

# AMERICAN MUSEUM NOVITATES

Number 214

Published by  
THE AMERICAN MUSEUM OF NATURAL HISTORY  
New York City

May 7, 1926

59.7(51)

## SOME CHINESE FRESH-WATER FISHES<sup>1</sup>

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### XV.—TWO APPARENTLY UNDESCRIBED CATFISHES FROM FUKIEN

Bagrin catfishes in China show so much intangible variation, and so many species have already been described, that it is only after considerable reflection and with some hesitation that the writer ventures to name and describe the following forms from Fukien.

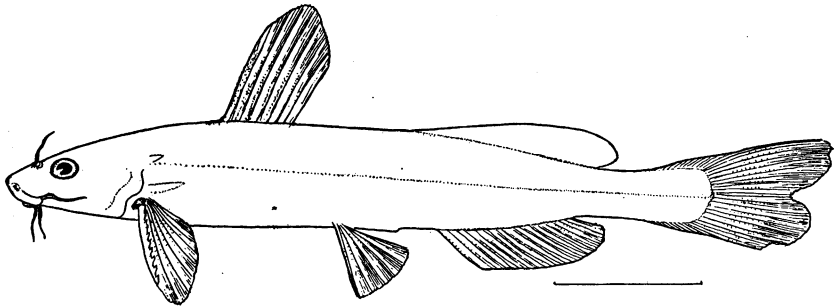


Fig. 1. *Leiocassis similis*, 119 mm. standard length.

#### ***Leiocassis similis*. new species**

DESCRIPTION OF TYPE.—Number 8444, American Museum of Natural History, from the Min River, near Yenping, Fukien; collected by H. R. Caldwell.

Length to base of caudal 119 mm. Depth in length, 6; head, 4.4. Eye in head, 5; snout, 2.8; interorbital, 3.7; maxillary, 2.6; width of mouth, 2.5; maxillary barbel, 3.5; width of head, 1.4; depth of peduncle, 3; its length, 1.3; dorsal spine, 1.5; pectoral spine, 1.7; longest dorsal ray, 1.3; pectoral, 1.5; ventral, 1.7; longest anal ray, 1.8; caudal, 1.2; length of adipose, 1; its height, 4; dorsal interspace, 0.9.

Dorsal I, 7; anal 17.

Eye slightly superolateral; interorbital convex with a shallow groove in the center; head covered with skin; an uninterrupted bony bridge to the dorsal; orbital rim with a slight fold; barbels regular in position, 4 on a side, very small and thin; snout projecting beyond the transverse mouth; lips rather thick, slightly striate; gill membranes narrowly joined at base, free from isthmus. Dorsal origin at a distance

<sup>1</sup>Publications of the Asiatic Expeditions of The American Museum of Natural History. Contribution No. 65.

<sup>2</sup>Drawings of type specimens by Mrs. Louise Nash.

from snout, 2.2 in its distance from caudal base; dorsal spine smooth or with 2 or 3 very weak serrations behind; pectoral spine strongly barbed on the inner (posterior) edge; pectoral reaching  $\frac{2}{3}$  the distance to ventral, ventral not quite to anal; caudal weakly forked; adipose rather long and low, free behind.

Color dark purplish gray, including fins, little paler below.

This species is close to *L. emarginatus* Regan from Szechwan; probably with smaller barbels.

***Leiocassis crassilabris macrops*, new subspecies**

DESCRIPTION OF TYPE.—Number 8445, American Museum of Natural History, from the Min River, near Yenping, Fukien; collected by H. R. Caldwell.

Length to base of caudal 100 mm. Depth in length, 3.9; head, 3.7. Eye in head, 4; snout, 3; interorbital, 3; maxillary, 3; width of mouth, 2.4; maxillary barbel, 1.8; width of head, 1.4; depth of peduncle, 3.2; its length, 1.5; dorsal spine,

