ZOOLOGICAL RESULTS OF THE THIRD DE SCHAUENSEE SIAMESE EXPEDITION. PART IX.—ADDITIONAL FISHES OBTAINED IN 1936

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The collection here reported from Peninsular Siam, includes 2453 specimens, represented by 124 species. Of these 25 species are additional to those reported in my previous papers on Mr. Rodolphe M. de Schauensee's collections.[1] These are similarly marked by an asterisk. Twelve of the freshwater species are here described as new to science.

The Academy is again glad to acknowledge continued work on the Siamese fauna, due to Mr. de Schauensee's generous assistance, as well as this valued addition to the museum. Mrs. Mildred Appel assisted in inking the figures.

KHAO BHANAM BENCHA

The following were all collected August 10, including 19 specimens represented by 5 species.

CYPRINIDAE

Rasbora cromiei Fowler

Thirteen, 78 to 102 mm.

Danio regina Fowler

Two, 115 to 123 mm.

Hampala macrolepidota (Valenciennes)

One, 73 mm. Differs from all my examples studied previously in the presence of a dark spot size of pupil, at the suprascapula.

Cyclocheilichthys apogon (Valenciennes)

One, 142 mm.

Osteochilus vittatus (Valenciennes)

Two, 114 to 128 mm. Barbels 4. Scales 29 + 3 in lateral line; 6 above, 5 below to ventral origin, 6 to anal, 10 predorsal. D. III, 12, I.

[1] Proc. Acad. Nat. Sci. Phila., vol. LXXXIX, May 19, 1937, p. 124 (list of titles in footnote).

A collection of 255 specimens was obtained at this locality, September 18. The species number 19.

NOTOPTERIDAE

Notopterus notopterus (Pallas)

Five, 123 to 142 mm.

BAGRIDAE

Mystus planiceps (Valenciennes)

Fifty-seven, 42 to 45 mm.

Liocassis albicollaris Fowler

Five, 138 to 158 mm.

CYPRINIDAE

Culter pointoni (Fowler)

Chela pointoni Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. LXXXVI, April 30, 1934, p. 108, fig. 60 (type locality, Chieng Mai, North Siam).

Depth $3\frac{3}{5}$ to $4\frac{2}{5}$; head $4\frac{1}{3}$. Snout $3\frac{1}{3}$ to $3\frac{7}{8}$ in head from snout tip; eye $3\frac{3}{5}$ to 4; maxillary 3; interorbital $3\frac{2}{5}$ to $4\frac{1}{8}$. Gill rakers 4 + 12. Scales 33 + 3 in lateral line, 9 above, 3 below. Predorsal scales forward to last $\frac{1}{3}$ in eye. A. III, 27, I or III, 28, I.

Seven, 98 to 158 mm.

These specimens agree largely with my original description and figure. The dark lateral axial band is more distinct, especially on the tail. The course of the lateral line is a little different, as it arches slightly in its downward course before the ventral. Scales along middle of side of body much larger, deeply exposed and rather narrowly imbricated. In both specimens the lower caudal lobe is longer than the upper.

Rasbora cromiei Fowler

Sixty-one, 28 to 110 mm.

Esomus metallicus Ahl

Two, 58 to 59 mm. These differ a little from Hora and Mukerji's figure,[2] in the shorter rostral barbel, not reaching beyond ventral origin.

Puntius binotatus (Valenciennes)

Thirty-four, 32 to 118 mm. The small ones show the markings as indicated in Weber and Beaufort's Fig. 74 of growth stages.

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[2] Rec. Indian Mus., vol. 30, pt. 1, April 1928, p. 54, text-fig. 4 (Nontaburi, Nong-Khor).

Puntius brevis (Bleeker)

Two, 61 to 66 mm. These agree largely with my figure of *Barbus brevis* based on Bangkok material. The figure of *Puntius brevis* given by Weber and Beaufort fails to show any pointed axillary ventral scale, and the depth $2\frac{7}{10}$ to $2\frac{4}{5}$ differs, as my specimens show depth $2\frac{1}{3}$.

Mystacoleucus marginatus (Valenciennes)

One, 108 mm. This specimen rather faded, though seems to agree best with the present species.

Osteochilus duostigma Fowler

Osteochilus duostigma Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. LXXXIX, May 19, 1937, p. 182, figs. 120-121 (type locality, Kemrat, Siam; Bangkok).

Twenty-one, 70 to 94 mm.

Osteochilus hasseltii (Valenciennes)

Ten, 78 to 110 mm. All show the characteristic dark spots, one on each scale and therefore forming longitudinal series. D. III, 15, I. Scales 5 below lateral line to ventral origin.

Cyclocheilichthys apogon (Valenciennes)

Nine, 78 to 135 mm. No trace of barbels.

Acrossocheilus hutchinsoni (Fowler)

Four, 76 to 122 mm.

HEMIRAMPHIDAE

Dermogenys siamensis Fowler

Seven, 37 to 56 mm.

ANABANTIDAE

Trichopodus trichopterus (Pallas)

Two, 82 to 88 mm. Agrees in most every way with Weber and Beaufort's figure.

Trichopodus leerii (Bleeker)

Five, 59 to 71 mm. Depth $2\frac{1}{8}$; head 3. Snout 4 in head; eye 4, 2 in postorbital length. Dorsal origin over front part of soft anal base. A. X, 30. Markings less contrasted than in preceding species.

CHANDIDAE

Ambassis safgha (Forskål)

Four, 63 to 74 mm.

GERRIDAE

Gerres setifer (Buchanan-Hamilton)

Seven, 89 to 140 mm. Agree with Day's figure of *Gerres lucidus*.

Gerres filamentosus Cuvier

Sixteen, 60 to 93 mm. Dorsals with scaly basal sheath broad, formed of a single series of narrowly exposed basal scales.

KRABI

The largest number of fishes, 576 specimens, were obtained at this locality on the Gulf of Siam in Peninsular Siam, during September and the fore part of October. The species number 81.

ELOPIDAE

Megalops cyprinoides (Broussonet)

One, 188 mm., September 5.

DOROSOMIDAE

Nematalosa nasus (Bloch)

Two, both 154 mm., September 4; two, 178 to 180 mm., September 5.

CLUPEIDAE

Harengula perforata (Cantor)*

Depth 3; head 4. Eye $3\frac{1}{3}$ in head from snout tip. Lower gill rakers 53. Scales 44 +. Dorsal origin near front end of muzzle by space equal to postocular length of head. Black spot at dorsal origin.

One, 132 mm., September 12.

Ilisha elongata (Bennett)*

Depth $3\frac{1}{2}$; head $3\frac{4}{7}$. Snout $3\frac{1}{10}$ in head from snout tip; eye $3\frac{2}{3}$, $1\frac{1}{8}$ in snout; maxillary reaches opposite $\frac{1}{3}$ in eye, length 2 in head from snout tip. Lower gill rakers 20. Scales 40 + 5 in axial lateral series, abdominal scutes 20 + 8. D. III, 14, I, origin midway between mandible tip and caudal base; A. III, 38, I, fin origin below last $\frac{2}{5}$ of dorsal fin base, length $1\frac{3}{4}$ in fish without caudal. Slate gray above on back, sides and below silvery white.

One, 203 mm., September 5.

Ilisha hoevenii (Bleeker)

One, 83 mm., September 12.

ENGRAULIDAE

Thrissocles mystax (Schneider)

One, 167 mm., September 4; eleven, 149 to 185 mm., September 12; two, 165 to 168 mm., September 14; seven, 178 to 188 mm., September 16; two, 173 to 187 mm., September 21; two, 165 to 168 mm., without date, all with maxillary reaching to pectoral origin at least.

Thrissocles hamiltonii (Gray)

One, 192 mm., September.

Setipinna melanochir (Bleeker)

Depth $3\frac{1}{2}$; head $5\frac{1}{3}$. Snout $6\frac{3}{4}$ in head; eye $4\frac{1}{2}$, greatly exceeds snout, equals interorbital; maxillary $1\frac{1}{6}$ in eye. Gill rakers $7 + 10$, equal eye. Scales $43 + 3$ in lateral series; 16 transversely, 31 predorsal. D. III, 11, I. A. III, 45, I, origin before dorsal origin.

One, 193 mm., September 18.

MURAENIDAE

Muraena australis (Richardson)*

One, 630 mm., September 21. Dorsal origin very slightly in advance of vent. Broad bands of fine villiform teeth in jaws without an edentulous groove. Rictus extends nearly an eye diameter behind eye. Pectoral $3\frac{4}{5}$ in head. Gray brown above, belly and under surfaces pale brown to whitish. Anal pale or whitish anteriorly. Pectoral soiled with grayish.

MUROENESOCIDAE

Muroenesox arabicus (Schneider)*

One, 805 mm., September 21.

SILURIDAE

Wallago attu (Schneider)

Three, 230 to 273 mm., September 14; one, 250 mm., September 18; seven, 215 to 300 mm., September 21.

Kryptopterus cryptopterus (Bleeker)

Two, 162 to 163 mm., September 18; one, 178 mm., September 21.

Kryptopterus hexapterus (Bleeker)

One, 150 mm., September 18.

PANGASIIDAE

Pteropangasius cultratus (H. M. Smith)

One, 255 mm., September 14. A. IV, 38, I.

TACHYSURIDAE

Batrachocephalus mino (Buchanan-Hamilton)

One, 190 mm., no date.

BAGRIDAE

Mystus micracanthus (Bleeker)

One, 140 mm., September 4. Diffuse gray black blotch above humeral extension behind head, nearly twice eye. Gray black blotch on caudal peduncle next to caudal base, but little smaller. Dorsal spine $2\frac{1}{4}$ in first dorsal ray.

Mystus wolffii (Bleeker)

Long first dorsal ray extended, reaches middle of adipose fin, or 2 to 2½ times length of spine. Adipose fin almost long as anal. Right maxillary barbel reaches nearly to end of median caudal rays, left barbel little shorter. Lower caudal lobe ⅔ of upper. Nasal barbel reaches ⅔ space to first dorsal origin. Osseous area on upper surface of head much broader, or extends each side until nearly over each eye, than shown in Bleeker's figure of *Hypselobagrus wolfii.*

Eight, 147 to 183 mm., September 4; one, 163 mm., September 12; one, 170 mm., September 16; six, 168 to 198 mm., September 21; four, 160 to 185 mm., September 24.

Mystus gulio (Buchanan-Hamilton)

One, 170 mm., September 14; one, 160 to 195 mm., September 16; seven, 173 to 210 mm., September 24.

Differs from *M. wolffii* chiefly in the shorter first branched ray of the dorsal, the spine 1⅓ to 1¼ in first ray (in *M. wolffii* 2 to 2¼). There seems very little difference in the adipose fin, which nearly large as anal. Also the nasal barbels are shorter, seldom as long as head.

CYPRINIDAE

Oxygaster oxygastroides (Bleeker)

One, 163 mm., September 12; fifteen, 132 to 165 mm., September 16; three, 140 to 156 mm., September 18. Depth 3¼ to 3⅓. A. II or III, 26, I to 30, I.

Rasbora argyrotaenia (Bleeker)

Eight, 112 to 143 mm., September 4; one, 153 mm., September 12; eleven, 134 to 148 mm., September 16; twenty-three, 120 to 165 mm., September 18.

Nine scales over the caudal peduncle above and behind the dorsal, from one lateral line to the other. Pectorals shorter than head. Depth rather slender, much as 4⅓.

In coloration, on the supra-axial pale streak, along the olive axial streak, may have been blue in life. Caudal evidently crimson in life, traces of that color still evident, and the entire hind caudal border jet black.

Amblyrhynchichthys truncatus (Bleeker)

One, 152 mm., September 4; nine, 142 to 170 mm., September 16; one, 154 mm., September 18; one, 184 mm., September 21, this example with its left eye gouged out.

Cyclocheilichthys repasson (Bleeker)

One, 174 mm., September 12; one, 152 mm., September 16; four, 180 to 214 mm., September 21; one, 149 mm., date not given. Eye 3⅔ in head. Four very small barbels. Scales 30 + 3 in lateral line; 4 below to ventral origin, 6 below to anal origin.

Puntius orphoides (Valenciennes)

One, 207 mm., September 12; one, 258 mm., September 14. Differs from most accounts of the species in the conspicuous dark longitudinal bands along the side, each traversing the scale rows medially. The black post-branchial border and the lower dark borders to the caudal are conspicuous.

Puntius altus (Günther)

One, 230 mm., September 4; two, 205 to 260 mm., September 14; two, 149 to 178 mm., September 16; two, 202 to 220 mm., September 18; one, 223 mm., September 21. Differ from my previous materials in the dark band longitudinally in each caudal lobe.

As *Puntius* seems to replace the preoccupied *Barbus* Cuvier in fishes, the Siamese species in my previous papers will stand as:

Puntius swanefeldii (Bleeker)
" *binotatus* (Valenciennes)
" *lateristriga* (Valenciennes)
" *bramoides* (Valenciennes)
" *brevis* (Bleeker)
" *jolamarki* (H. M. Smith)
" *daruphani* (H. M. Smith)
" *spilopterus* (Fowler)
" *javanicus* (Bleeker)

Puntius chondrorhynchus (Fowler)
" *foxi* (Fowler)
" *ashmeadi* (Fowler)
" *beasleyi* (Fowler)
" *pessuliferus* (Fowler)
" *colemani* (Fowler)
" *shanensis* (Hora and Mukerji)

Puntioplites proctozysron (Bleeker)

The largest example has the third osseous anal ray entire, not serrated as in the two smaller specimens. It differs further in that the basal scale pocket is slightly darker and produces a reticulate pattern on the back and upper surface of the body.

Two, 122 to 130 mm., September 16; one, 168 mm., September 12.

Osteochilus hasseltii (Valenciennes)

Three, 155 to 200 mm., September 4; one, 205 mm., September 12.

Dangila siamensis Sauvage

Depth $3\frac{1}{4}$ to $3\frac{3}{4}$; head 5. Scales 33 + 3 in lateral line; 7 above, 4 below to ventral, 5 below to anal; 11 or 12 predorsal. D. III, 23, I or 24, I; A. III, 5, I. Dark ring or group of dark spots over middle of pectoral largely faded out in most specimens.

