

NOTES ON A SMALL COLLECTION OF CHINESE FISHES.

BY HENRY W. FOWLER.

During the summer of 1897, Dr. A. Donaldson Smith and Messrs. J. Edward and George Farnum collected the material which forms the basis of this paper while travelling through eastern China and Mongolia. The specimens were collected in several localities. All the Cobitidæ and *Leuciscus costatus* were obtained from a fisherman, who caught them in the Tan lan Ho, a tributary of the Shu lan Ho, June 11. This locality is about thirty miles northeast of Lama-miau or Dolon-nor, in the Province of Pechili. *Carassius auratus* and two specimens of *Leuciscus farnumi* are from Delai Nor. These were purchased July 4. The type of *Leuciscus farnumi* and the specimens of *Pseudaspius leptcephalus* and *Opsariichthys bidens* were taken in the Tore river, a tributary of the Sungari, July 27.

Through the liberality of the above-mentioned gentlemen, the collection becomes the property of the Academy of Natural Sciences of Philadelphia, and adds several species which are new to its collections.

CYPRINIDÆ.

1. *Carassius auratus* (L.).

No. 16,379.

2. *Leuciscus farnumi* sp. nov.

Head, $3\frac{2}{3}$; depth nearly 4. D., 8; A., 11; scales, 50; teeth, 3, 5-5, 3. Eye, $4\frac{2}{7}$ in head, its posterior margin before the centre, $1\frac{3}{4}$ in the interorbital width. Mouth protractile, the upper jaw projecting, its cleft reaching the anterior margin of the orbit. Top of head somewhat convex. Pseudobranchiæ present. Air-bladder in two parts. Pectorals reaching $1\frac{3}{10}$ to ventrals. Dorsal over ventral. Ventrals not reaching vent, and with developed sheaths. Origin of the anal, behind dorsal. Lateral line much decurved, not running along the centre of the caudal peduncle laterally, but below it. Color in alcohol dark brownish above, whitish below. Dorsal and caudal brownish, the other fins pale

like the lower surface of the body. Caudal forked. Total length, $5\frac{1}{2}$ inches.

No. 16,380.

Two dried specimens in a rather poor state of preservation are referable to this species; they measure about 8 inches.

Nos. 16,381, 16,382.

3. *Leuciscus costatus* sp. nov.

Head conical, convex above. Premaxillaries not projecting beyond the snout. Mouth nearly reaching anterior margin of the eye. Eyes placed laterally and before the centre of the head, contained $4\frac{1}{3}$ times in the head and $1\frac{2}{3}$ in the interorbital space. Origin of the dorsal wholly behind the ventral basis and nearer the tip of caudal than tip of snout. Origin of the anal behind the dorsal. A fleshy appendage to the genital aperture developed in three specimens, which are presumably males, somewhat large. Depth of the emargination of the caudal about $\frac{1}{3}$ its length. Both caudal lobes are rounded and the upper is longer than the lower. Color in alcohol, brownish above, lighter beneath. Sides and upper parts with fine dots and spots of blackish and dark brownish. Fins all plain colored, the dorsal and caudal a shade or so darker than the others. Body covered with small scales, about 75 to 84 in the lateral line, which is only slightly decurved. D., 8; A., 8. Teeth, 2, 5-5, 2. Four specimens, Nos. 16,383, 16,384, 16,385, 16,386. A comparison of them shows the first, a female, is the largest, as follows:

HEAD IN BODY.	DEPTH IN BODY.	PECTORAL IN HEAD.	LENGTH.
$3\frac{1}{7}$ in.	$4\frac{1}{5}$ in.	$1\frac{7}{10}$ in.	$2\frac{9}{10}$ in.
$3\frac{3}{4}$ in.	$4\frac{1}{8}$ in.	$1\frac{1}{7}$ in.	$2\frac{1}{2}$ in.
$3\frac{2}{5}$ in.	$4\frac{9}{22}$ in.	$1\frac{7}{15}$ in.	$2\frac{2}{5}$ in.
$3\frac{7}{23}$ in.	4 in.	$1\frac{7}{8}$ in.	2 in.

4. *Pseudaspis leptocephalus* (Pall.).

One specimen, No. 16,387.

5. *Opsariichthys bidens* Günth.

Two specimens, Nos. 16,388, 16,389.

COBITIDÆ.