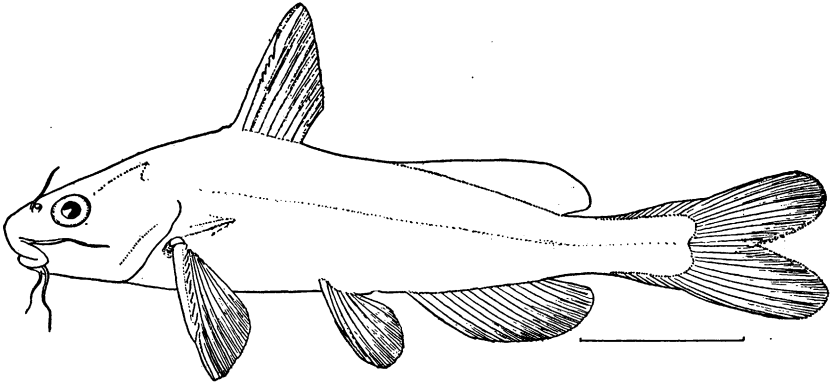


Fig. 2. *Leiocassis crassilabris macrops*, 100 mm. standard length.

1.5; pectoral spine, 1.7; longest dorsal ray, 1.2; pectoral, 1.3; ventral, 1.6; longest anal ray, 1.6; caudal lobe, 1.2; length of adipose, 0.9; its height, 4; dorsal interspace, 2.

Dorsal I, 7; anal 17.

Body compressed; eye somewhat superolateral; interorbital flattish, dropping to the eye at the side; snout rather soft and shapeless extending distinctly beyond the transverse mouth; with rather thick, slightly striate lips; orbital rim with a very slight fold, best marked below; top of head without skinless bone, the backward process extending to dorsal plate in a continuous bridge; gill membranes narrowly joined at base, free from isthmus; scapular process exposed, pointed, extending  $\frac{2}{3}$  the length of the pectoral spine. Dorsal spine with slight serrations behind near the end; pectoral spine smooth in front, strongly barbed behind; pectoral reaching  $\frac{3}{4}$  the distance to ventral; ventral past anal origin, rounded; adipose very low in front, high and free behind; caudal moderately forked, with keels on the peduncle above and

below; dorsal origin slightly nearer anal origin than end of snout, its distance from snout about 1.5 in that from base of caudal.

Color dark purplish gray, paler on belly, edges of dorsal caudal and anal darker.

This form has a larger eye than *Leiocassis crassilabris*, which we have from Tungting Lake and which it resembles sufficiently to be a geographic race or at least representative of it.

XVI.—CONCERNING GUDGEONS RELATED TO *PSEUDOGOBIO*,  
AND TWO NEW SPECIES OF IT

The best-known species of *Pseudogobio* is a small fish, *P. rivularis* from North China, of which *P. sinensis* is probably a race. It is quite unlike the various larger, more elongate Chinese species of *Saurogobio*, and evidently more closely related to the Japanese genus *Abbottina* (which thus becomes a synonym of *Pseudogobio*) than it is to them. The two small fishes about to be described are more or less intermediate between *Pseudogobio rivularis* and *Saurogobio*. It is possible that their true relationship is closest to *Saurogobio*, but this is uncertain. By the most convenient criterion to separate these two genera (scales more than 45, *Saurogobio*; less than 45, *Pseudogobio*), they fall in *Pseudogobio*. Were we to place them in *Saurogobio*, Japanese *P. esocinus* (Temminck and Schlegel), type of *Pseudogobio*, should be placed there also, *Saurogobio* becoming a synonym of *Pseudogobio*, *Abbottina* being recognized as distinct and including *Pseudogobio rivularis* and *sinensis*.

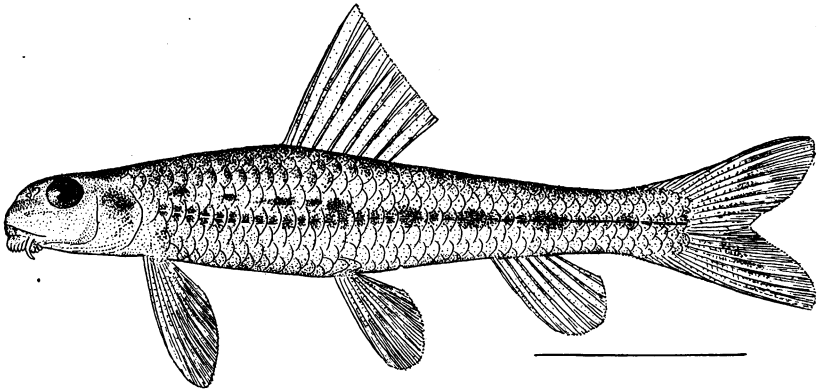


Fig. 3. *Pseudogobio chinssuensis*, 50 mm. standard length.

