NOTES ON FISHES IN THE INDIAN MUSEUM.

XV.—Notes on Burmese Fishes.

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Recently I had an opportunity of determining several small lots of fish from different parts of Burma for the Director, Harcourt Butler Institute of Public Health, Burma. Among these I found examples of *Barbus* (*Puntius*) *binotatus* (C.V.), *Ctenogobius alcocki* (Annandale) and of a new species of the subgenus *Brachydanio*. Of the last species several specimens were also collected by Dr. H. S. Rao in the Northern Shan States. In this paper I propose to write notes on these forms and to include the description of another new species of *Brachydanio* collected by Dr. B. N. Chopra in the Myitkyina District, Upper Burma.

Ctenogobius alcocki (Annandale).

1906. *Gobius alcocki*, Annandale, *Journ. As. Soc. Bengal* (n. s.) II, p. 201, fig. 1.
1923. *Ctenogobius alcocki*, Hora, *Mem. Ind. Mus.* V, p. 774.

Ctenogobius alcocki has hitherto been recorded from Port Canning, Calcutta and the Chilka Lake. Dr. B. N. Chopra and I collected several specimens of this species in a small tidal channel beyond the sacred temple at Puri. I have here to record its occurrence at Rangoon. The species was collected in a tank full of vegetation and situated to the west of the Harcourt Butler Institute of Public Health, Burma.

Barbus (Puntius) binctatus (C.V.).

1878. *Barbus goniosoma*, Day, *Fish. India*, p. 562, pl. cxxxvii, fig. 2.
1916. *Puntius binotatus*, Weber and Beaufort, *Fish. Indo-Austral. Archipel* III, p. 186, fig. 74.

Barbus (*Puntius*) *binotatus* exhibits considerable individual variation both as regards the form of its body and its colouration. According to Weber and Beaufort this species is only found in "Sumatra, Nias, Java, Bali, Lombok, Borneo, Banka, Biliton, Singapore, Malacca, Philippines," for they did not recognize that the form described by Day as *Barbus goniosoma* from Mergui was synonymous with *B. binotatus*. I have examined two of Day's original specimens from Mergui and a number of half-grown examples from Kambanta, Tavoy district, and find that they agree with Weber and Beaufort's description of *Puntius binotatus* in every essential detail. In certain examples from Tavoy there is an indication of a black spot at the base of the anterior dorsal ray and another still more indistinct spot at the base of the caudal. The colouration is silvery except for the tips of the dorsal, anal and caudal fins which are grayish.

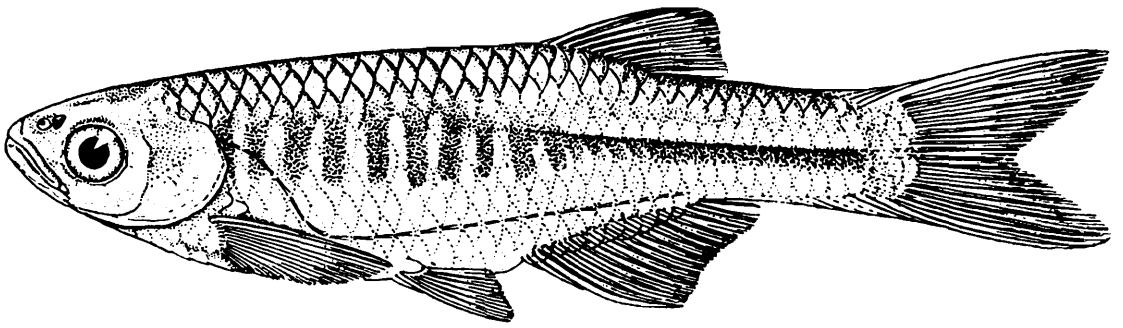
For convenience of reference I give below measurements in millimetres of some of these examples :—

	Mergui.		Tavoy.	
Total length without caudal	95·5	96·0	75·3	62·0
Length of head	26·1	25·3	21·7	18·3
Depth of body	35·2	37·0	26·5	21·2
Length of snout	7·6	7·9	5·7	5·6
Diameter of eye	8·2	7·8	6·2	6·0
Interorbital width	10·5	9·5	7·8	6·5
Longest ray of dorsal	23·0	24·0	16·7	15·5
Longest ray of anal	14·5	14·3	11·5	10·6
Length of pectoral	20·5	20·0	15·8	15·0
Length of ventral	18·0	18·5	14·0	13·3

Danio (Brachydanio) shanensis, sp. nov.