Two, 175 to 185 mm., September 4; three, 167 to 172 mm., September 12; three, 170 to 175 mm., September 18; five, 173 to 185 mm., September 21.

PLEURONECTIDAE

Pseudorhombus arsius (Buchanan-Hamilton)

One, 190 mm., September 16; one, 188 mm., no date.

CYNOGLOSSIDAE

Cynoglossus lingua (Buchanan-Hamilton)

One, 223 mm., September 12; one, 259 mm., September 14; three, 235 to 285 mm., September 16; two, 220 to 245 mm., September 21. Single obscure median lateral line on blind side. Scales ctenoid on colored (left) side, cycloid on right side. Scales 90 in median left lateral line, from over gill opening; 13 scales between lateral lines.

Cynoglossus macrolepidotus (Bleeker)

Two, 157 to 208 mm., September 12; one, 259 mm., September 14; three, 235 to 285 mm., September 16; two, 185 mm., no date. Two lateral lines on left side, none on right side, where scales cycloid. Rictus nearer gill opening than snout tip. Scales 48 to 50 in median lateral line counted from above gill opening; 9 scales between lateral lines. Hind borders of confluent dorsal, caudal and anal dark gray.

SPHYRAENIDAE

Sphyraena jello Cuvier

One, 305 mm., September 14. Eye 6 in head from snout tip, $2\frac{3}{4}$ in snout. Scales 108 + 12 in lateral line. Twenty-three obscure variable, dark, transverse, bar-like blotches on back.

MUGILIDAE

Mugil vaigiensis Quoy and Gaimard

One, 162 mm., September 5; one, 161 mm., October 6; three, 149 to 169 mm., no date.

Mugil oligolepis Bleeker

Two, 89 to 97 mm., September 18. Eye with only a narrow or marginal adipose-like border. Depth $2\frac{3}{4}$. Scales 22 or 23 in lateral axial series to caudal base. D. IV–I, 7, 1; A. III, 9, 1. Pectoral $1\frac{1}{8}$ to $1\frac{1}{6}$ in head, with axial scale well developed.

Mugil speigleri Bleeker*

Depth 4; head 4, width $1\frac{2}{3}$. Snout $4\frac{1}{4}$ in head; eye $4\frac{1}{4}$, $1\frac{3}{4}$ in interorbital, with broad adipose lids largely covering iris; maxillary visible with closed mouth, reaches opposite front of eye, length $3\frac{2}{3}$ in head; upper lip moderate, width $\frac{1}{4}$ eye diameter; mouth width $2\frac{1}{8}$ in head, mandibular rami would form broadly obtuse angle; interorbital $2\frac{2}{5}$, broadly convex. Gill rakers 13 + 42, slender, $1\frac{1}{3}$ in gill filaments, which equal eye.

Scales 38 + 3 in axial lateral series; 12 transversely at soft dorsal origin, 20 predorsal. Soft dorsal, anal and caudal densely covered with small close-set scales over most of fin except marginally or submarginally. Pectoral with pointed axillary scale $2\frac{1}{8}$ in fin.

D. IV–I, 8, 1, first spine $2\frac{1}{10}$ in head, first ray $1\frac{9}{10}$; A. III, 9, 1, first ray $1\frac{7}{8}$; caudal $3\frac{3}{7}$ in rest of fish, little emarginate behind; least depth of caudal peduncle $2\frac{1}{4}$ in head; pectoral $1\frac{1}{8}$, rays 1, 13, base rather broadly scaly; ventral rays I, 5, axillary scale $1\frac{1}{3}$ in its length, fin $1\frac{3}{4}$ in head.

Dull olive brown above, sides and below silvery white. Iris dark gray. Fins pale brownish, lower ones whitish. Apical margin of first dorsal narrowly blackish. Diffuse small brown blotch at pectoral origin.

One, 160 mm., September 12.

Mugil dussumieri Valenciennes

Three, 115 to 134 mm., September 4; eleven, 118 to 163 mm., September 16; four, 145 to 156 mm., no date. Adipose eyelids broadly developed. Maxillary visible with closed mouth. Scales 29 in lateral axial series to caudal base. Soft vertical fins largely and closely covered with small scales. A. III, 9, 1. Pectoral $1\frac{2}{5}$ to $1\frac{3}{7}$ in head, without axillary scale.

Mugil seheli Forskål

One, 142 mm., no date. Adipose eyelids broad. Maxillary visible with mouth closed. Scales 38 in axial lateral series to caudal base; 23 predorsal. Soft dorsal and anal entirely scaly. A. III, 8, 1. Pectoral $1\frac{1}{10}$ in head, with long scaly axillary flap. Least depth of caudal peduncle 2 in head. Edge of first dorsal blackish.

POLYNEMIDAE

Eleutheronema tetradactylum (Shaw)

One, 256 mm., September 5.

Eleutheronema tridactylum (Bleeker)

Six, 150 to 163 mm., September 4; one, 220 mm., September 12; one, 240 mm., September 16; two, 161 to 175 mm., September 18; four, 167 to 185 mm., September 21.

MASTACEMBELIDAE

Mastacembelus argus Günther

One, 380 mm., September 16. When fresh the two longitudinal lines parallel on head and trunk bright orange, the lower broken into a row of orange spots far back as beginning of anal fin.

SCOMBRIDAE

Rastrelliger kanagurta (Rüppell)

One, 138 mm., September 5; six, 119 to 147 mm., September 12; four, 127 to 138 mm., September 14; seven, 130 to 135 mm., September 16; two, 129 to 133 mm., no date.

CARANGIDAE

Scomberoides lysan (Forskål)

One, 188 mm., September 4.

Caranx sexfasciatus Quoy and Gaimard

One, 136 mm., September 12; one, 137 mm., no date. Belly entirely scaled. D. VI, I, 21, 1; A. II–I, 15, 1.

Caranx melampygus Valenciennes*

One, 137 mm., no date. A. II–I, 18, I. Tips and edges of soft dorsal and anal lobes blackish.

Carangoides praeustus (Bennett)

Two, 149 to 188 mm., October 4; one, 144 mm., no date.

Parastromateus niger (Bloch)

Two, 99 to 120 mm., September 16. Smaller specimen with short black ventrals.

LACTARIIDAE

Lactarius lactarius (Schneider)

Two, 105 to 120 mm., September 12; three, 105 to 123 mm., September 16.

LEIOGNATHIDAE

Leiognathus dussumieri (Valenciennes)

Three, 157 to 161 mm., September 21.

Leiognathus fasciatus (Lacepède)

One, 72 mm., September 16.

Secutor ruconius (Buchanan-Hamilton)

Four, 55 to 58 mm., September 12; one, 62 mm., September 14; four, 57 to 64 mm., September 16.

SERRANIDAE

Lates calcarifer (Bloch)*

One, 165 mm., no date.

LUTJANIDAE

Lutjanus fulviflamma (Forskål)

One, 163 mm., September 4; one, 157 mm., September 5; one, 165 mm., September 13; one, 155 mm., no date.

POMADASYIDAE

Plectorhinchus niger (Cuvier)

Two, 160 to 205 mm., September 21; two, 163 to 168 mm., October 4.

Pomadasys grunniens (Schneider)

Two, 158 to 168 mm., September 16.

Pomadasys hasta (Bloch)

Two, 130 to 160 mm., September 4; four, 131 to 164 mm., September 5; one, 136 mm., September 14; three, 145 to 163 mm., September 16; one, 168 mm., September 18; four, 128 to 143 mm., October 4; three, 133 to 135 mm., October 13; five, 125 to 165 mm., no date.

TERAPONIDAE

Datnioides polota (Buchanan-Hamilton)

Three, 118 to 152 mm., September 4; three, 153 to 190 mm., September 12; six, 123 to 158 mm., September 16; one, 197 mm., September 18.

SPARIDAE

Nemipterus marginatus (Valenciennes)*

Dentex marginatus Valenciennes, Hist. Nat. Poiss., vol. 6, 1830, p. 245 (type locality, Vanikolo; Java).

Nemipterus marginatus Weber and Beaufort, Fish. Indo-Austral. Archip., vol. 7, 1936, p. 372 (types; Java; Macassar).

Synagris furcosus (not Valenciennes) Fowler, Bull. U. S. Nat. Mus., no. 100, vol. 12, 1933, 9, 97 (part).

Synagris nematopus Fowler, op. cit., p. 104 (copied).

Depth 3. Head depth more than its length without opercle. Canines only in front of upper jaw. First dorsal spine shorter than second or third and others following graduated upward to fourth; membranes of spinous fin entire marginally, not notched. Pectoral equals head. First ventral ray filamentous, reaches anal.

One, 110 mm., September 14.

KYPHOSIDAE

Kyphosus vaigiensis (Quoy and Gaimard)*

One, 161 mm., October 4.

GERRIDAE

Gerres setifer (Buchanan-Hamilton)

Two, 108 to 125 mm., September 4; five, 116 to 145 mm., September 5; six, 118 to 139 mm., September 12; one, 119 mm., September 14; five, 120 to 128 mm., September 16; three, 110 to 120 mm., September 18; one, 148 mm., October 4; three, 110 to 127 mm., no date.

Gerres abbreviatus Bleeker

Depth $2\frac{1}{10}$; head 3. Snout $3\frac{2}{3}$ in head; eye $3\frac{1}{2}$, $1\frac{1}{3}$ in interorbital; maxillary reaches $\frac{1}{4}$ in eye, length $2\frac{2}{3}$ in head, expansion $2\frac{1}{3}$ in eye; interorbital $2\frac{2}{5}$ in head. Scales $35 + 3$ in lateral line; 6 above, 10 below, 15 predorsal forward to naked emarginate area of premaxillary groove. Traces of 10 vertical narrow dark streaks on back and upper sides.

One, 147 mm., October 13.

Gerres filamentosus Cuvier

One, 177 mm., no date.

SILLAGINIDAE

Sillago sihama (Forskål)

Two, 168 to 193 mm., September 4; three, 140 to 163 mm., September 5; one, 158 mm., September 12.

SCIAENIDAE

Johnius cujus (Buchanan-Hamilton)*

Depth $2\frac{7}{8}$ to 3; head 3 to $3\frac{1}{5}$, width $2\frac{1}{5}$ to $2\frac{1}{4}$. Snout 4 to $4\frac{1}{8}$ in head; eye $4\frac{1}{3}$ to $5\frac{1}{8}$, 1 to $1\frac{1}{4}$ in snout, little greater to subequal with interorbital; maxillary reaches $\frac{2}{5}$ to $\frac{1}{2}$ in eye, expansion $1\frac{1}{5}$ to $1\frac{1}{3}$ in eye, length $2\frac{2}{5}$ to $2\frac{1}{2}$ in head; teeth fine, in narrow bands in jaws, upper outer enlarged and inner posterior slightly enlarged; interorbital 5 to $6\frac{1}{4}$, low, convex; preopercle edge denticulated. Gill rakers 4 or 5 + 10 to 12, lanceolate, equal gill filaments or $\frac{1}{2}$ of eye; several above and below rudimentary.

Scales 49 or 50 in lateral line to caudal base; 9 or 10 above to spinous dorsal origin, 9 below to anal origin, 45 predorsal forward little before front nostrils. Scales in oblique series above lateral line, in horizontal series below. All fins scaly basally.

D. X, I, 28, I, third spine $1\frac{4}{5}$ to $1\frac{7}{8}$ in head, soft dorsal height $2\frac{1}{5}$ to $2\frac{1}{2}$; A. II, 7, I, second spine enlarged, robust, length $1\frac{1}{2}$ to $1\frac{2}{5}$, first ray $1\frac{2}{5}$ to $1\frac{2}{7}$; caudal $1\frac{1}{6}$ to $1\frac{1}{4}$, median rays much longest and form point behind; least depth of caudal peduncle $3\frac{1}{4}$ to $3\frac{4}{7}$; pectoral $1\frac{1}{2}$, rays I, 14; ventral rays I, 5, fin $1\frac{1}{2}$ in head.

Light brown, paler or whitish below. Narrow brown bands or lines, traversing middle of each scale row, above and below lateral line, former inclined and latter horizontal. Iris dark gray. First dorsal gray, with dark gray spots on membranes, 2 or 3 on each and uppermost larger. Second dorsal gray, with several dark gray spots on each membrane. Other fins more or less uniform or spots obsolete.

One, 188 mm., September 5; one, 190 mm., October 13; one, 204 mm., no date.

These specimens have a much less obtuse muzzle than in the figures of *Pseudotolithus mitsukurii* Jordan and Snyder or *Sciaena mitsukurii* Tanaka. The anal spine is also greatly larger. The blackish bands medially on each row of scales, though similarly disposed are narrower.

Johnius novae-hollandiae (Steindachner)*

Depth $3\frac{1}{2}$ to $3\frac{2}{3}$; head $3\frac{1}{3}$ to $3\frac{1}{4}$, width $1\frac{7}{8}$. Snout $3\frac{1}{4}$ to $3\frac{3}{7}$ in head; eye $4\frac{3}{4}$ to 5, $1\frac{2}{5}$ to $1\frac{1}{2}$ in snout, $1\frac{1}{5}$ in interorbital; maxillary largely concealed, reaches $\frac{1}{2}$ in eye, length from snout tip $2\frac{1}{4}$ to $2\frac{1}{3}$ in head; upper outer row of teeth enlarged, and lower teeth in uniformly villiform band; interorbital $4\frac{1}{3}$ to $4\frac{1}{2}$, convex; preopercle edge with 4 wide-set denticles around angle. Gill rakers 4 + 8, very short low tubercles; gill filaments $1\frac{7}{8}$ in eye.

Scales 43 or 44 in lateral line to caudal base; 7 above to spinous dorsal origin, 9 below to anal origin; 29 or 30 predorsal scales forward to near

snout end. All fins scaly basally. Tubes of lateral line with simple horizontal main rib, and short branch above and another below.

