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Clematopsis, a Primitive Genus of Clematideae

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In conclusion, the evidence is that the fat shows certain characteristics of drying oils, such as Tung Oil, without the property of producing a varnish as in the case with drying oils, such as linseed oil, whereas, after heating, it behaves as a semi-drying oil, and it would seem that, in this condition, admixed with drying oils, it might be used in the production of paints and varnishes.

A consignment of seeds of *Momordica cochinchinensis* received through the kind offices of Mr. W. J. Tutcher, Hongkong, was sent to the Imperial Commissioner of Agriculture, West Indies (*see* Agric. News, Feb. 22, 1919). Some of these were entrusted to Mr. J. Jones, Curator of the Botanic Gardens, Dominica, and in the Agric. News of November 1, 1919 (vol. xviii, No. 457), on p. 347, it is reported a fruit has matured on one of the plants raised from the seed received in February. The fruit weighed $3\frac{3}{4}$ lbs. and contained 42 seeds, weighing 6 ozs. Agric. News, Dec. 13, 1919, p. 393.

It is hoped that the plant may be grown successfully in the West Indies and the oil from the seeds may be found to be of commercial value.

Momordica cochinchinensis has been figured in the Botanical Magazine (Ser. III, vol. xv), Tab. 5145, and there is a description of the plant with a figure in Catalogue des Produits de l'Indo-Chine, Tome i, p. 180, where it is stated that a well-clarified oil is made from the seeds.

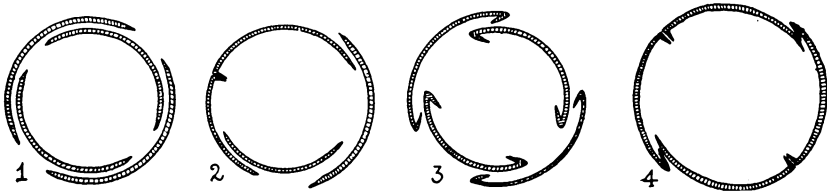
III.—CLEMATOPSIS, A PRIMITIVE GENUS OF CLEMATIDEAE.

J. HUTCHINSON.

The genera *Clematis* and *Naravelia*, comprising the tribe *Clematideae* of *Ranunculaceae*, have generally been regarded as sharply differentiated from the remainder of the family by their usually shrubby habit, opposite leaves, and induplicate-valvate sepals.* And the Tribe *Clematideae* is so described in the majority of local floras and in textbooks. While looking over the genus *Clematis* recently, however, I was impressed by the markedly *imbricate* aestivation of the sepals of several species from Madagascar and South Tropical and Subtropical Africa. This aestivation appeared superficially to be of the ordinary imbricate type, but on dissection of the buds of several species, the types of aestivation shown in diagrams 1-4 were found to occur. These examples are remarkable in that they show almost every degree of aestivation linking up the imbricate with the induplicate-valvate type. In diagram 1, which is drawn from a flower of *Clematopsis scabiosifolia*, the aestivation is simply imbricate; in no. 2, that of *C. speciosa*, it is partly imbricate and

* In the addenda to vol. i. of Benth. & Hook. f. Gen. Plant. the following note occurs:—"Clematis, in caractere, post Sepala valvata, adde rarius (in speciebus paucis Africae tropicae) imbricata." Prantl. (Engl. & Prantl. Pflanzenf. iii. 2) has a section of *Clematis* with imbricate aestivation which he named *Pseudanemone*.

partly induplicate-valvate; in no. 3, *C. Stanleyi*, we see a gradation which links up with no. 4, *C. Kirkii*, where the aestivation approaches most nearly that of typical *Clematis*, i.e., induplicate-valvate, except that the overlapped margins are not inflexed.



Diagrams showing different types of aestivation in *Clematopsis*.

