NEW SPECIES OF STREBLUS AND FICUS (MORACEAE)

E. J. H. CORNER

Botany School, University of Cambridge, U.K.

SUMMARY

New Taxa. — *Streblus* Lour. sect. *Protostreblus, sect. nov.*, with the single species *S. ascendens sp. nov.* (Solomon Isl.); *S. sclerophyllus sp. nov.* (sect. *Paratrophis*, New Caledonia).

Ficus cristobalensis var. *malaitana var. nov.* (subgen. *Pharmacosycea*, Solomon Isl.); *F. hesperia sp. nov.* (sect. *Sycidium*, Solomon Isl.); *F. servula sp. nov.* and *F. lapidaria sp. nov.* (sect. *Adenosperma*, New Guinea); *F. novahibernica* and *F. cryptosyce* (sect. *Sycocarpus*, New Ireland, New Guinea).

Notes are given on *Streblus pendulinus*, *S. solomonensis*, *Ficus illiberalis*, *F. subtrinervia* (Solomon Isl.), *F. adenosperma* (Rotuma), and *F. subcuneata* with a key to its allies.

STREBLUS Lour.

sect. **Protostreblus** *sect. nov.*

Folia spiraliter disposita; lamina ovata v. subcordata, costis basalibus ad mediam laminam elongatis, intercostis transversalibus numerosis. Inflorescentia ut in sect. *Paratrophis;* embryo radicula incumbenti elongata, cotyledonibus foliaceis subincrassatis conduplicatis. Cystolitha nulla. — Typus: *S. ascendens*, Insulis Solomonensibus.

The structural peculiarity of this new section lies in the combination of the *Morus*-like leaf with the reproductive characters of *Streblus* sect. *Paratrophis*. The ovate subcordate lamina with prominent basal veins and numerous transverse intercostals is unknown in the rest of *Streblus*. The lax spiral arrangement of the leaves is clearly antecedent to the distichous which prevails also in the rest of the genus. In various *Moraceae*, such as *Ficus*, *Artocarpus*, *Maclura*, and *Broussonetia* in the broad sense in which I understand them (Corner, 1962), the transition from the spiral arrangement to the distichous is manifest as the twig becomes more horizontal in its growth and develops applanate, in contrast with ascending, foliage. Thus this new section appears to be a remnant of the ancestry of *Streblus*. The leaf-shape with acuminate tip, as the vestige of a longer lamina, fits parallel examples in most sections of *Ficus* where it is one of the shapes of leptocauly with spiral arrangement, e.g. *F. sycomorus*, *F. variegata*, *F. albipila*, *F. grossularioides*, and *F. profusa*. Similar intercostal veining occurs in *Streblus elongatus* and somewhat prominent basal veins may occur in *S. pendulinus*, with which *S. ascendens* may have its nearest relation.

The second peculiarity is the occurrence of the one species in the Solomon Islands. I have pointed out the relatively primitive nature of *Streblus* sect. *Paratrophis* (Corner, 1962, p. 221), the distribution of which is mainly Melanesian, and have shown how several groups of *Ficus* seemed to have come from the Jurassic Melanesian Foreland (Corner, 1967, p. 40—53). If *S. ascendens* is a relic of the ancestry of *Streblus*, it occurs exactly where it would be expected at the centre of distribution of sect. *Paratrophis* in the domain of *S. pendulinus* and near that of the New Caledonian *S. sclerophyllus* (p. 399), the embryo of which bridges the difference between those of *S. ascendens* and *S. pendulinus*.

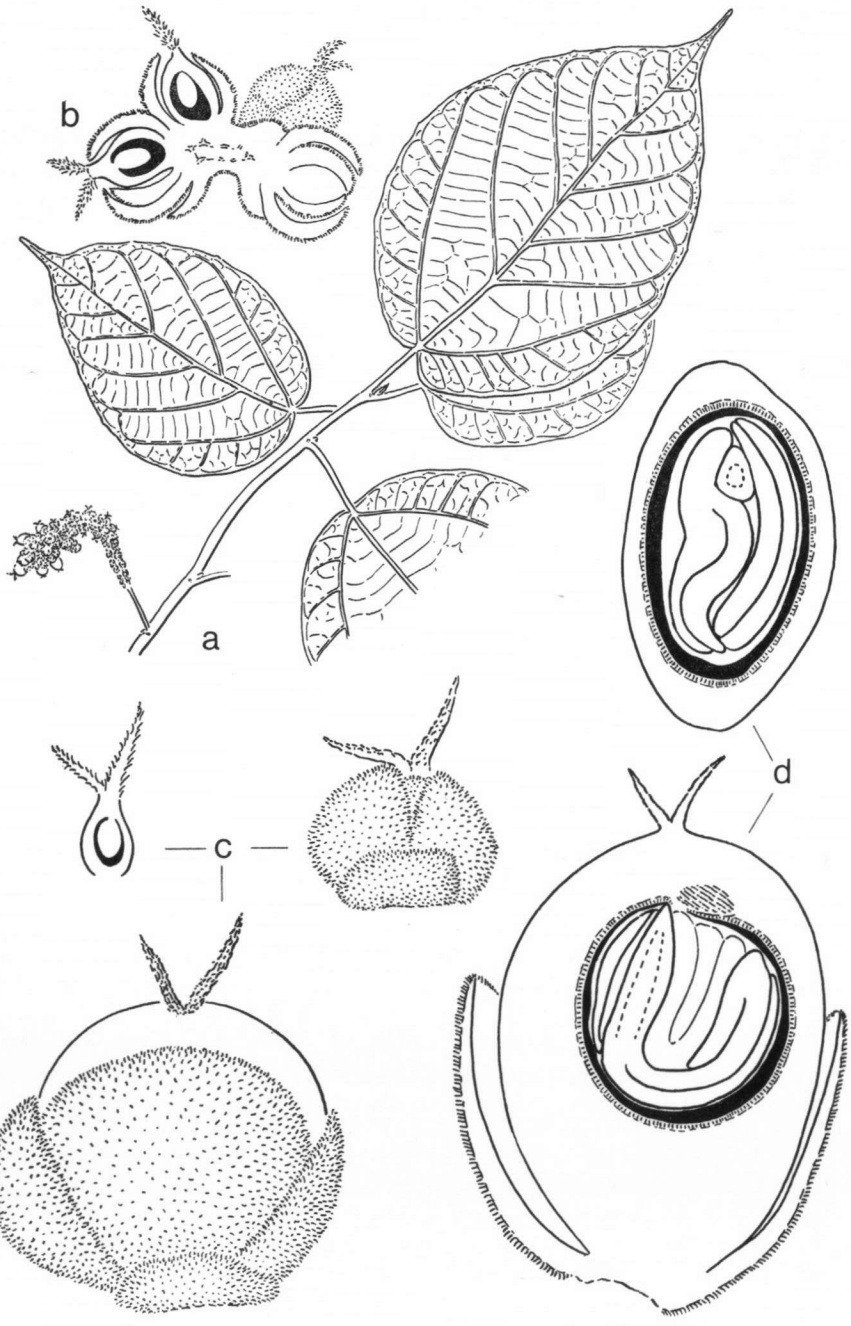


Figure 1. *Streblus ascendens*. a. Twig, × ½; b. t.s. female spike, × 5; c. female flowers and young fruits × 7; d. l. s. and t.s. ripe fruit (endocarp and hilar plug hatched), × 10. *(BSIP 8624)*.

There are, of course, other differences between these two species besides that of leaf-shape; *S. pendulinus* has short fruiting tepals and thick flat cotyledons. As yet no male plant of *S. ascendens* has been found, and it will be interesting to learn the nature of its sapling which may have dentate and, even, lobate leaves. That it becomes a large tree accords with its lamina; that it is clearly rare accords with its relict status.

I add a note on the recent classification of *Moraceae* by Hutchinson (1967). What I treat as sections of *Streblus*, defined on the inflorescence, female flower, fruit, and embryo, Hutchinson distributes as genera among four tribes *(Fatoueae, Moreae, Strebleae, Dorsteniеae)*. This is the previous, artificial and confusing rendering. The affinity of *Pseudostreblus (Fatoueae)* is with *Sloetia* in all points rather than with *Fatoua*, and *Sloetia (Dorstenieae)* is much closer to *Pseudotrophis (Moreae)* than to *Dorstenia*. Sterile, *Pseudostreblus*, *Sloetia*, and *Pseudotrophis* pass with *Paratrophis* and *Taxotrophis* as *Streblus*, whereas sterile *Fatoua*, *Dorstenia*, and *Morus* are three distinctions. In Hutchinson's scheme *Moreae* differ from *Strebleae* mainly in having more than four female flowers on the inflorescence. There are several species in which the number of female flowers defies such distinction, e.g. *Streblus glaber* with 1—9 flowers *(Paratrophis, Moreae)*, *S. pendulinus* with 2—9 and even 16 flowers *(Pseudomorus, Moreae)*, *S. ilicifolius* with 2—6 flowers, and *S. macrophyllus* with 1—8 *(Pseudotrophis, Moreae)*, and *S. zeylanicus* with 2—6 flowers *(Taxotrophis, Strebleae)*. The state with few flowers is a reduction from that with many, as in so many other genera, and tribal, generic, and sectional characters but must be found in other ways. Hutchinson continues to use *Diplothorax* which is merely the very common *Streblus asper*, misinterpreted by Gagnepain, and he recognizes *Teonongia* without mention of *S. asper* var. *monoica* which breaks the chief distinction between these two genera. The characteristic fruit, seed, and embryo of *Streblus*, in my sense, has been missed. These points place *Bleekrodea (Fatoueae)* with *Sloetia* in *Streblus*, as their vegetative characters indicate, in sharp distinction from *Fatoua* and *Dorstenia*. One could much more easily spread *Ficus* over four tribes to the exclusion of *Sparratosyce* in a fifth (*Ficeae* of Hutchinson, *Olmedieae* of my scheme). But not even *Artocarpoideae* are satisfactorily defined in Hutchinson's classification; the leaves of many are not spirally folded in bud and the stipules by no means always amplexicaul, which are given as prime marks of the subfamily.

