ON THE VALIDITY OF *ANDAMIA CYCLOCHEILUS* WEBER, WITH SOME OBSERVATIONS ON *ANDAMIA HETEROPTERA* (BLEEKER).

By D. D. MUKERJI, *M.Sc., Zoological Survey of India, Calcutta.*

There has been a certain amount of confusion both as regards the systematic position of Blyth's genus *Andamia* and the specific limits of the three allied species referred to the genus, *viz.*, *Salarias heteroptera* Bleeker, *Andamia expansa* Blyth, and *Salarias aequipinnis* Günther. In 1925, Annandale and Hora [1] considered *Andamia* to be a highly specialised genus referable to the family Blenniidae rather than to Runulidae of Jordan. They also definitely relegated *A. expansa* and *S. aequipinnis* to the synonymy of *A. heteroptera* (=*S. heteroptera*) on the authority of Mr. J. R. Norman of the British Museum (Nat. Hist.), who came to a similar conclusion on comparing the paratype of *A. expansa* with the type of *S. aequipinnis*.

Among the fishes of the Siboga Expedition Prof. Max Weber described first in 1909 [2] and later in his *Die Fische der Siboga-Expedition* (1913), a new species of *Andamia*, *A. cyclocheilus*, taken in western New Guinea. On reading his description of the species and comparing his beautiful illustration (Weber, 1913, pl. iii, fig. 3) with a fine series of fresh material of *A. heteroptera* recently brought back from the Andamans by several parties of the Zoological Survey of India, I came to the conclusion that *A. cyclocheilus* from New Guinea is identical with *A. heteroptera*.

Weber characterised his new species chiefly by the transversely oval mental sucker and the simple dorsal fin. Bleeker [3] in his original description of *S. heteroptera* did not make any mention of the sucker, and both the type specimens of his species preserved in the S'Rijks Museum in Leiden which were examined by Weber are in such a state of maceration that no conclusive decision could be arrived at regarding the structure of this organ, and this led to some confusion in respect of the exact relationship of the Siboga fish with *A. heteroptera*. *A. heteroptera* is provided with a longitudinally oval sucker (*vide* Annandale and Hora, 1925, pl. ii, fig. 6) even at a very early stage of growth. Though Day both in his *Fishes of India* (1878, pl. lxxi, fig. 2) and in the *Fauna* volume (1889, II, p. 323, fig. 104) published ventral views of the head region of *A. heteroptera* (=*A. expansa*), the structure of the sucker is not shown in either of the illustrations. It seems probable, therefore, that Weber was misled by Day's inaccurate illustrations and mistook for the sucker

---

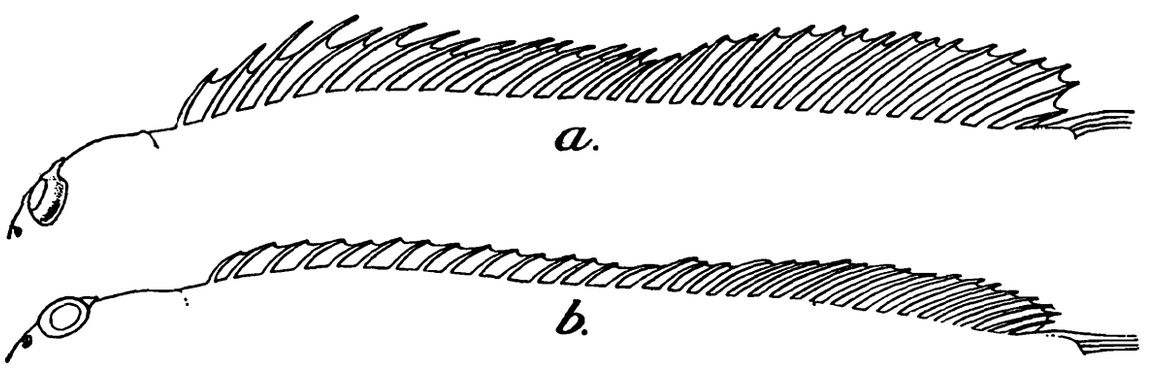
[1] Annandale, N. & Hora, S. L.—"The fresh-water fish from the Andaman Islands." *Rec. Ind. Mus.*, XXVII, pp. 33-41, pl. ii, 1925.

