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THE CYPERACEAE COLLECTED IN NEW GUINEA BY L. J. BRASS, IV.*

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With one plate and two text-figures

THIS PAPER COMPLETES the account of the specimens collected by Mr. L. J. Brass during the Archbold Expeditions between 1933 and 1939. As in the previous contributions (Jour. Arnold Arb. **28**: 99–116, 207–229. 1947; **29**: 90–102. 1948), some other specimens are cited. To the acknowledgements made in earlier contributions, I wish to add my thanks to Prof. H. Humbert, Dr. O. Hagerup, Dr. A. Hässler and Dr. H. J. Lam for the loan of types and other material from the herbaria of Paris, Copenhagen, Lund and Leiden respectively, and to Mr. R. H. Anderson for the loan of all specimens of *Scleria* in the Sydney Herbarium.

The genera treated here are *Scirpus*, *Fimbristylis*, *Scleria*, *Diplacrum* and *Uncinia*, and there are some additional notes on genera previously treated. The treatment of the different genera is somewhat unequal, particularly as to the citation of synonyms, but in all cases it is based on fairly extensive revisional work on the Malaysian and Australasian species. The delayed appearance of this paper is due partly to the necessity of examining certain types before some groups of species could be determined satisfactorily.

Herbaria are indicated by the following abbreviations: Brisbane, BRI; Canberra, CANB; Copenhagen, C; Leiden, L; Lund, LD; Melbourne, MEL; Paris, P; Sydney, NSW.

Scirpus Linnaeus

Scirpus ternatanus Reinw. ex Miq. Fl. Ind. Bat. **3**: 307. 1859; Kükenth. Bot. Jahrb. **69**: 259. 1938; Ohwi, Bot. Mag. Tokyo **56**: 204. 1942.

Scirpus chinensis Munro in Seem. Bot. Voy. Herald 423. 1857; Valck. Suring. Nova Guin. Bot. **8**: 705. 1912; Ridl. Trans. Linn. Soc. II, Bot. **9**: 242. 1926; non Osbeck 1753.

* Botanical Results of the Richard Archbold Expeditions. See Jour. Arnold Arb. **29**: 90–102. 1948.

NETHERLANDS NEW GUINEA: Bele R., 18 km. NE. of Lake Habbema, *Brass 11472*, Nov. 1938, alt. 2200 m., large clumps in moist situations on grassy, formerly cultivated slopes; Balim R., *Brass 11677*, Dec. 1938, alt. 1600 m., colonizing loose sand and stones from a landslip; 9 km. NE. of Lake Habbema, *Brass 10993*, Oct. 1938, alt. 2650 m., plentiful in *Equisetum* cover on landslips, large clumps ± 75 cm. high; 9 km. NE. of Lake Habbema, *Brass 10883*, Oct. 1938, alt. 2650 m., open banks of a stream in forest.

The range of this species extends north and west through Malaysia to India, China and Japan.

? **Scirpus strobolinus** Roxb. Hort. Beng. 6. 1814, *nomen nudum*, Fl. Ind. ed. Carey & Wall. 1: 223. 1820, Fl. Ind. ed. Carey 1: 219. 1832.

PAPUA: Western Division: Gaima, Lower Fly R. (east bank), *Brass 8304*, Nov. 1936, loose sand on open foreshores, not common.

The specimens are in flower only and the identification is rather uncertain, though they appear to belong here rather than to *S. maritimus* L., *S. fluviatilis* A. Gray or *S. paludosus* A. Nels. *Scirpus strobolinus* is otherwise known from different parts of Asia, extending south to Assam and Pegu.

Scirpus mucronatus L. Sp. Pl. 50. 1753; K. Schum. in K. Schum. & Lauterb. Fl. Deutsch. Schutzgeb. Südsee 195. 1901; Valck. Suring. Nova Guin. Bot. **8**: 704. 1912; Kükenth. Bot. Jahrb. **59**: 51. 1924, **69**: 259. 1938.

NETHERLANDS NEW GUINEA: Balim R., *Brass 11804*, Dec. 1938, alt. 1600 m., occasional in ditches and grassy pools.

PAPUA: Western Division: Junction of Black and Palmer Rivers, *Brass 6943*, June 1936, common on silt-covered gravel banks in river (det. Uittien). Central Division: Urunu, Vanapa Valley, *Brass 4810*, July–Aug. 1933, alt. 1900 m., plentiful in small swamps on open slopes of valley; Koitaki, *Carr 12283*, May 1935, alt. 1500 ft., swamp in open savannah land, c. 4 ft. tall (herb. Canberra).

A species widely spread over the warmer parts of the Eastern Hemisphere.

Scirpus clemensiae (Kükenth.) Ohwi, Bot. Mag. Tokyo **56**: 203. 1942.

Scirpus clemensiae (Kükenth.) Kükenth. Mitteil. Thüring. Bot. Ver. N. F. **50**: 13. 1943.

Scirpus mucronatus L. subsp. *clemensii* Kükenth. Bot. Jahrb. **69**: 259. 1939.

NETHERLANDS NEW GUINEA: Lake Habbema, *Brass 9069*, August 1938, alt. 3225 m., plentiful in sandy marginal shallows of lake, tufts 40–60 cm. high; Lake Habbema, *Brass 9439*, August 1938, alt. 3225 m., abundant in marginal shallows of lake.

Known also from North-East New Guinea, whence it was originally de-

scribed. The binary combination was made independently by Ohwi and Kükenthal. Ohwi spelled the epithet *Clemensii*, as published in the ternary combination. When Kükenthal made the binary combination, he cited "Scirpus Clemensiae Kükenth., comb. nova. — *Sc. mucronatus* L. subsp. *Clemensii* Kükenth. in Bot. Jahrb. 69.2. (1938) 259." It would appear that the spelling *Clemensii* in the first paper was "an unintentional orthographic error" which was corrected in the later paper, as permitted by Art. 70 of the International Rules, and I have adopted the emended spelling. The plant was evidently dedicated to Mrs. M. S. Clemens.

Scirpus validus Vahl, Enum. 2: 268. 1806.

PAPUA: Western Divison: Gaima, Lower Fly R. (east bank), *Brass 8305*, Nov. 1936, gregarious on open sandy foreshores.

New for Papua; widely spread in the countries around the Pacific Ocean and in the Americas generally. Specimens from New Guinea were formerly identified with the Eurasian *S. Tabernaemontani* Gmel. by Kükenthal in Engl. Bot. Jahrb. **59**: 51. 1924, and by Ohwi in Bot. Mag. Tokyo **56**: 203. 1942. I have accepted Beetle's arrangement of this group of species in Amer. Jour. Bot. **28**: 691–700. 1941.

Scirpus grossus L. f. Suppl. 104. 1781; Valck. Suring. Nova Guin. Bot. **8**: 705. 1912.

PAPUA: Western Division: Gaima, Lower Fly R. (east bank), *Brass 8311*, Nov. 1936, co-dominant with no. *8312* (= *Cyperus malaccensis* Lam.) in extensive sedge communities on open sandy foreshores (det. Uittien).

New for Papua. The species ranges from India to NE. Queensland, and in New Guinea was previously known only from Netherlands New Guinea.

Scirpus crassiusculus (Hook. f.) Benth. Fl. Austral. 7: 326. 1878; Kükenth. Bot. Jahrb. **69**: 258. 1938.

Isolepis crassiuscula Hook. f. Fl. Tasm. 2: 86, *t. 143*. 1860.

NETHERLANDS NEW GUINEA: Lake Habbema, *Brass 9324*, Aug. 1938, alt. 3225 m., gregarious on sand bars in grassland stream; Mt. Wilhelmina, 4 km. NE. of top, *Brass & Meyer-Drees 9984*, Sept. 1938, alt. 3660 m., submerged green masses in shallows of a lake.

PAPUA: Central Division: Mt. Albert Edward, *Brass 4300*, May–July 1933, alt. 3810 m., submerged in large masses on shallows of an alpine lake.

New for both Netherlands New Guinea and Papua. Recorded by Kükenthal, l.c., for North-East New Guinea, but he credited the authorship of the combination under *Scirpus* to Hooker f., l.c. Bentham, l.c., also credited the combination to Hooker. The species is elsewhere known from SE. Australia (including Tasmania) and New Zealand.

The sheet seen of *Brass & Meyer-Drees 9984* has but one spikelet, too immature for dissection, but the facies of the plant is of this species.

Scirpus merrillii (Palla) Kükenth. ex Merr. Enum. Philipp. Fl. Pl. **1**: 117. 1925; S. T. Blake, Proc. Roy. Soc. Queensl. **58**: 38. 1947.

Schoenoplectus merrillii Palla in Kneucker, Cyperaceae (excl. Carices) et Juncaceae exsiccatae **8**: *nr. 223.* 1911, in Allgem. Bot. Zeitschr. **17**: Beil. 3. 1911.

NETHERLANDS NEW GUINEA: Lake Habbema, *Brass 9238*, Aug. 1938, alt. 3225 m., associated with mosses, etc., on open seepages.

PAPUA: Central Division: Mt. Albert Edward, *Brass 4364*, May–July 1933, alt. 3680 m., plentiful on wet banks of a small alpine stream; Murray Pass, Wharton Range, *Brass 4725*, June–Sept. 1933, alt. 2840 m., common, wet banks of grassland streams. Eastern Division: Mt. Dayman, *W. Armit* in 1894 (MEL).

New for New Guinea, though it is very likely this species which has been recorded as *S. inundatus* (R. Br.) Poir. by Kükenthal, Bot. Jahrb. **69**: 258. 1938, from North-East New Guinea and by Ohwi, Bot. Mag. Tokyo **56**: 203. 1942, from Netherlands New Guinea. It differs from the polymorphic *S. inundatus* by the constant development of a filiform branched rhizome, well-developed leaves often overtopping the culm, more or less emarginate glumes nearly as broad as long and scarcely if at all mucronate, and with the nut nearly as long as the glume; also it is almost invariably a much smaller, very slender, more or less mat-like plant with mostly only one, rarely two or three spikelets, and the involucral bract is commonly elongated. I have seen other specimens from the Philippine Islands including an isotype (*Merrill in Kneucker Cyperaceae et Juncaceae exsiccatae* **8**, *nr. 223*), south-east Queensland, New South Wales, Victoria, Tasmania and New Zealand.

Scirpus clarkei Stapf, Trans. Linn. Soc. II, Bot. **4**: 244. 1894.

Scirpus pulogensis Merr. Philipp. Jour. Sci. **5** (C): 333. 1910; **syn. nov.**
Scirpus pakapakensis Stapf, Jour. Linn. Soc. Bot. **42**: 174. 1914; **syn. nov.**
Scirpus subcapitatus Thw. var. *triangularis* Kükenth. Bull. Jard. Bot. Buitenz. sér. III, **16**: 301. 1940; **syn. nov.**
Scirpus subcapitatus Thw. forma *rigidus* Kükenth., l.c., **syn. nov.**
Scirpus clarkei Stapf var. *pakapakensis* (Stapf) Beetle, Amer. Jour. Bot. **33**: 665. 1946; **syn. nov.**

PAPUA: Central Division: Mt. Albert Edward, *Brass 4315*, May–July 1933, alt. 3680 m., forest glades and grassland slopes, common, few plants fertile; Mt. Knutsford, *W. MacGregor* in 1889 (BRI, MEL); summit of the Owen Stanley Ranges, *W. MacGregor* in 1889 (MEL).

New for New Guinea; elsewhere known from the Philippine Islands, Borneo and Sumatra.

F. Mueller, Trans. Roy. Soc. Vict. n.s. 1 (2): 35. 1889, referred MacGregor's specimens to *S. cespitosus* L. (as *S. caespitosus*) with the remark: "Should nevertheless this plant, as a variety or perhaps even as a species, require separation from the genuine S. caespitosus, then the name heleocharoides would be an apt one." Some of the specimens are labelled in

Mueller's handwriting: Scirpus caespitosus Linné var. heleocharoides. This ternary combination has never been validly published, for the phrase quoted cannot be taken as constituting publication of any combination.

The specimens from New Guinea do indeed closely resemble specimens of *S. caespitosus* L., but the leaf-sheaths are fewer, tighter and more rigid, the hard culms are more or less trigonous and less furrowed, the two lowermost glumes are much shorter and more rigid than the others and only shortly pointed, and the nut is narrower. Occasionally also the inflorescence consists of two spikelets. They also resemble some from the Philippine Islands (ISOTYPE of *S. pulogensis*), Borneo (Mt. Kinabalu, the type-locality of *S. clarkei* and *S. pakapakensis*) and Sumatra (general locality of the types of *S. subcapitatus* var. *triangularis* and *S. subcapitatus* forma *rigidus*). *Scirpus clarkei* will probably prove to be conspecific with *S. subcapitatus* Thw. from Ceylon and southern India; of this I have seen only one sheet, an isotype, but it is in flower only.

Beetle, in the paper quoted above, recognised five taxa in a group which he described as *Scirpus* sect. *Paucispicatae* Beetle, l.c., 664. He distinguished *S. clarkei* from *S. subcapitatus* on differences in the number of spikelets and scabridity of the mucro to the leaf-sheaths and lowermost glumes. *Scirpus pakapakensis* was distinguished as a variety of *S. clarkei* by the spikelet not solitary and the stems more or less triangular. He also saw only a single sheet in flower (an isotype) of *S. subcapitatus*. The number of spikelets and shape of the culms are certainly variable, but on the material seen the character of scabridity seems constant. I have not seen material of the other species admitted by Beetle.

F. Mueller, l.c., remarked that "Another Scirpus is contained in the collections, as gathered on Mt. Knutsford and Mount Musgrave; it is an aged state of fructification, and may perhaps belong to the variety fluviatilis of S. maritimus." These specimens are of *Mapania Moseleyi* C. B. Clarke.

