

Presidential Address.

By C. T. WHITE, F.L.S. (Government Botanist of Queensland.)

(Delivered before the Royal Society of Queensland, 11th April, 1922.)

I HAVE taken as the scientific portion of my address a "Contribution to our Knowledge of the Flora of Papua (British New Guinea)," based on collections made there by me in 1918, but before proceeding with this subject would like to touch on a few matters of the past year of general interest to scientific workers in Queensland.

The Council's report for the past session shows that satisfactory progress has been made. It was regrettable that towards the end of the year the Council was obliged, owing to lack of funds, to discontinue the publication of papers submitted. By a special effort, however, the honorary treasurer (the late Dr. Shirley) was able before the end of the year to place our finances on a more satisfactory basis.

A sad feature has been the loss by death of four members of the Society.

WILLIAM J. BYRAM, who died on the 10th March, 1922, was a native of Brisbane. He was educated at the Brisbane Grammar School, where in 1880 he won the Lilley Gold Medal as head of the school. He was well known in legal and business circles in Brisbane. He was a good classical scholar, and within the last few years of his life had produced a verse translation of Æschylus' "Prometheus Vincetus" so scholarly and so poetic, especially in the rendering of its choruses, that Prof. Gilbert Murray (Oxford Professor of Greek), to whom it was submitted, said he was proud to think it was the work of a fellow-countryman (he himself being an Australian). The translation is now in the Queensland University Library, where it may serve as an incentive to future classical scholars. The late Mr. Byram was a keen microscopist, being especially interested in Freshwater Algæ, and helped the late F. M. Bailey in bringing out the three bulletins of the Botany Series published by the Queensland Department of Agriculture and Stock devoted to the Freshwater Algæ of Queensland, by translating from the German the original descriptions forwarded to Mr. Bailey from European specialists who had submitted to them the material upon which the bulletins referred to were based. An appreciation of the late Mr. Byram from the pen of Mr. R. H. Roe, one-time head master of the Brisbane Grammar School and later Director of Education in Queensland, appeared in

the *Brisbane Courier* for the 18th March, 1922, and from this some of the above facts have been taken.

ROBERT LOGAN JACK, LL.D., F.R.G.S., F.G.S., who died in Sydney in November, 1921, was born at Irvine, Ayrshire, Scotland, on the 16th September, 1845, and was educated at the Irvine Academy and Edinburgh University. For some years he was attached to the Geological Survey of Scotland and also conducted geological work on the Continent. In 1877 he was appointed Government Geologist for Northern Queensland in succession to Richard Daintree, and was soon afterwards appointed Chief Government Geologist for Queensland. While holding office he conducted much exploratory work, and published a number of original contributions to our knowledge of the geology of the State. In 1893, in collaboration with R. Etheridge, junr., he brought out the well-known "Geology and Palæontology of Queensland and New Guinea." In 1898 he was appointed Commissioner for Queensland to the Earl's Court Exhibition, London, and while there received an offer from an English company operating in the East which caused him to resign his position as Government Geologist of Queensland. Operations in the East ceasing owing to the Boxer outbreak, he returned to England, where he started private practice as a consulting geologist and mineralogist. He returned to Australia in 1904, and was for some years engaged in private practice in West Australia, afterwards coming to Sydney. For some years before his death he was engaged on a study of the history of exploration in Northern Australia, and the two-volume work "Northernmost Australia" is the result.

JOHN SHIRLEY, D.Sc., F.M.S., a past-president, hon. secretary, and for some years before his death the very efficient hon. treasurer of this Society, who died in Brisbane on the 5th March, 1922, was born at Dorchester, England, on the 11th August, 1849. With the passing of Dr. Shirley Queensland has lost one of its most brilliant educationalists and the Royal Society and also the Australasian Association one of their most zealous officers. Dr. Shirley began official life as a pupil teacher, being trained in the Curzon-street National School, Derby, England, and subsequently entered as a student of the Saltley Training College, where he remained till 1869.

After completing his course in the training college he was employed for a period of eight years in Bishop Ryder's Boys' School, Birmingham, and whilst at that school graduated as B.Sc. of the London University. He arrived in Queensland in

May 1878, and on 1st June of that year was appointed head teacher of the State School at Roma. In 1879 he was appointed District Inspector of Schools and in 1909 Senior Inspector. When the Teachers' Training College was established in 1914 he was selected for the position of principal. He held this post till the end of 1919, when he was retired under the provisions of the Public Service Act. The following year, however, he was appointed conchologist to the Queensland Museum, a post he had in previous years filled in an honorary capacity. This position he held for one year and nine months, when the pruning knife of retrenchment did away with the position. It was characteristic of him that when over sixty years of age he employed the long leave due to him for continuous Government service in studying, and preparing a thesis for the degree of Doctor of Science at the Sydney University. He was a versatile writer on scientific subjects, being one of the older school of naturalists whose studies covered a number of branches of natural science. His most important published work was the "Lichen Flora of Queensland" (mostly first published as a series of papers in the Proceedings of this Society).

The Hon. ERNEST JAMES STEVENS, M.L.C., who died at Brisbane on the 3rd March, 1922, was born at Melbourne on the 10th July, 1845. He came to Queensland in 1868 and for some years engaged in pastoral pursuits. He was elected M.L.A. for Warrego in 1878 and for the Logan in 1883. He retired in 1899 and was called to the Legislative Council. He was one of the more prominent business men of Queensland, for some years among other posts being chairman of directors of the Brisbane Newspaper Company Limited.

In April the Council was asked to nominate candidates for election to the newly formed Australian National Research Council. It is hoped the formation of the Council will materially aid scientific advancement in the Commonwealth.

The early part of 1921 was marked by the holding of the Hobart-Melbourne meeting of the Australasian Association for the Advancement of Science. The meeting was the first held since 1913, and such a long time elapsing between meetings gave many of us the opportunity of again meeting old friends from other States, and kindred spirits whom previously we only knew by reputation or through correspondence. It is much to be regretted that funds did not permit the many papers read being printed as a record. Many, however, have since appeared in various scientific periodicals.

An event of interest among local natural history circles was the amalgamation of the Queensland Field Naturalists' Club with the Gould League of Bird-lovers, under the title of the "Queensland Naturalists' Club," the Gould League being embodied in a junior section known as the "Nature-lovers' League." In the past both bodies have done excellent work in their respective spheres, and it is hoped the amalgamation will mean an increased activity in natural history matters in Queensland, particularly in fostering a love among the rising generation for our beautiful native birds, animals, and plants.

The inauguration of a Queensland branch of the British Empire Forestry Association at a public meeting held during the Interstate Forestry Conference recently held in Brisbane, is a matter for congratulation, and it is hoped the newly formed association will be able to foster a keen public spirit towards forestry matters in Queensland, particularly as regards the conservation and regeneration of our more important timber trees. Our total tree flora is not yet known and every year sees new species brought to light, and I would here make a plea for a proper botanical survey of our more richly timbered areas, particularly those at present little known.

In his "Discussion of Australian Forestry" the late Sir D. E. Hutchins states: "Those who do not know Australia will hardly credit the assertion that after a white occupation of one hundred years or more the country is still without a single national arboretum." He goes on to describe the large arboretum at Tokai, near Capetown, South Africa, in which about 150 species of eucalypts are growing. He then goes on to make a plea for the establishment of suburban forests or arboreta near the larger towns. "The Centennial Park," he says, "is a splendid open space in nearly the centre of Sydney for a suburban forest. Certainly if one-third of the space was kept open for lawns, flower-beds, and ornamental water, the remaining two-thirds might be devoted to an arboretum, which would be the centre of arboriculture in New South Wales and from many points of view would be the leading feature of the city of Sydney." In Brisbane we have a similar large open space in Victoria Park, at present a more or less neglected area, which would make an ideal site for a large collection of trees within the city boundaries. It has one feature in common with the Centennial Park—i.e., a very poor, barren soil—but a lot of this land could be reclaimed with city refuse at a reasonable cost.

A Contribution to our Knowledge of the Flora of Papua (British New Guinea).

By C. T. WHITE, F.L.S. (Government Botanist of Queensland.)

(*Scientific Portion of Presidential Address delivered before the Royal Society of Queensland, 11th April, 1922.*)

INTRODUCTORY.

IN June 1918 I received an invitation from His Excellency Judge Murray, Lieutenant-Governor of Papua, to visit the Territory for the purpose of studying its vegetation, of which comparatively little is known. The invitation came at a time when six weeks' leave of absence was due to me from the Queensland Department of Agriculture and Stock. Pressure of other matters prevented me from spending much more than my official leave on the visit, and only between five and six weeks' actual collecting was spent in the field. About 800 species of vascular plants were gathered; the majority of the material has now been worked out and the results are here set forth.

The references to literature are confined to such as refer to the occurrence of the particular species in the territory of Papua (British New Guinea). Some of the families have been sent to various specialists for examination, and to these botanists I must express my special thanks. To Dr. Rendle, Keeper of Botany, British Museum of Natural History, I am indebted for arranging for Mr. Spencer Le M. Moore, B.Sc., F.L.S., to work out the Acanthaceæ and Rubiaceæ; also for handing over to Mr. H. N. Ridley, late Director of Botanic Gardens, Singapore, the specimens of Musaceæ, Zingiberaceæ, and Marantaceæ. To Mr. J. H. Maiden, Director of Botanic Gardens, Sydney, I am indebted for the identification of the eucalypts, and for arranging for the working out of the ferns by Mr. Whitelegge and the Loranthaceæ by Mr. Blakely.

I have taken the opportunity of recording a few plants for Papua from specimens in the Queensland Herbarium, that had been lying there undetermined for some years. There still remains more doubtful material in the Queensland Herbarium, and I hope to work these specimens out later along with my own undetermined material.

ITINERARY.

After a few days' stay in Port Moresby, I left in company with the Papuan Government Geologist (Mr. Evan R. Stanley) and fifteen carriers for the Sogeri Plateau and Javararie, *via* Sapphire Creek and the Astrolabe Range (about 2,000 feet). After about a fortnight spent in this territory, I returned to Port Moresby and after a few days' stay left for Yule Island and Mafulu, again having the advantage of the company of Mr. Stanley.

At Yule Island twenty-five native carriers were obtained for carrying the camping outfit, collecting gear, specimens, &c. The journey was made over to the mainland and up the Ethel River as far as Bioto by native canoes. Time did not permit of much collecting along the banks of the Ethel River, though the mangrove swamps, Nipa palms, and rich tropical vegetation fringing the banks of the river and of Bioto Creek promised a good field for the botanist.

On reaching Bioto, the canoes were drawn up on the bank and the five days' march to the mountains commenced, the following places being stopped at *en route*:—Kubunah, Fofofoto, Dilava, Deva Deva, Mafulu, and Bella Vista. An excellent well-graded road has been surveyed and made under the direction of the Mission Fathers, from Bioto as far inland as Ononge, which makes travelling in this country comparatively easy; and travellers in the Mekeo, Dilava, and Mafulu districts—the sphere of influence of the Roman Catholic missions—are indebted to the missionaries for the facilities with which travelling can be accomplished in these parts of Papua.

GENERAL NOTES ON THE VEGETATION.

The vegetation about Port Moresby reminds one of much of the open forest country in parts of North Queensland with a similar rainfall (about 40 in.). It consists for the most part of grass-covered hills with scattered white-barked eucalypts (*E. papuana* and *E. alba*) of rather stunted growth dotted about.

Other very common trees on the hills are *Alstonia scholaris* (Milky Pine), and *Albizzia procera*. A cycad (*Cycas media*) is also very abundant. In the gullies and round the sea-beach are found patches of thin scrub supporting a more varied flora. Every here and there bright masses of scarlet can be

seen—the flowers of *Bombax malabaricum* (the Silk Cotton tree)—a large tree ranging through North Australia, New Guinea, and Tropical Asia. Round about the rocky sea-coast, near the town, *Cochlospermum Gillivraei* (a small tree) is conspicuous on account of its numerous large, yellow, buttercup-like flowers. *Cordia subcordata* is another fairly common shrub in the same situation.

Swampy patches occur in which the Sago Palm (*Metroxylon* sp.) and Breadfruit (*Artocarpus incisa*) predominate. The mangrove flora along the southern coast is similar to that of the North Australian and Malayan regions, consisting of *Rhizophora*, *Bruguiera*, *Ceriops*, *Sonneratia*, *Avicennia*, *Ægiceras*, and *Carapa*. *Acanthus ilicifolius* is in some parts also abundant. A common climber over mangrove trees is *Dalbergia monosperma*. Along the Ethel River and Bioto Creek the Nipa Palm (*Nipa fruticans*) is a conspicuous feature lining both sides of the banks. Along the Ethel River I also collected specimens of the apparently little-known *Sonneratia lanceolata*. It is a small tree very much resembling some forms of *Avicennia officinalis* in appearance; its pneumatophores also are like those of *Avicennia*, and do not attain the large size of its congener *S. alba*.

On the Astrolabe Range (about 3,000 feet), Hombrom Bluff, Mt. Warirata, etc., the vegetation for the most part is of an open character, the principal forest trees being eucalypts (principally *E. tereticornis*) with patches of *E. alba* and *E. clavigera*, *Casuarina nodiflora*, *Banksia dentata*, *Melaleuca* sp. (a Paper-barked Tea-tree), *Diplanthera tetraphylla*, *Grevillea pinnatifida*, and *Timonius Rumphii*. At Bisiatabu I was interested to find *Nepenthes Moorei* to be a common plant in the poorer open, dry, forest country. The lower trees in the same place supported a number of plants of *Myrmecodia* and *Dischidia*. On the Sogeri Plateau itself the vegetation is very rich and tropical, the plateau being mostly covered with heavy rain-forest in which the usual Malayan orders and genera predominate. Zingiberaceæ and Marantaceæ are particularly abundant. *Mucuna Krætkæi* is a forest climber with long pendulous racemes of brilliant scarlet flowers and is known locally as the “D’Albertis Creeper,” a name applied in a general sense by the white people resident in Papua to any climber of the genus *Mucuna*.

Sogeri Plateau is a great centre of rubber cultivation, and

several large and successful plantations have been established there. Further on, Javararie—nearly 50 miles by road from Port Moresby—is one of the oldest rubber plantations and produces some of the finest rubber in the Territory; but the lack of decent road communication with the seaport militates greatly against its financial success. Botanically, round Javararie the country is particularly rich and tropical in character, and a large number of plants was here gathered.

On Yule Island and on the mainland opposite the vegetation is somewhat similar to that about Port Moresby. In the ranges about Mafulu (about 4,000 feet) the vegetation is extremely rich and varied, consisting almost entirely of heavy rain-forest. Among trees the ordinary Malayan types predominate; ferns, lycopods, begonias, palms, bamboos, and other typical tropical forms are abundant. The occurrence of *Grevillea* is a connecting link with the flora of Australia, while *Quercus*, *Castanopsis*, and *Begonia* are Asiatic types not as yet found in Australia.

A BRIEF HISTORY OF BOTANICAL WORK IN PAPUA.

There has been considerably less botanical work accomplished on the territory of Papua or British New Guinea than in either the Dutch or late German territories. In his introductory notes to the Botany of the Wollaston Expedition, Dutch New Guinea (in Trans. Linn. Soc., vol. ix, Bot. 2nd series), Mr. H. N. Ridley stated: "The flora of British New Guinea has been more neglected than that of Dutch and German New Guinea; except for Forbes's collections on the Sogeri Mountains, which have not yet been fully worked out, and a small lot obtained by MacGregor and Guilianetti, no collecting of importance has been done there."

In 1875 Wm. Macleay (afterwards Sir. Wm. Macleay) conducted an expedition to the islands of Torres Strait and to New Guinea. J. Reedy accompanied the expedition as an horticultural emissary of Sir William Macarthur. The specimens he collected formed the material for the first part of Mueller's "Descriptive Notes on Papuan Plants."

In 1875 the Rev. Dr. McFarlane, in search of suitable places to establish mission stations, made the first voyage up the Baxter and Fly Rivers. He collected a number of plants, which were described by Baron Ferdinand von Mueller in his "Descriptive Notes on Papuan Plants," vol. i, pts. 2 and 3.

In 1876-7 Mr. Andrew Goldie, first in conjunction with the Rev. Dr. McFarlane and, in a later expedition, by himself, forwarded collections of plants to Baron Mueller, which were described by the Baron in his "Descriptive Notes," vol. i, Nos. 3, 4, and 5.

During 1875-7 the famous explorer Signor D'Albertis conducted explorations up the Fly River and made important collections. These were determined in part by Dr. O. Beccari in D'Albertis' "New Guinea," vol. ii, pp. 391-400, and in part by Baron Mueller in "Descriptive Notes" (vol. i, Nos. 4 and 5). Some of his plants are also described in Beccari's "Malesia."

In 1884 the *Argus* and the *Age* (Melbourne newspapers) sent special commissioners to Papua to report upon its resources and capabilities for settlement. The *Argus* Expedition was commanded by Mr. W. E. Armit, an officer of the Queensland Native Police; he was a true plant-lover, and his specimens were referred to by Mueller in odd numbers of the "Victorian Naturalist" for the year 1885.

During 1884-1887 Theodore Bevan conducted several expeditions to totally unexplored or little-known parts. His collection of plants was briefly noted by Mueller in "Proceedings of the Linnean Society of N.S.W.," vol. ii, n.s.

During the same period the Rev. Jas. Chalmers forwarded to Baron Mueller several small collections. These were noted by Mueller in his "Descriptive Notes" Nos. 6-8.

In 1885, H. O. Forbes, well known as an explorer through having conducted expeditions in Sumatra, Timor, and some of the lesser-known islands of the Malayan Archipelago, visited New Guinea for the purpose of exploring the Owen Stanley Range. Unfortunately, owing to lack of funds and other obstacles, Forbes was not able to realise his object, and a large camp was established at Sogeri, where most of the collecting was accomplished. The Monocotyledonous plants were described by H. N. Ridley (Journal of Botany, vol. xxiv), but the great bulk of Forbes's collections, sad to say, remain undetermined to this day, and odd references to new species collected by Forbes are now and again met with in current literature dealing with the flora of New Guinea. It is interesting to record here that this Society, through the efforts of its then hon. secretary (Mr. H. Tryon), was able to send to Forbes the sum of £100 in aid of his work.

In 1886 the Geographical Society of Australia despatched a well-equipped expedition under the leadership of Captain H. E. Everitt. Mr. W. Bauerlen accompanied the party as botanical collector, and his collections were determined and described by Baron Mueller in his "Descriptive Notes" (vol. ii, Nos. 7 and 8). Bauerlen also issued a booklet, "The Voyage of the Bonito" (Sydney 1886), giving an account of the voyage, but it contains little botanical matter.

