Notes on Malayan Fresh-water Fishes[1]

By M. W. F. Tweedie, M.A., C.M.Z.S.

6. A method of collecting small fishes, especially loaches. Plate 5

A record in my diary dated 27th April, 1940 describes the collecting of a number of fishes in a small stream entering the River Tembeling near Kuala Tahan in Pahang. A place was found where a mass of dead leaves had accumulated at the bottom of a pool. These were dragged out onto the bank and in them was found a quantity of fishes, mostly small eel-like loaches. The following records by Dr. S. L. Hora (1941: 47–52) are based on the collection from this source: *Acanthophthalmus pangia* (Ham.); *A. muraeniformis* de Beaufort (record from Kuala Tahan); *A. vermicularis* Weber & de Beaufort (record from Kuala Tahan). In addition a specimen of *Macrognathus aculeatus* (Bl.) was obtained, some small *Channa (Ophicephalus)*, a quantity of Potamonid crabs and some Caecilians *(Ichthyophis)*.

On a recent visit to Kuala Tahan in March, 1955 a much larger accumulation of leaves was found in a pool in the River Tahan, lying in four to five feet of water near the bank. A small seine net was used to surround masses of this leaf deposit and drag them up onto the bank. Great numbers of small fish were present and the following genera and species were taken: *Nemachilus* sp. indet.; *Acanthophthalmus kuhlii* (Cuv. & Val.), a new subspecies described in this paper; *A. javanicus* Bleeker; *A. anguillaris* Vaillant, *Eucirrhichthys doriae* Perugia; *Vaillantella*, a new species described herein; *Botia hymenophysa* (Bleeker). Here also *Ichthyophis* was obtained. Taxonomic changes relating to some of the Cobitidae, which have arisen since Dr. Hora published his paper in 1941, are discussed in the next note in this series.

The accumulation of leaves was found in a part of the river aside from the main flow and probably in a slow eddy, a circumstance which would account for their being deposited there in such quantity. I received the impression that they are not at all closely compacted, but, having a density very near to that of water, are supported by it so that it slowly flows through and among them. Undoubtedly such deposits of leaves are likely to afford a rich harvest for zoologists wherever they are found, but they are easily overlooked and, without experience or knowledge of their potentialities as a hunting ground, may be neglected. It is hoped that this note may serve to direct attention to them.

My thanks are due to the City Council of Singapore for allowing me to accompany Mr. J. A. T. Stewart and Prof. R. D. Purchon on this expedition, which was designed to provide fish for the van Kleef Aquarium in Singapore.

7. Cobitidae and Cyprinidae in the Raffles Museum collection

As two genera of Cobitidae are added to the Malayan fauna in this paper a revised generic key is presented.

1. Origin of dorsal behind that of the ventrals by at least the height of the body; small, eel-like loaches 2
–. Dorsal origin before, opposite or slightly behind that of ventrals 3
2. Nasal barbels present; cheeks finely scaled ..... *Eucirrhichthys*

1. Continued from Bull. Raffles Museum, 24, 1952: 63–95.

–. No nasal barbels; no scales on the head ..... *Acanthophthalmus*
3. No spine before or under the eye 4
–. A pre- or suborbital spine 5
4. Dorsal very long, with more than 60 rays ..... *Vaillantella*
–. Dorsal with less than 20 rays ..... *Nemachilus*
5. A spine under the eye; head less than twice height of body 6
–. A spine below and in front of the eye; head long, more than twice height of body .. *Acanthopsis*
6. Head scaly; small, fairly elongate loaches, height of body 5 or more in length *Lepidocephalus*
–. Head without scales; larger, not elongate, height 4 or less in length ..... *Botia*

Botia horae H.M. Smith

HORA, 1941: 5 (*B. modesta*).
SMITH, 1945: 290.

Specimens from the rivers Tembeling and Tahan, previously reported as *B. modesta*.