D. VIII, I, 26, I or 27, I, second spine $1\frac{4}{5}$ to 2 in head, soft dorsal height $2\frac{3}{4}$; A. II, 7, I, second spine 3 to $3\frac{1}{2}$, first branched ray $1\frac{4}{5}$ to $1\frac{9}{10}$; caudal $1\frac{1}{3}$, ends in median though rather obtuse point behind; least depth of caudal peduncle 3; pectoral $1\frac{2}{5}$ to $1\frac{1}{2}$, rays I, 15; ventral rays I, 5, fin $1\frac{3}{5}$ to $1\frac{3}{4}$ in head.

Back drab brown, with scales edged darked. Sides and lower surfaces paler to whitish. Iris dark gray. Snout below, cheek and mandible pale to whitish. Spinous dorsal grayish, darker marginally. Soft dorsal brownish, with darker brown dots on membranes terminally. Other fins all more or less whitish.

One, 171 mm., September 14; two, 168 to 175 mm., September 16; one, 160 mm., September 18.

Agrees in many ways with Ogilby's figure of *Sciaena novae-hollandiae*, though my specimens with the soft vertical fins all more or less covered with minute scales over their greater areas.

Johnius trachycephalus (Bleeker)

Depth $3\frac{2}{3}$; head $3\frac{1}{3}$. Outer upper row of teeth enlarged; lower teeth in uniform, villiform band. Gill rakers 7 + 11, short, lanceolate. Scales 48 + in lateral line; 12 above, 12 below, 35 predorsal. D. IX, I, 25, I.

One, 164 mm., September 16; one, 160 mm., September 18; one, 164 mm., September 21.

This species approaches Ogilby's Sharp-nosed Jewfish (*Sciaena leptolepis*) in its small and crowded scales on the predorsal, he giving 11 above the lateral line to the spinous dorsal base. In no other way does it appear very closely related, as its scales on the body elsewhere are larger, the facies of the head entirely different and the second dorsal fin rays greatly fewer. Moreover its pectorals are dusky or even blackish terminally.

Johnius siamensis (Hora)

Depth $3\frac{1}{3}$ to $3\frac{2}{3}$; head 3 to $3\frac{1}{6}$, width $1\frac{4}{5}$ to 2. Snout $3\frac{1}{2}$ to $3\frac{3}{4}$ in head; eye 4 to $4\frac{1}{2}$, 1 to $1\frac{1}{3}$ in snout, $3\frac{3}{4}$ to 4 in interorbital; maxillary reaches $\frac{1}{2}$ in eye, largely sheathed by preorbital, length $2\frac{1}{8}$ to $2\frac{1}{5}$ in head; row of rather large well spaced conic teeth above and another below, also inner upper narrow band of villiform teeth; interorbital $3\frac{2}{5}$ to $3\frac{3}{4}$, convex; hind preopercle edge denticulate. Gill rakers 7 + 10 or 11, short, lanceolate, $\frac{3}{4}$ of gill filaments, which $2\frac{1}{4}$ in eye.

Scales 42 to 45 in lateral line to caudal base; 7 or 8 above to first dorsal origin, 8 below to anal origin, 28 to 30 predorsal forward on snout. Fins all largely scaly except first dorsal, scales small and dense on rayed vertical fins. Tubes of lateral line trifid.

D. X, I, 26, I to 28, I, third spine $1\frac{3}{4}$ to $1\frac{4}{5}$ in head, soft dorsal height $2\frac{2}{7}$ to $3\frac{1}{8}$; A. II, 7, I, second spine short, slender, 3 to $3\frac{1}{4}$, first ray $1\frac{3}{4}$ to $1\frac{7}{8}$; caudal $1\frac{1}{8}$ to $1\frac{1}{4}$, ends in median point behind; least depth of caudal peduncle $3\frac{1}{4}$ to $3\frac{3}{4}$; pectoral $1\frac{1}{5}$ to $1\frac{1}{2}$, rays I, 13; ventral rays I, 5, fin $1\frac{1}{3}$ to $1\frac{2}{3}$ in head.

Brown above, paler and lighter below, or under surfaces whitish. Iris dark gray. First dorsal grayish, darker marginally. Fins all pale brown.

One, 131 mm., September 5; thirty, 112 to 155 mm., September 12. This interesting species I have not previously seen. It is known chiefly by its small second anal spine, subequal with or only very slightly longer than eye.

Johnius belengeri (Cuvier)

Depth $3\frac{1}{5}$ to $3\frac{1}{3}$. Lower gill rakers 10. Dorsal rays 28. Pectoral $1\frac{3}{5}$ in head.

One, 165 mm., September 5; five, 143 to 177 mm., September 12; one, 156 mm., September 14; one, 179 mm., no date. The above series agrees very well with Day's figure of *Sciaena belengeri,* in their dark coloration, proportions, etc.

Johnius melanobrachium Fowler

One, 166 mm., September 18; one, 185 mm., September 21; one, 173 mm., no date. They all agree with the type in dark or blackish blotch on the pectoral fin. Second anal spine 4 to 5 in head.

Sciaena indica Kuhl and Van Hasselt

Three, 136 to 147 mm., September 14; one, 139 mm., no date. Barbel $1\frac{3}{5}$ in eye. Lower gill rakers 10. Second dorsal with 27 branched rays.

PLATYCEPHALIDAE

Platycephalus indicus (Linnaeus)

Two, 235 to 244 mm., September 4; one, 250 mm., September 5; three, 204 to 273 mm., September 14; two, 218 to 265 mm., September 16; four, 207 to 310 mm., September 21.

TOXOTIDAE

Toxotes chatareus (Buchanan-Hamilton)

Depth $2\frac{1}{8}$ to $2\frac{1}{3}$; head $2\frac{1}{2}$. Scales 32 + in lateral line; 4 above, 25 predorsal. D. V, 12, 1; A. III, 16, 1 or 17, 1.

Two, 146 to 167 mm., September 4; two, 128 to 150 mm., September 5; one, 117 mm., September 14; one, 108 mm., September 16.

EPHIPPIDAE

Drepane punctata (Linnaeus)

One, 138 mm., September 4. With 8 or 9 vertical series or small blackish spots.

SCATOPHAGIDAE

Scatophagus argus (Bloch)

Seven, 98 to 153 mm., September 5; eight, 93 to 125 mm., September 12; four, 99 to 135 mm., September 14; thirteen, 93 to 110 mm., September 16; one, 127 mm., September 21. All with large dark spots on body.

SIGANIDAE

Siganus javus (Linnaeus)

One, 175 mm., September 5.

Siganus concatenatus (Valenciennes)

One, 170 mm., September 5.

ELEOTRIDAE

Butis butis (Buchanan-Hamilton)

One, 123 mm., September 16; one, 160 mm., September 18.

GOBIIDAE

Gobius nebulosus Forskål*

Two, 86 to 93 mm., September 16; one, 95 mm., September 18. Show 15 predorsal scales extending forward in last $\frac{1}{3}$ of interorbital, though some of area immediately before dorsal is not completely scaled over. Agree in most other respects with the figures of *Rhinogobius lungi* Jordan and Seale, *R. criniger* Herre and *Gobius caninus* var. *africana* Playfair.

Gobius cyanosmos Bleeker

Fifty-one, 65 to 100 mm., September 4; sixteen, 68 to 108 mm., September 16; twenty, 64 to 108 mm., September 18; one, 113 mm., September 21.

These examples all agree largely with Day's figure, though the characteristic dark spot at the upper part of the caudal base present in all my specimens, is not shown in that figure. This is also not mentioned in either his synopsis of species, or his description. Quite characteristic are the 2 elongated terminal filaments of the second and third dorsal spines, these reaching often $\frac{2}{3}$ in the length of the second depressed dorsal. Scales 27 + 3 in axial lateral series.

Glossogobius giuris (Buchanan-Hamilton)

Seven, 163 to 273 mm., September 5; three, 173 to 201 mm., September 12; eight, 178 to 257 mm., September 14; eleven, 172 to 224 mm., September 16; two, 202 to 205 mm., September 18; eight, 165 to 253 mm., September 21; four, 183 to 205 mm., October 10; five, 185 to 243 mm., no date.

Apocryptodon bleekeri (Day)

Five, 155 to 210 mm., September 12; one, 168 mm., September 14; ten, 153 to 200 mm., September 16; seven, 154 to 165 mm., September 18; five, 175 to 230 mm., September 21.

ECHENEIDIDAE

Leptecheneis neucrates (Linnaeus)

One, 360 mm., September 21. Disk with 24 ribs.

TRANG

The collection from the Trang waterfall was made October 13 and 14, most of the specimens secured the first day. It consists of 1603 specimens, represented by 39 species. Of these 12 are here described as new. I have also included two other pertinent species in the Academy collection, representing the Heteropneustidae, and studied in this connection.

CLARIIDAE

Phagorus cataractus new species. Figs. 1, 2 (head above), 3 (upper dental plates).

Depth $6\frac{3}{7}$; head to hind end of lateral plate $4\frac{3}{4}$, to hind end of occipital extension $4\frac{1}{2}$, width $1\frac{1}{5}$ in length to hind end of lateral plate. Snout $3\frac{1}{3}$ in head measured to gill opening; eye 12, 4 in snout, 6 in interorbital; upper jaw protrudes with mandible inferior; left maxillary barbel nearly reaches dorsal origin (left maxillary barbel absent), nasal barbels reach back to hind end of lateral bony plate of head, left outer mental barbel reaches back nearly far as depressed pectoral (right one malformed or only $\frac{4}{5}$ to pectoral origin), left inner mental barbel reaches $\frac{1}{4}$ in depressed pectoral (right reaches $\frac{3}{4}$ to pectoral origin); lips and chin broadly with crowded and rather large papillae; teeth villiform, pointed, in bands in jaws and band across vomer; frontal fontanel $2\frac{1}{3}$ times eye, and occipital fontanel long as eye; predorsal space measured to occipital point $2\frac{1}{2}$ in rest of head. Gill rakers $4 + 16$, lanceolate, $1\frac{1}{4}$ in gill filaments or $1\frac{1}{2}$ times eye.

Skin smooth. Lateral line axial along side of body distinct, complete.

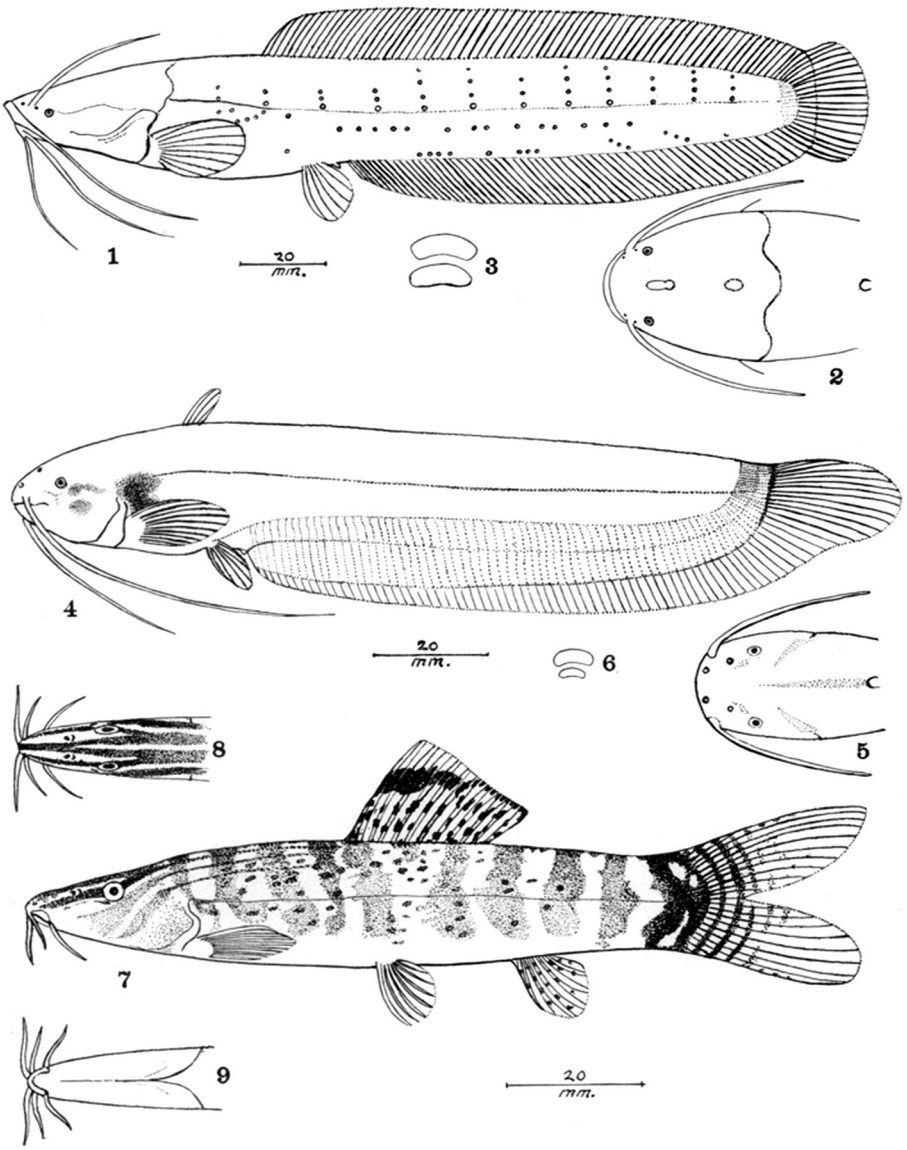
D. 67, fin height $2\frac{3}{5}$ in head measured to hind end of lateral plate; A. 54, fin height $2\frac{7}{8}$; caudal $1\frac{4}{5}$, rounded behind; caudal peduncle depth $3\frac{1}{4}$; pectoral $1\frac{4}{5}$, spine simple, pointed, edges entire, length $\frac{3}{5}$ of fin, rays I, 8; ventral rays 6, fin $2\frac{3}{4}$ in head. Anal papilla short, fleshy, with 3 small terminal points.

In alcohol dark livid gray or slate. Twelve transverse rows of small, close set pale brown spots, even, one above the other. On lower side of abdomen and tail anteriorly, broken longitudinal row or line of small pale brown spots. Under surface of head and belly pale brown. Eye slate. Barbels gray brown. Fins darker or dark gray basally, brownish terminally.

Type, A.N.S.P., no. 68462. Waterfall at Trang, Siam. October 13, 1936. Length 210 mm.

