

NOTES ON AUSTRALIAN ORCHIDS. III.

A REVIEW OF THE GENUS CYMBIDIUM IN AUSTRALIA. II.

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(Three Text-figures.)

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I am still unable to throw any light on two species mentioned three years ago (these Proc., lix, 1934, 93) as having been published as Australian—Fitzgerald's *C. gomphocarpum* and Klinge's *C. queenianum*. Fitzgerald described *C. gomphocarpum* (Journ. Bot., xxi, p. 203), but gave no clue whatever to the locality, and he did not—so far as is known—figure the plant. His description of the inflorescence—"flowers in dense racemes of about twenty to thirty, green tinged with olive"—suggests the North Queensland form of *C. suave* R.Br., which differs considerably from southern forms, but does not agree with Fitzgerald's description in some essential particulars.

CYMBIDIUM HILLII F.v.M.

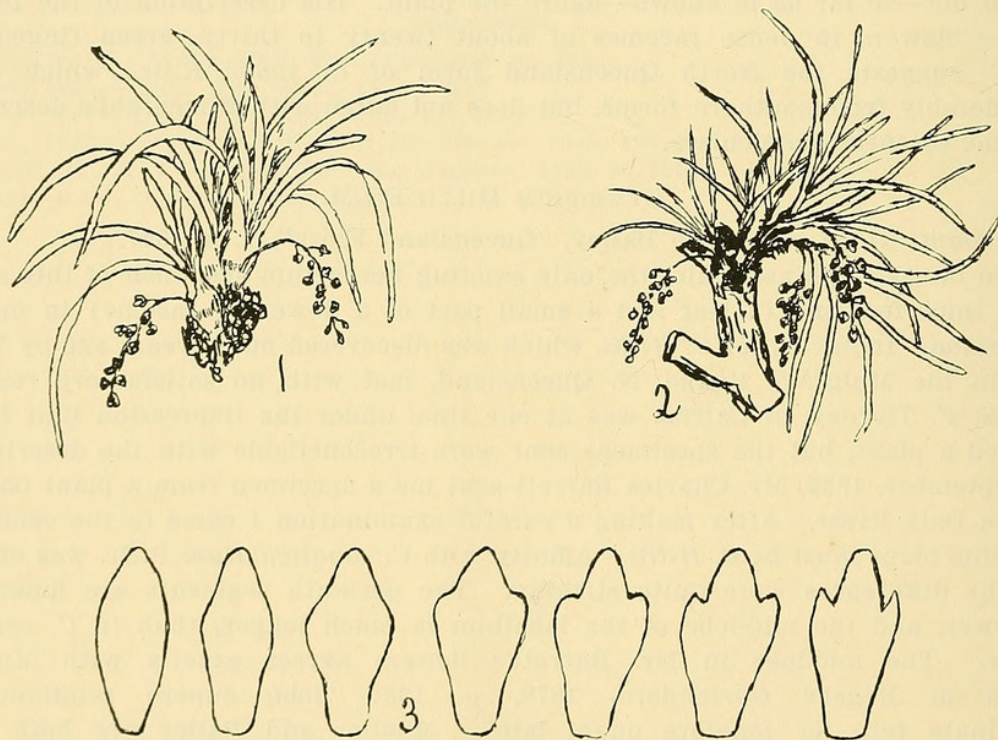
Fragm., xi, 88. See also Bailey, "Queensland Flora", v, p. 1547.

So far as I can ascertain, the only existing herbarium specimen of this species is an imperfect one (a leaf and a small part of a flowering raceme) in my own possession. Inquiries for *C. Hillii*, which was discovered many years ago by Walter Hill in the Mulgrave Range, N. Queensland, met with no satisfactory response. Mr. W. F. Tierney, of Cairns, was at one time under the impression that he had secured a plant, but the specimens sent were irreconcilable with the descriptions. In September, 1932, Mr. Charles Barrett sent me a specimen from a plant obtained on the Daly River. After making a careful examination I came to the conclusion that this plant must be *C. Hillii*. Affinity with *C. canaliculatum* R.Br. was obvious, but the differences were quite striking. The perianth segments are longer and narrower, and the mid-lobe of the labellum is much longer, than in *C. canaliculatum*. The mid-lobe in Mr. Barrett's flowers agrees exactly with Mueller's words in Regel's *Gartenflora*, 1879, p. 138: "lobo supero semilanceolato acuminato fere ter longiore quam lato". Mueller and Bailey are both silent about capsules. Mr. Barrett sent me one. The dimensions are as follow: Pedicel $2\frac{1}{2}$ cm. From base of capsule to base of withered flower at apex, $5\frac{1}{2}$ cm. Diameter at base, 2 mm.; at middle, 14 mm.; at 2 cm. from apex, 15 mm.; at apex, 5 mm. Sutures 3, closed under 3 flat-surfaced longitudinal bands, the intervening sections prominently keeled. Thus the capsule is definitely distinct from that of *C. canaliculatum*. Dimensions of one dissected flower: Sepals $21 \times 4\frac{1}{2}$ mm.; petals 19×4 mm.; labellum $16\frac{1}{2} \times 5$ mm. across lateral lobes; mid-lobe 10×4 mm.; column 11 mm. from base to top of anther. The leaf of *C. Hillii* is prominently 3-nerved.

