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

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With one text-figure

THIS PAPER deals exclusively with the genera of the Rhynchosporoideae. A monograph of this tribe was commenced by G. Kükenthal prior to, and was continued during the war, but it was only after this paper had been almost completed that most of his published work became available. For the most part my treatment agreed well with that of Kükenthal; when it was found to differ, the group concerned was re-examined, but occasionally it was found not possible to reconcile the two points of view. These differences of opinion are discussed under the species concerned.

Schoenus Linnaeus

Schoenus falcatus R.Br. Prodr. 232. 1810; Kükenth. in Engl. Bot. Jahrb. 69: 259. 1938, in Fedde, Repert. 44: 24. 1938, 48: 247. 1940, in Bull. Jard. Bot. Buitenz. III, 16: 304. 1940.

PAPUA: Western Division: Penzara, between Morehead and Wassi Kussa Rivers, *Brass 8469*, Dec. 1936, savannah-forest. Central Division: Hisiu, *Carr 11448*, Feb. 1935, sea-level, open savannah land (about 42 in. tall).

SOLOMON ISLANDS: Olevuga Island: N'Gela, *Brass 3485*, Jan. 1933, stiff sedge on grasslands.

New for the Solomon Islands. Known previously from northern Australia, New Guinea and other parts of Malaysia, and Tonkin.

Schoenus punctatus R.Br. Prodr. 232. 1810; Kükenth. in Fedde, Repert. 48: 247. 1940.

PAPUA: Western Division: Tarara, Wassi Kussa R., *Brass 8388*, Dec. 1936, savannah-forest, characteristic cover on gray soil flats.

Brass's collection was cited by Kükenthal, l.c. The species is elsewhere known from northern Australia, Marianne Islands and Siam.

Schoenus sparteus R.Br. Prodr. 231. 1810; Kükenth. in Fedde, Repert. 44: 28. 1938, 48: 247. 1940.

PAPUA: Western Division: Tarara, Wassi Kussa R., *Brass 8534*, Dec. 1936, in poorly drained savannah forest; Tarara, Wassi Kussa R., *Brass 8578*, Dec. 1936, savannah forest, very abundant on wet flats; Tarara, Wassi Kussa R., *Brass 8726*, Jan. 1937, open savannah-forest, covering poorly drained flats (young growths after burning); Mai Kussa R., *W. MacGregor* in 1890 (herb. Melbourne).

Brass's three collections were cited by Kükenthal, 1940, l.c. The species appears to be confined to northern and north-eastern Australia and New Guinea.

* Botanical Results of the Richard Archbold Expeditions. See Jour. Arnold Arb. 28: 207–229. 1947.

Schoenus laevinux (Kükenth.) Ohwi in Jour. Japan. Bot. 18: 136. 1942, in Bot. Mag. Tokyo 56: 206. 1942.

Schoenus melanostachyus R.Br. var. *laevinux* Kükenth. in Engl. Bot. Jahrb. 59: 52. 1924.

Schoenus tendo (Hook.f.) Hook.f. var. *laevinux* (Kükenth.) Kükenth. in Fedde, Repert. 44: 30. 1938, in Engl. Bot. Jahrb. 69: 259. 1938, in Fedde, Repert. 48: 247. 1940.

NETHERLANDS NEW GUINEA: Hollandia and vicinity, *Brass 8905*, June-July, 1938, alt. 30 m., several clumps on a cliff face in rain-forest (stems pendent); 18 km. SW. of Bernhard Camp, Idenburg R., *Brass 12474*, Feb. 1939, alt. 2150 m., associated with ferns and *Lycopodium* on open rock slide.

The species is apparently confined to New Guinea, although externally it is very similar to *S. tendo* var. *triander* Kükenth. from New Caledonia, of which I have seen flowering material only. It resembles *S. melanostachyus* in habit, but has a smooth (not rugose) glassy, white (not ferrugineous), obovoid rather than ovoid nut, and it differs from *S. tendo* in the symmetrical glassy nut, absence of hypogynous bristles, non-sulcate culms and more copious panicles.

Schoenus calostachyus (R.Br.) Poir. Encycl. Suppl. 2: 251. 1811; F.Muell. Pap. Pl. 2: 69. 1890; Valck. Suring. in Nova Guin. Bot. 8: 707. 1912; Kükenth. in Fedde, Repert. 44: 73. 1938, 48: 248. 1940; Ohwi in Bot. Mag. Tokyo 56: 207. 1942.

Chaetospora calostachya R.Br. Prodr. 233. 1810.

Cyclocampe waigiouensis Steud. Synops. Cyper. 156. 1855.

PAPUA: Western Division: Dagwa, Oriomo R., *Brass 5912*, Feb.-March 1934, alt. 40 m., common on rather damp open grass slopes; Tarara, Wassi Kussa R., *Brass 8564*, Dec. 1936, savannah-forests, common on gray soils; Tarara, Wassi Kussa R., *Brass 8535*, Dec. 1936, poorly drained savannah-forests; Mai Kussa R., *W. MacGregor* in 1890 (herb. Melbourne).

Brass's collections were cited by Kükenthal, 1940 l.c. The species extends from New South Wales to Malaya.

Schoenus curvulus F.Muell. in Trans. Roy. Soc. Vict. n.s. 1(2): 36. 1889; C. B. Clarke in Kew Bull. 1899: 114. 1899; Valck. Suring. in Nova Guin. Bot. 8: 707. 1912; Kükenth. in Fedde, Repert. 44: 76. 1938, in Engl. Bot. Jahrb. 69: 260. 1938, in Fedde, Repert. 48: 248. 1940, in Bull. Jard. Bot. Buitenz. III, 16: 305. 1940.

NETHERLANDS NEW GUINEA: Mt. Wilhelmina, 7 km. NE. of top, *Brass & Meyer-Drees 9973*, Sept. 1938, alt. 3560 m., common on wet grass slopes.