Though I have only the type specimen of this species it differs so greatly in many details from *Phagorus nieuhofii* (Valenciennes) that I describe it as a new species. Compared with Bleeker's figure of *Phagorus nieuhofii* (Valenciennes), that species shows shorter barbels, far more advanced origin of the dorsal fin, a greatly shorter ventral fin, smaller caudal fin and greatly different coloration, with far more numerous pale spots. Bleeker's figure also shows the body depth 9 in its length. Though the species is said to reach 490 mm. according to Weber and Beaufort, its body depth is given as 8 to $9\frac{1}{3}$.

(*Cataractus* waterfall, with reference to Trang.)



FIGS. 1, 2, 3.—*Phagorus cataractus* new species.
FIGS. 4, 5, 6.—*Silurichthys leucopodus* new species.
FIGS. 7, 8, 9.—*Botia lucas-bahi* Fowler.

HETEROPNEUSTIDAE

Heteropneustes fossilis (Bloch)

Silurus fossilis Bloch, Naturges. Ausland. Fische, vol. 8, 1794, p. 46, pl. 37A, fig. 2 (type locality, Tranquerah).

Saccobranchus fossilis Day, Fishes of India, pt. 3, 1877, p. 486, pl. 114, fig. 1.—Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. LXVII, May 28, 1915, p. 228 (Ganges R., India).

Heteropneustes fossilis Hora, Rec. Indian Mus., vol. 38, pt. 2, June 1936, p. 209 (reference).

Besides the specimen 155 mm. long I noted in 1915 from the Ganges, received from Dr. Marmaduke Burroughs, secured upward of century ago, I have another recently sent from the Indian Museum by Dr. Hora, and obtained at Calcutta. It is 125 mm. The former has A. 68 and the fin joined completely with the caudal. The Calcutta specimen has it only very shortly connected at base of caudal, and A. 65. Day gives A. 60 to 70.

Heteropneustes kemratensis (Fowler)

Clarisilurus kemratensis Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. LXXXIX, May 19, 1937, p. 133, figs. 5 to 7 (type locality, Kemrat, Siam).

Saccabranchus fossilis (not Bloch) Suvatti, Index Fish. Siam, 1937, p. 84 (Bung Boraphet; Nong Phranang; Paknampho; Maenam Nakhon Nayok).

Type and 3 paratypes of *Clarisilurus kemratensis* re-examined.

Myers has noted my error in placing *Clarisilurus heteropneustes* in the Siluridae (Copeia, 1938, no. 2, June 30, p. 98). Previously Dr. Hora had discussed its true relationship in a letter and sent me the above Calcutta specimen. In the light of the above comparisons I therefore supress *Clarisilurus* as a synonym of *Heteropneustes* Müller = *Saccobranchus* Valenciennes, and admit it to the Heteropneustidae, where it rightly belongs. *H. kemratensis* appears to differ from *H. fossilis* (Bloch) chiefly in more anal rays (75 to 84).

SILURIDAE

Silurichthys leucopodus new species. Figs. 4, 5 (head above), 6 (upper dental plates).

Depth 6; head $6\frac{1}{3}$, width $1\frac{1}{4}$. Snout $2\frac{2}{5}$ in head; eye 9, $3\frac{2}{3}$ in snout, 4 in interorbital; lower jaw little shorter than upper; mouth width $1\frac{1}{2}$ in head; maxillary barbel reaching about $\frac{5}{11}$ in space to caudal base, and mental barbel reaches ventral; teeth in jaws villiform, in rather narrow band in each jaw, and few small similar scattered teeth on vomer; interorbital $1\frac{4}{5}$ in head, broadly convex.

Skin smooth. Lateral line distinct, axial along side.

D. 4, inserted well before ventral, length $2\frac{1}{4}$ in head; A. 67, fin height posteriorly $1\frac{7}{8}$; caudal $4\frac{2}{5}$ in rest of fish, rounded behind, joined with anal; pectoral subequal with head, rays I, 10, spine 2 in fin, entire; ventral $1\frac{2}{3}$ in head, rays 1, 6. Anal papilla short, conic point.

Uniform dark brown. Iris slate. Barbels dark brown. Pectoral blackish brown, lower edge whitish. Ventral very pale brown to whitish, base brown.

Type, A.N.S.P., no. 68463. Waterfall at Trang, Siam. October 13, 1936. Length 157 mm.

Closely related to *Silurichthys schneideri* Volz 1904, which Weber and Beaufort list with their doubtful species. It agrees especially in the increased anal rays (64 in *S. schneideri*) and mouth cleft reaching opposite front of eye. It differs in the dorsal origin well before the ventral origin in the vertical and lower jaw shorter than upper. Though the coloration is not given for *S. schneideri* it is assumed as likely uniform brown?. *S. leucopodus* has white ventrals and the lower pectoral border white, quite different from Weber and Beaufort's statement " distal part of caudal, of pectorals and anal somewhat darker ".

(Λευκὸς white + πούς foot, with reference to the ventral fins.)

BAGARIIDAE

Glyptothorax laosensis Fowler

Glyptothorax laosensis Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. LXXXVI, April 30, 1934, p. 88, figs. 28-30 (type locality, Bua Yai, East Siam; Chieng Mai, North Siam).

Sixty, 46 to 75 mm., October 13; three, 40 to 50 mm., October 14.

This interesting series shows considerable variation in color. Many specimens largely uniformly pale brown, with little contrast except the paler under surfaces. Large examples are much more contrasted, especially their vertical fins. Tips of first dorsal and large isoceles triangle of white or creamy, latter subbasal posteriorly, with base of triangle formed on last ray. Tips of caudal lobes white. Small spot on adipose fin, with its upper edge white. Edges of caudal all around more or less variably narrowly whitish, often interrupted by dark spots, and tip of each caudal lobe white; often creamy or whitish spots or blotches in crotch or middle of caudal fin. Anal white, with blackish basal spot tapering narrowly back to include all base of fin; similar parallel blackish blotch on upper half of fin. Paired fins with upper surfaces of fins dark and variously sprinkled or soiled with gray black to black, and tip of each fin creamy to white. All barbels pale.

Glyptothorax major (Boulenger), reported from southeast Siam by Dr. H. M. Smith, seems to differ from Weber and Beaufort's account in coloration as they give " greyish or reddish marbled or clouded with brown or yellow and freckled with black. Belly and underside of head and hind border of fins yellowish ".

It agrees, however, in the body depth given as 4 to 4½ and least depth of caudal peduncle 1⅓ to 2 times in its length.

Glyptothorax prashadi Mukerji[3] appears to differ in its color dark brownish with a few black spots irregularly scattered all over the body and the fin membranes. The abdominal portion is yellowish white and fins

[3] Rec. Indian Mus., vol. 34, 1932, p. 281, fig. 1 (type locality, Kyenchaung river in the Mergui district Lower Burma).—H. M. Smith, Journ. Siam. Soc., Nat. Hist. Suppl., vol. 9, no. 3, Oct. 10, 1934, p. 299 (Klong Tadi).

darkish. The species is apparently little contrasted, or without the characteristic though variable markings of my materials. Said to be related to the Burmese *G. dorsalis* (Vinciguerra) and *G. minutus* Hora, appearing intermediate. The latter is incompletely described and though with somewhat different proportions its coloration is not known in detail. Depth given for *G. prashadi* $4\frac{1}{5}$ and head $3\frac{3}{5}$. Likely *Glyptothorax fuscus* Fowler 1935 may be synonymous with *G. prashadi.*

Glyptothorax siamensis Hora,[4] I have not identified among any of the Siamese materials studied, unless it be confused with *G. platypogonoides* (Bleeker). I have a single example of the last from Batu Sankar, Sumatra, 110 mm. long. It shows: depth 5, head $3\frac{7}{8}$; eye 9 in head; least depth of caudal peduncle $2\frac{2}{5}$ in its length; origin of ventral slightly behind base of last dorsal ray. White triangular medial bar on dorsal; also one on anal with fin base white; white bar on pectorals; tips of pectorals, dorsal and anal whitish. This specimen has very numerous large epidermal papillae, especially over the upper surfaces of the body, including the adipose and base of the caudal fins. Few papillae below except on chin, and striae of large ovate thoracic disk moderate.

Amblyceps mangois (Buchanan-Hamilton)

Pimelodus mangois (Buchanan-Hamilton, Fishes of Ganges, 1822, pp. 199, 379 (type locality, Tanks of Northern Behar).

Amblyceps mangois Hora, Rec. Indian Mus., vol. 35, pt. 4, Dec. 1933, pp. 607 to 621, figs. 1 to 7 (India; Siam).—Fowler, Proc. Acad. Nat. Sci. Phila., vol. LXXXVI, June 25, 1934, p. 93 (Bua Yai; Chantaboon; Nakon Sritamarat).

Five, 59 to 102 mm., October 13. Hora has discussed the great variability of this species. My specimens show even further variation. In the largest the caudal is nearly $\frac{3}{7}$ the length of the rest of the fish.

BAGRIDAE

Mystus planiceps (Valenciennes)

Two, 144 to 155 mm., October 13.

Mystus stigmaturus Fowler

One, 80 mm., October 13. Agrees in that only a round black spot, little larger than eye, above lateral line below front median part of adipose fin.

Leiocassis albicollis Fowler

One, 93 mm., October 13.

HOMALOPTERIDAE

Homaloptera smithi Hora

Homaloptera smithi Hora, Mem. Indian Mus., vol. 12, no. 2, Dec. 1932, p. 286, pl. 11, fig. 3 (type locality, Tadi Stream and Klong Pong at Ban Kirswong, Nakon Sritamarat, Peninsular Siam).—Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. LXXXVI, 1934, p. 98 (Bua Yai; Chantaboon; Metang River; Chieng Mai).—Suvatti, Index Fish. Siam, 1937, p. 61 (Tadi Stream; Klong Pong; Canthaburi; Maetang R., N. Siam).

[4] Journ. Nat. Hist. Soc. Siam, vol. 6, no. 2, Oct. 31, 1923, p. 168, pl. 12, figs. 1-3 (type locality, Nakon Sritamarat hills, Peninsular Siam).

Two, 36 to 38 mm., October 13; 208 examples, 29 to 65 mm., October 14.

Considerable variation is noticeable in this large series. Often the 6 transverse black saddle-like blotches are very large, or may be separated by a very narrow paler interspace. Sometimes the blackish blotches or spots on the fins all very distinct and contrasted, or may show very distinctly on the under surfaces of the paired fins. Many specimens have the whole upper surface of the head and front part of the back studded with numerous, minute pearl organs. Scales in lateral line 29 to 38. Predorsal scales 15 to 22.

COBITIDAE

Acanthopsis choirorhynchos (Bleeker)

One, 162 mm., October 13. This example with 7 or 8 transverse dark irregular bands.

Botia iucas-bahi Fowler Figures 7 (variation), 8 (head above), 9 (head below).

Botia lucas-bahi Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. LXXXIX, May 19, 1937, p. 154, fig. 70 (type locality, Tachin, Siam).

Depth $4\frac{2}{3}$ to $5\frac{1}{5}$; head 3 to $3\frac{3}{4}$, width 3 to $3\frac{1}{5}$. Snout 2 to $2\frac{1}{10}$ in head; eye $7\frac{1}{2}$ to $8\frac{1}{2}$, $3\frac{1}{3}$ to 4 in snout, $1\frac{2}{5}$ to $1\frac{3}{5}$ in interorbital; maxillary reaches 2 to $2\frac{1}{3}$ in eye, length $3\frac{7}{8}$ to $4\frac{1}{5}$ in head; 4 rostral barbels with 2 median longest or 3 to $3\frac{3}{7}$ in head, maxillary $3\frac{3}{5}$; erectile preorbital spine long as eye, with superior short basal denticle; interorbital 6 to $7\frac{1}{3}$ in head, convex. Gill rakers 14 short points, $\frac{1}{4}$ of gill filaments, which equal eye.

Scales minute, embedded. Lateral line complete, axial, distinct.

D. II, 10, I or II, 9, I, first branched ray $1\frac{2}{5}$ to 2 in head; A. III, 5, I, first branched ray $1\frac{7}{8}$ to $2\frac{1}{5}$; caudal 1 to $1\frac{1}{8}$, deeply forked; least depth of caudal peduncle $1\frac{7}{8}$ to $2\frac{1}{10}$; pectoral $1\frac{3}{4}$ to $1\frac{4}{5}$, rays I, 12; ventral rays I, 7, fin 2 to $2\frac{1}{2}$ in head.

Color in alcohol grey or drab brown generally, little paler below or on belly and under surfaces. Head with 4 to 6 dark longitudinal bands above, uppermost pair united before nostrils, extending well back on predorsal space; lateral ones low as eye, variously broken and more or less as dark lines. Back and sides, mostly above with 10 gray black transverse bands, mostly wider than paler interspaces, variably broken, constricted or even sometimes fused. All over the sides scattered and variable ocellated black spots, mostly with pale or grayish borders. Rostral barbels pale brown with obscure darker brown blotches, and maxillary barbels whitish. Cheek and opercle with obscure and variable scattered gray spots. Iris slate gray. Dorsal pale or cream white, with black subapical band horizontally and mostly on each of rays involved 1 or 2 black spots; on other rays 3 or 4 black spots. Caudal brownish with 8 transverse dark lines, variably obsolete or indistinct medially on fin lobes. Lower fins all pale or whitish, with gray spots sometimes on anal.

