

ADDITIONS TO OUR KNOWLEDGE OF THE FIGS
OF NEW GUINEA*

V. S. SUMMERHAYES

IN 1935 Diels (Engl. Bot. Jahrb. **67**: 177–235) published an account, with analytical keys, of all the *Ficus* species recorded from the island of New Guinea and the neighbouring Bismarck Archipelago, in which our knowledge of this genus was brought up to date.

Since then several valuable collections of figs made in New Guinea have been placed in my hands for study, resulting in the addition of many records to those given by Diels and the description of several new species. The notes here offered are based mainly on the collections of the first two Archbold Expeditions in 1933–4 and 1936–7, for the material of which I am indebted to the New York Botanical Garden and the Arnold Arboretum respectively; a complete account is given of these two collections. There are also included a number of interesting records from the large collections made in Eastern Papua by C. E. Carr, some of whose specimens have not yet been worked out finally, and from sundry other collections. I hope later to publish a further paper dealing with those specimens not cited here. For convenience the sequence followed is that of Diels, except in certain cases in which I disagree with his conclusions; these changes are commented on where they occur. It should not be assumed, however, that in the absence of comment I am necessarily in agreement with Diels, as the position of some species is still under consideration.

Sect. UROSTIGMA

Ficus sterrocarpa Diels in Engl. Bot. Jahrb. **67**: 179 (1935).

PAPUA: Central Division, Boridi, 1500 m. alt., in forest, tree 24 m., fruit yellow-green, September 1935, *Carr* 13371.

Ficus sclerotiara Diels, l.c. 180.

PAPUA: Western Division, Fly River, 528 mile Camp, 80 m. alt., common large canopy tree (not constricting) on the ridges, grey, slightly flaky bark, dry stipules persistent, fruit green, very hard, $\pm$ 3.5 cm. diam., solitary or in pairs in upper leaf axils, May 1936, *Brass* 6686.

*Botanical Results of the Richard Archbold Expeditions.

This specimen differs from the specimens cited by Diels (*Schlechter 17765, 17501*) in the slightly different venation of the leaves and the glabrous stipules, stem, peduncles and receptacles. In floral structure, however, there is complete agreement.

Ficus myrmekiocarpa Summerhayes, sp. nov.; a *F. Watkinsiana* F. M.

Bail. foliis majoribus latioribusque, receptaculis ellipticis paulo majoribus ostiolo latiore rotundato, florum masculorum bracteolis ellipticis, stigmate bifido differt.

Arbor magna; ramuli crassi, apice circiter 1 cm. diametro, glabri, cortice brunneo fere laevi obtecti, cicatricibus foliorum et stipularum delapsorum distincte notati. Folia longe petiolata, late vel anguste elliptica, apice cuspidato-acuminata, basi obtusa vel late cuneata, 12–27 cm. longa, 6–12 cm. lata, tenuiter coriacea, glaberrima, costa supra subimpressa subtus prominente, nervis lateralibus utrinsecus 20–30 infimis e costa angulo acuto exortis ceteris curvatim subpatentibus $\pm$ parallelis prope marginem nervo submarginali undulato conjunctis, nervis secundariis numerosis distinctis fere prominulis, rete venularum crebro indistincto; petiolus subteres, supra canaliculatus, 5–9 cm. longus, 2–4 mm. diametro, glaber, cortice brunneo leviter ruguloso obtectus; stipulae lanceolatae, acuminatae, usque ad 20 cm. longae, glabrae. Receptacula axillaria, bina vel abortu solitaria, pedunculata, ellipsoidea vel ovoideo-ellipsoidea, 3.5–4.5 cm. longa, 2.5–3 cm. diametro, apice producta, obtuse mammilliformia, 5 mm. alta et fere 1 cm. diametro, glabra vel sparse papillato-puberula, obtuse et indistincte verruculosa, valde indurata, aurantiaco-rubra, ostiolo vix prominente bracteis tribus incurvatis instructo; pedunculus 1–2 cm. longus, 4–5 mm. diametro, glaber, apice in discum cupularem pubescentem vel glabrum 8–15 mm. diametro dilatatus. Flores saepius e processibus irregularibus lignosis usque ad 7 mm. altis e pariete receptaculi ortis enati, cum squamis numerosis linearibus brunneis commixti. Flores masculi saepius ex apicibus processuum enati, usque ad 2.5 mm. pedicellati, bracteolis (apice pedicelli sitis) ovatis vel ellipticis 2–2.5 mm. longis; perianthii segmenta 3–4 orbicularia, rotundata, 1.6 mm. longa, rubro-brunnea, antheram aequantia; anthera subsessilis, reniformi-oblonga. Flores feminei e lateribus processuum vel rarius e pariete receptaculi enati, sessiles; perianthii segmenta 1–3, lanceolata, acuminata, 1–3 mm. longa, linea media rubra instructa; ovarium $\pm$ ovoideum sed saepius angulare, 2–3 mm. altum, intense rubro-brunneum, stylo infra-apicali vel laterali tenui usque ad 4 mm. longo, stigmate bifido segmentis filiformibus inclusis usque ad 1.5 mm. longo.

PAPUA: Western Division, Wuroi, Oriomo River, 5 m. alt., in river-

bank forest fringe, one example, spreading tree, 15 m. high, receptacles orange-red, January–March 1934, *Brass* 5773 (TYPE); Lower Fly River, east bank opposite Sturt Island, on bank in rain forest, large tree, leaves greyish beneath, fruit hard, orange-red, October 1936, *Brass* 8099.

Evidently a close relative of *F. Watkinsiana* F. M. Bailey from Queensland, which has the same type of receptacle but differs in a number of minor points, particularly in the floral structure. The most striking difference is in the apex of the receptacle which in the Australian species is drawn out into a sort of short narrow proboscis but in *F. myrmekiocarpa* is broad and rounded resembling a mammilla. The specific epithet is given in allusion to the wart-like irregularities of the receptacle wall.

Ficus mafuluensis Summerhayes, sp. nov.; ab omnibus aliis speciebus novoguineensibus subsectionis (*Elasticarum*) receptaculis sessilibus usque ad 6–7 cm. longis induratis apice bracteis duabus compressis carinatis induratis coronatis distinguitur.

Arbor parva, epiphytica; ramuli erecti, crassi, apice 1 cm. diametro, sparse pubescentes, glauci, cicatricibus foliorum et stipularum delapsorum distincte notati. Folia longe petiolata, late elliptico- vel oblongo-lanceolata, apice breviter et subito acuminata, basi late cuneata, usque ad 24 cm. longa et 10 cm. lata, costa supra prominula subtus prominente ut nervi rubra, nervis lateralibus utrinsecus 20–25 duabus infimis angulo acuto exortis ceteris fere patentibus parallelis juxta marginem cum nervo submarginali leviter multiarcurato conjunctis utrinque prominulis, nervis secundariis numerosis, rete venularum indistincto, tenuiter coriacea, utrinque glabra, supra $\pm$ nitentia; petiolus semiteres, supra canaliculatus, 5–7 cm. longus, 3.5 mm. diametro, sparse pubescens, ruber; stipulae lanceolatae, acuminatae, 25–30 cm. longae, extra dense sericeo-canescentes, rubrae. Receptacula axillaria, bina, sessilia, ovoideo-cylindrica vel ovoidea, usque ad 6–7 cm. longa et 3.5–4 cm. diametro, leviter compressa et indistincte 2–4-costata, glabra, aurantiaca, indurata, basi disco cupulari pubescente 1–1.5 cm. diametro instructa, ostiolo prominente bracteis duabus oppositis compressis carinatis induratis instructo. Flores masculi cum femineis commixti, usque ad 2 mm. longe pedicellati, basi bracteolis duabus lineari-lanceolatis vel lanceolatis instructi; perianthii segmenta 3 vel 4, orbicularia, fere 2 mm. longa, pallide flavescentia; anthera sessilis, compressa, reniformis, 2 mm. lata. Flores feminei sessiles; perianthii segmenta 3–4, lineari-lanceolata, rubro-brunnea, 1–2 mm. longa; ovarium ovoideum vel $\pm$ globosum, 1.5–2 mm. altum, atro-brunneum, stylo laterali tenui, stigmate breviter bifido pallidiore.

PAPUA: Central Division, Mafulu, 1200 m. alt., in lower primary forest, uncommon, epiphyte in crown of a very large tree, robust species attaining the proportions of a small tree, branchlets erect, these and petioles glaucous, leaves slightly concave, midrib and nerves red, stipules red, receptacles hard, orange, in axillary pairs, 6–7 cm. long, 3.5–4 cm. diam., September–November 1933, *Brass* 5398.

Easily distinguishable from other Papuan representatives of Sub-Sect. *Elasticae* by the fruit characters as mentioned in the diagnosis. The species resembles *F. pleurocarpa* but differs in a number of minor points such as the indumentum of the twigs, the venation of the leaves, the stipules and the stigmas. Unfortunately, I have not seen authentic material of *F. pleurocarpa* but sterile material in the Brisbane Herbarium, some from the type locality, agrees pretty well with the original description.

Ficus Archboldiana Summerhayes, sp. nov.; a *F. elastica* Roxb. foliis minoribus, receptaculis globosis bracteis $\pm$ orbicularibus persistentibus, a *F. retusa* L. foliis coriaceis nervis lateralibus numerosis subaequalibus, receptaculis bracteisque majoribus, ab utraque florum femineorum perianthio gamophyllo, anthera valde exserta differt.

