

MOSSES OF PAPUA, NEW GUINEA¹

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The mosses collected by Mr. L. J. Brass, botanist with the Fly River Expedition of the American Museum of Natural History, Mr. Richard Archbold Leader, were not numerous but highly interesting in many particulars. The collection comprises thirty species, which are enumerated below, including one new genus, seven new species and one new combination. This series is instructive in that it is probably broadly representative of the moss flora of alluvial regions at low altitudes in the Fly River country of British New Guinea.

The types of the new species are in the author's herbarium and in the Farlow Herbarium of Harvard University to whom I am indebted for the privilege of studying this unusual collection.

FISSIDENTACEAE

Fissidens (*Bryoidium*) **papuensis** sp. nov.

FIG. 1-6.

Dioicus; pusillus; caulis circa 2 mm. altus. Folia 8-10 juga, sicca flexuosa, oblongo-lanceolata, breviter acuminata, ad 1.5 mm. longa, ubique limbata, lamina dorsalis ad basem folii evanida; costa percurrente; cellulae hexagonae, 10-12 μ , parietibus firmis, juxtacostales in lamina duplicati laxae, rectangulares, ad 50 μ longae. Seta geniculata, 4-5 mm. longa; theca erecta, deoperculata 0.5 mm. longa.

Daru Island, Western Division, common in tufts and small mats on wet ground in rain forest, *L. J. Brass*, 6436, April 1936.

Similar to *F. bryoides* Hedw. but distinct in the shorter stems, dioicous inflorescence and the lax elongated juxtacostal cells of the duplicate blades.

Fissidens (*Semilimbatus*) **Brassii** sp. nov.

FIG. 7-12.

Dioicus, pusillus, caulis 2 mm. altus. Folia caulina circa 6-juga, sicca erecta, apice incurva, ligulata, rotundato-obtusa, 1 mm. longa, elimbata, lamina dorsalis ad medium folii enata. Folia perichaetia subsimilia, ad 1.4 mm. longa, lamina duplicati angustissime limbata; costa longe infra apicem folii evanida; cellulae minute hexagonae, haud incrassatae, 7-8 μ . Seta 3-3.5 mm. longa; theca minuta, erecta.

Tarara, Wassi Kussa River, Western Division, on termite mounds in savannah forest, *L. J. Brass*, 8753, Jan. 1936.

A unique species possibly allied to *F. microcladus* Thw. & Mitt. but with broadly rounded perichaetial leaves. The leaf margins are strongly crenulate all around except on the duplicate blades of the perichaetial leaves where they are entire and bordered with two rows of rectangular concolorous smooth cells.

Named for the collector, Mr. L. J. Brass, to whom we are indebted for this highly interesting series of Papuan mosses.

¹ Contribution from the Laboratories of Cryptogamic Botany and the Farlow Herbarium, Harvard University, no. 181.

