

A REVIEW OF THE GENUS *BULBOPHYLLUM* (ORCHIDACEAE) IN AUSTRALIA.

(WITH PLATES II-VII.)

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The genus *Bulbophyllum* is one of the largest in the family *Orchidaceae* and is widely distributed throughout southern Asia, the East Indies and Australasia, reaching its greatest development in the equatorial regions. Of the many hundreds of known species, twenty-eight are recorded for Australia where they range along the eastern seaboard from the far north of Queensland to a point a hundred miles or so south of Sydney. As is to be expected, the bulk of the species occur in the jungles of the far north of Queensland, and so far, twenty-three have been recorded there. Southern Queensland and northern New South Wales have eight species, and but three are found in the vicinity of Sydney.

There has been some confusion between the genera *Cirrhopetalum*, *Bulbophyllum*, *Dendrobium* and some others. It would be most difficult to define exactly the difference between the last two and it is here that the greatest confusion arose. In their review of the genus *Dendrobium* in Australia, Proc. Linn. Soc. N.S.Wales Vol. lxxii, 5-6, pp. 233-251, the present authors discuss those species of *Dendrobium* removed from *Bulbophyllum*. These changes in nomenclature and the addition of many new species since the publication of Bailey's "Queensland Flora," Vol. v, in 1902, make the present paper appear desirable. The types of the species described by Hunt in this paper are in the Queensland Herbarium, Brisbane; those of the species described by Rupp are in the National Herbarium of New South Wales, Sydney.

The paper will fall into four parts:—

1. Accepted species in alphabetical order.
2. Excluded species.
3. Artificial key to the accepted species.
4. Index.

PART I.

1. *B. adenocarpum* Schltr. in Fedde Repert. viii, 568 (1910).

Apparently nothing is known of this species beyond the original description, a translation of which is as follows:—Epiphyte on branches of trees, about 5 cm. high; rhizome creeping, with long, filiform, twining, roots. Pseudo-bulbs rather narrow, conical, with one leaf at the top, 0.5-0.7 cm. high, and 3.0-3.5 mm. in diameter near the base. Leaf erect, linear, sub-acute, contracted almost into a narrow petiole near the base, 3.5-4.5 cm. long, 3.0-3.5 mm. broad near the middle. Peduncle filiform from a slender base with a small tightly sheathing bract, 2.0-2.5 cm. long, glabrous. Flower almost erect, fairly large, sepals almost oblong,

glabrous, medial nerve prominently but not strongly raised, sparsely glandular at the shortly produced apex, 6 mm. long; laterals about as long, similar, but with the anterior margins dilated and very oblique at the base; petals obliquely ovate-lanceolate, obtuse, 5 mm. long; labellum convex, oblong obtuse, base curved inwards, 3 parallel nerves on the upper surface extending almost to the apex, equal in length to the petals, glabrous. Column short, wings large, tips shortly produced into subulate points. Anther cucullate, humped. Ovary pedicellate, clavate, densely covered with warty glands, 6 mm. long including the pedicel.

Mt. Bartle Frere, N. Queensl., Stephen Johnson, in 1891.

2. **B. aurantiacum** F. Muell. *Fragm.* iii, 39 (1862); Benth. *Fl. Austral.* vi, 288 (1873); F. M. Bail. *Queensl. Fl.* v, 1537 (1902); Rupp, *Orch. N.S. Wales*, 124 (1943).

Dendrobium aurantiacum (F. Muell.) F. Muell. *Fragm.* vii, 98 (1870).

B. aurantiacum var. *Wattsii* F. M. Bail. *Queensl. Agr. J.* xxxi, part 3, 192–193 (1913).

Difficulties are experienced in identifying this species owing to the variations in its leaves which are sometimes quite flat and broad, sometimes semi-terete but channelled like those of *B. crassulifolium*, but much larger. The flowers vary from orange to pale green, but the labellum is always dark orange or reddish. Benthams's statement that the flowers are "smaller even than those of *B. shepherdii*" (*B. crassulifolium*) is a mistake.

3. **B. baileyi** F. Muell. *Fragm.* ix, 5 (1875); Fitzg. *Austral. Orch.* ii, part 5 (1893); F. M. Bail. *Queensl. Fl.* v, 1536 (1902).

B. punctatum R. D. Fitzg. in *Journ. Bot.* xxi, 205 (1883); F. M. Bail. *Queensl. Fl.* v, 1540 (1902).

4. **B. bowkettiae** F. M. Bail. in *Proc. Roy. Soc. Queensl.* i, 89 (1885) and *Queensl. Fl.* v, 1538 (1902). See plate VII, fig. 3.

5. **B. bracteatum** F. M. Bail. *Bot. Bull.* iv, 17 (1891) and *Queensl. Fl.* v, 1539 (1902); Rupp, *Orch. N.S. Wales*, 125 (1943).

Adelopetalum bracteatum (F. M. Bail.) Fitzg. *Austral. Orch.* ii, part 5 (1893).

We agree with F. M. Bailey's treatment of this species as a *Bulbophyllum* (*Queensl. Fl.* v, 1539 (1902) and Rupp, *Orch. N.S. Wales*, 125 (1943)). The plant is not uncommon and we have had ample opportunity of examining fresh material. The petals, being about half the length of the sepals, are not particularly inconspicuous.

6. **B. cilioglossum** Rogers and Nicholls *Trans. Roy. Soc. S. Austr.* lix, 204 (1935).

This plant has been received lately from several widely scattered areas of North Queensland—Ingham, Hambleton, Gadgarra.

7. **B. cochleatum** Schltr. in *Fedde Repert.* viii, 455 (1910).

The remark under *B. adenocarpum* applies also to this species.

A very small epiphyte creeping on the branches of trees; stems short, pseudo-bulbs close together; pseudo-bulbs ellipsoid, about 1.2 cm. high with a single leaf. Leaf erect, linear-acute, fleshy, 1.3–3.0 cm. long, 1.5–2.0 mm. broad. Peduncle very narrow and hair-like, glabrous, with a minute bract, one-flowered. Flowers inverted like those of *B. polybopharon* Schltr., but smaller. Dorsal sepal lanceolate, acute, glabrous, 6.5 mm. long; laterals as long, connate to the sixth apical part in a lanceolate, acutely bifid, glabrous, lamina; petals lanceolate, very acute, glabrous, margins here and there inconspicuously dentate, very little shorter than the sepals; labellum narrow at the base with two short, broad, lateral wings and then dilating in the lamina to an obtuse, elliptical, concave, spoon-shape; the lamina densely beset with long, clavate hairs, equal to the petals. Column short, wings subulate, exceeding the anther; anther cucullate, glabrous; ovary cylindrical, 1.5 mm. long, glabrous.

Bellenden Ker Ra., *Stephen Johnson*, 1891.

8. ***B. crassulifolium*** (A. Cunn. apud Lindl.) Rupp in Proc. Linn. Soc. N.S.Wales lxii, 27 (1937), and Orch. N.S.Wales, 123 (1943); Rolfe in Orchid Review xiii, 143 (1905).

B. shepherdii (F. Muell.) F. Muell. Fragm. iii, 40 (1862); Benth. Fl. Austral. vi, 288 (1873); Fitzg. Austral. Orch. i, part 5 (1879); Reichb. f. Xen. Orch. ii, 166, and Beitr. Syst. Pfl. 52 (1871); F. M. Bail. Queensl. Fl. v, 1537 (1902).

B. schillerianum Reichb. f. in Otto, Hamburg Gartenz. xvi, 423 (1860).

Dendrobium crassulifolium A. Cunn. apud Lindl. Bot. Reg. Misc. 33 (1839).

Dendrobium shepherdii F. Muell. Fragm. i, 190 (1859).

This plant, together with *B. exiguum* and *B. elisae* are the only species of *Bulbophyllum* which have been found south of the Hunter R. in N.S.Wales. Both *B. exiguum* and *B. crassulifolium* have been found as much as 100 miles south of Sydney, while *B. elisae* has been recorded on the Blue Mountains. (Plate III, fig. 3).

- 8a. ***B. crassulifolium*** var. ***intermedium*** (F. M. Bail.) Nicholls in Nth. Queensl. Nat. v, 49 (1937).

B. intermedium F. M. Bail. Queensl. Fl. v, 1537 (1902).

Tamborine Mt., *Mrs. H. Curtis*, 1925.

