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DCLIII.—FLORA OF BRITISH NEW GUINEA.

As announced in the *Bulletin* (1897, p. 112), Sir William MacGregor presented a small collection of dried plants, made by Mr. A. Giulianetti on Mount Scratchley. He has since presented another collection made by the same gentleman and Mr. A. C. English, chiefly in the Vanapa Valley and the Wharton Range.

The collection from Mount Scratchley consists of about 120 species of flowering plants, nine species of ferns, one *Isoetes*, 28 mosses, nine liverworts, and eight lichens. As some 2,500 species of vascular plants (flowering-plants and ferns) have already been recorded from New Guinea, this collection is numerically small; yet, from the great altitude at which most of the plants were found, it is a highly interesting one; and it contains a relatively large number of novelties. It is true that only two new generic types are included among them; but many generic novelties were not expected from such elevations, where the vegetation is of an alpine or temperate character, and largely composed of genera having a wide range.

Beginning with the cellular cryptogams, the lichens are only represented by quite common species. There are two new species—*Trachylejeunia Giulianettii* and *Cololejeunea hirta*—among the liverworts. On the other hand, nearly half of the mosses are new. They belong mostly to genera characteristic of humid mountainous regions within the tropics. Two out of the nine ferns are new, as well as one of the four Selaginellaceæ—*Isoetes neoguineensis*. As will be seen from the following enumeration, the flowering plants present a larger proportion of novelties, to say nothing of those species previously described by other botanists and not known to exist elsewhere. Better specimens of many of the undetermined species would doubtless considerably augment the number here described.

The smaller Vanapa Valley and Wharton Range collection, received in 1898, includes a remarkable new species of *Elaeo-carpus*—*E. aberrans*—and a new species of *Triplostegia*, a small genus of the Dipsacæ, previously only known to inhabit the mountains of Northern India and Western China. There is also a considerable number of specimens of *Veronica*, which have all been provisionally referred to *V. Lendenfeldii*, but it is possible that more than one species is concerned. It is an instance of one very variable species, or several very closely allied species. Ferns are relatively numerous, and, though there are two new species of *Davallia*, they are mostly common Malayan types. One of these, *D. lanceolata*, differs widely from all previously described species, in having small lanceolate fronds two to four inches long.

In dealing with a fragment of a flora it is not safe to generalise; but apart from the fact that most of the endemic species belong to genera of wide distribution, their affinities are with those inhabiting the mountains of Celebes and Borneo. Indeed, some of the species are identical, and not known beyond the Archipelago; whilst others, endemic respectively in, say, Kinabalu, Borneo, and Mount Scratchley, British New Guinea, are very closely allied. Specially interesting among the new plants of this

collection are : *Oreomyrrhis linearis*, *Dolianthus vaccinioides*, *Gentiana Macgregorii*, *G. Giulianettii*, *Havilandia papuana*, and *Giulianettia tenuis*. Besides the foregoing, the grasses are particularly interesting botanically ; all the species being regarded as new.

RANUNCULACEÆ.

Ranunculus amerophyllus, *F. Muell. in Trans. Roy. Soc. Victoria*, i. pt. 2., p. 1.

Mount Scratchley, 10000–13000 ft., and Wharton Range, 11100 ft.

Ranunculus sp. *R. lappaceo*, Sm., var. *multiscapo*, Hook. f., *affinis*.

Wharton Range, 11100 ft.

VIOLACEÆ,

Schuermansia Henningsii, *K. Schum. Fl. Kais. Wilh. Land*, p. 50.

Neneba, Mount Scratchley, about 4000 ft.

PITTOSPORACEÆ.

Pittosporum berberidoides, *Burkill*; species foliis coriaceis a *P. cornifolio*, A. Cunn., distinguenda, cui forsitan affinis sit.

Rami recti, crassiusculi, cortice glabri rufescentes vel ætate cinerascetes, inter foliorum circulos cicatricibus, pedicellorum defectorum signis, notati. *Folia* obovata, admodum coriacea, persistentia, glabra, basi cuneata, apice abrupte cuspidata, $\frac{3}{4}$ – $1\frac{1}{4}$ poll. longa, $\frac{1}{2}$ – $\frac{3}{4}$ poll. lata, attrita, suavissima, venis numerosissimis conspicuis lateralibus in margine integro rigido conjunctis, primaria in apicem firmum excurrentia ; petiolus $\frac{1}{4}$ poll. longus, rigidus. *Pedicelli* uniflori, $\frac{1}{2}$ poll. longi. *Flores* desunt. *Fructus* subglobosus, glaber, 2–carpellaris, rugosus, fuscus, 4 lin. longus, stylo $\frac{1}{2}$ lin. longo. *Semina* matura 2, nigra, $\frac{1}{2}$ lin. longa.

Mount Scratchley, 10000–13000 ft.

The pleasant scent of the leaves is derived from the resin of the canals which accompany the veins. The petiole contains 5 or 7 of these arranged in a crescent, the central ones being very large.

Pittosporum pullifolium, *Burkill*; species ex affinitate *P. bicoloris*, Hook., foliis facile distincta.

Rami juniores parce pubescentes, dein glabrescentes et siccitate nigrescentes, crassiusculi. *Folia* coriacea, petiolata, oblanceo-obovata, glabra, siccitate supra purpureo-nigrescentia, infra pallidiora, basi rotundata, apice cuspidata, $1\frac{1}{2}$ –2 poll. longa, 7–9 lin. lata, nervo primario conspicuo, nervis lateralibus utrinque 6–8 inter se prope marginem integrum arcuatim conjunctis ; petiolus rigidus, 3–4 lin. longus. *Flores* ad apices ramorum in umbellas (in specimine unico nobis communicato 13-floras) dispositi ; bracteæ fere glabræ, 2–5 lin. longæ, 1– $\frac{1}{2}$ lin. latæ ; pedicelli pilis

mollibus flavis tecti, 5–6 lin. longi. *Sepala* glabra, bracteis colore et contextu et figura simillima, ovata, acuta, 3 lin. longa, basi crassa quinquenervia. *Petala* distincta, lineari-lanceolata, 5–6 lin. longa, glabra, apice rotundata. *Staminum* filamenta 3 lin. longa, glabra. *Ovarium* pilis fulvis dense tectum, 2 lin. longum, $\frac{2}{3}$ lin. diam., 2-carpellare, placenta utraque 14–15-ovulata; stylus 2 lin. longus, glaber; stigma bilabiatum, labiis incurvis. *Fructus* deest.

Mount Scratchley, 10000–13000 ft.

HYPERICACEÆ.

Hypericum Macgregorii, *F. Muell. in Trans. Roy. Soc. Victoria*, i. pt. 2., p. 2.

Mount Scratchley, 12200 ft.

TERNSTRÆMIACEÆ.

Trematanthera sp.

Mount Scratchley, 10000–13000 ft.

Saurauja rufa, *Burkill*; *S. bifida*, Warb., affinis, foliis subtus rufo-tomentosis prima scrutatione jam dignoscenda.

Rami dense squamis sparse aculeis parvis tecti, cortice atro-brunnei; aculei curvati, 1 lin. longi vel paullo longiores. *Folia* elliptica, basi et apice rotundata, margine leviter dentata, dentibus plerisque sub apice aculeum parvum gerentibus, supra fere glabra (aculeis paucis in nervis majoribus insidentibus) nitentia, subtus densissime rufo-tomentosa, 2–3 $\frac{1}{4}$ poll. longa, 1 $\frac{1}{4}$ –1 $\frac{3}{4}$ poll. lata; petiolus 2–5 lin. longus, squamis imbricatis tectus. *Pedunculi* solitarii, 3-flori, 2–2 $\frac{1}{2}$ poll. longi, squamas modo ramorum gerentes; pedicelli 2 lin. longi; bracteae late ovatae, $\frac{1}{2}$ poll. longae, dorso squamatae; bracteolae duae angustae, alabastrum æquantés et circum eum arcuatae, dorso tomentosae etiamque setosae. *Sepala* ovata, 3 lin. longa, similia, nisi quod partes alabastro clauso tectae glabrae sunt; superficies nudae tomentosa setosaeque. *Petala* basi cum staminum tubo connata, purpurea (?). *Antherae* 40–50, externae ad marginem tubi glabri sessiles fere basifixae, internae faciei tubi filamentis brevibus affixae, aliquantulum versatiles. *Ovarium* depresso-globosum, 5-loculare, ovulis numerosissimis; styli 5, distincti.

Neneba, Mount Scratchley, about 4000 ft.

MALVACEÆ.

Urena lobata, *Linn.*; *Benth. Fl. Austral. i.*, p. 206; *F. Muell. Papuan Pl. i.*, p. 55.

Neneba, Mount Scratchley, about 4000 ft.

TILIACEÆ.

Elæocarpus aberrans, *Brandis*; ab omnibus speciebus affinibus differt floribus tetrameris.

Partes novellæ minute puberulæ. *Folia* tenuiter coriacea, obovato-elliptica, undulata, sed integerrima, obtusa vel subacuta, venis secundariis utrinque 6–8 arcuatis ramosis intra marginem anastomosantibus. *Sepala* 4, 6 lin. longa, coriacea, utrinque puberula, libera, triangulari-lanceolata, nervo medio vix conspicuo. *Petala* 4, 8 lin. longa, plana, ovali-oblonga, apice vix latiora, irregulariter 7–9-dentata, utrinque puberula pilis intus rectis non reflexis; nervi longitudinales plures, venis obliquis juncti. *Stamina* 50–60, toro lato planiusculo carnoso demum multiporoso inserta, arista antheram duplo superante, filamentis quam antheris paullo brevioribus. *Ovarium* tenuissime velutinum 3–4-loculare, dissepimentis apicem versus incompletis, stylo apice minutissime 3-fido. *Fructus* ignotus.

Mount Scratchley, 2000–4000 ft.

All the other species of this section, which will be defined in Sir Dietrich Brandis' forthcoming monograph of the genus, come from Madagascar.

GERANIACEÆ.

Geranium dissectum, Linn.; *Benth. Fl. Austral.* i., p. 296 (G. pilosum, Forst.; *DC. Prod.* i, p. 642.

Wharton Range, 11000 ft.

Impatiens Herzogii, K. Schum. *Fl. Kais. Wilh. Land*, p. 56.

Neneba, Mount Scratchley, about 4000 ft.

MELIACEÆ.

Dysoxylum sp.

Neneba, Mount Scratchley, about 4000 ft.

LEGUMINOSÆ.

Desmodium sinuatum, Blume ex Baker in Hook. f. *Fl. Brit. Ind.*, ii. p. 166.

Neneba, Mount Scratchley, about 4000 ft.

ROSACEÆ.

Pygeum costatum, Hemsley; foliis *P. oocarp*, Stapf, simillimum, sed racemis elongatis multifloris facile distinguitur.

Frutex vel arbor parva, dense ramosa, præter inflorescentiam glabra vel cito glabrescens, ramulis ultimis crassiusculis nigrescentibus, internodiis brevissimis. *Folia* petiolata, crassa, coriacea, ovata vel elliptica vel interdum obovata, 1–2½ poll. longa, utrinque rotundata vel apice emarginata, supra costa atque venis insigniter impressis, subtus costa crassa valde elevata, venis lateralibus primariis utrinque 6–8; petiolus crassus, 2–3 lin. longus. *Flores* pubescentes, 3–4 lin. diametro, in racemos axillares quam folia longiores dispositi, distincte pedicellati, 5-meri. *Calycis* pubes-

centis lobi parvi, ovati; tubus intus glaber. *Petala* majora, fere orbicularia, dense tomentosa. *Stamina* circa 20, glabra. *Ovarium* omnino glabrum, stigmatate magno capitato. *Fructus* ignotus.