***Pseudogobio chinssuensis*, new species**

DESCRIPTION OF TYPE.—Number 8446, American Museum of Natural History, from Chin-ssu, Shansi; collected by C. H. Pope.

Length to base of caudal 50 mm. Depth in length, 5; head, 4.7. Eye in head, 4; snout, 2.4; interorbital, 2.7; maxillary, 2.7; width of mouth, 2.9; width of body, 1.6; depth of peduncle, 2; its length, 1.5; pectoral, 0.8; ventral, 1.1; longest dorsal ray, 0.9; longest anal ray, 1.4; caudal lobe, 0.8. Barbel in eye, 1.3

Dorsal, 9; anal, 8. Scales, 39.

Body little compressed, the lower surface of head and breast flat, pectorals in a horizontal plane; vent at  $\frac{3}{8}$  the distance from ventral axil to anal origin. Interorbital flat; eye placed high, slightly superolateral; mouth inferior, protractile downward, maxillary not quite reaching to under front margin of eye; with a moderate sub-terminal barbel; lips moderately thick, papillose, with a heart-shaped flap across middle of chin; gill membranes broadly joined to shoulder girdle under middle of opercle. Dorsal and anal without spinous rays; dorsal origin midway between end of snout and middle of anal base; pectoral reaching  $\frac{1}{2}$  the distance to ventral; ventral  $\frac{2}{3}$  to anal; caudal moderately forked, with equal lobes. Lateral line complete, almost straight in the center, slightly bent down under origin of dorsal; no scales on breast, or mid-line of belly before ventrals.

Color brownish; about eight vague dark blotches along middle of side, and five or six on the mid-line of the back; double blackish spots at the tips (or bases) of the lateral line scales; upper part of opercle dark; a faint dark mark forward from and another down from the eye. Caudal with a faint curved dark cross mark; and two series of faint dark specks across dorsal.

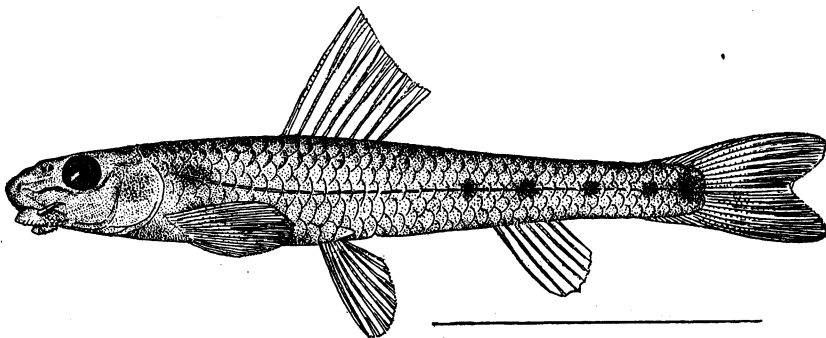


Fig. 4. *Pseudogobio tungtingensis*, 52 mm. standard length.

#### ***Pseudogobio tungtingensis*, new species**

DESCRIPTION OF TYPE.—Number 8447, American Museum of Natural History, from Huping, Tungting Lake, Hunan; collected by C. H. Pope.

Length to base of caudal 52 mm. Depth in length, 6; head, 4.3. Eye in head, 3.2; snout, 2.4; interorbital, 4.5; maxillary, 2.7; width of mouth, 3; width of body, 1.7; depth of peduncle, 3; its length, 1.4; pectoral 1.2; ventral, 1.4; longest dorsal ray, 1.4; longest anal ray, 1.8; caudal lobe, 1.2. Barbel in eye, 1.3.

Dorsal,  $9\frac{1}{2}$ ; anal, 8. Scales, 39.