PAPUA: Central Division: Mt. Albert Edward, *Brass 4447*, May-July 1933, alt. 3680 m., massed under rocks on marshy bank of a grassland stream; Mt. Tafa, *Brass 5006*, May-Sept. 1933, alt. 2400 m., in small erect tufts on dry crumbling soil of an exposed ridge point; Murray Pass, Wharton Range, *Brass 4672*, June-Sept. 1933, alt. 2840 m., common on open grasslands, most frequently found under shelter of tree-ferns; Mt. Victoria, *W. MacGregor* in 1889 (herb. Melbourne); near summit of Owen Stanley Ranges, *W. MacGregor* in 1889 (type in herbb. Melbourne, Brisbane); without definite locality, *W. MacGregor* in 1894 (herbb. Melbourne, Brisbane).

Confined to New Guinea. *Brass 4447* was cited by Kükenthal in Fedde, Repert. 48: 248. 1940.

In his original description, F. Mueller lays considerable stress on the curved or twisted stems and leaves, but the appearance of the specimens suggest that the twisting is due to the method of collecting or their preparation. In common with other specimens collected by MacGregor

(cited in this and earlier papers) they give the impression of having been hastily pulled and crammed into a pocket.

The species was described by Kükenthal in his revision of the genus in Fedde, Repert. 44: 76. 1938 as having 1–2-noded culms, leaves with circinate tips and spikelets 6–8 mm. long. The leaves of the type-collection as well as of Brass's specimens have straight tips, the spikelets are 6–7 mm. long or sometimes as short as 5 mm. on Brass's specimens. Owing to the unusually long leaf-sheaths, the number of nodes is not always easy to ascertain without stripping off the leaves, but certainly sometimes reaches 4. Sometimes the whole of the culm beneath the inflorescence is concealed by the sheaths.

Schoenus curvulus is rather closely allied to some forms of *S. apogon* R. & S., differing chiefly in the looser inflorescence with fewer larger spikelets, longer and relatively narrower elliptic-oblong nuts more prominently apiculate and nearly smooth, and in the hypogynous bristles longer than the nut. *Schoenus erythrosiphon* Ohwi in Bot. Mag. Tokyo 56: 205. 1942, appears to be very similar from the description, differing chiefly in the smaller spikelets 4–5 mm. long, and shorter anthers with the connective only shortly produced.

Schoenus setiformis sp. nov. (sect. *Helothrix* (Nees) Kükenth.). FIG. 1.

Herba perennis, rhizomate abbreviato. Culmi plurimi, dense caespitosi, simplices, tenuiter setacei, rigidi, circiter 5–25 cm. alti, 0.25–0.4 mm. crassi, teretes, striati ceterum laeves, glabri, sub inflorescentia 1–2-nodes vel enodes, foliati. Folia basilaria et caulina setacea, culmo breviora, circiter 0.25–0.4 mm. lata, supra canaliculata, subtus convexa leviter striata, apicem versus scaberula; vaginae 1–2 cm. longae, purpureae, ore truncato imberbes, basilaribus apertae, caulinae clausae. Panicula plerumque capitata, 7–12 mm. longa lataque, 7–12-spiculata, e fasciculis 2 valde approximatis composita, interdum fasciculo tertio distante addito; rami in quoque fasciculo 1–7, indivisi, usque ad 6 mm. longi. Bracteae foliaceae inflorescentiam superantes vel inferiores longe superantes, ore vaginae imberbes. Spiculae breviter pedicellatae, nigricantes vel purpureotinctae, lanceolatae vel oblongo-lanceolatae, 3.3–4.5 mm. longae, 0.9–1.2 mm. latae, 1–3-florae. Glumae 6–7 nigricantes vel atropurpurae, nitidulae, lanceolatae, carina concolore sursum scaberula percursae, marginibus angustissime albo-hyalinis glabrae, inferiores 3–4 vacuae latiores acutiores, superiores anguste obtusae 2.5–3.3 mm. longae. Setae hypogynae 6, ± ferrugineae vel purpurascentes, antrorsim scabrae, nucem superantes. Stamina 3, antherae lineares flavae, connectivum mediocriter (circiter 0.2–0.3 mm.) productum subulatum, circiter 1.3–1.4 mm. longae. Stylus brunneus, 1 mm. longus; stigmata 3, stylo aequilonga. Nux ellipsoidea vel angustius ovoidea, apice vel utrinque acuta, apiculata, prominule tricostulata, lateribus convexa, pallida mox brunnescens, nitida, fere omnino laevis cellulis extimis minimis valde obscuris, 1.1–1.3 mm. longa, 0.5–0.65 mm. lata.

NETHERLANDS NEW GUINEA: Mt. Wilhelmina, 11 km. NE. of top, *Brass & Meyer-Drees 9724*, Sept. 1938, alt. 3400 m., wet grassy western slope; Mt. Wilhelmina, 7 km. NE. of top, *Brass & Meyer-Drees 9998*, Sept. 1938, alt. 3560 m., gray clay of old landslips, plentiful; Lake Habbema, *Brass 9478*, Aug. 1938, alt. 3225 m.,

niches on a precipitous rock face; 9 km. NE. of Lake Habbema, *Brass 10561*, Oct. 1938, alt. 2750 m., few clumps in open stony bed of stream; 9 km. NE. of Lake Habbema, *Brass 10923* (TYPE), Oct. 1938, alt. 2800 m., common on landslip with *Imperata cylindrica*.

This species is distinguished particularly by the very slender but rigid culms and leaves, the few-spikeleted inflorescence which is usually reduced to two approximated fascicles of about 8–10 spikelets in all (though occasionally there is a third fascicle of 1–3 spikelets lower down), and the shining smooth nut with tiny indistinct external cells, stramineous when young but soon becoming brown and overtopped by the more or less ferrugineous or purple hypogynous bristles. It comes under series *Microcarpae* Benth. or sect. *Helothrix* (Nees) Kükenth., and is allied to *S. curvulus* F. Muell., *S. erythrosiphon* Ohwi and *S. apogon* R. & S., but differs from all three in the extremely slender though rigid and straight culms and leaves, coloured hypogynous bristles, and quite smooth more or less brown (not white) nut with very small and obscure external cells. From the first two it differs also in the short leaf-sheaths, scanty capitate inflorescence of few shortly pedicellate mostly smaller spikelets and smaller style, and from *S. curvulus* in the shorter anthers with shorter appendage. From *S. apogon* it also differs in the narrower acute nut overtopped by the bristles, and, except, for reduced states, in the small capitate inflorescence.

