

VERONICA DELTIGERA Wallich ex Benth.

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Bentham, in his monograph "Scrophularineae Indicae" (1835, p. 45), gave, under species number 5 of the genus *Veronica*, a perfectly adequate description of this species; his description was disregarded by later authors.

The original description of Bentham is: "5. *V. deltigera* Wall. Cat. 402, basi procumbens, caule glabro sub foliis bifariam lanato, foliis sessilibus ovato-lanceolatis crenato-serratis glabris, racemis alternis paucis pubescentibus, calycibus 4-partitis, capsulis (inmaturis) rhombeo-dilatatis emarginatis.—Hab. ad Gossain Than Emodi [Eastern Himalaya], *Wallich*". Later, in De Candolle's *Prodromus* (10, 475, no. 76), he added some other characters: "caule procumbente . . . , foliis leviter serrato-crenatis . . . , racemis elongatis . . . , capsula plano-compressa subrhombea transverse latiore. . . glabra ciliata. Folia basi rotundata. Racemi *V. canae* vel longiores. Capsulas maturas ipse non vidi, ex schedis Wallichianis descripsi. Caetera *V. Chamaedryos* (v.s.)".

The above descriptions agree perfectly with the typical specimens, as may be seen in my drawings of Wallich's type (in Bentham's *Herb.*).

Bentham described, as number 7, another species from the Western Himalaya on the same page of his 1835 work: "7. *V. lanosa* Royle (Mss., sec. Bentham), caule basi lignoso, ramis caespitosis suberectis lanatis, foliis sessilibus ovato-lanceolatis inciso-serratis supra glabris subtus piloso-hirtis, racemis laxiusculis, calycibus inaequaliter 4-5-partitis, capsulis (inmaturis) ovatis acutis.—Hab. in Kanaour, *Royle*". In the "Prodromus" (p. 481, no. 110) Bentham completed the description, making himself the author of the species, and referring in the first place to the specimens of Edgeworth (*). The most important characters added are the following: "hirsuta, caulibus e basi ramosa erectis vel ascendentibus subsimplicibus, foliis sessilibus . . . acutis argute serratis, . . . pedicellis calyce puberulo 2-3-plo longioribus. . . In jugi Himalayae variis locis (Edgeworth!) . . . Caulis molliter villosus. (v.s.)".

It may be inferred from the descriptions that the two plants belong to different sections of the genus (*Chamaedryos* and *Veronicastrum*), so that it is not easy to understand the confusion of Hooker (1884, p. 292) who united them in a single species, and whose "hybrid description" I transcribe partially, with indication of the characters which belong to each species: "*V. deltigera* Wall. in Benth. *Scroph. Ind.* 45, and Cat. 402; stems many from the root erect or ascending pubescent (*V. lanosa*) often bifariously (*V. deltigera*). . . , sepals 4 linear-oblong subacute (*V. lanosa*), capsule oblong-ovoid (*V. lanosa*). . . Western alpine Himalaya; from Kashmir (*V. lanosa*) to Nepal (*V. deltigera*). Perennial

(*) This change may be due to the omission of this plant in the manuscript of Royle, preserved in the Library of the Kew Herbarium, or perhaps to the better condition of the Edgeworth specimens. The type of *V. lanosa* consists of two specimens in Bentham's Herbarium in the Kew Herbarium: these were taken from the more extensive material in Royle's Herbarium, which is now preserved at the City of Liverpool Public Museums.

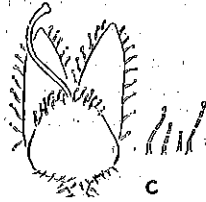
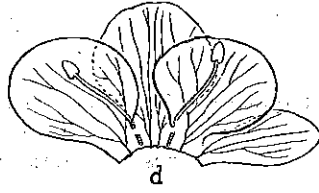


FIG. 1.

