

**ZOOLOGICAL RESULTS OF THE THIRD DE SCHAUENSEE SIAMESE
EXPEDITION. PART VIII, — FISHES OBTAINED IN 1936**

BY HENRY W. FOWLER

The collection of fishes reported upon in the present paper was obtained in Siam in 1936, and is the most extensive of the several received by the Academy from Mr. Rodolphe M. de Schauensee.¹ It comprises over 8200 specimens representing 351 species of which more than sixty (marked by an asterisk) were not included in his previous collections, not to mention the fifty-three which appear to be new to science together with twelve new genera or subgenera. All of the new forms are figured as well as selected series of certain species which exhibit interesting color variations.

It is hoped that the descriptions, figures and notes here presented will furnish a satisfactory basis upon which to build further studies. The Academy is again grateful to Mr. de Schauensee for this elaborate gift to its museum.

DISTRIBUTION OF FRESH-WATER SPECIES

Krempf and Chevey 1935 have discussed the geological aspects in the relationship between the Continental Shelf of Indo-China and the East Indies. They have also supplemented their work with a tabulation of Indo-China fresh-water fishes and their extralimital distribution. In view of recent work carried on in Siam the common origin of its fish fauna with the East Indies is still more revealed, and may best be gathered from the list given below. Though many of these species are incompletely studied, or not satisfactorily compared, they clearly emphasize a very close affiliation of Siam with the East Indian fauna.

¹ My previous reports are as follows:

Zoological Results of the Third DeSchauensee Siamese Expedition, Part I, Fishes: Proc. Acad. Nat. Sci. Phila., vol. 86, 1934 (April 30), pp. 67 to 163, figures 1 to 129, pl. 12; Part V, Additional Fishes, op. cit., vol. 86, 1934 (June 25), pp. 335 to 352, figures 1 to 13; Part VI, Fishes obtained in 1934, op. cit., vol. 87, 1935 (June 24), pp. 89 to 163, figures 1 to 132; Part VII, Fishes obtained in 1935, op. cit., vol. 87, 1935 (January 14, 1936), pp. 509 to 513, figures 1 to 7.

In part VI, p. 103, figure 27 is soiled with a small black spot on the adipose fin and the back, and figure 28 with a black spot on the first dorsal.

In part VII, p. 509 for "Laun We" and "Loi Weve" read Loi Mwe, and for "Mong Lon" read Mong Lin; p. 510 for "Ching Sen" read Chieng Sen, and for "Ming Pek" read Meng Pek; p. 513 for "Meng Lin" read Mong Lin, and for "Loisande" read Lo, Mwe.

	Siam	East Indies	Burma	India	China
<i>Notopterus notopterus</i>	×	×	×	×	
“ <i>chitala</i>	×	×	×	×	
<i>Anodontostoma chacunda</i> ...	×	×	×	×	×
<i>Nematalosa nasus</i>	×	×	×	×	×
<i>Corica soborna</i>	×			×	
<i>Monopterus albus</i>	×	×	×		×
<i>Synbranchus bengalensis</i>	×	×		×	
<i>Muraena australis</i>	×	×	×	×	
<i>Clarias batrachus</i>	×	×	×	×	
“ <i>meladerma</i>	×	×			
“ <i>teysmanni</i>	×	×		×	
<i>Saccobranchus fossilis</i>	×		×	×	
<i>Wallago attu</i>	×	×	×	×	
<i>Ompok bimaculatus</i>	×	×	×	×	
<i>Pangasius pangasius</i>	×	×	×	×	
<i>Bagarius bagarius</i>	×	×	×	×	
<i>Glyptothorax dorsalis</i>	×		×		
<i>Tachysurus caelatus</i>	×	×		×	
“ <i>gagora</i>	×		×	×	
“ <i>maculatus</i>	×	×			×
“ <i>sagor</i>	×	×		×	
“ <i>thalassinus</i>	×	×		×	
“ <i>venosus</i>	×	×	×	×	
<i>Osteogeneiosus militaris</i>	×	×		×	
<i>Batrachocephalus mino</i>	×	×	×	×	
<i>Mystus cavasius</i>	×		×	×	
“ <i>gulio</i>	×	×	×	×	
“ <i>tengara</i>	×			×	
“ <i>vittatus</i>	×		×	×	
<i>Amblyceps mangois</i>	×		×	×	
<i>Homaloptera modesta</i>	×		×		
<i>Nemacheilus beavani</i>	×			×	
“ <i>multifasciatus</i> .	×			×	
<i>Acanthopsis choirorhynchos</i> .	×	×		×	
<i>Botia berdmorei</i>	×		×		
<i>Laubuca laubuca</i>	×	×	×	×	
<i>Rasbora argyrotaenia</i>	×	×		×	
“ <i>rasbora</i>	×		×	×	
<i>Esomus altus</i>	×		×		
“ <i>danrica</i>	×		×	×	
<i>Danio aequipinnatus</i>	×		×		
“ <i>albolineata</i>	×		×		
“ <i>malabarica</i>	×		×		
<i>Dangila berdmorei</i>	×		×		
“ <i>burmanica</i>	×		×		
<i>Catla catla</i>	×		×	×	
<i>Labeobarbus stracheyi</i>	×		×	×	
<i>Cyclocheilichthys apogon</i> ...	×	×	×		
<i>Lissochilus dukai</i>	×	×		×	

	Siam	East Indies	Burma	India	China
<i>Varicorhinus dyocheilus</i>	×			×	×
<i>Barbus sarana</i>	×		×	×	
<i>Barilius bola</i>	×		×	×	
“ <i>guttatus</i>	×		×		
<i>Panchax panchax</i>	×	×	×	×	
<i>Zenarchopterus amblyurus</i> ..	×	×		×	×
“ <i>dispar</i>	×	×		×	
“ <i>ectuntio</i>	×		×	×	×
<i>Mugil dussumieri</i>	×	×		×	
“ <i>oligolepis</i>	×	×		×	
“ <i>speigleri</i>	×	×		×	
“ <i>vaigiensis</i>	×	×		×	×
<i>Rhynchobdella aculeata</i>	×	×	×	×	
<i>Mastacembelus argus</i>	×				×
“ <i>armatus</i>	×		×	×	×
<i>Anabas testudineus</i>	×	×	×	×	×
<i>Trichopodus trichopterus</i>	×	×	×		
<i>Trichopsis vittatus</i>	×	×		×	
<i>Osphronemus goramy</i>	×	×			×
<i>Channa gachua</i>	×	×		×	×
“ <i>lucius</i>	×	×			×
“ <i>marulius</i>	×		×	×	×
“ <i>micropeltes</i>	×	×		×	
“ <i>striata</i>	×	×		×	×
<i>Chanda ranga</i>	×		×	×	
“ <i>baculis</i>	×			×	
<i>Ambassis safgha</i>	×	×		×	
“ <i>gymnocephalus</i> ...	×	×		×	×
“ <i>miops</i>	×	×		×	
“ <i>thomassi</i>	×		×	×	
“ <i>urotaenia</i>	×	×		×	
<i>Lates calcarifer</i>	×	×	×	×	×
<i>Datnioides pollota</i>	×	×		×	
<i>Nandus nandus</i>	×		×	×	
“ <i>nebulosus</i>	×			×	
<i>Pristolepis fasciatus</i>	×	×	×		
<i>Toxotes chatareus</i>	×	×	×	×	
“ <i>jaculator</i>	×	×		×	×
“ <i>microlepis</i>	×	×	×		
<i>Scatophagus argus</i>	×	×		×	×
<i>Bostrichthys sineñsis</i>	×	×			×
<i>Butis butis</i>	×	×		×	
<i>Glossogobius guiris</i>	×	×	×	×	

Siamese-East Indian Species

- Scleropages formosus*
Lycotrichia crocodilus
Coilia macrognathos
Clarias macrocephalus, nieuhofti
Wallago miosstoma
Belodontichthys dinema
Kryptopterus apogon, bicirrhis, crypto-
pterus, hexapterus, limpok, micronema
Hemisilurus scleronema
Silurichthys phaiosoma
Silurodes hypophthalmus
Pangasius macronema, micronema, nasutus,
polyuranodon
Glyptothorax major, platypogonoides
Tachysurus argyropleuron, leiotocepha-
lus, macronotacanthus, melanochir,
stormii, truncatus
Ketengus typus
Hemipimelodus borneensis
Myxus micracanthus, nemurus, nigriceps,
planiceps, wolffii, wyckii
Bagroides macracanthus, macropterus,
melapterus
Leiocassis poecilopterus
Akysis macronema
Homaloptera zollingeri
Nemacheilus fasciatus
Acanthophtalmus anguillaris, kuhli
Botia hymenophysa
Lepidocephalus hasselti
Oxygaster oxygastroides
Macrochirichthys macrochirus
Rasbora einthovenii, heteromorpha, lateri-
striata, trilineata
Luciosoma setigerum
Leptobarbus hoeveni, melanotaenia
Mystacoleucas marginatus
Dangila kuhlii, sumatrana
Thynnichthys thynnoides
Osteochilus borneensis, hasseltii, schle-
gelii, vittata, waandersii
Osteochilus melanopleura
Hampala macrolepidota
Labeobarbus douronensis, soro, tambro-
ides
Cyclocheilichthys armatus, enoplus, hete-
ronema, repasson
Lissochilus sumatranus
Barbus bantamensis, binotatus, bramo-
ides, brevis, bulu, javanicus, latere-
striga, orphoides, schwanefeldii,
sumatranus
Balantiocheilus melanopterus
Barbichthys laevis
Morulus chrysophekadion
Epalzeorhynchus kalopterus
Crossocheilus oblongus
Dermogenys pusillus
Channa melasoma
Helostoma temminckii
Trichopodus leerii
Betta taeniata
Acanthoperca wolffi
Ambassis buruensis, gymnocephalus
Datnioides microlepis

DESCRIPTION OF SPECIES

ORECTOLOBIDAE

Hemiscyllium griseum (Müller and Henle).

One, 168 mm., Rayong.

GALEORHINIDAE

Scoliodon walbeehmi (Bleeker).

One, 223 mm., Bangkok.

DASYATIDAE

Dasyatis imbricatus (Schneider).

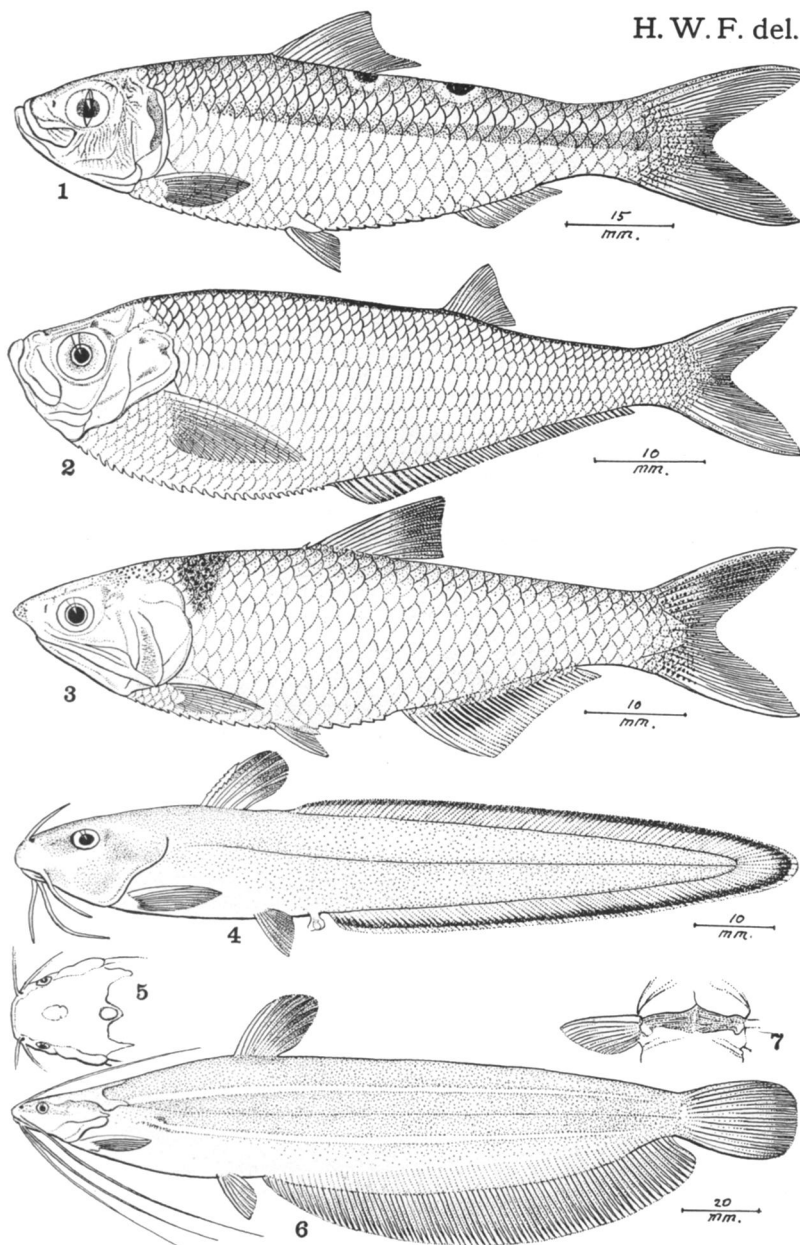
One, disk length 57 mm., disk width 67 mm., tail 93 mm., Paknam.

ELOPIDAE

Megalops cyprinoides (Broussonet).*

One, 180 mm., Bangkok.

H. W. F. del.



1. *Harengula dispilonotus*. 2. *Opisthopecterus indicus*.
 3. *Thrissocles kammalensis*. 4. *Plotosus anguillaris*.
 5 to 7. *Clarisilurus kemratensis*.

NOTOPTERIDAE**Notopterus notopterus** (Pallas).

Fourteen, 80 to 175 mm., Bangkok; one, 88 mm., Paknam; nine, 84 to 116 mm., Tachin.

CHIROCENTRIDAE**Chirocentrus dorab** (Forskål).*

One, 253 mm., Paknam. Depth 7.

Chirocentrus hypselosoma Bleeker.*

Depth $6\frac{1}{4}$ to $6\frac{2}{5}$; head $4\frac{1}{8}$ to 5, width $3\frac{2}{3}$ to 4. Snout $3\frac{1}{4}$ to $3\frac{1}{2}$ in head from snout tip; eye $4\frac{1}{2}$ to 5; $1\frac{1}{4}$ to $1\frac{1}{2}$ in snout, greater than interorbital; maxillary reaches $\frac{1}{3}$ to $\frac{1}{4}$ in eye, expansion $1\frac{2}{3}$, length $2\frac{1}{3}$ to $2\frac{1}{8}$ in total head length; lower teeth greatly longer than upper, and all diminishing greatly posteriorly in jaws; interorbital $5\frac{1}{2}$ to $6\frac{1}{5}$ in head from snout tip. Gill rakers $3 + 17$, slender, $1\frac{2}{3}$ in eye; gill filaments $\frac{4}{5}$ of gill rakers.

Scales all fallen, even pockets but little defined. Broad branch of venules, radiating down from behind eye, covers cheek.

D. II, 13 or II, 14, first branched ray $3\frac{1}{2}$? in total head length; A. III, 30, I, first branched ray $3\frac{1}{2}$? ; caudal equals head, lower lobe slightly longer; least depth of caudal peduncle 3 to $3\frac{1}{2}$ in total head length; pectoral $1\frac{1}{3}$ to $1\frac{2}{5}$, rays II, 12; ventral rays I, 5, fin $5\frac{4}{5}$ to 6 in total head length.

Back and upper surface of head gray, darker along upper ridge. Sides and lower surfaces pale, evidently silvery white in life. Iris gray, evidently pale in life. Inconspicuous black dots scattered on lower part of tail above base of anal. Fins all rather conspicuously or contrasted pale, very light brownish or whitish, only hind border of caudal slightly gray. End of mandible dark gray and lower border sprinkled with dark dots. Area of adipose eyelids on head pale.

Three, 154 to 158 mm., Tachin.

DUSSUMIERIIDAE**Dussumieria acuta** Valenciennes.

Four, 112 to 137 mm., Paknam; five, 50 to 75 mm., Tachin.

CLUPEIDAE**Kowala thoricata** Valenciennes.

One, 81 mm., Bangkok; 98 examples, 69 to 93 mm., Tachin.

Sardinella jussieu (Lacépède).*

Six, 138 to 144 mm., Bangkok; five, 88 to 107 mm., Paknam; five, 98 to 123 mm., Rayong; one, 132 mm., Tachin. Gill-rakers $30 + 50$.

Sardinella melanura (Cuvier).*

Three, 138 to 143 mm., Bangkok. Lower gill rakers 48. Black tip to each caudal lobe distinct but not greatly contrasted.

Harengula brachysoma (Bleeker).

Two, 138 to 143 mm., Bangkok; two, 125 to 130 mm., Paknam; two, 118 to 132 mm., Tachin.

Harengula dispilonotus Bleeker. Figure 1.

Four, 85 to 103 mm., Rayong.

Corica laciniata Fowler.

One, 58 mm., Bangkok; three, 40 to 60 mm., Paknam; 73 specimens, 55 to 66 mm., Tachin. Scales 30 + 3.

Clupeoides exilis Fowler.

Twenty-two, 54 to 70 mm., Bangkok; eight, 45 to 60 mm., Tachin. All with caudal pale yellowish, with dark gray border and sometimes end of each lobe rather broadly blackish.

Ilisha indica (Swainson).