Arbor juventute epiphytica, usque ad 25 m. alta, omnino glaberrima; ramuli siccitate longitudinaliter rugulosi, cortice atro-brunneo obtecti. Folia modice petiolata, elliptica, oblongo-elliptica vel elliptico-oblanco-lata, apice subito breviter apiculato-acuminata, basi rotundata usque cuneata, 6–11 cm. longa, 3–5.5 cm. lata, tenuiter coriacea, costa supra prominula subtus prominente, nervis lateralibus numerosis subaequalibus $\pm$ parallelis marginem versus reticulato-conjunctis nervum submarginalem irregularem efformantibus, utrinque laevia, supra subnitida; petiolus semiteres, supra anguste canaliculatus, 1.5–3 cm. longus; stipulae lanceolatae, acuminatae, extra atro-brunneae, intus pallidiores, usque ad 2.5 cm. longae. Receptacula axillaria, bina, sessilia, globosa, $\pm$ 1.3 cm. diametro, bracteis basalibus tribus subreniformi-orbicularibus vel orbicularibus 6–7 mm. longis 6–8 mm. latis persistentibus instructa, ochracea vel rubro-brunnea, laevia, ostiolo vix distincto bracteis incurvatis, extra et intus glabra. Flores masculi, feminei cecidiophori et feminei per totum receptaculum commixti. Flores masculi sessiles; perianthium gamophyllum, turbinato-tubulosum, apice irregulariter fissum, 1.5 mm. longum, rubro-brunneum; stamen 1, perianthium duplo superans. Flores feminei cecidiophori sessiles; perianthii segmenta 3–4, ligulata, subacuta vel obtusa, 1.5 mm. longa, rubro-brunnea; ovarium obovoideum, 1 mm.

longum, crasse stipitatum, stylo apicali brevi. Flores feminei sessiles; perianthii segmenta 3–4, ligulata, 1.5 mm. longa, rubro-brunnea; ovarium sessile, late ovoideum vel ovoideo-globosum, 1 mm. longum, stylo sub-apicali, stigmatum acute clavato atro-brunneo.

PAPUA: Western Division, Lower Fly River, east bank opposite Sturt Island, common in rain forest, large constricting fig, fruit soft, globose, reddish-brown, $\pm$ 1.3 cm. diam., October 1936, *Brass* 8065 (TYPE). Central Division, Koitaki, 1500 ft. alt., in forest, tree 24 m., receptacles axillary, ochre, July 1935, *Carr* 12778.

From Diels' description (I have not seen any specimens) I have little doubt that this is identical with the plants described by him as *F. retusa* var. *papuana*. As, however, Diels refers to three of the same specimens under *F. elastica* Roxb., he must have felt doubtful as to the affinity of the plants he had before him. In my opinion the species is not at all closely related to *F. retusa* L. which has very different leaf texture and venation as well as differing in floral characters. The leaves of *F. elastica* more closely approach those of *F. Archboldiana* but the floral differences are considerable. In *F. Archboldiana* the stamen is long exserted from the gamophyllous more or less tubular perianth in which respect the species approaches *F. prolixa* Forst., *F. insignis* Kurz and *F. geniculata* Kurz. *Ficus prolixa* has thinner leaves with definitely unequal lateral nerves and smaller differently coloured receptacles. The other two species differ markedly from *F. Archboldiana* in most characters apart from the stamens.

Ficus regnans Diels in Engl. Bot. Jahrb. **67**: 182 (1935).

PAPUA: Central Division, Rouna, 420 m. alt., climber on rocks in wood on very steep hillside, receptacles axillary, reddish purple when ripe, May 1935, *Carr* 12342.

Ficus rhizophoriphylla King in Jour. Asiat. Soc. Bengal **55**²: 410 (1887).

PAPUA: Western Division, Wuroi, Oriomo River, 30 m. alt., small tree epiphytic on large savannah tree, January–March 1934, *Brass* 6018; Lake Daviumbu, Middle Fly River, in rain forest, large constricting tree, fruit hard, orange-red, September 1936, *Brass* 7703; same locality, large constricting fig of rain-forest canopy, fruit hard, orange-coloured, 10 mm. long, 8 mm. diam., September 1936, *Brass* 7759; Upper Wassi Kussa River, left branch, common tree on river-banks in rain forest, midrib of leaf white, fruit soft, orange-red, compressed, January 1937, *Brass* 8616; Tarara, Wassi Kussa River, occasional in rain forests, large strangling fig, fruit slightly compressed, yellow, "grass" skirt material obtained

from fibrous inner bark of aerial roots, January 1937, *Brass* 8712; Central Division, Koitaki, 480 m. alt., in forest, strangling epiphyte, receptacles axillary, deep orange, June 1935, *Carr* 12655; Koitaki, 450 m. alt., in forest, tree 4.5 m., receptacles axillary, orange, July 1935, *Carr* 12893; Boridi, 1200 m. alt., in forest, tree 42 m., originated as a strangling epiphyte, receptacles axillary, yellowish ochre, September 1935, *Carr* 14292.

Ficus garciniifolia Miq. Ann. Mus. Lugd.-Bat. 3: 218 (1867).

PAPUA: Central Division, Koitaki, 450 m. alt., on stream bank in open country, tree 12 m., receptacles axillary, yellow-green, April 1935, *Carr* 11971.

A new record for the island, the species being previously known only from Timor.

Ficus retusa L. Mant. 129 (1767).

PAPUA: Western Division, Mabaduan, in swampy rain forest, large constricting fig, ripe fruits purple-black, soft, 9–10 mm. diam., April 1936, *Brass* 6549; Lower Fly River, east bank opposite Sturt Island, rain forest, large strangling fig common on riverbanks, ripe fruit soft, smooth, black, $\pm$ 1 cm. diam., October 1936, *Brass* 8084; Central Division, Rona, Laloki River, 450 m. alt., common in rain forests, large constricting species, branches spreading flatly, leaves dark, nerves pale, unripe receptacles about 1 cm. diam., yellow with paler dots, March 1933, *Brass* 3592; Hisiu, in copses in open savannah near sea-shore, tree 15 m., receptacles axillary, when ripe green with a pale pink tinge, February 1935, *Carr* 11394; same locality and habitat, tree 6 m. with many adventitious roots, receptacles axillary, yellow, February 1935, *Carr* 11441 — native name, Magi; Veiya, in swamp forest, sea level, tree 15 m., receptacles axillary, green, March 1935, *Carr* 11588; Koitaki, 450 m. alt., in forest, strangling epiphyte, receptacles axillary, red, April 1935, *Carr* 12092; Rouna, 180 m. alt., open savannah land, limbing on rocks, receptacles axillary, green suffused red, June 1935, *Carr* 12484.

Ficus benjamina L. Mant. 129 (1767).

PAPUA: Western Division, Lake Daviumbu, Middle Fly River, in lake-shore rain forest, large constricting fig, fruit green, September 1936, *Brass* 7702; Lower Fly River, east bank opposite Sturt Island, in rain forest, large strangling tree of the canopy layer, branches weak, drooping, fruit pink, hard, October 1936, *Brass* 7989; Central Division, Rouna, N. bank of Laloki River, 210 m. alt., tree 9 m., receptacles axillary, green with whitish warts, May 1935, *Carr* 12420; locality,

habitat and habit as last, receptacles blackish pink when ripe, May 1935, *Carr 12421*; Rouna, S. bank of Laloki River, among rocks, tree 4.5 m., receptacles axillary, bright rose, May 1935, *Carr 12435*; Koitaki, 450 m. alt., in forest, climber, receptacles axillary, deep pinkish purple, June 1935, *Carr 12706*.

Ficus lacor Buch.-Ham. in Trans. Linn. Soc. Lond. **15**: 150 (1827).

Ficus infectoria Roxb. Hort. Bengal. 66 (1814), nomen, Fl. Ind. **3**: 551 (1832), non Willd.

PAPUA: Central Division, Kanosia, in mangrove swamps, tree 15 m., receptacles axillary, pink, purple and soft when mature, January 1935, *Carr 11017*; Rouna, 210 m. alt., in open savannah land, shrub 3 m., receptacles axillary, bright pink, May 1935, *Carr 12422*.

Ficus stipulosa (Miq.) Miq. Ann. Mus. Lugd.-Bat. **3**: 287 (1867).

PAPUA: Central Division, Rouna, 390 m. alt., open country, tree 15 m. tall, receptacles axillary, purple when ripe, July 1935, *Carr 12814*.

This species is another addition to the New Guinea *Ficus* list, it having been recorded previously only from the Philippines.

Ficus glabella Bl. Bijdr. 452 (1825).

PAPUA: Western Division, Lower Fly River, east bank opposite Sturt Island, in rain forest, large constricting trees spreading long branches over river, young fruit green speckled with pink, October 1936, *Brass 8071*.

TERRITORY OF NEW GUINEA: Morobe Distr., near Andarova village, in forest on mountain side, 1500 m. alt., tree, sterile, December 1936, *Blackwood 126* — vern. name, yefeva.

Ficus pilosa Reinw. in Bl. Bijdr. 446 (1825).

Ficus chrysochlamys Lauterb. & K. Schum. Fl. Deutsch. Schutzgeb. Südsee 274 (1901).

PAPUA: Western Division, Mabaduan, common on granite coast, large constricting fig to 20 m. high, leaves glossy above, midrib white, receptacle small, beaked, April 1936, *Brass 6479*; Lake Daviumbu, Middle Fly River, in rain forest on shore of lake, large constricting fig, leaf-nerves pale, August 1936, *Brass 7481*; Lower Fly River, east bank opposite Sturt Island, common on banks of river in rain forest, large low-spreading tree, fruit in pairs one ripening long before the other, soft, purple-black, 3 cm. long, 2 cm. diameter, October 1936, *Brass 8075*; Upper Wassi Kussa River, left branch, in rain forest, tree 15 m. overhanging river, leaf-nerves white, fruit hard, red flecked with white,

January 1937, *Brass* 8615; Central Division, Kanosia, 60 m. alt., in secondary forest, spreading tree up to 18 m., receptacles axillary, orange when ripe, February 1935, *Carr* 11062.

Ficus chrysochlamys Lauterb. & K. Schum. is, in my opinion, quite incorrectly referred by Diels to *F. Forstenii* Miq. which, at any rate as regards the type form, does not appear to occur in New Guinea.