9. ***B. elisae*** (F. Muell.) Benth. Fl. Austral. vi, 289 (1873); Fitzg. Austral. Orch. ii, part I (1884); F. M. Bail. Queens. Fl. v, 1539 (1902); Rupp Orch. N.S.Wales 125 (1943).

Cirrhopetalum elisae F. Muell. Fragm. vi, 120, t. 57 (1868).

The peculiarities of this species have been well discussed by Rogers in Trans. Roy. Soc. S.Austral. li, 2 (1926). He expressed the opinion that if it were to be retained in *Bulbophyllum* a special section would be required for it. Bentham, followed by Bailey, describes the flowers as "white, tinged with pink." In our experience they are usually green with a dark red labellum. Specimens from the Dorriggo district of N.S.Wales have been found with reddish-purple flowers.

10. *B. evasum* Hunt & Rupp, species nova. Plate III, fig. 1.

Rhizoma serpens, circa 2.5 mm. crassum, squamatum. Pseudo-bulbi fere obsoleti. *Folia* sparsa. Folium unicum ovato-oblongum vel ellipticum, 3.0–4.5 cm. longum, circa 1.5 cm. latum, oblique emarginatum, crasse coriaceum, vena media depressa. *Pedunculum* inter folia saepe prope folii basem situm, filiforme, rubrum, 6–7 cm. altum, bracteis 2–3. *Inflorescentia* ad pedunculum summum capitata. *Flores* stipati, numerosi, minuti (usque ad 4 mm. longi), punicei venis coccineis; bracteae acutae, permanentes. *Sepalum dorsale* circa 3 mm. longum, cucullatum, ovatum, apice flavo, 3-nervis. *Sepala lateral*ia paulum longiora, oblonga, acuta, ad basem unita et dilatata (neque calcar formantia), intus prope venas pubescentia, 5-nervia. *Petala* circa 2 mm. longa, falcato-lanceolata, alba, 1-nervia. *Labellum* crassissimum, 2 mm. longum, ad basem latum, antice contractum, dense glandulosum, rubidum, supra canaliculatum, jugis duobus conspicuis praeditum. *Columna* brevissima et lata, obtuse bifida; alae magnae, lanceolatae. *Anthera* bifida. *Pollinia* 2, obovata; caudiculum absens. *Stigma* laterale ovatum.

Rhizome creeping, about 2.5 mm. in diameter, more or less clothed with scarious scales. Pseudo-bulbs obsolete or represented by a slight swelling of the rhizome covered by a scaly bract. Leaves sparsely scattered at intervals of 2–4 cm. Individual leaf ovate-oblong or elliptical, 3–4.5 cm. long, about 1.5 cm. wide, obliquely and minutely emarginate, coarsely coriaceous, mid-vein depressed. Peduncle arising between the leaves or near the base of a leaf, red, filiform, 6–7 cm. high, with 1–2 sheathing bracts at the base and a shorter one higher up. Inflorescence a crowded capitate raceme at the top of the peduncle. Flowers numerous (up to 20), minute (3–4 mm. long), subsessile, not expanding widely, pink with heavy crimson longitudinal veins, segments somewhat rigid. Floral bracts ovate-acute, persistent. Dorsal sepal about 3 mm. long, ovate, cucullate, with 3 crimson veins, tip yellowish, subacute. Lateral sepals a little longer, united and somewhat dilated in their basal third, but not forming a definite spur, oblong, acute, with 2 marginal and 3 intermediate crimson veins; very glandular-pubescent about the veins on their inner surfaces. Petals about 2 mm. long or a little more, whitish with crimson tips and a single median vein, falcate-lanceolate. Labellum about as long as the petals, deep red, very thick and glandular-papillose, tapering from a broad, hastate base to a narrow but obtuse apex, deflexed; upper surface with a smooth median channel tapering from the base to a point well in front of the middle, and bordered by 2 papillose ridges which are thickened basally to project into a short spur on either side, these spurs constituting the lobes of the hastate base of the labellum. Claw of labellum slender, attached to the column-foot. Column very short and broad, bluntly bifid, its foot rather long, bent upward; wings very large, lanceolate-acuminate, much higher than the anther, inclined forward. Anther blunt, bifid. Pollinia 2, obovate, no caudicle. Stigma conspicuous, laterally ovate.

Summit of Bellenden Ker Range, collector not specified 30.6.1889 (Queensland Herbarium); Zarda, Roots Creek track, Mt. Spurgeon, H. Flecker 2.1936 (TYPE); Cardwell, Mrs. W. Kirkwood 8.1946; Bellenden Ker Range, J. H. Wilkie 9.1946; Chilverton, S. E. Stephens 11.1946; Hambledon, A. E. Johnson 11.1946 and 10.1947, flowering (CO-TYPE). All N. Queensland localities.

11. **B. exiguum** F. Muell. Fragm. ii, 72 (1860); Benth. Fl. Austral. vi, 288 (1873); F. M. Bail. Queensl. Fl. v, 1538 (1902); Rupp, Orch. N.S. Wales, 125 (1943).

Dendrobium exiguum (F. Muell.) F. Muell. Fragm. v, 95 (1865); R. D. Fitzg. Austral. Orch. ii, part 5 (1893).

B. exiguum F. Muell. var. *dallachyi* F. M. Bail. Queensl. Fl. v, 1538 (1902).

12. **B. gadgarrense** Rupp, species nova. Plate III, fig. 2.

Rhizomata gracilia, late serpentia et ramosa, plus minusve squamis fuscis-purpureis scariosis contexta. Pseudo-bulbi minimi in rhizomate prostrati; apices truncati, sursum curvati. Folis 2–6.5 cm. longa, crassa, linearia, supra canaliculata. Flores albi, numerosi, solitarii vel fasciculati in pedunculis brevissimis. Sepala aequalia, circa 0.6 mm. longa, spiculis filiformibus; sepala lateralibus ad bases unita et cum columnae pede apice filiforme, sepala lateralibus ad bases unita et cum columnae pede calcar obtusum formantia. Petala minuta, oblonga, obtusissima. Labellum 2 mm. longum, aurantiacum, crassum, deflexum, obtusum, supra canaliculatum. Columna brevis alis parvis; anthera obtusa. Stigma et pollinia in speciminibus visis obscura.

Rhizomes slender, extensively creeping and branching, more or less covered with purplish-brown scarious sheathing bracts. Pseudo-bulbs very small, about 3–4 mm. long, prostrate on the rhizome except at their upturned truncate apices, much wrinkled when dry. Leaf 1 to each pseudo-bulb, thick and fleshy, linear, channelled on the upper surface, 2–6.5 cm. long. Flowers numerous, white, solitary or in clusters, on very short peduncles almost concealed by the scarious scales of the rhizome. Sepals equal, about 6 mm. long, with long filiform points; the lateral pair united basally and dilated to form a spur with the column-foot. Petals scarcely more than 1 mm. long, oblong, with blunt rounded apex tipped with yellow. Labellum nearly 2 mm. long, orange, thick and glandular, decurved or almost reflexed in front, obtuse, channelled above, attached at its base to the column-foot by a short claw. Column short and rather broad, its wings small but as high as the anther, its foot longer than the column itself. Anther very obtuse. Stigma obscure, and pollinia not seen.

Gadgarra, Atherton Tableland, N. Queensland, *S. F. Kajewski*; same locality, 9.1945; *W. W. Abell* (TYPE); Mt. Islay, N. Queensland, 9.1947, *A. E. Johnson*.

The species has some affinities with *B. crassulifolium* Cunn., and might be mistaken for a long-sepalled variety of it; but the floral details are really very different. The petals of *B. crassulifolium* are very broadly lanceolate, while those of *B. gadgarrense* are oblong with very blunt rounded apices. The sepals of the latter are three times as long as those of the former, which are never prolonged into filiform points. *Kajewski's* specimens in the Queensland Herbarium were labelled *B. prenticei* F. Muell.; but this species, subsequently removed by Nicholls to *Dendrobium*, is quite a different plant, and there is no resemblance between the flowers at all. The leaves of the new species are very variable in length, but there is no increase of width in the long forms.

13. **B. globuliforme** W. H. Nicholls in Orchidol. Zeyl. v, 123 (1938) and Viet. Nat. lxii, 12 (1945).

This species is probably the smallest of all Australian orchids. It has been recorded so far only from the New South Wales side of the McPherson Range and from Bryden in the upper Brisbane River valley.