D. 2/7 ; A. 3/10-12 ; P. 13 ; V. 8 ; C. 18.

Danio (*Brachydanio*) *shanensis* is a small species in which the dorsal profile rises gently from the tip of the snout to the commencement of the dorsal fin, beyond which it slopes down to the base of the caudal.



TEXT-FIG. 1.—Lateral view of *Danio* (*Brachydanio*) *shanensis*, sp. nov. × 3.

The ventral profile is arched, except in the region of the caudal peduncle, where it runs parallel to the dorsal profile. The body is greatly compressed from side to side and the head is somewhat pointed. The length of the head is contained 3·8 to 4 times and the depth of the body 3·3 to 3·7 times in the total length without the caudal. The diameter of the eye is contained 3 to 3·5 times in the length of the head ; it is almost equal to the length of the snout and is contained about 1·5 times in the interorbital width. The barbels are generally absent but in some specimens a pair of short, stumpy barbels are present at the corners of the mouth. The mouth is obliquely directed upwards and is of moderate width. There are 10 short, stout and rather widely set gill-rakers. The commencement of the dorsal is slightly behind that of the anal and its longest ray is equal to the head without the snout ; it has 2 spines and 7 branched rays, the last being split to the base. The anal fin contains 3 spines and 10-12 branched rays, the last being split to the base. The pectoral is shorter than the head and just reaches the ventral, which does not extend to the base of the anal. Both the paired fins are provided with short appendages at their bases. The caudal fin is deeply emarginate and is longer than the head. The scales are very thin and are hardly distinguishable in young specimens. There

are 34 scales in a longitudinal row and there are 8 rows in a transverse series. The scales are marked with longitudinal lines. The bases of the anal and the caudal fins are covered with thin scales. There are 17 predorsal scales. The least height of the caudal peduncle is contained 1·6 to 1·9 times in its length ; there are 10 scales round the caudal peduncle. The lateral line is incomplete. From the upper angle of the gill-cover it turns abruptly downwards and is then continued in the lower half of the body for a considerable distance, but it never reaches the base of the caudal fin.

The colouration is very characteristic of the species. It possesses a broad, lateral band of a dark colour which becomes narrower posteriorly. With age it is broken up into a number of vertical bars anteriorly and the intervening spaces between these become silvery. There is a black streak along the back and the edges of the scales in the upper half are covered with black dots. The general colouration is pale olivaceous. The fins are diaphanous. In very young specimens the colouring is silvery all over.

Type-specimen :—F 10814/1, *Zoological Survey of India* (*Ind. Mus.*).

The species seems to be quite common in the Northern Shan States. Dr. H. S. Rao collected a large number of specimens in rice fields, in pools and ditches in the bed of hill streams at Namkhan, Kutkai, Lashio and Hsipaw.

Measurements in millimetres.

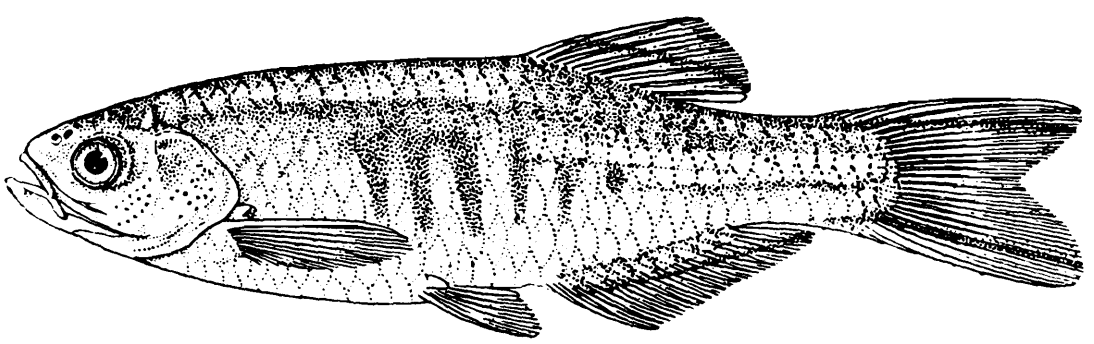
Total length without caudal	30·0	33·0	38·0
Length of head	7·4	8·0	10·0
Height of body	8·2	8·8	11·5
Length of snout	2·2	2·3	3·3
Diameter of eye	2·2	2·4	3·0
Interorbital width	3·4	3·4	4·4
Length of pectoral	6·2	6·8	8·1
Length of ventral	4·0	4·8	5·7
Length of caudal peduncle	6·8	7·7	8·0
Least height of caudal peduncle	3·5	4·2	5·0