In the early part of last century the MSS. name *Clematopsis* appears to have been given by Bojer to a few Mascarene species showing this feature, the name first appearing as a *nomen nudum* in Hooker's *Icones Plantarum*, vol. i. t. x. (1837), wherein several of the species are described as *Clematis*. At tab. 10 of that work, which depicts *Clematis Bojeri*, Hook. [= *Clematopsis villosa*, Hutchinson], Sir William Hooker makes the following observation:—"This is one of several species of *Clematis* sent me from the island of Madagascar by the late Dr. Lyall, differing strikingly from any described species, and of which has been constituted a new genus in Mr. Bojer's MSS. under the name of *Clematopsis*. But I am not aware of any character to warrant such a separation. All have singularly large flowers and most of them very long peduncles."

As a *valvate* aestivation has no doubt been derived from an *imbricate* one, at any rate in the *Ranales*, the phyletic significance of this remarkable transition should not be lost sight of, linking up, as it clearly does, the tribes *Anemoneae* (through *Anemone* § *Pulsatilla*) and *Clematideae*. It seems desirable, therefore, that Bojer's views as to its generic importance, though expressed only by the MSS. name, should be maintained. If we take into account the somewhat slender means by which several other genera of *Ranunculaceae* are separated, then *Clematopsis* has good claims to recognition. It is true, as remarked upon by Baillon,* that in some of the larger-flowered species of *Clematis*, such as *C. florida*, from which many of the beautiful garden races have been derived, the sepals become imbricate *after* the flowers have opened, but in the bud stage they are valvate.

In regard to the opposite leaves, there is an occasional occurrence which seems to strengthen the view as to the intermediate position of *Clematopsis* between *Anemone* (alternate leaves) and *Clematis* (opposite leaves). This is that when the nature of *C. Stanleyi* (q.v.) is disturbed by cultivation, it sometimes produces *alternate* leaves, thereby becoming to all intents and purposes a species of *Anemone*. Another "Anemone feature" is the involucrate leaves of three Angolan species (*see key*).

* *Histoire des Plantes*, i, 87 (1867).

The species of *Clematopsis* found in the elevated regions of Angola would appear in some places to form almost a dominant feature of the vegetation. According to the Welwitsch Catalogue of Angolan plants, the *Ranunculaceae* produce a striking effect upon the physiognomy of the forest landscape by the presence of immense masses of two erect species [of *Clematopsis*], so that large tracts of pasture ground, situated amidst the forests, during the flowering season, look at a distance as if covered with snow. Whilst on an excursion towards the confluence of the Lopollo and Ferao streams, Welwitsch "enjoyed ample opportunity to admire the scarcely imaginable magnificence of the two erect species each with whitish-red flowers 2-2½ in. in diameter, and with stems 3-4 ft. high."

Whether, in connection with the theory here advanced that *Clematis* has probably arisen through *Clematopsis* from the genus *Anemone*, the southern Plateau of Africa, part of the ancient "Gondwana Land" of Suess, which still connected the African continent with Madagascar and India as late as the Cretaceous, and Africa and Madagascar well into the Tertiary period,* has been the breeding ground for the evolution of *Clematis*, whence they have spread throughout the northern hemisphere, may be left to conjecture. In the absence of some such explanation, it would be difficult to account for the Indo-Malayan genus *Wormia* (*Dilleniaceae*) and the Australian *Hibbertia* in Madagascar. If a detailed examination of the distribution and structural peculiarities of the *Ranunculaceae* from the Southern Hemisphere were undertaken, probably some other interesting facts would be brought to light regarding the phylogeny of those from the Northern Hemisphere. It has already been shown in the case of *Caltha*† that the southern species differ markedly from their boreal relatives. The solitary *Anemone* of Tasmania, *A. crassifolia*, Hk. f., is of a very peculiar habit, and it seems a significant fact that the 20 or so species of *Clematis* endemic to New Zealand should all be dioecious, whilst Huth‡ in his monograph of the genus *Delphinium* remarks on the peculiar structure and isolated position of the only two species, *D. macrocentrum*, Oliv. (Ic. Pl. t. 1501) and *D. Leroyi*, Franch., which occur south of the Equator, in the Masai district of East Africa and Kilimanjaro respectively.

