

is a dark spot in the upper portion of the caudal fin near the base, but in the largest individual there is a well marked black ocellus in the same situation. This species is widely distributed in the Burmese waters.

#### Family SISORIDAE.

##### **Glyptothorax trilineatus** Blyth.

1923. *Glyptothorax trilineatus*, Hora, *Rec. Ind. Mus.*, XXV, p. 29.

*Vernacular Names.*—Monglheng Kuki; Ngaprangla Tangkhul; Payahat Kabo.

3 specimens. Namya river at Kongan Thana. 28.i.1937.

*Glyptothorax trilineatus* is represented by 3 specimens varying from 78 mm. to 87 mm. in total length. They possess the characteristic three white streaks and agree in every respect with Blyth's description of the species. Mr. Duncan observes that it is not a very common fish. The largest specimen he had ever caught was about 5 to 6 inches in length. The colouration of the living specimens is noted by him as follows:—

“Dark brown colour with a reddish tint. A light line runs laterally on both sides as well as along the dorsal profile. Fins very light red.”

*G. trilineatus* is known from Tenasserim, Rangoon and Upper Burma. It is here recorded from the Chindwin Drainage for the first time.

#### Family OPHICEPHALIDAE.

##### **Ophicephalus gachua** Ham.

1935. *Ophicephalus gachua*, Hora & Mukerji, *Rec. Ind. Mus.*, p. 404.

*Vernacular Names.*—Ngamu Manipuri; Ngavoh Kuki; Khaiwā Tangkhul.

2 specimens. Namya river at Kongan Thana. 28.i.1937.

In Mr. Duncan's collection there are two young specimens of *Ophicephalus gachua*; they are about 85 mm. in total length. The colouration of the species, according to Mr. Duncan's notes, is as follows:—

“Dark colour. White and greenish ventral. The body shows angular bands. The fins have half circles of light and dark.”

#### XXXIII.—ON A COLLECTION OF FISH FROM THE KUMAON HIMALAYAS.

In May-June 1936, Mr. E. O. Shebbeare, Chief Conservator of Forests, and Mr. M. P. Bhola, Divisional Forest Officer, Haldwani Division, made a small collection of fish for me in the outer Himalayan hills below Naini Tal. The fish were obtained from the Nandhaur and Kalaunia rivers; the former has its source in the Naini Tal District and flows over a bed of boulders. Within the hills its valley is narrow but broadens out in the plains. The fish were collected in the rocky portion of the stream. The Kalaunia river is similar to that of the Nandhaur river in its general physical features, but its source lies in the outer Himalayan hills of the Almora District. The fauna of the two streams is almost identical.

The entire collection comprises 207 specimens which belong to the following species.

#### MASTACEMBELIDAE.

*Mastacembelus armatus* (Lacép.) . . . 1 specimen.

#### CYPRINIDAE.

*Barilius bendelisis* Ham. . . . . 24 specimens.  
*Barilius vagra* Ham. . . . . 9 specimens.  
*Brachydanio rerio* (Ham.) . . . . . 7 specimens.  
*Labeo dero* (Ham.) . . . . . 9 specimens.  
*Garra gotyla* (Gray) . . . . . 8 specimens.  
*Garra prashadi* Hora. . . . . 77 specimens.  
*Crossochilus latius* (Ham.) . . . . . 4 specimens.  
*Barbus putitora* (Ham.) . . . . . 17 specimens.  
*Barbus chilinoides* McClelland . . . . . 2 specimens.  
*Barbus conchoniis* (Ham.) . . . . . 2 specimens.

#### COBITIDAE.

*Nemachilus botia* (Ham.) . . . . . 13 specimens.  
*Nemachilus beavani* Günther . . . . . 22 specimens.  
*Lepidocephalichthys guntea* (Ham.) . . . . . 3 specimens.

#### SISORIDAE.

*Glyptothorax pectinopterus* (McClelland) . . . . . 2 specimens.

#### ABLYCEPIDAE.

*Amblyceps mangois* (Ham.) . . . . . 1 specimen.

#### OPHICEPHALIDAE.

*Ophicephalus gachua* Ham. . . . . 6 specimens.

