

drainage without filling would be impossible unless a free escape of the water into the Gardens was allowed. This free escape was asked for: and it was a great disappointment to feel obliged to concede it, for concession meant the undoing of the water channels in the dell which had been so newly completed.

The concession was made on the ground that the Gardens had no claim to a head of water found to be due to the sluice in the Tyersal grounds being out of order. Thereupon a rearrangement of the dell was commenced, with the intention of keeping its features. In the rearrangement the beds of the two pools were sunk about two feet, united into one, and the Tyersal drainage water was conducted by an "Armco" pipe into the top of the former dumb-bell shaped pond, and out again by another "Armco" pipe into the lake. The sides of both ponds were concreted. By the lowering of the level and because of the wideness of the "Armco" pipe these ponds were thereby made into a part of the lake; and the abundant fish of the lake, which allow no mosquitos to mature, have access to them.

Now a great part of the beauty of the oval and dumb-bell ponds was that they lay open at the visitor's foot, not being sunk at all. The new pond however, being of necessity sunk, threatened to lack beauty in this respect. There was made therefore a path right across the dell bridging the water close against its surface and skirting the edge of what is left of the oval pond, in reality occupying part of the old bed of that pond, having on its north side the wall of one of the irrigating tanks of 1916. This wall is becoming beautiful by reason of a coating of *Ficus repens*.

The mounds, which now lie as in plan no. 4, are given severally to different forms of vegetation.

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Tulang Daing or Sisik Puyuh

Carallia suffruticosa

Tulang daing means dried fish bones, and sisik puyuh means puyuh-fish skin: both these names belong to a small tree with serrations on the leaves that suggest the bones of a dried fish seen through the skin, which is exclusively used by the Malays of Perak and Pahang as a medicinal herb, but has hitherto remained rather strangely obscure. After much search it has been identified with *Carallia suffruticosa* Ridley (in Journ. Str. Br. Roy. As. Soc. 61, 1912, p. 6): and it is clear that *Carallia spinulosa* Ridley (in the same Journal, no. 82, 1920, p. 184) does not adequately differ.

The type of the first of these two names came from Dusun Tua, upon the east of Kuala Lumpur in Selangor: and that of the second from Tanjong Malim on the Selangor-Perak border. It extends southwards and has been found at Pulau Sebang in Malacca (Burkill 1960). As a medicinal herb, foliage has been got from Grik in northern Perak; and in Pahang from Budu in the Kuala Lipis district, from Beserah in the Kuantan district, and from Bentong. Mr. Ridley records *C. spinulosa* as occurring in Tonkin also.

The chief use that the Malays make of it is as a poultice for the ripening of boils; but it is also given internally under the idea that it is good for expelling worms, and as one of the innumerable herbs administered speculatively to women during the first three days after childbirth. It is again reported as one of several plants which at Grik are used in a decoction for a bath during fever.

The difference between *C. suffruticosa* and *C. spinulosa* is said to be in the inflorescence: but there is none: in both it is cymose. It was in flower and fruit as Tanjong Malim in February 1904, in bud at Dusun Tua in May 1896 and in flower at Pulau Sabang in August 1919.

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Teratological Notes

A.—Abnormalities in Coconut Palms.

I. Polyembryony. On p. 275 of this *Bulletin*, Vol. III, it was stated that the various references which had been consulted by me on the question of polyembryony in coconuts were not sufficiently clear as to make one to be quite positive about the occurrence of the phenomenon in coconuts. Cases, however, have come to my notice which prove beyond all doubt that polyembryony does occur in coconuts.

The ovary of coconuts, it will be remembered, is three-celled, two of which usually become abortive at an early stage of development, only one attaining maturity. The fruit consists of a thin outer skin or *epicarp*, below which is the thick fibrous *mesocarp* surrounding the hard shell or the stony layer of the nut. This shell is formed mainly of the *endocarp*, but the outer integument of the seed is also represented in it as a lignified inner lining of the shell (fide Juliano)¹. Inside this stony layer is the solid

1. Juliano, J. B.—Origin, Development, and Nature of the Stony Layer of the Coconut (*Cocos nucifera* L.). *Philippine Journ. Sci.*, XXX (1926), p. 187-200, pl. 3.

Winton, A.L.—Anatomy of the Fruit of *Cocos nucifera*. *Am. Journ. Sci.*, XII (1901), 265-280. Quoted by J. B. Juliano.