

XIII. THE BOTANY OF GUNONG TAHAN, PAHANG.

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STRAITS SETTLEMENTS.

As it was intended to collect as thoroughly as possible on the highest mountains of the Tahan Range, the plant-collector who was sent ahead with the baggage to Wray's Camp was instructed not to collect till he reached that point, an altitude of 3,300 feet. Unfortunately he was attacked with Malaria immediately he arrived there, and was sent back after our arrival. I had, however, thanks to the kindness of Mr. Robinson, the use of two Dyaks in collecting, who proved very useful and were excellent plant-collectors. The Europeans of the party, Mr. H. C. Robinson, Mr. C. B. Kloss, and myself, started from Kuala Lipis in a house-boat on June 27th, arrived at Kuala Teku on July 3rd, and reached Wray's Camp July 6th, where regular collecting commenced.

No attempt was made at collecting before this point was reached, as the plain country through which run the Pahang and the Tembeling Rivers had been fairly well investigated in my first trip in this region in 1890, as had also the forest-flora of the Tahan River. The account of the plants collected there was published in the 'Transactions of the Linnean Society, Botany,' series 2, vol. iii. pp. 267-408.

These two distinct floras are very different from any floras of the west coast of the Peninsula, that of the plains containing many more of the typical Siamese plants, as well as an additional number of Australian types, missing on the east coast.

A few notes taken *en route* from Kuala Lipis to Wray's Camp, however, may be added here. At Jeram Ampai, in the Tembeling River, while the boats were being drawn up the rapids, I found a new species of *Hedyotis*, described later, in company with *Phyllanthus chamaepeuce*, Ridl., on the rocks, and observed *Passiflora fetida* abundant on the river-bank at Pasir Stengah Laut. This South-American plant, introduced into cultivation in Singapore many years ago, seems now to have spread very widely over the whole peninsula, no doubt dispersed by birds.

Along the Tahan River the Nerrum, *Dipterocarpus oblongifolius*, was in flower as we went up and fruiting on our return,

NOTE.—The Collection on which this paper is based was made by the author in the course of an expedition to Gunong Tahan in July and August 1912 carried out by the F.M.S. Museums. It was intended to form part of a general account of the mountain, the publication of which has been delayed through various causes, though the greater part is in print.

In order to secure earlier publication of the various new species Mr. Ridley's paper is therefore printed here and apologies are due to the author for the delay in the issue, which has been unavoidable. ED.

and was connected in the form of cool dry tableland with Mt. Kinabalu on one side and Gunong Kerbau and Mt. Ophir on the other. This tableland was—at least, in part—of granite, for both Kinabalu and Mt. Ophir are of granite. This was the state of affairs in Tertiary times, when this Australian flora, of which we have these few relics left, covered this country.

PLANTS OF THE MOUNTAIN ABOVE 3,300 FEET.

POLYPETALÆ.

ANONACEÆ.

1. POLYALTHIA PULCHRA, *King*; *antea*, p. 43. Woods by the Teku River at 4,600 feet altitude.

Distribution. Gunong Bubu and Gunong Kerbau, 4,200 feet.

This is here a moderate-sized tree with large leaves, and flowers 3 inches across, pendulous from the ends of the branches, yellowish white with a purple blotch at the base. It differed a little from the type-form in having the base of the sepals on the back and the petals pubescent. The flowers, though large, can hardly be said to be very beautiful, as their colouring is dull; but they possess the most extraordinarily strong perfume of Magnolias, so powerful that I could easily perceive the odour after the flowers were put in the collecting-book and carried some yards away.

POLYGALACEÆ.

*2. POLYGALA MONTICOLA, *Ridley*, *Journ. Linn. Soc., Botany*, xxxviii. p. 303 (1908); *antea*, p. 44. Common in the woods of the Padang. This pretty shrublet varies in size, and is not rarely branched. The flowers are white, with the petals deep rose-pink. The capsule is flattened, usually purple when ripe, the small black seeds enclosed in an orange-scarlet aril.

Distribution. Gunong Semangko, Gunong Bubu, Gunong Kerbau, 6,000 feet, and Benom.

PITTOSPOREÆ.

*3. PITTOSPORUM sp., *Ridley*, *op. cit.* p. 303. This plant, first collected by Robinson, is not rare in the open woods on the Padang, but no trace of flowers or fruit were to be seen.

GUTTIFERÆ.

*4. CALOPHYLLUM VENUSTUM, *King*; *Ridley*, *op. cit.* p. 304. A common small tree, about 20 feet tall, in open woody places on the Padang, at 5,600 feet elevation.

Distribution. Perak.

5. GARCINIA MONANTHA, n. sp.

A small tree, the bark of the branches grey. Leaves coriaceous, ovate or lanceolate-ovate, acuminate, acute, cuneate, 3 inches long, 2 inches wide; nerves 25 pairs, invisible

*Species thus marked occur in the original collection from this mountain (Journal Federated Malay States Museum 11 pp. 107-142 (1909).

226. SARCOCHILUS VIOLACEUS, n. sp.

Stem broad, flattened, 3 inches long. Leaves lorate, keeled, apex unequally bilobed, tips rounded, short, blunt, thickly coriaceous, dark green, purplish beneath, 4 inches long, half an inch wide. Raceme $1\frac{1}{2}$ inch long, lengthening gradually, subterete, with short-ovate bracts. Pedicels $\frac{1}{4}$ inch long. Flowers half an inch long; upper sepal lanceolate-acute, lower ones ovate-triangular, gibbous at base, whitish violet outside, violet within. Petals narrower, lanceolate-acute, violet. Lip white; side-lobes obliquely ovate, incurved; epichil low, indistinct; spur fleshy, ovate, subacute, with a brown bar near the mouth, and numerous white and some brown hairs within. Column stout, white, base brownish; steldia thick, incurved. Anther semiglobose. Stigma very small, subtriangular.

