NOVELTIES IN AMERICAN EUPHORBIACEAE

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THE new species, trinomials, and records in this work have accumulated with few exceptions in the herbarium of the Arnold Arboretum of Harvard University in the course of routine determinations. They are published primarily to validate the manuscript names under which many of them have been cited in letters to various correspondents. Some of the entities dealt with here belong to critical groups which are worthy of more detailed consideration, or which should be critically revised. Unless otherwise stated, all the types are deposited in the herbarium of the Arnold Arboretum.

Ditaxis Vahl ex A. de Jussieu

Ditaxis breviramea (Muell.-Arg.) Pax & Hoffm. in Pflanzenr. 57 (IV. **147.** vi): 65. 1912; O'Donnel & Lourt. in Lilloa **8**: 67. 1942.

Argythamnia breviramea Muell.-Arg. in Linnaea **34**: 146. 1865, in DC. Prodr. **15**(2): 737. 1866.

PARAGUAY: Fortin Lopez de Filippis, *Rojas 8438;* Fortin Tte. Montania, *Rojas 8479.*

The record is apparently new for Paraguay. The material cited agrees with a photograph of the Herzog specimen from Bolivia identified as *Ditaxis breviramea* by Pax, in Med. Rijks. Herb. **40**: 22. 1921, and reproduced as plate 1 in the excellent monograph by O'Donnel & Lourteig.

Bernardia Adanson

Bernardia Gentryana sp. nov.

Arbuscula ad 5 m. alta, innovationibus strictis stellato- vel fasciculato-puberulis. Foliis tenuiter membranaceis ovatis vel ovato-lanceolatis parcius stellato-puberulis vel glabratis margine inaequaliter dentato-serratis, 3.5–5 cm. longis, 1.5–2.5 cm. latis, nervis adscendentibus ca. 7-jugis gracilibus, glandulis cicatricoso-crateriformibus in basi laminae 2, petiolo ca. 3–5 mm. longo. Floribus ♂ ignotis. Floribus ♀ subsolitariis brevissime pedicellatis, perianthii squamulis 8–10 in serie duplici, ovatis puberulis costulatis ad 1.5 mm. longis latisque, ovario globuloso depresso ad 2 mm. lato fere totidem longo pallide luteo-tomentello, stylis 3 quove lunulato apice in laciniis 3(–6) partito ad 1.5 mm. longo; capsula submatura ca. 5 mm. magna, semine cordiformi 5 mm. longo, 3.5–4 mm. lato, pallide brunneo-marmorato.

MEXICO: Sinaloa: Nuevo Mundo, *Gentry 5372* (TYPE in Gray Herb.).

This cannot be *Bernardia aspera* Pax & Hoffm., *B. incana* Mort., *B. mexicana* Muell.-Arg. (at least as illustrated by *Pringle 3700*), *B. obovata* Johnst., or *B. viridis* Millsp., as it disagrees with each one of them in its thinly membranous, ovate to ovate-lanceolate leaves, which are ultimately larger in size. *Bernardia Brandegei* Millsp. ex Brandeg., in Proc. Cal. Acad. Sci. II. **3**: 172. 1891, is a *nomen nudum* replaced by *B. viridis* at publication, as shown by the notes that appear on the photograph of the type of *B. viridis* Millsp. preserved in the Gray Herbarium.

Bernardia amazonica sp. nov.

Fruticulus vel frutex ad 1 m. altus, ramulis strictis puberulis. Foliis lanceolatis vel obovato-lanceolatis firme chartaceis vel subcoriaceis 5–10 cm. longis 1.75–2.5 cm. latis, brunneis vel olivaceis subconcoloribus, supra subtusque fere glabratis, margine saepius glanduloso-serratis, nervis adscendentibus 7–10-jugis, lamina subtus ad petioli radicem potius cicatricosa quam glandulosa, cicatricibus 2, petiolo hispidulo vix 0.5 cm. longo vel minore, stipulis setaceis vix 2 mm. longis. Floribus ♂ haud visis. Floribus ♀ in cymulis sessilibus axillaribus, perianthii squamulis in serie duplici 9 vel 10 ovatis margine integro hispidis, 2 mm. longis, 1–2 mm. latis, ovario vix 1 mm. longo latoque cum stylis confluente, stylis 3 ad 1 mm. longis apice divaricato-partitis.

VENEZUELA: Amazonas: Puerto Ayacucho, *Williams 13142*.

This was distributed as representing *B. Jacquiniana* Muell.-Arg., which is a very different species. It suggests *B. axillaris* (Spreng.) Muell.-Arg. in habit and foliage, but manifestly differs from that species in the venation, the texture of the leaf, and in its indumentum. As shown by a Brazilian specimen collected by Riedel, in our herbarium, *B. axillaris* has glabrous leaves with an immersed venation and differently shaped marginal teeth.

Alchornea Swartz

Alchornea cyclophylla sp. nov.

Arbor videtur glabra vel glabrescens. Foliis subcoriaceis brunneis utrinque glabratis in axillis nervorum barbulatis late rotundato-ovatis, apice breviter apiculato-acuminatis, basi leviter cordatis, margine obscure crenato-serratis, ca. 15 cm. longis, 12–13 cm. latis, nervis ca. 4- vel 5-jugis adscendentibus, primo jugo laminae tertium superum attingente caeteris penninerviis, glandulis in lamina hic inde sparsis parvis, petiolo 5.5–8 cm. longo, stipulis subglandulosis minimis deciduis. Inflorescentiis ♂ ignotis. Inflorescentiis ♀ spicatis puberulis vel glabratis, floribus solitariis vel binis subsessilibus bracteolatis, calycis lobis triangulari-acuminatis 4(–5), vix 1 mm. longis latisque, ovario ovoideo glabrescente, tenello vix stellato-puberulo demum glabro, 2-cocco, stylis 2 integerrimis carnosis epapillosis ad 8 mm. longis ad basim ipsissimam liberis.

COSTA RICA: Alajuela: Palmira, *Austin Smith 2876*.

This differs from *A. latifolia* Sw. in the styles being cleft to the base and in its foliage. The Central American species are much in need of a critical study.

Cleidion Blume

Cleidion denticulatum Standl. in Field Mus. Publ. Bot. **4**: 218. 1929.

The holotype, *Cooper 12239*, is poor. Its crowded malpighiaceous hairs and the large, easily separable bundles of the columella are strongly reminiscent of *Bernardia*. The loose seeds on the type-sheet, however, have the characters of *Cleidion*. Better material is needed to determine the correct generic position of this species.

Cleidion oblongifolium (Standl.) comb. nov.

Alchornea oblongifolia Standl. in Carnegie Inst. Wash. Publ. **461**: 66. 1935.

The ♀ flower ending the rachis of the inflorescence has manifestly cleft

styles, such as characterize *Cleidion*. The comparatively long and narrow leaves conform to those of this genus. If generic value is denied to the nature of the style, this being entire in *Alchornea*, and cleft in *Cleidion*, it becomes impossible to separate the two groups which both tradition and an aggregate of characters have rightly maintained as distinct genera. This plant is endemic to British Honduras.

Cleidion prealtum sp. nov.

Arbor ad 30–35 m. alta, innovationibus parcius puberulis citissime glabratis vel glabris, cortice pallide brunneo sat lenticellato. Foliis 7–14 cm. longis, 2–5 cm. latis, obovato-oblongis vel ellipticis, apice breviter acuminatis, basi plus minusve rotundatis, junioribus membranaceis brunneis vel olivaceis, adultis (e folio singulo) forsan coriaceis, subtus pallidioribus, in venis leviter puberulis glabratisve supra glabratis vel glabris secus costam hic inde pustulato-glandulosis, venis gracilibus ca. 6-jugis, petiolis herbaceis puberulis 2–4 cm. longis, stipulis setaceis ad 3–4 mm. longis. Inflorescentiis ♂ spicatis gracillimis 8–10 cm. longis, floribus in cymulis saepius paucifloris secus rhachem dissitis; perianthio subsessili 3- vel 4-lobo valde delicato puberulo ca. 3.5 mm. lato totidemque longo vel minore, staminibus ca. 50, antheris lateraliter dehiscentibus, filamentis ca. 2 mm. longis; pistillodio, glandulis nullis. Inflorescentiis ♀ spicis simplicibus ad 3 cm. longis, subtus bracteis ca. 2 vel 3, linearibus vel subsetaceis, 2 mm. longis, in axillis inferioribus semper flore evoluto carentibus, apice flore terminatis; perianthio ca. 3–4.5 mm. lato, lobis 5 vel 6 interdum 2 plus minusve inter se adnatis, lineari-lanceolatis, ad 2 mm. longis, basi etsi disco nullo tumido-saccatis; ovario ovoideo ca. 3 mm. longo et 2 mm. lato, luteo-tomentello, stylis 3 quove bipartito intus longe grosseque papilloso, papillis haud processiformibus.

BRAZIL: Amazonas: Municipality of Humayta, near Tres Casas, *Krukoff 6458* ♀ (TYPE), *6357* ♂, *6391* ♂.

Also here probably belong *Krukoff 6602*, *6649*, and *6570*, all from the Municipality of Humayta near Livramento on the Rio Livramento. The material cited was distributed as representing *Alchornea Hilariana* Baill. and *A. brachygyne* Pax & Hoffm., the misdeterminations being probably suggested by photographs illustrating plants with similar foliage. The ♀ flower and the leaves of *C. prealtum* are strongly reminiscent of *Epiprinus* Griff. from tropical Asia, a genus which stands out as a natural unit of few species but is otherwise closely allied with *Cleidion*.

Cleidion Woodsonianum sp. nov.

Arbuscula 4–5-metralis, pilis brevissimis in innovationibus exceptis glabra. Foliis utrinque acuminatis ellipticis, 7–11 cm. longis, 1.5–4 cm. latis, apice breviter acuminato-caudatis, basi truncatis vel vix subauriculatis, hic inde in lamina ipsa glandulosis, pallide olivaceis, supra sub lente minute papillosis glabris, subtus pilis perpaucis exceptis glabris, margine serrato-denticulatis, venis adscendentibus utrinque ca. 7-jugis, petiolo 0.5–1.5 cm. longo. Inflorescentia ♂ ignota. Inflorescentia ♀ ad 15 cm. longa, gracillima, floribus 3 vel 4 tantum, bracteis minutissimis lineari-triangularibus fultis; perianthii lobis (videtur) 5 minimis lineari-subulatis, petalis glandulisque nullis, ovario puberulo ovoideo ca. 3 mm. longo totidemque lato, stylis 3 ca. 8 mm. longis quove fere ad basim partito; fructu capsulari, columella gracili delapsa ad 4–5 mm. longa, epicarpio

sublevi olivaceo sub lente puberulo, semine ovoideo subquadrangulo ca. 4 mm. magno apice acutato.

PANAMA: Canal Zone: Vicinity of the Salamanca Hydrographic Station, Río Pequeni, *Woodson, Allen & Seibert 1587*.