Fimbristylis Vahl

No satisfactory account of this genus as a whole has ever been published. The latest account which has any claim to be considered as a general treatment of the genus is Boeckeler's uncritical descriptions of the forms represented in the Berlin Herbarium in Linnaea **37**: 2–56. 1871, **38**: 384–398. 1874. In Kew Bull. Add. Ser. **8**: 107–109. 1908 is a list of species as accepted and arranged by C. B. Clarke, but one of the tragedies in botany is that his extensive manuscript on the family was never published.

The study of the New Guinea collections, the results of which appear on the following pages, was based chiefly on the revision of the Australian species which I commenced in 1932, but which is not yet completed, owing to the numerous difficulties involved, due partly to the need of critically comparing some Australian forms with others described from other parts of the world, of which types were not readily accessible. Little was previ-

ously known of the *Fimbristylis*-flora of southern New Guinea, to which Mr. Brass has added a remarkable number of Australian forms.

For convenience, I have arranged the species under the four sections proposed by Bentham, Fl. Austral. 7: 298–9. 1878, an arrangement which has been fairly generally followed. The type-species of the genus, *F. dichotoma* (L.) Vahl, was arranged under *Dichelostylis* Benth., l.c., 299, but Boeckeler, op. cit. 3. 1841, had previously proposed the name *Eufimbristylis* for the section containing this species.

Sect. **Heleocharoides** Benth.

Fimbristylis setacea Benth. Lond. Jour. Bot. 2: 239. 1843; Valck. Suring. Nova Guin. Bot. 8: 702. 1912.

Fimbristylis acuminata (Retz.) Vahl var. *minor* Miq. Fl. Ind. Bat. 3: 314. 1859.
Fimbristylis acuminata (Retz.) Vahl var. *setacea* (Benth.) Benth. Fl. Austral. 7: 301. 1878.
Fimbristylis acuminata (Retz.) Vahl var. *setacea* (Benth.) Kükenth. Bot. Jahrb. 59: 47. 1924, 69: 257. 1938.
Isolepis cochleata Steud. Synops. Cyper. 100. 1855.

PAPUA: Western Division: Lake Daviumbu, Middle Fly R., *Brass 7531A*, August 1936, savannahs, abundant on hard-pans and swamp margins (det. Kükenthal as *Fimbristylis acuminata* (Retz.) Vahl var. *setacea* Bth.); Daru Island, *Brass 6245*, March 1936, abundant in flattened tufts on damp soil in savannah-forests.

New for Papua. The species ranges from Tropical Asia to northern and north-eastern Australia. Kükenthal, 1924, l.c., made a new combination *F. acuminata* (Retz.) Vahl var. *setacea* (Benth.) Kükenth., evidently overlooking Bentham's much earlier combination. But if this form is treated as a variety of *F. acuminata*, then the legitimate trinomial would be *F. acuminata* var. *minor* Miq., l.c. The species is very close to *F. acuminata*, differing chiefly in being smaller in all its parts.

Fimbristylis nutans (Retz.) Vahl, Enum. 2: 285. 1806.

Scirpus nutans Retz. Observ. 4: 12. 1786.

PAPUA: Western Division: Lake Daviumbu, Middle Fly R., *Brass 7843*, Sept. 1936, common on wet grass plains; Wuroi, Oriomo R., *Brass 5750*, Jan.–March 1934, alt. 10–30 m., very plentiful on open savannah.

Not previously recorded for New Guinea, though the species is known to extend from northern and north-eastern Australia to Malaya and China.

Fimbristylis tetragona R. Br. Prodr. 226. 1810; Kükenth. Mitteil. Thüring. Bot. Ver. N. F. 50: 8. 1943.

Fimbristylis cylindrocarpa Kunth, Enum. 2: 222. 1837.
Fimbristylis arnottii Thw. Enum. Pl. Zeyl. 348. 1864.

Fimbristylis xyroides Arnott ex Thw., l.c., in syn., *nomen nudum*.
Fimbristylis abjiciens Steud. Synops. Cyper. 107. 1855.
Scirpus tetragonus (R. Br.) Poir. Encycl. Suppl. **5**: 98. 1817.
Mischospora efoliata Boeck. Flora **43**: 113. 1860.

PAPUA: Western Division: Lake Daviumbu, Middle Fly R., *Brass 7844*, Sept. 1936, tufted on wet grass plains, plant bluish (det. Svenson).

New for New Guinea; also in southern and eastern Asia and northern Australia.

Fimbristylis dictyocolea sp. nov. (Sect. *Heleocharoides* Benth.). FIG. 1.

Herba perennis, caespitosa, circiter 20–40 cm. alta, fere aphylla. Culmi stricti, erecti, setacei, pluristriati, obscure quinquangulares, glabri, laeves vel minute asperuli, basi haud incrassati. Folia basalia perpauca, setacea, triquetra, lateraliter compressa, glabra, laevia, brevia vel culmum fere adaequantia; folia caulina basi culmi inserta, ad vaginas arctas ore oblique sectas antice late hyalinas tandem reticulatim fissas redacta. Inflorescentia unispiculata, quasi ebracteata. Spicula erecta, pallida, oblonga vel ellipsoidea, utrinque ± acuta, haud angulata, 7–9 mm. longa, 3 mm. lata, multi- et densi-flora. Rhachilla exalata. Glumae undique spiraliter arcte imbricatae, oblongae, apice obtusa rotundatae, muticae, omnino glabrae, dorso late coriaceae uninerves nec carinatae, lateribus membranaceae cellulis parvis breviter oblongis, marginibus etiam apice hyalinae, 4–5 mm. longae, 1–3 imae vacuae crassiores. Stamina 3; antherae lineares, prominule apiculatae, circiter 2 mm. longae. Stylus tenuis, complanatus, basi dilatatus, marginibus minute ciliolatus, circiter 3–3.5 mm. longus; stigmata 3, brevia. Nux straminea, lucidula, obovoidea, late umbonulata, vix stipitata, trigona, leviter tricostulata, minute reticulata verrucosaque cellulis extimis minimis distinctis hexagonis, 1 mm. longa, 0.7 mm. lata.

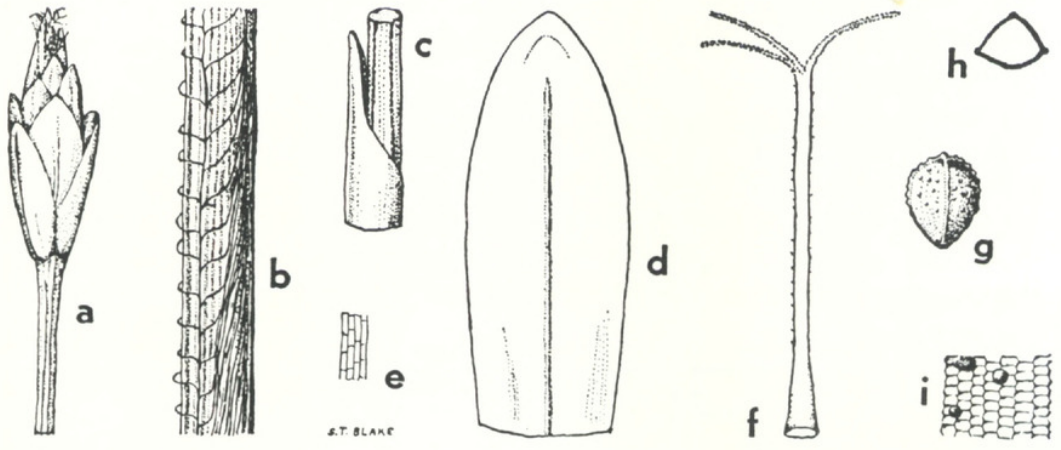

FIG. 1. *Fimbristylis dictyocolea* S. T. Blake: a. upper part of culm with spikelet, × 3; b. middle part, and c. upper part of leaf-sheath, × 3; d. glume, × 10; e. portion of side of glume, × 40; f. style, × 10; g. nut, × 10; h. transverse section of nut; i. surface of nut, × 40. Figures from type.

PAPUA: Western Division: Tarara, Wassi Kussa R., *Brass 8400*, Dec. 1936, abundant on gray soil flat, savannah-forest; Mabaduan, *Brass 6553* (TYPE), April 1936, common in shallow rain-pools in savannah-forests.

Brass 6553 had been determined by Svenson as *F. pauciflora* R. Br., while both it and *Brass 8400*, which is in flower only, were cited by Kükenthal, Mitteil. Thüring. Bot. Ver. N. F. **50**: 9. 1943 as *F. cardiocarpa* F. Muell. The species is certainly allied to *F. pauciflora* R. Br., and but for the larger size resembles it rather closely in the nut and style. It differs, however, in the coarser habit, the leaf-sheaths disintegrating into fine reticulate fibres, the larger and relatively much broader spikelet, and the rather larger, more oblong, more obtuse single-nerved muticous glumes. It is also allied to the Australian *F. simplex* S. T. Blake, but the latter has rather prominently swollen culm-bases, sheaths splitting into straight fibres, 3–5-nerved brownish glumes, entirely glabrous rather stout style and more shining nut cuneate at its base. On the other hand *F. cardiocarpa* F. Muell. is an entirely different plant, differing in almost every respect except for the solitary spikelet and three stigmas.

Fimbristylis pauciflora R. Br. Prodr. 225. 1810; Kükenth. Mitteil. Thüring. Bot. Ver. N. F. **50**: 9. 1943.

Fimbristylis filiformis (Nees) Kunth, Enum. **2**: 221. 1837.
Scirpus pauciflorus (R. Br.) Poir. Encycl. Suppl. 98. 1817.
Trichelostylis filiformis Nees in Wight, Contrib. 102. 1834.

PAPUA: Western Division: Lake Daviumbu, Middle Fly R., *Brass 7531*, August 1936, savannahs, abundant on hard-pans and swamp margins; Gaima, Lower Fly R. (east bank), *Brass 8357*, Nov. 1936, covering patches of sour soil in savannah-forest (det. Uittien); Wuroi, Oriomo R., *Brass 5817*, Jan.–March 1934, alt. 10 m., plentiful, shaded ground on a clearing in savannah, flat spreading and rather fleshy.

Brass 7531 was recorded by Kükenthal, l.c., as new for New Guinea; previously known from northern and north-eastern Australia, other parts of Malaysia, and southern and eastern Asia.

Brass 5817 represents what appears to be the usual state in which three stigmas are present. In *Brass 7531* some flowers have two stigmas only, and flowers with two stigmas are the rule in *Brass 8357*. Nuts produced from flowers with three stigmas are always finely 3-ribbed and ± trigonous, though at times distinctly compressed. Three-ribbed nuts have also been observed produced from flowers with two stigmas, though biconvex two-ribbed nuts are more usual. Both trigynous and digynous flowers have been observed on a collection from Johore, *Ngadiman in Singapore Field No. 36784*.

Fimbristylis pumila Benth. Lond. Jour. Bot. **2**: 239. 1843, from Amboina, was later referred by its author in Fl. Austral. **7**: 303. 1878, and by C. B. Clarke in Hook. f. Fl. Brit. Ind. **6**: 633. 1893, to *F. pauciflora*. It was described as having a glabrous style with two stigmas and one-nerved oblong glumes, features which do not well accord with *F. pauciflora*.

Of the latter I have examined twelve good sets of specimens ranging from south-east Queensland to the Malay Peninsula, and in all these I find the style minutely ciliate and the glumes three- to seven-nerved and as much ovate as oblong. Bentham may have overlooked the minute sparse ciliation of the style, while the lateral nerves are often close to the keel of the glume.

Fimbristylis pauciflora is rather easily recognised by its small, unusually narrow, relatively few-flowered spikelets.

As a general rule in *Fimbristylis*, the number of stigmas is very constant in each species. *Fimbristylis pauciflora* shares with *F. tetragona* R. Br. the peculiarity of having either two or three stigmas. In *F. cymosa* R. Br., three stigmas occur in the lower part of the spikelet, but in the upper flowers there are often only two.

Fimbristylis recta F. M. Bail. 3rd Suppl. Syn. Queensl. Fl. 80. 1890; S. T. Blake, Proc. Roy. Soc. Queensl. **58**: 44. 1947.

Fimbristylis xyridis R. Br. var. *rigidula* Benth. Fl. Austral. **7**: 307. 1878.
Fimbristylis stricticulmis Domin in Biblioth. Bot. **20** (85): 452. 1915.

PAPUA: Western Division: Tarara, Wassi Kussa R., *Brass 8714*, Jan. 1937, savannah-forests, common in grass on ridges.

A distinctive species known previously only from northern Australia and Hammond Island in Torres Strait. It was discussed in some detail by S. T. Blake, l.c.

Sect. **Eufimbristylis** Boeck.

Fimbristylis ferruginea (L.) Vahl, Enum. **2**: 291. 1806; K. Schum. Notizbl. Bot. Gart. Mus. Berlin **2**: 98. 1898; in Schum. & Lauterb. Fl. Deutsch. Schutzgeb. Südsee 197. 1901; Valck. Suring. Nova Guin. Bot. **8**: 702. 1912; Kükenth. Bot. Jahrb. **59**: 48. 1924, **69**: 258. 1938.

Fimbristylis brevifolia R. Br. Prodr. 228. 1810.
Scirpus ferrugineus L. Sp. Pl. 74. 1753.
Scirpus brevifolius (R. Br.) Poir. Encycl. Suppl. **5**: 99. 1817.