I am much indebted to Mr. E. G. Baker, of the Natural History Museum, for allowing me to examine the sketches of *Clematopsis* he made in the Berlin Herbarium, and to Miss D. M. Rolfe for assistance in preparing the plate.

* cf. Arldt, Die Entwicklung der Kontinente und ihrer Lebewelt, Karten 19-21 (1907).

† The genus *Caltha* in the Southern Hemisphere, A. W. Hill in Ann. Bot. xxxii. 421-435 (1918).

‡ Monographie der Gattung *Delphinium*, in Engl. Bot. Jahrb. xx. 473 (1894).



Explanation of plate:—1, Clematopsis Stanleyi (after Bot. Mag.); 2, *C. trifida*; 3, *C. oligophylla*; 4, *C. anethifolia* (after Hook. Ic. Pl.); 5, flower of *C. speciosa* (orig.); all slightly more than $\frac{1}{2}$ nat. size.

KEY* TO THE SPECIES OF *Clematopsis*.

- *Uppermost pairs (or 4) of leaves (of at least the terminal flower) green like the other leaves and not brightly coloured, nearly always remote from the perianth :
- Flowers mostly about 3 at the apex of each shoot 1. *C. Kirkii*.
- Flowers solitary at the apex of each shoot or stem :
- †Lower leaves simply pinnate, trifoliolate or sub-entire :
- ‡Stems more or less solitary, erect ; African species :
- Four of the upper leaves whorled and forming an involucre ; Angolan species.
- Involucral leaves simple, toothed :
- Sepals 6 2. *C. Teuczii*.
- Sepals 4 3. *C. speciosa*.
- Involucral leaves trifoliolate, with narrow leaflets 4. *C. chrysoarpa*.
- Upper leaves in distant pairs, not forming an involucre :
- Densely tomentose all over ; lateral leaflets narrow, entire or unidentate ; Angolan species ... 5. *C. argentea*.
- Laxly pilose or shortly pubescent ; lateral leaflets broad, usually with more than one tooth :
- Leaves up to 18 cm. long ; sepals strongly ribbed on the back 6. *C. katangensis*.
- Leaves not more than 10 cm. long ; sepals not ribbed :
- Achenes not longer than broad, more or less rhomboid, with long and very slender tails sparsely pilose towards the tips ... 7. *C. Oliveri*.
- Achenes much longer than broad, narrowly turbinate, with comparatively short tails densely pilose to the tip 8. *C. Stuhlmannii*.
- ‡‡Stems several from a decumbent rhizome ; pedicels elongated ; Mascarene species 9. *C. trifida*.
- ††Lower leaves more or less bipinnate, rather roughly and permanently hairy ; Angolan species 10. *C. scabiosifolia*.

* This key is as good as can be put together from the material seen, which in some cases is rather scanty.

††† Lower leaves more than bipinnate, much divided with rather narrow segments:

Leaves rather coarse, more or less densely hairy; African species ... 11. *C. Stanleyi*.

Leaves usually finely cut, glabrous or nearly so; Mascarene species:

Leaves about 3 cm. long; segments short about 1.5 mm. broad ... 12. *C. oligophylla*.

Leaves over 5 cm. long, segments long and narrowly linear, scarcely 1 mm. broad ... 13. *C. anethifolia*.

** Uppermost pair of leaves coloured and bract-like, entire or sub-entire, fairly close up to the perianth, sharply differentiated from the foliage leaves:

Leaves finely divided, segments about 2-5 mm. broad ... 14. *C. pimpinellifolia*.

Leaves simply pinnate, leaflets 1.5-2 cm. broad ... 15. *C. villosa*.

1. *Clematopsis Kirkii*, *Hutchinson*, comb. nov.

Clematis Kirkii, Oliv. Fl. Trop. Afr. i. 5 (1868); Eyles in Trans. Roy. Soc. S. Afr. v. 352 (1916). *Clematis villosa*, var. *normalis*, O. Kuntze, Monogr. Clemat. 173 (1885). *Clematis Busseana*, Engl. Bot. Jahrb. xlv, 269 (1910).