In 1887 Messrs. Cuthbertson, Sayer, and Hunter ascended Mt. Obree. Sayer, well known as a botanical collector and one of the first white men to ascend Bellenden-Ker, North Queensland, collected a number of plants which were described by Mueller in the "Victorian Naturalist" and his "Descriptive Notes." Only a very few plants were noted, and I think a number more are probably lying undetermined in the National Herbarium, Melbourne.

In 1887 C. Hartmann, a well-known Queensland plant enthusiast, accompanied by G. Hunter, ascended the eastern bank of the Kemp-Welch River and pushed forward with the intention of going to the top of the range between Mt. Brown and Mt. Obree, an ideal not fully realised. They are reputed to have collected a large series of specimens. I can find very few references to Hartmann's specimens—only a few by Mueller ("Descriptive Notes") and Bailey ("Queensland Agricultural Journal"). Possibly the main bulk are still lying undetermined in the National Herbarium at Melbourne.

In 1889 Sir William MacGregor ascended the Owen Stanley Range to its highest point (Mt. Victoria, 13,121 feet), and collected an important series of specimens from the higher altitudes. These were described by Baron Mueller in "Transactions of the Royal Society of Victoria," vol. i, pp. 1-45. It constitutes one of the most important contributions to our knowledge of the flora of the territory. During his term of office as Lieutenant-Governor of Papua, Sir William MacGregor collected a number of specimens of plants. These were determined by Mueller and recorded in various papers, largely as appendices to the Annual Reports of British New Guinea.

In 1895-6 H. Tryon visited British New Guinea, as an emissary of the Queensland Department of Agriculture, for the purpose of procuring varieties of sugar-cane for cultivation in Queensland. Tryon spent about $4\frac{1}{2}$ months in the territory and brought back to Queensland 65 varieties of sugar-cane

from native gardens. Some of these, e.g. *Badila*, are among the most generally cultivated in Queensland at the present time. A very comprehensive report by him on his collections was unfortunately never printed.

In 1897 (after Mueller's death) Sir William MacGregor forwarded to the Royal Botanic Gardens, Kew, a collection of plants from the higher parts of Mt. Scratchley. This was followed up by a collection from the Vanaipa Valley and Wharton Range, made by A. C. English. These two collections were described in the "Kew Bulletin" for 1899, pp. 95-126. Lists are also given in the Annual Report of British New Guinea for 1897-8.

In 1898 F. M. Bailey, Colonial Botanist of Queensland, accompanied His Excellency Lord Lamington (then Governor of Queensland) and Sir Hugh M. Nelson on a tour of inspection of British New Guinea. He gives a list of the plants observed in an appendix of a parliamentary paper, "Report of Visit to British New Guinea" (1898). The new species collected were described in the "Annual Report of British New Guinea" and "Queensland Agricultural Journal."

From 1899-1903, during his years of office as Lieutenant-Governor of the Territory, Sir G. R. Le Hunte forwarded a number of specimens to F. M. Bailey for determination. These were described in the pages of the "Queensland Agricultural Journal" and as appendices to the "Annual Reports of British New Guinea."

During 1904-7 Captain F. R. Barton, while holding the post of Administrator, forwarded several lots of specimens to F. M. Bailey for examination. These were described in the "Queensland Agricultural Journal" and one collection in the Proceedings of this Society (vol. xviii).

In 1908 Gilbert Burnett, a Queensland district forest inspector, visited Papua for the purpose of reporting on the timber resources of the territory. His report is embodied in the "Timber Trees of the Territory of Papua," a 45-page booklet issued by the Department of External Affairs, Melbourne. Of the numerous timbers listed, with two or three exceptions, only native Papuan names are given. A fine opportunity was here lost of doing good botanical work.

In 1908 Mrs. H. P. Schlencker, wife of one of the London Missionary Society's officers, made collections about Boku.

These were determined and described by F. M. Bailey and the results published in his "Contributions to the Flora of British New Guinea" series in several issues of the "Queensland Agricultural Journal," during 1909.

In 1911 E. B. Copeland described in the Philippine Journal of Science (vol. vi, section C, pp. 65-92) a number of ferns submitted to him by the Rev. Copland King. The Rev. King was a keen collector of Papuan ferns and orchids, and practically speaking confined his attention to these plants. His orchids and many of his ferns were described by F. M. Bailey in the pages of the "Queensland Agricultural Journal" in his series "Contributions to the Flora of British New Guinea."

PTERIDOPHYTA.

(Determined by Thos. Whitelegge, Consulting Pteridologist,
Botanic Gardens, Sydney).

POLYPODIACEÆ.

Aspidium subtriphyllum Hook. Astrolabe Range.

A. cucullatum Christ. Mt. Warirata (Astrolabe Range).

Nephrolepis floccigerum Moore.

N. laurifolium Christ. Mekeo District.

N. biserrata Sw. Copel. Phil. Journ. Sc. Bot., vi, 81, 1911.
Sogeri; Javararie; Mafulu.

N. dicksonioides Christ. Deva Deva and Mafulu.

Onychium tenue Christ. Copel. Phil. Journ. Sc. Bot., v,
86, 1911. Laloki River.

Diplazium elongatum Sw. Sogeri.

D. tenerum Forst. Fofofoto.

Anisogonium cordifolium Bedd. (*Diplazium cordifolium*
Bl.). Near Fofofoto.

Blechnum orientale L. Beccari in D'Albertis' "New
Guinea," 2, 399; F. Muell. Pap. Pl., i (4), 81; Copel. Phil.
Journ. Sc. Bot., vi, 84, 1911. Astrolabe Range.

Doryopteris concolor Kuhn. Sapphire Creek.

Cheilanthes tenuifolia Burm. F. Muell. Pap. Pl., 1 (3),
48; Bail. Queens. Agric. Journ., xxiii, 159, 1909; Copel. Phil.
Journ. Sc. Bot., vi, 86, 1911.

Hypolepis papuana Bail., Queens. Agric. Journ., xxiii, 158,
1909. Astrolabe Range.

Adiantum lunulatum Burm. F. Muell. Pap. Pl., 1 (3), 49. Javararie.

Pteris longifolia Linn. F. Muell. Pap. Pl., i (1), 16 ; Copel. Phil. Journ. Sc. Bot., vi, 85, 1911. Port Moresby.

P. orientalis A. v. R. Mafulu.

P. semipinnata Linn. Beccari in D'Albertis' "New Guinea," 2, 399 ; F. Muell. Pap. Pl., i (4), 78. Dilava.

Histiopteris stipulacea (Hook.) Copel.

Pteridium aquilinum Kuhn., var. **lanuginosum** A. v. R. Astrolabe Range and Sogeri (very abundant).

Vittaria angustifolia Bl. Mafulu.

Tænitis blechnoides (Willd.) Sw. F. Muell. Pap. Pl., 2 (6), 22 ; Copel. Phil. Journ. Sc. Bot., vi, 86, 1911. Deva Deva.

Meniscium triphyllum Sw. Sogeri.

Dictyogramme pinnata J. Sm. (*Syngramma pinnata* J. Sm.). Copel. Phil. Journ. Sc. Bot., vi, 84, 1911. Mekeo District.

Drynaria sparsisora Moore. Copel. Phil. Journ. Sc. Bot., vi, 91, 1911. Laloki River and Sapphire Creek.

D. rigidula (Sw.) Bedd. Copel. Phil. Journ. Sc. Bot., vi, 91, 1911. (*Polypodium rigidulum* Sw., Bail. Queens. Agric. Journ., xxiii, 159, 1909.) Mafulu.

Dipteris conjugata Reinw. (*Polypodium Dipteris* Bl.). F. Muell. Vic. Naturalist, Feb. 1885, and Pap. Pl., 2 (6), 22. Mafulu.

Polypodium nigrescens Bl. Road between Sogeri and Javararie.

Acrostichum aureum L. F. Muell. Pap. Pl., i (4), 76 ; Copel. Phil. Journ. Sc. Bot., vi, 92, 1911. Yule Island.

A. aureum L., var. **attenuatum** A. v. R. Port Moresby.

GYMNOSPERMÆ.

FAMILY CYCADACEÆ.

Cycas media R. Br. Port Moresby ; [Boku, Mrs. H. P. Schlencker]. This Cycad is very abundant on the hills about Port Moresby ; the leaflets are densely pubescent on the under surface and I have little hesitation in referring it to the very common Australian *C. media*.

C. circinalis Linn. (*C. papuana* F. Muell. Pap. Pl., i (iv), 71 ; Becc. in D'Albertis' "New Guinea," ii, 399 ; Bail. Rep.

Visit B.N.G., 27, and Queens. Agric. Journ., xxii, 149.) Mekeo District (also observed but not collected on the road between Sogeri and Javararie).

C. media is a denizen of the dry open forest or grass lands characteristic of a good stretch of the coastal country in Southern Papua, and I have a strong suspicion that the specimens referred to by Bailey l.c. belong to it rather than to *C. circinalis*. However, I cannot find any specimens in the Queensland Herbarium referred to *C. papuana* by him. *C. circinalis* is a very different looking plant and is an inhabitant of the dense rain-forests of the mountains. Schumann and Lauterbach (Fl. Deutsch. Schutz. Gebiete Sudsee, p. 153) place *C. Rumphii* Miquel as a synonym; and as Hooker (Flora British India, v, 657) places *C. Scratchleyanum* as only a form of this, that would leave only two species recorded for the territory of Papua.

FAMILY PINACEÆ.

(CONIFERÆ.)

Araucaria Cunninghamii Ait. F. Muell. Vic. Nat. iv, 121; Pap. Pl., ii (ix), 65. Mafulu (not very abundant).

MONOCOTYLEDONÆ.

FAMILY PANDANACEÆ.

(Determinations verified by Prof. U. Martelli (Firenze).)

Pandanus Balenii Martelli. Between Sogeri and Javararie.

Freycinetia angustissima Ridl. in Britt. Journ. Bot., xxiv, 359. Bisiatabu (Astrolabe Range).

FAMILY GRAMINEÆ.

(GRASSES.)

Coix Lacryma-Jobi Linn. F. v. M. Pap. Pl., i (ii), 31; Becc. in D'Albertis' "New Guinea," ii, 399; Bail. Rep. Visit B.N.G., 28; Queens. Agric. Journ., iii, 162, xxii, 150. Javararie (also noticed at Kabunah).

Polytoca macrophylla Benth. Mt. Warirata and Mafulu.

Dimeria ornithopoda Trin. Bisiatabu (Astrolabe Range). A small grass growing on rocks in exposed situations.

Imperata arundinacea Cyr. F. Muell. Pap. Pl., ii (vi), 20; Vic. Nat., Feb. 1885; Bail. Rep. Visit B.N.G., 28. Astrolabe Range. Common in open forest country almost everywhere; a great pest in coconut plantations.

Saccharum spontaneum Linn. F. Muell. Pap. Pl., i, (iii), 46. Yule Island. My specimens are in a very advanced condition and imperfect, but seem referable to the above.

Miscanthus floridulus Warb. Mafulu.

[**Pollinia grata** Hack. Waigani, *C. N. Loudon*. For the identification of this grass I am indebted to the Director, Royal Botanic Gardens, Kew, England.]

Ischæmum cordatum Hack. Bella Vista.

Apluda mutica Linn. F. Muell. Pap. Pl., i (iii), 46. Port Moresby, Yule Island.

Manisuris granularis Sw. On range between Sogeri and Javararie.

Elionurius citreus Munro. Astrolabe Range.

Ophiuris corymbosus Gært. Astrolabe Range.

Heteropogon contortus Rœm. et Schult. Bunch Spear Grass. Bail. Rep. Visit B.N.G., 27; (*Andropogon contortus* Linn.); F. Muell. Pap. Pl., i (iii), 46. Port Moresby.

Andropogon sericeus R. Br. Queensland Blue Grass. Port Moresby; [B. N. Guinea, without precise locality, *G. R. Le Hunte*.]

A. annulatus Forst. Port Moresby.

A. nardus Linn., var. **grandis** Hack. Port Moresby. My specimens of these three species of *Andropogon* are imperfect, and it is desirable that further specimens should be obtained to verify the specific determinations.

Chrysopogon aciculatus Trin. Sogeri.

Sorghum fulvum Beauv. Port Moresby.

Anthistiria imberbis Retz. *A. ciliata* F. Muell. Pap. Pl., i (iii), 47; Bail. Rep. Visit to B.N.G., 27 (*non* Linn.). Port Moresby; Yule Island.

Paspalum scrobiculatum Linn. F. Muell. Pap. Pl., ii (vii), 35; Bail. Rep. Visit B.N.G., 28. Mafulu.

P. longifolium Roxb. (*non* Steud.), now kept by many botanists as distinct from *P. scrobiculatum*, has been recorded by F. Muell. Pap. Pl., i (iv), 74, and by Beccari in D'Albertis' "New Guinea," ii, 399, as from Papua (British New Guinea).

P. distichum Linn., var. **littorale** (R. Br.) Bail. Yule Island.

P. conjugatum Berg. Astrolabe Range; Sogeri; Javararie. A common grass in rubber plantations, sides of roads, &c.

Eriochloa punctata Hamilt. F. Muell. Pap. Pl., i (iv), 74. Port Moresby.

Isachne myosotis Nees. On rocks, Rona Falls (Astrolabe Range); Mafulu.

Panicum sanguinale Linn. F. Muell. Pap. Pl., i (iii), 47; Bail. Queens. Agric. Journ., iii, 161; Rep. Visit B.N.G., 28. Sogeri.

P. crusgalli Linn. F. Muell. Pap. Pl., ii (vii), 35. Laloki River; Koitaki (Sogeri District).

P. patens Linn. Bail. Queens. Agric. Journ., xxiii, 219. Astrolabe Range; Sogeri; Mafulu.

P. sarmentosum Roxb. Bisiatabu; Sogeri. Very abundant along forest tracks.

P. indicum Linn. Bella Vista. Rather a slender form.

P. prostratum Lam. Yule Island.

P. plicatum Lam. F. Muell. Pap. Pl., ii (vi), 19; Vic. Nat., April 1885. Mafulu.

Arundinella nepalensis Trin. Port Moresby.

Thysanolæna maxima O. Kze. Fairly common on road from Fofofoto to Mafulu.

Setaria glauca Beauv. F. Muell. Pap. Pl., ii (vi), 19; Vic. Nat., Feb. 1885. Bella Vista.

Pennisetum macrostachyum Trin. F. Muell. Pap. Pl., ii (vi), 19; Vic. Nat., Feb. 1885; Bail. Queens. Agric. Journ., xxiii, 220. Laloki River.

Cenchrus echinatus Linn. C. T. White, Queens. Agric. Journ., ix, n.s. 180, pl. 14. *Pennisetum cenchroides* Bail. Queens. Agric. Journ., xxiii, 220 (*non* Rich.). Port Moresby; very common.

Leptaspis urceolata R. Br. F. Muell. Pap. Pl., ii (viii), 57; Ridley in Journ. Bot., xxiv, 360. Astrolabe Range.

Eriachne Armitii F. Muell. Hombrom Bluff (Astrolabe Range).

Centotheca lappacea Desv. Bail. Queens. Agric. Journ., ix, 411. Astrolabe Range; Sogeri; Javararie. Very common.

Lophatherum gracile Brongn. Hemsley in Kew Bulletin, 1899, 115. Sogeri.

Chloris barbata Sw. Port Moresby.

Eleusine aristata Ehrenb. Port Moresby.

E. indica, Gært. F. Muell. Pap. Pl., ii (vi), 20; Bail. Rep. Visit B.N.G., 28. Laloki River.

FAMILY PALMACEÆ.

A few specimens of palms collected were sent to the late Dr. Beccari for determination; unfortunately he did not have time to identify the material before his death. The following species were observed but no specimens collected.

Areca Catechu Linn. Occurs either cultivated or semi-wild practically throughout the territory.

Nipa fruticans Wurm. Bail. Rep. Visit B.N.G., 28. Common along the Ethel River and its tributaries (Mekeo District).

Metroxylon Rumphii Mart. (*Sagus Rumphii* Willd.) Sago Palm.

Beccari in D'Albertis' "New Guinea," ii, 399, records *M. Rumphii* from the Fly River. Sago palms are common along the coast, and I also saw several along the edges of a small lake below Hombrom Bluff (Astrolabe Range). I did not collect specimens but have placed it under the above species.

Cocos nucifera Linn. Coconut. Extensively planted about villages around the coast.

FAMILY ARACEÆ.

Epipremnum Zippelianum (Schott.) Engl. Becc. Malesia i, 274, tab. xx, pp. 10-12. Diene.

FAMILY FLAGELLARIACEÆ.

Flagellaria indica Linn. F. Muell Pap. Pl. i (iv), 73; Rendle in Britt. Journ. Bot., xxiv, 358; Bail. Queens. Agric. Journ., iii, 161, and Rep. Visit B.N.G., 28. Dilava; [Samarai, W. E. Armit.]

F. indica, Linn., var. **minor** (Bl.) Hook. f. Bail. Queens. Agric. Journ., xxiii, 219. Port Moresby; Laloki River; Mt. Warirata; Astrolabe Range.

With the Mt. Warirata and Laloki River plant is the following note:—"The common and larger typical *F. indica* also present but not collected."

FAMILY COMMELINACEÆ.

Pollia macrophylla Benth. Deva Deva and Mafulu.

Commelina nudiflora Linn. Mekeo District.

Aneilema nudiflorum R. Br. *Commelina ensifolia* Bail. Queens. Agric. Journ., xxii, 150 (*non* R. Br.). Boku, Mrs. H. P. Schlencker.

Mrs. Schlencker's specimens, referred by Bailey l.c. to *C. ensifolia*, I think are more correctly referable to the above.

Forrestia hispida Less. and A. Rich. Fofofoto.

For the determination of this plant I am indebted to Mr. H. N. Ridley, C.M.G., F.R.S.

Cyanotis capitata C. B. Clarke. Ridl. in Journ. Bot., xxiv, 358. Deva Deva.

FAMILY LILIACEÆ.

Rhipogonum papuanum sp. nov.

Frutex alte scandens inermis glaberque; foliis breviter petiolatis angusto-ellipticis ca. 13-17 cm. longis et 3.5-4.5 cm. latis coriaceis longe et obtusiuscule acuminatis trinervis transversis et valde reticulatis, racemis axillaribus et simplicibus vel terminalibus et paniculatis; floribus pedicellatis.