I regard modern *Streblus* in the wide sense as a collection of advanced species of an ancient stock of *Moraceae* that has disappeared. The new section *Protostreblus* endorses this view. By analogy with *Ficus*, which has retained so much of the previous evolutionary states from pachycaul to distichous leptocaul, sect. *Protostreblus* is the relic of the spiral arrangement of the leaves inherited from the extinct stock of *Streblus*. The section has no immediate connection with *Fatoua*, *Morus*, or *Dorstenia*, though these may have come from the same beginnings as *Streblus*. *Ficus*, reduced to the present state of *Streblus*, would be represented by a sprinkling of species with small distichous leaves of similar convergence, yet with a considerable diversity in detail of flowers, seeds, and embryo. Thus comprehensive genera assist the understanding and phyletic classification of plants which microgenera, such as *Pseudostreblus*, *Pseudomorus*, and *Sloetia* prevent.

S. ascendens, *sp. nov.* — **Figure 1.**

Arbor —23 m alta, trunco ambitu 1. 2 m attingenti, ad basim alata; cortice fuscibrunneo v. griseo; latice albido copioso; foliis laxe spiraliter dispositis. *Ramuli* foliaque albidipuberuli, saepe sparsim. Ramuli 2—3 mm crassi, glabrescentes ochraceibrunnei. *Stipulae* —6 mm longae caducae puberulae. *Lamina* 9—14 × 5—8 cm, ovato-acuminata apice —15 mm longo, basi rotundata v. subcordata, etiam fere subpeltata, integra v. distanter subdenticulata, subcoriacea, superne scabriuscula, sicca superne grisea subtus brunnea;

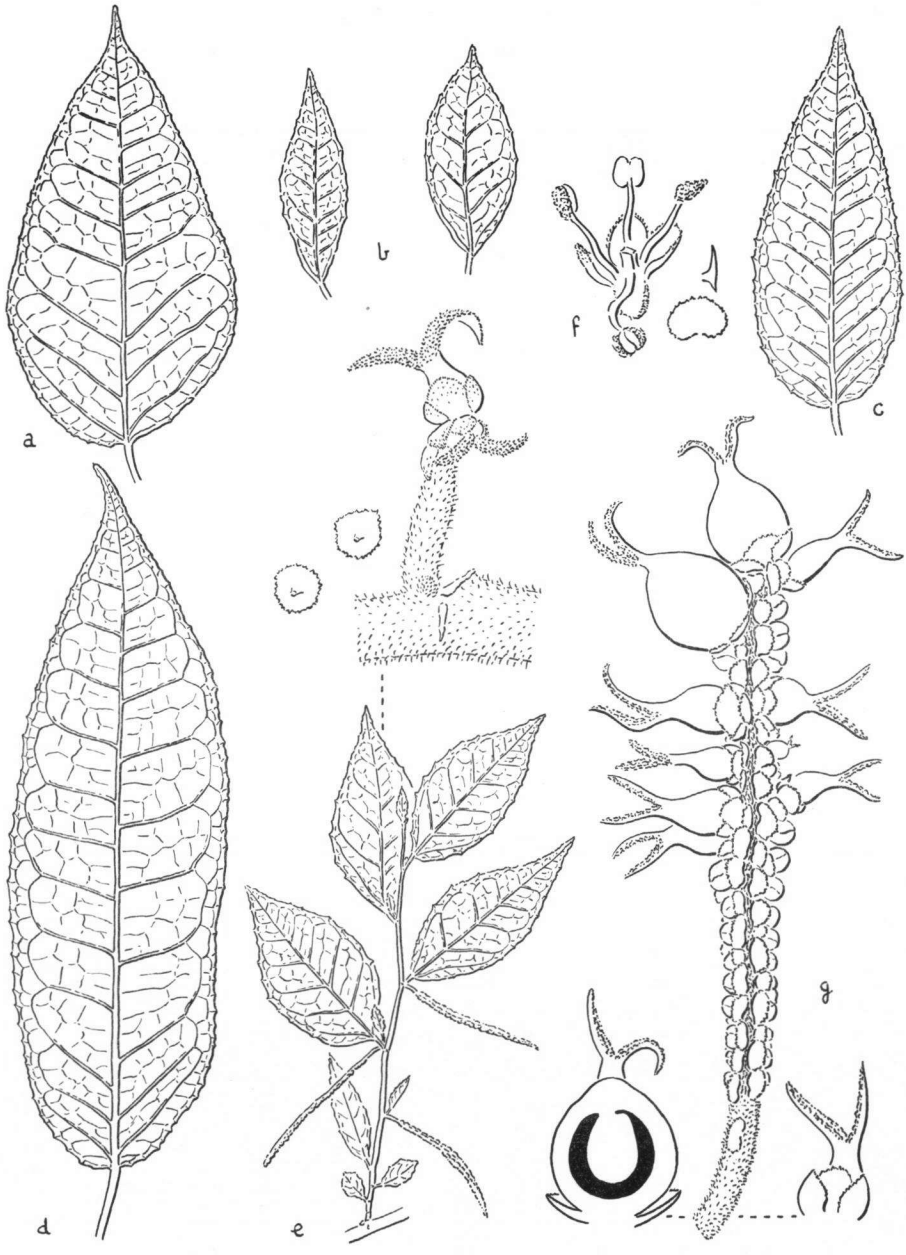


Figure 2. *Streblus pendulinus*. Leaves of various collections, × ½; a. *Forbes 797K* (Hawaii); b. *Mueller* (Queensland); c. *St. John and Fosberg 15271* (Rapa); d. *Stone 5194* (Rota); e. *NGF 26170* (Papua). Flowers; e. × 10; f. *Vickery 3507* (N.S.W.), male with bracts, × 7; g. *Kajeswki 926* (New Hebrides), inflorescence, × 4, flowers and young fruit × 6.

costis lateralibus utrinsecus 3—5, subtus elevatis; intercostis 4—9, subtus leniter elevatis, transversis; costis basalibus utrinsecus 1, ad mediam laminam attingentibus, glandulis basalibus nullis; petiolo 15—22 mm, gracili. *Inflorescentiae* femineae spicatae axillares solitariae 2—6 cm longae, multiflorae, sulco sterili unilateraliter praeditae, puberulae, basim versus maturescentes; pedunculo 7—12 × 1.5 mm, puberulo; bracteis primum semicircularibus 1—1.3 mm latis, dein lateraliter extensis, puberulis. *Flores feminei* sessiles; tepalis 4, 2 mm longis, obovato-rotundis, obtusis puberulis liberis subaequalibus, in fructu 4—4.5 mm longis et interioribus paulo majoribus, fructum longinque includentibus; ovario 2 mm longo, stigmatibus duobus 1.5—2 mm longis; stylo subnullo. *Fructus* 7 mm longus, obovoideus, tandem ultra tepala projiciens, drupaceus, maturitate aurantiacus (? ruber); endocarpio 4—4.5 × 3 mm, brunneo duro tenui. *Embryo* cotyledonibus convolutis, radicula elongata incumbenti. Cystolitha nulla. *Inflorescentia mascula*? In silvis locis planis, Insulis Solomonensibus, Kolombangara pr. Kokove. Typus: *BSIP 8624* (L).