14. **B. johnsonii** Hunt, species nova. Plate IV, fig. 1.

Rhizoma serpens. *Pseudo-bulbi* ad intervalla circa 3 cm. siti, oblique coniformes, depressi, rhizoma amplexantes, sulcati, rufuli, circa 1.5 cm. longi et 1.0 cm. lati. *Folium* unicum, circa 7 cm. longum et 1.8 cm. latum, ellipticum, petiolatum, aliquatenus coriaceum; costa media prominens. *Flos* unicus. *Pedunculum* erectum, circa 2.5 cm. longum, bracteam minimam ad medium gerens, e tubere in rhizomate emergens, *Sepala* *lateralia* circa 1 cm. longa, lineari-lanceolata, acuta, flava, crassa, rugosa, ad basem striis rubris notata; sepalum dorsale circa 8 mm. longum, lanceolatum, acutum, cucullatum, flavum, striis rubris 3-5 notatum; petala circa 2 mm. longa, ovata, flava, striis rubris 3 notata, ad apices glandibus minimis praedita; labellum circa 8 mm. longum, lineare, supra e basi et subtus ex apice sulcata utrinque sulco prope medium evanescenti, rubidum apice flavo, subtus glandibus minimis praeditum, ad pedem incurvum columnae per unguem brevem fixum, manifeste mobile. Columna circa 1 mm. alta, flava, alis filiformibus; stigma magnum ovatum.

Hambledon, N. Queensland, A. E. Johnson, 10.1947.

Rhizome creeping 3.5 mm. in diameter. Pseudo-bulbs spaced at intervals of about 3 cm., obliquely conical, depressed, clasping the rhizome, channelled, reddish, about 1.5 cm. long and 1 cm. wide. Leaf solitary, about 7 cm. long and 1.8 cm. wide, elliptical, petiolate, thin-coriaceous, mid-rib prominent, light green. Flowers solitary on numerous peduncles rising from slight protuberances on the rhizome either below the pseudo-bulbs or between them. Peduncle erect, about 2.5 cm. long, red below the small sheathing mid-way bract and greenish above it. Lateral sepals 1 cm. long, linear-lanceolate, acute, yellow with short red striae at the base, somewhat leathery in texture, longitudinally ridged; dorsal sepal 8 mm. long, lanceolate, acute, cucullate over the column, yellowish, heavily marked with 3-5 bright red raised striae; petals about 2 mm. long, ovate, yellowish with three red striae, minutely glandular-dotted towards the tips; labellum about as long as the dorsal sepal, linear, channelled above towards the base and almost throughout its whole length below, deep red with a yellow tip, minutely glandular-dotted below, attached to the up-curved column-foot by a short claw, very mobile. Column about 1 mm. high, yellow; wings erect, filiform, as high as the anther or exceeding it; stigma comparatively large, oval; column-foot somewhat longer than the column, reddish, curved upwards.

15. **B. kirkwoodae** Hunt, species nova. Plate 5.

Rhizoma serpens. *Pseudo-bulbi* ad intervalla 1-2 cm. siti, oblique coniformes, sulcati, rhizoma amplexantes, virides, 1.0-1.5 cm. longi. *Folium* unicum, ellipticum, circa 3.5 cm. longum, ad apicem obtusum recurvum, petiolatum, aliquatenus coriaceum, costa media prominens. *Pedunculum* 2-3 cm. longum, ad basem incrassatum, bracteis duabus rubris praeditum. *Flos* unicus, flavus, striis coccineis notatus; sepala sulcata. Sepalum dorsale circa 6 mm. longum, lineari-lanceolatum, acutum, apice apiculatum et recurvatum; sepala *lateralia* longiora, fere

oblonga, minime apiculata; calcar parvum, curvum; petala circa 1.5 mm. longa, ovata, acuta, flava, praecipue apicibus maculis coccineis notata; labellum circa 5 mm. longum, lineare, coccineum, apice flavo, supra e basi subtus ex apice sulcatum, in ungui tenui mobile. Columna minima, flava, maculis coccineis notata; alae filiformae; stigma ovatum; pes columnae curvus utrinque callo amplo lato obtuso erecto praeditus.

Chilverton, Atherton Tableland, N. Queensland, July, 1947, Mrs. Kirkwood. Flowered in Ipswich, 11.47.

Rhizome creeping, about 2 mm. in diameter, covered with the scarious remains of sheathing scales. Pseudo-bulbs spaced at intervals of 1–2 cm. obliquely conical, depressed, clasping the rhizome, channelled, green, 1–1.5 cm. long. Leaf solitary, elliptical, 3.5 cm. long, petiolate, thinly coriaceous, generally recurved towards the somewhat obtuse apex, green, paler below, mid-rib prominent. Peduncles 2–3 cm. long, thickened at the base, rising from the rhizome either from below the pseudo-bulbs or the intervening nodes; bracts two, reddish, sheathing, one at the base and the other two-thirds of the way up. Flower solitary, yellow, heavily veined with crimson, sepals with several longitudinal furrows; dorsal sepal about 6 mm. long, linear-lanceolate, acute, with a minutely apiculate deflexed tip; lateral sepals somewhat longer, almost oblong, minutely apiculate; spur small, bent forward; petals about 1.5 mm. long, ovate, acute, yellow, heavily speckled with crimson especially at the tips; labellum about 5 mm. long, linear, very dark crimson with a dark yellow tip, deeply channelled towards the base above and lightly channelled anteriorly below, very mobile on a fine claw. Column minute, yellow dotted with crimson, wings filiform, projecting forward, exceeding the anther; stigma oval; column-foot very much longer than the column, curved, with a large, broad, erect, obtuse callus on each side near the labellum claw.

This species is very similar to *B. johnsonii* Hunt, and also to *B. Whitei* Hunt & Rupp, but more especially to the former. It can be distinguished from these, and, in fact, from all other Australian species of the genus, by the presence of the two remarkable calli at the end of the column-foot.

16. *B. lageniforme* F. M. Bail. in Queensl. Agric. Journ. xv, 1, July, 1904.

There has been no reference to this species since its original description and it was known only by the solitary specimen in the Queensland Herbarium. Recently, however, Mr. W. H. Nicholls of Melbourne succeeded in flowering a plant which proved to be this species. The authors are very much indebted to him for the fine plate he prepared for this paper (Plate II).

The original description is as follows:—

Rhizome creeping, rather slender, and nearly glabrous, corrugated when dry; pseudo-bulbs numerous, but not crowded, flask-shaped, like the utricle of *Carex*, smooth, becoming corrugated when dry, almost 1 cm. high. Leaves solitary, linear-lanceolate, about 4 cm. long, widest part about 7 mm., mid-rib sharp and prominent, with numerous parallel veins on either side; upper surface foveolar-dotted. Peduncles filiform, about as long as the leaves, bearing a linear bract near the centre, and a similar but shorter one close under the flower. Flowers 1 or 2, open

and somewhat bell-shaped. Pedicels about 7 mm. long slightly enlarging upwards, and prominently tuberculose in the upper part. Sepals about 8.5 mm. long, 3-nerved, dorsal one lanceolate, laterals much broader at the base, apex recurved. Petals ovate-lanceolate, shorter than the sepals, transparent, 3-nerved, the lateral nerves not reaching the apex. Labellum coriaceous, articulate at the base of the column, shorter than the other segments, ovate, margins recurved, disk with 3 prominent ribs. Column rather slender, a little over a third as long as the petals; wings prominent, truncate or toothed at the top, anther-lid depressed.

Mr. Nicholls states that the flower of *B. lageniforme* is pale greenish with brown markings. He also observed, and illustrated in his plate, that the lamina of the labellum has two prominent ribs, not three as given in the original description, unless the prominent channel is included.

17. *B. lilianae* Rendle in Journ. Bot. lv, 308 (1917).

There has been no reference made to this species since its discovery. The following is a translation of the original description.

