

Ranunculus perindutus sp. nov.

Planta acaulis; rhizomate descendente; foliis omnibus basalibus chartaceis saepe dense adpresse vel subpatenter villosulis; petiolo 2–5 cm. longo; lamina oblonga vel elliptica, basi obtusa, grosse 5–7-dentata, dente medio 5–6 mm. longo et 3–8 mm. lato, dentibus ceteris paullo minoribus; scapis unifloris aphyllis 3–7 cm. vel in fructu 10–14 cm. longis, adpresse hirsutis; sepalis patenti-adscendentibus late ovatis, 6 mm. longis, 3 mm. latis, margine membranaceis obtusiusculis, extus hirsutis, intus 3-nerviis; petalis oblongis, 8–9 mm. longis, 2.5–3 mm. latis, apice obtusis, basi leviter angustatis squamula nectarium tegente praeditis; staminibus 20–25 circiter 3–4 mm. longis; achaeniis numerosis immaturis oblique ovatis, stylo sensim recurvato.

NETHERLANDS NEW GUINEA: 11 km. northeast of Wilhelmina-top, *Brass & Myer-Drees 9727*, September 1938, alt. 3400 m., rather dry grassy valley (corolla yellowish within, the outer part reddish); 7 km. northeast of Wilhelmina-top, *Brass & Myer-Drees 10027* (TYPE), September 1938, alt. 3560 m., abundant on grassy slopes (petals brown beneath); 2 km. east of Wilhelmina-top, *Brass & Myer-Drees 10132*, September 1938, alt. 3800 m., common on grassy banks of stream.

This species differs from *Ranunculus habbemensis* in the finer and more profuse indument and somewhat in the leaves being more evenly incised-dentate along the margin, rather than having the dentations confined to the terminal part of the margin.

Brass 4354, Mount Albert Edward, alt. 3680 m., gregarious on alpine slopes (peduncles purple; flowers small, pale yellow striped underneath with purple-brown), is a plant with indument similar to the type, but with stout petioles, small flowers and achenes. We have been uncertain where to place the collection.

Ranunculus perindutus var. **papuanus** var. nov.

A forma typica recedit petiolo longiore, lamina suborbiculari trilobata (lobo terminali 6–12 mm. longo 5–7 mm. lato, lobis lateralibus inciso-lobatis vel dentatis) palmatim 3–5-nervata, supra fere glabra (conspersissime pilosa), subtus dense hirsuta, petiolo patenti-hirsuto, floribus et fructibus ut in typo.

BRITISH NEW GUINEA: Mount Albert Edward, *Brass 4353* (TYPE of var., New York Bot. Gard.), June 1936, alt. 3680 m., common along banks of small alpine stream (peduncles purple; petals reddish brown beneath).

Ranunculus Lowii Stapf in Hook. Ic. Pl. **23**: pl. 2261. 1893; Trans. Linn. Soc. Bot. II. **4**: 127. 1894; van Steenis, Bull. Jard. Bot. Buitenz. III. **13**: 239. 1934, vel. aff.

NETHERLANDS NEW GUINEA: 5 miles northeast of Wilhelmina-top, *Brass 9395*, August 1938, alt. 3400 m., gregarious along a grassland stream (small yellow flowers); 7 km. northeast of Wilhelmina-top, *Brass & Myer-Drees 10030*, September 1938, alt. 3560 m., common on wet grassy slopes; Bele River, 18 km. northeast of Lake Habbema, *Brass 11422*, alt. 2200 m., common on mossy rocks in river and on forest paths.

This material differs from the original description and the one Bornean specimen examined in having the leaves strigulose-hirsute on both surfaces and in its somewhat smaller flowers. The cited specimens are also close to *Ranunculus perindutus*, described above.

Ranunculus coacervatus sp. nov.

Planta acaulis; rhizomate crasso brevi; foliis omnibus basalibus subcoria-

ceis; petiolo \pm 3 cm. longo patenti-villosulo, pilis luteis; lamina 1–1.3 cm. longa et 1.3–1.8 cm. lata, orbiculari-reniformi, 3–5-lobata, lobis grosse 2-vel 3-dentatis, utrinque \pm villosula, margine copiose villosula, venis primariis palmatis; scapis unifloris 3–5 cm. longis patenti-villosulis; sepalis late ovatis leviter concavis, 3–3.5 mm. longis et 2 mm. latis, fere glabris, pilis paucis conspersis; petalis oblongis, 6–7 mm. longis et 3 mm. latis, obtusis, basi angustatis squamula nectarium tegente praeditis; staminibus \pm 20 circiter 3 mm. longis; achaeniis numerosis oblique obovatis compressis, rostro brevi valde recurvo.

NETHERLANDS NEW GUINEA: 11 km. northeast of Wilhelmina-top, *Brass & Myer-Drees 9727A* (TYPE), September 1938, alt. 3400 m., rather dry grassy valley (corolla yellow within, the upper outer part reddish).

Amongst the New Guinean material, this species is perhaps closest to *Ranunculus perindutus*, but the leaves are broader than long and differently lobed, the flowers are smaller, the pubescence is distinctly yellow and widely spreading, and the achenes are broader toward the apex.

Ranunculus lappaceus var. **scapigerus** (Hook.) Benth. Fl. Austr. **1**: 12. 1863; Rodway Tasman. Fl. 3. 1903.

Ranunculus scapigerus Hook. Jour. Bot. **1**: 244. 1834; Hook. f. Fl. Tasman. **1**: 7. 1860.

NETHERLANDS NEW GUINEA: Lake Habbema, *Brass 9203*, August 1938, alt. 3225 m., in a mossy bog (small rosette herb; petals brown beneath). BRITISH NEW GUINEA: Mount Albert Edward, *Brass 4267*, June 1933, alt. 3680 m., rather rare grassland herb in wet soil (leaves flat-spreading; petals yellow inside, brown outside); same locality, *Brass 4355* (peduncles purplish; flowers deep yellow, shaded purple-brown beneath).

We have named these collections with some hesitancy. They differ from the original description in not having a reflexed calyx, and the petals are longer than the sepals. As far as we may judge from the diagnosis of Ridley's subvar. *papuanus*, these collections could not possibly belong to it.

Ranunculus lappaceus var. **multiscapus** Hook. f. Handb. N. Z. Fl. 7. 1864; Cheeseman, Man. N. Z. Fl. 448. 1925.

Ranunculus multiscapus Hook. f. Fl. N. Z. **1**: 9, t. 5. 1852.

NETHERLANDS NEW GUINEA: 9 km. northeast of Lake Habbema, *Brass 10546*, October 1938, alt. 2800 m., open bouldery bed of a forest-stream (petals brown beneath).

This variety or its affinity has been previously reported from British New Guinea, Kew Bull. **1899**: 96. 1899. This variety differs from the last, according to the specimens cited here, in that the former has leaves definitely 3-foliolate, somewhat thicker in texture, and almost sericeous-villous.

Ranunculus uncostigma sp. nov.

Planta acaulis stolonifera; foliis omnibus basalibus chartaceis, novellis dense maturis parce adpresso-pilosis, longe petiolatis; petiolo 8–15 cm. longo; lamina tripartita vel trifoliolata; foliolis petiolulatis; foliolo medio rotundato-cuneato grosse 3-dentato, foliolis lateralibus interdum bilobatis ac grosse dentatis; scapis \pm 16 cm. longis parce et adpresse pilosis; alabastris sub anthesi: sepalis ovato-ellipticis 4 mm. longis obtusis concavis, margine late membranaceis, fere glabris; petalis 5 mm. longis, 4 mm. latis, rotundato-ellipticis, basi obtuse angustatis squamula nectarium tegente praeditis; staminibus \pm 15 circiter 2 mm. longis; achaeniis numerosis,

2.5 mm. longis, vix 2 mm. latis, oblique obovatis compressis, rostro brevissimo retrorse uncinato.

NETHERLANDS NEW GUINEA: 9 km. northeast of Lake Habbema, *Brass 10748* (TYPE), October 1938, on a native clearing in the forest.

This species differs from *Ranunculus lappaceus* var. *multiscapus* Hook. f. in the obovate achenes with very short hooked beak. In this character it is more like *R. diffusus* DC., but the plants are all scapose.

BEGONIACEAE

Forty-three species of *Begonia* have been described from Papuasia. Nine of these are illustrated by partly diagrammatic sketches for the purpose of comparing modes of inflorescence, and five are represented by habit sketches. Thus, under present conditions, we find ourselves faced with the necessity of identifying most of our material from the original descriptions alone. To aid others in the interpretation of this difficult group, our species-descriptions are supplemented by text-figures. Some described from staminate material alone are assigned temporarily to the Section *Petermannia*. The first two species defined do not seem, in their combination of characters, to fall entirely within the limits of any Asiatic section given in the latest work on this family in the *Pflanzenfamilien*, but are perhaps nearest *Sphenanthera* and *Platycentrum*. Only one species of *Symbegonia* Warb. is represented in the material at hand.

Begonia Linnaeus

Begonia physandra sp. nov. Fig. 1, a-e.

Planta acaulis, foliis scapisque floriferis instructa; foliis membranaceis orbiculari-ovatis, 12-18 cm. longis et 9-16 cm. latis, apice acutis vel breviter acuminatis, basi vix aequalibus oblique cordatis, margine duplicato-serrato-denticulatis breviter setulosis interdum sinuato-sublobatis, supra conspersissime setulosis (setulis 1 mm. longis), subtus prope basim sparsim hirsutis, nervis basalibus 6 vel 7 bi-trifurcatis, lateralibus utrinsecus 3; petiolo 10-12 cm. longo fere glabro; stipulis ochraceis; scapo usque 30 cm. longo; inflorescentiis flores δ atque ♀ gerentibus; bracteis late ovatis 8-9 mm. longis membranaceis; floribus δ : pedicello \pm 1 cm. longo; tepalis 4, exterioribus ellipticis 1.5 cm. longis et 1.1 cm. latis, interioribus 1.3 cm. longis et 1.1 cm. latis obovatis retusis; staminibus 60 fasciculatim in columnam 1.5 mm. connatis; filamentis 1 mm. longis subaequalibus, connectivo 1 mm. longo apice evidenter inflato, thecis longitudinaliter dehiscentibus inter filamentum et connectivum inflatum positis; floribus ♀ ante anthesim: pedicello \pm 1 cm. longo; tepalis 4 ut in floribus δ ; stylis 3 in columnam brevem connatis deinde in crura spiraliter papillosa partitis; capsula verisimiliter matura 1 cm. longa et lata, alis 3 aequalibus rotundatis 2 mm. medio latis.