Mount Scratchley, 10000–13000 ft.

Pygeum papuanum, *Hemsley*; foliis *P. brevistylo*, K. Schum., simillimum, sed ab hac specie recedit racemis plus quam duplo longioribus, pedicellis gracilioribus, calyce non circumscisso intus omnino glabro.

Arbor laxè ramosa, præter inflorescentiam glabra vel cito glabrescens, ramulis ultimis graciliusculis, internodiis circiter pollicaribus. *Folia* breviter petiolata, coriacea, ovato-lanceolata, 4–7 poll. longa, acuminata, costa supra impressa, subtus elevata, venis lateralibus primariis utrinque 6–7 subtus conspicuis prope marginem inter se arcuatim connexis. *Racemi* graciles, axillares, 3–4 poll. longi, pedicellis gracillimis 3–4 lin. longis. *Flores* 5-meri, pubescentes, 2–2½ lin. diametro. *Calycis* lobi oblongi, obtusi, tubum æquantés. *Petala* similia, sed paullo majora. *Stamina* circiter 20, filamentis filiformibus petala longe excedentibus glabris. *Ovarium* undique glabrum, stigmatate capitato. *Fructus* non visus.

Mount Scratchley, 10000–13000 ft.

Rubus Ferdinandi-Muelleri, *Focke in Abh. Nat. Ver. Brem.* xiii., p. 165.

Mount Scratchley, 10000–13000 ft., and Wharton Range, 11000 ft.

Rubus moluccanus, *Linn.*; *Miq. Fl. Ind. Bat.* i. pt. 1, p. 382; *Benth. Fl. Austral.* ii., p. 430.

Neneba, Mount Scratchley, about 4000 ft.

Rubus rosæfolius, *Sm. Pl. Ic. Ined.* iii., t. 60; *Benth. Fl. Austral.* ii., p. 431; *F. Muell. Papuan Pl.* ii., p. 29.

Neneba, Mount Scratchley, about 4000 ft.

Potentilla microphylla, *D. Don*; *Focke in Abh. Nat. Ver. Brem.* xiii., p. 164.

Mount Scratchley, 10000–13000 ft.

Potentilla papuana, *Focke in Abh. Nat. Ver. Brem.* xiii., p. 162. (*P. leuconota*, *F. Muell. in Trans. Roy. Soc. Victoria*, i. pt. 2, p. 5. Non *D. Don*).

Mount Scratchley, 10000–13000 ft.

Potentilla parvula, *Hook. f. ex Stapf in Hook. Ic. Pl.*, t. 2294, *et in Trans. Linn. Soc.*, ser. 2, iv., p. 147.

Mount Scratchley, 10000–13000 ft., and Wharton Range, 11000 ft.

Potentilla sp. *P. papuanæ*, *Focke*, affinis.

Mount Scratchley, 10000–13000 ft.

Potentilla sp. *P. parvula*, Hook. f., affinis.
Mount Scratchley, 10000–13000 ft.

MYRTACEÆ.

Rhodomyrtus ?

Neneba, Mount Scratchley, about 4000 ft.

MELASTOMACEÆ.

Osbeckia sp.

Mount Scratchley, 12200 ft.

Otanthera bracteata, *Korth.*; *K. Schum. Fl. Kais. Wilh. Land*,
p. 87; *Benth. Fl. Austral.* iii., p. 292.

Neneba, Mount Scratchley, about 4000 ft.

Medinilla spp. 2.

Neneba, Mount Scratchley, about 4000 ft.

ONAGRACEÆ.

Epilobium pedunculare, *A. Cunn.*; *F. Muell. in Trans. Roy. Soc. Victoria*, i. pt. 2, p. 7.

Wharton Range, 11100 ft.

Jussiaea suffruticosa, *Linn.*; *F. Muell. Papuan Pl.* i., p. 60;
Benth. Fl. Austral. iii., p. 307.

Neneba, Mount Scratchley, about 4000 ft.

BEGONIACEÆ.

Begonia sp.

Mount Scratchley, 10000–13000 ft.

UMBELLIFERÆ.

Trachymene saniculæfolia, *Stapf in Hook. Ic. Pl.* t. 2308, et in
Trans. Linn. Soc. ser. 2, iv., p. 167.

Mount Scratchley, 10000–13000 ft.

Falcaria laciniata, *DC. Prod.* iv., p. 110.

Neneba, Mount Scratchley, about 4000 ft.

Oreomyrrhis linearis, *Hemsley*; a speciebus hactenus cognitis
foliis linearibus indivisis gramineis differt. *Icones Plantarum*,
t. 2590.

Mount Scratchley, 10000–13000 ft.

ARALIACEÆ.

Mackinlaya sp.

Neneba, Mount Scratchley, about 4000 ft.

Osmoxylon sp.
Without locality.

RUBIACEÆ.

Argostemma sp.
Mount Scratchley, 10000–13000 ft.

Mussænda ferruginea, *K. Schum. Fl. Kais. Wilh. Land* p. 129.
Oriomo River, opposite Daru Island.

Psychotria sp.
Neneba, Mount Scratchley, about 4000 ft.

Cephaelis sp.
Mount Scratchley, 10000–13000 ft.

Cephaelis sp.
Neneba, Mount Scratchley, about 4000 ft.

Saprosma buxifolia, *C. H. Wright*; a speciebus reliquis foliis parvis oblanceolatis recedit.

Rami tenues, quadrangulares. *Folia* oblanceolata, obtusa, glabra, 9 lin. longa, 4 lin. lata; petiolus 1 lin. longus; stipulæ ovatæ, membranaceæ, deciduæ. *Flores* solitarii, axillares; bracteolæ 2, connatæ, calycis tubo approximatae. *Calyx* 1 lin. longus, glaber, minute 5-dentatus, persistens. *Corollæ* tubus infundibuliformis, extus glaber, intus pubescens, 6 lin. longus; lobi 5–6, ligulati, valvati, 1–1½ lin. longi. *Stamina* 5–6; filamenta ½ lin. longa, corollæ faucibus affixa; antheræ subulatæ, filamentis æquilongæ. *Ovarium* 2-loculare; ovula solitaria, basilaria; stylus corollæ tubo æquilongus, ramis duobus 1 lin. longis. *Fructus* 4 lin. longus, 4–6-costatus.

Mount Scratchley, 10000–13000 ft.

Coprosma sp. *C. Hookeri*, Stapf, affinis.
Mount Scratchley, 10000–13000 ft.

DIPSACEÆ.

Triplostegia repens, *Hemsley*; a speciebus hactenus cognitibus habitu gracilitateque differt.

Herba perennis (?), caulibus repentibus radicanibus gracillimis (an speciminis depauperati?) puberulis. *Folia* radicalia non visa, caulina opposita, longe graciliterque petiolata, membranacea, pilis paucissimis conspersa, oblonga, pinnatifida, cum petiolis circiter pollicaria, lobis ovatis sæpius 7 aristulatis. *Flores* cymosi, pauci, 6–9 aggregati. *Involucellum* dense nigro-glandulosum.

Wharton Range, 11100 ft.

This genus was previously only known to inhabit the mountains of Northern India and Western China.

COMPOSITÆ.

Myriactis bellidiformis, *F. Muell. in Trans. Roy. Soc. Victoria*, i. pt. 2, p. 12.

Mount Scratchley, 10000–13000 ft.

Myriactis radicans, *F. Muell. in Trans. Roy. Soc. Victoria*, i. pt. 2, p. 13.

Mount Scratchley, 10000–13000 ft.

Vittadinia Alinæ, *F. Muell. in Trans. Roy. Soc. Victoria*, i. pt. 2, p. 11.

Mount Scratchley, 10000–13000 ft., and Wharton Range 11100 ft.

Vittadinia macra, *F. Muell. ? in Trans. Roy. Soc. Victoria*, i. pt. 2, p. 11.

Mount Scratchley, 10000–13000 ft.

Microglossa volubilis, *DC.; Martelli in Nuov. Giorn. Bot. Ital.* xv. (1883), p. 290.

Neneba, Mount Scratchley, about 4000 ft.

Anaphalis Mariæ, *F. Muell. in Trans. Roy. Soc. Victoria*, i. pt. 2, p. 8.

Mount Scratchley, 10000–13000 ft.

Ischnea elachoglossa, *F. Muell. in Trans. Roy. Soc. Victoria*, i. pt. 2, p. 13.

Mount Scratchley, 10000–13000 ft.

Hieracium sp.

Mount Scratchley, 10000–13000 ft.

VACCINIACEÆ.

Agapetes costata, *C. H. Wright*; calycis tubo valde costato facile recognoscenda.

Ramuli teres, hirsuti. *Folia* lanceolata, basi rotundata, integra, supra glabra, subtus ad costam pilosa, marginibus pilosis, $1\frac{1}{2}$ poll. longa, 6 lin. lata; petiolus 2 lin. longus, pilosus. *Pedicelli* per paria axillares, incrassati, 8 lin. longi. *Calycis* tubus 3 lin. longus, glaber, costis 5 crassis; lobi breves, acuminati. Corolla tubulosa, glabra, $1\frac{1}{4}$ lin. longa; lobi 5, breves, triangulares, costis crassis. *Filamenta* 4 lin. longa; antheræ 4 lin. longæ, tubis apicalibus 6 lin. longis. *Stylus* staminibus paullo longior.

Mount Scratchley, 10000–13000 ft.

Vaccinium acutissimum, *F. Muell. in Trans. Roy. Soc. Victoria*, i., pt. 2, p. 15.

Mount Scratchley, 10000–13000 ft.

Vaccinium Macbainii, *F. Muell. in Trans. Roy. Soc. Victoria*, i., pt. 2, p. 17.

Mount Scratchley, 10000–13000 ft.

Vaccinium oblongum, *C. H. Wright*; *V. Macbainii*, *F. Muell.*, accedit, foliis oblongis differt.

Caulis fruticosus. *Folia* oblonga, subintegra, subtus sparse punctata cæterum glabra, 1 poll. longa, 5 lin. lata, nervis supra insculptis, costa subtus conspicua; petiolus crassus, 2 lin. longus. *Racemi* breves, prope caulis apicem enati; bracteæ deltoideæ, 1 lin. longæ. *Calycis* tubus globosus, glaber; lobi rotundati, breviter acuminati, 1 lin. lati. *Corolla* 3 lin. longa; tubus brevis; lobi apice concavi, costa crassa. *Stamina* 10, corollæ æquilonga; filamenta 1 lin. longa, plana, pilosa; antheræ subtus acutæ et antice filamentis liberæ, tubis terminalibus leviter adherentibus antice magniporosus. *Stylus* staminibus paullo longior.

Mount Scratchley, 10000–13000 ft.

Vaccinium sp.

Mount Scratchley, 10000–13000 ft.

ERICACEÆ.

Gaultheria mundula, *F. Muell. in Trans. Roy. Soc. Victoria*, i., pt. 2, p. 21.

Mount Scratchley, 10000–13000 ft., and Wharton Range, 11000 ft.