Perhaps the plants referred to *S. apogon* by Ridley in Trans. Linn. Soc. II, Bot. 9: 243. 1916, belong here.

Schoenus foliatus (Hook.f.) S. T. Blake in Proc. Roy. Soc. Queensl. 51: 48. Feb., 1940.

Schoenus foliatus (Hook.f.) Kükenth. in Fedde, Repert. 48: 248. Sept. 1940.

Schoenus axillaris (R.Br.) Poir. Encycl. Suppl. 2: 251. 1811, non Lam.

Schoenus subaxillaris Kükenth. in Fedde, Repert. 44: 89. 1938, in Engl. Bot. Jahrb. 69: 260. 1938.

Chaetospora axillaris R.Br. Prodr. 233. 1810.

Helothrix pusilla Nees in Ann. Nat. Hist. sér. I, 6: 45. 1841, non *Schoenus pusillus* Sw.

Scirpus foliatus Hook.f. in London Jour. Bot. 3: 414. 1844.

Helothrix axillaris (R.Br.) Palla in All. Bot. Zeitschr. 8: 68. 1902.

NETHERLANDS NEW GUINEA: Lake Habbema, *Brass 9236*, Aug. 1938, alt. 3225 m., growing with mosses on sunny seepages.

New for Netherlands New Guinea; previously recorded from North-East New Guinea, the more southern parts of Australia, New Zealand and the Chatham Islands.

The combination *Schoenus foliatus* was published independently by Dr. Kükenthal and myself. My paper has priority by slightly over seven months.

Carpha R. Brown

Carpha alpina R.Br. Prodr. 230. 1810; F.Muell. in Trans. Roy. Soc. Vict. n.s. 1(2): 35. 1889; C. B. Clarke in Kew Bull. 1899: 114. 1899; Valck. Suring. in Nova Guin. Bot. 8: 706. 1912; H. Pfeiff. in Fedde, Repert. 29: 178. 1931; Kükenth. in Fedde, Repert. 47: 112. 1939.

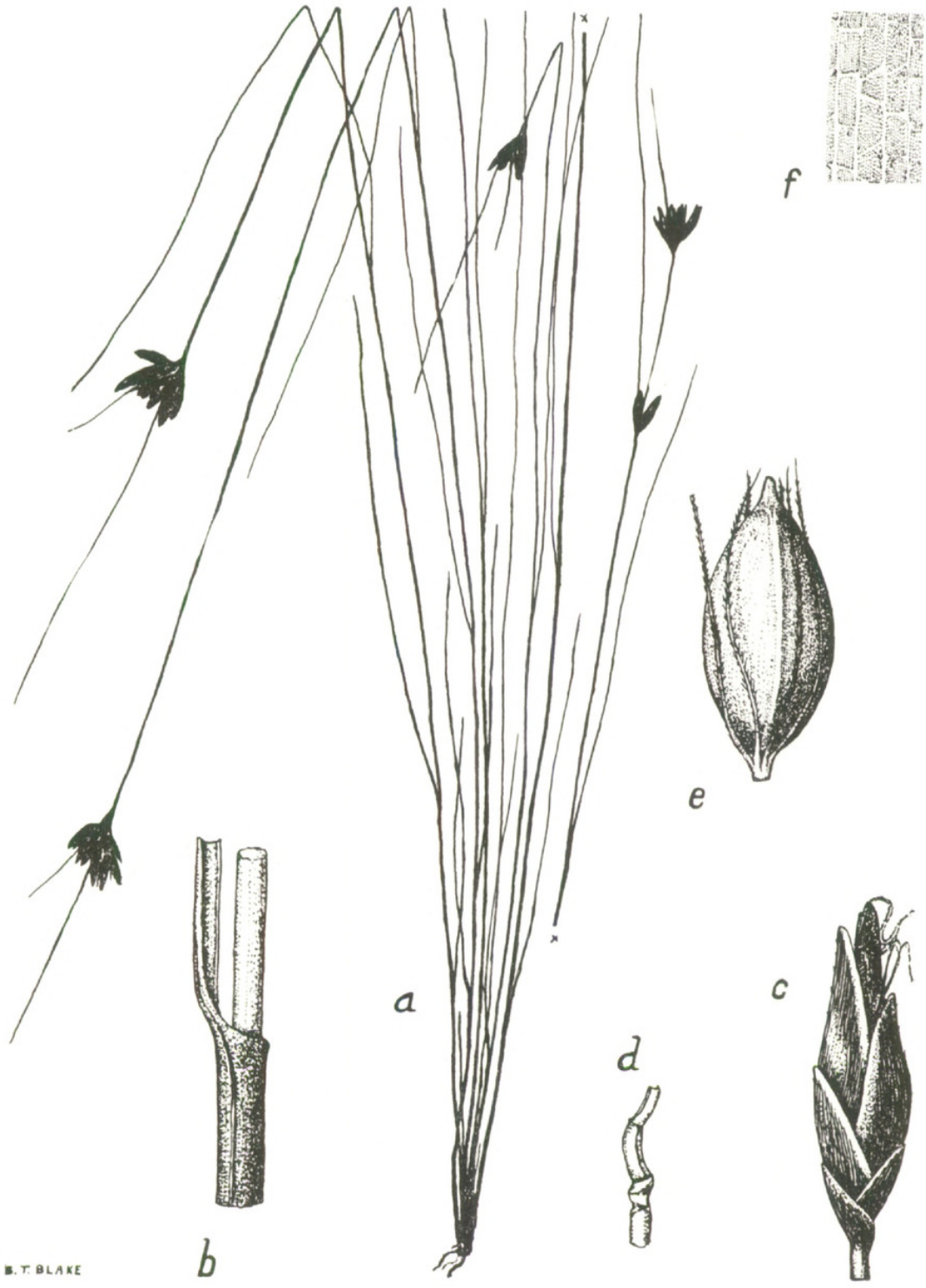

FIG. 1. *Schoenus setiformis* S. T. Blake: *a.* portion of plant, × 1; *b.* portion of culm with apex of cauline leaf-sheath and base of blade, × 10; *c.* spikelet, × 10; *d.* rhachilla of spikelet, glumes and flowers removed, × 10; *e.* nut, with torus and hypogynous bristles, but with filaments removed, × 30; *f.* surface of nut, × 100. From type-specimen.