CYMBIDIUM IRIDIFOLIUM Cunn.

Bot. Reg., 1839, Misc. 34; *C. albuciflorum* F.v.M., *Fragm.*, i, p. 188; *C. madidum* Lindl., *Bot. Reg.*, xiii, 1840, Misc. 9.

This plant, which attains great bulk, and is often found on trees in close association with epiphytic ferns, extends from the neighbourhood of the Macleay River in New South Wales (it may possibly occur a little further south) northward into the Queensland tropics. When not in flower it resembles many of the large-flowering exotic species. The racemes, however, are small-flowered and rather disappointing. In New South Wales and South Queensland I have found very little departure from what is regarded as the type form. In view of the difficulties which appear in North Queensland forms, I append a description of this southern form: A large plant, on trees along the coastal belt. Stems usually more or less hidden under the large pseudobulbous growth of the swollen imbricate bases of the leaves. Leaves 4 to 8 together, from 30 to as much as 90 cm. long, membranous and somewhat flaccid (but firmer than in *C. suave*), light green. Racemes from 20 to 60 cm. long, number of flowers very variable. Flowers thick and rather rigid, brownish outside, chiefly olive-green within, fragrant, about $2\frac{1}{2}$ cm. from tip to tip of segments. Labellum with 2 very small lateral lobes and a large yellowish obtuse midlobe. Lamina without ridges, but glandular-sticky and shining along the median line. Column truncate, with an angle in front.



Text-figures 1-3.

1.—*C. iridifolium* Cunn. 2.—*C. suave* R.Br. 3.—Contours (enlarged) of labella of *C. suave*, to show gradations of lobation. Drawn from actual specimens.

Figs. 1 and 2 greatly reduced.

In 1932 I received from Mr. W. F. Tierney, of Cairns, several racemes of a *Cymbidium* in his possession, which he thought might be *C. Hillii*. The flowers were quite irreconcilable with descriptions of that species, but had affinities with *C. iridifolium*. They were, however, uniformly brownish, with darker blotches on

the perianth. The labellum appeared to agree precisely with Rendle's description of *C. Leai* (*Journ. Bot.*, xxxvi, p. 221), and since no other known Australian species has the peculiar form of labellum described by Rendle, I concluded that Mr. Tierney's plant must be *C. Leai*, which was absorbed by F. M. Bailey into *C. canaliculatum*. Rendle considered *C. Leai* close to *C. canaliculatum*, while Mr. Tierney's plant was nearer to *C. iridifolium*. Further material was sent in 1933 and again in 1934, and was obtained from the same plant as that of 1932, but the flowers were quite different! They were in every respect identical with those of the southern type form of *C. iridifolium*; and none had the peculiar labellum associated with *C. Leai*. The mystery of this remains unsolved, and I do not feel justified in disturbing Bailey's treatment of *C. Leai* at present.

What I have called the southern type form of *C. iridifolium* certainly extends into North Queensland, and I possess a healthy plant from Proserpine. But it is very different from the form commonly known about Cairns as *C. iridifolium*, though the differences are not structural. The Cairns *C. iridifolium* has straighter and more rigid racemes, with numerous flowers rather densely massed. The individual flower has narrower segments, much more widely expanding and, except for the yellowish apex of the labellum, it is of a uniform very pale green, inside and out. Structurally the two forms are so nearly identical that it would be unwise to separate them; but they are very distinct in appearance.

Mr. Kenneth MacPherson, of Proserpine, has contributed valuable observations on the pollination of *C. iridifolium* (*North Queensland Naturalist*, April, 1935, p. 26). A small native bee, identified by Mr. Tarleton Rayment as *Trigona kockingsi* (C'k'll), visits the flowers and carries away the viscid exudation of the labellum, apparently to be used as "bee glue" in closing small cracks, etc., in its nests. In the course of the operation, which was watched by Mr. MacPherson repeatedly, the labellum moved up and imprisoned the bees against the column. The bees, struggling to free themselves, invariably burst the anther-sacs, and escaped bearing a supply of pollen on their backs, to be deposited on the stigmatic plates of other flowers.