TROPICAL AFRICA. North-West Rhodesia: Fort Hill, Tanganyika Plateau, 1050-1200 m., July, 1896, *A. Whyte*; Kambole, south-west of Lake Tanganyika, 1500 m., *W. H. Nutt* (1896); Fwambo, *A. Carson* 46, 65. Near Mumbwa, 15° S., 28° E., *Mrs. Macaulay* 601; Katinia Hills, under bushes, *T. Kässner* 2160, 2191. Southern Rhodesia: Odzani River Valley, Umtali district, *A. J. Teague* 23; near Chirinda, 1100 m., *Swynnerton* 1763. Shire Highlands, *J. Buchanan* 80, 428; without definite locality, *J. Buchanan* 638, 763. Portuguese East Africa: Manganja Hills, 900 m., fr. 4 Mar. 1862, *J. Kirk* (type). East African Protectorate: Ussagara Mountains, in damp meadows, about 1700 m., fls. Sept. 1900, *W. Busse* 295. Nyasa Highlands; Kyimbila, 25 Nov. 1907, *G. Stolz* 146. Kavironda, 1200-1500 m., *Scott Elliot* 7022, 7154. Belgian Congo: Sekanju, open plain, 12 Jan. 1909, *T. Kässner* 2988; Kipaila, *T. Kässner* 2543.

2. *Clematopsis Teuczii*, *Hutchinson*, sp. nov.

Clematis villosa, var. *Teuczii*, O. Kuntze, Monogr. Clemat. 174 (1885).

Rhizoma polycephalum; caulis erectus, simplex, longitudinaliter sulcatus, medio 4-5 mm. diametro, pilis longis debilibus reflexis laxe instructus. *Folia* alterna, superiora 4 subverticillata, simplicia, anguste obtriangularia, basi longe cuneata, 12-14 cm. longa, 4-5.5 cm. lata, superne lobulato-dentata, e basi prominenter 5-nervia, utrinque pilis longis debilibus pubescentia; petioli circiter 1 cm. longi, sulcati. *Pedunculus* monocephalus, robustus, circiter 18-20 cm. longus, laxe pubescens. *Sepala* (ex icon. Bakeriano) 6, ovato vel ovato-lanceolata. *Infructescentia*

subglobosa, cinereo-brunnea (*Gossweiler*), circiter 10 cm. diametro. *Achaenia* turbinata, fere 1 cm. longa, pilosa, stylo circiter 5 cm. longo dense sericeo-piloso coronata.

TROPICAL AFRICA. Angola: Malange, *Mechow* 305 (only a sketch of type seen at the Natural History Museum, S. Kensington). Malange, on high ground near Sansala Catombe, fr. 16th June, 1908, *J. Gossweiler* 1469.

Mr. Gossweiler described the plant as follows:—"A perennial with many-headed caespitose rootstock; stem strictly ascending, not branched, all parts softly hairy; infructescence globular, silvery brown!"

3. *Clematopsis speciosa*, *Hutchinson*, sp. nov.

Caulis erectus, fruticosus, verosimiliter simplex, profunde sulcatus, longe rufo-pilosus. *Folia* superiora involucreta tantum visa, simplicia, obovata, acuta, basi longe attenuata, circiter 12 cm. longa et 5 cm. lata, dimidio parte serrata, inferne integra, chartacea, utrinque pilis curvatis laxe pilosa; nervi laterales e basi ascendentes, infra prominuli. *Flos* solitarius, speciosissimus, usque ad 15-cm. expansus, longe pedicellatus. *Sepala* 4, ovato-lanceolata, acuta, tenuiter chartacea, ad 7 cm. longa et 3 cm. lata, extra striata et laxe pilosa, intra breviter pubescentia. *Filamenta* pilosa, circiter 1 cm. longa; antherae 0.8 cm. longae. *Achaenia* numerosa, dense villosa, matura non visa.

TROPICAL AFRICA. Angola: 15° 05' E. Long., 12° 44' S. Lat., alt. 1360 m., *Dr. F. C. Wellman* 1792.

