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SOME CHINESE FRESH-WATER FISHES¹

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X. SUBGENERA OF BAGRIN CATFISHES

There are a number of related catfishes in China variously assigned to the genera *Pseudobagrus* Bleeker (type, *Bagrus aurantiacus* Temminck and Schlegel, Japan) and *Leiocassis* Bleeker (type, *L. micropogon* Bleeker, Sumatra, Borneo, etc.). Those referred to *Leiocassis* have the adipose rather long, and are supposed to have the orbital rim adnate. As a matter of fact they fall readily into two quite different series, neither of which is referable with any certainty to the type represented by East Indian *micropogon*, and it is best for the present to separate them from the same as subgenera, as follows.

NASOCASSIS, new subgenus. Snout with a tendency to be elongate or swollen. Orbital rim much as in *Pseudobagrus*, usually partially free, but eye much smaller, so that its rim appears adnate. Caudal well forked. Type: *Leiocassis longirostris* Günther, China.²

DERMOCASSIS, new subgenus. Orbital rim completely or almost completely adnate. Caudal emarginate, truncate, or rounded. Type: *Leiocassis ussuriensis* Berg (*Bagrus ussuriensis* Dybowski), Manchuria, China, etc.

On the other hand, *Fluvidraco* Jordan and Fowler (type *Pseudobagrus ransonneti* Steindachner, Japan) for those species of *Pseudobagrus* wherein bones on the top of the head are exposed, rugose, is certainly not entitled to more than subgeneric rank.

A related but quite distinct form of catfish common in China, with elongate body, flat head and very long adipose, was described as *Hemibagrus macropterus* Bleeker, and is thus far recognized as a single species. The writer doubts the close relationship of this fish to *Bagrus nemurus* Cuvier and Valenciennes, Java, Malacca, Siam, etc., in fresh and brackish water, which is the type of *Hemibagrus* Bleeker. He here proposes for *Hemibagrus macropterus* Bleeker the subgenus **Macroptero bagrus**, distinguished by elongate body, very long adipose, depressed head and

¹Publications of the Asiatic Expeditions of The American Museum of Natural History. Contribution No. 55.

²Günther, 1888, Ann. Mag. Nat. Hist., (6) I, p. 430, says: "This is not a Japanese species, as I was incorrectly informed when I described it."

weekly forked caudal; to stand as a full genus if *Hemibagrus* be subordinated to *Macrones* Dumeril (equals *Aoria* Jordan) or to *Pseudobagrus* Bleeker.

XI.—CERTAIN APPARENTLY UNDESCRIBED CARPS FROM FUKIEN

***Barbus caldwelli*, new species**

DESCRIPTION OF THE TYPE.—No. 8434, American Museum of Natural History, from near Yenping, Fukien; collected by H. R. Caldwell.

Length to base of caudal, 100 mm. Depth in length, 3.6; head, 3.5. Eye in head, 4; snout, 3; interorbital, 2.7; maxillary, 3.1; width of mouth, 3.6; width of snout, 3; posterior barbel, 3.2; width of head and of body, 1.8; depth of peduncle, 2.8; its length, 2.5; pectoral, 1.5; ventral, 1.6; longest dorsal ray, 1.9; longest anal ray, 1.7; lower caudal lobe, 1.1.

Dorsal, 11; anal, $7\frac{1}{2}$. Scales, 24.

Moderately compressed, the head broad, snout pointed. Mouth very slightly oblique; lower jaw included; two well-developed slender barbels, the posterior at the end of the maxillary decidedly the longer; maxillary to under front margin of eye; left side of snout only with a band of small, crowded, wartypoints above the maxillary; eye lateral; interorbital very slightly concave; gill-membranes rather narrowly joined to side of isthmus just before the edge of the preopercle. Dorsal and anal without spinous rays; dorsal origin equidistant from tip of snout and base of caudal; ventral placed slightly behind center of dorsal base; pectoral reaches two-thirds the distance to ventral; ventral three-fourths to anal; caudal moderately forked with pointed lobes, the lower slightly the longer. Scales rough, with close-spaced radiating striæ; lateral line complete, slightly bent down, in the center of peduncle.