Twenty, 68 to 130 mm., Tachin. Depth $2\frac{2}{3}$ to $3\frac{1}{8}$. A. rays III, 32 to III, 36. In the younger stages usually more deeply bodied.

Opisthopterus indicus (Swainson). Figure 2 (Paknam).

One, 170 mm., Bangkok; two, 80 to 96 mm., Paknam.

ENGRAULIDAE**Anchoviella commersonii** (Lacépède).*

One, 58 mm., Bangkok; two, 56 to 68 mm., Paknam; 77 specimens, 55 to 88 mm., Tachin. Gill rakers 24 + 25. Scutes between paired fins 6. Scales 33 + 3 in lateral series. A. II, 17 or 18.

Anchoviella indica (Van Hasselt).*

One, 107 mm., Bangkok; two, 122 to 129 mm., Paknam.

Thrissocles kammalensis (Bleeker).* Figure 3.

Depth $3\frac{2}{3}$ to $3\frac{2}{3}$; head $3\frac{1}{2}$ to $3\frac{2}{3}$, width 3 to $3\frac{1}{3}$. Snout 4 to $4\frac{1}{3}$ in head, as seen from above end narrowly compressed; eye $4\frac{2}{3}$ to 5, $1\frac{1}{10}$ to $1\frac{1}{2}$ in snout, $1\frac{1}{5}$ to $1\frac{1}{4}$ in interorbital; maxillary reaches nearly to, or quite to hind edge of gill opening, length $1\frac{1}{8}$ to $1\frac{1}{3}$ in total length of head; teeth very fine, minute; interorbital $4\frac{1}{8}$ to $4\frac{2}{3}$, elevated convexly; top of head with median keel forward to end of snout, quite cavernous. Gill rakers 27 + 30, finely lanceolate, $\frac{4}{5}$ of eye; gill filaments $\frac{1}{2}$ of gill rakers.

Scales 25 to 30 + 4 or 5 in lateral series, 10 or 11 transversely above anal origin; 15 or 16 predorsal. Pectoral and ventral each with long axillary scale. Caudal base scaly, without alar scales. Anal base with row of rather large scales. Abdominal scutes 15 + 8 to 10. Scales rather firmly adherent, with reticulate lines, of which 4 to 6 principal ones more or less radiate from center of scale basally; apically reticulations smaller and more numerous.

D. I-II, 10, 1, third simple ray $1\frac{1}{2}$ to $1\frac{1}{2}$ in head; A. II or III, 28, 1 to 30, 1, first branched ray $1\frac{1}{2}$ to 2; caudal equals head, deeply forked; least depth of caudal peduncle $2\frac{1}{2}$ to 3; pectoral $1\frac{3}{4}$ to $1\frac{4}{5}$, rays 1, 10; ventral rays 1, 6, fin $2\frac{3}{8}$ to $2\frac{3}{4}$ in head.

Largely pale to whitish, with more or less silvery sheen. Back slightly darker, with dark dots. A saddle-like dark gray blotch on front of predorsal or above hind part of head, triangular as seen in profile. Iris whitish. Fins all pale, more or less whitish, end of dorsal and most of upper caudal lobe terminally more or less dark gray. Some dark dots along caudal rays basally.

Three, 60 to 78 mm., Paknam.

Thrissocles hamiltonii (Gray).

One, 180 mm., Tachin.

Thrissocles mystax (Schneider).

One, 52 mm., Paknam; three, 109 to 138 mm., Tachin. Maxillary nearly reaches ventral. A. II, 32, 1, to II, 35, 1.

Thrissocles setirostris (Broussonet).*

Two, 51 to 109 mm., Paknam.

Lycothrissa crocodilus (Bleeker).

One, 77 mm., Tachin.

Setipinna taty (Valenciennes).

Two, 143 to 167 mm., Bangkok.

Setipinna melanochir (Bleeker).*

Depth $3\frac{2}{5}$; head $5\frac{1}{5}$, width $2\frac{7}{8}$. Snout 6 in head; eye $4\frac{1}{2}$, greater than snout, $1\frac{1}{2}$ in interorbital; maxillary reaches hind edge of preopercle, expansion $1\frac{1}{2}$ in eye, length $1\frac{1}{2}$ in head; interorbital $4\frac{1}{2}$, convex, with median ridge to occiput. Branchiostegal membrane forms short, free fold across isthmus. Gill rakers $8 + 10$, equal eye; gill filaments $\frac{2}{3}$ of gill rakers.

Scales $42 + 3$ in lateral series, 15 transversely between dorsal and anal origins; 21 predorsal. Scales very caducous. Abdominal scutes $10 + 9$.

D. I-II, 9, 1, first branched ray equals head; A. II, 45, 1, first branched ray $1\frac{1}{2}$; caudal 4 in rest of fish, deeply forked; least depth of caudal peduncle $2\frac{1}{5}$ in head; pectoral 1, rays 1, 13; ventral rays 1, 5, fin $2\frac{1}{4}$ in head.

Back and upper surface of head dark brown, sides and below pale to whitish, with bright silvery white reflections. Iris silvery white, jaws whitish. Dorsal and caudal pale brownish with grayish terminally. Anal and ventrals whitish, pectorals black.

One, 135 mm., Tachin.

Coilia macrognathos Bleeker.

Three, 145 to 173 mm., Bangkok; 28 specimens, 73 to 209 mm., Tachin. In small specimens the maxillary reaches only to the pectoral origin, but in the largest well beyond. Abdominal scutes $13 + 23$. A. 77. Pectoral filaments 6.

SYNODONTIDAE

Saurida tumbil (Bloch).*

One, 200 mm., Paknam. Scales $53 + 5$ in lateral line; 5 above. D. II, 9, 1. Pectoral 2 in head.

PLOTOSIDAE

Plotosus anguillaris (Bloch).* Figure 4.

Eight, 103 to 145 mm., Paknam. Nasal barbels reach middle of eye.

CLARIIDAE

Clarias batrachus Linnaeus.

Four, 72 to 124 mm., Me Poon; one, 103 mm., Pitsanulok. The last specimen much paler than the others, or quite light brown.

SILURIDAE

Wallago attu (Schneider).

One, 175 mm., Tachin.

CLARISILURUS, new genus

Body elongate, greatly compressed, less so forward, greatly so posteriorly. Head small, broadly depressed. Snout short, broad, obtuse, muzzle shallow. Eye small, well advanced in head, lateral, margins free all around. Mouth terminal, broad, gape very short or barely reaches $\frac{1}{2}$ to eye. Barbels 8, well developed, all greatly longer than head. Teeth minute, in jaws and on vomer. Top of head broadly convex, with frontal and occipital fontanels well developed. Gill-opening deep, membranes cleft half way to isthmus, each side forming broad flap over broad bony thorax, or conceals about half its anterior area. Humeral extension short curved ledge. Gill rakers numerous, lanceolate, close set. Skin smooth. Top of head and bony thorax rugose striate, not covered with skin. Lateral line distinct, complete. Single small dorsal fin, inserted behind ventrals. No adipose fin. Caudal small, rounded. Anal with long base, much greater than rest of fish, free from caudal. Pectoral small, low, with strong spine nearly long as fin. Ventral usually well behind end of pectoral, little smaller. Type *Clarisilurus kemratensis*, new species.

A genus defined only as superficially suggestive of *Clarias* in its head depressed and with somewhat similar fontanels, the body greatly compressed, and the small dorsal advanced.

(*Clarias* + *Silurus*, the type genus.)

Clarisilurus kemratensis, new species. Figures 5 (head above), 6 (lateral view), 7 (thorax).

Depth $5\frac{1}{2}$ to $6\frac{1}{5}$; head $6\frac{1}{5}$ to 7, width $1\frac{1}{8}$ to slightly greater than head length. Snout $3\frac{1}{4}$ to $3\frac{3}{4}$ in head; eye $6\frac{1}{2}$ to $7\frac{1}{2}$, $1\frac{7}{8}$ to 2 in snout, 4 to $4\frac{1}{8}$ in interorbital; mouth width $2\frac{3}{4}$ to $3\frac{1}{2}$ in head, jaws about even, or lower scarcely extended; nasal barbels reach $\frac{2}{3}$ to, or to dorsal origin, maxillary

pair reaches bases of fifth to eleventh anal rays, outer mental pair reaches vent or to base of eighth anal ray, inner mental pair reaches ventral fin origin or about base of fifth anal ray; teeth minutely and evenly villiform in jaws, as rather broad band in each; similar band on each side of vomer, narrower than bands of upper jaws, parallel; interorbital $1\frac{3}{8}$ to $1\frac{7}{8}$ in head, broadly convex; frontal fontanel $1\frac{1}{2}$ times eye, invades most of interorbital space; occipital fontanel long as eye, largely in short triangular occipital extension. Gill rakers $6 + 24$, slender, equal gill filaments or $1\frac{1}{5}$ in eye.

Skin smooth, firm. Lateral line axial, as narrow ill defined canal on trunk and small, wide set pores on tail. Anal papilla sometimes well developed, conic, little less than eye.

D. 1, 5, first ray scarcely spinous, very flexible like branched rays, fin length 1 to $1\frac{1}{2}$ in head; A. 75 to 84, fin height medially $1\frac{1}{2}$ to $1\frac{3}{8}$; caudal length 7 to 8 in rest of fish; caudal peduncle depth $2\frac{1}{8}$ to $3\frac{1}{2}$ in head; pectoral $1\frac{1}{8}$ to $1\frac{3}{8}$, rays I, 8, spine long as fin, with 10 or 11 antrorse serrae along outer edge, 12 or 13 along inner edge, in small specimens fin reaches $1\frac{1}{2}$ to ventral, half way in larger; ventral rays 1, 5, fin $1\frac{3}{8}$ to $1\frac{1}{4}$ in head.

Dark gray brown generally, paler or light gray on under surface of head and belly. Iris gray. Two narrow, pale gray longitudinal bands, parallel on side of body, one above and other below lateral line, fading out behind. Fins and barbels blackish brown, especially in smaller specimens.

A.N.S.P., No. 67, 880. Kemrat. Length 210 mm. Type. Also Nos. 67,881 to 67,883, same data, paratypes. Length 143 to 160 mm.

An interesting siluroid with dark gray coloration, contrasted with two narrow pale bands longitudinally on each side of the body.

(Named for Kemrat, the type locality.)

Belodontichthys dinema (Bleeker).

Two, 260 to 268 mm., Bangkok.

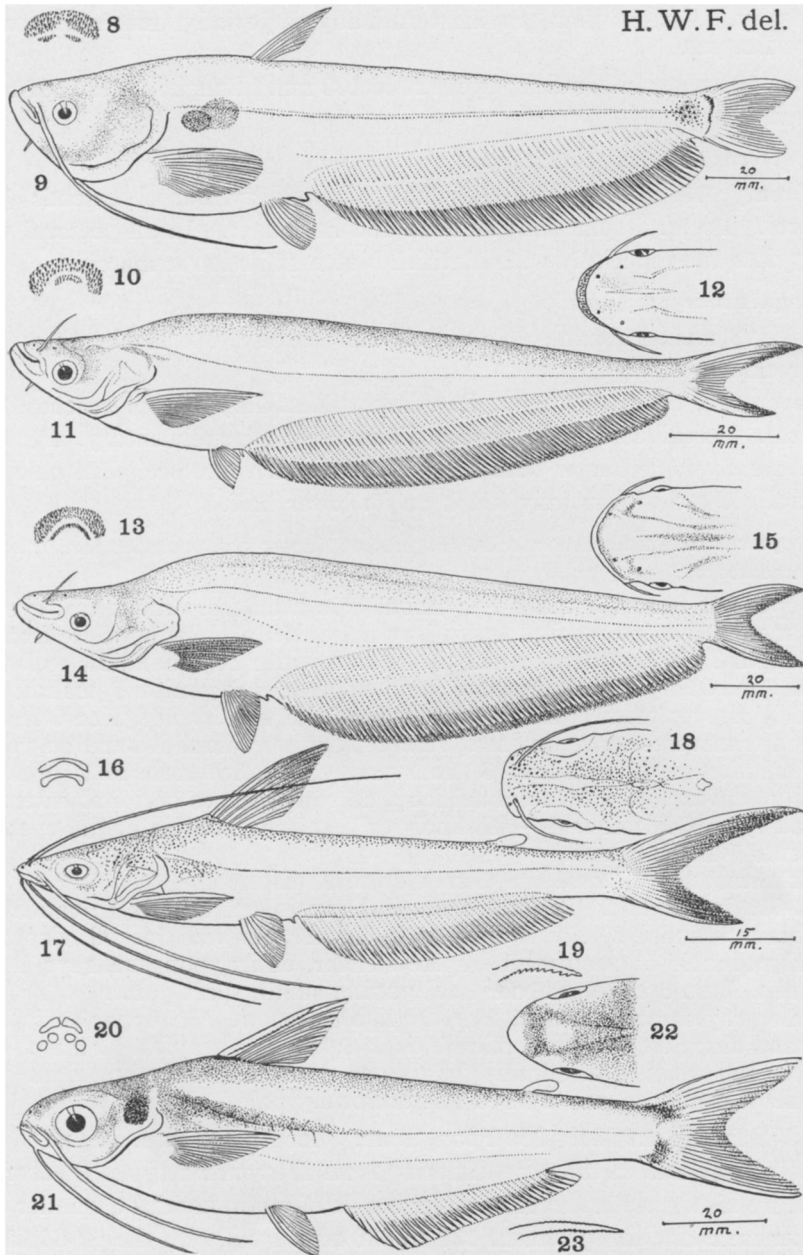
Ompok bimaculatus (Bloch). Figures 8 (upper and vomerine teeth), 9 (Kemrat).

Depth $4\frac{1}{4}$ to $4\frac{2}{5}$; head $4\frac{1}{5}$ to $4\frac{1}{3}$, width $1\frac{3}{8}$ to $1\frac{1}{4}$. Snout $3\frac{3}{8}$ to $3\frac{1}{4}$ in head from snout tip; eye $5\frac{1}{2}$ to $6\frac{1}{3}$, $1\frac{1}{2}$ to $2\frac{1}{4}$ in snout, 3 to $4\frac{1}{4}$ in interorbital; maxillary not quite reaching eye, length 3 to $4\frac{1}{8}$ in head from snout tip; mouth width $1\frac{1}{8}$ to $1\frac{7}{8}$, mandible well protruded; teeth in jaws in broad bands of 4 or 5 series in irregular transverse count, depressible and larger inside; vomer with narrow small, slender, short band each side, much smaller than jaw teeth; long maxillary barbel reaches ventral or little beyond, and small mental barbel $\frac{2}{3}$ of eye; interorbital $1\frac{7}{8}$ to 2, convex. Gill rakers $2 + 9$, lanceolate, $1\frac{1}{2}$ in gill filaments, equal eye.

Skin smooth. Lateral line complete, axial, conspicuous. Anal papilla moderate, conic.

D. 4, fin $1\frac{1}{4}$ to $1\frac{1}{5}$ in total head length; A. 58 to 61, last ray adnate by membrane with caudal, fin height $1\frac{7}{8}$ to $2\frac{1}{8}$; caudal $1\frac{3}{8}$ to $1\frac{3}{5}$, emarginate; pectoral $1\frac{1}{8}$ to $1\frac{1}{3}$, spine entire, firm, terminally flexible, rays I, 12; ventral 1, 7, fin $2\frac{1}{2}$ to 3 in total head length.

Brown, scarcely paler below. Iris grayish. Barbels pale brownish. Some examples with irregular darker brownish areas or blotches on head and body. Dark gray rounded blotch at front of lateral line (above air-bladder).



8, 9. *Ompok bimaculatus*. 10 to 12. *Kryptopterus deignani*.
 13 to 15. *Kryptopterus micronema*. 16 to 19. *Nemasiluroides furcatus*.
 20 to 23. *Pangasius aequalialis*.

Diffuse dark gray blotch at caudal base and dark line transversely on caudal subbasally. Vertical fins grayish terminally, especially anal and caudal. Paired fins pale.

One, 193 mm., Pitsanulok; two, 127 to 130 mm., Bangkok; one, 187 mm., Kemrat.

Kryptopterus bicirrhis (Valenciennes).

Twenty, 78 to 108 mm., Bangkok. Maxillary barbel extends $\frac{1}{3}$ in pectoral. Pectoral spine long as head and fin longer. In all pectoral with dusky dots and especially with blackish blotch at its lower margin.

Kryptopterus cryptopterus (Bleeker).*

One, 98 mm., Paknam. No mandibular barbels, but in all other ways in agreement.

Seventeen, 65 to 137 mm., Bangkok. Maxillary barbel reaches $\frac{2}{3}$ in pectoral. Mandibular barbel always distinct, though rudimentary. Pectoral spine usually little longer than head, and fin much more so. All pale, the pectoral always without any black on its lower half.

Kryptopterus deignani, new species. Figures 10 (upper and vomerine teeth), 11, 12 (head above).

Depth $5\frac{1}{4}$; head $4\frac{1}{2}$, width $1\frac{3}{4}$. Snout 2 in head from snout tip; eye $5\frac{3}{4}$, $1\frac{3}{4}$ in snout, $2\frac{3}{8}$ in interorbital; maxillary not quite reaching opposite front of eye, length $3\frac{1}{8}$ in head from snout tip; mouth width $1\frac{9}{10}$, mandible well protruded; maxillary barbel reaches hind edge of eye; minute mandibular barbel $\frac{1}{2}$ of eye; teeth conic, slender, outer little smaller and 4 or 5 irregularly in transverse series, in jaws, similar narrower parallel band on vomer with smaller teeth, in about 3 transverse series; interorbital 2 in head, broadly convex; occipital fontanel long, narrow, reaches occipital extension beyond eye. Gill rakers 6 + 12, finely or slenderly lanceolate, $\frac{1}{2}$ of eye; gill filaments $\frac{3}{4}$ of gill rakers.