This suggests certain species of the Old World, such as *C. leptostachyum* Pax & Hoffm. from the Fiji Islands. The type-material was originally distributed with doubt as representing *Alchornea costaricensis* Pax & Hoffm.

Jatropha Linnaeus

Jatropha hippocastanifolia sp. nov.

Frutex fere metralis. Foliis fere ad basim partitis, 5–7-lobis, margine duplicato-dentatis vel denticulatis vel dentato-serratis longiuscule ciliato-glandulosis, pallide olivaceis utrinque pilis albidis simplicibus sat longis mollisque indutis, 15 cm. longis, 18 cm. latis, juvenilibus multo minoribus, lobo medio maximo cum lateralibus imbricante 12 cm. longo 6 cm. lato ca. 12-nervio, lobis caeteris minoribus externis ca. 4–5 cm. longis 2.5 cm. latis vel minoribus, petiolo herbaceo ad 17 cm. longo aeque ac lamina induto, hic inde glandulis fasciculatis capitulatisve ornato, basi stipulis glandulosis dissectis insignito. Inflorescentiis cymosis gracilibus velutinosis ad 15 cm. longis, bracteis longe piloso-glandulosis vix 1 cm. longis 2 mm. latis onustis. Floribus ♂ albo-hispidis pubescentibusve, sepalis ca. 2–3 mm. longis 1 mm. latis integris vel margine denticulis perpaucis glandulosis vel eglandulosis notatis, petalis atro-purpureis ca. 5 mm. longis 3 mm. latis basi abrupte coarctatis vel angustatis pilosulis, staminibus 10 in acie duplici filamentis breviter liberis demum in columnam connatis, submaturis ad 6 mm. longis, glandulis rotundatis discretis 5 oppositisepalis. Floribus ♀ ut ♂, sepalis semper neque raro tantum ciliato-glandulosis, ovario globuloso costulato hic inde pilis albidis simplicibus ornato, levi, ca. 2 mm. longo latoque, disco irregulariter interrupto subintegrove margine hic inde bilabiato vix 0.75 mm. alto, stylis pro more gracilibus glabris ad 2.5 mm. longis, stigmatibus primum partitis dein crure quove iterum 2- vel 3-lobulato.

PARAGUAY: Chaco Paraguayo: Oruro, *Rojas 8559*.

To discuss this new species with finality, a critical consideration should be given of several species, including *J. gossypiifolia* L. My new species suggests the entity called *J. intercedens* by Pax but differs from it in three characters that, considered jointly, have specific significance. These characters are: (1) the style, which has bipartite, usually suberect stigmas in *J. gossypiifolia* and its allies, has here spreading, 2- or 3-lobulate stigmas; (2) the foliage; the leaf-lobes of *J. hippocastanifolia* are much narrowed at the base and enlarged at the apex, the shape of the leaf being accordingly unlike that of *J. gossypiifolia* and its allies; (3) the dark-purplish petals.

Jatropha Paxii nom. nov.

Jatropha flabellifolia Pax & Hoffm. in Pflanzenr. 42 (IV. **147**): 52. 1910, non Steud. 1840.

A new name is needed, as *J. flabellifolia* Pax & Hoffm. is a later homonym of *J. flabellifolia* (Pohl) Steud., Nomencl. ed. 2, **1**: 799. 1840.

Jatropha Hoffmanniae nom. nov.

Jatropha longipedunculata Pax & Hoffm. in Pflanzenr. 85 (IV. **147**): 191. 1924, non Brandeg. 1920.

Brandegee's *J. longepedunculata,* in Univ. Cal. Publ. Bot. **7:** 328. 1920, is a mere orthographic variant of *J. longipedunculata* Pax & Hoffm., which, consequently, is a later homonym.

Micrandra Bentham

Micrandra Benth. (1854) has been proposed for conservation by Mansfeld, in Kew Bull. 434. 1935, against *Micrandra* Benn. (1844).

Micrandra santanderensis sp. nov.

Arbor in sylvis primaevis, innovationibus glabratis glabrisve. Foliis ellipticis apice plus minusve breviter acuminatis basi cuneato-rotundatis vel rotundatis firme chartaceis, 7–14 cm. longis, 2.5–6 cm. latis, brunneis vel obscure olivaceis, margine integris, totis graciliter nervosis, nervis utrinque ca. 8-jugis anastomosantibus obscuris, primo jugo adscendente caeteris latius patentibus, in axillis conferte penicillatis, petiolo 2–7 cm. longo, apice sub lamina glandulis 2 pustulosis ornato, stipulis triangularibus minimis. Inflorescentiis racemosis ut videtur polygamis ad 25–35 cm. longis. Floribus ♂ : sepalis 5 puberulis triangulari-rotundatis vix 1 mm. longis, petalis 5 in sicco brunnescentibus quam sepalis duplo longioribus, staminibus ca. 5. Floribus ♀ post anthesim tantum visis, involucris floralibus illis ♂ (ut videtur) similibus, staminodiis ca. 5 setaceis nigricantibus, disco minimo parcissime glanduloso, ovario truncato-ovoideo ca. 3 mm. longo et 2 mm. lato, stylis in ovarium confluentibus brevissimis apice vix bilobis.

COLOMBIA: Santander: Vicinity of Puerto Berrio, between Carare and Magdalena Rivers, alt. 100–700 m., *Haught 2189* (TYPE); vicinity of Barranca Bermeja, Magdalena Valley, between Sogamoso and Carare Rivers, alt. 100–500 m., *Haught 2011.*

The two specimens here cited appear to differ at first on account of their differently colored foliage, but there are no floral or other differences. The conspicuous axillary tufts of hairs on the leaves of this new species are not found on *M. elata* Muell.-Arg., which is endemic to southern Brazil, or on *M. siphonioides* Benth., to judge from the photographs of the type-specimens which I have seen through the kindness of Mr. B. A. Krukoff.

Manihot Miller

Manihot orinocensis sp. nov.

Specimen suppeditat valde mancum quam frustulum vix melius totum glaberrimum cortice tenello griseo subnitido elenticellato. Foliis pro more generis parvis ca. 6 cm. latis, 5–6 cm. longis, 3-lobatis, lobis margine integris revolutisve, mediano elliptico-lanceolato ca. 3 cm. longo et 1.5 cm. lato, lateralibus basi plus minusve anisophyllis caeterum lanceolatis, medio sat dilatatis, ca. 2.5–3 cm. longis et 1.5 cm. latis, subtus glaucescentibus, supra ruguloso-impressis, membranaceis, nervis ca. 8–10-jugis patentibus, petiolo ca. 2.5–3 cm. longo, stipulis ut videtur subnullis vel nullis. Perianthio ♂ primum inflato, in anthesi plena tubuloso ca. 10 cm. longo fere totidem lato pallido, lobis late lanceolatis ad 3 mm. longis, disco bene lobulato, staminibus ca. 5–7 mm. longis, plus minusve 10. Caetera desunt.

VENEZUELA: Amazonas: Upper Orinoco, Puerto Ayacucho, "a tree 4 m. high, growing on granitic rocks around Pto. Ayacucho," *Williams 13132.*

The type specimen, hardly better than a scrap, was sent by Mr. H. Pittier with the suggestion that the species may be new. I deferred its publication,

wishing to check it against material representing *M. saxicola* Lanj., the description of which suggested that it was uncomfortably close to the presumed new entity. *Stahel 107*, "cultivated from cuttings in the Agricultural Experiment Garden in Paramaribo, Surinam," identified at distribution as *M. saxicola*, is certainly not *M. orinocensis*, which differs in the texture and lobing of its leaves.

Tetrorchidium Poeppig

Poeppig & Endlicher are said to have published this genus in 1842 (see Pax & Hoffmann in Engl. & Prantl, Nat. Pflanzenfam. ed. 2. **19C:** 184. 1931), which is erroneous. The genus was actually published in 1845 by Poeppig alone, which is fully established by the title-page of the third volume of the Nova Genera ac Species Plantarum and associated data.

Tetrorchidium gorgonae sp. nov.

Arbuscula vel frutex 3–4 m. altus, innovationibus puberulis indumento brevissimo adpresso simplici demum glabrescentibus griseis. Foliis 10–22 cm. longis, 2.5–6.5 cm. latis, utrinque parce pubescentibus vel glabratis, supra viridibus, subtus pallide viridibus subnitidis, oblanceolatis sat abrupte caudato-acuminatis obvie distanterque serrato-dentatis, dentibus subcallosis utrinque ca. 4 vel 5, nervis ascendentibus vel patulis utrinque ca. 6-jugis, sub margine anastomosatis, trabeculis conspicuis, petiolo 1–2 cm. longo apice utrinque glandulis baculiformibus luteis insignito parcius hispido; stipulis late triangularibus, vix ultra 1 mm. longis totidemque latis. Inflorescentia in fructu tantum visa gracili ad 5 cm. longa; perianthio subintegro vix 2–2.5 mm. lato, pedicello ca. 2 mm. longo, columella acuminata ad 5 mm. longa, semine lenticulari ca. 5 mm. magno, testa nigra profundius lacunoso-foveolata, in arillo sat tenui roseato immersa; epicarpio immaturo (ut videtur) levi.

COLOMBIA: Nariño: Island of Gorgona, *Killip & Garcia 33214* (TYPE in U. S. Nat. Herb.).

A very distinct species, with comparatively narrow, small leaves, their margins with sharp teeth. In these characters it may be at once distinguished from *T. macrophyllum* Muell.-Arg., *T. rubrivenium* Poepp., and the species next described.

Tetrorchidium boyacanum sp. nov.

Arbuscula glaberrima, innovationibus subherbaceis. Foliis utrinque viridibus, 9–12 cm. longis, 4.5–5.5 cm. latis, obovatis vel elliptico-obovatis, apice breviter apiculatis, basi longiuscule cuneatis, firme chartaceis, nervis utrinque 6- vel 7-jugis jugo basali valde adscendente caeteris plus minusve patulis sub margine obscure anastomosatis, laminae margine glandulis pustulosis paucioribus in quarto supero praesertim insignito quapropter folii apice primo intuitu plus minusve profunde dentato-serrato, petiolo canaliculato glandulis 2 pustulosis anticis ornato 1–1.5 cm. longo. Inflorescentia ♂ tantum visa, ad 15 cm. longa, gracili, ramosa, glaberrima; floribus ca. 3–6 in axilla bracteae minutae utrinque glandulis luteis notata, calyce subsessili ca. 2.5 mm. lato, lobis 3 rotundato-ovatis subcucullatis ca. 1–1.5 mm. longis totidemque latis, staminibus 3, pistillodio (?).

COLOMBIA: Boyacá: El Umbo, 130 miles north of Bogotá, "in high thick forest, tree 12–16 ft., 4–6 inch. diam.," *Lawrance 547*.

This somewhat suggests *T. rubrivenium* Poepp., but it is altogether unlike that species in its leaf-margins.

Tetrorchidium popayanense sp. nov.

