

The Vascular Plants of the Horne and Wallis Islands¹

HAROLD ST. JOHN² AND ALBERT C. SMITH³

ABSTRACT: Recent botanical collections by H. S. McKee and Douglas E. Yen, together with the few available records from published papers, have been collated into a checklist of the known vascular plants of the Horne and Wallis Islands. Of 248 species here listed, 170 appear to be indigenous. Many of these are widespread, but 45 of them are limited to the Fijian Region (New Hebrides to Samoa). Of the four known endemic species, *Elatostema yenii* St. John and *Peperomia futunaensis* St. John are herewith proposed as new, and a new combination in the fern genus *Thelypteris*, by G. Brownlie, is included.

THE HORNE AND WALLIS ISLANDS, forming the French Protectorat des Iles Wallis et Futuna, lie to the northeast of Fiji, due west of Samoa, and due east of Rotuma. The Horne Islands include Futuna (with about 25 square miles) and Alofi (with about 11 square miles), lying some 150 miles northeast of Vanua Levu and about 100 miles southwest of Uvea. Both Futuna and Alofi are high islands with fringing coral reefs; the former attains an elevation of about 760 m in Mt. Puke, and the latter an elevation of about 365 m in Mt. Kolofau. Uvea (or Wallis Island, with about 23 square miles) lies some 186 miles west of Savaii. A barrier reef surrounds the main island, and there are many small islets on and within it. Uvea is comparatively low and level, although there are isolated hills that do not exceed 150 m in height. Good descriptions of the Horne and Wallis Islands are to be found in the comprehensive ethnological papers of Burrows (1936, 1937).

Our interest in the Horne and Wallis Islands stems from recent botanical collections made there by Dr. H. S. McKee in 1968 and Dr. Douglas E. Yen in 1969. No previous checklist of the flora has been published, although a few botanical specimens from the area have been deposited in European herbaria. In the course of our studies of the McKee and Yen collections we have scanned past publications containing references to the plants of Futuna,

Alofi, and Uvea, and it seems pertinent to bring together the available data on the vascular plants of the area. In the present treatment all the specimens obtained by McKee and Yen are cited, and we also include as many Burrows specimens as could be located in the herbarium of the Bishop Museum. We have also listed several species for which no herbarium vouchers are at hand. These latter records are included on the basis of apparently reliable reports of occurrence; they include food plants and other plants of economic consequence, in such cases as we believe the occurrence to be beyond reasonable doubt. There remain a few plant records mentioned so casually that they cannot satisfactorily be referred to a species, and these are omitted. For instance, the records of melons, beans, beets, and ground-nuts by Cohic (1950), even though their identity might be guessed, are not included.

Only the vascular plants are included in this discussion, although both McKee and Yen obtained a few nonvascular cryptogams, which we have not studied. The McKee ferns were identified by Dr. G. Brownlie, of the University of Canterbury, Christchurch, New Zealand, with whose permission we have included the names in the present paper. The sequence of fern families and genera is that suggested by Brownlie in his work on New Caledonia ferns (1969). There are no gymnosperms in the collections. The angiosperms are arranged in the family sequence of the twelfth edition of *A. Engler's Syllabus der Pflanzenfamilien* (Melchior, 1964), with genera and species alphabetically listed. Collectors and observers of plants in the Horne

¹ Manuscript received June 15, 1970.

² Bernice P. Bishop Museum, Honolulu, Hawaii 96818.

³ University of Massachusetts, Amherst, Massachusetts 01002.

and Wallis Islands are discussed in the following paragraphs.

Sir E. Home, according to Seemann (1864), was the only plant collector who obtained material on Uvea prior to the visit of Graeffe in 1862. His specimens, apparently deposited in the herbarium of the British Museum (Natural History), are mentioned incidentally by Seemann in his *Flora Vitiensis* (1865–1873), and many are also cited by Drake del Castillo (1886–1892, 1893).

E. Graeffe, a Swiss traveler, made small botanical collections in Fiji and on Uvea in 1862. The first set of his material is presumably deposited in Melbourne, but some duplicates were retained by Seemann and are to be found at Kew. Graeffe's material is the basis of Seemann's report in 1864. His Uvea specimens were also mentioned incidentally in Seemann's *Flora Vitiensis* and in Drake del Castillo's works.

Edwin G. Burrows, as a Bishop Museum Fellow, made ethnological studies on Futuna from March to July, 1932, and on Uvea from July to November, 1932. His two major publications on the area (1936, 1937) provide excellent background information about Futuna and Uvea. Many plants are mentioned in those papers, by local or scientific name, and vouchers are often available in the herbarium of the Bishop Museum. We cite under appropriate species all the Burrows specimens that have been located. A brief subsequent paper by Burrows (1938) does not add any information of significant botanical value.

A survey of the insect pests of the economic plants of the Wallis Islands and Futuna was made by F. Cohic, entomologist of the French Institute of Oceania, Noumea, and plants are mentioned in his report (1950) by both local and scientific names. However, no collection of plant vouchers is indicated and we cannot verify the identifications. We have listed those of Cohic's plant records that seem to be significant, some of which are not otherwise noted.

H. S. McKee, of the Centre National de la Recherche Scientifique, Paris, visited the Horne and Wallis Islands in October and November, 1968, obtaining some 178 botanical collections; the first set of these is deposited in the Muséum National d'Histoire Naturelle in Paris, and most numbers are represented by duplicates in the

Bishop Museum. Of McKee's material from the Horne Islands, 90 numbers come from Futuna and 55 from Alofi. The remaining 33 numbers come from the Wallis Islands, in large part from Uvea. The McKee specimens are numbered 19748–19925 inclusive.

Douglas E. Yen, ethnobotanist of the Bernice P. Bishop Museum, visited the Horne Islands from August to October, 1969, collecting 137 botanical specimens. Those collected as vouchers for plants with medicinal uses are numbered 401–457 and are all from Futuna; those specimens not representing medicinal plants are numbered X1–X80 and are from both Futuna (nos. X1–X10, X30–X80) and Alofi (X11–X29). The first set of Yen's material is deposited in the herbarium of the Bishop Museum, and available duplicates will be forwarded to the Muséum National d'Histoire Naturelle in Paris. Dr. Yen's field work was aided by a grant from the National Institutes of Health, GM-15198.

The 315 specimens obtained by McKee and Yen provide a reasonably satisfactory sample of the vascular flora of the Horne and Wallis Islands, although it must not be supposed that our list is complete, even when additional species of earlier visitors are included. Nevertheless, this seems an opportune time to summarize what is presently known about the vascular plants of the area, in the hope that future visitors will supplement these data by making more comprehensive botanical collections.

ANALYSIS OF THE VASCULAR FLORA

The botanical neglect of the Horne and Wallis Islands, due to the paucity of collections and the lack of a published checklist, becomes apparent when one scans the valuable studies of van Balgooy (1960, 1969), in which our area is not even mentioned. However, it is apparent that van Balgooy would include the Horne and Wallis Islands, and also Rotuma, with the New Hebrides, Fiji, Samoa, and Tonga as a Southwest Pacific Subprovince of a comprehensive Malaysian Province. This same general area (New Hebrides to Samoa) is taken by Takhtajan (1969, p. 250) to form a Fijian Region within a Polynesian Subkingdom. In any such classification, it is evident that the archipelagoes between the New Hebrides and Samoa (includ-

TABLE 1

DISTRIBUTION OF THE SPECIES OF VASCULAR PLANTS OF THE HORNE AND WALLIS ISLANDS

	CULTIVATED OR ADVENTIVE, SOMETIMES NATURALIZED	WIDESPREAD AT LEAST IN THE PACIFIC		LIMITED TO FIJIAN REGION	
		ALSO EAST OF FIJIAN REGION	NOT EAST OF FIJIAN REGION	NON- ENDEMIC	ENDEMIC
Pteridophyta (31)	0	29	2	0	0
Dicotyledoneae (174)	59	60	15	36	4
Monocotyledoneae (43)	19	17	2	5	0
Total (248)	78	106	19	41	4

ing Rotuma and the Horne and Wallis Islands) constitute a very natural phytogeographic unit. In the following discussion and in Table 1, the "Fijian Region" is taken to include the New Hebrides (with the Santa Cruz and Banks Islands), Fiji, Rotuma, the Horne and Wallis Islands, Samoa, Tonga, and Niue.

Of the presently known 248 species of vascular plants in the Horne and Wallis Islands, 170 appear to be indigenous. Of these, 125 are widespread, at least in the Pacific, but it may be noted that a considerable number of these (19) do not extend east of the Fijian Region. It is noteworthy that 45 species indigenous to the Horne and Wallis Islands are limited to the Fijian Region. Although many of these occur in both Fiji and Samoa, relationships with the latter archipelago appear stronger than with the former. The four endemics thus far known from the Horne and/or Wallis Islands are *Elatostema yenii* St. John (n. sp., Urticaceae), *Peperomia futunaensis* St. John (n. sp., Piperaceae), *Aglaia psilopetala* A. C. Sm. (Meliaceae), and *Cyrtandra futunae* Kraenzl. (Gesneriaceae).

In the following list, those plants indigenous and endemic are indicated in boldface type; new species are preceded by an asterisk.

PTERIDOPHYTA

PSILOACEAE

Psilotum nudum (L.) Beauv. Prodr. Fam. Athéog. 112. 1805.

Horne Islands: Futuna: Vaisei, near sea-level, at the base of a coconut, *McKee* 19777.

Widespread in tropical and subtropical re-

gions. Also noted by Seemann (1864, p. 73) from Uvea, on the basis of *Graeffe* 18, as *P. triquetrum*.

LYCOPODIACEAE

Lycopodium cernuum L. Sp. Pl. 1103. 1753.

Horne Islands: Futuna: Open plateau, Singave, alt. 150 m., *McKee* 19827, 19833; Leava, forested valley, alt. 150 m., *Yen* X48, "sei kuli." Wallis Islands: Uvea: Lac Lanutavake, alt. 100 m., thickets on altered volcanic terrain, *McKee* 19898.

Often abundant in tropical and subtropical regions. Seemann (1864, p. 73) also recorded it from Uvea, represented by *Graeffe* 1.

MARATTIACEAE

Angiopteris evecta (Forst. f.) Hoffm. in Comm. Soc. Reg. Götting, vol. 12, p. 29. T. 5. 1796.

Wallis Islands: Uvea: Utuleve, near sea-level, in shade of deteriorated humid forest, *McKee* 19907.

Widespread in the Pacific. Previously collected on Uvea by *Graeffe* (no. 9) and listed by Seemann (1864, p. 73).

SCHIZAEACEAE

Schizaea dichotoma (L.) Sm. in Mem. Acad. Turin, vol. 5, p. 422. T. 9. 1793.

Horne Islands: Futuna: Slopes south of Mt. Puke, alt. 500–600 m., in shade of humid forest on volcanic terrain, *McKee* 19837.

Widespread from Madagascar to New Zealand and Polynesia. Known from Uvea (Seemann 1864, p. 73) on the basis of *Graeffe 14*.

Horne Islands: Futuna: Vele, in forest opening, *McKee 19755*.

As broadly interpreted, this species has a pantropical distribution.

GLEICHENIACEAE

Dicranopteris linearis (Burm.) Underw. in Bull. Torrey Bot. Club, vol. 34, p. 249. 1907.

Horne Islands: Futuna: In dryland, alt. 300–600 m., *Yen X49*, "sakato"; slopes south of Mt. Puke, alt. 500–600 m., on edge of remnants of humid forest on volcanic terrain, *McKee 19836*.

As elsewhere in the Old World tropics and subtropics, this fern is locally abundant. This is probably the species mentioned by Burrows (1936, p. 7; 1937, p. 10; 1938, p. 220) as *Gleichenia*.

CYATHEACEAE

Cyathea decurrens (Hook.) Copel. in Univ. Calif. Publ. Bot., vol. 14, p. 356. 1929.

Horne Islands: Futuna: Slopes south of Mt. Puke, alt. 500–600 m., in remnants of humid forest on volcanic terrain, *McKee 19839*.

Frequent in the Pacific islands.

Cyathea lunulata (Forst. f.) Copel. in Bishop Mus. Bull., no. 59, p. 37. 1929.

Horne Islands: Futuna: Slopes south of Mt. Puke, alt. 500–600 m., in remnants of humid forest on volcanic terrain, *McKee 19855*.

Widespread in the Pacific.

HYMENOPHYLLACEAE

Trichomanes dentatum v. d. Bosch in Ned. Kruid. Arch., vol. 5, pp. 89, 182. 1861.

Horne Islands: Futuna: Slopes south of Mt. Puke, alt. 500–600 m., in shade of remnants of humid forest on volcanic terrain, *McKee 19847*.

New Caledonia and Fiji into Polynesia.

DENNSTAEDTIACEAE

Microlepia speluncae (L.) Moore, Index Fil. xciii. 1857 (*sens. lat.*).

LINDSAEACEAE

Lindsaea ensifolia Sw. ssp. *agati* (Brack.) Kramer, in Acta Bot. Neerl., vol. 15, p. 579. 1967.

Wallis Islands: Uvea: *Graeffe 11* (BM, w). It occurs from Palau east to Samoa.

Lindsaea harveyi Carruth. in Seem. Fl. Vit. 338. 1873 (*sens. lat.*).

Horne Islands: Futuna: Slopes south of Mt. Puke, alt. 500–600 m., in shade of remnants of humid forest on volcanic soil, *McKee 19848*.

Previously known from New Caledonia and the Bismarck Archipelago to Tonga.

Lindsaea repens (Bory) Thw. var. *marquesensis* E. Brown in Bishop Mus. Bull., no. 89, p. 51. Pl. 9, a, g–i. 1931.

Dr. K. U. Kramer, of the State University of Utrecht, has kindly advised us that *Graeffe 10*, from Uvea, the specimen cited by Seemann (1864, p. 73) as *Synaphlebium repens* J. Sm., belongs to this variety, of which the type is a Marquesan specimen. Later he also cites as from the Wallis Islands: *Fasken 100* (BM); see *Blumea*, vol. 18, p. 183. 1970.

Tapeinidium denhamii (Hook.) C. Chr. Index Fil. 631. 1906.

Horne Islands: Futuna: Slopes south of Mt. Puke, alt. 500–600 m., in shade of remnants of humid forest on volcanic soil, *McKee 19846*.

Distributed in several Pacific groups. Copeland (in Bishop Mus. Bull., no. 59, p. 69. 1929) refers this species to the synonymy of *T. tenue* (Brack.) Copel., but this is incorrect; Brackenridge's species, although very similar in growth form, belongs to the genus *Orthiopteris*.

DAVALLIACEAE

Nephrolepis hirsutula (Forst. f.) Presl, Tent. Pterid. 79. 1836.

Although no herbarium material is available

to us, this species is listed from the Wallis Islands by Seemann (1864, p. 73), represented by *Graeffe 2*, and by Drake del Castillo (1892, p. 387; 1893, p. 305) as *N. exaltata*, collected by Home.

Davallia solida (Forst. f.) Sw. in J. Bot. (Schrader) 1800, pt. 2, p. 87. 1801.

Horne Islands: Futuna: Malae, on coast, *Yen X67a*.

Distributed from Malesia into Polynesia. Previously recorded by Drake del Castillo (1892, p. 364; 1893, p. 278) as collected by Home in the Wallis Islands.

Humata banksii Alston in Philip. J. Sci., vol. 50, p. 176. 1933.

Horne Islands: Futuna: Slopes south of Mt. Puke, alt. 500–600 m., in remnants of humid forest on volcanic terrain, *McKee 19851*.

Occurring from at least the New Hebrides and New Caledonia to Tahiti.

Humata heterophylla (Sm.) Desv. in Mém. Soc. Linn. Paris, vol. 6, p. 323. 1827.

Horne Islands: Futuna: Slopes south of Mt. Puke, alt. 500–600 m., in remnants of humid forest on volcanic terrain, *McKee 19842*.

Distributed from Malesia into Polynesia.

VITTARIACEAE

Antrophyum alatum Brack. Bot. U.S. Expl. Exped., vol. 16, p. 64. 1854.

Horne Islands: Alofi: On rocks in humid forest on calcareous terrain, alt. 200–300 m., *McKee 19790*.

Occurring from New Caledonia and Fiji to the Societies.

ADIANTACEAE

Acrostichum aureum L. Sp. Pl. 1069. 1753.

Horne Islands: Futuna: Alo, littoral, *McKee 19873*.

Pantropical and often locally abundant.

Pteris ensiformis Burm. f. Fl. Ind. 230. 1768.

No herbarium material of this widespread species, which is frequent in neighboring parts

of the Pacific, is available from our region, but the probable occurrence of this fern may be indicated from the record of *Graeffe 8* and *11*, from Uvea, recorded by Seemann (1864, p. 73) as *P. crenata* Sw.

Pteris tripartita Sw. in J. Bot. (Schrader) 1800, pt. 2, p. 67. 1801.

Horne Islands: Alofi: Swampy places in humid forest on rocky limestone, alt. 200–300 m., *McKee 19795*.

Occurring from tropical Asia into the Pacific. It seems probable that Seemann's (1864, p. 73) record of *P. quadriaurita* Hook., based on *Graeffe 6* from Uvea, belongs here.

Stenochlaena palustris (Burm.) Bedd. Suppl. Ferns S. Ind. 26. 1876.

Wallis Islands: Uvea: Lac Lalo Lalo, in remnants of forest on stony volcanic terrain, *McKee 19905*.

A widespread species from Africa into the Pacific.

ATHYRIACEAE

Diplazium sp.

No herbarium material of *Diplazium* is available from our area, but the probable occurrence of a species of this relationship is indicated by Seemann's (1864, p. 74) record of *Diplazium bulbiferum* Brack., based on *Graeffe 13*, from Uvea. The binomial is the basionym of *Athyrium bulbiferum* (Brack.) Copel. in Bishop Mus. Bull. no. 59, p. 53. 1929.