PAPUA: Western Division: Gaima, Lower Fly R. (east bank), *Brass 8308*, Nov. 1936, common on open sandy foreshores; Gaima, Lower Fly R. (east bank), *Brass 8313*, Nov. 1936, common on sandy foreshores; Upper Wassi Kussa R. (left branch), *Brass 8642*, Jan. 1937, abundant in brackish swamp; Daru Island, *Brass 6212*, Feb. 1936, gregarious in limited pure stands, associated with *Zoysia pungens* on saline marshy ground; Daru Island, *Brass 6286*, March 1936, scattered in marginal shallows of large swamp. Central District: Kerema, *Brass 1224*, March 1926, on banks of tidal creeks; Arva R., *Carr 11436*, Feb. 1935, sea-level, marshy places near beach, about 18 in. tall (CANB; very young!).

Brass 1224 and *Carr 11436* are cited by Kükenthal, 1938, l.c.; *Brass 8313* was received as having been determined by Kükenthal as *F. ferruginea* Vahl var. *tristachya* (R. Br.) Domin. It represents a not uncommon state of the species with the inflorescence reduced to one or two spikelets, commonly seen on young or small plants. It seems pointless to

give such reduced states taxonomic status. I doubt very much whether it truly represents *F. tristachya* R. Br., and in any case, if this be regarded as a variety of *F. ferruginea*, the legitimate ternary combination would be *F. ferruginea* (L.) Vahl var. *foliata* Benth. Fl. Austral. 7: 312. 1878, the epithet *foliata* having priority in the required position. The other specimens were received as having been determined by Uittien. The species is widely spread in the warmer parts of the world.

Fimbristylis marianna Gaud. in Freyc. Voy. 413. 1826.

Fimbristylis maxima K. Schum. in Hollr. Fl. Kaiser Wilhelmsl. 24. 1889, in Schum. & Lauterb. Fl. Deutsch. Schutzgeb. Südsee 196. 1901; Valck. Suring. Nova. Guin. Bot. 8: 702. 1912; **syn. nov.**

PAPUA: Western Division: Lake Daviumbu, Middle Fly R., *Brass 7847*, *7878*, Sept. 1936, common on wet grass plains (both det. Kükenthal); Wuroi, Oriomo R., *Brass 5734*, Jan.–March 1934, alt. 10–30 m., common all through savannahs.

NORTH-EAST NEW GUINEA: Augusta R., *Hollrung 836*, in 1877 (MEL; duplicate TYPE of *F. maxima*).

New for Papua; elsewhere known from North-East New Guinea, Marianne Islands and Philippine Islands. I have relied on Kükenthal's determination of *Brass 7847* and *7878* for my concept of the species and the consequent reduction of *F. maxima* to synonymy.

Fimbristylis aestivalis (Retz.) Vahl, Enum. 2: 288. 1806.

Fimbristylis aestivalis (Retz.) Vahl f. *glabra* Kükenth. Bot. Jahrb. **59**: 49. 1924; **syn. nov.**

Scirpus aestivalis Retz. Obs. **4**: 12. 1786.

PAPUA: Western Division: Penzara, between Morehead and Wassi Kussa Rivers, *Brass 8438*, Dec. 1936, wet shaded banks of a permanent waterhole (det. Kükenthal).

Brass's plant, representing the usual pubescent state, forms the first record of the species for Papua. Kükenthal, l.c., records as f. *glabra* a glabrous form from North-East New Guinea. Elsewhere the species is known from Australia to southern and south-eastern Asia.

Fimbristylis annua (All.) R. & S. Syst. 2: 95. 1817.

Scirpus annuus All. Fl. Pedem. 2: 227. 1785.

PAPUA: Western Division: Wuroi, Oriomo R., *Brass 6069*, Jan.–March 1934, alt. 30 m., uncommon tufted species on savannah; Daru Island, *Brass 6248*, March 1936, common on damp soil in savannah-forest (det. Kükenthal as *F. diphylla* [Retz.] Vahl f. *tomentosa* [Vahl] Kükenth.); Daru Island, *Brass 6369*, March 1936, plentiful in drainage ditches in savannah-forest. Central Division: Baroka, Nakeo District, *Brass 3732*, April 1933, alt. 30 m., common, damp savannah flats, plant grayish.

For discussion, see under *F. dichotoma*.

Fimbristylis dichotoma (L.) Vahl, Enum. **2**: 287. 1806.

Fimbristylis diphylla (Retz.) Vahl, Enum. **2**: 289. 1806; K. Schum. in Warb. Bot. Jahrb. **13**: 265. 1891, Notizbl. Bot. Gart. Mus. Berlin **1**: 47. 1895, **2**: 97. 1898, in Schum. & Lauterb. Fl. Deutsch. Schutzgeb. Südsee 196. 1901; Valck. Suring. Nova Guin. Bot. **8**: 702. 1912; Ridl. Trans. Linn. Soc. II, Bot. **9**: 242. 1916.

Fimbristylis polymorpha Boeck. Linnaea **37**: 14. 1871, in Engl. Forschungsr. S. M. S. Gazelle **4** (1): 17. 1889.

Fimbristylis novae-brittaniae Boeck. Bot. Jahrb. **5**: 93. 1884, in Engl. Forschungsr. S. M. S. Gazelle **4** (1): 11. 1889; K. Schum. Bot. Jahrb. **9**: 195. 1888, Notizbl. Bot. Gart. Mus. Berlin **2**: 97. 1898, in Schum. & Lauterb. Fl. Deutsch. Schutzgeb. Südsee 196. 1901; Valck. Suring. Nova Guin. Bot. **8**: 703. 1912.

Fimbristylis annua (All.) R. & S. var. *diphylla* (Retz.) Kükenth. Bot. Jahrb. **59**: 47. 1924, *nomen* ex C. E. C. Fischer, Fl. Pr. Madras 1658. 1931.

NETHERLANDS NEW GUINEA: Balim R., *Brass 11731*, Dec. 1938, alt. 1600 m., common on grassy deforested slopes (leaves conspicuously hairy!); Balim R., *Brass 11816*, Dec. 1938, alt. 1600 m., common on sandy, long-deforested slopes, erect tufts 60–80 cm. high (leaves hairy!); Bele R., 18 km. NE. of Lake Habbema, *Brass 11489*, Nov. 1938, alt. 2200 m., common on grassy, formerly cultivated slopes, small clumps 60–80 cm. high (leaves glabrous!).

PAPUA: Western Division: Lake Daviumbu, Middle Fly R., *Brass 7927*, Sept. 1936, savannah, abundant on seepage area (plant almost entirely glabrous!; det. Uittien as *F. annua* [All.] R. & S.); Lake Daviumbu, Middle Fly R., *Brass 7521*, August 1936, savannah hard-pans (almost entirely glabrous!; det. Uittien as *F. annua* [All.] R. & S.); Gaima, Lower Fly R. (east bank) *Brass 8265*, Nov. 1936, open savannah-forest, plentiful in firm-set soil, inflorescence dark brown (leaves slightly hairy!; det. Uittien as *F. annua* [All.] R. & S.); Gaima, Lower Fly R. (east bank), *Brass 8307*, Nov. 1936, plentiful on open sandy foreshores (almost glabrous!; det. Uittien as *F. annua* [All.] R. & S.). Central Division: Kanosia, *Carr 11034*, Jan. 1935, sea-level, open places under light shade (glabrous!); Huia, *Brass 524*, October 1925, coast sand hills (nearly glabrous!); Baroka, Nakeo District, *Brass 3729*, April 1933, alt. 30 m., common, damp savannah flats (nearly glabrous!); Mafulu, *Brass 5480*, Sept.–Nov. 1933, alt. 1250 m., common on roadside (leaves ± hairy!); Mafulu, *Brass 5328*, Sept.–Nov. 1933, alt. 1250 m., grassy seepages on roadside, uncommon, plant bluish green, inflorescence erect (leaves distinctly hairy!); Mafulu, *C. T. White 600*, July–August 1918, alt. ca. 1200 m. (leaves distinctly hairy!).

Fimbristylis annua (All.) R. & S., *F. diphylla* (Retz.) Vahl and allied forms have been a fertile source of difficulty since the time of Linnaeus. According to C. B. Clarke in Thistleton-Dyer, Fl. Trop. Afr. **8**: 416. 1902, "some closely allied plants, esteemed mere forms of *F. diphylla* by Kunth and Boeckler, are here regarded as distinct; even thus narrowed down, our *F. diphylla* has 140 names. It should, moreover, be understood that *F. diphylla* is so close to the preceding *F. dichotoma* that different cyperologists sort the material, as between these two, differently." On the pre-

ceding page Clarke cites *Scirpus annuus* All. (which is *Fimbristylis annua* [All.] R. & S.) as a synonym.

According to C. E. C. Fischer, Kew Bull. 1935: 149–50. 1935, the type of *Scirpus diphyllus* Retz. and consequently of *Fimbristylis diphylla* (Retz.) Vahl is identical with the type of *Scirpus dichotomus* L., so that the plant which has been called *F. diphylla* (Retz.) Vahl must be called *F. dichotoma* (L.) Vahl. Another name thus has to be applied to the plant which has been passing under the name of *F. dichotoma* (L.) Vahl, and according to Fischer, l.c., p. 149, the legitimate combination is *Fimbristylis bisumbellata* (Forsk.) Bubani.*

To my mind, *F. annua* (All.) R. & S. is conspecific with *F. depauperata* R. Br., and I have suggested previously, Univ. Queensl. Papers Dept. Biol. 1(13): 3. 1940, that this is specifically distinct from *F. dichotoma* (*F. diphylla*), differing in the constantly annual habit, the softer and softly hairy leaves and bracts, the more or less hairy culms and rays, the glumes often minutely ciliolate at the upper edge, the cells composing the glumes less distinctly oblong (more nearly square) in shape, and in the relatively shorter and broader style. *Fimbristylis dichotoma* has sometimes hairy leaf-blades and more rarely hairy culms, but the hairs are more rigid and the blades stiffer than in *F. annua*. In this restricted sense, *F. annua* seems to have been previously unknown from New Guinea.

Fimbristylis dichotoma, or allied forms, has been reported under other names from New Guinea, apart from those recorded in the synonymy above. Of some of these I am uncertain of the taxonomic status, and some seem to be invalid names.

Fimbristylis dipsacea (Rottb.) C. B. Clarke in Hook. f. Fl. Brit. Ind. 6: 635. 1895.

Scirpus dipsaceus Rottb. Descr. et Ic. 56, *t. 12*, *fig. 1*. 1773; F. Muell. Pap. Pl. 2: 35. 1886.

Echinolytrum dipsaceum (Rottb.) Desv. Jour. Bot. 1: 21, *t. 1*. 1808.

Isolepis dipsacea (Rottb.) R. & S. Syst. 2: 119. 1811.

PAPUA: Western Division: Strickland R., *Bäuerlen* in 1885 (BRI, MEL).

This collection, the only one recorded for New Guinea, was recorded by Mueller, l.c., as *Scirpus dipsaceus*. The formal transfer of the species to *Fimbristylis* was made by C. B. Clarke, l.c., though this author there cited Benth. in Gen. Pl. 3: 1049. Bentham gave reasons why it should be placed under *Fimbristylis*, but did not make the transfer.

Sect. **Trichelostylis** (Lestib.) A. Gray

Fimbristylis signatus nom. nov.

* From Fischer's data, it is doubtful if this combination was validly published by Bubani; I have not seen the publication.

Fimbristylis debilis F. Muell. Fragm. Phyt. Austr. **1**: 198. 1859, non Steud. Syn. Cyper. 109. 1855.

Iriha debilis (F. Muell.) O. Ktze. Rev. Gen. Pl. **2**: 753. 1891.

PAPUA: Western Division: Daru Island, *Brass 6250*, March 1936, frequent on damp soil in savannah-forest.

New for New Guinea; previously known only from northern Australia.

Fimbristylis eragrostis (Nees & Meyen) Hance, Jour. Linn. Soc. Lond. **13**: 132. 1873; Kükenth. Mitteil. Thüring. Bot. Ver. N. F. **50**: 9. 1943.

Abildgaardia eragrostis Nees & Meyen in Wight, Contrib. 95. 1834.

PAPUA: Western Division: Tarara, Wassi Kussa R., *Brass 8405*, Dec. 1936, savannah-forest, common on sour gray soil; Wuroi, Oriomo R., *Brass 5706*, Jan.–March 1934, alt. 10–30 m., common on lower savannah ridges. Central Division: Astrolabe Range, *W. E. Armit* in 1894–5 (MEL). South-Eastern Division: Sud-est Island, *W. MacGregor* in 1889 (MEL).

Brass 8405 was cited by Kükenthal, l.c., as new for New Guinea. The species extends northwards to China and southwards to Queensland.

Fimbristylis globulosa (Retz.) Kunth, Enum. **2**: 231. 1837; Kükenth. Bot. Jahrb. **59**: 49. 1924, **69**: 258. 1938; Ohwi, Bot. Mag. Tokyo **56**: 202. 1942.

Scirpus globulosus Retz. Obs. **6**: 19. 1791.

NETHERLANDS NEW GUINEA: Bernhard Camp, Idenburg R., *Brass 14087*, April 1939, alt. 50 m., on thick beds of floating grass (*Leersia*) in a lagoon, erect in large clumps about 1.2 m. high.

PAPUA: Western Division: Lake Daviumbu, Middle Fly R., *Brass 7604*, August 1936, occasional on floating islands of swamps and lagoons.

New for Papua. Previously known from Netherlands New Guinea (Ohwi, l.c.), North-East New Guinea, New Ireland, Micronesia, Philippine Islands, Malaya and India.

Fimbristylis insignis Thw. Enum. Pl. Zeyl. 349. 1864.

PAPUA: Western Division: Mai Kussa R., *W. MacGregor* in 1890 (MEL).

New for New Guinea. Originally described from Ceylon and since reported from China, Borneo and Queensland. MacGregor's specimen was written up by F. Mueller simply as "Fimbristylis."