A small epiphyte; rhizome long and thin, branching, terete, about 1 mm. in diameter. Roots almost filiform, bent, glabrous. Pseudo-bulbs narrowly cylindrical, oblique, about 1 cm. high and 5 mm. thick, very rugose when dried. Leaf solitary, subsessile, 0.8–2 cm. long, and 7 mm. broad, reflexed, linear-oblong or oblong-elliptical, apex minutely apiculate, thick, mid-rib channelled above and prominent below. Peduncle one-flowered, about 2 cm. long, filiform, mid-bract tubuliform, sheathing. Flower small, supporting bract hardly 2 mm. long, ovate, acuminate, yellowish-green. Pedicel, with ovary, 8 mm. long. The backs of the sepals glandular, 3-nerved. Dorsal sepal 6.3 mm. long, 2.75 mm. wide, lanceolate-oblong, apex obtuse and obscurely apiculate; lateral sepals 6 mm. long, 4.3 mm. wide, ovate, apices as in the dorsal; petals 4.5 mm. long, 1.75–2 mm. wide, lanceolate, almost obtuse, apices scarcely apiculate, 3-nerved; labellum 3.75 mm. long, 1.5 mm. wide, greatly recurved, convex, apex obtuse, base obscurely lobed, reddish-brown when dried. Column 2 mm. high, wings broad, vaguely toothed; ovary and pedicel glandular.

Summit of Bellenden Ker in small forest and dense scrub, altitude approx. 5,000 ft. Flowers in March.

The author also remarks:—"Evidently near *B. adenocarpum* Schltr. which I know only from the description and which it resembles in the convex labellum and warted ovary; it differs in foliage, the leaves of *B. adenocarpum* being linear and much longer—3.5–4.5 cm." (Plate IV, fig. 2).

18. *B. macphersonii* Rupp in Vict. Nat. li, 81 (1934).

B. purpurascens F. M. Bail. in Proc. Roy. Soc. Queensl. i, 88 (1885).

Osyricera purpurascens (F. M. Bail.) Deane, R. D. Fitzg. Austral. Orch. ii, 5 (1893); F. M. Bail. Queensl. Fl. v, 1540 (1902).

The story of the nomenclature of this diminutive but beautiful species is so interesting that we venture to outline it here. As far back as 1884 Bailey described it under the name *Bulbophyllum purpurascens*. Fitzgerald executed a plate of it, but died before it could be published. When Deane and Stopps later were able to publish those plates now

constituting Austr. Orch. Vol. II, Part v, the former argued with Bailey that this particular plant was not a *Bulbophyllum*, but belonged to the genus *Osyricera*. Bailey demurred at first, but ultimately consented to the transfer, and it appears in Austr. Orch., l.c., as *Osyricera purpurascens*. Some years afterwards, and subsequently to the deaths of Bailey and Deane, the genus *Osyricera* was absorbed into *Bulbophyllum*. But Bailey's name could not be retained, because it was found that in 1862 a Javanese species had been named *B. purpurascens*. Our little Queensland plant was therefore nameless; and as no one had seen it for many years, no one cared to deal with it. In 1934 specimens reached Rupp from North Queensland which he recognised from Fitzgerald's plate; the determination was confirmed by Rogers, and the plant was re-named *B. macphersonii* after Mr. Kenneth MacPherson of Proserpine, who had sent the specimens. Since then this species has frequently been recorded from Bellenden Ker and other northern mountains.

19. *B. minutissimum* (F. Muell.) F. Muell. Fragm. xi, 53 (1878); R. D. Fitzg. Austral. Orch. ii, 2 (1885); F. M. Bail. Queensl. Fl. v, 1538 (1902); Rupp, Orch. N.S.Wales, 124 (1943).

Dendrobium minutissimum F. Muell. Fragm. v, 95 (1865).

20. *B. nematopodum* F. Muell. Fragm. viii, 30 (1872); Benth. Fl. Austr. vi, 287 (1873); F. M. Bail. Queensl. Fl. v, 1536 (1902).

This very little-known plant has recently been received by one of us (T.E.H.) from the Bellenden Ker area where it was collected by Mr. J. H. Wilkie, and from the Big Tableland, Cooktown, collected and forwarded by Mrs. W. Kirkwood of Cairns. The plants continued growing strongly and have bloomed. A description made from living material is given to supplement those cited above. It is figured on Plate VI.

Rhizome creeping. Pseudo-bulbs very closely overlapping, globular with a long neck, 1.5 cm. high and 1 cm. in diameter near the base, the whole pseudo-bulb covered by the soft, fibrous remains of persistent sheathing scales. Leaf solitary, linear-lanceolate, 4–13 cm. long and up to 2 cm. wide, contracted into a fairly long petiole, fleshy. Flower solitary, greenish-yellow, not expanding fully; peduncle about 1 cm. long, red, persistent; pedicel with ovary about 5 cm. long, greenish with crimson markings, subtended at the base by a short sheathing bract. Lateral sepals about 1 cm. long, broad-lanceolate, slightly falcate, somewhat fleshy, pale yellowish green with irregular lines of crimson dots, attached to the short basal projection of the column; dorsal sepal very slightly shorter, cucullate, lanceolate; petals about 2 mm. long, green with a prominent crimson dot at the apex of each; labellum about 3 mm. long on a very small claw, mobile, very thick, curved, obtuse, margins towards the base, erect, each with a smooth ridge running forward parallel to the edge, reddish. Column leaning forward, slender, green, wings each terminating in two hair-like points exceeding the anther; anther green, acute; stigma narrow with a prominent crimson spot below it; column-foot short, tapering, curved, spotted with red.

21. *B. newportii* (F. M. Bail.) Rolfe in Orch. Rev., xvii, 94 (1909).

Sarcochilus newportii F. M. Bail. Queensl. Fl. vi, 2014 (1902).

The material in the Queensland Herbarium has been examined and we support Rolfe's transfer of the species to *Bulbophyllum* (Plate VII, fig. 1).

22. **B. radicans** F. M. Bail. in Queensl. Agric. Journ. i, 81 (1897) and Queensl. Fl. v, 1536 (1902).

A plant of this rare species was received recently from Mr. A. Johnson of Hambledon, Nth. Queensland. The plant is indistinguishable from *B. cilioglossum* unless flowers are present. It is very closely allied to that species.

23. **B. toressae** F. M. Bail. 3rd Suppl. Syn. Queensl. Fl. 72 (1890) and Queensl. Fl. v, 1538 (1902).

There is an excellent exposition and plate of this species by W. H. Nicholls in Nth. Queensl. Nat. x, 66 (1941).

24. **B. trilobum** Schltr. in Fedde; Repert. viii, 455 (1910).

This is another species of which nothing appears to be known beyond the original description. A translation is given below.

Epiphytic, decumbent on branches of trees, up to 7 cm. high. Rhizomes prostrate, with numerous long flexuous filiform roots, glabrous. Pseudo-bulbs scattered, obliquely ovoid, 1-leaved, 5–7 mm. high, 4–5 mm. in diameter about the middle. Leaves erect, coriaceous, glabrous, obtuse or apiculate, oblong or oblong-elliptical, 3–4 cm. long, 0.7–1 cm. wide. Racemes exceeding the leaves, laxly 4–6-flowered, slenderly pedunculate; peduncle erect, filiform, usually a little longer than the raceme, glabrous; bracts minute, ovate-acuminate, much shorter than the pedicel of the ovary. Flowers erect, of medium size, pale rose. Dorsal sepal oblong, obtuse, glabrous, 6–7 mm. long; lateral sepals equal and similar to the dorsal but somewhat obliquely dilated towards the base. Petals obtuse, obliquely elliptical, glabrous, about 5 mm. long. Labellum ligulate, curved, 3-lobed, as long as the petals; below the middle hispid-papillose; lateral lobes conspicuous, subfalcate-lanceolate and finely acuminate; mid-lobe nearly 3 times larger, ligulate, obtuse, pink, glabrous. Column short, teeth obliquely lanceolate exceeding the anther, foot slender, very long. Ovary glabrous, club-shaped, together with the pedicel about 7 mm. long.

25. **B. wanjurum** Hunt in Nth. Queensl. Nat. xiv, 82 (1947).
Mt. Bartle-Frere, *J. H. Wilkie*, Sept., 1946.

26. **B. weinthalii** Rogers in Trans. Roy. Soc. S. Austral. lvii, 95 (1933); F. A. Weinthal in Austral. Orch. Rev. iv, 2 (1939);
Rupp Orch. N.S.Wales, 124 (1943).

This species was discovered near Dorriggo, N.S.Wales, and subsequently was found to extend to southern Queensland. It grows high up on "Hoop pines" (*Araucaria cunninghamii* Ait.). It is remarkable for the extraordinary size of its flower which is often as large as pseudo-bulb and leaf combined; it is on a short peduncle which cannot remain erect under its weight.

27. **B. whitei** Hunt & Rupp, species nova. Plate VII, fig. 2.