A tall glabrous climber, branchlets unarmed. Leaves opposite, sub-opposite, or alternate, narrowly elliptical, tapering at the apex into a rather long blunt point, prominently trinerved and reticulate on both faces; petiole often twisted, 3-6 lines (.7-1.3 cm.) long; lamina $4\frac{3}{4}$ - $6\frac{3}{4}$ in. (12-17 cm.) long, $1\frac{1}{4}$ - $1\frac{3}{4}$ in. (3.4-5 cm.) broad. Racemes in the upper axils, about $1\frac{1}{2}$ in. (4 cm.) long, bearing 2-4 (mostly 4) flowers towards the top; the upper racemes forming a terminal panicle $2\frac{1}{2}$ -6 in. (6.5-15 cm.) long, branches often subtended by a narrow bract, up to $\frac{2}{3}$ in. (1.8 cm.) long; flowers on slender pedicels of 2-5 lines (.3-1.1 cm.) long. Perianth unknown. Ovary glabrous.

Between Kubunah and Fofofoto.

The specimens are in young fruit only. In many ways it approaches the North Queensland *R. album* R. Br., var. *leptostachya*, from which, however, it differs in its longer more strongly veined leaves. Judging from the description it comes very near *R. Danesii* Domin, but differs from that species in its larger leaves, pedicellate flowers, and in the upper racemes forming a large terminal panicle. The genus has not apparently been previously recorded from New Guinea. There appear to be several forms of *R. album*, perhaps representing distinct species, in Queensland, but the material at my disposal is generally of too fragmentary a nature to base any critical work on.

Dracæna angustifolia Roxb. Becc. in D'Albertis' "New Guinea," ii, 399; F. Muell. Pap. Pl., i (iv), 73; Ridl. Journ. Bot., xxiv, 357. Astrolabe Range and Sogeri.

Cordyline terminalis Kunth. F. Muell. Pap. Pl., i (ii), 30; Ridl. Journ. Bot., 24, 358; Bail. Rep. Visit B.N.G., 28; *Dracæna terminalis* Linn. Becc. in D'Albertis' "New Guinea," ii, 399. Mafulu.

Dianella cærulea Sims. Mt. Warirata.

D. ensifolia Red. F. Muell Pap. Pl., i (vi), 17; Ridl. Journ. Bot., 24, 358; F. Muell. Austr. Scientific Magazine, Oct. 1885; *D. nemorosa* Lam.; Hemsl. Kew Bulletin, 1899, 113. Mafulu.

FAMILY MUSACEÆ.

(H. N. Ridley, C.M.G., M.A., F.R.S.)

Heliconia Micholtzi Ridl. Sogeri (No. 826).

FAMILY ZINGIBERACEÆ.

(H. N. Ridley, C.M.G., M.A., F.R.S.)

Riedelia Whitei Ridl. (n. sp.).

Planta glabra gracilis ultra 30 cm. alta. Folia lanceolata acuminata basi longe angustata 18 cm. longa 3 cm. lata, petiolo gracili 2 cm. longa, ligula brevis glabra truncata 2 mm. longa vagina 6 cm. longa striolata haud cancellata. Racemus simplex 5 cm. longus vel ultra, decurvus terminalis, floribus ad 12 pedicellis 2 mm. longis. Calyx tubulosus cylindricus 15 mm. longus, ore obliquo lamina ovali. Corollæ tubus æquilongus, lobus superior elongata 7 mm. longus lanceolata acuminata in acumine longo, laterales multobreviores lineari oblonga 5 mm. longus. Labellum brevius, bifidus lobis lanceolatis acuminatis. Capsula oblongo elliptica rubra bilocularis in valvis 2 deh. scens 1 cm. longa, 5 mm. crassa. Semina plurima aurantiaca.

Deva Deva (White, 655, 613).

Only one flower in moderate condition unfortunately, and that with the stamen decayed. The upper corolla-lobe has a peculiarly long acuminate point. The fruiting specimen No. 613 probably is of the same species. The fruits are peculiar from their dehiscing in 2 valves leaving a mass of very small-angled seeds in the centre.

Hornstedtia lycostoma Schum. Sogeri. 405.

Bracts red on edges, white-spotted on general ground area, white at base.

Riedelia lanatiligulata Ridl. (n. sp.).

Caulis validus 2 cm. crassus. Folia lineari-lanceolata acuminata basi angustata; superne hirtula; subtus molliter hirta margine sericea 60 cm. longa 9.5 cm. lata; petiolo canaliculato 8 cm. longa, vaginis cancellates hirtis vel subglabrescens, ligula maxima ovata 6-7 cm. longa 2 cm. lata dense

longo-lanuginosa. Panicula lateralis valida ; ramis 3 multi-
floris 13 cm. longis. Bracteæ ad bases ramorum lineari-lanceo-
latæ papyraceæ 15 cm. longæ 1·5 cm. latæ. Flores subsessiles
glabri. Bracteola calyciformis tubulosa costata ad basin
angustata breviter tridentata ; 10 mm. longa. Calyx 17 mm.
longa cylindrica costata, in uno latere fissa, dentibus 2,
acuminatis. Petala angusta linearia, tubo calyce æquilongu.
Labellum profunde bifidum in lobis linearibus 2. Stylus fili-
formis ad apice gradatim incrassatis, stigmatе obconico.

Near Fofofoto (No. 615).

This species is very distinct in its hairy leaves and very
large woolly ligule, and is apparently a very robust plant.
Unfortunately the few buds which are left on the specimen
are in a very rotten condition.

Tapeinocheilos pubescens Ridl., Journ. Bot., xxiv, 356.
Sogeri (No. 313).

Costus speciosus Sm. var. **argyrophyllus** Wall. Sogeri (No.
414). Flowers white ; apparently identical with *C. Lamingtonii*
Bail.

Eriolopha ovalifolia Ridl. (n. sp.).

Caulis 62 cm. longæ. Folia ovata acuminata rigida, basi
rotundata 9 cm. longa 3 cm. lata, petiolo 4 mm. longo, vagina
3 cm. longa cancellata ligula brevi 3 mm. longa cum marginibus
vaginæ pubescenti. Racemus terminalis simplex 13 cm. longus
velutino-pubescens. Bractea ad basin linearis lanceolata
acuminata 8 cm. longa 5 mm. lata glabra. Pedicelli 3 mm.
longi velutini ad 14. Calyx tubulosa 14 mm. longæ cylindrica
lamina ovata pubescens. Corolla tubo calyce æquante. Peta-
lum superius oblongum-ovatum obtusum cucullatum 5 mm.
longum pubescens, lateralia angustiora pubescentia obtusa.
Labellum multibrevius bifidus ad medium, lobis ala tenui
rotundata exteriore, nitus processu lineari-obtuso incrassato.
Anthera glabra oblonga truncata retusa, crista nulla stylus
gracilis glaber. Stilidia minuta.

Deva Deva (White, 656).

This species is peculiar in its ovate rigid leaves and
apparently complete absence of anther-crest, in spite of which
it appears to be in other respects an *Eriolopha*. The stamen
is notched at the top, the anther-cells projecting as two short

points. The lip is as usual very small, and deeply bifid, each lobe consisting of a thin outer rounded wing while the inner edge is more fleshy and prolonged into a short blunt point.

Owing to the poorness of the material to hand several other specimens of Zingiberaceæ could not be specifically determined.

FAMILY MARANTACEÆ.

(H. N. Ridley, C.M.G., M.A., F.R.S.)

Donax cannaeformis Ridl. Sogeri. Common all over the eastern islands.

Cominsia Guppyi Hemsl. Between Sogeri and Javararie. I am inclined to agree with Schumann that *Cominsia Guppyi* Hemsl. and *C. gigantea* are the same species.

Phrynium capitatum Willd. Sogeri. A common plant. In fruit only. The species is recorded from India, Cochin China, China, and Java, but I am doubtful as to whether the Malay plant is not distinct from the Indian one.

Phacelophrynium Whitei Ridl. (n. sp.)

Caules gracilis 30 cm. longis vel ultra. Folium lanceolatum acuminatum basi subacuto subinæquilaterum 24 cm. longum. 7.5 cm. latum petiolo 10 cm. longo. Pedunculus 10 cm. longus gracilis panícula 6 cm. longa; ramis paucis congestis. Bracteæ lanceolatae siccae 8 mm. longa, vel minora. Flores parvi verosimiliter albi, pedicellis 2 mm. longis ad 1 cm. crescentibus. Ovarium oblongum pubescens 1 mm. longum. Sepala 3 mm. longa late lanceolata acuminata. Corolla tubo sepalis æquilongo lobis late oblongis obtusis, recurvis. Labellum obovatum rotundatum, integrum. Anthera linearis.

Mekeo District (807).

A small-sized plant with a short many-spiked dense panicle. The whole flower 1 cm. long. Allied to an undescribed Borneo species. Though the inflorescence in these plants is much smaller than in typical *Phacelophrynium*, I think that as far as its structure goes it is best to keep them in this genus.

The collection also includes specimens of some other Marantaceæ which owing to poorness of material could not be specifically determined.

Monophrynium sp. Mafulu (420). A fruiting specimen of a large plant with broad cut-up leaves as in *Phrynium fissifolium* Ridl. The fruit resembles that of *Monophrynium fasciculatum* Schum., but is less acutely angled. The specimen is too

incomplete (all the bracts having fallen) to describe adequately, but it is evidently an undescribed plant allied to *Monophrynum* and *Cominsia*.

Phacelophrynum sp.

Caules graciles 60 cm. alti. Folium lineari-oblongum; valdevenosum costa alte elevata basi cuneato 32 cm. longum 6 cm. latum, petiolo 18 cm. longo. Panícula brevis 8 cm. longa, pauce ramosa. Bracteæ tenuiter papyracea lanceolata acuminata 3 cm. longa 5 mm. lata. Flores non visi. Panícula fructifera ramis validulis 4 cm. longa 5 cm. lata. Capsula obtuse triquetra globosa 1 cm. longa et lata.

Deva Deva (632); Central Division (825).

This species is notable for the prominence of the nerves, especially on the back of the leaf when dry, and the small size of the few-branched panicle with the thin lanceolate brown bracts.

The collection also contains another more typical *Phacelophrynum* with large leaves and a panicle of 3 branches 15 cm. long of distichous stout bracts 3-4 cm. long, 2 cm. wide, in which are smooth, polished, yellow, triquetrous capsules 1.5 cm. long in pairs on very short peduncles. It is to be hoped that complete specimens of this fine plant may be obtained. Sogeri (No. 406).

FAMILY ORCHIDACEÆ.

A complete account of the Orchidaceæ collected has already been published under the joint authorship of Dr. R. S. Rogers, M.A., and myself in the "Transactions and Proceedings of the Royal Society of South Australia," vol. xlv, pp. 110-119, plates v-viii.

DICOTYLEDONEÆ.

FAMILY CASUARINACEÆ.

Casuarina nodiflora G. Forst. F. Muell. Pap. Pl., ii (vi), 6. Astrolabe Range and Mafulu District. A very common tree in the first-mentioned locality.

C. equisetifolia R. & G. Forst. F. Muell. Pap. Pl., i (i) 12; Bail. Rep. Visit B.N.G., 28, and Queens. Agric. Journ., xxii, 149; Foxworthy Ann. Rep. Papua, 1909-10, 114. I did not see this growing wild, but there is a fine avenue of these trees planted along the esplanade road at Port Moresby.

FAMILY PIPERACEÆ.

Piper miniatum Bl. Bisiatabu. A climbing Pepper with long red fruiting-spikes.

FAMILY FAGACEÆ.

(Order CUPULIFERÆ.)

Quercus sp. Deva Deva.

Castanopsis Schlenckeræ Bail., Queens. Agric. Journ., xxii, 149. Mafulu. Large tree, dense foliage, common.

FAMILY ULMACEÆ.

Trema virgata Bl., var. **scabra** Bl. Lauterbach Beitr. Fl. Pap., iii, 312 ; (*T. cannabina* F. Muell. Pap. Pl., i (iii), 40 ; *T. aspera* Bl., var. *viridis* (Bl.) Benth.). Port Moresby.

FAMILY MORACEÆ.

Fatoua japonica Bl. Yule Island ; Port Moresby, *E. Cowley*.

Cudrania javanensis Trécul. Laloki River.

Artocarpus incisa Forst. Becc. in D'Albertis' "New Guinea," ii, 398 ; Bail. Rep. Visit B.N.G., 27. Port Moresby ; Laloki River ; Mekeo District ; Yule Island. Not collected, but common wild or cultivated through the whole of the coastal country.

Ficus infectoria Roxb. Sapphire Creek.

F. Rigo Bail., Queens. Agric. Journ., i, 235. Yule Island. A handsome tree, much planted about Port Moresby.

F. retusa Linn. Yule Island. For ornamental planting this tree is one of the very best of the Figs, having a great spread of dense dark-green foliage.

[**F. fistulosa** Reinw. Ambasi, *Rev. Copland King* ; S.E. New Guinea, *H. O. Forbes* (ex Nat. Herb. Melb.) ; Sogeri, *H. O. Forbes* (ex Nat. Herb. Melb.)]

F. myriocarpa Miq. Javararie.

It is with some hesitation that I refer these specimens to *F. myriocarpa* ; the leaves are densely hirsute but scarcely hispid and certainly not hispid on both surfaces. The identification wants confirming with better material.

FAMILY URTICACEÆ.

Elatostemma lineolatum Wight, var. **integrifolium** Hook.
Between Sogeri and Javararie ; Dilava ; Mafulu.

E. sesquifolium Hassk. Bisiatabu (Astrolabe Range). A form with the leaves pubescent on both upper and lower surfaces.

E. sessile Forst. Dilava.

My collection also contains several other species of *Elatostemma*, but in too bad a state for determination.

Pouzolzia hirta Hassk. (*P. quinquenervis* Benn.). F. Muell. Pap. Pl., i (iii), 40. Mafulu.

Pipturus incanus (Bl.) Wedd. (*P. velutinus* Wedd.) Becc. in D'Albertis' "New Guinea," ii, 398 ; F. Muell. Pap. Pl., i (iv), 60 ; (*P. argenteus* Bail., Queens. Agric. Journ., xxiii, 219 (*non* Willd.)). Port Moresby.

I follow Mueller and others in keeping the Papuan plant as *P. incanus* ; in general appearance, however, it can hardly be distinguished from the common Australian *P. argenteus*. All my specimens and Mrs. Schlenker's, referred to *P. argenteus* by Bailey l.c., are slightly scabrid on the upper surface of the leaves.

Leucosyke capitellata Wedd. Dilava.

FAMILY PROTEACEÆ.

Grevillea pinnatifida Bail., Occasional Papers on the Queensland Flora, 6 (1886) ; *G. Edelfeldtiana* (name only) F. M. in Vic. Nat., Feb. 1885, and Pap. Pl., 2 (vi), 9 ; Lauterbach, Beitrage zur Flora Papuasien, iii, 329. Astrolabe Range (very abundant).

This tree is very abundant on the Astrolabe Range and averages 30-40 ft. high. I was unable, however, to gather either flowers or fruits, and Mueller named his *G. Edelfeldtiana* from leaves only. The leaves, however, are exactly those of the North Queensland *G. pinnatifida*, and consequently I have reduced Mueller's name to a synonym. Mueller's name had a year's priority over Bailey's, but as it was unaccompanied by a description of any sort it should lapse in favour of the latter. I am indebted to Prof. A. J. Ewart for having compared my Papuan material with Mueller's type in the National Herbarium at Melbourne.

G. subargentea sp. nov.

Arbor mediocris, ramulis junioribus sericeo-pubescentibus ; foliis junioribus ca. 30.5 cm. longis alte 3.5 lobatis, lobis 1.2-2.5 cm. latis, subtus sericeo-pubescentibus ; foliis

maturis integris vel breviter lobatis, lanceolatis vel falcato-lanceolatis, subtus sericeo-pubescentibus utrinque reticulatis subtriplinervis racemis ca. 16.5 cm. longis; floribus ignotis; fructu ellipsoideo, ca. 2.5 cm. longo.

A medium-sized tree, the very young parts clothed with white appressed hairs. Leaves on coppice shoots or young trees deeply pinnatifid into 3-5 lobes, about 1 ft. (30.5 cm.) long, the individual lobes $\frac{1}{2}$ -1 in. (1.2-2.5 cm.) broad; adult foliage entire or slightly lobed, lanceolate, sometimes somewhat falcate, tapering at the base into a petiole of 6-8 in. (15-20 cm.) long, varying in width from 1-2 $\frac{3}{4}$ in. (2.5-7 cm.), under surface silky pubescent; both faces in the dried specimens prominently reticulate with very oblique veins and veinlets, a pair of secondary veins running parallel with the midrib about half-way between it and the edge of the leaf. Racemes (only seen in fruit) up to 6 $\frac{1}{2}$ in. (16.5 cm.) long. Flowers unknown. Follicle woody, ellipsoid, slightly compressed, not stipitate, 1 in. (2.5 cm.) long, 7-8 lines (1.5-1.8 cm.) broad on a pedicel of 2 lines (5 mm.).

Deva Deva (Nos. 643 and 653).

In systematic position this species comes between the East Australian *G. pinnatifida* and *G. Hilliana*.

[*G. densiflora* sp. nov.]

Arbor, ramulis robustis; foliis petiolatis, petiolo pubescente, lanceolatis vel obovato-lanceolatis supra glabrescentibus, subtus minute lepidotis, nervis lateralibus circiter 20 ante marginem conjunctis, juxta marginem nervo altero marginati unitis; racemis simplicibus axillaribus densifloris cum pedicellis et floribus ferrugineo-pubescentibus; pistilo glabro ovario stipitato.

A tree, branchlets stout. Leaves petiolate, petiole about 8 lines (1.7 cm.) long, clothed with an appressed pubescence; blade 4 $\frac{1}{2}$ -8 $\frac{1}{2}$ in. (11.5-30.7 cm.) long, about 2 in. (5 cm.) wide, lanceolate or obovate-lanceolate, upper surface glabrescent, under surface densely covered with minute gland-like scales, both faces reticulate; the midrib and main nerves prominent, main lateral nerves about 20 on each side of the midrib, about 1-1 $\frac{1}{2}$ line (2-3 mm.) from the margin arching into a prominent intramarginal vein. Racemes very densely flowered, about as long as the leaves, rhachis densely pubescent with appressed somewhat strigose

hairs. Pedicels 3-4 lines (6-9 mm.) long, pubescent with somewhat strigose hairs. Perianth segments 4 lines (9 mm.) long, clothed on the outer surface with appressed strigose hairs. Pistil glabrous; ovary stipitate on a gynophore $1\frac{1}{2}$ line (3 mm.). Fruit not seen.