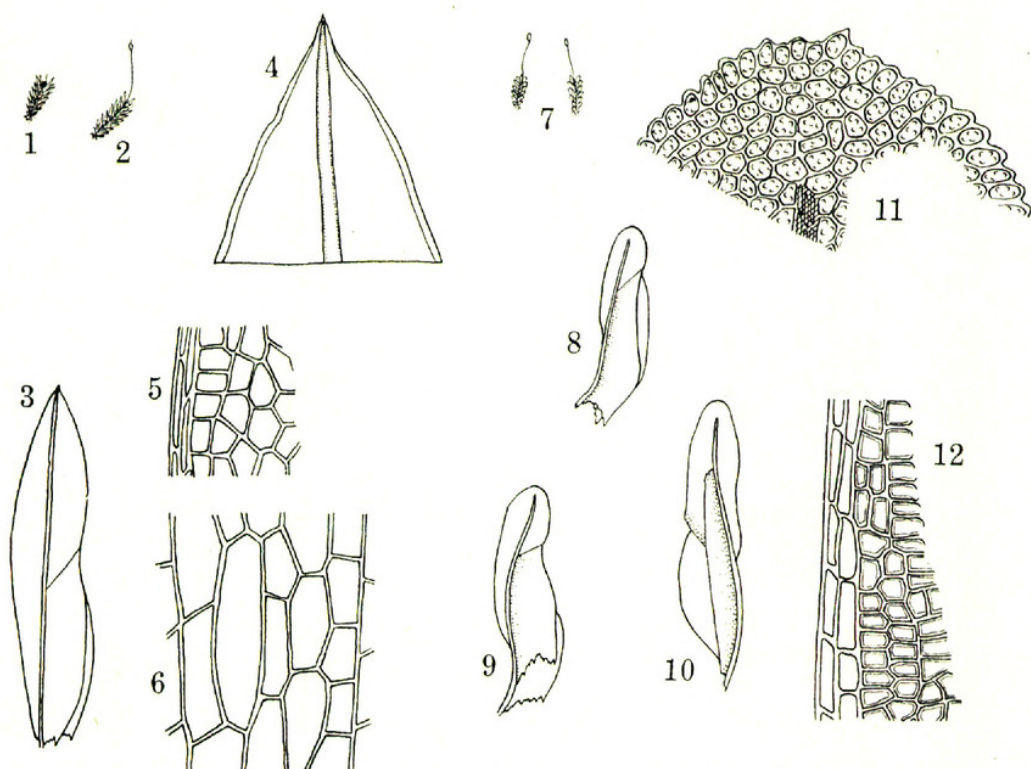


Fig. 1-6, *Fissidens papuensis* Bartr. 1, Male plant $\times 1.2$. 2, Fertile plant $\times 1.2$. 3, Leaf $\times 24$. 4, Apex of leaf $\times 96$. 5, Cells and margin of apical blade $\times 300$. 6, Juxtacostal cells of duplicate blade $\times 300$. **Fig. 7-12, *Fissidens Brassii* Bartr.** 7, Two fertile plants $\times 1.2$. 8-9, Stem leaves $\times 24$. 10, Perichaetial leaf $\times 24$. 11, Apex of stem leaf $\times 300$. 12, Cells and margin of perichaetial leaf $\times 300$.

CALYMPERACEAE

***Syrrhopodon* (Cavifolii) *perarmatus* sp. nov.**

FIG. 13-16.

Gracilis, laxe caespitosus. Caules 1-1.5 cm. alti, ramosi. Folia sicca rigida, patentia, haud crispatula, 2-2.5 mm. longa, e basi oblonga, lineari-lanceolata, acuta, limbata; margines erecti, fortiter spinoso-serrati, in parte superiori vaginae longe ciliato-spinosi; costa percurrente, e media basi usque ad apicem dorso et ventri argute spinosi; cellulae superiores subquadratae, papillosae, haud incrassatae. Caetera ignota.

Palmer River, 2 miles below junction, Black River, *L. J. Brass*, 7161a, July 1936.

The 10-14 cilia at the leaf shoulders are quite distinctive, the longer measuring up to $150\ \mu$ in length. In *S. philippinense* Bartr., an allied species, the armature of the costa is much weaker, the leaves crisped, rounded at the apex and widely different in shape.

***Syrrhopodon albovaginatus* Schwaegr.**

Lake Daviumbu, middle Fly River, matted on dead logs in rain forest, *L. J. Brass*, 7490, Aug. 1936. Tarara, Wassi Kussa River, Western Division, rain forest, common, old logs, *L. J. Brass*, 8516, Dec. 1936.

Syrrhopodon Mulleri (Doz. & Molk.) Lac.

Palmer River, 2 miles below junction, Black River, abundant on lower trunks of forest trees, *L. J. Brass*, 7145, 7161b, June 1936.

Thyridium gracile (Geh.) Broth.

Palmer River, 2 miles below junction, Black River, *L. J. Brass*, 7161, July 1936, trunk of a rain forest tree, 100 m.