NETHERLANDS NEW GUINEA: Northern slopes of Mt. Wilhelmina, *Brass & Meyer-Drees 10078*, Sept. 1938, alt. 4160 m., alpine grassland, covering sandy banks of a small stream; Mt. Wilhelmina, 7 km. NE. of top, *Brass & Meyer-Drees 9925*, Sept. 1938, alt. 3650 m., alpine grassland, very abundant in marshy hollows (clumps 20–30 cm. high).

PAPUA: Central Division: Mt. Albert Edward, *Brass 4299*, May-July 1933, alt. 3800 m., very plentiful on alpine seepage slopes (leaves somewhat glaucous); near summit of Owen Stanley Range, *W. MacGregor* in 1889 (herbb. Brisbane, Melbourne); Mt. Knutsford, *W. MacGregor* in 1889 (herb. Melbourne).

Not previously reported from Netherlands New Guinea. The species occurs in south-eastern Australia, Tasmania and New Zealand.

Carpha schoenoides Banks & Sol. ex Hook.f. Fl. Antarct. 2: 362, *t. 148*. 1847, from Tierra del Fuego is evidently very closely allied, but appears to differ in the fewer solitary spikelets each 2-flowered with the hypogynous bristles plumose to the tips and a serrate-scabrous style-base.

Costularia C. B. Clarke

Costularia Urvilleana (Gaud.) Kükenth. in Fedde, Repert. 46: 28. 1939.

Carpha arundinacea Brongn. in Duperr. Voy. Coquille Bot. 2: 169, *t. 30*. 1829, non (Vahl) Boeck.

Carpha Urvilleana Gaud. ex Nees in Linnaea 10: 300. 1834.

Lophoschoenus Urvilleanus (Gaud.) Stapf in Jour. Linn. Soc. Bot. 42: 180. 1914.

NETHERLANDS NEW GUINEA: Hollandia and vicinity, *Brass 8802*, June-July 1938, alt. 5–30 m., plentiful in rather distant clumps on stony patches of dry open slopes.

New for New Guinea. Previously known from Borneo and the Moluccas.

Oreobolus R. Brown

Oreobolus pumilio R.Br. Prodr. 236. 1810; Kükenth. in Engl. Bot. Jahrb. 70: 464. 1940.

Oreobolus Clemensiae Kükenth. in Fedde, Repert. 48: 69. 1940.

NETHERLANDS NEW GUINEA: Lake Habbema, *Brass 9244*, Aug. 1938, alt. 3225 m., one of the characteristic plants of alpine bog turf, carpet forming or in small rounded clumps.

New for Netherlands New Guinea. Kükenthal in Engl. Bot. Jahrb., l.c., records it for North-East New Guinea, but in the same year based his *O. Clemensiae* Kükenth., l.c., on the same collection (which I have not seen), without any reference to his other paper. *Brass 9244* agrees well with the description of *O. Clemensiae* and, except for the somewhat longer leaves, with Tasmanian specimens of *O. pumilio* R.Br. The breadth of the perianth-segments (hypogynous scales) and the colour of the leaf-sheaths and glumes are variable on the Tasmanian plants, and the spikelets of the New Guinea plants are *not* shorter. It seems likely that Kükenthal has drawn up his description of *O. pumilio* for his revision in Fedde, Repert., l.c., from plants other than Tasmanian. The species, so far as I have seen specimens, is elsewhere known with certainty only from Tasmania and Victoria. The range "Nordaustralien" given by Kükenthal in Engl. Bot. Jahrb., l.c., was due probably to a slip of the pen. The species

has been stated to occur in New Zealand (cf. Kükenthal in Fedde, Repert. 48: 67. 1940), but all the specimens I have seen from that region belong to other species.

Oreobolus ambiguus Kükenth. & van Steenis in Bull. Jard. Bot. Buitenz. III, 14: 47, *fig. 1.* 1936; Kükenth. in Engl. Bot. Jahrb. 70: 463. 1940, in Fedde, Repert. 48: 72. 1940.

NETHERLANDS NEW GUINEA: Lake Habbema, *Brass 9579*, Aug. 1938, alt. 3225 m., one of the characteristic plants of alpine bog turf, carpet forming or in small rounded clumps.

PAPUA: Central Division: Mt. Albert Edward, *Brass 4470*, May-July 1933, alt. 3680 m., common in close masses on alpine seepage slopes.

New for both Netherlands New Guinea and Papua. Previously reported from British North Borneo and North-East New Guinea. The specimens agree well with the original description and figure, except that in *Brass 9579* the inflorescence consists of a single spikelet.

Cladium P. Browne

Cladium Meyenii (Kunth) Drake, Ill. Fl. Insul. Maris Pacifici 335. 1892.

Baumea Meyenii Kunth, Enum. Pl. 2: 314. 1837.

Baumea mariscoides Gaud. in Freycin. Voy. Bot. 417. 1826.

Cladium mariscoides (Gaud.) F.Villar in Blanco, Fl. Philipp. ed 3, Nov. App. 309. 1882, non Torr.

Cladium Gaudichaudii W.F.Wight in Contrib. U.S. Nat. Herb. 9: 230. 1905; Ohwi in Bot. Mag. Tokyo 56: 208. 1942.

Cladium Meyenii (Kunth) Drake var. *Gaudichaudii* (W. F. Wight) Kükenth. in Engl. Bot. Jahrb. 69: 260. 1938, in Fedde, Repert. 51: 157. 1942.