BRITISH NEW GUINEA: Mafulu, *Brass 5199* (TYPE in NYBG), October 1933, alt. 1250 m., crevices in limestone rock faces, common (plant very fleshy; leaf-stalk and peduncle reddish pink, lamina pale green; flowers delicate pale pink).

In floral characters this species and *Begonia Archboldiana* very closely resemble each other, but they seem to be distinct in vegetative characters;

the former has not variegated leaves, the hairs on the upper surface of the leaf are shorter, stouter and much more scattered than in the latter, and the bracts of the inflorescence are almost three times as broad and probably white rather than ochraceous.

Begonia Archboldiana sp. nov. Fig. 1, f-k.

Planta acaulis, foliis scapisque floriferis instructa; foliis membranaceis variegatis orbiculari-ovatis, usque 12 cm. longis et 9.5 cm. latis, apice acutis vel breviter acuminatis, basi subinaequalibus leviter oblique cordatis, margine irregulariter subsinuatis vel interdum sinuato-sublobatis (lobis 5 parvis duplicato-serrato-dentatis setulosis), supra consperse setulosis (setulis 2-3 mm. longis interdum crispulis), subtus glabris vel costa nervisque prope basim setulosis; nervis basalibus circiter 6 bifurcatis, lateralibus utrinsecus 3; petiolo usque 18 cm. longo, glabro vel sparsissime hirtello; stipulis ochraceis lanceolatis 1 cm. longis apice longiuscule acuminatis; scapo 10-22 cm. longo glabro; inflorescentiis flores δ atque ♀ gerentibus; bracteis lanceolatis 6 mm. longis acuminatis; floribus δ : pedicello 1-2.5 cm. longo; tepalis 4 glabris, exterioribus ellipticis 1-1.5 cm. longis et 8 mm. latis, interioribus 1-1.2 cm. longis et 6-8 mm. latis obovatis retusis; staminibus 50 fasciculatim in columnam 1-2 mm. connatis; filamentis 1 mm. longis



FIG. 1. a-e. *Begonia physandra* Merr. & Perry, drawn from the type in NYBG: a. habit, $\times \frac{1}{4}$; b. δ flower, $\times \frac{1}{2}$; c. cluster of stamens, enlarged; d. single stamen, enlarged; e. capsule, $\times \frac{1}{2}$. f-k. *Begonia Archboldiana* Merr. & Perry, drawn from the type in NYBG: f. habit, $\times \frac{1}{4}$; g. δ flower, $\times \frac{1}{2}$; h. cluster of stamens, enlarged; i. single stamen, enlarged; j. ♀ flower, $\times \frac{1}{2}$; k. capsule, $\times \frac{1}{2}$. l-q. *Begonia acaulis* Merr. & Perry, drawn from the type: l. habit, $\times \frac{1}{4}$; m. δ flower, $\times \frac{1}{2}$; n. cluster of stamens, enlarged; o. single stamen, enlarged; p. ♀ flower, $\times \frac{1}{2}$; q. capsule, $\times \frac{1}{2}$.

subaequalibus, connectivo 1 mm. longo apice evidenter inflato, thecis longitudinaliter dehiscentibus inter filamentum et connectivum inflatum positis; floribus ♀: pedicello \pm 1 cm. longo; tepalis 4 ut in floribus ♂; stylis 3 circiter 3 mm. in toto longis, basi in columnam 1 mm. connatis subinde in crura 2 mm. longa spiraliter papillosa partitis; ovario 4.5–6 mm. longo et 4–5 mm. lato, alis 3 circiter 0.5 mm. latis; capsula immatura 7 mm. longa et lata subrotundata, alis inconspicuis.

BRITISH NEW GUINEA: Bella Vista, *Brass* 5470 (TYPE in NYBG), November 1933, alt. 1450 m., wet banks of stream in forest (growing in small clump; leaves variegated green and brown; petiole and peduncle red; flowers white; seen only in one locality).

This species and *Begonia physandra* differ from the others we have examined in that the stamens are at the apex of a short column and the connective of the anthers is inflated at the apex; also the styles seem to be united almost to the point where the apex is divided into two parts. In the other species examined, although the three styles may be shortly connate at the base, they soon separate so that they appear free a short distance before the appearance of the stigmatic surface, which in most cases forms a band around the apical branches, these being spirally twisted.

Begonia acaulis sp. nov. § *Diploclinium*. Fig. 1, l–q.

Planta acaulis, foliis scapisque floriferis instructa; foliis membranaceis oblique orbiculari-ovatis, apice obtusiusculis, basi inaequalibus oblique cordatis, margine crenato-sinuatis et duplicato-dentatis ciliatis, supra consperse crispule albido-pilosulis, subtus costa nervisque consperse pilosulis, nervis basalibus 4–6 bi-tri-furcatis, lateralibus utrinsecus 3; petiolo 5–10 cm. longo consperse piloso; stipulis ochraceis; scapo usque 20 cm. longo in sicco complanato sparsim piloso; inflorescentiis flores ♂ atque ♀ gerentibus; bracteis ovato-oblongis 4 mm. longis, margine ciliatis; floribus ♂: pedicello 1.5 cm. longo; tepalis 4 extus sparsim pilosulis, exterioribus late ellipticis 1.1 cm. longis, interioribus 9 mm. longis obovatis emarginatis; staminibus 50 liberis, filamentis 1.5 mm. longis, antheris 1 mm. longis rotundato-cuneatis; floribus ♀: pedicello 1.5–2 cm. longo; tepalis ut in floribus ♂; stylis 3 vix 3 mm. longis basi connatis, apice in crura 2 circiter 1.5 mm. longa spiraliter papillosa fissis; ovario suborbiculari 0.5 mm. diametro consperse piloso alato; capsula 1 cm. longa et 2 cm. lata, alis 3 valde inaequalibus quarum 2 minoribus, basi atque apice ultra loculos 2 mm. productis; alis minoribus aequalibus, obtuse subtriangularibus, margine superiore 5–6 mm. longis, medio 3 mm. latis, una majore elongata, margine superiore 1.8 cm. longa, medio 1.2 cm. lata.

BRITISH NEW GUINEA: Rona, Laloki River, *Brass* 3599 (TYPE), March 1933, alt. 450 m., common rock plant in light rain-forests (whole plant very fleshy; stem, peduncles, petioles and lower part of main leaf-nerves reddish; petals pink; fruit pinkish white).

This species undoubtedly belongs in the same group with *Begonia Sharpeana* F. v. Muell., but the latter is a much more pubescent species, the fruit of which is characterized by a large wing about twice as broad in proportion to its length as in our species.

Begonia Brassii sp. nov. § *Diploclinium*. Fig. 2, a–f.

Herba erecta gracilis; cauli simplice vel apicem versus pauci-ramoso et crispule hirtello deorsum glabro, nodis imis radicante; foliis tenuiter char-

taceis fere membranaceis lanceolato-ellipticis, 3.5–9 cm. longis et 1–3.5 cm. latis, apice acutiusculis, basi valde obliquis, latere exteriori in lobum brevem (5 mm. longum) productis nervis basalibus plerumque 3, latere interiore cuneatis vel subobtusis nervis basalibus 1 vel 2, lateralibus 4 ascendentibus, margine irregulariter remotiuscule subduplicato-dentatis minute setulosis, supra glabris, subtus costa nervisque hirtellis; petiolo 1–3 cm. longo hirtello; stipulis ovatis 5 mm. longis, apice setulosis, glabris ochraceis; inflorescentiis terminalibus vel in axillis superioribus 3–5 cm. longis racemosis flores ♂ atque ♀ gerentibus; bracteis albis late ovatis \pm 8 mm. longis semiamplexicaulibus; floribus ♂ : pedicello circiter 8 mm. longo glabro; tepalis 4 oblongis exterioribus 8 mm. interioribus 4 mm. longis; staminibus 4, filamentis 2 mm. longis liberis, antheris 0.5 mm. longis ovatis vel subrotundatis; floribus ♀ : immaturis; pedicello 5 mm. longo; tepalis 3 vel 4 ellipticis, 8–9 mm. longis, 4.5 mm. latis, apice obtusis; stylis 3 erectis liberis quove 2 mm. supra basim partito, brachiis haud tortis stigmaticis subchartaceis complanatis 2 mm. longis, margine irregulariter erosis obscure papillosis; ovario 2–3 mm. longo glabro, alis inaequalibus; capsula cernua 6 mm. longa, alis 2 aequalibus \pm rotundatis 3 mm. medio latis, una 1 cm. longa et 4 mm. lata chartacea viridescente.

NETHERLANDS NEW GUINEA: Bele River, 18 km. northeast of Lake Habbema, *Brass* 11228 (TYPE), November 1938, alt. 2300 m., forest undergrowth, plentiful in moist gullies (flowers white).

The flowers, both staminate and pistillate, of *Begonia Brassii* and *B. oligandra* closely resemble each other in the very few stamens and the unequal wings of the capsule; two wings are alike and more or less follow the contour of the ovary, while the third is less developed towards the base of the ovary, but in the dried flower apparently lies projecting upward against the tepals, the margin being inconspicuously 2- or 3-dentate somewhat like the margin of a minute leaf. In fruit this wing stands straight out between the other two and is greenish, whereas the two smaller ones tend to be straw-colored in the dried specimens. The style-branches in all the flowers examined are flattened and not in any case twisted, as is usual in the other species of the genus.

Begonia oligandra sp. nov. § *Diploclinium*. Fig. 2, g–k.