Ficus patellifera Warb. in K. Schum. & Lauterb. Nachtr. Fl. Deutsch. Schutzgeb. Südsee 241 (1905).

PAPUA: Central Division, Dieni, Ononge Road, 500 m. alt., rain forest, large constricting tree, leaves flat with recurved tip and pale nerves, April 1933, *Brass* 3857.

This species resembles closely certain forms of *F. Forstenii* Miq. and may yet prove to be a variety of that species.

***Ficus* sp.**

PAPUA: Central Division, Mafulu, 1250 m. alt., planted in villages, very large dense-foliaged spreading tree, leaves dark, smooth, midrib white, receptacles red when ripe, September–November 1933, *Brass* 5433.

I have not been able to identify this with any native or exotic fig. In view of the pantropical distribution of sect. *Urostigma* and the poor material of the above collection, I think it best left undetermined.

Sect. SYCIDIUM

Ficus mangiferifolia Lauterb. & K. Schum. Fl. Deutsch. Schutzgeb. Südsee 275 (1901).

PAPUA: Central Division, Rona, Laloki River, 450 m. alt., common in rocky river bed, tree 3–5 m., branching from near base, young leaves yellow-green, terminal bud red, receptacles yellow, tinged red with pale tubercles, 1.3–1.4 cm. diam., March 1933, *Brass* 3588; same locality, 500 m. alt., rocky creek-bed in rain forest, tree 4 m., fruit red spotted with yellow, soft, about 1.5 cm. long and in diam., February 1936, *Brass* 6204; Rouna (= Rona), 210 m. alt., in an island in the Laloki River, tree 12 m., receptacles axillary, pinkish orange, May 1935, *Carr* 12416.

TERRITORY OF NEW GUINEA: New Britain, between Baining Mts. and Toma, *Bateson* 128; Möwehafen, sea level, tropical forest, tree, June 1937, *Blackwood* 301. — vern. name, “imyī” or “imi.”

Ficus dichroa Summerh. in Jour. Arnold Arb. 10: 147 (1929).

PAPUA: Central Division, Kanosia, sea level, in secondary forest, tree 4.5 m., receptacles axillary, single or paired, dull red, February 1935, *Carr* 11208.

Ficus subulata Bl. Bijdr. 460 (1825').

PAPUA: Central Division, Mafulu, 1250 m. alt., forest, small epiphytic tree, receptacles orange-red, 1.1–1.2 cm. diam., September–November 1933, *Brass* 5209; Bella Vista, 1450 m. alt., forest below Oak associations, small spreading tree or large bush 3 m. high, receptacles orange-red, November 1933, *Brass* 5442; Veiya, sea level, in forest, forming dense undergrowth and climbing up trees, receptacles axillary, dark red when ripe, March 1935, *Carr* 11690; Koitaki, 450 m. alt., open place by stream, tree 6 m., receptacles axillary, bright orange-red, April 1935, *Carr* 11927; Boridi, 1050 m. alt., forest, climber, receptacles axillary, red, October 1935, *Carr* 14732; North-Eastern Division, Kokoda, 360 m. alt., forest, small tree, September 1933, *Cheesman* 90.

Ficus philippinensis Miq. in Hook. Lond. Jour. Bot. 7: 435 (1848).

Ficus Decaisneana Miq.; Summerhayes in Jour. Arnold Arb. 14: 62 (1933).

PAPUA: Western Division, Wuroi, Oriomo River, January–March 1934, *Brass* 5889; Central Division, Koitaki, 450 m. alt., bank of stream, tree 12 m., receptacles axillary, ochre-yellow speckled brown, April 1935, *Carr* 11906; Rouna, 420 m. alt., open savannah land, tree 4.5 m., receptacles axillary, pale pinkish olive with an apical green ring, laxly speckled pale brown, May 1935, *Carr* 12331; North-Eastern Division, Kokoda, 360 m. alt., forest, tree 18 m., May 1933, *Cheesman* 26; same locality and altitude, clearing near police-station, tree 15 m., June 1933, *Cheesman* 53; as last, in clearing, tree 18 m., August 1933, *Cheesman* 86.

TERRITORY OF NEW GUINEA: Kelel, 200 m. alt., by mountain stream, tree, September 1907, *Schlechter* 16508. New Britain, Gazelle Peninsula, between Kabakada mission and Vunairima, large tree, December 1934, *Waterhouse* 898 — vern. name, "Naqala."

Diels completely omits this species from his account of the genus, but the specimens cited above agree well with many from the Philippines and elsewhere.

Ficus hylobia Diels in Engl. Bot. Jahrb. 67: 186 (1935).

PAPUA: Central Division, Lala River, 1500 m. alt., forest, tree 12 m., receptacles axillary, green, red inside, February 1936, *Carr* 15711; same locality and habitat, tree 9 m., receptacles axillary, green, February 1936, *Carr* 15797.

Dissections of receptacles of two of the three gatherings cited by Diels revealed female flowers only. This, in conjunction with the floral structure and general appearance, suggests that sect. *Sycidium* is the correct position of this species.

Ficus androbota Summerh. in Jour. Arnold Arb. **10**: 143 (1929).

PAPUA: Western Division, Gaima, Lower Fly River, east bank, common about rain-forest edges, erect tree 6–8 m. high, leaf-nerves pale, fruit 1.1–1.2 cm. diam., November 1936, *Brass* 8298; Wassi Kussa River, Tarara, at margin of rain forest, small tree, fruits soft, purple-black, December 1936, *Brass* 8548.

Ficus gibbosa Bl. Bijdr. 466 (1825).

PAPUA: Western Division, Lower Fly River, east bank opposite Sturt Island, on river bank in rain forest, thick foliated tree 5 m. high, ripe fruit soft, red, depressed-globose, 1.5–1.7 cm. diam., October 1936, *Brass* 8077; Central Division, Rona, Laloki River, 450 m. alt., common in gully rain forest associations, tree 10–12 m., long flatly spreading branches, receptacles soft dark red, 1.5 × 1.2 cm., March 1933, *Brass* 3572; Mafulu, Auga River, 580 m. alt., among rocks on river bank, small grey-barked tree 3 m. high, leaves stiff, pale with whitish midrib and nerves, receptacles slightly scabrous, orange-red, 1.2–1.4 cm. diam., November 1933, *Brass* 5497; Kanosia, at edge of mangrove swamp, tree 9 m., receptacles axillary, golden-yellow, February 1935, *Carr* 11529; Rouna (= Rona), 210 m. alt., forest on N. bank of Laloki River, tree 4.5 m., receptacles green with reddish brown spots, May 1935, *Carr* 12413; Rouna, 210 m. alt., open savannah land, tree 4 m., receptacles golden-yellow, June 1935, *Carr* 12486; Koitaki, 450 m. alt., forest, tree 24 m., receptacles red, July 1935, *Carr* 12876.

The New Guinean plants of this affinity are, I think, best referred to *F. gibbosa* Bl. *Ficus tinctoria* Forst. f., to which Diels reduces *F. gibbosa*, is a Pacific Island species not occurring farther west than the Bismarck Archipelago.

Ficus leptodictya Diels in Engl. Bot. Jahrb. **67**: 196 (1935).

PAPUA: Central Division, Boridi, 1350 m. alt., forest, tree 12 m., receptacles dark red when mature, November 1935, *Carr* 14799.

Ficus ochrochlora Ridl. in Trans. Linn. Soc. Lond. Ser. 2, Bot. **9**: 148 (1916).

PAPUA: Western Division, Palmer River, 2 miles below junction of Black River, 100 m. alt., tree 10 m., fruit green, June 1936, *Brass* 6954; same locality, common in second-growth forests on sandy river banks, tree 5 m., receptacles green with brown tubercles, solitary and sessile in axils, about 2.3 cm. diam., July 1936, *Brass* 7287; Central Division, Mafulu, 1250 m. alt., abundant on banks of small stream, tree up to 6–7 m. with spreading branches, receptacles reddish-brown, slightly

warted, about 1.5 cm. diam., September–November 1933, *Brass* 5337; Brown River, 90 m. alt., on bank, tree 6 m., receptacles green, August 1935, *Carr* 12946.

Obviously closely allied to *F. Gazellae* Engl. but with much larger sessile receptacles with numerous scattered bracts.

Ficus macrorrhyncha Lauterb. & K. Schum. in Fl. Deutsch. Schutzgeb. Südsee 277 (1901).

PAPUA: Central Division, Mafulu, 1100 m. alt., tall forest of lower levels, substage tree 10 m., immature receptacles reddish, about 1 cm. diam., September–November 1933, *Brass* 5376; Isuarava, 1350 m. alt., forest, tree 4 m., receptacles dull pink, February 1936, *Carr* 15529.

TERRITORY OF NEW GUINEA: Kani Mts., 1000 m. alt., in woods, January 1908, *Schlechter* 17225.

In my opinion Diels is quite wrong in reducing this species to *F. celebica* Bl., which has leaves with different venation, base and indumentum, and smaller and differently shaped receptacles. The Schlechter specimen is cited by Diels under *F. Caroli* Diels but appears to be an almost glabrous form of *F. macrorrhyncha*.

Ficus trachypison K. Schum. in Schum. & Lauterb. Fl. Deutsch. Schutzgeb. Südsee 280 (1901).

Ficus pteleiphylla S. Moore in Jour. Bot. **61**, suppl. 49 (1923).