Dorsal with a black free margin; scales faintly outlined in dark; a dark streak in the outer basal margin of each caudal lobe.

Three larger specimens also were collected of this handsome barb, which is closely related to a similarly colored form we have from the island of Hainan. Its differences from the latter seem to lie in a less chubby body, narrower, more pointed snout, and slightly higher scale count.

***Barbus (Lissochilichthys) hemispinus*, new species**

DESCRIPTION OF THE TYPE.—No. 8435, American Museum of Natural History, from near Yenping, Fukien; collected by H. R. Caldwell.

Length to base of caudal, 64 mm. Depth in length, 3.1; head, 3. Eye in head, 3.5; snout, 2.6; interorbital, 4; maxillary, 3.8; posterior barbel, 4.5; depth of peduncle, 2.4; its length, 2; pectoral, 1.4; ventral, 1.5; longest dorsal ray, 1.5; longest anal ray, 1.6; caudal lobe, 1.1.

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

Compressed, back somewhat elevated. Snout long and narrow; lower jaw included; lower lip deeply grooved in the middle, the jaw projecting forward beyond it; two rather long maxillary barbels, the posterior the longer; mouth horizontal; maxillary not reaching to below front border of eye; interorbital little convex; gill-

membranes broadly joined to side of breast below edge of preopercle. Last simple ray of dorsal stiffened and serrate behind, but soft distally; dorsal origin equidistant from base of caudal and middle of snout, over that of ventral; pectoral not reaching ventral, ventral not reaching anal; caudal forked, with pointed lobes. Scales rough, with well-marked, somewhat radiating striæ; scales somewhat smaller posteriorly; lateral line complete, almost straight in the center, very slightly bent down in front.

A vague dark mark on peduncle.

The presence and character of a dorsal spine does not appear to be of much significance in barboid carps, hence this species, on the basis of the structure of its mouth, is placed close to *Lissochilichthys matsudai* Oshima, 1920,¹ Formosa, which would apparently stand as a synonym of *Gymnostomus labiatus* Regan, 1908,² were *labiatus* not preoccupied by *Barbus (Labeobarbus) labiatus* Boulenger, 1902,³ if *Lissochilichthys* be considered a subgenus of *Barbus*. *Barbus (Lissochilichthys) matsudai*, by the way, is common in Fukien, apparently not separable from the Formosan fish. Also there is a fish closely related to *B. hemispinus* in the island of Hainan, apparently more slender, with shorter barbels, and reaching a larger size.

***Sarcocheilichthys sinensis fukiensis*, new subspecies**

DESCRIPTION OF THE TYPE.—No. 8436, American Museum of Natural History, from near Yenping, Fukien; collected by H. R. Caldwell.

Length to base of caudal, 90 mm. Depth in length, 3.6; head, 4.4. Eye in head, 3.5; snout, 3; interorbital, 2.5; maxillary, 3; width of mouth, 3.4; width of body, 1.5; depth of peduncle, 1.7; its length, 1.2; pectoral, 1; ventral, 1.2; longest dorsal ray, 0.9; longest anal ray, 1.2; caudal lobe, 0.9. Barbel in eye, 6.

Dorsal, $9\frac{1}{2}$; anal, $8\frac{1}{2}$. Scales, 41. 4 rows between lateral line and ventral; 16 around caudal peduncle; 11 between the lateral lines across nape.

Moderately compressed, snout somewhat pointed, nape little if at all elevated; vent at one-third the distance from anal origin to ventral axil, with a long ovipositor. Mouth slightly behind the tip of snout, horizontal, inferior, heart-shaped; with moderate lips, confined to the sides of lower jaw, which is, with an exposed shaft between them, somewhat expanded to a curved sharp horny tip; length of mouth 0.8 in its width; maxillary to under front of eye; a small barbel above its end; interorbital very slightly convex; gill-membranes broadly joined to side of isthmus behind edge of preopercle. Dorsal origin equidistant from tip of snout and anal axil; ventrals under center of dorsal base; pectoral reaching five-sixths the distance to ventral; ventral five-sixths to anal; caudal moderately forked. Scales rough, with subparallel horizontal or very slightly radiating striæ; lateral line complete straight in the center.

