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DESCRIPTIVE NOTES



ON

PAPUAN PLANTS,

BY

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I.

By Authority:

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[&]quot;GOLD'NE FRUECHTE SEH ICH GLUEHEN,

[&]quot;WINKEND ZWISCHEN DUNK'LEM LAUB;

[&]quot;Und die Blumen, die dort bluehen,

[&]quot;WERDEN KEINES WINTERS RAUB."-Schiller.

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INTRODUCTION.

THE great Papuan Island, one of the largest of the globe, and rivalling in extent with Britain, is as yet but very scantily known to us merely along its coast-borders; and even of these litoral tracts we know as yet but very imperfectly the nature of the vegetation, while the plants of the higher regions-amply of alpine elevation—remained hitherto utterly unknown to us. A large island-country, probably rich also in endemic products of plants, situated on lines of Australian, Indian, Chinese and Polynesian maritime intercourses and stretching moreover into close proximity of the Australian Continent, must be to us here of special importance for commerce and colonisation. Hence any new contribution, however scanty, towards the knowledge of the nature and resources of New Guinea cannot but prove opportune, particularly at a time when the settlement along the opposite Australian coast is effected, and when by exploration-enterprises it is endeavoured to withdraw the veil, which so long concealed from us much of the features of this grand and wondrous island. With this view it is intended to devote on this occasion a few pages to the elucidation of some Papuan plants, brought from two previously thus far unexamined localities by Mr. McLeay's enterprising recent expedition, and gathered there by J. Reedy, a horticultural emissary of Sir Will. Macarthur. The latter, who in the autumn of a long laborious life, spent for the pastoral, agricultural and industrial interest of Australia, still preserves

a youthful ardour for scientific and especially horticultural research, has generously placed the material for the present essay at my disposal. Connected records of New Guinean plants do not as yet exist in phytographic literature. The field for special work in this direction is therefore mostly untrodden, though the extensive collections of Dr. Beccari, in whose treasures I am to participate, are likely to give us early an ampler insight into the probably very varied vegetation of New Guinea.

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Its mountain flora particularly will likely carry with it the charm of novelty, the true oaks already discovered being likely only one of the numerous objects of promising interest. The blending also of Australian forms, such as the Eucalypts, which now have come to light, with Sundaic types of plants, will render to an Australian naturalist the study of the Papuan vegetation one of great significance, while undoubtedly thereby the means will be suggested of transferring many new plants of economic medicinal or industrial value to Australian shores.

Melbourne, November 1875.

PAPUAN PLANTS.

CAPPARIDEÆ.

CAPPARIS QUINIFLORA.

Cand. Prodr. i. 247; Benth. Flor. Austr. i. 94.

Ratau-River and Sue-Island.

The New Guinea plant cannot be distinguished from the Australian typical species, which is now known also from Castlereagh's Bay and Melville's Bay. If C. subcordata (Spanoghe in Schlecht. Linnæa xv. 166) from Timor should prove conspecific, as may be assumed from the short description, then our plant has probably a wide range through the Indian Archipelagus. Habit climbing. The petioles extend sometimes. to the length of 1 inch. The stipular spines are rarely present in the upper part of the plant and then very short and recurved; but the lower branches are often strongly thorny. The pedicels occur from 2 to 7 in a cluster. The fruit assumes sometimes an oval shape. Cleome viscosa (L. Sp. Pl. 672, edit. secund. 938), which probably is to be found as commonly in New Guinea as in North Australia and South Asia, has as yet not been recorded specially from New Guinea, so far as I am aware, perhaps because this herb is of wide tropical distribution in the eastern hemisphere. In De Candolle's great leading work and in most other phytographic publications only the second edition of Linné's Species Plantarum, published 1762-1763, is quoted for this and all other earlier Linnéan plants, whereas the first edition of this ever memorable foundation-work of universal phytography was issued already in 1753 with pagings very different to those of the second edition or of the third edition, which latter was published at Vienne in 1764 and is indeed merely a reprint of the second Stockholm issue.

MELIACEÆ.

AGLAIA ELÆAGNOIDEA.

Benth, Flor. Austral, i. 383.

Ratau-River.