Arbuscula videtur, innovationibus subherbaceis, strigulosis, indumento perbrevi luteo valde adpresso. Foliis pallide olivaceis, 16–23 cm. longis, 7–9 cm. latis, longe obovatis vel oblanceolato-ellipticis, apice breviter acuminatis, basi longe cuneatis, firme chartaceis subtus sub lente vix pubescentibus, supra glabratis vel glabris subnitidis, nervis manifestis ca. 7–9-jugis, inferioribus adscendentibus, superioribus patulis bene anastomosatis trabeculis inconspicuis, laminae margine integro revoluto utrinque glandulis tubulosis estipitatis brevibus 5 vel 6 ornato, petiolo valde canaliculato eglanduloso pubescente 2–3 cm. longo. Inflorescentia gracili pubescente 7–10 cm. longa parcius ramosa, ♂ tanto visa. Floribus subsolitariis, calyce ca. 2.5 mm. lato pubescente pedicello ca. 1.5–2 mm. longo fulto, lobis 3 ovato-acuminatis, ca. 1–1.25 mm. longis, 1 mm. basi latis, staminibus 3 oppositilobis sessilibus vel subsessilibus ligulam centralem minutam (an pistillodium?) circumdantibus; bractea sub pedicello subtriangulari ca. 1.5 mm. lata glandulis insignita cum illis in lamina congruentibus.

COLOMBIA: El Cauca: Highlands of Popayán, (?) Río Huangubio, *Lehmann B7664*.

The type locality is not better indicated. The characters of the foliage suggest those of *T. euriphyllum* Standl. of Central America, but the primary nerves are less numerous and the leaf-blade is differently shaped, more markedly cuneate at the base, and with different marginal glands; the glands on the floral bracts are also different.

Tetrorchidium jamaicense sp. nov.

Arbor ad 8 m. alta glaberrima. Foliis integris primum tenuiter membranaceis demum firme subcoriaceis ellipticis vel elliptico-obovatis, 7–12 cm. longis, 3–4.5 cm. latis, apice brevius rotundato-acuminatis, basi longe cuneatis olivaceis subconcoloribus, nervis in sicco gracilibus at conspicuis ca. 7-jugis adscendentibus, petiolo carnosulo 1–2.5 cm. longo utrinque glandulis cicatricosis ornato, stipulis minimis vel subnullis. Inflorescentia ♂ tantum visa more generis gracili, effusa glabra parcius ramosa ad 18 cm. longa; floribus glomerulatis ad 4–8, glomerulis sat distantibus (proximis in rhachi inferiore 1–2 cm. remotis), perianthio ca. 5 mm. lato, lobis 3 ellipticis vel obovato-ellipticis margine intus subplicatis, staminibus sessilibus 3(–4), antheris more generis sat magnis.

JAMAICA: Road to Holly Mount, *Harris 8991*.

This new species is certainly the plant which Fawcett & Rendle (Fl. Jam. **4**(2): 317. *f. 105*. 1920) and Pax & Hoffmann (in Engl. & Prantl, Nat. Pflanzenfam. ed. 2. **19C:** 186. 1931) identify as representing *T. rubrivenium* Poepp. It differs from Poeppig's species, however, as represented by *Poeppig 1915* and *Klug 3713*, in having glabrous inflorescences, elliptic rather than triangular perianth-lobes, and entire leaves which are more coriaceous.

Sapium P. Browne

Sapium Bourgeaui sp. nov.

Arbor vel frutex glaberrimus. Foliis ellipticis, apice recurvatim glandu-

loso-cucullatis utrinque fere aequo jure rotundato-acuminatis, supra obscure subtus pallide olivaceis, margine sat conferte aristato-serratis, aristulis nigricantibus marcescentibus, hic inde glandulis pustulosis ornatis, ca. 15 cm. longis, 3–4 cm. latis, nervis delicatis at perspicuis latius adscendentibus ca. 15-jugis, petiolo 3–4 cm. longo apice glandulis 2 patentibus conicis onusto, stipulis late rotundato-auriculatis margine valde coriaceo-scariosis. Capsulae coccis delapsis (an revera hujus loci? soluti tantum adsunt) duris, ca. 10 mm. longis, semine arillo secedibili rubro induto ca. 7 mm. longo latoque.

MEXICO: Veracruz: Orizaba, Santa Aña, *Bourgeau 3020*.

This collection is mentioned by Hemsley in the notes under *S. mexicanum*, in Hook. Ic. **27:** sub *pl. 2680*, p. 2. 1901. Hemsley states that it is neither that species nor *S. lateriflorum* Hemsl. It is certainly not *S. macrocarpum* Muell.-Arg. (*S. mexicanum* Hemsl.), *S. appendiculatum* Pax & Hoffm., or *S. pedicellatum* Huber. The reflexed glandular tip of the leaf is a distinctive character.

Sapium Cuatrecasasii sp. nov.

Arbor magna, innovationibus cicatricosis glabris saltem sub apice stipulis cucullato-glandulosis magnis ornatis. Foliis 7–15 cm. longis, 2.5–5.5 cm. latis, subcoriaceis, apice fere planis vix emarginatis, venulosis, supra pallide olivaceis, subtus brunneo-lutescentibus, ellipticis utrinque sat obtuse acuminatis glaberrimis, margine totis crenato-glandulosis crenis haud profundis glandulis marginalibus hic inde obviis, nervis gracilibus patentibus saepius haud anastomosantibus utrinque ca. 20 ultimis vix perspicuis, petiolo rigidulo 2.5–4 cm. longo glandulis 2 vel 3 conicis anticis insignito. Inflorescentia spicata 2-sexuali sat crassa. Floribus ♂ ca. 12 in axilla squamulae cujusvis glandula utrinque valde carnosa ad 4–5 mm. longa, perianthio longe campanulato ca. 2–3 mm. longo et 2 mm. lato, lobo antico apiculato, staminibus 2 ad 3 mm. longis. Floribus ♀ in anthesi ignotis submaturis ad 10 mm. longis 5 mm. latis, ovario glaberrimo nigro ovoideo stylorum cicatrice subproducta notato, perianthii lobis 3 ovatis subscariosis intus medio crasse costatis, glandula utrinque ellipsoidea sat magna.

COLOMBIA: Putumayo: Valle de Sibundoy, alt. 2200 m., *Cuatrecasas 11671*.

This does not agree with any other species known to me from the region. The comparatively short petioles, the robust spikes, and the produced scars left by the fallen style on the ovaries are characteristic.

Sapium myrmecophilum sp. nov.

Arbuscula semimetralis. Foliis 5–8 cm. longis, 1–3 cm. latis, ellipticis subcoriaceis, apice subplanis vel retusis, utrinque brevius acuminatis, obscure conferteque crenulatis raro hic inde glandulosis, nervis patentibus ca. 15-jugis, petiolo vix 1 cm. longo vel minore glandulis 2 conicis patentibus pustulosis, stipulis auriculatis. Inflorescentia spicata bisexuali ad 10–15 cm. longa. Floribus ♂ ca. 9 vel 10 in axilla bracteolae latae parvae, perianthio aperiente vix 1–1.5 mm. longo, staminibus 2. Floribus ♀ subsessilibus in anthesi haud visis: perianthii lobis scariosis (videtur) 3, ovario maturescente globuloso depresso ca. 0.5 cm. magno, apice cicatrice minima haud producta notato.

COLOMBIA: El Vichada: 60 km. south of Orocué, *Haught 2772*.

This is described as a spreading shrub growing on ant-hills in the open llanos. It is characterized by the close leaf-crenation and the very short petioles.

Sapium Poeppigii Hemsl. in Hook. Ic. **27:** *pl. 2678.* 1901; Huber in Bull. Herb. Boiss. II. **6:** 439. *f. 32.* 1906.

Sapium hamatum (Muell.-Arg.) Pax & Hoffm. in Pflanzenr. 52 (IV. **147.** v): 229. *fig. 43 D,E.* 1912. Syn. Nov.

Sapium biglandulosum var. *hamatum* Muell.-Arg. in Linnaea **32:** 116. 1863.

PERU: Huánuco: Between Huánuco and Pampayacu, *Kanehira 12;* Pampayacu, *Kanehira 28;* San Martín: Zepelacio, *Klug 3374;* Loreto: Lower Río Huallága, *Williams 4771.*

This is another of the entities which have been confused under the loosely applied name *S. Hippomane.* The identifications are made on the strength of the illustrations and the descriptions. The leaves are longer, narrower and thinner than are those of *S. Marmieri.* A specimen from Colombia, collected by Cuatrecasas along the Río Guamues, Putumayo, may belong here, but it lacks ♀ flowers and fruits. Pax & Hoffmann err in replacing *S. Poeppigii* Hemsl. (1901) by *S. hamatum* (Muell.-Arg.) Pax & Hoffm. (1912). The name which is published first in a given rank has priority, and cannot be replaced by a later combination even though the basinym, in this case a trinomial, happens to be the oldest name.

Sapium aereum Kl. ex Muell.-Arg. in Linnaea **32:** 119. 1863; Pax & Hoffm. in Pflanzenr. 52 (IV. **147.** v): 233. 1912.

BRAZIL: Amazonas: Humayta, *Krukoff 6158, 6296, 6307;* São Paulo de Olivença, *Krukoff 8311.*

This is an exceptionally critical entity which it would be desirable to compare with Klotzsch's own specimen. Only the last of the collections cited was distributed as *S. aereum,* all others being referred to *S. Hippomane.* While it seems quite likely that *S. glandulosum* (L.) Morong (*S. Hippomane* G. F. W. Mey. et auct.) and *S. aereum* are close, they appear to differ in the texture of the leaf and, to judge from the fruits of *Pittier 11832* and *Krukoff 8311,* also in the fruit, this being possibly larger in *S. aereum* and somewhat differently shaped. In a very definite sense *S. aereum* connects *S. glandulosum* and *S. Marmieri,* differing from the latter primarily in its leaves on the whole being smaller and narrower. Good fruiting material is essential to a final elaboration of all these entities.

The vernacular name "Tapuru" appears on the label of *Krukoff 6158.* A specimen which might belong here and strongly suggests the characters described and illustrated for *S. Taburu* Ule (in Tropenfl. **9:** Beih. 6:13. *fig. 3 D, E.* 1905) is *Klug 1668,* Colombia, Putumayo, Umbría. I strongly suspect that eventually it may be shown that *S. aereum* and *S. Taburu* are uncomfortably close if not identical. Pax & Hoffmann express the belief, Pflanzenr. 52 (IV. **147.** v): 232. 1912, that *S. Taburu* is hardly separable from the entity they identify as *S. Hippomane.* In my opinion, this is the result of the two authors lacking a clear understanding of the ranges of these species. Unquestionably, a great simplification of the taxonomy of this group follows if *S. glandulosum* (*S. Hippomane*) is excluded from the Amazonian ranges of Brazil, Colombia and Peru.