PAPUA: Western Division, Wuroi, Oriomo River, 5 m. alt., in river-bank forest, loosely branched, erect tree, 10 m. high, receptacles orange-red, about 1.2 cm. diam., January 1934, *Brass* 5771; same locality, 5–10 m. alt., rain forest fringing river, slender tree 15 m., sap not milky, leaves dark and shining above, receptacles pale yellow, about 1.4 cm. diam., January 1934, *Brass* 5881; Central Division, Koitaki, 450 m. alt., open country, tree 4.5 m., receptacles deep golden-yellow, April 1935, *Carr* 12030; same locality and altitude, open savannah land, shrub 1 m., fruits green, May 1935, *Carr* ? 12266; as last, forest, tree 18 m., receptacles green, tipped darker, July 1935, *Carr* 12779; Boridi, by Hovea River, forest, 1050 m. alt., tree 6 m., receptacles yellow, October 1935, *Carr* 14736; same locality and altitude, secondary forest, 4.5 m., receptacles orange, November 1935, *Carr* 14934; Isuarava, 1050 m. alt., secondary forest, tree 9 m., receptacles greenish-orange, February 1936, *Carr* 15788.

The type of *F. pteleiphylla* S. Moore agrees well with *F. trachypison* in vegetative and floral characters, the most obvious difference being that the leaf-venation is much more distinct on the under surface. Judging from other specimens this is merely a matter of preservation.

Ficus hystricicarpa Warb. in K. Schum. & Lauterb. Nachtr. Fl. Deutsch. Schutzgeb. Südsee 244 (1905).

PAPUA: Central Division, Mt. Tafa, 2400 m. alt., brushy roadside clearing, a few examples, small erect branched or unbranched shrub to 50 cm. high, receptacles dark green, orifice red, September 1933, *Brass* 5041; Boridi, 1500 m. alt., forest, shrub 2.5 m., receptacles on very short lateral branches, green, September 1935, *Carr* 13335; Lala River, 1650 m. alt., forest, shrub 3 m., receptacles bright red, December 1935, *Carr* 14051; Eastern Division, Ebomi Island, Samarai, sea level, tree 9 m., November 1933, *Cheesman* 132.

Ficus Caroli Diels in Engl. Bot. Jahrb. 67: 200 (1935).

PAPUA: Central Division, Mt. Tafa, 2400 m. alt., in landslip shrubbery, common, bush 1.2–1.5 m., young leaves brown beneath, mature stiff, scabrid, receptacles solitary, hard, pale brown, 1.3–1.5 cm. diam., May–September 1933, *Brass* 5098; Boridi, 1410 m. alt., secondary forest, tree 4.5 m., receptacles dark red, September 1935, *Carr* 13304; Alola, 1860 m. alt., forest, tree 9 m., receptacles on very short lateral branches, deep red when mature, December 1935, *Carr* 13656 (? 15656); Boridi, 1350 m. alt., forest, tree 4.5 m., receptacles green, September 1935, *Carr* 14211; Boridi, 1200 m. alt., forest, tree 9 m., receptacles pale greenish, October 1935, *Carr* 14342; Boridi, 1410 m. alt., secondary forest, shrub 2 m., receptacles deep blackish-purple, November 1935, *Carr* 14866.

Ficus phaeosyce Lauterb. & K. Schum. Fl. Deutsch. Schutzgeb. Südsee 276 (1901).

PAPUA: Central Division, Mafulu, 1500 m. alt., forest, tree 6 m., Dec. 1933, *Cheesman* 130.

Ficus Branderhorstii Diels in Engl. Bot. Jahrb. 67: 201 (1935).

PAPUA: Western Division, Upper Wassi Kussa River, left branch, scattered along gullies in savannah forest, low tree 3–4 m., fruit immature, January 1937, *Brass* 8655.

This specimen is less hairy than the type and the leaves have fewer lateral nerves but the general facies is the same and the two agree in floral characters.

Ficus Armiti King in Jour. Asiat. Soc. Bengal, 55²: 404 (1887).

PAPUA: Central Division, Mafulu, 1250 m. alt., in Oak forests, scandent with slender branches spreading flatly from supporting tree trunk, leaves pale, receptacles solitary, smooth, yellow or orange-yellow, September–November 1933, *Brass* 5293.

Ficus hololampra Diels, l.c. 201.

PAPUA: Western Division, Lower Fly River, east bank opposite Sturt Island, rain forest, common on riverbanks, large independent canopy-tree, stem spur-buttressed, bark brownish-black, rough, fruit depressed-globose, orange-yellow flecked with green, October 1936, *Brass* 8079.

Ficus chaetophora Warb. in K. Schum. & Lauterb. Nachtr. Fl. Deutsch. Schutzgeb. Südsee 246 (1905).

Ficus adenosperma Summerh. in Jour. Arnold Arb. 10: 143, 206 (1926), non Miq.

PAPUA: Western Division, Palmer River, 2 miles below junction of Black River, 100 m. alt., chief component of seral forests of sandy river-banks and islands of stream, tree 8–10 m. with slightly drooping branches, receptacles soft, green, $\pm$ 1.7 cm. diam., June 1936, *Brass* 6953; Lower Fly River, Sturt Island, rain forest, spreading tree 8–10 m., in small pure stands on river bank, latex yellow-brown, leaf-nerves white, fruit green, up to 1.2 cm. diam., October 1936, *Brass* 8192; Central Division, Mafulu, 580 m. alt., common along river bottom, tree 15–18 m. with flat spreading branches, leaves pale, nerves whitish, receptacles green, about 1.5 cm. diam., October 1933, *Brass* 5269; Veiya, sea level, riverside swamp forest, tree 4.5 m., receptacles green, March 1935, *Carr* 11598; same locality, secondary forest, tree 4.5 m., receptacles brown-purple with greenish spots, March 1935, *Carr* 11737; Rouna, 240 m. alt., open savannah land, tree 4.5 m., receptacles green, June 1935, *Carr* 12483; Brown River, 90 m. alt., river bank, tree 4.5 m., receptacles green, August 1935, *Carr* 12945.

TERRITORY OF NEW GUINEA: New Britain, Malabungi Mission, in secondary jungle, *New Guinea Dept. Agric. A* 18.

Ficus adenosperma Miq., to which I referred some specimens of this species collected by Brass in 1926, differs from *F. chaetophora* in the different indumentum of the stems, in the midribs of the leaves being adpressed-hairy beneath and in minor floral details. The species are evidently closely allied.

Ficus pycnoneura Lauterb. & K. Schum. Fl. Deutsch. Schutzgeb. Südsee 275 (1901); Diels in Engl. Bot. Jahrb. 67: 187 (1935).

PAPUA: Central Division, Koitaki, 450 m. alt., wood by stream, shrub 2 m., leaves green, nerves rose-red beneath, receptacles shiny green, April 1935, *Carr* 11951.

Diels places *F. pycnoneura* and his new species *F. trichocerasa*, together with *F. aruensis* King, in sect. *Urostigma* where they constitute

one of his four subgroups. Except that *F. pycnoneura* was originally referred to this section, I cannot see on what grounds these species should be included in it, especially as Diels himself says that *F. pycnoneura* is allied to *F. adenosperma* Miq. *Ficus aruensis* appears to me to have nothing to do with the other species and is referred to quite a different section (*Neomorpha*) by King. I have examined material of both the New Guinea species, including the type specimens, and I can find only male and gall flowers in any of the receptacles examined. I have observed no female flowers and indeed all the stigmas seen are of a reduced type found generally in gall flowers. Apart from this, the floral characters are not those of sect. *Urostigma* but rather those of sect. *Sycidium*, to which I believe both species, as well as *F. endochaete* (see below), should be referred. *Ficus xanthoxyla* Summerhayes which, following suggestions made by myself, is placed by Diels in sect. *Eusyce*, is evidently allied to *F. pycnoneura* and should also be included in sect. *Sycidium*.

Ficus endochaete Summerhayes, sp. nov.; affinis *F. pycnoneurae* Lauterb. & K. Schum. et *F. trichocerasae* Diels, a quibus ramulis junioribus $\pm$ patentim molliter pilosis, foliis anguste lanceolatis basi subrotundatis subtus costa et nervis densius indutis, receptaculis bracteis prope apicem pseudo-annulatim dispositis mespili ad instar facile distinguenda.

Arbor parva. Ramuli graciles, juniores dense $\pm$ patentim molliter griseo-pilosi, demum glabrescentes, cortice rubro-brunneo vel griseo-brunneo leviter ruguloso obtecti. Folia breviter petiolata, anguste lanceolata, apice sensim acuminata, basi rotundata vel subrotundata, usque ad 11 cm. longa et 2 cm. lata, marginibus leviter recurvatis, costa et nervis supra impressis subtus prominentibus, nervis primariis utrinsecus 11–15 infimis e costa angulo fere recto superioribus e costa angulo 50° – 60° exortis curvatim adscendentibus prope marginem arcuatim conjunctis, siccitate discoloria, supra juventute adpresse pilosa demum (costa longiuscule adpresseque pilosa excepta) glabra, subtus pallidiora costa et nervis dense adpresseque pilosa ceterum pubescentia; petiolus fere teres, supra leviter canaliculatus, 8–12 mm. longus, $\pm$ dense molliter pilosus; stipulae lanceolatae, acuminatae, circiter 1 cm. longae, costa dorsaliter fulvido-pilosa excepta glabrae. Receptacula axillaria, solitaria, pedunculata, sphaeroidea, 8–9 mm. longa, 9–10 mm. diametro, extra breviter pubescentia, intus inter flores dense brunneo-setulosa, bracteis 1–2 infimis basi receptaculi sitis ceteris prope apicem receptaculi pseudo-annulatim dispositis subcarnosis obtusis, ostiolo vix dis-

tinctorum bracteis leviter prominentibus; pedunculus ebracteatus, gracilis, 7–13 mm. longus, sparse pubescens. Flores masculi cum femineis cecidiophoris in eodem receptaculo inclusi, prope ostiolum dispositi, sessiles; perianthii segmenta 3, distincta, oblonga vel oblanceolata, obtusa, circiter 2 mm. longa, glabra, rubro-brunnea, stamen singulum includentia. Flores feminei cecidiophori sessiles; perianthii segmenta 2–4, iis florum masculorum similia sed lineari-oblonga vel linearia; ovarium ovoideum vel ellipsoideum, stylo laterali vel subapicali stigmate truncato-clavato coronato. Flores feminei non visi.