Boku, British New Guinea, *Mrs. H. P. Schlencker*.

This new species is quite unlike any other Papuan or Australian *Grevillea* known to me. The specimens were collected by Mrs. Schlencker in 1909 and referred by the late F. M. Bailey as near *Finschia rufa* Warbg. It may, when the fruit is known, prove a species of *Finschia*, but it differs from *F. rufa* and *F. chloroxantha*, the only known members of the genus.]

***Helicia validinervis* sp. nov.**

Arbor, ramulis glabris; foliis petiolatis lanceolatis sensim longe acuminatis integris utrinque glabris reticulatis nervis subtus prominentibus; racemis laxifloris rhachide pubescente; floribus geminatum pedicellatis pedicello dense pubescente; perianthii segmentis ferrugineo-pubescentibus; ovario hirsuto, stylo glabro.

A tree, branchlets glabrous, finely striate. Leaves distinctly petiolate, petiole $\frac{1}{2}$ -1 in. (1.3-2.5 cm.); blade lanceolate, tapering at the apex into a long acuminate point, 7-11 $\frac{1}{2}$ in. (18-29 cm.) long, glabrous, green on both faces, strongly nerved, main nerves prominently raised on the under surface, reticulations distinct between them, margins entire. Racemes shorter than the leaves, about 7 in. (18 cm.) long, rhachis clothed with rather long, scattered, ferruginous hairs. Flowers on pedicels of about 1 line (2 mm.); pedicels and perianth segments ferruginous-pubescent, ovary densely clothed with long villous hairs.

Mekeo District.

Among previously recorded Papuan species *H. validinervis* approaches very closely to *H. toricellensis* Laut., which differs from it in its smaller leaves insensibly tapering at the base into a petiole. From *H. Forbesiana* it differs in its larger flowers and smaller less prominently veined leaves. Lauterbach's key to the Papuan species of *Helicia* (Beiträge zur Flora von Papuasien, iii, 330) places *H. Forbesiana* among those with a glabrous rhachis, whereas specimens from the National Herbarium, Melbourne, and collected by Forbes, show the rhachis to be clothed with scattered ferruginous hairs.

***H. latifolia* sp. nov.**

Arbor, ramulis lenticellatis; foliis utrinque glabris prominule reticulatis supra nitidis late lanceolatis vel elliptico

lanceolatis integris breviter petiolatis, petiolis incrassatis; racemis laxifloris, floribus pedicellatis, pedicellis ferrugineo-pubescentibus; perianthii segmentis 9 mm. longis fere glabris; pistillo glabro.

A tree, branchlets lenticellate. Leaves shortly petiolate, petiole stout, 1-3 lines (2-6 mm.) long; blade broadly lanceolate, glabrous on both sides, veins and reticulations fairly prominent, upper surface rather glossy, apex bluntly acuminate, 5-8 in. (13-10·7 cm.) long, $2\frac{1}{2}$ - $4\frac{1}{4}$ in. (6·5-11 cm.) broad, margins entire. Racemes about as long as or longer than the leaves; rhachis clothed with a few ferruginous hairs. Flowers in pairs but pedicels distinct to the base, pedicels $1\frac{1}{2}$ -2 lines (3-4 mm.) long, thinly ferruginous-pubescent. Perianth 4 lines (9 mm.) long, glabrous except for a few brown hairs on the outer surface. Ovary and style glabrous.

Deva Deva.

Amongst previously recorded Papuan species *Helicia latifolia* approaches most closely to *H. moluccana*, which differs in its quite glabrous inflorescence and narrower leaves.

Banksia dentata Linn. f. F. Muell. Pap. Pl. (ii), 28; Beccari in D'Albertis' "New Guinea," 2, 398; Lauterbach in "Beiträge zur Flora von Papuasien," iii, 334. Astrolabe Range (very common).

FAMILY LORANTHACEÆ.

(By W. F. Blakely, Botanical Assistant, National Herbarium, Sydney.)

LORANTHUS L.

Subgenus I.—EULORANTHUS Engl.

Section I.—DACTYLIOPHORA van Tiegh.

Series I.—EUAMYEMA Engl.—B. CYMULATI.

Loranthus barbellatus Blakely n. sp.

Glaber; ramis robustis nodis subtumidis; foliis oppositis late spathulatis; vel ellipticis, petiolatis, coriaceis, 5-7 nerviis, 3-9 cm. longis, 2-5 cm. latis; cymis interaxillaribus, foliis brevioribus, 3-6 ramis; floribus in triadibus, intermediis sessilibus; pedunculo communi tenue, 15 mm. longo; pedicellis 5-7 mm. longis; calyce lato cupulare irregulariter denticulato;

alabastris cylindraceis 25 mm. longis ; petalis liberis 5-6 apice barbatis ; antheris linearibus adnatis 4 mm. longis, fructus non vidimis.

Glabrous shrubs, branches rather stout, nodes somewhat prominent or swollen ; leaves opposite, broad spatulate to broadly elliptical, undulate, tapering into a short stout petiole, 6-9 cm. long, 2-5 cm. broad, somewhat coriaceous, 5-7-nerved, the second pair confluent with the median nerve 1-3 cm. from the base, the upper portion branched, spreading, flexuose or looped. Cymes internodous, single or in pairs, shorter than the leaves ; common peduncle slender, 15 mm. long, 3-6-branched ; flowers arranged in triads, the middle one of each triad sessile, the two lateral on short pedicels. Bracts broad lanceolate, concave acute, 2 mm. long, minutely ciliate at the apex, shorter than the calyx. Calyx broadly cupular, irregularly denticulate. Buds slender, cylindrical, 25 mm. long ; petals 5-6, free, narrow-lanceolate, bearded on the inside with a tuft of red-brown semi-deciduous hairs. Filaments narrow, 4-5 mm. long ; anthers adnate, linear, 4 mm. long. Style angular, broader towards the base, 27 mm. long ; stigma small, capitate. Disc prominent. Fruit not seen.

Astrolabe Range, on *Eucalyptus* (No. 231).

As far as I am aware this species does not appear to answer the description of any previously described species, and I therefore propose the name *L. barbellatus* on account of the petals being bearded inside at the apex. Its nearest affinity is *L. queenslandicus* Blakely MSS., from which it differs in the more strongly marked venation and undulate leaves, different shaped calyx, bracts, and relatively smaller and finer pedicels, also in the domed disc. The filaments of *L. queenslandicus* are twice the length of the anthers, those of *L. barbellatus* are about the same length. The inflorescence, the only one I saw *in situ*, is internodous. Whether this is a constant character remains to be proved, as I have not seen it in any of the Australian species investigated by me. This species resembles somewhat *L. novæ-guinæ* Bail. in the foliage, but the inflorescence is not the same.

Subgenus II.—DENDROPHTHÆ Mart.

L. odontocalyx F. v. M., var ***propria*** Blakely var nov.

Vestimentum surculorum juvenilium atque inflorescentiæ minute rufro-cinereum. Folia macro plerumque late lanceolata, 5-10 cm. longa, 2-5 cm. lata, petiolata ; petiolæ 1-2 cm. longæ.

Vestiture of the young shoot and the inflorescence minutely

rufous-hoary. Leaves thin, usually broad-lanceolate, 5-10 cm. long, 2-5 cm. broad, petiolate; petioles 1-2 cm. long. Inflorescence and structure of the flowers the same as *L. odontocalyx*, but the calyx is often entire, sometimes split on one side, and minutely and irregularly toothed.

Yule Island, on *Inocarpus edulis*, "Corolla tube yellow; lobes red." (No. 736.)

This variety is intermediate between *L. odontocalyx* F. v. M. and *L. vitellinus* F. v. M. It has some of the characters of both, and yet dissimilar. The typical *L. odontocalyx* has a hoary vestiture, whilst the vestiture of *L. vitellinus* is ferruginous tomentose. That of the new variety is partly both.

II.—VISCOIDEÆ.

VISCUM.

Section I.—PLOINIXIA Korth.

Series I.—ISANTHEMUM van Tiegh.

Viscum verruculosum Wight et Arn. in Fl. Ind. Ori., i, 279. Yule Island (No. 720). Fruit immature, cylindrical, contracted at the base, prominently verrucose.

This specimen agrees somewhat with *V. orientale* Willd., as figured in Blume's Flora Java, t. 24, but it is more applicable to the description of *V. verruculosum*, especially in the shape and character of the fruits, as will be seen presently. J. D. Hooker, in Flora British India, v, 224, describes the fruits of *V. orientale* Willd. as "globose, smooth." Kurz, in Forest Flora, British Burma, ii, 324, states that they are "globular, the size of a pea." Wight in Illustrations of Indian Botany, p. 68, pl. 122, depicts a smooth elliptical fruit, while in his Fl. Ind. Ori. l.c. he describes the fruits as "(purple) somewhat globose, copiously and minutely dotted." In the same work the fruits of *V. verruculosum* are described thus:—"Berries (very immature) linear-oblong, covered with little warts."

There is a footnote which runs—"Dr. Wight made the following memorandum when he collected the specimen: Fruit long, slender, warty, lateral ones of each fascicle cernuous, leaves and plant very like *V. orientale*, of which it is perhaps a variety. Keeble in the Loranthaceæ of Ceylon, Trans. Linn. Soc. Lond., 2nd ser., Botany, vol. v, pt. iii, p. 115 (1896), describes the fruits of *V. orientale* as "small green, somewhat lenticular with oval outline."

Trimen in Handbook Flora Ceylon, iii, 471, is inclined to the opinion that the Ceylon plant which has "much warted fruits" is *V. verruculosum* W. & A.

It appears to me that further investigation will prove this to be a valid species. The new locality is an extension to its previously known range, and the species is an addition to the Flora of New Guinea.

Section II.—*ASPIDIXIA* Korth.

V. angulatum Heyne. Astrolabe Range (No. 344).

As far as I am aware this species has not been recorded previously for the mainland of New Guinea. It has an extensive Oceanic range, extending from India to the Philippine Islands, New Guinea, Thursday Island, Prince of Wales Island, and thence to Australia.

FAMILY SANTALACEÆ.

Exocarpus latifolia R. Br. F. Muell. Pap. Pl., 1 (1), 10. Port Moresby.

FAMILY OLACACEÆ.

Opilia amentacea Roxb. F. Muell. Pap. Pl., i (iv), 53. Yule Island.

Cardiopteris moluccana Blume. *C. lobata* Bail. Queens. Agric. Journ., xxiv, 20 (*non* R. Br.). Yule Island.

FAMILY ARISTOLOCHIACEÆ.

Aristolochia Tagala Cham. Sogeri.

My specimens are in fruit only but agree well with specimens of this Philippine plant received from the Bureau of Science, Manila, P.I.

FAMILY POLYGONACEÆ.

Polygonum barbatum Linn. F. Muell. Pap. Pl., i (iv), 58. Sogeri. A glabrescent form.

P. chinense Linn. Hemsl. Kew Bulletin, 1899, 108. Mafulu.

P. alatum Buch., var. **nepalense** Hook. f. Bella Vista (about 5,000 feet).

FAMILY AMARANTACEÆ.

Amarantus viridis L. Port Moresby. A common weed.

Cyathula prostrata Blume. (*C. geniculata* Lour). Javararie.

FAMILY CARYOPHYLLACEÆ.

Drymaria diandra Bl. F. Muell. Pap. Pl., i (v), 86. Javararie. A common weed along damp plantation tracks.

FAMILY RANUNCULACEÆ.

Clematis Pickeringii A. Gr. Sogeri.

FAMILY ANONACEÆ.

[**Uvaria purpurea** (Bl.) var. **neoguineensis** (Engl.) Diels.
(*U. neoguineensis* Engl.) Boku, Mrs. H. P. Schlencker.]

Eupomatia laurina R. Br. F. Muell. Pap. Pl., ii (vii), 26.
Astrolabe Range.

Several other Anonaceæ were collected, but as they are in fruit only it is impossible to trace the species down; there are also several other Papuan Anonaceæ in the Queensland Herbarium in like condition.

FAMILY MYRISTICACEÆ.

Myristica subalulata Miq. Warb. Monogr. Myristic., 486.
Sogeri District; Mafulu.

FAMILY LAURACEÆ.

Litsea calophyllantha K. Sch. Dilava.

My specimens are in fruit only but the leaves agree well with specimens collected by Dr. Karl Weinland. The fruits (not previously described) are—Elliptic, about 1 in. (2.5 cm.) long and $\frac{1}{2}$ in. (1.2 cm.) long, seated on the slightly enlarged calyx.

Cryptocarya triplinervis R. Br. Yule Island.

Differs from the typical Australian *C. triplinervis* in the under surface of the leaves only being thinly pubescent with tufts of hairs in the axils of the primary veins. Some North Queensland specimens are inclined to be glabrescent but not to so marked a degree as the Papuan plant. My specimens are in fruit only and when better known the Papuan plant may be found worthy of varietal or even specific distinction.

Cassytha pubescens R. Br. Port Moresby.

My specimens are more or less densely pubescent, even on the older stems.

[**C. filiformis**. British New Guinea—without precise locality, Sir Wm. Macgregor.]

In addition to the above my Lauraceæ material includes three species of *Cinnamomum* in leaf only; one of these—a large tree from Sogeri—possesses a bark with a very strong cinnamon-like odour.

FAMILY CAPPARIDACEÆ.

Polanisia viscosa DC. F. Muell. Pap. Pl., i (iv), 52; Bail. Rep. Visit B.N.G., 27. Port Moresby.

Capparis umbellata R. Br. Port Moresby; Yule Island.

C. quiniflora DC. F. Muell. Pap. Pl., i (i), 5; Lauterbach Beitr. Fl. Pap., iv, 112. Port Moresby.

C. lucida R. Br. Port Moresby.

Mueller has recorded *C. nobilis* as a Papuan plant, and my collections include two other species, but both too fragmentary to name specifically.

FAMILY NEPENTHACEÆ.

Nepenthes Kennedyana F. Muell. F. Muell. Pap. Pl., i (ii), 20 ; Bail. Rep. Visit B.N.G., 28 ; Bail. Queens. Agric. Journ., xxii, 148 Astrolabe Range. A climber in swampy ground round edge of a small lake below Hombrom Bluff.

My specimens bear male flowers only ; the spikes are more slender and the flowers not so crowded as in the typical plant ; it may when fruit are available prove distinct. Mrs. Schlencker's specimens referred to by Bailey l.c. are in fruit and typical.

N. Moorei Bail. Astrolabe Range. Very common in dry open forest country near Bisiatabu. The specimens seem to agree well with the Australian plant.

FAMILY PITTOSPORACEÆ.

Pittosporum ferrugineum Ait. F. Muell. Pap. Pl., ii (vi), 4 ; Vic. Nat. April 1885 ; Bail. Queens. Agric. Journ., ix, 410. Mafulu.

FAMILY ROSACEÆ.

Rubus moluccanus Linn. Hemsley Kew Bull. 1899, 99 ; Bail. Queens. Agric. Journ., xxii, 148, and xxiii, 220. Astrolabe Range and Mafulu.

R. rosæfolius Sm. Hemsley Kew Bull. 1899, 99 ; F. Muell. Pap. Pl., ii (vii), 29 ; Bail. Queens. Agric. Journ., xxiii, 220. Astrolabe Range and Mafulu.

FAMILY LEGUMINOSÆ.

Albizzia procera Benth. Bail. Rep. Visit B.N.G., 28. Port Moresby. A very common tree.

Acacia farnesiana Willd. Port Moresby. Fairly common, perhaps naturalised.

A. auriculæformis A. Cunn. Port Moresby. Fairly common.

Afzelia bijuga A. Gray. Bail. Queens. Agric. Journ., vii, 348. Laloki River ; Yule Island. The timber, locally known as "Melila," is the principal hardwood of the territory.

Bauhinia sp. Port Moresby. A scrambling shrub; leaflets free to the base, obliquely oblong, about $1\frac{1}{2}$ in. (4 cm.) long and about 1 in. (2.5 cm.) broad. Pods thick and woody. Probably represents a new species but the flowers are unknown.

Cassia alata Linn. Ringworm Bush. Naturalised and very common about Port Moresby.

Cæsalpinia Bonducella Roxb. Port Moresby. It is recorded by Mueller in Pap. Pl., i (iii), 43, from Darnley Island. This, however, is Queensland territory.

C. nuga Ait. Bail. Rep. Visit B.N.G., 28; Proc. Roy. Soc. Queens., xviii, 1. Yule Island.

Crotalaria juncea Linn. F. Muell. Pap. Pl., i (iv), 61. Port Moresby.

C. linifolia Linn. f. F. Muell. Pap. Pl., i (iii), 42; Bail. Rep. Visit B.N.G., 27. Port Moresby.

C. calycina Schrank. Sapphire Creek.

C. striata DC. Port Moresby.

I saw this plant growing about the town but omitted to gather specimens.

Psoralea badocana (Blanco) Benth. Port Moresby; Yule Island. This rather pretty blue-flowered plant is very abundant at the localities mentioned.

Indigofera linifolia Retz. F. Muell. Pap. Pl., i (iii), 42. Yule Island.

I. enneaphylla Linn. F. Muell. Pap. Pl., i (iv), 61. Port Moresby.

I. trifoliata Linn. F. Muell. Pap. Pl., i (iii), 42. Sapphire Creek.

I. viscosa Lam. F. Muell. Pap. Pl., i (iv), 61. Port Moresby.

Tephrosia vestita Vog. Sapphire Creek and Astrolabe Range.

T. astragaloides R. Br. *T. vestita* Bail. Queens. Agric. Journ., xxiii, 218 (*non* Vogel). Port Moresby.

A very common plant about Port Moresby. The flowers are whitish or with a faint purplish tinge and are borne in elongated racemes. The leaves are silky above, hence the Papuan plant would go under the variety (?) *macrostachya* Benth.; this variety, however, does not seem a very well-marked one. The specimen referred to by Bailey l.c. as *T. vestita* belongs here.

Sesbania aculeata Pers. F. Muell. Pap. Pl., i (iv), 62. Port Moresby.

Stylosanthes mucronata Willd. Port Moresby.

Very abundant in the streets and roads of the town area ; probably introduced. In North Queensland this plant has attracted considerable attention as a fodder.