THELYPTERIDACEAE

Cyclosorus invisus (Forst. f.) Copel. Gen. Fil. 142. 1947 (*sens. lat.*).

Horne Islands: Futuna: Singave, in coconut plantations, *McKee 19892*.

Occurring from Malesia into Polynesia as far as the Marquesas.

Cyclosorus nymphalis (Forst. f.) Ching in Bull. Fan. Mem. Inst. Biol. Bot., vol. 10, p. 247. 1941 (*sens. lat.*).

Horne Islands: Futuna: Southern slopes of Mt. Puke, alt. 500–600 m., in remnants of hu-

mid forest on volcanic terrain, *McKee 19835*.
Widespread in the Pacific.

Macrothelypteris torresiana (Gaud.) Ching in
Acta Phytotax. Sinica, vol. 8, p. 310. 1963.

Horne Islands: Futuna: Slopes south of Mt. Puke, alt. 500–600 m., on edge of humid forest on volcanic terrain, *McKee 19856*. Alofi: In swampy, shady forest on rocky calcareous terrain, alt. 200–300 m., *McKee 19788*.

A widespread species, often recorded as *Thelypteris uliginosa* (Kunze) Ching; the genus *Macrothelypteris* is accepted in accord with the discussion of Holttum (in *Blumea*, vol. 17, p. 27. 1969).

***Thelypteris harveyi** (Mett. ex Kuhn) Brownlie, comb. nov.

Aspidium harveyi Mett. ex Kuhn in *Linnaea*, vol. 36, p. 115. 1869.

Lastrea harveyi Carruth. in *Seem. Fl. Vit.* 359. 1873.

Nephrodium harveyi Bak. in *Hook. and Bak. Syn. Fil. ed. 2.* 497. 1874.

Dryopteris harveyi Kuntze, *Rev. Gen. Pl.*, vol. 2, p. 812. 1891.

Wallis Islands: Uvea: Utuleve, near sea-level, in shady openings in deteriorated humid forest, *McKee 19913*.

A widespread Pacific species, typified by a Harvey collection from Fiji.

ASPIDIACEAE

Tectaria latifolia (Forst. f.) Copel. in *Philipp. J. Sci.*, vol. 2C, p. 410. 1907.

Horne Islands: Futuna: Singave, in shade at base of cliff near the sea, *McKee 19888*.

Occurring from Malesia into Polynesia.

Tectaria sp.

Horne Islands: Alofi: In shade in humid forest on rocky limestone, alt. 200–300 m., *McKee 19794*.

This collection, which requires further study, may possibly represent an undescribed species.

BLECHNACEAE

Blechnum orientale L. *Sp. Pl.* 1077. 1753.

Horne Islands: Futuna: In dryland, alt. 300–600 m., *Yen X50*, "mago." Wallis Islands:

Uvea: Lac Lanutavake, alt. 100 m., in thickets on altered volcanic terrain, *McKee 19900*.

A pantropical species, often locally abundant. Previously collected by Home and Graeffe (nos. 4, 12) in the Wallis Islands (Seemann, 1864, p. 73; 1873, p. 352; Drake del Castillo, 1892, p. 372; 1893, p. 289).

GRAMMITIDACEAE

Ctenopteris contigua (Forst. f.) Holttum, *Rev. Fl. Malaya*, vol. 2, p. 230. 1955.

Horne Islands: Futuna: Slopes south of Mt. Puke, alt. 500–600 m., in remnants of humid forest on volcanic terrain, *McKee 19843*.

A species distributed from Ceylon into Polynesia.

POLYPODIACEAE

Dipteris conjugata Reinw. *Syll. Pl.*, vol. 2, p. 3. 1824.

Horne Islands: Futuna: Singave, open plateau, alt. 150 m., *McKee 19826*; on dryland, alt. 300–600 m., *Yen X38*, "sakato."

Occurring from southeastern Asia to New Caledonia, Fiji, and Samoa.

Phymatodes scolopendria (Burm.) Ching in *Contr. Inst. Bot. Nat. Acad. Peiping*, vol. 2, p. 63. 1933.

Horne Islands: Futuna: Coast between Vasavasa and Alo, *Yen 423*, "tiga'aniu." Alofi: Mua, abundant behind the beach, *McKee 19824*.

Widely distributed in the Old World tropics. On Futuna the plant is used medicinally for swollen legs (Yen). This is probably the species recorded by Seemann (1864, p. 73) as *Phymatodes longipes*, represented by Graeffe 5 from Uvea.

DICOTYLEDONEAE

CASUARINACEAE

Casuarina equisetifolia L. *Amoen. Acad.*, vol. 4, p. 143, as *C. equisetifolia*. 1759.

Horne Islands: Futuna: Singave, alt. about 150 m., *McKee 19830*.

This widespread species is said to occur on

Futuna in small isolated groups on a plateau above Singave. It was noted by Seemann (1864, p. 73) from Uvea on the basis of *Graeffe* 52. Burrows (1936, 1937, 1938) has discussed the many uses of the hard wood, locally known as "toa."

ULMACEAE

Celtis harperi Horne ex Baker in J. Linn. Soc. Bot., vol. 20, p. 371. 1883.

Horne Islands: Futuna: Slopes south of Mt. Puke, alt. 500–600 m., *McKee* 19838.

Otherwise known only from Fiji and Niue. This interesting discovery on Futuna was made in a patch of humid forest in volcanic terrain.

Trema orientalis (L.) Bl. Mus. Bot. Lugd.-Bat., vol. 2, p. 62. 1856.

Horne Islands: Futuna: Upper Alo stream, *Yen* 401, "mangele"; Lotuma, in garden, *Yen* 430, "mangele."

A widespread species in the Pacific; our material belongs in var. *viridis* Lauterb. The bark is said to be medicinal for eyes, and the leaves are used for back ailments (Yen). As *T. ambuinensis* Bl., this species was recorded from the Wallis Islands by Drake del Castillo (1892, p. 294; 1893, p. 190).

MORACEAE

Antiaris toxicaria var. *macrophylla* (R. Br.) Corner in Gard. Bull. Singapore, vol. 19, p. 248. 1962.

The easternmost of the three varieties of *A. toxicaria* Lesch. recognized by Corner extends to Fiji and Tonga. It may be assumed that the Home specimen from the Wallis Islands noted by Drake del Castillo (1892, p. 298; 1893, p. 195) as *A. bennettii* Seem. belongs here.

Artocarpus communis J. R. and G. Forst. Char. Gen. Pl. 102. pl. 51, 51a. 1776.

Horne Islands: Futuna: In village gardens, *Yen* 431, "lau memei."

The widely cultivated Pacific breadfruit, often listed as *A. altilis* (Parkinson) Fosberg, which is based on *Sitodium-altile* Parkinson (1773), a questionable binomial. On Futuna the leaves

are said to be used medicinally for eyes (Yen). Various references to breadfruit are found in the papers of Burrows (1936, 1937) and Cohic (1950).

Broussonetia papyrifera (L.) Vent. Tabl. Regne Veg., vol. 3, p. 547. 1799.

Horne Islands: Alofi, alt. 50–150 m., *McKee* 19819, "tutu."

Cultivated throughout the Pacific for its bark used to make cloth. The McKee specimen was obtained in humid forest on rocky limestone. Notes on occurrence and uses are detailed by Burrows (1936, 1937) and Cohic (1950).

Ficus prolixa Forst. f. Fl. Ins. Austr. Prodr. 77. 1786.

Horne Islands: Futuna: Nuku, roadsides, *Yen* 439, "ao'a."

Widespread in the Pacific; on Futuna the leaves are used medicinally in treating wounds (Yen).

Ficus tinctoria Forst. f. Fl. Ins. Austr. Prodr. 76. 1786.

Horne Islands: Futuna: Vaisei, near sea-level, *McKee* 19775, "mati"; Vasavasa-Alo road, *Yen* 442, "ata"; without definite locality, *Burrows* 23, "ata"; *Burrows s. n.* (May 2, 1932), "ata."

The Pacific material of this widespread species falls into subsp. *tinctoria* as defined by Corner (in Gard. Bull. Singapore, vol. 17, p. 475. 1960); it occurs from Hainan and Formosa into Polynesia. On Futuna the leaves are reportedly used for medicinal purposes (Yen). The inner bark produces a bast used for fishnets and mats (Burrows, 1936, pp. 147, 183).

URTICACEAE

**Elatostema yenii* St. John, sp. nov. (sect. *Elatostema*). Fig. 1.

DIAGNOSIS HOLOTYPI: Herba glabra est, basi caulinis nuda decumbenti, ramis assurgentibus 30–40 cm altis in sicco 2–3 mm diametro pallide viridibus carnosus cum cystolithis 0.3–1 mm longis albis linearibus fere clausis, petiolis 1–4 mm longis et a cystolithis obscuratis, laminis principalibus 7–15 cm longis 22–41 mm latis anguste oblanceolatis inconcinis inaequilateral-

ibus curvatis apice acuminato in basi dimidio majori rotundato sed altero angustiori breviori et cuneato marginibus infra integris sed in parte $\frac{1}{2}$ - $\frac{2}{3}$ apicali humiliter crenatis, laminis molliter

membranaceis supra lucidis obscure viridibus et nervis cum cytolithis multis albis adscendentibus 0.2-0.3 mm longis in intervallis cum cystolithis multis simulantibus 0.3-0.5 mm longis sed sine

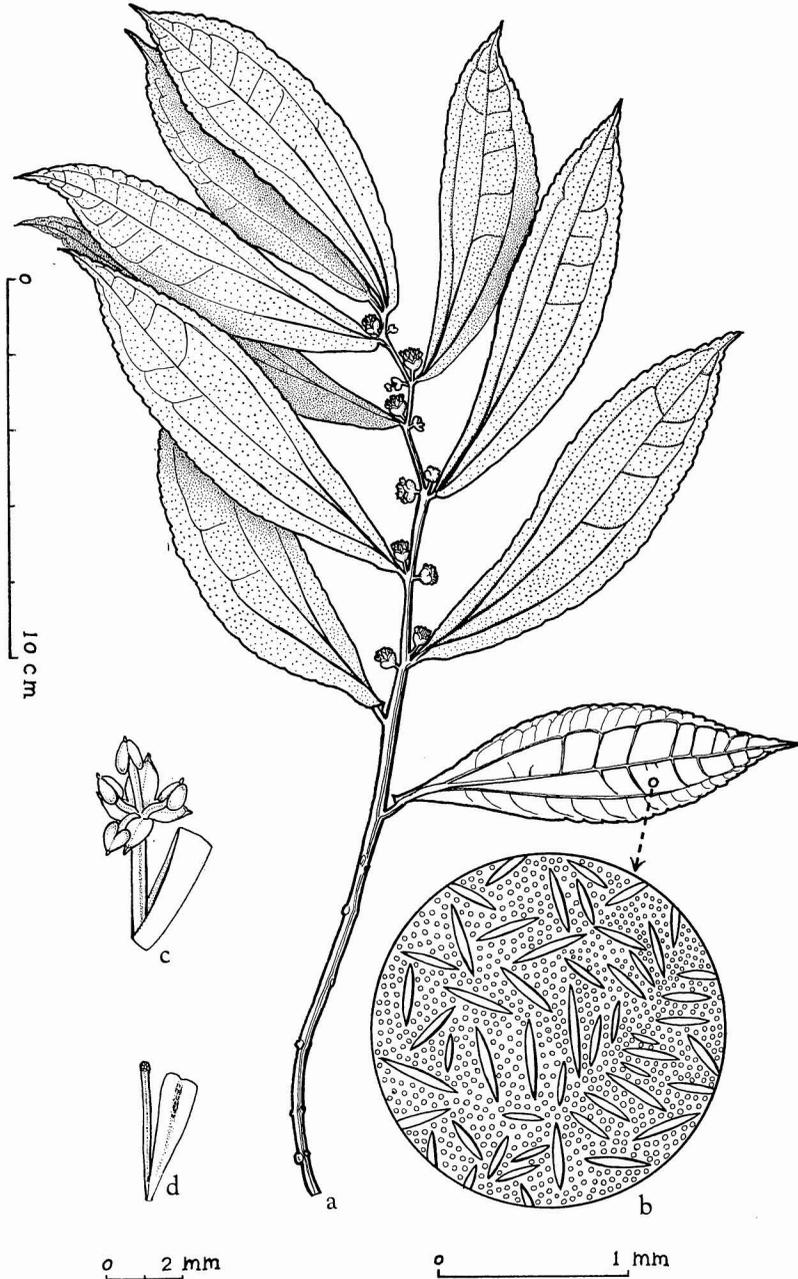


FIG. 1. *Elatostema yenii* St. John. *a*, Habit, $\times \frac{1}{2}$; *b*, portion of upper leaf surface, $\times 25$; *c*, staminate flower, $\times 5$; *d*, pistillate flower, $\times 5$.

ordine infra pallide viridibus et cum cystolithis simulantibus sed inconspicuis, nervis supra evidentis sed infra conspicuis elevatis albis, midnervo proxima basem ad dimidium majorem furcato et $\frac{1}{5}$ ex basi ad dimidium minorem furcato, nervis lateralibus binis proxima marginibus fere ad apicem extensis et lamina trinerata, nervis tertiis ex midnervo obliquis et reticulis rhombicis grandibus formantibus, nervulis obscuris, stipulis 3–4 mm longis linearibus caducis, pedunculo 3–5 mm longo a cystolithis 0.2 mm longis linearibus obscuratis, receptaculo 5–7 mm lato hemisphaerico, bracteis exterioribus 3–4 mm longis suborbicularibus mucronatis herbaceis viridibus et cum cystolithis albis multis, bracteis interioribus 3 mm longis 5 mm latis oblate suborbicularibus in medio sursum deorsum viridibus sed lateribus latis hyalinis, receptaculo convexo et circulis squamarum 2.5 mm longarum rotundatis hyalinis et eis floribus masculis compluribus et 1–2 floribus femineis inclusis, floribus masculis cum pedicello 2.5 mm longo, calyce 2–2.5 mm longo in alabastro ellipsoideo et $\frac{2}{3}$ partito, 4 lobis 1.5 mm longis ovatis acutis proxima apicem cum cystolithis nigris, staminibus 4, filamentis 0.3 mm longis, antheris 0.7 mm longis deltoideis in basi cum lobis divergentibus, floribus femineis a squama 3.2 mm longa cuneata hyalina sustentata, pistillo 3.7 mm longo lineari, stigmati 0.2 mm longo obscuro.

DESCRIPTION OF ALL SPECIMENS: Plant herbaceous, glabrous; naked stem base decumbent, forking; branches assurgent, 30–40 cm tall, 2–3 mm in diameter when dried, pale green, fleshy, the surface almost covered by linear white cystoliths 0.3–1 mm long; petioles 1–4 mm long, the surface obscured by cystoliths; principal blades 7–15 cm long, 22–41 mm wide, narrowly oblanceolate, asymmetric, inequilateral, and curved, the apex acuminate, at base the broader side rounded, the narrower side shorter and cuneate, the margins entire below but the outer $\frac{1}{2}$ – $\frac{2}{3}$ low crenate, texture soft membranous, above dark shiny green, and the veins with many ascending white linear cystoliths 0.2–0.3 mm long, the intervals with numerous ones 0.3–0.5 mm long, similar but of diverse orientation, below pale green, and with similar but incon-

spicuous cystoliths, the veins visible above, conspicuous, salient, and white below, the midrib forking near the base to produce a lateral vein on the larger side, and forking $\frac{1}{5}$ from the base to form one on the lower side, the two lateral veins curving and parallel to and nearer to the margins, and extending almost to the tip, the blade thus prominently trinerved, the tertiary veins running obliquely from the midrib to the laterals, forming large rhombic meshes, the finer veinlets obscure; stipules 3–4 mm long, linear, caducous; peduncle 3–5 mm long, covered with 0.2 mm linear cystoliths; receptacle 5–7 mm wide, hemispheric; outer bracts 3–4 mm long, suborbicular, mucronate, herbaceous, green, with numerous white cystoliths; inner bracts 3 mm long, 5 mm wide, oblate suborbicular, green up the middle but the broad sides hyaline; receptacle convex, with circles of rounded hyaline scales 2.5 mm long, surrounding several staminate flowers and 1–2 pistillate flowers; staminate flowers with pedicel 2.5 mm long; calyx 2–2.5 mm long, ellipsoid in bud, cleft $\frac{2}{3}$ way; the 4 lobes 1.5 mm long, ovate, acute, near the apex lined with black cystoliths; stamens 4, the filaments 0.3 mm long; anthers 0.7 mm long, deltoid with the anther sacs divergent at base; pistillate flowers subtended by a hyaline scale 3.2 mm long, cuneate; pistil 3.7 mm long, linear, the dark stigmatic tip 0.2 mm long.

HOLOTYPE: Western Polynesia, Horne Islands, Alofi Island, on ground in opening in forest, leaning on trees, Aug.–Oct., 1969, Douglas E. Yen X12 (BISH).

ADDITIONAL MATERIAL: Horne Islands, Alofi Island, common in humid forest on raised coral, alt. 50–200 m., Oct. 24, 1968, H. S. McKee 19756 (BISH, P).

