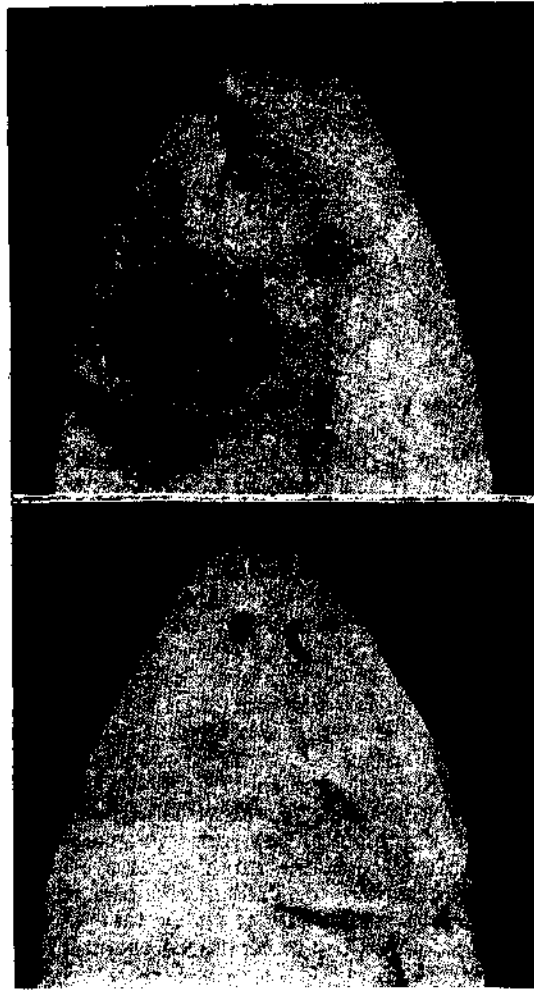


AN INTERESTING CASE OF AN ADULT SOLE (*CYNOGLOSSUS SEMIFASCIATUS* DAY) WITH A NORMAL EYE ON THE 'BLIND' SIDE OF THE HEAD

It is well known that a very important phenomenon accompanying the metamorphosis in the Flatfishes (Heterosomata) is the migration of one of the eyes of the symmetrical larva to the opposite side so that ultimately both the eyes are on the same side of the body namely, the coloured side. In the case of the Malabar sole (*Cynoglossus semifasciatus* Day) Seshappa and Bhimachar 1955 have described the various stages in the migration of the eye, the migrating eye being that of the right side. They have also mentioned a few instances of the right eye failing to complete the migration (in laboratory rearing experiments), the result being one-eyed juveniles with the left eye remaining functional in its normal original position but the right eye hidden in the tissues of the head. Occasional occurrence of one-eyed individuals has been noticed in nature also, most of them being apparently cases of loss of one or the other of the eyes by some injury, and with the site of the injury repaired or regenerated (often almost completely). As rare instances however, it is noticed that one-eyed individuals do also occur with the other eye not lost but only hidden inside the head, owing to completion of metamorphosis without the movement of the eye keeping the pace. Norman (1934) states that the migration of the eye appears to be arrested or delayed in ambicoloured examples.

An adult female specimen of *C. semifasciatus* (in stage I of maturity) was noticed in the catches from the inshore waters of the West Hill sea (on 29th December 1967) with the left eye in its normal position on the coloured side and the right eye also almost in its original position on the right (lower) side. The specimen is a normal adult in all other respects and shows no peculiarities leaning towards ambicolouration or even 'staining' of the lower side which has a uniform whitish colour as in all normal specimens. The pigmentation on the coloured side is rather light and there are no marked bands on the body, this being however, not an uncommon feature among normal individuals in the species. The right eye is not as fully everted as the left eye and its projecting part is directed rather forward than sideward. It is difficult to state whether this eye is actually a functional one but as far as can be judged from the external appearance there is nothing against its being a functioning eye.

The specimen measures 9.9 cm. in total length and the eye on the right side measures 1.2 mm. in diameter as against 1.4 mm. of the eye of the left side. The distance from the anterior margin of the left eye to the snout tip (that is the length of



Photographs showing the coloured side (top) and in uncoloured side (bottom) of the abnormal specimen of *Cynoglossus semifasciatus*.

the snout) is 6.1 mm. while on the lower or right side the corresponding distance is 4.2 mm., the lower eye being thus a little more forward than the upper eye. The head length to the opercular margin is itself 1.98 cm. The right nostril is a little more to the left than in the normal specimens. The anterodorsal part of the head is paler than all the other regions of the body, and the cephalodorsal line of the sensory canal system which occurs in this region is rather faint.

Holt (cited by Norman, *loc. cit.*) has described an adult sole (the European form) where the eye of the blind side had remained on that side of the head itself nearly

opposite to that of the ocular side (though largely embedded in the skin), there being no trace of pigmentation on the blind side and the skull also being normal. The present case seems to be an example comparable to the above and appears to be the first instance of the kind recorded for any flatfish in the Indo-Pacific region. It is obviously to be considered as a freak the reasons for the occurrence of this peculiarity being difficult to guess, in view of the otherwise almost normal appearance of the fish.

The photographs of the anterior region of the fish show the upper (left) and lower (right) eye respectively.

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