Herba erecta gracilis ramosa; radice subcrassa; caule rufescente glabro nodis imis radicante; foliis breviter vel longiuscule petiolatis, petiolo 1–2.5(–4) cm. longo tenui; lamina glabra vel conspersissime setulosa, usque 4.5(–8) cm. longa et 2.5(–5) cm. lata, palmatim 4–6-partita, lobis pinnati-partitis vel bipinnatifidis, lobis ultimis integris vel apicem versus 1- vel 2-inciso-serratis; stipulis ochraceis ovatis \pm 4 mm. longis caducis; inflorescentiis racemosis terminalibus et in axillis superioribus, 2–4 cm. longis, flores ♂ atque ♀ gerentibus; bracteis late ovatis vel fere orbicularibus circiter 1 cm. longis membranaceis albis; floribus ♂ : pedicello circiter 7 mm. longo glabro; tepalis 4 glabris, exterioribus 2 late ovatis 4 mm. longis latisque obtusiusculis, interioribus lanceolato-oblongis 3 mm. longis et 1.5 mm. latis; staminibus 6–8 basi 0.5 mm. connatis, filamentis 2.5 mm. longis, antheris suborbicularibus 0.5 mm. diametro; floribus ♀ : bracteis 6 mm. longis; pedicellis 5 mm. longis; tepalis 4, 2 majoribus ovatis obtusis 7 mm. longis, 2 minoribus lanceolatis 3–5 mm. longis; stylis 3 ad basim

liberis, quove 2 mm. supra basim partito, brachiis circiter 2 mm. longis erectis subtortis papillois; ovario 2 mm. longo; alis inaequalibus, 2 minoribus angustis 0.5 mm. latis rotundatis, una majore oblique desinente, margine superiore 4 mm. longa inferiore minute 2- vel 3-denticulata.

NETHERLANDS NEW GUINEA: 15 km. southwest of Bernhard Camp, Idenburg River, *Brass* 12344 (TYPE), January 1939, alt. 1600 m., on mossy rocks in a rain-forest stream (flowers white); Valley of Bele River \pm 20 km. north of Lake Habbema, *Brass* 10829, October 1938, alt. 2200 m., plentiful in forest shade on low banks of stream (flowers white).



FIG. 2. a-f. *Begonia Brassii* Merr. & Perry, drawn from the type: a. leaf, $\times \frac{1}{2}$; b. δ flower, $\times \frac{1}{2}$; c. cluster of stamens, enlarged; d. f flower, $\times \frac{1}{2}$; e. one style, enlarged; f. capsule, $\times \frac{1}{2}$. g-k. *Begonia oligandra* Merr. & Perry, drawn from the type: g. leaf, $\times \frac{1}{2}$; h. δ flower, $\times \frac{1}{2}$; i. cluster of stamens, enlarged; j. f flower, $\times \frac{1}{2}$; k. one style, enlarged. l. *Begonia otophora* Merr. & Perry, drawn from the type: habit, $\times \frac{1}{2}$. m, n. *Begonia diffusiflora* Merr. & Perry: m. habit, drawn from the type, $\times \frac{1}{2}$; n. capsule, drawn from *Brass* 6713, $\times \frac{1}{2}$.

Among the described Papuan species, this suggests *B. Warburgii* Lauterb. & K. Schum. in the palmate-pinnatifid or bipinnatifid leaves; this character was so distinctive that Lauterbach & Schumann give only a brief description of the fruit: capsule broadly winged, red, 12-13 mm. long. However, if the wings had been conspicuously unlike in size they would surely have mentioned it. Unfortunately none of the plants belonging to the above cited numbers show mature or even partly mature fruits. The ovary has two wings more or less conforming to its contour and a third oblique and somewhat elongate wing projecting or directed upward against the larger tepals in the young flowers, its outer margin is uneven or

minutely denticulate; the whole is very much like that found in *B. Brassii*. The immature flowers do not show papillose styles and sometimes they appear irregular in form, but at maturity they are similar to those of other species of *Begonia*.

Begonia otophora sp. nov. § *Petermannia*. Fig. 2, l.

Planta 50 cm. alta; ramulis crispe ferrugineo-hirtellis; foliis usque 8 cm. longis et 3.5 cm. latis, lanceolato-ellipticis, apice acutis, basi latere exteriori angustatis deinde in lobum orbicularem 1–1.5 cm. productis nervis basalibus 4 vel 5, interiore rotundatis vel obtusis nervis basalibus 1 vel 2, lateralibus utrinsecus 4 vel 5, margine duplicato-serrato-dentatis vel irregulariter breviter incis, setulosis, supra conspersissime setulosis, subtus costa nervisque crispe hirtellis; petiolo \pm 5 mm. longo hirtello; stipulis oblongo-lanceolatis 1 cm. longis, apice setosis, ochraceis, glabris; inflorescentiis δ tantum visis, terminalibus 3 cm. longis immaturis pauciramosis paucifloris; bracteis ut stipulis; pedicellis 0.8–1.5 cm. longis crispe hirtellis; tepalis 2 \pm hirtellis ovatis obtusis 1.1 cm. longis; staminibus paucis circiter 8 basi connatis, antheris oblongis.

NETHERLANDS NEW GUINEA: 4 km. southwest of Bernhard Camp, Idenburg River, *Brass 13218* (TYPE), March 1939, alt. 850 m., rare in rain-forest flood-plain (ascending herb 50 cm. high; upper surface of leaves dark brownish green, the lower surface red; flowers white).

Begonia diffusiflora sp. nov. § *Petermannia*. Fig. 2, m, n.

Planta 50 cm. alta; ramulis ferrugineo-hirsutis, pilis \pm 4 mm. longis; foliis \pm 16 cm. longis et 7 cm. latis, ellipticis, utrinque angustatis, apice acuminatis, acumine \pm 2 cm. longo, basi inaequalibus, in latere exteriori in lobum brevem 5 mm. longum rotundatum productis nervis basalibus 3, interiore cuneatis vel rotundato-cuneatis nervo basali uno, lateralibus utrinsecus 4 vel 5, margine subsinuatis remotiuscule denticulatis setulosis, supra conspersissime pilosis vel glabris, subtus costa nervisque sparsim hirsutis; petiolo circiter 1 cm. longo hirsuto; stipulis linearibus apice in setam longam productis, 1.2 cm. longis, hirtellis; inflorescentiis terminalibus flores δ aut η gerentibus; inflorescentiis δ dichotomo-ramosis 8 cm. longis et 12 cm. latis \pm 30-floris, ramulis sparsim hirtellis vel sursum fere glabris; floribus pedicellatis; tepalis 2 suborbicularibus 5–7 mm. diametro, extus basim versus sparsim pilosis; staminibus 25–30 basi breviter connatis, filamentis antheris subaequilongis, antheris 1 mm. longis oblongis emarginatis, rimis $\frac{1}{2}$ antherae aequilongis; inflorescentiis η bifloris; pedicellis 3 cm. longis sparsim pilosis; tepalis verisimiliter 5 (3 tantum visis) late ovatis 1 cm. longis; stylis 3 basi breviter connatis apice in crura 2 brevia patenti-erecta spiraliter papillosa fissis; ovario 1.5 cm. longo ellipsoideo; alis 3 inaequalibus ultra ovarium 3 mm. productis, una majore rotundata 7 mm. medio lata, 2 minoribus subtriangularibus 5 mm. medio latis.

BRITISH NEW GUINEA: Fly River, 528 mile Camp, *Brass 6713, 7010*, May 1936, alt. 80 m., heavily shaded gully in ridge-forest undergrowth, uncommon (30 cm. high; flowers pink); Palmer River, 2 miles below Black River Junction, *Brass 7318* (TYPE), July 1936, alt. 100 m., a rare species, epiphytic or terrestrial in ridge-forests (fleshy herb 50 cm. high; leaves of older plants reddish brown beneath; flowers pink).

In several characters this plant seems to agree with *Begonia filibracteosa* Irmsch., but the staminate inflorescence is distinctly dichotomously branched, the flowers have fewer stamens with longer lines of dehiscence,

and the ♀ flowers are practically glabrous, although when younger they may have had a few scattered hairs.

Begonia calliantha sp. nov. § *Petermannia*. Fig. 3, a, b.

Planta suffruticosa circiter 2 m. alta; ramulis \pm dense et crispule rufo-hirsutis; foliis 11–12.5 cm. longis et 4–5 cm. latis, oblongo-ellipticis vel ovato-ellipticis, apice acuminatis, acumine \pm 1 cm. longo, basi inaequalibus, latere exteriori in lobum brevem (6 mm. longum) rotundatum productis, nervis basalibus 3 vel 4, interiore late cuneatis vel leviter rotundato-cuneatis nervis basalibus 2, lateralibus utrinsecus 4 valde ascendentibus, margine indistincte duplicato-serrato-dentatis setulosis, supra glabris vel consperse minuteque glanduloso-pubescentibus, subtus dense minute pustulatis, costa venisque crispae \pm dense pilosis; petiolo 0.5–1 cm. longo dense crispae hirsuto; stipulis 2–2.5 cm. longis, 4–5 mm. latis, lineari-oblongis apice in setam 2–3 mm. longam sensim angustatis; inflorescentiis terminalibus circiter 7 cm. longis racemosis; floribus ♂ tantum visis; pedicellis 2 cm. longis crispae hirtellis, basi bracteis glabris 2.5–3 cm. longis et 1–1.2 cm. latis lanceolato-ellipticis apice setulosis; tepalis 2 glabris 3 cm. longis et 2.5 cm. latis, ovatis, basi retusis, apice obtusis; staminibus 50–60, filamentis basi 2 mm. connatis parte superiore liberis, exterioribus 0.5 mm. interioribus 1–1.5 mm. longis, antheris 2.5–3 mm. longis oblongis obtusis, rimis $\frac{2}{3}$ antherae aequilongis.

BRITISH NEW GUINEA: Mount Tafa, Mavi, *Brass 4986* (TYPE in NYBG), September 1933, alt. 2225 m., bed of a small stream in forest (large fleshy shrub about 2 m. high; branches, petioles and peduncles with reddish brown hairs; flowering bracts suffused with red; petals carmine).

Begonia Randiana sp. nov. § *Petermannia*. Fig. 3, c, d.

Planta suffruticosa usque 1 m. alta, ramosa, ex toto ferrugineo-hirsuta; foliis oblongo-lanceolatis, 5–10 cm. longis et 1.5–3 cm. latis, apice acutis, basi latere exteriori in lobum brevem (5 mm. longum) cordatum productis nervis basalibus 2 vel 3, interiore rotundatis nervo basali uno, lateralibus utrinsecus 4 vel 5 ascendentibus, margine irregulariter duplicato-serrato-dentatis vel interdum inciso-lobatis; petiolo \pm 5 mm. longo; stipulis lanceolatis 8 mm. longis, apice abrupte caudatis; inflorescentiis terminalibus flores ♂ atque ♀ gerentibus \pm 5 cm. longis paucifloris; floribus ♂: pedicello 1–2 cm. longo; tepalis 2 ovatis late obtusis 1.5–2 cm. longis; staminibus 20–25 basi 2 mm. connatis, filamentis 1–1.5 mm. longis, antheris 1.6 mm. longis oblongis leviter obovatis obtusis, rimis $\frac{1}{2}$ antherae aequalibus; floribus ♀: tepalis 5 oblongo-lanceolatis, 1.8 cm. longis et 6 mm. latis, obtusis; stylis 5 mm. longis 3, basi breviter connatis sursum liberis, apicem versus in crura 2 breviter (2 mm. longa) ascendente spiritaliter papillosa fissis; ovario late ellipsoideo 8 mm. longo, alis 3 subaequalibus, margine superiore horizontaliter truncatis, basi rotundatis, 4 mm. medio latis; capsula cernua 1.3 cm. longa, 1.5 cm. lata.