S. pendulinus (Endl.) F. v. M.; Corner (1962) 222. — **Figure 2.**

I give some illustrations of this widespread, yet insufficiently known, species. According to Hutchinson's classification, the 2-flowered spike of *NGF 26170* should belong in *Taxotrophis (Strebleae)* and that of *Kajewski 926* in *Pseudomorus (Moreae)*. Therefore, I reduced *Strebleae* to *Moreae* and *Pseudomorus* to *Paratrophis* as a section of *Streblus;* the tribal distinction is less than specific. I have not seen a mature embryo of *S. pendulinus.*

S. solomonensis Corner (1962) 224. — **Figure 3.**

This was collected on several occasions during the Royal Society Expedition to the

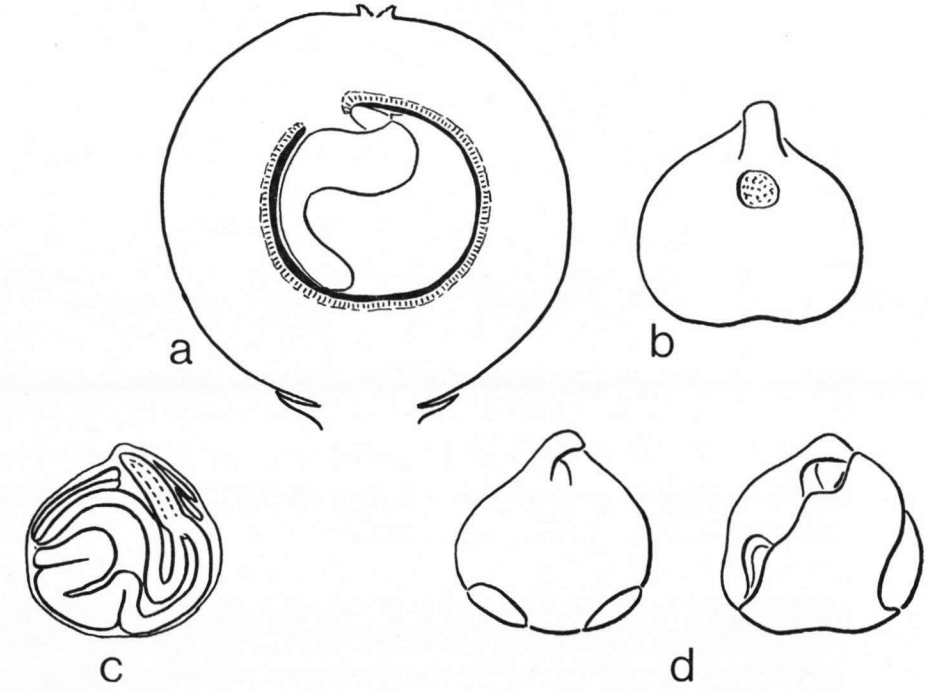


Figure 3. *Streblus solomonensis.* a. Fruit in l.s. (endocarp hatched); b. pyrene in hilar view; c. l.s. embryo and end-views of embryo, × 4. *(RSS 65).*

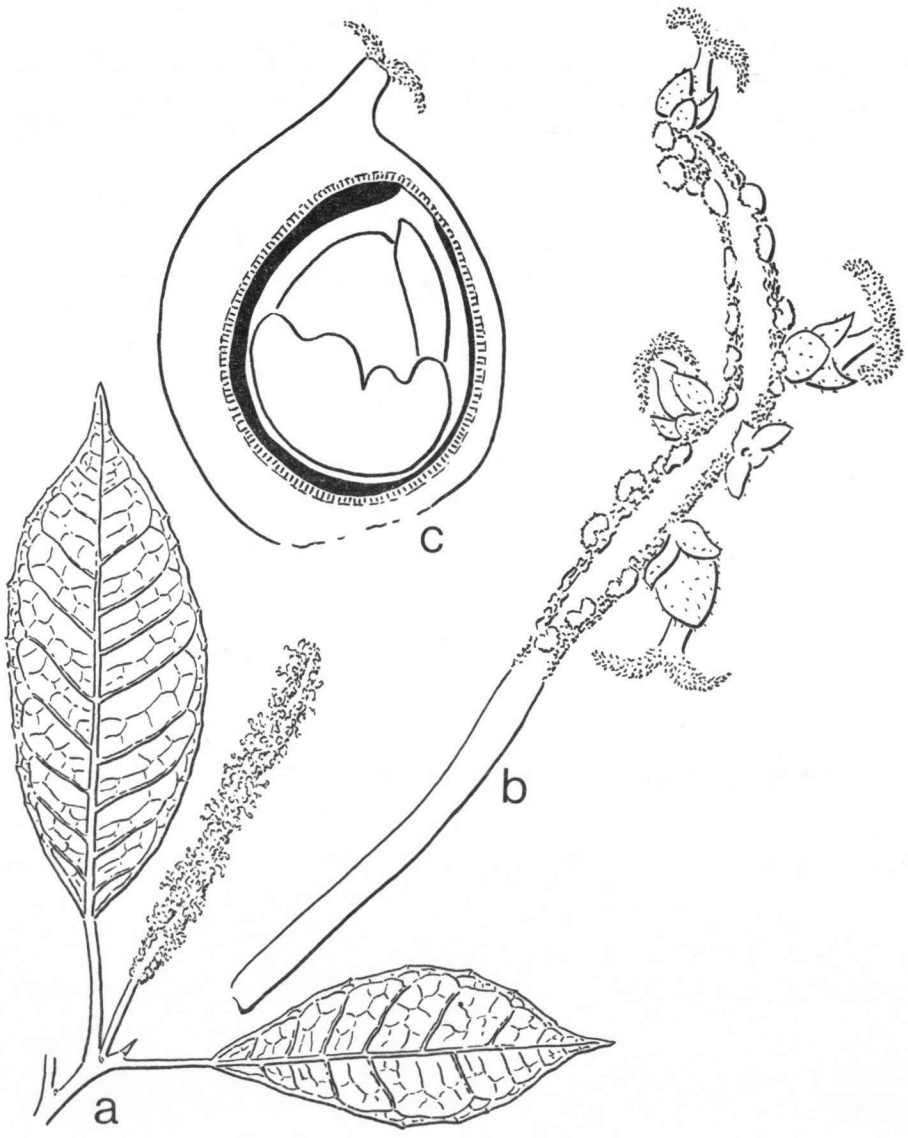


Figure 4. *Streblus sclerophyllus*. a. Twig with male spike, *J. M. Veillon 116*, × ½; b. female spike and c. fruit (l.s. with endocarp hatched), *J. M. Veillon 1296*, × 5.

Solomon Islands. Additional points are these: bark grey, with persistent leaf-scars; latex white, copious; lamina —20 cm long; male spikes solitary, axillary, with penduncle 4—8 mm long and fertile part 4—7 cm long; bracts reniform-peltate; male flower-buds 1.5 mm wide, the tepals green with red dots, the anthers white; fruits 10—11 mm wide (living), subglobose, purple-black; embryo with conduplicate and variously folded cotyledons, the hilum without sclerotic plug; frequent in the forest up to 1900 m alt.

S. sclerophyllus, *sp. nov.* (sect. *Paratrophis*). — **Figure 4.**

Frutex v. arbor —6 m alta, inermis, ut videtur dioica; latice flavidula; foliis distichis. *Ramuli* petiolique primum puberuli, glabrescentes. Ramuli 2 mm crassi, fuscibrunnei. *Stipulae* —7 mm longae, caducae lanceolatae. *Lamina* 7—11.5 × 3—4 cm, anguste elliptica v. subobovata, apice —15 mm longo acuminata, basi anguste cuneata, subrigida coriacea, margine incurvo subdentato, levis, sicca griseiviridis v. brunneola; costis lateralibus utrinsecus 7—10, subtus leniter elevatis, superne impressis; intercostis 1—2 laxis, venulis reticulatis superne impressis, subtus planis, areolis brunneolis; costis basalibus utrinsecus 1, brevibus; petiolo 15—22 mm, gracili. *Inflorescentiae* spicatae simplices axillares solitariae; bracteis ovato-reniformibus peltatis denticulatis; femineae pedunculo —20 × 1.5 mm, parte fertili —12 mm longa puberula, floribus paucis (c. 5) praeditae; masculae pedunculo —13 mm, parte fertili —7 cm, sulco sterili praeditae. *Flores* feminei tepalis 4 subglabris, externis 1 mm longis, internis 1.5—1.8 mm; stigmatibus 2 mm longis. Flores masculi in alabastro 2 mm lati, tepalis puberulis; staminibus 4, filamentis —3 mm longis, incurvatis; pistillodio quadrato puberulo. *Fructus* 10 × 8 mm, drupaceus ruber, basim versus subincrassatus, stigmatibus persistentibus, tepalis paulo amplificatis. *Semina* radicula elongata accumbenti, cotyledonibus crassiusculis subaequalibus, plicatis. Cystolitha nulla. In silvis montanis Novae Caledoniae, mt. Boulinde 950—1100 m alt. Typus: *J. M. Veillon 1296* (P).

Collections: J. M. Veillon 1296, 26 July 1967, female (type, P); *J. M. Veillon 116*, 26 April 1964, male.

This is distinguished by the stiffly coriaceous leaf with the veins impressed on the upperside. The reniform bracts place it in the complex of *S. pendulinus* with which it seems closely allied but the cotyledons are conduplicate much as in *S. solomonensis*. The material is scant but it seems unlikely that the species develops the larger and closely denticulate leaf of *S. pendulinus*.

FICUS Linn.