Skin smooth. Lateral line complete, axial, distinct.

A. 81, fin height $2\frac{1}{5}$ in total head, last ray joined basally to caudal by membrane; caudal $1\frac{1}{5}$, lower lobe little shorter, fin well forked; depth of caudal peduncle 5; pectoral $1\frac{1}{5}$, spine slender, entire, pungent, rays I, 14; ventral I, 8, fin 3 in total head; anal papilla small, short point.

Pale grayish or brownish, scarcely lighter below. On upper surface of head and along edge of back minute dark dots. Iris grayish. Fins pale to more or less whitish, terminally grayish on anal posteriorly and dark gray on ends of caudal lobes. Paired fins uniformly pale.

A.N.S.P., No. 67,884. Me Poon, Siam. Length 143 mm. Type.

Only known from the type, differing from *Micronema typus* Bleeker, as shown by his figure, in larger or wider bands of teeth, besides a smaller eye. Bleeker mentions six specimens 137 to 326 mm. long, with the A. 86 to 93. *M. deignani* shows but 81 anal rays.

(For Mr. H. E. Deignan, an earnest student of Siamese ornithology, now of Chiang Mai.)

Kryptopterus micronema (Bleeker). Figures 13 (upper and vomerine teeth), 14, 15 (head above).

Depth 5 to $5\frac{1}{4}$; head $4\frac{1}{5}$ to $4\frac{1}{2}$, width $1\frac{1}{3}$ to $2\frac{1}{5}$. Snout $2\frac{1}{3}$ to $3\frac{1}{5}$ in head from snout tip; eye 6 to 7, $2\frac{1}{4}$ to $2\frac{3}{8}$ in snout, $2\frac{1}{3}$ to 4 in interorbital; maxillary reaches before but not to eye, length $3\frac{1}{3}$ to $3\frac{1}{2}$ in head from snout tip; mouth width $1\frac{3}{8}$ to $1\frac{3}{4}$, broadly flattened mandible well protruding; maxillary barbel reaches front eye edge or to hind eye edge; minute mandibular barbel $\frac{1}{2}$ of eye; teeth slender, conic, pointed, forming broad bands in jaws of 5 irregular series, and much narrower inner parallel band of smaller teeth; interorbital $1\frac{1}{3}$ to 2, broadly convex; occipital fontanel narrow, extends well in occipital extension. Gill rakers 4 + 13, finely lanceolate, $\frac{1}{2}$ of gill filaments or $1\frac{1}{3}$ in eye.

Skin smooth. Lateral line complete, axial, distinct.

A. 76 to 79, fin height $2\frac{3}{8}$ to 3 in total head length; caudal $1\frac{1}{2}$ to $1\frac{7}{8}$, deeply forked, pointed lobes equal; depth of caudal peduncle $4\frac{1}{3}$ to 7; pectoral $1\frac{1}{3}$ to $1\frac{3}{8}$, rays I, 14, spine slender, pungent, entire; ventral rays I, 10, fin $2\frac{1}{2}$ to $2\frac{3}{8}$ in total head length; anal papilla small conic point.

Light or pale brown or gray, scarcely paler on under surface of head and belly. Upper surface of head and back sprinkled with brown to dark brown or gray dots. Iris gray, evidently whitish in life. Fins pale to whitish, inner fork of caudal dark gray to blackish, and anal fin on terminal part of fin posteriorly same. Pectoral with dark to blackish dots. Young often more contrasted with more numerous and extensive areas of dark dots.

Eight, 105 to 188 mm., Bangkok.

Agrees in having the anal united with the caudal by a basal membrane, and differs from *K. deignani* in the greatly smaller eye.

Kryptopterus hexapterus (Bleeker).

Two, 123 to 132 mm., Bangkok. Maxillary barbel reaches $\frac{3}{8}$ in pectoral, and mandibular barbel reaches pectoral origin. No dorsal. Pectoral fin $\frac{1}{4}$ greater than head, spine $1\frac{1}{2}$ in total head length.

PANGASIIDAE

NEMASILUROIDES, new genus

Body elongate, slender, strongly compressed, deepest about origin of first dorsal fin and but slightly tapering posteriorly. Head small, depressed forward. Muzzle broadly depressed or flattened both above and below. Eye advanced, lateral, moderate, with free lids. Mouth terminal, broad. Barbels as nasal, maxillary, inner and outer mental pairs, all very long and reaching back well behind head. Teeth minute, in narrow bands in jaws and on vomer, none of palatines. Long well developed frontal-occipital fontanel. Gill rakers slender, lanceolate. Gill membranes deeply cleft forward far as front of eye. Skin smooth, top of head striate. Humeral extension moderate. Dorsal advanced, begins little behind end of humeral extension, its basal plate forming continuous bony bridge forward to occipital extension; fin nearly long as head, and with slender spine. Adipose fin small, much nearer caudal than dorsal and over last fourth of anal. Anal long and low, nearly half length of fish without caudal. Caudal deeply forked, lobes sharply or slenderly pointed. Caudal peduncle compressed,

constricted, and rather long. Pectoral small, low, with strong compressed spine. Ventral small, its origin close behind base of first dorsal. Type *Nemasiluroides furcatus*, new species.

Related to *Pseudeutropius* Bleeker, which is here restricted to its genotype *Eutropius brachypterus* Bleeker, in the smaller anal fin with but 28 rays, shorter barbels, large eye and less sharply forked caudal fin. With *Nemasiluroides* I also include *Pseudeutropius moolenburghae* Weber and Beaufort, with only 40 anal rays, also shown to have shorter dorsal and pectoral fins.

(*Nḡua* thread + *Siluroides*; with reference to the long, prominent barbels.)

Nemasiluroides furcatus, new species. Figures 16 (upper and vomerine teeth), 17 (lateral view), 18 (head above), 19 (right pectoral spine).

Depth 5 to $5\frac{1}{4}$; head 4 to $4\frac{1}{5}$, width $1\frac{1}{2}$ to $1\frac{3}{5}$. Snout $3\frac{1}{8}$ to $3\frac{1}{4}$ in head; eye $5\frac{3}{4}$ to 6, 2 to $2\frac{1}{2}$ in snout, $2\frac{3}{8}$ to $3\frac{1}{4}$ in interorbital; maxillary reaches $\frac{1}{2}$ to $\frac{3}{8}$ to eye, length $4\frac{1}{4}$ to $4\frac{3}{8}$ in head; mouth width $2\frac{3}{8}$ to 3, jaws even; nasal barbel reaches bases of twentieth to twenty-fifth anal ray, maxillary barbel to tenth to fifteenth anal ray base, outer mental to anal origin or to fifth anal ray base, inner mental barbel to anal origin or to tenth anal ray base; teeth minutely villiform, in narrow bands in jaws and broader continuous band, parallel, across vomer, constricted or narrower anteriorly or medially; interorbital $1\frac{1}{5}$ to $2\frac{1}{5}$ in head; long and moderately wide frontal-occipital fontanel reaching base of occipital extension. Gill rakers 10 + 28, slenderly lanceolate, length $1\frac{1}{5}$ in eye or twice gill filaments.

Skin smooth. Lateral line complete, axial, distinct, pores minute, close set. Humeral extension rather short or about $\frac{2}{3}$ pectoral fin, its lower edge concave.

D. I, 5, firm sharp pointed spine with front edge entire and hind edge with about 18 low, inconspicuous, small antrorse serrae, first ray $1\frac{1}{8}$ to $1\frac{1}{10}$ in head; adipose fin $3\frac{2}{5}$ to 4; A. 44 to 49, fin height $2\frac{1}{5}$ to $2\frac{1}{2}$; least depth of caudal peduncle 3 to $3\frac{2}{5}$; caudal $2\frac{2}{5}$ to $3\frac{1}{5}$ in rest of fish, deeply forked and lower lobe usually much shorter than upper; pectoral $1\frac{2}{5}$ to $1\frac{3}{5}$ in head, spine slender, strong, compressed, outer edge usually with basal row of granules and inner edge with 12 or 13 strong antrorse serrae; ventral $1\frac{1}{8}$ to $2\frac{2}{5}$; anal papilla short fleshy point.

Pale brownish to grayish or whitish, darker above or with upper surface of head and back sprinkled with dark dots. Iris gray, apparently whitish in life. Barbels brown. Fins all pale, dorsal and caudal pale orange, grayish terminally. Paired fins pale.

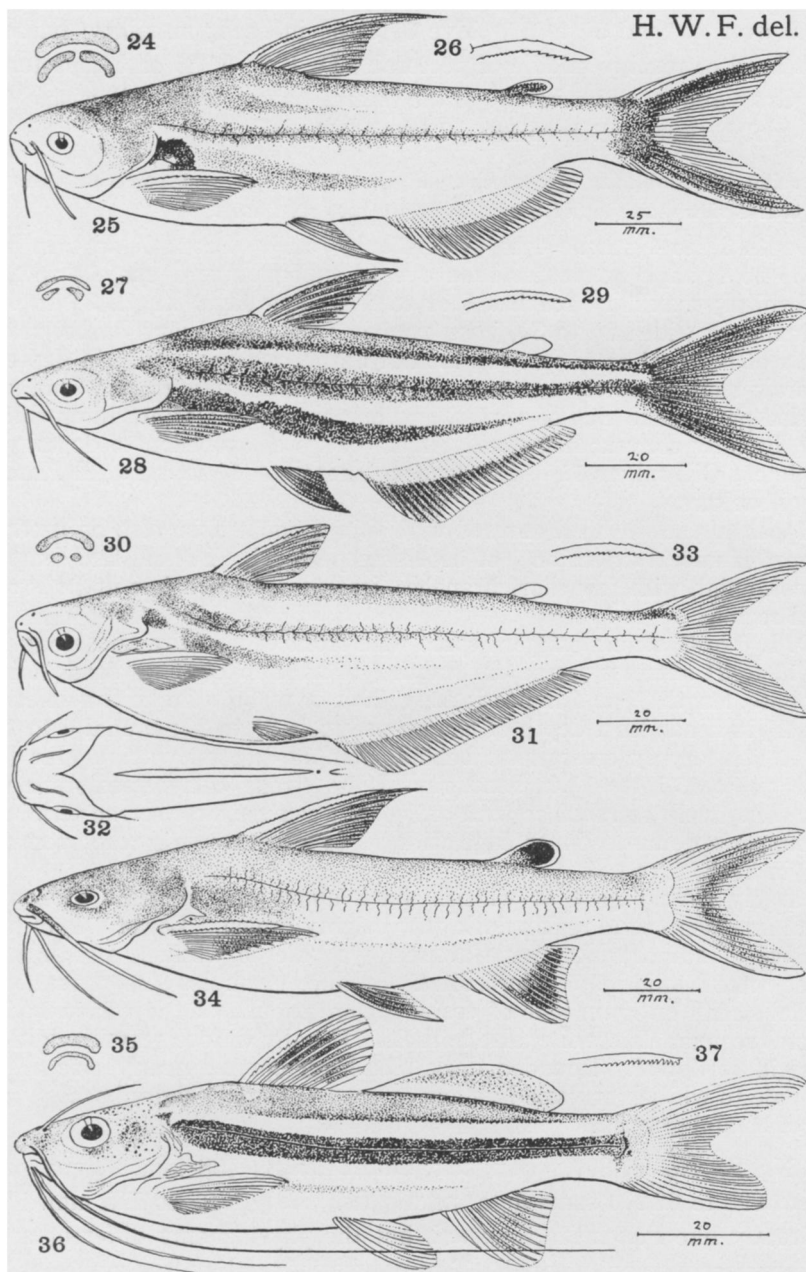
A.N.S.P., No. 67,893. Bangkok, Siam. Length 115 mm. Type. Also Nos. 67,894 to 67,896, same data, paratypes. Length 103 to 107 mm.

The specific distinctions are carried in those of the genus.

(*Furcatus* forked; with reference to the caudal fin.)

Pangasius siamensis Steindachner.

Twenty, 63 to 165 mm., Bangkok; one, 151 mm., Me Poon. Lower jaw well included within upper. Maxillary barbel reaches end of pectoral spine; mandibular barbel reaches $\frac{1}{2}$ in pectoral fin. A. iv, 28, 1 to iv, 30, 1.

24 to 26. *Pangasius burgini*.27 to 29. *Pangasius sutchi*.30 to 33. *Pteropangasius cultratus*.34. *Hemipimelodus atripinnis*.35 to 37. *Mystus atrifasciatus*.

Steindachner describes this species from the Menam River at Bangkok: Depth over 4; head $5\frac{1}{4}$ to $5\frac{1}{3}$. Eye $3\frac{1}{3}$ to $3\frac{2}{3}$ in head; maxillary barbel $1\frac{1}{2}$ times head or reaches middle of pectoral. D. I, 7; A. 35 or 36; pectoral I, 12. Gray above, white below. Pale lateral band. Fins yellowish. Oval dark spot between gill openings. Length 260 mm.

Pangasius aequilabialis, new species. Figures 20 (upper and vomerine teeth), 21 (lateral view), 22 (top of head), 23 (right pectoral spine).

Depth $3\frac{3}{4}$ to $4\frac{1}{5}$; head 4 to $4\frac{1}{3}$, width $1\frac{1}{4}$ to $1\frac{1}{2}$. Snout $3\frac{3}{4}$ to 4 in head; eye $3\frac{1}{2}$ to 4, slightly greater than eye to subequal with eye, $1\frac{3}{4}$ to $2\frac{1}{5}$ in interorbital; maxillary reaches $\frac{3}{4}$ or to front eye edge, length $3\frac{1}{2}$ to $4\frac{1}{5}$ in head; mouth width $2\frac{2}{3}$ to $3\frac{1}{3}$, jaws even in front; maxillary barbel reaches middle of pectoral or to ventral, mental barbel reaches $\frac{1}{2}$ to $\frac{3}{8}$ in depressed pectoral; teeth minutely villiform, in rather small bands in jaws and small rounded patch each side of vomer, and one on each palatine; interorbital 2 to $2\frac{1}{5}$, broadly convex; bony bridge from occipital extension to dorsal plate complete. Gill rakers $11 + 28$, slender, lanceolate, $1\frac{2}{3}$ in eye; gill filaments $\frac{3}{4}$ of gill rakers.

Upper surface of head covered with thin, smooth skin, also on predorsal bridge. Humeral extension $\frac{2}{3}$ of depressed pectoral. Lateral line complete, distinct, axial, with few short branches, irregular, both below and above on costal region.

D. I, 6 or 7, strong pungent spine with front edge entire and along hind edge 17 to 21 antrorse serrae, fin length $\frac{7}{8}$ of head to $1\frac{1}{8}$ times head; adipose fin lobate, length $3\frac{3}{8}$ to 4 in head; A. iv, 29, 1 or iv, 30 1, fin height anteriorly $2\frac{1}{5}$ to $2\frac{1}{3}$ in head; least depth of caudal peduncle $2\frac{1}{4}$ to $2\frac{1}{2}$; caudal 4 to $4\frac{1}{3}$ in rest of fish, deeply emarginate behind, pointed, narrowly triangular lobes equal; pectoral $1\frac{1}{3}$ to $1\frac{1}{5}$ in head, rays I, 10, strong compressed spine with outer edge finely serrated or with only few weak antrorse serrae terminally in younger specimens, inner edge with 18 to 22 antrorse serrae; ventral 2 to $2\frac{1}{2}$ in head, rays 1, 6.

Largely silvery gray or whitish, back above and elongate area along lateral line over costal region dark gray or gray brown. Lower side of head, inclusive of adipose like tissue around eye pale to whitish, also lips and diffuse area in middle of interorbital. Smaller examples also show a dark parallel streak on lower side of costal region extended back variously from humeral region. Iris white, also barbels. Usually diffuse gray black blotch at origin of dorsal. Rounded dark blotch on opercle nearly size of eye. Fins pale to whitish or varied yellow or cream colored shades basally, inner edge of caudal grayish.

A.N.S.P., No. 67,897. Bangkok, Siam. Length 138 mm. Type. Also Nos. 67,898 to 67,900 same data, paratypes. Length 98 to 115 mm.

Greatly like *Pangasius siamensis* but the physiognomy different as the jaws are nearly or quite equal. Two patches of teeth on the vomer as well as on the palatines.

(*Aequus* equal + *labrum* lip; with reference to the lips in profile.)

Pangasius burgini, new species. Figures 24 (upper and vomerine teeth), 25 (lateral view), 26 (right pectoral spine).

Depth $3\frac{3}{4}$; head $4\frac{1}{4}$, width $1\frac{1}{5}$. Snout 4 in head; eye $5\frac{2}{3}$, $1\frac{1}{2}$ in snout (in profile), 4 in interorbital; maxillary extends $\frac{3}{4}$ in snout (in profile to eye), length 3 in head; mouth width $1\frac{1}{5}$, closed jaws even in front; short maxillary barbel reaches $\frac{4}{5}$ to pectoral origin, and mandibular barbel only reaches half so far; teeth fine, sharp pointed, in rather broad band in jaws, and pair of curved bands or only separated medially so one each side, on vomer; interorbital $1\frac{2}{3}$ in head, broadly convex; occipital fontanel well marked, begins in interorbital space and nearly reaches base of occipital extension, with which nearly subequal in length. Gill rakers $5 + 7$, short lanceolate points, which 2 in gill filaments, latter $1\frac{1}{2}$ in eye.