Rhizoma gracile, serpens, ramosum. Pseudobulbi haud dense congesti, 1.0–1.5 cm. alti, virides vel fusco-rubri, oblique ovoidei, depressi, costati vel rugosi. Folium ovatum vel late lanceolatum, plerumque apiculatum, coriaceum, tenuiter canaliculatum, usque ad 4 cm. longum. Flos unicus, aureo-viridis vel aurantiacus, circa 1.5 cm. latus, in pedunculo gracillimo 2–3 cm. longo situs. Bracteae 2. Sepalum dorsale

circa 4 mm. longum, cucullatum, oblongum, plus minusve apiculatum, venis conspicuis longitudinalibus 3 notatum. Sepala lateralia circa 5–6 mm. longa, oblique ovata, ad basem venis rubris brevissimis notata. Petala minima, lutea, ad margines minute maculata, ad apices fusco-rubra. Labellum in ungue brevi irritabile, circa 5 mm. longum, angustum, crassum, obtusum, ad basem marginibus erectis; dimidio posteriore rubrum, dimidio anteriore croceum papillosum. Columna brevis et lata, alis pone antheram albam extensis. Rostellum acutum; stigma fere triangulare.

Rhizome extensively creeping, branching, but not forming dense masses as in *B. bowkettiae*. Pseudo-bulbs about 1.5 cm. apart, green deepening to red-brown in age, obliquely depressed-ovoid, ribbed and the older ones wrinkled, their bases flattened but closely embracing the rhizome, their apices very obtuse. Leaf ovate to broad-lanceolate, usually apiculate, coriaceous, shallowly channelled above, variable in dimensions but not exceeding 4 cm. in length. Flower solitary, golden-green or orange, about 1.5 cm. across the expanded lateral sepals, on a filiform peduncle 2–3 cm. long, arising usually between the pseudo-bulbs; bracts 2, a scarious clasping one at the base, and a smaller one half-way up; lower half of peduncle red, upper half green. Dorsal sepal about 4 mm. long, oblong but more or less apiculate, slightly cucullate, pale green with 3 conspicuous longitudinal red veins. Lateral sepals 5–6 mm. long, obliquely ovate, widely expanding, golden-green or orange, with a few very short red veins at the base. Petals very small, rather light yellow with a deep red blunt apex, mid-vein red, small red dots scattered near the margins. Labellum on a somewhat irritabile claw, nearly as long as the lateral sepals but very much narrower, slightly deflexed, obtuse, thick and papillose, margins raised at the base to embrace the column; basal half red, distal half crocus-yellow. Column short and rather broad, its wings extending behind the anther, and produced at the sides into filiform points just higher than the anther. Rostellum pointed; stigma almost triangular; anther white.

Gadgarra, W. Abell, 7.1946; Mt. Bartle Frere, J. H. Wilkie, 7.1946 (TYPE).

We have pleasure in naming this attractive little species in honour of Mr. C. T. White, M.Sc., Queensland Government Botanist, whose wide experience and knowledge are always so generously made available to students of the Australian flora.

28. *B. wilkianum* Hunt in Nth. Queensl. Nat. xiv, 82 (March 1947).
Mt. Bartle Frere, J. H. Wilkie, 9.1946.

PART 2.

EXCLUDED SPECIES.

- B. lichenastrum* F. Muell. Fragm. vii, 60 (1869); Benth. Fl. Austral. vi, 287 (1873); F. M. Bail. Queensl. Fl. v, 1537 (1962).

Dendrobium lichenastrum Kränzlin in Engl. Pflanzenr. iv, 50, ii B, 21, 289 (1910); W. H. Nicholls in Nth. Queensl. Nat. vi, 55–56 (1938); Rupp and Hunt in Proc. Linn. Soc. N.S.Wales, lxxii, 245 (1948).

- B. prenticei* F. Muell. in South. Sci. Rec. p. 173 (1881); F. M. Bail. Queensl. Fl. v, 1539 (1902).

Dendrobium prenticei W. H. Nicholls in Nth. Queensl. Nat. vi, 55-56 (1938); Rupp and Hunt in Proc. Linn. Soc. N.S.Wales, lxxii, 246-247 (1948).

B. taylori F. Muell. Fragm. vii, 150 (1869-71).

Dendrobium uniflos F. M. Bail. in Proc. Roy. Soc. Queensl. i, 11 (1884).

Dendrobium taylori (F. Muell.) R. D. Fitzg. Austral. Orch. ii, part 3 (1888).

Cadetia taylori (F. Muell.) Schltr. in Fedde Repert. i, 424 (1912).

PART 3.

AN ARTIFICIAL KEY TO THE GENUS IN AUSTRALIA.

1. Flowers solitary:
 2. Pseudo-bulbs 4-angled, crowded, leaves large:
 3. Flowers reddish *B. cilioglossum*
 - 3*. Flowers yellow *B. radicans*
 - 2*. Pseudo-bulbs conical or globular, more or less rugose:
 4. Pseudo-bulbs under 3 mm. in diameter:
 5. Leaf minute:
 6. Flowers white with red striae *B. minutissimum*
 - 6*. Flowers white *B. globuliforme*
 - 5*. Leaf fleshy not minute:
 7. Flower practically sessile in the leaf-channel, leaf beautifully patterned *B. toressae*
 - 7*. Flower on a short pedicel not sessile in the leaf-channel:
 8. Lateral sepals united for their whole length *B. macphersonii*
 - 8*. Lateral sepals not united for their whole length:
 9. Leaf linear, very fleshy, channelled above, rounded below:
 10. Sepals with long filiform points *B. gadgarrense*
 - 10*. Sepals without filiform points *B. crassulifolium*
 - 9*. Leaf oblong or oblong-linear, very thick, flower generally red-orange *B. aurantiacum*
 - 4*. Pseudo-bulbs over 3 mm. in diameter:
 11. Petals less than half the length of the sepals:
 12. Pseudo-bulbs crowded *B. nematopodium*
 - 12*. Pseudo-bulbs spaced widely apart:
 13. Leaf fleshy *B. bowkettiae*
 - 13*. Leaf coriaceous:
 14. Leaf over 5 cm. long *B. johnsonii*
 - 14*. Leaf under 5 cm. long:
 15. Column-foot with two large erect glands *B. kirkwoodae*
 - 15*. Column-foot without glands *B. whitei*
 - 11*. Petals half or more than half the length of the sepals:
 16. Leaf large, very broad and fleshy, floral segments up to 2 cm. long *B. baileyi*
 - 16*. Leaf not large and broad, flowers smaller:
 17. Leaf linear:
 18. Leaf 3.5-4.5 cm. long, ovary warty *B. adenocarpum*
 - 18*. Leaf 1.3-3.0 cm. long, fleshy, flowers inverted *B. cochleatum*
 - 17*. Leaf ovate, elliptical or oblong:
 19. Flower on peduncle 2 cm. or more long, ovary warty *B. lilianae*
 - 19*. Flower on very short peduncle *B. weinthalii*
 - 1*. Flowers in racemes:
 20. Pseudo-bulbs absent, flowers in a capitate raceme *B. evasum*

20*. Pseudo-bulbs present:

21. Dorsal sepal very much shorter than the lateral sepals *B. elisae*

21*. Dorsal sepal almost or quite as long as the lateral sepals:

22. Labellum 3-lobed:

23. Flowers white with green nerves *B. wanjurum*

23*. Flowers pink:

24. Mid-lobe of labellum papillose *B. newportii*24*. Mid-lobe of labellum glabrous *B. trilobum*

22*. Labellum entire:

25. Leaf more or less linear:

26. Sepals about 8.5 mm. long, labellum with prominent ribs *B. lageniforme*26*. Sepals about 5 mm. long, labellum without prominent ribs, channelled, pubescent .. *B. wilkianum*

25*. Leaf more or less ovate:

27. Raceme hoary and purplish *B. bracteatum*27*. Raceme glabrous, flowers white *B. exiguum*

PART 4.

INDEX.

