

## NOTES ON FISHES IN THE INDIAN MUSEUM.

### XXV. ON TWO NEW SPECIES OF CYPRINID FISHES FROM DEOLALI, NASIK DISTRICT, BOMBAY PRESIDENCY.

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In 1932, the Zoological Survey of India received three specimens of *Rasbora* from Major R. W. Hamilton Miller, I.M.S., of the District Laboratory, Colaba, Bombay, collected from a stream at Deolali in the Nasik District of the Bombay Presidency. The specimens though allied to *Rasbora rasbora* (Hamilton) differed from it in several respects and appeared to represent a form hitherto undescribed. A request was made to Major Miller for further specimens but he could not comply with the request. Through the kindness of Mr. S. H. Prater, however, we have now received a small collection of fish from Deolali obtained by Dr. A. G. Fraser. It not only contains 23 well preserved specimens of the new species of *Rasbora* but also 12 specimens of a new species of *Danio*. Other species represented in the collection are :—

1. <i>Barbus ticto</i> (Hamilton)	7 specimens.
2. <i>Parapsilorhynchus tentaculatus</i> (Annandale)	1 specimen.
3. <i>Barilius bendelesis</i> (Hamilton)	3 specimens.
4. <i>Barilius</i> sp. (Juv.)	3 specimens.
5. <i>Nemachilus denisonii</i> Day	1 specimen.

The two new species—*Rasbora labiosa* Mukerji and *Danio fraseri* Hora—are characterised by the fact that the lower lip is hypertrophied and forms a broad, loose membrane round the lower jaw. Without any biological observations in the field or the laboratory, it is difficult to assign any definite function to this structure, but attention may be directed to homologous structures found in certain tadpoles<sup>1</sup> of *Megophrys*, *Phyllobates*, *Microhyla* and *Phyllomedusa*. Among the functions assigned to hypertrophied lip in the tadpoles there is that of buoyancy, for the tadpoles are supposed to use it for hanging from the surface film. It is quite possible that the two new species, which are essentially surface fishes, also use their expanded lower lip for the mechanical process of suspending themselves from the surface film when the waters in their habitats become foul for the ordinary process of respiration. At our request Dr. Fraser has sent the following significant note on the localities in which he collected these species :—

“ There is a tributary stream, which meanders through the Military area of the Deolali Cantonment and drains into the river ‘Darna’<sup>2</sup>. All the fish were obtained

<sup>1</sup> Hora, *Phil. Trans. Roy. Soc. London* (B) CCXVIII, pp. 245-249, (1930).

<sup>2</sup> Darna is a tributary of the Godavari River. Annandale (*Rec. Ind. Mus.* XVI, pp. 109-161, 1919) in his account of the fauna of certain small streams in the Bombay Presidency made observations on collections made at Medha in the Satara District and at Khandalla in the Poona District. Both these places are far away from the Godavari drainage basin. The two new species would thus appear to have a somewhat localised distribution.

from this stream in pools, 3 to 4 feet deep, which have been formed in its course and the particular pools are located at a point some 400 yards from where it actually joins the river. This stream has no name, but it is locally known as the 'North Nallah'. It is a 'Nallah' in the true sense of the word, being deeply channelled and naturally formed by the annual rush of storm water drainage through it during the monsoon. Normally, it is fed from springs 2 to 3 miles west of the river Darna and so flows with water all the year round, but during the dry weather the flow is sluggish and drainage is very poor. The pools, in which the fish are found, are grown thickly with water weeds and the floor is covered with a silt deposit brought down from time to time. Green algae float upon its surface and excepting during the monsoon period, there is at other times of the year a fair degree of stagnation in the pools. The banks are grown with a variety of grasses."

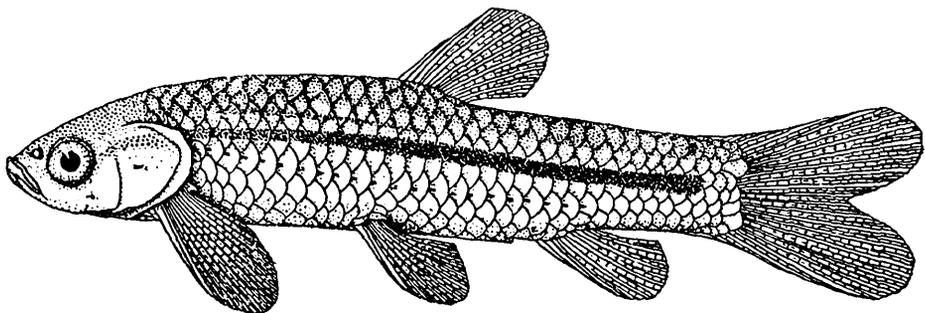
We are indebted to Dr. A. G. Fraser for the collection of the material and to Mr. S. H. Prater for the courtesy to allow us to study these interesting fishes. Mr. Prater has further allowed us to retain the type-specimens and several co-types for the collection of the Zoological Survey of India.