Fimbristylis complanata (Retz.) Link, Hort. Berol. **1**: 292. 1827; Valck. Suring. Nova Guin. Bot. **8**: 703. 1912; Palla in Rechinger, Denkschr. Math.-Naturw. Kais. Akad. Wiss. Wien **89**: 498. 1913.

Scirpus complanatus Retz. Obs. **5**: 14. 1789.

Fimbristylis autumnalis (L.) R. & S. var. *complanata* (Retz.) Kükenth. Bot. Jahrb. **59**: 50. 1924.

PAPUA: Central Division: Port Moresby, *C. T. White 4*, July–August 1918.

New for Papua, but known from most of the warmer parts of the Old World. It is probably this species which was recorded as *Fimbristylis autumnalis* (L.) R. & S. by Warburg, Engl. Bot. Jahrb. **18**: 186. 1893 and by K. Schumann and Lauterbach, Fl. Deutsch. Schutzgeb. Südsee 196. 1901.

Fimbristylis microcarya F. Muell. Fragm. Phyt. Austr. 1: 200. 1859.

Fimbristylis autumnalis (L.) R. & S. var. *microcarya* (F. Muell.) Kükenth. Bot. Jahrb. **69**: 258. 1938.

PAPUA: Central Division: Port Moresby, *Carr 11847*, April 1935, open savannah land by the sea (CANB).

This collection was cited by Kükenthal, l.c., as *F. autumnalis* (L.) R. & S. var. *microcarya* (F. Muell.) Kükenth., comb. nov. It is the only specimen I have seen from outside Australia, though according to C. B. Clarke in Hook. f. Fl. Brit. Ind. **6**: 646. 1893 (where it is treated as a variety of *F. complanata* [Retz.] Link) the species extends to India. My reasons for regarding *F. microcarya*, *F. complanata*, and *F. autumnalis* as distinct species are given in Proc. Roy. Soc. Queensl. **48**: 93. 1937.

Fimbristylis salbundia Kunth, Enum. 2: 230. 1837.

PAPUA: Central Division: Urunu, Vanapa Valley, *Brass 4805*, July–August 1933, alt. 1900 m., common species in small swamps on grass country.

New for New Guinea; known previously from Assam and Burma. C. B. Clarke in Hook. f. Fl. Brit. Ind. **6**: 647. 1893 and ex Domin, Biblioth. Bot. **85**: 463. 1915, recorded it from Australia. Domin quoted a collection from the Victoria R., *F. Mueller*, but the specimens belong to *F. trachycarya* F. Muell., a species discussed by me in Proc. Roy. Soc. Queensl. **48**: 92. 1937. Brass's specimen agrees with pieces of *Wallich 3526* ex herb. Berlin and ex herb. Kew, cited in the original description and by C. B. Clarke, l.c.

Fimbristylis miliacea (L.) Vahl, Enum. 2: 287. 1806, quoad basonym.

Scirpus miliaceus L. Syst. Veg. **10**: 868. 1759.
Isolepis miliacea (L.) Presl. Rel. Haenk. **1**: 188. 1830.
Trichelostylis miliacea (L.) Nees in Wight, Contrib. 103. 1834, quoad basonym.
Iriha miliacea (L.) O. Ktze. Rev. Gen. Pl. **2**: 752. 1891.
Scirpus bengalensis Pers. Syn. **1**: 68. 1805.
Fimbristylis ? bengalensis (Pers.) R. & S. Syst. **2**: 94. 1817.
Scirpus quinquangularis Vahl, Enum. **2**: 279. 1806; **syn. nov.**
Trichelostylis quinquangularis (Vahl) Nees in Wight, Contrib. 104. 1834; **syn. nov.**

Fimbristylis quinquangularis (Vahl) Kunth, Enum. **2**: 229. 1837; **syn. nov.**
Iriha quinquangularis (Vahl) O. Ktze. Rev. Gen. Pl. **2**: 752. 1891; **syn. nov.**
Scirpus pentagonus Roxb. Fl. Ind. **1**: 229. 1820; ed. Carey **1**: 218 (1831); **syn. nov.**
Isolepis ? pentagona R. & S. Syst. Mant. **2**: 69. 1824; **syn. nov.**
Fimbristylis boeckeleri Steud. Syn. Cyp. 113. 1855; **syn. nov.**

PAPUA: Central Division: Baroka, *Brass 3733*, April 1933, alt. 30 m., common on damp savannah flats, plant pale green.

A widely spread species not previously recorded for New Guinea. The application of the name is explained under the following species.

Fimbristylis littoralis Gaud. in Freyc. Voy. Bot. 413. 1826.

Scirpus tetragonus Poir. Encycl. **6**: 767. 1804, nec (R. Br.) Poir. Encycl. Suppl. **5**: 98. 1817, nec *Fimbristylis tetragona* R. Br. 1810.
Scirpus tetragonus Roxb. Fl. Ind. **1**: 232. 1820; ed. Carey **1**: 228. 1832.
Isolepis ? tetragona R. & S. Syst. Mant. **2**: 69. 1824.
Fimbristylis tetragona A. Dietr. Sp. Pl. **2**: 152. 1833, non R. Br. 1810.
Fimbristylis flaccidula Zoll. Syst. Verz. Ind. Archip. **2**: 61. 1854.
Fimbristylis flaccida Steud. Syn. Cyp. 113. 1855.
Fimbristylis quadrangularis A. Dietr. ex Steud. Syn. Cyp. 114. 1855.

NETHERLANDS NEW GUINEA: Bernhard Camp, Idenburg R., *Brass 13780*, April 1939, frequent on logs floating in lagoons and backwaters at 50 m. alt.

PAPUA: Western Division: Palmer R., 1 mi. above junction with Black R., *Brass 6946*, June 1936, abundant on silt-covered gravel banks; Strickland R., *W. Bäuerlen 22*, July 1885 (BRI, MEL); Strickland R., *W. Bäuerlen 529*, Nov. 1885, on river banks (MEL); Gaima, Lower Fly R. (east bank), *Brass 8310*, Nov. 1936, common on open sandy foreshores; Daru Island, *Brass 6042*, March 1934, very common on swampy savannahs. Central Division: Thu, Vaitata R., *Brass 1016*, Feb. 1926, in the sago swamps; Laloki R., *C. T. White 173*, July–August 1918.

This is the widely spread plant commonly called *Fimbristylis miliacea* (L.) Vahl; *Brass 6946, 8310* had been so determined by Uittien, and the species has been recorded for New Guinea under this name by F. Muell. Pap. Pl. **2**: 35. 1886; K. Schum. Notizbl. Bot. Gart. Mus. Berlin **2**: 98. 1898, in Schum. & Lauterb. Fl. Deutsch. Schutzgeb. Südsee 197. 1901; Valck. Suring. Nova Guin. Bot. **8**: 703. 1912; and Kükenth. Bot. Jahrb. **59**: 50. 1924; also *F. miliacea* forma *tenerrima* Valck. Suring., l.c., Kükenth., l.c.

C. B. Clarke, Jour. Linn. Soc. Lond. **30**: 312. 1894, stated that the type of *Scirpus miliaceus* L. is a plant of *Fimbristylis quinquangularis* (Vahl) Kunth. Through the kindness of Dr. E. D. Merrill and Dr. L. M. Perry, I have seen a small photograph of the Linnaean type, but unfortunately the photograph is not sufficiently sharp for critical comparison with specimens. Through the courtesy of the Director of the Royal Botanic Gardens, Kew, Mr. E. Nelmes kindly compared some Australian specimens with the Linnaean type. Mr. Nelmes reported as follows:

> I have examined the "type" specimen of *Scirpus miliaceus* in the Linnaean herbarium and agree with C. B. Clarke that it represents the species generally known as *Fimbristylis quinquangularis* (Vahl) Kunth. It is a good match of Mr. S. T. Blake's specimen, no. 11319.
>
> Linnaeus has written "miliaceus" on the sheet, and I think the specimen may be accepted as his type. There is, however, another Linnaean specimen, placed next after the type, which has some bearing on this matter, because it is the species which has always been known as *Scirpus miliaceus* L., agreeing well with Mr. Blake's nos. 7818, 8195, and 8784. C. B. Clarke . . . . does not mention this second sheet, probably because it bears no inscription by Linneaus. . . .

The combination *Fimbristylis miliacea* based on Linnaeus' name must be restricted to the species represented by Linnaeus' type, i.e., to the plant commonly called *F. quinquangularis*; no other course can be taken that would be in accord with the International Rules of Nomenclature. C. B. Clarke's suggestion, l.c., that Linnaeus would surely have esteemed the two as one species, does not warrant the deliberate continuance of the misapplication of the name. N. L. Burman, Fl. Ind. *22, t. 9, fig. 2.* 1768, seems to have been the first to misapply Linnaeus' name, and since then the misapplication has been scarcely questioned.

Several names have been applied to one or other of the two species commonly known as *F. miliacea* and *F. quinquangularis*. Of these only *Scirpus miliaceus* L., *Scirpus bengalensis* Pers., *Scirpus quinquangularis* Vahl, *Scirpus pentagonus* Roxb., *Fimbristylis boeckeleri* Steud., *Fimbristylis flaccida* Steud., and *Fimbristylis flaccidula* Zoll. were based on specimens, and they are the basonyms of the remaining names. I have seen types of a portion thereof of *S. bengalensis* (L), *S. quinquangularis* (C), *F. littoralis* (P) and *F. flaccida* (P). *Fimbristylis flaccida* and *F. flaccidula* were probably based on the same collection, but I have not been able to verify this. *Scirpus tetragonus* Poir. and *S. tetragonus* Roxb. were described quite independently of each other; from the descriptions and specimens from the type-localities there seems no doubt as to the interpretations of these names or of *F. boeckeleri.* I am not so sure of *S. pentagonus*, though the description applies well enough to the leafless states of the species commonly called *Fimbristylis quinquangularis. Blake 11319*, matched with the type of *S. miliaceus*, also matches the type of *S. quinquangularis.*

Another name must be found for the species commonly called *Fimbristylis miliacea.* The earliest epithet in the required position is in the combination *Scirpus tetragonus* Poir. Encycl. 6: 767. 1804, but this is not available under *Fimbristylis* because of *F. tetragona* R. Br. and upon which Poiret's later homonym was based in 1817. The next is in *Fimbristylis littoralis* Gaud., and this appears to be the correct name for the species. *Scirpus bengalensis* Pers. has been generally referred to this species, but Persoon's description ("involucro tetraphyllo spiculis. . . . ovatis (minutis): squamis concavo-carinatis mucronatis") agrees better

with true *Fimbristylis miliacea*; a recent examination of the type (L) confirms this.

Two other names require mention. "*Fimbristylis angularis* Steud." Syn. Cyp. 116. 1855 has been referred to *F. miliacea* (*F. quinquangularis*) by some. Steudel's combination was based on *Isolepis angularis* Schrad. ex R. & S. Syst. Mant. 2: 69. 1824, which appears to have been based on *Fimbristylis angularis* Link, Enum. Hort. Berol. 1: 289. 1821, so that Steudel's transfer was quite unnecessary. Boeckeler's description (Linnaea 37: 30–31. 1871) of what appears to be Link's type refers to some other species, particularly as to the long bracts, relatively large spikelets and sometimes bifid styles. *Fimbristylis trachycarya* F. Muell. Fragm. 1: 199. 1859, sometimes referred to *F. littoralis*, belongs to an endemic Australian species which has been discussed elsewhere (S. T. Blake, Proc. Roy. Soc. Queensl. 48: 92. 1937).

Fimbristylis littoralis and *F. miliacea* do not differ greatly in spikelet structure, though the more or less globular, very obtuse, scarcely at all angular spikelets of the former with their muticous and more or less concave glumes are, with a little experience, readily enough distinguished from the ovoid, less obtuse, more distinctly angular spikelets of the latter with their rather prominently keeled, more or less distinctly apiculate glumes. The foliage of the two species is markedly dissimilar, but is sometimes poorly developed. The leaves of *F. littoralis* are vertically flattened, finely striate without prominent veins, with rather thin edges, and are usually borne as distichous, more or less flabellate tufts between the culms. The leaves of *F. miliacea* are of the usual *Fimbristylis* type, dorso-ventrally flattened with a prominent midrib and rib-like margins. The revised synonymy of the two species is given above.

Fimbristylis furva R. Br. Prodr. 228. 1810.

PAPUA: Western Division: Mai Kussa R., *W. MacGregor* in 1890 (MEL).

Previously known only from Queensland, including islands in Torres Strait.

Fimbristylis pycnocephala Hillebr. Fl. Haw. Isl. 473. 1888.

Fimbristylis cymosa R. Br. var. *capitato-umbellata* Hillebr. Fl. Haw. Isl. 473. 1888; **syn. nov.**

Fimbristylis cymosa R. Br. var. *subcapitata* C. B. Clarke ex Hemsl. Jour. Linn. Soc. Lond. 30: 197. 1894.

Fimbristylis cymosa R. Br. var. *pycnocephala* (Hillebr.) Kükenth. in Cristophersen, Bull. Bishop Mus. 128: 20. 1935.

SOLOMON ISLANDS: Ulawa, *Brass 2990*, October 1932, ocean foreshore, common.

New for the Solomon Islands; previously known from the Hawaiian Islands (!), Tonga (!), New Caledonia and Samoa.