Miquel (Annal. Mus. Bot. Lugd. Batav. vol. i. part ii.) adduces the subsequent Meliaceæ from New Guinea:

Dysoxylon caulostachyum, Miq. l. c. 12.

Dysoxylon lasiocarpum, Miq. l. c. 13.

Dysoxylon Kunthianum, Miq. l. c. 13.

Dysoxylon amooroides, Miq. l. c. 16.

Dysoxylon molle, Miq. l. c.

Aglaiopsis glaucescens, Miq. l. c. 58.

Carapa Moluccensis, Lam. Dict. i. 621; Miq. l. c. 62. Besides four species of Aglaia requiring comparison with A. elæagnoidea.

HERITIERA LITORALIS.

Ait. Hort. Kew. iii. 546.

Ratau-River and coast opposite Yule-Island.

TILIACEÆ.

ELÆOCARPUS ARNHEMICUS.

F. M. Report for the Intercol. Exhib. of 1867, p. 24; E. obovatus var. foveolata, Benth. Flor. Austr. i. 281.

Yule-Island.

Reedy's only flowering specimen is referred here with doubt; the leafstalks are conspicuously longer, and the fruit when obtained would need comparison. The typical E. obovatus has the petioles extremely short, the leaves smaller, particularly narrower and attenuated gradually into a cuneate base, their denticulations are rather less acute and numerous, the fringes of the petals seem fewer and therefore broader, the anthers are slightly downy not smooth, the ovary is glabrous not somewhat silky. The fruits of all three plants may be different; that of E. Arnhemicus is twice or thrice as large as that of E. obovatus. To the latter species belongs unquestionably E. parviflorus (A. Rich. Voy. d'Astrolabe, Botaniq. pp. 67-69, t. 24), although Delile's drawing

exhibits the anthers mucronate, such as are not normal in the genuine plant. I have not recognised the Papuan species among Indian and Polynesian plants known to me, but the nearest allied are Elæocarpus amœnus (Thwait. Enum. of Zeil. Plants, 38), E. longifolius (Blum. Bijdr. p. 120), E. rotundifolius (Brogn. et Gris in Annal. des Scienc. Nat. 1864, p. 356), and E. laurifolius (A. Gray Bot. of Wilk. Exped. 203).

EUPHORBIACEÆ.

MAPPA TANARIA.

J. Muell, in Cand. Prodr. xv. sect. ii. 997.

Mainland opposite Darnley-Island and Yule-Island.

In Miquel's Annal. Mus. Bot. Lugd. Bat. the two following Euphorbiaceous plants are mentioned from New Guinea:

Mallotus tiliæfolius, J. Muell. in Schlechtend. Linnæa xxxiv. 190.

Alchornea Javensis, J. Muell. l. c. 170.

In the extensive and elaborate disquisition of this great order of plants in De Candolle's Prodromus vol. xv. sect. ii. no special record of any Euphorbiaceous plants from New Guinea seems to occur, though numerous genera and species may be expected to exist there.

RHAMNACEÆ.

COLUBRINA ASIATICA.

L. C. Richard, et Brogniart in Annal, des Scienc. Natur. x. 368, t. 15, f. 3. Ratau-River and Sue-Island.

LEGUMINOSÆ.

TEPHROSIA PURPUREA.

Persoon Synops. Plant. ii. 329.

Mainland opposite Darnley-Island and Yule-Island.

Miquel (Flor. Ind. Batav. vol. i.) enumerates the following plants of this order from New Guinea:

Desmodium dependens, Blume in Miq. Fl. Ind. Bat. i. 248. To this in all probability belongs D. pendulum, Tyesm. sec. F. M. in Campb. New. Hebrid. p. 9.

Abrus precatorius, L. Syst. Veg. ed. xii. 472.

Pongamia volubilis, Zoll. et Mor. Verzeichn. p. 3.

Derris uliginosa, Benth. in Plant. Junghuhn. i. 252.

Derris Timorensis, Blume in Miq. Flor. Ind. Batav. i. 138.

Dalbergia monosperma, Dalz. in Hook. Kew Miscell. ii. 36.

Dalbergia densa, Benth. in Hook. Lond. Journ. of Bot. ii. 237.