	No.
<i>Adelopetalum bracteatum</i> (F. M. Bail.) R. D. Fitzg.	5
<i>Bulbophyllum adenocarpum</i> Schltr.	1
„ <i>aurantiacum</i> F. Muell.	2
„ <i>baileyi</i> F. Muell.	3
„ <i>bowkettiae</i> F. M. Bail.	4
„ <i>bracteatum</i> F. M. Bail.	5
„ <i>cilioglossum</i> Rogers & Nicholls	6
„ <i>cochleatum</i> Schltr.	7
„ <i>crassulifolium</i> (A. Cunn. apud Lindl.) Rupp	8
„ <i>elisae</i> (F. Muell.) Benth.	9
„ <i>evasum</i> Hunt & Rupp	10
„ <i>exiguum</i> F. Muell.	11
„ <i>gadgarrense</i> Rupp	12
„ <i>globuliforme</i> Nicholls	13
„ <i>johnsonii</i> Hunt	14
„ <i>kirkwoodae</i> Hunt	15
„ <i>lageniforme</i> F. M. Bail.	16
„ <i>lichenastrum</i> F. Muell. <i>Dendrobium lichenastrum</i> (F. Muell.) Nicholls	
„ <i>liliana</i> Rendle	17
„ <i>macphersoni</i> Rupp	18
„ <i>minutissimum</i> (F. Muell.) F. Muell.	19
„ <i>nematopodium</i> F. Muell.	20
„ <i>newportii</i> F. M. Bail.	21
„ <i>prenticei</i> F. Muell. <i>Dendrobium prenticei</i> (F. Muell.) Nicholls	
„ <i>punctatum</i> R. D. Fitzg.	3
„ <i>purpurascens</i> F. M. Bail.	18
„ <i>radicans</i> F. M. Bail.	22
„ <i>taylori</i> F. Muell. <i>Cadetia taylori</i> (Fitzg.) Schltr.	
„ <i>toressae</i> F. M. Bail.	23
„ <i>trilobum</i> Schltr.	24
„ <i>schillerianum</i> Reichb. f.	8
„ <i>shepherdii</i> (F. Muell.) F. Muell.	8
„ <i>wanjurum</i> Hunt	25
„ <i>weinthalii</i> Rogers	26
„ <i>whitei</i> Hunt & Rupp	27
„ <i>wilkianum</i> Hunt	28
<i>Cirrhopetalum elisae</i> F. Muell.	9
<i>Dendrobium aurantiacum</i> (F. Muell.) F. Muell.	2
„ <i>crassulaefolium</i> A. Cunn. apud Lindl.	8
„ <i>exiguum</i> (F. Muell.) F. Muell.	11
„ <i>minutissimum</i> F. Muell.	19
„ <i>shepherdii</i> F. Muell.	8
<i>Osyricera purpurascens</i> Deane	18
<i>Sarcochilus newportii</i> F. M. Bail.	21

EXPLANATION OF PLATES.

(Habit-figures all natural size.)

PLATE II.

Bulbophyllum lageniforme F. M. Bail. A, plant; B, column, side view; C, lateral sepal; D, dorsal sepal; E, petal; F, column, front view; G, pollinia; H, labellum, front view; I, labellum, from above; J, labellum, from below; K, labellum, side view; L, flower, from above; M, flower, front view, with peduncle, etc.

PLATE III.

FIG. 1: *Bulbophyllum evasum* Hunt & Rupp. A, plant; B, capsules, slightly enlarged; flower, from the side; D, column from the side; E, labellum, from the side.

FIG. 2: *Bulbophyllum gadgarrense* Rupp. A, flowering branch; B, flower, from the front; C, flower, from the side; D, side view of labellum (*l*), petals (*p*), and column-foot, with sepals and column removed.

FIG. 3: *Bulbophyllum crassulifolium* (A. Cunn.) Rupp. Flower from the front.

PLATE IV.

FIG. 1: *Bulbophyllum johnsonii* Hunt. A, plant; B, sepal; C, dorsal sepal; D, petal, showing striae and glandular dots; E, column and labellum, from the side.

FIG. 2: *Bulbophyllum lilianae* Rendle. A, plant; B, leaf; C, flower, from the side. (From specimen in the Queensland Herbarium.)

PLATE V.

Bulbophyllum kirkwoodae Hunt. A, plant; B, flower, from in front; C, column and labellum, from the side; D, column, from the side; E, labellum, from in front.

PLATE VI.

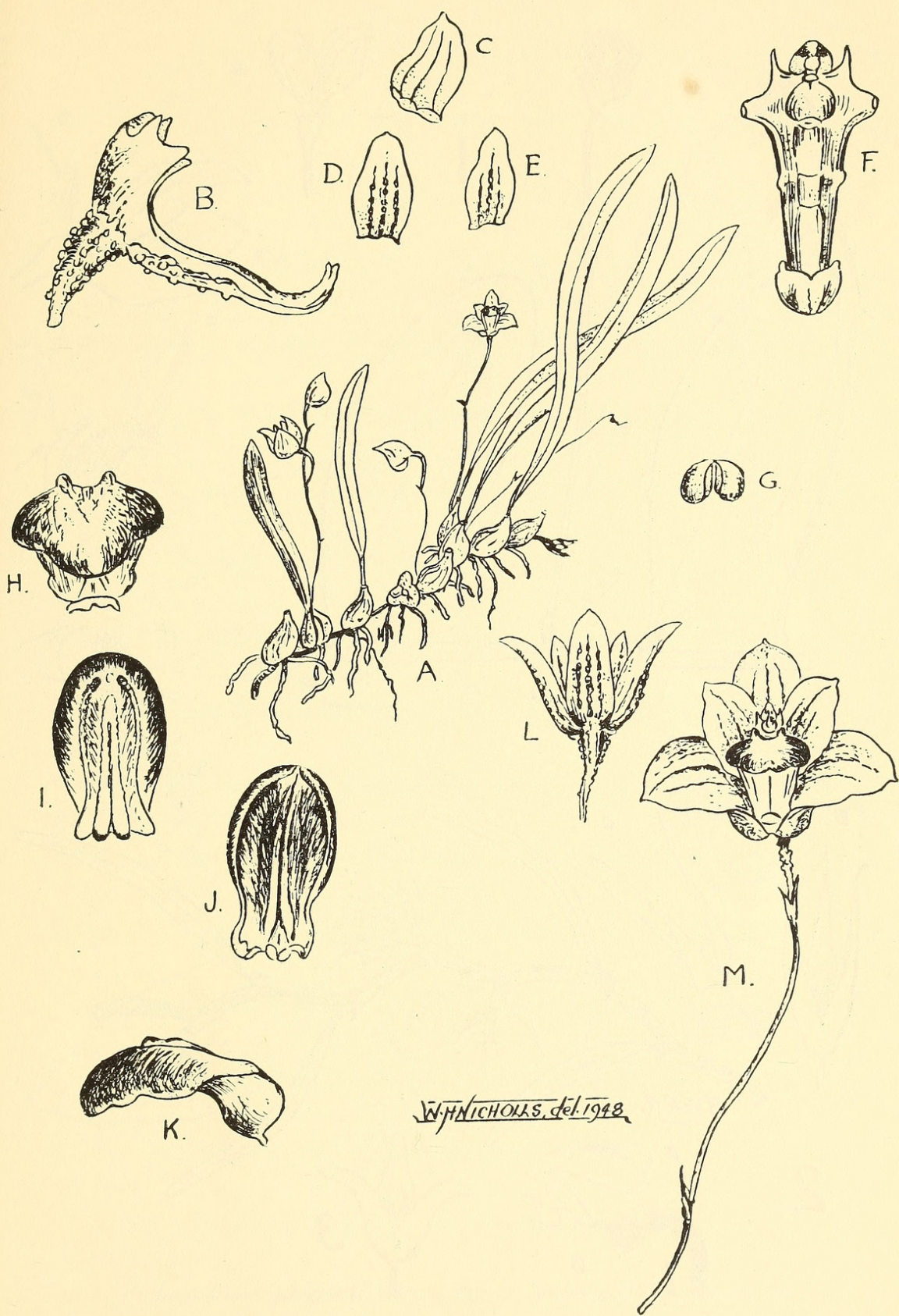
Bulbophyllum nematopodum F. Muell. A, plant; B, group of pseudo-bulbs with one stripped of the remains of the old sheathing scales; C, flower, from the side; D, flower, from in front; E, column and labellum, from the side; F, labellum, from behind.

PLATE VII.

FIG. 1: *Bulbophyllum newportii* (F. M. Bail.) Rolfe. A, plant; B, flower, from side, with one petal removed and a sepal turned back; C, labellum, from the side; D, petal. (From specimen in the Queensland Herbarium.)

FIG. 2: *Bulbophyllum whitei* Hunt & Rupp. A, plant; B, flower, from in front; C, flower, from the side; D, column, from in front; E, column and labellum, from the side; F, top of column, from the side.