Calymperes daruense sp. nov.

FIG. 17-21.

Caespites densi. Caules ad 1 cm. alti, olivacei. Folia circa 2.5 mm. longa, sicca contorta, humida patentia, e basi brevi ovata oblongo-lingulata, obtusa; margines late inflexi; costa infra apicem evanida; cellulae superiores rotundatae, 6-7 μ , haud incrassatae, leniter papillosae, margines versus angustissime bistratosi; teniola nulla; cancellina parva, supra rotundata, e cellulis 5-7 seriatis, versus marginem multo minoribus. Seta erecta, 1.5 mm. alta; theca cylindrica, 2 mm. longa; calyptra haud rugosa.

Daru Island, Western Division, vivid green moss massed upon and apparently confined to *Avicennia* 6224 in mangrove forest, *L. J. Brass*, 6232, March 1936 (type). Daru Island, Western Division, *L. J. Brass*, 6224A, 1936.

This species differs from *C. Motleyi*, of the *Eurycycla* group, as represented by Micholitz no. 210 from Torres Straits, Cape York, in the narrower leaf blade, the broadly inflexed margins with a very narrow thickened border, the smaller lamina cells and the cancellinae in fewer rows, usually only 5 but occasionally 6 or 7 rows.

Calymperes moluccense Schwaegr.

Tarara, Wassi Kussa River, Western Division, small cushions, terrestrial, in brushy rain forest, *L. J. Brass*, 8679, Jan. 1937; on bark in mangrove forest, *L. J. Brass*, 8547, Dec. 1936, a form with the teniolae short and faint.

Calymperes salakense Besch.

L. J. Brass, 6709b, May 1936.

LEUCOBRYACEAE

Cladopodanthus heterophyllus (Fleisch.) comb. nov.

Schistomitrium heterophyllum Fleisch., Nova Guinea, Botanique, 8 (4): 739. 1912.

Palmer River, 2 miles below junction, Black River, branch of a forest undergrowth shrub, 100 m., *L. J. Brass*, 7148a, 7150, June 1936.

These collections correspond so closely with the description and illustrations of Fleischer's species that there can be little doubt but that they are the same thing. Fortunately the specimens collected by Mr. Brass are well fruited showing the calyptrae subentire or, at least, not fringed at the base. It is obvious that the species should be transferred to *Cladopodanthus* where it is closely related to *C. muticus* Broth. of Borneo and the Philippines.

Leucobryum Bowringii Mitt. var **sericeum** (Broth.) Dix.

Tarara, Wassi Kussa River, Western Division, terrestrial in rain forest, *L. J. Brass*, 8543, Dec. 1936.

Leucophanes candidum (Hornsch.) Lindb.

Palmer River, 2 miles below junction, Black River, 100 m., cushion-like mats on branches of forest canopy trees, *L. J. Brass*, 7147, 7148b, June 1936.

BRYACEAE

Bryum coronatum Schwaegr.

Tarara, Wassi Kussa River, Western Division, on burnt soil in rain forest, *L. J. Brass*, 8544, Dec. 1936.

ORTHOTRICHACEAE

Macromitrium semipellucidum Doz. & Molk.

Palmer River, 2 miles from junct. Black River, branch of a tall forest tree, 100 m., *L. J. Brass*, 7149, June 1936.

Macromitrium angustifolium Doz. & Molk.

Palmer River, 2 miles below junction, Black River, upper branches of a forest canopy tree, 100 m., *L. J. Brass*, 7146, June 1936.

HOOKERIACEAE

Callicostella Karnbachii Broth.

Fly River, 528 mile Camp, dead stem of a zingiberaceous undershrub in forest, *L. J. Brass*, 6709, May 1936.

Chaetomitrium orthorrhynchum (Doz. & Molk.) Bryol. Jav.

L. J. Brass, 6707a, May 1936.

Chaetomitrium acanthocarpum Bryol. Jav.