Smith's description of this fish (l.c.) makes it clear that *horae* is a valid species. The figure accompanying it (Fig. 57) is defective by the omission of the dark spots on the caudal fin, which are, however, mentioned in the description. The figures illustrating Hora's record of the species (l.c., Text-fig. 4) give a better idea of its appearance.

Fowler (1934: 101) published figures of this fish under the name *modesta*, but in 1937 (p. 154) he revised his opinion and referred them to *horae*.

This species and *B. hymenophysa* are the only members of the genus known to occur in Malaya.

Acanthophthalmus javanicus Bleeker

HORA, 1941: 47 (*A. pangia*).
SMITH, 1945: 299.

Forty-four specimens were collected from submerged masses of dead leaves at Kuala Tahan, Pahang in March, 1955.

This species was reported by Hora from the same locality in 1941 under the name *A. pangia*, *javanicus* having been reduced to the synonymy of that species by Weber and de Beaufort (1916: 31). H. M. Smith (l.c.) points out that there are significant differences between Day's figure of *pangia* and Bleeker's of *javanicus*, and maintains the two species as distinct. I concur with Smith and find that the Malayan specimens agree with the figure of *javanicus*.

Acanthophthalmus anguillaris Vaillant

HERRE, 1940: 8 (*Cobitophis perakensis*).
HORA, 1941: 49.

Two specimens were taken from the deposit of dead leaves near Kuala Tahan in March, 1955. Comparing them with the three paratypes of *C. perakensis* Herre which are in the collection, I find that they are similar in all respects except size, the specimens from Kuala Tahan being larger, their total length 89 and 80 mm. as against 62, 60 and 55 in the Perak specimens. I agree with Dr. Hora that this Malayan loach should be referred to *A. anguillaris*.

The identity, established in 1945, of *A. vermicularis* with *anguillaris* is referred to below in the account of *E. doriae*.

Acanthophthalmus kuhlii (Cuv. & Val.) Plate 6, a

Nec Herre & Myers, 1937: 65 (= *A. semicinctus* Fraser-Brunner).
Fraser-Brunner, 1940: 174.
Nec Herre, 1940: 33 (= *A. semicinctus*).
Nec Smith, 1945: 300 (= *A. myersi* Harry).

Five specimens from submerged masses of dead leaves near Kuala Tahan, Pahang.

This is, I believe, the first genuine record of *A. kuhlii* from Malaya. The morphological characters agree with Fraser-Brunner's re-diagnosis of the species, except that the anus and anal fin are a little further behind the dorsal than his figure indicates, but the character is variable within the small series taken.

Fraser-Brunner has separated Javanese and Sumatran subspecies according to pattern. The Malayan specimens are closer to the Sumatran race, but differ markedly in having the dark bands extending less far down the sides, so much so that in some specimens they appear in dorsal view as rounded spots entirely surrounded by the pale colour of the flanks and interspaces.

To conform with Fraser-Brunner's treatment of the species, I propose naming the Malayan form:

Acanthophthalmus kuhlii malayanus subsp. n.

Type. A specimen of 60 mm. standard length.

Paratypes. Four specimens smaller than the type, the smallest 48 mm.

The subspecies differs from *A. k. sumatranus* Fraser-Brunner (l.c.: 175) in having the darker element of the pattern consisting of ten to twelve cross-bands, wider than their interspaces, not divided by lighter centres, and extending only half or less than half way down the sides.

The type and two paratypes will be deposited in the British Museum, the remaining two paratypes being retained in the Raffles Museum.

Eucirrhichthys doriae Perugia

Weber & de Beaufort, 1916: 27.
? Hora, 1941: 51 (*Acanthophthalmus vermicularis*).

Four specimens found in submerged masses of dead leaves near Kuala Tahan, Pahang, March, 1955. These have the scaled cheeks and conspicuous nasal barbels which characterise the genus, and agree well with Weber and de Beaufort's description.