SOLOMON ISLANDS: Ysabel: Cape Prieto, *Brass 3478*, Jan. 1933, alt. 200 m., common tussock sedge on dry open hillsides; Cape Prieto, *Brass 3477*, Jan. 1933, alt. 200 m., common ground plant on dry open slopes, small tussocks or clumps on loose soil (leaves and stems of bluish appearance). San Cristobal: Hinuahaoro, *Brass 3021*, alt. 900 m., common on old village site (thick clumps, leaves rather glaucous).

New for the Solomon Islands; previously known from the Hawaiian Islands, Marianne Islands, and North-East New Guinea. The specimens cited above form an interesting series, and it is from their study that I have proposed treating *C. Gaudichaudii* as synonymous with *C. Meyenii*. *Brass 3021* (in flower) and *Brass 3478* (in nearly mature fruit) are good matches for Hawaiian material (*C. Meyenii*). *Brass 3477* has less effuse panicles, with the spikelets more numerous in the fascicles and one piece agrees particularly well with Boeckeler's elaborate description of the type or an isotype of *Baumea mariscoides*.

Drake del Castillo, l.c., cites Bentham & Hooker, Gen. Pl. 3: 1065. 1883, as the authors of *Cladium Meyenii*, but these authors made no such combination, and merely treat *Baumea* as a section of *Cladium*. The name is not listed in Index Kewensis.

Cladium colpodes Lauterb. in Schum. & Lauterb. Nachtr. Fl. Deutsch. Schutzgeb. Südsee 59. 1905; Valck. Suring. in Nova Guin. Bot. 8: 707. 1912; Kükenth. in Engl. Bot. Jahrb. 59: 52. 1924, 69: 260. 1938, in Fedde, Repert. 51: 155. 1942; Kanehira in Jour. Dept. Agr. Kyushu Univ. 4: 276. 1935.

Cladium globiceps C. B. Clarke in Kew Bull. Add. Ser. 8: 46. 1908.
Cladium juncoides Elmer in Leafl. Philipp. Bot. 3: 854. 1910.
Cladium sinuatum Ridl. in Trans. Linn. Soc. II, Bot. 9: 243. 1916.
Cladium glomeratum (Gaud.) H. Pfeiff. in Fedde, Repert. 23: 349. 1927, non R.Br.
Cladium globiceps C. B. Clarke var. *colpodes* (Lauterb.) Kükenth. in Bull. Jard. Bot. Buitenz. III, 16: 310. 1940.
Cladium Meyenii (Kunth) Drake var. *juncoides* (Elmer) Kükenth. in. Bull. Jard. Bot. Buitenz. III, 16: 310. 1940,* in Fedde, Repert. 51: 157. 1942.
Baumea glomerata Gaud. in Freycin. Voy. 46, *t. 29*. 1826.
Mariscus colpodes (Lauterb.) Fernald in Rhodora 25: 53. 1923.
Mariscus globiceps (C. B. Clarke) Fernald, l.c.

NETHERLANDS NEW GUINEA: Hollandia and vicinity, *Brass 8803,* June-July 1938, alt. 20 m., plentiful in dense somewhat glaucous clumps on partly bare ground of dry deforested slopes.

The species was originally described as *Baumea glomerata* by Gaudichaud, but on its transfer to *Cladium* the epithet *glomeratum* was unavailable owing to the existence of *Cladium glomeratum* R.Br. Prodr. 237. 1810, quite a different plant. C. B. Clarke, l.c., accordingly proposed for it a new name, *Cladium globiceps*. Pfeiffer, however, ignored Brown's earlier homonym, and wrongly took up Gaudichaud's epithet. Both Clarke and Pfeiffer treated *C. globiceps* and *C. colpodes* as distinct species. Kükenthal at first (1924, l.c.) regarded them as conspecific, though later (1938, l.c.) he treated them as varietally distinct. However, in so doing, he erred in not taking up the earlier name *C. colpodes* for the species. Still later (1942, ll.cc.), he treated them as specifically distinct. I have been unable to find any characters to distinguish *C. globiceps*, *C. juncoides* or *C. sinuatum* from *C. colpodes*, and so propose to treat the first three as synonyms of the last-mentioned. *Cladium Meyenii* (Kunth) Drake, of which Kükenthal treats *C. juncoides* as a variety, appears to me to differ by reason of its wider leaves and slightly larger spikelets with larger reddish nuts. In this extended sense *C. colpodes* is fairly widely spread in Malaysia.

Cladium brevipaniculatum (Kükenth.) Kükenth. in Fedde, Repert. 51: 176. 1942.
Cladium Gunnii Hook.f. var. *brevipaniculatum* Kükenth. in Engl. Bot. Jahrb. 69: 260. 1938.

PAPUA: Central Division: Murray Pass, Wharton Range, *Brass 4644*, June-Sept. 1933, alt. 2840 m., growing thickly in a swampy hollow on grassland.

New for Papua; previously known only from North-East New Guinea. The specimen is very young, but appears to belong here. This collection was cited under *Lepidosperma chinense* Nees & Meyen by Kükenthal in Fedde, Repert. 50: 124. 1941, but the absence of hypogynous bristles does not accord with the characters of this genus, and the general facies of the plant is that of *Cladium*.

?**Cladium glomeratum** R.Br. Prodr. 237. 1810.

NETHERLANDS NEW GUINEA: Lake Habbema, *Brass 9443*, Aug. 1938, alt. 3225 m., forming very open tufted stands 1.2–1.5 m. high in sandy marginal shallows and on marshy shores of lake.

* Kükenthal cites *Cladium Meyenii* (Künth.) Benth. et Hook.; see discussion under previous species.

The material is sterile, but appears to belong to this species which is widely spread in Australia, New Zealand and New Caledonia, extending to SE. Asia. In Fedde, Repert. 51: 171. 1942, Kükenthal records it for North-East New Guinea under the name *Cladium rubiginosum* (Soland.) Domin, a name which I have shown to be invalid in Trans. Roy. Soc. S. Austr. 67: 58. 1943, because the basonym *Schoenus rubiginosus* Soland. ex Forst. Prodr. 89. 1786 is a *nomen nudum*.