Rhododendron comptum, *C. H. Wright*; *R. retuso*, *Benn.*, accedit, sed foliis non emarginatis, corollæ tubo latiore campanulato, lobis suborbicularibus patulis differt.

Rami tenues, plus minusve furfuracei. *Folia* obovato-oblonga, obtusa vel subacuta, minutissime crenulata, supra fere glabra, subtus dense lepidota, 9–12 lin. longa, 3–4 lin. lata, costa supra insculpta subtus elevata, nervis lateralibus celatis; petiolus crassus, 1 lin. longus. *Bracteæ* scariosæ, ovatæ, 9 lin. longæ, deciduæ. *Flores* 3–4-ni ad apices ramorum positi; pedicelli 9 lin. longi, minute pubescentes. *Calyx* parvus, obliquus, lobo uno sæpe subulato, reliquis obsoletis. *Corollæ* tubus campanulatus, 6 lin. longus, apice 3 lin. diam., extus sparse lepidotus, intus minute pilosus; lobi suborbiculares, 5 lin. diam. *Stamina* 10; filamenta glabra; antheræ 1 lin. longæ, poris 2 magnis introrsis. *Ovarium* lepidotum; stylus glaber; stigma leviter dilatatum.

Mount Scratchley, 10000–13000 ft.

Rhododendron nodosum, *C. H. Wright*; *R. Lochæ*, *F. Muell.*, affine, sed foliis basi acutis, corollæ tubo longiore, lobis basi multo constrictis distinctum.

Caulis ramosissimus, nodis incrassatus, scrobiculatus. *Folia* oblonga vel obovata, basi acuta, apice acuta vel subobtusa, supra glabra nervis insculptis, infra lepidota nervis elevatis; petiolus 3–4 lin. longus. *Flores* 3–4-ni ad apices ramorum positi. *Pedicelli* 6–9 lin. longi, tenues, lepidoti. *Corollæ* tubus curvatus,

12–14 lin. longus, extus sparse lepidotus, intus pilosus; lobi plus minusve orbiculares. *Stamina* 10, paullo exserta; filamenta infra pilosa; antheræ $1\frac{1}{2}$ –2 lin. longæ, poris terminalibus. *Ovarium* et *styli* basis pilosæ; stigma obliquum, leviter dilatatum.

Mount Scratchley, 10000–13000 ft.

Rhododendron papuanum, *Becc.?* *Malesia*, i., p. 200.

Mount Scratchley, 10000–13000 ft.

Rhododendron phœochitum, *F. Muell.?* in *Trans. Roy. Soc. Victoria*, i., pt. 2., p. 23.

Without locality.

Rhododendron sp. *R. longifloro*, Lindl., affine.

Without locality.

Rhododendron sp.

Mount Scratchley, 12200.

EPACRIDACEÆ.

Decatoca Spencerii, *F. Muell.* in *Trans. Roy. Soc. Victoria*, i., pt. 2., p. 26.

Mount Scratchley, 10000–13000 ft., and Wharton Range, 11100 ft.

Leucopogon Hookeri, *Sond.* in *Linnaea*, xxvi., p. 248; *Benth. Fl. Austral.* iv., p. 205.

Mount Scratchley, 10000–13000 ft.

Leucopogon papuanus, *C. H. Wright*; *L. melaleucoidi*, A. Cunn., distinctus calyce longiore, corolla profunde divisa, lobis acutis intus dense pilosis.

Frutex ramosus. *Ramuli* hispidi. *Folia* oblonga, acuta, glabra, integra, siccitate longitudinaliter striata, 5 lin. longa, $1\frac{1}{2}$ lin. lata; petiolus $\frac{1}{2}$ lin. longus. *Flores* 1–2, axillares, bracteis pluribus parvis imbricatis brunneo-marginatis. *Calyx* profunde 5-partitus, 1 lin. longus; lobi ovati, glabri. *Corolla* cylindrica, fauce breviter pilosa, $2\frac{1}{2}$ lin. longa; lobi brevissimi, obtusi. *Antherarum* loculi basi divaricati. *Ovarium* conicum.

Mount Scratchley, 10000–13000 ft.

MYRSINACEÆ.

Myrsine capitellata, *Wall.?* in *Roxb. Fl. Ind. ed. Carey*, ii., p. 295.

Mount Scratchley, 10000–13000 ft.

Myrsine papuana, *Hemsley*; ex affinitate *M. dasyphyllæ*, Stapf, sed minor, gracilior, foliis apice retusis diversa.

Frutex parva, ut videtur, undique glaber, ramulis ultimis gracilibus, internodiis brevissimis. *Folia* conferta, breviter petiolata, crassa, coriacea, obovato spathulata, 6–12 lin. longa, retusa, sæpe supra medium obscure paucicrenata, deorsum attenuata, subtus inconspicue nigro-lineata, venis immersis obsoletis. *Pedicelli* brevissimi, recurvi. *Fructus* subglobosus, vix sesquilineam longus, pauciglandulosus, sepalis 4 minutis ovato-oblongis vel fere orbicularibus persistentibus.

Mount Scratchley, 10000–13000 ft.

STYRACEÆ.

Symplocos Englishii, *Hemsley*; species ex affinitate *V. buxifolia*, Stapf, a qua differt gracilitate, foliis minoribus, floribus brevissime pedicellatis, calycis lobis in margine glandulosis.

Frutex dense ramosus undique glaberrimus, ramulis subangulatis, internodiis quam foliis brevioribus. *Folia* brevissime petiolata, crassa, coriacea, ovata, elliptica, obovata, vel interdum fere orbicularia, 3–5 lin. longa, basi rotundata vel cuneata, apice rotundata vel subtruncata, supra medium sæpius 5–7-dentata vel crenata, dentibus callosis, venis primariis lateralibus utrinque 2 subtus sat conspicuis. *Flores* axillares, solitarii, 5-meri, cum pedicello brevi folia vix æquant, basi bracteis 4 calycis lobis simillimis calyculum formantibus subtentis. *Calycis* lobi rotundato-deltaidei, $\frac{1}{2}$ – $\frac{3}{4}$ lin. lati, margine glandulosi. *Petala* brevissime connata vel omnino soluta, oblongo-lanceolata, circiter 3 lin. longa, obtusa. *Stamina* 15–20, valde inæqualia, maxima quam petala breviora, filamentis crassiusculis teretibus inter se et cum petalis leviter adhærentibus. *Stylus* crassus, quam stamina longiora brevior. *Fructus* anguste ovoideus, 5–6 lin. longus, calycis lobis coronatus.

Mount Scratchley, 10000–13000 ft., and Wharton Range, 11100 ft.

Symplocos orbicularis, *Hemsley*; inter species papuanenses foliis rotundatis distincta.

Frutex dense ramosus, fere undique glaber, ramulis rigidis, internodiis quam foliis multo brevioribus. *Folia* brevissime petiolata, crassa, coriacea, lutescentia, orbicularia vel interdum late elliptica, obsolete remoteque crenulata, 6–15 lin. lata, venis subtus sat conspicuis. *Flores* racemosi, brevissime crasseque pedicellati, 5–6-meri, glabri, 6–7 lin. diametro; racemi axillares, rigidi, furfuracei, folia æquant vel paullo superantes, bracteis obsoletis vel cito deciduis. *Calycis* lobi semiorbiculares, circiter lineam lati, margine minute ciliolati. *Petala* ima basi tantum cohærentia, late elliptica vel fere orbicularia, concava, circiter $2\frac{1}{2}$ lin. longa. *Stamina* 15–20, inæqualia, inter se et cum petalis leviter cohærentia. *Fructus* ovoideus, 4–5 lin. longus.

Mount Scratchley, 10000–13000 ft.

Symplocos sp.

Mount Scratchley, 10000–13000 ft.

APOCYNACEÆ.

Alstonia scholaris, R.Br.; *F. Muell. Papuan Pl.* i, p. 70; *Benth. Fl. Austral.* iv., p. 312.

Daru Island.

Tabernæmontana pubescens, R.Br.; *F. Muell. Papuan Pl.* i, p. 91; *Benth. Fl. Austral.* iv., p. 311.

Without locality.

LOGANIACEÆ.

Dolianthus, C. H. Wright, (gen. nov.); *Hymenocnemidi*, Hook. f., proximus. *Flores* axillares, solitarii. *Calyx* æqualiter 4-lobatus, sine dentibus intermediis. *Corollæ* tubus infundibuliformis; lobi 4, valvati. *Stamina* 4, ad corollæ fauces subsessilia. *Ovarium* superius, 2-loculare; stylus filiformis; stigma incrassatum, minute 2-lobatum; ovula solitaria, erecta. —*Arbuscula habitu Coprosmae, foliis coriaceis*.

D. vaccinioides, C. H. Wright; (*sp. unica*).

Rami lignosi, 1–2 lin. diam., primum pubescentes, demum glabri. *Folia* opposita, lanceolata, subobtusa, glabra, sempervirentes (?), penninervia, 5 lin. longa, 2 lin. lata; petioli $\frac{1}{2}$ lin. longi; stipulæ ovatæ, caducæ. *Pedicelli* $1\frac{1}{2}$ lin. longi. *Calyx* cupularis, glaber; lobi triangulares, obtusi. *Corollæ* tubus, 6 lin. longus, extus glaber, intus minute pubescens; lobi oblongi, acuti, 2 lin. longi. *Antheræ* sagittatæ, 1 lin. longæ; filamenta antheris æquilongæ. *Ovarium* globosum; stylus corollæ æquilongus.

Mount Scratchley, 10000–13000 ft.

Fagræa sp.

Mount Scratchley, 10000–13000 ft.

GENTIANACEÆ.

Gentiana Ettingshauseni, F. Muell. in *Trans. Roy. Soc. Victoria*, i. pt. 2, p. 27.

Mount Scratchley, 12200 ft., and Wharton Range, 11100 ft.

Gentiana (*Chondrophyllum*) *Giulianettii*, Hemsley; ex affinitate *G. Ettingshauseni*, F. Muell., a qua differt caulibus simplicibus, corollæ lobis latis brevibus.

Caulis erecti, simplices, graciles, 1–2 poll. alti, atque folia omnino glabri. *Folia* tenuiter cartilaginea, sessilia, subpatentia, oblongo-ovata, circiter 2 lin. longa, apice aristata. *Flores* in apicibus caulium vel ramorum solitarii, sessiles, circiter 4 lin. longi. *Calyx* cartilagineus, quam corolla paullo brevior, dentibus erectis subulatis vel fere aciculatis tubo brevioribus. *Corolla* anguste infundibuliformis, lobis brevissimis ovatis apiculatis cum plicaturis fere truncatis alternantibus. *Genitalia* inclusa. *Capsula* deest.

Mount Scratchley, 12200 ft.

Gentiana (*Chondrophyllum*) *Macgregorii*, *Hemsl.* ; inter species affines foliis ramorum arctissime quadrifariam imbricatis insignis.

Planta perennis (?), minima, glaberrima, caulibus erectis vix pollicaribus vel interdum procumbentibus longioribus ramulos erectos gerentibus. *Folia* sessilia, imbricata, sæpe confertissima, cartilaginea, subulata, concavo-convexa, maxima $2\frac{1}{2}$ –3 lin. longa, sed sæpius breviora, apice aristulata. *Flores* terminales, solitarii, sessiles, erecti, circiter 7 lin. longi. *Calyx* cartilagineus, lobis erectis subulatis tubum æquantibus. *Corolla* fere cylindrica, calycem tertia parte excedens, lobis brevibus erectis acutis cum plicaturis rotundatis fere obsolete denticulatis alternantibus. *Stamina* inclusa, filamentis deorsum leviter dilatatis. *Ovarium* clavatum vix stipitatum, stylo brevissimo, stigmatibus 2 sphæroideis. *Capsula* ignota.

