

A HYBRID DIPTEROCARPUS.

D. obtusifolius × *D. costatus*.

The occurrence of a natural hybrid between two species of *Dipterocarpus* is of considerable interest, no hybrid, as far as the writer is aware, having been hitherto described in this Natural Order.

The parent species of the hybrid were *D. obtusifolius*, Teysm. and *D. costatus*, Gaertn., the latter probably supplying the pollen for the cross. These two species range through about the same degree of altitude on Doi Sutep, where the hybrid is found. *D. costatus* grows in the valleys in fairly dense evergreen jungle, while *D. obtusifolius* is found on the open ridges bordering the valleys. The hybrid grows in a situation between these two, that is, where the open jungle merges into the evergreen of the valley, somewhat on the side of the open jungle. Three of these hybrids have been met with, two of them close together the other about a mile away, but all in the same kind of situation and all with the characteristic fruit. In each case there are trees of *D. obtusifolius* growing within a few yards of the hybrid while the nearest *D. costatus* is at least one hundred yards away. This makes it probable that, to produce the hybrid, *D. obtusifolius* was fertilised with the pollen of *D. costatus*, if it had been the other way about the hybrids would more likely have been in the evergreen near *D. costatus*, the fruits of these trees being carried to no great distance by the wind.

Attention was first drawn to these hybrids owing to their fruit which resemble those of *D. obtusifolius* but are distinguished by having irregular ridges on the calyx tube.

The three hybrid trees are all lofty ; one of them in particular reaches a height of about one hundred feet, which is considerably higher than the usual tree of *D. obtusifolius*, though *D. costatus* often attains or exceeds this height. This large tree has been tapped for oil, this is frequently done in the case of *D. costatus* but not *D. obtusifolius*, of which the naturally exuding resin only is used in this locality.

The following descriptions are based on material from the above mentioned large tree, which grows in a more easily accessible situation some distance from the other two trees.

The leaves in size and indumentum resemble those of *D. obtusifolius* but, with their acuminate or acute tip, they are nearer in shape to those of *D. costatus*.

The flowers in size are about midway between the flowers of the parents. In all the flowers the calyx tube is marked by distinct more or less irregular ridges. The stamens and ovary shew some variation; in the first flower examined all the stamens were reduced to sterile scales while the ovary consisted of four imperfect carpels which were quite free from each other, one of them being slightly smaller than the other three, there was no sign of a style; in three other flowers the ovary seemed normal in every way but the stamens again were only scales; in a fifth flower both ovary and stamens were normal, the stamens were dehiscing and shedding their pollen. Unfortunately there were not enough flowers available to enable an estimate of the relative frequency of these abnormalities to be made. Similar conditions are very frequently found in other hybrids.

The fruit, the most characteristic feature of this hybrid, is slightly smaller than the average fruit of *D. obtusifolius* but a good deal bigger than that of *D. costatus*, the enlarged calyx wings resemble those of *D. obtusifolius*; from both species it differs in the ridges on the calyx tube which, unlike those of *D. costatus*, are quite irregular, often they do not run the full length of the calyx tube but start from the middle, or they may commence at one end of the calyx tube as a very slightly raised line finishing at the other as a well marked ridge. The fruit of *D. obtusifolius* has, of course, no ridges.

An attempt was made to germinate two of the fruit of the hybrid, but they showed no sign of germination after ten days while two out of three fruit of *D. obtusifolius* put down at the same time germinated in three or four days.

The following table gives the chief distinctions between the hybrid and its two parents :—

<i>D. obtusifolius.</i>	<i>D. costatus.</i>	<i>The Hybrid.</i>
Leaves with obtuse tip and cordate or rounded base, in size to 23 × 18 cm.*	Leaves with acute or acuminate tip, base acute or rounded, in size to 11 × 7 cm.	Leaves with acute or acuminate tip, base acute or rounded, in size to 16 × 9 cm.
Calyx tube in flower about 1.5 cm. long.	Calyx tube in flower about 0.7 cm. long.	Calyx tube in flower about 0.9 cm. long.
Corolla 4-4.5 cm. long.	Corolla about 2 cm. long.	Corolla 3-3.4 cm. long.
Stamens 1.5 cm. long.	Stamens 1 cm. long.	Stamen (normal) 1.15 cm. long.
Fruit without ridges on calyx tube.	Fruit with regular ridges running the whole length of calyx tube.	Fruit with irregular ridges some of which do not run the whole length of the calyx tube.

* The measurements of leaves are from leaves of full grown trees. Saplings have very much larger leaves.

EXPLANATION OF PLATE.

- Figs. 1 & 2. Fruits of the hybrid, *Dipterocarpus obtusifolius*
× *Dipterocarpus costatus*.
- Fig. 3. Fruit of *Dipterocarpus obtusifolius*.
- Fig. 4. Fruit of *Dipterocarpus costatus*.
- Fig. 5. Stamen of *Dipterocarpus obtusifolius*.
- Fig. 6. Stamen of *Dipterocarpus costatus*.
- Fig. 7. Normal stamen of the hybrid.
- Fig. 8. Normal ovary and stamens of a flower of the hybrid.
- Fig. 9. Abnormal ovary and stamens from another flower
of the hybrid.
- Fig. 10. One of the sterile stamens from the same flower
as fig. 9.
- Figs. 1—4. are drawn to the scale at the foot of the plate.
- Figs. 5—10. twice the magnification of the scale.