This is a magnificent plant and should be introduced to cultivation.

4. *Clematopsis chrysocarpa*, *Hutchinson*, comb. nov.

Clematis chrysocarpa, Welw. ex Oliv. Fl. Trop. Afr. i. 5, partim (1868); Hiern in Cat. Afr. Pl. Welw. i. 2 (1896). *Clematis villosa*, subsp. *chrysocarpa*, O. Kuntze, Monogr. Clemat. 174 (1885).

Descr. emend.—*Caules* erecti, usque ad 0.75 m. alti, profunde sulcati, medio circiter 5 mm. crassi, patule pilosi, nodiis subvillosis, internodiis plerumque circiter 6 cm. longis. *Folia* opposita, trifoliolata vel rare integra, fere sessilia, superiora verticillata, usque ad 12 cm. longa, prominenter nervosa, parce pilosa, foliolo terminali elongato-oblongato breviter petiolulato 5–6 cm. longo 1.5–2 cm. lato apicem versus parce dentato vel subintegro, lateralibus linearibus vel oblongis 4–5 cm. longis superne parce dentatis; petioli 1–1.5 cm. longi, complanati. *Flos* solitarius, longe (usque ad 14 cm.) pedicellatus, pedicello subdense et longe piloso. *Sepala* 4, elliptica, dorso ecostata, apiculata, 3 cm. longa, 2 cm. lata, extra pilosa, intra glabra. *Filamenta* complanata, lata, pilosa, fere 1 cm. longa; antherae 7 mm. longae. *Achaenia* turbinata, 8 mm. longa, appresse pilosa, superne fere villosa, stylo elongato 6 cm. longo flavo-villoso coronato.

TROPICAL AFRICA. Angola: Huilla; in shortly bushy, rocky, rather dry stations between Lopollo and Nene, at a place called

Ferra de Sola, not abundant, fl. Feb. Apr. 1860, *Welwitsch* 1222. Kubango; apparently widely caespitose, stems erect, 1–2 ft. high, leaves fleshy, deep green; flower terminal, resembling a large tulip in shape, all parts lurid white, on a decayed and overgrown anthill in moist meadow near the fort Colui, 14–10–05, *Gossweiler* 2153, 3642.

Hiern (l.c.) points out that Grant's specimen from Usui district, Uganda, is probably the same as the plant named *C. Stuhlmannii*, Hieron. In the present paper it is described as *Clematopsis Oliveri*, a near ally of *C. Stuhlmannii*.

C. chrysocarpa is another very fine species, remarkable for the whorled upper leaves forming an involucre after the manner of an *Anemone*. Its lower leaves are, however, strictly opposite and in pairs, as in *Clematis*.

5. *Clematopsis argentea*, *Hutchinson*, sp. nov.

Clematis argentea, Welw. ined. *Clematis villosa*, subsp. *argentea*, O. Kuntze, Monogr. Clemat. 174 (1885); Hiern in Cat. Afr. Pl. Welw. i. 2 (quoad forma *acutiloba*).

Caules e rhizomate lignoso numerosi, erecti, usque ad 1 m. alti, laxè foliati, superne ramosi, ubique dense tomentosi, internodiis superioribus circiter 8 cm. longis. *Folia* inferiora non visa, superiora pinnata, usque ad 12 cm. longa, angusta, utrinque dense appresse villosa, foliolis bijugis, terminali profunde trilobato basi cuneato 4·5 cm. longo 3·5 cm. lato, lateralibus oblanceolatis parce lobulatis apice mucronatis glabrescentibus. *Alabastra* tantum visa, ovoidea, breviter acuminata, externe dense tomentosa. *Infructescentia* circiter 9 cm. diametro; pedicelli circiter 7 cm. longi, tomentosi. *Achaenia* turbinata, sericea, stylo plumoso circiter 6 cm. longo coronata.

TROPICAL AFRICA. Angola: Pungo Andongo; frequent in bushy stations about Quifinda, near Quisonda, fr. Mar. 1857, *Welwitsch* 1220.

6. *Clematopsis katangensis*, *Hutchinson*, sp. nov.

