alefeld in Bonpl.* 1861. p. 335. *pr. p.*

P. 145. synonymis *C. olivaeformis* adde : *Juglans fraxinifoha* Lam. Diet. 4- p. 502? *Wallia fraxinifoha* Alefeld in *Bonpl.* 1861. p. 336.

## MYRICACEJE (1).

P. 147. lm. 7 adde : *Clarke in Ann. mag. nat. hist. v. 1. fast. 3, Miq. Flor. Ind. Bat.* v. 1. p. 871; *Schnitxl. Icon. fam. t.* 87.

P. 154, speciebus non satis notis adde \* *M. LOBBII* (Teysm. et Binnend. msc. fide *Miq Flor Ind. bat. v. 1. p. 872*), folns brevissime petiolatis adullis praeter costam subtus glabns ohovato-v. clhptico-oblongis obtusis obtusiusculis v obtuso-subapiculatis deorsum attenuatis mteggerrimis pergamaceo-coriaceis, amentis fpm axillanbus sessihbus simpheibus matuñl clongatis pubescentibus, bractea elliptica, squamuhs elongato-hneanus, bacca clhpsioidea \erucellosa ex apice secundum lm. 2 oppositas pubescente. In Java. Folia 3-4 poll, longa. (ex *Miq-I.e.*)

## PLATANACEJE (supra p. 156).

De *Platanis* confer ad *Pasquale, catal. di orto Napol.* p. 82.

## LIQUIDAMBAR.

P. 158. *L. ORIENTALIS.* Adde: *Hook. f. IC. t.* 1019.

4 *bis.* *L. FORMOSANA* Hance in *Hook. f. ic. t.* 1020.

## BETULACEÆ.

P. 188, \$, *oblongifolia.* Adde: *Alnus oblongifohus Torr. Mexic. bound. Survey* p. 204; *Wright* n. 1864.

## SALICINEJE.

P. 139. *S. Humboldtiana* Willd. et notula in ead. pag. — Nomen vetustius *S. Chilensis* Molinan mento relinquendum est, quia planU in Chili non spontanea crescit, quod cl. auctor non dixerat (*Alph. DC*).

P. 228, sub medio. *S. aurita* et *livida* Wimm.... lege : *S. aunta-livida* Wimm.

P. 232, lin. 13. *S. repens* et *myrtilloides* Wimm.,... lege: *S. repens-myrtillodes* Wimm.

P. 238, lm. 14. *S. ,mannifolia....* lege : *rosmannifolia.*

P. 289, hn. 21 a fine. *S. laevis* Bnt. fl.... lege: *S. laevis* Hook. Brit. fl.

P. 298. Prope *S. herbaceam* collocanda : *S. GRAHAMI* (Borrer ined., Baker in Seem. Journ. 1867 p. 157. t. 66), quam cl. Anderson non cognovit. E comit. Sutherland Scotiae sept. (Borrer in herb. Kew.).

*SALIX CANTONIENSIS* (Hance in Seem, Journ. 1868. p. 48), arbuscula erecta, ramis cortice saturate castaneo obductis folisque matunis glaberrimis, his exacte lanceolatis basi acutis apice sensim acuminatis bipollicanibus medio ^ poll, latis glanduloso-serrulatis supra lucidis subtus opacis glaucinis subtilissime reticulatis petiolo 2-4 lin., stipulis lanceolatis, amentis masc. brevissime pedunculatis foliis paucis saepius suffultis 1-1 ^ poll, erectis densifloris cyhndricis ab ima basi florentibus, rhachi cinereo-lanata, squamis lanceolatis acutis pallide brunneis albo-hirsutissimis, filamentis complanatis gracilibus squamas duplo superantibus, antheris rotundatis luteis, fl. masc. ign. — Ad nylorum margines prope Canton, ubi certe spontanea. Vensim. ex Hance, unica *Salix* in China mer. spontanea (Sampson legit, Hance descr.).

## GNETACEAE.

P. 357. *E. NEBRODENSIS* Tin. — Post synonym. *E. scoparia* Lange adde : *Lange* ill. p. 19. t. 32.

## CONIFERS.

De structure florum confer ad *A. Murray*, *On the homologies of the male and fern, flower of Conif. in Ann. and mag. of nat. hist. sept. 1866, extr. in Bull. soc. bot. Fr. 14, rev. bibl. p. 148.*

De polline conf. ad *Hartig* in *Bot. Zeit.* 1867 p. 388.

De speciebus Himalayas confer ad *Cleghorn*, *notes upon the Pines of the north-west Himalaya, in JournMf the agric. and hortxc. soc. of India, 14, part. 4, ubi bicones.*

P. 365 et p. 435. *Sciadopytis*.... lege : *Sciadopitys*.

P. 367. *Phaerosphora*.... lege : *Pherosphaera*.

P. 376. *Dammara Vitiensis* Seem. — Adde : *Seem. FL Vit. p. 265. t. 76.*

P. 405, synonymis *P. excelsae*, post *P. Peuce* Gneiseb. adde: *Hook. f. on the identity of P. Peuce Griseb. with P. excelsa, in Proceed. Linn. soc. 8. p. 143. anno 1864 divulg.*

P. 445. *Callitns* Vent.... lege : *Calhtris* sp. Vent., etc.

P. 517, adde : 42 bis. *P. FALCIFORMIS* (Parl.), arbor vel frutex, ramis patentibus foliis subdistichis conaceis latiusculis falcatis acuminato-mucronatis, basi attenuatis et subcontortis, nervo longitudinali notatis amentis masculis. . . . y iructu ovario obtusiusculo receptaculo carnosio longitudine et latitudine subaequali. In montibus Poe et Mattang ad 3000 ped. circiter elevationem prope Sarawak insulae Bornei detexit amiciss. Beccan. Species in sectione certe singularis. Folia *Dacrydio* taxoide Brongn. et Gris similia sed majora et apice acuminato-mucronata et fere anstata; in sicco videntur fere phylloidea. Fructus 6J mill, longus, 4} mill- vix latus, superne compressiusculus. Receptaculum sessile, fere ejusdem longitudinis et latitudinis. (v. s.)

## RESEDACEAE.

P. 548. post synonymiam ordinis : *Le Maout et Decsne, Traité g6n. de Bot. P. 424 c. IC. analyt.*

## MONIMIACEAE.

P. 640. lin. 9, pro femineis ventricosos.... lege : femineis raro patente, saepius ventricosos.

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Tribus majusculis,  
Generica vulgaribus,  
Sectionalia minoribus.

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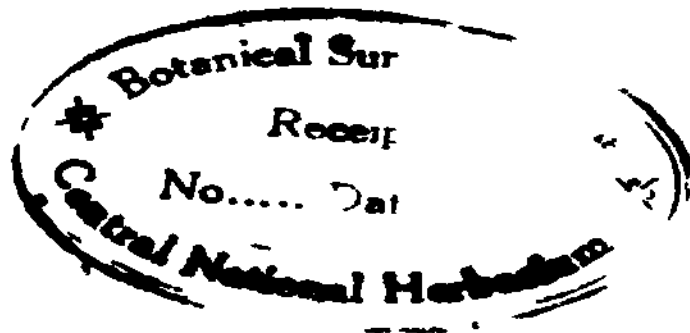
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