

*Asplenium macrophyllum*, Swartz. Tanjong Tembeling at Kuantan, No. 223.

Distr: All through the Peninsula, on the western side; from the eastern side only obtained as yet in Pahang.

*Lycopodium Phlegmaria*, Linn. Tanjong Tembeling at Kuantan, No. 224.

Distr: Throughout the Peninsula.

I. H. BURKILL.

## ORCHID NOTES.

So little is known of the botany of eastern Johore that it is of interest to record the receipt from Mr. St. V. B. Down, of the following three orchids collected by him on the Sedili river near Dohol:—

*Eria vestita*, Lindl.

*Eria velutina*, Lindl., 30 feet above the river on a *Lagerstroemia indica*, associated with *Drynaria*.

*Dendrobium Serra*, Lindl.

### ***Dendrobium crumenatum*, Sw.—the Pigeon-orchid.**

From Mr. F. J. Hallifax, President of the Municipal Commission, Singapore, the Gardens have received specimens of a salmon flowered *Dendrobium crumenatum*, Sw. The plant grows on Goodwood Hill, Singapore, uncultivated, in Mr. Hallifax's garden. Its stems are of a bright chestnut colour.

### ***Thecostele secunda*, Ridl.**

*Thecostele secunda*, Ridl., flowered in the Botanic Garden, in October, 1914, producing four downwardly directed (rigid, not pendulous) racemes with respectively 6, 7, 11 and 17 horizontal flowers. It flowered again in April, 1915. The plant was brought from Sarawak, by Mr. J. W. Anderson, in 1912. Its leaves measure 9 by 1½ inches.

A description of the colour of the flower is desirable. The interior sepal is honey-coloured with a slight claret flush outside near the tip and a light claret median line within in the lower half; the lateral sepals are similarly coloured but the line within is obscure. The lateral petals are honey-coloured becoming paler towards the tip, the margin below this pale part and the median line within being claret. The lip has on the median lobe a whitish ground with a well defined claret V in the centre and ill defined lateral Vs on each side of it merged into it at the contiguous extremities. These are formed by claret coloured hair; a small yellowish honey-coloured spot lies above the central V with a claret dot on each side of it,



and beyond are three claret dots, the erect lateral being just under the two crests of the lip; the lateral lobes are liver coloured on both sides with a white border and a patch of claret coloured hair inside the fold at the base.

The column has lines of pale claret below and is a deep dull maroon above with the stigma greenish white, the anther wall pale claret and the side lobes tipped as if with grey wax.

The surface of the column foot over the nectary, directed to the inside of the flower, is white: at the head of its cavity is an orange coloured nectary of considerable size which secretes abundant honey.

Every bract, before the flowers are mature, has a nectary at the centre outside which secretes a tiny drop of clear honey. When the buds are young the apex of the axis bearing them bends up straightening itself as they approach maturity.

Five species of *Thecostele* are known, occurring from Burma to Borneo and Java: and the road to their honey is so crooked that it would be most interesting to ascertain what insects visit the flowers.

### ***Microstylis congesta*, Reichb. f.**

Among the orchids brought back by Mr. J. C. Moulton from the slopes of mount Kinabalu, were living specimens of *Microstylis congesta*, from which the following notes have been made: for even though the orchid is well known in herbaria, a description from life of the flowers is worth giving.

Of the several plants of the orchid sent to the Botanic Gardens the largest bore seven full sized bright green leaves.

Before opening the buds ascend very slightly from the horizontal; but when the flower has opened the ovary curves slightly so that the flower faces a little down from the horizontal. During flowering the ovary straightens itself again, and after flowering it ascends so as to lie as close to the axis as possible. The bracts are lanceolate, very acuminate, and become strongly reflexed early, remaining so; they are pale green.

The sepals are green with a tinge of purple which increases through flowering. The lateral sepals curve round from behind the labellum towards one another but do not meet by about  $1\frac{1}{2}$  mm.; they are  $4\frac{1}{2}$  mm. long and when flattened 2 mm. broad; but owing to the way in which they are folded back along their midrib their edges are not more than  $1\frac{1}{2}$  mm. apart. The dorsal sepal (the sepal which would be dorsal if the ovary were twisted) is longer and narrower than the lateral sepals; it is curved forwards so that its point comes to the front of the flower just under and almost from between tips of the lateral sepals; length 5 mm. breadth  $1\frac{1}{2}$  mm.: These three sepals make a landing stage for visiting insects.



The lateral petals are similar in colour to the sepals. They are curved a little—less than the lateral sepals—and project outside them; length  $3\frac{1}{2}$  mm., breadth 1 mm. or a little more.

The lip is emerald green with malachite green at the lateral borders. Its centre forms a shallow flat bottomed recess. The borders of this recess are thickened particularly below and less so at the sides.

The sides of the lip are parallel and drawn forward on either side of the column, but they end rounded below and not in auricles. The apex has three teeth, of which the central is bent back on the limb through about 40 degrees. From base to apex of this tooth, the lip, measured outside, is 3 mm. long, but inside it is so attached to the column that there is less than 2 mm. free. If the lip be flattened it is found to be  $2\frac{1}{2}$  mm. across.

The column is emerald green. The anther wall after the flower opens shrivels and frees the pollinia upwards. It seems probable that pollen can reach the stigma without the intervention of insects. But the parts are so small that it is very difficult to ascertain what usually happens.

After flowering a purple line appears on the ovary down the dorsal face from top to bottom, and two smaller fainter lines appear on the ridges on either side: these ridges are slightly frilled.

In the Annals of the Royal Botanic Gardens, Calcutta, viii., (1898) on plate 23 is figured the Sikkim form of this species. The flowers of which are "red or occasionally yellow" (p. 20).

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## THE SINGAPORE PRICKLY-PEAR.

The Prickly pear which may be seen near the coast about Tanjong Katong, on various roofs in Singapore town, sometimes in Chinese gardens and often in pots in Chinese houses, is *Opuntia monacantha*, Haw., and not *Opuntia Dillenii*, Haw., as recorded.

Its home is in south-eastern Brazil, along the coastal districts; in which place it must have attracted the attention of early voyagers, for there is a figure sufficiently accurately representing it in Lobel's Icones which was published in A. D. 1591.

It was certainly in English Winter-gardens about 1700; and long before 1790, at which date the records for India begin, it was taken to Southern India and Bengal so that in 1790 it had already become widely distributed from Madras to Calcutta; there is reason to believe that it was in Cochin-China also at the same period. The shoots were supplied to ships for a vegetable because, although