Guilandina Bonduc, L. Sp. Pl. 381.

Cassia mimosoides, L. Sp. Pl. 379.

Cassia Sophera, L. Sp. Pl. 379.

Afzelia Amboinensis, Benth. et J. Hook. Gener. Plant. i. 580.

Bauhinia ferruginea, Roxb. Flor. Indic. ii. 331.

Albizzia rotundata, Blume in Miq. Flor. Ind. Batav. i. 20.

Albizzia saponaria, Blume in Miq. Flor. Ind. Batav. i. 19.

Plants of almost universal range through the intratropical regions of the eastern hemisphere, such as species of Crotalaria, Indigofera, Æschynomene, Zornia, Desmodium, Uraria, Flemingia, Lespedeza, Sesbania, Canavallia, Phaseolus, Rhynchosia, Sophora, are not specially mentioned in Miquel's work from New Guinea, as their wide distribution would not call for annotations of localities.

MYRTACEÆ.

EUCALYPTUS PAPUANA.

(Sect. Leiophloiæ.)

Branchlets towards the summit slightly angular; leaves scattered, short-petioled, chartaceous, oblong-lanceolar, dull green, hardly oblique; their lateral veins fine, numerous, very patent; their longitudinal vein close to the margin; the oildots exceedingly minute, almost obliterated; peduncles axillary, short, slender, bearing an umbel or a cymous corymb of but few flowers; calyx rather small, pearshaped, without angules, borne on a slender pedicel of nearly the same length; the lid patellar, several times shorter than the tube, almost membranous, not pointed; anthers narrow-oblong, their parallel cells opening longitudinally throughout; fruit hemiellipsoid, its margin thin, long surpassing the valves; style only by its summit exserted; stigma not dilated; vertex of the capsule flat; seeds wingless.

On the mainland of New Guinea opposite to Yule-Island, about twelve miles distant from the shores.

Branchlets thin. Petioles $\frac{1}{2} - \frac{9}{3}''$ long. Leaves 3-5" long, not shining. Umbels deflexed. Whole calyx 3-4" long. Fruit nearly $\frac{1}{2}''$ long, about $\frac{1}{3}''$ wide.

This species seems distinct from E. clavigera in longer and narrower leaves with less prominent veins, in thinner petioles, in less numerous flowers on shorter pedicels, and perhaps in the form of the fruit. The discrimination of the likewise closely allied E. tesselaris is less difficult.

The occasion is afforded of alluding here to the characteristics of the very few congeners properly known from beyond Australia. E. alba has the leaves nearly æquilateral, the almost hemisphærical calyx-lid protracted into an umbonate apex, the capsules 3–4 celled, the valves barely semiexserted and the seeds wingless. The identity of E. tectifica with E. alba is not yet established beyond doubt.

E. Decaisneana, according to Timor specimens kindly sent by Dr. Scheffer, the Director of the Botanic Garden of Java, belongs to the series Normales, not to the Renantheræ; its leaves are more or less conspicuously inæquilateral; the margin of the calyx-tube is somewhat protruding beyond the vertex of the capsule at least in a young state.

The collection transmitted by Sir Will. Macarthur contains the leaves of another Papuan species found along with E. Papuana, to all appearance belonging to this genus, and in foliage similar to E. platyphylla. This would indicate another extra-australian Eucalypt irrespective of E. moluccana and E. multiflora, if these should really prove congeners.

BARRINGTONIA SPECIOSA.

R. and G. Forster Char. Genr. 76, t. 38.

Ratau-River.

Of this the fruit only occurs in the collection, but doubtless it belongs to this species.

Among Myrtaceæ the following are specially recorded from New Guinea:

Melaleuca Leucadendron, L. Mantissa Plant. 105.

Eugenia Blumei (Jambosa ovalifolia, Blume Mus. Bot. Lugd. 98).

Eugenia lancifolia, Miq. Annal. Ind. i. 17. (Jambosa auriculata, Bl. l. c. 104).

Eugenia Benthami (Syzygium nitidum, Benth. in Hook. Lond. Journ. of Bot. ii. 221).