BRITISH NEW GUINEA: East Mount Tafa, *Brass 4136*, May 1933, alt. 2100 m., in a moist forest gully (compact small fleshy shrub \pm 50 cm. high; branches purple-red and whole plant covered with long red hairs; petals pinkish white); Mount Tafa, *Brass 4989* (TYPE), September 1933, alt. 2400 m., plentiful in damp mountain-side hollow (densely foliaged fleshy shrub about 1 m. high; branchlets, petioles and peduncles red; flowers white); Mafulu, *Brass 5508*, November 1933, alt. 1100 m., floor plant in lower level forests, rare (low spreading shrub 50–70 cm. high; indumentum red; flowers pale pink).

The collection designated as the type differs from the other two chiefly in its leaf-margins being less deeply incised. In general habit the species seems to approach closely *Begonia fruticella* Ridl., but it is quickly distinguished from that species by having wings similar in size and shape. Dedicated to Dr. A. L. Rand, assistant leader of the Expedition.

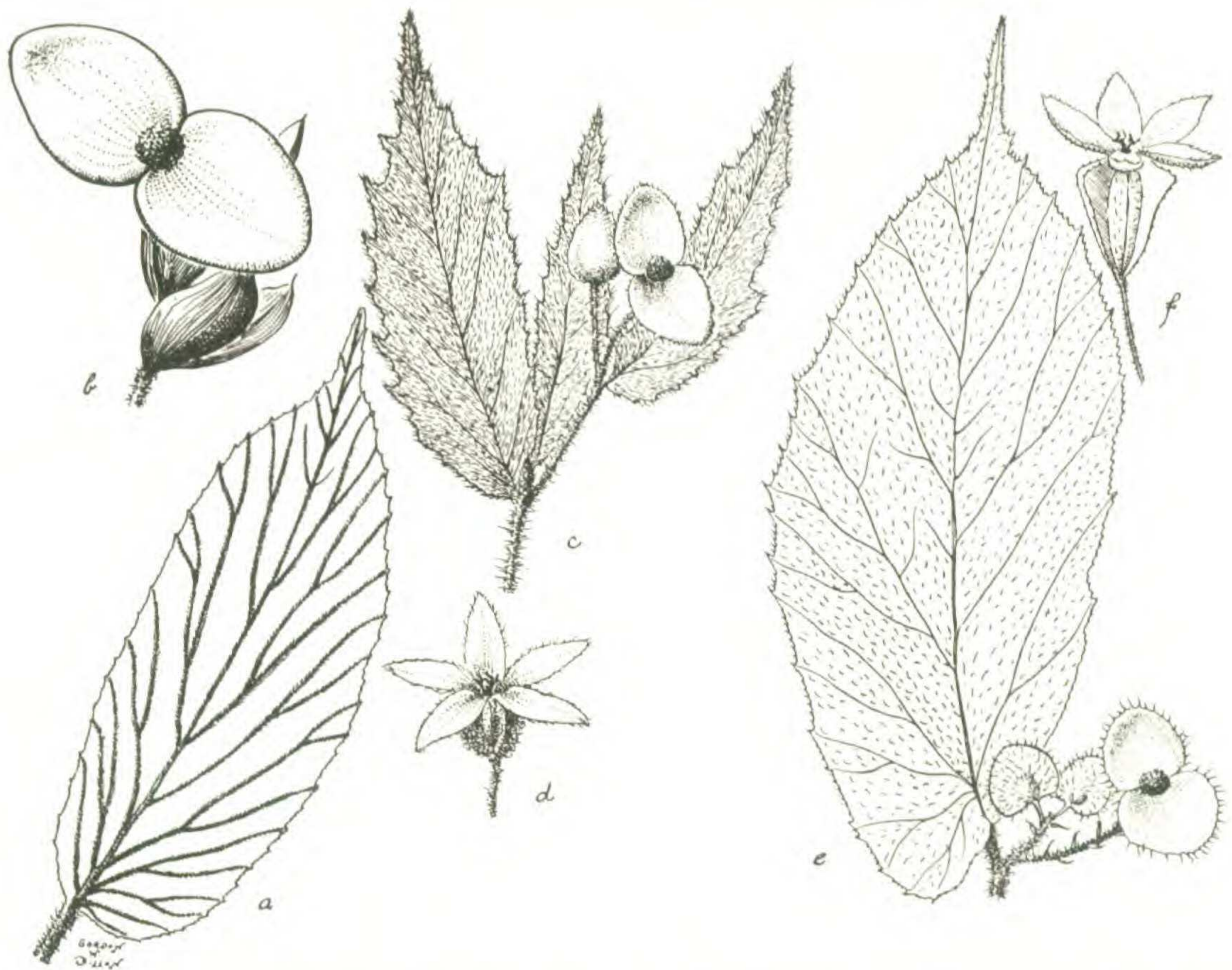


FIG. 3. *a, b.* *Begonia calliantha* Merr. & Perry, drawn from the type in NYBG: *a.* leaf, showing lower surface, $\times \frac{1}{2}$; *b.* portion of δ inflorescence, $\times \frac{1}{2}$. *c, d.* *Begonia Randiana* Merr. & Perry, drawn from the type: *c.* habit, showing δ inflorescence, $\times \frac{1}{2}$; *d.* ♀ flower, $\times \frac{1}{2}$. *e, f.* *Begonia Richardsoniana* Merr. & Perry, drawn from the type: *e.* habit, $\times \frac{1}{2}$; *f.* ♀ flower, $\times \frac{1}{2}$.

Begonia Richardsoniana sp. nov. § *Petermannia*. Fig. 3, e, f.

Planta erecta 60–70 cm. alta; ramulis dense ferrugineo-hirsutis; foliis 9–15 cm. longis et 4.5–6 cm. latis oblongo-ellipticis, apice subabrupte acuminatis, acumine \pm 2.5 cm. longo, basi latere exteriori in lobum brevem rotundatum cordatum productis nervis basalibus 3 vel 4, interiore cuneatis vel rotundato-cuneatis nervis basalibus 1 vel 2, lateralibus circiter 5, utrinque consperse setulosis subtus costa nervisque hirtellis; margine minute duplicato-serrato-dentatis setulosis; petiolo 1–2 cm. longo hirsuto; stipulis hirtellis 1 cm. longis lanceolatis, apice 5 mm. caudatis; inflorescentiis axillaribus: δ \pm 4 cm. longis racemosis; bracteis circiter 6 mm. longis stipulis similibus; pedicellis rufo-hirtellis; tepalis 2 late rotundatis, 1.5 cm. longis, 2 cm. latis, consperse hirtellis; staminibus 50–60, filamentis \pm 1 mm. longis antheris subaequalibus, antheris oblongis emarginatis basi angustatis, rimis fere $\frac{1}{2}$ antherae aequilongis; inflorescentiis ♀ : flore unico

viso consperse setuloso; pedicello 2 cm. longo hirtello; tepalis 5 lanceolato-ellipticis 1.5 cm. longis ciliato-setulosis; stylis 3 circiter 5 mm. longis, basi connatis sursum liberis, apice in crura 2 brevia patentia spiraliter papillosa fissis; ovario 1.5 cm. longo et 0.6 cm. lato, oblongo; alis 3 subaequalibus subtriangularibus, margine superiore leviter oblique et horizontaliter truncatis vix 1 cm. longis, basi cuneatis, 3 mm. medio latis, margine setulosis.

NETHERLANDS NEW GUINEA: 4 km. southwest of Bernhard Camp, Idenburg River, *Brass 13423* (TYPE), March 1939, alt. 850 m., occasional on shady banks of rain-forest streams (erect to 60–70 cm.; all parts including petals sprinkled with red hairs; ♀ flowers pink; ♂ pink to white).

Dedicated to Mr. W. B. Richardson, mammologist of the Expedition.

Begonia oxyura sp. nov. § *Petermannia*. Fig. 4, a, b.

Planta ascendens ramosa; ramulis crispe ferrugineo-hirsutis; foliis chartaceis lanceolato-ellipticis, 9–16 cm. longis et 3–7 cm. latis, apice abrupte caudato-acuminatis, acumine 2–3 cm. longo, basi 7 mm. apicem versus 1 mm. lato, basi valde inaequalibus, uno latere rotundato-auriculatis, lobo 1.5–2.5 cm. longo, nervis basalibus 4 vel 5, altero rotundatis nervis basaliibus 2, lateralibus utrinsecus 2 vel 3, margine sinuatis remote dentatis verisimiliter setulosis utrinque crispe subadpresse hirtellis, subtus costa venisque dense hirsutis; petiolo \pm 1 cm. longo hirsuto; stipulis ovatis, 6 mm. longis, 4 mm. latis, hirsutis; inflorescentiis terminalibus \pm 6 cm. longis, cymosopaniculatis, paucifloris, flores ♂ atque ♀ gerentibus; pedunculo brevissimo usque 2 cm. longo et pedicellis usque 3 cm. longis dense hirtellis; floribus ♂: tepalis 2 oblongo-ellipticis, 1.3–1.5 cm. longis, 6 mm. latis, hirtellis; staminibus \pm 60 basi breviter connatis, filamentis 1 mm. vel ultra longis, antheris 1 mm. longis obovatis emarginatis; floribus ♀ totis hirtellis: tepalis 5 oblongo-lanceolatis, 1.3 cm. longis; stylis 3, basi breviter connatis sursum liberis, apice in crura 2 brevia patentia torte papillosa fissis; ovario ellipsoideo 1.2 cm. longo et 0.7 cm. lato, alis 3 subaequalibus; capsula 2.3 cm. longa cernua, alis rotundatis, apice deorsum leviter obliquis, 9 mm. medio latis.

NETHERLANDS NEW GUINEA: 4 km. southwest of Bernhard Camp, Idenburg River, *Brass 13217, 13457* (TYPE), March 1939, alt. 850 m., on banks of a rain-forest stream (13217: climbing to 3 m.; 13457: herb 60 cm. high; flowers white).