Six, 104 to 128 mm. I have figured the largest as it represents an unusual variation in color markings, shared also by the other specimens. Compared with my figures of *Botia hymenophysa* (Bleeker) of 1934 and 1937 it will be found to present still greater differences in detail. The

markings on the dorsal fin, with a conspicuous large black subterminal blotch, more or less extended back along hind upper edge of fin as narrow black border, are especially characteristic. Below on fin variably 2 to 4 irregular series of blackish spots. In addition the body has 11 dark transverse bands. Superimposed are many dark streaks or lines horizontally on predorsal, variously broken as bars or spots. On rest of body many variable small round ocellated spots scattered about. Caudal with 5 or more distinct transverse dark lines, all arched back. None extend to the outer or terminal parts of the caudal as shown in Day's figure of *Botia berdmorei*. Further it may be noted that Day figures the caudal cleft only for about $\frac{1}{2}$ its length, thus permitting 3 or 4 of the basal dark transverse bands to completely cross the fin. Comparison with my Trang figure of *B. lucas-bahi* will show it is far more deeply cleft or notched $\frac{2}{3}$ its length, and only 2 of the dark basal bars cross the fin. This is the case also with all my paratypes. Day shows 2 or 3 transverse bars or rows of dark spots on the anal fin in his *Botia berdmorei*, while in Trang materials of *B. lucas-bahi* there are 5 or more rows of dark spots. *B. lucas-bahi* has a further distinction in the oblique pale band from the opercle above down over the side of the head to the lower or horizontal limb of the preopercle. The dorsal rays of *B. berdmorei* are given by Day as II, 11 or II, 12, slightly in excess of those of the present species. Hora has placed *Botia berdmorei* in the synonymy of *Botia hymenophysa* Bleeker,[5] with remarks on Lopburi material.

Lepidocephalus cataractus new species. Fig. 10.

Depth $5\frac{2}{3}$ to 6; head $4\frac{1}{5}$ to 5, width 2 to $2\frac{1}{3}$. Snout $2\frac{2}{5}$ to $2\frac{3}{4}$ in head; eye $5\frac{1}{3}$ to $5\frac{2}{3}$, 2 to $2\frac{1}{5}$ in snout, subequal with interorbital; skin of head continuous over eye; pair of long rostral barbels, 2 to $2\frac{1}{4}$ in head; maxillary barbel $2\frac{1}{4}$; outer mental barbel $2\frac{1}{4}$; inner mental barbel 3, trifid; interorbital $5\frac{3}{4}$ to 6, convex; small simple retractile infraorbital spine. Gill rakers 10 low, rudimentary tubercles; gill filaments long as eye.

Scales 100 + 8 in axial lateral series; tubes about 40 in lateral line to caudal base; 20 scales above, 15 below to ventral origin, 18 below to anal origin, 52 predorsal. Head with cheek and opercle scaly.

D. II, 7, I, second branched ray $1\frac{1}{8}$ to $1\frac{2}{5}$ in head; A. I, 6, I, second branched ray $1\frac{3}{4}$ to $1\frac{4}{5}$; caudal 1 to $1\frac{1}{3}$, convex behind as expanded, truncate as contracted; least depth of caudal peduncle $1\frac{1}{2}$ to 2; pectoral $1\frac{1}{2}$ to $1\frac{3}{5}$, with rather broad, free, rounded axial flap, rays I, 8; ventral $1\frac{2}{5}$ to $1\frac{3}{4}$ in head, rays I, 6.

Brown, paler below, sometimes very pale. Back with irregular and usually slightly darker longitudinal streak, often more or less waved, and made up usually of variable darker spots. Obscure though rather broad dark median band down back, from occiput to dorsal and less conspicuous behind dorsal. Irregular dark bar from maxillary to eye and another posterior to eye down above preopercle. Side of head with flaky dark

[5] Records Indian Mus., vol. 24, pt. 3, Aug. 1922, p. 317.

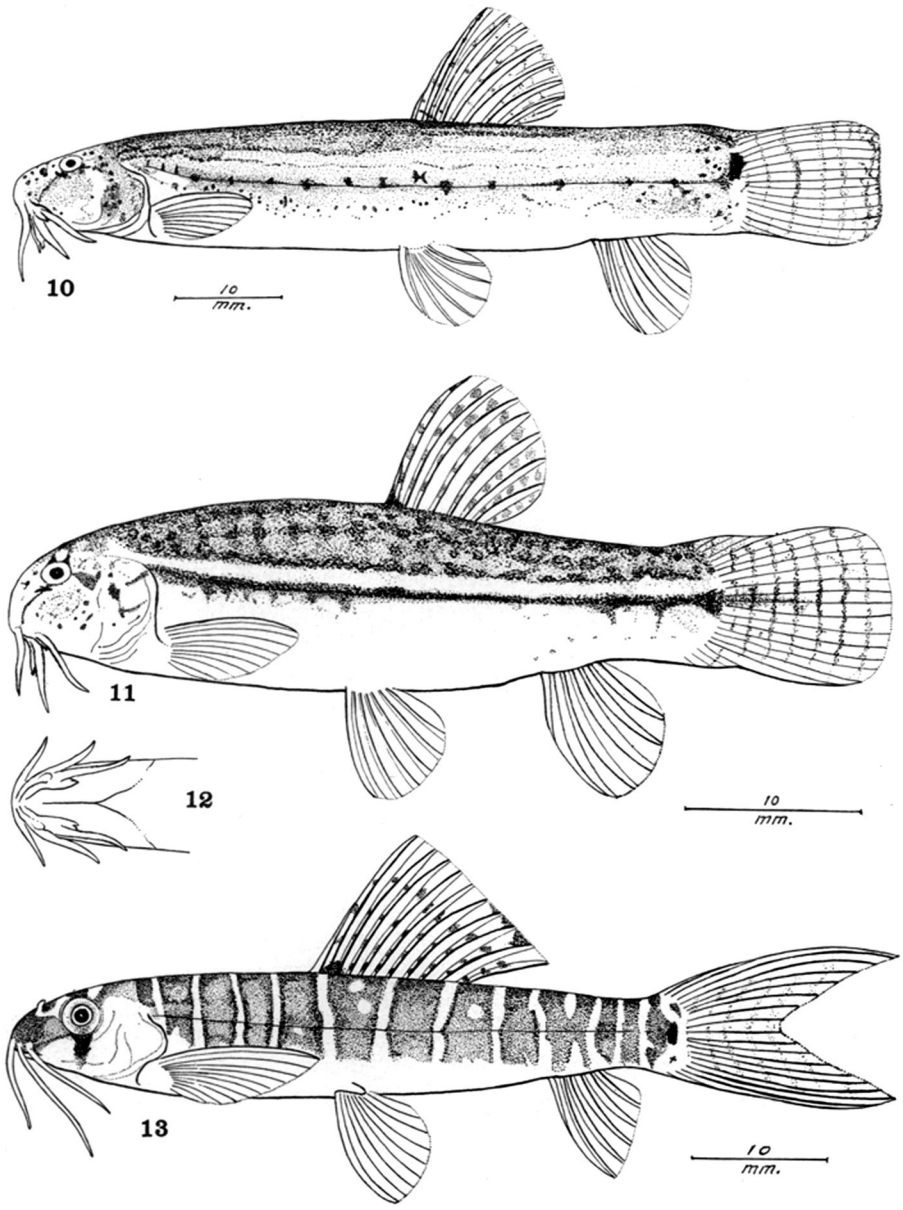


FIG. 10.—*Lepidocephalus cataractus* new species.
FIGS. 11, 12.—*Lepidocephalus taeniatus* new species.
FIG. 13.—*Nemacheilus trans-lineatus* new species.

blotches, spots or specks. Along lateral line row 12 to 15 larger dark and well spaced variable spots. Below usually uneven or irregular parallel band or line of variable dark points. Iris gray, except small dark blotch in front and behind. Rostral barbels dull brown above, though otherwise barbels and lips pale like under surfaces. Fins all generally pale brownish. Dorsal with 6 or 7 gray brown spots on each ray. Caudal with 6 transverse waved gray lines or narrow bands, darker than general color; very conspicuous rounded black spot about size of eye, at bases of supero-median rays. Lower fins all more or less uniformly pale, and ventrals and anal may be white in life.

Type, A.N.S.P. no. 68470. Waterfall at Trang, Peninsular Siam. October 13, 1936. Length 84 mm.

Also nos. 68471 to 68485 A.N.S.P., same data, paratypes. Length 39 to 75 mm. Besides these, 200 specimens with same data as paratypes, 40 to 78 mm.; another specimen with same data, and two, 55 mm., October 14.

I also place with this species two specimens, 67 and 68 mm., obtained at Trang, October 13. These differ only in color, though in such a way as to render them apparently distinct. They may easily be singled out from the other materials by the underlaid dark lateral axial band, variably intense or pale, though usually revealing at least in part, a series of about a dozen dark blotches as in the other specimens. I cannot but feel that it is the result of preservation in formalin.

The species is easily distinguished by its obscure spotted or dotted coloration, the back mottled and the presence of a variable row of rather large lateral spots, which may be more or less yoked or in pairs. Other features are the very conspicuous or contrasted black spot on the caudal base and elevated a little from its middle, and both the dorsal and caudal marked with transverse rows of darker spots, in 6 series. Possibly these specimens may be found identifiable with *Lepidocephalus berdmorei* (Blyth), reported from the Maeklong River by Suvatti 1937. A comparison with Day's figure of *Lepidocephalichthys berdmorei* shows a very different fish with a narrow, contrasted, well defined dark or apparently blackish axial lateral band with indication of 16 submerged blackish spots very slightly wider than the band; the description gives " rich yellowish brown, with a dark line along the body composed of spots, upper surface of body covered with fine markings." He also says " dorsal and caudal fins lineated with fine spots; some also on the outer portion of pectoral, ventral and anal." His figure shows the slightly emarginate caudal with 10 arched parallel dark transverse lines, the last 2 incomplete. All my examples of the present species show but 5 or 6 dark transverse bands on the caudal. Day's figure shows the body depth $4\frac{1}{4}$; though his description gives $5\frac{1}{2}$ to 6 in the total length the figure would show only 5; the dorsal fin is shown as small, and much lower than the anal.

(*Cataractus* for the Trang waterfall.)

Lepidocephalus taeniatus new species. Figs. 11, 12 (head below).

Depth $3\frac{7}{8}$ to $5\frac{1}{2}$; head $5\frac{1}{8}$ to $5\frac{1}{4}$, width $1\frac{2}{3}$ to $2\frac{1}{5}$. Snout $2\frac{1}{6}$ to $2\frac{1}{2}$ in head; eye $4\frac{4}{5}$ to $5\frac{1}{2}$, $1\frac{7}{8}$ to 2 in snout, subequal with interorbital; skin of head continuous over eye; pair of rostral barbels, $2\frac{1}{5}$ to $3\frac{1}{5}$ in head; long maxillary barbel $1\frac{2}{3}$ to 2; outer mental barbel $1\frac{7}{8}$ to 2; inner mental barbel $3\frac{1}{2}$ to 5, trifid; interorbital 4 to $4\frac{1}{3}$, convex; small simple retractile infraorbital spine. Gill rakers 10 low rudimentary tubercles; gill filaments about long as eye.

Scales 68 + 4 in axial lateral series; tubes about 33 in lateral line to caudal base; 11 scales above, 11 below to ventral origin, 10 below to anal origin; 50 to 53 predorsal. Head with scales on cheeks and opercle.

D. II, 7, I, second branched ray 1 to $1\frac{1}{8}$ in head; A. II, 5, I, second branched ray $1\frac{1}{6}$ to $1\frac{1}{5}$; caudal $4\frac{1}{6}$ to $4\frac{3}{5}$ in rest of fish, slightly convex behind as expanded, truncate as contracted; least depth of caudal peduncle $1\frac{1}{3}$ to 2 in head; pectoral $1\frac{1}{6}$ in head to $1\frac{1}{8}$ times head, rays I, 9; ventral rays I, 6, fin $1\frac{1}{8}$ to $1\frac{1}{3}$ in head.

Pale brown generally, lower surfaces especially light, immaculate, and evidently white in life. Five brown saddles, little evident, on predorsal, 2 at dorsal base, and 4 behind dorsal, all appearing obscure or rather with more of a concentration of the slightly darker color. Dark blotch at dorsal origin forms rather conspicuous black spot. From front of snout pale streak of whitish to eye, then behind eye, widens along side of body and continues to caudal base superiorly. Blackish brown bar obliquely from base of rostral barbel to eye, then behind eye and axially along side of body to middle of caudal base, and finally more or less reflected out on fin basally, most distinct or black along side of tail. In some specimens dark lateral band seems superimposed over about 10 to 12 obscured dark spots. Often front or costal part of dark lateral band may be suffused with brown or dark dots. Head above with variable dark brown spots over most all of front, and dark dots on cheek and opercle. Iris dark gray. Barbels and lips pale. Dorsal pale, slightly buff basally in front and with 5 dark brown spots on each ray. Caudal, except as described, pale, with 6 or 7 darker and variable transverse streaks. Other fins all more or less pale, anal and ventral whitish.

Type, A.N.S.P., no. 68486. Waterfall at Trang, October 13, 1936. Length 50 mm.

Also nos. 68487 to 68492 A.N.S.P., same data, paratypes. Length 40 to 49 mm.

Apparently related to *Lepidocephalus hasseltii* (Bleeker), a species widely known in Siam, also in Tenasserim, Java and Sumatra. Neither Bleeker, nor Weber and Beaufort, in their figures given indicate a dark or blackish lateral band. The two latter authors give the depth 6 to 7, though their figure shows $5\frac{1}{2}$; they also give " L. l. about 100 ".

(*Taeniatus* banded.)

Nemacheilus trans-lineatus new species. Fig. 13.

Depth $5\frac{1}{2}$ to $5\frac{3}{4}$; head $4\frac{1}{5}$ to $4\frac{1}{4}$, width 2. Snout $2\frac{7}{8}$ to 3 in head; eye $3\frac{4}{5}$ to 4, $1\frac{1}{3}$ to $1\frac{2}{5}$ in snout, 1 to $1\frac{1}{5}$ in interorbital, with free edge all around; first rostral barbel $1\frac{2}{3}$ to $2\frac{1}{4}$ in head; second rostral barbel $1\frac{1}{5}$ to $1\frac{2}{5}$;

maxillary barbel $1\frac{4}{7}$ to $1\frac{2}{3}$; lips moderately fleshy, entire; interorbital $3\frac{1}{2}$ to $3\frac{3}{4}$, low, nearly level; front edge of infra-orbital with osseous keel, but no spine. Gill rakers 11 low, short, rudimentary points; gill filaments 2 in eye.

Scales 75 + 4 in lateral line; 13 above, 12 below to ventral origin, 32 predorsal scales. Lateral line complete, continuous, tubes large, simple. Head naked. Pectoral with rather deep axillary pit, though flap thick or little developed. Ventral with small fleshy axillary papilla. Caudal base scaly.