Cladium undulatum Thw. Enum. Pl. Zeyl. 353. 1864; Kükenth. in Fedde, Repert. 51: 162. 1942.

Cladium undulatum Thw. var. *fimbristyloides* (F. Muell.) Domin in Biblioth. Bot. 20(85): 473. 1915.

Lepidosperma Zeylanicum Lindl. ex Boeck. in Linnaea 38: 332. 1874.

Carpha junciformis Boeck. in Linnaea 38: 267. 1874.

Chaetospora fimbristyloides F. Muell. Fragm. Phyt. Austr. 9: 34. 1875.

Tricostularia fimbristyloides (F. Muell.) Benth. Fl. Austral. 7: 384. 1878.

Schoenus fimbristyloides (F. Muell.) F. Muell. First Census Austral. Pl. 128. 1882.

PAPUA: Western Division: Tarara, Wassi Kussa R., *Brass 8410*, Dec. 1936, savannah-forest, abundant on sour gray soil.

Brass's collection, the only one known from New Guinea, was cited by Kükenthal, l.c. The species ranges from northern Australia to Malaya and Ceylon, and, as indicated in the synonymy above, has been assigned to various genera. From *Chaetospora* (*Schoenus*) and *Carpha* it differs in the more or less spirally arranged glumes and in habit; from the former also in the short internodes of the rhachilla of the spikelet and the nut with its persistent style-base, and from the latter in the broad small nut with short style-base and short not plumose hypogynous bristles. From *Lepidosperma* it differs in foliage and somewhat in inflorescence, in the unthickened hypogynous bristles, and in that it is the lower flower (when more than one is present) which is fertile; the texture of the exocarp of the nut is also different. From *Tricostularia* it differs in foliage and inflorescence, in that it is the lower flower which is fertile, and in the persistent style-base. It differs also from the majority of species usually referred to *Cladium* in habit and in the thin marcescent exocarp of the nut. For the present I have accepted the arrangement of this species proposed by C. B. Clarke in Hook.f. Fl. Brit. Ind. 7: 674. 1894, and followed by Kükenthal, l.c., chiefly because I have seen no specimens from beyond Australia and New Guinea. Kükenthal's description of the leaves of *Cladium undulatum* does not apply to our plant, in which they are spirally arranged and flattened or with involute margins, not distichous and semiterete.

Gahnia J. R. & G. Forster

Gahnia javanica Mor. Verz. Zoll. Pfl. 98. 1845–6; F. Muell. in Trans. Roy. Soc. Vict., n.s. 1(2): 36. 1889; C. B. Clarke in Kew Bull. 1899: 114. 1899; Valck. Suring. in Nova Guin. Bot. 8: 708. 1912.

Gahnia javanica Mor. var. *paupercula* Kükenth. in Engl. Bot. Jahrb. 69: 260. 1938, in Bull. Jard. Bot. Buitenz. III, 16: 307. 1940, in Fedde, Repert. 52: 91. 1943.

Gahnia javanica Mor. var. *longearistata* Kükenth. in Bull. Jard. Bot. Buitenz. III, 16: 307. 1940, in Fedde, Repert. 52: 89. 1943.

Gahnia javanica forma *paupercula* (Kükenth.) Kükenth. apud Benl in Bot. Archiv 40: 173. 1940.

NETHERLANDS NEW GUINEA: 9 km. NE. of Lake Habbema, *Brass 10749*, Oct. 1938, alt. 2800 m., several large clumps (1.8–2 m.) on a native clearing in the forest; 6 km. NE. of Lake Habbema, *Brass 10661*, Oct. 1938, alt. 3000 m., associated with subalpine shrubs on open treeless areas of wet sandy or peaty soil down to about 2800 m. alt.; Lake Habbema, *Brass 9047*, Aug. 1938, alt. 3225 m., abundant on lake shores and drier grasslands, scattered through shrubberies and thickets of peaty ridges (achenes yellow; forms large brownish tussocks); Mt. Wilhelmina, 11 km. NE. of top, *Brass & Meyer-Drees 9704*, Sept. 1938, alt. 3400 m., in grassy valley; Mt. Wilhelmina, 7 km. NE. of top, *Brass & Meyer-Drees 9989*, Sept. 1938, alt. 3560 m., abundant in large clumps in forest glades, grassy borders and open grasslands (fruit yellow).

PAPUA: Central Division: Crest of main Owen Stanley Range, *W. MacGregor*, June 1889 (herb. Melbourne); Murray Pass, Wharton Range, *Brass 4552*, June-Sept. 1933, alt. 2840 m., vary abundant in open grasslands (grows in dense tussocks 25–30 cm. diam.; flowering stems yellow; seeds shining pale brown). Eastern Division: Summit of Mt. Dayman, *W. E. Armit, Jr.*, in 1894 (herb. Melbourne).

Widely spread through Malaysia. *Brass 4552* was cited with the original description of *G. javanica var. longearistata*, but the specimens seen do not well agree with the description, since the lower glumes are at most only very shortly awned. *Gahnia javanica* var. *paupercula* appears to be founded on small reduced specimens with scanty inflorescences. I have not seen the type (*Carr 15237*), nor any specimen which agrees with the character of a 4-noded panicle with solitary or binate partial panicles. Armit's collection, cited by Benl, l.c., under forma *paupercula*, has partial panicles up to 5 per node. *Brass 8477* was cited by Kükenthal (1943, op. cit., 91) under *G. javanica* var. *paupercula*, and on p. 81 under *G. Sieberiana* Kunth. All the material I have seen under this number belongs to *G. Sieberiana*.

The New Guinea material seen by me covers a range of variation from the small reduced plants of *Brass 4552* (46–50 cm. high with binate or ternate partial panicles) to the large plants of *Brass 10749* (at least 1.3 m. high, but up to 2 m., according to the collector's notes, with 3–4-nate partial panicles), but all appears to me to represent a single taxonomic entity. From available descriptions, the Javanese plants differ only in having more numerous partial panicles at each node of the inflorescence, but I have seen only one rather unsatisfactory specimen.