In 1951 Dr. Hora reported under the name *Acanthophthalmus (Cobitophis) vermicularis* two specimens of an elongate loach, one of them from Kuala Tahan, with the observation that they agree closely with the description of that species except that they are provided with well-marked nasal barbels. He goes on to say that it is likely that these appendages may have been overlooked in the type specimen.

H. M. Smith (1945: 302) quotes a letter from Dr. F. P. Koumans in which he states, after examining the types of *A. vermicularis* W. & de B. and *A. anguillaris* Vaillant, that they are conspecific, *vermicularis* becoming a synonym. I take this to imply that nasal barbels were not seen by him in either.

It seems to me most unlikely that both the authorities who described *vermicularis* and Dr. Koumans should have overlooked a pair of well marked nasal barbels. On the other hand the scales on the cheeks of the specimens of *E. doriae* under consideration are very inconspicuous and can only be seen under strong magnification when the skin of the head is partly dried.

Neither of the specimens reported on by Dr. Hora is available to me for examination, but one of them was collected at the same locality and by the same method as the

four present specimens of *E. doriae*, and his figure of *A. vermicularis* (l.c.: 52) conveys the appearance of the 1955 specimens of *doriae* very closely. I find it easier to believe that he was led to misidentify the two earlier specimens through overlooking the scales on the head than that the Dutch ichthyologists Weber and de Beaufort and Koumans should have failed to notice a pair of nasal barbels in the type specimen of *A. vermicularis*.

The possibility remains that Dr. Hora's two specimens are indeed a species of *Acanthophthalmus*, lacking the scaled cheeks, but having nasal barbels. In this case they probably belong to an undescribed species.

Lepidocephalus octocirrhus (van Hasselt)

HORA, 1941: 55 (*L. hasselti*).
SMITH, 1945: 294.

Smith (l.c.) gives reasons for accepting van Hasselt's earlier name for this fish. Since it was reported from Malaya by Hora, specimens have been obtained from Merchang and Kuala Brang in Trengganu.

Vaillantella flavofasciata sp. n. Plate 6, b

Type. A specimen of 136 mm. standard length, collected in the River Tahan near Kuala Tahan, Pahang from a submerged mass of dead leaves.

Paratypes. Sixteen specimens ranging from 71 to 152 mm. in standard length, collected with the type. In addition two specimens sent to the Zoologische Museum at Amsterdam are available as paratypes.

This loach is very near to *Vaillantella maassi* W. & de B. from Sumatra (Weber & de Beaufort, 1912 and 1915: 38). Dr. de Beaufort himself has been good enough to compare two specimens from the present series with the unique type of the Sumatran species. The only important difference that he finds is in the ray counts of the median fins; these are: dorsal 73, anal 15 in *maassi*, the corresponding counts in the two Malayan specimens sent to him being: dorsal 63, 70, anal 12, 13.

In the series before me the anal counts are: 11 (one specimen), 12 (eleven), 13 (four), 14 (one). The highest dorsal fin-ray count is 67, the lowest 61; their average is 64, eleven specimens having the count 63 to 65. If the reasonable assumption is made that the single specimen of *maassi* has the fin-ray counts within the range characteristic of its species, then the figures for these counts justify taxonomic recognition of the Malayan member of the genus.

Description. A species of the genus *Vaillantella* Fowler close to *V. maassi* W. & de B., differing chiefly in the ray counts of the median fins, which are: dorsal 61–70 (average 64), anal 12–13 (exceptionally 11 or 14), the corresponding figures in the unique type of *maassi* being 73 and 15. In size the series ranges from 71 to 152 mm. standard length, the largest specimen having total length 195 mm. An interesting feature is the presence of conspicuous open pores on the head. These are variable in number and disposition, but in specimens where they are best developed there is a row extending from the snout backwards below the eye and becoming more or less continuous with the anterior perforations of the lateral line. In addition there are some pores above the eye and a short row of them on each side of the under surface of the head. (Plate 6, b).