CYMBIDIUM SUAVE R.Br.

Prodr., 331. (See also Benth., *Fl. Austr.*, vi, 303; Bailey, *Q. Fl.*, v, 1548; Rupp, *Guide to Orch. N.S.W.*, 47 [photograph].) References indicate that in one important matter botanists have not adhered strictly to Robert Brown's description. Brown explicitly states of the labellum, "indiviso". Bentham and Bailey include within the species forms having the labellum "obscurely sinuate 3-lobed". A careful study of forms ranging in habitat from North Queensland to the South Coast of New South Wales—a study embracing both living plants and dried specimens—has convinced me that we must go even further than Bentham and Bailey, and include forms with a labellum as definitely trilobate as that of any other Australian species. In this respect *C. suave* is extremely variable, and the form of the labellum is too inconstant to be relied upon as a guide to determination. The process of lobation can be traced through all stages.. What we must call the type form, with a labellum perfectly entire, is—except in North Queensland—much less common than the variants. In some cases a very slight swelling on both margins of the lamina is an indication of tendency to lobation; other flowers will be found with these swellings quite prominent; in others they have become Bentham's "obscurely sinuate" lobes; and so on, till we reach a form of labellum as well lobed as that of *C. iridifolium*. I do not think it would be wise even to constitute a var. *lobatum*, because the intermediates are so many that confusion would result.

Bentham describes the flowers of *C. suave* as "green, blotched with red". Brown says nothing of this; and it is certainly not typical. I have seen this form once. A plant which I obtained many years ago at Lilyvale, in the Illawarra district of New South Wales, had dull green flowers with reddish blotches. Though *C. suave* is abundant in many districts, I have only been able to find three people besides myself who have seen this form with blotched flowers. The commonest colouring, in New South Wales and South Queensland, is a delicate golden-green, the perianth sometimes brown on the outside, especially in bud. The flowers are deliciously fragrant.

A large plant of *C. suave* may reach a diameter of 90 cm. or more, but, generally speaking, it is not as bulky as other species. It lacks the bulbous swelling at the base of the leaves which is so prominent in *C. canaliculatum* and *C. iridifolium*, but has much longer stems, which are covered with ragged fibre—the remnants of dead leaf-bases. The leaves are bright green, narrow, and very flexible, from 16 to 50 cm. in length. The racemes are variable in length: in the North Queensland form they are (at least in all specimens sent to me) only about 13 cm. long, with densely packed very pale green flowers. Southern racemes attain 30 cm., but the average would be about 21.

Fitzgerald's *C. gomphocarpum*, as far as one can judge from his description, must be closely allied to forms of *C. suave* with a lobed labellum. It is distinguished by its "club-shaped or almost terete" capsule—that of *C. suave* being oval or almost globular. There is an unpublished Fitzgerald plate in the Mitchell Library at Sydney, depicting a Cymbidium from Cook's River, near Botany Bay. No name is attached, but it appears to be *C. suave* with a lobed labellum. It is curious that Robert Brown never saw this form, for it is quite common—or was a few years ago—in the central coastal area of New South Wales. The range of *C. suave* from north to south is probably more than 2,000 miles. It is restricted to the coast districts and the Dividing Range, and has only been found in Queensland and New South Wales.

In Part I of this review I alluded to the habit of Australian Cymbidiums of rooting in the hollows of decayed branches of trees. This habit, as far as I can ascertain, is invariable in the case of *C. canaliculatum*, but I find that it is by no means so with *C. iridifolium* and *C. suave*. The former grows freely with its roots embedded in masses of *Platycerium* (stag-horn and elk-horn ferns), while *C. suave* sometimes occurs rooted in the paper-bark of *Melaleuca leucadendron* and other tea-trees, or on trunks of tree-ferns.

I have already acknowledged, in Part I, the kind assistance received from many quarters during my investigations of *C. canaliculatum*, and I need only add here that it has been continued during the past three years while I have been endeavouring, with only partial success, to secure fuller information concerning other Australian species.



Rupp, H M R. 1937. "Notes on Australian orchids. III. A review of the genus *Cymbidium* in Australia. II." *Proceedings of the Linnean Society of New South Wales* 62, 299–302.

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