Mount Scratchley, 12200 ft.

BORAGINACEÆ.

Myosotis ?

Without locality.

Havilandia papuana, *Hemsley* ; minor quam *H. borneensis*, Stapf, foliis deorsum vix attenuatis pedicellis cum floribus fere æquantibus.

Herba parva, perennis, procumbens, plus minusve setuloso-strigosa, caulibus ramulisque gracillimis. *Folia* spathulato-oblonga, maxima circiter 4 lin. longa, præcipue margine et subtus secus costam setulosa. *Flores* axillares, solitarii, vix 3 lin. diametro. *Calyx* setulosus, profunde 5-lobatus, lobis oblongis. *Corollæ* lobi orbiculares, undulati. *Squamæ* parvæ, rotundatæ. *Stamina* ac *stylus* inclusi. *Nuculæ* cuneato-lunatæ, læves, nitidæ.

Mount Scratchley, 12200 ft., and Wharton Range, 11100 ft.

SOLANACEÆ.

Solanum aviculare, *Forst. f. Prod.*, p. 18 ; *Benth. Fl. Austral.* iv., p. 447.

Neneba, Mount Scratchley, about 4000 ft.

Solanum dallmannianum, *Warb. ? in Eng. Bot. Jahrb.* xiii., p. 415.

Neneba, Mount Scratchley, about 4000 ft.

Solanum torvum, *Sw.* ; *K. Schum. Fl. Kais. Wilh. Land*, p. 117.

Neneba, Mount Scratchley, about 4000 ft.

SCROPHULARIACEÆ.

Vandellia crustacea, *Benth.* ; *F. Muell. Papuan Pl.*, i., p. 90 ; *Benth. Fl. Austral.* iv., p. 496.

Neneba, Mount Scratchley, about 4000 ft.

Veronica Lendenfeldii, *F. Muell. in Trans. Roy. Soc. Victoria*, i. pt. 2, p. 29.

Mount Scratchley, 10000–13000 ft., and Wharton Range, 11100 ft.

Veronica sp.

Mount Scratchley, 12400 ft.

GESNERACEÆ.

Dichrotrichum sp.

Neneba, Mount Scratchley, about 4000 ft.

ACANTHACEÆ.

Ptyssiglottis ?

Neneba, Mount Scratchley, about 4000 ft.

Graptophyllum hortense, *Nees ; F. Muell. Papuan Pl.* ii., p. 33.

Neneba, Mount Scratchley, about 4000 ft.

VERBENACEÆ.

Callicarpa longifolia, *Lam. ; K. Schum. Fl. Kais. Wilh. Land*, p. 119, *Benth. Fl. Austral.* v., p. 57.

Neneba, Mount Scratchley, about 4000 ft.

Callicarpa sp.

Neneba, Mount Scratchley, about 4000 ft.

LABIATÆ.

Plectranthus ?

Mount Scratchley, 10000–13000 ft.

POLYGONACEÆ.

Polygonum chinense, *Linn. ; DC. Prod.* xiv., p. 130.

Neneba, Mount Scratchley, about 4000 ft.

NEPENTHACEÆ.

Nepenthes spp. 2.

Without locality.

PIPERACEÆ.

Piper excelsum, *Forst. f. Prod.*, p. 5.

Neneba, Mount Scratchley, about 4,000 ft.

MYRISTICACEÆ.

Myristica lepidota, Blume; *Miq. Ann. Bot.* ii., p. 46.
Mount Scratchley, 10000–13000 ft.

THYMELÆACEÆ.

Drapetes ericoides, Hook. f. in Hook. *Ic. Pl.* t. 895; *F. Muell.*
in *Trans. Roy. Soc. Victoria*, i. pt. 2, p. 4.
Mount Scratchley, 10000–13000 ft.

LORANTHACEÆ.

Loranthus (Heteranthus) pachypus, *Burkill*; verisimiliter *L. pendulo*, Sieber, affinis, sed pedunculis crassis diversissimus.

Rami crassiusculi, glabri, cortice cinerei. *Folia* opposita, anguste obovata, apice rotundata, basi in petiolum 2–3 lin. longum angustata, $1\frac{1}{2}$ – $1\frac{3}{4}$ poll. longa, 7–9 lin. lata, coriacea, glabra, nervis lateralibus utrinque duobus tribusve primarioque supra indistinctis infra nullo modo visibilibus. *Inflorescentiæ* foliis breviores, 1–4 ad axillas foliorum enatæ, omnino glabræ; pedunculus 5–7 lin. longus, ramos 3-floros 3–4 umbellatim gerens; pedicellus ultimus 2 lin. longus, fere 1 lin. diam., bractea minuta unguiformi terminatus, florem ad apicem oblique gerens; pedicelli juniores incurvati, sic modo flores obtegentes. *Calycis* tubus cupuliformis, margine minute 4-dentatus. *Perianthii* segmenta (matura non visa) 4, immatura facile separabilia, glabra. *Stamina* prope basin segmentorum perianthii immaturorum affixa. *Ovarium* ellipsoideum, 1 lin. longum; stylus, segmentis perianthii delapsis, 8 lin. longus.

Mount Scratchley, 10000–13000 ft.

One notices at once the swollen joints of the inflorescence which, when in bud or after the fall of the perianth, give it the appearance of a small *Opuntia*, whose last and shortest joint is in this case the bud or the ovary. These joints are narrowed at their insertion, and readily break off at this point.

EUPHORBIACEÆ.

Aporosa ?

Neneba, Mount Scratchley, about 4000 ft.

URTICACEÆ.

Elatostema sp.

Neneba, Mount Scratchley, about 4000 ft.

CONIFERÆ.

Librocedrus papuana, *F. Muell.*; *Warb. in Engl. Bot. Jahrb.*, xvi., p. 12.

Neneba, Mount Scratchley, about 4000 ft.

Podocarpus cupressina, R. Br. ex Mirb. in *Mém. Mus. Par.*, xiii., p. 75; *Becc. Malesia*, i, p. 179.

Mount Scratchley, 10000–13000 ft., and Wharton Range, 11100 ft.

HYDROCHARIDACEÆ.

Ottelia alismoides, Pers. *Syn. Pl.* i, p. 400; *Benth. Fl. Austral.* vi., p. 527.

Iaro River, near Magibiri, in the Astrolabe Range.

ORCHIDACEÆ.

Dendrobium (Stachyobium) rigidifolium, Rolfe; ad *D. mirbelianum*, Gaud., accedit, recedit petalis latis sepalis æqualibus, labello minore.

Pseudobulbi teretes, $\frac{3}{4}$ ped. longi, polyphylli. *Folia* ovata, subobtusata, sessilia, coriacea, 1–1 $\frac{3}{4}$ poll. longa. *Racemi* terminales, 2–2 $\frac{1}{2}$ poll. longi, basi vaginis tubulosis imbricatis obtectæ. *Bracteæ* ovato-oblongæ, obtusæ, 4–6 lin. longæ. *Pedicelli* 1 $\frac{1}{4}$ poll. longi. *Sepalum* posticum oblongum, breviter cuspidato-acuminatum, 10–12 lin. longum; lateralia triangulari-falcata, acuta, carinata, 10–12 lin. longa. *Petala* obovato-oblonga, obtusa, plana, 9–11 lin. longa, 4 $\frac{1}{2}$ lin. lata. *Labellum* integrum, elliptico-oblongum, obtusum, recurvum, 6–7 lin. longum, lateribus erectis paululo undulatis, disco medio bicarinato. *Columna* lata, 1 lin. longa. *Mentum* breviter conicum, obtusum, 4 lin. longum.

Mount Scratchley, 12200 ft.

This species evidently belongs to the group containing *D. mirbelianum*, Gaud., and *D. veratrifolium*, Lindl., among which it is remarkable for its broad flat petals not longer than the sepals.

Dendrobium (Pedilonum) brevicaule, Rolfe; ex affinitate *D. Cuthbertsoni*, F. Muell., a quo differt floribus majoribus, labello cuneato-oblongo abrupte acuminato.

Pseudobulbi brevissimi, cæspitosi, oblongi, $\frac{1}{2}$ –1 poll. longi, 2–4-phylli. *Folia* lineari-lanceolata, subacuta, $\frac{3}{4}$ –4 poll. longa, 2–4 lin. lata. *Racemi* terminales, breves, 2–3-flori. *Bracteæ* late ovatæ, acutæ, concavæ, imbricatæ, 2–5 lin. longæ. *Pedicelli* $\frac{3}{4}$ –1 poll. longi, trialati. *Sepalum* posticum oblongo-lanceolatum, acutum, 4–7 lin. longum; lateralia triangulari-ovata, acuta vel acuminata, carinata, 2–3 $\frac{1}{2}$ lin. lata, basi cum columnæ pede in mentum longum extensa. *Petala* elliptico-lanceolata, acuta, 3–6 lin. longa. *Labellum* cuneato-oblongum, abrupte acuminatum, 7–11 lin. longum, 1 $\frac{1}{2}$ –3 lin. latum, disco lævi. *Columna* lata, 2–3 lin. longa. *Mentum* conico-elongatum, acutum, paululo incurvatum, 8–12 lin. longum.

Mount Scratchley, 12200 ft.

A remarkable alpine species with relatively very large flowers. It is one of a small group characterised by its very dwarf pseudobulbs, the other known species being *D. cerasinum*, Ridl., *D. puniceum*, Ridl., and *D. Cuthbertsoni*, F. Muell., all natives of New Guinea.

Acanthephippium javanicum, *Blume Bijdr.* p. 353; *Hook. in Bot. Mag.*, t. 4492; *Ridl. in Journ. Bot.* 1886, p. 354.

Neneba, Mount Scratchley, at about 4000 ft.

Glomera papuana, *Rolfe*; ad *G. erythrosman*, *Blume*, accedit, foliorum vaginis verrucosis, laminis triplo vel quadruplo minoribus differt.

Caules graciles vel crassiusculi, erecti, 4–6 poll. alti, polyphylli. *Folia* oblongo-vel lineari-lanceolata, oblique et inæqualiter bidentata, 1–1½ poll. longa, 1–3 lin. lata; vaginæ tuberculato-verrucosæ. *Capitula* 7–9 lin. lata, 5–8-flora. *Bractææ* late ovatæ, subacutæ, striatæ, 3–4 lin. longæ. *Pedicelli* 2–3 lin. longi. *Sepalum* posticum ovatum, subacutum, concavum, 1½ lin. longum; lateralia late ovata, subacuta, concava, basi obliqua. *Petala* ovata, subacuta, concava, 1½ lin. longa. *Labellum* basi ample saccatum, obtusum, 2 lin. longum, 1 lin. latum; lamina patens, ovato-oblonga, obtusa, ¾ lin. longa, lateribus medio plicato-reflexis, disco quinque-carinato. *Columna* clavata, 1¼ lin. longa, alis oblongis obtusis. *Mentum* saccato-oblongum, obtusum, 2 lin. longum.