Skin smooth, rather firmly coriaceous. Bony dorsal bridge complete, occipital extension $\frac{3}{8}$ its extent. Humeral extension half of depressed pectoral. Lateral line complete, axial along side of body, with short branches above and below its entire extent.

D. I, 7, spine about $1\frac{1}{5}$ in head, its front edge with sharp keel which only with feeble minute points below or basally, hind edge with 25 antrorse serrae, gradually larger terminally, entire fin length slightly less than predorsal length; adipose fin $2\frac{3}{4}$ in head; A. VI, 27, 1, fin height anteriorly 2; least depth of caudal peduncle $2\frac{1}{2}$; caudal $3\frac{1}{10}$ in rest of fish, deeply forked, lower lobe little longer; pectoral I, 9, strong spine compressed, little arched outer edge with sharp keel marked by few feeble points, inner edge with 17 strong antrorse serrae, fin $1\frac{1}{5}$ in head; ventral $1\frac{1}{5}$, rays 1, 5; anal papilla very small, inconspicuous.

Back and upper surfaces dark gray, paler to whitish on sides and under surfaces. Lips and sides of head pale to whitish. Iris gray. Barbels pale. Gray black post-humeral blotch over twice size of eye. Dorsal gray, upper hind margin whitish. Adipose fin dark gray, with narrow whitish edge. Caudal whitish, with broad gray black median band on each lobe and connected basally. Other fins all pale to whitish.

A.N.S.P., No. 67,901. Bangkok, Siam. Length 232 mm. Type.

Only the type known. The species is related to *Pangasius sutchi* and *P. taeniura*, but differs from both in coloration, and especially in the presence of the gray black large post-humeral blotch.

(For the late Dr. Herman Burgin, of Philadelphia, to whom I am indebted for numerous local fishes.)

Pangasius sutchi, new species. Figures 27 (vomerine teeth), 28 (lateral view), 29 (right pectoral spine).

Depth 4 to $4\frac{1}{2}$; head $3\frac{3}{4}$ to 4, width $1\frac{2}{5}$ to $1\frac{2}{3}$. Snout $4\frac{1}{5}$ to $4\frac{3}{4}$ in head; eye $4\frac{1}{2}$ to $5\frac{1}{5}$, $1\frac{1}{3}$ to $1\frac{1}{2}$ in snout, $3\frac{1}{4}$ to $3\frac{1}{2}$ in interorbital; maxillary reaches $\frac{2}{3}$ in snout, length $4\frac{1}{4}$ to $4\frac{1}{3}$ in head; mouth width $2\frac{1}{2}$ to $2\frac{2}{3}$, lower jaw slightly shorter than upper; maxillary barbel reaches $\frac{2}{3}$ to, or to pectoral origin, mandibular reaches opposite middle of eye or $\frac{3}{4}$ to pectoral origin; teeth minutely villiform, feeble, in narrow band in each jaw and 2 parallel bands as one section each side of vomer, expanded little posteriorly; interorbital $1\frac{3}{4}$ to $1\frac{1}{2}$ in head, broadly convex; frontal fontanel moderate, extends from middle of interorbital to base of occipital extension, which forms complete

bony bridge with predorsal buckler. Gill rakers $4 + 16$, lanceolate, $\frac{1}{2}$ of gill filaments, which $1\frac{1}{4}$ in eye.

Skin smooth. Occipital extension reaches $1\frac{2}{3}$ in predorsal or to dorsal buckler. Humeral extension reaches $2\frac{1}{2}$ in depressed pectoral, covered with thin skin. Lateral line complete, axial, with numerous short branchlets along its entire course both above and below.

D. I, 6, spine slender, pungent, front edge entire, with 9 to 12 feeble small antrorse serrae along inner edge, fin length $1\frac{1}{10}$ to $1\frac{1}{5}$ in head; adipose fin length $3\frac{1}{4}$ to $3\frac{1}{2}$; A. iv, 30 to iv, 32, front fin height 2 to $2\frac{1}{3}$; least depth of caudal peduncle 3 to $3\frac{1}{5}$; caudal $3\frac{1}{2}$ to $3\frac{3}{4}$ in rest of fish, deeply forked, slender lobes pointed and equal or nearly so; pectoral I, 8, strong pungent spine with front edge entire, hind edge with 14 or 15 antrorse serrae along inner edge; ventral rays 1, 8, fin $1\frac{3}{4}$ in head; anal papilla short, convex.

Above dark to blackish gray, with pale or whitish longitudinal band parallel and close along dark band of lateral line, and another from below front or lateral line back to caudal peduncle; under surface of body whitish. Iris gray. Lips gray, chin below sprinkled with dark dots. Maxillary barbels with brownish edges and mandibular all pale or white. Dorsal gray black, basally more grayish and lower hind edge whitish. Adipose fin grayish. Caudal dark gray or gray black, edges pale or whitish all around. Anal largely white, with gray black longitudinal band, broad anteriorly and narrowing posteriorly; in smaller specimens only as dark shade anteriorly, most of fin whitish. Paired fins largely gray black, paler marginally or basally, and ventrals largely whitish in small specimens.

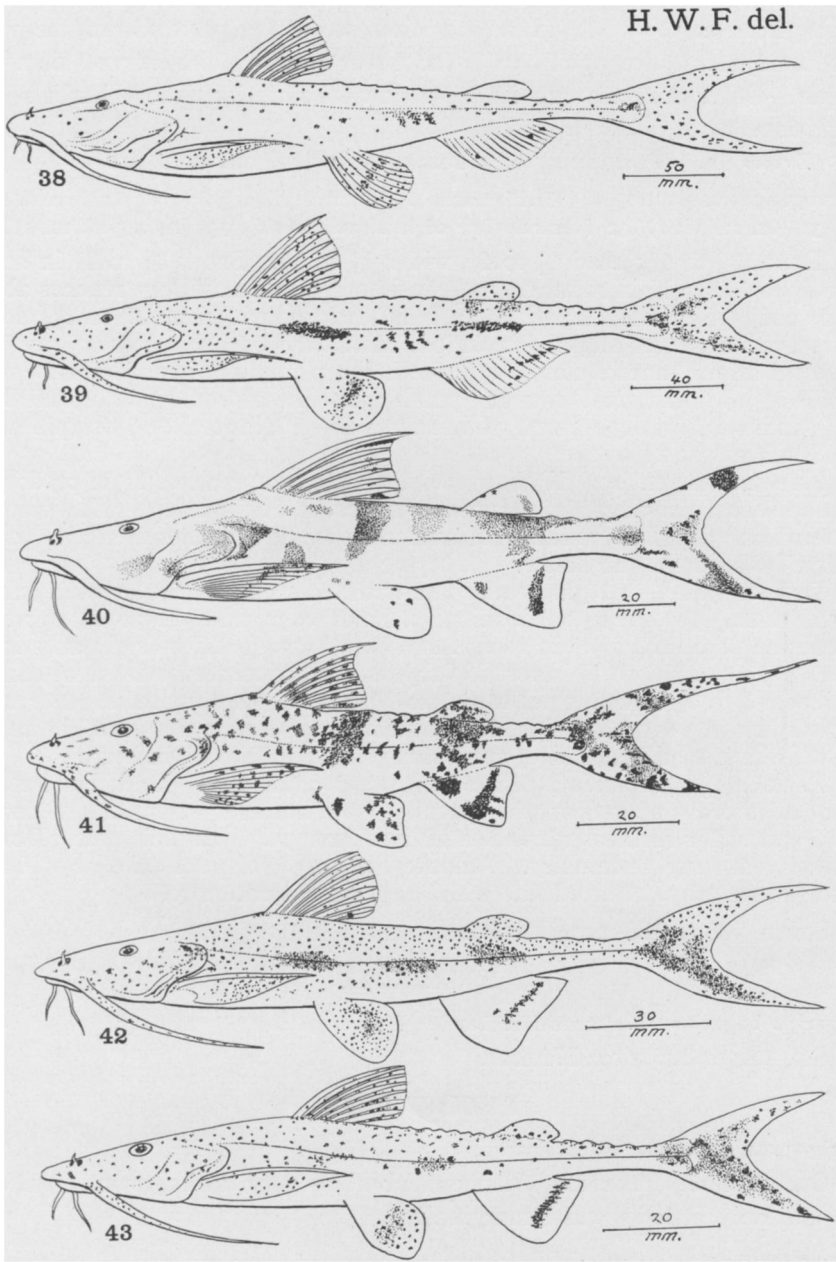
A.N.S.P., No. 67,902. Bangkok, Siam. Type. Length 158 mm. Also Nos. 67,903 to 67,905, paratypes, same data. Length 133 to 163 mm.

Resembles *Pangasius taeniura* Fowler, but with shorter barbels, more anal rays and more greatly contrasted coloration.

(For Will S. Sutch, late of Philadelphia, to whom this Academy is indebted for many interesting local fishes.)

PTEROPANGASIUS, new genus

Body elongately ovoid, strongly compressed, deepest at ventral base. Well-developed cutaneous, median, abdominal keel. Head rather small, compressed. Snout short, broad, obtuse. Eye lateral, advanced, little low as seen in profile, with free edge all around. Maxillary not reaching eye, little developed. Pair of maxillary and pair of mandibular barbels, both shorter than head. Teeth in bands in jaws, and patch each side of vomer, minute. Gill membranes cleft forward opposite middle of eye. Gill rakers moderate, lanceolate. Lateral line present. Smooth skin covers top of head and humeral extension, which moderate. Dorsal advanced, begins little behind end of humeral extension, its basal plate forming continuous bony bridge forward to occipital extension; fin nearly long as head, and with slender spine. Adipose fin small, much nearer caudal than end of depressed dorsal, and about over last third of anal. Anal long, low, about $\frac{2}{3}$ of fish without caudal. Caudal deeply forked, lobes sharply or slenderly pointed. Caudal peduncle moderate, well compressed. Pectoral small, placed little below middle of depth, with slender spine. Ventral small, its origin close behind base of first dorsal. Type *Pangasius cultratus* H. M. Smith.



38 to 43. *Bagarius bagarius* (variation).

Known among all the genera of its family by the remarkable median fleshy keel on the belly, extending from below the pectorals to the vent. Its contour is quite ovoid, with the lower profile more curved than the upper. Other features are its even jaws, coloration, short barbels and dentition.

(Πτερον fin + *Pangasius*; with reference to the long anal fin.)

Pteropangasius cultratus (H. M. Smith). Figures 30 (upper and vomerine teeth), 31 (lateral view), 32 (ventral view of head and trunk), 33 (right pectoral spine).

Depth $3\frac{5}{8}$ to $4\frac{1}{4}$; head $4\frac{1}{2}$ to $4\frac{4}{5}$, width $1\frac{1}{2}$ to $1\frac{3}{4}$. Snout $3\frac{1}{2}$ to $3\frac{3}{8}$ in head; eye $3\frac{1}{2}$ to 4, 1 to $1\frac{1}{5}$ in snout, $2\frac{1}{5}$ to $2\frac{1}{2}$ in interorbital; maxillary reaches about $\frac{2}{3}$ in snout (in profile), length $3\frac{1}{2}$ to 4 in head; mouth width $2\frac{2}{3}$ to $2\frac{3}{8}$, closed jaws even or lower slightly included; maxillary barbel reaches $\frac{3}{4}$ to $\frac{5}{8}$ to pectoral origin, mandibular $\frac{2}{3}$ to $\frac{2}{5}$, teeth sharp pointed, in moderately wide bands in jaws and small rounded patch each side of vomer; interorbital $1\frac{3}{4}$ to $1\frac{4}{5}$ in head, broadly convex. Gill rakers 4 + 10, lanceolate, subequal with gill filaments or $2\frac{1}{2}$ in eye.

Skin smooth, entire. Narrow occipital extension reaches $1\frac{1}{2}$ in predorsal, reaches basal dorsal plate. Humeral extension half of depressed pectoral. Lateral line complete, axial, with numerous small branches along its whole course both above and below.

D. I, 7, fin $1\frac{1}{10}$ to $1\frac{1}{4}$ in head, spine with front edge entire or with only 4 or 5 feeble, low serrae subterminally, inner edge with 11 to 13 antrorse serrae; adipose fin 3 to $3\frac{3}{8}$ in head; A. iv, 38, 1 to iv, 40, 1, fin height anteriorly $2\frac{1}{4}$ to $2\frac{1}{3}$; caudal $3\frac{1}{2}$ to $4\frac{1}{3}$ in rest of fish, lobes subequal; least depth of caudal peduncle 3 to $3\frac{1}{8}$ in head; pectoral 1 to $1\frac{1}{8}$, rays I, 12, spine with outer edge keeled bearing 4 or 5 feeble, low, antrorse, subterminal serrae, 13 to 18 antrorse serrae on inner edge; ventral rays i, 6, fin 2 to $2\frac{1}{5}$ in head.

Back and upper surface of head brown to dark gray. Dark band along front of lateral line and another parallel from humeral extension. Sides of head and under surfaces whitish, also lips. Iris gray. Barbels pale. Dorsal whitish, fin gray terminally. Adipose fin gray. Caudal pale or whitish, hind border gray. Paired fins whitish, grayish terminally.

Seven, 135 to 180 mm., Me Poon.

BAGARIIDAE

Bagarius bagarius (Buchanan-Hamilton). Figures 38 to 43 (variation).

Six, 132 to 385 mm., Kemrat.

TACHYSURIDAE

Tachysurus caelatus (Valenciennes).

One, 73 mm., Paknam. All mental barbels very dark brown. Adipose fin pale, only little brownish marginally.

Hemipimelodus borneensis (Bleeker).

Depth $4\frac{1}{2}$ to $4\frac{4}{5}$; head 4, width $1\frac{1}{4}$ to $1\frac{1}{3}$. Snout $3\frac{1}{8}$ to $3\frac{3}{8}$ in head; eye $8\frac{1}{2}$ to $9\frac{1}{4}$, $2\frac{1}{2}$ to $2\frac{3}{4}$ in snout, 3 to $3\frac{1}{2}$ in interorbital; maxillary reaches $\frac{1}{2}$ to $\frac{2}{3}$ in snout, length $3\frac{3}{8}$ in head; mouth width $2\frac{1}{8}$ to 3, lower jaw shorter; lips broad,

fleshy, feebly striated or plaited transversely; maxillary barbel reaches $\frac{3}{4}$ to $\frac{5}{8}$ to pectoral origin, outer mental $\frac{4}{5}$ to $\frac{2}{3}$, inner mental $\frac{2}{3}$ of outer; band of fine villiform teeth in each jaw, none on palate; interorbital $2\frac{1}{2}$ to 3 in head, rather low, broadly convex; occipital fontanel extends from front of snout behind nostrils nearly to base of occipital extension, narrow at first, broadest in parietal region; occipital extension triangular, base $1\frac{2}{3}$ its length. Gill rakers $6 + 9$, lanceolate, $\frac{2}{3}$ of gill filaments, which $1\frac{1}{2}$ times eye.

Skin smooth, firm. Parietal and occipital region of head with rugose striate surfaces. Humeral extension $3\frac{1}{2}$ in depressed pectoral. Axillary pore distinct. Lateral line axial, complete, distinct and with well marked branches above and below throughout its course.

D. I, 7, fin $1\frac{1}{8}$ to $1\frac{1}{6}$ in head, strong spine with row of low short points its whole extent, about 16 along hind edge antrorse serrae; adipose fin $1\frac{2}{3}$ to $1\frac{5}{8}$ in head; A. VI or VII, 10, 1 to 12, 1, fin height 2 to $2\frac{1}{5}$; caudal $3\frac{4}{5}$ to 4 in rest of fish, deeply forked; least depth of caudal peduncle $3\frac{1}{3}$ to 4 in head; pectoral $1\frac{1}{4}$, rays I, 10, outer edge of strong spine with row of small close set obtuse points and 25 antrorse serrae along inner edge; ventral $1\frac{2}{3}$ to $1\frac{3}{4}$, rays 1, 5.

Back and upper surface gray, sides below and under surface silvery white. Pale or light area around eye, forward on snout and around its front end. Maxillary barbel with brown edge, mental barbels white. Fins all pale to whitish, dorsal dark gray terminally.

Two, 163 to 180 mm., Bangkok.

Hemipimelodus atripinnis, new species. Figure 34.

Depth 4; head $3\frac{1}{2}$, width $1\frac{1}{3}$. Snout 3 in head; eye 6, 2 in snout, 3 in interorbital; maxillary reaches $\frac{2}{3}$ in snout, length $3\frac{2}{3}$ in head; mouth width $2\frac{2}{3}$, lower jaw shorter; lips fleshy, with feeble transverse striae and papillae on chin behind lower; maxillary barbel reaches $\frac{1}{4}$ in pectoral, outer mental reaches pectoral origin, and inner reaches $\frac{2}{3}$; band of minutely villiform teeth in jaws and rather large rounded area well back on each palatine; interorbital $2\frac{1}{2}$ in head, broadly convex, with broad median fontanel, narrowing behind and reaching occipital extension, last basally nearly broad as long. Gill rakers $6 + 12$, lanceolate, $\frac{2}{3}$ of gill filaments, which $1\frac{1}{2}$ in eye.

Skin smooth. Top of head rather coarsely rugose striate. Humeral extension $3\frac{1}{3}$ in pectoral, with distinct axillary pore below. Lateral line complete, axial, median along side with numerous close set branches along its whole extent both above and below.