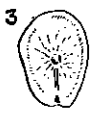
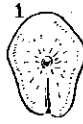
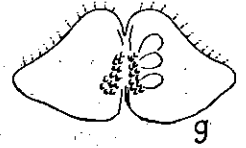
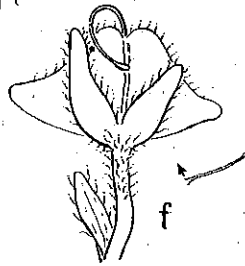
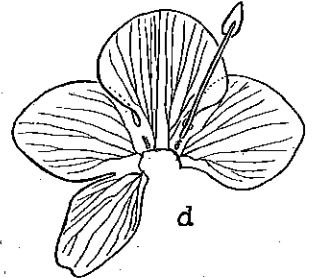
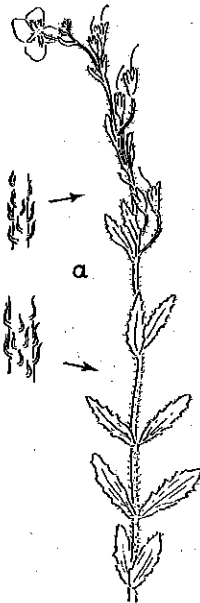


FIG. 2.



rootstock short, woody (*V. lanosa*). Stems . . . rigid (*V. lanosa*) . . . Leaves . . . sometimes inciso-serrate, base rounded (*V. deltigera*) or acute (*V. lanosa*) The description of the fruit in DC. Prodr. is taken from some other plant".(*)

The erroneous views of Hooker were accepted by the monographer Römpp (1928, p. 24) and later writers, such as the compiler Stroh (1942, p. 386, n. 6). Pennell (1943, p. 87, n. 21; and p. 75, n. 3), trying to distinguish both species, confounded *V. deltigera* with *V. javanica* Blume, an annual plant with petiolate leaves.

I was fortunate enough in 1954 to examine the type of Wallich in the Kew Herbarium (Bentham's and Hooker's Herbaria) and I have prepared drawings of the most interesting characters, which I publish together with figures of fruiting specimens preserved at the British Museum Herbarium. (**) My study has shown the correctness of Bentham's views and the confusion caused by later writers.

Pennell was right in placing *V. deltigera* in the section *Chamaedrys* but, being unable to study the types of Wallich, he too was unable to have an exact idea of the species, which he identified wrongly with *V. javanica*. I believe that the major affinities are with *V. cana* Wallich ex Benth., but the pilosity and the sessile leaves allow their differentiation. In the section *Chamaedrys* the same form of fruit is proper to a number of S.E. Asiatic species; among them, *V. deltigera* is a linnaeon of the first rank. I give a brief Latin description as a complement to my drawings, and these are published since no illustration of the species has been found in the extensive bibliography consulted.

Planta perennis, caule decumbente et radicante subglabro et parce lignificato, cum stolonibus subterraneis elongatis. Parte superiore internodiis bifariam pilosa, cum pilis longis articulatis eglandulosisque; pilositate inflorescentiae copiosa et sparsa, in parte superiore glandulosa. Foliis sessilibus, late ovato-lanceolatis glabrisque, marginibus remote et leviter crenato-serratis. Inflorescentiis longis internodia multo superantibus; corolla quam calice duplo vel triplo longiore stylum subaequante; basi et marginibus sepalorum cum pilis sparsis articulatis glandulosisque; capsula glabriuscula subtriangular-rhomboidae, later-

(*) This affirmation is unsound as may be seen from my drawings of the type, with a young fruit made visible by Bentham, as he cut away the two sepals that covered it.

(**) I have studied the following material of *V. deltigera* Wallich: Kew Herbarium:—Gossain Than Emodi, *Wallich* 1832, n. 402 (Hb. Benth.); Gossain Than Emodi, *Wallich*, herb. 1824 (Hb. Hook.) [There is also a sheet of this collection in the Wallich Herbarium at Kew.—Ed.]. British Museum Herbarium:—Dorpu, 7–8,000 ft., *Capt. Lall Dhwoj*, 1930, n. 59 (two sheets), cf. Fig. 1, d–h; Rimoo, 10–11,000 ft., *Capt. Lall Dhwoj*, 1930, n. 123.