Four rather well-defined broad blackish cross-bands, one from shoulder to pectoral axil, one from dorsal to ventral narrowly crossing belly behind ventral axil, one opposite the anal, and one on peduncle; anterior and central portion of dorsal,

¹Proc. Acad. Nat. Sci. Phila., LXXII, p. 124, Pl. III, fig. 2.

²Ann. and Mag. Nat. Hist., (8) II, p. 358.

³Proc. Zool. Soc., part 2, p. 223, Pl. XVII, fig. 1.

anterior (upper) portion of pectoral, central portions of ventral anal and caudal, blackish, the margins of the fins pale.

Compared with a specimen of the same size (*S. s. sinensis*) from Tungting Lake on the central Yangtze which has depth, 3.7; nape more gibbous, snout blunter; length of mouth 1.4 in its width; barbel 8 in eye; 5 rows of scales between lateral line and ventral, 18 around caudal peduncle; cross-bands less defined and an ill-defined lateral band; more dusky on the bases of the fins, dorsal with less of a pale tip.

Berg, 1916,¹ considers *Barbodon lacustris*, type of the subgenus *Barbodon* Dybowski, to be a race of *Sarcocheilichthys sinensis* Bleeker, 1871,² doubtfully credited to the Yangtze by Bleeker. Our *Barbodon* from Tungting is certainly very close to *lacustris* as figured by Berg, and we follow him in identifying it with *sinensis* Bleeker; although a species of the subgenus *Chilogobio* inhabiting the same waters might perhaps as well have been so identified.

Sarcocheilichthys (Barbodon) sinensis from Ningkwo, Anhwei, may be taken as representing this species in the lower Yangtze Basin. The differences which it shows from the Tungting fish are too slight to receive taxonomic notice.

***Garra orientalis*, new species**

DESCRIPTION OF THE TYPE.—No. 8437, American Museum of Natural History, from near Yenping, Fukien; collected by H. R. Caldwell.

Length to base of caudal, 75 mm. Depth in length, 4.4; head, 3.9. Eye in head, 5.5; snout, 2.2; interorbital, 2.7; maxillary, 2.3; width of mouth (and of disk), 2; mouth to posterior edge of disk, 2.7; distance between gill clefts, 3; greatest width of body (at back of head), 1.5; depth of peduncle, 2; its length, 1.7; pectoral, 1; ventral, 1.2; longest dorsal ray, 1; longest anal ray, 1.4; caudal lobe, 0.8. Barbels in eye, 1.5.

Dorsal, 10½; anal, 7½. Scales, 33.

Moderately compressed; the head broad and blunt, somewhat cuboid; lower surface of head and breast flattened so that bases of pectorals and ventrals are in a horizontal plane; vent at slightly more than one-third the distance from anal origin to ventral axil. Eye placed high; slightly superolateral; top of head slightly convex; marked off before the nostrils from the lower front part of snout by a groove; the tip of snout again slightly raised; mouth inferior, transverse, very little curved; overhang in front by the broad snout membrane which is finely pimply near its margin and with comblike serrations on its edge; a rounded disk on chin, smooth in the center and finely pimply near front and hind borders; a small barbel at the tip of the maxillary and another on the side of the front of the snout; forehead and top of snout with warty points; top of head and to some extent side of snout with fine, little prominent pimples; gill-membranes broadly joined to side of breast. Dorsal and anal without spinous rays; dorsal origin equidistant from tip of snout and anal axil; ventral placed under center of dorsal; pectoral not reaching ventral, ventral not reaching anal;

¹ Poiss. Eaux Douces Russ., p. 234, Fig. 175.

² Verh. Akad. Wet. Amst., Nat., XII, p. 31, Pl. iv, fig. 2.

caudal forked, with equal lobes. Scales rough, with fine irregular parallel striae; lateral line complete, straight, in the center, rising slightly to meet opercle.