D. I, 7, fin little longer than head, pointed; adipose fin 2 in head; A. IV, 14, 1, fin height $1\frac{1}{4}$; caudal $3\frac{1}{3}$ in rest of fish, deeply forked; least depth of caudal peduncle 3; pectoral $1\frac{1}{10}$, rays I, 10, spine (broken) with broad obtuse points along outer edge and antrorse serrae on inner; ventral rays 1, 5, fin $1\frac{1}{2}$ in head; vent opposite last $\frac{2}{3}$ of depressed ventral.

Dark gray brown on back and upper surfaces, sides below and under surfaces silvery white. Iris pale or whitish. Lips pale or creamy. Maxillary barbel dark brown. Mental barbels all whitish. Dorsal gray white basally, blackish terminally. Adipose fin white basally, contrasted black terminally with narrow white edge all around. Anal fin white basally, blackish terminally. Caudal pale basally, dark gray terminally. Paired fins whitish basally, edges narrowly pale all around broad blackish terminal portions.

A.N.S.P., No. 67,906. Bangkok, Siam. Length 170 mm. Type.

Differs from *Hemipimelodus borneensis* chiefly in its contrasted fins, most of which blackish terminally. It also has longer barbels than *H. borneensis*.

(Ater black + pinna fin.)

BAGRIDAE

Mystus nigriceps (Valenciennes).

Two, 135 to 137 mm., Bangkok; 24 specimens, 123 to 167 mm., Pitsanulok; ten, 80 to 173 mm., Kemrat.

Mystus micracanthus (Bleeker).

One, 138 mm., Kemrat. Differs a little from Bleeker's figure as the dorsal spine is slender, pungent, and entire, about $\frac{1}{3}$ length of head.

Mystus vittatus (Bloch).

Eleven, 72 to 158 mm., Bangkok; one, 78 mm., Tachin; fifty, 78 to 144 mm., Pitsanulok; eighty-eight, 46 to 130 mm., Me Poon.

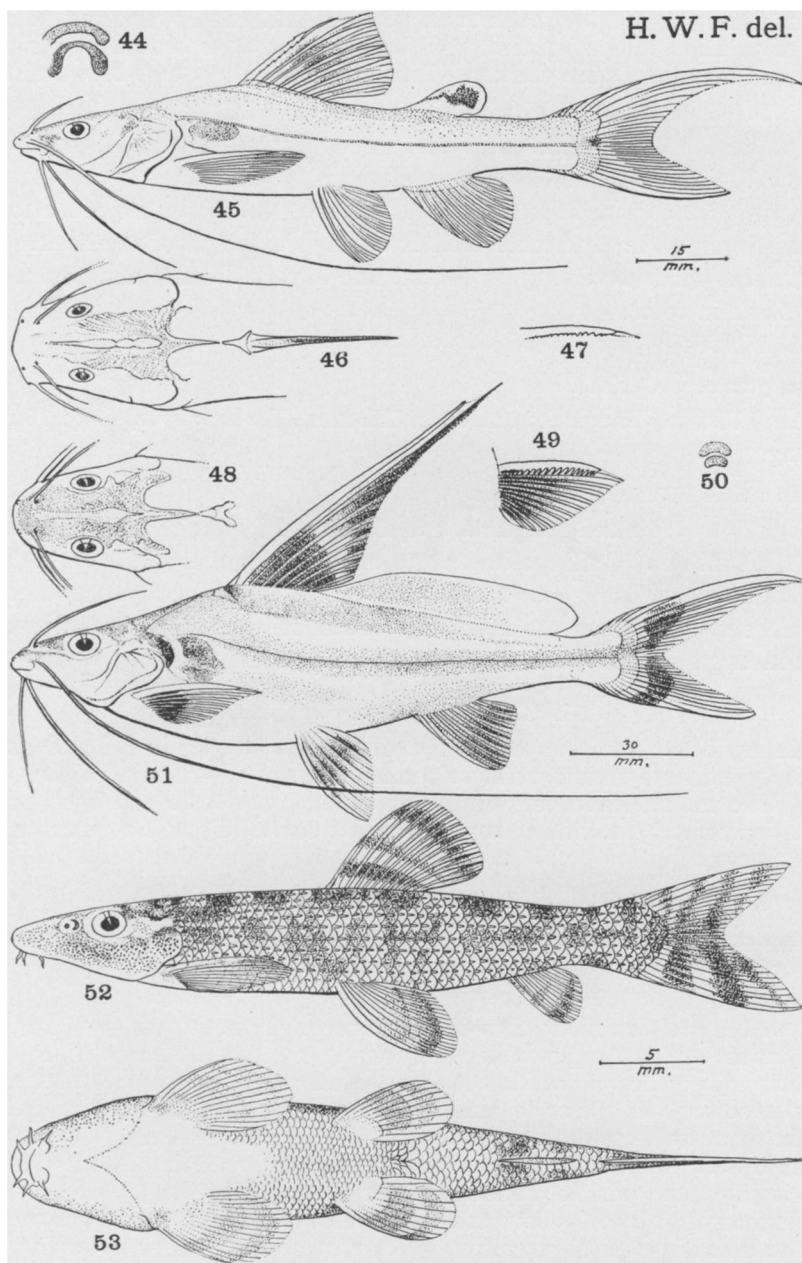
Mystus atrifasciatus, new species. Figures 35 (upper and vomerine teeth), 36 (lateral view of type), 37 (right pectoral spine).

Depth $3\frac{3}{4}$ to 4; head $3\frac{3}{4}$ to 4, width $1\frac{1}{4}$ to $1\frac{1}{3}$. Snout $2\frac{1}{3}$ to $3\frac{1}{10}$ in head; eye $3\frac{3}{4}$ to $4\frac{3}{4}$, $1\frac{1}{4}$ to $1\frac{1}{2}$ in snout, $1\frac{1}{3}$ to $1\frac{1}{2}$ in interorbital; maxillary reaches $\frac{2}{3}$ to eye, length $4\frac{1}{3}$ to $4\frac{2}{3}$ in head; mouth width $2\frac{3}{8}$ to $2\frac{5}{8}$, lower jaw shorter; lips fleshy, moderately broad; maxillary barbel reaches caudal base, nasal barbel $\frac{2}{3}$ to $\frac{3}{4}$ to hind edge of gill opening, outer mental barbel reaches nearly to or slightly beyond ventral origin, inner mental reaches $\frac{1}{4}$ to $\frac{1}{2}$ in depressed pectoral; teeth minutely villiform, in moderate band in each jaw, and narrower parallel band of similar teeth on vomer; interorbital $2\frac{1}{3}$ to 3, low, depressed; broad frontal fontanel extends from front of interorbital nearly to base of occipital extension, which narrowly triangular, reaching $1\frac{1}{3}$ to dorsal origin. Gill rakers 4 + 18, slender, lanceolate, $1\frac{1}{3}$ in gill filaments, which $1\frac{2}{3}$ in eye.

Skin smooth. Top of head, occipital bony bridge, opercle and humeral extension finely rugose striate. Bony bridge from occipital extension to dorsal plate complete. Humeral extension half of depressed pectoral. Lateral line distinct, complete, axial, pores close set on very short inferior branchlets.

D. I, 7 or 8, fin height $1\frac{1}{2}$ to $1\frac{1}{3}$ in head, spine pungent, rather short, strong, front edge entire and 8 to 14 antrorse serrae along hind edge more or less terminally; adipose fin length $2\frac{3}{4}$ to $3\frac{1}{3}$ in fish without caudal; A. III or IV, 9 or 10, fin height, $1\frac{1}{3}$ to $1\frac{1}{2}$ in head; caudal $2\frac{1}{3}$ to $3\frac{1}{10}$ in rest of fish, deeply forked, lower lobe little shorter; least depth of caudal peduncle $2\frac{1}{4}$ to $2\frac{3}{4}$ in head; pectoral I, 10, fin $1\frac{1}{3}$ to $1\frac{1}{2}$, spine strong, front edge entire, hind edge with 14 to 16 antrorse denticles, larger terminally; ventral rays I, 5, fin $1\frac{1}{3}$ to $1\frac{2}{3}$ in head; vent opposite first third in depressed ventral.

Back and upper surface of head brown. Dark to blackish gray median lateral band, wide as vertical eye diameter and including lateral line, bounded above by whitish parallel longitudinal narrower band its whole



44 to 47. *Mystus nemurus*. 48 to 51. *Heterobagrus bocourtii*.
52, 53. *Homaloptera maxinae*.

extent, and below by whitish color of under surfaces of body. Pale brownish streak, narrowing behind, back from pectoral axil until over front of anal. Iris gray. Lips pale or whitish. All barbels pale, with brown margins and nasal and maxillary pairs darker. Fins all more or less dull brownish.

A.N.S.P., No. 67,907. Pitsanulok, Siam. Length 118 mm. Type. Also Nos. 67,908 to 68,002, same data, paratypes. Length 112 to 115 mm. No. 68,003. Me Poon, Siam. Paratype. Length 110 mm.

Distinguished from *Mystus vittatus* (Bloch) chiefly by its much longer adipose fin, in all my materials well exceeding the length of the head. The dark lateral band traversing the lateral line is very distinct and contrasted, slate black in color.

(Ater black + fascia band.)

Mystus planiceps (Valenciennes).

One, 118 mm., Bangkok; ten, 60 to 128 mm., Tachin; four, 47 to 75 mm., Rayong.

Mystus wolffii (Bleeker).

Ten, 72 to 176 mm., Bangkok; one, 53 mm., Pitsanulok; four, 49 to 140 mm., Tachin. In small specimens the maxillary barbel quite variable, in one the left barbel only reaches the anal origin while the right reaches the caudal base. In others the maxillary barbel reaches $\frac{2}{3}$ of the adipose fin while in larger specimens to the middle of the caudal fin.

BRACHYMYSTUS, new subgenus

Distinguished from subgenus *Mystus* Gronow, by its broad and obtuse to nearly truncate snout, well protruding forward to the end of the lower jaw. The mouth cleft very short, extending only $\frac{1}{3}$ to the eye. Head large, depressed. Maxillary barbel reaches anal. Type *Bagrus nemurus* Valenciennes.

(Brachys short or broad, with reference to the snout + *Mystus*.)

Mystus nemurus (Valenciennes).* Figures 44 (upper and vomerine teeth), 45 (lateral view, Me Poon), 46 (head above), 47 (right pectoral spine).

Depth $4\frac{1}{2}$ to 5; head 3 to $3\frac{1}{2}$, width $1\frac{2}{3}$ to $1\frac{3}{4}$. Snout $2\frac{1}{2}$ to $3\frac{1}{2}$ in head; eye 6 to $7\frac{1}{2}$, 2 to 3 in snout, 2 to $2\frac{2}{3}$ in interorbital; mouth width $2\frac{3}{4}$ to $2\frac{1}{2}$ in head, lower jaw shorter; maxillary extends $\frac{2}{3}$ to $\frac{3}{4}$ to eye, length $3\frac{1}{4}$ to $3\frac{3}{4}$ in head; maxillary barbel variable, reaches anal origin or caudal base; nasal barbel reaches $\frac{2}{3}$ in eye or to hind eye edge, outer mental barbel reaches $\frac{1}{3}$ to $\frac{1}{2}$ in depressed pectoral, inner mental barbel reaches $\frac{2}{3}$ to $\frac{3}{4}$ to pectoral origin; lips rather broad, fleshy, smooth; rather broad bands of villiform teeth in jaws, and parallel band on vomer expanded little each side posteriorly; interorbital 3 to $3\frac{1}{2}$, low and flat; fontanel extends from hind part of snout to base of occipital extension, which narrow and slender, extending $\frac{2}{3}$ of predorsal or to dorsal plate in small examples, or only $\frac{1}{3}$ of space in larger examples. Gill rakers 3 + 11, lanceolate, slender, $1\frac{1}{2}$ in eye or in gill filaments.

54 to 63. *Leiocassis albicollaris* (variation):

Skin smooth. Cranium with low striae. Humeral extension 2 to 3 in depressed pectoral. Lateral line complete, distinct, axial along side of body, with small close set pores each at end of short inferior branchlet.

D. I, 7, first branched ray $1\frac{1}{2}$ to $1\frac{3}{4}$ in head, strong spine with front edge entire or with 3 or 4 feeble subterminal antrorse serrae, hind edge with 6 or 7 better developed; adipose fin $1\frac{1}{2}$ to 2; A. iv, 8, 1, fin height $1\frac{1}{2}$ to $2\frac{1}{2}$; caudal deeply forked, lobes slender, pointed, upper ending in filament and much longer than lower or $2\frac{2}{3}$ to $3\frac{2}{3}$ in rest of fish; least depth of caudal peduncle $3\frac{1}{4}$ to $4\frac{1}{2}$ in head; pectoral $1\frac{1}{2}$ to $1\frac{3}{4}$, rays I, 9, spine with front edge granular and 14 or 15 antrorse serrae along hind edge, smaller toward base of spine; ventral $1\frac{1}{2}$ to $2\frac{1}{2}$ in head, rays 1, 5.

Back and upper surfaces gray brown, below whitish. Iris gray. Maxillary barbel pale, with brown edge, nasal barbel gray, mental barbels white. Fins all more or less grayish terminally, pectoral pale to whitish.

Fourteen, 120 to 188 mm., Bangkok; one, 125 mm., Pitsanulok; eight, 55 to 91 mm., Tachin; one, 137 mm., Me Poon; thirteen, 98 to 160 mm., Kemrat. Differs from *Mystus wyckii* (Bleeker) in the striated upper surface of the head and much longer barbels.

Leiocassis albicollaris Fowler. Figures 54, 55 (Bangkok). 56 to 58 (Pitsanulok), 59 to 63 (Me Poon).

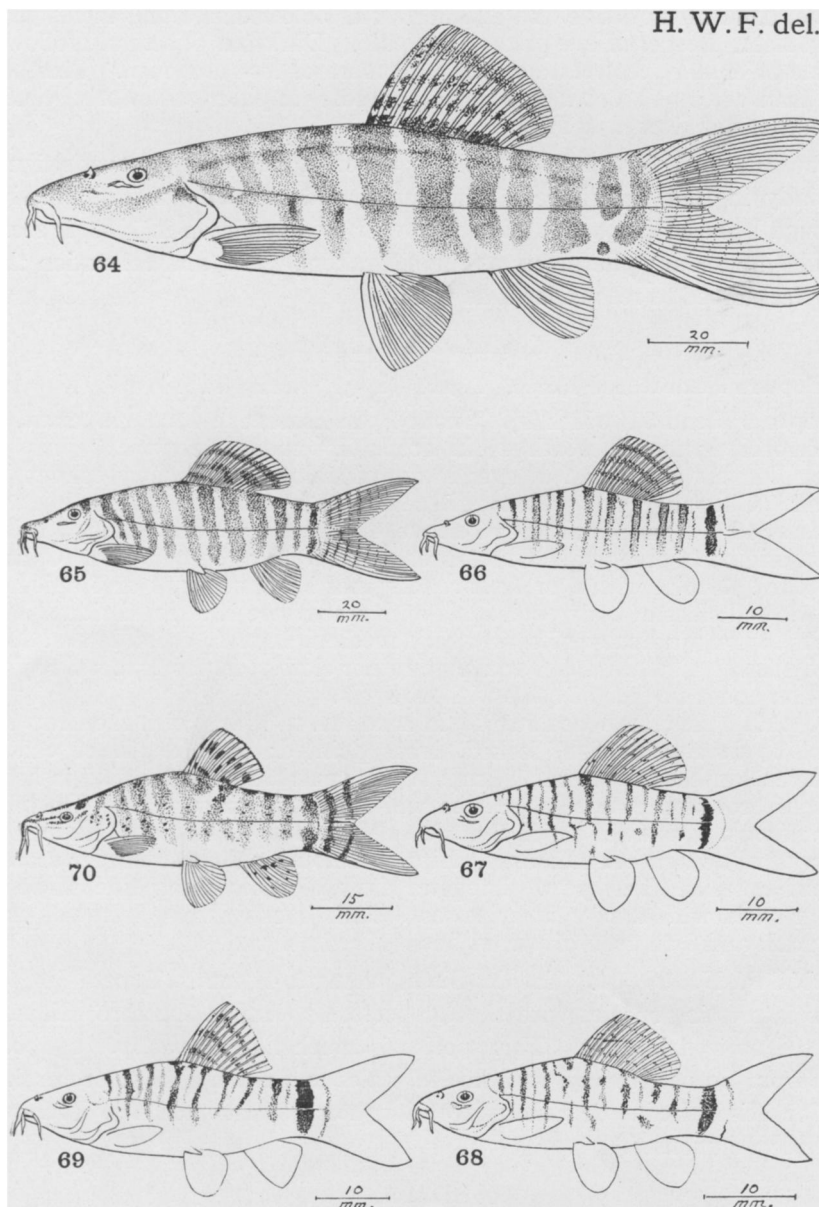
Two, 103 to 160 mm., Bangkok; three, 91 to 112 mm., Pitsanulok; five, 57 to 97 mm., Me Poon.

Heterobagrus bocourtii Bleeker.* Figures 48 (head above), 49 (right pectoral), 50 (upper and vomerine teeth), 51 (lateral view).