6. *Misgurnus anguillicaudatus* (Cantor).

A comparison of the specimens belonging to this species shows: Head, $5-6\frac{3}{7}$; depth, $8\frac{1}{3}-10\frac{1}{3}$; D., 7; A., 6; total length, $3\frac{3}{4}-6$ inches.

Nos. 16,390, 16,391, 16,392.

7. *Nemachilus dixonii* sp. nov.

Head, $4\frac{1}{6}$; depth, $6\frac{1}{6}$; D., 7; A., 6. Body moderately elongated rounded anteriorly and much compressed along the caudal peduncle. Eye placed above and anterior to the centre of the head. Eye 6 in head and $2\frac{1}{2}$ times in the interorbital space. Six barbels around the upper jaw, the posterior pair reaching beyond the posterior margin of the eye. Snout furnished with a pair of nasal barbels placed laterally, they are formed over the apertures of the anterior nares and extend to the centre of the orbit. The posterior nares are placed in front and above the centre of the eyes. Lips fleshy, the lower without barbels. Origin of the dorsal falling behind that of the ventrals. In the space between the base of the pectoral and the ventral fins the length of the pectoral is contained about $2\frac{1}{3}$ times. Anus below the hind edge of the dorsal. Rudimentary caudal rays well developed. Caudal nearly as long as head, rounded. Color in alcohol olivaceous, dusky above, whitish below. A lateral streak the same color as the top of the back and a jet-black spot in the centre of the base of the caudal. Dorsal and caudal with numerous fine dark-brown spots. Remaining fins less distinctly spotted with the same color as the sides, which, together with the upper parts, are also spotted with darker spots than the ground color. Scales small and indistinct. Lateral line imperfect. Total length, $2\frac{1}{2}\frac{9}{10}$ inches. One specimen, No. 16,393.

8. *Nemachilus pechiliensis* sp. nov.

Head, $4\frac{4}{9}$; depth, $6\frac{2}{3}$; D., 8; A., 6. Body somewhat long and compressed. Eye 9 in head, $1\frac{1}{2}$ in the distance from its frontal margin to the anterior nare. The anterior nares are closer together than the posterior pair. Six barbels around the upper jaw. Lips rather thin. Pectoral nearly as long as the dorsal or caudal, and reaching half-way to the ventrals. Ventrals beginning a little in advance of the origin of the dorsal. Anal tube prominent from the ventrals to the aperture in front of the anal fin. Rudimentary caudal rays well developed. Caudal truncate. Color in alcohol olivaceous—dusky above, grayish-white below. Back and upper parts of the sides of the body, with flakes of dusky which are not numerous, and are somewhat irregularly distributed. Dorsal with dusky spots. Several indistinct broad dusky stripes on the caudal. Other fins like the belly in

color, but the pectorals have the upper surface faintly washed with dusky. Lateral line present. Scales present, but inconspicuous. Total length, $4\frac{7}{10}$ inches. One specimen, No. 16,394.

9. *Cobitis sinensis* Sauvage and DeThiersant.

Head, 5; depth, $8\frac{1}{3}$; D., 8; A., 6. Body elongated and compressed. Eyes placed above the centre of the upper fourth of the head. Interorbital space about equal to the diameter of the eye. Nares nearer the eyes than to the tip of the snout. Suborbital spines moderate. Tip of the posterior maxillary barbel does extend as far posteriorly as the larger prong of the suborbital spine. Eight barbels. Two median barbels of the upper jaw much shorter than the others. Lips fleshy, the lower in 2 lobes. Origin of the dorsal over that of the ventrals. Length of pectoral a little over one-third the distance between its base and that of the ventral. Rudimentary caudal rays well developed. Caudal truncate, edges somewhat rounded. Color in alcohol, above grayish-white with an olivaceous tinge. Eight more or less distinct blotches of brownish between the nape and the origin of dorsal and seven between it and the base of caudal. Between a blackish band from the operculum to the caudal and the dark color of the back is a light band of the same color as the belly. Above this band is a narrow band of blotches of the same color as the median band of blotches on the back. Back with mottlings. Dorsal and caudal with dark spots, other fins and lower part of body whitish. Black spot on upper rays and at base of caudal. Black streak from eye to tip of snout. Scales minute. Lateral line imperfect or wanting. Length, 3 inches. One specimen, No. 16,395.



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