Danio (Brachydanio) choprae, sp. nov.

D. 2/7 ; A. 3/12-13 ; P. 13 ; V 7 ; C. 20.

Danio (*Brachydanio*) *choprae* is a small species not more than 30 mm. in length. Both the dorsal and the ventral profiles are slightly arched. The body is compressed from side to side and the head is somewhat pointed. The length of the head is contained from 4 to 4·2 times and the depth of the body 3·2 to 3·5 times in the total length without the caudal. The diameter of the eye is very variable ; it is contained from 2·5 to 3·5 times in the length of the head. The snout is considerably shorter than the diameter of the eye, which is contained from 1·3 to 1·5 times in the interorbital width. There are two pairs of well-developed barbels. The rostral barbel originates just in front of the nares and for the greater part of its length lies in a groove ; it is almost as long as the diameter of the eye. The maxillary barbel is much longer than the eye. The mouth is obliquely directed upwards and is of moderate

width. The gill-rakers are short and widely set. The commencement of the dorsal is opposite that of the anal; its longest ray is considerably shorter than the head; it contains 2 spines and 7 branched rays. The anal fin contains 3 spines and 12 to 13 branched rays. The pectoral is slightly shorter than the head and just touches the base of the ventral, which is separated from the anal by a short distance. There is a short fleshy appendage at the base of the pectoral and a scaly appendage at the base of the ventral. The caudal fin is emarginate and longer than the head. The scales are thin and hardly visible in young specimens. There are 33 scales in a longitudinal row and there are 7 rows transversely arranged on the body. The base of the anal fin is covered with scales. There are 15 predorsal scales. The minimum height of the caudal peduncle is contained 1·3 to 1·7 times in its length; there are 10 scales round the caudal peduncle. The lateral line is absent.



TEXT-FIG. 2.—Lateral view of *Danio* (*Brachydanio*) *choprae*, sp. nov. × 3¾.

Danio choprae has a very characteristic colouration. It is pale olivaceous, the upper surface being much darker than the lower. Anteriorly there are several dark, broad, vertical bars which grow shorter in length as they recede backwards till they are reduced to mere dots, and in continuation of these there is a dark longitudinal stripe to the base of the caudal. There are two indistinct longitudinal bands in the upper half of the body and a black streak along the back. Both the dorsal and the anal fins are provided with longitudinal bands across their rays. Each lobe of the caudal fin possesses a longitudinal black band. The fins are, otherwise, quite transparent.

Type-specimen:—F 10811/1, *Zoological Survey of India* (*Ind. Mus.*).

Several specimens of this new species were collected by Dr. B. N. Chopra in small rocky streams about Kamaing and Namma in the Myitkyina District, Upper Burma.

Measurements in millimetres.

Total length without caudal	20·5	20·5	21·0
Length of head	5·0	5·1	5·0
Height of body	5·7	6·0	6·4
Length of snout	1·6	1·6	1·6
Diameter of eye	2·0	2·0	1·8
Interorbital width	2·8	2·7	2·8
Length of pectoral	4·7	5·0	4·5
Length of ventral	3·0	3·0	3·0
Length of caudal peduncle	4·0	4·0	4·0
Least height of caudal peduncle	2·4	3·0	2·8