PAPUA: Central Division, Mt. Tafa, 2400 m. alt., small tree on bank of a stream in forest, leaves pale, receptacles solitary, green, May–September 1933, *Brass* 4913.

From the vegetative and floral characters this species is evidently allied to *F. pycnoneura* Lauterb. & K. Schum. and *F. trichocerasa* Diels, from which it differs most obviously in the very narrow lanceolate leaves, these being elliptical, obovate or broadly oblanceolate in its two relatives. *Ficus trichocerasa* has a number of bracts scattered on the surface of the receptacle, but in *F. endochaete* these are mostly aggregated around the ostiole forming a sort of discontinuous rim and producing an appearance reminiscent of a medlar.

Ficus charadrophila Summerh. in Jour. Arnold Arb. **10**: 152 (1929).

PAPUA: Western Division, Palmer River, 1 mile below junction of Black River, shrub or small tree seldom more than 1 m. high, crown flat, 3–4 m. diam., branches very tough, smooth, purple-black, June 1936, *Brass* 6949.

Ficus Bismarckiana Diels in Engl. Bot. Jahrb. **67**: 206 (1935).

PAPUA: Central Division, Koitaki, 450 m. alt., wood by stream, tree 6 m., receptacles green, tipped dark green, June 1935, *Carr* 12582; Isuarava, 1200 m. alt., secondary forest, tree 9 m., receptacles brownish-olive, February 1936, *Carr* 15609.

TERRITORY OF NEW GUINEA: Admiralty Islands, March 1875, *Moseley*.

Ficus xanthosyce Summerh. in Jour. Arnold Arb. **10**: 144 (1929).

PAPUA: Central Division, Mafulu, 1250 m. alt., forest second growths, common compact tree of erect branching habit, about 5 m. high, ripe receptacles purple, soft and palatable, September–November 1933, *Brass* 5243.

Ficus duriuscula King in Ann. Bot. Gard. Calc. **1**: 155, t. 195 (1888).

PAPUA: Western Division, Lower Fly River, east bank opposite Sturt

Island, rain forest, common on ground occasionally flooded, substage tree 14–16 m., fruit hard, in numerous small fascicles on stem, yellow brown, erect, October 1936, *Brass* 8001; Central Division, Rona, Laloki River, 450 m. alt., common in shelter of rocks on savannah hillside, tree 3–4 m., receptacles occasionally axillary but almost all fasciculate on trunk and branches, 1.5×1.3 cm., red, soft when ripe, March 1933, *Brass* 3567; same locality and altitude, light rain forest on hillside, small tree 5 m. high, leaves shining above, receptacles in fascicles on stem and main branches, broadly pyriform, about 2.5 cm. diam., reddish brown with pale yellow dots, March 1933, *Brass* 3619; near Rouna Falls, 270 m. alt., forest on steep rocky hillside, tree 4.5 m., receptacles on short branches, deep cream suffused rose-red at apex, May 1935, *Carr* 12358; North-Eastern Division, Kokoda, 360 m. alt., forest, small tree, September 1933, *Cheesman* 91.

Ficus muriculata Miq. in Zoll. Syst. Verz. 93, 98 (1854).

Ficus longepedunculata Rechinger; Diels in Engl. Bot. Jahrb. 67: 208 (1935), non Elmer.

PAPUA: Western Division, Tarara, Wassi Kussa River, in village clearing, one tree 6 m. high, midrib and nerves red below, fruit clustered on main branches, brown, depressed, secreting a thick yellow latex, January 1937, *Brass* 8749; Central Division, Veiya, sea-level, forest, tree 12 m., receptacles on very short cauline branches or axillary, very pale green, March 1935, *Carr* 11728; North-Eastern Division, Kokoda, 360 m. alt., forest, April 1933, *Cheesman* 2, May 1933, *Cheesman* 22.

I am not quite certain of the relationship of this to *F. copiosa* Steud. which is very similar in many respects.

Sect. COVELLIA

Ficus septica Burm. f. Fl. Ind. 226 (1768); Diels in Engl. Bot. Jahrb. 67: 194 (1935).

Ficus casearia F. Muell. ex Benth.; Summerh. in Jour. Arnold Arb. 10: 148 (1929).

PAPUA: Western Division, Daru Island, plentiful in low secondary growth on old garden clearings, shrub or small tree, fruit white, March 1936, *Brass* 6243; Lake Daviumbu, Middle Fly River, rain forest, shrub in forest borders or tree 5–6 m. in secondary growth, fruit white, August 1936, *Brass* 7558; Central Division, Rona, Laloki River, 450 m. alt., in shelter of rocks on savannah, tree 3–4 m., no latex, receptacles greenish white, ribbed, up to 2.5 cm. diam., March 1933, *Brass*

3569; Mafulu, 1250 m. alt., plentiful in regrowth brush, bush or small tree 2–3 m., receptacles in axillary pairs, pale green, September–November 1933, *Brass* 5412; Mafulu, 1200 m. alt., on grass slope in forest, young trees 2 m. high, Dec. 1933, *Cheesman* 131; Kanosia, 15 m. alt., under *Hevea*, tree 4.5 m., receptacles axillary, pale green, February 1935, *Carr* 11530; Boridi, 1110 m. alt., secondary forest, tree 5 m., receptacles green, spotted brown, October 1935, *Carr* 14661; Isuarava, 1050 m. alt., secondary forest, tree 7.5 m., receptacles light green, February 1936, *Carr* 15746.

TERRITORY OF NEW GUINEA: Minjem Thor, May 1907, *Schlechter* 16091 (cited by Diels under *F. tinctoria* Forst. f.); Morobe Distr., Andarova, 1500 m. alt., forest on mountain side, small tree, January 1937, *Blackwood* 176; Duke of York Island (between New Britain & New Ireland), *Bradtke* 274; New Britain, Möwehafen, sea-level, tropical rain forest, June 1937, *Blackwood* 314 — vern. name, "Watiri."

I do not understand on what grounds Diels transferred this species from sect. *Covellia* (in which it was placed by King under the name of *F. leucantotoma* Poir.) to sect. *Sycidium*. King's plate shows the gall and female flowers to possess the typical structure of sect. *Covellia*, while specimens from New Guinea possess identical floral structure. It is interesting to note that although all the specimens I have seen from Malaya and the mainland of New Guinea possess strictly axillary receptacles, there are some in the Kew Herbarium from the Admiralty Islands and from the New Hebrides in which some of the receptacles are borne on leafless cauline branches such as are found generally in sect. *Covellia*. In other respects these specimens agree perfectly with material bearing axillary receptacles.

Ficus formosa Summerhayes, sp. nov.; inter species sectionis foliis obovatis inferne subvelutinis, receptaculis axillaribus solitariis, florum cecidiophorum perianthii segmentis liberis apice subspathulatis subulato-acuminatis valde distincta.

Arbor formosa, multiramosa, 16 m. alta; ramuli crassiusculi, longitudinaliter rugulosi, juventute molliter villosuli, demum glabri cortice cinereo-brunneo obtecti, cicatricibus stipularum et foliorum delapsorum notati. Folia breviter petiolata, obovata, apice breviter caudato-acuminata, inferne cuneatim angustata, basi ipsa aequaliter subcordata, 9–14 cm. longa, 5–8 cm. lata, viva pallida, siccitate brunnescentia, supra costa pubescente excepta glabra, subnitentia, subtus praesertim costa et nervis subvelutino-villosula, costa et nervis supra impressis subtus prominentibus, nervis lateralibus utrinsecus 9–13 e costa angulo 65°–85°

exortis parallelis curvatis juxta marginem arcuatim conjunctis, nervis secundariis et tertiariis distinctis, mesophyllo subtus sub lente minute elevato-punctulato; petiolus 1–2 cm. longus, supra canaliculatus, villosulus; stipulae 1–2 cm. longae, extra villosulae. Receptacula axillaria, solitaria, breviter pedunculata, valde depresso globosa, usque ad 3 cm. longa et 4 cm. diametro, extra sparse pubescentia, intus inter flores hyalino-setosa, pedunculo circiter 5 mm. longo quam receptaculo magis piloso apice bracteis tribus brevissimis truncatis instructo, ostiolo vix prominente bracteis numerosis imbricatis levissime adscendentibus instructo. Flores masculi prope ostiolum siti, sessiles; perianthii segmenta 3–4, libera vel basi $\pm$ connata, lanceolato-ligulata, acuta, 3–3.5 mm. longa, stamen superantia, glabra, rubro-brunnea; stamen 1, anthera apiculata 1.5 mm. longa. Flores feminei cecidiophori sessiles vel usque ad 2 mm. pedicellati; perianthii segmenta 5, libera, ex ungue longa angustissima subspathulata, apice subulato-acuminata, tota 3–5.5 mm. longa; ovarium stipitatum, stipite usque ad 3.5 mm. longo, ellipsoideum vel obovoideum, 1–2 mm. longum, atro-brunneum, stylo infra-apicali, stigmatibus breviter infundibuliformi. Flores feminei non visi.

PAPUA: Central Division, Mafulu, 1250 m. alt., in lower primary forest, much branched tree, 16 m. high, leaves pale, receptacles solitary in axils, up to 4×3 cm., September–November 1933, *Brass* 5346.

This species shows such an exceptional combination of characters that it is difficult to place it with confidence in any of the sections proposed by King. In general appearance of the vegetative parts and receptacles it resembles those species of sect. *Covellia* with axillary receptacles, while the infundibuliform stigmas of the gall-flowers are quite similar to those in many species of this section. The perianths of both male and gall flowers are, however, very unlike those usually found in sect. *Covellia*, consisting of several almost or quite free parts, and being much more reminiscent of the perianth in many species of sect. *Sycidium*. In the gall flowers each segment has a long narrow claw with a spathulate lamina at the apex. Corner* points out that in *F. cunia* Ham. the perianth segments in the female flowers are only united at the base. This species, however, has geocarpic receptacles and is in other respects very dissimilar from *F. formosa*.