DISCUSSION: *E. yenii* is a member of the section *Elatostema*, as is the somewhat similar species *E. humile* A. C. Sm., of Viti Levu and Taveuni Islands, Fiji, a species with stem apices strigose; blades 4–9.5 cm long, 8–18 mm wide, the margins subacute serrate, above the cystoliths 0.1–0.3 mm long, linear, sometimes 3–4-parted, below glabrous or with the nerves strigose, the lateral nerves 5–7 on a side; stipules 7–10 mm

long, lanceolate, sericeous; peduncle to 1.5 mm long; staminate receptacle 3–6 mm wide; outer bracts 4–5 mm long, beaked; pedicels to 1 mm long; calyx segments spurred. *E. yenii* is a glabrous plant, the blades 7–15 cm long, 22–41 mm wide, the margins in the upper $\frac{1}{2}$ – $\frac{2}{3}$ low crenate, above the cystoliths 0.2–0.3 mm long, linear, lateral nerves 1 on a side; stipules 3–4 mm long, linear; peduncle 3–5 mm long; receptacle bisexual, 5–7 mm wide; outer bracts 3–4 mm long, obtuse; pedicels 2.5 mm long; calyx segments entire.

The new epithet is chosen to honor the collector of the holotype, Douglas Ernest Yen (1924–), ethnobotanist of the Bernice P. Bishop Museum, Honolulu.

Laportea interrupta (L.) Chew in Gard. Bull. Singapore, vol. 21, p. 200. 1965.

Horne Islands: Futuna: Lotuma, in garden, *Yen 426*, "mango."

Africa to Japan and China and eastward in the Pacific. On Futuna the entire plant is used medicinally for children's fevers and sores (Yen).

Leucosyke corymbulosa (Wedd.) Wedd. in DC. Prodr., vol. 16, no. 1, p. 235. 1869.

Horne Islands: Futuna: Singave, *McKee 19860*; Vasavasa-Alo, hill road, *Yen X3*, "taputakala."

A shrub at low elevation, sometimes on rocky limestone. The wood is reported by Yen as used for construction. Widespread in the Pacific at least from the New Hebrides to the Cook Islands.

Pilea microphylla (L.) Liebm. in Dansk Vid. Selsk. Skr., vol. 5, no. 2, p. 302. 1851.

Horne Islands: Futuna: Alo, littoral on wet pebbles in shade, *McKee 19872*.

This tropical American plant is now a very widespread weed throughout the Old World tropics.

Pipturus sp.

Burrows refers to this genus as the source of fibers used for fishlines, nets, and bindings, as "sikaloa" (1936, pp. 147, 151) and "hikalooa" (1937, pp. 108, 111), also noting that saplings

are used for outrigger booms and house rafters, as "samama" (1936, pp. 160, 166). As the source of a useful inner bark the reference to *Pipturus* may be correct, but the vernacular name "samama" and the use of the wood suggests *Commersonia bartramia* (Sterculiaceae). In the absence of herbarium vouchers, the occurrence of *Pipturus* in the area must be questioned.

Procris pedunculata (J. R. and G. Forst.) Wedd. in DC. Prodr., vol. 16, no. 1, p. 191. 1869.

Horne Islands: Futuna: Singave, on rocks near sea, *McKee 19889*.

The collection probably belongs in var. *ornata* A. C. Sm. (in *Sargentia*, vol. 1, p. 25. 1942), which occurs in Fiji and Tonga more commonly than var. *pedunculata*, the type of which is from the Societies.

LORANTHACEAE

Amylothea insularum (A. Gray) Danser in Bull. Jard. Bot. Buitenzorg III, vol. 10, p. 301. 1929.

Horne Islands: Alofi: Humid forest on raised coral, alt. 50–200 m., *McKee 19759*.

This parasitic shrub is otherwise known from Fiji, Samoa, Tonga, and the Cook Islands.

AMARANTHACEAE

Achyranthes aspera L. Sp. Pl. 204. 1753.

Horne Islands: Alofi: Along trails in humid forest on rocky limestone, alt. 50–150 m., *McKee 19821*.

A widespread pantropical weed, although noted as apparently rare on Alofi.

Celosia argentea L. Sp. Pl. 205. 1753.

Horne Islands: Futuna: Nuku coast, *Yen X36*, "kalokalo-imo-toa."

Occasionally naturalized in the Pacific; on Futuna it is a garden weed used as a spice (Yen).

ANNONACEAE

Annona muricata L. Sp. Pl. 536. 1753.

The occurrence of the soursop on Futuna is indicated by Burrows (1936, p. 132).

Cananga odorata (Lam.) Hook. f. and Thoms. Fl. Ind., vol. 1, p. 130. 1855.

Horne Islands: Futuna: In lowland forests, *Burrows* 12, "mosokoi"; Sausau, *McKee* 19762, "mosokoi"; Vasavasa, *Yen* X76, "moso koi." Wallis Islands: Uvea: In coastal forest, *Burrows* W18, "mohokoi."

The species is widespread in cultivation from Indo-Malesia into Polynesia and has frequently become naturalized. It was recorded from the Wallis Islands by Seemann (1864, p. 71) as *Uvaria odorata* on the basis of *Graeffe* 22, and also by Drake del Castillo (1889, p. 104; 1893, p. 1). Burrows (1936, pp. 160, 195; 1937, pp. 114, 138, 155) indicated that the wood is used for canoe outriggers and as sticks used in games, while the flowers are used for adornment and to scent coconut oil.

MYRISTICACEAE

Myristica hypargyrea A. Gray, Bot. U.S. Expl. Exped., vol. 1, p. 33. 1854.

Horne Islands: Alofi: In forest, alt. 50–150 m., *McKee* 19803, "manauí."

Otherwise known only from Samoa, although Smith (in Bull. Torrey Bot. Club, vol. 68, p. 403. 1941) also included Tongan material in his concept. Sinclair (in Gard. Bull. Singapore, vol. 23, p. 415. 1968) has interpreted the species broadly, limiting his type variety to Samoa but recognizing three other varieties extending to the New Hebrides and Micronesia; he refers the Tongan material to var. *gillespieana* (A. C. Sm.) Sinclair, a taxon from Fiji and Tonga that appears to merit specific status.

Myristica inutilis Rich ex A. Gray, Bot. U.S. Expl. Exped., vol. 1, p. 34. 1854.

Myristica fatua var. *inutilis* Sinclair in Gard. Bull. Singapore, vol. 23, p. 278. Fig. 32. 1968.

Horne Islands: Futuna: Mt. Vaisei, alt. 30 m., *Yen* X52, "lalaa vao"; Alofi: Alt. 10 m., *McKee* 19867, "manauí"; in forest, alt. 60–240 m., *Yen* X22, "lalaa vao."

A tree to 14 m or more; wood used for construction. The species is apparently otherwise known only from Samoa, although Smith (in Bull. Torrey Bot. Club, vol. 68, p. 400, 1941)

also recorded it from the Solomons and New Hebrides. Sinclair has since proposed a very wide circumscription for *M. fatua* Houtt., recognizing 14 varieties within that species. The variability and geographic discontinuities are such that this treatment does not appear justified, although the material from the Solomons and New Hebrides may perhaps be separated from the Samoan taxon; Sinclair would refer it to *M. fatua* var. *papuana* Markgraf. The absence of plants of this general affinity from Fiji is noteworthy.

LAURACEAE

Cassytha filiformis L. Sp. Pl. 35. 1753.

Horne Islands: Futuna: On edge of dryland, *Yen* X47, "salii."

A pantropical parasitic scrambling vine, often abundant.

Persea americana Mill. Gard. Dict. ed. 8. 1768.

Occurrence of the introduced avocado on Uvea is indicated by Burrows (1937, p. 94).

HERNANDIACEAE

Hernandia moerenhoutiana Guillemain in Ann. Sci. Nat. Bot., series II, vol. 7, p. 189. 1837.

Horne Islands: Futuna: In mountain forests, alt. 300 m., *Burrows* 17, "pipi."

Burrows (1936, p. 154) was aware that two species of *Hernandia*, with different local names, occur on Futuna; both are used in canoe building. The inland species here discussed occurs from the Solomons and New Hebrides to the Societies (cf. Kubitzki in Bot. Jahrb., vol. 89, p. 127. 1969). The Burrows specimen, consisting only of foliage, probably falls into ssp. *samoensis* (Hochr.) Kubitzki.

Hernandia peltata Meissn. in DC. Prodr., vol. 15, no. 1, p. 263. 1864.

Horne Islands: Futuna: Lowland forests near beaches, *Burrows* 15, "puka." Wallis Islands: Uvea: Sandy lowland near sea, *Burrows* W13, "puko."

Widely distributed from East Africa and southeastern Asia into the Pacific (cf. Kubitzki

in Bot. Jahrb., vol. 89, p. 153, 1969). A Home specimen from the Wallis Islands has been mentioned by Drake del Castillo (1892, p. 279; 1893, p. 169) and Kubitzki. Burrows (1936, p. 154) mentions the wood of the "puka" as being used for canoes on Futuna.

PIPERACEAE

* *Peperomia futunaensis* St. John, sp. nov.
(subgen. *Sphaerocarpidium*). Fig. 2.

DIAGNOSIS HOLOTYPI: Caules 10–20 cm alti plerumque pluri et congregati sunt, basi decumbenti et per 3–13 cm radiferi in sicco 2–3 mm diametro caulibus densiter hirtellis, pilis 0.1–0.2 mm longis, plantis parvis cum caule solitario

illis majoribus cum ramulis paucis, internodiis 8–37 mm longis, foliis alternatis (vel rare in apice oppositis), petiolis 2–5 mm longis hirtellis, laminis 13–32 mm longis 11–24 mm latis late ellipticis apice obtuso basi rotundata vel subcuneata supra glabris infra in initio remote adpresse hirtulis brunneis pilis caducis marginibus incrassatis et hirtuli-ciliatis, laminis carnosis (sed in sicco membranaceis) supra obscure viridibus infra pallidioribus palmatim 5-nervis nervis binis interioribus fortibus et paene ad apicem extensis, spicis 25–58 mm longis terminalibus ad folia oppositis bis vel plus longioribus quam foliis, pedunculis 4–10 mm longis hirsutulis, rhachidi glabro, bracteis 0.3–0.5 mm diametro suborbicularibus peltatis, filamentis et

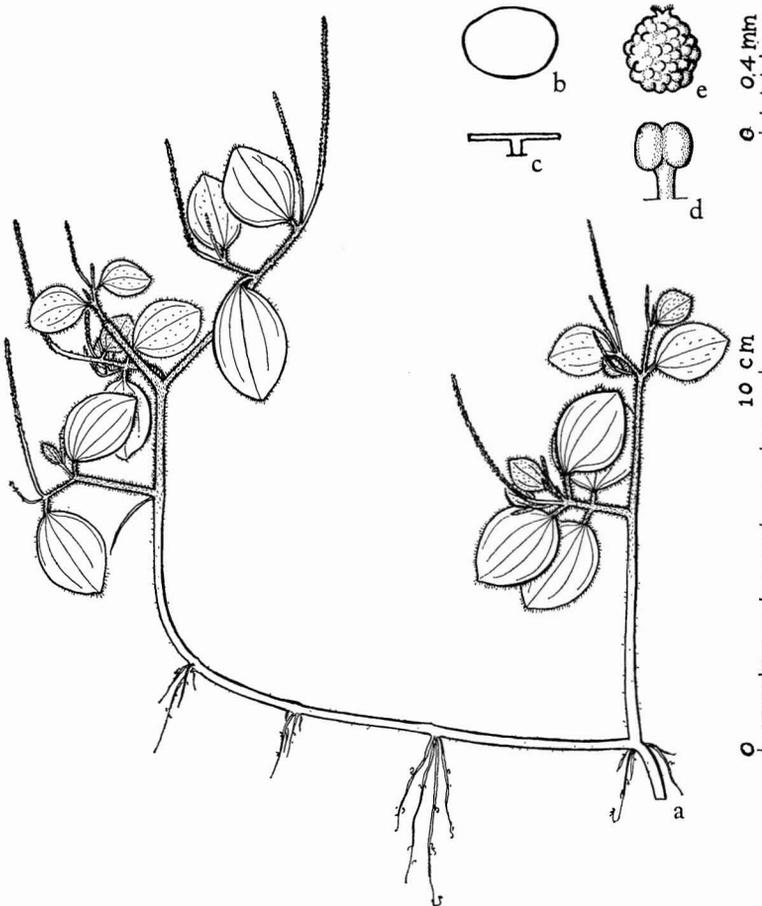


FIG. 2. *Peperomia futunaensis* St. John. a, Habit, $\times \frac{1}{2}$; b, top view of bract, $\times 25$; c, lateral view of bract, $\times 25$; d, stamen, $\times 25$; e, drupe, $\times 25$.

antheris 0.2 mm longis illis ellipsoideis compressis, stigmatibus subapicali indiviso vel bilobato, drupis 0.6–0.7 mm longis subglobose glandulosis-papillose brunneis.

DIAGNOSIS OF HOLOTYPE: Stems 10–20 cm tall, generally several and clustered, the base decumbent and rooting for 3–13 or more cm, when dried 2–3 mm in diameter, the younger part densely hirtellous and so on the stems even to the leafless base, the hairs 0.1–0.2 mm long, the stems of smaller plants simple, those of larger plants few forked; internodes 8–37 mm long; leaves all alternate (or at apex rarely opposite); petioles 2–5 mm long, hirtellous; blades 13–32 mm long, 11–24 mm wide, broadly elliptic, the apex obtuse, the base rounded or subcuneate, above glabrous, below at first sparingly appressed brown hirsutulous, the hairs caducous, the margins thickened and hirsutulous ciliate, the texture fleshy, drying membranous, above dark green, below paler green, palmately 5-nerved, the inner pair of nerves strong and running almost to the tip; spikes 25–58 mm long, terminal and leaf opposed, twice or more than twice as long as their leaves; peduncles 4–10 mm long, hirsutulous; rhachis glabrous; bracts 0.3–0.5 mm in diameter, orbicular, peltate; filaments equal to the anthers, these 0.2 mm long, ellipsoid, compressed; stigma subapical, undivided or bilobed; drupe 0.6–0.7 mm long, subglobose, glandular papillose, brown.

HOLOTYPE: Western Polynesia, Horne Islands, Futuna Island, Vasavasa, on wall near coast road, under *Pandanus* and *Cocos*, Aug.–Oct., 1969, *Douglas E. Yen*, X30 (BISH).

DISCUSSION: *P. futunaensis* is most closely related to *P. rapensis* F. Br., of Pitcairn, Rapa, and Rurutu Islands, a species in habit 15–35 cm tall; blades 1.5–3.5 cm long, 1–3 cm wide, the base acute to subcuneate, the margins non-ciliate, palmately 5- or 7-nerved; petioles 3–7 mm long; peduncles 20–30 mm long; spikes 2.5–8 cm long; rhachis hispidulous; bracts 0.6 mm in diameter; drupes 1 mm long. *P. futunaensis* is a plant 10–24 cm tall; blades 1.3–3.2 cm long, 1.1–2.4 cm wide, the base rounded

or subcuneate, the margins ciliate; palmately 5-nerved; petioles 2–5 mm long; peduncles 4–10 mm long; spikes 2.5–5.8 cm long; rhachis glabrous; bracts 0.3–0.5 mm in diameter; drupe 0.6–0.7 mm long.

The new epithet is formed from the name of the type locality, Futuna, and *-ensis*, the Latin adjectival place suffix.

Peperomia tutuilana Yuncker in Bishop Mus. Bull., no. 143, p. 33. Fig. 18. 1937; in Bishop Mus. Bull., no. 184, p. 35. 1945.

Horne Islands: Alofi: In humid forest on rocks in calcareous terrain, alt. 200–300 m., *McKee* 19793.

Previously known from Tutuila and Tau in Samoa.

Piper melanostachyum C. DC. in J. Linn. Soc. Bot., vol. 39, p. 162. 1909.

Horne Islands: Alofi: In humid forest on rocky calcareous terrain, alt. 200–300 m., *McKee* 19801.

Previously believed endemic to Fiji; this species falls into Section *Macropiper*, as a relative of *P. puberulum*.

Piper methysticum Forst. f. Pl. Esc. Ins. Oc. Austr. 76. 1786.

Horne Islands: Alofi: Cultivated in a forest clearing, alt. 50–200 m., *McKee* 19754.

The "kava" or "yanggona" widely grown in the Pacific as a beverage plant. Drake del Castillo (1892, p. 274; 1893, p. 165) records it from the Wallis Islands, collected by Home. Burrows (1936, 1937) describes in some detail the ceremonial uses of kava on Futuna and Uvea.

Piper nigrum L. Sp. Pl. 28. 1753.

Wallis Islands: Uvea: Mata Utu, near sea-level, cultivated, *McKee* 19917.

The widely cultivated pepper, which, however, is apparently not grown on a commercial scale in the Pacific except to a minor extent in Fiji.

Piper puberulum (Benth.) Benth. ex Seem. Fl. Vit. Pl. 75. 1868.

Horne Islands: Alofi: In humid forest on

rocky calcareous terrain, alt. 200–300 m., *McKee* 19785.

The specimen falls into var. *puberulum*, which is frequent in Fiji, Samoa, Tonga, and perhaps other Pacific groups. Some doubt attaches to the use of the binomial, which A. C. Smith (in *J. Arnold Arb.*, vol. 24, p. 355. 1943) accepted to replace *P. macgillivrayi* C. DC. ex Seem. (*Fl. Vit.* 262. 1868). It may be argued that Seemann did not actually accept the binomial *P. puberulum*, which is used only on his plate and in the synonymy of *P. macgillivrayi*, and that the combination was invalid under the provisions of Art. 34 (*Int. Code Bot. Nomenclature*, 1966). However, it seems likely that future students of the Piperaceae will recognize the generic status of *Macropiper* Miq. (cf. Balfour in *Phytomorphology*, vol. 7, p. 354. 1957; Yuncker in *Brittonia*, vol. 10, p. 3. 1958), in which case *M. puberulum* Benth. (in *Hook. London J. Bot.*, vol. 2, p. 235. 1843) will be the appropriate name for this concept. As *Macropiper puberulum*, the species has been reported from Uvea by Seemann (1864, p. 73), represented by *Graeffe* 31.