Depth $3\frac{3}{4}$; head 4, width $1\frac{1}{2}$. Snout $2\frac{1}{2}$ in head; eye $4\frac{3}{4}$, 2 in snout, $1\frac{1}{2}$ in interorbital; maxillary reaches $2\frac{1}{2}$ to eye, length $4\frac{3}{4}$ in head; mouth width $3\frac{1}{2}$, lower jaw shorter; lips fleshy, rather narrow, papillate; nasal barbel reaches hind edge of gill opening or opercular flap, maxillary barbel reaches middle of caudal, outer mental barbel reaches $\frac{3}{4}$ in depressed pectoral, inner mental barbel reaches pectoral origin; teeth minutely villiform, in short, small, broad band in each jaw, followed above by similar smaller band close behind on vomer; interorbital $3\frac{1}{2}$ in head, low, flat, with broad, deep, median fontanel from close behind nostrils on snout above to base of occipital extension. Gill rakers 4 + 12, lanceolate, $1\frac{1}{2}$ in gill filaments, which 2 in eye.

Skin smooth. Top of head and predorsal bridge finely rugose striate, also humeral extension, which $2\frac{1}{2}$ in pectoral fin. Predorsal bridge complete, with long slender occipital extension. Lateral line axial, complete, with minute pores.

D. II, 7, first spine short and basal, second spine greatly elongate, little sinuous, 2 in fish without caudal, first ray $1\frac{1}{2}$ and last ray long as snout; long adipose fin separated from dorsal by narrow notch, length $\frac{2}{3}$ of fish without caudal; A. III, 8, first branched ray $1\frac{3}{4}$ in head; caudal deeply forked, with long, slender lobes, lower $\frac{2}{3}$ of upper which 3 in rest of fish; least depth of caudal peduncle $3\frac{1}{2}$ in head; pectoral $1\frac{1}{2}$, rays I, 11, spine with outer edge entire, inner edge with 22 antrorse strong denticles; ventral 1, 5, fin $1\frac{1}{2}$ in head.



64 to 69. *Botia hymenophysa*. 70. *Botia lucas-bahi*.

General color drab, little paler below. More or less ill defined pale parallel band along above and another along below dark band inclusive of lateral line. Border of eye pale. Lips pale. Dark bar of scapula followed by pale or creamy crescent. Barbels all more or less brownish. Fins pale gray, transverse pale bar across dorsal, adipose fin paler posteriorly, caudal and paired fins darker basally.

One, 189 mm., Pitsanulok. This specimen agrees with Bocourt's figure, especially in that the shape of the dorsal and adipose fin is distinctive. Although I placed *Prajadhipokia rex* Fowler as a synonym in 1935, it seems to differ in so many characters as the gill rakers, teeth, and coloration that I now feel forced to reconsider it as valid.

HOMALOPTERIDAE

Homaloptera maxinae, new species. Figures 52, 53 (ventral view).

Depth 6; head $3\frac{3}{8}$, width $1\frac{1}{4}$. Snout $2\frac{1}{8}$ in head; eye $4\frac{3}{8}$, $2\frac{1}{8}$ in snout, $1\frac{1}{3}$ in interorbital; mouth width $4\frac{1}{3}$ in head; lips moderate, with 3 pairs of barbels, longest about half of eye; interorbital low, but slightly convex, $2\frac{1}{2}$ in head. Gill rakers not evident; gill filaments $1\frac{1}{3}$ in eye.

Scales $40 + 2$ in lateral line; 6 above, 4 below to ventral origin, 5 below to anal origin; 14 predorsal. Chest, breast and front of belly naked. Caudal base scaly. Scales with 6 or 7 short marginal basal striae, 4 or 5 apically. On back and sides of body each scale with transverse horizontal ridge, form prominent longitudinal series of which median, lateral, or of lateral line, most distinct. Rows of scales converge rather closely on posthumeral region. Scales on under surface of body without keels.

D. 11, 9, 1, first branched ray $1\frac{1}{3}$ in head; A. 1, 6, first branched ray $2\frac{1}{3}$; caudal $3\frac{1}{4}$ in rest of fish, forked, lobes pointed; least depth of caudal peduncle $3\frac{1}{8}$ in head; pectoral $1\frac{1}{4}$, rays 11, 12; ventral rays 1, 9, fin $1\frac{1}{3}$ in head.

Light brownish generally, pale to whitish on under surfaces. On back 9 dark brown saddles of which 2 at dorsal base and 4 postdorsal, though of last two last now rather indistinct. Lips and mouth pale, also border around eye and nostrils. Iris gray. Irregular dark blotches along side of body. Fins grayish, with darker margins, as 3 dark bands across dorsal, 3 or 4 on caudal, and 2 on each of paired fins.

A.N.S.P., No. 68,004. Tachin, Siam. Length 44 mm. Type.

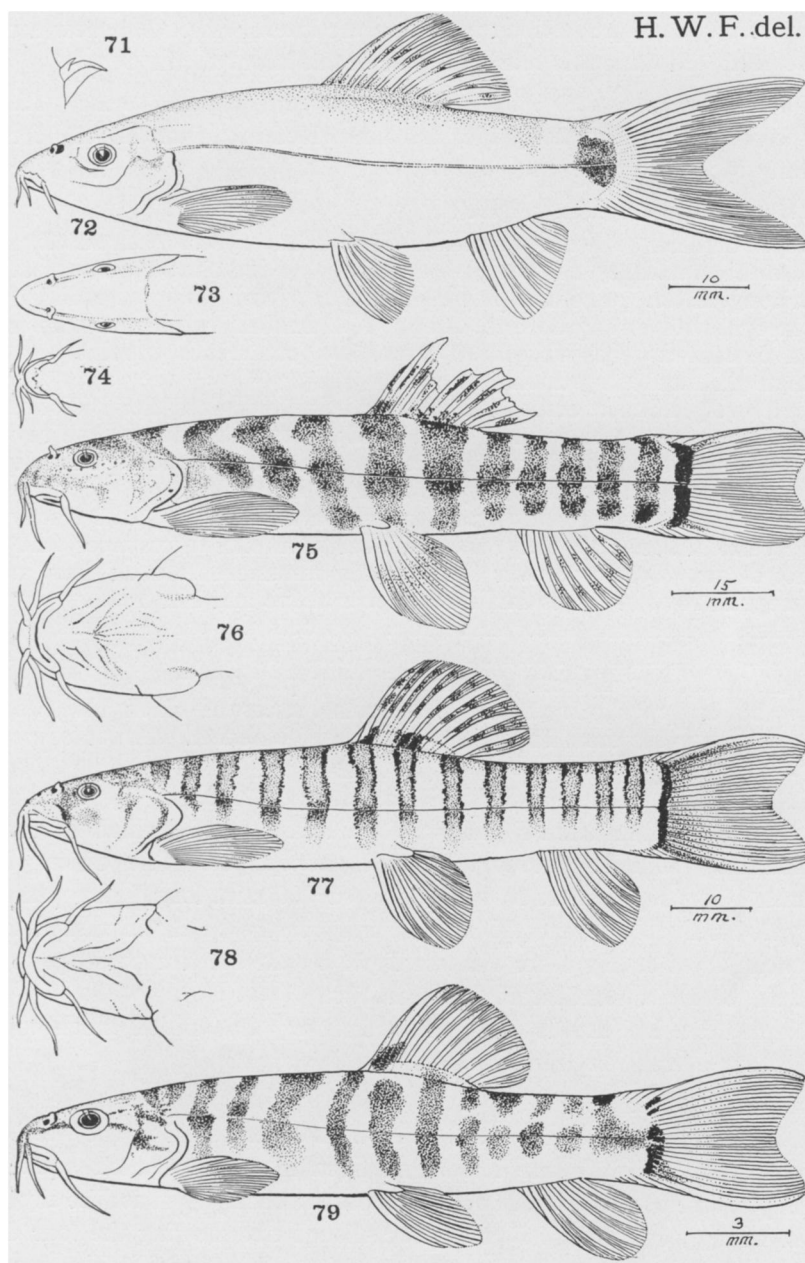
An interesting species with shorter pectorals than in the three Siamese species I noticed in 1934. This species is much like *Homaloptera weberi* Hora, from Borneo, though with keeled scales and much shorter pectoral.

(For Miss Maxine de Schauensee, daughter of Mr. and Mrs. Rodolphe Meyer de Schauensee.)

COBITIDAE

Acanthopsis choirorhynchus (Bleeker).

Two, 81 to 94 mm., Bangkok; four, 89 to 151 mm., Kemrat; one, 121 mm., Me Poon, only with dark lateral line present; one, 278 mm., Pitsanulok, gravid female with ova, therefore depth $5\frac{1}{4}$.



71 to 74. *Botia lecontei*. 75, 76. *Nemacheilus sexcauda*.
77 to 79. *Nemacheilus waltoni*.

Four, 69 to 78 mm., Tachin. In most the only color pattern remaining is the narrow, dark gray streak including the lateral line. All show a more or less perfected dark line along the side of the snout to the eye.

Botia hymenophysa (Bleeker). Figures 64 (Kemrat), 65 (Bangkok), 66 to 69 (Tachin).

One, 120 mm., Bangkok; one, 165 mm., Kemrat; four, 43 to 55 mm., Tachin.

Botia lucas-bahi, new species. Figure 70.

Depth 3; head $3\frac{1}{2}$, width 3. Snout $2\frac{1}{2}$ in head; eye 7, $3\frac{1}{2}$ in snout, $1\frac{1}{2}$ in interorbital; maxillary extends $\frac{1}{2}$ to eye, length 4 in head; 4 rostral barbels rather long, anterior or inner pair $2\frac{1}{2}$ in head; preorbital spine reaches half way in eye, with strong anterior prong; lips smooth, rather narrow; interorbital 5, convex. Gill rakers 12 short, low, rudimentary points, greatly less than gill filaments, which $\frac{1}{2}$ of eye.

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

D. II, 9, 1, first branched ray $1\frac{1}{2}$ in head; A. II, 5, first branched ray $1\frac{1}{2}$; caudal $3\frac{1}{2}$ in rest of fish, deeply forked; least depth of caudal peduncle $1\frac{3}{4}$; pectoral $1\frac{1}{2}$, rays 1, 14; ventral rays 1, 8, fin $2\frac{1}{2}$ in head.

General color dull brownish, pale to whitish below. About 10 transverse darker vertical bands on body, each broader than pale interspaces, and less distinct below. Scattered over side of body innumerable dark dots, and 2 or 3 irregular rows of larger small dark spots above and 1 or 2 below parallel with course of lateral line. Iris gray. Barbels brownish. Dark streak along side of snout to eye and another on each side of top of head back to front of predorsal. Dorsal and caudal very pale or whitish, on former narrow black upper margin and 2 irregular series of black blotches, on caudal 3 transverse dark bands of which basal blackish. Lower or paired fins pale to whitish, anal with a few gray spots.

A.N.S.P., No. 68,005. Tachin, Siam. Length 73 mm. Type.

Apparently differs from *Botia beauforti* H. M. Smith, which I wrongly assumed may be synonymous with *B. hymenophysa*. The Chieng Mai specimen I also reported as *B. hymeriophysa*² 90 mm. long I now place as paratype with the present species. It may easily be distinguished from *B. hymenophysa* or any other Siamese *Botia* by the black upper edge to the dorsal fin, besides other features of coloration.

(Named for Mr. Lucas Bah, whose industry has added much to the value of our Siamese collections of fishes.)

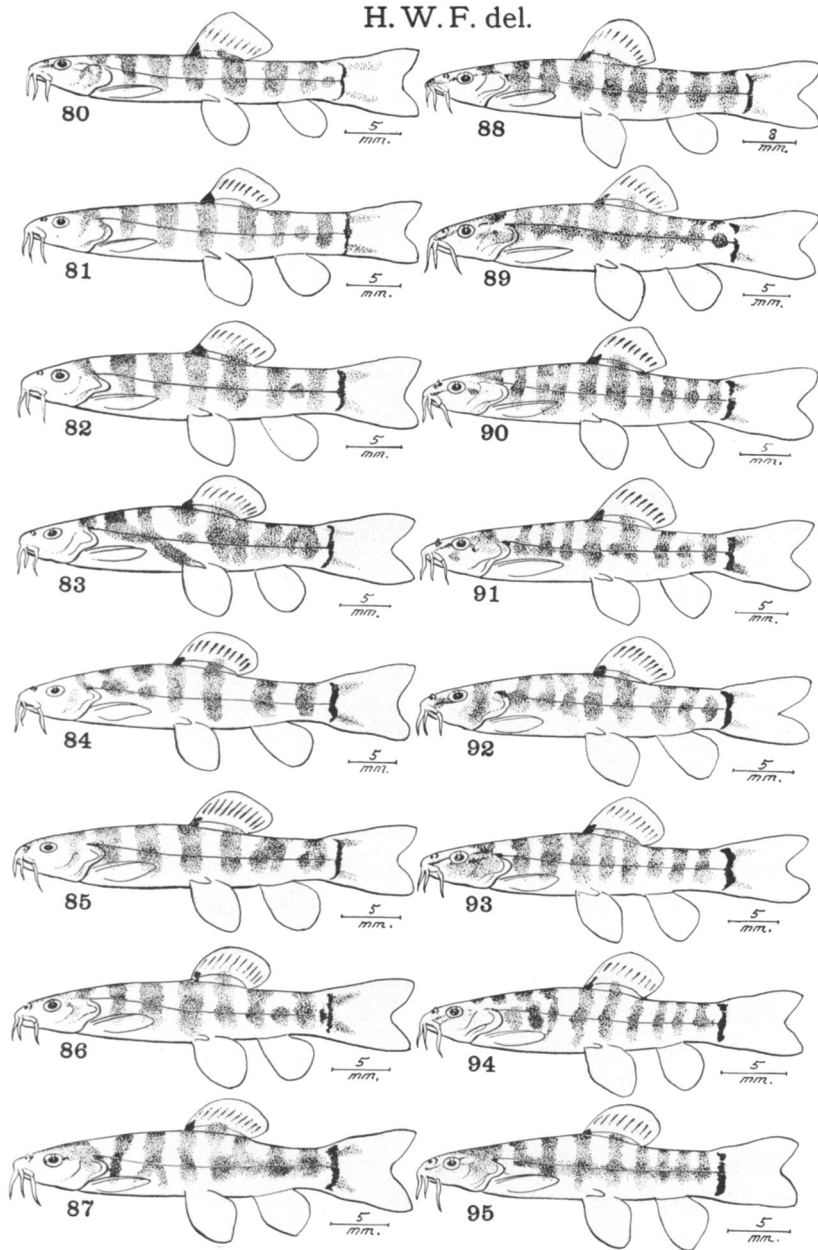
Botia horae H. M. Smith.

One, 51 mm., caught in December 1932 at Chieng Mai in the Me Nam Ping. It was brought home alive, and lived in a sixty-gallon aquarium until September 27, 1936, without any apparent change. It is like my two figures, wrongly referred to *B. modesta*,³ though not showing the four dark supralateral vertical streaks as given by Smith. Its caudal is also greatly spotted.

² Proc. Acad. Nat. Sci. Phila., vol. 86, 1934, p. 101, fig. 52.

³ Proc. Acad. Nat. Sci. Phila., vol. 86, 1934, p. 101, figs. 53 and 54.

H. W. F. del.



80 to 87. *Nemacheilus beavani* (variation). 88 to 95. *Nemacheilus desmotes* (variation).

Botia modesta Bleeker.

Five, 112 to 156 mm., Pitsanulok; two, 118 to 123 mm., Kemrat.

Botia lecontei, new species. Figures 71 (preorbital spine), 72 (lateral view), 73 (head above), 74 (mouth below).

Depth $3\frac{1}{2}$; head $3\frac{1}{2}$, width 2. Snout $2\frac{1}{4}$ in head; eye $6\frac{1}{4}$, 3 in snout, 2 in interorbital; maxillary reaches $2\frac{2}{3}$ to eye, length $5\frac{1}{4}$ in head; 4 rostral and 2 maxillary barbels, anterior rostral $3\frac{1}{3}$ in head; mouth width 6, lips fleshy, entire; interorbital $3\frac{1}{2}$, moderately high, convex; preorbital spine strong, well curved, with well developed superior anterobasal prong, spine length $3\frac{1}{2}$ in head. Gill rakers about 12? very short, low, weak points, $\frac{1}{2}$ of gill filaments, which equal eye.

Scales microscopic, feeble, simple, rounded, non-imbricate and imbedded, not distinguishable without a lens or microscope. Lateral line prominent, axial, straight, continuous and pores numerous and very minute.

D. III, 8, 1, first branched ray $1\frac{1}{2}$ in head; A. III, 5, 1, first branched ray $1\frac{3}{4}$; caudal $2\frac{2}{3}$ in rest of fish, deeply forked, triangular lobes sharp pointed; least depth of caudal peduncle 2 in head; pectoral $1\frac{1}{4}$, rays 1, 12; ventral 1, 7, fin $1\frac{3}{4}$ in head, with narrowly triangular axillary papilla long as eye; vent midway between ends of depressed ventrals and anal origin.

Back and upper surface of head dull uniform brown, with pale shade above lateral line on caudal peduncle before large diffuse dark gray blotch at end of lateral line or at caudal basally, its diameter less than twice eye. Iris gray. Under surface of head, including mouth and barbels, also belly and tail, pale to whitish. Dorsal pale brownish, with 2 ill defined longitudinal, parallel, gray brown bands, both obscure. Caudal pale brownish. Lower fins uniform.

A.N.S.P., No. 68,006. Kemrat, Siam. Length 100 mm. Type.

Only the type obtained. The species may be known by its trim, shapely form, much more slender than *Botia modesta*, and in the presence of the dark gray blotch at the caudal base.

(For Dr. John L. LeConte, the distinguished entomologist of past generations, and a contributor to the Academy collection of fishes.)

Nemacheilus beavani Günther. Figures 80 to 87 (variation).

Eight, 35 to 42 mm., Me Poon. In this species only 2 dark transverse bands behind the dorsal, exclusive of the blackish bar on the caudal base. Caudal but little emarginate.