In this species, the spikelets may all be aggregated in a single dense head or clustered on the rays of an umbel-like inflorescence; all intermediate states occur. Hawaiian plants with the looser inflorescences were referred by Hillebrand to *F. cymosa* R. Br. and *F. cymosa* var. *capitato-umbellata*, but all states of *F. pycnocephala* may be distinguished from the Australian *F. cymosa* as follows:

Spikelets ± oblong; broad, hyaline margins of glumes loosely reticulate; nut somewhat shining, smooth or minutely striate only, the epidermal cells minute, square or nearly so, arranged in fairly regular vertical series but the transverse arrangement ± irregular ..... *F. pycnocephala.*

Spikelets ovoid; broad, hyaline margins of glumes not evidently reticulate, the cells composing them very small with inconspicuous margins; nut somewhat roughened, rather indistinctly striate vertically and horizontally, the minute epidermal cells transversely narrowly oblong, arranged regularly in both vertical and horizontal series ..... *F. cymosa.*

Sect. **Abildgaardia** (Vahl) Benth.

Fimbristylis cinnamometorum (Vahl) Kunth, Enum. 2: 229. 1837; Kükenth. Mitteil. Thüring. Bot. Ver. N. F. 50: 9. 1943.

Scirpus cinnamometorum Vahl, Enum. 2: 278. 1806.
Fimbristylis cyperoides R. Br. Prodr. 228. 1810.

PAPUA: Western Division: Tarara, Wassi Kussa R., *Brass 8408*, Dec. 1936, savannah-forest, abundant on wet flats; Lake Daviumbu, Middle Fly R., *Brass 7876*, Sept. 1936, occasional in small erect tufts on wet grass plains; Gaima, Lower Fly R. (east bank), *Brass 8262*, Nov. 1936, plentiful on hard soil in open savannah-forests.

These are the only collections known from New Guinea, though the species is known to range from NE. Australia to Ceylon and SE. Asia.

Fimbristylis cinnamometorum and *F. cyperoides* have sometimes been treated as distinct species on the grounds that the former (from Ceylon, Pegu and China) is an annual, while the latter (from Australia to the Philippine and Caroline Islands) has a prominent rhizome. But the type of *Scirpus cinnamometorum* (C) is from a perennial plant and is well matched by many Australian specimens; the degree of development of a rhizome depends on the age of the plant and varies greatly in herbarium material.

Fimbristylis stenochlaena Kükenth. Mitteil. Thüring. Bot. Ver. N. F. 50: 11. 1943.

PAPUA: Western Division: Lake Daviumbu, Middle Fly R., *Brass 7840*, Sept. 1936, very abundant on wet grass plains, leaves of young plants arranged spirally in a flat rosette (TYPE collection).

The plants seen by me appear to be somewhat larger than those seen by Kükenthal, 30–50 cm. high, with asperulous many-ribbed rather than smooth obsoletely pentagonal sulcate culms, with 9 or 10 (not 4–6)

-rayed inflorescences with rather longer and broader mature spikelets 9–11 mm. long and 2–3 mm. wide (described by Kükenthal as 8–9 mm. long and 1.5–2 mm. wide). I find the glumes acute and more or less cuspidulate rather than long acuminate, and the nuts (five examined) obovoid, not at all pyriform, 0.8 mm. long, 0.55 mm. wide.

Fimbristylis fusca (Nees) C. B. Clarke in Hook. f. Fl. Brit. Ind. **6**: 649. 1893.

Abildgaardia fusca Nees in Wight, Contrib. Bot. Ind. 95. 1834.

NETHERLANDS NEW GUINEA: Balim R., *Brass 11744*, Dec. 1938, alt. 1600 m., common among the grass on long-deforested slopes.

New for New Guinea; previously known from India and the Philippine Islands to Java and the Moluccas. The plants are glabrous.

Clarke, l.c., cites "Benth. in Gen. Pl. iii. 1048" as the author of the combination, but Bentham here merely reduces the genus *Abildgaardia* to a section of *Fimbristylis*. In Index Kewensis, Suppl. **4**: 92. 1913 the author of the combination is given as "*Benth. ex C. B. Clarke in Hook. f. Fl. Brit. Ind.* vi. 649 (1893)."

Fimbristylis fimbristyloides (F. Muell.) Druce, Rep. Bot. Exch. Club Brit. Isles **1916**: 623. 1917.

Abildgaardia fimbristyloides F. Muell. Fragm. Phyt. Austr. **8**: 273. 1874.

PAPUA: Central Division: Rona, Laloki R., *Brass 3576*, April 1933, alt. 450 m., common, wet places on open grassy hillsides.

New for New Guinea; previously known only from northern Queensland.

Fimbristylis intonsa sp. nova (Sect. *Abildgaardia*). Fig. 2.

Herba annua, usque ad 16 cm. alta. Culmi fasciculati, setacei, stricti, erecti, quinquangulares angulis angustis elevatis sursum scabris. Folia pauca, usque ad 5 cm. longa, culmi tertiam partem raro adaequantia, 1–2 mm. lata, caulina 1–2; vaginae striatae, antice hyalinae, summa prope orificem pubescens, ceterae glabrae; laminae lineares, sursum admodum angustatae, apice obtusae vel acutae, falcatae vel tortuosae, planae vel incurvae, coriaceae, haud carinatae, paucinerves, marginibus leviter incrassatae sursum scabrae, supra prominule subtus indistincte cellulosoreticulatae, eae foliorum caulinorum saepe multo breviores angustioresque. Anthela simplex vel composita, 2–7-radiata, laxa. Bracteae 1–2 infimae subfoliaceae usque ad 12 mm. longae, vel omnes setaceae, saepe minimae; bracteolae minimae. Radii setacei, compressi, scabri, usque ad 2.5 cm. longi; radioli suberecti, usque ad 7 mm. longi. Spiculae oblongae, acutae, compressae, saepe tortae, 5–8 mm. longae, 1.5–1.8 mm. latae, multi- et densiflorae; rhachilla excavata alata. Glumae distichae vel sursum specie laxe spiraliter dispositae, brunneae vel ferrugineae, latissime ovatae,

obtusae, mucronatae, 1-nerves, carinatae carina curva sursum valida excurrente, fere omnino albo-pubescentes, marginibus vix hyalinis ciliatae, 1.7–1.8 mm. longae, cellulis minutissimis; 1–2 infimae vacuae minores. Stamina 3; antherae lineares, apiculatae, 0.5 mm. longae; filamenta lata. Stylus pro ratione robustus, triquetrus, basi latiuscule pyramidatus, omnino glaber, 1 mm. longus; stigmata 3, stylo breviora. Nux albida, obovoidea fere ellipsoidea, utrinque rotundata apice leviter umbonulata, minime stipitata, obtuse trigona angulis haud prominulis, lateribus convexulis, verrucosa, 0.7 mm. longa, 0.5 mm. lata, cellulis extimis hexagonis parvis indistinctis.

PAPUA: Western Division: Lake Daviumbu, Middle Fly R., *Brass 7841*, Sept. 1936, very common on wet grassy plains (TYPE).

This collection was labelled "Fimbristylis disticha Boeck. (det. Kükenthal)." It is certainly allied to *F. disticha* Boeck., but to judge from the piece of the type of this species in herb. Brisbane ex herb. Berlin, it differs in the broader, more coarsely keeled, prominently mucronate and densely pubescent glumes and the broader, more ellipsoid nut not cuneate but rounded at the base, less distinctly ribbed at the angles and with hexagonal rather than oblong external cells. According to C. B. Clarke in Hook. f. Fl. Brit. Ind. 6: 651. 1893, the glumes of *F. disticha* are minutely ciliate at the margins, but I find them glabrous. Kükenthal, Bot. Jahrb. 59: 50. 1924, and 69: 258. 1938, has recorded *F. disticha* from North-East New Guinea, but I have not seen these specimens.

The species of sect. *Abildgaardia* discussed may be distinguished as follows:

Leaves setaceous, at least half as long as culm, more or less distichous; basal sheaths ± horny; glumes scabrous with reddish glands; nut (0.8–1 mm. long) with the external cells transversely oblong. . . . . *F. cinnamometorum.*

Leaves flat, at least 1 mm. wide, less than half and sometimes scarcely one quarter as long as culm, spirally arranged, often falcate; basal sheaths not horny, prominently nerved; glumes not (or in *F. fusca* very rarely) glandular, usually pubescent (except in *F. disticha*); nut (0.6–1 mm. long) with the external cells hexagonal, not or but slightly elongated transversely.

Glumes 3–5 mm. long, the upper ones somewhat spiral; style 3–4 mm. long, 3–6 times as long as the obovoid nut; perennial (? always).

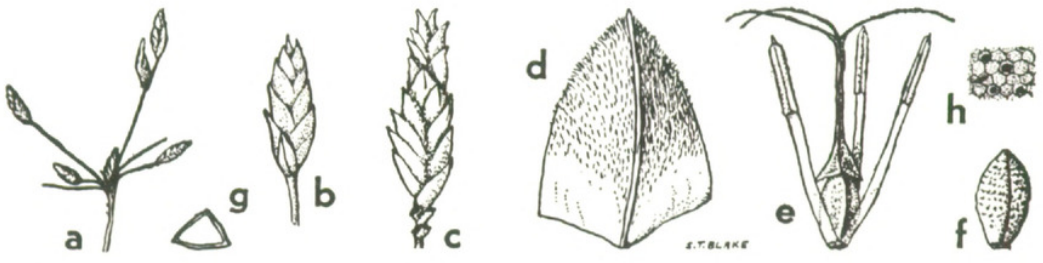

FIG. 2. *Fimbristylis intonsa* S. T. Blake: a. inflorescence, × 1; b., c. spikelets, × 3; d. glume, × 15; e. flower, × 15; f. nut, × 15; g. transverse section of nut; h. surface of nut, × 40. Figures from type.

Glumes about half as wide as long, 4–5 mm. long; style 4 mm. long; culms many-ribbed; leaves 1.5–4 mm. wide; spikelets 2–3 mm. wide. ..... *F. stenochlaena.*

Glumes more than half as wide as long, 3–4 mm. long; style about 3 mm. long; culms 5-ribbed; leaves 2 mm. wide; spikelets 1.5–2 mm. wide. ..... *F. fusca.*

Glumes up to 2.5 mm. long, regularly distichous, but the whole spikelet sometimes twisted; style 1–1.3 mm. long, less than twice as long as nut; annual plants.

Glumes glabrous, muticous or nearly so, acute, the keel slightly curved, 1.6–1.7 mm. long; nut narrowly obovate, cuneate to a very narrow base, about 0.6 × 0.35 mm. ..... *F. disticha.*

Glumes puberulous or rarely glabrous, acute, mucronulate, the keel straight or nearly so, 2–2.5 mm. long; nut broadly obovate, somewhat attenuate above the broad truncate base, about 0.75 × 0.55 mm. ..... *F. fimbristyloides.*

Glumes densely pubescent with ciliolate scarcely hyaline margins, very broad and very obtuse, rather coarsely mucronulate, the keel curved, 1.7–1.8 mm. long; nut obovate, rounded to the base, 0.7 × 0.5 mm. ..... *F. intonsa.*

Scleria Bergius

There is no recent general account of the species of *Scleria* in the Malaysian-Australian region. A revision of the Australian species was commenced some years ago and has been intensified and expanded more recently to include the Malaysian species. The following account of the Brass collections is really a preliminary revision of all the species known from New Guinea. It would seem that a large number of names for alleged new species have been based on far too scanty material, and that very little attention has been paid to individual variation. Misapplications of names have been fairly frequent; it would appear that some early botanists did not see the types of the names proposed by their predecessors (which are frequently scrappy in any case), and their often faulty identifications were blindly accepted by later botanists, possibly for want of better evidence. I have been fortunate in seeing types or isotypes of a goodly proportion of the names mentioned in this paper; of others I have seen topotypes — specimens from the type-locality which agree with the original description. Although an extensive series of specimens from Australia, Malaysia and elsewhere has now been examined, study of further material, particularly from India, may demand modifications of some of the conclusions published in this paper.

A curious fact is that there appears to be no endemic species in New Guinea. Of the thirteen accepted species, all but one (*S. polycarpa*) occur elsewhere in Malaysia and all but two or three (*S. pergracilis*, *S. motleyi* and, perhaps, *S. tessellata*) occur in Australia, some of them extending further eastward.

Scleria pergracilis (Nees) Kunth, Enum. Pl. **2**: 354. 1837.

Hypoporum pergracile Nees, Edinb. New Philipp. Jour. **17**: 267. 1834.

NORTH-EAST NEW GUINEA: Kani Hills near Ongoruna (Unguruna) Village, *Lane-Poole 635*, Feb. 1924 (has as strong a lemon-verbena scent as to make a whole hill-top perfumed); Partep, *Commonwealth Nutritional Survey N. S. P. 69, N. S. P. 92.*

New for New Guinea; previously known from Tropical Africa, India and Ceylon.

Scleria lithosperma (L.) Sw. Prodr. Veg. Ind. Occid. **18.** 1788; Boeck. in Engl. Forschungsr. S. M. S. Gazelle **4** (1): 18. 1889; K. Schum. & Lauterb. Nachtr. Fl. Deutsch. Schutzgeb. Südsee 60. 1905; Valck. Suring. Nova Guin. Bot. **8**: 711. 1902; Kükenth. Bot Jahrb. **59**: 58. 1924; Ohwi, Bot. Mag. Tokyo **56**: 212. 1942.

Scirpus lithospermus L. Sp. Pl. ed. 1: 51. 1753.
Schoenus lithospermus (L.) L. Sp. Pl. ed. 2: 65. 1762.
Scleria tenuis Retz. Obs. **4**: 13. 1786.
Scleria capillaris R. Br. Prodr. 240. 1810.
Scleria wightiana Steud. Syn. Cyp. 176. 1855.
Hypoporum lithospermum Nees in Mart. Fl. Brasil. **2** (1): 172. 1842.
Hypoporum capillare (R. Br.) Nees, Linnaea **9**: 303. 1834.

NORTH-EAST NEW GUINEA: New Britain, *Parkinson* in 1885 (MEL).