Piper vaupelii Lauterb. in *Bot. Jahrb.*, vol. 41, p. 224. 1908.

Horne Islands: Futuna: Vilo Malia, alt. 125–200 m., in hill forest, *Yen* 415, 416, "kava-kava'atua"; Tavai, near sea-level, in coastal thicket, *McKee* 19781, "kava kava atua," on coconut tree, *McKee* 19782, "kava kava atua."

Climbing vines, with reputed medicinal use (*Yen*). In referring this material to *P. vaupelii*, otherwise known only from Samoa, we note the similarity of *Yen* 416 and *McKee* 19782 to a Bishop Museum isotype of Lauterbach's species, *Vaupel* 235, from Savaii. The species is very close to *P. graeffei* Warb. (1898), differing primarily in having its stipule-indument limited to a narrower median area, its principal nerves more divergent from the base, its spikes shorter, and its bracts smaller. The Samoan species of Sect. *Eupiper* are in need of careful study, as it appears that at least some of the species described by C. de Candolle (in *Denkschr. Akad. Wiss. Wien*, vol. 85, pp. 265–266. 1910) are close to the two earlier species mentioned above.

The other two specimens available from

Futuna show interesting variations. *Yen* 415 is from a juvenile plant with the stem appressed to tree trunks, with proportionately broader and deeply cordate leaf blades. *McKee* 19781 has some mature but similarly shaped leaf blades (up to 19 × 16 cm), but on the same stems are also more typical leaf blades (14 × 7 cm. and merely rounded at base).

GUTTIFERAE

Calophyllum inophyllum L. Sp. Pl. 513. 1753.

Horne Islands: Futuna: Along shores near sandy beaches, *Burrows* 14, "tsilo." Alofi: Mt. Vaisei, alt. 90 m., *Yen* X58, "tilo." Wallis Islands: Uvea: Sandy lowlands by sea, *Burrows* W'16, "feta'u."

Widespread in the Pacific, usually near beaches but occasionally inland at low elevations. Recorded from Uvea by Seemann (1864, p. 71) on the basis of *Graeffe* 33. *Burrows* (1936, pp. 136, 154; 1937, pp. 97, 112, 146) notes that the wood has many uses, such as canoes, drums, and bowls. *Yen* also indicates that on Alofi the wood is used in boat construction.

Calophyllum neo-ebudicum Guillaumin in *J. Arnold Arb.*, vol. 12, p. 227. 1931.

Horne Islands: Futuna: In upland forests, alt. 300 m., *Burrows* 18, "tamanu"; slopes south of Mt. Puke, alt. 500–600 m., in remnants of humid forest on volcanic terrain, *McKee* 19850. Alofi: In humid forest on rocky limestone, alt. 50–150 m., *McKee* 19810, "tamanu."

The inland *Calophyllum* of the Horne Islands is probably referable to *C. neo-ebudicum*, which is known from the New Hebrides to Samoa, but the genus is in need of careful study. *Burrows* (1936, pp. 136, 154) records the "tamanu" as *C. soulattri?*, indicating that its wood is used for canoes and bowls like that of the beach species.

CRUCIFERAE

Nasturtium sarmentosum (Soland. ex Forst. f.) Schinz and Guillaumin in *Sarasin and Roux, Nova Caled.*, vol. 1, p. 146. 1920.

Horne Islands: Futuna: Leava, riverside, *Yen* 440, "salata." Alofi: Mua, near dwellings, *McKee* 19823.

Yen reports that on Futuna the whole plant is used medicinally for fevers. St. John (in *Occ. Pap. Bishop Mus.*, vol. 18, no. 5, pp. 79–89, 1945) provides an extended discussion of the distribution and many uses of this species, which was doubtless one of those carried by the Polynesians when colonizing new islands; the original home of *N. sarmentosum* may have been New Caledonia or the adjacent islands. The combination in *Nasturtium* is often accredited to O. E. Schulz (in *Bot. Jahrb.*, vol. 32, pp. 595, 1903), but the binomial was not validly published then under the provisions of Article 33 (*Int. Code Bot. Nomenclature*, 1966).

PITTIOSPORACEAE

Pittosporum arborescens Rich ex A. Gray, *Bot. U.S. Expl. Exped.*, vol. 1, p. 223, 1854.

Horne Islands: Alofi: In humid forest on rocky limestone, alt. 200–300 m., *McKee* 19783, "kava tao."

The specimen is from a small tree, of which the crushed fruits are used to poison fish. The species is frequent in Fiji and Tonga; it is also used there as a fish poison.

ROSACEAE

Parinari glaberrima Hassk. in *Flora*, vol. 27, p. 583, as *Parinarium glaberrimum*, 1844.

Horne Islands: Futuna: Vaisei, alt. near sea-level, *McKee* 19778, "ifi ifi." Wallis Islands: Uvea: Edge of forest, alt. 15 m., *Burrows* W23, "ifi-ifi."

This widespread species, extending from Indo-Malesia into the Pacific to Tonga and Samoa, was recorded from Uvea by Seemann (1864, p. 72) as *Parinarium laurinum*, collected by Graeffe (no. 19). *Burrows* (1936, p. 157; 1937, p. 113) states that the gum and small sticks of the "ifi-ifi" are used to calk canoes on both Futuna and Uvea.

Parinari insularum A. Gray, *Bot. U.S. Expl. Exped.*, vol. 1, p. 488, as *Parinarium i.* 1854, *Atlas pl.* 54, B. 1856.

Wallis Islands: Uvea: Without further locality, *Burrows* W24.

Otherwise known from Fiji, Samoa, and Tonga. *Burrows* (1936, p. 195) records the name "sea" on Futuna, where the crushed fruits are used for an oil; on Uvea (1937, pp. 132, 138) the name is "hea," the wood being used to make design tablets for printing bark cloth, and slices of the fruit being used in necklaces.

CONNARACEAE

Santaloides samoense (Lauterb.) Schellenb. in *Bot. Jahrb.*, vol. 58, p. 180, 1923.

Horne Islands: Futuna: Mt. Nuku, alt. 90 m., *Yen* X53, "vaa tipu."

Otherwise known from Samoa, Tonga, and Niue, where it is infrequent.

LEGUMINOSAE

Acacia simplicifolia (L. f.) Druce in *Bot. Exch. Club Brit. Isles Rep.*, vol. 4, p. 602, 1917.

Horne Islands: Futuna: Alo, somewhat rare above beaches, *McKee* 19870. Wallis Islands: Nukuifala, on coralline sand above beaches, *McKee* 19925.

A widespread littoral species, extending into the Pacific to Tonga and Samoa.

Canavalia maritima (Aubl.) Thouars in *J. Bot. (Desvaux)*, vol. 1, p. 80, 1808.

Horne Islands: Futuna: Singave, on limestone, *McKee* 19863; *Vasavasa*, *Yen* 402, "fue."

A pantropical seacoast plant; said to be used for stomach ailments on Futuna (*Yen*).

Cassia mimosoides L. *Sp. Pl.* 379. 1753.

This widespread weed is listed from the Wallis Islands by *Cohic* (1950, p. 1).

Cassia occidentalis L. *Sp. Pl.* 377. 1753.

Cohic (1950, p. 1) lists this weed from the Wallis Islands.

Cassia sophera L. *Sp. Pl.* 379. 1753.

Reported by *Seemann* (1865, p. 67) and by *Drake del Castillo* (1890, p. 158; 1893, p. 57)

from the Wallis Islands, collected by Home. The identity of the three weedy species of *Cassia* here mentioned, although probable, cannot be taken as positive without herbarium vouchers.

Derris trifoliata Lour. Fl. Cochinch. 433. 1790.

Horne Islands: Futuna: Vaisei, roadsides, *Yen* 438, "u'oui."

Widespread near shores throughout the Pacific, and often used as a fish poison. On Futuna the leaves are used for throat infections (*Yen*).

Desmodium umbellatum (L.) DC. Prodr., vol. 2, p. 325. 1825.

Horne Islands: Futuna: Nuku, roadside, *Yen* 437, "lala."

Widespread and often abundant in the Pacific. On Futuna the leaves are used medicinally for toothache (*Yen*).

Entada phaseoloides (L.) Merr. in Philip. J. Sci. Bot., vol. 9C, p. 86. 1914.

Horne Islands: Futuna: *Burrows s. n.*, July 24, 25, 1932.

A widespread species throughout tropical Asia and into the Pacific. *Burrows* (1936, pp. 145, 156, 221) records the name "tsipi" for *Entada scandens* on Futuna, where the stem is used in tying and the seed in games; on Uvea (1937, p. 138) the seeds are used for ornamental bracelets.

Erythrina variegata var. **orientalis** (L.) Merr. Interpret. Rumph. Herb. Amb. 276. 1917.

Horne Islands: Futuna: In lowland forest, alt. 20 m., *Burrows* 3, "ngatae"; Vilo Malia, in hill forest, alt. 120–200 m., *Yen* 422, "ngatae."

Widespread in coastal forests throughout the Pacific. On Futuna the bark is reported used for venereal disease (*Yen*). *Burrows* (1936, p. 154; 1937, p. 112) records the species as *E. indica*, noting that its wood is used for canoes on both Futuna and Uvea.

Inocarpus edulis J. R. and G. Forst. Char. Gen. Pl. 66. Pl. 33. 1776.

Horne Islands: Futuna: Vaisei, near sea-level, *McKee* 19779, "ifi"; Nuku, in garden, *Yen* 447, "ifi." Wallis Islands: Uvea: Alt. 15 m., *Burrows* W22, "ifi."

The widespread Tahitian chestnut, occurring throughout the Pacific and esteemed for its edible seed, has been noted in our area by Seemann (1864, p. 72), Drake del Castillo (1890, p. 156; 1893, p. 54), *Burrows* (1936, p. 132; 1937, pp. 99, 113), and *Cohic* (1950, p. 21). The crushed fruit produces a gum used to calk canoes on Uvea (*Burrows*), whereas on Futuna the bark is said to be used medicinally for fever (*Yen*). The species is often recorded as *I. fagiferus* (Parkinson) Fosberg, based on *Aniotum-fagiferum* Parkinson (1773), a questionable basionym.

Intsia bijuga (Colebr.) Kuntze, Rev. Gen. Pl., vol. 1, p. 192. 1891.

No herbarium specimens support the occurrence, but this hardwood tree is to be anticipated in our area and is probably intended by *Burrows* (1937, p. 131) in his mention of "fehi (*Afzelia?*)" on Uvea. The wood is used to provide the anvil in the manufacture of bark cloth. The species is native from the Mascarenes to Tonga and Samoa, and the Tongan name similarly is "fehi."

Mimosa pudica L. Sp. Pl. 518. 1753.

Listed as a weed in the Wallis Islands by *Cohic* (1950, p. 1).

Pongamia pinnata (L.) Merr. Interpret. Rumph. Herb. Amb. 271. 1917.

Horne Islands: Futuna: Alo, *McKee* 19869, "maota."

A small littoral tree, widespread in the Pacific. The name "maota" usually refers to *Dysoxylum* (Meliaceae).

Sophora tomentosa L. Sp. Pl. 373. 1753.

A shrub or tree near the shore and often abundant, occurring from India into Polynesia. Its occurrence in the Wallis Islands is documented by Seemann (1864, p. 72) on the basis of *Graeffe* 38 and by Drake del Castillo (1890, p. 157; 1893, p. 54).

Tephrosia purpurea (L.) Pers. Syn. Pl., vol. 2, p. 329. 1807.

This record is included on the basis of the mention of *T. piscatoria*, "kava huhu," on Uvea

by Burrows (1937, p. 107), who states that the bark and leaves are used as a fish poison. The species is widely distributed in the Pacific and similarly used; one of the vernacular names in Tonga is "kavahu" (Yuncker in Bishop Mus. Bull., no. 220, p. 139. 1959).

Uraria lagopodioides (L.) Desv. ex DC.
Prodr., vol. 2, p. 324, as *U. lagopoides*.
1825.

Horne Islands: Alofi: Opening in humid forest on raised coral, alt. 50–200 m., *McKee 19757*.

Occurring from southeastern Asia into the Pacific as far as Samoa, Tonga, and Niue, this plant has a weedy aspect toward the eastern part of its range. It has been recorded from the Wallis Islands by Drake del Castillo (1890, p. 150; 1893, p. 45) on the basis of a Home specimen.

EUPHORBIACEAE

Acalypha grandis Benth. in Hook. London J. Bot., vol. 2, 232. 1843.

Horne Islands: Futuna: Vasavasa Valley, *Yen 404*, "ka'apusi." Alofi: In forest opening, *Yen X14, X15*, "kala'apusi."

This species has been assigned a wide distribution (Pax and Hoffm. in Pflanzenr., vol. 85 (IV. 147. XVI), p. 150. 1924) from Malaysia into the Pacific; our material falls into var. *grandis*, which is frequent at least in Fiji in lowland thickets. Yen notes that on Futuna all parts of the plant are used medicinally, while on Alofi it is considered a "food for animals." The species was recorded from the Wallis Islands by Seemann (1864, p. 72) and Drake del Castillo (1892, p. 291; 1893, p. 185) on the basis of collections by Graeffe, Home, and Hombron.

Aleurites moluccana (L.) Willd. Sp. Pl., vol. 4, p. 590. 1805.

Horne Islands: Futuna: Vaisei, near sea-level, *McKee 19772*, "tui tui"; coastal road, Vasavasa to Alo, *Yen 424*, "tuitui."

The candlenut tree is now thoroughly naturalized throughout the Pacific. Graeffe (no. 17) collected it on Uvea (Seemann 1864, p. 72, as *A. triloba*). Burrows (1936, pp. 189, 195;

1937, pp. 92, 132) notes it on both Futuna and Uvea; the fruit is crushed and used for oil, the bark is used for sore throats, and the kernels provide a soot used for dyeing bark cloth. McKee notes that on Futuna the seeds are still used to provide illumination, and Yen indicates that the bark is used medicinally for mouth infections.

Antidesma sphaerocarpum Muell. Arg. in DC.
Prodr., vol. 15, no. 2, p. 255. 1866.

Horne Islands: Alofi: Humid forest in rocky calcareous terrain, alt. 50–150 m., *McKee 19818*.

Previously known only from Samoa.

Bischofia javanica Bl. Bijdr. 1168. 1826–1827.

Horne Islands: Futuna: Vilo Malia, hill forest, alt. 120–200 m., *Yen 420*, "koka"; lowland forests, alt. 20 m., *Burrows 10*, "koka."

Widespread from Indo-Malaysia into the Pacific. On Futuna the bark is said to be medicinal and is used for coughs (Yen). Burrows (1936, pp. 138, 189, 220; 1937, p. 132) records use of the bark as a dye on both Futuna and Uvea; on Futuna the bark is also used to smoke fish, and the seeds are said to be used in games.

Euphorbia atoto Forst. f. Fl. Ins. Austr. Prodr. 207. 1786.

Horne Islands: Futuna: Singave, near sea-level on rocky limestone, *McKee 19862*.

A widespread species, frequent throughout the Pacific.

Glochidion ramiflorum J. R. and G. Forst.
Char. Gen. Pl. 114, Pl. 57. 1776.

Horne Islands: Futuna: Inland forests, alt. 20 m., *Burrows 5*, "masame"; Mt. Vaisei, alt. 90 m., *Yen X57*, "masame." Wallis Islands: Uvea: Inland forests, alt. 15 m., *Burrows W2*, "mahame."

The distribution of this variable species is not fully resolved, but it occurs at least in the New Hebrides and Fiji (Croizat in Occ. Pap. Bishop Mus., vol. 17, no. 16, p. 209. 1943), probably also in Tonga and Niue (Croizat in Sargentia, vol. 1, p. 47. 1942), and possibly in the Solomons and Samoa. Burrows (1936, pp. 157,

159) notes that the wood is used in canoe building on Futuna.

Homalanthus nutans (Forst. f.) Pax in Engl. and Prantl, Nat. Pflanzenfam., vol. 3, no. 5, p. 96. 1890.

Horne Islands: Futuna: Mt. Nuku, alt. 90 m., *Yen X56*, "pata mama."

A widespread and variable species from at least Micronesia to the Societies; our specimen would fall into var. *nutans*.

Jatropha curcas L. Sp. Pl. 1006. 1753.

Horne Islands: Futuna: Mt. Nuku, alt. 90 m., *Yen X64*, "fiki."

An American species now widely cultivated and sometimes naturalized in the Pacific. Yen notes that the wood is used for construction on Futuna.

Macaranga harveyana (Muell. Arg.) Muell. Arg. in DC. Prodr., vol. 15, no. 2, p. 998. 1866.

Horne Islands: Futuna: Riverhead, Leava, alt. 150 m., *Yen X8*, "laupata." Alofi: Opening in forest, *Yen X13*, "laupata." Wallis Islands: Uvea: In lowland forest, *Burrows W17*, "lepo."

A species occurring from Fiji to the Societies. Burrows (1937, p. 99, as *Mallotus roxburghianus*?) indicates that on Uvea the large leaves are used to cover earth ovens; this note is repeated on his specimen, no. *W17*, but the published vernacular name is "laupata" rather than "lepo," which appears on his herbarium label.

Manihot esculenta Crantz, Inst., vol. 1, p. 167. 1766.

The occasional cultivation of "manioka" on Futuna and Uvea is indicated by Burrows (1936, p. 188; 1937, p. 100).

Phyllanthus simplex Retz. Obs. Bot., vol. 5, p. 29. 1788.

Wallis Islands: Uvea: Mata Utu, alt. 10 m., *McKee 19915*.

A variable and widespread weed throughout the Pacific. It has previously been noted from the Wallis Islands by Seemann (1864, p. 72, as *P. fruticosa*) on the basis of *Graeffe 18*, and also by Drake del Castillo (1893, p. 181).