Fly River, 528 mile Camp, 80 m., undergrowth shrubs in a gully in forest, *L. J. Brass*, 6707; mats from an undergrowth bush, *L. J. Brass*, 6771, 6707a, May 1936.

BRACHYTHECIACEAE

Rhynchostegiella papuensis sp. nov.

FIG. 22-25.

Sordide viridis, haud nitida. Caulis repens, dense ramosus, ramis erectis, ad 1 cm. longis. Folia conferta, ovata, breviter acuminata, ubique argute serrata, circa 1.2 mm. longa et 0.5 mm. lata, sicca convoluta; costa valida, supra medium folium evanida, dentiformiter exstante; cellulae lineari-rhomboideae, 5-7 μ latae et 25 μ longae, infimae laxae, alares paucae, subquadratae. Folia perichaetialia e basi oblonga sensim in acumen elongatum denticulatum constricta; seta 12 mm. longa, laevis vel superne minutissime scaberrima; theca inclinata, asymmetrica, deoperculata 1.5 mm. longa.

Palmer River, 2 miles below junction, Black River, branches of flood-resistant low trees and shrubs on river bank, 100 m., *L. J. Brass*, 7264, July 1936.

A neat little moss probably near *R. menadense* (Bryol. Jav.) but quite distinct in the shorter and relatively broader leaves, the sharply serrate margins and shorter leaf cells.

ENTODONTACEAE

Plagiotheciopsis oblonga (Broth.) Broth.

Palmer River, 2 miles below junction, Black River, silt-fouled trunks of trees on river flood banks, 100 m., *L. J. Brass*, 7265, July 1936.

SEMATOPHYLLACEAE

Acroporium oxyporum (Doz. & Molk.) Fleisch.

Palmer River, 2 miles below junction, Black River, branches of a forest canopy tree, 100 m., *L. J. Brass*, 7148, June 1936.

These plants are not typical. The leaves are erect-spreading and the setae nearly smooth above. The short, stout stems are quite different in habit but I doubt if there is any clear specific distinction.

Rhaphidostichum loriforme (Broth. & Geh.) Broth.

Palmer River, 2 miles below junction, Black River, matted on tree trunks in wet parts of forest, 100 m., *L. J. Brass*, 7302, July 1936.

Pseudopiloecium gen. nov.

Autoicum, robustiusculum, lutescente-viride, nitidiusculum. Caulis irregulariter ramosus. Folia patentia, sicca et humida arcte longitudinaliter plicata; cellulae lineares, laevissimae, incrassatae, alares magnae, vesiculosae. Seta superne scaberrima; theca suberecta, collo mamilloso.

Pseudopiloecium scabrisetum sp. nov.

FIG. 26-28.

Dense caespitosum. Caulis ad 5 cm. altus, ramis patulis ad 2 cm. longis. Folia conferta, ovato-lanceolata, anguste acuminata, subintegerrima vel superne minute denticulata, plures plicata, 3 mm. longa et 0.6 mm. lata; cellulae omnes anguste lineares, incrassatae, basin versus porosae, alares plures, magnae, hyalinae. Folia perichaetialia minora, subulato-acuminata, marginibus superne lacerato-denticulatis; seta rubra, flexuosa, 1.5 cm. alta, superne arcte papillosa; theca cylindrica, suberecta, collo grosse mamilloso; exothecium e cellulis majusculis, hexagonis, haud collenchymaticis instructum; dentes peristomii dense striolati, linea media leniter sulcata, endostomii membrana alta; calyptra cucullata; operculum oblique aciculato-rostratum.

Palmer River, 2 miles below junction, Black River, matted on tree trunks in wetter parts of forest, 100 m., *L. J. Brass*, 7301, July 1936.