The two new species may be described as follows :—

**Rasbora labiosa** Mukerji, sp. nov.

D. 2/7; A. 2/5; P. 1/11; V. 1/8; C. 17; L. l. 30-32; L. tr. 7 ( $5\frac{1}{2}/1\frac{1}{2}$ ).

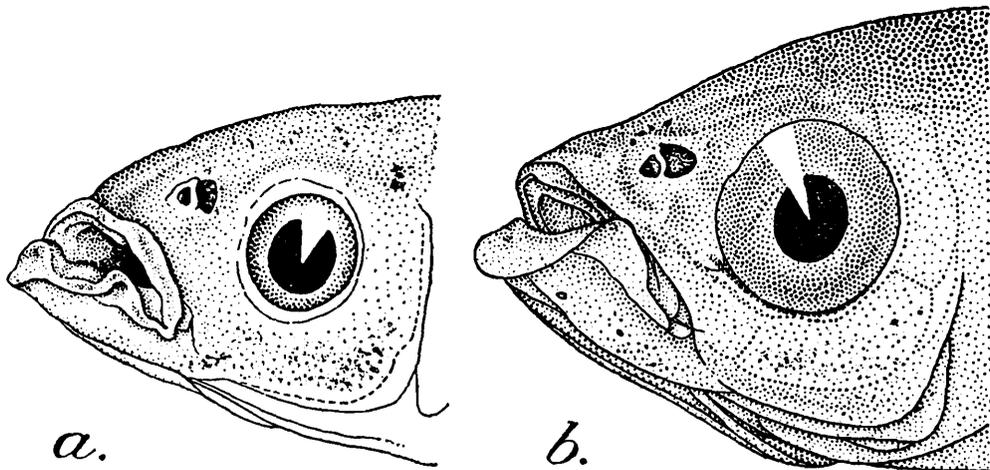
The dorsal profile of the body is moderately arched, while the ventral profile is more or less horizontal. The height of the body is contained a little over 4 times in the length excluding the caudal fin. The caudal peduncle is almost rectangular, being slightly longer than high. The head is small, somewhat blunt and a little higher than broad; its length is contained about 3.8 times in the length of the body. The height of the head at occiput is contained nearly 1.4 times and the width from 1.6 to 1.8 times in its length. The eyes are large and prominent; they are situated almost in the anterior half of the head. The diameter of the eye is contained 3.3 times in the length of the head. The interorbital space is wide and slightly convex; its width is nearly equal to the diameter of the eye. The snout is short and blunt anteriorly;



TEXT-FIG. 1.—Lateral view of *Rasbora labiosa* Mukerji, sp. nov.  $\times 2$ .

its length is shorter than the orbital width and is contained 5 times in the length of the head. The mouth and the jaws are as in the genus. The lower lip shows a peculiar development. It is more fleshy and flabby than the upper one and projects beyond the jaw; it is capable of being projected from the jaw and is partly deflected upwards over

the upper lip. It is provided with three distinct lobe-like structures (Text-fig. 2, *a*). The cleft of the mouth is oblique; its anterior end



TEXT-FIG. 2.—Anterio-lateral view of *a. Rasbora labiosa* Mukerji, sp. nov. ( $\times 6$ ) and *b. Danio (Danio) fraseri* Hora, sp. nov. ( $\times 5\frac{1}{2}$ ) showing the nature of the hypertrophied lower lip.

is nearly in level with the upper border of the eyes, while the posterior end is almost in level with the anterior border of the eyes.

The body is covered with large and well developed scales. There are from 30 to 32 scales in a longitudinal series between the upper angle of the opercles and the base of the caudal fin. Before the dorsal fin there are 14 to 15 scales and 14 scales round the caudal peduncle. The lateral line is concave and incomplete; it extends as far as the posterior end of the anal. The number of perforated scales along the lateral line varies from 18 to 20. There are  $5\frac{1}{2}$  rows of scales between the lateral line and the base of the dorsal and  $1\frac{1}{2}$  rows between the lateral line and the base of the ventral on either side. The bases of the anal and the caudal are covered with scaly sheaths. There are small scaly appendages in the axils of the ventrals.