Desmodium umbellatum DC. F. Muell. Pap. Pl., i (iii), 42. Port Moresby (very common).

D. pulchellum Benth. F. Muell. Vic. Nat. Feb. 1885 ; Pap. Pl., ii (vi), 7. Sapphire Creek and Astrolabe Range.

D. gangeticum DC. F. Muell. Pap. Pl., i (v), 88. Sapphire Creek ; Yule Island.

D. parvifolium DC. Sapphire Creek.

D. Scalpe DC. Mafulu.

D. triquetrum DC. F. Muell. Pap. Pl., ii (vi), 7. Astrolabe Range.

D. papuanum n. sp.

Fruticosa erecta, ramulis griseo-pubescentibus ; foliis petiolatis, unifoliolatis vel raro trifoliolatis, foliolis oblongis utrinque pubescentibus, terminali maximo, lateralibus duplo vel triplo brevioribus ; racemis terminalibus, rhachide pedicellisque ferrugineo-pubescentibus, floribus violaceis ; bracteis late lanceolatis acuminatis striatis pubescentibus ; leguminibus ferrugineo-pubescentibus, articulis 7-9.

An erect branching shrub about 3 ft. (1 m.) high. Branches woody, clothed with grey hairs, young branchlets densely so. Leaves usually 1-foliolate, sometimes 3-foliolate ; petiole about $\frac{3}{4}$ in. (2 cm.) long, grey-pubescent ; leaflets oblong, clothed on both faces with long silky hairs, particularly the under surface ; single or end leaflet 1-1 $\frac{1}{2}$ in. (2.5-4 cm.) long, $\frac{1}{2}$ - $\frac{3}{4}$ in. (1.4-2 cm.) broad ; side leaflets when present much smaller, about $\frac{1}{2}$ in. (1.4 cm.) long and $\frac{1}{4}$ in. (7 mm.) broad ; stipules 4 lines (9 mm.) long, silky-pubescent. Racemes terminal, 1-1 $\frac{1}{2}$ in. (2.5-3.8 cm.) long, rhachis closely and densely ferruginous-pubescent ; bracts hirsute with yellow hairs, broadly lanceolate, acutely acuminate, closely striate, about 5 lines (1.1 cm.) long and 2 lines (4 mm.) broad. Flowers blue-violet ; pedicels ferruginous-pubescent. 2-3 lines (4-7 mm.) long ; calyx about 1 line long ; standard 5 lines (1.1 cm.) across ; wings and keel

each 4 lines (9 mm.) long; ovary densely clothed with long white hairs. Pod about 1 in. (2.5 cm.) long, of 7-9 articles, ferruginous-pubescent with spreading hairs.

Astrolabe Range [Stephansort, bei Erima am Strande, *Lewandowsky* n. 62 am 20 Aug. 1899.]

Closely allied to *D. polycarpum* from which it is easily distinguishable by several features, as for instance its usually 1-foliolate leaves, pubescent non-striate stipules, more generally pubescent character, larger flowers, and larger ferruginous-pubescent pods. *Lewandowsky's* plant (referred by Schumann and Lauterbach in "Die Flora der Deutsche-Schutzgebiete in der Südsee" to *D. polycarpum*) I would refer here.

Alysicarpus vaginalis DC. Port Moresby (with oblong leaves); Yule Island (a form with very narrow-lanceolate leaves).

Uraria lagopoides DC. Mt. Warirata; Yule Island.

Phylacium bracteosum Benn. Javararie; Sogeri; Mafulu (a very common climber); [Boku, *Mrs. H. P. Schlencker*.]

Dalbergia densa Benth. Bail. Rep. Visit B.N.G., 28. Yule Island. A form with large leaflets, the leaflets up to 2 $\frac{3}{4}$ in. long and 1 $\frac{1}{2}$ in. broad.

D. monosperma Dalz. Port Moresby. A common climber on the coast over mangrove trees, etc.

Derris uliginosa Benth. Yule Island. Known in Papua under the name of "Dynamite Plant" from its use by the natives as a fish-poison.

Inocarpus edulis R. & G. Forst. Bail. Ann. Rep. B.N.G. 1900-01, 142; Queens. Agric. Journ., xxii, 147. Yule Island.

Abrus precatorius Linn. F. Muell. Pap. Pl., i (iv), 62. Port Moresby.

Clitoria ternatea Linn. Port Moresby.

This pretty little climber is seen everywhere about the town, over the fences of the native gardens, etc. Flowers varying from almost white to very deep blue.

Glycine tomentosa Benth. Yule Island.

Erythrina indica Lam. Coral tree. F. Muell. Pap. Pl., ii (vi), 8; Bail. Rep. Visit B.N.G., 27, 28. Port Moresby; Yule Island.

Mucuna gigantea DC. Yule Island.

M. Kraetkei Warb. Schum. & Laut. Nachtr. Flora der Deutsch. Schutzg, Sudsee 278. Sogeri.

Fairly common ; a most magnificent climber with brilliant scarlet flowers. This and *M. Bennettii* F. Muell. both go under the name of "D'Albertis' Creeper."

M. Stanleyi sp. nov.

Ramulis, ferrugineo-hirsutis ; foliis longe petiolatis, foliolis amplis breviter petiolulatis subtus dense ferrugineo-pubescentibus suborbicularibus apice acuminatis lateralibus maxime obliquis, stipellis filiformibus, pannicula ferrugineo-hirsuta ; calyce fere ad medium 4-lobo (bilabiato) tubo utrinque hirsuto, legumine 3-5 spermo, valvis lamellis obliquis imbricatis munitis.

A large forest climber, branchlets and petioles hirsute with long rust-coloured hairs. Leaflets nearly orbicular or lateral ones very oblique, apex acuminate, very thinly pubescent above, densely ferruginous-pubescent beneath, lateral ones 4-5½ in. (10-14 cm.) long, 5-5½ in. (12.5-14 cm.) broad, all on petiolules of about 3 lines (6 mm.) ; stipules absent (?), stipellæ filiform about 5 lines (1.1 cm.) long ; length of petiole below the lateral leaflets about 3 in. (7.5 cm.) long, length of rhachis between the lateral leaflets and terminal one about ¾ in. (2 cm.). Panicle branches densely rufous-pubescent with long spreading hairs. Bracts ovate-lanceolate, acuminate, ¾-1 in. (2-3.2 cm.) long, clothed with long brown hairs. Calyx about 1 in. (2.5 cm.) long, 4-lobed (2-lipped), upper lip about 3 lines (6 mm.) long, lateral lobes of the lower lip 3 lines (6 mm.) long, lowest lobe about 6 lines (1.3 cm.) long, hirsute both inside and out with ferruginous hairs. Corolla whitish (rather imperfect in the dried specimens for dissection) ; standard reflexed, wings rather longer, keel still longer (about 2 in. (5 cm.) long) with a short indurated beak. Pod about 5½ in. (14 cm.) long, covered with close oblique pleats 3-5-seeded ; seeds about 1 in. (2.5 cm.) across.

Mafulu.

Named after Mr. Evan R. Stanley, Government Geologist of Papua, who accompanied me on my two longer trips in the Territory. This new species comes very close to *M. Albertisii* F. Muell., but I think is sufficiently different to stand as a distinct species. The chief differences are as follow :—

M. Albertisii : Branchlets densely but rather closely ferruginous-pubescent ; leaflets 3½-5 in (9-13 cm.) long ; panicle branches velvety pubescent ; calyx velvety pubescent with a few bristly hairs at the base of the tube ½-⅔ in. (1.3-1.7 cm.) long.

M. Stanleyi: Branchlets and panicle branches hirsute with long spreading hairs; leaflets 4-6½ in. (10-16·5 cm.) long; calyx hirsute with long brown hairs, 1 in. (2·5 cm.) long.

Canavalia obtusifolia DC. F. Muell. Pap. Pl., i (iii), 42; Bail. Rep. Visit B.N.G., 27, 28. Port Moresby.

Atylosia scarabæoides Benth. Sapphire Creek.

A. grandifolia F. v. M. Astrolabe Range. The Papuan specimens have a more robust appearance and are more densely pubescent than the Australian specimens but otherwise agree with them.

Rhynchosia Cunninghamii Benth. Yule Island.

Flemingia strobilifera R. Br. Bail. Queens. Agric. Journ., xxii, 147; xxiii, 220. Port Moresby; Astrolabe Range.

F. lineata Roxb., var. **papuana** n. var. A stronger growing plant than the normal form; branchlets densely ferruginous-pubescent; leaflets up to 4¼ in. (10·7 cm.) long and 1¾ in. (4·5 cm.) broad; panicles correspondingly large.

Sapphire Creek.

Dolichos Lablab Linn. F. Muell. Pap. Pl., i (v), 88. Astrolabe Range.

FAMILY GERANIACEÆ.

Biophytum Apodiscias Turcz. Deva Deva (Mafulu District).

FAMILY RUTACEÆ.

Evodia mollis Warb. Bella Vista (Mafulu District, 4,800 ft.).

[**E. alata** F. Muell. F. Muell. Pap. Pl., ii (vii), 26. Boku (Papua), *Mrs. H. P. Schlencker*; near Finschhafen (late Kaiser Wilhelm's Land), *Dr. Carl Weinland* (No. 178); received from Botanic Gardens, Berlin, as **E. mollis** Warb.]

Mrs. Schlencker's specimen represents a very robust form with leaflets nearly 1 ft. (31 cm.) long and 7 in. (18 cm.) broad and with the main veins very prominent beneath, and when flowers are available it may possibly prove a new variety or species.

E. mollis and *E. alata* are evidently closely allied, but can be distinguished by the following characters:—

E. mollis: Under surface of lamina of leaf closely covered by a dense velvety stellate tomentum.

E. alata: Veins and veinlets on the under surface covered (often thinly) by a stellate tomentum.]

E. lamprocarpa K. Sch. Javararie.

Lunasia quercifolia (Warb.) Laut. & Sch. Flora Deutschen Schutz. Sudsee, 376. *Androcephalum quercifolium* Warb. Pl. Hellwig. 197 (ex Engl. Jahrb. xviii 1893); *L. amara* F. Muell. Pap. Pl. (ii), viii, 42 (*non* Blanco). Sapphire Creek and Yule Island. Some of my Sapphire Creek specimens are in fruit. Cocci 4, often only 1 ripening, somewhat cuneate, 5 lines (1.1 cm.) long and about 4 lines (8 mm.) long at the top, valves tomentose, more or less prominently transversely wrinkled.

Flindersia papuana F. Muell., Pap. Pl., i (v), 84; C. T. White, Proc. Linn. Soc. N.S.W., 46, 329. Between Okaka and Mafulu.

Glycosmis pentaphylla Corr. F. Muell. Pap. Pl., i (iv), 54. Port Moresby; Bioto (Mekeo District).

Micromelium pubescens Bl. F. Muell. Pap. Pl., i (iv), 54; Bail. Rep. Visit B.N.G., 27; Queens. Agric., xxiv, 20. Sogeri District; Yule Island.

Murraya exotica Linn. Bioto (Mekeo District).

FAMILY SIMARUBEÆ.

Harrisonia Brownii A. Juss. Port Moresby.

FAMILY BURSERACEÆ.

Canarium australasicum F. Muell. Bail. Rep. Visit B.N.G., 27. Port Moresby.

FAMILY MELIACEÆ.

Turræa pubescens Hellen. F. Muell. Pap. Pl., i (iv), 53. Port Moresby.

Melia Azedarach Linn. F. Muell. Pap. Pl., ii (vi), 5. White Cedar. Laloki River.

Chisocheton Biroi Harms. Branchlets myrmecophilous; flowers white; fruit red. Deva Deva.

It is with some hesitation I refer my specimens to the above and when better known it may prove a distinct species. It differs from typical *C. Biroi* in the leaves attaining over 60 cm. (2 ft.) in length and the individual leaflets over 20 cm. (8 in.) in length by 70 cm. (4 in.) in breadth. The branchlets also are myrmecophilous—a fact not mentioned by Harms. These, however, are all points that he might not have been able to see with the material at his disposal.

Aglaia elæagnoidea Benth. F. Muell. Pap. Pl., i (i), 6. Yule Island.

A. sapindina (F.v.M.) Harms. Mekeo District.

Carapa moluccensis Lam. Bail Queens. Agric. Journ., ix, 410, and xxiv, 20. Port Moresby.

FAMILY EUPHORBIACEÆ.

Flueggea microcarpa Blume. Port Moresby.

The plant recorded as *Flueggea microcarpa* by Bailey in Queens. Agric. Journ. xxiii, 219, is a very different plant, probably an undescribed species of *Glochidion*.

Phyllanthus urinaria L. Mt. Warirata (Astrolabe Range).

Glochidion magnificum K. Sch. Mafulu.

My specimens are in fruit only, but I have little doubt of the determination. The capsules are densely pubescent, and about 4 lines (9 mm.) in diameter.

G. Ferdinandi Muell. Arg., var. **supra-axillaris** Benth. Mafulu.

Breynia cernua (Poir.) Muell. Arg. F. Muell. Pap. Pl., ii (6), 5. Mafulu.

Bridelia tomentosa Bl. Sapphire Creek.

A form with rather small leaves; it agrees fairly well with specimens from Somerset and Torres Strait, North Queensland (referred to by Bailey, Queens. Flora v, 141) and Rept. Aus. Assoc. Adv. Sc., vii, 442.

B. subnuda Schumm. & Laut. Bisiatabu.

In the absence of material for comparison, it is with some hesitation I make the above determination.

Claoxylon Hillii Benth. Sogeri.

Mallotus paniculatus Muell. Arg. Mafulu.

Macaranga angustifolia Laut. & K. Sch. Deva Deva.

M. punctata K. Sch. Bisiatabu (Astrolabe Range); also a doubtful specimen from the Mekeo District.

Acalypha insulana Muell. Arg. Astrolabe Range and Sogeri.

A. Hellwigii Warb., var. **mollis** Warb. Deva Deva and Mafulu.

For the determination of the above species of *Mallotus*, *Macaranga*, and *Acalypha* I am indebted to the Director, Royal Botanic Gardens, Kew, England.

* **Jatropha gossypiaefolia** Linn. Port Moresby. This South American plant is a great pest in parts of North Queensland.

Codiaeum variegatum Bl., var. **moluccanum** Muell. Arg. (*C. chrysostictum* Rumph.). F. Muell. Pap. Pl., i (iv), 60. Yule Island.

Homalanthus populifolius Grah. Astrolabe Range and Sogeri.

Euphorbia Drummondii Boiss. Port Moresby. A small, red, decumbent weed; the same form is common in coastal Queensland, and I have also received specimens from Fiji.

E. pilulifera Linn. Bail. Rep. Visit B.N.G., 27; Queens. Agric. Journ., xxiii, 220. Port Moresby (a common weed).

E. serrulata Reinw. Sapphire Creek and Astrolabe Range. A form with very narrow leaves with the edges almost entire.

* **E. (Poinsettia) heterophylla** Linn. Yule Island. A common weed in plantations, etc.

FAMILY ANACARDIACEÆ.

Mangifera minor Bl. Port Moresby. A large handsome tree.

Buchanania papuana sp. nov.

Ramulis novellis dense pubescentibus, deinde glabris; foliis glaberrimis, coreaceis lanceolatis oblanceolatis vel obovatis; a medio in petiolum cuneatim angustatis, nervis lateralibus circa. 10-15 patentibus; paniculis pilosis deinde glabris; calycis lobos triangularibus, petalis oblongis; gynœcio strigoso; drupis compressis; breviter pilosis, apiculo excentrico.

A medium-sized tree with a spreading top. Young branchlets pubescent, older ones glabrous, lenticellate, stout. Leaves petiolate, petiole about 1 in. (2.5 cm.) long; lamina $4\frac{1}{2}$ - $7\frac{1}{2}$ in. (11.5-19 cm.) long, 2-3 in. (5-7.5 cm.) broad; lanceolate, oblanceolate or sometimes obovoid, glabrous, main lateral nerves prominent on both faces. Panicle about as long as the leaves, widely spreading, rhachis and branchlets bearing a few scattered hairs but soon quite glabrous. Calyx about $\frac{1}{2}$ line (1 mm.) long, glabrous or almost so, lobes triangular. Petals about 1 line (2 mm.) long, oblong. Anthers sagittate. Gynœcium strigose-pubescent. Drupe with a few scattered hairs, 3-4 lines (6-9 mm.) in diameter, compressed-globose; apex almost terminal.

Laloki River.

This new species is very closely allied to the common Australian *B. Muelleri*, from which it is distinguished chiefly by its larger more

coriaceous and more strongly veined leaves, its wider spreading panicle, and more pointed calyx lobes. In systematic position it comes between *B. florida* and *B. Muelleri*.

B. florida : Drupe glabrous, apex excentric. Leaves 10-15 cm. long, 4-5 cm. broad.

B. Muelleri : Drupe clothed with a few scattered hairs. Leaves ca. 10 cm. long, 5-6 cm. broad.

B. papuana : Drupe clothed with a few scattered hairs. Leaves 11-19 cm. long, 5-7.5 cm. broad.

Semecarpus australiensis Engler. Port Moresby.

S. undulata sp. nov.

Arbor humilis, ramulis crassis ; foliis breviter petiolatis obovato-lanceolatis breviter acuminatis, basim versus a triente superiore longe cuneatim angustatis, undulatis, coriaceis, supra glabris nitidulis, subtus pallidis reticulatis, costa et nervis lateralibus tenuiter pilosis, venis tenuiter pilosis et glanduloso-punctatis ; paniculis axillaribus vel lateralibus, elongatis, ramulis tenuis glabrescentibus ; floribus masculis glomeratis, calycis 5-lobis, strigoso-pubescentibus, petalis strigoso-pubescentibus, staminibus glabris petalis æquantibus ; drupis ovoideis compressis pubescentibus, apiculo centrico hypocarpio obconico, pubescentibus.