The species here described have been given the number with which I insert them into mij check-list (Corner, 1965). This places them in natural alliance and helps in the preparation of the lists of identifications, sometimes running into hundreds or thousands, which I have had to prepare.

Not much that is new comes now from western Malesia. New Guinea, New Britain, and New Ireland have continual interest and, indeed, the Solomon Islands. Among some 300 collections made by the Forest Department, BSIP, since the Royal Society Expedition in 1965, I found the new species of sect. *Sycidium*, namely *F. hesperia*, this section being very well developed in the Solomons, and the interesting new variety in subgen. *Pharmacosycea*, namely *F. cristobalensis* var. *malaitana*; it may well prove to be a distinct species. However, it is in the sections *Adenosperma* and *Sycocarpus* that novelties continue to appear. When I revised recently *Adenosperma* and added the new species *F. pilulifera* and

F. suffruticosa, I thought finality had been reached in this closely knit alliance (Corner, 1969). More collections from New Guinea oblige me to add two other species, *F. lapidaria* and *F. servula*, which help to bridge the gap between *F. suffruticosa* and the now well known *F. subcuneata*. This species was rather isolated in ser. *Hypogenae* and I had been expecting the discovery of allies. The three new species, however, have exceeded my hopes and brought to light a remarkable new ecological complex. *F. subcuneata* is a tall tree. *F. suffruticosa* is nearest to it in leaf and fig but it is a small shrub. *F. lapidaria* is a rheophyte comparable with the bushy *F. arbuscula* in ser. *Amphigenae;* and *F. servula* is a small tree bearing on the ancestry of *F. lapidaria*. Unfortunately, the three new species are known from single gatherings and these have been split up into duplicates and distributed over the world before it has been possible to study them. Though readily distinguished, as keyed out on p. 405, yet the differences are such as to lead one to suppose that they may be bridged by further collections. It is to be hoped that they may now be studied ecologically. The alliance confirms my general conclusion for *Adenosperma*, that evolution has proceeded sympatrically in the domain of the parent species through structural and ecological diversity.

Nevertheless, of all the countries of Malesia Celebes seems to be that most in need of more thorough investigation of its *Ficus* flora.

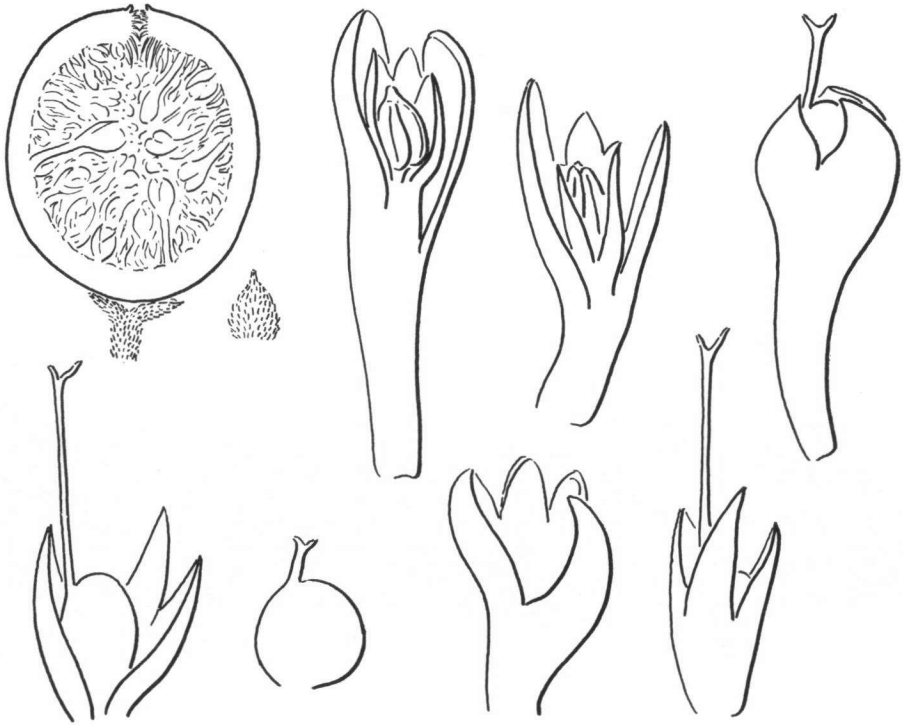


Figure 5. *Ficus cristobalensis* var. *malaitana*. Fig, × 2; flowers, × 10. *BSIP 10568*.

113B. F. cristobalensis Corner (1967) 78 (subgen *Pharmacosycea*) **b. var. malaitana,** *var. nov.* **Figure 5.**

Differt a typo in omnibus partibus minoribus, tepalis paucioribus. Arbor —7 m alta. *Ramuli* 5—6 mm crassi. *Stipulae* —2 cm longae. *Lamina* 11—23 × 4.5—7.5 cm; costis lateralibus utrinsecus 10—13; intercostis 2—4; petiolo 9—18 mm longo. *Receptacula* 13—14 mm lata; pedunculo 2—3 mm longo; bracteis basalibus 1.5—2.5 mm longis; cellulis scleroticis in pariete nullis. *Tepala* 3 (vel 4), libera v. plus minus gamophylla. Cystolitha hypogena. In silvis primariis et secundariis, Insulis Solomonensibus, Malaita. Typus: *BSIP 10568* (L).

Collections: BSIP 10568, Auki area, Esisiki, 300 m alt., bark dark brown, latex copious; *BSIP 10669*, East Malaita, Nazareth, 30 m alt., bark dark brown, latex sticky. '*Malifu*' (Kwara'ae).

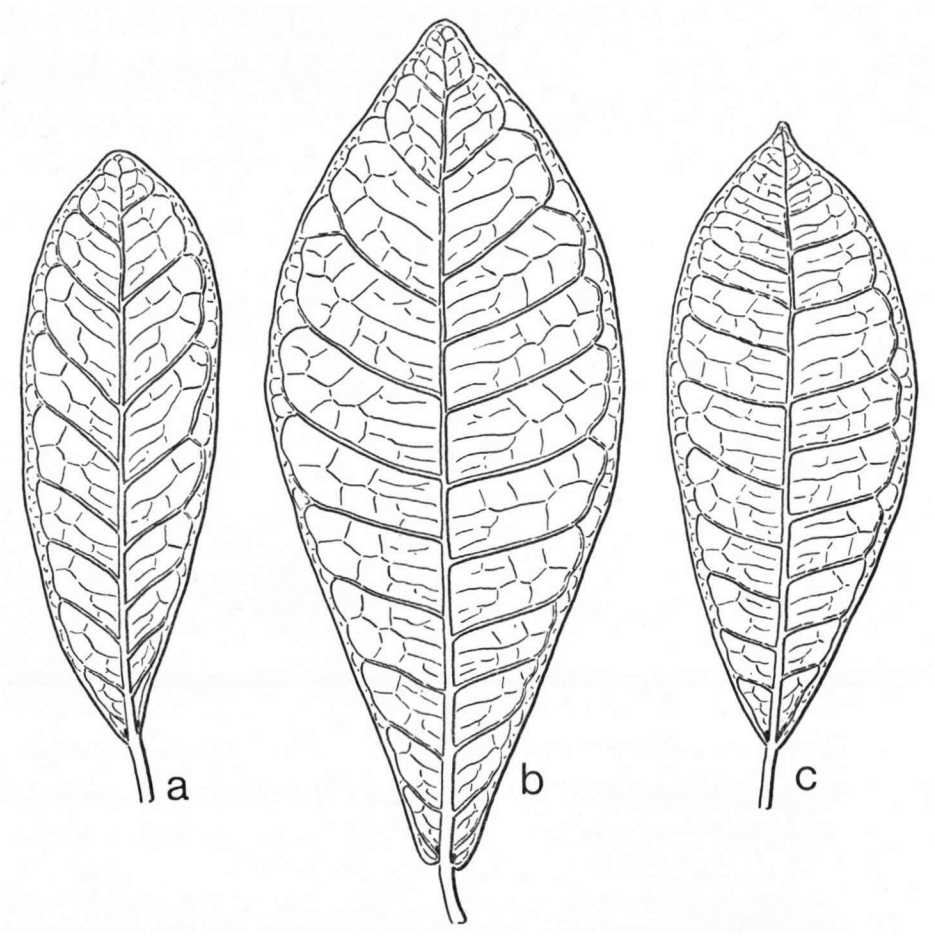
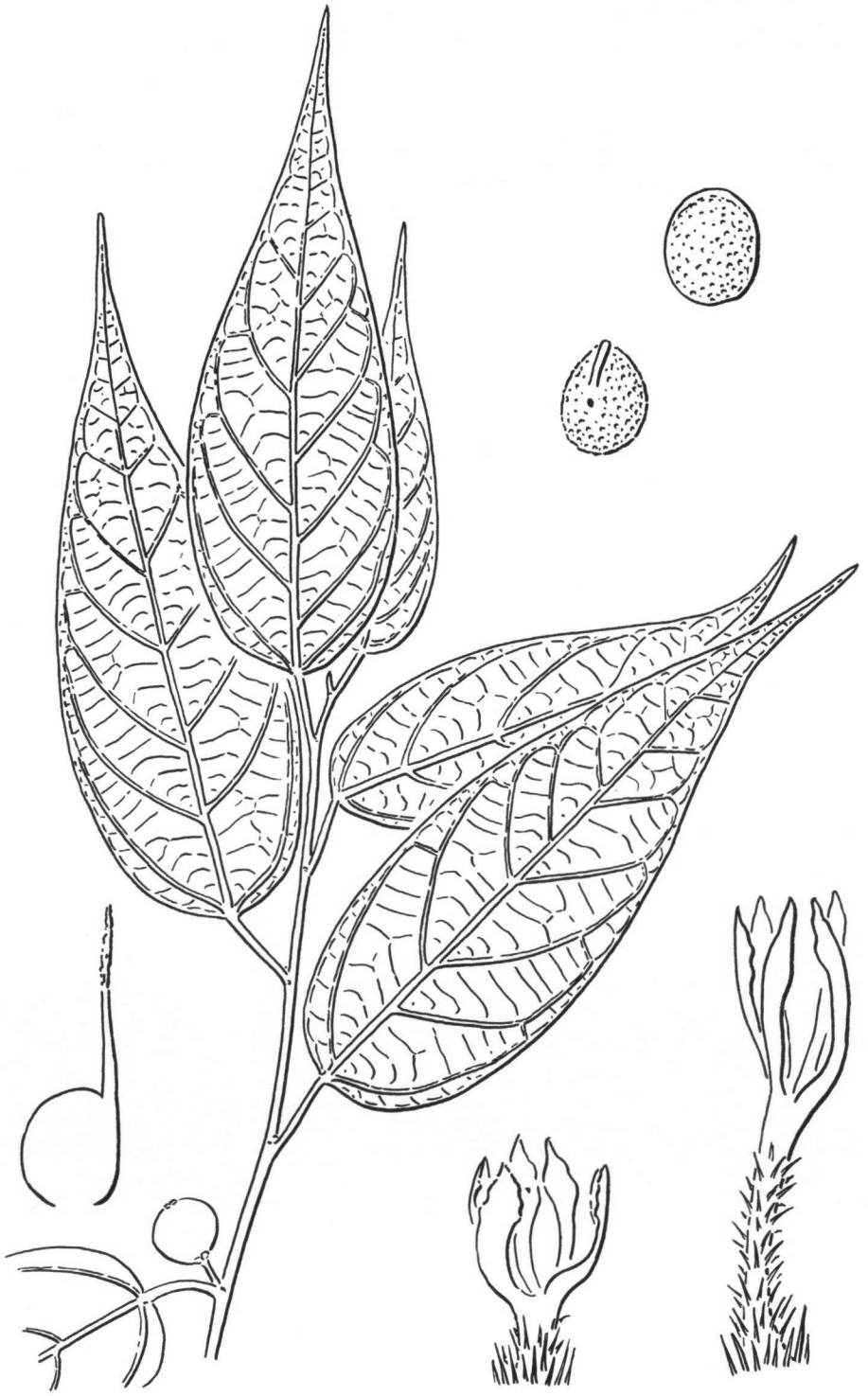