Eugenia litoralis, Benth. et J. Hook. Gen. Plant. 719. (Jossinia litoralis, Bl. Mus. Bot. Lugd. i. 124).

Myrtus laxiflora (Nelitris laxiflora, Bl. l. c. 74).

Myrtus Coriandri (Nelitris Coriandri, Bl. l. c. 74).

Rhodamnia glauca, Bl. l. c. 79.

Vast additions to the plants of this order may be expected from the forest-mountains of New Guinea.

SANTALACEÆ.

EXOCARPUS LATIFOLIA.

R. Br. Prodr. Flor. Nov. Holl. 356.

Ratau-River and Yule-Island.

RUBIACEÆ.

SCYPHIPHORA HYDROPHYLACEA.

Gærtn. de Fruct. iii. 91, t. 196.

Ratau-River.

The collection contains also the leaves of a Morinda, probably M. citrifolia, of Myrmecodia echinata, Hydnophytum formicarum and several other rubiaceous plants. Miquel (Flora Ind. Batav. vol. ii. et Annal. vol. iv.) noticed from Papua:

Saprosma arborea, Bl. Bijdr. 957.

Uncaria appendiculata, Benth. in Hook. Lond. Journ. of Bot. ii. 222.

Morinda gemella, Miq. Flor. Ind. Bat. ii. 247.

Morinda glomerata, Miq. l. c. 247.

Cœlospermum scandens, Bl. Bijdr. 994.

Pavetta Rothiana, Cand. Prodr. iv. 491.

Pavetta Zippeliana, Miq. Annal. Mus. Bot. Lugd. iv. 201.

Coffea Novo-Guineensis, Miq. l. c. iv. 259.

COMPOSITÆ.

PLUCHEA INDICA.

Lessing in Schlechtend. Linnæa, 1831, p. 150.

Ratau-River. A new Australian locality for this plant is Port Darwin.

PEDALINEÆ.

Josephinia Grandiflora.

R. Br. Prodr. Fl. Nov. Holl. p. 520.

Ratau-River, Yule-Island and other islands close to New Guinea.

ASPERIFOLIÆ.

TOURNEFORTIA ARGENTEA.

Linn. Fil. Suppl. Plant. 133.

Ratau-River, Yule-Island and on some of the Straits-Islands.

TOURNEFORTIA SARMENTOSA.

Lam. Illustr. 1877.

Mainland opposite Yule-Island and Darnley-Island.

OLEACEÆ.

JASMINUM DIDYMUM.

G. Forst, Florul, Insul, Austr. Prodr. 3.

Mainland abreast of Yule-Island.

J. rupestre, Blume Mus. Bot. Lugd. i. 280, from New Guinea may be perhaps a form of Forster's plant, as far as from description can be judged, the var. contracta mediating the transit.

Visiania undulata, Miq. Flor. Ind. Bat. ii. 548, recorded from New Guinea, may be referable to Olea; its fruit seems unknown.

VERBENACEÆ.

CLERODENDRON INERME.

R. Br. Prodr. 511, et in W. T. Ait. Hort. Kew, sec. edit. vol. iv. 65.
Ratau-River.

VITEX TRIFOLIA.

L. fil. Suppl. Pl. 293.

Ratau-River; the unifoliolate variety; also on various of the smaller islands.

PREMNA INTEGRIFOLIA.

Linné Mantiss. Plant. 252.

Ratau-River and Straits-Islands.

The leaves of a Callicarpa are also contained in the collection.

ASCLEPIADEÆ.

DISCHIDIA NUMMULARIA.

R. Br. Prodr. Fl. Nov. Holl, 461.

The specimens from New Guinea are flowerless, but appear to pertain to this species.

DISCHIDIA TIMORENSIS.

Decaisne in Nouv. Annal du Mus. 377, t. 17.

To this seems to belong a species with ascidia from New Guinea and which extends to North-East Australia, but of which the flowers have on neither place as yet been obtained.

Asclepiadeæ specially mentioned already from New Guinea are:

Dischidia ovata, Benth. in Hook. Lond. Journ. of Bot. 1843, p. 226.

Dischidia peltata, Blume Mus. Bot. Lugd. i. 148.

Gymnema recurvifolium, Bl. l. c. 150.