Ricinus communis L. Sp. Pl. 1007. 1753.

The occurrence of the castor-oil plant, which is widespread throughout the tropics as a weed or cultivated plant, on the Wallis Islands and on Futuna is indicated by Cohic (1950, pp. 19, 23).

Securinega samoana Croizat in Bishop Mus. Bull., no. 184, p. 45. 1945.

Horne Islands: Futuna: In lowland forests, alt. 20 m., *Burrows 13*, "pou tea"; Sausau, near sea-level, *McKee 19763*, "poutea"; Leava, in low forest, *Yen 451*, "poutea." Alofi: In forest at 60–250 m., *Yen X18*, "poutea"; in humid forest on rocky limestone, alt. 200–300 m., *McKee 19784*, 19789; alt. 50–150 m., *McKee 19811*, "poutea." Wallis Islands: Uvea: Alt. 3 m., *Burrows W15*, "pou muli."

A species otherwise known from Samoa, Tonga, Fiji, and the Solomons. Croizat, pointing out the close relationship to *S. flexuosa* (Muell. Arg.) Muell. Arg., of the Philippines, indicates minor differences that probably justify maintenance of the two species. Burrows (1936, p. 166; 1937, pp. 117, 128, 132), erroneously referring his material to *Xylosma* (Flacourtiaceae), noted that the hard wood is a favorite for houseposts, while the fruit is the source of a dye. Yen also notes its use for houseposts on Alofi, while on Futuna he found the bark used medicinally for back ailments.

RUTACEAE

Acronychia retusa A. Gray, Bot. U.S. Expl. Exped., vol. 1, p. 338. 1854, Atlas, Pl. 34, A. 1856.

Horne Islands: Alofi: In open forest, *Yen X17*, "taa tili"; in humid forest on rocky limestone, alt. 200–300 m., *McKee 19796*.

A tree 6–10 m high, the wood being used for posts (Yen). Otherwise known only from Samoa (Savaii and Upolu).

Citrus spp.

Oranges, lemons, limes, and mandarins are mentioned by Burrows (1936, 1937) and Cohic (1950, p. 15), but no herbarium vouchers are at hand. Species to be expected in the area are *C. aurantifolia* (Christm.) Swingle

(lime), *C. limon* (L.) Burm. f. (lemon), *C. nobilis* Lour. (mandarin), and *C. sinensis* (L.) Osbeck (sweet orange).

Euodia hortensis J. R. and G. Forst. Char. Gen. 14. Pl. 7. 1776.

Horne Islands: Futuna: Leava, on coast, *Yen 453*, "ushi"; Vaisei, near sea-level, *McKee 19774*, "usi."

A widespread shrub, cultivated or sometimes naturalized in many parts of the Pacific. Our specimens are probably referable to *f. hortensis*, although the distinction between this and *f. simplicifolia* (Rechinger) K. Schum. ex Lauterb. is not very precise (cf. A. C. Smith in J. Arnold Arb., vol. 32, p. 233. 1951). *Yen* reports that the leaves are used medicinally for women's pains. The species has been reported for the Wallis Islands by Seemann (1864, p. 71) and Drake del Castillo (1890, p. 132; 1893, p. 25).

Micromelum minutum (Forst. f.) Seem. Viti, 434. 1862.

Horne Islands: Futuna: Leava, upper forest, *Yen 436*, "takafalu."

A widespread and often abundant species eastward to Samoa, Tonga, and Niue. *Yen* reports that the leaves are used for adults' fevers on Futuna.

MELIACEAE

Aglaia psilopetala A. C. Sm. in Contr. U.S. Natl. Herb., vol. 30, p. 482. 1952.

Horne Islands: Futuna: Sausau, near sea-level, *McKee 19765*, "langakali"; Leava, in low-level forest, *Yen 450*, "malamea." Wallis Islands: Uvea: Inland forest, alt. 15 m., *Burrows W19* (holotype BISH), "langakali"; Utuleve, near sea-level, in shady humid forest, *McKee 19906*; without further data, *Burrows with W24*.

Presumably endemic to the Horne and Wallis Islands; previously only the type collection had been cited. This is the plant to which Burrows (1937, p. 138) refers as *A. odoratissima*, noting that the inflorescences of the "langakali" are used in necklaces on Uvea. *McKee* also indicates that the flowers are used to perfume coconut oil. On Futuna the bark is used me-

dicinally for stomach pains (*Yen*). An earlier reference to the genus *Aglaia* on Uvea (Seemann 1864, p. 71), as *A. samoensis*, represented by *Graeffe 46*, could apply to either this or the following species.

Aglaia saltatorum A. C. Sm. in Contr. U.S. Natl. Herb., vol. 30, p. 483. 1952.

Horne Islands: Futuna: Mt. Vaisei, alt. 90 m., *Yen X60*, "uto"; Vaisei, near sea-level, *McKee 19776*, "langakali uto."

A shrub or small tree with fragrant inflorescences, previously known from Fiji, Rotuma, Tonga, and Niue.

Dysoxylum samoense A. Gray, Bot. U.S. Expl. Exped., vol. 1, p. 241. 1854.

Horne Islands: Futuna: In forest, alt. 20 m., *Burrows 11*, "ma'ota"; Mt. Nuku, alt. 90 m., *Yen X51*, "tavatava"; Vilo Malia, in hill forest, alt. 120–200 m., *Yen 408*, "ma'ota." Wallis Islands: Uvea: Inland forests, alt. 15 m., *Burrows W20*, "maota"; Utuleve, near sea-level, in humid forest, *McKee 19912*.

A frequently large tree, otherwise known only from Samoa. It seems probable that the two Burrows specimens, which are sterile, belong here rather than to *D. maota* Reinecke (to which they were questionably referred by A. C. Smith in Contr. U.S. Natl. Herb., vol. 30, p. 512. 1952); the two species are readily distinguished by flowers and fruits, and *McKee 19912*, in fruit, clearly belongs with *D. samoense*. Burrows (1936, pp. 154, 159; 1937, p. 112) indicates that the species is used in canoe building on both Futuna and Uvea. *Yen* records the use of the wood for construction on Futuna, and also that the leaves are used as a remedy for infants' fevers.

POLYGALACEAE

Polygala paniculata L. Syst. ed. 10., vol. 2, p. 1154. 1759.

Wallis Islands: Uvea: Mata Utu, near sea-level, *McKee 19916*.

This tropical American species is now widely naturalized from Malaya eastward into Polynesia.

ANACARDIACEAE

Rhus taitensis Guillemin in Ann. Sci. Nat. Bot., series II, vol. 7, p. 361. 1837.

Wallis Islands: Uvea: In inland forest, alt. 15 m., *Burrows W6*, "tavaï."

Burrows (1937, p. 112) mentions that on Uvea the wood is used for canoe underbodies. The species occurs from the Societies west to at least Samoa and Tonga.

Spondias cytherea Sonner. Voy. Indes Or. et Chine, vol. 3, p. 242. T. 123. 1782.

Horne Islands: Futuna: Sausau, near sea-level, *McKee 19764*, "vi papalangi"; Lotuma, in garden, *Yen 425*, "vi Futuna."

A cultivated tree with edible fruits; Yen reports that on Futuna the bark is used medicinally for headache and fever. The species, widely cultivated in tropical areas, is sometimes known as *S. dulcis* Parkinson (1773), but that binomial is questioned by many authors (cf. Airy Shaw and Forman in Kew Bull., vol. 21, p. 10. 1967).

SAPINDACEAE

Allophylus sp.

Horne Islands: Futuna: Vele, in coastal forest, *McKee 19753*.

Allophylus cobbe (L.) Raeusch., but with the authorship of "Blume," has been reported from the Wallis Islands on the basis of a Home collection by Drake del Castillo (1890, p. 142; 1893, p. 35). Although this is the only species accepted in the genus by Leenhouts (in *Blumea*, vol. 15, pp. 301-358. 1967), it may be hoped that more precise delimitation will eventually permit the use of binomials in *Allophylus*.

Dodonaea viscosa (L.) Jacq. Enum. Pl. Carib. 19. 1760.

This pantropical species was reported from Uvea by Seemann (1864, p. 71) on the basis of *Graeffe 50*.

Pometia pinnata J. R. and G. Forst. Char. Gen. Pl. 110. Pl. 55. 1776.

Horne Islands: Futuna: Valley forests, alt. 20 m., *Burrows 21*, "tava"; River Vainifao, alt.

30 m., *Yen X75*, "tava"; Sausau, near sea-level, *McKee 19768*, "tava." Alofi: In humid forest on rocky limestone, alt. 50-150 m., *McKee 19814*, "tava."

A tree to 25 m high, with edible fruits and with wood used for construction. In his review of the genus, Jacobs (in *Reinwardtia*, vol. 6, pp. 109-144. 1962) has interpreted the species very broadly, but our material falls into *f. pinnata*, said to occur from the Philippines to Samoa. Burrows (1936, p. 154) notes the use of the wood for canoes on Futuna.

RHAMNACEAE

Alphitonia zizyphoides (Spreng.) A. Gray, Bot. U.S. Expl. Exped., vol. 1, p. 278. 1854, Atlas, Pl. 22, A. 1856.

Horne Islands: Futuna: In moist upland forests, alt. 300 m., *Burrows 20*, "toi." Wallis Islands: Uvea: In inland forests, alt. 15 m., *Burrows W5*, "toi"; Lac Lalo Lalo, alt. 100 m., in humid forest on stony volcanic terrain, *McKee 19904*.

Widespread in the Pacific at least from the New Hebrides to the Societies. Burrows (1936, pp. 154, 187) notes that "toi" wood is used for canoes, and also for anvils in beating bark cloth.

Colubrina asiatica (L.) Brongn. in Ann. Sci. Nat., vol. 10, p. 369. 1827.

Horne Islands: Futuna: Singave, *McKee 19882*, "lave leto"; Vilo Malia, in hill forest, alt. 120-200 m., *Yen 409*, "visoa." Alofi: In forest opening, *Yen X25*, "vii soa."

Widespread throughout the Pacific, usually as a scrambling shrub in beach thickets, but sometimes inland. On Futuna the leaves are reported as used for diarrhea (Yen).

ELAEOCARPACEAE

Elaeocarpus christophersenii A. C. Sm. in Contr. U.S. Natl. Herb., vol. 30, p. 531. 1953.

Horne Islands: Alofi: In humid forest on rocky limestone, alt. 200-300 m., *McKee 19798*. Wallis Islands: Uvea: In inland forest,

alt. 15 m., *Burrows W8*, "tongovao"; Utuleve, near sea-level, *McKee 19914*.

Otherwise known from Samoa and Rotuma. Burrows (1937, pp. 112, 132) indicates that on Uvea the wood of the "tongovao" is used for canoes and also for tablets used in dyeing bark cloth.

Elaeocarpus tonganus Burkill in J. Linn. Soc. Bot., vol. 35, p. 29. 1901.

Horne Islands: Futuna: In dry areas at 300–600 m., *Yen X42*, "filimoto"; Vainifao River, alt. 30 m., *Yen X74*, "kokatuki." Alofi: In forest opening, *Yen X16*, "polo."

Otherwise known from Samoa, Tonga, and Niue.

TILIACEAE

Muntingia calabura L. Sp. Pl. 509. 1753.

Wallis Islands: Uvea: Mata Utu, near sea-level, *McKee 19918*, "cerise de Cayenne."

The tropical American "Panama berry" or "capulin" is widely cultivated for its sweet, edible fruit, sometimes becoming naturalized. McKee notes that his local name more commonly applies to *Eugenia uniflora* on Uvea. No vouchers or published records support the occurrence of the latter species in our area.

Triumfetta procumbens Forst. f. Fl. Ins. Austr. Prodr. 35. 1786.

The presence of this widespread species in the Wallis Islands was indicated by Seemann (1864, p. 71) and Drake del Castillo (1890, p. 124; 1893, p. 20) on the basis of collections by Graeffe (no. 36) and Home.

MALVACEAE

Hibiscus tiliaceus L. Sp. Pl. 694. 1753.

Horne Islands: Futuna: Vilo Malia, hill forest, alt. 120–200 m., *Yen 413*, "fau."

Widespread in the tropics and subtropics of the world; our specimen falls into ssp. *tiliaceus*. On Futuna the leaves are used medicinally for fever (Yen). Seemann (1864, p. 71) recorded the species on Uvea as *Paritium tiliaceum*, based on Graeffe 47. Burrows (1936, 1937) indicates a host of local uses for "fau," the wood being

valued for house superstructures and canoe outriggers, the bast for cordage, fishnets, strainers, skirts, etc. Cohic (1950, pp. 10, 21) discusses the insects occurring on the species.

Hibiscus spp.

Although no herbarium vouchers are available, Burrows (1936, p. 196) mentions a "coral hibiscus" providing ornamental flowers on Futuna, and (1937, p. 128) "*Hibiscus sinensis*," or "kaute," on Uvea, where the petals are used to make a magenta dye. The first of these records may refer to *H. rosa-sinensis* L. and the second to *H. mutabilis* L. These commonly cultivated species are to be expected in the area.

Sida rhombifolia L. Sp. Pl. 684. 1753.

Horne Islands: Alofi: Opening in forest, *Yen X24*, "ta'e puaka."

Abundantly naturalized throughout the Pacific. The species has been recorded from Uvea by Seemann (1864, p. 71) on the basis of Graeffe 44.

Thespesia populnea (L.) Sol. ex Correa in Ann. Mus. Natl. Hist. Nat., vol. 9, p. 290. T. 8, fig. 1. 1807.

Horne Islands: Futuna: Poi, on shore, *Yen 406*, "milo."

Widely distributed in tropical countries. On Futuna the bark is said to be used for rheumatism (Yen).

Urena lobata L. Sp. Pl. 692. 1753.

Horne Islands: Futuna: Lotuma, in garden, *Yen 429*, "ma'utofu."

A pantropical plant, often established as a pernicious weed. On Futuna the leaves are used as a remedy for headache and fever (Yen).

STERCULIACEAE

Commersonia bartramia (L.) Merr. Interpret. Rumph. Herb. Amb. 362. 1917.

Horne Islands: Futuna: In dryland areas, alt. 300–600 m., *Yen X41*, "samasama"; open plateau above Singave, alt. 150 m., *McKee 19828*.

Widely distributed from southeastern Asia into Polynesia. It seems likely that Burrows's

(1936, pp. 160, 166) reference of "samasama" to *Pipturus* sp. (Urticaceae) actually belongs with *Commersonia*; see our further remarks under *Pipturus*.

Sterculia fanaiho Setchell in Carnegie Inst. Wash. Publ., vol. 341, p. 69. Pl. 13, fig. A. 1924.

Horne Islands: Futuna: Mt. Vaisei, alt. 90 m., *Yen* X59, "valaki."

Otherwise known from Samoa, Tonga, and Niue.

Theobroma cacao L. Sp. Pl. 782. 1753.

The cultivation of cocoa in the Wallis Islands is indicated by Cohic (1950, p. 15).

FLACOURTIACEAE

Flacourtia rukam Zoll. and Mor. in Mor. Syst. Verz., p. 33. 1846.

Horne Islands: Futuna: Vilo Malia, in hill forest at 30 m. alt., *Yen* X31, "filimoto." Alofi: In humid forest on rocky limestone, alt. 50–150 m., *McKee* 19816, "filimota."

The specimens appear to be from fully naturalized plants; the wood is used for construction (Yen) and the ripe fruits are edible (McKee). An interesting discussion of the species is provided by Sleumer (in Fl. Males. I, vol. 5, p. 73. Figs. 31–33. 1954), who indicates it as native in Malaysia but presumably introduced in Samoa. Cultivated material is now also at hand from Fiji, and the species appears to be naturalized in Tonga, Niue, and Rotuma.

BIXACEAE

Bixa orellana L. Sp. Pl. 512. 1753.

Horne Islands: Futuna: Borders of forests, alt. 20 m., *Burrows* 8, "lo'a."

This tropical American plant is now widespread in the Pacific, both in cultivation and naturalized. *Burrows* (1936, pp. 189, 196; 1937, p. 132) records it from both Futuna and Uvea; the dye from the fruits is used in coloring bark cloth and also as face paint.

CARICACEAE

Carica papaya L. Sp. Pl. 1036. 1753.

The cultivation of papayas is mentioned by *Burrows* on Futuna (1936, p. 132) and Uvea (1937, pp. 94, 100).

MYRTACEAE

Decaspermum fruticosum J. R. and G. Forst. Char. Gen., Pl., p. 74. Pl. 37. 1776.

Horne Islands: Futuna: Between Vasavasa and Alo, alt. 60 m., *Yen* X2, "nukanuka"; dry areas, alt. 300–600 m., *Yen* X44, "nukanuka." Wallis Islands: Uvea: Lac Lanutavake, alt. 100 m., *McKee* 19893; inland forest, alt. 15 m., *Burrows* W9, "nukanuka."

A wide-ranging species from Malesia to the Societies. On the basis of *Graeffe* 24, its occurrence on Uvea was recorded by Seemann (1864, p. 72, as *Nelitris fruticosa*) and Drake del Castillo (1890, p. 168; 1893, p. 66).

Psidium guajava L. Sp. Pl. 470. 1753.

Horne Islands: Futuna: Lotuma, in garden, *Yen* 427, "vi papalangi."

Widely naturalized in the Pacific. On Futuna the leaves are considered useful for diarrhea (Yen). *Burrows* (1936, p. 132) mentioned the occurrence of guava on Futuna, and it is considered a weed on Uvea (Cohic, 1950, p. 1).

Syzygium clusiifolium (A. Gray) C. Muell. in Walp. Ann. Bot. Syst., vol. 4, p. 839. 1858.

