

structure (ov) which lies slightly displaced by the proliferating axis (ax); there is no evidence of any style or stigma, nor of any ovules or ovule-like bodies. The ovary-like organ, which is much shorter and thicker than the normal ovary, is not a closed chamber (Fig. 3) but in cross-section appears like an infolded leaf recalling a transition stage in the familiar derivation of a closed ovary from a leaf by the infolding of the margins. Both the inner and the outer surface of this 'ovary' are covered by hairs (not shown in Fig. 3). It is possible that this structure is a case of 'phyllody' of the carpel, of which several examples are given by Masters⁴, Worsdell⁵ and Kausik⁶ though not in this species. My specimen differs from these in the absence of all trace of ovules or ovule-like bodies, and in the fact that the 'ovary' is not leaf-like in form but to all appearance looks like an ovary, only a section showing a resemblance to a transversely cut leaf blade.

(e) In the centre of the flower occurs a small shoot (ax) bearing a pair of young compound leaves with a growing stem tip between them—obviously a case of proliferation, many examples of which are cited by Masters (*l.c.*, p. 138) and by Worsdell (*l.c.*, pp. 16-17). The basal part of this axis is fused up with the stalk of the imperfect 'ovary' which has been displaced to one side by the axis. Masters (*l.c.*, pp. 139, 258) says that in proliferated flowers the pistils become 'disunited and leaf-like', a condition seen also in the flower here described.

The nature of the stumpy appendage (x) borne on the pedicel is difficult to determine. It may be a bract carried up on the peduncle, while its axillary hump (t) may be a foliar or flower bud, and this seems plausible in view of the proliferation of the vegetative axis through the flower. Another possibility is that it is a much reduced leaf bearing in its axil a gland similar to those that occur normally in the leaf axils of this species. Or the hump may be an undeveloped leaf bud, while the stump is stipular in nature.

The flower is interesting because it combines in itself a number of abnormalities, e.g., petaloidy, suppression, phyllody, proliferation, etc., some of which have not been described in this plant.

My thanks are due to Mr. B. B. L. Srivastava, B.Sc., who drew my attention to this flower.

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University of Lucknow,
September 5, 1942.

¹ See Penzig, *Pflanzenanatomie*, 1921, 2, 280; the original work by Harris has not been seen by me.

² Madge, *Ann. Bot.*, 1929, 545-77.

³ West, *Ibid.*, 1930, 44, 87-109.

⁴ Masters, *Vegetable Teratology*, 1869, 256.

⁵ Worsdell, *Principles of Plant Teratology*, 1916, 2, 123-24, 193-95.

⁶ Kausik, *New Phytol.*, 1938, 37, 396-408.

ON THE ALLEGED INHIBITORY INFLUENCE OF *TRICHODESMIUM*

ON page 243 of *Current Science*, Vol. 11, No. 6, dated June 1942,¹ John and Menon observe: "..... our observations in regard to certain points dealt with by Devanesan are at variance with his."² The alleged inhibitory influence of the alga *Trichodesmium* in the Travancore coast should be a regional one. The observations made in this Biological Station from 1924 lead one to infer that the inhibitory influence of *Trichodesmium* is due more to its occasional profusion³ than to its unpalatable qualities. It seems to be a case of glut in the sea when on account of the sheer thickness of the floating *Trichodesmium* layer, the fish may react negatively to it. *Trichodesmium* has been recorded here as an occasional item of diet of the Mackerel, the Oil-sardine, the Sprat (*Sardinella gibbosa*) but frequently enough not to be regarded as accidental inclusions in the diet.

Another case in point is the Cystoflagellate *Noctiluca* whose swarms are alleged to cause

even local scarcity of the Oil-sardine shoals. Even *Noctiluca* is not free from being accidentally eaten by fish, for recently on 30-7-'42, a specimen of *Leiognathus splendens* examined here had *Noctiluca* in its stomach.

The explanation for the absence of fish-eggs in the stomach contents of the Oil-sardine and the Mackerel may be very simple after all, if one investigates the presence or absence of fish-eggs in the area. If the sea off Travancore is not a breeding-ground for fishes in general during the period when the shoals of these two fishes appear there, then it would be unreasonable to expect fish-eggs in their food. The sea opposite West Hill abounds in fish-eggs during certain months when the Oil-sardine and the Mackerel appear.

K. CHIDAMBARAM.

West Hill,
August 22, 1942.

¹ John and Menon, *Current Science*, 1942, 11, 243.

² Dr. Devanesan, *Ibid.*, 1942, 4, 142.

³ Gilchrist, *Marine Biological Reports* (Union of S. Africa), 1914, No. 2.

It is not our intention to criticise or dispute the observations made by Dr. Devanesan. From Mr. Chidambaram's note it is evident that the inhibitory influence of *Trichodesmium* on fishes is a phenomenon which has been observed in the West Hill Biological Station also. Citing Gilchrist he says that this phenomenon is due more to its (*Trichodesmium*) occasional profusion than to its unpalatable qualities. In our previous note it was pointed out that large patches of *Trichodesmium* appear in the in-shore waters of this coast at irregular intervals during December to April. When it occurs it does so in great numbers. During other months it is absent from the plankton. It is therefore natural that *Trichodesmium* occurs very rarely in the gut contents of the fishes of this coast. Mr. Chidambaram does not give any information regarding the seasonal distribution of the

alga in the Calicut waters. A comparison of its seasonal variations in the two regions might explain the far too great frequency of this alga in the gut contents of the mackerels and other fishes of the Calicut coast.

Mr. Chidambaram observes that the absence of fish-eggs in the dietary of the Oil-sardine and mackerel can be explained "if one investigates the presence or absence of fish-eggs in the area". Our investigations have shown that fish-eggs are a common feature of the plankton of this coast during the mackerel and sardine seasons. So Mr. Chidambaram's hypothesis does not explain the absence of fish-eggs in the dietary of the Oil-sardines and mackerels of this coast.

C. C. JOHN.

M. A. S. MENON.

Marine Biological Laboratory,
Shankummughom, Trivandrum,
September 15, 1942.

STUDIES IN PHILOSOPHY

I THANK the reviewer for the generally appreciative tone of his review of my book "Studies in Philosophy", appearing in the July 1942 issue of *Current Science*. But it is my duty to offer a few words to correct certain misapprehensions that may be caused by some of his critical remarks.

1. Dr. Sarma objects to my characterisation of Dvaita as a species of Concrete Idealism.... I would only say that in my considered opinion that phrase 'Concrete Idealism' is less misleading than Dr. Sarma's Radical Realism. Ontological idealism is quite consistent with epistemological realism. Idealism is protean in its forms. Parmenides, Plotinus, Kant and others belong to one type. But Hegel, Lotze, Pringle, Pattison, Sir Henry Jones and others belong to another. Dvaita resembles the latter in essential respects. Further, Dr. Sarma's critical note on terminology is rather misleading regarding the point and scope of my