Oriomo River.

An interesting addition to the genus, the two previously known species being *G. erythrosma*, *Blume*, from Java, and *G. montana*, *Reichb. f.*, from Fiji.

Giulianettia, *Rolfe* (*gen. nov.*). *Sepala* patentia, subæqualia, lateralia basi ultra insertionem oblique extensa, connata, pone labelli calcarem laminam liberam breviter bilobam formantia. *Petala* sepalis angustiora. *Labellum* basi columnæ affixum et cum ea in tubum brevem connatum, basi longe calcaratum; lamina erecta, integra, late cordato-ovata, concava, brevissima, medio crassiuscula. *Columna* brevissima, crassa; clinandrium cavum, amplum, crenulatum. *Anthera* terminalis, opercularis, incumbens, convexa, 2-ocularis; pollinia non visa.—Herba epiphytica, humilis. Flores terminales, solitarii, e medio bractearum imbricarum paleaceo-scariosarum horizontale ad apices ramorum enascentes.

Giulianettia tenuis, *Rolfe* (*sp. unica*). *Icones Plantarum*, t. 2616.

Mount Scratchley, 12200 ft.

A very interesting monotype, clearly allied to *Ceratostylis*, but differing in its large solitary flowers, in the auriculate bases of the lateral sepals united into a free limb behind the spur of the lip, not forming a mentum with the foot of the column, and in the long spur of the lip, which is about three times as long as the limb. The pollinia were missing from the flower examined.

Calanthe Englishii, *Rolfe*; ad *C. clavatam*, *Lindl.*, accedit, differt labello integro, calcare oblongo et duplo brevior.

Rhizoma repens. *Folia* lineari-lanceolata, acuminata, in petiolum attenuata, 1–1¾ ped. alta, 7–9 lin. lata. *Scapus* ¾ ped. altus, vaginis oblongis paucis obtectus. *Racemus* brevis, pauciflorus. *Bractææ* deciduæ. *Pedicelli* 6–7 lin. longi. *Sepala* elliptico-oblonga, 4–5 lin. longa, posticum obtusum, lateralia

apiculata. *Petala* elliptico-oblonga, obtusa, 3–4 lin. longa. *Labellum* ad apicem columnæ affixum, integrum, late obovatum, obtusum, concavum, 3–4 lin. longum, basi venis 2 paullo incrassatis; calcar elliptico-oblongum, obtusum, 2 lin. longum. *Columna* clavata, $1\frac{1}{2}$ lin. longa.

Neneba, Mount Scratchley, at about 4000 ft.

The bracts fall before the flowers expand, as in other species of this affinity.

Podochilus densiflorus, *Blume in Rumphia*, iv., p. 44, tt. 192, fig. 5, 200, fig. B.; *Miq. Ann. Bot.* iii., p. 687.

Vanapa Valley, 2000–4000 ft.

Pterostylis papuana, *Rolfe*; ad *P. cucullatam*, R. Br., accedit, sed foliis angustioribus, sepalis petalisque longioribus, labello angustiore facile distinguitur.

Caulis gracilis, circa 7 poll. altus. *Folia* radicalia petiolata, ovato-oblonga, subacuta, $1-1\frac{1}{4}$ poll. longa, 5–6 lin. lata; petiolus 6–9 lin. longus; folia caulina sessilia, lanceolata, acuta, concava, 10–12 lin. longa, 2–3 lin. lata. *Flos* solitarius. *Bractea* lanceolata, acuta, concava, 10–11 lin. longa. *Sepalum* posticum oblongo-lanceolatum, acuminatum, incurvum, 2 poll. longum; lateralia basi lanceolata, 1 poll. longa, apice caudato-acuminata, 7–8 lin. longa. *Petala* falcato-lanceolata, acuta, $1\frac{3}{4}$ poll. longa. *Labellum* anguste lanceolatum, acuminatum, 9–10 lin. longum; appendix uncatata, 2 lin. longa, apice penicillata. *Columna* 9 lin. longa; alæ dolabriformes, utrinque apice in dentem filiformem extensæ, basi in lobum oblongum extensæ.

Mount Scratchley, 12200 ft.

This discovery extends the range of the genus to New Guinea, it having previously been known only from Australia, New Zealand, and New Caledonia.

SCITAMINEÆ.

Alpinia sp., *A. macranthæ*, Scheff., affinis.

Neneba, Mount Scratchley, about 4000 ft.

Alpinia sp.

Mount Scratchley, 12200 ft., and Wharton Range, 11100 ft.

IRIDACEÆ.

Libertia pulchella, *Spreng. Syst.* i., p. 169; *Benth. Fl. Austral.* vi., p. 413.

Mount Scratchley, 12200 ft.

LILIACEÆ.

Cordyline terminalis, *Kunth*; *F. Muell. Papuan Pl.* i., p. 31; *Benth. Fl. Austral.* vii., p. 21.

Neneba, Mount Scratchley, about 4000 ft.

Astelia alpina, *R. Br.?* *F. Muell. in Trans. Roy. Soc. Victoria*, i., pt. 2, p. 35; *Benth. Fl. Austral.* vii., p. 11.

Mount Scratchley, 12200 ft., and Wharton Range, 11100 ft.

Dianella memorosa, *Lam.* (*D. ensifolia*, *Red.*); *K. Schum. Fl. Kais. Wilh. Land*, p. 14; *Benth. Fl. Austral.* vii., p. 16.

Neneba, Mount Scratchley, about 4000 ft.

COMMELINACEÆ.

Pollia sp.

Neneba, Mount Scratchley, about 4000 ft.

PALMÆ.

Areca sp.

Without locality.

Adelonenga sp.

Without locality.

Orania sp., *O. regali*, *Zipp.*, affinis.

Vanapa Valley, 2000–4000 ft.

Korthalsia sp.

Without locality.

In each case the specimens of the palms are only sufficient to determine the genus.

PANDANACEÆ.

Pandanus sp.

Without locality.

NAIADACEÆ.

Aponogeton monostachyon, *Linn. f.*; *Benth. Fl. Austral.* vii., p. 188.

Magibiri, Astrolabe Range, 2000 ft.

ERIOCAULACEÆ.

Eriocaulon sp.

Mount Scratchley, 12200 ft.

CYPERACEÆ.

Cyperus pedunculatus, *F. Muell.*; *Benth. Fl. Austral.* vii., p. 272.

Vanapa Valley, 2000–4000 ft.

Scirpus fluitans, *Linn.*; *Benth. Fl. Austral.* vii., p. 326.

Mount Scratchley, 12200 ft.

Hypolytrum Parvibractea, *C. B. Clarke*; *H. prolifero*, Boeck. proxima, differt spicis rubro-brunneis, culmi vaginis aphyllis.

Culmus gracilis, 2 ped. longus, aphyllus; nodi 3, distantes; vaginæ in nodis sitæ, 2 poll. longæ, rubro-brunneæ, apice unilater-aliter acutatae. *Folia* basalia longa, $\frac{1}{2}$ poll. lata, 3-nervia, in marginibus modice spinulosa. *Panicula* composita, $1\frac{1}{2}$ poll. alta, 3 poll. lata, in pseudo-umbellam fere depressa, omnino rufo-brunnea, bracteis $\frac{1}{3}$ - $\frac{1}{2}$ poll. longis ovatis acutis. *Spicæ* longæ, ellipsoideæ, brunneæ. *Stylus* 2-fidus. *Nucis* rostrum conicum, nuci subæquilongum.

Mount Scratchley, 12250 ft.

Carpha alpina, *R. Br.*; *F. Muell. in Trans. Roy. Soc. Victoria*, i., pt. 2, p. 35; *Benth. Fl. Austral.* vii., p. 381.

Mount Scratchley, 12200 ft.

Schœnus curvulus, *F. Muell. in Trans. Roy. Soc. Victoria*, i., pt. 2, p. 36.

Mount Scratchley, 12200 ft.

Costularia paludosa, *C. B. Clarke*; (*Schœnus paludosus*, *Poir. Encyc. Suppl.*, ii., p. 251; *Tricostularia paludosa*, *Benth. Fl. Austral.*, vii., p. 382).

The generic name *Costularia* is published in Dur. et Schinz Consp. Fl. Afr., v., p. 658, with list of species and of distribution numbers.

Gahnia javanica, *Moritzi*; *F. Muell. in Trans. Roy. Soc. Victoria*, i., pt. 2, p. 36.

Mount Scratchley, 12200 ft.

Carex vulgaris, *Fries*, var., *gaudichaudiana*, *Benth. Fl. Austral.* vii., p. 442.

Without locality.

Carex sp., *C. lindleyanæ*, Nees, affinis

Wharton Range, 11100 ft.

GRAMINEÆ.

Microlæna Giulianettii, *Stapf*; affinis *M. avenaceæ*, Hook. f., sed foliis brevibus rigidis, panicula angustissima stricta, spiculis rigidioribus diversa.

Gramen cæspitosum, glabrum, innovationibus extravaginalibus. *Culmi*, internodiis (summo ad 2 poll. longo excepto) omnibus brevissimis vel subnullis, foliis superati, tota longitudine vaginati. *Folia* omnia basalia; vaginæ infimæ ad squamas reductæ, sequentes lateraliter compressæ, carinatae, firmæ, striatæ ad os parce barbatae, persistentes, vagina summa paniculæ basin amplectens; ligulæ brevissimæ, truncatæ, membranaceæ; laminæ lanceolato-lineares, basi attenuatæ, sensim in vaginam abeuntes, apice breviter

acutæ, 4–6 poll. longæ, 2–4 lin. latæ, erectæ, firmæ, rigidæ, subtus superne scaberulæ, cæterum glabræ. *Panicula* strictæ, angustissima, 4–6 lin. longæ, folia æquantes vel paullo exsertæ; rami solitarii, remoti, appressi, ut rhachis compressa scaberuli, parce remoteque ramulosi; pedicelli 2–5 lin. longi, filiformes, apice clavati læviusculi. *Spiculæ* lineares, pallidæ, cum arista 10–11 lin. longæ. *Glumæ* minutæ, ovatæ, obtusæ, scariosæ, inferior $\frac{3}{8}$ – $\frac{1}{2}$ lin., superior $\frac{3}{4}$ –1 lin. longæ. *Valvæ* steriles, subcoriaceæ, lateraliter compressæ, carinatae, lineares, sensim in aristam abeuntes, 7-nerves, superne scaberulæ, basi barbatae, inferior circiter 4 lin., superior 6 lin. longæ; illius arista brevis, hujus valvam subæquans, utraque scabrida; valva fertilis admodum compressa, oblongo-linearis, subacuta, $3\frac{1}{2}$ lin. longa, tenuiter chartacea, 7-nervis; palea hyalina, enervis, 2 lin. longa. *Stamina* 2; antheræ 1 lin. longæ.

Mount Scratchley, 12200 ft.

Muehlenbergia sp.

Vanapa Valley, 2000–4000 ft.

Deyeuxia sclerophylla, *Stapf*; nulli speciei arcte affinis, glumis valvaque rigidis, arista e sinu orta distincta, potius sectionem novam *Sclerodeyeuxiam* sistens. *Icones Plantarum*, t. 2605.

Mount Scratchley, 12200 ft.