D. II, 9, I, second branched ray $1\frac{1}{10}$ to $1\frac{1}{8}$ in head; A. II, 5, I, second branched ray $1\frac{2}{5}$ to $1\frac{1}{2}$; caudal deeply emarginate, lobes long and pointed, fin $2\frac{1}{2}$ to $2\frac{4}{5}$ in rest of fish; least depth of caudal peduncle $1\frac{4}{5}$ to $2\frac{1}{5}$ in head; pectoral 1, rays I, 10; ventral rays I, 8, fin $1\frac{1}{5}$ to $1\frac{1}{4}$.

Color brown, little paler on under surface of head, belly and tail. Iris slate. Barbels pale. Broad dark brown band connects each pair of nostrils and another eyes, besides less distinct bar up from eye supero-posteriorly to occiput. Blackish bar from lower eye edge down over cheek narrowing below, but not reaching branchiostegals. Eleven to 14 narrow pale transverse bands, only meeting below on under side of tail; 4 on predorsal and 4 to 6 on postdorsal region. Dorsal pale, with black spot at bases of first branched rays; each branched ray with 3 or 4 dark gray spots. Caudal pale, with narrow dark gray basal spot, and 6 gray transverse bars on median rays and along each inner edge of crotch. Other fins pale, with median gray blotch on anal.

Type, A.N.S.P. no. 68493. Waterfall at Trang. October 13, 1936. Length 68 mm.

Also nos. 68494 and 68495, same locality, paratypes, larger 65 mm., October 13, smaller 61 mm. October 14.

A strikingly marked species, with about a dozen narrow pale cross bands, the darker colored interspaces greatly broader. Other features are the black blotch below the eye, the very long barbels and the long caudal with slenderly attenuated lobes.

(*Trans* across + *lineatus* lined.)

CYPRINIDAE

Laubuca siamensis new species. Fig. 14.

Depth $3\frac{1}{5}$ to $3\frac{1}{2}$; head $3\frac{3}{4}$ to 4, width $1\frac{4}{5}$ to $1\frac{7}{8}$. Snout $3\frac{3}{4}$ to $4\frac{2}{5}$ in head from snout tip; eye $2\frac{7}{8}$ to $3\frac{1}{2}$, greater than snout, $1\frac{2}{5}$ to $1\frac{1}{2}$ in interorbital; maxillary reaches $\frac{7}{8}$ to eye, length $2\frac{1}{2}$ to $3\frac{4}{5}$ in head from snout tip; mandible well protruded in front, edges of jaws firm; lips rather narrow; interorbital 2 to $2\frac{1}{8}$, broad, only very slightly convex; suborbitals broad, cover cheek. Gill rakers about 8? short, feeble, rudimentary points. Right pharyngeal teeth 2, 3, 4?, apparently conic and without grinding surfaces.

Scales 33 + 2 in lateral line; 7 above, 2 below to ventral origin, 3 below to anal origin; 20 predorsal. Scales largest on middle of side above lateral line; small below lateral line. Preventral and postventral edges trenchant, scales not passing over; chest and breast convex, with small scales. Lateral line complete, greatly decurved, and ascending posteriorly lower part of

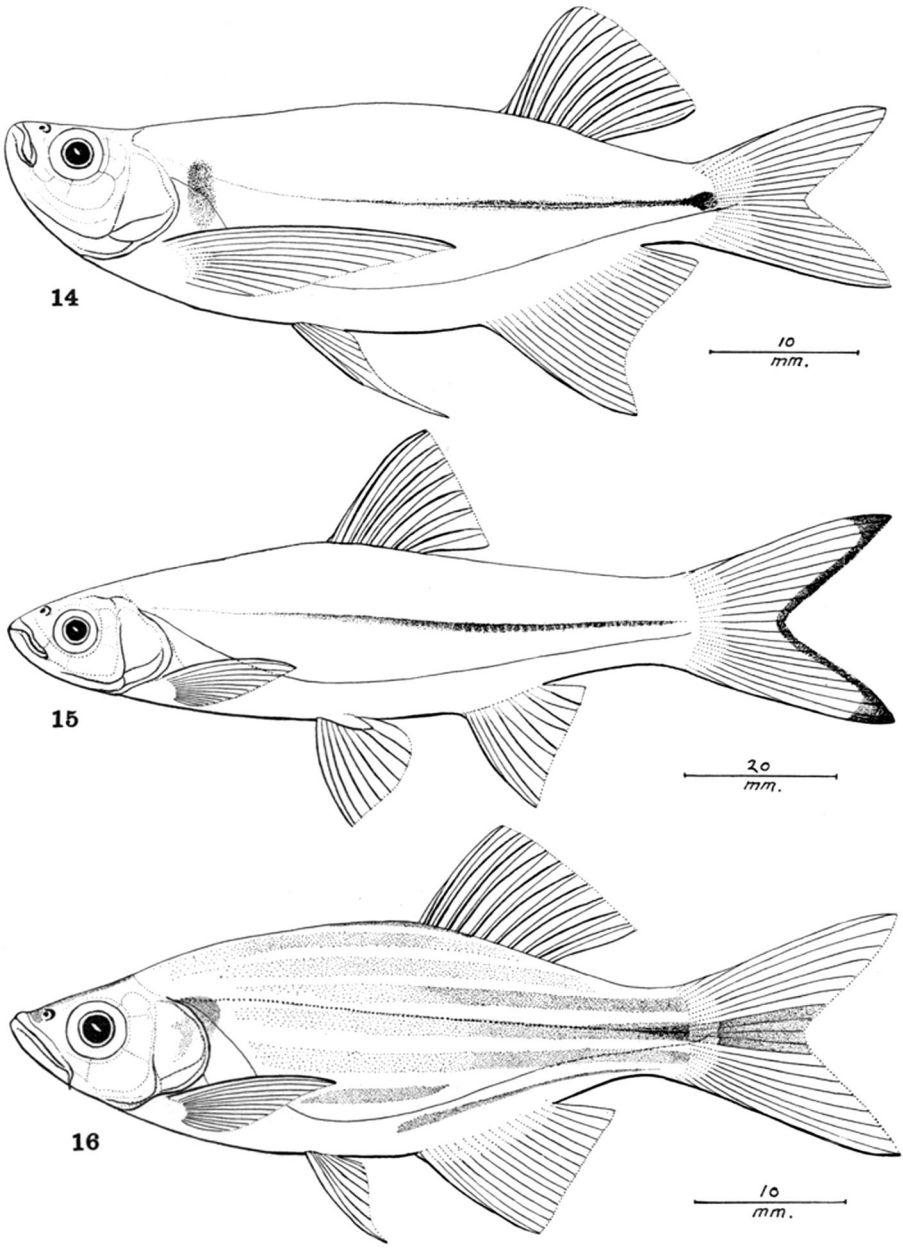


FIG. 14.—*Laubuca siamensis* new species.
FIG. 15.—*Rasbora layangi* new species.
FIG. 16.—*Danio suvatti* new species.

caudal base; tubes simple, slender, all well exposed. Caudal base with rather large scales. Anal with single row of basal scales, narrowing posteriorly.

D. III, 8, first branched ray $1\frac{2}{5}$ to $1\frac{4}{7}$ in total head length; A. III, 21, I to III, 19, I, first branched ray $1\frac{1}{10}$ to $1\frac{1}{8}$; caudal $2\frac{7}{8}$ to $3\frac{2}{5}$ in rest of fish; least depth of caudal peduncle $2\frac{1}{4}$ to $2\frac{2}{5}$ in head; pectoral $2\frac{1}{2}$ to $2\frac{3}{5}$ in fish without caudal, rays I, 11; ventral rays I, 5, first ray very long or $1\frac{2}{5}$ in head in younger examples to $1\frac{1}{5}$ times head with age. Vent close before anal.

Color in alcohol pale brown, little paler on under surfaces. Iris gray white. Transverse dark bar over pectoral base, made up of dark dots and followed by similar pale area. Posteriorly a dark axial line, made up of dark gray to blackish dots, most distinct on side of tail and slightly expanded just before caudal base. Fins all pale, vertical ones dusted with dark gray terminally.

Type, A.N.S.P. no. 68496. Waterfall at Trang. October 13, 1936. Length 60 mm.

Also nos. 68497 and 68498, same data, paratypes. Length 42 to 44 mm.

Differs greatly from *Perilampus laubuca* Day = *Laubuca laubuca* (Buchanan-Hamilton) in its far more slender body, its depth $3\frac{1}{4}$ to $3\frac{1}{2}$, compared with but $2\frac{3}{4}$ for the Indian species. My specimens all show a more upturned head with the mouth cleft vertical. Though Day says "Pectoral reaching anal" his figure would show the pectoral tip 5 scales distant from the anal or about $1\frac{1}{8}$ times the head ($1\frac{4}{7}$ times head in my specimens). My specimens show the ventral fin inserted more posteriorly, or reaching the anal, also with a broad row of large basal scales extending the whole length of the anal fin base.

(Named for Siam.)

Rasbora cromiei Fowler

Rasbora cromiei Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. LXXXIX, May 19, 1937, p. 167, fig. 103 (type locality, Nu Poon, Siam; Rayong).

Series of 259 examples, 32 to 124 mm., October 13; 23 examples, 44 to 95 mm., October 14.

Rasbora layangi new species. Fig. 15.

Depth $3\frac{3}{5}$ to $3\frac{4}{5}$; head 4 to $4\frac{1}{4}$, width 2 to $2\frac{1}{8}$. Snout $3\frac{1}{8}$ to $3\frac{1}{4}$ in head from snout tip; eye $3\frac{2}{5}$ to $3\frac{1}{2}$, subequal with snout, $1\frac{1}{8}$ to $1\frac{2}{5}$ in interorbital; maxillary reaches $\frac{3}{4}$ to $\frac{4}{5}$ to eye, length $3\frac{1}{8}$ to $3\frac{1}{2}$ in head from snout tip; mouth cleft oblique, anteriorly with lateral emargination; lower jaw scarcely protruded; mandible with symphyseal knob fitting in corresponding notch in front of upper jaw; lips narrow, no barbels; jaw edges firm, not trenchant; interorbital $2\frac{1}{5}$ to $2\frac{7}{8}$ in head from snout tip, broadly convex; suborbitals broad, cover cheek nearly or quite to preopercular ridge; opercle smooth. Gill rakers 2 + 10, short, lanceolate, $2\frac{1}{3}$ in gill filaments, which 2 in eye. Right pharyngeal teeth 2, 4, 5, pointed, ends little curved, with rather broad grinding surfaces.

Scales 26 to 28 + 2 in lateral line; 5 above to dorsal origin, 1 below to ventral origin, 2 below to anal origin; 12 predorsal; 7 scales over middle of caudal peduncle above from one lateral line to the other. Tubes in lateral line all simple, slender and well exposed. Row of basal anal scales and several rows on caudal base. Pectoral axil with small slender scale. Ventral axillary scale $2\frac{1}{5}$ in ventral fin. Scales little smaller on chest and breast than others.

D. III, 7, I, first branched ray $1\frac{1}{10}$ to $1\frac{1}{8}$ in total head length; A. III, 5, I, first branched ray $1\frac{2}{5}$ to $1\frac{3}{4}$; caudal $2\frac{7}{8}$ to 3 in rest of fish; least depth of caudal peduncle $1\frac{3}{4}$ to $1\frac{7}{8}$ in total head length; pectoral $1\frac{1}{8}$ to $1\frac{1}{5}$, rays I, 12; ventral rays I, 8, fin $1\frac{1}{3}$ to $1\frac{2}{5}$ in total head length.

Color in alcohol brown, scarcely paler below or on under surfaces. Iris grayish. Scale pockets little darker than general body color, showing through scales as variable reticulations. Axial dark lateral streak, most distinct on side of tail or over anal. Dorsal and caudal pale to grayish, former little darker terminally, and hind caudal border blackish, or ends of both lobes broadly black. Lower fins all pale or light.

Type, A.N.S.P. no. 68499. Waterfall at Trang. October 13, 1936. Length 118 mm.

Also no. 68500, same data, paratype. Length 104 mm.

In structural characters approaches *Rasbora trilineata* Steindachner,[6] but that species with a round black basal caudal spot but little smaller than the eye. Steindachner's figure does not show any pointed or elongated axillary ventral scale. It further differs in having the tip of the depressed pectoral reaching opposite the origin of the ventral; in my specimens it reaches to 2 or 3 scales before the ventral origin.

(For Layang Gaddi, who has collected many natural history specimens in Siam.)

Esomus metallicus Ahl

Esomus metallicus Ahl, Mitt. Zool. Mus. Berlin, vol. 11, 1923, p. 42 (type locality, Petchaburi).—Hora and Mukerji, Rec. Indian Mus., vol. 30, pt. April 1928, p. 54, text-fig. 4 (Nontaburi Nong-Khor).—Fowler, Proc. Acad. Nat. Sci. Phila., vol. LXXXIX, May 19, 1937, p. 170 (Rayong).

One, 44 mm., October 13.

Danio regina Fowler

Danio regina Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. LXXXVI, 1934, p. 342, fig. 6 (type locality, Nakon Sritamarat, Peninsular Siam).

Series of 98 examples, 50 to 125 mm., October 13; six, 77 to 93 mm., October 14.

Danio suvatti new species. Fig. 16.

Depth 3 to $3\frac{1}{2}$; head $3\frac{2}{5}$ to $3\frac{1}{2}$, width 2 to $2\frac{1}{10}$. Snout $3\frac{1}{2}$ to 4 in head from snout tip; eye $2\frac{7}{8}$ to $3\frac{1}{8}$, greater than snout, $1\frac{1}{4}$ to $1\frac{1}{3}$ in interorbital; maxillary reaches to eye or $\frac{1}{8}$ in eye, length $2\frac{1}{4}$ to $2\frac{4}{5}$ in head from snout tip; small terminal maxillary barbel $\frac{1}{4}$ of eye; mouth cleft oblique, arched, jaw

[6] Sitzs.-ber. Akad. Wiss. Wien, vol. 61, pt. 1, 1870, p. 637, pl. 3, fig. 3 (type locality, Johore, Pengulon Patie).

edges but little trenchant, with median upper notch receiving small knob at mandibular symphysis where mouth closes; interorbital $2\frac{2}{5}$ to $2\frac{1}{2}$ in head from snout tip, low, broadly convex; broad suborbitals entirely cover cheek. Gill rakers 2 + 6, short points, $\frac{1}{3}$ of gill filaments which $2\frac{1}{3}$ in eye. Right pharyngeal teeth 2, 3, 5, conic, ends little curved and with broad grinding surfaces.