A small tree, usually with a single stem, the leaves arranged around it in dense false whorls. Leaves subsessile, or very shortly petiolate on a petiole of 2-5 lines (.4-1.1 cm.) ; lamina 7-14 cm. (17.5-36 cm.) long ; obovate-lanceolate. Apex shortly and rather bluntly acuminate, lower part gradually tapering to the base, under surface pale coloured—but not white—with a very dense close tomentum between the veinlets, the veins and veinlets prominently raised, clothed with a few scattered hairs and glandlike markings. Panicles lateral or axillary, branched at the base into several elongate slender branches, the branches glabrescent, the main rhachis in the specimens to hand attaining 2 ft. 9 in. (82.5 cm.) long. Male flowers whitish, in dense clusters along the branches of the panicle ; calyx strigose-pubescent, 5-lobed, scarcely $\frac{1}{2}$ line (1 mm.) long ; petals strigose-pubescent on the outer surface ; scarcely 1 line ($1\frac{1}{2}$ mm.) long, stamens about the same length as the petals, filaments glabrous, slightly flattened at the base. Female flowers unknown. Drupe green (perhaps not seen quite ripe), about $1\frac{1}{4}$ in. (3.2 cm.) long and $\frac{3}{4}$ in. (2 cm.) broad in the dried specimens, compressed-ovoid, apex almost centric ; pericarp

pubescent with a close ferruginous pubescence, easily rubbed off in the dried fruit ; receptacle densely ferruginous-pubescent with a close pubescence about 5 lines (1.1 cm.) in diameter.

Astrolabe Range (type) ; Port Moresby.

The Astrolabe Range specimens bear both flowers and fruits. The Port Moresby specimens have leaves rather longer and narrower and more markedly sessile than the Astrolabe ones ; the panicle is also somewhat differently branched. But I have little hesitation in referring it to the same species.

Semecarpus sp. Leaves shortly petiolate, petiole about 1½ in. (4 cm.) long ; lamina up to 15 in. (37.5 cm.) long and 5½ in. (13.7 cm.) wide, glaucous beneath. Drupe (not seen quite ripe) obliquely obcordate, about 1 in. (2.5 cm.) across ; compressed, thinly pubescent ; receptacle obconical, about ¼ in. (.6 mm.) long, pubescent.

Javararie.

Probably represents a new species but the material hardly allows me to name it. In addition to the above I collected a species in flower only at Yule Island ; and in the Queensland Herbarium there is another apparently undescribed species from Boku, collected by Mrs. H. P. Schlenker ; the material consists of one leaf and a couple of ovoid, fulvous-pubescent fruits.

FAMILY SAPINDACEÆ.

Cardiospermum Halicacabum Linn. F. Muell. Pap. Pl., i (iv), 53 ; Bail. Rep. Visit B.N.G., 27. Port Moresby.

Alectryon ferrugineum (Bl.) Radlk. *Nephelium ferrugineum* Bl. ; F. Muell. Pap. Pl., i (ii), 21. Port Moresby.

Mischocarpus lachnocarpus (F. Muell.) Radlk. *Ratonia lachnocarpa* F. Muell. Mekeo District.

Jagera serrata (Roxb.) Radlk. Sogeri.

Dodonæa viscosa Linn. F. Muell. Pap. Pl., i (ii), 21. Mafulu, 4,000 ft.

FAMILY BALSAMINACEÆ.

Impatiens sp. Mafulu—very abundant along mountain roadside (3,000-4,000 ft.). My specimens are rather too imperfect to determine specifically.

FAMILY RHAMNACEÆ.

Colubrina asiatica Rich. F. Muell. Pap. Pl., i (i), 7. Port Moresby.

Gouania microcarpa P. DC. Astrolabe Range.

FAMILY VITACEÆ.

Cissus trifolia (Linn.) K. Sch. *Vitis trifolia* Linn.; F. Muell. Pap. Pl., i (v), 86. Port Moresby.

C. pedata Lam. *Vitis pedata* Wall. Astrolabe Range.

[**C. discolor** Lam. *Vitis cordata* Bail. Queens. Agric. Journ., iii, 154, 1898 (*non* Wall.) Mambare River, F. M. Bailey.

I have little hesitation in referring Bailey's plant to *C. discolor*. The leaf in the dried specimens shows no white marking, but these are not always present. Bailey l.c. describes the inflorescence as red, a character of some forms of *C. discolor*.]

Leea sambucina Willd. Bail. Rep. Visit B.N.G., 27, 28. Port Moresby; Astrolabe Range. It is recorded for Darnley Island by Mueller in his "Papuan Plants," i (iii), 36, but this is in Queensland territory.

L. æquata Linn. Sogeri.

FAMILY TILIACEÆ.

Grewia orientalis Linn. F. Muell. Pap. Pl., ii (viii), 41. Port Moresby; Yule Island.

G. latifolia F. Muell. Port Moresby.

Triumfetta rhomboidea Jacq. F. Muell. Pap. Pl., ii (ix), 56; Bail. Rep. Visit B.N.G., 27. Port Moresby; Yule Island.

T. pilosa Roth. F. Muell. Pap. Pl., ii (ix), 56. Javararie; Mafulu.

T. semitriloba Linn. Bail. Queens. Agric. Journ., xxiii, 220.

Althoffia pleiostigma (F. Muell.) Warb. (*Grewia pleiostigma* F. Muell.); F. Muell. Pap. Pl., i (iv), 58. Sapphire Creek. A very pretty tree with lavender-coloured flowers.

A. tetrapyxis K. Sch. Astrolabe Range; Mafulu.

I very much doubt if these two species of *Althoffia* can be kept distinct. My specimens of the former are in flower, of the latter in fruit. We also have fruiting specimens of *A. tetrapyxis* from Mrs. Schlencker, collected at Boku, with the remark, "Bears small white flowers"; so I have refrained from uniting them until more definite information is to hand.

FAMILY MALVACEÆ.

Abutilon auritum G. Don. F. Muell. Pap. Pl., i (iv), 55. Port Moresby. Very common in the native gardens.

A. asiaticum G. Don. Port Moresby.

Sida spinosa Linn. F. Muell. Pap. Pl., i (iv), 55. Port Moresby.

S. acuta Burm. Yule Island.

S. rhombifolia Linn. *S. retusa* L. Port Moresby.

S. cordifolia Linn. Flannel weed. Port Moresby.

***Malvastrum tricuspidatum** A Gray. Port Moresby.

Urena lobata Linn. F. Muell. Pap. Pl., i (iv), 55 ; Becc. in D'Albertis' "New Guinea," ii, 396 ; Hemsl. Kew Bulletin 1899, 97. Sapphire Creek ; Astrolabe ; Sogeri ; Mafulu.

The species of *Sida*, *Malvastrum*, and *Urena* here recorded are common Asiatic, Papuan, and Tropical Australian weeds.

Hibiscus ficulneus Linn. F. Muell. Pap. Pl., i (iv), 56. Port Moresby. As in parts of Northern Queensland during the winter months, the upright dead stems with their racemes of old capsules can be seen everywhere in the grass land.

H. D'Albertisii F. Muell. Pap. Pl., i (iv) 55 and ii (viii), 41. Very common between Kubunah and Fofofoto (Mekeo District).

H. vitifolius Linn. F. Muell. Pap. Pl., i (iv), 56. Bioto (Mekeo District).

H. tiliaceus Linn. F. Muell. Pap. Pl., i (iv), 56 ; Bail. Rep. Visit B.N.G., 27. Port Moresby.

FAMILY BOMBACACEÆ.

Bombax malabaricum DC. ; Bail. Rep. Visit B.N.G., 27. Silk Cotton tree. Port Moresby ; Yule Island. This tree, bearing its large red flowers, is a conspicuous feature in the landscape.

FAMILY STERCULIACEÆ.

Melochia pyramidata Linn. F. Muell. Pap. Pl., i (iii), 36. Port Moresby.

M. vitiensis A. Gray. F. Muell. Pap. Pl., i (iv), 55. Sapphire Creek ; Astrolabe Range ; Sogeri.

[**M. indica** (Houtt) A Gray. *Commersonia* sp. F. M. Bail. in Ann. Rept. B.N.G. 1900-01, p. 142. East Coast, British New Guinea, *Sir G. R. Le Hunte*.]

Waltheria americana Linn. Port Moresby. A common weed.

Abroma augusta Linn. f. F. Muell. Pap. Pl., i (iii), 36 ; *A. fastuosa* Bail. Queens. Agric. Journ., xxiv, 20 (*non* R. Br.). Port Moresby.

Can be distinguished from the common Australian *A. fastuosa* R. Br. by its entirely unarmed branches and branchlets.

Sterculia Edelfeldtii F. Muell. Vic. Nat., iii, 47 ; Pap. Pl., ii (ix), 55. Yule Island ; Kubunah (Mekeo District).

The Yule Island specimens are in flower, the Kubunah specimens in fruit, and seem to represent two forms both of which I doubtfully refer to *S. Edelfeldtii*, which is evidently either a very variable plant or else more than one species was included by Mueller l.c. under it.

FAMILY DILLENiaceÆ.

Wormia sp. Dilava. My specimens consist of a couple of leaves and a few fallen flowers only, and do not allow me to give a specific name. It is a large tree producing a useful timber known at Dilava as "Manava." The leaves are borne on a petiole of about $2\frac{1}{2}$ in. (6.3 cm.), lamina suborbicular about 7 in. (17.5 cm.) long and $6\frac{1}{2}$ in. (16.5 cm.) broad, strongly veined on the under surface.

FAMILY BIXACEÆ.

Cochlospermum Gillivraei Benth. F. Muell. Pap. Pl., i (iv), 54 ; Bail. Queens. Agric. Journ., xxiv, 20. Port Moresby. A small tree very common on rocky foreshores round the harbour.

Bixa Orellana Linn. Bail. Queens. Agric. Journ., vii, 348, and xxiii, 221. Sogeri ; Mafulu.

FAMILY PASSIFLORACEÆ.

Passiflora foetida L. Naturalised almost everywhere near settlements.

FAMILY SONNERATIACEÆ.

Sonneratia alba Sm. Bail. Ann. Rep. B.N.G. 1900-01, p. 143. Port Moresby.

S. lanceolata Bl. A riverside or estuarine tree, sending up numerous slender pneumatophores ; branchlets slender, glabrous. Leaves glabrous, lanceolate or ovate-lanceolate, oblique and tapering at the base into a short petiole ; petiole about 3 lines (6 mm.) long ; lamina 3-4 in. (7.5-10 cm.) long and $\frac{3}{4}$ -1 in. (2-2.5 cm.) broad. Flowers apetalous. Calyx 6-lobed, stamens white, numerous. Fruit about 1 in. (2.5 cm.) across.

Ethel River (very abundant).

I have little doubt in referring my specimens to *S. lanceolata* Bl. (Mus. Lugd. Bot., i, 337). He describes the flower as 6-petaled: the only flower available to me is apetalous, but this is not sufficient ground for separation. The only description of the plant I have at my command is Blume's original one. In the field at a cursory glance the tree might easily be mistaken for the widely distributed *Avicennia officinalis*; it is very different in appearance from the much commoner congener *S. alba*.

FAMILY LECYTHIDACEÆ.

Barringtonia calyptrata O. Ktze. C. T. White, Proc. Linn. Soc. N.S.W., xlv, 823. Yule Island.

FAMILY RHIZOPHORACEÆ.

Rhizophora mucronata Lam. Red Mangrove. Port Moresby. The principal tanning mangrove.

Ceriops Candolleana Arn. Small Mangrove. Port Moresby.

Bruguiera gymnorhiza Lam. (*B. Rheedii* Bl., F. Muell. Pap. Pl., viii, 44.) Port Moresby. Hooker (Flora British India, ii, p. 437) unites *B. Rheedii* with *B. gymnorhiza*.

B. eriopetala W. & A. Port Moresby.

FAMILY COMBRETACEÆ.

Terminalia Catappa Linn. Fiji Almond. Bail. Rep. Visit B.N.G., 27; Foxworthy Ann. Rep. Papua 1909-10, p. 114. Yule Island.

Planted in the streets of Port Moresby as a shade tree.

T. Okari sp. nov.

Arbor magnis; ramulis novellis ferruginoso-pubescentibus; foliis breviter petiolatis obovatis (20-27·5 cm. longis, 10-12·5 cm. latis), supra glabrescentibus subtus prominente nervosis, nervis dense pubescentibus; floribus ignotis; drupis obovoideis, magnis (ca. 17·5 cm. longis et 7·5 cm. latis); pericarpio fibroso, endocarpio osseo, semine ellipsoideo (ca. 7·5 cm. longo et 2 cm. lato).

A tall tree, young shoots densely ferruginous-pubescent. Leaves obovate, tapering at the base into a short petiole, 8-11 in. (20-27·5 cm.) long, 4-5 in. (10-12·5 cm.) wide, glabrous above with the exception of a few scattered hairs on the midrib and main lateral nerves; under surface prominently veined,

the midrib and main lateral nerves raised and densely ferruginous-pubescent; petiole pubescent about 1 in. (2.5 cm.). Flowers not seen. Fruit deep reddish purple, obovoid, about 7 in. (17.5 cm.) long and 3 in. (7.5 cm.) broad; pericarp fibrous with interlacing fibres, endocarp ossified, very rugose; seed narrowly ellipsoid, about 3 in. (7.5 cm.) long and $\frac{3}{4}$ in. (2 cm.) broad; testa thin, dark brown.

Bisiatabu (type); Sogeri (common); [Boku, *Mrs. H. P. Schlencker*].

A large tree; the seed, known in Papua as the "Okari nut," is a favourite with natives and Europeans alike; by the latter the nuts are often eaten "devilled" in the same way as almonds. It is probably one of the finest of tropical nuts.

Combretum Goldieanum F. Muell. Pap. Pl., i (iv), 66. Port Moresby; Yule Island.

This rambling scandent shrub is very common about Port Moresby and with its brilliant red flowers is quite a conspicuous feature in the vegetation. The fruits are "shortly stipitate, nearly 1 in. (2.5 cm.) long, and prominently winged with 5 dry more or less membranous wings."

Gyrocarpus americanus Jacq. F. Muell. Pap. Pl., ii (vi), 7; Vic. Nat. Feb. 1885. Port Moresby.

FAMILY MYRTACEÆ.

Rhodamnia cinerea Jack. Bisiatabu.

The specimens are in leaf only but I have little hesitation in referring them to the above species. I cannot follow King ("Materials for a Flora of the Malayan Peninsula") and others in uniting so many species under *R. trinervia*.

Decaspermum neurophyllum Laut. & K. Sch. Deva Deva. A large shrub or small tree; flower-buds pink; in the open flower the petals white or flesh-coloured and stamens pink.

Melaleuca sp. (aff. *M. Leucadendron* Linn.). Astrolabe Range.

This tree is common on the range. It has a papery bark and white flowers. For the present I do not care to give it a specific name. I cannot class all the various forms allied to *M. leucadendron* L. as varieties, as done by King ("Materials for a Flora of the Malayan Peninsula"), Cheel (in Ewart & Davies's "Flora of the Northern Territory"), and others.

* **Eucalyptus tereticornis** Sm. Blue Gum of Queensland, Forest Red Gum of N. S. Wales. F. Muell. Pap. Pl., ii (ix), 59;

* For the identification of the Eucalypts I am indebted to Mr. J. H. Maiden, I.S.O., F.R.S., Govt. Botanist, Sydney.

Ann. Rep. B.N.G. 1889-90, 106 ; Maid. Proc. Linn. Soc. N.S.W. xxvi, 540 ; Forest Flora N.S.W. ii, 3 ; Critical Rev. Gen. Euc. iv, 11. Astrolabe Range (common).

E. alba Reinw. Poplar Box, White Box of North Queensland. Maiden, Critical Revision Gen. Euc., iii, 97 ; *E. platyphylla* F. Muell. ; Bail. Rep. Visit B.N.G., 27. Port Moresby (the common broad-leaved form) ; Astrolabe Range (leaves much narrower, even to narrow lanceolate). This tree is readily distinguished in the field by its clean white trunk and branches.

E. clavigera A. Cunn. Port Moresby ; Astrolabe Range. This Eucalypt is fairly common, and easily distinguished by the blackish tessellated bark at the butt, extending for about 5 to 10 ft. up the trunk.

E. papuana F. Muell. Pap. Pl., i (i), 8 ; Bail. Rep. Visit B.N.G., 27 ; Maid. Crit. Rev. Gen. Euc., iv. 196. Port Moresby (very common).

FAMILY MELASTOMACEÆ.

Otanthera bracteata Korth. Mafulu.

O. setulosa K. Sch. Nacht. Fl. Deutsch. Schutzg. Sudsee, 327. Sogeri. The fruits are red and about 8 lines (1·7 cm.) diameter.

Melastoma polyanthum Bl. Astrolabe Range, and range between Sogeri and Javararie.

Osbeckia chinensis Linn. Mt. Warirata (Astrolabe Range).

Medinilla Forbesii E. G. Baker in Trans. Linn. Soc., n. ser., Bot., ix, 55. Dilava.

FAMILY ŒNOTHERACEÆ.

Jussiaea suffruticosa Linn. F. Muell. Pap. Pl., i (iv), 60 ; Bail. Rep. Visit B.N.G., 28. Port Moresby.

FAMILY HALORRHAGIDACEÆ.

Gunnera macrophylla Bl., var. **papuana** Warb. Deva Deva.

FAMILY UMBELLIFERÆ.

Hydrocotyle hirta R. Br. Javararie. A common weed on damp plantation tracks.

FAMILY MYRSINACEÆ.

Ægiceras majus Gærtn. ; Bail. Ann. Rep. B.N.G. 1900-01, p. 143 ; *A. fragrans* Koenig, F. Muell. Pap. Pl., i (iv), 70. Port Moresby. A common tree in the mangrove swamps.

FAMILY PLUMBAGINACEÆ.

Plumbago zeylanica Linn. F. Muell. Pap. Pl., i (iv), 58. Port Moresby.

FAMILY SAPOTACEÆ.

Mimusops parvifolia R. Br. Port Moresby ; Yule Island.

FAMILY EBENACEÆ.

Diospyros maritima Bl. Yule Island and mainland opposite (Mekeo District).

FAMILY OLEACEÆ.

Jasminum didymum Forst. F. Muell. Pap. Pl., i (i), 11. Port Moresby.

FAMILY LOGANIACEÆ.

Fagraea obovata Wall., var. **papuana** Bail. Queens. Agric. Journ. iii, 157 (1898). Sapphire Creek and Astrolabe Range.

FAMILY APOCYNACEÆ.

Alstonia scholaris R. Br. F. Muell. Pap. Pl., i (iv), 70 ; Hemsley Kew Bull. 1899, 106 ; Foxworthy in Ann. Rep. Papua 1909-10, p. 114. Port Moresby. A very common tree. In North Queensland known as "Milky Pine."

A. longissima F. Muell. Pap. Pl., i (v), 91. Port Moresby.

FAMILY ASCLEPIADACEÆ.

Dischidia Rafflesiana Wall. Bisiatabu (Astrolabe Range). Epiphytic on trees.

[**D. ovata** Benth. Kwato Island, *E. Cowley*.]