These collections suggest *Begonia torricellensis* Warb., but they differ in having very distinctly acuminate leaves and fruits with very much narrower wings.

Begonia montis Bismarckii Warb. Fl. Deutsch. Schutzgeb. Südsee Nachtr. 322. 1905.

NETHERLANDS NEW GUINEA: 4 km. southwest of Bernhard Camp, Idenburg River, *Brass 13397*, March 1939, alt. 850 m., common in undergrowth of flood-plain rain-forest (herb 70–80 cm. high; flowers white or pale pink).

This collection seems to be a very good match for a fragmentary specimen collected by Schlechter from the Bismarck Mountains in Northeastern New Guinea.

Begonia suffrutescens sp. nov. § *Petermannia*. Fig. 4, c–e.

Planta suffruticosa usque 50 cm. alta ramosa; ramis ramulisque crispule hirsutis, pilis brunneis; foliis chartaceis, 1.5–4.5 cm. longis, 0.5–2 cm. latis, lanceolatis vel subovatis, apice acutis vel acuminatis interdum obtusiusculis,

basi inaequaliter cuneatis vel rotundato-cuneatis, margine grosse serrato-dentatis vel erosis, dentibus setulosis, supra saepissime glabris, subtus costa adpresse hirtellis, nervis primariis in latere exteriori 4, interiori 3 ascendentibus; petiolo circiter 2 mm. longo hirtello; stipulis glabris \pm 5 mm. longis lanceolatis obtusis, apice longiuscule setulosis; floribus δ ex axillis superioribus solitariis vel binis, pedunculis vel pedicellis \pm crispis hirtellis 2 cm. longis prope basim bracteis minimis ochraceis instructis; tepalis 2 ovatis 1.5–1.7 cm. longis glabris albis; staminibus 4–8, filamentis 1–1.5 mm. longis \pm connatis, antheris \pm 2 mm. longis apiculatis, rimis fere antherae aequalibus; floribus η plerumque solitariis ex axillis superiori-



FIG. 4. *a, b. Begonia oxyura* Merr. & Perry: *a.* habit, drawn from *Brass* 13217, $\times \frac{1}{2}$; *b.* η flower, drawn from the type, $\times \frac{1}{2}$. *c–e. Begonia suffrutescens* Merr. & Perry, drawn from the type: *c.* habit, $\times \frac{1}{2}$; *d.* η flower, $\times \frac{1}{2}$; *e.* capsule, $\times \frac{1}{2}$. *f, g. Begonia serraticauda* Merr. & Perry, drawn from the type: *f.* habit, $\times \frac{1}{2}$; *g.* inflorescence, showing η flower and immature δ flower at base, $\times \frac{1}{2}$. *h. Begonia pinnatifida* Merr. & Perry, drawn from the type: habit, $\times \frac{1}{2}$.

bus, pedunculo circiter 1.5 cm. longo crispis hirtello; tepalis 5 lanceolato-ovatis, 9–11 mm. longis, 3–4 mm. latis, glabris, albis; stylis 3 circiter 6 mm. longis, in parte inferiore 2 mm. connatis, apice in crura 2.5 mm. longa erecta in summo apice papillosa fissis; ovario ellipsoideo, 7 mm. longo, 4–4.5 mm. lato, pilis longiusculis sparsim obsito, alis 3 margine superiore truncatis basi rotundatis, sparsim pilosis, in fructu una ala latiore margine superiore 8 mm., ceteris 5 mm. longis; seminibus minute reticulatis.

NETHERLANDS NEW GUINEA: 15 km. southwest of Bernhard Camp, Idenburg River, *Brass* 12030 (TYPE), January 1939, alt. 1750 m., rain-forest, common on banks of

streams and slopes of ravines (30–50 cm. high; flowers white); 6 km. southwest of Bernhard Camp, Idenburg River, *Brass 12985*, February 1939, alt. 1050 m., on banks of a rain-forest stream (ascending to 20–30 cm.; flowers white).

Amongst the descriptions of Papuasian *Begonia*, this species most nearly approaches *B. monantha* Warb., but in that the stamens are many and the anthers ovate. We have found no formal description of the fruit of *B. monantha*, but Irmscher gives a sketch of it in his article on inflorescences, *Bot. Jahrb.* **50**. Suppl.: 573, *figs. 24 a–c*. 1914.

Begonia serraticauda sp. nov. § *Petermannia*. Fig. 4, f, g.

Planta glabra usque 1 m. alta ramosa; caule in sicco rufo-brunnescente, nodis incrassatis; foliis tenuiter chartaceis oblongis vel oblongo-ellipticis, 8–18 cm. longis, 2–7 cm. latis, basi cuneato-rotundatis leviter inaequalibus, in latere exteriori in lobum inconspicuum 2–4 mm. petiolo adnatum instructis, apice sensim caudato-acuminatis, acumine 3–4.5 cm. longo basi 4–6 mm. lato, margine indistincte (acuminis distincte) remotiuscule serratis, nervis primariis in latere exteriori 7–9, interiori 6–8 ascendentibus, venulis ultimis distincte elevatis; petiolo 5–7 mm. longo; stipulis oblongo-lanceolatis 1.8 cm. longis apice setulosis; inflorescentiis cymosis in axillis superioribus paucifloris; floribus ♂: pedicello ± 1.5 cm. longo, tepalis 2 suborbicularibus basi cordatis 1.3 cm. diametro; staminibus 50–60, filamentis brevissimis basi connatis, antheris oblongis vel leviter clavatis 1.5 mm. longis extrorsis, rimis apice conniventibus $\frac{1}{3}$ antherae aequilongis; floribus ♀: pedicello ± 3 cm. longo; tepalis 5 ellipticis utrinque leviter angustatis, 1.5–1.8 cm. longis, 1–1.2 cm. latis, obtusis; stylis 3 circiter 3 mm. longis, basi connatis, apicem versus latioribus et in crura brevia patenti-erecta spiraliter papillosa fissis; ovario ellipsoideo, 1.2 cm. longo, 0.8 cm. lato, alis 3 leviter inaequalibus, margine superiore paullo oblique truncatis, basi rotundatis; capsula cernua, 1.8 cm. longa, 2–2.3 cm. lata.

NETHERLANDS NEW GUINEA: 6 km. southwest of Bernhard Camp, Idenburg River, *Brass 12988*, February 1939, alt. 1050 m., bank of a rain-forest stream (1 m. high; leaf-nerves red; flowers pale pink); 4 km. southwest of Bernhard Camp, Idenburg River, *Brass 13685* (TYPE), *13712*, March 1939, alt. 850 m., flood-plain rain-forest (ascending herb 50–60 cm. high; flowers pink, white or pale pink streaked with darker pink).

In some characters this species suggests *Begonia strictinervis* Irmsch., but the acumen of the leaves is about twice as long as in the latter species, the base of the leaf is not sufficiently auricled to show three basal nerves on the larger side of the blade, the inflorescence is only very few-flowered (in the specimens cited not more than two were seen), the stamens are more than twice as many, and the wings do not extend beyond the apex of the capsule.

Begonia pinnatifida sp. nov. § *Petermannia*. Fig. 4, h.

Planta glabra ramosa nodis inferioribus radicans; ramis gracilibus in sicco ± striatis vel angulatis; foliis tenuiter chartaceis vel fere membranaceis, 4–5.5 cm. longis et 1–1.5 cm. latis, lanceolatis, parte tertia inferiore excepta pinnatifidis, laciniis integris vel 1- vel 2-dentatis setulosis, inferioribus circiter 7 mm. longis sursum decrescentibus, terminalibus linearibus; petiolo 1–1.5 mm. longo; stipulis 8 mm. longis linearibus longiuscule setulosis; inflorescentiis terminalibus; floribus ♂ non visis;

pedicello floris ♀ 1.3 cm. longo; tepalis 5 fere aequalibus late lanceolatis, circiter 9 mm. longis et 3 mm. latis, apice acutis breviter setulosis; stylis basi tantum connatis, 3 mm. longis, apicem versus latioribus, in crura 2 brevia patenti-erecta spiraliter papillosa fissis; ovario ellipsoideo 8 mm. longo utrinque angustato alis toto circumdato, alis 3 subaequalibus, 11 mm. longis \pm 5 mm. medio latis; placentis bilamellatis.

BRITISH NEW GUINEA: Palmer River, 2 miles below Black River Junction, *Brass* 7051 (TYPE), June 1936, alt. 100 m., gregarious in considerable communities in forest ground cover of the more elevated ridges (flowers pale pink; only one plant found in flower).

A striking species readily recognized by the rather small almost sessile lanceolate leaves pinnatifid in the upper two-thirds. The single specimen collected has only one ♀ flower, which is pale pink with translucent strongly veined wings, which project about 1.5 mm. beyond the base and the apex of the ovary.

Begonia stilandra sp. nov. § *Petermannia*. Fig. 5, a-d.

Planta usque 1 m. alta glabra; ramulis in sicco leviter striatis supra nodos angustatis; foliis 8-14 cm. longis, 3-5.5 cm. latis, oblongo-lanceolatis, apice acuminatis, acumine \pm 1 cm. longo, basi valde inaequalibus, latere exteriori in lobum 1.5-2.5 cm. longum rotundato-cordatum productis nervis basalibus 5, interiore rotundatis nervis basalibus 2, lateralibus utrinsecus 2 vel 3, margine duplicato-serrato-dentatis breviter setulosis; petiolo 2-4.5 cm. longo; stipulis caducis haud visis; inflorescentiis terminalibus \pm 9 cm. longis pauciramosis flores ♂ atque ♀ gerentibus; bracteis caducis; floribus ♂: pedicello \pm 1 cm. longo; tepalis 2 ovatis vel ellipticis, 1.7 cm. longis, 1-1.3 cm. latis; staminibus 20-25 fasciculatim in columnam 1-2 mm. connatis, filamentis exterioribus 1 mm. interioribus 2 mm. longis, antheris 3 mm. longis oblongis emarginatis; floribus ♀: pedicello 2(-5) cm. longo; tepalis 5 lanceolato-ellipticis \pm 2 cm. longis, apice acutis; stylis 3 circiter 7 mm. longis, basi 1.5 mm. connatis, apice in crura 2 erecta 3 mm. longa spiraliter papillosa fissis; ovario 1.1 cm. longo ellipsoideo; alis subaequalibus 3, basi rotundatis, ultra ovarium 3 mm. productis, apice horizontaliter truncatis rotundatis, 3 mm. et 4 mm. medio latis.