The glumes are as rigid as those of *Ammophila*, and the valve, though thinner, is still firmer than in any other *Deyeuxia* I have seen. The leaves are in structure very like the leaves of *Ammophila arenaria*, but the blades are more compressed. The awn springs from the sinus of the valve, whilst it is, I believe, always dorsal in the true *Deyeuxias* and reduced to a subterminal mucro or quite absent in *Ammophila*. This insertion of the awn in connection with the rigid side lobes and the shortly excurrent side nerves would bring the species near to *Fentapogon*, but in that genus the rhachilla is glabrous and the top of the ovary conspicuously appendaged. The great similarity of the structure of the blades of *Deyeuxia sclerophylla* and of the other grasses of Giulianetti's collection from Mount Scratchley, with the exception of *Microlæna*, is very singular, and indicative of great (probably periodical) dryness of the air.

Danthonia oreoboloides, *Stapf*; affinis *D. exigua*, *Stapf* (*D. paucifloræ*, *Buch.*, non *R. Br.*; *Triodiæ exiguæ*, *Kirk*), sed minor, tenuior, spiculis minoribus, valvis exsertis integris acuminatis distincta. *Icones Plantarum*, t. 2606.

Mount Scratchley, 12200 ft.

I have no doubt that this is the grass which Sir Ferdinand von Mueller described in *Trans. Roy. Soc. Victoria*, i., pt. 2, p. 38 and named provisionally *Festuca oreoboloides*.

Lophatherum gracile, *Brongn.*; *K. Schum. Fl. Kais. Wilh. Land*, p. 23.

Vanapa Valley, 2000–4000 ft.

Poa callosa, Stapf; affinis *P. papuana*, Stapf, sed foliis lævisimis ad laminæ basin callosis, valvis minus acuminatis 5-nervi-bus, paleis in carinis scaberulis quam valvis brevioribus distincta.

Gramen dense cæspitosum. *Culmi* erecti, graciles, 3 poll. longi, sub panicula scaberuli, cæterum læves, vix ad medium dense vaginata internodiis summo excepto brevissimis basalibus. *Folia* ad basin dense congesta, flabellatim imbricata, glaberrima, lævissima; vaginæ arctæ, leviter compressæ, laxè leviterque striatæ; ligulæ brevissimæ, acutæ, membranacæ; laminæ setacæ, lateraliter compressæ, canaliculatæ, apice brevissime et oblique acutatae, 2 poll. longæ, rigidæ, erectæ. *Panicula* paupera, linearis, 9–10 lin. longa, stricta; rami inferiores geminati, rhachi appressi, 2–1-spiculati, filiformes, scaberuli; pedicelli ramis similes, crassiusculi, laterales circa 1 lin. longi. *Spicula* 2–1-floræ, oblongæ, fere 2 lin. longæ, pallidæ. *Glumæ* oblongo-ovatae, acutæ, læves, inferior mediam spiculam æquans 3-nervis, superior paullo longior sub-5-nervis. *Valvæ* oblongæ, acutæ, $1\frac{2}{3}$ lin. longæ, rigidulæ, læves, 5-nerves. *Paleæ* quam valvæ paullo breviores, carinis asperulis. *Lodiculæ* inæqualiter 2-lobæ. *Antheræ* $\frac{1}{3}$ lin. longæ.

Mount Scratchley, 12200 ft.

Poa minimiflora, Stapf; affinis *P. epileuca*, Stapf (*Deyeuxia epileuca*, Stapf), sed foliis tenuiter setaceis, paniculis uberioribus, spiculis minoribus diversa. *Icones Plantarum*, t. 2608.

Mount Scratchley, 12200 ft.

Poa papuana, Stapf; affinis *P. minimifloræ*, Stapf, sed foliis minus tenuibus rigidioribus scaberulis, spiculis paullo majoribus, valvis acute acuminatis quam palea lævi paululo brevioribus diversa. *Icones Plantarum*, t. 2607.

Mount Scratchley, 12200 ft.

Poa papuana, *P. callosa*, *P. minimiflora* and *P. epileuca* form a small natural group, the affinity of which lies evidently with *Poa kerguelensis*, Hook. f. and *P. antarctica*, Stapf (*Triodia antarctica*, Hook. f.). In my paper on the flora of Kinabalu (*Trans. Linn. Soc.*, ser. 2. iv., p. 247), I have pointed out that the grass which I then described as *Deyeuxia epileuca* was “a very marked species the affinity of which lies rather with some Australian species (of *Deyeuxia*) than with any others, though it is far from being closely connected” and that “the spikelets come, perhaps, nearer to those of *D. gunniana*, Benth.”; but I was then “still doubtful as to the true systematic position” of the grass (l. c. 105). The discovery of *Poa papuana* and *P. minimiflora* has now given me the key to it in the direction indicated above. This group of *Poa* is well marked off from the rest by the minute 1–2-flowered spikelets and the firmer texture of the glumes and valves and will probably have to stand as a section of *Poa*. *Deyeuxia gunniana*, Benth., and the closely allied *D. breviglumis*, Benth., are in general habit strikingly similar to *P. papuana* and *P. minimiflora*, but the obtuse glumes and the minutely emarginate and mucronulate valves with nerves evanescent towards

the base point to a different genus. *P. papuana*, and, perhaps, also *P. mininiiflora* are evidently the grasses which Sir Ferdinand von Mueller enumerated as *Festuca pusilla* (*Trans. Roy. Soc Victoria*, i., pt. 2, p. 38).

Festuca monantha, Stapf; affinis *F. papuanae*, Stapf, sed culmis alte vaginatis foliis brevioribus, vaginis inferioribus brevibus, spiculis 1-floribus minoribus, glumis valvam æquantibus, ovario apice pilosulo diversa.

Gramen dense cæspitosum, innovationibus intravaginalibus. *Culmi* graciles, erecti, lævissimi, $\frac{1}{2}$ ped. alti, tota longitudine vaginati. *Folia* basi congesta; vaginæ lateraliter compressæ, obtuse carinatae, firmulae, 7-9-nerves, persistentes, basales $\frac{1}{2}$ poll. longæ; ligulæ brevissimæ, obtuse subauriculatæ; laminæ erectæ, setaceæ, arcte plicatæ, subacutæ, 4 poll. longæ, rigidæ, vix costatæ, læves. *Panicula* linearis, angustissima, 2 poll. longa, erecta; rami distantes, simplices, rhachi angulatæ scabræ appressæ, 3-2-spiculatæ, compressæ, longiores circiter $\frac{1}{2}$ poll. longæ; pedicelli crassiusculi, ramis similes, laterales ad 1 lin. longi. *Spiculæ* 1-floræ, fere $2\frac{1}{2}$ lin. longæ, virides; rhachillæ processus longiusculus, scaberulus. *Glumæ* lanceolatæ, acuminatæ, membranaceo-marginatæ, cæterum herbaceæ, inferior 2 lin. paullo longior 1-sub-3-nervis, superior paullo longior latior 3-nervis. *Valva* lineari-lanceolata (a latere) in setam scabram tenuem subæquilongam abeuns, superne scabridula, 5-nervis, glumam superiorem æquans vel ea subbrevior. *Palea* valvam æquans, carinis superne scabris. *Lodiculæ* fimbriatæ. *Antheræ* $\frac{1}{2}$ - $\frac{5}{8}$ lin. longæ. *Ovarium* apice minute pilosulum. *Caryopsis* oblonga; hilum medium excedens.

Mount Scratchley, 12200 ft.

Festuca papuana, Stapf; affinis *F. magellanicae*, Lam., inter species antarcticas, *F. ovinae*, Linn., subsp. *F. frigidae*, Hack., inter species orbis veteris; ab utraque foliis longis, valvarum nervis magis conspicuis; ab illa præterea vaginis fere ad os integris, ab hac laminis rigidioribus, panicula longiore, spiculis paullo majoribus diversa.

Gramen dense cæspitosum, innovationibus intravaginalibus crebris. *Culmi* erecti 1-2 ped. alti, lævissimi, vix ad medium vaginati. *Folia* numerosa ad basin subflabellatim arcte congesta; vaginæ lateraliter compressæ, obtusæ carinatae, fere ad os integræ, exteriores 5-7- interiores 3- nerves, persistentes; ligulæ brevissimæ, obtuse subauriculatæ; laminæ erectæ, setaceæ, arcte plicatæ, acutissimæ, 4-9 poll. longæ, rigidæ, subpungentes, plus minusve tricostatæ, tenuiter scaberulæ vel fere læves. *Panicula* contracta, anguste linearis, 3-4 poll. longa; rhachis angulata, scabrida, stricta; rami distantes, rhachi appressi, subsimplices, inferiores ad $1\frac{1}{2}$ poll. longi et 5-8-spiculati, filiformes, scaberuli; pedicelli ramis similes, laterales 1-3 lin. longi. *Spiculæ* 3-4-floræ, oblongæ, $3\frac{1}{2}$ lin. longæ, purpureo- vel nigro-fuscescentes vel ad basin valvarum virides. *Glumæ* paullo inæquales, oblongo-lanceolatæ, carinatæ, 3-nerves, læves vel superne obscure asperulæ, inferior circiter 2 lin., superior $2\frac{1}{2}$ lin. longa. *Valvæ* dissitæ, lanceolatæ in aristam brevem abeuntes, superne scaberulæ vel sublæves, firmulæ, 5-nerves, nervis prominulis. *Paleæ* valvas æquantes,

carinis scaberulis. *Lodiculæ* inæqualiter 2-lobæ, fimbriatulæ. *Antheræ* $\frac{3}{4}$ lin. longæ. *Ovarium* glabrum. *Caryopsis* lineari-oblonga, a dorso compressa, $1\frac{1}{2}$ lin. longa, antice vix sulcata; hilum ultra medium productum lineare.

Mount Scratchley, 12200 ft.

This is, no doubt, the plant enumerated by Sir Ferdinand von Mueller as *F. ovina* in *Trans. Roy. Soc. Victoria* i., pt. 2, p. 38.

FILICES.

Gleichenia flagellaris, *Spreng.*; *Hook. & Baker, Syn. Fil.*, p. 14; *F. Muell. Papuan Pl.* ii., p. 35.

Without locality.

Hymenophyllum demissum, *Sw.*; *Hook & Baker, Syn. Fil.*, p. 61.
Mount Scratchley, 12400 ft.

Hymenophyllum dilatatum, *Sw.*; *Hook. & Baker, Syn. Fil.*, p. 62; *F. Muell. in Ann. Rep. Brit. N. Guin.* 1894, p. 126.

Vanapa Valley, 2000.

Hymenophyllum tunbridgense, *Sm.*; *F. Muell. in Trans. Roy. Soc. Victoria*, i. pt. 2, p. 40; *Benth. Fl. Austral.* vii., p. 706.

Mount Scratchley, 12200 ft.

Trichomanes apiifolium, *Presl*; *Hook. & Baker, Syn. Fil.*, p. 86; *Becc. Malesia*, iii., p. 34; *Benth. Fl. Austral.* vii., p. 703.

Vanapa Valley, 2000–4000 ft.

Trichomanes javanicum, *Blume*; *Hook. & Baker, Syn. Fil.*, p. 83; *Becc. Malesia*, iii., p. 33; *Benth. Fl. Austral.* vii., p. 702.

Vanapa Valley, 2000–4000 ft.

Trichomanes maximum, *Blume*; *Hook. & Baker, Syn. Fil.*, p. 86; *Becc. Malesia*, iii., p. 34.