Sapium Marmieri Huber in Bol. Mus. Goeldi **3:** 367. 1902, in Bull. Herb. Boiss. II. **6:** 354. 1906; Pax & Hoffm. in Pflanzenr. 52 (IV. **147.** v): 256. 1912.
Sapium Leitera Gleason in Bull. Torrey Club **60:** 364. 1933. Syn. Nov.

PERU: Loreto: Alto Río Itaya, *Williams 3490;* Lower Río Huallága, *Williams 4904, Killip & Smith 29265.* BRAZIL: Matto Grosso: source of the Jatuarana River, *Krukoff 1656* (type collection of *S. Leitera* Gleason); Acre: Rio Purus, *Krukoff 5717;* Amazonas: São Paulo de Olivença, *Krukoff 8098, 8428.* COLOMBIA: Putumayo: Puerto Ospina, *Cuatrecasas 10784;* Tolima: Curvas de Gualanday (Ibagué-Girardot), *Pérez-Arbeláez & Cuatrecasas 6490.*

This species is of economic importance as a potential source of rubber, for which it has been tapped in the past. The type was collected in the region of the Río Ucayali and the Río Huallága in Amazonian Peru. I match the descriptions with *Williams 3490* and *4904,* which I accept as representing this species. The leaf is essentially oblong to elliptic and more or less obtusely rounded at the tip in these two specimens which, once again to judge from the descriptions and the figures (see for instance Hemsley in Hook. Ic. **29:** *pl. 2899.* 1909), can hardly be separated from *S. eglandulosum* Ule in Tropenfl. **9:** Beih. 6: 14. 1905. The foliage of *Killip & Smith 29265* differs from that of the Williams specimens in being distinctly rounded to short round-elliptic, with the tip of the blade often retuse, but the remaining characters agree so well that, the range being in common, it must be considered that all these specimens are conspecific. As is well-known, considerable foliar differences are apt to occur in the same species of *Sapium* depending upon conditions of growth.

All the collections cited from Brazil have leaves that tend to match those of *Killip & Smith 29265,* but leaves of a pattern intermediate between those of this specimen and the Williams material are present in *Krukoff 8428.* The Colombian collections well match those from Peru, the record from Tolima being interesting as an extension of the range, heretofore supposedly restricted to the Andean regions of Peru, Brazil, and Colombia. *Sapium utile* Preuss, to judge from Hemsley's plate (in Hook. Ic. **29:** *pl. 2896.* 1909), is represented in our herbarium by a *Lehmann* specimen from Colombia, forests of Chocó-Micay and Timbiquí, which differs from *S. Marmieri* in the more or less evidently serrulate leaf-margins as well as its longer and narrower leaves. It is altogether likely that the records of *S. Hippomane* from Peru, Brazil, and Colombia are based to a large extent on misdeterminations of *S. Marmieri* and its allies.

Sapium aucuparium Jacq. Enum. Pl. Carib. 31. 1760, p. p. typ., excl. syn. Plumier.
Sapium jamaicense Sw. Adn. Bot. 62. 1829. Syn. Nov.

Jacquin's binomial has been extensively misapplied, the discussion of Hemsley, in Hook, Ic. **27:** *pl. 2650.* 1901, and the treatment of Pax & Hoffmann, in Pflanzenr. 52 (IV. **147.** v): 229. 1912, merely adding to the confusion.

The original publication reads as follows: "*aucuparium.* I. SAPIUM. *Plum. ic. 171. f. 2. Brown.* Jam. 1. p. 338.," the generic name being followed by the conventional abbreviation to designate a woody perennial. At the time when this publication was issued, one of its synonyms, "Plum. ic. 171.

f. 2.," had already been cited by Linnaeus under *Hippomane glandulosa,* Sp. Pl. 1191. 1753, which leaves Jacquin's binomial standing solely upon Browne's "Sapium 1. Arboreum foliis ellipticis glabris, petiolis biglandulis, floribus spicatis." (Hist. Jam. 338. 1756). This synonym has been overlooked by most authors, but not by Fawcett & Rendle, Fl. Jam. **4** (*2*)**:** 325. 1920, who place it in the synonmy of *S. jamaicense* Sw. This binomial, consequently, falls under *S. aucuparium* Jacq.

Three years after the publication of *S. aucuparium,* as quoted, Jacquin again dealt with the same binomial, Select. Amer. Hist. 249. *pl. 158.* 1763, repeating the original references but adding *Hippomane glandulosa* Linn. and Plukenet's "*Tithymalus* arbor americana, mali medicae folio . . . " Jacquin's illustration and description here apply to a very different plant than the one he identified in 1760 as *S. aucuparium.* Naturally, this plant cannot bear the binomial which was misapplied to it by Jacquin and very numerous other authors. I discuss it as *S. biglandulosum* (L.) Muell.-Arg. below.

Sapium biglandulosum (L.) Muell.-Arg. in Linnaea **32:** 116. 1863, excl. var. fere omn.

Hippomane biglandulosa L. Sp. Pl. ed. *2.* 1431. 1763, p. p. typ., quoad syn. Jacq.

Sapium aucuparium Jacq. Select. Amer. Hist. 249. *pl. 158.* 1763, quoad ic. descr. excl. syn. omn., non *S. aucuparium* Jacq. Enum. Pl. Carib. 31. 1760.

Sapium salicifolium H. B. K. Nov. Gen. & Sp. **2:** 52. 1817. Syn. Nov.

Sapium Moritzianum Kl. in Seem. Bot. Voy. Herald 100. 1852; Huber in Bull. Herb. Boiss. II. **6:** 358. *f. 19.* 1906; Pax & Hoffm. in Pflanzenr. 52 (IV. **147.** v)**:** 230. 1912. Syn. Nov.

PANAMA: Coclé: El Valle de Antón, Las Uvas, *Allen 2575;* Perlas Islands, Pedro Gonzales, *Allen 2583.* COLOMBIA: Magdalena: Santa Marta, *H. H. Smith 1916;* Boyacá: Orocué, *Haught 2826.* VENEZUELA: Aragua: Carbanchito, *Pittier 11802;* Cagua, *Pittier 12291;* Distrito Federál: Cotiza, *Pittier 12401.*

Linnaeus is the author of both *Hippomane glandulosa,* 1753, and *Hippomane biglandulosa,* 1763. Although the latter epithet might have been mistakenly applied for the former, it proves impossible to treat it as a clear unintentional error under the current Rules of Nomenclature, particularly so in that it has been extensively used in botanical literature under different generic names. The correct application of *S. glandulosum* (L.) Morong is discussed below.

The original publication of *H. biglandulosa* reads as follows: "*Hippomane biglandulosa* foliis ovato-oblongis basi biglandulosis. Sapium arboreum, foliis ellipticis glabris, petiolis biglandulis, floribus spicatis. *Brown. jam. 338.* Sapium aucuparium. *Jacq. amer. 31. t. 158.* Mancanilla lauri foliis oblongis. *Plum. gen. 50. ic. 171. f. 2.* Tithymalus arbor americana, mali medicae foliis amplioribus tenuissime crenatis succo maxime venenoso. *Pluk. alm. 369. t. 229. f. 8. Habitat* in America *calidiore.*" The synonyms from Browne, Plumier, and Plukenet are discussed under *S. glandulosum* and *S. aucuparium,* to which they belong. Since no specimen of *H. glandulosa* or *H. biglandulosa* is extant in the Linnaean herbarium (see Jacks. Ind. Linn. Herb. 86. 1912), *H. biglandulosa* rests solely upon the plate and description of *S. aucuparium* Jacq., 1763 non 1760. It is fortunate that

Jacquin's misapplication can easily be corrected by the reinstatement of *S. biglandulosum* (L.) Muell.-Arg. in the sense here proposed.

Mueller-Argoviensis followed *S. biglandulosum* with a trinomial *α Meyerianum,* essentially based upon Meyer's *S. Hippomane.* This is taxonomically not correct, but, as is well-known, a new combination stands (Art. 54, Amsterdam Rules 1935) even if it involves a misapplied specimen. Accordingly, the type of *S. biglandulosum* is the plant figured by Jacquin, growing near Cartagena in Colombia, "inque ipso suburbio Xiximani ante macellum." The type-variety, on the contrary, is *S. biglandulosum* var. *Meyerianum.*

Sapium salicifolium H. B. K. has generally been treated as a doubtful synonym of *S. Moritzianum.* The type material was collected at Morales on the banks of the Río Magdalena, and is without ♀ flowers or fruits. Its description so closely agrees with the material I have seen that I do not hesitate to accept it as representing *S. biglandulosum.* The existence of some varieties under this binomial is likely. The Venezuelan plant, for instance, would seem to have slightly different leaves on the whole, as noted by Huber, in Bull. Herb. Boiss. II. **6:** 358. 1906, in his discussion of *S. aucuparium.*

Sapium glandulosum (L.) Morong in Britt. & Mor. in Ann. N. Y. Acad. Sci. **7:** 227. 1893.

Hippomane glandulosa L. Sp. Pl. 1191. 1753, p. p. typ., quoad syn. Pluk., Raj.

Sapium Hippomane G. F. W. Mey. Prim. Fl. Esseq. 275. 1818; Huber in Bull. Herb. Boiss. II. **6:** 360. *f. 21.* 1906; Pax & Hoffm. in Pflanzenr. 52 (IV. **147.** v): 231. 1912, p. p. Syn. Nov.

Sapium suberosum Muell.-Arg. in Linnaea **34:** 217. 1865; Hemsl. in Hook. Ic. **27:** *pl. 2650.* 1900. Syn. Nov.

Sapium Hemsleyanum Huber in Bull. Herb. Boiss. II. **6:** 362. *f. 22.* 1906. Syn. Nov.

BARBADOS: Forester's Hall Wood, *Eggers 7238.* VENEZUELA: Distrito Federál: Naigutá, *Pittier 11832.*

Hippomane glandulosa L. rests exclusively upon two synonyms, "Mancanilla lauri foliis oblongis. *Plum. gen. 50*" and "Tithymalus arbor americana, mali medicae foliis amplioribus tenuissime crenatis, succo maxime venenoso. *Pluk. alm 369. t. 229. f. 8. Raj. suppl. 428.*" Urban used one of these polynomials, Plumier's *Mancanilla,* in the synonymy of his own *S. caribeum,* Symb. Ant. **3:** 309. 1902, and referred the other, op. cit. 306, to *S. Hippomane* G. F. W. Meyer. *Sapium Hippomane* Meyer was a new name for *Hippomane biglandulosa* L., the Linnaean binomial being cited by Meyer under his own.

Under the current Rules, the correct transfer of *Hippomane biglandulosa* to *Sapium* can be effected only by publishing *S. biglandulosum,* which was done by Mueller-Argoviensis but not by Meyer. Meyer's name, consequently, is illegitimate, and falls now under *S. glandulosum* (L.) Morong, which is typified by Plukenet's *Tithymalus* as interpreted by Urban. Here also belong *S. suberosum* Muell.-Arg., based on a diseased condition of the entity under discussion. Huber comments that the entities he understands as *S. Hemsleyanum* and *S. Hippomane* are not certainly distinct as species, but might easily prove to be varieties. This is possible, but the material

I have seen so far is too scanty to justify the publication of trinomials in this difficult group; *Eggers 7238,* from Barbados, cited by Pax & Hoffmann, is certainly very close to *Pittier 11832* from the coast of Venezuela.