In life these fish were dark olive to black, paler below, with a broad orange-red vertebral stripe, the red colour continued onto the caudal. In preservative (formalin)

the dark colour has become paler and the red stripe almost white. The figure accompanying Weber and de Beaufort's description (1915: 38) of *V. maassi* conveys very well the general appearance of the new species.

The type and three paratypes have been sent to the British Museum, and two paratypes each to the Zoologische Museum, Amsterdam. The Zoological Survey of India, Calcutta and the Natural History Museum of Stanford University, California.

Nemachilus sp. indet.

The taxonomic state of the Malaysian and Siamese members of this genus is such that identifications can only be made with confidence of topotypical material or particularly well characterised species.

Five specimens from the accumulation of leaves at Kuala Tahan are 28 mm. or less in standard length. They have the ventral fins reaching to the anus, the pectorals pointed and a little longer than the head and the caudal deeply forked. The body is marked by nine or ten very distinct brown bars, broader than their paler interspaces, reaching low down on the sides; at the base of the caudal one or two black marks. The dorsal fin marked with two rows of brown spots and a dark brown basal spot at its origin, the other fins unmarked.

They have very much the appearance of the specimen from Mawai, Johore, figured by Hora, 1941, Plate 6, 1 as ? *N. fasciatus*. They also bear some resemblance to *N. desmotes* Fowler.

Oxygaster maculicauda H. M. Smith

SMITH, 1945: 75.

A single specimen of this species was taken at the 12th Mile Kuala Brang Road, Trengganu in August, 1950. It is distinguished by the black tips of the caudal fin.

Danio (Brachydanio) tweedici Brittan

MENON, 1954: 7 (*B. albolineatus*).
BRITTAN, this journal: p. 41.

Duplicate material of the specimens reported by Menon (l.c.) from Sauk, Perak appear to me to belong to the newly described species. *D. albolineatus* probably does not occur in Malaya.

Puntius binotatus (Cuv. & Val.)

Throughout the greater part of Malaya the colour pattern of this fish follows the course shown by Menon (1954: 16, Fig. 4), the adult being marked with a diffuse dark blotch on each side of the dorsal origin and a spot on the caudal peduncle. Sometimes a faint dark line persists on the flank representing the lateral row of spots seen on the young fish. This pattern is found in fish from the south of the Peninsula to as far north as the river Condor in southern Kelantan.

Series from Kota Bharu in north Kelantan and from Kaki Bukit in Perlis, localities respectively on the east and west sides of the country near the Siamese border, have a distinctly different pattern. In these the dorsal blotch is reduced in area to a small spot on the scaly sheath of the simple dorsal rays, and the peduncular spot is absent or faintly indicated.

P. binotatus banksi Herre (1940: 31) from Sarawak would appear to be a form rather resembling that described here. In *banksi*, however, the dorsal blotch is reduced to an "elongate black bar or stripe".

Puntius leiacanthus (Bleeker)

H. M. Smith (1945: 172) records this species, originally described from Java, from localities in continental and peninsular Siam as far south as Patani. He makes no distinction between specimens collected from the peninsula and on the mainland, nor between Siamese and Javanese forms, beyond recording a degree of variability in material from Siam which is not indicated by the original description. He does not claim to have examined material from Java.

A. G. K. Menon (1954: 21) records this fish from Kota Bharu in northern Kelantan, near to the Siamese (Patani) border, this being the only Malayan locality at which the species has been collected. The record can be regarded as establishing an extension, without any suggestion of discontinuity, of the range of *P. leiacanthus* into northern Malaya.

Mr. Menon has described the specimens from Kota Bharu as a subspecies, *malayensis*, and makes the observation (l.c.: 24) that "the typical form of *Puntius leiacanthus* is known from Java on the one hand and Siam on the other. The occurrence, therefore, of a new subspecies in Malaya is of special palaeogeographical interest". Like Dr. Smith, Mr. Menon makes no mention of having examined material from Java, nor does he claim to have compared Siamese specimens with those from Malaya.