Scales 29 + 3 in lateral line, which strongly decurved and ascends caudal base medially; 8 above, 2 below to ventral origin, 2 below to anal origin; 14 predorsal. Row of rather large scales all along anal base. Caudal with 2 or 3 rows of large scales. Small scales on chest and breast.

D. II, 10, I, first branched ray $1\frac{3}{5}$ to $1\frac{3}{4}$ in total head length; A. III, 14, I, first branched ray $1\frac{1}{2}$ to $1\frac{4}{7}$; caudal $2\frac{3}{4}$ to $2\frac{7}{8}$ in rest of fish, deeply forked, lobes slender and sharply pointed; least depth of caudal peduncle $2\frac{2}{5}$ to $2\frac{1}{2}$ in total head length; pectoral $1\frac{1}{10}$ to $1\frac{1}{8}$, rays I, 12; ventral rays I, 7, fin length $1\frac{1}{2}$ to $1\frac{3}{4}$. Vent close before anal.

Color in alcohol brown above, pale to whitish below. Iris dark gray. Side of body with 4 to 6 obscure longitudinal slightly darker bands, scarcely narrower on caudal peduncle and separated by paler intervening bands. Above opercle pale blotch dividing little larger darker one on each side. Dorsal grayish medially, upper margin and base paler. Caudal with dark median band from caudal peduncle extending out over median rays of caudal. Anal grayish. Other fins pale. In small examples median dark axial band conspicuous on side of tail, though far less so on caudal fin.

Type, A.N.S.P., no. 68501. Waterfall at Trang. October 13, 1936. Length 59 mm.

Also nos. 68502 to 68504, same locality, October 14, paratypes. Length 28 to 44 mm.

An interesting species, not closely allied with any of the known Siamese species. Characterized especially by the dorsal and anal opposite, the former only slightly the smaller, only one pair of short barbels, the maxillary, pectoral reaching ventral and large scales (32 in lateral line).

(For Mr. Chote Suvatti, of the Bureau of Fisheries, Bangkok.)

Mystacoleucus marginatus (Valenciennes)

Twenty-five, 93 to 160 mm., October 13. Three or four longitudinal rows of variable, irregular dark spots on side of body, usually one spot on a scale and chiefly on the rows of scales above lateral line. I presume these are intensified by the preservation of the specimens in formalin. Their appearance is as if freckled.

Dangila siamensis Sauvage

Danglia siamensis (Bleeker) Sauvage, Nouv. Arch. Mus. Hist. Nat. Paris, ser. 2, tome 4, 1881, p. 176 (type locality, Petschaburi; Bangkok).—Bleeker, Ned. Tjds. Dierk., vol. 2, 1865, p. 35 (name only).

Depth $2\frac{3}{4}$; head 4. Upper lip not fringed, with 9 large papillae. Scales 35 + 4 in lateral line; 7 above, 5 below to ventral, 5 below to anal. D. III, 24, I.

One, 133 mm., October 13.

This interesting specimen I am convinced is identifiable with the description of Sauvage. He describes the pores (scars of the pearl organs) as arranged in a single line. In my specimen there are 2 close-set terminal rows, forming a band horizontally around the end of the snout; the upper row begins close before the nostrils and extends across the end of the snout contains a series of 13 conic pearly organs, largest medially; the lower row extends across the upper edge of the labrum, with 6 conic similar pearl organs, alternating, with those above. The edge of the upper lip is not fringed, but has 9 rounded knob like papillae, greatly larger than the fine papillae of the lower lip.

It appears quite likely that the specimens I have recorded as *Dangila siamensis* in 1934, 1935, and 1937, are mostly, if not entirely *Dangila spiloplura* H. M. Smith. That species should therefore remain validated, and replace the "*siamensis*" of my synopsis.[7]

Osteochilus vittatus (Valenciennes)

Rohita vittata Valenciennes, Hist. Nat. Poiss., tome 16, 1842, p. (203) 267 (type locality, fresh waters of Bantam, Java).

Labeobarbus vittatus (Kuhl and Van Hasselt) Valenciennes, op. cit. (same as above).

Osteochilus vittatus Weber and Beaufort, Fish. Indo-Austral. Archip., vol. 3, 1916, p. 131 (E. Indies; Malaya; Tonkin).—Fowler, Proc. Acad. Nat. Sci. Phila., vol. LXXXVI, 1934, p. 116, figs. 68-73 (Chieng Sen; Chieng Mai); vol. LXXXIX, May 19, 1937, p. 180, figs. 122-123 (Bangkok; Kemrat).

Seven, 95 to 148 mm., October 13. Larger with very conspicuous black blotch close along at hind edge of gill opening at the beginning of the dark lateral band. In smaller specimen this is present only on the right side.

One, 98 mm., October 14.

Osteochilus scapularis new species. Figs. 17, 18 (head below).

Depth $2\frac{4}{5}$; head $3\frac{1}{2}$, width $1\frac{2}{3}$. Snout $2\frac{2}{5}$ in head; eye $4\frac{3}{5}$, $1\frac{4}{5}$ in snout, $2\frac{1}{5}$ in interorbital; maxillary reaches $\frac{2}{3}$ to eye, length from snout tip $3\frac{1}{8}$ in head; mouth moderate, inferior, width $\frac{1}{2}$ of snout length; lips broad, thin, edge all around with row of papillae, inner surfaces strongly striate, outer less so, medial and symphyseal region well papillated or fringed; coriaceous mandible with its outer surface with 5 cutaneous folds each side; pair of rostral barbels $1\frac{1}{4}$ in eye, maxillary pair $1\frac{1}{4}$ times eye; interorbital $2\frac{1}{2}$ in head, low, broadly convex; suborbitals very narrow, leave cheek broadly exposed. Gill rakers about 44, low, uniform, flexible, close set, filament like points, $\frac{1}{4}$ of gill filaments, which $1\frac{1}{3}$ in eye. Right pharyngeal teeth 2, 4, 5, compressed, ends with small hooks, grinding surfaces well developed, and larger at least with several grooves longitudinally and terminally.

Scales 29 + 2 in lateral line; 6 above, 5 below to ventral origin, 5 below to anal origin; 10 predorsal. Small scales on chest and breast, little larger on belly. Ventral axillary scale 2 in fin. Scales on caudal base large as body scales.

D. III, 12, I, first branched ray 1 in head; A. III, 5, I, first branched ray $1\frac{1}{4}$; caudal $2\frac{2}{5}$ in rest of fish, deeply forked slender lobes sharply pointed;

[7] Proc. Acad. Nat. Sci. Phila., vol. LXXXIX, May 19, 1937, p. 177.

least depth of caudal peduncle 2 in head; pectoral $1\frac{1}{4}$, rays I, 14; ventral rays I, 8, fin $1\frac{1}{5}$ in head. Vent close before anal.

Color in alcohol very dark blackish brown, with slight walnut to dark cherry red shade, and each scale with black basal pocket forming reticulated pattern. Iris dark gray. Obscure blackish axial lateral band, most distinct on caudal peduncle and at middle of caudal base, also reflected out on bases of median rays. Black bar along edge of gill opening. When fresh, fins are all more or less reddish, later turning brownish, and dorsal and caudal grayish terminally. Ventral and anal with clear vermilion.

Type, A.N.S.P., no. 68505. Waterfall at Trang. October 13, 1936. Length 138 mm.

Differs from the known species in its long falcate fins, black blotch within the upper cleft of the gill opening, large mouth, general dark coloration and red fins. The lip and mouth structure appears unique.

(*Scapularis* with reference to the dark shoulder blotch.)

Hampala macrolepidota (Valenciennes)

Capoeta macrolepidota (Kuhl and Van Hasselt) Valenciennes, Hist. Nat. Poiss., vol. 16, 1842, p. (214) 280, pl. 477 (type locality, Java).

Hampala macrolepidota Weber and Beaufort, Fish. Indo-Austral. Archip., vol. 3, 1916, p. 143, fig. 60 (East Indies; Tenasserim; Malacca; Siam; Indo China).—Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. LXXXVI, 1934, p. 119 (Bangkok; Bua Yai; Chieng Mai; Chieng Sen); vol. LXXXVI, June 25, 1934, p. 343 (Kratt); vol. LXXXVII, June 24, 1935, p. 120 (Keng Sok); vol. LXXXIX, May 19, 1937, p. 184, figs. 128-139 (variation) (Bangkok; Tachin; Me Poon; Kemrat).

Fifteen, 46 to 144 mm., October 13.

Cyclocheilichthys rubripinnis Fowler

Cyclocheilichthys rubripinnis Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. LXXXVI, June 25, 1934, p. 343, fig. 7 (type locality, Ban Thung Luang, southwest Siam).

Two, 72 to 105 mm., October 13.

Acrossocheilus hutchinsoni (Fowler)

Lissochilus hutchinsoni Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. LXXXVI, 1934, p. 120, figs. 76-77 (type locality, Nakon Sritamarat).

Seventeen, 83 to 195 mm., October 13. Agree in most every way with the type. None show, however, the large dark blotch on the middle of the anal, as represented in my figure. The pearl organs are in agreement.

Mr. Gilbert P. Whitley writes me *Lissochilus* Weber and Beaufort [8] is preoccupied by *Lissochilus* Zittel [9] and Fisher,[10] and " I am inclined to think that this genus needs a new name, but Herre and Myers regard it as the same as *Acrossocheilus* Oshima [11] = *Lissocheilichthys* Oshima,[12] so I suppose we must use *Acrossocheilus* for it ".

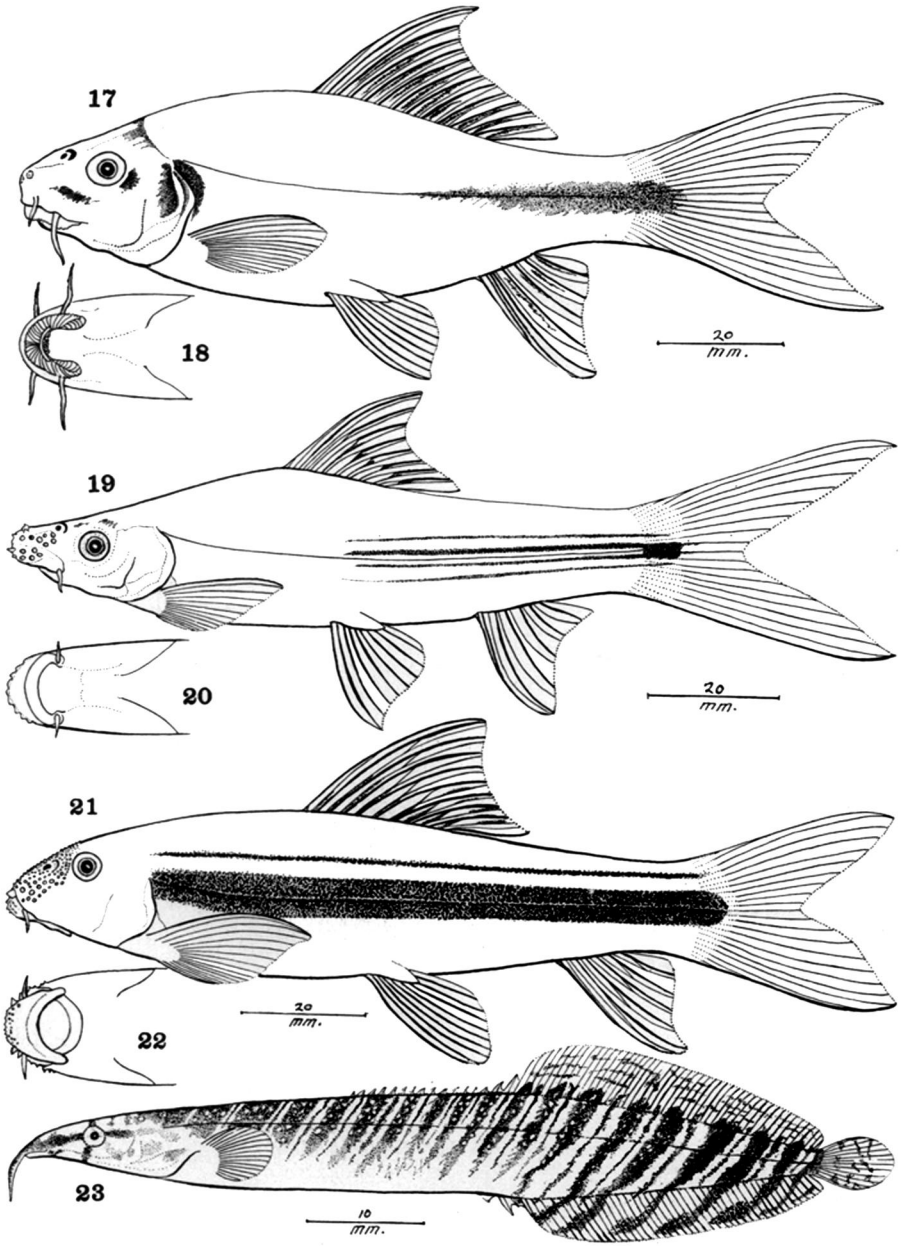
[8] Fishes Indo-Austral. Archip., vol. 3, 1916, p. 167, type *Lissochilus sumatranus* Weber and Beaufort, designated by Jordan, Genera of Fishes, pt. 4, 1920, p. 561.

[9] Handbuch für Palaentologie, pt. 1, vol. 2, 1882, p. 200.

[10] Man. Conch., 1887, p. 801.

[11] Ann. Carnegie Mus., vol. 12, nos. 2-4, Dec. 15, 1919, p. 206, type *Gymnostomus formosanus* Regan, orthotypic.

[12] Proc. Acad. Nat. Sci. Philadelphia, July 12, 1920, p. 124, type *Lissocheilichthys matsudai* Oshima, orthotypic.