I cannot follow Pax & Hoffmann in accepting *S. glandulosum* (which they call *S. Hippomane*) for the Amazonian forms of Brazil and Peru. Everything indicates that Pax & Hoffmann confuse *S. glandulosum* with *S. Marmieri.* The former would seem to have an essentially coastal range, restricted to the Guianas, Venezuela, and some of the West Indian islands, while the latter, as noticed elsewhere in this paper, is primarily an Amazonian type.

Index Kewensis lists *S. glandulosum* Morong as an error for *S. biglandulosum* Muell.-Arg. and accepts as valid the combination of Druce in Rep. Bot. Exch. Club Brit. Isl. 1913, **3:** 423. 1914. I cannot accept this interpretation. It is true that Morong treats *H. glandulosa* and *H. biglandulosa* as synonymous, but the combination he made conforms with the requirements of Art. 44[2] of the current Rules of Nomenclature in being followed by a full reference to *Hippomane glandulosa* L.; the remaining two citations can be excluded as misapplications without affecting in the slightest the validity of the new combination. The fact that Morong's transfer was effected for a misapplied specimen does not make this transfer illegitimate.

I have not seen authentic material of *S. obtusilobum* Muell.-Arg., but Huber's illustration, in Bull. Herb. Boiss. II. **6:** 357. *f. 17.* 1906, suggests that this species might fall here as a trinomial if not as a straight synonym.

Sebastiania Sprengel

Sebastiania huallagensis sp. nov.

Arbuscula ca. 6-metralis innovationibus glaberrimis. Foliis elliptico-lanceolatis, apice sat abrupte acuminatis, basi cuneatis, margine integris, 6–9 cm. longis, 2.5–3.5 cm. latis, nervis gracilibus ca. 10–14-jugis, petiolo ca. 1.5 cm. longo apice glandulis 2 nigricantibus pustulosis sat magnis ornato. Inflorescentia gracili bisexuali ad 8 cm. longa. Floribus ♂ ca. 6–8 in axilla squamulae ca. 1.5 mm. lata, perianthio minuto subsessili 3-lobato, staminibus alternilobis 3 basi connatis. Floribus ♀ singulis pedicello ca. 0.5 cm. longo, ovario levissimo ca. 4 mm. longo et 1.5 mm. lato, basi squamis imbricatis 3–5 circumdato, in stylis 2–3 crassiusculis divergentibus abeunte.

PERU: San Martín: Juan Jui, Alto Río Huallága, *Klug 4243.*

Distributed as representing *Alchornea* sp. ?, which it is certainly not. The sum of the characters suggests *Sebastiania,* but better material is needed to confirm this disposition of it.

Sebastiania anisandra (Griseb.) Lillo in Seg. Contr. Conoc. Arbol. Argent. 16. 1917.
Actinostemon anisandrus Pax in Pflanzenr. 52 (IV. **147.** v): 79. 1912.
Dactylostemon anisandrus Griseb. in Abh. Ges. Wiss. Götting. **24:** 61. 1879.

PARAGUAY: Alto Paraguay: San Lázaro, *Rojas 5490.*

The *Rojas* specimen, collected "entre rocas calcáreas semi-sombrias," is a good match for an Argentine specimen, *Venturi 1350,* from Tucumán,

Famaillá, originally distributed as representing *S. anisandra*. A younger state of the same species is apparently represented by *Venturi 5349*, identified by Lillo himself. This record seems to be a new one for the flora of Paraguay.

Euphorbia Linnaeus (excl. Chamaesyce)

Euphorbia insulana Vell. Fl. Flum. **5**: *pl. 14*. 1827; Muell.-Arg. in Mart. Fl. Bras. **11**(2): 688. 1874.

Euphorbia insulana minor Muell.-Arg. op. cit. 689. Syn. Nov.

Euphorbia anomala Salzm. ex Boiss. in DC. Prodr. **15**(2): 59. 1862; Boiss. Ic. Euph. 15. *pl. 38*. 1866.

This is a widespread species, very close to *E. lancifolia* Schlect. of Mexico and Central America. It is convenient to break it up in three subspecies with a broad geographical background.

Euphorbia insulana subsp. **typica** subsp. nov.

Cyathiis ca. 2.5 mm. longis, inflorescentiis saepissime abbreviatis bracteis subfoliaceis.

BRAZIL: Ceará: Maranguapé, *Drouet 2594;* Paraná: Guaratuba, *Dusén 13518;* São Paulo: Ilha Queimada, *Gehrt 4579*.

The type is Vellozo's figure. *Gehrt 4579* is altogether true to Mueller's description of *minor*, but impresses me as having been taken from a weak shoot of the plant.

Euphorbia insulana subsp. **tovarensis** (Boiss.) comb. nov.

Euphorbia tovarensis Boiss. Cent. Euph. 19. 1860; in DC. Prodr. **15**(2): 59. 1862.

COLOMBIA: Santander: Between El Roble and Tona, *Killip & Smith 19427*.

This trinomial is very near *E. lancifolia*, resembling it in the rather diffuse and robust inflorescence and in the comparatively large cyathia. *Bang 2208*, collected at an unrecorded locality in Bolivia, also belongs here; this specimen is erroneously listed as *E. geniculata* in Bull. N. Y. Bot. Gard. **4**: 441. 1907.

Euphorbia insulana subsp. **pilcomayensis** subsp. nov.

A formis totis foliis bractealibus discedit saepius longe ellipticis, cyathiis minoribus, inflorescentiis magis delicatis.

PARAGUAY: Pilcomayo River, *Morong 867* (TYPE); Between Río Apa and Río Aquidabán, *Fiebrig 4393*. ARGENTINA: Formosa, (?) *Jörgensen 3081;* Chaco (Argentina ?): Fontana, *Meyer 2320*.

The habit sets this new subspecies rather sharply apart from the others, but a broad concept of specific limits, necessary in this case, forbids its being treated as a full-fledged species. *Euphorbia Mandoniana* Boiss., of which I have seen only the meagerest scraps, may prove to be an extreme alpine form of this complex.

Euphorbia Huanchahana (Kl. & Garcke) Boiss. in DC. Prodr. **15**(2): 103. 1862.

Tithymalus huanchahanus Kl. & Garcke in Abhandl. Akad. Wiss. Berlin 71. 1860.

As in many species of this genus in the South American range, it proves to be impossible to adopt for this entity a narrow concept of specific limits. The material I have at hand indicates the existence of two main aggregates, one localized in Peru, the other in southern Bolivia and northern

Argentina. In addition, the aggregate of Peru and Bolivia is divided into two forms, one glabrous, the other rather pubescent, which bear to each other a varietal relationship.

Euphorbia Huanchahana subsp. **typica** subsp. nov.

Foliis minutis saepissime margine serratis glabris.

I have seen a photograph of the type, collected in "Canta Prov. Peru." This material is to all appearances well matched by a Peruvian specimen from Matucana, Dept. Lima, *Savatier 1356*.

Euphorbia Huanchahana subsp. **penazuelensis** subsp. nov.

Foliis carnosulis margine integris subintegrisve indumento sat conferto a subsp. *typica* discedit.

ARGENTINA: Tucumán: Sierra Calchaquies, Peñas Azules, 3400 m., *Burkart 5306* (TYPE); Catamarca: Andalgalá, Cerro Negro, alt. 3500 m., *Jörgensen 1232*.

The habit is that of an alpine plant, the branches being rosulate and the rootstock much thickened.

Euphorbia Huanchahana var. **peperomioides** var. nov.

Pusilla, plus minusve rosulata a subsp. *penazuelensi*, cujus est, quacumque notis caeteris totis optime convenit glabritie primo intuitu recedit.

BOLIVIA: *Mandon 1068*.

This variety belongs to subsp. *penazuelensis*, with which it agrees in habit and foliage, differing only in indumentum. The Mandon material I have seen is probably identical with the Weddell specimen from Bolivia cited by Boissier.

Euphorbia caespitosa Lam. Enc. Méth. **2**: 421. 1788; Boiss. in DC. Prodr. **15**(2): 103. 1862; Muell.-Arg. in Mart. Fl. Bras. **11**(2): 701. 1874.

This species is closely allied to *E. portulacoides* L. emend. Spreng., which ranges throughout Argentina and Chile. It is restricted in its range to the regions immediately adjacent to the mouth of the Río de la Plata in Uruguay and Argentina. It falls into two readily separable groups.

Euphorbia caespitosa subsp. **typica** subsp. nov.

Foliis obovato-ellipticis vel spathulatis, apice rotundatis.

URUGUAY: Vicinity of Montevideo, *Fruchard 182, Arechevaleta 5194a*.

The cited material agrees perfectly with Lamarck's type in the herbarium of the Paris Museum.

Euphorbia caespitosa subsp. **ventanicola** subsp. nov.

Cum subsp. *typica* in floralibus optime convenit, sed foliis apice bene acuminatis, loco natali alieno primo intuitu distincta.

ARGENTINA: Buenos Aires: Cerro Naposta, Sierra de la Ventana, *Von Rentzell 1082* (TYPE); Pigüé, *Burkart 4706*.

This is a well-marked form, readily recognizable by the characters of the foliage and by the range, which centers in the Sierra de la Ventana. It is likely that this plant is included in part by Boissier in his concept of *E. portulacoides acutifolia* Boiss., in DC. Prodr. **15**(2): 103. 1862, and is the one not altogether correctly identified as *E. caespitosa* by Spegazzini, Contr. Fl. Sierra Vent. 54. 1896; Contr. Fl. Tandil 47. 1901. *E. portula-*

codes Spr. [sic] *normalis* O. Ktze. is based upon a plant collected in the Tandil, O. Kuntze, Rev. Gen. **3:** 286. 1898, which I have not seen but which most likely belongs here. This trinomial is validly published and must be used for the typical form of *E. portulacoides* L. emend. Spreng., despite Kuntze's probable misapplication.

Euphorbia sciadophila Boiss. in DC. Prodr. **15**(2): 57. 1862; Muell.-Arg. in Mart. Fl. Bras. **11**(2): 687. *pl. 97.* 1874.

ARGENTINA: Tucumán: La Criolla, *Rodriguez 502.*

This species is common in southeastern Brazil and in Paraguay, but I have seen only the specimen cited from Argentina. The record seems to be new. The affinities of *E. sciadophila* with the Peruvian *E. adianthoides* Lam. require careful study.

Euphorbia spathulata Lam. Enc. Méth. **2:** 428. 1788; Boiss. in DC. Prodr. **15**(2): 136. 1862; Muell.-Arg. in Mart. Fl. Bras. **11**(2): 701. 1874; Croiz. in Torreya **42:** 16. 1942, *in nota.*

Euphorbia dictyosperma Fisch. & Mey. in Ind. Sem. Hort. Petrop. **2:** 37. 1836; Boiss. in DC. Prodr. **15**(2): 135. 1862; Nort. in Missouri Bot. Gard. Rept. **11:** 106. *pl. 22, 23.* 1900; Wheeler in Kearn. & Peebl. Fl. Pl. Arizona 539. 1942. Syn. Nov.