[2] Weber, Max.—"Diognosen neuer Fische der Siboga—Expedition." *Notes Leyden Museum*, XXXI, pp. 143-169, 1909.

[3] Bleeker, P.—"Visfauna van Amboina." *Act. Soc. Sci. Indo-Neerl*, II, pp. 1-102, (1857).

the posterior outlines of the opercular edges, which, when seen from the ventral surface, appear like two diverging triangular structures.

Further, the character of the dorsal fin being without a notch in *A. cyclocheilus* does not separate it from *A. heteroptera*, for, Day already found that the dorsal fin was " not notched " in the latter species. He also pointed out that " in some specimens the two dorsal fins are continuous and in others the second dorsal is higher than the first." Another feature to which Weber gave importance is that the dorsal spines in *A. cyclocheilus* are not prolonged beyond the fin membrane; but this can hardly be taken as a differentiating character for the two species. On examining extensive material of *A. heteroptera* both in their natural habitat and in the laboratory, I have found that the species exhibits sexual dimorphism, the chief characters of the males being their larger size and more gorgeous colouration with a golden sheen. The prolongation of the dorsal spines is found invariably in grown up males alone, (Text-fig. 1) as in some species of *Periophthalmus* and *Boleophthalmus*, although exceptions and variations are by no means infrequent. Hence no characters are present in *A. cyclocheilus*, which are not possessed by *A. heteroptera*.



TEXT-FIG. 1.—Dorsal fin of *Andamia heteroptera* (Bikr.) × *ca* 2.
(*a*) Male, showing prolongations of spines;
(*b*) Female, without such prolongations.

In order to have my views confirmed, I wrote to Dr. S. L. Hora who was then working in the British Museum, London, and requested him to examine the type specimens of *A. cyclocheilus* which are preserved in the Amsterdam Museum in Holland. Dr. Hora kindly arranged with Prof. L. F. de Beaufort who very courteously brought the material with him to London when he came there for the British Association meeting of 1930. Subsequently, Dr. Hora favoured me with the following remarks:

" Dr. de Beaufort brought the specimens (2 large and 3 young) of *Andamia cyclocheilus* with him. *A. cyclocheilus* is based on female specimens (in none of the five specimens the dorsal rays are produced beyond the membrane) and your remarks concerning the validity of this species are fully justified. The species *A. heteroptera* (=*A. cyclocheilus*) exhibits sexual dimorphism and, I believe, that must have confused Max Weber "

In a meeting of the Asiatic Society of Bengal held on August 1, 1932, Dr. S. L. Hora [1] briefly communicated his preliminary observations on the habits of *A. heteroptera*. To these may be added the following which were observed by me at Port Blair in the Andaman Islands.

A. heteroptera lives not only on the scattered rocks of the fore-shore kept moist by the spray from the surf line but also inside the various narrow and deep fissures of the vertical rock cliffs which back the beach, and inside the crevices of the stone embankments of the Port Blair Settlement. At high tide, the rocks on which this fish lives in large numbers, become submerged and the exposed areas are often, if not constantly, washed by the high waves that dash violently against and break upon the shore. It is specially at this time that the fish takes shelter inside the fissures and crevices mentioned above. These fissures are well above the water level, but are kept moist by the spray, and form a very suitable retreat for the fish, inasmuch as it is protected from the direct influence of the crashing waves. At low tide, however, when the water recedes, the fishes come out of their hiding places and frequent the exposed areas of the rocks, occasionally moving from rock to rock by swiftly skipping over the water.

Whatever may have impelled the fish to take to a non-aquatic life and to aerial respiration, its bionomics clearly indicate that moisture is an essential physiological need. But it seems probable that *Andamia heteroptera* can withstand long exposures to the sun, and in such cases its skin becomes somewhat dried up. On three occasions I observed the fish (four specimens in all) lying practically on their sides on the dry rocks in the brightest sunshine, apparently in a torpid condition; but when approached they jumped off into the water, skimmed along the surface and perched themselves on another rock where there were large numbers of individuals of the same species. This basking habit, if confirmed and corroborated by further studies, may throw some light on an altogether new aspect of bionomics of this highly interesting marine air-breathing fish.

---

[1] *Vide* communication by A. S. B. in *Current Science*, I, No. 2, p. 5 (1932).

MGIPC—M—III-8-19—11-4-33—500.