These plants resemble *Piloecium pseudorufescens* (Hampe) C. M. superficially but differ widely in the large undivided alar cells, the setae strongly scabrous above and the capsules tuberculate at the base. The propriety of including this new and suggestive genus in Sematophyllaceae

can hardly be questioned and one cannot well avoid the conclusion that eventually *Piloecium* and possibly *Myurium* will find a more natural alliance in Sematophyllaceae than elsewhere. *Pseudopiloecium* seems to approach *Rhaphidostichum* most closely through the scabrous setae and the tuberculate capsule neck. The exothecial cells are thin walled and show a large, well defined "thin spot" in the center of each cell as is frequently the case in the allied genera.

Trichosteleum hamatum (Doz. & Molk.) Jaeg.

Fly River, 528 mile Camp, *L. J. Brass*, 6712a, May 1936.

Trichosteleum Boschii (Doz. & Molk.) Jaeg.

Tarara, Wassi Kussa River, Western Division, decaying wood in rain forest, *L. J. Brass*, 8545, Dec. 1936.

Acanthorrhynchium papillatum (Harv.) Fleisch.

Fly River, 528 mile Camp, from trunks of small trees in a gully, 80 m., *L. J. Brass*, 6711, May 1936.

Taxithelium instratum (Brid.) Broth.

Fly River, 528 mile Camp, from trunks of small trees in a gully, 80 m., *L. J. Brass*, 6711a, May 1936.

HYPNACEAE

Isopterygium minutirameum (C. M.) Jaeg.

Lower Fly River, East Bank, mound on peaty hummocks in swamp forest, *L. J. Brass* 8152, Oct. 1936.

Ectropothecium longicapillare sp. nov.

FIG. 29-30.

Dioicum? Robustum, pallide aureum, nitescens. Caules ad 4 cm. longi, regulariter densissime pinnati, ramis 6-7 mm. longis. Folia caulina falcata, conferta, valde plicatula, e basi late cordato-auriculata sensim in acumen subpiliformiter dentatum attenuata, circa 2.5 mm. longa; marginibus erectis, e basi fere remote denticulatis; costis binis, longiusculis; cellulae lineares, 5 μ latae, marginalibus haud diversis, infimae laxiores, alares plures, ad angulos magnae, hyalinae. Folia ramea minora, superne fortius denticulata, cellulae alares paucae. Folia perichaetalia abrupte longe piliformiter acuminata, argute serrata; seta 2 cm. longa; theca parva, deoperculata 1 mm. longa, pendula, turgide elliptica.

Palmer River, 2 miles below junction, Black River, on base of tree in wet forest, 100 m., *L. J. Brass*, 7303, July 1936.

The very long strongly toothed leaf acumen is quite distinctive and seems to distinguish this species from any of its numerous allies.

Ectropothecium Micholitzii Broth.

Palmer River, 2 miles below junction, Black River, covering a log on river bank, 100 m., *L. J. Brass*, 7340, Aug. 1936.

BUSHKILL

PIKE CO., PENNA.