NETHERLANDS NEW GUINEA: 15 km. southwest of Bernhard Camp, Idenburg River, *Brass* 12301 (TYPE), January 1939, alt. 1750 m., occasional in rain-forest gullies (up to 1 m. high; petioles, nerves and margins of leaves, peduncles and pedicels red; flowers pink, streaked with red); 18 km. southwest of Bernhard Camp, Idenburg River, *Brass* 12499, February 1939, alt. 2000 m., undergrowth of a gully (plant 1 m. high; flowers pink, streaked with red).

At a glance this species is scarcely to be distinguished from *Begonia simulans* Merr. & Perry, but a more careful examination shows the rather distinct character of the staminal column, the fewer and much longer anthers, and the less broadly winged fruit.

Begonia simulans sp. nov. § *Petermannia*. Fig. 5, e-i.

Planta ultra 35 cm. alta glabra; ramulis in sicco sulcatis ferrugineis; foliis 8.5-14 cm. longis, 3-6 cm. latis, apice acuminatis, basi inaequalibus, latere exteriori in lobum 1-2.5 cm. longum rotundatum productis nervis basalibus 4 vel 5, interiore rotundatis vel obtusis nervis basalibus 2 vel 3, lateralibus utrinsecus 3, margine duplicato-serrato-dentatis; costa et petiolo

angulum $\pm 90^\circ$ formantibus; petiolo 1.5–3 cm. longo; stipulis caducis; inflorescentiis terminalibus ± 7 cm. longis ramosis flores δ atque ♀ gerentibus; floribus δ : pedicello 1–2 cm. longo; tepalis 2 suborbicularibus, basi cordatis, ± 1 cm. longis latisque; staminibus 70, filamentis exterioribus ± 0.5 mm. interioribus 1.5 mm. longis, antheris 1.2 mm. longis obovatis obtusis; floribus ♀ : pedicello usque 5 cm. longo; tepalis 5 lanceolato-ovatis 1–1.2 cm. longis; stylis 3 circiter 6 mm. longis, basi 2 mm. connatis,

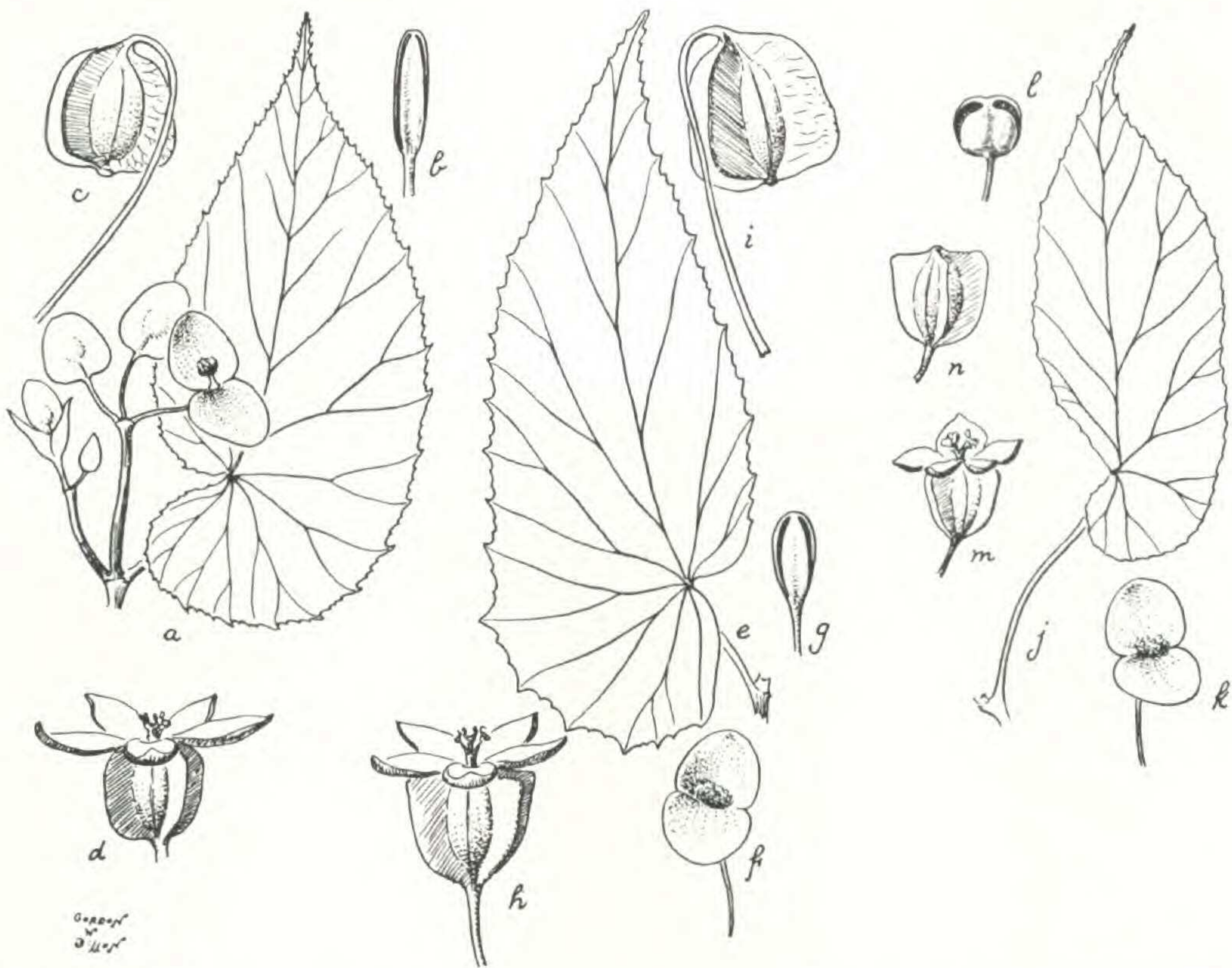


FIG. 5. a–d. *Begonia stilandra* Merr. & Perry, drawn from the type (except d): a. habit, $\times \frac{1}{2}$; b. one stamen, enlarged; c. capsule, $\times \frac{1}{2}$; d. ♀ flower, drawn from Brass 12499, $\times \frac{1}{2}$. e–i. *Begonia simulans* Merr. & Perry, drawn from the type: e. leaf, $\times \frac{1}{2}$; f. δ flower, $\times \frac{1}{2}$; g. single stamen, enlarged; h. ♀ flower, $\times \frac{1}{2}$; i. capsule, $\times \frac{1}{2}$. j–n. *Begonia pediophylla* Merr. & Perry, drawn from the type: j. leaf, $\times \frac{1}{2}$; k. δ flower, $\times \frac{1}{2}$; l. single stamen, enlarged; m. ♀ flower, $\times \frac{1}{2}$; n. capsule, $\times \frac{1}{2}$.

apice in crura 2 circiter 2 mm. longa spiraliter papillosa fissis; ovario 0.8–1.4 cm. longo ellipsoideo, alis 3, quarum 2 paullo minoribus, basi ultra ovarium ± 3 mm. productis, apice horizontaliter truncatis; capsula 2.5 cm. longa et lata, alis 2 minoribus 7 mm. medio latis, una majore 9 mm. medio lata.

NETHERLANDS NEW GUINEA: Balim River, Brass 11835 (TYPE), December 1933, alt. 1800 m., a few plants in forest shade (branches, petioles and leaf-nerves beneath red; flowers pink).

The species is to be compared with *Begonia naumoniensis* Irmsch., with which it has many characters in common. It may be readily distinguished, however, by the smaller leaves with distinctly dentate margin and less cordate base, the more elongate anthers, and the larger ♀ flowers.

Begonia pediophylla sp. nov. § *Petermannia*. Fig. 5, j-n.

Planta parva glabra; foliis lanceolato-oblongis, 6-13 cm. longis, 2-4.5 cm. latis, apice abrupte acuminatis, acumine saepe angusto 0.5-1.5 cm. longo, basi inaequalibus, latere exteriori in lobum 1-2.3 cm. longum rotundatum productis nervis basalibus 3 vel 4, interiore rotundato-cuneatis vel obtusis nervis basalibus 1 vel 2, lateralibus utrinsecus 3 vel 4, margine indistincte serrato-denticulatis; petiolo 1-7.5 cm. longo; stipulis lanceolato-oblongis \pm 7 mm. longis; inflorescentiis terminalibus et axillaribus paucifloris \pm 3 cm. longis, flores δ et η gerentibus; bracteis 1 cm. longis ovato-oblongis; pedicellis 1-1.5 cm. longis; floribus δ : tepalis 2 late ovatis 1 cm. longis, basi leviter cordatis; staminibus \pm 45 basi connatis, filamentis 2-4 mm. longis, antheris obovatis 1 mm. longis latisque, apice truncatis vix retusis, thecis inflatis, rimis antherae fere aequilongis; floribus η : tepalis 5 ellipticis, 10 mm. longis, 6 mm. latis; stylis 3 circiter 6 mm. longis, basi 2 mm. connatis, apicem versus latioribus, apice in crura 2 brevia (2 mm. longa) patenti-erecta spiraliter papillosa fissis; ovario 1 cm. longo 5 mm. lato ellipsoideo, alis 3 subinaequalibus; capsula 1.4 cm. longa et lata, alis margine superiore subtruncatis rotundatis, basi rotundatis, 2 mm. atque 3 mm. medio latis.

BRITISH NEW GUINEA: Wharton Range, Murray Pass, *Brass 4577* (TYPE), July 1933, alt. 2840 m., forest shade (fleshy small shrub; branches, petioles, leaf-margins and nerves beneath red, also peduncles and pedicels; flowers very pale pink, marked with darker lines).

The shape of the anthers, with inflated sacs and gaping sutures, is very much like that pictured for *Begonia naumoniensis* Irmsch., as is also the indistinctly denticulate margin of the leaves. The new species differs in the smaller leaves, the number of stamens, and the much smaller fruits with narrower wings.

Begonia media sp. nov. § *Petermannia*. Fig. 6, a-c.