Horne Islands: Futuna: Second growth forest, alt. about 135 m., *Yen* X34, "asi"; Singave, on rocky limestone, alt. 0–50 m., *McKee* 19861. Wallis Islands: Uvea: Lac Lalo Lalo, in humid forest in stony volcanic terrain, alt. 100 m., *McKee* 19902.

Otherwise known from Samoa, Tonga, and Niue. The wood is used on Futuna for construction (Yen). Seemann (1864, p. 72) recorded the species, as *Eugenia clusiaefolia*, from Uvea on the basis of *Graeffe* 30.

Syzygium corynocarpum (A. Gray) C. Muell. in Walp. Ann. Bot. Syst., vol. 4, p. 839. 1858.

Horne Islands: Futuna: Vaisei, near sea

level, *McKee 19769*, "sea sea"; Leava, edge of forest, *Yen 435*, "seasea."

Also known from Fiji, Samoa, and Tonga, and reported from the Wallis Islands, collected by Home, by Drake del Castillo (1890, p. 169; 1893, p. 67), as *Eugenia corynocarpa*. It is probable that Burrows's (1936, pp. 195, 198) note on "seasea" refers to this species; the crushed fruit produces an oil, and the seeds are used for necklaces. McKee indicates that the ripe fruits are edible, and Yen that the leaves are used medicinally for swollen hands and feet. A record of *Eugenia amicorum* on Uvea (Drake 1890, p. 169; 1893, p. 67), collected by Home, cannot be traced without a voucher, but it may also belong to the present species.

Syzygium inophylloides (A. Gray) C. Muell.
in Walp. Ann. Bot. Syst., vol. 4, p. 838.
1858.

Horne Islands: Alofi: Humid forest on rocky limestone, alt. 50–150 m., *McKee 19812*, "kokatuki."

Reported as a common tree to 18 m high. Otherwise known from Samoa and Niue.

Syzygium dealatum (Burkill) A. C. Sm. in
Bishop Mus. Bull., no. 220, p. 203. 1959.

Horne Islands: Alofi: Humid forest on rocky limestone, alt. 200–300 m., *McKee 19791*.
Wallis Islands: Uvea: Lac Lanutavake, alt. 100 m., *McKee 19894*.

The species is otherwise uncommon in Tonga and on Niue; on the latter island it is represented by *Yuncker 9816*, cited (in Bishop Mus. Bull., no. 178, p. 90. 1943) as *Eugenia brackenridgei*. *Syzygium brackenridgei* (A. Gray) C. Muell. seems not to occur on Niue, although it is present on Eua, Tonga, and abundant in Fiji.

Syzygium malaccense (L.) Merr. and Perry in
J. Arnold Arb., vol. 19, p. 215. 1938.

Horne Islands: Futuna: Sausau, near sea-level, *McKee 19767*, "kafika"; Lotuma, in garden, *Yen 428*, "kafika."

The widespread Malay apple, with edible fruits, is abundantly naturalized in many Pacific archipelagoes, including Fiji, Samoa, and Tonga.

On Futuna the bark is used medicinally for coughs (Yen). Burrows (1936, p. 132) has already noted the species on Futuna as producing an edible fruit, as *Jambosa malaccensis*.

Syzygium neurocalyx (A. Gray) Christophersen in Bishop Mus. Bull., no. 154, p. 27. 1938.

Horne Islands: Futuna: Vaisei, near sea-level, *McKee 19771*, "koli."

A shrub with fruits that are locally used for necklaces. The species is fairly frequent in Fiji at elevations up to 1,000 m, but apparently is uncommon in Samoa and Tonga. Burrows (1936, p. 198) also noted the species, as *Eugenia neurocalyx*, on Futuna, with the local name and use indicated by McKee.

Syzygium sp.

Horne Islands: Alofi: In humid forest on rocky limestone, alt. 50–150 m., *McKee 19813*, "kolivai."

An unrecognized species; a tree 18 m high, with few-flowered inflorescences in bud; the wood is reported used for beams and rafters. Burrows (1936, p. 154) mentions the wood of "kolivai" being used for canoes on Futuna, and this possibly refers to the same species.

LECYTHIDACEAE

Barringtonia asiatica (L.) Kurz, Prelim. Rep.
For. Veg. Pegu, App. A, LXV. 1875.

Horne Islands: Futuna: Near beaches, *Burrows 1*, "futu." Wallis Islands: Uvea: Near beaches, *Burrows W12*, "futu."

A widespread coastal species from Madagascar and the Seychelles into the Pacific. A Home collection from the Wallis Islands was recorded by Drake del Castillo (1890, p. 171), as *B. butonica*. Burrows (1936, pp. 149, 159; 1937, p. 106) noted that the fruit and bark are used to poison fish, while the wood is used for the end covers of canoes.

MELASTOMATACEAE

Medinilla samoensis (Hochr.) Christophersen
in Bishop Mus. Bull., no. 154, p. 30. 1938.

Horne Islands: Futuna: Slopes south of Mt.

Puke, in humid forest on volcanic terrain, alt. 500–600 m., *McKee 19852*.

Otherwise known only from Samoa. The Futuna plant has a less conspicuous tomentum (of multicellular hairs nearly 1 mm long with numerous short lateral spurs) than occurs on the young parts and lower leaf-surfaces of the Samoan specimens, but such an indument does persist here and there.

Melastoma denticulatum Labill. Sert. Austro-Caled., p. 65, Pl. 64. 1825.

Horne Islands: Futuna: In dense second growth forest, alt. about 135 m., *Yen X33*, "suka."

A widespread weedy plant, occurring at least from New Caledonia and the New Hebrides to the Societies. Probably *Graeffe 51* from Uvea, noted by Seemann (1864, p. 72) as *M. taitense* DC., also belongs here.

RHIZOPHORACEAE

Bruguiera gymnorhiza (L.) Lam. Encycl. Méth. Bot., vol. 4, p. 696. 1798.

Wallis Islands: Uvea: Seaside, with roots in water, *Burrows W14*, "tongo."

A widely distributed mangrove, from southern and eastern Africa into the Pacific to Samoa. Burrows (1937, p. 132) notes that on Uvea the bark of the "tonga" ("tongo" on his label) is used in dyeing bark cloth.

COMBRETACEAE

Terminalia catappa L. Mant., vol. 1, p. 128. 1767.

Horne Islands: Futuna: Vilo Malia, hill forest, alt. 120–200 m., *Yen 421*, "talie." Wallis Islands: Uvea: Inland forest, alt. 15 m., *Burrows W29*, "talie"; Lac Lalo Lalo, in humid forest on stony volcanic terrain, alt. 100 m., *McKee 19903*.

Widespread in the Pacific, usually in beach thickets but occasionally as here, at low elevation inland. On Futuna the leaves and bark are used medicinally for throat infections (*Yen*). Burrows (1937, p. 146) noted that the wood is used for drums on Uvea.

ARALIACEAE

Polyscias guilfoylei var. *laciniata* (Hort.) L. H. Bailey in *Rhodora*, vol. 18, p. 153. 1916.

Horne Islands: Futuna: Mt. Vaisei, alt. 90 m., *Yen X62*, "tanetane ta'o."

This widely cultivated variety of *P. guilfoylei* (Bull.) L. H. Bailey is known from many Pacific islands, including Uvea; it has become naturalized here and there. It may be noted that the presence of the related *P. fruticosa* (L.) Harms on Uvea was indicated by Seemann (1865, p. 115, as *Nothopanax fruticosum*) and Drake del Castillo (1890, p. 181; 1893, p. 81; as *Panax fruticosum*) on the basis of a Home specimen. This is presumably the specimen referred by Smith and Stone (in *J. Arnold Arb.*, vol. 49, p. 458. 1968) to *P. guilfoylei* var. *laciniata*. Although true *P. fruticosa* is to be expected in our area, no authenticated herbarium vouchers are currently available.

Polyscias multijuga (A. Gray) Harms in *Engl. et Prantl, Nat. Pflanzenfam.*, vol. 3, no. 8, p. 45. 1894.

Horne Islands: Futuna: Tavai, near sea-level, *McKee 19792*; Alo, littoral, *McKee 19874*; Leava, on coast, *Yen 452*, "tanetane vau." Alofi: In forest, alt. 60–240 m., *Yen X11*, "tanetane."

A freely branching shrub, in forest or near the shore. *Yen* notes that the leaves are used ornamentally, and also that the bark and leaves are used medicinally for fever and pain on Futuna. The species is frequent in Fiji and is also recorded from Tonga and Niue.

MYRSINACEAE

Maesa samoana Mez in *Pflanzenr.*, vol. 9 (IV. 236), p. 53. 1902.

Horne Islands: Futuna: Vilo Malia, in hill forest, alt. 120–200 m., *Yen 412*, "uali." Alofi: In forest at 60–250 m., *Yen X20*, "uali." Wallis Islands: Uvea: Lac Lanutavake, alt. 100 m., in disturbed volcanic terrain, *McKee 19899*.

Although specific limits in *Maesa* are not well established, *M. samoana* probably occurs in Fiji as well as Samoa. *Yen* reports the leaves as being used medicinally on Futuna. It is possible that

Graeffe 29, from Uvea, which Seemann (1864, p. 72) referred to *M. nemoralis* A. DC., belongs here.

SAPOTACEAE

Planchonella costata var. *vitiensis* (A. Gray)

H. J. Lam in *Blumea*, vol. 5, p. 7. 1942.

Horne Islands: Futuna: Vele, *McKee* 19750.

A widespread taxon occurring from the New Hebrides eastward to the Tuamotus.

Planchonella linggensis (Burck) Pierre, Not.

Bot. Sapot., p. 35. 1890.

Horne Islands: Futuna: Mt. Vaisei, alt. 90 m., *Yen* X54, "taa tili."

The specimen is sterile and perhaps comes from a sucker sprout; the tree is said to produce wood used for construction. The species is accredited with a very wide distribution from Malaya into the Pacific to Samoa and Niue (van Royen in *Blumea*, vol. 8, p. 384. 1957). Our material agrees well with those cited from Samoa and Niue as representing var. *linggensis*.

The presence of *P. pyrulifera* (A. Gray) H. J. Lam ex van Royen (in *Blumea*, vol. 8, p. 381. 1957) on Uvea is suggested by the reference of *Graeffe* 40 to *Sapota pyrulifera* A. Gray (by Seemann, 1864, p. 72) and to *Sideroxylon pyruliferum* Benth. & Hook. f. (by Drake del Castillo, 1892, p. 229, whose binomial is actually a new combination). *Graeffe* 40 is questionably referred to *P. pyrulifera* by van Royen (in 1957) with the implication that the specimen came from Fiji, to which the species is endemic. However, since *P. pyrulifera* and *P. linggensis* are closely related, it may be suggested that the *Graeffe* specimen from Uvea more probably represents the latter.

Planchonella torricellensis (K. Schum.) H.

J. Lam in *Nova Guinea*, vol. 14, p. 562. 1932.

Horne Islands: Alofi: In humid forest on raised coral, alt. 50–200 m., *McKee* 19760; alt. 10 m., *McKee* 19864, "maalava."

A frequent tree to 25 m high, with white latex. The identification follows the treatment of Lam (in *Blumea*, vol. 5, p. 30. 1942) and van Royen (in *Blumea*, vol. 8, p. 350. 1957),

who reduce to *P. torricellensis* the Samoan species (also now known from Niue) described in 1938 as *P. samoensis* H. J. Lam ex Christophersen (in *Bishop Mus. Bull.*, no. 154, p. 35. Fig. 10); neither the parenthetical authorship of Reinecke nor Lam's illegitimate combination of 1925 have any status in regard to Christophersen's binomial. Otherwise the distribution is from Bali to New Guinea; one may therefore question the reduction, since it is indicated that the Samoan plants differ in a few minor details (van Royen), and since the plant has not been discovered in the intervening area.

EBENACEAE

Diospyros major (Forst. f.) Bakh. in *Bull. Jard. Bot. Buitenz.* III, vol. 15, p. 429. 1941.

Horne Islands: Futuna: Vaisei, cultivated in garden, *Yen* 454, "mapa"; Vaisei, near sea-level, *McKee* 19773, "mapa." Wallis Islands: Uvea: On edge of inland forest, alt. 15 m., *Burrows* W23, "mapa."

Otherwise known from Fiji and Tonga, as *D. lateriflora* (Hiern ex Baker) Bakh. or *D. andersonii* (Soland. ex Hiern) P. S. Green. Burrows (1937, p. 138) refers his note to *M. sandwicensis*, indicating that on Uvea slices of the fruit are used in necklaces. *McKee* states that the ripe fruits are edible, and *Yen* says that the fruits are considered medicinal, used for infants' mouth infections.

Diospyros elliptica (J. R. and G. Forst.) P. S. Green in *Kew Bull.*, vol. 23, p. 340. 1969.

Wallis Islands: Uvea: Mt. Afala, alt. 140 m., *McKee* 19922.

A wide-ranging species from Malesia to Samoa and Tonga, usually recorded as *D. ellipticifolia* (Stokes) Bakh.

Diospyros samoensis A. Gray in *Proc. Amer. Acad. Arts*, vol. 5, p. 326. 1862.

Horne Islands: Alofi: Mt. Nuku, alt. 90 m., *Yen* X55, "kau kau uuli"; alt. 10 m., *McKee* 19866, "tu tu nu"; humid forest in rocky calcareous terrain, alt. 50–150 m., *McKee* 19807, "tutunu"; *McKee* 19822, "kau kau uuli." Wal-

lis Islands: Uvea: Mt. Afala, alt. 140 m., *McKee* 19921.

The species occurs on Alofi as a tree to 25 m high, the wood being used for construction. Our specimens belong to the typical variety of the species, which otherwise occurs in Fiji, Samoa, and Tonga.

LOGANIACEAE

Fagraea berteriana A. Gray ex Benth. in J. Proc. Linn. Soc., Bot., vol. 1, p. 98. 1856.

Horne Islands: Futuna: Vilo Malia, in hill forest, alt. 120–200 m., *Yen* 419, "pua."

Widespread in the Pacific. Yen reports that on Futuna the leaves and bark are used medicinally for stomach ailments.

Geniostoma samoense Reinecke in Bot. Jahrb., vol. 25, p. 666. 1898.

Horne Islands: Futuna: Vilo Malia, in hill forest, alt. 120–200 m., *Yen* 407, "pilo." Wallis Islands: Uvea: Lac Lanutavake, alt. 100 m., in thickets on weathered volcanic terrain, *McKee* 19895.

Our specimens fall into var. *samoense* (cf. Smith and Stone in Contr. U.S. Natl. Herb., vol. 37, pp. 31–34. 1962), which was previously collected on Uvea by Graeffe (no. 42); otherwise the species is known only from Samoa. The Graeffe collection was recorded by Seemann (1864, p. 72) as *G. crassifolium* and by Drake del Castillo (1892, p. 236; 1893, p. 126) as *G. rupestre*. On Futuna the leaves and bark are used medicinally for body fatigue (Yen).

APOCYNACEAE

Alyxia bracteolosa A. Gray in Proc. Amer. Acad. Arts, vol. 5, p. 332. 1862.

Horne Islands: Futuna: On edge of dry areas, *Yen* X46, "maile."

A vine with fragrant flowers. Our specimen falls into var. *bracteolosa*, otherwise known from Fiji, Samoa, and Tonga. Seemann (1864, p. 72) has recorded this species from Uvea on the basis of *Graeffe* 35.

Alyxia stellata (Forst. f.) R. and S. Syst. Veg., vol. 4, p. 439. 1819.

Wallis Islands: Uvea: Lac Lanutavake, alt.

100 m., in thickets on weathered volcanic terrain, *McKee* 19901; inland forests, alt. 15 m., *Burrows* W25, "maile."

A liana with a broad distribution at least from Fiji to the Tuamotus. Burrows (1937, p. 138), as *A. elliptica*, records the use on Uvea of the stem and leaves for necklaces. He has also mentioned use of the genus for this purpose on Futuna (1936, p. 198), but in the absence of a voucher the species remains uncertain.

Ochrosia oppositifolia (Lam.) K. Schum. in Engl. et Prantl, Nat. Pflanzenfam., vol. 4, no. 2, p. 156. 1895.

Wallis Islands: Nukuifala, on coralline sand behind the beach, *McKee* 19923. Uvea: Lovland near sea, *Burrows* W11, "fao."

A widespread coastal tree in the Pacific.

Plumeria rubra L. Sp. Pl. 209. 1753.

Horne Islands: Futuna: Near sea-level, *Yen* X68, "leva."

Widespread throughout the Pacific in cultivation, and occasionally naturalized.

ASCLEPIADACEAE

Asclepias curassavica L. Sp. Pl. 215. 1753.

The occurrence of this widespread weed in the Wallis Islands is noted by Cohic (1950, p. 1).

Gymnema subnudum A. Gray in Proc. Amer. Acad. Arts, vol. 5, p. 335. 1862.

Horne Islands: Futuna: Alo, sea-level, *McKee* 19871.

A littoral, slender liana, with white latex and yellow flowers. The species has previously been known only from Fiji, where it is very uncommon.

Hoya australis R. Br. ex Traill in Trans. Hort. Soc. London, vol. 7, p. 28. 1827.

Horne Islands: Futuna: Leava, *Yen* 433, "sinu." Wallis Islands: Uvea: Utuleve, near sea-level, in disturbed humid forest, *McKee* 19908.

A robust vine with white latex, distributed from Australia into the Pacific as far as Samoa and Tonga. On Futuna the entire plant is used medicinally for stomach ailments (Yen).

RUBIACEAE

Bikkia tetrandra (Forst. f.) A. Rich. in Mém. Soc. Hist. Nat. Paris, vol. 5, p. 231. 1834.

Horne Islands: Futuna: Mt. Fatuka, alt. 150 m., *Yen X66*, "itu."