The majority of the species listed above represent well known forms. Attention may, however, be directed to *Garra prashadi*, which was hitherto known from 3 specimens obtained in Malwa Tal; and to *Nemachilus beavani*, the precise specific limits of which were only recently defined by me from examples collected in the Eastern Himalayas. Notes on these two species are given below.

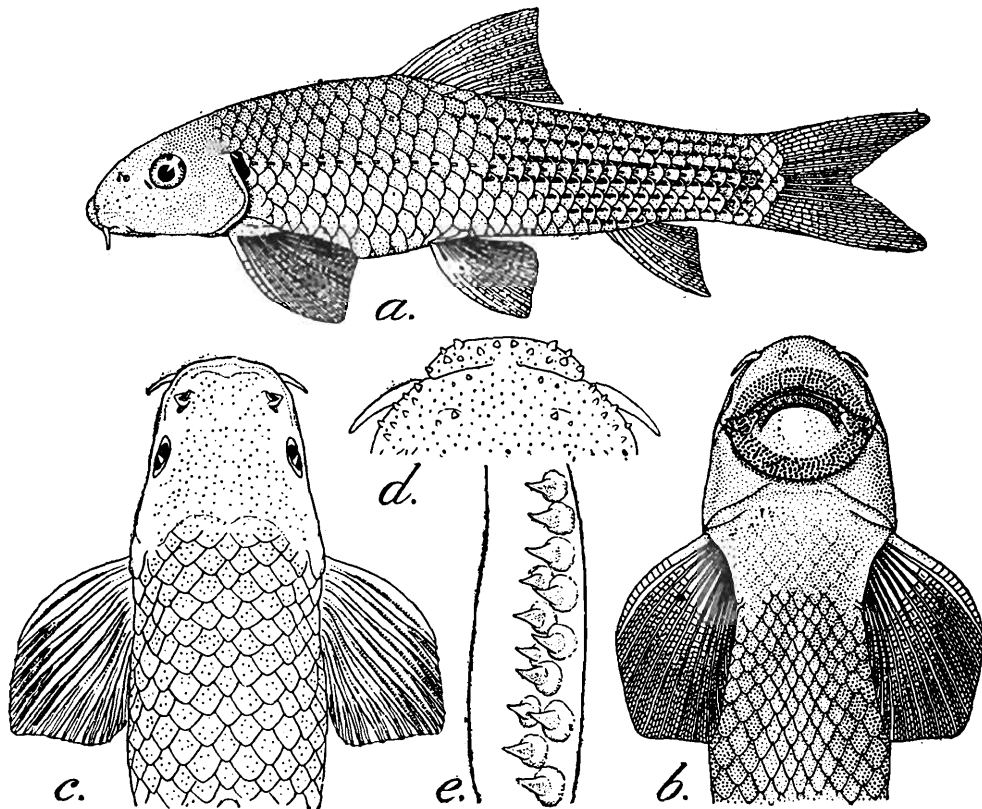
I take this opportunity to offer my sincere thanks to Messrs. E. O. Shebbeare and M. P. Bhola for their kindness in making a valuable collection of fish for the Zoological Survey of India.

#### **Garra prashadi** Hora.

1921. *Garra prashadi*, Hora, *Rec. Ind. Mus.*, XXII, p. 669, pl. xxiv, fig. 3.

As indicated above *Garra prashadi* was described from 3 specimens, of which 2 were males and 1 damaged female. Now a large series of 77 specimens has become available and it is possible to make some observations on the sexual dimorphism exhibited by the fish. In species of *Garra*, in which a well-developed proboscis is present on the snout, usually both the sexes are provided with 'pearl organs', etc.

In this respect I noted some sexual differences in the case of *G. lamta* and *G. graveleyi*. As regards the former species further material has shown (*vide infra*, p. 344) that I had grouped two distinct forms under *lamta*. The material of the latter species is not sufficient to elucidate this point.



TEXT-FIG. 7.—*Garra prashadi* Hora.