If there is no distinction between continental and peninsular Siamese forms of this fish, and if both are inseparable from the Javanese form, the existence of a distinct Malayan subspecies not isolated from the range of the species in Siam seems to me so anomalous that comparison of material from Java, the Malay Peninsula and continental Siam is needed to establish it.

The existence of the species in the northern part of the Malay Peninsula and in Java is certainly of zoogeographical interest. Several reptiles, butterflies and mosquitoes have been shown to have a similar distribution (Reid, 1950: 52), and the addition of a Cyprinid fish to the list strengthens the assumption that certain animal populations were continuous over Sundaland in Pleistocene times and have become separated by the interposition of a region with an equatorial and almost non-seasonal climate. I have little doubt that, if Javanese and Siamese (or Malayan) specimens were compared, characters would be found to distinguish them subspecifically.

Tor dournensis (Cuv. & Val.)

The common *Tor* (Ikan Kĕlah) of the Pahang river system appears to me to correspond more closely with published descriptions of *douronensis* than of any other species, though its characters range beyond the limits generally used to define this fish.

Eighteen specimens, mostly small, are in the Raffles Museum collection and in May, 1953 I examined a series of fourteen taken by Mr. C. S. Ogilvie at and near Kuala Tahan, in the River Tembeling and its affluents. This series ranged in standard length from 50 to 430 mm. The length of the lower labial lobe was variable, reaching a line joining the corners of the mouth in two specimens, falling short of it in varying degrees in the rest, the variation not correlated with size. I am sure that the two in which the lobe was longest were conspecific with the rest, and I regard this feature as of doubtful value in separating the species from *T. tambroides* (see keys in Weber & de Beaufort, 1916: 148, and Smith, 1945: 137). No median lobe on the upper lip appears to me to be present in any of these fish, and I have never seen a feature which I should so describe in any specimen of *Tor* from Malaya. Smith includes this as a key character of *tambroides*, Weber & de Beaufort (l.c.: 150) say it is generally present.

The proportions range much more widely than has been previously recorded. The head, in Ogilvie's series, is about 3 in standard length in the smallest (50 to 60 mm.) and 4·2 in the largest specimen, these figures being connected by a graded series correlated with size. The dorsal fin is often damaged, the distal part of the last simple ray being lost. In small specimens having this ray entire it is nearly equal to the head, the difference being two or three mm. in fish of 140 to 180 mm. s.l. In large fish of 300 to 400 mm. the dorsal is relatively shorter, about 1·2 to 1·3 in head. In specimens of about 150 mm. pectoral length and dorsal height are equal, the pectorals being relatively longer in larger, shorter in smaller, fish. The last simple (osseous) dorsal ray, when complete, seems to me to stiffen gradually distad, and I cannot satisfy myself in applying the key character used by Weber and de Beaufort to separate *douronensis* from *tambra*.

The only large specimen of *Tor* in the Museum collection is also from the River Tahan and measures 440 mm. s.l. Its head is longer than that of Ogilvie's fish of comparable size, 3·7 in s.l. as against 4·2, and the dorsal shorter, 1·5 in head. I have regarded this specimen as representing *T. tambra* (Cuv. & Val.), but examination of the series discussed above leads me to doubt if *douronensis* and *tambra* are distinct, and indeed, if either is distinct from *tambroides*. If they should prove to be identical, *douronensis* has page priority over *tambra* and both these were described twelve years before *tambroides* of Bleeker.

8. **Wallago miostoma** (Vaillant) Plate 6, c, d

Early in July, 1955 a large *Wallago* was taken near Kota Tinggi in Johore and brought alive to the van Kleef Aquarium in Singapore. It had suffered injuries after capture, but most of these had responded well to treatment with mercurochrome and had healed, when the fish rather mysteriously died on July 19th. The superintendent of the aquarium was kind enough to call me as soon as he found that the fish was dead, and to allow me to examine it and to remove the head for preservation.