Pterostelma albiflorum, Bl. in Rumphia, iv. 33, t. 188.

Hoya purpurea, Bl. in Rumph. iv. 30, t. 182.

Hoya globulifera, Bl. Mus. Bot. Lugd. i. 44.

Hoya pruinosa, Miq. Fl. Ind. Bat. ii. 525.

ACANTHACEÆ.

ACANTHUS ILICIFOLIUS.

L. Sp. Pl. 639.

Ratau-River.

CASUARINEÆ.

CASUARINA EQUISETIFOLIA.

R. et G. Forst. Charact. Gen. 103, t. 52.

Cocoa-nut Island.

SCITAMINEÆ.

TAPEINOCHEILOS PUNGENS.

Miq. Annal. Mus. Lugd. iv. 101-102, t. 4.

Ratau-River. The Rev. Mr. Macfarlane observed it on the Baxter's River, lately explored in the *Ellen Gowan*. Mr. Fitzalan found recently this magnificent plant on the Daintree-River, and furthermore it has now also become known from the vicinity of Cape York. It was first for Australia identified in the Fragm. Phytogr. Austr. viii. 26, where also a short note on the fruit was given.

Reedy's collection contains also plants of the genera Cupania, Calophyllum, Semecarpus, Dysoxylon, Pittosporum, Acacia (phyllodineous), Panax, Gardenia, Scævola, Achras, Ficus, Cycas, Licuala, but not in a state to determine their precise specific position. To facilitate a preliminary insight into the vegetation of New Guinea, as far as hitherto known, it may be added, chiefly from Blume's and Miquel's writings,

that there the following genera have representatives:

Wormia, Nymphæa, Anamirta, Chlænandra, Stephania, Pyrnarrhena, Myristica, Polyalthia, Popowia, Orophea, Goniothalamus, Artabotrys, Opilia, Cardiopteris, Lasianthera, Triphasia, Melanococca, Ancistrocladus, Anisoptera, Sapindus, Nephelium, Jægera, Harpullia, Allophylus, Dodonæa, Odina, Mangifera, Canarium, Ganophyllum, Polygala, Saurauja, Tristellateia, Leea, Vitis, Kleinhovia, Melochia, Sponia, Celtis, Gironniera, Fleurya, Procris, Behmeria, Cypholophus, Eriocnide, Streblus, Nepenthes, Chavica, Polygonum, Cyathula, Gomphrena, Liquidambar, Rhizophora, Kandelia, Ceriops, Lumnitzera, Osbeckia, Medinilla. Memecylon, Cinnamomum, Tetranthera, Litsæa, Salacia, Hippocratea. Casearia, Trevesia, Heptapleurum, Tetraplasandra, Gastonia, Osmoxylon, Lonicera, Viscum, Geniostoma, Fagræa, Chætosus, Neuburgia, Kopsia, Pseudochrosia, Tecoma, Ægiceras, Chrysophyllum, Maba, Gnetum, Podocarpus, Areca, Kentia, Orania, Ptychosperma, Caryota, Licuala, Cocos, Korthalsia, Calamus, Dæmonorops, Metroxylon, Nipa, Musa. Freycenetia, Forrestia, Disocorea, Alpinia, Cadetia, Sarcopodium, Podochilus, Appendicula, Cheirostylis, Hetæria (Blume Bijdr. p. 410, but not Hetæria, Endl. Gen. Plant. p. 133, which I have changed to Pritzelia), Apostasia, Xenophya, Rhaphidophora, Pothos, Cryptocoryne, Amorphophallus, Centhotheca, Oleandra, Grammitis, Vittaria.

ORCHIDEÆ.

DENDROBIUM ANTENNATUM.

Lindley in Hooker's London Journal of Botany 1843, p. 236; Bentham Botany of the voyage of H.M. Ship Sulphur, 1844, t. 59.