The suspicion I have already voiced that *E. spathulata* is merely an introduced weed in the regions of the La Plata and that it is the same as *E. dictyosperma* Fisch. & Mey. of the southeastern United States is confirmed. No differences can be found to separate such specimens, for instance, as *Culwell & Timmons 3065* (Central North Texas) and *Lombardo 3903* (Montevideo), *Scala 90*, and *Burkart 3747* (Mouth of the Paraná).

Euphorbia invaginata sp. nov.

Herbacea, glabra, caulibus fistulosis striatis hic inde ceraceis. Foliis carnosulis ligulatis vel longius elliptico-obovatis subeveniis, margine integris, apice mucronatis, basi longe acuminatis, epetiolatis, 5–6 cm. longis, 1–1.75 cm. latis, nervo medio validiusculo, stipulis petiolaribus subnullis vel nullis. Inflorescentiis terminalibus effusis ad 15 cm. longis bracteato-vaginatis, primo internodio ad 4 cm. longo caeteris 0.75–1 cm. tantum longis, bracteis subpetaloideis pallidis hic inde albicantibus tenuissime venulosis late ovato-cordatis ad 2 cm. longis totidemque latis mucronulatis. Cyathiis verosimiliter singulis bracteis occultatis invaginatisque, ad 4 mm. longis et 2 mm. latis, cylindrico-campanulatis, nectariis 4 vel 5 stipitatis carnosulis margine corrugatis parvis appendice petaloidea nulla, pedicello ca. 1.5–2 mm. longo; capsula glabra levi, coccis delapsis ad 7 mm. longis angustis, semine valde elongato angusto ambitu tetragono, vix 1.5 mm. crasso, 6 mm. longo, arillo albicante hic inde granulato-leproso, caruncula rotundata bene umbonata stipitataque.

PARAGUAY: Chaco: Picuyba, *Rojas 7268.*

This new species belongs to Boissier's Sect. *Stachydium*, which includes *E. comosa* Vell., *E. lupulina* Boiss., *E. Gollmeriana* Boiss., *E. foliiflua* Ule, and the African *E. phylloclada* Boiss. From all the American species *E. invaginata* differs in the length of the seed. In foliage it most closely resembles *E. Gollmeriana* Boiss. and *E. foliiflua* Ule.

Euphorbia aureocincta sp. nov.

Herbacea hirta fistulosa, serius glabrata. Foliis (ut videtur) miro modo ludentibus, nunc more *Amaranthi* ssp. obcuneatis vel grosse quadrangulis, margine profundius irregulariter lobulato-dentatis, 3–6 cm. longis, 2–3 cm. latis, tum exquisite elliptico-lanceolatis margine integris 5–12 cm. longis 0.5–1.5 cm. latis, apice acutis, basi breviter cuneato-angustatis, petiolo semper brevi vix 1.5 cm. longo hirtulo. Inflorescentiis coarctato-capitulatis, bracteis lineari-lanceolatis acutis, 3–7 cm. longis, 0.5–1 cm. latis, integerrimis, basi pulchre aureis; cyathio ca. 3 mm. longo fauce 2.5–3.5 mm. lato, lobis lacerato-ciliatis, nectario unico sat plano, ovario in anthesi subincluso, capsula depresse rotundato-trigona ca. 5 mm. longa et lata, stylis vix 1.5 mm. longis ad tertium inferum partitis; semine 3.5 mm. longo, 2 mm. lato, quadrangulo, arillo albicante vel pallide brunneo toto induto, basi truncato, apice longiuscule acuminato, sub apicem atque ad medium leviter constricto-zonato, hic inde verruculoso-lineato.

PARAGUAY: Carapeguá, Callistro, *Rojas 3379* (TYPE). ARGENTINA: Jujuy: Quebrada del Chañi, *Schreiter 10990*.

This is a well-marked form, but its ultimate rank, whether binomial or trinomial, is a matter of speculation. It belongs to the group of *E. elliptica* Lam. (*E. geniculata* Ort.; *E. prunifolia* Jacq.), and its taxonomic status would seem to match exactly that of *E. zonosperma* Muell.-Arg. Unlike that species, which is widely distributed, *E. aureocincta* appears to be restricted to Paraguay, Argentina, and possibly Bolivia. The Schreiter specimen cited above requires verification, for it represents a state with leaves of amaranthoid pattern not resembling, at a glance, the typical form, *Rojas 3379*, which has only narrowly lanceolate leaves. However, both in *Rojas 3379* and *Schreiter 10990* the floral parts are identical, and some of the leaves are very similar. *Euphorbia heterophylla* L. *β elliptica* f. *hirticaulis* O. Kuntze, Rev. Gen. **3:** 286. 1891, probably belongs here.

Euphorbia acerensis Boiss. in DC. Prodr. **15**(2): 55. 1862.

ARGENTINA: Tucumán: Villa Lujan, *Venturi 524 (? 324)*; Salta: Río Toro y Río Blanco, *Vattuone 17*.

The cited material was misdetermined as representing *E. adianthoides* Lam. All the species in this group are closely related, and the existence of intermediates between *E. acerensis* Boiss. and *E. Poeppigi* Boiss., which ranges from the Amazonian regions of Peru to Bolivia, is probable.

Euphorbia pentadactyla Griseb. in Abhandl. Gesell. Wiss. Goettingen **24:** 63. 1879.

PARAGUAY: Gran Chaco: Carandaity, *Rojas 7287*.

This species resembles *E. aureocincta* Croiz. but is easily recognized as distinct on account of its long filiform simple styles. The record seems to be new for Paraguay. Earlier records are all from Argentina.

Euphorbia Milii Des Moul. in Bull. Hist. Nat. Soc. Linn. Bordeaux **1:** 27. *pl. 1.* 1826; Desf. Cat. Hort. Paris. ed. 3. 475. 1829; Croiz. in Jour. Arnold Arb. **21:** 506. 1940.

Euphorbia splendens Boj. ex Hook. in Bot. Mag. **56:** *pl. 2902.* 1829; Denis, Euph. Iles Austr. Afr. 82. 1922.

PARAGUAY: Asunción, cultivated in the Botanical Gardens, *Rojas 1264*.

The reasons calling for the reinstatement of Des Moulins' neglected name have been given in my paper cited above.

Euphorbia Hinkleyorum I. M. Johnst. in Contr. Gray Herb. n. s. **70:** 72. 1924.

ARGENTINA: Jujuy: Tilcara, Cerro Peña Alta, *Venturi 4916.*

The classical locality is Mt. Chachani, near Arequipa, Peru. This is a new record for Argentina, and the species may be expected from Bolivia. The forms in this group bear an interesting relationship to *E. claytonioides* N. E. Br. of Angola in West Africa.

Euphorbia pampeana Speg. in Rev. Jard. Zool. Buenos-Aires **1:** 30. 1893.

URUGUAY: Canelones: Las Brujas, *Lombardo 1959.*

This is probably a new record for Uruguay. The polymorphism of this species under conditions of experimental cultivation is hardly credible; the leaves vary from obovate to narrow-linear and from manifestly pubescent to fully glabrous, as I have observed the species in cultivation.

Euphorbia phosphorea Mart. in Spix & Mart. Reise Brasil **2:** 612. 1828, *in nota;* Boiss. in DC. Prodr. **15**(2): 176. 1862; Muell.-Arg. in Mart. Fl. Bras. **11**(2): 692. pl. 95. 1874; Mansf. in Monatschr. Kakt.-Gesell. **3:** 244. 1931.

Euphorbia rhipsaloides Glaz. in Bull. Soc. Bot. France **59**(Mém. 3g): 638. 1912, nec alior. Syn. Nov.

BRAZIL: Bahia: Queimadas, *Rose & Russell 19848* (in herb. N. Y. Bot. Gard.).

The peculiar phosphorescent sap of this plant, noted by Martius and by Glaziou, is often mentioned in the literature, but I have seen only the cited specimen which may belong here. The place of publication of the binomial is variously reported, but I am satisfied that the reference given above is correct, for the Latin description is given in the footnote cited; "p. 726," cited by Boissier, Index Kewensis, and most authors, merely contains Martius's comments on the phosphorescent properties of the latex. Mansfeld puts this species in the Sect. *Pteroneurae* together with *E. Weberbaueri* Mansf., *E. Sipolisii* N. E. Br., and *E. pteroneura* Berger. My understanding, on the contrary, is that *E. phosphorea* has a distinct position of its own.

Euphorbia orizabae Boiss. in DC. Prodr. **15**(2): 147. 1862.

GUATEMALA: Quiché: Nebaj, 6400 ft., *Skutch 1734;* Chimaltenango: Cerro de Tecpám, alt. 2400–2700 m., *Standley 61046;* Quezaltenango: Ostuncalco, alt. 2700 m., *Standley 66410.*

The record is apparently new for Central America. The peculiar velutinous indumentum of the branchlets and floral parts immediately separates this species from the forms around *E. campestris* Cham. & Schlecht.

Chamaesyce S. Gray emend. Croizat

The difference in habit between *Chamaesyce* and *Euphorbia* in a narrow sense is said by Wheeler, in Rhodora **43:** 99. 1941, to have been caused by a process of reduction in the main axis, as follows, "When by progressive reduction of the main axis subg. *Chamaesyce* finally arrived at the habit of branching after the first pair of true leaves appeared, the plant was obviously too small to produce all the elaborate foods necessary for a

production of a cyathium with its reproductive structures requiring abundant protein, fats, and carbohydrates; so we find that the cyathium which would otherwise terminate the main axis is omitted."

This account does not require explicit refutation for the benefit of anybody acquainted with plant physiology. The ultimate destination of food is ruled in living organisms by highly complex metabolic equations, and no plant is ever so bereft of "abundant protein, fats, and carbohydrates" as to be incapable of yielding one flower, or cyathium, in lieu of one or several vegetative buds. The *Chamaesyce* which, according to the explanation just quoted, is so weak (let us notice: phylogenetically) as to deny itself the luxury of an apical reproductive structure, is vital enough to produce up to five or six buds set around the portion of the stem which ought to bear the apical cyathium but is said to be incapable of doing so. These buds, in their turn, may yield an internode which is immediately floriferous, so that several cyathia may be brought forth immediately above the point at which not a single one could arise on account of the lack of proteins, fats, and carbohydrates, if the explanation of Wheeler were to be accepted.