FAMILY CONVULVULACEÆ.

Ipomæa grandiflora Lam. Port Moresby. A climber with large white flowers.

I. Turpethum R. Br. F. Muell. Pap. Pl., ii (viii), 49. Yule Island.

Lepistemon urceolatus F. v. M. Mafulu.

Convolvulus multivalvis R. Br. Port Moresby.

Merremia bufalina (Lour.) Merr. & Rolfe. Port Moresby.

FAMILY BORAGINACÆ.

Cordia subcordata Lam. F. Muell. Pap. Pl., i (iii), 44 ; Bail. Rep. Visit B.N.G., 27, 28 ; Queens. Agric. Journ., ix, 411 (1901). Port Moresby. The Rev. H. P. Schlencker gave me the native name about Port Moresby for this plant as "Turi-turi."

Tournefortia mollis F. Muell. F. Muell. Pap. Pl., i (iv), 71. Port Moresby. Common on the hills.

T. sarmentosa Linn. f. F. Muell. Pap. Pl., i (i), 11. Mekeo District.

FAMILY VERBENACÆ.

Geunsia farinosa Blume. Mafulu.

Callicarpa longifolia Lam. Hemsley Kew Bull. 1899, 108.

C. caudata Maxim. Mafulu. I have not got the original description of this species to refer to but have named it by comparison with Philippine material of typical *C. caudata* received from Dr. E. D. Merrill, Bureau of Science, Manila. P.I.

[**C. pedunculata** R. Br. Boku, Mrs. H. P. Schlencker. Papuan name "Manutagi."]

Premna obtusifolia R. Br. Bail. Queens. Agric. Journ., xxiii, p. 220. Port Moresby.

P. nitida K. Sch. Astrolabe Range.

Vitex trifolia Linn. F. Muell. Pap. Pl., i (i), 11 ; Bail. Rep. Visit B.N.G., 27. Port Moresby ; [Samarai, W. E. Armit].

Clerodendron inerme R. Br. F. Muell. Pap. Pl., i (i), 11. Port Moresby ; [Normanby Island, Sir. G. R. Le Hunte] ; [Port Moresby, E. Cowley, who quotes the native name as "Quamo-quamo."]

C. floribundum R. Br. F. Muell. Pap. Pl., i (v), 90 ; Bail. Queens. Agric. Journ., xxii, 148. Port Moresby.

C. Tracyanum F. Muell. F. Muell. Pap. Pl., i (v), 91 ; Bail. Ann. Rep. B.N.G. 1900-01, p. 143. Mekeo District [Samarai, W. E. Armit].

Avicennia officinalis Linn. Bail. Rep. Visit B.N.G., 28, and in Ann. Rep. B.N.G. 1900-01, 143. Port Moresby.

FAMILY LABIATÆ.

Anisomeles salvifolia R. Br. Port Moresby. A very robust form common on the hills about the town. Mueller (Pap. Pl., i (iii), 45) records this from Darnley Island, which is, however, in Queensland territory.

***Hyptis suaveolens** Poit. C. T. White, Queens. Agric. Journ., xii, n.s. 141, pl. 16 (1919). Port Moresby. A very common weed.

Coleus scutellarioides Benth. F. Muell. Pap. Pl., ii (vi), 15. Sogeri.

Ocimum basilicum Linn. *O. sanctum* Bail. Ann. Rep. B.N.G. 1900-01, 143 (*non* Linn.). Port Moresby; [Cape Nelson, *G. R. Le Hunte*]. A strongly scented herb; a common weed in native gardens, etc.; worn by men in armlets, especially at native dances.

O. sanctum Linn. F. Muell. Pap. Pl., i (v), 90; Bail. Rep. Visit B.N.G., 27, 28; (*Moschosma polystachyum* Bail. in Queens. Agric. Journ., xxiii, 148, and xxiv, 120 *non* Benth). Yule Island; [Port Moresby, *E. Cowley*; Boku, *Mrs. H. P. Schlencker*].

Orthosiphon stamineus Benth. F. Muell. Pap. Pl., i (iii), 45; Bail. Rep. Visit B.N.G., 27, 28. Sogeri.

FAMILY SOLANACEÆ.

Solanum viride R. Br. F. Muell. Pap. Pl., ii (viii), 49. Sogeri.

S. verbascifolium Ait. F. Muell. Pap. Pl., i (iii), 44; Bail. Queens. Agric. Journ., xxiii, 220. Port Moresby.

[**S. torvum** Sw. Hemsley Kew Bull. 1899, 107; *S. stelligerum* Bail. in Ann. Rep. B.N.G. 1900-01, 143 (*non* Sm.). Trobriand Islands, *G. R. Le Hunte*.

These specimens, referred by Bailey l.c. to *S. stelligerum*, represent to my mind typical *S. torvum*.]

S. torvum Sw. Sogeri. A common *Solanum* in secondary growth, height about 10 ft., flowers white, berries about 4 lines (9 mm.) in diameter, but only seen green.

This possibly represents a new species; it approximates closely a densely tomentose form growing in the Philippines. I wrote Mr. Merrill, Director, Bureau of Science, Manila, P.I., about these Papuan specimens, and he replied: "I note your query in reference to *S. torvum*. The specimens certainly very strongly resemble Philippine material which I have referred to this species for want of a better disposition of such material. We have typical *S. torvum* in the Philippines growing in waste places and about towns. It is erect, branched, suffrutescent,

spiny, and has white or nearly white flowers. The Philippine form which approximates your New Guinea specimen has purple or violet flowers, and I am by no means certain whether it can be referred to *S. torvum*."

S. repandum Forst. F. Muell. Pap. Pl., i (v), 91. Sogeri.

S. discolor R. Br. Bioto (Mekeo District).

FAMILY SCROPHULARIACEÆ.

Limnophila gratioloides R. Br. F. Muell. Pap. Pl., ii (ix), 63; Ann. Rep. B.N.G. 1889-90, 107.

Vandellia crustacea Benth. F. Muell. Pap. Pl., i (v), 99; Bail. Queens. Agric. Journ., xxii, 148; Hemsley in Kew Bull. 1899, 107. Sogeri.

Bonnaya veronicæfolia Spreng. Laloki River; Mekeo District.

Buchnera urticifolia R. Br. Mt. Warirata.

FAMILY BIGNONIACEÆ.

Diplanthera tetraphylla R. Br. Astrolabe Range and Sogeri. A very common tree.

FAMILY GESNERIACEÆ.

Boea lanuginosa Sch. & Laut. Bisiatabu (on rocks). My specimens are rather fragmentary but belong, I believe, to the above.

Rhyncoglossum obliquum Bl. Deva Deva. A pretty blue-flowered herb common along forest tracks in the Mafulu District.

FAMILY ACANTHACEÆ.

An account of the Acanthaceæ collected will be found in a paper "Acanthaceæ Papuanæ" by Mr. Spencer Le M. Moore, B.Sc., F.L.S., in the "Journal of Botany," vol. 58, pp. 190-195 (1920).

FAMILY RUBIACEÆ.

(By Spencer Le M. Moore, B.Sc., F.L.S., Dept. of Botany, British Museum of Natural History, London.)

Nauclea Chalmersii F. Muell. Pap. Pl., ii (viii), 44. Bisiatabu (357).

[**Uncaria pedicellata** Roxb. Boku, Mrs. H. P. Schlencker.]

[**U. appendiculata** Benth. B. N. Guinea (without precise locality), W. E. Amit.]

U. appendiculata Benth. Forma foliis pag. sup. fere glabris. Sogeri; and between Sogeri and Javararie.

[**U. Schlenckeræ** S. Moore, sp. nov.

Frutex scandens, pubescens; *ramis* sat validis optime tetragonis fulvo-pubescentibus; *foliis* brevipetiolatis ovatis basi rotundatis margine integris vel dentato-undulatis rigide membranaceis pag. sup. sparsim pag. inf. (in axillis costarum perspicue barbatis) dense fulvo-pubescentibus costis lateralibus utrinque circa 7 pag. inf. eminentibus; *stipulis* quam petioli longioribus ambitu late rotundatis medium usque bilobis pubescentibus lobis triangularibus obtusis; *pedunculo sterili* unico viso petiolis circa ter longiore pubescente; *pedunculis fertilibus* petiolis multo longioribus inferne incrassatis pubescentibus; *capitulis* multifloris; *floribus* pedicellatis uti ovarium calyxque dilute fulvo-tomentosis; *ovario* anguste ovoideo quam calycis pars libera indivisa longiore; *calycis* parte indivisa brevi cylindrica hujus lobis 5 (casu 6) linearibus obtusis vel anguste lineari-spathulatis quam pars indivisa longioribus extus pubescentibus; *corollæ* tubo subcylindrico ex calyce longe eminente extus pubescente lobis oblongo: obovatis obtusis tube multe brevioribus; *antheris* breviter exsertis, *stylo* longe exserto glabro stigmate anguste claviformi coronata; *capsula* anguste obovoideo-oblonga longitrorsum costata puberula.

Boku, *Mrs. H. P. Schlencker*.

Rami 3-4 mm. crass. Folia (perfecta haud obvia) circa $9-11 \times 6.5-8.5$ cm., in sicco pag. sup. atro-castanea, pag. inf. viridi-brunnea; petioli 5 mm. long. Stipulæ 1 cm. long. Pedunculus sterilis 1.5 cm., pedunculi fertiles 3-3.5 cm. long. Capitula 3 cm. diam. Pedicelli subflore 5-6 mm. sub fructu usque 9 mm. long. Ovarium 3 mm., calycis pars libera indivisa 1.25 mm., hujus lobi 2.25-2.5 mm. long. Corollæ tubus 8 mm. long., inferne .5 mm, sub limbo usque 1 mm. gradatim ampliatus; lobi 2-3 mm. long. Antheræ 1.6 mm. long. Stylus 12 mm., stigma 2.5 mm. long.

Affinity with *U. velutina* Havil., which *inter alia* has quite different leaves and longer and narrower capsules.]

Uncaria sp. Deva Deva. Not identified, and may prove to be a new species characterised by the short pedicels (often united at bottom) and short young fruit, shorter indeed than the setaceous lobes of the calyx. The specimen is too incomplete for closer determination.

Wendlandia buddleacea F. Muell. Pap Pl. ii. (viii) 45. Astrolabe Range (296).

Hedyotis Auricularia Linn. Sogeri.

Hedyotis sp. On range between Sogeri and Javararie. Apparently a new species close to *H. pinifolia* Wall., distinguished from it chiefly by the very short corollatube, i.e. much shorter than the calyx (instead of longer than it as in *H. pinifolia*) and the small capsule.

Mussænda Whitei S. Moore, sp. nov.

Frutex ; ramulis sat validis breviter ferrugineo-tomentosis ; *foliis* ovatis breviter acuminatis apice acutis basi in petiolum aliquanto angustatis membranaceis supra subsparsim subtus dense pubescentibus costis lateralibus utrinque 10 uti costulæ inter costas more *Brideliarum* fere rectæ pag. inf. eminentibus pag. sup. parum perspicuis ; stipulis triangularibus bifidis facie utraque pubescentibus ; *cymis* terminalibus foliis circiter æquilongis e cymulis pluribus laxè ordinatis compositis ferrugineo-tomentosis ; *floribus* pro cymula pluribus breviter pedicellatis ; *bracteis* subulato-setaceis pubescentibus ; *ovario* cylindrico uti calycis segmenta lineari-setacea sordide albotomentoso ; *calycis* segmento foliaceo dum adsit ovata obtuso stipite brevi insidente utrinque pubescente albo ; *corollæ* parvæ tubo ultra medium gradatim sed leviter ampliato extus pilis fulvis appressis dense vestito lobis ovato vel oblongo-lanceolatis acutis pubescentibus ; *fructu* ———.

Mafulu (502).

Folia plerumque 7-10 × 4-6 cm. ; petioli 2-3 cm., stipulæ 7.5 mm. long. Cymæ usque circa 10 × 8 cm. Bracteæ ± 8 mm. long. Pedicelli circa 2 mm. long. Ovarium 4 mm., calycis segmenta 5-6 mm. long. ; hujus segmentum foliaceum 5 × 4 cm. stipite 7 mm. long. excluso. Corolla ex schedis cl. detectoris flava ; tubus 21 mm. long., inferne 1 mm. sublimbo 3 mm. lat. ; lobi 5 mm. long.

A very distinct species with its small corollas and short-stalked foliaceous calyx-segments among other features.

M. procera Bail. ? Bail. Queens. Agric. Journ., iii, 155 (1898). Astrolabe Range ; [Boku, *Mrs. H. P. Schlencker*.] No specimen of this either at the British Museum or at Kew. Not identified among New Guinea species in those collections.

M. frondosa Linn., var. **pilosissima** Engl. Sapphire Creek, Sent under the above name by Mr. White, but some doubt must attach to the determination ; I have seen no authentic specimen of this variety.

[*Mussaenda* sp. nov. ? Village of Tina, St Joseph River ; Coll. ignot. Not identified : expanded corollas required for precise naming.]

Tarenna sp. Mekeo District (789). Specimen incomplete.

Gardenia ? sp. nov. Fofofoto. Quite unlike any Papuan species hitherto described. In absence of flowers, not desirable to describe. Seeds not immersed in pulp a peculiarity. (Almost certainly a *Gardenia*.)

Guettarda speciosa Linn. Port Moresby.

Timonius Rumphii DC. Port Moresby, and common on Astrolabe Range and Yule Island (17, 737). (Det. H. F. Wernham, D.Sc.)

T. cryptophlebus S. Moore, sp. nov.

Arbuscula, *ramulis* compressis subdistanter foliosis ferrugineo-tomentosis deinde glabrescentibus ; *foliis* brevipetiolatis oblongo-oblancheolatis obtusis basi breviter cuneatis chartaceis pag. sup. minute puberulis sublenteque striatulis sæpe confluentibus plus minus aspectabilibus copiose præditis pag. inf. præsertim in costa media hirsutulo-pubescentibus costis lateralibus uti reticulum pag. utriusque omnino vel fere omnino invisibilibus ; *stipulis* ———— ; *floribus* pedicellis brevibus compressis ferrugineis insidentibus ; *ovario* quam calyx breviter cupularis glaber longiore cylindrico paucisulcato fere glabro ∞ -loculari ; *corollæ* 5-meræ tube late cylindrico extus sordide albo-tomentoso lobis crassiusculis tubo brevioribus ovato-lanceolatis apice integris bifidisve vel etiam bipartitis ; *antheris* 5 inclusis prope medium tubum insertis ; *stylo* robusto glabro striis obviis percurso ramis 6 onustis.

Dilava (No. 428).

Folia in sicco brunnea, pleraque 7-10 \times 3-4 cm., summa vero minora ; petioli 1-1.5 cm. long., ferruginei. Pedicelli verisimiliter 5 mm. long. Ovarium 2-3 \times 4 mm. Calyx 1-1.5 mm. long. Corolla alba, humectata in toto 11 mm. long. ; lobi soli 4 mm. ; tubus 3 mm. lat. Antheræ sessiles, 3 mm. long. Stylus 4.5 mm., hujus rami 4 mm. long. Drupa (fortasse vix matura) eximie sulcata, fusca, 7 mm. diam.

The specimen is not wholly satisfactory, the few flowers and fruits being unattached, and stipules absent. Nevertheless without doubt it differs in several points from all described Papuan species. The striation of the leaves' upperside is a good deal like that of *T. avenis* Valet., as figured in Nova Guinea viii, t. lxxii.

Knoxia corymbosa Willd. F. Muell. Pap. Pl. i. (iii) 43.
Sapphire Creek.

Ixora Whitei S. Moore, sp. nov.

Arbuscula ? glabra ; *ramulis* ultimis aliquante compressis distanter foliosis ; *foliis* brevipetiolatis oblongo-lanceolatis superne gradatim longiuscule acuminatis apice obtusis basi subrotundatis pergamaceis pallide nitidis glandulis translucentibus permultis microscopicis præditis costis lateralibus utrinque 18-22 angulis variis costæ centrali insertis pag. sup. vix pag. inf. (uti reticulum valde laxum) sat aspectabilibus ; *stipulis* parvis inferne ovatis in acumen brevem subito exeuntibus ; *panicula* terminali foliis circiter æquilonga angusta pedunculo elongato compresso insidente e cymulis paucis breviter pedunculatis paucifloris sistente hujus *ramis primariis* suboppositis ultimis alternis uti pedicelli abbreviati validi minute puberulis ; *bracteis* parvulis subulatis *ovario* pyriformi quam calyx cyathiformis minutissime 4-denticulatis longiore ; *alabastris* obtusis ; *corollæ* tubo angusto intus in faucibus glabro lobis 4 oblongis obtusis tubo æquilongis ; *antheris* subsessilibus acuminatis ; *stylo* pilosiusculo ramis linearibus onusto.

Mekeo District (798).

Folia 21-25 × 6·5-8·5 cm., in sicco grisea ; petioli validi, levissime torti, late canaliculati, 8-12 mm. long. Stipulæ pars lata 4 mm., acumen vix 2 mm. long. Panicula unica scrutata circa 20 × 4 cm. ; pedunculus ægre 13 cm. long. ; rami primarii 5-10 mm., bracteæ ± 2 mm. long. Pedicelli ± 1·5 mm. long. Ovarium 2 mm., calyx 5 mm. long. Corollæ in sicco atræ tubus 8 × 1 mm. ; lobi 8 mm. long. Filamenta 2·5 mm., antheræ 7 mm. long. Stylus 11 mm., hujus rami 3 mm. long.

This is evidently close to *I. timorensis* Decne., its chief distinctive points being the lengthily acuminate leaves, the narrow inflorescence, and short thick pedicels to the flowers, together with the obtuse buds and broad corolla-lobes.

Morinda citrifolia Linn. Port Moresby (very common).

Psychotria decorifolia S. Moore, sp. nov.

Frutex glaber ; *ramis* compressis (deinde verisimiliter subtetragonis striatulatis crebro foliosis ; *foliis* brevipetiolatis elongatis lineari-lanceolatis longe gradatim acuminatis apice acutis basin versus leviter attenuatis basi obtusis punctis translucentibus minutis præditis pergamaceis costis lateralibus utrinque 16 pag. utraque inconspicuis ; *stipulis* majusculis

ovatis fere usque medium in segmenta 2 anguste linearia divisim microscopice puberulis; *floribus* parvis breviter pedicellatis in paniculam cymosam subracemiformem foliis brevioribus vel tandem subæquilongam minute pubescentem postea fere glabram digestis cymulis pro verticello 3-4 pedunculatis paucifloris; *ovario* cylindrico quam calyx cupularis 5-dentatus. paullulum longiore; *corolla* parva extus glabra intus in faucibus dense albo-lanata lobis 5 late oblongis obtusis quam tubus paullo brevioribus; *antheris* faucibus insertis vix exsertis; *disco* optime prominente; *stylo* glabro ramis obtusis microscopice papillois; *fructu* late ovoideo calyce coronato cocco utroque facile partibili dorso alte 4-sulcato glabro.