Body little compressed; lower surface of head and breast flattened; pectorals in a horizontal plane; vent at  $\frac{1}{6}$  the distance from ventral axil to anal origin. Top of head

very slightly convex; a broad shallow concavity on top of snout before nostril; eye somewhat superolateral; mouth small, inferior; maxillary not reaching to below front margin of eye; lips free all round, striate or papillose, a lobe in center of chin divided by a central groove; a rather stout subterminal maxillary barbel; gill membranes rather broadly joined to shoulder girdle. Dorsal and anal without spinous rays; dorsal origin equidistant from end of snout and anal axil; center of ventral situate behind center of dorsal base; pectoral reaching  $\frac{5}{8}$  the distance to ventral; ventral  $\frac{3}{8}$  to anal; caudal moderately forked. Lateral line complete, almost straight in the center slightly bent down under dorsal origin; breast scaleless backward to pectoral axils.

Color pale; scales on the back more or less margined with dark; four vague dark blotches on the back, the first at the dorsal origin; about six faint dark blotches on the mid-line of the side, from under the dorsal to the peduncle.

#### XVII.—TWO NEW RHODEINS

Our collections comprise considerable series of Rhodeins from the province of Anhwei, Tungting Lake, Chin-ssu in Shansi, and Hainan Island; also a few from Fukien and elsewhere. A number of species are represented, the following apparently identifiable with Chinese forms listed by Berg,<sup>1</sup> 1907: *Acanthorhodeus guichenoti*, *tonkinensis*, *tæxianalis*, *atranalis*, *Acheilognathus barbatulus*, *himantegus*, *Rhodeus sinensis*, and *Pseudoperilampus ocellatus*. There are also *Rhodeus maculatus* Fowler and *Acanthorhodeus grahami* Nichols, since described. If these determinations are correct, smooth *versus* serrated edge of the dental groove, the principal character used by Berg to separate *Rhodeus* from *Pseudoperilampus* and *Acheilognathus* from *Acanthorhodeus*, does not hold in his grouping, which otherwise seems to be a natural one. The two new species here placed in *Acheilognathus* are not closely related to each other.

#### *Acheilognathus gracilis*, new species

DESCRIPTION OF TYPE.—Number 8448, American Museum of Natural History, from Huping, Tungting Lake, Hunan; collected by C. H. Pope.

Length to base of caudal 44 mm. Depth in length, 3; head, 3.8. Eye in head, 2.5; snout, 3; interorbital, 2.4; maxillary, 3.5; width of mouth, 3.5; width of body, 1.6; depth of peduncle, 1.7; its length, 1.3; longest dorsal spine, 1.4; longest anal spine, 1.4; longest dorsal ray, 1.2; longest anal ray, 1.4; pectoral, 1; ventral, 1.3; caudal lobe, 0.7.

Dorsal II, 9; anal II, 7. Scales, 35; 4 between lateral line and ventral. Teeth (from a cotype) unusually compressed, all with entire edges.

Body compressed, the head rather broad, the snout blunt; an ovipositor between ventral axils which when depressed just passes anal origin. Interorbital flat across the top, convex at the sides; mouth distinctly inferior, transverse, curved, horizontal, the maxillary not reaching to below front of eye; without barbel. Dorsal origin equi-

<sup>1</sup>Ann. Mag. Nat. Hist., (7) XIX, p. 160-163.

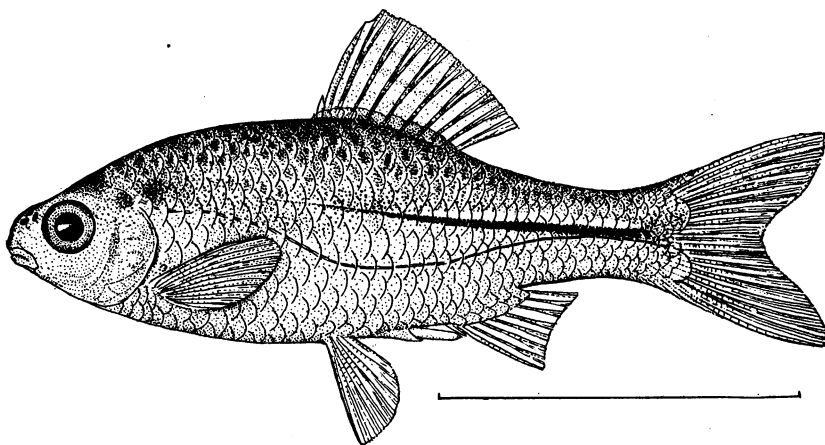


Fig. 5. *Acheilognathus gracilis*, 44 mm. standard length.