Glabrous; leaves alternate, coriaceous, lanceolate, not keeled; flowers several in the raceme, greenish-yellow; inner sepals twice as long as the outer ones narrow lanceolate-linear; lateral sepals broadly falcate-semilanceolar, several times longer than the conical-cylindric spur; labellum as long as the outer sepals; its terminal lobe roundish-rhom-boid short-acuminate or simply acute, about half as long as the rest of the labellum; the lateral lobes blunt or rather acute, the whole greenish-yellow and streaked with purple veins, the thickened axis towards the base and towards the junction of the upper lobe raised into two thin plates; the two outer of the three streaks of the upper lobe laminar towards the base; column several times shorter than the labellum; capsule fusiform-ovate, large, the three outer valves forming broad longitudinal bands free and overlapping at their margins.

New Guinea; Hinds.

This orchid, though not contained in Sir Will. Macarthur's sending, is here inserted, as the writer had an opportunity of examining a living plant brought from the Duke of York's Island (between New Ireland and New Britain) by Mr. C. Walter, who while under engagements of the young ornithologist, Baron A. von Huegel, accompanied the Rev. Mr. Brown, of the Wesleyan missions, in his recent voyage, and obtained also on York's Island the rare Bæa Commersoni (R. Br. in Horsf. Plant. Jav. Rar. p. 120) and Coccoloba platyclada (F. M. in Hook. Bot. Magaz. 5382).

The leaves and particularly the flowers of our specimen are rather smaller than those of D. Tokai; the sepals are much more unequal, not of a pure yellow; the labellum is not white and the spur much thinner, while the upper not the lower portion of the labellum is the shortest. D. macranthum from Vanicoro is still more distant. The extension of the inner beyond the outer sepals occurs however in D. Mirbelianum, (Gaudichaud Botanique, Freycenet Voyage autour du Monde, pl. 38), which together with D. veratrifolium, D. bilobum, Saccolabium fasciculatum and Vanda Hindsii was noticed by Lindley from Hinds's New Guinea collection. Dendrobium tridentiferum and D. bifalce and Sacco-

labium quinquefidum (Lindl. in Hook. Lond. Journ. ii. 236 and 237) recorded also from Hinds's gatherings but without locality, may also have come from New Guinea. Miquel (Fl. Ind. Bat. iii. 644 et 645) after Blume mentions from thence D. atropurpureum and D. spectabile. Neither Australian nor Papuan specimens of D. Johannis (G. Reichenb. in the Gardn. Chronicle 1865, p. 890; Xenia Orch. ii. 165; Hook. Bot. Mag. 5540; Benth. Flor. Austr. vi. 279) have been seen by the writer, but Sir Will. Macarthur transmits now this plant from Hammond's Island of the Solomon-Group.

FILICES.

POLYPODIUM PUNCTATUM.

Thunberg Flor. Japon. 337.

Mainland of New Guinea.

P. ferrugineum (Baker in Hooker's Synops. Filic. 318) occurs in Zippelius's Collection of New Guinea Plants. P. stigmosum (Swartz Synops. Filic. 29 et 226) is likewise mentioned specially as a Papuan fern by Baker.

ASPIDIUM MOLLE.

Swartz Synops. Filic. 49.

Mainland of New Guinea.

A. Menyanthidis (Presl. Reliquiæ Hænk. i. 28; A. pachyphyllum, Kunze in der Bot. Zeitung vi. 259) is recorded from New Guinea by Sir Will. Hooker (Spec. Filic. iv. 56).

ADIANTUM ÆTHIOPICUM.

L. Sp. Plant. edit. secund. 1560.

Mainland of New Guinea.

This species was not distinguished by Linné when he wrote the first edition of his famous foundation-work for species.

ASPLENIUM LASERPITIFOLIUM.

Lam. Encycl. Méthodiq. i. 310 (1783).

Ratau-River and coast opposite Yule-Island. Dr. Hinds brought from New Guinea A. scandens (J. Sm. in Hook. Spec, Filic. iii. 216).

ASPLENIUM FALCATUM.

Lam. Encycl. Méth. i. 306.

Ratau-River.

PTERIS LONGIFOLIA.

L. Sp. Pl. 1074 (edit. prim. anno 1753).

Yule-Island.

PTERIS TRIPARTITA.

Swartz Synops. Filic. 100 et 293.

Darnley-Island.

In the damp jungles of New Guinea numerous species of this and other large genera of ferns must occur, the commoner species of which would not always be recorded in general works from any particular regions such as those of Papua.

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