This is not all; *Chamaesyce* includes at least one-third of the species commonly treated as *Euphorbia* and is the most widespread of the Euphorbiaceae, with the exception, perhaps, of *Euphorbia* Sect. *Tithymalus* in the sense of Boissier. Its vitality is astounding, and its morphologic range exceedingly varied, including fugacious annuals barely a few inches long, and trees in which a true woody trunk appears formed by the ultimate fusion of the internodal growth peculiar to the group. There is not the slightest evidence to favor the belief that this group has been derived in evolution from some other aggregate already differentiated as *Euphorbia* in the modern sense; its range, morphology, and physiology point to its being one of the archetypes of the Euphorbiaceae, certainly not a moribund offshoot of some "Section" of the Linnaean genus. The interpetiolar stipules of *Chamaesyce* do not seem to be homologous with ordinary stipules but to have arisen in evolution by the reduction and specialization of a quaternate foliar verticil, this in itself being an indication that the theory of progressive reduction advanced by Wheeler neglects the fact that specialization and differential growth, rather than reduction, are involved in the shortening of the axes of *Chamaesyce*. It will be obvious that, treated as a section, a subgenus, or a genus, *Chamaesyce* is not to be interpreted as suggested by Wheeler; for its phylogeny, morphology, and life-history contradict this interpretation on the strength of factors which have nothing to do with the taxonomic and nomenclatural preferences of an author.

Chamaesyce may be treated in subordination under *Euphorbia* by any botanist who accepts traditional values as absolute, and it is not my intention to dispute the legitimacy of such a point of view so long as it is knowingly held. I accept *Chamaesyce* as a genus for the following reasons: (1) it includes not less than 600 species and manifestly stands for one of the largest aggregates in the Euphorbiaceae; (2) the difference is fully as

great between *Euphorbia* and *Chamaesyce* as it is between *Mallotus* and *Macaranga, Glochidion* and *Phyllanthus, Alchornea* and *Cleidion, Cnidoscolus* and *Jatropha,* and the like (this vital fact is generally unknown to local students of *Euphorbia*); (3) the peculiarities of the stem-abortion of *Chamaesyce,* so far dismissed as "habit," are of far-reaching phylogenetic and morphological significance; (4) the species under *Chamaesyce* with few exceptions (probably not more than 10–15 species in the group called by Boissier *Euphorbia* sect. *Zygophyllidium*) are readily identifiable in the herbarium; (5) the characters of the nectaries on the cyathium, which are currently used to segregate from *Euphorbia* about 50 species of *Monadenium* and *Synadenium* and a single species of *Diplocyathium* (see Pax & Hoffm. in Engl. & Prantl, Nat. Pflanzenfam. ed. 2. **19c:** 43–44. 1931), could consistently be used to break up the Linnaean genus into many genera (*Dactylanthes,* for instance), thus reintroducing in its classification the confusion which Boissier sought to eliminate. To reject spurious "floral characters," full of unwelcome possibilities for classification, and to take up in their stead broad morphologic and phylogenetic concepts is sound and conservative taxonomy.

Chamaesyce chamaerrhodos (Boiss.) comb. nov.

Euphorbia chamaerrhodos Boiss. Cent. Euph. 2. 1860, in DC. Prodr. **15**(2): 51. 1862, Ic. Euph. 13. *pl. 25.* 1866.[1]

PARAGUAY: Carapeguá, *Rojas 3352.*

The collection cited is excellent evidence of the dimorphism of this species, the crowded short florigerous axes being unlike the long and sterile shoots. The former strongly suggest the growth of **Chamaesyce potentilloides** (Boiss.) comb. nov. (*Euphorbia potentilloides* Boiss.), the latter that of *C. hirta* (L.) Millspaugh.

Chamaesyce Selloi (Boiss.) comb. nov.

Euphorbia Selloi Boiss. in DC. Prodr. **15**(2): 50. 1862, Ic. Euph. 13. *pl. 22.* 1866.

This is a collective species with numerous forms. The one described below differs from the type, illustrated by *Sello 170,* in the characters of the seed.

Chamaesyce Selloi var. **brevisemina** var. nov.

Semine ovoideo potius quam trigono-acuminato in faciebus inter costulas leviusculo potius quam impresso a formis typicis recedit.

ARGENTINA: Entre Ríos: Concordia, *Burkart 822.*

Chamaesyce Meyeniana (Kl.) comb. nov.

Euphorbia Meyeniana Kl. in Nova Acta Acad. Leop.-Carol. Nat. Cur. **19:** Suppl. 1: 414. 1843 (Meyen. Obs. Bot.); Boiss. in DC. Prodr. **15**(2): 42. 1862.

PARAGUAY: Chaco Paraguayo: Puerto Casado, *Rojas 2171;* Isla Poi, *Rojas 7070.*

The former specimen particularly is an excellent match for such Bolivian

[1]See Briquet, in Bull. Soc. Bot. Suisse **50a:** 57, footn. 1. 1940, for the date of this work. Pritzel errs in both editions of the "Thesaurus," giving the date for the Icones as 1856. The "Centuria Euphorbiarum" is overlooked by Pritzel and by most bibliographers.

collections as *Pentland* (?) *109* and *D'Orbigny 1207*. This is a new record for Paraguay.

Chamaesyce Eichleri (Muell.-Arg.) comb. nov.
Euphorbia Eichleri Muell.-Arg. in Jour. Bot. **12**: 232. 1874.

PARAGUAY: Chaco: Puerto Casado, *Rojas 2170;* Loma Porá, *Rojas 2969.* ARGENTINA: Tucumán: Tapia, *Venturi 2320;* Salta: Orán, *Schreiter 10991.*

This appears to be a new record for Paraguay. The identifications were made on the basis of a photograph of *Lorentz 301*, in the Delessert herbarium, and the description.

Chamaesyce Lorentzii (Muell.-Arg.) comb. nov.
Euphorbia Lorentzii Muell.-Arg. in Jour. Bot. **12**: 231. 1874.

URUGUAY: locality ?, *Arechevaleta 5192 a.* ARGENTINA: Buenos Aires: Belgrano, *Parodi 9879;* Tigre, *Parodi 11095, Hicken 441, Burkart 5711;* Los Talas, *Marelli 39;* Belgrano Bajo, *Burkart 3632;* Delta Paraná, *Burkart 8357.*

The record for Uruguay is new, I believe. The determinations were based on a photograph of *Lorentz 466*, from the Berlin herbarium, and the description. This species tends to be restricted to very moist habitats.

Chamaesyce emarginata (Kl. & Garcke) comb. nov.
Anisophyllum emarginatum Kl. & Garcke in Abhandl. Akad. Berlin 24. 1860.
Euphorbia emarginata Boiss. in DC. Prodr. **15**(2): 32. 1862; Muell.-Arg. in Mart. Fl. Bras. **11**(2): 681. 1874.

URUGUAY: Río Negro: Isla del Pedion, *Rosengutt B 1472.* ARGENTINA: Entre Ríos: Gualeguaychú, *Burkart 4146.*

The Burkart record requires confirmation, as the determination was effected from fragmentary material. The identifications were made from the descriptions and on the basis of a photograph of *Sellow*, the type specimen in the Berlin herbarium.

Chamaesyce hirtella (Boiss.) comb. nov.
Euphorbia hirtella Boiss. Cent. Euph. 7. 1860, in DC. Prodr. **15**(2): 24. 1862.

URUGUAY: Canelones: Las Brujas, *Lombardo 1958.*

This is an exceedingly critical entity which probably connects two or three species that may be discussed later. The record is apparently new for Uruguay.

Chamaesyce Duckei sp. nov.

Perennis basi lignosa, caulibus stricte adscendentibus ultrapedalibus, innovationibus molliter albo-lanulosis citius glabratis. Foliis novellis membranaceis parcius albo-lanulosis vel glabratis, manifeste petiolatis, lamina ad 1.5 cm. longa, ca. 0.3 cm. lata, lanceolata vel elliptico-lanceolata vel anisophylla, margine subintegra, petiolo gracillimo ca. 2–3 mm. longo, stipulis linearibus vel triangularibus minutis. Cyathiis subsolitariis longe campanulatis ad 1–1.5 mm. longis, fauce ca. 1 mm. latis, nectariis ellipsoideis centro impressis, appendicibus petaloideis plus minusve profunde laciniato-sectis albicantibus, flore ♀ obpyriformi albicante tomentello vel lanuloso, capsula submatura glabrescente ovoideo-trigona ad 2 mm. longa et 1.5 mm. lata, stylis gracilibus ad 1.5 mm. longis ut videtur integris.

BRAZIL: Pará: Furnas, on the Middle Tapajoz, *Ducke 18534.*

The characters of this plant are outstanding, and that it represents a new

species seems to be obvious. The material, however, is hardly satisfactory for a generalized description, because it shows a stage in which the new growth is barely beginning, but the old branchlets have already lost their leaves. It is altogether likely that the leaves and stipules of a free grown shoot will not be found to agree closely with those here described.

Chamaesyce Barberiana sp. nov.

Herba annua vel potius perennans vix ultra pedalis suberecta multicaulis, caulibus in sicco stramineis vel pallide brunneis crispule albido-puberulis, internodiis ipsis maximis vix 3.5–4 cm. longis, stipulis interpetiolaribus in laciniis subintegris acutatis 3 vel 4 dissectis; foliis more generis basi anisophyllis, apice obtuse acuminatis vel rotundatis, membranaceis, 0.5–2 cm. longis, 0.5–1 cm. latis, ellipticis vel rotundato-ellipticis nequaquam linearibus vel rotundato-linearibus, glabratis vel puberulis, margine cartilagineo sat obtuse distanterque serrato. Inflorescentiis apicalibus capituliformibus ca. 1–1.5 cm. longis fere totidem latis, confertis minutissime bracteolatis saepius dichotomis dein iterum 2- vel 3-partitis; cyathio hirtulo vel puberulo longiuscule campanulato raro subinflato ca. 1.5 mm. longo 1 mm. lato, nectariis diminutis appendice rotundata albicante circumdatis lobis minutissimis subtruncatis, floribus ♂ paucis; capsula evidenter longiore quam lata ca. 2 mm. longa, basi ca. 1.25 mm. lata, stylis vix 1 mm. longis, partitis, coccis crispule puberulis vel glabratis dorso lineato-constrictis, columella gracili ca. 1.5 mm. longa, semine acutissime trigono rubello ca. 1–1.25 mm. longo, 0.4–0.6 mm. basi lato, faciebus transverse ruguloso-insculptis.

PARAGUAY: Chaco Paraguayo: Irendagué, *Rojas 7213* (TYPE). ARGENTINA: Santiago del Estero: C. Pellegrini, *Venturi 5663, 5956;* Tucumán: Burruyaco, *Venturi 7690;* Entre Ríos: Paraná, *Burkart 439;* San Luís: Sierra del Gigante, *Pastore 67;* Córdoba: Casquin (?), *Rodrigo 251.*

This in the main is the entity which I have mistaken, in Lilloa **6:** 299. 1941, for *C. indica* (Lam.) Croizat. My error is not entirely unaccountable, because the vegetative parts of these plants are practically identical. However, the seeds of the two species, which only recently I have had the opportunity of studying to my satisfaction, are altogether unlike. Seeds of *C. indica* are more or less ovoid and dark in color, while those of *C. Barberiana* are narrow, pointed, and reddish brown.