FIG. 3: *Bulbophyllum bowkettiae* F. M. Bail. A, plant; B, flower, from the side; C, flower, from the side, with sepals removed; D, column and labellum, from the side.



Bulbophyllum lageniforme F. M. Bail.

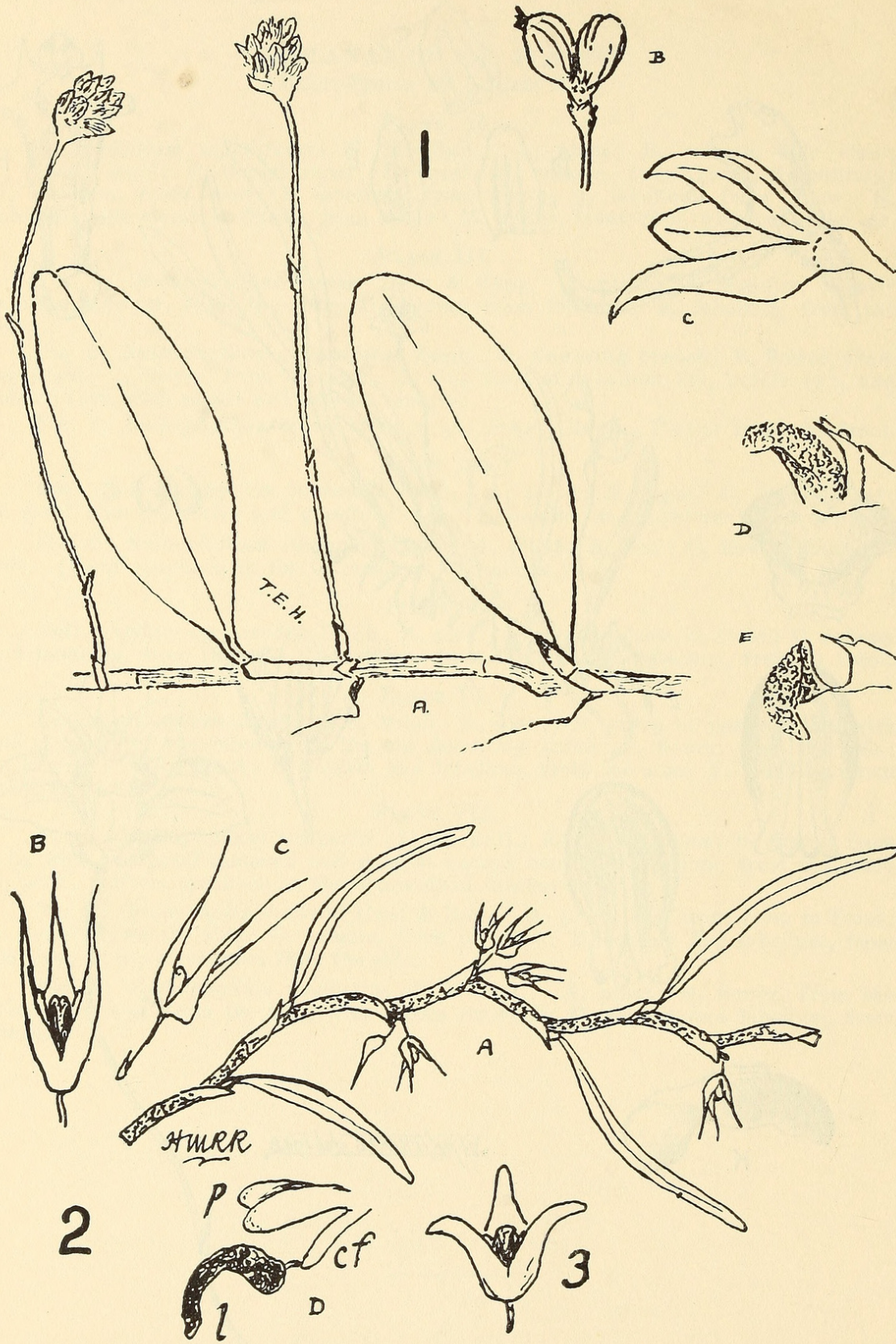


FIG. 1, *Bulbophyllum evasum* Hunt & Rupp; FIG. 2, *Bulbophyllum gadgarrense* Rupp; FIG. 3, *Bulbophyllum crassulifolium* (A. Cunn.) Rupp.

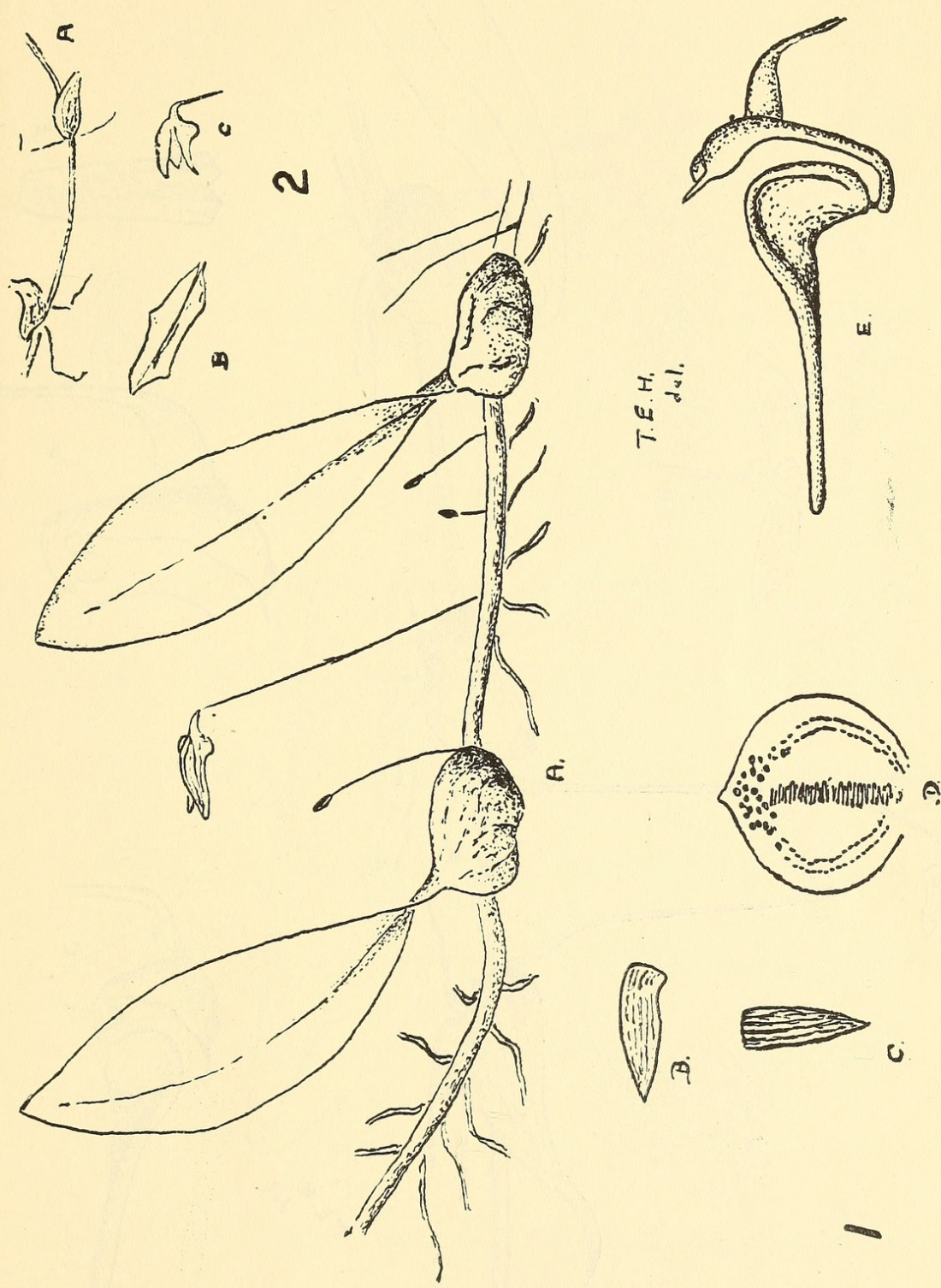
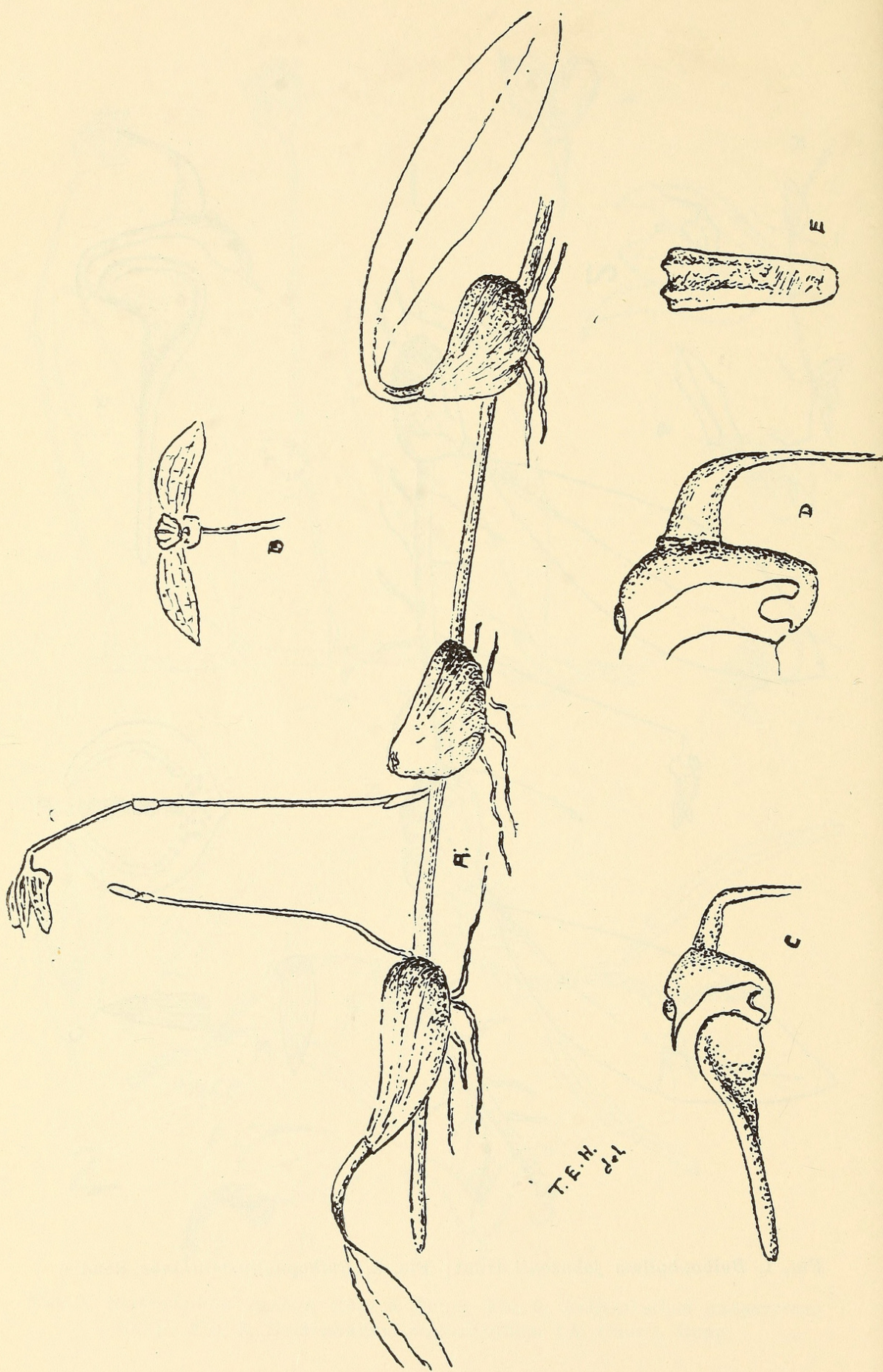