Suffrutex erectus, usque ad 1 m. altus; caulis prominenter sulcatus, breviter pubescens, medio circiter 6 mm. crassus, superne subtomentosus. *Folia* pinnata, usque ad 18 cm. longa, foliolis bijugis, terminali elliptico-oblanceolato parce dentato, lateralibus paullo minoribus lobulato-dentatis utrinque brevissime pubescentibus demum fere glabris, nervis infra prominentibus, venis laxis; rhachis sulcata, breviter pubescens. *Flores* solitarii, terminales, circiter 7 cm. expansi; pedicelli circiter 6·5 cm. longi, apicem versus molliter tomentosi. *Sepala* 4, valde crassa, acuta, circiter 3·5 longa et 2·5–3 cm. lata, dorso prominenter 5-costata, breviter appresse sericeo-villosi, 2 interioribus marginibus planis molliter tomentellis. *Filamenta* pilosa; antherae 8 mm. longae. *Carpella* et stylus sericeo-villosa. *Fructus* non visus.

TROPICAL AFRICA. Belgian Congo: Katanga; Loooi River, Nov. 1910, *T. Kässner* 3347 (Type in Nat. Hist. Mus.).

7. **Clematopsis Oliveri**, *Hutchinson*, sp. nov.

Clematis chrysocarpa, Oliv. Fl. Trop. Afr. i. 5 (1868), partim, non Welw. *C. villosa*, subsp. *chrysocarpa*, forma *stipulata*, O. Kuntze, Monogr. Clemat. 174 (1885) partim.

Caules e rhizomate polycephalo erecti, sulcati, medio circiter 4 mm. crassi, breviter pubescentes, internodiis 6–8 cm. longis. *Folia* subsessilia, trifoliata vel pinnata, usque ad 10 cm. longa et 6 cm. lata, chartacea, utrinque breviter pubescentia, demum subscabrida, foliolis obovatis parce lobulato-dentatis. *Flores* solitarii, circiter 5 lm. diametro, nutantes? breviter vel longe (ad 12 cm.) pedicellati, pedicello molliter tomentoso. *Sepala* 4 vel 6, oblongo-elliptica, circiter 2.5 cm. longa et 1.2 cm. lata, utrinque molliter tomentella. *Filamenta* complanata, inferne pilosa, superne glabra, 1 cm. longa; antherae 5 mm. longae. *Carpella* ellipsoideo-turbinata, sericeo-pilosa, stylo laxo plumoso 5–6 cm. longo gracili coronata.

TROPICAL AFRICA. 'White Nile,' *Petherick* (1862). Uganda: common on waste grounds of Ususi, Nov. 1861, *Speke & Grant* 190. Koki, 1200 m., *M. T. Dawe* 391. Elgon District, *Sir Evan James*; between Mumias and Lubwas, 1200–1350 m., *A. Whyte*. British East Africa: Nyanza basin. 1200–1350 m., *E. Battiscombe* 681; without definite locality, *H. Powell* 90. East African Protectorate: Uhehe Mts., *Goetze* 673. North Nyasaland: Kondowe to Karonga, 600–1800 m., July 1896, *A. Whyte*.

8. **Clematopsis Stuhlmannii**, *Hutchinson*, comb. nov.

Clematis Stuhlmannii, Hieron in Engl. Pf. Ost-Afr., C. 180 (1895). *Clematis Goetzei*, Engl. Bot. Jahrb. xxviii 388 (1900)?

TROPICAL AFRICA. Uganda: Hunga, herb with white flowers, fr. Nov. 18, 1903, *A. G. Bagshawe* 381. East African Protectorate: Kagehi, *Stuhlmann* 3491; Kinuni, Karagwe, 1500 m., *Stuhlmann* 1658; Kassesse, Karagwe, 1500 1600 m., *Stuhlmann* 1670; Karagwe and Urundi, 1200–1500 m., *Scott Elliot* 8197.

9. **Clematopsis trifida**, *Hutchinson*, comb. nov.