FIGS. 17, 18.—*Osteochilus scapularis* new species.
FIGS. 19, 20.—*Tylognathus trangensis* new species.
FIGS. 21, 22.—*Garra parvifilum* new species.
FIG. 23.—*Mastacembelus paucispinis* new species.

Puntius orphoides (Valenciennes)

One, 154 mm., October 13.

Puntius lateristriga (Valenciennes)

Barbus lateristriga Valenciennes, Hist. Nat. Poiss., vol. 16, 1842, p. (120) 161 (type locality, "les eaux douces de Java").—Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. LXXXVI, 1934, p. 122 (Nakon Sritamarat).

Puntius lateristriga Weber and Beaufort, Fish. Indo-Austral. Archipel., vol. 3, 1916, p. 179 (Malacca; East Indies).

Ninety-two, 44 to 170 mm., October 13; six, 71 to 83 mm., October 14.

Compared with Bleeker's rather indifferent figure of *Puntius* (*Barbodes*) *lateristriga* my specimens all differ in having only 2 scales below the lateral line to the ventral origin (Bleeker's figure showing 4). The dark bands on the body are also different, the first more inclined backward so that it falls about opposite middle of depressed pectoral. Bleeker's figure shows it reaching opposite to the pectoral fin. The dark axial lateral band extends along the lateral line to the second dark transverse lateral band and then on tail *follows along close above the lateral line.* Bleeker's figure shows it at first a row of scales above the lateral line and on the tail embracing the lateral line. Moreover in all my specimens the dark transverse lateral bands extend above and across the back or reach the dorsal fin basally.

Puntius binotatus (Valenciennes)

Barbus binotatus (Kuhl) Valenciennes, Hist. Nat. Poiss., vol. 16, 1842, p. (126) 168 (type locality, Java).—Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. LXXXVI, 1934, p. 69, figs. 79-80 (Tabanan, Lake Bratan, Bali), p. 122 (Chieng Mai; Chieng Sen; Chieng Dao; Bua Yai; Nakon Sritamarat; Chantaboon; Bangkok); vol. LXXXVII, June 24, 1935, p. 121 (Khao Nam Poo; Bangkok); vol. LXXXIX, May 19, 1937, p. 198 (Pitsanulok; Rayong; Me Poon).

Puntius binotatus Weber and Beaufort, Fish. Indo-Austral. Arch., vol. 3, 1916, p. 186, fig. 74 (E. Indies, Malaya, Philippines).

419 examples, 36 to 106 mm., October 13; sixteen, 56 to 88 mm., October 14. Some large examples show the caudal with dark gray submarginal band along upper and another along lower caudal lobe. They also have the caudal far more extensively scaled than shown in my drawings (figures 79 and 80). This squamation extends at least for $\frac{2}{5}$ of basal portion of fin. Fresh smaller examples had the caudal brilliant vermilion and the black borders on the upper and lower lobes variously developed.

Tylognathus coatesi Fowler

Tylognathus coatesi Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. LXXXIX, May 19, 1937, p. 208, figs. 181-182 (type locality, Bangkok, Siam).

One, 68 mm., October 13; one, 90 mm., October 14.

Tylognathus trangensis new species. Figs. 19, 20 (head below).

Depth 4; head 4, width $1\frac{4}{5}$. Snout $2\frac{1}{4}$ in head; eye $5\frac{1}{2}$, $2\frac{1}{3}$ in snout, $2\frac{1}{4}$ in interorbital; maxillary extends back to $\frac{4}{5}$ in snout length, length from its front end $3\frac{2}{3}$ in head from snout tip; mouth width 3; upper jaw edge narrow,

rather flexible; lower jaw broad and firmly coriaceous, edge broadly obtuse; mandible with broad, labial flap, its outer front submargin papillate, and free posteriorly for space equal to $\frac{3}{5}$ eye diameter; broad, free, deep, upper labial fold overlaps upper lip largely medially; supraterminal maxillary barbel $\frac{3}{4}$ of eye; nostrils close together, high, at last $\frac{1}{3}$ in snout; interorbital $2\frac{3}{4}$ in head, broadly convex; suborbitals moderate, invade $\frac{1}{2}$ of cheek as seen in profile. Gill rakers about 20, short, flexible points, $\frac{1}{4}$ of gill filaments, which $1\frac{1}{4}$ in eye. Right pharyngeal teeth 2, 4, 5, compressed, pointed, all with well developed grinding surfaces.

Scales 32 + 2 in lateral line; 6 above, 4 below to ventral origin, 4 below to anal origin, 11 predorsal. Scales on chest and breast little smaller than others and rather obscure. Ventral with pointed axillary scale $2\frac{4}{7}$ in fin. Pearl organs on snout as 4 rostral rows, parallel around end, of which upper 2 rows extending back below nostrils, or form a cluster of 5 tubercles on preorbital; longitudinal groove divides 2 series above from 2 series below, also extends all around end of snout; all pearl organs directed forward and outward.

D. III, 8, I, first branched ray $1\frac{1}{8}$ in head; A. III, 5, I, first branched ray $1\frac{2}{5}$; caudal deeply forked, long slender lobes $2\frac{3}{4}$ in rest of fish; least depth of caudal peduncle $2\frac{1}{8}$ in head; pectoral $1\frac{1}{4}$, rays I, 12; ventral rays I, 8, fin $1\frac{2}{7}$ in head.

Back olive brown, sides below and under surfaces pale to whitish. Along side of tail and traversing scale punctures, 4 dark brown parallel lines, of which 2 above and 2 below lateral line; line immediately above lateral line twice as wide as any of others and joins rounded black blotch posteriorly or on caudal base, likewise dark parallel line immediately below lateral line; caudal blotch also reflected out on median caudal rays basally. Iris grayish. Barbels and mouth pale. Dorsal pale brownish and in each membrane medially a longitudinal blackish streak parallel with fin rays. All lower fins pale to whitish. As pectoral shows pinkish tinge, especially inside, likely it may have been red in life?.

Type, A.N.S.P. no. 68506. Waterfall at Trang. October 13, 1936. Length 137 mm.

Resembles *Tylognathus quadrilineatus* Fowler in the coloration and pearl organs. It differs in the median large blackish basal caudal blotch, the greatly longer pectoral fin, more depressed muzzle, but 4 scales below lateral line to ventral origin, and altogether more slender facies.

(Named for Trang.)

Garra parvifilum new species. Figs. 21, 22 (head below).

Depth $4\frac{1}{4}$ to $4\frac{2}{3}$; head $4\frac{2}{3}$ to $4\frac{2}{3}$, width $1\frac{2}{5}$ to $1\frac{1}{2}$. Snout 2 to $2\frac{1}{8}$ in head; eye $4\frac{3}{4}$ to 5, 2 to $2\frac{3}{4}$ in snout, 2 to $2\frac{1}{6}$ in interorbital; maxillary short, reaches back below nostrils, length from front end $3\frac{3}{7}$ to $3\frac{1}{2}$ in head measured from end of snout; mouth width $2\frac{7}{8}$ to $3\frac{1}{4}$; upper lip with 24 plaits, all finely papillate; lower labial pad with a broad finely papillate border; short maxillary barbel, $1\frac{1}{4}$ in eye; interorbital $2\frac{1}{2}$ to $2\frac{3}{4}$ in head, low, depressed, nearly level. Gill rakers about 15 short feeble points, $\frac{1}{4}$ of gill filaments which equal eye. Pharyngeal teeth 2, 4, 5 — 5, 4, 2, small, compressed, with well developed grinding surfaces.

Scales 31 + 2 in lateral line, which axial and median along side of tail; 6 above, 3 below to ventral origin, 4 below to anal origin, 11 predorsal. Chest and breast scaleless. Several enlarged scales on caudal base. Axillary ventral scale $2\frac{1}{3}$ to 3 in ventral fin. Pearl organs very numerous, close set, cover all of upper and front part of muzzle; those on preorbital largest. On each side of front of snout and directed outward large pointed tubercle, well contrasted with others. On lower surface of snout, as viewed below, at least 5 rows irregularly of fine tubercles exposed. In addition entire upper surface of head closely papillate, and in small examples similar though feeble papillae crowded over entire back, or at least over predorsal area.

D. III, 8, I, first branched ray $3\frac{2}{3}$ to $3\frac{3}{4}$ in fish without caudal; A. III, 5, I, first branched ray 1 to $1\frac{1}{3}$ in head; caudal well forked, lobes pointed, length $3\frac{1}{8}$ to $3\frac{1}{4}$ in rest of fish; least depth of caudal peduncle $1\frac{3}{4}$ to $1\frac{7}{8}$ in head; pectoral 4 to $4\frac{1}{2}$ in fish without caudal, rays I, 15; ventral rays I, 8, fin $4\frac{2}{3}$ to $4\frac{7}{8}$ in fish without caudal. Vent at last fifth or sixth of depressed ventral.

Back dark or blackish brown for 3 scales below origin of dorsal fin where paler line from suprascapula, about $\frac{1}{2}$ a scale width, traverses scale junctures to bases of upper caudal rays. Below blackish brown band laterally, includes lateral line, and reaches caudal base. Head dark brown above and on sides, and usually paler area before and behind eye. Tubercles on muzzle and barbel, pale brownish. Iris gray. Mouth and under surface of head pale to whitish, also belly and under surface of tail. Front edge of dorsal brown, fin otherwise largely cream color, with each ray broadly blackish basally, and each membrane of upper part with blackish reflected blotch from each ray, though at this point ray itself not black. Caudal brown, with upper and lower submargin darker or olive. Many specimens also show dark lateral band reflected out on median caudal rays. Other fins all pale.

Type, A.N.S.P., no. 68507. Waterfall at Trang. October 13, 1936. Length 144 mm.

Also nos. 68508 to 68516, same data, paratypes. Length 117 to 137 mm.

Closely related to *Garra taeniata* H. M. Smith in general appearance, but with greatly shorter barbels, less than eye, different pearl organs and the upper edge of the dorsal fin narrowly white. Compared with the original figure of *G. taeniata* that shows the lateral line inferior along the side of the caudal peduncle and the details of the coloration quite different from my material.

(*Parvus* small + *filum* thread or barbel; with reference to the rostral barbels.)

GYRINOCHEILIDAE

Gyrinocheilops kaznakoi (Berg)

Gyrinocheilus kaznakoi Berg, Comp. Rend. Trav. Soc. Imp. Nat. St. Petersburg, vol. 37, 1906, pp. 305, 367 (type locality, Pai-lin between Battambang and Schantaburi).

Gyrinocheilops kaznakoi Fowler. Proc. Acad. Nat. Sci. Phila., vol. LXXXIX, May 19, 1937, figs. 96-97 (Paknam; Tachin).

Three, 110 to 172 mm., October 13.

BELONIDAE

Strongylura strongylura (Van Hasselt)

Two, 218 to 220 mm., October 13.

MASTACEMBELIDAE

Mastacembelus paucispinis new species. Fig. 23.

Depth 7 to 7⅔; head 3⅘ to 4½, width 5 to 5½. Snout from base of nasal flap 2⅓ to 2⅔ in head; eye 6 to 7, 2½ in snout, greatly exceeds interorbital; maxillary reaches ½ to eye, length 3⅔ to 4¼ in head from base of nasal flap, which trifid terminally and subequal to little longer than snout; no infraorbital spine; interorbital 7 to 7⅓ in head from base of nasal flap, depressed. Gill rakers rudimentary or undeveloped. Gill filaments ⅘ in eye.

Scales minute, imbedded, about 160 in axial lateral series along lateral line to caudal base; lateral line with about 50 imperfect tubes extending well posteriorly on tail but not quite to caudal base. Cheek and opercle scaly, head otherwise largely naked.

D. XVI, 46 to 48, soft fin height 2½ to 3 in head without nasal flap; A. III, 42 to 45, soft fin height 3¼ to 3⅔; caudal 2½ to 2⅘; pectoral 2¾ to 3, rays 16 or 17.

Brown, little paler below. Dark brown band along side of snout to eye, and also postocular streak, besides brown bar from lower front edge of eye down and across to its fellow on other side; also brown transverse bar from one maxillary to the other over chin. Snout flap rather dark brown. Iris dark gray. On trunk and tail 18 or 19 transverse, inclined, parallel dark bands, all sloping forward, those on trunk not crossing abdomen, and on tail 7 or 8, extending from basal part of dorsal down to near anal edge where all inclined and narrowed forward. In each intervening paler area, between oblique dark band, another less dark parallel streak on back and sides above. Each dark band, at least on back, with variable scattered pale specks or spots. Vertical fins all with general color pale to whitish, with broken longitudinal dark lines on outer part of dorsal, and 4 or 5 transversely on caudal. Pectoral pale.

Type, A.N.S.P., no. 68517. Waterfall at Trang. October 13, 1936. Length 86 mm.

Also no. 68518, same data, paratype. Length 77 mm.

Distinguished by its free caudal fin (only in paratype anal continuous with caudal, apparently abnormal), but 16 dorsal spines, and the coloration, the oblique dark bands not extending across the belly.

(*Paucis* few + *spina* spine.)

CHANNIDAE

Channa gachua (Buchanan-Hamilton)

One, 92 mm., October 14. Scales 38 in lateral line. Dorsal rays 35.

NANDIDAE

Pristolepis fasciatus (Bleeker)

Catopra fasciata Bleeker, Nat. Tyds. Ned. Indie, vol. 2, 1851, pp. 60, 65 (type locality, Bandjermassing, in fluviis, Borneo).

Pristolepis fasciatus Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. LXXXVI, 1934, p. 155 (Chieng Mai; Hua Mak; Bua Yai; Chantaboon; Bangkok); vol. LXXXVI, June 25, 1934, p. 351 (Bangkok; Ban Thung Luang); vol. LXXXVII, June 24, 1935, p. 153 (Bangkok); vol. LXXXIX, May 19, 1937, p. 242 (Rayong; Tachin).—Weber and Beaufort, Fish. Indo-Austral. Archip., vol. 7, 1936, p. 479 (E. Indies; Malaya; Burma; Siam; Cochin China).

Thirty-one, 32 to 36 mm., October 13; three, 48 to 51 mm., October 14.