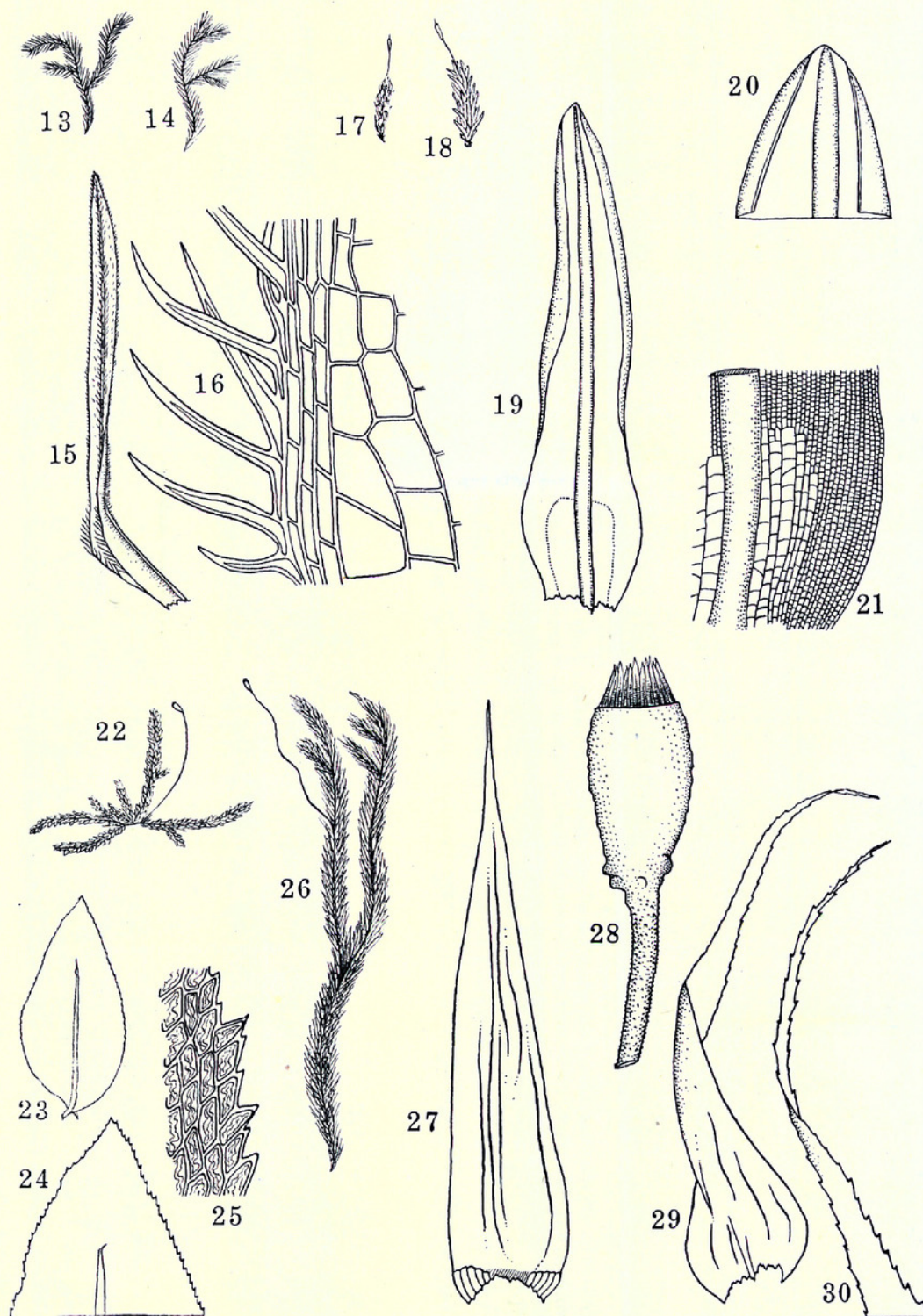


Fig. 13-16, *Syrrhopodon perarmatus* Bartr. 13-14, Plants $\times 1.2$. 15, Leaf $\times 24$. 16, Shoulder of leaf base $\times 240$. **Fig. 17-21, *Calymperes daruense* Bartr.** 17, Dry plant $\times 1.2$. 18, Moist plant $\times 1.2$. 19, Leaf $\times 24$. 20, Apex of leaf $\times 48$. 21, One side of leaf base $\times 48$. **Fig. 22-25, *Rhynchostegiella papuensis* Bartr.** 22, Plant $\times 1.2$. 23, Leaf $\times 24$. 24, Apex of leaf $\times 48$. 25, Upper leaf cells and margin $\times 300$. **Fig. 26-28, *Pseudopiloecium scabrisetum* Bartr.** 26, Plant $\times 1.2$. 27, Leaf $\times 20.4$. 28, Capsule $\times 18$. **Fig. 29-30, *Ectropothecium longicapillare* Bartr.** 29, Stem leaf $\times 24$. 30, Apex of branch leaf $\times 48$.



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