Gahnia aspera (R.Br.) Spreng. Syst. Veg. 2: 114. 1825; F. Muell. Pap. Pl. 2: 69. 1890; Kükenth. in Fedde, Repert. 52: 92. 1943.

Lampocarya aspera R.Br. Prodr. 238. 1810.

PAPUA: Western Division: Tarara, Wassi Kussa R., *Brass 8418*, Dec. 1936, in light rain-forests, clumps 1–1.5 m. high; Tarara, Wassi Kussa R., *Brass 8750*, Jan. 1936, "flowering material of no. 8418"; Mai Kussa R., *W. MacGregor*, Feb. 1890, clay soil with eucalypts (herb. Melbourne); Daru Island, *Brass 8445*, April 1936, abundant with *Scleria* sp. as ground cover in transition mangrove — rain-forest.

In New Guinea known only from the Western District of Papua; elsewhere known from eastern Australia, Polynesia, and parts of Malaysia and Japan. All Brass's collections were cited by Kükenthal.

Gahnia Sieberiana Kunth, Enum. Pl. 2: 332. 1837; Kükenth. in Fedde, Repert. 52: 80. 1943.

Gahnia tetragonocarpa Boeck. in Linnaea 38: 347. 1874; Benl in Bot. Archiv 40: 221. 1940.

NETHERLANDS NEW GUINEA: Balim R., *Brass 11765*, Dec. 1938, alt. 2100 m., plentiful in *Vaccinium* scrubs, on infertile sandy soil (stem-forming species in clumps 2–2.5 m. high; stem and older (erect) branches covered with dry persistent bases of leaves; nuts red).

PAPUA: Western Division: Tumbuke, Wassi Kussa R., *Brass 8477*, Dec. 1936, savannah-forests, clumps of several erect stems to 1 m. long, 4 cm. diam.

Brass 8477 was cited by Benl, l.c., and Kükenthal, l.c., though Kükenthal also cites this number under *G. javanica* var. *paupercula*. *G. Sieberiana* is elsewhere known from eastern Australia and New Caledonia. *Brass 11765* has more acute and slightly larger nuts than most of the Australian specimens I have seen, measuring 3.7–4 mm. long and 1.5–1.8 mm. wide.

Remirea Aublet

Remirea maritima Aubl. Pl. Guian. 1: 45, *t. 16*. 1775; K. Schum. in Notizbl. Bot. Gart. Mus. Berlin 2: 98. 1898; K. Schum. & Lauterb. Fl. Deutsch. Schutzgeb. Südsee 198. 1901; Rehd. in Jour. Arnold Arb. 14: 65. 1933; Ohwi in Bot. Mag. Tokyo 56: 209. 1942.

Remirea maritima Aubl. var. *pedunculata* (R.Br.) Benth. Fl. Austral. 7: 347. 1878; K. Schum. & Hollr. Fl. Kaiser Wilhelmsl. 25. 1889; Valck. Suring. in Nova Guin. Bot. 8: 708. 1912; Kükenth. in Engl. Bot. Jahrb. 59: 53. 1924, in Fedde, Repert. 53: 207. 1944; H. Pfeiff. in Fedde, Repert. 29: 184. 1931.

Remirea pedunculata R.Br. Prodr. 236. 1810.

Duval-Jouvea maritima (Aubl.) Palla in Rechinger, Denkschr. Math.-Naturw. Kais. Akad. Wiss. Wien 89: 500. 1913.

NORTH-EAST NEW GUINEA: Constantinhafen (Madang), *Hollrung 506*, in 1887, sandy beach (herb. Melbourne).

PAPUA: Eastern Division: Bomgwina, *Brass 1614*, June 1926, abundant on low sand-dunes.

A pan-tropical strand plant. Brass's collection, the only one yet known from Papua, was cited by Rehder, l.c. Brown, Bentham, and Kükenthal, ll.cc., distinguished the Australian and Malaysian plant on the grounds that the culm is well exserted from the leaves, and this is indeed often the case, but among the Australian plants seen by me in the field there is every gradation from entirely included to well exserted culms, even on the same plant.

Rhynchospora Vahl

Rhynchospora rubra (Lour.) Makino in Bot. Mag. Tokyo 17: 180. 1903; Kükenth. in Engl. Bot. Jahrb. 59: 82. 1924; Ohwi in Bot. Mag. Tokyo 56: 204. 1942.

Rhynchospora Wallichiana Kunth, Enum. 2: 289. 1837; Valck. Suring. in Nova Guin. Bot. 8: 706. 1912.

Rhynchospora Wallichii (Nees) K.Schum. in K.Schum. & Hollr. Fl. Kaiser Wilhelmsl. 25. 1889, apud Warb. in Engl. Bot. Jahrb. 13: 266. 1891; K.Schum. & Lauterb. Fl. Deutsch. Schutzgeb. Südsee 198. 1901.

Schoenus ruber Lour. Fl. Cochinch. 1: 41. 1790.

Morisia Wallichii Nees in Edinb. New Phil. Jour. 17: 265. 1834.

NORTH-EAST NEW GUINEA: Augusta (Sepik) R., *Hollrung 835* (herb. Melbourne).

PAPUA: Western Division: Lake Daviumbu, Middle Fly R., *Brass 7845*, Sept. 1936, scattered over wet savannahs and grass plains; Gaima, Lower Fly R. (east bank), *Brass 8352*, Nov. 1936, open savannah-forest, common on moister soils (det. Kükenthal); Dagwa, Oriomo R., *Brass 5997*, Feb.-March, 1934, alt. 40 m., abundant on damp slopes and flats in savannah forest and on open country (erect, yellow green; inflorescence brown); Wuroi, Oriomo R., *Brass 5707*, Jan.-March 1934, alt. 10–30 m., abundant on lower savannah ridges; Wuroi, Oriomo R., *Brass 5709*, Jan.-March, 1934, alt. 10–30 m., abundant on gray soil savannah ridges; Tarara, Wassi Kussa R., *Brass 8640*, Jan. 1937, savannah forests, common on acid gray soils; Mai Kussa R., *W. MacGregor* in 1890 (herb. Melbourne). Eastern Division: Sudest Island, *W. MacGregor* in 1889 (herb. Melbourne).