Figure 6. *Ficus illiberalis.* Leaves, × ½; a. *BSIP 8500* (typical); b. *BSIP 7060* (Vanikoro); c. *BSIP 7844* (? *F. smithii*).



This agrees very closely with *F. cristobalensis* but differs in being smaller in all ways. At first I thought that the collections represented merely side-branches of large trees, but both are similar and come from small trees. Such small trees of *F. cristobalensis* would have even larger leaves than normal on their massive fruiting twigs and they would probably be infertile. Therefore, I consider the two collections to represent a distinct entity which may prove to be a separate species with more leptocaul habit, very much as *F. wassa* stands to *F. copiosa* and, in subgen. *Pharmacosycea*, as *F. smithii* seems to stand to *F. edelfeltii*. The collections were distributed as *F. edelfeltii* which lacks the persistent stipules and cordate leaf-base, has copious sclerotic cells in the fig-wall, and is a large tree. *F. cristobalensis* has not been found in Malaita but recent collections show that it is widely distributed in Guadalcanal (*BSIP 2785* and *10163*, the former mixed with *F. novae-georgiae*). Field studies are needed on var. *malaitana* to discover its sapling and to ascertain the size which it may reach.

112A. F. illiberalis Corner (1967) 80 (subgen. *Pharmacosycea*). — **Figure 6.**

Collections: BSIP 7060, Vanikoro Isl., Santa Cruz group, March 1965, *'nganingaio'* (Nambalua name), *'malifu'* (Kwara'ae); *BSIP 7844*, Sta. Ysabel, north west, Qarangao, Oct. 1966, *'bubulia'* (Kwara'ae); *BSIP 8500*, Kolombangara, south east, Vila R., Dec. 1967, 10 m tree, *'bubulia'* (Kwara'ae).

These collections have shown me that *F. illiberalis*, which is a large buttressed tree, is close to *F. smithii* which, in the Solomons, is a small slender tree. *BSIP 8500* is typical *F. illiberalis* with coriaceous spathulate leaf. *BSIP 7060* is the second collection from Vanikoro with larger leaf with attenuate subcordate base; it is fertile and suggests that this is a distinct, more easterly variety. *BSIP 7844* seems to be intermediate between *F. illiberalis* and *F. smithii;* as a ridge-top tree it agrees with *F. illiberalis* but the shortly acuminate leaf suggests *F. smithii*. Possibly young trees of *F. illiberalis* have a shortly acuminate lamina.

119b. F. subtrinervia var. **doormaniana** (Diels) Corner (subgen. *Pharmacosycea*).

Collection: BSIP 6602, Sta. Ysabel, north west, Binusa, 8 m tree in mangrove forest, figs red, Jan. 1966.

This is a characteristic collection. It has the small basal bracts 2 mm long, but it has disperse male flowers. I think that the previous collection *BSIP 4353* may also be this variety, though I referred it to *F. pachystemon* because of its larger basal bracts (3.5—5 mm long) and its disperse male flowers (Corner, 1967, p. 83). Though I have never been satisfied with the absolute distinction between these two species, I think that the occurrence of *F. pachystemon* in the Solomons has yet to be proved. In New Guinea *F. subtrinervia* has generally only ostiolar male flowers, but there are a few disperse males in some collections. Fruiting specimens of both species are rather scarce and it is difficult to distinguish by leaf alone *F. subtrinervia* from *F. pachystemon*.

329A. F. hesperia, *sp. nov.* (sect. *Sycidium*). — **Figure 7.**

Arbor —35 m alta umbrosa, ambitu trunci 3.2 m attingenti, ad basim alata v. vix, cortice fuscibrunneo; latice albido; foliis distichis. Ramuli folia et receptacula minute scabridipuberuli. *Ramuli* 1—1.5 mm crassi, fuscibrunnei. *Stipulae* 3—4 mm longae, lanceolatae, caducae. *Lamina* 5—13 × 2—4.5 cm, ovato-lanceolata symmetrica ad apicem acutum elongatum gradatim attenuata, basi cuneata, saepe laticuneata v. subrotundata, integra subcoriacea duriuscula scabrida, sicca griseiviridis; costis lateralibus

Figure 7. *Ficus hesperia*. Twig, × ½; female flowers and seeds, × 10. *(R. Schodde 4073).*

utrinsecus 4—6(—7) ascendentibus, subtus leniter elevatis; intercostis transversis 2—5, vix elevatis; costis basalibus utrinsecus 1, haud elongatis v. —$\frac{1}{4}$ (—$\frac{1}{3}$) laminae, ut videtur sine glandulis basalibus; petiolo 5—15 mm, ad apicem dorsalem subglandulosa. *Receptacula* axillaria solitaria, maturitate aurantiaca; pedunculo 4—6 mm; bracteis basalibus 3, 1—1.5 mm longis, ovatis subacutis; corpore 9—12 mm lato (12—14 mm, vivo) globoso, sine bracteis lateralibus, ostiolo bracteis parvis occluso; setis internis —0.8 mm, copiosis, albidis; cellulis scleroticis in pariete receptaculi feminei copiosis. *Flores feminei* sessiles v. pedicellati, pedicello albido plus minus dense setoso; tepalis 5, lanceolatis v. spathulatis, glabris albidis liberis; ovario albido sessili; stylo simplice glabro. *Semina* 1 mm, lenticuliformia subcarinata, minute punctata. *Flores masculi* ?. Cystolitha amphigena. In silvis, Insulis Solomonensibus. Typus: *R. Schodde 4073*. Bougainville (L).

Habitat: in lowland forest of flat swampy valleys, Solomon Islands.

Collections: *R. Schodde 4073*, Bougainville, near Buin (type, L); *BSIP 7555, 8373, 8899*, Kolombangara, Jan.-Feb. 1968, *'samotasubi'* (Kwara'ae).