Vanapa Valley, 2000–4000 ft.

Trichomanes pyxidiferum, *Linn.*; *Hook. & Baker, Syn. Fil.*, p. 81; *F. Muell. in Ann. Rep. Brit. N. Guin.* 1894, p. 126; *Benth. Fl. Austral.* vii., p. 703.

Vanapa Valley, 2000–4000 ft.

Trichomanes rigidum, *Sw.*; *Hook. & Baker, Syn. Fil.*, p. 86; *Becc. Malesia*, iii., p. 38; *Benth. Fl. Austral.* vii., p. 702.

Vanapa Valley, 2000–4000 ft.

Trichomanes trichophyllum, *Moore*; *Hook. & Baker, Syn. Fil.*, p. 466; *Becc. Malesia*, iii., p. 34.

Mount Scratchley, 12400 ft.

Davallia (Humata) bipinnatifida, *Baker*; a speciebus reliquis hujus subgeneris recedit frondibus lanceolato-deltaoideis bipinnatifidis.

Rhizoma gracile, longe repens, paleis lanceolatis appressis membranaceis pallide brunneis. *Lamina* lanceolato-deltaoidea, bipinnatifida, 5–6 poll. longa, deorsum 2 poll. lata, coriacea, glabra, rhachi primaria gracili nuda; pinnæ sessiles, inferiores reliquis majores, steriles oblongæ, obtusæ, deorsum parce breviter pinnatifidæ, basi cuneatæ; fertiles angustiores, profunde pinnatifidæ, lobis erecto-patentibus, inferioribus oblongis obtusis; venæ flabellatæ, perspicuæ; petiolus gracilis, nudus, 3–4 poll. longus. *Sori* ad lobos superiores solitarii, ad lobos inferiores 2–3-ni. *Indusium* semiorbiculare, persistens, firmum, glabrum, $\frac{1}{2}$ lin. diam.

Vanapa Valley, 2000–4000 ft.

Davallia blumeana, *Hook.*; *Hook. & Baker, Syn. Fil.*, p. 93; *F. Muell. Papuan Pl.*, i., p. 77.

Vanapa Valley, 2000–4000 ft.

Davallia hirta, *Kaulf.*; *Hook. & Baker Syn. Fil.*, p. 100.

Vanapa Valley, 2000–4000 ft.

Davallia (Loxoscophe) lanceolata, *Baker*; a speciebus reliquis hujus subgeneris recedit frondibus parvis lanceolatis.

Rhizoma gracile, breviter repens. *Lamina* lanceolata, bipinnata, 2–4 poll. longa, 6–8 lin. lata, glabra, viridia; rhachis nuda, straminea; pinnæ multæ, contiguæ, flabellato-pinnatæ, segmentis secundariis paucis anguste linearibus uninervatis 1–1½ lin. longis apice dilatatis; petiolus brevis, gracilis, stramineus, deorsum brunneo-tinctus. *Sori* solitarii, terminales, glabri. *Indusium* persistens, glabrum, viride.

Vanapa Valley, 2000–4000 ft.

Davallia pinnata, *Cav.*; *Hook. & Baker, Syn. Fil.*, p. 98.

Vanapa Valley, 2000–4000 ft.

Davallia repens, *Desv.*; *Hook. & Baker, Syn. Fil.*, p. 93; *Becc. Malesia* iii., p. 36.

Mount Scratchley, 12400 ft., and Vanapa Valley, 2000–4000 ft.

Lindsaya cultrata, *Sw.*; *Hook. & Baker, Syn. Fil.*, p. 105; *Becc. Malesia* iii., p. 36; *Benth. Fl. Austral.* vii., p. 719.

Vanapa Valley, 2000–4000 ft.

Lindsaya lobata, *Poir.*; *Hook. & Baker, Syn. Fil.*, p. 111; *F. Muell. Papuan Pl.* i., p. 78; *Benth. Fl. Austral.* vii., p. 720.

Vanapa Valley, 2000–4000 ft.

Asplenium amboinense, *Willd.*; *Seem. Fl. Vit.*, p. 353; *Becc. Malesia* iii., p. 39.

Vanapa Valley, 2000–4000 ft.

Asplenium cuneatum, *Lam.*; *Hook. & Baker, Syn. Fil.*, p. 214 ;
F. Muell. Papuan Pl. ii., p. 37.

Vanapa Valley, 2000–4000 ft.

Asplenium falcatum, *Lam.*; *Hook. & Baker, Syn. Fil.*, p. 208 ;
F. Muell. Papuan Pl., i., p. 16 ; *Benth. Fl. Austral.* vii., p. 746.

Mount Scratchley, 10000–13000 ft.

Asplenium longissimum, *Blume*; *Hook. & Baker, Syn. Fil.*,
p. 199 ; *F. Muell. Papuan Pl.* ii., p. 37.

Vanapa Valley, 2000–4000 ft.

Asplenium tenerum, *Forst.*; *Hook. & Baker, Syn. Fil.*, p. 201 ;
Mett. in Miq. Ann. Bot. ii., p. 234.

Vanapa Valley, 2000–4000 ft.

Didymochlæna lunulata, *Desv.*; *Hook. & Baker, Syn. Fil.*, p. 248.

Vanapa Valley, 2000–4000 ft.

Aspidium aristatum, *Sw.*; *Hook. & Baker, Syn. Fil.*, p. 255 ;
Benth. Fl. Austral. vii., p. 757.

Vanapa Valley, 2000–4000 ft.

Nephrodium albo-punctatum, *Desv.*; *Hook. & Baker, Syn. Fil.*,
p. 264.

Vanapa Valley, 2000–4000 ft.

Nephrodium (Lastrea) dissitifolium, *Baker*; ad *N. elongatum*,
Hook. et Grev., accedit ; differt pinnulis haud contiguis, indusio
haud persistente.

Lamina oblongo-lanceolata, tripinnata, $1\frac{1}{2}$ –2 ped. longa, sub-
coriacea, glabra ; rhachis nuda, gracilis, pallide brunnea ; pinnæ
inferiores majores, lanceolatae, breviter petiolatae, 4–5 poll. longæ ;
pinnulae ovato-oblongae, sessiles, obtusae, basi cuneatae, pinnatifidae
vel basi pinnatae ; segmenta tertiaria oblonga, obtusa, erecto-
patentia ; petiolus nudus, nitidus, pallide brunneus ; venæ in
segmentis tertiariis pinnatae. *Sori* utrinque costam pinnularum
uniseriati, haud contigui. *Indusium* reniforme, glabrum, cito
deciduum.

Mount Scratchley, 10000–13000 ft.

Nephrodium patens, *Desv.*; *Hook. & Baker, Syn. Fil.*, p. 262 ;
Becc. Malesia iii., p. 43.

Vanapa Valley, 2000–4000 ft.

Nephrolepis acuta, *Presl*; *Hook. & Baker, Syn. Fil.*, p. 301 ;
Becc. Malesia iii., p. 44.

Vanapa Valley, 2000–4000 ft.

Polypodium cucullatum, *Nees*; *Hook. & Baker, Syn. Fil.*, p. 324
Becc. Malesia iii., p. 47.

Wharton Range, 11100 ft.

Polypodium undosum, *Baker in Journ. Bot.* 1890, p. 108; *F. Muell. in Ann. Rep. Brit. N. Guin.* 1894, p. 126.

Mount Scratchley, 10000–13000 ft.

Polypodium obliquatum, *Blume; Hook. & Baker, Syn. Fil.*, p. 328; *F. Muell. in Ann. Rep. Brit. N. Guin.* 1894, p. 126.

Without locality.

Polypodium Phymatodes, *Linn.; Hook. & Baker, Syn. Fil.*, p. 364; *F. Muell. Papuan Pl.* i., p. 48; *Benth. Fl. Austral.* vii., p. 769.

Neneba, Mount Scratchley, about 4000 ft.

Gymnogramme quinata, *Hook.; Hook. & Baker, Syn. Fil.*, p. 387; *Becc. Malesia* iii., p. 49.

Vanapa Valley, 2000–4000 ft.

Acrostichum blumeanum, *Hook.; Hook. & Baker, Syn. Fil.*, p. 423; *Becc. Malesia* iii., p. 51.

Vanapa Valley, 2000–4000 ft.

Acrostichum conforme, *Sw.; Hook. & Baker, Syn. Fil.*, p. 401; *Benth. Fl. Austral.* vii., p. 778.

With out locality.

Acrostichum spicatum, *Linn.; Hook. & Baker, Syn. Fil.*, p. 424; *Becc. Malesia* iii., p. 51; *Benth. Fl. Austral.* vii., p. 780.

Without locality.

Todea (Leptopteris) alpina, *Baker; ad T. Fraseri, Hook. et Grev., accedit; differt frondibus deorsum angustatis, pinnulis profunde pinnatifidis.*

Lamina oblongo-lanceolata, $1\frac{1}{2}$ –2 ped. longa, medio 8–9 poll. lata, ad basin sensim attenuata, membranacea, nigrescentia, glabra, rhachi nuda; pinnæ lanceolatæ, sessiles, centrales 4–4 $\frac{1}{2}$ poll. longæ 1 poll. latæ, rhachi anguste alata, inferiores sensim minores deflexæ; pinnulæ lanceolatæ, sessiles, erecto-patentes, profunde pinnatifidæ; segmenta tertiaria linearia, integra, uninervata; petiolus nudus, brevis. *Sori* pauci, irregulariter sparsi.

Mount Scratchley, 10000–18000 ft.

Marattia fraxinea, *Sm., var., sambucina, (Blume); Hook. & Baker, Syn. Fil.*, pp. 440, 441.

Vanapa Valley, 2000–4000 ft.

Ophioglossum pendulum, *Linn.; Hook. & Baker, Syn. Fil.*, p. 446.

Vanapa Valley, 2000–4000 ft.

LYCOPODIACEÆ.

Lycopodium cernuum, *Linn.; Baker, Fern Allies*, p. 23.

Vanapa Valley, 2000–4000 ft.

Lycopodium Phlegmaria, *Linn.*; *Baker, Fern Allies*, p. 22.
Locality uncertain.

Lycopodium scariosum, *Forst.*; *Baker, Fern Allies*, p. 29.
Without locality.

SELAGINELLACEÆ.

Selaginella caulescens, *Spring*; *Baker, Fern Allies*, p. 94.
Vanapa Valley, 2000–4000 ft.

Selaginella viridangula, *Spring?*; *Baker, Fern Allies*, p. 92.
Vanapa Valley, 2000–4000 ft.

Selaginella Wallichii, *Spring*; *Baker, Fern Allies*, 90.
Vanapa Valley, 2000–4000 ft.

Isetes neoguineensis, *Baker*; ad sectionem *Subaquaticas* pertinet; ad *I. Muelleri*, A. Br., et *I. Kirkii*, A. Br., accedit; differt macrosporibus lævibus, velo nullo.

Cormus 3–4-lobus. *Folia* densa, numerosa, atroviridia 2–3 poll. longa, sursum subteretia deorsum applanata, basi abrupte dilatata, stomatibus paucis. *Sporangia* oblonga, brunnea, punctata, velo nullo. *Macrosporæ* globosæ, albæ, inter costas elevatas læves. *Microsporæ* oblongæ, pallide brunneæ, minute tuberculatæ.

Mount Scratchley, 10000–13000 ft.

MUSCI.