Nemacheilus thai Fowler.

Series of 46 specimens, 25 to 59 mm., Me Poon.

Nemacheilus desmotes Fowler. Figures 88 to 95 (variation).

Ten, 28 to 52 mm., Me Poon.

Nemacheilus sexcauda, new species. Figures 75, 76 (mouth below).

Depth $5\frac{3}{8}$; head 4, width $1\frac{1}{4}$. Snout $2\frac{1}{2}$ in head; eye 7, $2\frac{3}{4}$ in snout, 3 in interorbital, low, broadly convex; maxillary not quite reaching opposite front eye edge, length 3 in head; 6 long barbels, front rostral pair shortest

or reach $\frac{3}{4}$ to eye, outer rostral reaches little beyond front of eye or $2\frac{1}{3}$ in head, maxillary barbel reaches $1\frac{1}{3}$ to pectoral origin; mouth width $2\frac{1}{2}$ in head, moderately fleshy lips entire; front of upper jaw with short transverse or anterior bony edge, this received in depression at symphysis of mandible which furnished on either side with rather high trenchant bony ridge, so appearance of mandible somewhat spout-like inside lips; interorbital 3 in head, rather low, broadly convex. Gill rakers $3 + 10$ low points, $\frac{1}{4}$ of gill filaments, which $1\frac{1}{2}$ times eye.

Scales very small, cycloid, rounded, slightly imbricated, firmly adherent, absent or little distinct on front of predorsal and chest. Lateral line distinct, axial, complete, with minute close-set pores.

D. II, 8, 1 (ends of rays damaged), first branched ray $1\frac{3}{5}$ in head; A. III, 5, 1, second branched ray $1\frac{1}{5}$; caudal $1\frac{1}{5}$, broad, hind edge but slightly emarginate; least depth of caudal peduncle 2; pectoral $1\frac{1}{5}$, rays 1, 11; ventral rays 1, 7, fin $1\frac{1}{5}$ in head, narrow, pointed axial papilla $1\frac{1}{4}$ times eye. Vent at ends of depressed ventrals.

General color brown, under surfaces slightly paler. Eleven dark brown transverse bands on body, wider than pale interspaces, of these 4 predorsal and 2 below dorsal little sinuous, so 5 narrower vertical bands remain crowded behind dorsal, in addition to still narrower and greatly contrasted black transverse basal caudal band. Few small scattered black dots or spots on interorbital and occipital regions, beside few on opercle and right cheek. Iris gray. Barbels brownish. Dorsal pale, basally whitish with black blotch at origin and rays with brown bar terminally, besides small brown spot on each ray basally. Caudal brown, except for dark basal bar. Anal pale, whitish basally, and each branched ray terminally with 2 dull brownish spots. Paired fins pale, each branched ray with 2 or 3 slightly darker spots terminally, though under surface of pectoral pale and spots only show on upper surface.

A.N.S.P., No. 68,007. Me Poon, Siam. Length 116 mm. Type.

Related to *Nemacheilus semi-cincta* (Blyth), but with one more dark band on the tail. Hora says of that species 10 or 11 broad dark transverse bands present, his figure ⁴ showing 11.

(Sex six + cauda tail; with reference to the six dark transverse bands behind the dorsal fin.)

Nemacheilus waltoni, new species. Figures 77 (type), 78 (mouth below), 79 (young).

Depth 5 to $5\frac{1}{2}$; head $3\frac{2}{3}$ to 4, width $1\frac{2}{5}$ to $1\frac{1}{4}$. Snout $2\frac{1}{2}$ to $3\frac{1}{8}$ in head; eye $4\frac{1}{2}$ to 7, $1\frac{1}{2}$ to 3 in snout, $1\frac{1}{2}$ to $2\frac{1}{2}$ in interorbital; maxillary not quite reaching opposite front of eye, length 3 to $3\frac{1}{8}$ in head; 6 long barbels, front rostral pair shortest reach $\frac{3}{4}$ to, or to eye, outer rostral reaches $1\frac{2}{5}$ to 2 to pectoral origin, maxillary barbel reaches $1\frac{1}{5}$ to $1\frac{1}{3}$; mouth width 3 to $3\frac{1}{4}$ in head, moderately fleshy lips entire; front of upper jaw with short transverse trenchant bony edge, received in depression at mandibular symphysis giving rise either side to elevated trenchant bony ridge, appearing spout like; interorbital $3\frac{1}{5}$ to $3\frac{1}{4}$, low, broadly convex. Gill rakers $3 + 12$ short points, $\frac{1}{4}$ of gill filaments, which subequal with eye.

⁴ Records Indian Mus., vol. 31, pt. 4, Dec. 1929, p. 236, pl. 14, fig. 3.

Scales very small, cycloid, rounded, slightly imbricated, firmly adherent, finer or much smaller or less distinct on predorsal, also indistinct or absent on chest. Lateral line distinct, axial, complete, with minute, close set pores.

D. III, 8, 1, first branched ray $1\frac{2}{3}$ to $1\frac{1}{2}$ in head; A. III, 5, 1, second branched ray $1\frac{1}{2}$ to $1\frac{3}{8}$; caudal 1 to $1\frac{1}{8}$, little emarginate or concave behind, points of lobes distinct when expanded; least depth of caudal peduncle $1\frac{1}{8}$ to 2; pectoral $1\frac{1}{8}$ to $1\frac{1}{2}$, rays 1, 12; ventral rays 1, 7, fin $1\frac{1}{4}$ to $1\frac{1}{3}$ in head, with slender, pointed, axillary papilla $1\frac{1}{4}$ times eye, smaller in young. Vent at ends of depressed ventrals.

Dull or pale brownish generally, under surfaces slightly paler. Thirteen dark brown transverse bands on body, little wider than pale interspaces and with age narrower, each showing darker margin or bordering line; 5 of bands predorsal and 3 from below dorsal, besides 5 remaining bands behind dorsal, in addition to narrow, black, contrasted band at caudal base. Some obscure dark blotches on top of head and front of snout. Iris gray. Barbels pale brown, front rostral pair dark on outer basal portion and outer, longer, rostral pair dark all along outer edge. Dorsal pale, creamy to white basally, with contrasted black blotch at front of fin and another slightly paler over second dark band from dorsal base; each ray with broad dark brown median bar. Caudal brown, save for black basal band, upper and lower fulcra and edges of fin pale to whitish. Other fins pale to whitish, with upper surface of pectoral pale brown.

A.N.S.P., No. 68,008. Me Poon, Siam. Length 102 mm. Type. Also Nos. 68,009 and 68,010, same data, paratypes. Length 26 to 45 mm.

Known chiefly by its coloration, the arrangement of the broad, dark, transverse bands as 5 or 6 predorsal, 3 from dorsal base and 6 postdorsal (inclusive of dark basal caudal band). The species is suggestive of *Nemacheilus kengtungensis*, differing in the arrangement of its dark transverse bands.

(For Joseph Walton, a contributor to the Academy's collection of fishes in its early history).

POGONONEMACHEILUS, new subgenus

Differs from the typical species of subgenus *Nemacheilus* in the very long barbels, the preorbital hook and the deeply forked caudal fin, with its extended upper lobe. Type *Nemacheilus masyae* H. M. Smith.

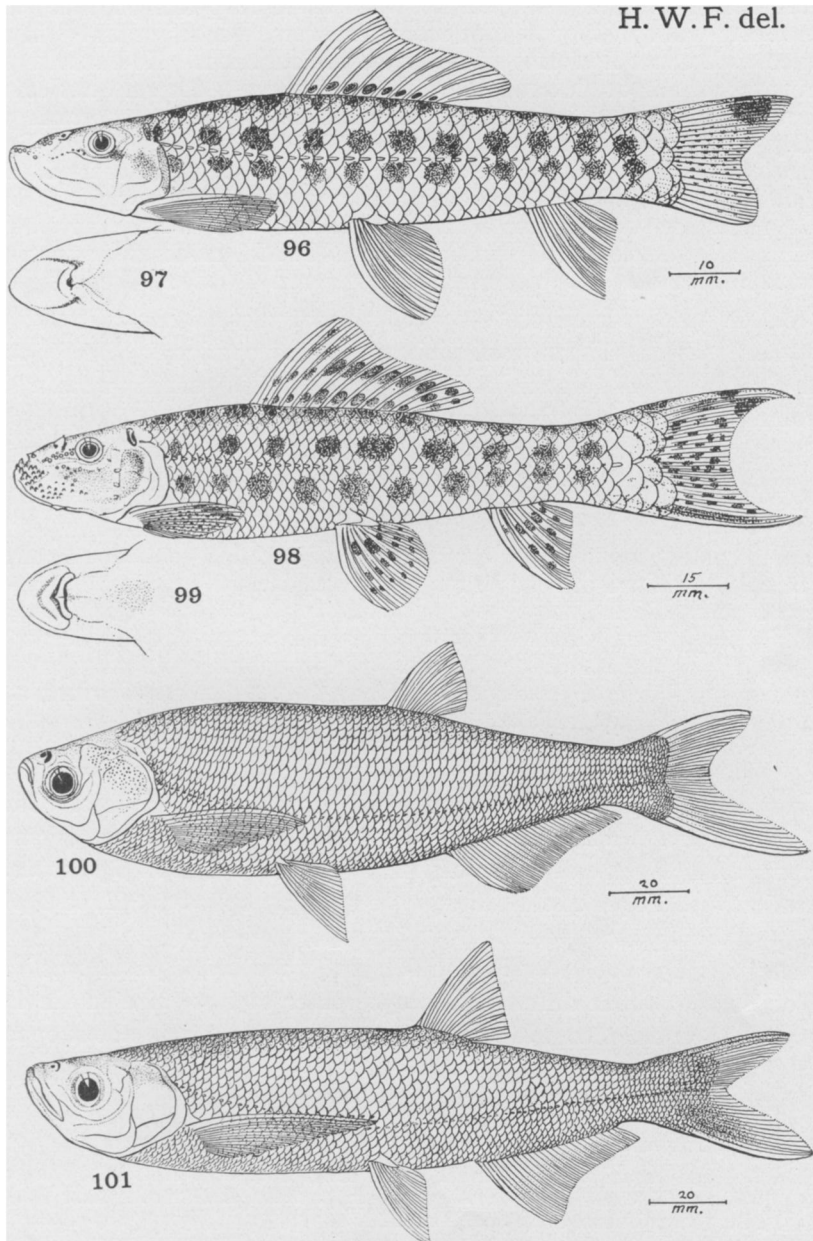
(Πώγων beard + *Nemacheilus*; with reference to the long barbels.)

Nemacheilus masyae H. M. Smith.

Three, 54 to 62 mm., Me Poon.

GYRINOCHEILIDAE

Body elongate, moderately compressed, rather slender. Head rather small, nearly pyramidal. Snout long, depressed. Eye with free edge, small, high, postmedian. No rostral fold. Above and anteriorly on snout a transverse groove, continued below and around each corner of mouth to postlabial groove. Upper lip rather broad, fleshy, emarginate medially, its



96, 97. *Gyrinocheilops kaznakoi*.
100. *Longiculter siahi*.

98, 99. *Gyrinocheilops pennocki*.
101. *Culter wolff*.

outer surface papillate; inner surface with small rasp-like papillae; lower lip medially triangular, with 6 or more transverse plicae; laterally in conjunction with upper lip forms an involuted prolongation. No barbels. Gill opening rather narrow, lateral, above with conspicuous deep slit not covered by opercle and closed inside by a movable flap. Gill membranes very broadly united to isthmus. Pharyngeals slender, without teeth. Scales moderate or rather small; with radiating marginal striae all around, medially joined by reticulations. Lateral line complete, axial along side of body. Dorsal moderate, with 3 simple and 9 branched rays. Anal short, behind dorsal, with 3 simple and 5 branched rays. Caudal moderate, emarginate. Pectoral low, broad. Ventral short. Type genus *Gyrinocheilus* Vaillant.

Hora in 1923 pointed out the similarity of these fishes to *Garra* and *Crossocheilus*, "but this outward similarity, in my opinion, is directly correlated with the life of these fishes in moderately rapid-running waters." At the same time he created their elevation to family rank, stressing the toothless pharyngeals, scale structure, the remarkable modified inhalent and exhalent apertures of the gill-openings, and mouth, lip and jaw structures. The genera may be distinguished as follows:

Predorsal scales small; scales on caudal base small; eye well postmedian or near last third in head; 2 rows of large, dark, alternating or opposed spots along side of body *Gyrinocheilus*
 Predorsal scales very small and crowded; scales on caudal base large; eye slightly postmedian in head; 2 rows of large dark spots only partly or not at all alternating along side of body *Gyrinocheilops*

GYRINOCHEILOPS, new genus

Eye but little postmedian in head length. Predorsal scales very small and crowded. Ventral origin premedian in length of dorsal base. Caudal deeply emarginate, with rather slender, pointed lobes. Pearl organs of different arrangement and apparently more extensive than in *Gyrinocheilus*. Coloration with 2 rows of dark lateral spots mostly opposed. Type *Gyrinocheilops pennocki*, new species.

Related to *Gyrinocheilus* Vaillant (type *Gyrinocheilus pustulosus* Vaillant) of Borneo, which differs in the eye center at last third in the head, larger and less numerous predorsal scales, and ventral origin about opposite last $\frac{2}{3}$ of dorsal base.

(*Gyrinocheilus* + ψ appearance.)

***Gyrinocheilops kaznakoi* (Berg).** Figures 96 (Chieng Mai), 97 (mouth below).

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).—H. M. Smith, Journ. Siam Soc. Nat. Hist. Suppl., vol. 8, No. 3, Sep. 1931, p. 187 (Nontaburi, Paknam, Bung Barapet, Pak Jong, Udon, east of Bandon, Lampang, Potaram, north of Kanburi).—Fowler, Proc. Acad. Nat. Sci. Phila., vol. 86, 1934, p. 137 (Chieng Mai; Metang R. 35 miles above Chieng Mai, foot of Chieng Dao).

? *Psilorhynchus aymonieri* Tirant, Bull. Soc. Etud. Indochin., 1883, [1929, reprint, p. 35, pl. 1, figs. 1 and 2] (type locality, "petits affluents du Prek-Tenot dans les montagnes de Samrong-Tong, à 75 kilomètres de Phnom-Penh", Cambodia).

? *Gyrinocheilus aymonieri* Hora, Rec. Indian Mus., vol. 39, pt. 4, Dec. 1935, p. 461, fig. 1 (outline photo of type).

One, 55 mm., Paknam; four, 54 to 60 mm., Tachin. These all agree with the series I reported in 1934, especially in the shape of the preoral region.

The original barbaric figures of *Psilorhynchus aymonieri* Tirant, together with the incomplete description, even when viewed with Hora's outline of the type, hardly reveal certain identification with Berg's *Gyrinocheilus kaznakoi*.

Gyrinocheilops pennocki, new species. Figures 98 (type), 99 (mouth below).

Depth $4\frac{1}{5}$ to $4\frac{1}{4}$; head $3\frac{1}{5}$ to $3\frac{3}{4}$, width $1\frac{3}{5}$ to $1\frac{1}{5}$. Snout $2\frac{1}{4}$ to $2\frac{1}{3}$ in head; eye $4\frac{2}{5}$ to $5\frac{1}{5}$, $2\frac{1}{4}$ to $2\frac{3}{4}$ in snout, 2 to $2\frac{1}{2}$ in interorbital; maxillary not quite reaching opposite front of eye, length $2\frac{2}{3}$ to $2\frac{3}{4}$ in head; mouth width 3 to $3\frac{1}{4}$; broad fleshy lips finely papillate; interorbital $2\frac{1}{2}$ to $2\frac{3}{4}$ in head, low, depressed, medially slightly concave. Gill rakers about 40 close set, compressed, pointed, flexible laminae, $\frac{1}{2}$ of gill filaments, which equal eye.

Scales 39 or $40 + 2$ in lateral line; 8 above, 5 below to ventral, 6 below to anal, 23 or 24 predorsal. Pectoral with adnate triangular cutaneous pad in axil, length $2\frac{1}{3}$ in fin. Ventral with axillary scale $2\frac{1}{2}$ in fin. Scales enlarged on caudal base medially. Chest and breast naked. Scales with 12 to 14 basal radiating striae, with 3 to 5 more incomplete auxiliaries; 7 to 10 complete apically, and 10 to 22 more incomplete auxiliaries. Lateral line complete, axial, straight; tubes short and simple. Pearl organs as irregular double preorbital row forward of nostrils; on upper front ridge of snout row of 6 more or less extended forward; on front edge of snout outer row of 6 large tubercles with 2 inner ones each side and closely set, all directed upward; preorbital region below and behind described region all more or less studded with tubercles. Smaller example with less elaborate ornamentation, though of similar pattern and tubercles fewer.

D. II, 10, I, first branched ray $1\frac{1}{4}$ to $1\frac{1}{3}$ in head; A. III, 5 I, first branched ray $1\frac{2}{5}$ to $1\frac{1}{5}$; caudal $2\frac{2}{5}$ to $3\frac{1}{4}$ in rest of fish, rather deeply emarginate and sharp points of lobes distinct; least depth of caudal peduncle 2 to $2\frac{3}{4}$ in head; pectoral $1\frac{1}{5}$ to $1\frac{1}{3}$, rays I, 13; ventral rays I, 8, fin $1\frac{2}{5}$ to $1\frac{1}{2}$ in head. Vent at last $\frac{2}{5}$ to $\frac{1}{3}$ of depressed ventrals.