Clematis trifida, Hook. Ic. Pl. t. 79 (1837).

MADAGASCAR. Grassy hills between Imbositra and Itsimatorhodolana, 19 Dec. 1894, *Dr. Forsyth Major* 714. East Imerina; Andrangoloaka, on hills, flowers milky white, Nov. 1880, *J. M. Hiidebrandt* 3687. Central Madagascar, *Rev. R. Baron* 690, 1817. Without definite locality, *Dr. Lyall* (type).

10. **Clematopsis scabiosifolia**, *Hutchinson*, comb. nov.

Clematis scabiosifolia, DC. Syst. i. 154 (1818). *Clematis villosa*, var. *scabiosifolia*, O. Kuntze, Monogr. Clemat. 174 (1885); *Hiern* in Cat. Afr. Pl. Welw. i. 2 (1896).

TROPICAL AFRICA. Angola: Huilla; very abundant and variable, near Lopollo in hot wooded stations, especially in ornamental woods composed of *Strychnos* and *Proteaceae*, fls. Jan., fr. Apr. 1860, *Welwitsch* 1221. South Angola; in thickets near meallie fields on plateau near Humpata, on the way from Limekiln, 1800 m., 4 May, 1909, sepals white, *H. H. W. Pearson* 2629;

near Limekiln, common along edges of meallie field, 1800 m., young fr. 4 May 1909, *H. H. W. Pearson* 2624. Cunene passage, 5 ft. high, in open thickets, fl. 12-2-07. *Gossweiler* 2881.

11. ***Clematopsis Stanleyi***, *Hutchinson*, comb. nov.

Clematis Stanleyi, Hook. Ic. Pl. t. 589 (1843); Harv. in Harv. & Sond. Fl. Cap. i. 3 (1859); Watson in Gard. Chron. 1890, ii. 326; Garden & Forest, ii. 513, fig. 65 (1890); Hook. f. Bot. Mag. t. 7166 (1891).

SOUTH AFRICA. Transvaal: Macalisberg, Dec., *Burke* (type). Springbokolakte, Klipfontein, *W. Nelson* 275. Wonderfontein district, *W. Nelson* 344. Between Broukhorstspruit and Middelburg, Dec. 1883, *F. Wilms* 3. Sandy places near Sandfontein, 1320 m., fr. 14 April 1894, *R. Schlechter* 4784. Fields near Doekerhoek, 1560 m., 4 Jan. 1894, *R. Schlechter* 4133. Kuduspoort, Pretoria, *A. Rehmann* 4661. Wonderboompoort, Pretoria, *A. Rehmann* 4590. Without definite locality; *Sanderson*; *Zeyher* 3.

TROPICAL AFRICA. Rhodesia: Leshumo valley and forest, Jan. 1876, *Dr. E. Holub*. Near Chirinda, 1050 m., Oct. 1907, *C. F. M. Swynnerton* 358. Batoka Plateau, Feb., small shrub 2-3 ft. high, *C. E. F. Allen* 508. Gweloe on the veldt, Jan. 1905, *T. Gardner* 9. Matabeleland: hills near Selukwe, 1½-2 ft. high, fls. white, tinted with pink, stamens greenish-yellow, Nov. and Dec. 1899, *Hon. Mrs. Evelyn Cecil* 119. "South African Goldfields," 1870, *T. Baines*. Angola: Huilla; near Lopollo, *Welwitsch* 1221 b.

There is a beautiful figure of this species (as *Clematis Stanleyi*), in the Botanical Magazine t. 7166 (1891), and the late Sir Joseph Hooker therein gave some highly interesting notes which support our theory on the connection of *Clematopsis* with *Clematis* and *Anemone*. Hooker says "Few genera of plants present such remarkable divergences in habit and flowers as *Clematis*, and the subject of the present plate shows, perhaps, in this respect the greatest departure from the prevalent characters of its congeners. In fact it most resembles an *Anemone* in foliage and flowers, though no species of that genus has so shrubby a habit. Mr. Watson, indeed, informs me that as grown at Kew *the leaves are sometimes alternate*, a singular fact, which if confirmed,* would leave nothing whereby to distinguish the two genera from one another but the valvate petals [= sepals] of *Clematis*, these being imbricate in *Anemone*." If the reader turns to this plate in the Botanical Magazine, however, he will see at a glance that the same plant of which Sir Joseph was speaking has widely imbricate sepals.