This lofty tree may well have been mistaken for *F. melinocarpa* by previous collectors. It differs in the symmetric, harshly scabrid, ovate leaf with long-attenuate apex and fewer lateral veins, in the setose flower-pedicels, in the white tepals, and evidently in the more copious latex. It is exceedingly difficult to relate these species of sect. *Sycidium* ser. *Scabrae*. In the Solomons flora, this keys out next to *F. chrysochaete* (Corner, 1967, p. 89, 102), which differs considerably in the shape and venation of the leaf, the hairiness, the longer peduncle of the fig, the lack of sclerotic cells in the fig-wall, and the flowers with glabrous pedicels but setose tepals and style. Outside the Solomons, it comes near to *F. ampelas* and *F. schumanniana*, but it is clearly a larger tree and both of these species have smooth seeds. *F. ampelas* has a narrowly elliptic leaf with narrowly cuneate base and basal glands, more elongate basal veins, lax intercostals, basal bracts rarely in a collar, and glabrous flower pedicels, but these may be setose in var. *soronensis*. *F. schumanniana* has a larger, acuminate and denticulate leaf with more lateral veins and intercostals, but is has the dorsal gland on the petiole. Nevertheless, there is the problem of the large trees which seem to occur in *F. pseudowassa* and to these *F. hesperia* may be related (Corner, 1967, p. 106).

386. F. adenosperma Miq.

Among some older collections from Rotuma Island, recently sent to me from the Bishop Museum in Honolulu, I found four collections of typical *F. adenosperma*, namely *H. St. John 19082* (Kilinga, Itutiu District), *19603* (Solnahu Isl.), *19659* (Uea Isl.), and *19709* (Solkope Isl.). They were from trees 7—10 m high, growing on the wooded slopes and ridges. One collection *(19082)* had seeds with embryos and another *(19603)* had gall-insects. There is no doubt, therefore, that these collections represent the natural and most easterly occurrence of *F. adenosperma* and of the whole section. The discovery relates Rotuma phytogeographically with the Santa Cruz Islands, the Solomon Islands, and the New Hebrides, and it emphasizes the separation of Fiji, Tonga, and New Caledonia where sect. *Adenosperma* does not occur. The other collections from Rotuma represented *F. obliqua*, *F. prolixa*, *F. scabra*, and *F. tinctoria* ssp. *tinctoria*, as they occur in the New Hebrides.

389. F. subcuneata Miq. (sect. *Adenosperma*).

I provide a key to this and its three allies, as described subsequently.

KEY TO THE COMPLEX OF F. SUBCUNEATA

1. Twigs, petioles, and underside of the leaf strigoso-villous with spreading hairs. Stipules caducous. Figs with peduncles 5—25 mm long; basal bracts caducous.
   2. Tree —30 m high. Basal bracts 6—8 mm long . . . . . **F. subcuneata**
   2. Shrub 1 m high. Basal bracts —3.5 mm long. . . . . **F. suffruticosa**
1. Appressedly hairy, most of the lower side of the lamina glabrous. Stipules persistent. Peduncles —1.5 mm long; basal bracts persistent, 1—3.5 mm long.
   3. Fig 12 mm wide (dried); internal bristles rather sparse. Leaf with attenuate apex. Small tree —10 m **F. servula**
   3. Fig 25—30 mm wide (dried); internal bristles copious. Leaf acuminate; lateral veins oblique, with fine close intercostals. Rheophytic shrub . . . . . **F. lapidaria**

389A. F. suffruticosa Corner (1969, p. 348).

389.B. F. servula, *sp. nov.* — **Figure 8.**

Arbor parva —10 m alta, foliis spiraliter dispositis. Ramuli petioli costa media (ad paginam laminae inferam) pilis —1.5 mm longis appressis pallidibrunneis hirsuti. *Ramuli* 3 mm crassi. *Stipulae* 17—22 mm longae, persistentes, ad carinam appresse hirsutae. *Lamina* 12—24 × 4.8—7.8 cm, elliptica sublanceolata v. subobovata, apice subacuto attenuata vix acuminata, basi subcuneata, subcoriacea integra, superne nitida, levis, sicca fuscibrunnea; costis lateralibus utrinsecus 9—12 (—13), subtus valde elevatis; intercostis 4—7; costis basalibus utrinsecus 1—3 brevibus, glandulis basalibus 2; petiolo 10—20 mm. *Receptacula* axillaria subsessilia, sparsim appresse hirsuta, glabrescentia; pedunculo 0.5—1.5 mm longo; bracteis basalibus 3, 1—2 mm longis, appresse puberulis, persistentibus; corpore 12 mm lato (sicco), subgloboso, bracteis lateralibus nullis, apicalibus 6—8 gibbosis; setis internis 1—2 mm longis, stramineis subsparsis; cellulis scleroticis in pariete nullis. *Flores feminei* sessiles; tepalis 3 ligulato-lanceolatis, ovarium superantibus, liberis; ovario sessili v. stipitato, plus minus rubribrunneo; stylo laterali. *Semina* ut in *F. subcuneata*. Cystolitha hypogena. Ad jugum montis (in silva?), Nova Guinea, Bulolo, Morobe district. Typus: *NGF 39144* (CGE).

This agrees generally with *F. subcuneata* but the hairs are appressed, the leaf is more coriaceous and not acuminate, the veins are less prominent and largely glabrous, the stipules are persistent, the figs are much smaller, subsessile, and shortly hairy, the much smaller basal bracts are persistent, and the internal bristles are sparse. Thus it differs also from *F. suffruticosa*, the basal bracts of which are slightly larger. A slight undercoat of microscopic, more or less straight hairs seems to connect the complex of *F. subcuneata* with *F. trichocerasa*, particularly *F. trichocerasa* var. *glabristipula* (lateral bracts on fig, shorter tepals as well as acuminate leaf with longer petiole and more crowded lateral veins).

389C. F. lapidaria, *sp. nov.* — **Figure 8.**

Frutex rheophyticus, foliis spiraliter dispositis, habitu ut videtur terminaliformi. Ramuli petioli costae (ad paginam laminae inferam) stipulaeque pilis 1—3 mm longis subfulvis appressis v. subpatentibus strigosi. *Ramuli* 3—4 mm crassi, fuscibrunnei. *Stipulae* 14—20 mm longae, lanceolatae persistentes. *Lamina* 9—15 × 4—6 cm, anguste obovata, apice mucronato 8—12 mm longo acuminata, basi subcuneata, integra subcoriacea, sicca pallide fuscibrunnea; costis lateralibus utrinsecus 7—9, obliquis, subtus valde elevatis; intercostis —12, vix elevatis, sparsim appresse puberulis; costis basalibus utrinsecus 1—3, majoribus subelongatis, glandulis basalibus obscuris; petiolo 8—15 mm. *Receptacula*