PAPUA: Western Division: Lower Fly R., east bank opposite Sturt Island, *Brass 8059*, Oct. 1936, rain-forest, tufts 60–80 cm. high, forming a scant ground cover on dry ridges; Daru Island, *Brass 6259*, March 1936, common along edge of rain-forest. Eastern Division: Lower Mori R., *Brass 1634*, June 1926, on rain-forest floor.

Cosmotropical. Further synonyms are listed by Core, Brittonia **2**: 27–8. 1936. *Brass 6259, 8059* had been determined by Kükenthal.

Scleria roxburghii (C. B. Clarke) Domin, Biblioth. Bot. **85**: 487. 1915.

Scleria lithosperma (L.) Sw. var. *β* Thw. Enum. Pl. Zeyl. 354. 1864.
Scleria lithosperma (L.) Sw. var. *roxburghii* C. B. Clarke in Hook. f. Fl. Brit. Ind. **6**: 686. 1894.
Scleria lithosperma (L.) Sw. var. *linearis* Benth. Fl. Austral. **7**: 430. 1878.
Scleria roxburghii (C. B. Clarke) Domin var. *australiensis* Domin, Biblioth. Bot. **85**: 487. 1915; **syn. nov.**
Hypoporum roxburghii Nees ex C. B. Clarke in Hook. f. Fl. Brit. Ind. **6**: 686. 1894, in syn.
Hypoporum roxburghiana Nees ex Boeck. Linnaea **38**: 452. 1874, in syn.

PAPUA: Western Division: Tarara, Wassi Kussa R., *Brass 8504*, Dec. 1936, rain-forest, dense tufted ground cover 50–60 cm. high, in partial shade. Central Division: Baroka, Nakeo district, *Brass 3774*, April 1933, alt. 30 m., common in brushy rain-forest and on garden clearings; Port Moresby to Kalo, *MacGregor* in 1889 (MEL).

New for New Guinea. Known elsewhere from Queensland, Philippine Islands, India and Ceylon.

Scleria motleyi C. B. Clarke, Philipp. Jour. Sci. **2** (C): 104. 1907; Ohwi, Bot. Mag. Tokyo **56**: 213. 1942.

Scleria motleyi C. B. Clarke var. *densi-spicata* C. B. Clarke, Philipp. Jour. Sci. **2** (C): 104. 1907; **syn. nov.**
Scleria trigonocarpa Ridl. Jour. Str. Branch Roy. As. Soc. **46**: 228. 1906, *nomen*, Mater. Fl. Malay. Pen. (Monocot.) **3**: 110. 1907; non Steud. 1855.
Scleria trigona Merr. Philipp. Jour. Sci. **8** (C): 363. 1913.
Scleria gonocarpa Ridl. Fl. Malay Pen. **5**: 177. 1925; **syn. nov.**
Scleria sorsogonensis Elmer ex Merr. Enum. Philipp. Fl. Pl. **1**: 134. 1922, in obs., pro syn.; Elmer, Leafl. Philipp. Bot. **10**: 3541. 1938, descr. anglice.
Scleria subrostrata Elmer, Leafl. Philipp. Bot. **10**: 3542. 1938, in obs., pro syn.

NETHERLANDS NEW GUINEA: Hollandia and vicinity, *Brass 8870*, June–July 1938, alt. 100 m., rain-forest, tufted floor plant on sharp ridge crests.

Previously recorded by Ohwi, l.c., for Netherlands New Guinea; elsewhere known from Malaya, Borneo and Philippine Islands.

Scleria tessellata Willd. Sp. Pl. **4**: 315. 1805; K. Schum. in Warb. Bot. Jahrb. **13**: 267. 1891; Valck. Suring. Nova Guin. Bot. **8**: 712. 1912.

Scleria parvula Steud. Syn. Cyp. 174. 1855.
Scleria uliginosa Hochst. ex Boeck. Linnaea **38**: 471. 1874.

PAPUA: Western Division: Lake Daviumbu, Middle Fly R., *Brass 7527*, August 1936, sporadic on savannahs; Lake Daviumbu, Middle Fly R., *Brass 7875*, Sept. 1936, sporadic on wet grass plains, erect in small tufts; Lake Daviumbu, Middle Fly R., *Brass 7963*, Sept. 1936, rain-forest, common in semi-shade on shores of lake.

New for Papua; known to extend in an apparently sporadic manner north and west to India and Ceylon. Some of the records of this species from Mayalsia belong to the closely allied *S. biflora* Roxb. The Australian plants referred to it by Bentham, Fl. Austral. **7**: 430. 1878 belong to other species.

Scleria novae-hollandiae Boeck. Flora **58**: 120. 1875.

Scleria merrillii Palla, Allgem. Bot. Zeitschr. **17**: Beil. 8. 1911; **syn. nov.**

PAPUA: Western Division: Wuroi, Oriomo R., *Brass 6012*, Feb.–March 1934, alt. 50 m., on a savannah ridge; Daru Island, *Brass 6427*, April 1936, gregarious on wet soil in savannah forest.

New for New Guinea; previously known from northern and northeastern Australia and the Philippine Islands.

This species was referred by Bentham, Fl. Austral. **7**: 428. 1878 to *S. laxa* R. Br., and in this he was followed by later authors. I have discussed these species as to their occurrence in Australia in Proc. Roy. Soc.

Queensl. **58**: 48–9. 1947 and **60**: 52–3. 1949. I have now seen the type and an isotype of *S. novae-hollandiae*, a photograph and a fragment of the type of *S. laxa* and isotypes of *S. merrillii*. The species is well distinguished from other small annual species by the dull white, nearly smooth surface of the more or less oblong nut and the small thin tightly appressed disc with broadly rounded lobes and shallow sinuses. The chalky appearance of most nuts is very distinctive. Kükenthal determined *Brass 6427* as *S. tessellata*, which has an ellipsoid, shining, prominently tessellated nut and a larger, thicker, more deeply divided disc with rather acute lobes and sinuses. To judge from his remarks on the disc, the specimen upon which Kükenthal based his record for New Guinea of *S. brownii* Kunth, Bot. Jahrb. **70**: 464. 1940 may also belong here.

Scleria rugosa R. Br. Prodr. 240. 1810.

Scleria lateriflora Boeck. Linnaea **38**: 455. 1874; **syn. nov.**
Scleria pubigera Makino, Bot. Mag. Tokyo **27**: 55. 1913; **syn. nov.**

PAPUA: Western Division: Lake Daviumbu, Middle Fly R., *Brass 7532 A*, August 1936, savannahs, gregarious in flat tufts on hard-pans and swampy margins; Wuroi, Oriomo R., *Brass 5868*, Jan.–March 1934, alt. 30 m., rare, gray soil on low savannah ridge; Wuroi, Oriomo R., *Brass 6013*, Feb.–March 1934, alt. 30 m., damp slopes of a savannah ridge, uncommon.

New for New Guinea; previously known from northern and northeastern Australia and New Caledonia northwards and westwards to Ceylon and Japan. Specimens from Ceylon (*S. lateriflora* Boeck.) were referred to *S. zeylanica* Poir. by Thwaites and others, but Poiret's original description refers to a large plant which, from the examination of an excellent piece of the type loaned from herb. Paris, proves to belong to the species previously described by Retz as *Scleria levis* and later described by Nees as *Scleria hebecarpa*. Apparently little attention has been paid to the extensive description in French following the brief Latin diagnosis. The references to *S. zeylanica* in Malaysian and New Caledonian literature really belong to *S. rugosa*. I have seen excellent isotypes of *S. rugosa* and *S. lateriflora*, but the interpretation of *S. pubigera* Makino is based chiefly on specimens so labelled from Taiwan in herb. Melbourne. *Brass 7532 A* was determined by Kükenthal as *Scleria tessellata* Willd. var. *debilis* Benth.; the latter is a common Queensland plant differing from *S. rugosa* in habit and the shape of the nut and disc.

Scleria levis Retz. Obs. **4**: 13. 1786.

Scleria zeylanica Poir. Encycl. Meth. **7**: 3. 1806; **syn. nov.**
Scleria hebecarpa Nees in Wight, Contrib. Bot. Ind. 117. 1834; Valck. Suring. Nova Guin. Bot. **8**: 712. 1912; Palla in Rechinger, Denkschr. Math.-Naturw. Kais. Akad. Wiss. Wien **89**: 500. 1913; Kükenth. Bot. Jahrb. **59**: 58. 1924; Ohwi, Bot. Mag. Tokyo **56**: 212. 1942; **syn. nov.**
Scleria hebecarpa Nees var. *pubescens* (Steud.) C. B. Clarke in Hook f. Fl. Brit. Ind. **6**: 689. 1894; **syn. nov.**

Scleria hebecarpa Nees forma *pilosa* Valck. Suring., Nova Guin. Bot. **8**: 712. 1912; **syn. nov.**
Scleria neesiana Hook. & Arn. Bot. Beechey Voy. 229. 1841; **syn. nov.**
Scleria pubescens Steud. Syn. Cyp. 168. 1855; **syn. nov.**
Scleria japonica Steud. Syn. Cyp. 169. 1855; **syn. nov.**
Scleria vestita Boeck. Linnaea **38**: 482. 1874; **syn. nov.**
Scleria dietrichiae Boeck. Flora **58**: 121. 1875; **syn. nov.**
Scleria wichurai Boeck. Bot. Jahrb. **5**: 510. 1884; **syn. nov.**

PAPUA: Western Division: Lake Daviumbu, Middle Fly R., *Brass 7877*, Sept. 1936, occasional on wet grass plains (clumps 80 cm. high); Lake Daviumbu, Middle Fly R., *Brass 7691*, Sept. 1936, savannahs, common on swamp margins; Gaima, Lower Fly R. (east bank), *Brass 8264*, Nov. 1936, open savannah-forest, plentiful on hard soils; Tarara, Wassi Kussa River, *Brass 8715*, Jan. 1937, common grass associate, savannah-forest ridges; Dagwa, Oriomo R., *Brass 5996*, Feb.–March 1934, alt. 40 m., amongst grasses on a savannah ridge.

This species has not previously been recorded for Papua, though it is widely spread from Queensland and New Caledonia to India and Japan. It is the species commonly known as *Scleria hebecarpa* Nees, but examination of the type of *Scleria levis* Retz. (LD) and of a piece of the type of *Scleria zeylanica* Poir. (P) has shown that these three names are synonymous. For some inexplicable reason, Poiret's name has been almost invariably associated with *S. lateriflora* Boeck. (which is *S. rugosa* R. Br.) in spite of the fact that Poiret's description refers to a much larger and otherwise different plant (see also under *S. rugosa*). The name *Scleria levis* (the epithet of which is often spelled *laevis*) has been commonly applied to specimens of *S. terrestris* (L.) Fassett on which the fruits are somewhat depressed due to imperfect development.

Brass 8264 had been determined as *Scleria hebecarpa* Nees by Kükenthal. *Brass 7691, 8715* represent the more or less hairy form described as *S. hebecarpa* Nees var. *pubescens* (Steud.) C. B. Clarke (and were determined as such by Kükenthal), *S. pubescens* Steud. and *S. vestita* Boeck.

Scleria ciliaris Nees in Wight, Contrib. Bot. Ind. 117. 1834.

Scleria chinensis Kunth, Enum. Pl. **2**: 357. 1837.
Scleria bancana Miq. Fl. Ind. Bat. Suppl. 602. 1860; Valck. Suring. Nova Guin. Bot. **8**: 712. 1912; Kanehira, Jour. Dept. Agr. Kyushu Univ. **4**: 282. 1935; Kükenth. Bot. Jahrb. **69**: 261. 1938; Ohwi, Bot. Mag. Tokyo **56**: 212. 1942; **syn. nov.**
Scleria malaccensis Boeck. Linnaea **38**: 507. 1874; K. Schum. in Warb. Bot. Jahrb. **13**: 266. 1891: **syn. nov.**

PAPUA: Western Division: Lake Daviumbu, Middle Fly R., *Brass 7670*, Sept. 1936, rain-forest, occasional clumps 1.2–1.5 m. high, along margin of lake (det. Uittien as *S. hebecarpa* Nees); Gaima, Lower Fly R. (east bank), *Brass 8252*, Nov. 1936, common grass associate in savannah forests (det. Uittien as *S. hebecarpa* Nees); Wuroi, Oriomo R., *Brass 5808*, Jan.–March 1934, alt. 10 m., amongst tall grass on edge of rain-forest. Gulf Division: Kerema, *Brass 1207*, March 1926, open grassland near coast, in clumps 1 m.

high. Central Division: On range between Sogere and Javararie, *White 317*, July–Aug. 1918; Astrolabe Range, *White 218*, July–August 1918, in grassland; Astrolabe Range, *Armit* (MEL). Eastern Division: Cloudy Mts., *Chalmers* (MEL).

SOLOMON ISLANDS: Mariga Island: N'Gela, *Brass 3486*, Jan. 1933, small sedge on grasslands.

New for Papua and the Solomon Islands; extends from northern Queensland northwards and westwards to Ceylon, India and China.

One state of this species has been generally called *Scleria chinensis* since the time of Kunth. Kunth proposed this name to replace *Scleria ciliaris* Nees "because of the earlier name of Michaux." But the name for the American species proposed by Michaux is *Scleria ciliata*. The suffixes *-tus* (*-ta*, *-tum* = provided with) and *-ris* (*-re* = of or belonging to) have quite distinct meanings, so that the two epithets *ciliata* and *ciliaris* (and consequently the names of which they form part) must be treated as distinct (International Code of Botanical Nomenclature, Art. 82, and Rec. 821); they are not orthographic variants. Kunth's action was therefore unjustified and merely created a superfluous name. The name proposed by Nees is the correct one.