Planta circiter 1 m. alta; ramulis novellis parce crispe hirtellis cito glabris; foliis 12-24 cm. longis, 4.5-11.5 cm. latis, ovato-ellipticis vel lanceolato-ellipticis, apice acuminatis, acumine 2-2.5 cm. longo, basi valde inaequalibus, latere exteriori in lobum 1-4 cm. longum rotundatum productis nervis basalibus 4 vel 5, interiore obtusis vel paullo rotundatis nervis basalibus 1-3, lateralibus utrinsecus 3 vel 4, margine duplicato-serrato-denticulatis, supra glabris, subtus costa nervisque sparsim hirtellis; petiolo 1-3 cm. longo sparsim crispe hirtello; stipulis oblongo-lanceolatis 1.3 cm. longis glabris; inflorescentiis terminalibus usque 12 cm. longis subracemosis; floribus δ : pedicello glabro \pm 1 cm. longo; tepalis 2 suborbicularibus, 1-1.3 cm. longis, cordatis, glabris vel sparsim hirtellis; staminibus 70-80 basi breviter late connatis; filamentis 0.4-1 mm. longis, exterioribus quam interioribus brevioribus, antheris 1.6 mm. longis oblongis emarginatis; floribus η non visis; pedicello 2 cm. longo; capsula cernua novella sparsim hirtella matura fere glabra, 1.5 cm. longa, 1.8 cm. lata; alis 3 subaequalibus basi rotundatis, ultra ovarium 2 mm. productis, margine superiore horizontaliter truncatis rotundatis, medio 5-6 mm. latis.

BRITISH NEW GUINEA: Mafulu, *Brass 5435* (TYPE in NYBG), November 1933, alt. 1250 m., undershrub in oak forest, rare (about 1 m. high; branches, peduncles, petioles and leaf-nerves beneath red; flowers pink).

Begonia tafaensis sp. nov. § *Petermannia*. Fig. 6, d-f.

Planta 1 m. alta glabra; ramulis in sicco striatis; foliis 11–21 cm. longis, 4.5–7 cm. latis, oblongo-ellipticis, apice acuminatis, acumine \pm 2 cm. longo, basi valde inaequalibus, latere exteriori in lobum usque 3.5 cm. longum rotundatum productis nervis basalibus 5, interiore obtusis nervis basalibus 2, lateralibus utrinsecus 3 vel 4, margine minute denticulatis subsinuatis; petiolo 2–3 cm. longo; stipulis caducis haud visis; inflorescentiis terminalibus usque 10 cm. longis; floribus δ : bracteis anguste oblongis; pedicello \pm 1 cm. longo; tepalis 2 ovato-ellipticis, 2 cm. longis, 1.5 cm. latis, basi leviter cordatis; staminibus 45–55 basi connatis, filamentis 0.5–1.5 mm. longis, antheris 3.5 mm. longis clavatis emarginatis, rimis $\frac{1}{2}$ antherae aequilongis; floribus η non visis; pedicello 2 cm. longo; capsula cernua 1.5 cm. longa et lata, basi subangustata, alis subtriangularibus, margine superioribus \pm 6 mm. longis, 4 mm. medio latis, valde venosis.

BRITISH NEW GUINEA: Mount Tafa, *Brass* 4017 (TYPE in NYBG), May 1933, alt. 2100 m., fairly common in tall forest (fleshy plant 1 m. or more high; stems, petioles, peduncles and pedicels red; flowers pink); same locality, *Brass* 5109, September 1933, alt. 2400 m., damp places in valley forest, rare (erect fleshy sparsely branched shrub about 1 m. high; large pink flowers).

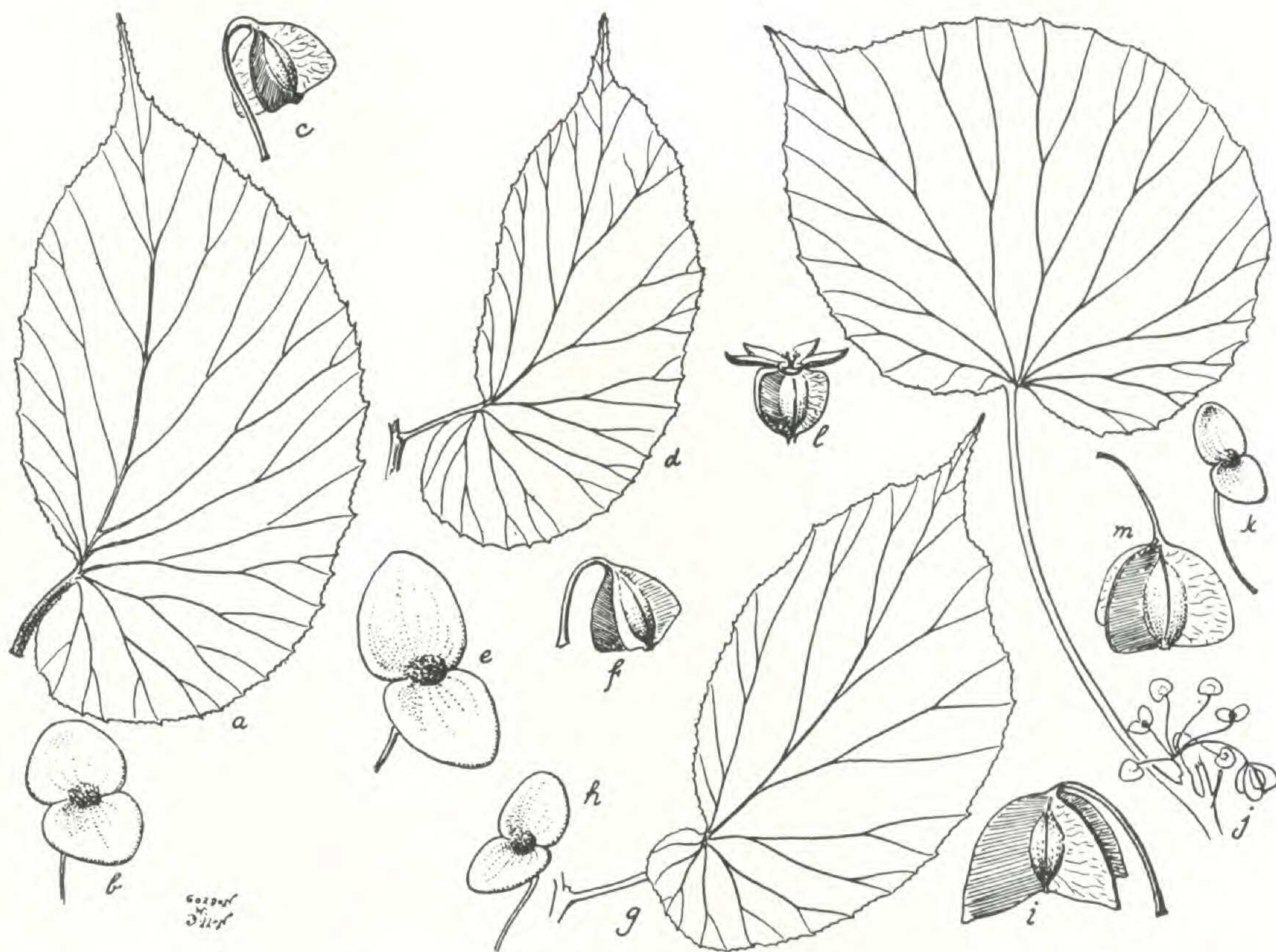


FIG. 6. a-c. *Begonia media* Merr. & Perry, drawn from the type: a. leaf, $\times \frac{1}{4}$; b. δ flower, $\times \frac{1}{2}$; c. capsule, $\times \frac{1}{2}$. d-f. *Begonia tafaensis* Merr. & Perry, drawn from the type (except d): d. leaf, drawn from *Brass* 5109, $\times \frac{1}{4}$; e. δ flower, $\times \frac{1}{2}$; f. capsule, $\times \frac{1}{2}$. g-i. *Begonia salomonensis* Merr. & Perry, drawn from the type: g. leaf, $\times \frac{1}{2}$; h. δ flower, $\times \frac{1}{2}$; i. capsule, $\times \frac{1}{2}$. j-m. *Begonia brachybotrys* Merr. & Perry, drawn from the type: j. habit, $\times \frac{1}{4}$; k. δ flower, $\times \frac{1}{2}$; l. η flower, $\times \frac{1}{2}$; m. capsule, $\times \frac{1}{2}$.

This species is fairly close to *Begonia media* Merr. & Perry, but it lacks the pubescence, the margin of the leaves more nearly approaches an entire condition, and the stamens are fewer. It may be near *B. Vandewateri* Ridl., but the plant is glabrous, although the leaf-veins on the lower surface are somewhat verruculose.

Begonia salomonensis sp. nov. § *Petermannia*. Fig. 6, g-i.

Planta 1-2 m. alta glabra; ramulis in sicco sulcatis; foliis 10-27 cm. longis, 5.5-11.5 cm. latis, ovato-ellipticis, apice subabrupte acuminatis vel acutis, basi latere exteriori in lobum 2-4 cm. longum rotundato-cordatum productis nervis basalibus 5, interiore rotundatis vel cuneatis nervis basalibus 2, lateralibus utrinsecus \pm 3, margine inconspicue serrato-denticulatis interdum sinuatis; petiolo 1.5-4 cm. longo; stipulis haud visis, caducis; inflorescentia δ folio opposita, 8.5 cm. longa, subcymosa; floribus δ circiter 20; pedicello usque 1.5 cm. longo; tepalis 2 subrotundatis 1.2 cm. longis; staminibus \pm 35 basi connatis, filamentis brevibus 0.6-0.8 mm. longis, antheris clavatis 1.6-1.8 mm. longis emarginatis, rimis circiter 0.4 mm. longis; inflorescentia η : axi 4 mm. longa; floribus η non visis; pedicello 2.7 cm. longo; capsula 1.5-1.7 cm. longa, 2.5 cm. lata; alis 3 inaequalibus, basi rotundatis, ultra ovarium 3 mm. productis, in apicem sat acutum desinentibus, 2 brevioribus 7 mm. medio latis, margine superiore 1 cm. longis, una latiore 9 mm. medio lata, margine superiore 1.5 cm. longa.

SOLOMON ISLANDS: Ula wa: Brass 2950 (TYPE), October 1932, swampy rain-forest, on coral limestones (fleshy shrub 1-2 m. high; flowers white; fruits red).

Begonia brachybotrys sp. nov. § *Petermannia*. Fig. 6, j-m.