The species, with ornamental, large, white flowers, has previously been noted from Futuna by Seemann (1866, p. 124), as *B. tetrandra* A. Gray, collected by Milne. Otherwise it is known from a limited number of collections in Fiji, Tonga, and Niue (the type locality), where it usually occurs on coastal limestone.

Coffea liberica Hiern in Trans. Linn. Soc. London, Bot. II, vol. 1, p. 171. T. 24. 1876.

Cohic (1950, p. 15) mentions the occurrence in the Wallis Islands of limited stands of *liberica* type coffee.

Gardenia taitensis DC. Prodr., vol. 4, p. 380. 1830.

Horne Islands: Futuna: Alo, sea-level, *McKee 19868*; Vilo Malia, hill forest, alt. 120–200 m., *Yen 411*, "tiale."

A shrub with white, fragrant flowers, usually littoral but sometimes occurring inland. It is widely distributed in the Pacific, often in cultivation, but seemingly indigenous as far west as Fiji. It has been recorded from Uvea by Seemann (1864, p. 72), based on *Graeffe 28*, and Drake del Castillo (1890, p. 191; 1893, p. 91), and from both Futuna and Uvea by Burrows (1936, pp. 196, 198; 1937, p. 137), on the former island as "tsiale" and on the latter as "siale." The flowers are worn ornamentally, and Yen notes that on Futuna the bark is reported to be used medicinally for abortions.

Geophila repens (L.) I. M. Johnst. in Sargentia, vol. 8, p. 281. 1949.

Horne Islands: Futuna: Nuku, in garden, *Yen 441*, "tona." Alofi: In shady humid forest on rocky calcareous terrain, alt. 200–300 m., *McKee 19787*.

A widespread tropical species; the Pacific material, most often identified as *G. herbacea* or *Carinta herbacea*, does not seem separable from tropical American material. On Futuna the

whole plant is used medicinally for headaches (Yen). This is doubtless the species reported from Uvea as collected by Graeffe (no. 39) by Seemann (1864, p. 72) as *G. reniformis*.

Guettarda speciosa L. Sp. Pl. 991. 1753.

Horne Islands: Futuna: Rocky coast between Vasavasa and Alo, *Yen X6*, "puka vai."

A widespread and often locally abundant coastal species throughout the Pacific. Burrows (1936, p. 154) has mentioned this species as having the local name "afa" on Futuna and as providing wood for canoes; this record, in the absence of a voucher, remains doubtful, since "afa" consistently refers to *Neonauclea forsteri*, a species sometimes confused with *Guettarda speciosa* when sterile.

Hedyotis biflora (L.) Lam. Tabl. Encycl. Méth., vol. 1, p. 272. 1792.

Horne Islands: Futuna: Vele, sea-level, *McKee 19752*.

A littoral herb, widely distributed in the Pacific as far east as Samoa, Tonga, and Niue.

Ixora calcicola A. C. Sm. in Bishop Mus. Bull., no. 220, p. 251. Fig. 13. 1959.

Horne Islands: Futuna: Singave, 0–50 m., on rocky calcareous terrain, *McKee 19859*.

Originally described from Tonga, this species is now also known from Niue and the Lau Islands of Fiji. The Futuna plant sometimes has its flowers in clusters of as many as 10, but they are also sometimes only in threes, as has been noted for the other populations.

Morinda citrifolia L. Sp. Pl. 176. 1753.

Horne Islands: Futuna: Poi, in second growth along shore, *Yen 405*, "nonu."

Widespread and often abundant throughout the Pacific. Yen reports that all parts of the plant are considered medicinal on Futuna, being used for stomach and mouth ailments.

Mussaenda raiateensis J. W. Moore in Bishop Mus. Bull., no. 102, p. 44. 1933.

Horne Islands: Futuna: Leava, in valley and on coastal cliffs, *Yen 443*, "popo"; on edge of forest between Vasavasa and Alo, alt. 60 m., *Yen X1*, "foafoa"; Singave, on open plateau, alt. 150 m., *McKee 19831*.

A shrub or small tree distributed, often commonly, from the New Hebrides to the Societies. Yen reports (no. 443) that on Futuna the fruit is used medicinally for lacerations. The species, as *M. frondosa* L., has been reported from Uvea on the basis of *Graeffe 21* by Seemann (1864, p. 72) and Drake del Castillo (1890, p. 189; 1893, p. 88).

***Neonauclea forsteri* (Seem.) Merr.** in J. Wash. Acad. Sci., vol. 5, p. 540. 1915.

Horne Islands: Futuna: Vilo Malia, hill forest, alt. 120–200 m., *Yen 414*, "afa." Alofi: In humid forest on rocky calcareous terrain, alt. 50–150 m., *McKee 19809*, "afa."

A tree to 25 m high, occurring from the New Hebrides to the Societies. Yen reports that the bark is used as a blood coagulant on Futuna. It may be suggested that the reference by Burrows (1936, p. 154) to *Guettarda speciosa* as "afa" really belongs here.

Ophiorrhiza leptantha A. Gray in Proc. Amer. Acad. Arts, vol. 4, p. 312. 1860.

Horne Islands: Futuna: Slopes south of Mt. Puke, alt. 500–600 m., in residual humid forest on volcanic terrain, *McKee 19849*.

A shrub in forest shade, previously believed endemic to Fiji, where it is frequent.

Ophiorrhiza rupestris Hemsl. in Kew Bull. 1894, p. 212. 1894.

Horne Islands: Futuna: Singave, in fissures of calcareous rocks at sea-level, *McKee 19879*.

Otherwise known only from the Solomon Islands, where it occurs in a similar littoral situation, and in New Guinea, if the reference here of *O. insularis* Valetton (1917) by Merrill and Perry (in J. Arnold Arb., vol. 26, p. 13. 1945) is correct, as seems likely. Our material agrees well with the collections from Ulawa and Kulambangra cited by Merrill and Perry.

Psychotria insularum A. Gray in Proc. Amer. Acad. Arts, vol. 4, p. 45. 1860.

Horne Islands: Futuna: In dense second-growth forest, alt. 135 m., *Yen X32*, "olavai"; Vele, in coconut plantation, *McKee 19751*. Alofi: In humid forest on rocky calcareous terrain, alt. 50–150 m., *McKee 19806*, 19817.

Wallis Islands: Uvea: Utuleve, near sea-level, in deteriorated humid forest, *McKee 19909*.

The species, otherwise known from Samoa, Tonga, and Niue, appears more variable in indument in the Horne and Wallis Islands than in Samoa, where it is abundant. Typically, the species is quite glabrous on its vegetative and inflorescence parts, but the collections from the Horne Islands often bear crisp brown hairs on the young branchlets, inflorescence branches, and along the leaf costa beneath. The single collection from Uvea would appear to have come from two plants, one quite glabrous and the other with very obvious indument, although they are indicated by a single number. The more evidently pilose specimens are similar to *Wilder 17* from Tutuila, which Christophersen (in Bishop Mus. Bull., no. 154, p. 54. 1938) notes as an atypical specimen.

***Randia cochinchinensis* (Lour.) Merr.** in Trans. Amer. Philos. Soc., vol. 24, no. 2, p. 365. 1935.

Horne Islands: Futuna: Vilo Malia, hill forest, alt. 120–200 m., *Yen 410*, "ola"; Singave, near sea-level, *McKee 19891*. Alofi: In dense forest, alt. 150 m., *Yen X21*, "ola"; in humid forest on rocky limestone, alt. 50–150 m., *McKee 19805*. Wallis Islands: Uvea: Utuleve, near sea-level, in deteriorated humid forest, *McKee 19911*.

As indicated by Fosberg (in Bull. Torrey Bot. Club, vol. 65, p. 614. 1938), this widespread species occurs from tropical Asia into the Pacific as far as the Societies, although apparently it has not been found in Fiji. Fosberg's reference to Fiji may be based on Seemann's record (Fl. Vit., p. 123. 1866) of a Home collection, which more probably came from the Wallis Islands. In fact, Drake del Castillo (1890, p. 191; 1893, p. 90) has reported the species from the Wallis Islands as *R. coffeoides*, collected by Home and by Graeffe (no. 32). Yen (no. 410) notes that on Futuna the leaves are used medicinally for fevers.

***Tarenna sambucina* (Forst. f.) Durand** ex Drake, Ill. Fl. Ins. Mar. Pac., p. 190. 1890.

Horne Islands: Futuna: Vilo Malia, hill forest, alt. 120–200 m., *Yen 417*, "funavai." Alofi:

In humid forest on rock limestone, alt. 200–300 m., *McKee* 19797.

A species of wide distribution in the Pacific, at least from Micronesia to the Societies and Tuamotus. On Futuna the bark is used medicinally for sores (Yen).

CONVOLVULACEAE

Ipomoea batatas (L.) Lam. *Tabl. Encycl. Méth.*, vol. 1, p. 465. 1797.

Although the sweet potato (“kumala”) is not widely used, its occurrence on Futuna and Uvea is recorded by Burrows (1936, p. 132; 1937, p. 94).

Ipomoea gracilis R. Br. *Prodr. Fl. Nov. Holl.* 484. 1810.

Horne Islands: Futuna: On edge of forest at 300 m., but also seen along coast, *Yen* X10, “salii.”

Widespread throughout the Pacific, at least in the sense of van Oostroom (in *Blumea*, vol. 3, p. 516. 1940).

Ipomoea quamoclit L. *Sp. Pl.* 159. 1753.

Horne Islands: Futuna: Singave, naturalized in gardens, *McKee* 19877.

A naturalized species in many parts of the Pacific.

Merremia peltata (L.) Merr. *Interpret. Rumph. Herb. Amb.* 441. 1917.

Horne Islands: Futuna: In valley forests, alt. 30 m., *Burrows* 7, “faliava”; Vainifao River, alt. 30 m., *Yen* X73, “faliava.”

A liana or scrambling vine widely distributed in the Pacific. Burrows (1936, pp. 145, 185; 1937, p. 129) notes the species on Uvea as well as Futuna; the stem is used for tying, and sandals are also made from it.

BORAGINACEAE

Cordia subcordata Lam. *Tabl. Encycl. Méth.*, vol. 1, p. 421. 1792.

Wallis Islands: Nukuifala, behind the beach on coralline sand, *McKee* 19924.

A widespread Pacific strand species, also noted

from the Wallis Islands by Seemann (1864, p. 72) and Drake del Castillo (1892, p. 240).

Messerschmidia argentea (L. f.) I. M. Johnston in *J. Arnold Arb.*, vol. 16, p. 164. 1935.

Horne Islands: Futuna: On coast between Vasavasa and Alo, *Yen* X9, “tauhuni.”

A widespread shrub or tree in coastal thickets throughout the Pacific.

VERBENACEAE

Clerodendrum inerme (L.) Gaertn. *Fruct.*, vol. 1, p. 271. 1788.

Horne Islands: Futuna: Rocky coast between Vasavasa and Alo, *Yen* X5, “pua.”

A widespread coastal shrub in the Pacific; on Futuna the leaves are said to be used as food (Yen).

Premna taitensis Schauer in *DC. Prodr.*, vol. 11, p. 638. 1847.

Horne Islands: Futuna: In lowland forests, alt. 20 m., *Burrows* 9, “valovalo”; Tavai, in coastal thickets, *McKee* 19780, “valo valo”; Vilo Malia, hill forest, alt. 120–200 m., *Yen* 418, “valovalo.”

Our specimens probably fall into var. *rimatarensis* F. B. H. Brown. Yen reports that the leaves and bark are used medicinally for fevers. The species has been recorded from Uvea, *Graeffe* 27, by Seemann (1864, p. 72) and from the Wallis Islands, *Home*, by Drake del Castillo (1892, p. 260).

Stachytarpheta urticifolia (Salisb.) Sims in *Bot. Mag.*, vol. 43, pl. 1848. 1816.

Horne Islands: Futuna: Malae, on coast, *Yen* X67, “uui papalangi.”

A widespread weed, abundant in many parts of the Pacific. The genus was mentioned from the Wallis Islands without further documentation by Cohic (1950, p. 1).

Vitex trifolia var. *bicolor* (Willd.) Moldenke, *Known Geogr. Distr. Verb.* 79. 1942.

Horne Islands: Futuna: Nuku, near gardens, *Yen* 448, “lala.”

A widespread taxon in the Pacific, usually near the sea. Yen reports that on Futuna the

leaves are used medicinally for toothache. The species has been recorded from Uvea by Seemann (1864, p. 72) on the basis of *Graeffe* 20.

LABIATAE

Coleus amboinicus Lour. Pl. Cochinch. 372. 1790.

Horne Islands: Futuna: In garden on Nuku coast, *Yen* X35, "salata."

Cultivated and sometimes naturalized in a few Pacific archipelagoes.

Leucas flaccida R. Br. Prodr. Fl. Nov. Holl. 505. 1810.

Horne Islands: Alofi: Along trail in humid forest on rocky calcareous terrain, alt. 50–150 m., *McKee* 19804.

Widespread at least from Queensland to eastern Polynesia, often in situations where it appears indigenous.

Ocimum basilicum L. Sp. Pl. 597. 1753.

Horne Islands: Futuna: Sausau, near sea-level, in waste places, *McKee* 19766; Vasavasa, roadside weed, *Yen* 432, "pea."

Widespread in cultivation and often naturalized. On Futuna the leaves are used in cooking (*McKee*), and the complete plant is used medicinally for swollen hands and feet (*Yen*).

Teucrium inflatum Sw. Prodr. Veg. Ind. Occ. 88. 1788.

Seemann (1864, p. 72) records this widespread species from Uvea on the basis of *Graeffe* 26.

SOLANACEAE

Cestrum diurnum L. Sp. Pl. 191. 1753.

Horne Islands: Futuna: Edge of dryland, *Yen* X45, "sinu"; Vele, *McKee* 19749, "suni"; Singave, *McKee* 19880.

An American plant widely cultivated and naturalized in the Pacific.

Lycopersicon esculentum Mill. Gard. Dict. ed. 8. 1768.

The tomato is listed as being grown on the Wallis Islands by Cohic (1950, p. 20).

Nicotiana tabacum L. Sp. Pl. 180. 1753.

Cultivation of tobacco for local consumption in the Wallis Islands is indicated by Cohic (1950, pp. 2, 16).

Physalis minima L. Sp. Pl. 183. 1753.

Horne Islands: Futuna: Singave, in waste places, *McKee* 19875.

A weed found in many parts of the Pacific.

Solanum melongena L. Sp. Pl. 186. 1753.

Cohic (1950, p. 19) lists the eggplant as growing well in the Wallis Islands.

Solanum ornans Witasek in Repert. Sp. Nov., vol. 5, p. 165. 1908.

Horne Islands: Futuna: On rocky coast between Vasavasa and Alo, *Yen* X4, "polo." Alofi: In humid forest on rocky limestone, alt. 200–300 m., *McKee* 19786.

A shrub, with leaves that are reportedly used for food (*Yen*). Otherwise known from Samoa.

Solanum torvum Sw. Prodr. Veg. Ind. Occ. 47. 1788.

A widespread weed, reported from the Wallis Islands by Cohic (1950, p. 1).

ACANTHACEAE

Hemigraphis alternata (Burm. f.) T. Anders. in J. Proc. Linn. Soc., Bot., vol. 7, p. 114. 1864.

Wallis Islands: Uvea: Mata Utu, near sea-level, cultivated in garden, *McKee* 19920.

Frequently cultivated in Pacific villages.

Ruellia prostrata Poir. Encycl. Méth., vol. 6, p. 349. 1804.

Wallis Islands: Uvea: Mata Utu, near sea-level, a creeping weed in lawns, *McKee* 19919.

Apparently this weed is infrequent in the Pacific.

GESNERIACEAE

Cyrtandra futunae Kraenzl. in Repert. Spec. Nov. Regni Veg., vol. 24, p. 219. 1928.

Horne Islands: Futuna: On coral islet off rocky coast between Vasavasa and Alo, *Yen*

X7, "suka"; Vele, locally common on rocks behind the beach, *McKee 19748*; slopes south of Mt. Puke, in remnant of humid forest on volcanic terrain, alt. 500–600 m., *McKee 19841*.

The type, *Graeffe 1506*, is also from Futuna, to which the species may prove endemic.

GOODENIACEAE

Scaevola taccada (Gaertn.) Roxb. Hort. Beng. 15. 1814.

Horne Islands: Futuna: Dryland at 300–600 m., *Yen X43*, "tau hunu"; slopes south of Mt. Puke, in residual humid forest on volcanic terrain, alt. 500–600 m., *McKee 19844*.

Widespread in the Pacific, usually near beaches; our specimens fall into var. *taccada*. The species, as *S. koenigii*, has been recorded from Uvea by Seemann (1864, p. 72) on the basis of *Graeffe 41* and *45*.

COMPOSITAE

Crassocephalum crepidioides (Benth.) S. Moore in J. Bot., vol. 50, p. 211. 1912.

Horne Islands: Alofi: On cultivated land in forest-clearings on raised coral, alt. 50–200 m., *McKee 19758*.

A naturalized weed in parts of the western Pacific, becoming increasingly abundant in Fiji but not previously recorded to the east.

Elephantopus mollis H. B. K. Nov. Gen. et Sp., vol. 4, p. 26. 1820.

Horne Islands: Futuna: Open plateau above Singave, alt. about 150 m., *McKee 19832*.

A widespread weed, very abundant in Fiji, infrequent in Tonga, and not reported from Samoa; said to be uncommon on Futuna.

Wedelia biflora (L.) DC. in Wight, Contr. Ind. Bot. 18. 1834.

Horne Islands: Futuna: In mountain forest, alt. 200 m., *Yen 434*, "lau kofe."

Widespread in the Pacific. Yen reports that on Futuna the leaves are used medicinally for burns. The species has also been reported from the Wallis Islands by Drake del Castillo (1890, p. 207; 1893, p. 106) on the basis of a Home collection.