The insertion of the dorsal fin is slightly behind that of the ventrals and opposite to the 12th scale of the lateral line. It is considerably nearer the root of the caudal than the tip of the snout. Its height is a little less than the maximum depth of the body, but is almost equal to the depth of the body below it. Its anterior margin is faintly concave. The commencement of the anal is almost equidistant between the origin of the ventrals and the root of the caudal fin. Its outer margin is more or less rounded. When adpressed, it does not reach the root of the caudal. The pectoral fins are shorter than the length of the head and have rounded outer margin. They are separated from the base of the ventrals by a distance equalling a little less than half their own length. The ventrals are similar to the pectorals in shape, but are slightly smaller. They fall short of the vent which lies about two scales in advance of the insertion of the anal fin. The caudal fin is deeply forked with two more or less equal and rounded lobes. It is slightly longer than the head; its length is contained about 3.5 times in the length of the body excluding the caudal fin.

The specimens in alcohol are straw-coloured with a faint silvery sheen. The upper half of the body is somewhat darker than the lower. The margins of the scales in the upper half of the body, the top of the head and portions of the cheeks are sparsely infuscated with fine blackish dots. There is a broad black band along the middle of the body from the angle of the opercles to the root of the tail. Along the dorsum, there is a narrow black median line from the occiput to the base of the caudal fin.

*Type-specimen*.—F. 11970/1, *Zoological Survey of India (Ind. Mus.)*, Calcutta.

*Remarks*.—*Rasbora labiosa* belongs to the group of species with incomplete lateral line and with 7 rows of scales between the dorsal and the ventral fins. It is closely allied to and occupies a place between *R. taytayensis* Herre<sup>1</sup> and *R. vagae* Rendahl<sup>2</sup>, but can readily be distinguished from the former by the number of perforated scales along the lateral line and the colouration, while from the latter it differs chiefly in having much shorter pectoral fins. From all the known species, *R. labiosa* can at once be separated by the peculiar structure of the lower lip.

*Measurements in millimetres.*

Length of body without caudal	38.0	37.0
Height of body	9.0	9.0
Length of head	10.0	10.0
Breadth of head	6.0	5.5
Height of head at occiput	7.0	6.5
Length of snout	2.0	2.0
Diameter of eye	3.0	3.0
Interorbital width	3.0	3.0
Height of dorsal fin	8.0	8.0
Length of pectoral	8.0	8.0
Length of ventral	7.0	6.5
Length of anal	7.0	6.5
Length of caudal	11.0	10.5
Length of caudal peduncle	6.5	6.5
Least height of caudal peduncle.	5.0	5.0

**Danio (Danio) fraseri** Hora, sp. nov.

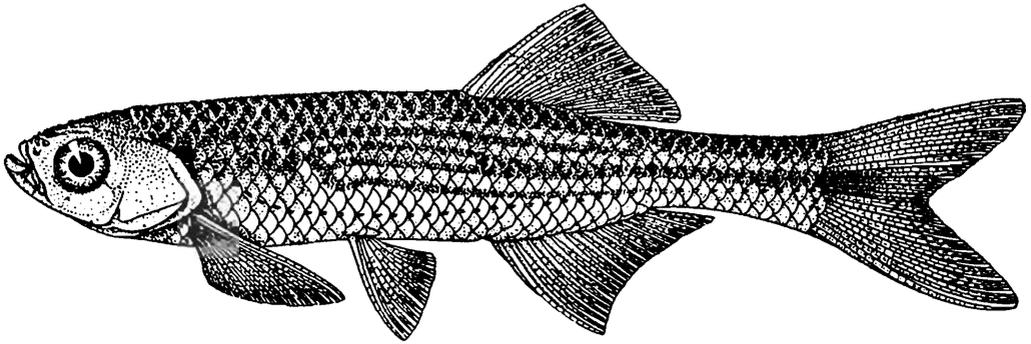
D. 2/11; A. 3/15; P. 1/12; V. 1/6; C. 19; L. l. 37-40; L. tr. 10 (8½/1½).