New for Papua; widely spread in the warmer parts of the Old World.

Rhynchospora heterochaeta S. T. Blake in Proc. Roy. Soc. Queensl. 51: 47. 1940.

PAPUA: Western Division: Wuroi, Oriomo R., *Brass 5730*, Jan.-March 1934, alt. 10–30 m., plentiful on damp ground on savannahs; Daru Island, *Brass 6405*, March 1936, common on swampy gray soil in savannah-forests (inflorescence brown, plant stiff, glossy green) (det. Kükenthal).

New for New Guinea; previously known from Queensland, Northern Territory, Java and Philippine Islands. *Brass 5730* was cited by Kükenthal under *R. longisetis* R.Br. subsp. *exserta* (C. B. Clarke) Kükenth., comb. nova, in Bull. Jard. Bot. Buitenz. III, 16: 303. 1940. This combination is based on *R. exserta* C. B. Clarke, an allied species with stouter, much longer hypogynous bristles and a stout style-base as broad as the nut. At least some, if not all the other collections cited by Kükenthal, l.c., with the exception of the one from North Australia (the type of *R. exserta*) belong to *R. heterochaeta*. The remarks also refer to *R. heterochaeta*. *Brass 5730* was also cited under the same trinomial in Engl. Bot. Jahrb. 70: 463. 1940.

Rhynchospora corymbosa (L.) Britton in Trans. N. Y. Acad. Sci. 11: 84. 1892; Kükenth. in Engl. Bot. Jahrb. 59: 52. 1924.

Rhynchospora aurea Vahl, Enum. 2: 229. 1806; F. Muell. Pap. Pl. 1: 74. 1876; K. Schum. & Lauterb. Nachtr. Fl. Deutsch. Schutzgeb. Südsee 60, 1905; Valck. Suring. in Nova Guin. Bot. 8: 706. 1912.

Scirpus corymbosus L. Cent. Pl. 2: 7. 1756.

PAPUA: Western Division: Lake Daviumbu, *Brass 7633*, Sept. 1936, abundant on floating islands in lake (leaves smooth and shining, upper surface showing a bluish metallic sheen). Central Division: Koitaki and Sogere, *C. T. White 274*, July-August, 1918, in wet ground; Port Moresby, *Goldie* (herb. Melbourne); near Port Moresby, *Edelfeldt 208* in 1884 (herb. Melbourne).

SOLOMON ISLANDS: San Cristobal: Magoha R., *Brass 2750*, Aug. 1932, in clumps 1.5 m. high on 20 ft. silt banks, common.

Pantropical, but apparently not previously recorded for the Solomon Islands.

Rhynchospora triflora Vahl, Enum. 2: 232. 1806.

PAPUA: Western Division: Gaima, Lower Fly R. (east bank), *Brass 8356*, Nov. 1936, occasional in shallow swamps in savannah forest.

New for New Guinea; previously recorded from Ceylon and Tropical America, though there is also a specimen from Malaya in herb. Brisbane (Pahang: Tasek Bera, *M. R. Henderson in Singapore Field no. 24101*, October 1930; distributed from the Botanic Gardens, Singapore, as *Rhynchospora glauca* Vahl).

Rhynchospora Brownii R. & S. Syst. 2: 86. 1817; Ohwi in Bot. Mag. Tokyo 56: 205. 1942.

Rhynchospora laxa R.Br. Prodr. 230. 1810; non Vahl.

Rhynchospora chinensis Nees & Meyen ex Nees in Wight, Contrib. 115. 1834.

Rhynchospora glauca Vahl var. *chinensis* (Nees & Meyen) C. B. Clarke in Hook.f. Fl. Brit. Ind. 6: 671. 1894, quoad syn.

NETHERLANDS NEW GUINEA: Balim R., *Brass 11742*, Dec. 1938, alt. 1800 m., common in grass on sandy, long deforested slopes; Balim R., *Brass 11815*, Dec. 1938, alt. 1600 m., common grass associate on sandy, long deforested slopes; 9 km. NE. of Lake Habbema, *Brass 10725*, Oct. 1938, alt. 2800 m., several slender clumps in a native clearing.

PAPUA: Central Division: Urunu, Vanapa Valley, *Brass 4790*, July-Aug. 1933, alt. 1900 m., scattered in small clumps on open grasslands.

New for Papua. Spread over Malaysia and the warmer parts of Asia and Australia. It has commonly been identified with the American *R. glauca* Vahl and was referred to this species by Rendle in Gibbs, Phyt. Fl. Arfak Mts. 91. 1917, and by Kükenthal in Engl. Bot. Jahrb. 69: 259. 1938. From the description, *R. glauca* var. *condensata* Kükenth., l.c., (*R. Brownii* var. *condensata* (Kükenth.) Ohwi, l.c.) appears not to be taxonomically different. *Rhynchospora glauca*, of which the legitimate name is *R. rugosa* (Vahl) Gale in Rhodora 46: 275. 1944, differs from the plant of the Eastern Hemisphere in having smaller spikelets and smaller more distinctly rugose nuts with an acute style-base. *Rhynchospora glauca* var. *chinensis* (Nees) C. B. Clarke is founded nomenclaturally on *R. chinensis* Nees, but the description and specimens are of a different plant for which the legitimate name appears to be *R. japonica* Makino in Bot. Mag. Tokyo 17: 184. 1903. It is apparently this plant which Ohwi, l.c., refers to "**Rhynchospora chinensis** Nees et Meyen ex Nees in Wight, Contr. (1830) 115, emend. Böcklr. in Linnaea 37 (1873) 586." But Boeckeler's "emendation" does not alter the fact that (nomenclaturally at least) the concept of the species still rests on the type of Nees & Meyen.

QUEENSLAND HERBARIUM,

BRISBANE, QUEENSLAND, AUSTRALIA.