MONOCOTYLEDONEAE

LILIACEAE

Cordyline terminalis (L.) Kunth in Abh. Königl. Akad. Wiss. Berlin 1820, p. 30. 1820.

Although no herbarium vouchers are at hand, the leaves of this widespread species are reported as used for wrapping and serving food and for garments (Burrows 1936, 1937). It is commonly known as "tsi" on Futuna and "si" on Uvea. A Graeffe specimen (no. 53) was recorded from Uvea by Seemann (1864, p. 73).

TACCACEAE

Tacca leontopetaloides (L.) Kuntze, Rev. Gen. Pl., vol. 2, p. 704. 1891.

Various uses of this widespread species are recorded for Futuna and Uvea by Burrows (1936, 1937, 1938) under the synonym *T. pinnatifida*. A local name on Futuna (Burrows 1936, p. 188) is "maso'a."

DIOSCOREACEAE

Yams, commonly known collectively as "ufi," are discussed by Burrows (1936, 1937, 1938) and Cohic (1950, p. 18), usually without the use of specific names. The occurrence on Futuna of three widespread species is documented by Yen's collections.

Dioscorea bulbifera L. Sp. Pl. 1033. 1753.

Horne Islands: Futuna: Leava, in forest, *Yen 446*, "soi."

Distributed from Africa to eastern Polynesia, this is the most widespread species of the genus; the tubers are considered inferior.

Dioscorea nummularia Lam. Encycl. Méth., vol. 3, p. 231. 1789.

Horne Islands: Futuna: Nuku, in garden, *Yen 445*, "palay."

Eastward in the Pacific as far as the Societies, probably brought from Malesia; this species has a large edible tuber and is considered a superior yam. Burrows (1937, p. 95) records the name "tuakuku" for this species on Uvea.

Dioscorea pentaphylla L. Sp. Pl. 1032. 1753.

Horne Islands: Futuna: Mt. Fatuku, alt. 150 m., *Yen X69*, "Iena."

Widely cultivated and naturalized in the Pacific; it produces an edible tuber that is usually considered inferior to that of some other yams.

BROMELIACEAE

Ananas comosus (L.) Merr. Interpret. Rumph. Herb. Amb. 133. 1917.

The occurrence of pineapples on Futuna is noted by Burrows (1936, p. 132).

GRAMINEAE

Bambusa sp.

At least one species of bamboo, with many local uses, is recorded from Futuna and Uvea (Seemann 1864, p. 73; Burrows 1936, 1937, 1938).

Centotheca lappacea (L.) Desv. in Nouv. Bull. Sci. Soc. Philom. Paris, vol. 2, p. 189. 1810.

Horne Islands: Alofi: In swampy opening in humid forest on rocky limestone, alt. 200–300 m., *McKee 19799*.

A widespread and often locally abundant species in the Pacific, frequently recorded as *C. latifolia* (Osborn) Trin.

Chrysopogon aciculatus (Retz.) Trin. Fund. Agrost. 188. 1822.

Horne Islands: Futuna: Singave, near sea-level, in waste places, *McKee 19887*.

Widespread in the Pacific. Drake del Castillo (1892, p. 344, as *Andropogon aciculatus*) indicates that Home collected this species in the Wallis Islands.

Cymbopogon sp.

Andropogon schoenanthus L. is recorded from Uvea by Seemann (1864, p. 73) on the basis of *Graeffe 16*; it seems probable that the specimen represents the genus *Cymbopogon*, of which two or three species are known to occur in the neighboring archipelagoes.

Cyrtococcum trigonum (Retz.) A. Camus in

Bull. Mus. Hist. Nat. (Paris), vol. 27, p. 118. 1921.

Wallis Islands: Uvea: Utuleve, near sea-level, abundant in the shade of deteriorated forest, *McKee 19910*.

Occasional in the Pacific but often locally abundant.

Digitaria microbachne (Presl) Henr. in Meded. Rijks-Herb., vol. 61, p. 13. 1930.

Horne Islands: Futuna: Vainifao River, alt. 30 m., *Yen X72*, "saulagi."

Occasional in the Pacific, used as fodder on Futuna (Yen).

Eleusine indica (L.) Gaertn. Fruct., vol. 1, p. 8. 1788.

Horne Islands: Futuna: Vainifao River, alt. 30 m., *Yen X71*, "mutie."

A pantropical and often abundantly established grass, used on Futuna as food for horses (Yen).

Eragrostis tenella (L.) Beauv. ex R. et S. Syst. Veg., vol. 2, p. 576. 1817.

Horne Islands: Alofi: Mua locally common on upper beach, *McKee 19761*.

A widespread tropical grass, often recorded in the Pacific as *E. amabilis* (L.) Wight and Arn.

Lepturus repens (Forst. f.) R. Br. Prodr. Fl. Nov. Holl. 207. 1810.

Horne Islands: Alofi: Mua, a common grass above the beach, *McKee 19825*.

Frequent along the strand in the Pacific.

Paspalum orbiculare Forst. f. Fl. Ins. Austr. Prodr. 7. 1786.

Horne Islands: Futuna: Dryland at 300–600 m., *Yen X39*, "mo'uku." Alofi: Mua, a common grass, *McKee 19829*.

Widely established throughout the Pacific.

Saccharum officinarum L. Sp. Pl. 54. 1753.

The cultivated sugarcane occurs on Futuna and Uvea and is commonly used for chewing, the vernacular name being "tolo" (Burrows, 1936, p. 132; 1937, p. 94).

Thuarea involuta (Forst. f.) R. et S. Syst. Veg., vol. 2, p. 782. 1817.

Horne Islands: Futuna: Singave, prostrate above beaches, *McKee* 19890.

Widespread in the Pacific and often frequent on sandy beaches.

Zea mays L. Sp. Pl. 971. 1753.

Maize is grown in the Wallis Islands to a limited extent (Cohic, 1950, p. 18).

PALMAE

Cocos nucifera L. Sp. Pl. 1188. 1753.

The ubiquitous coconut ("niu") has many uses in our area (Burrows, 1936, 1937, 1938; Cohic, 1950).

Metroxylon vitiense (H. Wendl.) Hook. f. in Rep. Kew Gard. 1882, p. 68. 1884.

Horne Islands: Futuna: Sau Sau, cultivated in garden (fruit only), *McKee* 19883, "niu Lotuma" (cocotier de Rotuma).

The fruits are edible, and the pith of the trunk is used in preparing starch. Although the species is probably endemic in Fiji, available cultivated specimens from Rotuma and Samoa, as well as the cited collection from Futuna, do not seem significantly different.

ARACEAE

Alocasia macrorrhiza (L.) Schott in Oesterr. Bot. Wochenbl., vol. 4, p. 409. 1854.

"Kape" is the vernacular name of this widely cultivated and often naturalized food plant on Futuna and Uvea (Burrows, 1936, 1937; Cohic, 1950).

Colocasia esculenta (L.) Schott, Metel. Bot., vol. 1, p. 18. 1832.

The staple taro is grown throughout our area (Burrows, 1936, 1937, 1938; Cohic, 1950), with the usual local name "talo."

Xanthosoma sagittifolium (L.) Schott, Metel. Bot., vol. 1, p. 19. 1832.

Reported from the Wallis Islands by Cohic (1950, p. 16).

PANDANACEAE

Freycinetia storckii Seem. Fl. Vit. 283. Pl. 85. 1868.

Horne Islands: Futuna: Mt. Vai Kelekele, alt. 150 m., *Yen* X65; "kie kie."

Otherwise known from Fiji and Samoa. Burrows (1936, p. 183) has also recorded the genus from Futuna, as "kiekie," indicating that the leaves are sometimes used for mats in place of those of *Pandanus*; it is probable that he had the same species as Yen, but no voucher is available.

Pandanus whitmeeanus Martelli in Webbia, vol. 1, p. 364. 1905.

Horne Islands: Futuna: Cultivated around houses, *Yen* 3, "paogo."

Present, and apparently cultivated by the natives, also on New Caledonia, the New Hebrides, Viti Levu, Tongatapu, Aitutaki, and Tutuila. On Futuna it is used only for personal adornment. The orange fruits are strung with other fruits, leaves, and flowers into a "kaso" (garland), and the oil is used to perfume coconut oil.

Pandanus spp.

Other species of *Pandanus* occur in the Horne and Wallis Islands; available specimens are under study and will be discussed in another publication. The many uses of the genus are detailed by Burrows (1936, 1937, 1938).

CYPERACEAE

Cyperus brevifolius (Rottb.) Hassk. Cat. Hort. Bogor. 24. 1844.

Horne Islands: Futuna: Singave, in waste places, *McKee* 19878.

Widespread and often abundant in tropical and warm regions.

Cyperus compressus L. Sp. Pl. 46. 1753.

Horne Islands: Futuna: Singave, in waste places, *McKee* 19876.

Widespread throughout the tropics.

Cyperus seemannianus Boeck. in Linnaea, vol. 36, p. 390. 1870.

Horne Islands: Alofi: Along trails in humid

forest on rocky calcareous terrain, alt. 50–150 m., *McKee* 19820.

Otherwise known from Fiji, Samoa, and Tonga. In the treatment of Kükenthal (in *Pflanzenr.*, vol. 101 [IV. 20], p. 483. 1936) our specimen probably falls into var. *monostachys* (Boeck.) Kükenth.

Eleocharis sp.

According to Seemann (1864, p. 73), *Graeffe* 15, questionably referred to *E. gracilis* R. Br., represents the genus on Uvea. A specific identification must await a specialist's study.

Scleria lithosperma (L.) Sw. Prodr. Veg. Ind.

Occ. 18. 1788.

This pantropical species was recorded from the Wallis Islands by Drake del Castillo (1892, p. 336; 1893, p. 246) on the basis of a Home collection.

Scleria polycarpa Boeck. in *Linnaea*, vol. 38, p. 509. 1874.

Horne Islands: Futuna: Vainifao River, alt. 30 m., *Yen* X70, "molomolo"; slopes south of Mt. Puke, alt. 500–600 m., forming large tufts in residual humid forest on volcanic terrain, *McKee* 19840.

Often locally abundant from tropical Australia and Malesia to Samoa and Tonga.

MUSACEAE

Musa spp.

The occurrence of cultivated bananas on Futuna and Uvea has been noted by Burrows (1936, 1937, 1938) and Cohic (1950). There doubtless occur several varieties, but further identifications cannot now be suggested.

ZINGIBERACEAE

Curcuma domestica Valetton in Bull. Jard. Bot.

Buitenz. II, vol. 27, p. 31. 1918.

No herbarium vouchers support this record, but Burrows (1936, pp. 189, 195, 198; 1937, pp. 57, 98, 137) indicates the uses of turmeric or "ango," sometimes using the binomial *Curcuma longa*, as the source of a yellow dye or

of an ointment for adornment and healing on Futuna and Uvea.

Hedychium coronarium Koen. In Retz. Obs. Bot., vol. 3, p. 73. 1783.

Horne Islands: Futuna: Mt. Vaisei, alt. 90 m., *Yen* X63, "kava pui."

A widely cultivated and often naturalized ornamental plant; the flowers, as elsewhere, are used on Futuna for personal adornment (*Yen*). This is doubtless the species indicated by Burrows (1936, pp. 195, 198) as "kavapui," a ginger of which the flowers are used to scent coconut oil.

Zingiber zerumbet (L.) Roscoe ex Sm. Exot. Bot., vol. 2, p. 103. Pl. 112. 1804.

Horne Islands: Futuna: Nuku, near gardens, *Yen* 449, "ango."

Widely naturalized in the Pacific. On Futuna the fleshy rhizome is used medicinally for cuts (*Yen*). It may be noted that the same vernacular name applies to this and to *Curcuma domestica*.

ORCHIDACEAE

Calanthe vaupeliana Kraenzl. in Notizbl. Königl. Bot. Gart. Berlin, vol. 5, p. 111. 1909.

Horne Islands: Futuna: In wet forest, alt. 600 m., *Burrows* s. n., May 8, 1932; slopes south of Mt. Puke, alt. 500–600 m., terrestrial in shady humid forest on volcanic terrain, *McKee* 19845.

Previously recorded from Samoa.

Dendrobium sp.

Horne Islands: Alofi: In forest, alt. 60–250 m., *Yen* X23, "laafoa."

This sterile orchid cannot be definitely referred to a species; the plant is used for basket-making (*Yen*).

Malaxis resupinata (Forst. f.) Kuntze, Rev. Gen. Pl., vol. 2, p. 673. 1891.

Horne Islands: Alofi: In shady humid forest on rocky limestone, alt. 200–300 m., *McKee* 19800.

Our specimen agrees well with the Samoan

material here referred by L. O. Williams (in Yuncker in Bishop Mus. Bull., no. 184, p. 31, 1945), although perhaps the species is too broadly interpreted.

Nervilia aragoana Gaud. in Freycinet, Voy. Uranie et Physicienne, Bot., Atlas Pl. 35. 1827 (text) 422. 1829.

Horne Islands: Alofi: Terrestrial in shady humid forest on rocky limestone, *McKee 19808*.

A widespread but infrequent species, extending from Micronesia and the Kei Islands to Samoa and Niue.

Phreatia samoensis (Kraenzl.) Schlechter in Repert. Sp. Nov., vol. 3, p. 320. 1907.

Horne Islands: Futuna: Slopes south of Mt. Puke, alt. 500–600 m., epiphytic in residual humid forest on volcanic terrain, *McKee 19854*.

Otherwise known from Samoa.

Pseuderia ramosa L. O. Williams in Bot. Mus. Leaflet. Harv. Univ., vol. 7, p. 140. 1939.

Horne Islands: Futuna: Slopes south of Mt. Puke, alt. 500–600 m., abundant liana in residual humid forest on volcanic terrain, *McKee 19853*.

Otherwise known from Samoa.

Spathoglottis pacifica Reichenb. f. in Seem. Fl. Vit. 300. 1868.

Horne Islands: Futuna: On barren uplands, *Burrows, s. n.*, May 8, 1932, "kalae se'ekukula"; in dryland at 300–600 m. alt., *Yen X40*, "kalae"; open plateau above Singave, alt. about 150 m., *McKee 19834*; Singave, on rocky limestone, alt. 0–50 m., *McKee 19857*. Wallis Islands: Uvea: Lac Lanutavake, in thickets on deteriorated volcanic terrain, alt. 100 m., *McKee 19897*.

As in Fiji and Samoa, this orchid is locally abundant. It had previously been collected in the Wallis Islands by Graeffe (Drake del Castillo, 1892, p. 308; 1893, p. 214).

ADDENDUM

In preparing this report, the authors unfortunately overlooked the following paper:

Barrau, Jacques. 1963. L'Agriculture des Iles

Wallis et Futuna. J. Soc. Océanistes, vol. 19, pp. 157–171.

Many of the plants we have discussed as cultivated are of course included in Barrau's discussion, with either Latin or French names. The following, reported by him with Latin binomials, should also have been included in our treatment: Leguminosae: *Pueraria lobata* (Willd.) Ohwi; Lecythidaceae: *Barringtonia edulis* Seem.; Dioscoraceae: *Dioscorea alata* L., *Dioscorea esculenta* (Lour.) Burkill; Araceae: *Amorphophallus campanulatus* (Roxb.) Bl., *Cyrtosperma chamissonis* (Schott.) Merr. Addition of these six species, all of which occur in neighboring areas, would alter the first two columns of our Table 1, but none of them would affect the known indigenous flora of the Horne and Wallis Islands.

LITERATURE CITED

- BALGOOY, M. M. J. VAN. 1960. Preliminary plant-geographical analysis of the Pacific. *Blumea*, vol. 10, pp. 385–430.
- . 1969. A study on the diversity of island floras. *Blumea*, vol. 17, pp. 139–178.
- BROWNLIE, G. 1969. Ptéridophytes. In: A. Aubréville, ed. *Flore de la Nouvelle-Calédonie et Dépendances*. III. Pp. 1–307. Muséum National d'histoire naturelle, Paris.
- BURROWS, E. G. 1936. Ethnology of Futuna. *Bulletin of the Bernice P. Bishop Museum*, no. 138. 239 pp., 11 pls., 37 figs.
- . 1937. Ethnology of Uvea (Wallis Island). *Bulletin of the Bernice P. Bishop Museum*, no. 145. 176 pp., 8 pls., 29 figs.
- . 1938. Topography and culture on two Polynesian islands. *Geographical Review*, vol. 28, pp. 214–223.
- COHIC, F. 1950. Insect pests in the Wallis Islands and Futuna. South Pacific Commission, Technical Paper no. 8, pp. 1–25.
- DRAKE DEL CASTILLO, E. 1886–1892. *Illustraciones florae insularum maris Pacifici*. 1–458. (1–48, 1886; 49–64, 1887; 65–80, 1888; 81–104, 1889; 105–216, 1890; 217–458, 1892). G. Masson, Paris.
- . 1893. *Flore de la Polynésie française*. i–xxiv, 1–352. G. Masson, Paris.
- MELCHIOR, H. [ed.]. 1964. *A Engler's Syllabus*

- der Pflanzenfamilien. II. 12th edition. Gebrüder Borntraeger, Berlin. 666 pp.
- SEEMANN, B. 1864. New South Sea Island plants. *Journal of Botany*, vol. 2, pp. 70-77.
- 1865-1873. *Flora Vitiensis*. i-xxxiii, 1-453. (1-80, 1865; 81-196, 1866; 197-236, 1867; 237-324, 1868; 325-453 + i-xxxiii, 1873). L. Reeve and Co., London.
- TAKHTAJAN, A. 1969. Flowering plants: origin and dispersal [translated from Russian by C. Jeffrey]. 310 pp. Oliver and Boyd, Edinburgh.