Acanthocladium Armitii, *Broth. & Geheeb in Öfvers. Finsk. Vet.-Soc. Förh. Helsingfors*, lv., p. 100.

Wharton Range, 11100 ft.

Acanthocladium complanatum, *Broth.* (*Hypnum complanatum*, *C. Müll. in Journ. Mus. Godeffroy*, vi., p. 89).

Without locality.

Acrocladium politum, *Mitt. in Journ. Linn. Soc.*, xii., p. 531.

Wharton Range, 11100 ft.

Daltonia Macgregorii, *Broth. in Öfvers. Finsk. Vet.-Soc. Förh. Helsingfors*, lv., p. 95.

Mount Scratchley, 12200 ft.

Ectropothecium (Vesicularia) angustirete, *Broth. in Öfvers. Finsk. Vet.-Soc. Förh. Helsingfors*, lv., p. 96.

Astrolabe Range, 2000 ft.

Ectropothecium laticuspes, *Broth. in Öfvers. Finsk. Vet.-Soc. Förh. Helsingfors*, lv., p. 98.

Without locality.

Ectropothecium longicollum, *Broth. in Öfvers. Finsk. Vet.-Soc. Förh. Helsingfors*, lv., p. 96.

Without locality.

Ectropothecium Macgregorii, *Broth. & Geheeb in Öfvers. Finsk. Vet.-Soc. Förh. Helsingfors*, lv., p. 97.

Without locality.

Ectropothecium tapes, *Broth. in Öfvers. Finsk. Vet.-Soc. Förh. Helsingfors*, lv., p. 98.

Without locality.

Garovaglia Micholitzii, *Broth. in Öfvers. Finsk. Vet.-Soc. Förh. Helsingfors*, lv., p. 92.

Without locality.

Leptostomum intermedium, *Broth. in Öfvers. Finsk. Vet.-Soc. Förh. Helsingfors*, lv., p. 86.

Mount Scratchley, 12200 ft.

Leucophanes Giulianettii, *Broth. in Öfvers. Finsk. Vet.-Soc. Förh. Helsingfors*, lv., p. 72.

Without locality.

Macromitrium macrosporum, *Broth. in Öfvers. Finsk. Vet.-Soc. Förh. Helsingfors*, lv., p. 80.

Mount Scratchley, 12200 ft.

Microthamnium macrocarpum, *Jaeg. Adum.* ii., p. 497.

Mount Scratchley, 12400 ft.

Mniodendron fusco-aciculare, *Broth.* (*Hypnodendron fusco aciculare*, *C. Müll. in Uhlworm & Haenl. Bibl. Bot.*, ii., Heft 13, p. 10. t. 8.)

Mount Scratchley, 12400 ft.

Neckera (Nanocarpidium) Giulianettii, *Broth. in Öfvers. Finsk. Vet.-Soc. Förh. Helsingfors*, lv., p. 24.

Without locality.

Papillaria floribunda *C. Müll. in Linnæa*, xl., p. 267.

Without locality.

Pterobryum piliferum, *Broth. & Geheeb in Öfvers. Finsk. Vet.-Soc. Förh. Helsingfors*, lv., p. 93.

Without locality.

Schistomitrium breviapiculatum, *Broth. in Öfvers. Finsk. Vet.-Soc. Förh. Helsingfors*, lv., p. 72.

Without locality.

Schlotheimia Macgregorii, *Broth. in Öfvers. Finsk. Vet.-Soc. Förh. Helsingfors*, lv., p. 82.

Without locality.

Schlotheimia pilicalyx, *Broth. & Geheeb in Öfvers. Finsk. Vet.-Soc. Förh. Helsingfors*, xxxiv., p. 61.

Wharton Range, 11100 ft.

Symblypharis obliqua, *Brotherus* (*Holomitrium obliquum*, *Salmon in Journ. Linn. Soc.* xxxiii., p. 500); species distinctissima, a *S. perichætiati*, Wils., statura robustiore et theca asymmetrica sæpe curvatula facile dignosenda.

Planta robusta, cæspitosa, cæspitibus compactis 3-4 cm. altis ferrugineo-tomentosis lutescentibus. *Caulis* erectus, fere ad apicem tomentosus, dense foliosus, dichotome ramosus, ramis erectis fastigiatis. *Folia* sicca crispata, humida erecto-patentia, e basi oblonga sensim longe lanceolato-subulata, acuta, marginibus erectis integris vel summo apice parcissime denticulatis, nervo basi circa 15 mm. lato cum apice evanido; cellulæ incrassatæ, subquadratæ, basilares lineares, alares numerosæ, magnæ, fusco-auræ, omnes læves. *Bracteæ perichætii* in cylindrum exsertum convolutæ, a basi longe vaginante longe subulatæ, subula subintegra. *Seta* 2 cm. alta, flexuosula, tenuis, lutea vel lutescenti-rubra. *Theca* erecta, asymmetrica, recta vel curvatula, cylindrica, fusca, lævissima; peristomium simplex; exostomii dentes 16, per paria approximati, usque ad basin bifidi, cruribus cohærentibus papillois, purpurei; operculum e basi conica longe oblique rostratum. *Spore* 0.17-0.20 mm., olivaceæ, papilloisæ.

Wharton Range, 11100 ft.

Syrrophodon adpressus, *Broth. in Öfvers. Finsk. Vet.-Soc. Förh. Helsingfors*, lv., p. 78.

Without locality.

Syrrophodon croceus, *Mitt. in Journ. Linn. Soc.*, iii., Suppl., p. 41.

Oriomo River.

Tetraplodon mnioides, *Bruch & Schpr. Bryol. Eur.*, t. 289.

Mount Scratchley, 12200 ft.

Thuidium cymbifolium, *Dozy & Molkenb. Bryol. Javan.* ii., p. 115, t. 221.

Without locality.

Thuidium glaucinum, *Bosch & Lac. in Dozy & Molkenb. Bryol. Javan.* ii., p. 117, t. 222.

Without locality.

Trichosteleum hamatum *Jaeg. Adum.* ii., p. 486.

Without locality.

Trichosteleum papillatum, *Paris in Actes Soc. Linn. Bordeaux*, li., p. 349.

Oriomo River.

Zygodon Reinwardtii, *A. Br. in Bryol. Eur.* iii., *Zygodon*, p. 9.
Without locality.

HEPATICÆ.

Cololejeunea hirta, *Steph. sp. n.*

Planta dioica, pusilla, in sicco flavicans, foliis vivis irrepens et subcæspitans. *Caulis* tenuis, divaricatim multiramis. *Folia* pro planta magna, plana, contigua, recte patula, juniora erecta, falcato-decurva, e basi conico angustata falcato-ovata, i.e. margine antico multo magis arcuato, apice obtusa, dentibus majoribus minoribusque alternantibus irregulariter dentata, dentibus conicis apice papillatim incrassatis. *Cellulæ* folii apicales $17\ \mu$, medianæ $17 \times 25\ \mu$, basales $17 \times 50\ \mu$, trigonis nullis, antice papilla magna singula centrali ornata. *Lobulus* valde inflatus, folio subtriplo brevior, e basi angusta oblongus, carina lævi arcuata levi sinu in folium excurrente apice oblique truncatus, angulo acuto decurvo vix visibili. *Stylus* basalis brevis, unicellularis, cylindricus, facile evanidus. *Perianthia* in pinnis primariis terminalia, uno latere innovata, ex angusta basi oblonga, apice truncato rotundata, plus duplo longiora quam lata, post fructus emissionem fere clavata, medio supero profunde 5-plicata, plicis posticis divergentibus, ad medium perianthii decurrentibus, omnibus conice dentatis, rostro parvo. *Folia floralia* perianthio duplo breviora, anguste spathulata, ut caulina dentata, lobulo duplo angustiore parum soluto et parum breviora, margine integerrimo. Reliqua ignota.

Vanapa Valley, 2000–4000 ft.

Frullania nobilis, *Steph. in Hedwigia*, 1894, p. 154.

Mount Scratchley, 12200 ft.

Herberta Wichuræ, *Steph. in Hedwigia*, 1895, p. 45.

Mount Scratchley, 12200 ft.

Lepidozia Neesii, *Lindenbg. in Gott. Sp. Hepat.*, p. 212.

Mount Scratchley, 12200 ft.

Lophocolea beecheyana, *Tayl. in Hook. Lond. Journ. Bot.*, 1846, p. 365.

Without locality.

Lophocolea ciliolata, *Mitt. in Journ. Linn. Soc.* v., p. 99.

Without locality.

Plagiochila brauniana, *Nees in Lindenbg. & Gott. Sp. Hepat.*, p. 117, t. 24.

Mount Scratchley, 12200 ft.

Thysanolejeunea lanceolata, Steph. in *Hedwigia*, 1896, p. 139.

Vanapa Valley, 2000–4000 ft.

Trachylejeunea Englishii, Steph. sp. n.

Planta dioica, minor, fusco-viridis, in filicis fronde repens. *Caulis* pro planta validus, viridis, regulariter pinnatus, pinnulis subbrevibus. *Folia* contigua, subrecte patula, parum concava, late ovata, subacuta, basi antica longe soluta caulique vix incumbentia. *Cellulæ* marginales parvæ (8 μ), irregulariter papilloso-prominulæ ideoque optime crenatæ, medianæ 17 μ , basales 25 \times 25 μ , trigonæ minimæ. *Lobulus* bullatim inflatus, folio triplo brevior, carina valde arcuata, in sinu angusto abrupte desinens, e lata basi sensim angustatus, apice oblique truncatus, angulo obtuso, sæpe ad plicam parvam reductus vel omnino nullus. *Amphigastria* caule parum latiora, a caule recte patula, subrotunda, integerrima, transverse inserta; cellulæ 12 μ , angulares magnæ pellucidæ 17 \times 34 μ , trigonis nullis, ad $\frac{1}{2}$ bifida, lobis late conicis acutis. *Perianthia* in ramulis pseudo-lateralibus, breviter clavata (plus duplo longiora quam lata), tertio supero quinqueplicata, plicis obtusis, dentibus conicis irregularibus scabra, rostro parvo. *Folia floralia* inæqualia, caulinis similia crenata sed longiora, ex angusta basi obovato-oblonga, acuta, lobulo magno ligulato obtuso folio suo parum brevior et parum soluto; amphigastrium florale obovatum, ut lobuli integerrimum, ad $\frac{1}{3}$ bifidum, sinu recto-acuto, lobis late conicis acutis. Reliqua desunt.

Vanapa Valley, 2000–4000 ft.

LICHENES.

From Mount Scratchley.

Alectoria ochroleuca Nyl. *Prod. Lich.*, p. 47.

Cetraria sanguinea, Müll.-Arg. in *Journ. Linn. Soc.* xxix., p. 218.

Cladonia sp.

Sphærophoron australe, Laur. ? in *Linnæa*, ii., p. 44.

Stereocaulon alpinum, Laur. ex E. Fries, *Lichenogr. Eur.*, p. 204.

Stictina hirsuta, Nyl. *Lich. Scand.*, p. 95.

Stictina multifida, Nyl. *Syn. Lich.*, p. 363, in obs.

DCLIV.—NEW ORCHIDS.—DECADES 23 and 24.

With the exception of the two species of *Vanilla* at the end, the orchids described below are from North-east Celebes, and were collected and presented by Dr. S. H. Koorders, of the Forest Administration of Java. A rough list of orchids is published in