Herba 80 cm. alta; caule glabro in sicco sulcato; foliis tenuiter chartaceis glabris, 10-20 cm. longis, 6-16 cm. latis, oblique ovato-ellipticis, apice abrupte breviter acuminatis, basi latere exteriori in lobum latum cordatum productis, interiore brevior cordato-rotundato, costa et petiolo angulum $130-140^\circ$ formantibus, palmatim 7-9-nerviis, nervis a basi $\frac{1}{3}$ longitudinis dichotomo-ramosis, margine subsinuatis \pm serrato-denticulatis; petiolo glabro \pm 15 cm. longo, folii laminae fere aequilongo; stipulis caducis probabiliter bracteis similibus; inflorescentiis axillaribus flores δ et η gerentibus, axi 1-3 cm. longa, ramis brevissimis; bracteis novellis 1.5 cm. longis ovatis obtusis caducis; floribus δ : pedicello usque 2 cm. longo; tepalis 2 glabris rotundatis 1 cm. longis latisque; staminibus 50-60, filamentis inaequalibus usque 1.5 mm. longis, antheris 0.8 mm. longis late ellipticis retusis, rimis antherae subaequilongis; floribus η : pedicello \pm 2 cm. longo; tepalis 5 ellipticis 9 mm. longis, apice rotundatis; stylis 3 basi connatis sursum liberis 3 mm. longis, apice in crura 2 circiter 1 mm. longa patienti-erecta spiraliter papillosa fissis; ovario 6-7 mm. longo ellipsoideo, alis 3 subaequalibus; capsula 1.5 cm. longa, 1.6-1.8 cm. lata, alis apice horizontaliter truncatis obtusis, basi 3 mm. ultra loculos productis, 3-4 mm. medio latis.

NETHERLANDS NEW GUINEA: Bernhard Camp, Idenburg River, Brass 14112 (TYPE), April 1939, alt. 55 m., bank of a small stream in rain-forest (herb 80 cm. high; flowers pink). BRITISH NEW GUINEA: Mafulu, Brass 5429, November 1933, alt. 1250 m., oak forest ground cover (about 50 cm. high; stems, petioles and peduncles red; leaves dark green; small pink flowers and red fruits).

This species should be compared with *Begonia strictiformis* Irmsch. from

the North Celebes; the Papuan material is glabrous with axillary inflorescences, fewer stamens, and leaves minutely denticulate.

Begonia novoguineensis sp. nov. § *Petermannia*. Fig. 7, a, b.

Planta 60 cm. alta; ramulis parce hirsutis dein glabratis; foliis ovato-ellipticis, 16–29 cm. longis, 10–15 cm. latis, apice breviter subabrupte acuminatis, acumine 2 cm. longo basi 1 cm. lato, basi latere exteriori in lobum 2–5 cm. longum rotundato-cordatum nervis basalibus 5, interiore rotundatis nervis basalibus 2, lateralibus utrinsecus circiter 5, margine sinuatis inconspicue serrato-denticulatis setulosis, supra glabris, subtus costa nervisque sparsim setulosis; petiolo 2–7 cm. longo parce hirsuto; stipulis \pm 1 cm. longis anguste oblongis, apice setulosis caducis; inflorescentiis δ tantum visis usque 30 cm. longis, racemoso-paniculatis, axi ramisque sparsim hirtellis, ramulis pedicellisque minute glanduloso-pilosis, bracteis parvis stipulis similibus; pedicello 5–7 mm. longo; tepalis 2 late orbicularibus 5–7 mm. longis, minute hirtellis vel glabratis; staminibus circiter 60, filamentis quam antheris brevioribus, antheris 1 mm. longis oblongo-obovatis emarginatis, rimis $\frac{1}{2}$ antherae aequilongis.

NETHERLANDS NEW GUINEA: Hollandia, *Brass 8841* (TYPE), June 1938, alt. 50 m., deep ravine (60 cm. high; leaves red beneath; flowers white).

Among the descriptions of Papuan species of *Begonia*, perhaps this is to be compared to *B. brevirimosa* Irmsch., but it is a much less pubescent plant with about twice as many stamens; the young leaves are rather densely hirsute but very quickly become glabrate.

Begonia subelliptica sp. nov. § *Petermannia*. Fig. 7, c–e.

Planta 1 m. alta foliis novellis exceptis glabra; foliis novellis 5 cm. longis, subtus costa nervisque hirtellis, maturis late obovatis vel ellipticis, 20–25 cm. longis, 13–16 cm. latis, apice obtusis vel rotundatis, basi latere exteriori in lobum 5–6 cm. longum rotundato-auriculatum productis nervis basalibus 6, interiore rotundatis nervis basalibus 3 vel 4, lateralibus utrinsecus 4, margine subsinuatis integris; petiolo 5–7 cm. longo; stipulis oblongis \pm 3 cm. longis, apice obtusis, breviter setosis; inflorescentiis 9–15 cm. longis flores δ atque η gerentibus; floribus δ in ramis brevissimis fasciculatis; pedicello usque 2 cm. longo; tepalis 2 suborbicularibus 1.3–1.8 cm. diametro; staminibus 30–35 basi connatis, filamentis 1–1.5 mm. longis, antheris oblongis 1.5–2 mm. longis obtusis, rimis antherae fere aequilongis; floribus η non visis; pedicello 4.5 cm. longo; capsula cernua 2.2 cm. longa et lata, alis 3 subaequalibus medio 6 mm. latis, basi atque apice angulis rotundatis.

NETHERLANDS NEW GUINEA: 4 km. southwest of Bernhard Camp, Idenburg River, *Brass 13396* (TYPE), March 1939, alt. 850 m., undergrowth of flood-plain rain-forest (single clump 1 m. high; leaf-veins red beneath; flowers white, veined with pink).

Begonia Somervillei Hemsl. Kew Bull. 1896: 17. 1896.

SOLOMON ISLANDS: San Cristobal: Waimamura, *Brass 2644*, August 1932, steep rocky or gravelly slopes sheltered by rain-forest, very common (showy fleshy shrub growing often in dense masses; stems and petioles reddish; inflorescence pale pink).

Described from New Georgia and recorded only by the original description.

Begonia Augustae Irmsch. Bot. Jahrb. **50**: 350, f. 2, A-G. 1913.

BRITISH NEW GUINEA: Oroville Camp, Fly River, Brass 7392, 7417, August 1936, plentiful on steep river bank of red clay (robust plant over 1 m. high; leaves dark green, very glossy above; flowers and fruit red in 7392, flowers white in 7417). North-eastern New Guinea.

This should also be compared with *Begonia sogerensis* Ridl.



FIG. 7. a, b. *Begonia novoguineensis* Merr. & Perry, drawn from the type: a. habit, $\times \frac{1}{4}$; b. δ flower, $\times \frac{1}{2}$. c-e. *Begonia subelliptica* Merr. & Perry, drawn from the type: c. habit, $\times \frac{1}{4}$; d. δ flower, $\times \frac{1}{2}$; e. capsule, $\times \frac{1}{2}$. f-j. *Symbegonia papuana* Merr. & Perry, drawn from the type: f. leaf, $\times \frac{1}{2}$; g. δ flower, $\times \frac{1}{2}$; h. cluster of stamens, enlarged; i. η flower, $\times \frac{1}{2}$; j. capsule, $\times \frac{1}{2}$.

Begonia spilotophylla F. v. Muell. Descr. Not. Pap. Pl. **4**: 67. 1876; D'Albertis, New Guin. **2**: 398. 1880; non sensu K. Schum. & Lauterb. (fide Irmscher, Bot. Jahrb. **50**: 345. 1913).

BRITISH NEW GUINEA: Fly River, 528 mile Camp, Brass 6702, 6730, May 1936, alt. 80 m., occasional in forest undergrowth on ridges, gregarious and very abundant in semi-shade on steep slopes above river (very conspicuous fleshy herb 30-40 cm. high; leaves spotted with silver, the veins purple; flowers pink).

The η flower: tepals 5, oblong, 1.3-1.4 cm. long; styles 3, separate, 4-5 mm. long, broadening at the apex into 2 short spreading spirally papillose lobes; otherwise as in the original description. These parts had apparently fallen before the original specimens were collected.

Symbegonia Warburg

Symbegonia papuana sp. nov. Fig. 7, f-j.

Planta 30–50 cm. alta; caule, ramulis, petiolis et axi inflorescentiae \pm dense et crispule ferrugineo-hirtellis; foliis chartaceis inaequaliter oblongo-ovatis vel oblongo-obovatis, 9–12 cm. longis et 3.5–5 cm. latis, apice breviter obtusiuscule acuminatis, basi inaequalibus, latere exteriori in lobum 0.5–1.5 cm. longum rotundatum productis nervis basalibus 3, interiore rotundatis vel cuneatis nervis basalibus 1 vel 2, lateralibus utrinsecus 3 vel 4, margine remotiuscule denticulatis interdum repandis, supra consperse et crispule subhirtellis vel pilosis, subtus costa nervisque crispe hirtellis; petiolo 0.5–1.5 cm. longo; stipulis late oblongis 1 cm. longis, apice obtusis abrupte setulosis, costa minute pilosis; inflorescentiis terminalibus usque 7 cm. longis; bracteis glabris late ovatis membranaceis verisimiliter albis; floribus δ : pedicello brevi; tepalis 2 ovato-ellipticis, circiter 1 cm. longis, consperse et basim versus dense crispule hirtellis; staminibus \pm 15, filamentis in columnam brevem connatis, antheris late oblongis obtusis 1 mm. longis; floribus η : pedicello 0.5 (fructus 1–1.5) cm. longo; perianthio campanulato in sicco usque 1.5 cm. longo (lobis inclusis 5 mm. longis obtusis) et 0.8 cm. lato, extus consperse crispe pilosulo; stylis 3, basi 1 mm. connatis, deinde in crura 2 stricto-erecta 5 mm. longa torta partitis; ovario ellipsoideo 1 cm. longo, 0.6 cm. lato, sparsim piloso, alato; capsula 1.5 cm. longa et lata, alis subtriangularibus aequalibus, basi rotundatis, apice acutiuscule angulatis apiculatis, margine superiore 6–7 mm. longis, 3 mm. medio latis.

NETHERLANDS NEW GUINEA: 15 km. southwest of Bernhard Camp, Idenburg River, *Brass 12161* (TYPE), January 1939, alt. 1750 m., common in rain-forested gullies (plant 30–50 cm. high; leaf-nerves red beneath; flowers white).

This plant appears to be most like *Symbegonia strigosa* Warb., but it has a much shorter indument and larger and differently proportioned fruits.

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