Ficus hylophila Lauterb. & K. Schum. Fl. Deutsch. Schutzgeb. Südsee 283 (1901).

PAPUA: Western Division, Oriomo River, Wuroi, 10 m. alt., solitary example at river landing place clearing, apparently planted, small bushy

*Jour. Roy. Asiat. Soc. Malay. Branch 11: 21 (1933).

tree 4 m. high, receptacles yellow-green, sweet and palatable, January–March 1934, *Brass* 5792; Central Division, Dieni, Ononge Road, 500 m. alt., common in rain forests, slender tree 5 m., leaves dark and glossy, receptacles clustered on trunk, 1 cm. long, 1.2 cm. diam., florets purple, April 1933, *Brass* 3828; Mafulu, 1250 m. alt., common in lower forests, tree 5–8 m., leaf midrib and nerves whitish, receptacles clustered on lower trunk, numerous, pyriform, November 1933, *Brass* 5506.

Ficus Hahliana Diels in Engl. Bot. Jahrb. **67**: 211 (1935).

PAPUA: Western Division, Fly River, 528 mile camp, 80 m. alt., rain forest secondary growth, slender, sparsely branched tree 6 m. high, fruit costate at apex, in small clusters on stem below branches, May 1936, *Brass* 6755.

This agrees with Diels' description in the indumentum, shape and size of the leaves, the number of lateral nerves, the type of inflorescence, the setose inside of the receptacle and the hairy styles. It differs in the shape of the base and the hairy upper surface of the leaves, the length of the peduncles and the slightly smaller female flowers.

Ficus Bernaysii King in Jour. Asiat. Soc. Bengal **55**²: 406 (1887).

PAPUA: Central Division, Isuarava, 1350 m. alt., secondary forest, tree 6 m., receptacles on short, very dense lateral branches, brown, February 1936, *Carr* 15517.

Ficus grandis King in Ann. Bot. Gard. Calcutta **1**: 170, t. 214 (1888).

PAPUA: Central Division, Rona, Laloki River, 450 m. alt., rare in shelter of rocks on open savannah, stiffly branched small tree 4 m. high with very slightly fissured bark, leaves stiff, white-flecked on upper surface, receptacles clustered on trunks and along branches, depressed pyriform, 3.5 cm. long, 4–5 cm. diam., yellow-green with white flecks and small brown pointed tubercles, rather palatable, March 1933, *Brass* 3551; Kanosia, sea level, in marshy forest, tree 4.5 m., receptacles on very short cauline branches, February 1935, *Carr* 11316; Koitaki, 450 m. alt., in wood by stream, tree 6 m., receptacles in short branched cauline inflorescences, cream, suffused dull red towards the base, April 1935, *Carr* 11949.

Ficus setistyla Warb. in K. Schum. & Lauterb. Nachtr. Fl. Deutsch. Schutzgeb. Südsee 248 (1905).

Ficus grandis Diels in Engl. Bot. Jahrb. **67**: 214 (1935), partim.

PAPUA: Western Division, Dagwa, Oriomo River, 40 m. alt., forest patches in limestone sink-hole, small tree, branchlets hollow, receptacles

in small clusters on trunk and main branches, soft, warty, February 1934, *Brass* 5967; Daru Island, at edge of rain forest, spreading low tree 6 m. high, fruit in numerous fascicles on trunk and main branches, flattened, yellow-green, April 1936, *Brass* 6440; Lake Daviumbu, Middle Fly River, occasional in secondary rain forest, low cauliflorous tree, 4.5 m., fruit green, warted compressed, about 4 cm. diam., September 1936, *Brass* 7740; Central Division, Kubuna, 100 m. alt., riverbank in rain forest regrowths, tree 6 m., branches hollow, receptacles in small clusters on trunk, up to 5 cm. diam., green, November 1933, *Brass* 5605; Veiya, sea level, riverside forest, tree 12 m., receptacles in very short dense cauline branches, olive-green laxly speckled brown, eaten by natives, March 1935, *Carr* 11640 — vern. name, "Nananu."

In his account of the New Guinea figs Diels includes this under *F. grandis* King. Examination of material of both species satisfies me that they should be separated as distinct species. *Ficus setistyla* differs in the leaves being much hairier, in the base being usually markedly cordate with often unequal sides and in the much shorter petiole. The stigmas of the gall flowers are peltate whereas those of *F. grandis* are infundibuliform.

Ficus pachythyrsa Diels in Engl. Bot. Jahrb. 67: 215 (1935).

PAPUA: Western Division, Lower Fly River, east bank opposite Sturt Island, rain forest, substage tree on drier soils, receptacles crowded at ends of thick spreading branches up to 50 cm. long on lower stem, green speckled with brown, about 2 cm. diam., October 1936, *Brass* 8144.

This specimen agrees well with Diels' description except the hairs on the leaf nerves are not closely but only loosely adpressed.

Ficus arfakensis King in Ann. Bot. Gard. Calcutta, 1: 104, t. 133 (1888).

PAPUA: Central Division, Dieni, Ononge Road, 500 m. alt., rain forest, slender tree 10 m., fruiting branches on lower trunk, up to 1 m. long, receptacles pale brown, 1.4 cm. long, 1.6 cm. diam., April 1933, *Brass* 3832; Mafulu, 1250 m. alt., substage of forest on limestone country, tree 7–8 m., leaves thin, brown hirsute beneath, fruiting branches near base of trunk, 1.5 m. long, half their length resting on the ground, October 1933, *Brass* 5227; Koitaki, 450 m. alt., forest, tree nearly 4 m., receptacles on cauline branches, brown, April 1935, *Carr* 12025; Garabinumu, 300 m. alt., forest, tree 6 m., receptacles on basal branches up to 3 m. long, green spotted biscuit, August 1935, *Carr* 12910; Yodda River below Isuarava, 1050 m. alt., secondary forest,

tree 6 m., receptacles on long lateral branches, red-brown speckled cream, February 1936, *Carr 15489*.

Ficus myriocarpa Miq. Ann. Mus. Lugd.-Bat. **3**: 230 (1867).

PAPUA: Western Division, Palmer River, 2 miles below junction of Black River, 100 m. alt., common in older second growth forests on river flood-plains, tree 10–12 m., receptacles on diffuse leafless branches from trunks and main limbs, soft, red, 1.5 cm. diam., July 1936, *Brass 7328*; Central Division, Bella Vista, 1450 m. alt., common in regrowth forest, densely foliated spreading tree about 12 m. high, immature receptacles on long pendent panicles, November 1933, *Brass 5441*; Koitaki, 450 m. alt., forest, tree 15 m., receptacles on basal branches nearly 2 m. long, orange-red, July 1935, *Carr 12807*; Brown River, 90 m. alt., river bank, tree 4.5 m., geocarpic, receptacles on long basal branches, dull red, August 1935, *Carr 12950*; Boridi, 1110 m. alt., forest, tree 9 m., receptacles on long lateral branches sometimes trailing along the ground, dull red, October 1935, *Carr 14664*.

TERRITORY OF NEW GUINEA: Morobe Distr., above Eku, 1500 m. alt., forest on mountain side, tree, fruit branches hang straight from trunk, *Blackwood 224*. Vern. Names: —wikwa (Nauti), gwaip (Mauki).

Ficus conora King in Ann. Bot. Gard. Calcutta, **1**: 103, t. 131 (1888).

Ficus brachiata Ridley in Gibbs, Phytogeogr. & Fl. Arfak Mts. 208 (1917), non King.

NETHERLANDS NEW GUINEA: Manokoeari, 60–150 m. alt., common in high forests, January 1914, *Gibbs 6172*.

PAPUA: Central Division, Koitaki, 450 m. alt., wood by stream, tree 6 m., receptacles on cauline branches, green with whitish spots and brown warts, April 1935, *Carr 11954*; near Rouna Falls, 270 m. alt., forest on steep rocky hillside, tree 6 m., receptacles on long branches, green, tipped darker and spotted brown, May 1935, *Carr 12365*; Boridi, 1050 m. alt., forest, tree 7.5 m., receptacles on lateral branches, green, spotted brown, October 1935, *Carr 14654*; North-Eastern Division, Kokoda, 360 m. alt., near stream in forest, slender tree 4.5 m. high, fruit in loose bunches from the trunk on long twigs of unequal length, May 1933, *Cheesman 30*.

Sect. NEOMORPHE

Ficus nodosa Teysm. & Binn. in Nat. Tijdsk. Nederl. Ind. **29**: 245 (1866).

PAPUA: Western Division, Lower Fly River, east bank opposite Sturt Island, rain forest, cauliflorous tree on river bank, stem plank-

buttressed, bark thin, reddish brown, fruit in paniculate clusters, about 3.5 cm. diam., smooth, reddish-brown spotted with green, October 1936, *Brass* 8047; Central Division, Veiya, sea-level, forest, tree 21 m., receptacles on short cauline branches, dull red spotted pale brown, March 1935, *Carr* 11693.

TERRITORY OF NEW GUINEA: New Britain, Möwehafen, tropical forest, fruit in small bunches from trunk, July 1937, *Blackwood* 342 — Vern. Name, "taganum."

Ficus variegata Bl. Bijdr. 459 (1825).

PAPUA: Western Division, Lower Fly River, east bank opposite Sturt Island, rain forest of moister ridges, large canopy tree, stem spur-buttressed, bark grey-brown, fruit clustered on larger branches, few on stem, about 3 cm. diam., smooth, green flecked with white, October 1936, *Brass* 8223; Central Division, Veiya, sea level, forest, tree 24 m., receptacles on short cauline branches, green, March 1935, *Carr* 11721.