*Danio fraseri* is a long and slender species in which both the profiles are slightly arched. The body is greatly compressed and the head is pointed. The length of the head is contained from 5 to 5.3 times in the total length and from 3.7 to 4 times in the length without the caudal; the head is relatively longer in younger individuals. The height of the head at the occiput is contained from 1.3 to 1.4 times and the width from 1.9 to 2 times in its length. The eyes are large, lateral in position and situated almost in the anterior half of the head;

<sup>1</sup> Herre, *Phillipine Journ. Sci. Manila*, XXIV, pp. 264, 265, (1924); Hora & Mukerji, *Rec. Ind. Mus.*, XXXVI, pp. 357-359, text-fig. 7, (1934).

<sup>2</sup> Rendahl, *Arkiv, f. Zoologi*, XVIII B, No. 13, p. 113, (1926).

the diameter of the eye is contained from 3 to 3.1 times in the length of the snout and from 1.1 to 1.3 times in the interorbital width. The interorbital space is slightly convex and in relation to the diameter of the eye it is broader in the younger individuals. The mouth is small and obliquely directed upwards; its cleft extends to below the anterior margin of the eye. The lower lip is hypertrophied and forms a broad, loose flap along the lower jaw (Text-fig. 2, b). In the preserved specimens it is reflected or contracted in various ways. The upper lip is of the normal type. There are two pairs of small barbels; the rostrals, which are shorter than half the diameter of the eye, are much longer than the maxillaries.



TEXT-FIG. 3.—Lateral view of *Danio (Danio) fraseri* Hora, sp. nov.,  $\times 1\frac{1}{2}$ .

The body is almost rectangular anteriorly and in the region of the caudal peduncle it becomes much narrower; the depth of the body is contained from 5.1 to 6.8 times in the total length and from 3.8 to 5.1 times in the length without the caudal. The body and the caudal peduncle become relatively narrower with the growth of the fish. The least height of the caudal peduncle is contained from 1.3 to 2 times in its length. The body is covered with thin, closely adhering scales which cover the bases of the anal and caudal fins also. There are from 37-40 scales in a longitudinal row and about 10 in a transverse series between the commencement of the dorsal and that of the ventral fins. The number of predorsal scales is 16. The lateral line is complete and greatly curved; it ends slightly below the middle of the base of the dorsal fin.

The dorsal fin commences in advance of the anal and its insertion is almost equidistant between the posterior margin of the orbit and the base of the caudal fin. In smaller individuals the longest ray of the dorsal is shorter than the depth of the body whereas in larger specimens it is considerably greater. The free border of the dorsal fin is slightly concave or almost truncate. The pectoral fin is long and pointed; it extends considerably beyond the base of the ventral fin. The ventral fins reach the anal opening which is situated just before the commencement of the anal fin. The anal fin is similar to the dorsal but its free border is markedly concave. The caudal fin is much longer than the head; it is deeply forked, and the lower lobe is slightly better developed than the upper.

The colour pattern is more or less similar to that of *Danio aequipinnatus*. There are three or four dark longitudinal bands along the

middle of the body. The band in the middle is broader and is continued on the rays of the caudal fin. There is a black spot near the upper angle of the gill-opening. The dorsal surface is gray while the ventral surface is pale olivaceous. The proximal part of the dorsal fin is tinted gray. The free edges of the scales bear series of black dots.

*Type-specimen*.—F. 11791/1, Zoological Survey of India (Ind. Mus.), Calcutta.

*Remarks*.—*Danio fraseri* is distinguished from all the other species of the genus in having a hypertrophied lower lip. In other respects it is allied to *D. aequipinnatus*, but differs in having a much narrower body. In the new species there are only  $1\frac{1}{2}$  rows of scales between the lateral line and the base of the ventral fin (*versus*  $2\frac{1}{2}$  rows in *D. aequipinnatus*). The number of scales in a longitudinal series is also greater in *D. fraseri* than in *D. aequipinnatus* (37-40 *versus* 34-36). In their general facies the two species are markedly distinct.

*Measurements in millimetres.*

Total length including caudal	78.0	63.0	55.0
Length of caudal	20.0	14.2	14.0
Length of head	14.5	12.5	11.0
Height of head	10.3	9.6	8.2
Width of head	7.2	6.5	5.5
Length of snout	3.5	3.2	3.0
Diameter of eye	4.8	4.1	3.5
Interorbital width	5.6	5.3	4.6
Height of body	11.4	11.5	10.8
Longest ray of dorsal	12.6	8.8	8.6
Longest ray of anal	11.5	8.5	8.2
Length of pectoral	13.2	11.0	10.5
Length of ventral	9.5	7.6	6.8
Length of caudal peduncle	10.5	8.5	6.0
Least height of caudal peduncle	5.3	5.5	4.5