Color uniform, rather dark, paler on belly; a vague dark blotch in center of peduncle near base of caudal.

This species, with a groove before the nostrils, approaches one found in the island of Hainan, wherein the forehead projects as in *Schismatorhynchos*.

XII.—A SMALL GOBY FROM THE CENTRAL YANGTZE

Gobius cliffordpopei, new species

DESCRIPTION OF THE TYPE.—No. 8438, American Museum of Natural History, from Tungting Lake, Hunan, December 16, 1921; collected by C. H. Pope.

Length to base of caudal, 34 mm. Depth in length, 4.7; head, 3.4. Eye in head, 5; snout, 3.5; maxillary, 2; depth of peduncle, 3; its length, 1.3; pectoral, 1.3; ventral, 2; longest dorsal spine, 1.7; longest dorsal ray, 1.8; longest anal ray, 2; caudal, 1.5. Interorbital, 4 in eye.

Dorsal VI or VII—9; anal, 8. Head naked before dorsal; scales, 28. No canine teeth.

Eyes close together, superolateral; mouth somewhat oblique, with thick lips, the maxillary extending to under front of eye; jawsequal or lower slightly projecting; gill-membranes joined to sides of breast under or behind edge of preopercle; pectorals reaching beyond ventrals, but not to front of anal; caudal bluntly pointed.

Broad black cross-bands posteriorly, somewhat variable in width.

Small gobies of the subgenus *Rhinogobius*, perhaps referable to *G. hadropterus* (Jordan and Snyder) of Japan, appear to be common in the coastal rivers of China. It is not unlikely that careful study of an adequate series will make it possible to recognize two or three species coastwise. At least the present species from Tungting Lake in the middle Yangtze is distinct from *hadropterus*, differentiated by the, if anything, slightly projecting lower jaw, and broad, conspicuous vertical bands on the sides. Absence of scales on the nape may be due to the small size of the type, but the species would seem to be a small one.

Named for Mr. C. H. Pope, the thoroughness of whose field work in China has brought to light many species of fishes previously overlooked.

XIII.—A NEW MINNOW REFERRED TO *LEUCOGOBIO*

There is to hand a single specimen of a small carp from Anhwei, the exact position of which was at first something of a puzzle. Careful study leaves no question that it is close to *Leucogobio*, in which genus it is provisionally placed. It bears a strong superficial resemblance to *Pseudorasbora fowleri* Nichols, 1925, Amer. Mus. Novitates, No. 182, p. 5.

Leucogobio imberbis, new species

? *Aphyocypris chinensis* FOWLER, 1924, Bull. Amer. Mus. Nat. Hist., L, p. 383, in part, not of Günther.

DESCRIPTION OF THE TYPE.—No. 8439, American Museum of Natural History, from Ningkwo, Anhwei, September 15 to October 15, 1921; collected by C. H. Pope.

Length to base of caudal, 68 mm. Depth in length, 3.7; head, 3.4. Eye in head, 4.4; snout, 3.7; interorbital, 3.1; maxillary, 3.4; depth of peduncle, 2.8; its length, 1.5; pectoral, 1.4; ventral, 1.6; longest dorsal ray, 1.6; longest anal ray, 1.8; caudal, 1.3.

Dorsal, 9; anal, 8 (counting 2 simple rays). Scales, about 42. Teeth, 5, 2 or 3, rather stout, slightly hooked.

Moderately compressed; back elevated; nape slightly gibbous; top of head flat. Jaws equal; mouth oblique; maxillary not quite reaching to under front of eye, with a minute thick barbel concealed near its tip, on one side only; gill-membranes joined, free from isthmus, at extreme base; opercle with a membranous edge reaching pectoral base. Dorsal without spinous ray; its origin equidistant from end of snout and base of caudal; ventral origin directly under that of dorsal; pectoral not quite reaching to ventral, ventral not quite to anal, caudal moderately forked. Lateral line apparently complete (scales lost on peduncle), running almost straight and about in the middle of the side; scales rather rough, with slightly radiating striæ; an elongate folded membranous scale in ventral axil, with a second, pointed scale as covert.