The fact that under cultivation *Clematopsis Stanleyi* may produce *alternate* leaves and thus become almost a true *Anemone* is highly significant in pointing out its origin from the genus *Anemone*. I say "almost a true *Anemone*," for the aestivation of the sepals of *C. Stanleyi* (see diagram no. 3) is very peculiar,

* Mr. Coutts has shown me several pots of *C. Stanleyi* at Kew, in many of which the leaves are alternate.

and is a very graphic example of the way in which *valvation* may have arisen from *imbrication*. Such an aestivation, I think, will not be found in *Anemone* proper.

On the climatic conditions under which *Clematopsis Stanleyi* grows Mr. E. E. Galpin wrote to Kew in July, 1890, as follows: "*Clematis* [= *Clematopsis*] *Stanleyi*, like so many of the smaller plants here, dies down to the roots in the winter. It has turned very cold and was freezing in the night, and at 3 o'clock this afternoon the temperature had not gone above 39° Fahr., which is scarcely what an outsider would expect in a subtropical place like Barberton."

The specimens from Tropical Africa quoted above are included with some reservation; their leaf-segments are mainly broader and less hairy than in typical *C. Stanleyi* from the Transvaal.

12. ***Clematopsis oligophylla*, Hutchinson, comb. nov.**

Clematis oligophylla, Hook. Ic. Pl. t. 80 (1837). *C. villosa*, subsp. *oligophylla*, O. Kuntze, Monogr. Clemat. 173 (1885).

MADAGASCAR. Mountains of Emirra Province, *Bojer*. North East of Ankaratra Mts., *Langley Kitching*. "Central Madagascar," *Rev. R. Baron* 1766, 1817.

13. ***Clematopsis anethifolia*, Bojer ex Hook. Ic. Pl. sub. t. 78 (1837), nomen.**

Clematis anethifolia, Hook. l.c. t. 78. *C. villosa*, subsp. *anethifolia*, O. Kuntze, Monogr. Clemat. 174 (1885).

MADAGASCAR. *Dr. Lyall* 109. Central region, *Rev. R. Baron*. Very abundant on rather dry ground, Arivorarano, young fr. Jan., *Scott Elliot* 1926.

14. ***Clematopsis pimpinellifolia*, Bojer ex Hook. Ic. Pl. sub. t. 77, nomen (1837).**

Clematis pimpinellifolia, Hook. l.c. t. 77. *C. villosa*, subsp. *pimpinellifolia*, O. Kuntze, Monogr. Clemat. 173 (1885).

MADAGASCAR. In fruit, *Dr. Lyall* 108. Central region, *Rev. R. Baron*, 690, 2004. North Betsileo, Loherano, flowers milky white, Jan. 1881, *J. M. Hildebrandt* 3877.

15. ***Clematopsis villosa*, Hutchinson, comb. nov.**

Clematis villosa, DC. Syst. 154 (1818); *C. villosa*, var. *normalis* forma *Bojeri*, O. Kuntze, Monogr. Clemat. 173 (1885). *Clematopsis suaveolens*, Bojer ex Hook. Ic. Pl. sub. t. 10 (1837). nomen. *Clematis Bojeri*, Hook. l.c. t. 10.

MADAGASCAR. *Dr. Lyall*. 61 (type) Central region, *Rev. R. Baron* 690. North Betsileo; Loherano, flowers milky white, Jan. 1881, *J. M. Hildebrandt* 3877a. Dry ditch in long grass at foot of Andringitra Mt., Jan., *Scott Elliott* 1824. Without definite locality, *Bojer*.

I accept here O. Kuntze's determination of De Candolle's *Clematis villosa*, formerly supposed to have come from India. I have not seen the type specimen, which is in Paris.