*a.* Lateral view of a female specimen. Nat. size; *b.* Ventral surface of head and anterior part of body of a male specimen.  $\times 1\frac{1}{2}$ ; *c.* Dorsal surface of head and anterior part of body of a male specimen.  $\times 1\frac{1}{2}$ ; *d.* Dorsal surface of snout of a female specimen.  $\times 3\frac{1}{2}$ ; *e.* Dorsal surface of a portion of one of the outer pectoral fin-rays of a male specimen showing the nature of horny tubercles.  $\times 35$ .

In the female specimens of *G. prashadi* the tip of the snout is marked off by a shallow transverse groove and is covered with a few horny tubercles. A few horny tubercles are also present on the sides of the head in front of the eyes. In the males, however, the snout is smooth and there are only faint indications of two short lateral grooves which mark off the tip of the snout. The dorsal surface of the head in front of the eyes is slightly raised into two triangular patches; these areas are better marked in the female specimens. In the males the outer rays of the pectoral fins are provided with series of spines on the dorsal surface similar to those described by me<sup>1</sup> in the males of certain species of *Nemachilus*. As is usually the case, the body is relatively deeper in the females as compared with the males.

From the table of measurements given below, it will be seen that the head is relatively longer and the eye larger in young specimens. Other proportions also vary with growth to a limited extent.

<sup>1</sup> Hora, *Rec. Ind. Mus.*, XXIV, p. 81 (1922).

*Measurements in millimetres.*

	♀			♂		
Total length including caudal	75.0	82.0	96.0	61.0	75.0	82.0
Length of caudal	16.0	17.1	21.0	14.0	16.0	17.1
Length of head	14.5	15.1	17.0	12.0	14.3	15.0
Width of head	12.0	12.5	14.1	10.0	11.3	12.0
Height of head at occiput	10.0	10.5	12.1	8.0	10.0	10.5
Height of body	16.0	16.5	21.0	11.0	15.0	15.5
Width of body	11.3	13.0	16.0	9.0	11.0	12.0
Length of snout	7.0	7.1	8.0	6.0	7.0	7.1
Diameter of eye	4.0	4.0	4.7	3.8	4.0	4.0
Interorbital width	7.0	7.0	8.0	6.0	7.0	7.1
Length of caudal peduncle	10.1	11.0	14.0	8.0	10.0	11.0
Least height of caudal peduncle	8.0	8.8	11.0	6.2	8.0	8.8
Longest ray of dorsal	15.0	15.0	18.5	12.0	15.2	15.3
Length of pectoral	14.0	15.0	18.0	12.1	15.0	16.0
Longest ray of anal	12.8	12.5	15.0	9.5	12.0	13.0

In *G. prashadi* the skin covering the anterior fin rays of the dorsal, the pectoral, the ventral, and the anal fins is produced into lappets which form a sort of a sheath for the following ray or rays. Such structures are characteristic of practically all torrential fishes and attention has already been directed to this feature by Smith and Deraniyagala. Their exact significance appears to be to provide a gliding surface for the current and thus minimise resistance. Their production seems to have been facilitated by the tearing away action of the current which would naturally pull an object in the direction of its flow.

**Nemachilus beavani** Günther.

1924. *Nemachilus* sp., Hora, *Rec. Ind. Mus.*, XXVI, p. 28, fig. 1.

1935. *Nemachilus beavani*, Hora, *Rec. Ind. Mus.*, XXXVII, p. 63.

There are 22 examples in the collection under report which agree fairly closely with the Assamese and Eastern Himalayan specimens recently assigned by me to *Nemachilus beavani*. There are, however, variations in the number of bands and in the proportions of certain parts. It may here be noted that the species was originally described from the Kosi river and it is probable that the present lot represents the typical form of the species. I hope to deal with this point in my account of the species from the Western Himalayas.

**XXXIV.—ON A NEW CATFISH FROM KWANGSI, CHINA.**

In his 'Study on some Chinese Catfishes', Tchang<sup>1</sup> referred a specimen of *Silurus* Linn. from Luchow in the Kwangsi Province, China, to Day's *S. wynaadensis*, which is known only from the Wynaad and Canara Hills in South India. At the same time he published a full description of the specimen along with two illustrations—a lateral view

<sup>1</sup> Tchang, *Bull. Fan Mem. Inst. Biol.*, VII, p. 35 (1936).