distant from end of snout and base of caudal; dorsal and anal spines well developed, the anterior not more than  $\frac{1}{4}$  the length of the posterior; pectoral reaching  $\frac{2}{3}$  the distance to ventral; ventral  $\frac{5}{8}$  to anal; caudal moderately forked. Scales thin, without conspicuous striae; lateral line complete, moderately bent down under front of dorsal; entire base of dorsal and anal with a sheath of scales.

Color pale, a little darker along the back; an elongate dark blotch or smear on the front part of the lateral line; black "rhodein" streak pronounced posteriorly. Dorsal with 2 or 3 very faint cross-bands.

Besides the type there are four other specimens of about the same size.

#### ***Acheilognathus barbatus*, new species**

DESCRIPTION OF TYPE.—Number 8449, American Museum of Natural History, from Ningkwo, Anhwei; September 15 to October 15, 1921; collected by C. H. Pope.

Length to base of caudal 40 mm. Depth in length, 2.3; head, 3.5. Eye in head, 3; snout, 3.5; interorbital, 2.8; maxillary, 4; width of mouth, 3.6; barbel, 5.5; width of body, 2; depth of peduncle, 1.9; its length, 1.5; pectoral, 1.4; ventral, 1.4; longest dorsal ray, 1.4; longest anal ray, 1.6; caudal lobe, 0.9.

Dorsal II, 10; anal II, 9; Scales 38. Pharyngeal bones and teeth (from a cotype) small, the latter sharply hooked, with slight blunt dentation along one side of the groove.

Body compressed; nape somewhat elevated; vent midway between ventral axils and anal origin. Top of head slightly convex; mouth small, oblique, with a double pimply saddle on the snout above it; jaws equal; maxillary not reaching to below front of eye; with a well-developed terminal barbel. Simple rays of dorsal and anal spinous; dorsal origin equidistant from base of caudal and middle of snout, immediately behind base of ventrals; pectoral barely reaching ventral origin; ventral

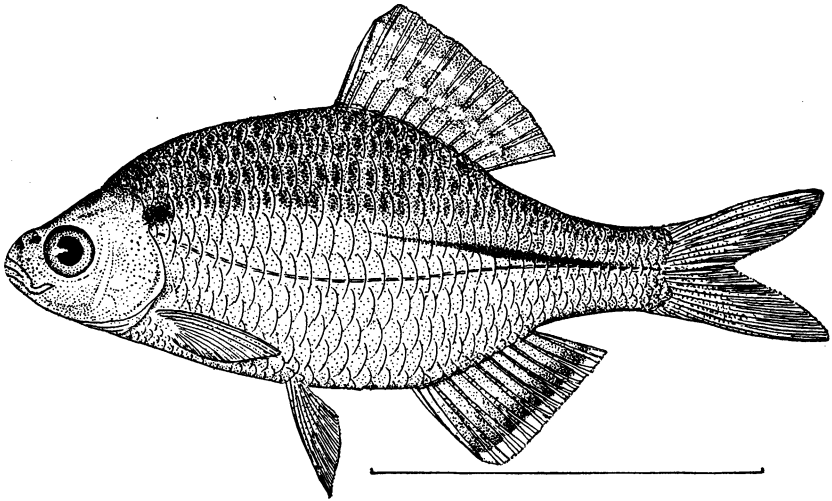


Fig. 6. *Acheilognathus barbatus*, 40 mm. standard length.

just reaching that of anal; caudal well forked. Scales with radiating striæ; lateral line complete, a little bent down under front of dorsal; anal with a low basal sheath of scales, that of the dorsal little developed.

Color gray, paler below, Black "rhodein" stripe short, broad and bold; a black spot at the upper axil of the opercle. Ventral, dorsal and anal dark gray; dorsal with a couple of faint paler cross-streaks; anal with a rather broad whitish margin.

Two specimens. The species is apparently close to *Acheilognathus limbatus* (Temminck and Schlegel) from Japan.