On trees along the stream at the Ninth Camp. Not common. A very distinct plant in its thick leaves and violet flower. The lip has much the shape of that of *Sarcochilus calceolus*. The roots are very stout and corky.

*227. THRIXSPERMUM SCORTECHINII, *Ridl. op. cit.* p. 330.

Woods on the Camp stream, Padang. Not common.

Distribution. Malay Peninsula.

228. PODOCHILUS SCIUROIDES, *Rehb. fil.* Very common on trees in the woods on the Padang.

Distribution. Malay Peninsula.

229. PODOCHILUS TENUIS, *Lindl.* Mossy stones on the Padang woods. Not common. Leaves more spreading than usual. Out of flower.

*230. ACRIOPSIS JAVANICA, *Bl.*; *Ridl. op. cit.* p. 330. On trees, rare. Flowers not seen.

231. HETÆRIA ELEGANS, *Ridl. op. cit.* p. 330. Woods by the Teku, nearly out of flower. Endemic.

232. CRYPTOSTYLIS ARACHNITES, *Bl.* Wet woods by the stream on the Padang and near the Gully.

Distribution. India, Ceylon, Malay Peninsula, and Java.

*233. HABENARIA ZOSTEROSTYLOIDES, *Hook. fil.*; *Ridley, op. cit.* p. 330. Very common on the Padang, both in wet woods, where it attains the height of two feet with well-developed leaves on the stem, and in damp open spots on the Padang, where it is reduced to a height of 6 inches, with the stem-leaves reduced to little more than sheaths. It ascends to a height of 7,186 feet. Flowers bright green.

Distribution. Mt. Ophir and Perak hills.

*234. CYPRIPIEDIUM ROBINSONII, n. sp.

Cypripedium barbatum, *Ridl. op. cit.* p. 330.

Stems frequently stoloniferous. Leaves few, about four, elliptic-oblong, subacute, glabrous, 3 inches long $1\frac{1}{2}$ inch wide, pale green with darker spots and transverse bars. Peduncle erect, over a foot tall, purplish, hairy, half an inch long. Flower solitary. Upper sepal broadly ovate, narrowed at the

base, apex somewhat abruptly acute, base dull purple, above pale green, darker at the edges and the tip, hairy, $1\frac{1}{2}$ inch long, $\frac{3}{4}$ inch wide. Lower pair shorter, ovate, pale green, acute, hairy. Petals 2 inches long, spathulate, broadest towards the tip, which is subacute, half twisted at the base, - glabrous; margin dull yellowish green with a longitudinal purple central bar, many round spots. Lip glabrous, purplish, $1\frac{1}{4}$ inch long, $\frac{3}{4}$ inch wide. Anther orbicular, widely emarginate at the tip and retuse behind, yellowish with a green centre. Fruit cylindric, narrowed at each end, 2 inches long.

Common in woods near the streams, growing in deep moss, in shady spots at an altitude of 5,600 feet on the Padang.

Certainly allied to *C. barbatum*, Lindl., but distinct in the smaller abruptly, acuminate upper sepal and petals without hairs on the glandular dots. The leaves are much smaller than in most specimens of *C. barbatum*, Lindl.

APOSTASIACEÆ.

*235. APOSTASIA NUDA, Br.; *Ridl. op. cit.* p. 330. Banks of the stream at the Padang Camp.

Distribution. The whole Peninsula.

SCITAMINEÆ.

*236. HEDYCHIMUM COLLINUM, *Ridl. op. cit.* p. 331. This beautiful and fragrant plant grows near the Gully and on the stream-banks on the Padang, but is not common. It has only been previously met with on Kedah Peak and is allied to *H. Gomezianum*, Wall.

237. [ALPINIA PETIOLATA, *Bak.* Was found near Wray's Camp at 3,300 feet. Occurs also in Perak.

238. A. MURDOCHII, *Ridl.* Also grows here. It was found in flower and fruit.]

239. CAMPTANDRA TAHANENSIS, n. sp.

Whole plant 5 or 6 inches tall, succulent. Sheaths four or five on the stem, lanceolate, acute, lower ones ribbed when dry. Leaves 2 to 4, ovate-acuminate, caudate, obliquely bright green, 3 to $3\frac{1}{2}$ inches long, $1\frac{1}{4}$ inch wide; petiole 1 inch long. Peduncle $\frac{1}{2}$ to $\frac{1}{4}$ inch long. Bract urn-shaped, top rounded, $\frac{1}{2}$ - $\frac{3}{4}$ inch long, green, containing two flowers. Calyx cylindric, $\frac{1}{4}$ inch long, truncate, slightly dilated upwards, reddish, persistent in fruit. Corolla-tube slender, half an inch long, protruding far from the top of the bract; lobes white, $\frac{3}{4}$ inch long, oblong. Lip large, obovate, with two yellow central semiovate longitudinal keels. Capsule oblong, $\frac{1}{4}$ inch long.

Gunong Tahan, abundant in damp spots by streams, but nearly over in July. Allied to *C. ovalifolia*, *Ridl.*, of Semangkok Pass, but with larger flowers, with longer tube to the corolla, and different lip.

The second flower in the bract opens about the time that the fruit of the first flower is ripe.