Sapphire Creek (No. 135).

Folia $22-24 \times 3.4-4$ cm., in sicco grisea; petioli lati, 5 mm. long. Stipulae 2.2 cm. long. (segmentis 1 cm. inclusis). Inflorescentia spec. alterius floriferi nobis obvii nondum profecto evoluta 7 cm. long., spec. alterius fructificantis 20 cm., hujus pedunculus vix 10 cm. long., rami primarii patentes cymulas sustinentes ± 1 cm. long.; pedicelli sub floribus ovario circa æquilongi quam fructus vero plane breviores. Ovarium .75 mm., calyx .5 mm. long. Corollae albæ tubus 2.5 mm., lobi 2 mm. long. Stylus 2.2 mm. hujus rami .4 mm. long. Fructus albus, 5 mm. long.

The foliage and stipules are the chief characters of this distinct species.

P. mafuluensis S. Moore, sp. nov.

Arbuscula glabra; *ramulis* validis compressis longitrorsum paucisulcatis; *foliis* majusculis petiolatis oblongo-obovatis apice subito cuspidato-acuminatis (acumine brevi acuto) basi cuneatis pergamaceis costis lateralibus pag. inf. optime eminentibus utrinque circa 20 a costa medio angulo fere recto abeuntibus leviter arcuatis; *stipulae* late obovatis apice (anne semper?) bidentatis dentibus triangularibus obtusis; *paniculae* terminali folia excedente laxè aperteque pauciramosa pedunculo valido compresso cymulis patentibus pro verticillo 2-3 laxè paucifloris ramis teneris insidentibus; *floribus* parvis pedicellatis; *ovario* turbinato calyce cupulari medium usque 5-lobo longiore; *corollae* parvæ triente sup. in lobos 5 late oblongos obtusos divisæ tubo cylindrico intus villosa; *antheris* subsessilibus subexsertis; *disco* prominente; *styli* inclusi ramis obtusiusculis; *fructu* adhuc valde crudo ovoideo calyce discoque onusto.

Mafulu (No. 416).

Folia in sicco griseo-brunnea, $18\text{--}21 \times 7\cdot5\text{--}10\cdot5$ cm., petiolis validis 2-3 cm. long. exemptis. Stipulae 13×11 mm., in sicco fusco-brunneae. Inflorescentia 22×15 cm.; pedunculus 13 cm. long., uti rami ramulique albus; pedicelli quoad longitudinem valde dissimiles, ± 3 mm. long. Ovarium aëgre 1 mm., calyx 4 mm. long. Corolla alba; tubus $2\cdot25 \times 1$ mm., lobi 1 mm. long. Antherae 1 mm., stylus 1·5 mm. long., hujus rami 75 mm. long. Fructus $3 \times 2\cdot3$ mm.

In foliage very like *P. direpta* Wernh. except that the acumination is more sudden and the narrowed portion much shorter. Moreover the stipules are shorter and relatively broader as well as being bifid instead of entire. The flowers of *P. direpta* are unknown.

P. Whitei S. Moore, sp. nov.

Frutex novellis rufo-tomentosis; *ramulis* patentibus aliquanto compressis sursum foliosis rufo-tomentosis uti rami subteretes deinde glabrescentibus; *foliis* breviter petiolatis ellipticis acuminatis apice obtusis basi breviter cuneatim angustatis pergamaceis supra glabris subtus in costis rufo-tomentosis alibi sparsim pubescentibus costis lateralibus utrinque 12-15 pag. inf. optime prominentibus parum arcuatis; *stipulis* ovatis dorso rufo-tomentosis medium usque bilobis lobis triangularibus superne angustatis; *panicula* laxa terminali foliis brevior uti flores pedicellique pallide fulvo-tomentosa ramis primariis pro verticillo sæpius 4 cymulis ramulosis plurifloris ultimis corymbosis; *bracteis* parvis linearibus tomentosis; *ovario* subgloboso calyce longiore; *calycis* limbo 5-lobo lobis deltoideis obtusis; *corollæ* usque medium in lobos 5 oblongos obtusos divisæ tubo cylindrico intus in faucibus piloso; *stylo* glabro.

Dilava (No. 702).

Folia $13\text{--}15 \times 4\cdot5\text{--}6$ cm., summa sæpissime $9\text{--}11 \times 3\cdot5\text{--}4\cdot5$ cm., horum acumen 1-1·5 cm. long., supra in sicco olivaceo-fusca; petioli 5-10 mm. long. Stipulae 12-14 mm. long., inferne 7 mm. in transversum. Panicula $8\text{--}10 \times 4$ cm.; rami primarii infimi ± 17 mm. long., ascendentes. Bractea ± 2 mm. long. Pedicelli plerique 5-1 mm. long. Ovarium aëgre 1 mm., calyx 5 mm. long. Corolla in toto 3·5 mm. long., tubus 1 mm. lat.

Affinity apparently with *P. rubiginosissima* Wernh., but entirely different in the foliage. In several particulars it answers the description of *P. Wichmannii*, Valet., but the venation of that species and the floral details are different.

Geophila reniformis D. Don. Javararie.

Amaracarpus cuneifolius Valet. (Det. by Dr. H. F. Wernham.) Dilava.

Hydnophytum sp. Koitaki (No. 409). Very close to *H. loranthifolium* Becc. but not quite conspecific. More flowers required for close determination.

FAMILY CUCURBITACEÆ.

Macrozanonia macrocarpa Cogn. R. A. Rolfe, Kew Bull. 1920, 197-199; *Bignoniaceæ*, F. M. Bail. in Proc. Roy. Soc. Queens., xviii, p. 2 (1904). Mekeo District.

Mukia scabrella Arn. F. Muell. Pap. Pl. i (iv), 68. Yule Island.

Luffa cylindrica Rœm. (*L. ægyptiaca* Mill.); F. Muell. Pap. Pl., i (iv), 68; Bail. Queens. Agric. Journ., xxiii, 221. Ethel River (Mekeo District).

FAMILY CAMPANULACEÆ.

Wahlenbergia gracilis A. DC. Mt. Warirata (Astrolabe Range). This plant is recorded by Mueller in Pap. Pl., ii (vi), 11, from Murray and Jervis Islands. Both these, however, are in Queensland territory.

FAMILY GOODENIACEÆ.

Scævola Lauterbachiana Krause. Astrolabe Range and Dilava [S. E. New Guinea, *H. O. Forbes*, ex Nat. Herb. Melb.].

S. novoguineensis K. Sch. Astrolabe Range; Sogeri; Mafulu [near Port Moresby, *Rev. W. G. Lawes*, ex Nat. Herb. Melb.].

FAMILY COMPOSITÆ.

Vernonia cinerea Less. F. Muell. Pap. Pl., i (ii), 27. Astrolabe Range; Sogeri; Mafulu.

Adenostemma viscosum Forst. F. Muell. Pap. Pl., i (iv), 69. Mafulu.

Ageratum conyzoides Linn. Port Moresby. A common weed.

Mikania scandens (Linn.) Willd. Sapphire Creek.

Erigeron linifolius Linn. F. Muell. Pap. Pl., i (iii), 44. Port Moresby. A very common weed.

Dichrocephala latifolia DC. *D. erecta* L'Her., F. Muell. Pap. Pl., ii (vi), 10. Mafulu.

Vittadinia brachycomoides F. Muell. Pap. Pl., ii (vi), 10 ; Vic. Nat. Feb. 1885. Astrolabe Range.

Blumea chinensis DC. Sapphire Creek and Mekeo District. A very common climber.

B. hieracifolia DC. F. Muell. Pap. Pl., i (v), 90. Yule Island.

B. lacera DC. Yule Island.

Pluchea indica Less. F. Muell. Pap. Pl., i (i), 10. Port Moresby. A very common beach shrub with strongly scented leaves and lavender-coloured flowers.

Pterocaulon cylindrostachyum C. B. Clarke. (*P. Billardieri*, F. Muell.) ; F. Muell. Pap. Pl., i (iii), 43.

Acanthospermum hispidum DC. Star Burr. Port Moresby. The plant is a great curse in Tropical Queensland.

Wedelia spilanthoides F. Muell. Port Moresby. A common weed in open forest country and native gardens.

Spilanthes Acmella Linn. Bisiatabu (Astrolabe Range).

Synedrella nodiflora Gærtn. Port Moresby. A common weed.

Bidens pilosa Linn. F. Muell. Pap. Pl., i (iii), 42. Cobbler's-pegs. Port Moresby. A common weed.

Crepis japonica Benth. F. Muell. Pap. Pl., ii (vi), 11. Bella Vista (ca. 5,000 ft.).

APPENDIX.

LORANTHACEÆ RECORDED FOR NEW GUINEA AND ADJACENT ISLANDS.

By W. F. BLAKELEY (Botanical Assistant, Botanic Gardens, Sydney).

FAMILY LORANTHACEÆ.

ELYTRANTHE Blume in Shults f. Syst., vii, 2.

Sect. ?

Elytranthe suberosa Laut. in Nov. Guinea, viii, pt. 4, 816 (1912). Dutch New Guinea, Biwak Hollandia (Humboldt-Bai.). Gjellerup No. 96, 30th April, 1910 ; No. 148, 28th May, 1910.

Sect. III.—**AMYLOTHECA** van Tiegh.

E. Hollrungii K. Sch. in Fl. Kaiser Wilhelm's Land, 105 (1889). Engl. in Nach. ii, iv, Teil. 126 (1879). Allied to (*E. L.*) *dictyophleba* ; Ramufluss (Tappenbeck No. 69, June 1898).

LORANTHUS L.

Subgenus I.—EULORANTHUS Engl.

Sect. I.—DACTYLOPHORA van Tiegh.

Loranthus verticellatus (Scheff.). Benth. et Hook. in Gen. Plant, iii, 208. (*Dendrophthæ verticellatus* Scheff., in Ann. Jard. Bot. Buitenz. i, 37.) Also recorded by Mueller in Descriptive Notes on Papuan Plants, i. (v) 99 (1875).

L. strongylophyllus Laut. in Nov. Guinea, Biwak, Hollandia (Humboldt-Bai.). Gjellerup No. 307, 18th Aug. 1910.

L. Versteegii Laut. in Nov. Guinea, viii, 289 (1910). Dutch New Guinea, Noord-Fluss, bei Alkmaar Urwald. (Versteeg. No. 1506, 23rd July, 1907); Noord Fluss, Biwak, Zwaluw, Uferwald (Versteeg, No. 1801, 8th Oct. 1907); Bian Fluss (Branderhost No. 278, 12th Dec. 1907). Manokœari, Miss L. S. Gibbs in Phytog. Fl. Arfak Mts. 210 (1917); South New Guinea, Geluks-Hugel. Urwald (V. Roemer No. 473, 7, 1909).

Sect. II.—HETEROSTYLIS Benth.

Series I.—EUAMYEMA.

A. UMBELLULATI.

L. Friesianus K. Sch. in Schum & Lauterb.. Fl. Deutsch. Schutzg. Sudsee, 258 (1905). Kaiser Wilhelm's Land; Stephansort; Gestade (Nyman No. 41, 23rd Dec. 1898).

B. CYMULATI.

L. caudiciflorus Laut. in Nov. Guinea, viii, 290 (1910). Dutch New Guinea, Noord-Fluss, bei Gertenkamp (Versteeg No. 1473, July 1907).

L. pachypus Burkill in Kew Bull. 109 (1899). Allied to *L. pendulus* Sieb. Mt. Scratchley, 1,000-1,300 ft. [A. Guilianetti.]

Series ?

L. oxycladus Laut. et K. Sch. in Fl. Deut. Schutzg Sudsee, 298 (1901). Kaiser Wilhelm's Land; Suve-Mana bei Ssigdum-Jana, Hockwald. (M. Lauterbach No. 2276, June 1896); (Nurufusse, No. 2328, June 1896); New Mecklenburg (Schlechter No. 14645, July 1902).

L. novæ-britanniae Laut. in Nachtr. Fl. Deut. Sudsee, 259 (1905). Ins. Bismark, Neu-Pommern, bei Mandres (Schlechter No. 13765, Nov. 1901); Neu-Mecklenburg (Schlechter No. 14691). Peiana.

L. novæ guinæ Bail. in Ann. Rept. B.N.G. 1900-1, p. 144. Goodenough Island, *G. R. Le Hunte*.

Sect. X.—DIPLATIA van Tiegh.

L. Albertisii (van Tiegh) Engl. in Engl. & Prantl. Pflanzenf Nachtr. 1. 129. Recorded for New Guinea without specific locality. This species is allied to *L. grandibracteus* F. v. M.

Subgenus II.—DENDROPTHÆ Mart.

Series 2.—CICHLANTHUS Engl.

L. diversifolius Ridl. in Trans. Linn. Soc. Lond. (Bot.) vol. ix, pt. i, p. 146 (1916). Dutch New Guinea, Camp III to IX, 2,500 to 5,500 ft. Wollaston Expedition.

L. hastifolius Ridl. l.c. Camp VII to VIII, 3,660 to 4,900 ft. Wollaston Expedition.

Series 3.—EUDENDROPTHÆ.

L. longiflorus Desr. Neu Pommern, Bei Massawa (Schlechter No. 13741, 1901); South New Guinea, Flachland, Urwald (V. Roemer No. 473, Sept. 1909); Kaiser Wilhelm's Land; Halzfelden (Hollrung No. 342); Augusrafluss (Hollrung No. 662); Ramufluss (Tappenbach No. 114, 14th July, 1898). Dutch New Guinea; Wollaston Expedition, Camp III, 2,500 ft.; Ridl. Bot. Woll. Exped. Trans. Linn. Soc. Lond. 2 ser., vol. ix, pt. 1, p. 146 (1916).

Series ?

L. dolichocladus K. Sch. in Nach. Fl. Deutsch. Sudsee, 258 (1905). Kaiser Wilhelm's Land and Frederick Wilhelmshafen (type locality); (Nyman No. 1068, Sept. 1899). Dutch New Guinea, Sudkuste bei Merauke, Alagfalern (Versteeg No. 1909, Nov. 1907).

L. Lauterbachii K. Sch. in Fl. Deutsch. Sudsee, 299 (1901). Kaiser Wilhelm's Land, Am Huon-Golf bei Kap Ankona (Lauterbach No. 666, Aug. 1890—the type). Dutch New Guinea, Noord-Fluss (Versteeg No. 1798, Oct. 1907, No. 1033, March 1907).

L. Gjellerupii Laut. in Nov. Guinea, viii, 815 (1912). Dutch New Guinea, Biwak Hollandia (Humboldt-Bai See-strand Gjellerup No. 143, May 1910).

L. Seemenianus K. Sch. in Fl. Kaiser Wilhelm's Land, 106 (1889). Seestrand von Halyfeldthafen (Hollrung No. 345, Oct. 1887).

L. Balmeri Laut. et K. Sch. in Fl. Deut. Schutzg Sudsee 278 (1901). Kaiser Wilhelm's Land, Sattelberg (Balmer No. 16).

L. finisteriæ Warb. in Bergpfl. 13, 20 (1892). Kaiser Wilhelm's Land, Finisterre-Gebirge (Hellwig No. 322, Oct. 1888).

Loranthus sp. near *L. alyxifolius* F. v. M. Recorded by Bailey in Queens. Agric. Journ., vii, 349.

Loranthus sp. Valetton, Bull. Dept. d. l. Agric. Ind. Neerland. x, 7.

FAMILY VISCOIDEÆ.

NOTOTHIXOS Oliv.

Sect. I.—EUNOTOTHIXOS van Tiegh.

Notothixos leiophyllus K. Sch. Nach. Fl. Deutsch. Schutz. Sudsee, 260 (1905). Bismark-Archipel New Pommern (*R. Parkinson*, No. 105 (1885)). This is the plant referred to by Mueller in Notes Papuan Plants, ii (7), 29 (1886), under *N. subaureus*, "in a large-leaved state with more elongated inflorescence"; and also in Pap. Pl., ii, 61, and Linn. Soc., vol. ii, n.s., p. 422. Base of Owen Stanley Ranges, British New Guinea (*H. O. Forbes*, No. 779 (1885-6)).

I am indebted to Professor Ewart, of the Melbourne Herbarium, for the loan of the last three specimens.

VISCUM L.

Sect. I.—PLOINIXIA Korth.

Series I.—ISANTHEMUM van Tiegh.

Viscum orientale Willd. is recorded for Papua by Mueller in Descriptive Notes on Papuan Plants, p. 99 (1875), who quoted Scheffer's record in Bot. Gard. Buitenzorg. vi, p. 27. Scheffer's record is as follows (*V. orientale* Willd. Miq. l.c. p. 804):—I have not seen this specimen and therefore cannot say if it is the same as *V. verruculosum* Wight & Arn. C. Lauterbach in Flora Nov. Guinea, vol. viii, pt. iv, p. 816 (1912), records it for Dutch New Guinea: Biwak Hollandia (Humboldt-Bai) on sea-strand (Gjellerup No. 105, Feb. and April (1910)).

Sect. II.—ASPIDIXIA.

V. angulatum Heyne. Islands on the south coast of New Guinea (*Rev. J. Macfarlane* 1885), Mueller in Notes Papuan Pl. ii (ix), 29 (1886). According to Professor Ewart this species is not represented in the Papuan collection in the Melbourne Herbarium.

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- 1877-1890. BECCARI, O.—Malesia, vols. i, ii, and iii. Contains descriptions of a few of D'Albertis' plants from the Fly River.
1880. BECCARI, O.—Notes on Plants Collected by Sig. L. M. D'Albertis in New Guinea, in "New Guinea" by D'Albertis, pp. 391-400. All the plants listed are from the Fly River.
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1889. MUELLER, Baron FERD. VON.—Records of Observations on Sir Wm. MacGregor's Highland Plants from New Guinea. Trans. Roy. Soc. Vic., vol. i, pt. 2, pp. 145.
1892. Succinct General Notes on the Flora of British New Guinea. Appendix ii to J. P. Thomson's "British New Guinea," pp. 218-221.
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