HERMAPHRODITISM IN *POLYDACTYLUS INDICUS* (SHAW)

A HERMAPHRODITE *Polydactylus indicus* measuring 92.5 cm. in furcal length was collected during the observations on the landings of the Government of India fishing vessel ' Kalyani V ' at Sassoon Docks on the 5th February of 1969. Subsequently some more hermaphrodite specimens were collected in the same month and the next from the landings of the Government of India trawlers and the New India Fisheries Company's trawlers. The fish catches were from Cambay, Dwarka and Kutch regions.

The distinct testicular and ovarian parts of each of the two ovotestes run very closely parallel to each other from one end to the other end of the gonad and while the former of the two sides are placed facing each other in close association with the main blood vessels connected with the ovotestes, the latter are to the outer side, i.e., facing towards the lateral body walls. Figure I shows a well marked connective tissue layer separating the testicular and ovarian parts. The ovotestis is immature, the ova in the ovarian part being very small measuring about 0.08 mm. in diameter. In the testicular part the male sexual elements are noticed in various stages of spermatogenesis with some fully formed sperms scattered in small bundles here and there.

The close similarity in the arrangement of the two component parts of the ovotestes in the right and left gonads in this fish and the other two species *Polynemus heptadactylus* (Nayak, 1959) and *Eleutheronema tetradactylum* (Patnaik, 1967) of the family polynemidae is so striking that one is prone to conclude that this character might be of a common family trait. In this regard it may be stated that a close watch on the gonadial condition of other members of the family polynemidae is likely to furnish very useful information on the subject. It is also worth noting

that hermaphrodite individuals have been observed to occur in high proportion, from 2 to 45 per cent in *P. heptadactylus* in the different monthly samples (Kagwade, 1968). In the months of February and March 1969, it has been found that every sample of *P. indicus* examined, contained some hermaphrodite individuals.

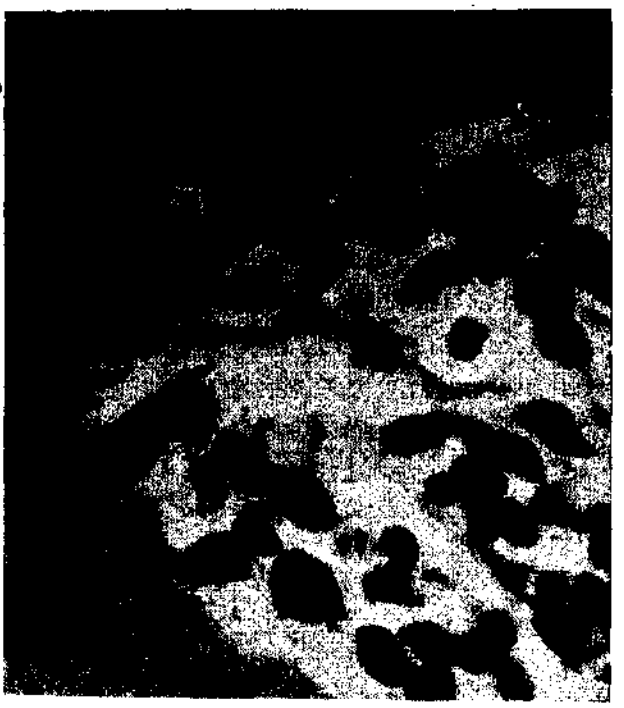

FIG. 1. Transverse section of a hermaphrodite gonad of *Polydactylus indicus*, X 150. TE. testicular part, OV. ovarian part and CT. connective tissue layer.

In a good number of fishes in which hermaphroditism occurs abnormally, the different components of the gonads have diverse arrangements. It may be that one of the two gonads may be of one sex while the other is of another sex as in *Rastrelliger kanagurta* (Prabhu and Raja, 1959) or one of the gonads may be an ovary and the other an ovotestis as in another stray individual of *R. kanagurta* (Rao, 1962) and in *Sardinella longiceps* (Raja, 1963) or both the gonads may be ovotestes as in *Hilsa toli* (Chacko and Krishnamurthy 1949) and *Katsuwonus pelamis* (Raju, 1960).

The identical arrangement of the ovarian and testicular elements in the two ovotestes of the three polynemid species so far studied and also the high percentage occurrence of the hermaphrodite individuals seem to suggest that hermaphroditism in this group of fishes is hereditary rather than abnormal. The ovotestis appears to be functional as pointed out by Kagwade (*loc. cit.*) in the case of *P. heptadactylus*.

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