FIG. 1. *Veronica deltigera* Wallich ex Benth. a, entire plant, $\times \frac{1}{2}$; b, young fruit, $\times 3$; c, the same, $\times 5$; d, opened corolla with nervation, $\times 2\frac{1}{2}$; e, the corresponding calyx of the preceding, $\times 4$; f, mature fruit with its bract and glandular pilosity, $\times 3$; g, opened fruit, $\times 3$; h, seeds, 1 $\times 14$, 2 $\times 15$, 3 $\times 11$. a–c, Gossain Than Emodi, *Wallich* 402, Herb. Benth. (Herb. Kew.); d–h, Dorpu, *Capt. Lall Dhwoj* 59 (Herb. Mus. Brit.).

FIG. 2. *Veronica lanosa* Royle ex Benth. a, top of plant, $\times \frac{1}{2}$; b, flower after removal of corolla, four sepals and another rudimentary one, $\times 5\frac{1}{2}$; c, fruit, $\times 1\frac{1}{2}$; d, corolla corresponding to flower of b, $\times 2\frac{1}{2}$; e, anther, $\times 4$. a, b, d, e, Chitral, Madaslast, 10,000 ft., July 1908, *Major S. M. Toppin* 536 (Herb. Kew.); c, Gilgit, 1909, *Major S. M. Toppin* 1004 (Herb. Kew.).

ibus concavis et apice emarginato cum pilis sparsis articulatis glandulosisque. Hab. : Nepal, in montibus orientalibus Himalayae.

I have had the opportunity of going through the sheets of the Herbarium of the Muséum du Jardin des Plantes of Paris : there I saw only *V. lanosa*, often labelled as *V. deltiagera*.

I hope that I have contributed to the clarification of this taxonomic problem and trust that this paper may be of use to students of the Asiatic flora and to those interested in inter-specific affinities in the genus *Veronica*.

REFERENCES

- BENTHAM, George. 1835, *Scrophularineae Indicae*, 45. 1846, Scrophulariaceae in *De Candolle, Prodrromus syst. nat.* 10, 475 & 481.
- HOOKEE, J. D. 1884, *Flora of British India*, 4, pt. 2, 292.
- PENNELL, Francis Whittier. 1943, *The Scrophulariaceae of the Western Himalayas*. Monogr. 5, Acad. N.S. Philadelphia, 1-87.
- RÖMPP, Hermann. 1928, Die Verwandtschaftsverhältnisse in der Gattung *Veronica*. *Fedde, Repertorium specierum novarum regni vegetabilis*, Beiheft 50, 1-172.
- STROH, G. 1942, Die Gattung *Veronica* L. Versuch einer systematischen Kodifizierung der Arten. *Beihefte zum Botanischen Centralblatt*, Band 61, Abteilung B, 384-451.
- WALLICH, N. A numerical list of dried specimens of plants in the East India Company's Museum, collected under the superintendence of Dr. Wallich of the Company's botanic garden at Calcutta. Arranged according to the natural orders by J. F. Royle. This is a "list" currently named "Catalogue"; for the date of publication see *Kew Bulletin*, 1913, 260, and 1925, 159. Manuscripts at Kew Gardens, Library and Herbarium.

Vanilla.*—Although the orchids may be considered as paramount among plants from an horticultural point of view, it is interesting to note that they include very few plants of economic importance in other fields. Of these the genus *Vanilla* is pre-eminent. In spite of the large scale manufacture of synthetic vanillin, there is still a considerable demand for the natural product, and the cultivation and exploitation of the vanilla plant is an important industry in various parts of the Tropics.

Though much has been written about *Vanilla*, never before has all the available information been brought together as in the book here noticed. Dr. Bouriquet has not only made valuable contributions to the book himself, but has had the help of specialists who have dealt with many

* *Le Vanillier et la Vanille dans le Monde*. By G. Bouriquet. Pp. xi + 748, 4 coloured plates, 16 monochrome plates, 224 text figs. and 14 maps. Paul Lechevalier, Paris, 1954. Price 15,000 francs.