FIG. 1, *Bulbophyllum johnsonii* Hunt; FIG. 2, *Bulbophyllum lilianae* Rendle.



Bulbophyllum kirkwoodae Hunt.



Bulbophyllum nematopodum F. Muell.

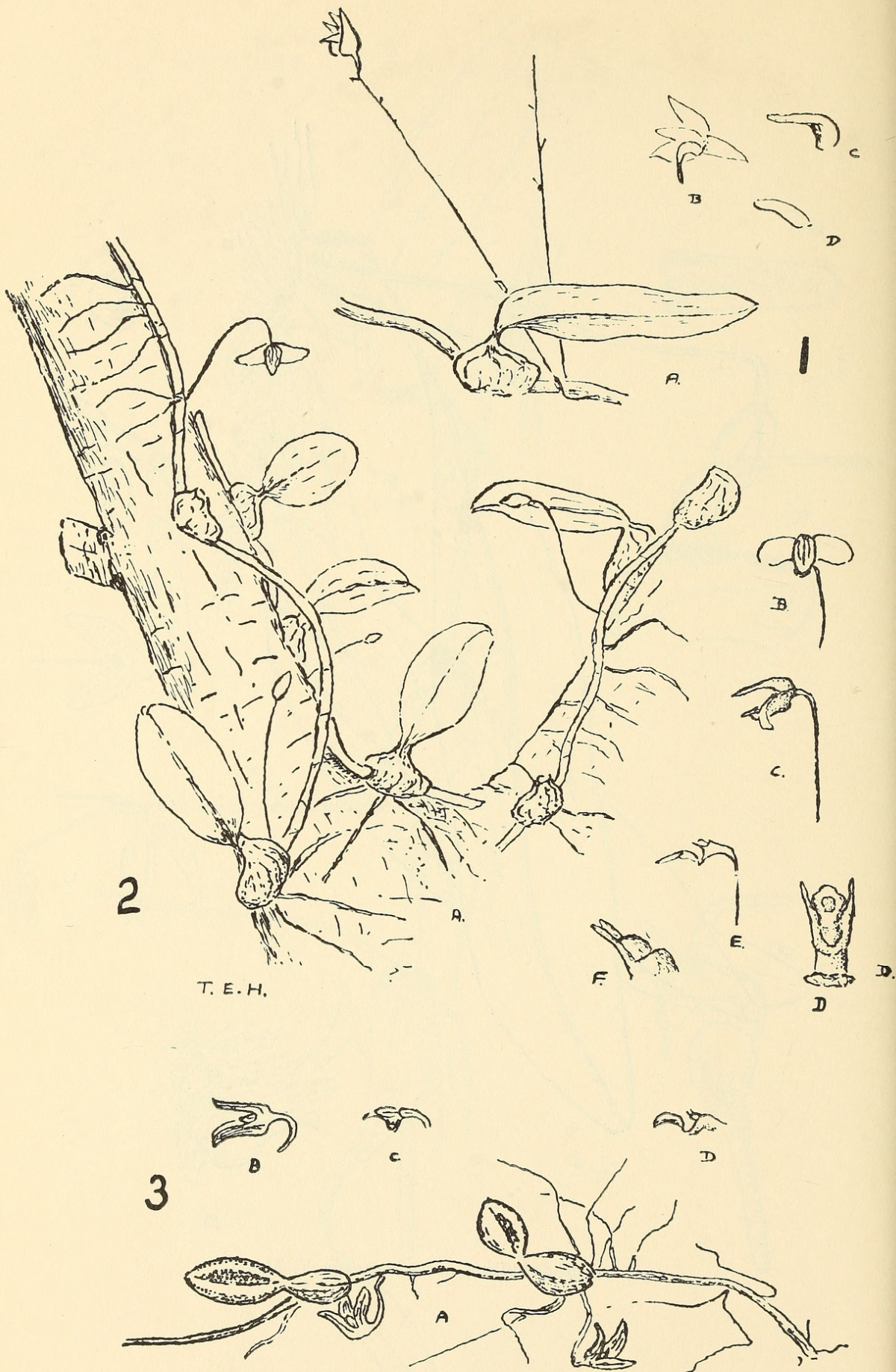


FIG. 1, *Bulbophyllum newportii* (F. M. Bail.) Rolfe; FIG. 2, *Bulbophyllum whitei* Hunt & Rupp; FIG. 3, *Bulbophyllum bowkettiae* F. M. Bail.



Hunt, Trevor E and Rupp, H M R. 1950. "A Review of the Genus *Bulbophyllum* (Orchidaceae) in Australia." *The Proceedings of the Royal Society of Queensland* 60, 55–68. <https://doi.org/10.5962/p.351738>.

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