I had already formed the opinion, when it was alive, that it was specifically distinct from *W. tweediei* (Hora & Misra) as its coloration was very different. This fish is everywhere blackish except on the belly and underside of the head; there are some scattered paler spots, but the conspicuous pattern of longitudinal stripes characteristic of *tweediei* (Tweedie, 1950: 98, Fig. 1) is lacking. Smith (1945: 333) speaks of the 'somber color' of *W. miostoma*, a designation which fits the present specimen very well.

Details of the specimen are: Dorsal 1·4, anal 68, pectorals 1·13, ventrals 10; caudal too much damaged for description. Standard length 1,060 mm., depth of body at level of ventrals 220, head 225, postorbital part of head 150, length from snout to dorsal origin 370, height of dorsal 95 mm.

The lower jaw protrudes beyond the snout, and the description given by Weber & de Beaufort: 'Anterior part of head flattish, hind part ascending to the dorsal with a convexity' perfectly describes this specimen. The corner of the mouth reaches just to the level of the front of the eye. One of the maxillary barbels is lost, the other reaches only to the pectoral base, but is probably incomplete as its end is blunt and slightly spatulate. The mental barbel is very small, about diameter of eye. The spine of the pectoral fin is thick and strong and serrated on its posterior margin. The two patches of vomerine teeth are not separated but joined in the middle (Plate 6, c). Hora and Gupta (1941: 17) have shown that this character can vary in a Silurid species *(Silurodes hypophthalmus)* and I think it possible that it may do so in the present one. On the other hand it may be a character of adult *miostoma* and so assist in distinguishing large specimens from those of *tweediei*, in which the patches were found to be

separate in a specimen of 1,310 mm. total length. The right anterior gill-arch is figured (Plate 6, d). On the longer ramus there are nine gill-rakers, one (the proximal) single, four double and four three-pronged; a double one lies in the angle, and on the shorter there are three, two three- and one two-pronged. Besides the smaller number, nine against twelve, *miostoma* shows more tendency to develop bi- and tridentate gill-rakers than does *tweediei*, see Hora and Gupta, 1941: 21, Fig. 3.

Weber and de Beaufort (1913) describe two species of *Wallago* with nine gill-rakers, *W. leeri* Bleeker and *W. miostoma* Vaillant. It seems probable that both are described from immature specimens as the lengths quoted are 500 and 450 mm. respectively. Preservation of these large fishes is beyond the resources of most expeditions and so they are seldom available for examination in museums. Smith records *miostoma* from Siam (1945: 332) with the remark that it attains a metre in length. I have identified the present specimen with *miostoma* rather than *leeri* on account of the following characters: colour; strength and thickness of pectoral spine; form of anterior dorsal profile; position of ventrals directly below the dorsal. Weber and de Beaufort mention a tendency to develop compound gill-rakers ('the longest with a basal prong') in *miostoma* and not in *leeri*; the development of strongly bi- and tridentate gill-rakers is possibly an adult character. In the Johore specimen the dorsal is only a little more than half the post-orbital length of the head, while Weber and de Beaufort describe these two measurements as equal; this again I believe may be a difference in adult and juvenile characters, as may also the conjunction or separation of the patches of vomerine teeth.

The character used by these authors to distinguish the two species in their key (l.c.: 201) concerns the relation of the corner of the mouth to the eye. In *leeri* it is said to reach to the vertical through the anterior border of the eye, in *miostoma* to below the front part of the eye. In the respective descriptions, however, each of these characters is referred to the other species, and I suspect that they have been reversed in error in the key. In the Johore specimen the mouth reaches to below the front border of the eye, as described for *miostoma*.

W. tweediei was described under the name *Wallagonia* because G. S. Myers proposed this name for this genus of giant catfishes in 1938 on a point of taxonomy. Later (1948) he reversed this decision, bringing the old name *Wallago* Bleeker back into use again.