TERRITORY OF NEW GUINEA: New Britain, Möwehafen, sea level, tropical forest, tree, July 1937, *Blackwood* 340 — Vern. Name, "malaya."

Sect. EUSYCE

Ficus distichoidea Diels in Engl. Bot. Jahrb. 67: 221 (1935).

PAPUA: Central Division, Koitaki, 450 m. alt., in forest on an *Artocarpus*, climber, receptacles axillary, orange, May 1935, *Carr* 12112.

Ficus calodictya Summerh. in Jour. Arnold Arb. 10: 149 (1929).

PAPUA: Central Division, Brown River, at Emia creek, 90 m. alt., climber, receptacles axillary, green, August 1935, *Carr* 12925.

Ficus Pantoniana King in Jour. Asiat. Soc. Bengal, 55²: 407 (1887).

PAPUA: Central Division, Koitaki, 450 m. alt., climber on an *Artocarpus* in forest, receptacles axillary, orange-red turning purple when ripe, May 1935, *Carr* 12113.

Ficus cinnabarina S. Moore in Jour. Bot. 61: suppl. 50 (1923).

PAPUA: Western Division, Palmer River, 2 miles below junction of Black River, 100 m. alt., very large root climber of forest canopy, fruit solitary or in pairs, axillary or in lateral fascicles of 2–4, depressed-globose, 3 cm. long, 3.5 cm. diam., red when ripe, soft, fleshy, covered with irritant hairs, July 1936, *Brass* 7214; Lake Daviumbu, Middle Fly River, stiff climber of rain forest canopy, fruit covered with brown irritant hairs, August 1936, *Brass* 7463; Lower Fly River, east bank opposite Sturt Island, common on ridges in rain forest, large root-climber, fruit about 3 cm. diam., green, covered with irritant brown

hairs, florets purple, October 1936, *Brass* 8098; Central Division, Koitaki, 450 m. alt., forest, climber, receptacles axillary, deep rose-red, June 1935, *Carr* 12523.

Ficus Baeuerleni King in Jour. Asiat. Soc. Bengal **55**²: 408 (1887).

PAPUA: Central Division, Koitaki, 450 m., stream bank in open country, climber, receptacles axillary, green, April 1935, *Carr* 11960; same locality and altitude, wood by stream, climber, receptacles axillary, rose-red, June 1935, *Carr* 12591.

Ficus fuscata Summerhayes, sp. nov.; a *F. obtusa* Hassk. foliis majoribus acutioribus basi leviter rotundatis tantum supra haud scaberulis costa et nervis subtus villosulis nec velutino-pubescentibus, receptaculis longius pedunculatis intus inter flores fere glabris distinguitur.

Scandens; ramuli siccitate longitudinaliter rugulosi, juventute dense fulvo-villosi, demum glabri, cortice pallide cinereo-brunneo obtecti, cicatricibus fere orbicularibus prominentibus foliorum delapsorum notati. Folia alterna, petiolata; lamina ovata vel elliptico-ovata, apice breviter acuminata, basi leviter rotundata, 9–17 cm. longa, 4–12 cm. lata, firme chartacea vel fere subcoriacea, basi trinervis, costa (ut nervi) supra impressa subtus prominente, nervis lateralibus utrinsecus 6–8 e costa angulo 30°–45° exortis prope marginem arcuatis inter se indistincte conjunctis prominentibus, nervis secundariis venis venulisque reticulationem crebrem distinctam efformantibus, supra laevis, in statu vivo nitens, praeter costam et nervos inferne villosulos glabra, subtus costa et nervis villosulis exceptis pubescens; petiolus 1.5–3.5 cm. longus, dorsaliter leviter compressus, fulvo-villosulus deinde glabrescens, laevis, brunneus; stipulae dense fulvo-villosulae, 6–8 mm. longae. Receptacula axillaria, gemina, pedunculata, feminea tantum visa, leviter depresso globosa, circiter 2 cm. longa et diametro, immatura pallide rubra, matura atro-purpurea, extra fulvide pubescentia, demum glabrescentia, intus inter flores fere glabra, bracteis basalibus basi receptaculi sitis annulatis conjunctis, ostiolo prominente fulvide villosulo-pubescente bracteis ciliatis; pedunculus circiter 6 mm. longus, setuloso-pubescens et sparse villosulus. Flores feminei saepissime sessiles; perianthii segmenta 3, anguste lanceolata, inter se adhaerentia, usque ad 4.5 mm. longa, ovarium includentia, glabra, rubro-brunnea; ovarium compresse oblongo-ellipsoideum vel sursum sensim angustatum, breviter stipitatum, 2.5 mm. longum, stylo subapicali gracili hyalino, stigmate brunnescente ± clavato cum aliis connato discum ± orbicularem efformantibus. Achaenia immatura late alata, laevia, brunneo-aurantiaca.

PAPUA: Central Division, Dieni, Ononge Road, 500 m. alt., climber in rain forest, upper side of leaves shining, receptacles depressed-globose, 2.2 cm. long, 1.8 cm. diam., pink becoming dark purple when ripe, May 1933, *Brass* 3929.

Not very closely allied to any New Guinea species known to me, but resembling *F. obtusa* Hassk. in general features and particularly in the receptacles and floral structure. *Ficus obtusa*, however, has the interior of the receptacle densely setose between the flowers whereas in *F. fuscata* it is almost glabrous. Both species are known only from the female receptacles. The perianth in both cases is more that of sect. *Sycidium* than of sect. *Eusyce*, but until the male plants are known no decision can profitably be made on this point.

Ficus trichosphaeridia Diels in Engl. Bot. Jahrb. 67: 225 (1935).

PAPUA: Central Division, Koitaki, 450 m. alt., forest, climber, receptacles axillary, brownish-olive with small red warts, June 1935, *Carr* 12622.

Ficus irritans Summerhayes, sp. nov.; affinis *F. trichosphaeridia* Schltr., a qua habitu erecto nec scandente, foliis duplo minoribus basi leviter rotundatis nec cordatis subtus sparsiuscule adpresse pilosis, receptaculis brevissime pedunculatis paulo majoribus differt.

Arbor parva; rami novelli densiuscule adpresse pilosi, demum glabrescentes cortice rubro-brunneo longitudinaliter striato obtecti. Folia petiolata; lamina anguste lanceolato-elliptica vel elliptico-lanceolata, apice breviter acuminata, basi fere vel leviter rotundata, 5–11 cm. longa, 2.5–4 cm. lata, costa et nervis supra impressis subtus prominentibus, nervis lateralibus utrinsecus 4–6 e costa 30°–45° exortis curvatim adscendentibus prope marginem indistincte conjunctis, venis secundariis tertiariis et ultimis distinctis, supra juventute sparsissime adpresse pilosa demum glabra, subtus praesertim costa et nervis adpresse molliter pilosa; petiolus 8–12 mm. longus, teres, supra anguste canaliculatus, subdense adpresse pilosus; stipulae gemmarum lanceolatae, acuminatae, fulvide adpresse pilosae, 1–1.5 cm. longae. Receptacula axillaria, solitaria, brevissime pedunculata, depresso-globosa, matura fusco-rubra, 1.6–1.8 cm. diametro, extra pilis fulvidis irritantibus dense induta, intus inter flores sparse pubescentia, ostiolo leviter producto bracteis vix distinctis; pedunculus 2–3 mm. longus, ebracteatus. Flores masculi et feminei cecidiophori non visi. Flores feminei sessiles vel usque ad 2 mm. pedicellati; perianthii segmenta 3–4, oblanceolata, obtusa, basi angustissima, usque ad 2.5 mm. longa, glabra, rubro-brunnea; pedicellus sparsissime pubescens; ovarium breviter stipitatum, anguste oblongo-

ellipsoideum, circiter 2 mm. longum, stylo subapicali, stigmatibus irregulariter clavato cum iis florum aliorum cohaerente.

PAPUA: Central Division, Mafulu, 1250 m. alt., in forest regrowth, small tree, leaves shining above, receptacles soft, dark red when ripe, 1.6–1.8 cm., covered with irritant hairs, September–November 1933, *Brass* 5260.

This species, which appears from vegetative and floral characters to be a typical member of sect. *Eusyce*, is easily recognised by the small narrowly lanceolate-elliptical leaves with adpressed indumentum underneath and the almost sessile receptacles covered densely with irritant hairs, hence the specific epithet. Curiously enough, although an erect tree itself, its closest relatives are climbers, viz, *F. trichosphaeridia* Diels and *F. balanota* Diels. The differences between *F. irritans* and the former are given in the diagnosis; *F. balanota* has longer leaves with rounder base and soft spreading indumentum beneath, while its smaller receptacles have longer stalks, a much shorter indumentum and a remarkable cone-like projection at the apex leading up to the ostiole.

Ficus insculpta Summerhayes, sp. nov.; ex affinitate *F. sageretinae* Diels et *F. propinquae* Merr., ab illa ramis juventute magis pilosis, foliis latoribus siccitate bullato-rugosis, nervis subtus patentim vel fere recurvatim pubescentibus, receptaculis adpresse ferrugineo-pilosis apice latissime coronatis, ab hac foliis minoribus, stipulis vix persistentibus, receptaculis sessilibus praesertim apice adpresse ferrugineo-pilosis differt.