A blackish band from shoulder to base of caudal, and dark mark from back of eye towards shoulder; a pale area above the lateral band, divided by a darkish stripe; back mostly dark; fins plain.

XIV.—TWO APPARENTLY UNDESCRIBED FISHES FROM YUNNAN

A considerable amount of scattered systematic work has recently been done on the fishes of Yunnan, which province appears to possess a large fish fauna. With only a small series of forms from there for comparison, the writer has some hesitation in proposing the following two new species, which, nevertheless, he is unable to find anywhere described in the literature.

Xenocypris yunnanensis, new species

DESCRIPTION OF THE TYPE.—No. 8440, American Museum of Natural History, from Yunnan-fu Lake, Yunnan, February 20, 1919; collected by John Graham.

Length to base of caudal, 123 mm. Depth in length, 4.2; head, 3.9. Eye in head, 3.5; snout, 4; interorbital, 3; maxillary, 4.5; width of mouth, 4.6; width of body, 2.6; depth of peduncle, 2.6; its length, 1.7; longest dorsal ray, 1.3; longest anal ray, 2.6; pectoral, 1.5; ventral, 1.6; caudal lobe (broken), about 1.

Dorsal, II, $7\frac{1}{2}$; anal, $13\frac{1}{2}$. Scales, 72. Teeth, 6, 4, 2.

Moderately compressed; a very slight keel on belly reaching perhaps halfway forward to ventrals. Top of head very slightly convex; snout blunt; lower jaw slightly included, the almost terminal mouth curved, transverse, with narrow-edged jaws, and little or no free lip; gill-membranes joined to isthmus under preopercle; maxillary only slightly oblique, not reaching front of eye; lower jaw oblique, its lower margin

straight; no barbels; opercle with a conspicuous membranous edge. Last simple dorsal ray a slender spine, articulate towards the end and with a short soft tip; dorsal origin equidistant from base of caudal and middle of snout; ventral origin under that of dorsal; pectoral extending about two-thirds the distance to ventral, ventral about two-thirds to anal; caudal well forked, with narrow pointed lobes. Scales with conspicuous radiating striæ, lateral line complete, almost straight, running rather low, ending in the center of peduncle; irregularly broken and doubled in two or three places in this specimen.

Silvery white, a little darker along the back.

***Ischikauia transmontana*, new species**

DESCRIPTION OF THE TYPE.—No. 8441, American Museum of Natural History, from Yunnan-fu, Yunnan, October 20, 1920; collected by John Graham.

Length to base of caudal, 100 mm. Depth in length, 4.4; head, 3.7. Eye in head, 4; snout, 3.6; interorbital, 3.5; maxillary, 3; width of body (at shoulder), 2; depth of peduncle, 2.8; its length, 1.6; pectoral, 1.4; ventral, 1.7; longest dorsal ray, 1.3; longest anal ray, 1.9; lower caudal lobe, 1.

Dorsal, $9\frac{1}{2}$; anal, 11. Scales, 66. Teeth (in a cotype), 4, 4, 2, hooked.

Compressed; a low keel between ventrals and anal, scaled to the edge and crossed by scales except its posterior part. Snout pointed; lower jaw projecting; interorbital flattish; mouth oblique; maxillary barely or not reaching to below front margin of eye; no barbels; gill-membranes narrowly joined to center of isthmus behind posterior margin of eye. Dorsal and anal without spinous rays; dorsal origin equidistant from base of caudal and middle of snout; pectoral narrow and pointed, reaching two-thirds the distance to ventral; ventral two-thirds to anal; caudal well forked with narrow pointed lobes, the lower the longer. Scales with conspicuous radiating striæ; lateral line complete, slanting down over pectoral, then running rather low to anal axil, rising on front part of peduncle to its center, but without sharp changes in direction as in *Hemiculter*.

Pale, silvery, a little darker along back.