Explanation of Plates 5 and 6

PLATE 5. Capturing small fish in the River Tahan by using a seine net to drag out masses of dead leaves.

PLATE 6. a, *Acanthophthalmus kuhlii malayensis*, ssp. n., type and two paratypes. × 3/2.

b, *Vaillantella flavofasciata* sp. n., head, showing distribution of pores.

c, *Wallago miostoma*, teeth of upper and lower jaw.

d, *W. miostoma*, right anterior gill-arch.

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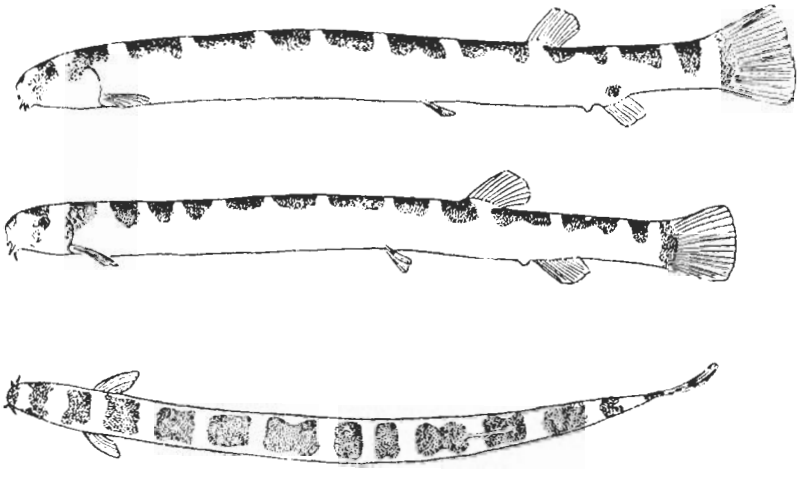

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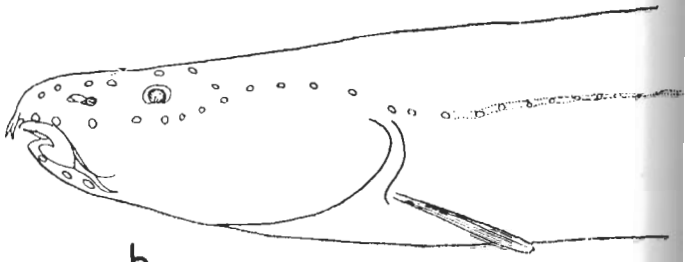

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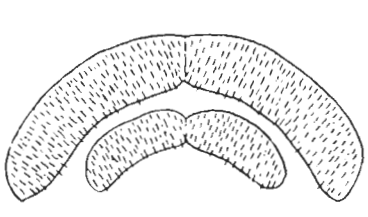

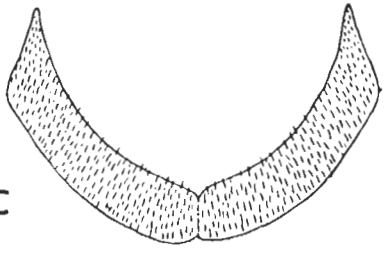

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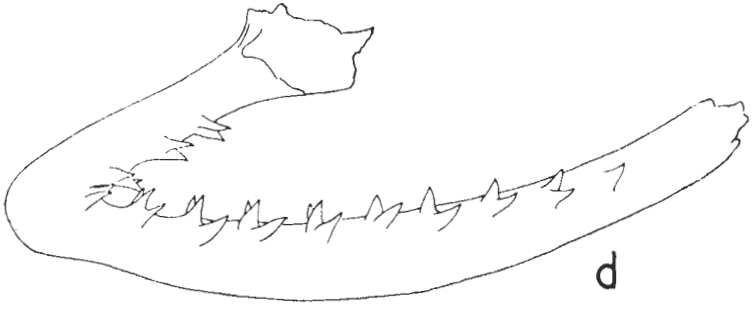

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Malayan fresh-water fishes. (M. W. F. Tweedie).