Chamaesyce Barberiana is a strong species which closely resembles no other of its range. In Boissier's monograph it would take its place immediately next to *C. Berteriana* (Balb.) Millsp. of the West Indies. The specific name honors Dr. Andrés Barbero, President of the Sociedad Científica del Paraguay, to whom so much is owed by all students of the natural history of that Republic.

Chamaesyce portucasadiana sp. nov.

Planta certissime perennis e caudice lignoso ramos plures duros repentes brevissime albicanti-tomentellos vel rarius glabratos edens ad 30 cm. longos et ultra, stipulis setaceis triangularibus inconspicuis. Foliis saepius valide costatis ellipticis vel ovato-ellipticis, brevissime petiolulatis, 0.4–1 cm. longis, 0.2–0.7 cm. latis, plus minusve profundius serratis adpresse setulosis. Cyathiis cupuliformibus in axillis singulis vel subsingulis, ca. 2 mm. longis

et latis, puberulis, nectariis late albo-appendiculatis, ovario rotundato-trigono albicante tomentello vix 1.5 mm. longo latoque, stylis brevibus apice bilobis.

PARAGUAY: Chaco Paraguayo: Puerto Casado, *Rojas 2152*.

This plant was originally identified as representing *Euphorbia thymifolia* L., a determination probably influenced by Chodat & Hassler's earlier acceptance of this species for the region. A full discussion of *E. thymifolia* is here impossible, but on the basis of *Metz 67*, an Asiatic specimen which Boissier cites under that binomial, in DC. Prodr. **15**(2): 47. 1862, it is obvious that *C. portucasadiana* has characters wholly incompatible with those of Linnaeus' species as represented by the Metz collection. The description of *E. argillicola* Chod. & Hassl., if at all correct, cannot apply here.

Chamaesyce oranensis sp. nov.

Perennans lignescens, rosulata vel repens suberecta, tota hispidulo-velutinosa pallide olivacea vel grisea, internodiis pro more nec ultra 0.5 cm. longis, maximis 1–2 cm. longis. Foliis rotundato-ellipticis, 0.5–1 cm. longis, 1–6 mm. latis, velutino-puberulis, margine sat grosse serratis, subsessilibus, stipulis setaceis minutis deciduis. Cyathiis in axillis pluribus aggregatis campanulatis valde tomentellis ca. 1.5 mm. longis, nectariis rotundatis minimis appendice petaloidea subnulla, flore ♀ canescente stylis brevissimis glabris partitis; capsula ovato-trigona ca. 1.25 mm. longa 1 mm. basi plus minusve lata, semine ellipsoideo griseo-rubello transverse ruguloso ca. 1–1.25 mm. longo et 0.75 mm. lato.

ARGENTINA: Salta: Orán, *Venturi 5555* (TYPE). PARAGUAY: Chaco Paraguayo: Chamachini, *Rojas 7224*.

The floral characters of this new species are not outstanding, but the habit is distinctive and is immediately recognizable. The internodes are usually only 0.5 cm. long, and the stems become manifestly woody with age.

Chamaesyce catamarcensis sp. nov.

Humilis glaberrima, caules verosimiliter annuos e radice perenni edens. Foliis crassiusculis integerrimis linearibus, apice obtuse rotundato-apiculatis, 7–14 mm. longis, 1–1.5 mm. latis, petiolo vix 1–2 mm. longo, stipulis interpetiolaribus fimbriatis minutis. Cyathiis in axillis singulis ob internodiorum brevitatem in pseudocymulis apicalibus congestis vix 1 mm. longis, nectariis 4 vel 5 exappendiculatis vel parcissime appendiculatis in involucrum longe decurrentibus, staminibus paucis; flore ♀ elongato trigono glaberrimo, stylis 3 brevissimis partitis; capsula matura ca. 2 mm. longa et 1.25 mm. lata, gynophoro 1.5–2 mm. longo, semine quadrangulo apice valde acuminato basi truncato, in lateribus rugis profundis horizontalibus ad 6–10 ornato, arillo albicante, testa rubrobrunnea.

ARGENTINA: Catamarca: Andalgalá, *Jörgensen 1621*.

This resembles *C. caecorum* but has blunter leaves and a different seed.

Chamaesyce caecorum (Boiss.) comb. nov.

Euphorbia caecorum Mart. ex Boiss. in DC. Prodr. **15**(2): 51. 1862; Muell.-Arg. in Mart. Fl. Bras. **11**(2): 675. *pl. 92*. 1874; Boiss. Ic. Euph. 13. *pl. 23*. 1866; Chod. & Hassl. in Bull. Herb. Boiss. II. **5**: 681. 1905.

The spelling *caecorum* is to be retained as the one used by Boissier in the original publication. Mueller's reference to the place of publication is garbled, confusing as it does the unpublished "Pl. Med. Bras. t. 73 ined.," cited by Boissier, and the "Icones Euphorbiarum."

This species is frequent in Brazil and probably not rare in Paraguay, witness: *Rojas 6339*, Sierra de Amambay. I have so far not seen it from Argentina. The ternate and quaternate verticils, illustrated by Mueller and Boissier, on the lower nodes suggest a theoretical primitive condition, antedating the transformation of two leaves of the verticil into interpetiolar stipules.

Chamaesyce hirta (L.) Millsp. in Field Mus. Publ. Bot. **2**: 303. 1909.

Euphorbia hirta L. Sp. Pl. 454. 1753; Boiss. in DC. Prodr. **15**(2): 21. 1862 (as *E. pilulifera*); Wheel. in Contr. Gray Herb. **127**: 67. 1939, in Rhodora **43**: 169. 1941.

This widespread weed has been confused both in herbaria and in the literature with *C. pilulifera* (L.) Small. This confusion arose through accepting a concept of *E. pilulifera* L. based on the plant described in the Amoenitates Academicae **3**: 114. 1756, rather than on that of the Species Plantarum (1753), which has priority. As Boissier points out (op. cit. 20), the plant originally determined as *E. pilulifera* in the Linnaean herbarium actually represents *E. parviflora* L., which was not published until 1759. To *E. pilulifera* L. and the combinations based upon it, *E. parviflora* L. must be added as a synonym.

Chamaesyce hirta L. subsp. **procumbens** (Boiss.) Croiz. in Lilloa **6**: 299. 1941.

Chamaesyce hirta L. var. *procumbens* (Boiss.) Mold. in Rev. Sudam. Bot. **6**: 178. 1940.

ARGENTINA: Buenos Aires: Villa Ortuzar, *Parodi 12819;* Tucumán: Villa Luján, *Venturi 167*, Trancas, *Venturi 4386*, Tapia, *Rodriguez 526;* Salta: Orán, *Rodriguez 96*, Candelaria, *Venturi 3659;* Cordoba: Unquillo, *Bruch 5005*. CULTIVATED: *Croizat s. n.*

This characteristic form is weaker and smaller than the typical plant and has a fairly thickly arillate seed, the testa of which is dusty-grayish rather than brick-colored. It is particularly abundant in Argentina, the collections cited being representative. In some of its most diffuse states (for instance, *Rodriguez 526, Bruch 5005*, and *Croizat s.n.*) this entity is close to **Chamaesyce microcephala** (Boiss.) comb. nov. (*Euphorbia microcephala* Boiss. in DC. Prodr. **15**(2): 1262. 1866), which in its turn does not seem to differ enough from the form called by Wheeler *E. hirta* var. *destituta*, in Contr. Gray Herb. **127**: 70. *pl. 4, C 1.* 1929).

Chamaesyce hirta var. **laeticincta** var. nov.

Nectariis saepius appendicibus petaloideis albicantibus sat magnis insignitis, foliis saepius sub apicem rhombeo-dilatatis.

PARAGUAY: Chaco Paraguayo: Puerto Casado, *Rojas 2819*.

I have not seen material representing *Euphorbia Karwinskyi* Boiss., which, according to Wheeler, in Contr. Gray Herb. **127**: 71. 1939, should not be far remote from *E. hirta* var. *nocens* Wheel. and somewhat suggests this new variety in the descriptions. In its most characteristic state this

variety is easily recognizable by the white petaloid appendages of the nectaries on the cyathium.

Chamaesyce serpens (H. B. K.) Small, Fl. Southeast. U. S. 709, 1333. 1903.

Euphorbia serpens H. B. K. Nov. Gen. & Sp. **2**: 41 [*folio*], 52 [*quarto*]. 1817; Boiss. in DC. Prodr. **15**(2): 29. 1862; Wheel. in Contr. Gray Herb. **136**: 198. 1941.

PARAGUAY: Chaco Paraguayo: Lopez de Filippis, *Rojas 8278;* Puerto Casado, *Rojas 2161.*

The first of these specimens is an absolute match of the typical plant collected at Cumaná. In this plant the stipules definitely tend to be triangular-truncate, not laciniate-partite. *Rojas 2161* is a microphyllous state and evidently a perennial from a comparatively thick rootstock. This suggests that the species is annual only where conditions are unfavorable.

Chamaesyce serpens var. **montevidensis** (Boiss.) comb. nov.

Euphorbia ovalifolia montevidensis Boiss. in DC. Prodr. **15**(2): 43. 1862.

Euphorbia serpens var. *fissistipula* Thell. in Bull. Herb. Boiss. II. **7**: 755. 1907. Syn. Nov.

URUGUAY: Montevideo, *Casaretto 453* (type number); *Arechevaleta 5204, Lombardo 222, Legrand 394.* ARGENTINA: Buenos Aires: Mar de la Plata, *Hicken 642;* Lobería, *Scala (Alboff) s. n.*

It is possible that *C. serpens* and *C. ovalifolia* cannot be distinguished with finality as separate species, but it seems clear that the var. *montevidensis* rather agrees with the former than with the latter on account of the habit and foliage and the less evolute petaloid appendages.

Lombardo 222 bears the local name "Yerba Meona." This same name is given by Larrañaga, Escr. D. A. Larrañaga, Inst. Geogr. Uruguay **2**: 165. 1923, to his *E. diuretica*, which is described altogether too briefly but is said to be "pubescens." Clearly, *E. diuretica* is not *E. serpens* or any of its forms, for these are glabrous. The binomials of Larrañaga are published with descriptions so sketchy that, in this group, it proves impossible to place them without access to authentic material for study and comparison.

EXCLUDED FROM THE EUPHORBIACEAE

Ayenia pusilla L. Syst. ed. 10. 1247. 1759.

Tragia Mansfeldiana Hert. in Rev. Sudam. Bot. **3**: 166. 1936, *nomen;* op. cit. **5**:34. *fig. 6.* 1937. Syn. Nov.

I am indebted to Señor A. Lombardo for data, drawings and notes which provide definite proof that Herter's species is not euphorbiaceous but is a well-known sterculiaceous plant, *Ayenia pusilla* L. The reduction here made is based on *Chebataroff 6352* in our herbarium, bearing the original sketches and comments of Señor Lombardo.

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