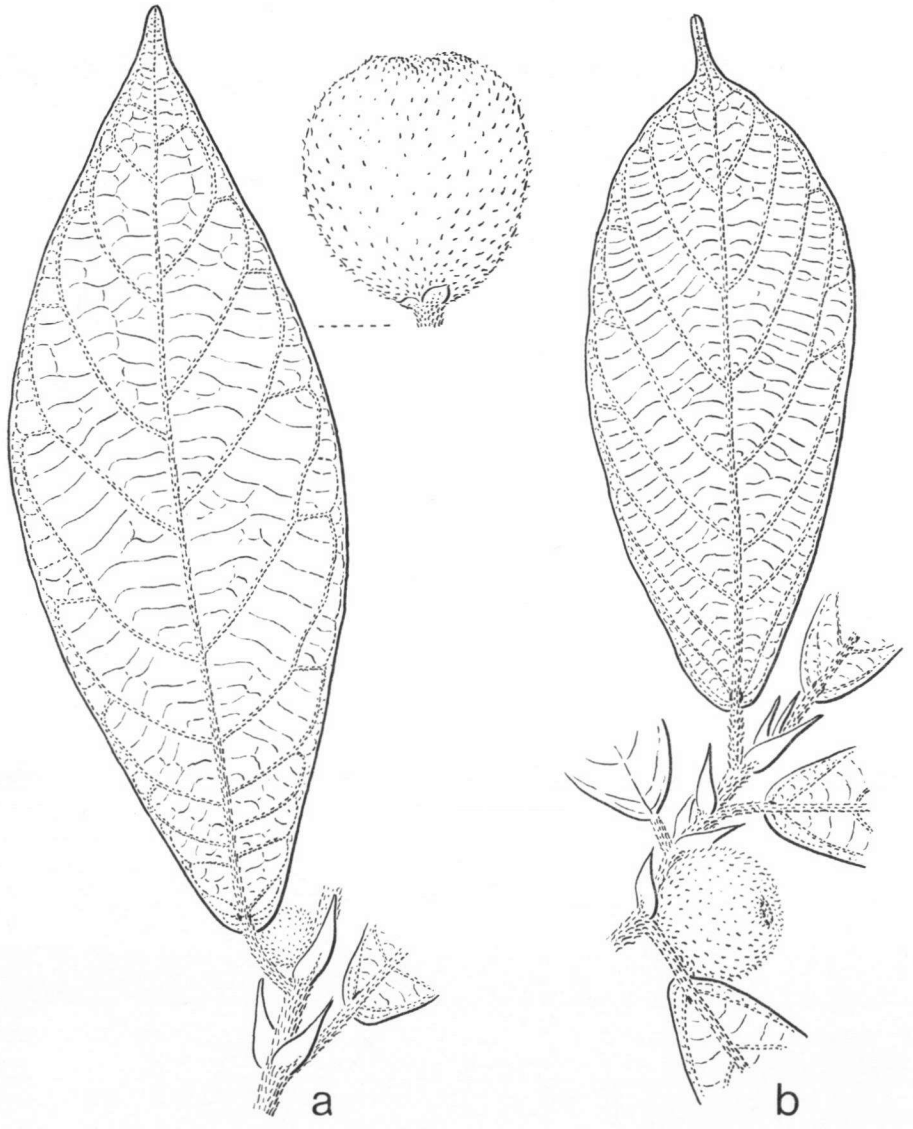


Figure 8. *Ficus servula* (a) and *F. lapidaria* (b). Twigs, × ½; fig, × 2. *(NGF 39144* and *39036).*

axillaria, ? solitaria, subsessilia, pilis —1 mm longis subundulatis brunneolis villosa, rubribrunnea (viva); pedunculo —1 mm longo; bracteis basalibus 3, 1.5—3.5 mm longis, subglabris, persistentibus; corpore 25—30 mm lato (sicco), subgloboso, ? glabrescentia, bracteis lateralibus nullis, apicalibus numerosis subumbonatis; setis internis —2 mm longis, albidis copiosis; cellulis scleroticis in pariete crassiusculo nullis. *Flores feminei* sessiles; tepalis 3, ligulato-spathulatis, rubris, ovarium rubrum sessile v. stipitatum superantibus; stylo valde laterali. Cystolitha hypogena. Inter lapides in fluminibus parvis celeribus, Nova Guinea, Morobe District, Menyama Subdistrict, via Aiewa ad Azeki, 1500 m alt. Typus: *NGF 39036* (CGE).

This is close to *F. servula* but the leaf is acuminate, the lateral veins are more oblique with close, fine intercostals, the fig is much larger, villous, and provided with copious internal bristles. These are mainly the features of *F. subcuneata*. As a rheophyte in ser. *Hypogenae*, *F. lapidaria* makes a remarkable parallel with *F arbuscula* in ser. *Amphigenae;* it would be interesting to know if they grew together. Dried material resembles superficially the riparian *F. lepicarpa* (sect. *Sycocarpus*) of western Malesia.

437A. F. novahibernica, *sp. nov.* (sect. *Sycocarpus* subser. *Congestae* Corner). — **Figure 9, 10.**

Arbor —8 m alta, cauliflora glabra; foliis spiraliter dispositis. *Ramuli* 4—6 mm crassi, cervino-cinnamomei, nodis glandula praeditis. *Stipulae* 22—30 mm longae, caducae. *Lamina* 18—30 × 13—20 cm, ovato-cordata, apice —15 mm longo acuminata, basi cordata, integra submembranacea levis, sicca brunnea; costis lateralibus utrinsecus 6—8(—9), subtus elevatis, axillis saepe glandulatis, marginem versus subdichotomis etiam saepe glandulatis; intercostis 5—10, vix elevatis; costis basalibus utrinsecus 2(v. 3), brevibus, ut videtur sine glandulis; petiolo 5—14 cm longo. *Receptacula* ad ramulos —3 × 1 cm efoliatos sparsim ramosos internodis haud extensis evoluta; pedunculo 7—17 mm longo; bracteis basalibus 3, 2—3 mm longis (ut videtur), mox caducis; pedicello 1—2 mm longo (? in statu vivo subnullo); corpore 17—20 mm lato (sicco), turbinato, costis 6—9 longitudinalibus paulo elevatis subanguloso, bracteis lateralibus nullis, apicalibus 4—6 mm longis erectis recurvatis; setis internis —0.4 mm longis, albidis numerosis; cellulis scleroticis nullis. *Flores feminei* subsessiles v. breviter pedicellati; perianthio integro ad basim stipitis ovarii subcupulato; ovario rubribrunneo, plus minus stipitato; stylo setuloso. *Semina* 1 mm longa, compressa carinata, hilo prominenti, subasperata. Cystolitha hypogena; setis internis papillato-tunicatis. In silva, Nova Hibernia, Namatanai District, Danfu. Typus: *NGF 46121* (CGE).

This species seems most nearly related with *F. tanypoda* Corner of the Solomon Islands. It differs in being glabrous (except for the internal bristles), in the absence of lateral bracts, in the more prominent apical bracts, the shorter basal bracts, and, possibly, the smaller figs; perhaps, also, it is not stoloniferous. The prominent apical bracts connect it with *F. longibracteata* of the Solomons, which is also glabrous, and this general form of the fig-orifice seems to lead to that of subsect. *Auriculisperma* of the Solomons. On the other hand, *F. novahibernica* may relate westwards with the pachycaul ancestry of *F. congesta* and *F. nota*. In leaf form it parallels *F. cassidyana*, *F. praestans*, *F. neobrittanica*, *F. baccaureoides*, and *F. tanypoda* and emphasizes their significance as local, relict endemics uniting their subseries in this subpachycaul habit. The parallel in sect. *Neomorphe* is *F. nodosa* (elongate basal veins, persistent basal bracts).

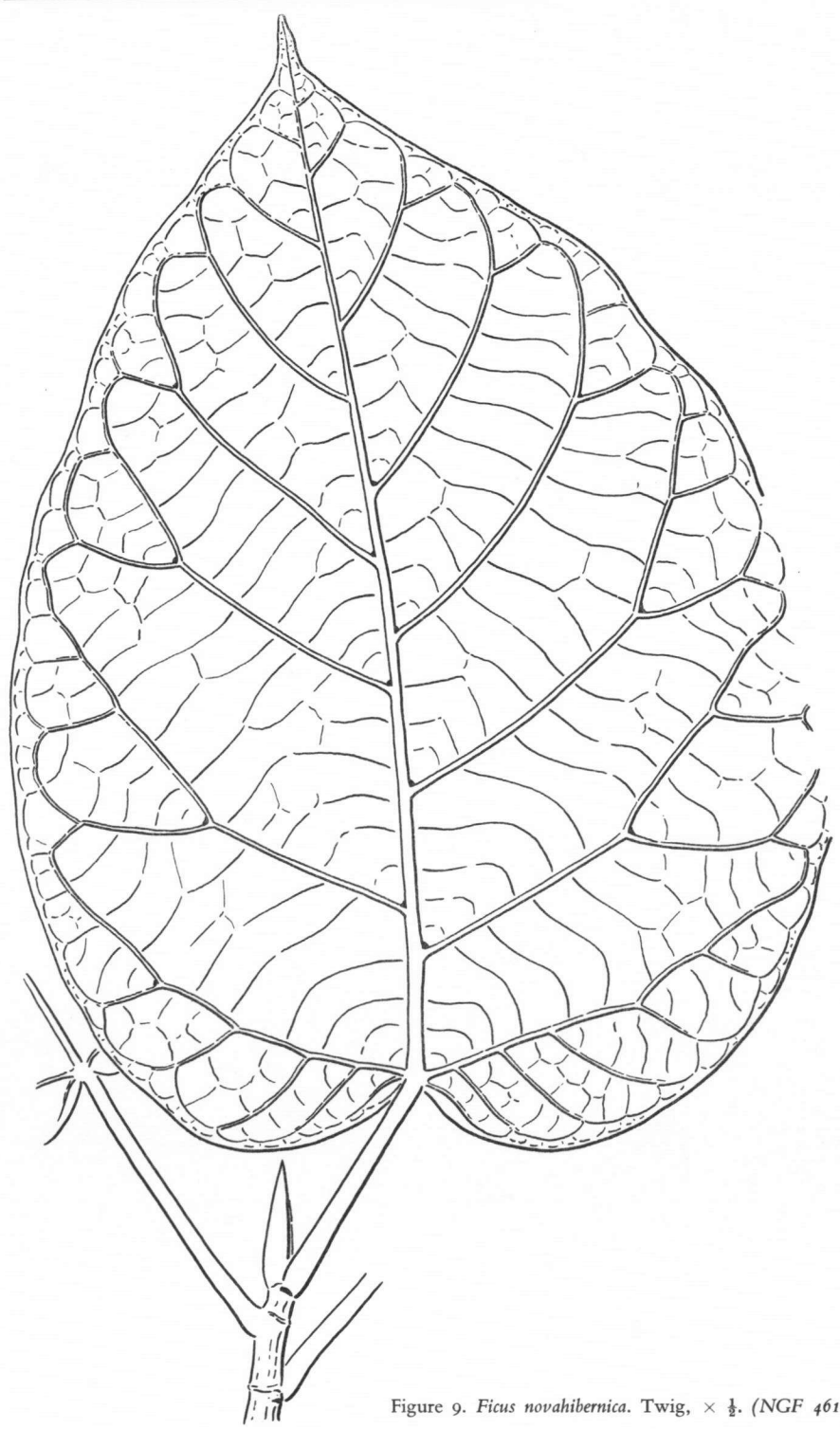


Figure 9. *Ficus novahibernica*. Twig, × ½. *(NGF 46121)*.