Scandens; caules teretes, juventute molliter et dense ferrugineo-subhirsuti, demum glabrescentes, cortice fusco-brunneo leviter longitudinaliter striolato lenticellis rotundatis minutis asperulo obtecti, radicibus caespitosis tenuibus glabris instructi. Folia ut videtur disticha, breviter petiolata; lamina lanceolato- usque orbiculari-ovata, apice leviter et breviter acuminata, basi aequaliter cordata vel rotundata, usque ad 8 cm. longa et 5 cm. lata, marginibus saepe leviter recurvatis, costa (ut nervis primariis et secundariis) supra impressa (folia supra subbullato-insculpta) subtus prominente, nervis primariis utrinsecus 5–8 e costa angulo 45°–50° exortis adscendentibus juxta marginem arcuatim conjunctis, reticulationibus ultimis subdistinctis, supra glabra vel basi pilis perpaucis instructa, nitens, subtus praesertim costa et nervis molliter patentim pilosa; petiolus crassiusculus, 5–15 mm. longus, teres, supra angustissime canaliculatus, subdense subhirsutus; stipulae dense hirsutae, circiter 1 cm. longae. Receptacula axillaria, solitaria vel gemina, sessilia, ± globosa, 7–10 mm. diametro, extra praesertim superne sparse

adpressequ ferrugineo-hirsuta, bracteis basalibus deltoideis paleaceo-membranaceis adpresse hirsutis deciduis, ostiolo prominente bracteis vix distinctis vel subprominentibus, intus inter flores glabra vel sparsissime setosa. Flores masculi prope ostiolum siti, sessiles vel breviter pedicellati; perianthii segmenta 3–4, libera, oblonga vel spathulato-oblonga, obtusa, circiter 1.5 mm. longa, glabra, rubro-brunnea; stamina 2, filamentis brevibus, antheris 1–1.2 mm. longis. Flores feminei cecidiophori (immaturi) sessiles vel breviter pedicellati; perianthii segmenta iis florum masculorum similia sed breviora; ovarium breviter stipitatum, obovoideo-globosum, stylo subapicali, stigmate vix incrassato 2–3-denticulato. Flores feminei (immaturi) sessiles vel breviter pedicellati, perianthii segmentis 3–4 ferrugineis oblongis usque lanceolatis, ovario vix evoluto stylo hyalino stigmate hyalino clavato.

PAPUA: Central Division, Mafulu, 1250 m. alt., climbing on tree trunks in forest, leaves stiff, glossy above, receptacles immature, September–October 1933, *Brass 5281* (subsidiary type—female plant); Boridi, 1440 m. alt., climber in forest, receptacles axillary, olive-green, September 1935, *Carr 14231* (TYPE—male-gall plant). A species easily recognised by the small very wrinkled and sub-bullate leaves spreading hairy beneath, and sessile receptacles with the ostiole placed at the apex of a broad obtuse but not well-marked crown.

Ficus hypophaea Schltr. ex Diels in Engl. Bot. Jahrb. **67**: 226 (1935).

PAPUA: Central Division, Alola, 1800 m. alt., climber in forest, receptacles axillary, red-purple, Jan. 1936, *Carr 14155*; Boridi, 1350 m. alt., climber in forest, leaves brown beneath, receptacles axillary, dark green, November 1935, *Carr 14497*.

Ficus Odoardi King in Ann. Bot. Gard. Calcutta **1**: 156, t. 198 (1888).

PAPUA: Central Division, near Rouna Falls, 270 m. alt., forest on steep rocky hillside, climber, receptacles axillary, brown, May 1935, *Carr 12359*; Koitaki, 450 m. alt., climber in forest, receptacles axillary or cauline, deep rose-red with golden hairs, June 1935, *Carr 12696*; Boridi, 1050 m. alt., climber in forest by a river, receptacles axillary, olive tinted red, October 1935, *Carr 14724*.

Ficus microdictya Diels in Engl. Bot. Jahrb. **67**: 229 (1935).

PAPUA: Central Division, East Mt. Tafa, 2300 m. alt., foothill forest on sheltered side of range, tree 15 m., leaves dark and shining above, pale beneath, receptacles axillary, solitary, depressed, 1.8 × 2.2 cm., green, May 1933, *Brass 4075*; Mt. Tafa, 2400 m. alt., rare in forests of narrow valleys, large tree, bark fibrous, pale brown, leaves smooth,

dark, midrib whitish, receptacles axillary, solitary, or in small lateral fascicles, 1.2×2.5 cm., September 1933, *Brass* 4948; same locality, 2550 m. alt., mossy forest on mountain side, 3 m. high, February 1934, *Cheesman* 200.

Ficus ihuensis Summerh. in Jour. Arnold Arb. **10**: 153 (1929); Diels, l.c. 187.

PAPUA: Central Division, Isuarava, 1440 m. alt., forest, tree 36 m., receptacles axillary, green suffused dull red, rose-red inside, February 1936, *Carr* 15426.

The Carr specimen cited above bears male-gall receptacles and these show that the species belongs to sect. *Eusyce* and not to sect. *Urostigma* as assumed by Diels.

Ficus incompta Diels, l.c. 229.

PAPUA: Central Division, Mafulu, 1250 m. alt., lower primary forest, tree 15 m. with numerous short lateral branches, leaves pale floccose beneath, September–November 1933, *Brass* 5326.

Ficus sp.

PAPUA: Central Division, Mafulu, 1250 m. alt., very common in forests and on roadside banks, scandent and closely adpressed to rocks or tree-trunks, galled receptacles up to 1.5 cm. diam., September–November 1933, *Brass* 5348.

This appears to be the early stage of some climbing species which probably develops very different leaves later on. The receptacles all seem to be abnormal, apparently having been attacked by some insect.

Sect. SYNOECIA

Ficus Scratchleyana King in Jour. Asiat. Soc. Bengal **55**²: 404 (1887).

PAPUA: Western Division, Palmer River, 2 miles below junction of Black River, 100 m. alt., rain forest of ridges, large root-climber adpressed to trunk and branches of large trees, fruit globose, soft, yellow, about 1 cm. diam., July 1936, *Brass* 7173; Central Division, Dieni, Ononge Road, 500 m. alt., large root-climber massed on trunk of rain forest tree, leaves dark, shiny, immature receptacles depressed-globose, 2 cm. long, 2.3 cm. diam., green with white flecks, April 1933, *Brass* 3844.

Ficus gymnorygma Summerhayes, sp. nov.; affinis *F. Carri* Corner, a qua foliis breviter petiolatis supra nervis vix impressis subtus fulvide subtomentosis foveis stomatiferis nudis, receptaculi ostioli bracteis prominentibus, florum femineorum perianthii segmentis lineari-filiformibus hyalinis differt.

Frutex alte scandens; rami saepe simplices, juventute dense ferrugineo-tomentosi, demum glabrescentes, cortice brunneo obtecti. Folia (acrophylla) elliptico-lanceolata vel lanceolato-elliptica, apice breviter acuminata, basi $\pm$ rotundata vix vel haud obliqua, 8–16 cm. longa, 4–6.5 cm. lata, marginibus recurvatis, costa supra impressa subtus prominente, nervis primariis utrinsecus 7–9 infimis exceptis e costa angulo recto vel fere recto exortis juxta marginem arcuatim conjunctis subtus prominentibus, nervis secundariis minus distinctis, reticulatione indistincto, inter venas foveis stomatiferis latis sed haud profundis orbicularibus instructa, supra glabra, laevia, subtus praesertim nervis venisque $\pm$ dense fulvide subtomentosa, foveis stomatiferis glabris; petiolus subteres, 1.5–2.5 cm. longus, dense ferrugineo-tomentosus; stipulae breviter adpresse pubescentes, 12 mm. longae. Receptacula aurantiaco-flavida, axillaria, solitaria, breviter pedunculata, fere globosa vel ellipsoidea, 2.5–3 cm. longa, 2.3–2.7 cm. diametro, ostioli bracteis valde prominentibus acutis, extra breviter ferrugineo-pilosa, intus inter flores setoso-pilosa; pedunculus circiter 5 mm. longus, breviter ferrugineo-pilosus, basi vel supra basin bracteis tribus deltoideis acuminatis instructus. Flores masculi et feminei cecidiophori non visi; flores feminei verosimiliter sessiles, perianthii segmentis 3–4 lineari-filiformibus usque ad 4 mm. longis hyalinis, ovario $\pm$ longe stipitato ellipsoideo vel $\pm$ reniformi 2–3 mm. longo ferrugineo, stylo infra-apicali 1–1.5 mm. longo stigmate brevi bifido vel rarius trifido brachiis acutis hyalino. Flores neutri cum femineis commixti et eos aequantes, circiter 3 mm. pedicellati, perianthii segmentis 3 lanceolatis acutis 1.5 mm. longis hyalinis.

PAPUA: Central Division, Bella Vista, 1450 m., in oak forest, root climber with high climbing stems, leaves yellowish, receptacles orange-yellow, Nov. 1933, *Brass* 5474.

The climbing habit, stomata-bearing pits on the lower surface of the leaves and presence of neuter flowers in the seed receptacles indicate that the species should be placed in sect. *Synoecia*. It is, however, much to be regretted that male-gall receptacles were not collected. *Ficus gym-norygma* is the third representative of this section to be recorded from New Guinea, but instead of being allied to *F. Scratchleyana* King and *F. rhopalosycia* Diels, the other Papuan species, it much more closely resembles the Bornean *F. Carri* Corner. From this it differs in many features, the most striking one being that the circular pits on the lower surface of the leaf are glabrous instead of hairy, as in all other species of sect. *Synoecia* having these pits. Another aberrant character is the perianth of the female flowers which is (at all events, in the dried flowers) quite thin and hyaline instead of fleshy and coloured. There

is, however, a little doubt as to the nature of the structures which I have considered as the perianth. They are attached at the very base of the flower and may really be extra long receptacular hairs or perhaps the floral bract and the two bracteoles. If this interpretation is correct there is *no perianth* in the female flowers. The neuter flowers, although typical in general structure, have a thin hyaline perianth.

According to the collector's notes the species is a root-climber but unfortunately no portion bearing roots was collected. Nothing is stated about the presence of more than one type of leaf so that the occurrence of bathyphylls still remains doubtful; the description applies only to what are obviously acrophylls.

ROYAL BOTANIC GARDENS,
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