Scleria malaccensis is the same form as *S. bancana* and has usually been distinguished on the grounds that the leaves of *S. ciliaris* (*S. chinensis*) are scattered and have more or less distinctly winged sheaths while *S. bancana* has the middle leaves approximated in pairs with usually unwinged sheaths, even though *S. bancana* was originally described as having winged sheaths. The specimens cited above show a continuous series between the two extremes.

I have not been able to identify *Scleria chinensis* Kunth var. *biauriculata* C. B. Clarke in Hook. f. Fl. Brit. Ind. **6**: 690. 1894. The description could refer to members of the series just mentioned; the synonym cited, *S. exaltata* Boeck., belongs to *S. terrestris*; one of the two collections cited is also cited as belonging to the typical form of *S. chinensis* and the other may or may not be Boeckeler's type.

Scleria macrophylla Presl has been referred to *S. chinensis* by some authors, but this name refers to an American species (Core, Brittonia **2**: 37–8. 1936).

Scleria terrestris (L). Fassett, Rhodora **26**: 159. 1924.

Zizania terrestris L. Sp. Pl. ed. 1: 991. 1753.
Diaphora cochinchinensis Lour. Fl. Cochinch. 578. 1790.
Olyra orientalis Lour. Fl. Cochinch. 552. 1790.
Scleria elata Thw. Enum. Pl. Zeyl. 353. 1864; K. Schum. Notizbl. Bot. Gart. Mus. Berlin **2**: 98. 1898; Lam, Nat. Tijds. Nederl. **88**: 194, 203, 207. 1928.
Scleria melanostoma Nees ex Boeck. Linnaea **38**: 514. 1874.
Scleria exaltata Boeck. Bot. Jahrb. **5**: 511. 1884; **syn. nov.**
Scleria hasskarliana Boeck. Bot. Jahrb. **5**: 511. 1884; **syn. nov.**
Scleria haematostachys Boeck. Bot. Jahrb. **5**: 512. 1884; **syn. nov.**
Scleria doederleiniana Boeck. Bot. Jahrb. **5**: 512. 1884; **syn. nov.**

Scleria ploemii Boeck. Bot. Jahrb. **5**: 513. 1884; **syn. nov.**
Scleria luzonensis Palla, Allg. Bot. Zeitschr. **13**: 49. 1907; **syn. nov.**
Scleria cochinchinensis (Lour.) Druce, Rept. Bot. Exch. Club Brit. Isles **4**: 646. 1917.
Scleria chinensis Kunth var. *luzonensis* (Palla) Uitt. Rec. Trav. Bot. Néerland. **32**: 201. 1935 et Meded. Bot. Mus. Herb. Rijksuniv. Utrecht **17**: 201. 1935; **syn. nov.**
Scleria chinensis Kunth var. *luzonensis* (Palla) Uitt. forma *pilosa* Uitt. ll.cc.; **syn. nov.**

NETHERLANDS NEW GUINEA: 4 km. SW. of Bernhard Camp, Idenburgh R., *Brass 13480*, March 1939, alt. 850 m., one clump on an open landslip.

NORTH-EAST NEW GUINEA: Morobe District: Belung R. to Sarawaket, *J. & M. S. Clemens 4875*, Jan. 1937.

PAPUA: Central Division: Port Moresby, *Lawes* in 1884 (MEL); Sogere, *White 308*, July–Aug. 1918; Urunu, Vanapa Valley, *Brass 4779*, July–Aug. 1933, alt. 1900 m., in clumps amongst tall weed grass on old garden land, common.

New for Papua; extends from Queensland to India and southern China.

This is the species commonly known as *Scleria elata* Thw. The name *Scleria terrestris* is based on *Zizania terrestris* L., which is based on *Katu-Tsjolam* Rheede, Hort. Mal. **12**: 113, *t. 60*. 1703, and this evidently refers to a *Scleria*; C. B. Clarke in Hook. f. Fl. Brit. Ind. **6**: 685–694. 1894 recorded only *S. elata* Thw. and *S. hebecarpa* Nees from the region covered by Rheede, and Rheede's figure could only refer to *S. elata*. *Scleria cochinchinensis* is based on *Diaphora cochinchinensis* Lour., the type of which was seen by Merrill (see Trans. Am. Phil. Soc. n.s. **24**: 89. 1935). *Olyra orientalis* Lour. is referred here on Merrill's suggestion, l.c., 90. I have seen syntypes of *Scleria elata* (MEL), *S. hasskarliana* (MEL), *S. luzonensis* (BRI, NSW, L) and possibly of *S. ploemii* (L). *Thwaites 3031*, cited by Boeckeler as the type of *S. exaltata*, is represented at Melbourne, but the specimen differs considerably from Boeckler's description in being much smaller and having differently shaped disc-lobes; it belongs to *S. levis* Retz. (*S. hebecarpa* Nees).

Scleria scrobiculata Nees & Meyen in Wight, Contrib. Bot. Ind. 117. 1834; K. Schum. & Lauterb. Fl. Deutsch. Schutzgeb. Südsee 198. 1901 (at most only partly); Valck. Suring. Nova Guin. Bot. **8**: 712. 1912 (at most only partly); Kükenth. Bot. Jahrb. **59**: 58. 1924, partly; ? Kanehira, Jour. Dept. Agr. Kyushu Univ. **4**: 282. 1935; (?) Ohwi, Bot. Mag. Tokyo **56**: 212. 1942.

Scleria timorensis Nees, Linnaea **9**: 303. 1834.
Scleria purpureovaginata Boeck. Bot. Jahrb. **5**: 513. 1884; K. Schum. in Warb. Bot. Jahrb. **13**: 266. 1891; Valck. Suring. Nova Guin. Bot. **8**: 713. 1912; **syn. nov.**
Scleria keyensis K. Schum. in Warb. Bot. Jahrb. **13**: 267. 1891; Valck. Suring. Nova Guin. Bot. **8**: 713. 1912.
Scleria suffulta C. B. Clarke, Kew Bull. Add. Ser. **8**: 58. 1908; **syn. nov.**

PAPUA: Western Division: New Guinea, near Dutch boundary, *MacGregor* in 1890 (MEL); Fly R., *D'Albertis* (MEL); Lake Daviumbu, Middle Fly R., *Brass 7715*, Sept. 1936, mixed with grass fringing shore of savannahs, clumps 2–2.5 m. high (det. Kükenthal); Daru Island, *Brass 6244*, March 1936, common with grasses on damp soil of savannah forests (det. Kükenthal as *Scleria chinensis* Kunth). Central Division: Port Moresby, *Goldie* (MEL); towards Owen Stanley Range, *Goldie* in 1878 (MEL); Astrolabe Range, *Armit* in 1883, scrubs (MEL).

New for Papua, and perhaps for New Guinea. The species is widely spread in Malaysia, extending into Queensland and apparently to China. At least some of the records of this species for New Guinea belong properly to *Scleria polycarpa* (see under this species), but I have not seen many of the specimens on which the records are based.

Scleria polycarpa Boeck. Linnaea **38**: 508. 1874.

Scleria margaritifera Willd. Sp. Pl. **4**: 312. 1805; Rendle in Gibbs, Phyt. Fl. Arfak Mts. 200. 1917; non Gaertn. 1788; **syn. nov.**

Scleria graeffeana Boeck. Flora **58**: 121. 1875; K. Schum. in Warb. Bot. Jahrb. **13**: 266. 1891; Valck. Suring. Nova Guin. Bot. **8**: 712. 1912; Palla in Rechinger, Denkschr. Math.-Naturw. Kais. Akad. Wien **89**: 500. 1913; **syn. nov.**

Scleria ternifolia Domin, Biblioth. Bot. **85**: 490. 1915; **syn. nov.**

NETHERLANDS NEW GUINEA: Bernhard Camp, Idenburg R., *Brass 13937*, April 1939, alt. 50 m., abundant in sago and other permanently swampy forest of river plain, 2–3 m. high.

NORTH-EAST NEW GUINEA: New Ireland: W. coast, *Bradtke 125*, May 1917, 0 m. (NSW). Duke of York Island, *Bradtke 185*, May 1917, secondary bush, grassfields (NSW). Morobe District: Augustusfluss (= Sepik R.) *Hollrung 815* (MEL, L); Huon Gulf, *Lauterbach 1185* (MEL).

PAPUA: Western Division: New Guinea, near Dutch boundary, *MacGregor* in 1890 (MEL); Fly R., *Bäuerlen 514*, Nov. 1885, on red clay banks; Lake Daviumbu, Middle Fly R., *Brass 7590*, Aug. 1938, forming dense thickets 2.5–3 m. high, in edge of forest along lake shores (det. Kükenthal as *S. scrobiculata* Nees); Lake Daviumbu, Middle Fly R., *Brass 7663*, Sept. 1936, savannahs, scattered clumps 1.5 m. high on swamp margins (det. Kükenthal as *Scleria chinensis* Kunth); Lower Fly R., east bank opposite Sturt Island, *Brass 8115*, Oct. 1936, tufted in semi-shade on edge of sago swamps (det. Kükenthal as *S. scrobiculata* Nees). Gulf Division: Ghu, Vaitata R., *Brass 938*, Feb. 1926, rain-forest borders, small clumps 2–3 ft. high. Central Division: Boku, *Schlenker 9*, July 1909; Deva Deva, *White 588*, alt. about 1200 m., July–August 1918 (large sedge about 6 ft. high); Kubuna, *Brass 5563*, Nov. 1933, alt. 100 m., common amongst ferny ground cover in rain-forest; Astrolabe Range, *White 359*; Sogere, *White 370*, July–August 1918; Bisiatabu, *Brass 584*, Nov. 1925, alt. 1500 ft., banks of streams; Owen Stanley Range, between Mts. Brown and Clarence, *Brass 1479*, May 1926, alt. 4000 ft. Eastern Division: Fife Bay, *Turner 95*, Sept. 1930 (plant about 4 ft. high); South Cape, *Chalmers* (MEL); "south-east New Guinea," *Chalmers* in 1878; Samarai, *Fitzgerald 7*, common (more or less caespitose, 1–3 ft. high); Dixon's Bay, Rossel Island, *Chalmers & Bridge*, Jan. 1885; islands near the south-east coast, *Armit* in 1884.

SOLOMON ISLANDS: Without definite locality, *Wernhem*, Jan. 1911 (NSW).

NEW HEBRIDES: Without definite locality, *Haer 65* in 1902 (NSW).

Widely spread from New Guinea and Queensland through Melanesia to eastern Polynesia. Not previously recorded from the Solomon Islands.

This species has usually been called *Scleria margaritifera* Willd., which is a later homonym of *Scleria margaritifera* Gaertn., a name that has been overlooked by most botanists and by the compilers of Index Kewensis. Gaertner gave a good account and figure of a portion of the inflorescence, spikelets and fruit. He cited several synonyms, including *Carex lithosperma* L. and *Scleria flagellum-nigrorum* Berg. Core, Brittonia **2**: 87. 1936, referred Gaertner's name, figure and description to *S. flagellum-nigrorum* Berg., which would seem to be its correct disposition; it is accordingly a superfluous name for this species. Willdenow, Sp. Pl. **4**: 312. 1805, cited *S. margaritifera* Gaertn. as one of the synonyms of "*Scleria flagellum* Sw.," but on the next page deliberately used the same name for a species which he described as new from a specimen collected by Forster on the island of Tanna. Hence *Scleria margaritifera* Gaertn. and *Scleria margaritifera* Willd. are quite distinct names, and both of them are illegitimate under any circumstance.

I have not seen the types of *S. polycarpa, S. graeffeana* or *S. ternifolia*, but I have seen specimens from the type-localities of each that agree with the original descriptions. The species is closely allied to *S. scrobiculata* Nees, differing from it chiefly in the narrower partial panicles with fewer and less spreading branches, the inconspicuous bracteoles shorter than the spikelets, the relatively inconspicuous male spikelets, the more evenly distributed fertile spikelets, the nut more gradually narrowed to the tip and nearly smooth to slightly rugulose at maturity, and the less deeply divided disc with more prominently denticulate margins; the nuts are frequently bright blue with red discs. The leaf-sheaths in both species may be broadly or narrowly winged or quite wingless on different individuals. Both species are robust plants with the middle leaves in false-whorls of three, relatively numerous partial panicles, medium-sized nuts which are also more or less hirtellous, and rather short discs.

The following references to *Scleria scrobiculata* belong wholly or in part to *S. polycarpa*: K. Schum. & Hollr. Fl. Kaiser Wilhelmsl. 25. 1889; K. Schum. & Lauterb. Fl. Deutsch. Schutzgeb. Südsee 198. 1901; F. M. Bail. Queensl. Agr. Jour. **23**: 220. 1909; Valck. Suring. Nova Guin. Bot. **8**: 712. 1912; Kükenth. Bot. Jahrb. **59**: 58. 1924.

Scleria poaeformis Retz. Obs. **4**: 13. 1786.

Scleria oryzoides Presl, Rel. Haenk. **1**: 201. 1830; F. Muell. Pap. Pl. **2**: 51. 1886.

PAPUA: Western Division: Fly R., *Bäuerlen 562*, Nov. 1885 (MEL); Lake Daviumbu, Middle Fly R., *Brass 7855*, Sept. 1936, in dense pure stands dominating many large swamps on savannahs; Gaima, Lower Fly R. (east bank),

Brass 8261, Nov. 1936, swamps in savannah forest area; Wuroi, Oriomo R., *Brass 5748*, Jan.–March 1934, alt. 10–30 m., in dense formation in a small swamp; Daru Island, *Brass 6338*, March 1936, forming pure stands, 1.5 m. tall, in shallow open swamp in savannah forest.