441A. F. cryptosyce, *sp. nov.* (sect. *Sycocarpus* subser. *Congestae* Corner). — **Figure 11.** Frutex —1½ m altus, sparsim ramosus, latice exiguo; foliis spiraliter dispositis. Ramuli, petioli receptacula costaeque (ad paginam laminae inferam) pilis —0.5 mm longi fusci-brunneis appressis rigidis hirsutae, mox glabrescentes. *Ramuli* 4—6 mm crassi, internodis inferis brevibus 5—10 mm longis, superis 10—20 mm. *Stipulae* 20—35 mm longae, binae liberae late lanceolatae persistentes, basim versus appresse pilosae. *Lamina* 10—23 × 3.5—8.5 cm, anguste obovata, apice —10 mm longo acuminata, basi anguste subcordata, integra v. apicem versus subserrulata, subcoriacea levis, sicca fuscibrunnea; costis lateralibus utrinsecus 6—8, obliquis, subtus elevatis; intercostis 3—8; costis basalibus utrinsecus 2, vix elongatis, glandulis basalibus 2; petiolo 5—18 mm longo, crassiusculo. *Receptacula* axillaria binata dein glomerata, stipulis condita, maturitate aurantibrunnea; pedunculo 1—2.5 mm longo; bracteis basalibus 3, 2—3 mm longis, ovato-lanceolatis, appresse puberulis; corpore 7—9 mm lato (sicco), bracteis lateralibus nullis, apicalibus 5 sub-prominentibus, rugis 5 decurrentibus leniter elevatis; setis internis nullis; cellulis scleroticis in pariete sparsis. *Flores feminei* sessiles v. breviter pedicellati; perianthio breviter cupulato v. subinfundibuliformi; ovario fuscirubro, sessili v. stipitato; stylo sparsim setuloso. *Semina* 0.8 mm longa, subcarinata hilo prominenti subtuberculata. Cystolitha hypogena. In silva secondaria frequens; Nova Guinea, Vogelkop, Lake Ajamaru, Tanah Merah, 220 m alt. Typus: *BW 15392* (L).

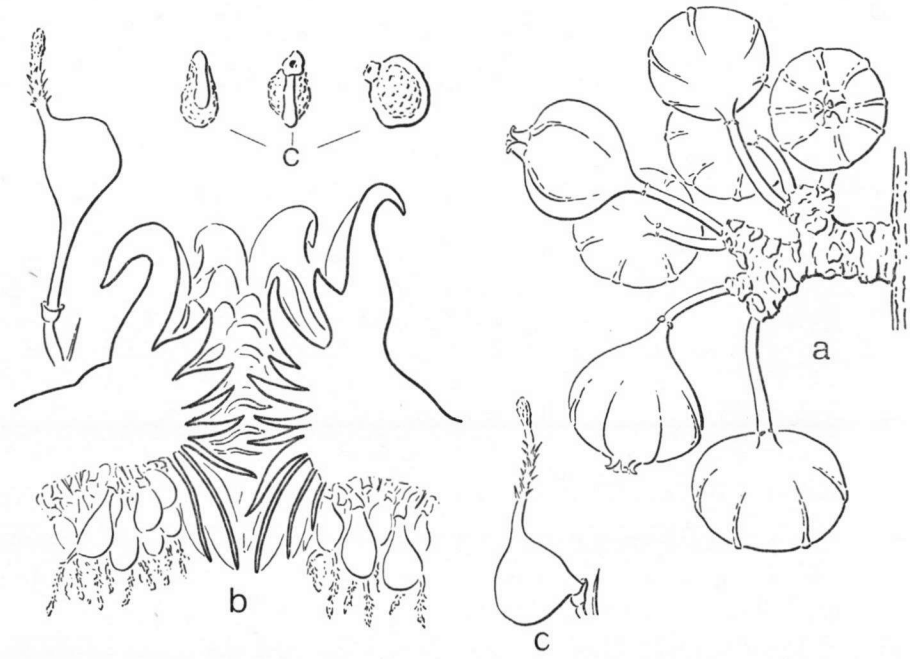


Figure 10. *Ficus novahibernica.* a. Figs, × 1; b. l.s. orifice of fig, × 5; c. flowers and seeds, × 10. *(NGF 46121).*

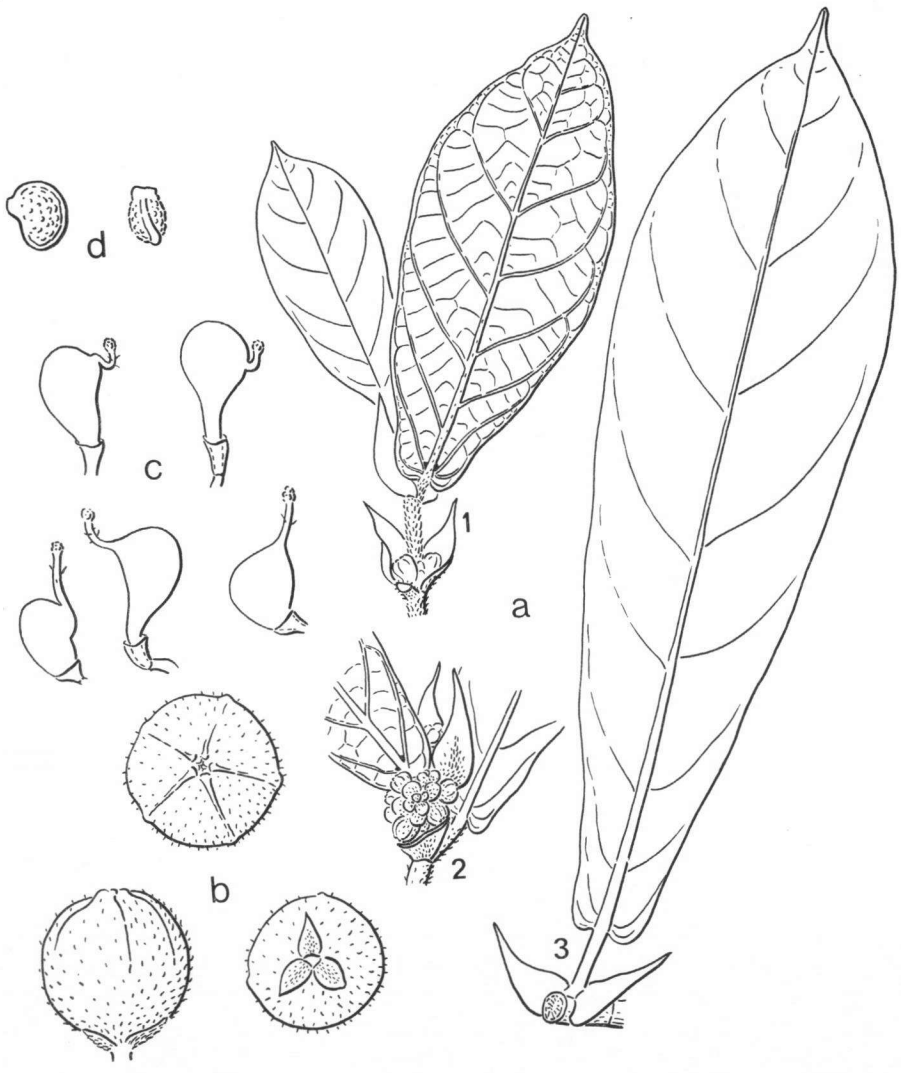


Figure 11. *Ficus cryptosyce*. a. Leaves from the upper (1), middle (2; stipules cut away to show the figs), and lower (3) part of the plant, × ½; b. figs, × 2; c. flowers and d. seeds, × 10. *(BW 15392)*.

This is close to *F. multistipularis* of the Philippines and may be merely a small form. There are few collections of *F. multistipularis* and little is known about it as a living plant. *F. cryptosyce* seems to differ in the smaller figs which build up into considerable masses from the short axillary inflorescences concealed by the stipules. This is the habit which I have illustrated for *F. theophrastoides* (Corner 1967). I have no record of it in *F. multistipularis*. Then the leaves of *F. cryptosyce* are smaller, narrower, mostly entire, with shorter petioles, shorter hairs (1—2 mm in *F. multistipularis*), and both the cupule of the female flower and the seed are shorter. Such may only be regional differences of a widespread species. Though I refer both to subser. *Congestae* they may be derivatives of subser. *Axillares*.

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