Bäuerlen's specimens were cited by F. Mueller, l.c.; Brass's specimens were received determined by Kükenthal as *S. oryzoides* Presl. My recent examination of the type of *S. poaeformis* (LD) confirmed the opinion expressed by C. E. C. Fischer in Kew Bull. **1931**: 265. 1931 that this name and *S. oryzoides* are synonymous. The species extends from northern Queensland northward and westward to India.

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Besides the species mentioned in the foregoing pages, the following have been recorded for New Guinea, based on specimens that I have not seen:

Scleria hookeriana Boeck.; Kükenth. in Eng. Bot. Jahrb. **59**: 59. 1924.

Scleria levis Retz. forma *villosa* Valck. Suring. Nova Guin. Bot. **8**: 712. 1912; Kükenth. Bot. Jahrb. **59**: 58. 1924; Ohwi, Bot. Mag. Tokyo **56**: 212–3. 1942.

Scleria brownii Kunth: Kükenth. Bot. Jahrb. **70**: 464. 1940.

The record of *S. brownii* is very likely based on specimens of *S. novae-hollandiae* (see under this species); the other records may also be based on specimens of species discussed elsewhere in this paper.

The following key will serve to distinguish the species seen from New Guinea:

Spikelets — at least the fertile ones — androgynous; disc reduced to an indistinct basal rim or (in *S. motleyi*) more or less cupshaped and thin; nut trigonous.

Annual, lemon-scented; spikelets in small distant clusters along a simple common axis without prominent bracts ..... *S. pergracilis.*

Perennial; inflorescence of terminal and axillary partial panicles with prominent bracts, the partial panicles sometimes spike-like.

Disc rudimentary; nut glabrous.

Nut quite smooth, even when young ..... *S. lithosperma.*

Nut rugose, even at extreme maturity ..... *S. roxburghii.*

Disc cup-shaped; nut hirtellous with ferruginous hairs ..... *S. motleyi.*

Spikelets unisexual, the females commonly with one or more empty glumes above the flowers; disc always present, shallowly to deeply 3-lobed; nut not distinctly angular.

Annual plants rarely up to 50 cm. high; culms about 1 mm. wide or less; leaves 1–3 mm. wide.

Nut ellipsoid or cylindroid, not prominently apiculate; terminal partial panicle longer than the others.

Disc deeply divided with nearly separate ovate to oblong, more or less acute lobes; nut deeply tessellate, more or less shining .. *S. tessellata.*

Disc small and thin, shallowly lobed with broadly rounded lobes; nut dull, smooth or somewhat verrucose or somewhat reticulate ..... *S. novae-hollandiae.*

Nut globular, prominently apiculate, at first reticulate, finally often smooth except for a few tubercles on the upper part; disc thick, shallowly lobed; partial panicles all small ..... *S. rugosa.*

Perennials up to 3 m. high or more with prominent rhizomes; culms at least 1.5 mm. wide and usually wider; leaves 4–20 mm. wide.

Spikelets mostly in pairs, the lower one of most pairs fertile; inflorescence of 3–8 partial panicles, the lower ones from long, leaf-like bracts; leaves long-tapering to a narrowly obtuse or filiform tip; rhizome more or less knotty with approximated culms.

Ligule longer than (usually 2–3 times as long as) wide; bracteoles unusually prominent and long exserted from the dense partial panicles ..... *S. ciliaris.*

Ligule shorter (usually much shorter) than wide; bracteoles usually less prominent, or setaceous; partial panicles looser-flowered or subspiciform.

Leaves all about equally distributed along the culm; bracteoles prominent.

Disc-lobes lanceolate, more or less acute, more or less toothed .... *S. levis.*

Disc-lobes broadly rounded, entire ..... *S. terrestris.*

Leaves clustered in groups of 3 (rarely 2) at the base of and below the inflorescence.

Bracteoles nearly as long or as long as the more or less spreading branches of the partial panicles; nuts borne chiefly towards the base of the branches, abruptly rounded below the mucronate tip, commonly deeply scrobiculate and white.. *S. scrobiculata.*

Bracteoles inconspicuous, much shorter than the more or less erect branches of the more or less spiciform partial panicles; nuts evenly distributed throughout the partial panicles, rather gradually narrowed to the mucronate tip, rugulose to smooth at maturity, often tinged blue; disc often red..... *S. polycarpa.*

Spikelets not paired, evenly distributed along the branchlets, the fertile ones restricted to the lower part of the lower branches; inflorescence of a single pedunculate compound compact terminal panicle; leaves broad, scarcely tapering to the obtusely rounded tips; rhizome elongated with rather distant culms ..... *S. poaeformis.*

Diplacrum R. Brown

Diplacrum caricinum R. Br. Prodr. 241. 1810.

Scleria caricina (R. Br.) Benth. Fl. Austral. **7**: 426. 1878; Kükenth. Bot. Jahrb. **69**: 261. 1938.

Scleria axillaris Moon, Catal. Pl. Ceylon 62. 1824, *nomen nudum.*

Diplacrum tridentatum Brogn. Duperr. Voy. Bot. *t. 26.* 1826.

Diplacrum zeylanicum Nees in Wight, Contrib. Bot. Ind. 119. 1834.

Olyra malaccensis Wall. ex Kunth, Enum. Pl. **2**: 360. 1837, pro syn.

PAPUA: Western Division: Lake Daviumbu, Middle Fly R., *Brass 7842*, Sept. 1936, common on wet plains, also in edge of *Tristania* forests.

New for Papua; widely distributed in Malaysia, extending into Ceylon, India, South China and Queensland.

The limits of *Diplacrum* and *Scleria* have been variously circumscribed and the two groups have often been treated as congeneric. A few American species have sometimes been referred to *Diplacrum*, but they are best treated as a separate genus, *Peteroscleria* Nees. The more important characters differentiating the three genera are as follow:

Scleria: Male spikelets (or male portion of androgynous spikelets) borne above the female; stamens commonly 3. Female spikelet: glumes 3–6 below the flower and usually one or more reduced ones above, 1-nerved, the keel not winged, entire at the tip, permanently membranous, persistent after the fall of the ripe nut. Nut smooth or variously reticulate or tuberculate or transversely rugose, the transverse ribbing at least as prominent (usually more prominent) than the vertical. Outer disc usually present. Leaves in the middle of the stem much the longest, the uppermost (bracts of partial panicles) gradually much shorter and narrower, the lower ones gradually reduced to bladeless sheaths. Partial inflorescences in the upper part of the stem, or inflorescence entirely terminal.

Diplacrum: Male spikelets borne below the female; stamen commonly one. Female spikelet: glumes 2, 3–7-nerved, keeled but the keel not winged, more or less 3-lobed or 3-toothed, hardened at maturity and commonly falling with the ripe nut which they enclose; no glumes above the flower. Nut tending to be heavily ribbed vertically, transverse ribs less pronounced or irregular or absent. Outer disc absent. Leaves or bracts all very similar, all or nearly all with axillary heads of spikelets, 1 or 2 basal ones sometimes reduced to sheaths.

Pteroscleria: Male spikelets below the female; stamens commonly 3 in the lower flowers. Female spikelet: glumes 2, the keel prominently winged, otherwise nearly nerveless, entire at the tip, not hardened at maturity (?), persistent (?); no glumes above the flower. Nut tending to be ribbed vertically, but the ribbing faint or obscure. Outer disc absent. Leaves dissimilar, only the upper ones with axillary heads of spikelets.

As thus delimited, *Diplacrum* comprises a group of about five small slender annual species of the Old World Tropics. *Diplacrum caricinum* is the type-species and is the most widely spread. Endemic species occur in Malaya (*D. reticulatum* Holttum), Africa (*D. africanum* C. B. Clarke) and Australia (*D. pygmaeum* [R. Br.] Nees ex Boeck. and another).

Uncinia Persoon

Uncinia riparia R. Br. Prodr. 241. 1810.

NETHERLANDS NEW GUINEA: Mt. Wilhelmina, 7 km. NE. of Wilhelmina-top, *Brass & Meyer-Drees 9847*, Sept. 1938, alt. 3560 m., common in weak clumps on mossy floor of subalpine forest.

PAPUA: Central Division: Mt. Albert Edward, *Brass 4415*, May–July 1933, alt. 3680 m., sporadic on floor of forest.

New for New Guinea; previously known from New Zealand, Tasmania and the mountains of the extreme SE. Australian mainland.

The previous records of *Uncinia riparia* from New Guinea refer to other species. That of F. Mueller, Trans. Roy. Soc. Vict. 1 (2): 36. 1889 and of Kükenthal, Pflanzenr. 4 (20), 38: 63. 1909 and Bot. Jahrb. 59: 59. 1924 refer to specimens of *U. sclerophylla* Nelmes, Kew Bull. 1949: 143. 1949. According to Nelmes, l.c., pp. 142–5, Kükenthal's reference in Bot. Jahrb. 69: 261. 1938 was based on collections in which *U. sclerophylla* Nelmes, *U. subtrigona* Nelmes and perhaps another species are represented. The Clemens collections are so badly mixed and sometimes so poor that it is very risky to interpret references by the examination of alleged duplicates.

ADDENDA

In a parcel of old specimens from New Guinea received for determination from the Melbourne Herbarium there were found a specimen of an undescribed species of *Hypolytrum* and a specimen of a species of *Cyperus* previously unrecorded from New Guinea. They are discussed here, together with other corrections and additions to the previous contributions.

Hypolytrum L. C. Richard

Hypolytrum microcarpum sp. nov. PLATE 1.

Culmi e rhizomate brevi caespitosi, circa 50 cm. alti, 2 mm. crassi, triquetri, lateribus concavis striati, angulis anguste obtusis prope apicem scaberuli, ceterum laeves. Folia basalia linearia, chartacea, 6–9 mm. lata, usque 37 cm. longa, basim versus complicata haud vel vix angustata, apice acutata, prope apicem marginibus nervoque mediano scabra, ceterum laevia; folia caulina 2, conspicue vaginantia, summum inflorescentiam superans, basalibus simillima nisi basim versus angustata. Bracteae inferiores foliiformes, inflorescentiam superantes. Inflorescentia suboblonga, subcorymbosa, circa 5 cm. longa lataque, multiflora; axis communis angulosa scabra; rami divaricati, usque ad 22 mm. longi, compressi, scabri, prope apicem corymboso-ramosi ramulis nonnullis eodem modo divisis; ramuli ultimi (pedicelli) usque ad 5 mm. longi, filiformes. Spiculae fusco-brunneae obovoideae vel oblongae, 3.5–4 mm. longae, sub flore circa 2 mm. sub fructu circa 3 mm. latae, pauciflorae. Glumae (explanatae) orbiculari-obovatae, muticae, brunneae, marginibus (apice ipso excepto) subscariosae, 1.3–1.5 mm. longae. Flores 1.3 mm. longi; squamellae more generis 2, liberae, carina parce ciliatae, explanatae lanceolatae obtusae, circa 1.3 mm. longae. Nux subglobosa, leviter compressa, circa 1.4–1.5 mm. longa, 1.3–1.4 mm. lata, brevissime umbonato-rostrata, bicostulata, irregulariter laxeque ruguloso-reticulata, dilute flavo-brunnea sed creberrime rubro-punctata.

HYPOLYTRUM MICROCARPUM S. T. BLAKE

PAPUA: Eastern Division: Cloudy Mountains near South Cape, *Chalmers & Bridge* in 1884 (TYPE in MEL).

The description is based on a single specimen consisting of a fruiting culm and two innovation-shoots all attached to the rhizome. It has the habit and general appearance of *H. latifolium* L. C. Rich., *H. scirpoides* (Presl) Merr. (*H. philippense* C. B. Clarke), *H. scabrum* Uitt. and *H. vitiense* C. B. Clarke, but it differs from all of these in the much smaller spikelets, glumes, flowers and nuts and the nearly globular nut with its beak reduced to a very small umbo. The nearly smooth leaves and stem further distinguish it from *H. scirpoideum* and *H. scabridum* and the wrinkling on the nut from *H. vitiense*. It must also be closely allied to *H. minus* Ridl.; I have seen no specimen of this species, and although Ridley's description leaves much to the imagination, the stress placed on the scabrous margins of the much broader leaves suggests that it is closer to *H. scirpoideum* or identical with this, as suggested by Kükenthal, Bot. Jahrb. **59**: 53. 1924.

Cyperus Linnaeus

Cyperus cinereobrunneus Kükenth. Mitteil. Thüring. Bot. Ver. N. F. **50**: 3. 1943; Kükenth. ex S. T. Blake, Jour. Arnold Arb. **28**: 216. 1947.

I had not seen Kükenthal's paper when I published his name in 1947.

Cyperus globosus All.; S. T. Blake, Jour. Arnold Arb. **28**: 220. 1947.

Cyperus globosus All. var. *oblonginux* Kükenth. Mitteil. Thüring. Bot. Ver. N. F. **50**: 7. 1943.

I had mentioned (l.c.) that, in the determination on the label, Kükenthal had distinguished *Brass 8309* as a variety; I had not then seen the description. These plants seem to be no more than an individual variation.

Cyperus fulvus R. Br. var. **confusus** (C. B. Clarke) Kükenth. Pflanzenr. **4 (20), 101**: 456. 1936.

Mariscus fulvus (R. Br.) C. B. Clarke var. *confusus* C. B. Clarke ex Domin, Biblioth. Bot. **85**: 444. 1915.

PAPUA: Central Division: Quaipo, *MacGregor* in 1889 (MEL).

The species is new for New Guinea, but is common and widely spread

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PLATE I

Hypolytrum microcarpum S. T. Blake. Type specimen × about ½ with analytical drawings. Fig. 1. Glume. Fig. 2. Nut. Fig. 3. Transverse section of nut. All figures × about 10. Analytical drawings by S. T. Blake, photography by G. Cripps, Photographic Section, Department of Agriculture and Stock, Brisbane.