Brownish above, paler to whitish below. Along side 9 dark to blackish gray spots in row above lateral line and another below, most of spots in rows nearly or quite opposite. Along back row of 11 similar dark spots, these not regular with lower spots and some alternated. Eye grayish. Lips pale like under surface of head. Dorsal grayish, with 2 rows of rather large brownish spots on membranes, one median and other basal. Caudal pale to whitish, spotted with dark gray, of which some of upper terminal ones little larger. Lower fins all more or less whitish, spotted with gray and dark sub-terminal blackish bar or pectoral.

A.N.S.P., No. 68,012. Kemrat, Siam. Length 145 mm. Type. Also No. 68,013, paratype, same data. Length 78 mm.

Differs from *Gyrinocheilops kaznakoi* (Berg) in the form of the preoral region, the more advanced eye and the absence of the black spot behind the upper end of the upper section of the gill-opening.

(For the late Charles J. Pennock, of Kennett Square, Pennsylvania, an ornithologist to whom I am indebted for various North American fishes.)

CYPRINIDAE

ABRAMIDINAE

LONGICULTER, new genus

Body elongately ovoid, strongly compressed, abdominal edge cultrate. Head small, well compressed. Snout moderate, greatly broader than long, obtuse. Eye well advanced, little below median axis of head. Mouth superiorly terminal, its front end above level of upper edge of eye, subvertical. Maxillary short, not reaching eye. Lips thin, narrow, jaw edges entire and trenchant. Interorbital high, broad. Nostrils close together, high or close to upper profile, without cutaneous flap, and posterior greatly larger. Suborbitals narrow. Gill opening large, deeply cleft, extends forward opposite hind eye edge, membranes joined to isthmus. Gill rakers very fine, slender, rather long, numerous, closely set. Pseudobranchiae large, though smaller than gill filaments. Pharyngeal teeth small, biserial, bones small. Scales in even longitudinal series, small, numerous, narrowly imbricated. Abdominal scales not passing over abdominal keel. Ventral with small axillary papilla. Caudal base broadly scaled. Lateral line complete, little decurved. Dorsal little postmedian, small. Anal longer than head, begins behind dorsal, front rays little higher. Caudal deeply emarginate. Caudal peduncle short, well compressed. Pectoral rather long, falcate, reaches beyond front of ventral, placed low. Ventral moderate, not quite reaching opposite dorsal origin. Type *Longiculus siahi*, new species.

Differs from *Culter* and related genera in its well-elongated and strongly compressed body.

(*Longus* long + *Culter*.)

Longiculus siahi, new species. Figure 100 (type).

Depth $3\frac{3}{4}$ to $3\frac{3}{4}$; head $4\frac{2}{3}$ to $4\frac{1}{2}$, width $2\frac{1}{4}$ to $2\frac{1}{2}$. Snout $4\frac{1}{2}$ to 5 in head from snout tip; eye 4, little greater than snout, $1\frac{1}{2}$ to $1\frac{1}{4}$ in interorbital, marginal adipose-like membrane only moderately invading iris; end of closed maxillary not quite opposite lower level of lower edge of pupil, length $4\frac{3}{4}$ to $5\frac{1}{4}$ in head from snout tip; interorbital $2\frac{9}{10}$ to $3\frac{1}{2}$, convex; narrow suborbitals cover half of cheek to preopercle ridge. Gill rakers $16 + 90$, lanceolate, very slender, equal gill filaments or $1\frac{1}{2}$ in eye. Pharyngeal teeth 2, 4 — 4, 2, scarcely hooked, large ones with broad, entire grinding surfaces.

Scales 70 to $72 + 4$ in lateral line; 12 above, 6 below to ventral, 7 or 8 below to anal origin, 71 to 72 predorsal. Pectoral without axillary scale. Ventral with short adnate pointed axillary papilla. Lateral line complete, well decurved forward, extending low along side of tail till median at caudal base, tubes small, short, simple. Scales with 4 to 7 apical radiating striae, basal circuli fine, none extended apically.

D. II, 7, 1, first branched ray $1\frac{3}{4}$ to $1\frac{3}{4}$ in total head; A. III, 21, 1 or III, 30, 1, first branched ray $1\frac{3}{4}$; caudal $3\frac{1}{4}$ to $3\frac{3}{4}$ in rest of fish, upper lobe $1\frac{3}{4}$ to $1\frac{1}{2}$ in lower lobe; least depth of caudal peduncle $2\frac{3}{4}$ to 3 in total head; pectoral 4 in fish without caudal, rays I, 14; ventral I, 8, length $1\frac{1}{2}$ to $1\frac{3}{4}$ in total head length. Vent close before anal.

Back brownish, sides and below pale, evidently whitish in life. Iris grayish. Jaws and under surface of head pale. Fins all light or pale, dorsal and caudal little grayish terminally.

A.N.S.P., No. 68,014. Me Poon, Siam. Length 200 mm. Also No. 68,015, same data, paratype. Length 198 mm.

A unique species, distinguished chiefly by its generic characters.

(For Mr. Y. Siah, who assisted in forming the collection of Siamese fishes.)

Culter siamensis (Günther).

Depth $3\frac{1}{2}$ to $3\frac{3}{5}$; head $3\frac{3}{4}$ to 4, width $2\frac{1}{4}$ to $2\frac{1}{3}$. Snout $3\frac{1}{5}$ to 4 in head from snout tip; eye $3\frac{1}{2}$ to $4\frac{1}{8}$, larger than snout in young to subequal with age, 1 to $1\frac{1}{8}$ in interorbital; maxillary reaches nearly to or below front eye edge, length $2\frac{1}{2}$ to $2\frac{3}{8}$ in head from snout tip; jaw edges firm, moderately trenchant and lips narrow, lower jaw well protruded; interorbital $3\frac{1}{2}$ to $3\frac{3}{4}$, convex; suborbital broad, invades $\frac{3}{4}$ of cheek to preopercle ridge. Gill rakers $7 + 23$, lanceolate, $\frac{4}{5}$ of gill filaments, which $1\frac{1}{2}$ in eye. Pharyngeal teeth 2, 4, 5 — 5, 4, 2, small, hooked moderately and larger with moderate, entire grinding surfaces.

Scales 21 to 25 (10 to 14 overlap) + 36 to 40 + 4 to 6 in lateral line; 15 above, 7 below to ventral origin, 9 below to anal origin; 55 to 58 predorsal. Scales of belly not crossing median abdominal keel. Pectoral axil with small, pointed, cutaneous flap, its free portion slightly longer than scale exposure. Axillary ventral scale $\frac{1}{4}$ of fin. Caudal base well scaled. Lateral line complete, strongly decurved anteriorly, low along side of tail and finally median at caudal base; tubes simple, all small, short and slightly decurved. Scales with 5 to 10 radiating apical striae; fine basal circuli not extended, or only obsolete apically.

D. III, 7, 1, first branched ray $1\frac{1}{2}$ to $1\frac{3}{5}$ in total head length; A. III, 21, 1 to III, 23, 1, first branched ray $1\frac{1}{4}$ to 2; caudal $2\frac{2}{3}$ to 3 in rest of fish, upper lobe shorter or $1\frac{1}{2}$ in lower; least depth of caudal peduncle $2\frac{2}{3}$ to 3 in total head length; pectoral 1 to $1\frac{1}{10}$, rays 1, 14; ventral rays 1, 8, fin $1\frac{4}{5}$ to 2 in total head length. Vent close before anal.

When fresh in alcohol pale brown above, greater lower portions bright silvery white, especially side of head and abdomen. Iris silvery white. Fins all pale to whitish. Base of anal and most of caudal base yellowish, and hind edge of latter narrowly dark gray. Later in alcohol an underlaid grayish axial band borders an underlaid coppery or dull golden band or streak all along its upper edge.

Seven, 109 to 178 mm., Bangkok.

Culter wolfi, new species. Figure 101 (type).

Depth 4 to $4\frac{1}{2}$, trenchant abdominal keel well developed; head $3\frac{1}{2}$ to 4, width $2\frac{1}{2}$ to $2\frac{3}{4}$. Snout $3\frac{3}{4}$ to $4\frac{1}{4}$ in head from snout tip; eye $3\frac{1}{3}$ to $4\frac{1}{4}$, greater than snout in young to $1\frac{1}{10}$ in snout with age; maxillary very oblique, reaches opposite front eye edge though well below level of its lower edge, length $2\frac{2}{3}$ to $2\frac{7}{8}$ in head from snout tip; lips narrow, thin and mandible well protruded in front so end of symphysis with age above level of upper eye edge; jaw edges not very trenchant; interorbital $3\frac{1}{2}$ to $4\frac{1}{5}$ in head from snout tip, convex; suborbitals broad, invade cheek $\frac{4}{5}$ to preopercle ridge. Gill rakers $6 + 26$, finely lanceolate, subequal with gill filaments, which $1\frac{3}{4}$ in eye. Pharyngeal teeth 1, 3, 5 — 5, 3, 1, larger ones hooked and with moderate, smooth, entire, grinding surfaces.

Scales 23 to 25 (overlap 5 to 10, and sometimes auxiliary median series of 8 scales may be interposed) + 53 to 55 + 7 to 9 in lateral line; 15 above, 5 below to ventral origin, 6 below to anal origin; 55 to 60 predorsal scales forward until opposite hind eye edge. Pectoral with adnate pointed cutaneous axillary papilla $5\frac{2}{3}$ in depressed fin. Ventral axillary scale $3\frac{1}{4}$ in fin. Lateral line well decurved, low along side of tail and reaches caudal base medially; tubes short, simple, small, slope downward. Scales with 3 or 4 apical radiating striae and 1 to 6 incomplete marginal auxiliaries; 2 basal radiating striae with 1 or 2 marginal auxiliaries; circuli fine, basal.

D. III, 7, 1, first branched ray $1\frac{2}{3}$ to $1\frac{4}{5}$ in total head length; A. III, 22, 1, or III, 23, 1, first branched ray $1\frac{2}{3}$ to $1\frac{1}{2}$; caudal equals head, upper lobe $1\frac{1}{4}$ to $1\frac{1}{2}$ in lower lobe; least depth of caudal peduncle 3 to $3\frac{1}{2}$ in total head length; ventral $1\frac{3}{4}$ to $1\frac{1}{2}$, rays 1, 8; pectoral rays 1, 13, fin $3\frac{2}{5}$ to $3\frac{3}{5}$ in fish without caudal. Vent close before anal.

Back and upper surface of head brownish, sides and below with more or less pale to rather brilliant copper color. Sides of head and abdomen more or less whitish or with silvery tints. Iris whitish. Fins pale, with more or less yellowish tint and hind edge of caudal rather narrowly dark gray.

A.N.S.P., No. 68,016. Pitsanulok, Siam. Length 205 mm. Type. Also Nos. 68,017 to 68,020, same data, paratypes. Length 123 to 185 mm.

Closely related to *Culter siamensis*, differing in the always distinctly longer pectoral, well exceeding the length of the head. Three, 69 to 85 mm., Me Poon.

(For the late Herman T. Wolf of Philadelphia, aquarium student, who obtained numerous American fishes for the Academy.)

Culter barroni (Fowler).

Thirteen, 133 to 150 mm., Pitsanulok; 66 specimens, 56 to 97 mm., Kemrat. The former all with more or less coppery tints. Lower sides of head and $\frac{3}{4}$ of body silvery white. Variable obscure dark gray saddle on front of predorsal, often narrow, again wide as eye, and others less distinct, may be present posteriorly. Fins all pale, caudal with yellowish line basally.

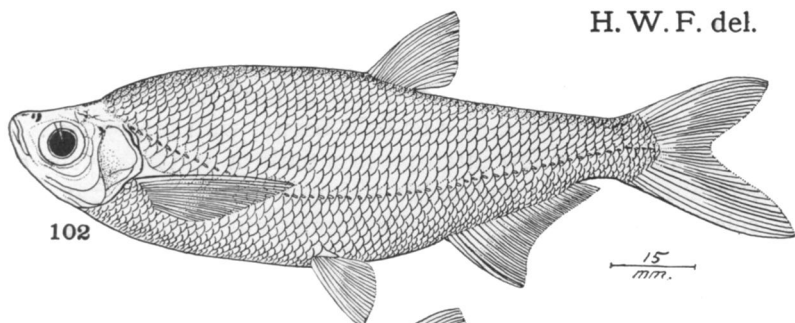
In Kemrat specimens caudal yellowish basally, marginally gray. Iris gray, doubtless silvery white in life.

Culter typus (Bleeker). Figure 102 (Bangkok).

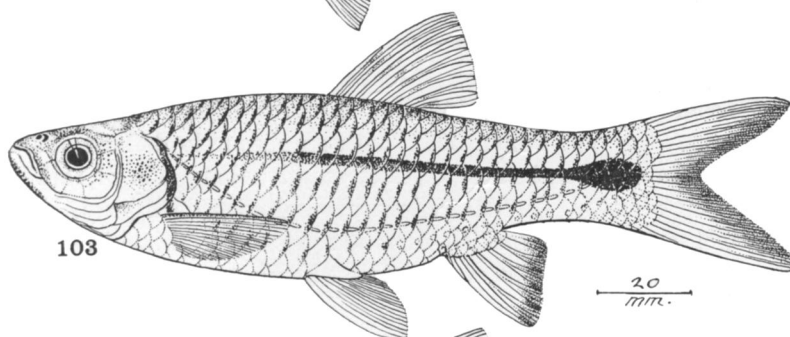
Eighteen, 122 to 155 mm. Bangkok. Depth $2\frac{1}{3}$ to $3\frac{1}{5}$; eye $2\frac{2}{5}$ to $2\frac{3}{5}$ in head from snout tip. Scales 48 (10 to 20 overlap) + 3 in lateral line. A. III, 27, 1, to III, 29, 1. Pectoral not reaching ventral. Pale brown, with yellowish to coppery tinge. Lower side of body silvery white. Iris white. Anal and caudal bases yellowish, hind edge of latter dark gray. Paired fins cream white.

Ten, 110 to 136 mm., Pitsanulok. All more or less coppery brown, with whitish shades below. Iris white or pink, evidently turning gray. Ill defined axial lateral band from head to caudal base, most distinct along

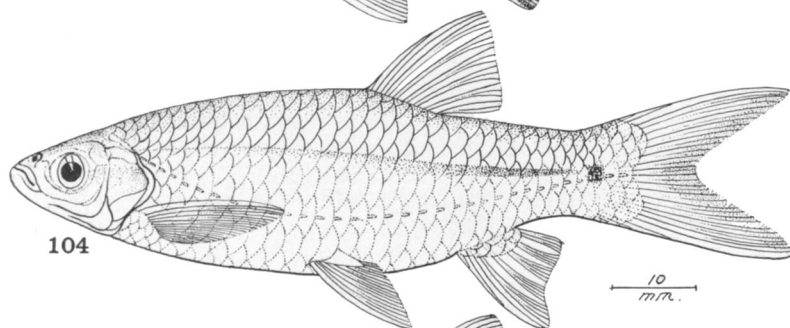
H. W. F. del.



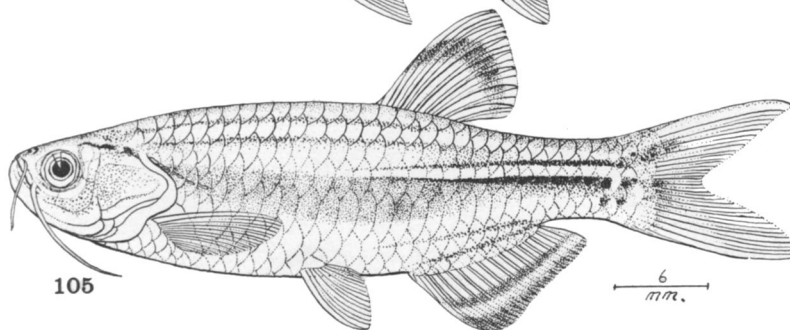
102

15
mm.

103

20
mm.

104

10
mm.

105

6
mm.102. *Culter typus*.103. *Rasbora cromiei*.104. *Rasbora cheroni*.105. *Danio pulcher*.

side of tail. Caudal yellowish, hind edge gray. Other fins pale brown, with dark dots on middle of pectoral, often inconspicuous.

All my specimens when freshly received were brilliant brassy-white, with silvery reflections over the whole lower side of head from level with upper edge of eye. Above the back pale or light brown, with brassy tint. Most specimens showed only a few inconspicuous dark or scattered dots, on the upper pectoral rays. In formaline iris and opercle turn dark gray and fins nearly colorless. Lateral line usually incomplete, though often forked at its lowest part of bend, this variable and may or may not occur on one or both sides of the same specimen.

Culter stigmabrachium (Fowler).

Two, 78 to 105 mm., Bangkok; sixteen, 115 to 148 mm., Me Poon; one, 43 mm., Tachin; seven, 106 to 142 mm., Kemrat. Me Poon materials all show a more or less pale brown body, with an obscurely defined, underlaid, dull gamboge lateral band, most distinct axially along side of tail. Most of fins pale to whitish. Caudal yellowish, hind edge dark gray. Pectoral with distinct contrasted blackish blotch, made up of blackish dots, and equally distinct on both sides of fin. Iris whitish, now turned gray.

Culter riveroi Fowler.

Depth $3\frac{2}{5}$ to $3\frac{3}{5}$; head 4 to $4\frac{2}{5}$, width 2 to $2\frac{1}{4}$. Snout $4\frac{1}{2}$ to 5 in head from snout tip; eye $3\frac{1}{8}$ to $3\frac{3}{8}$, greater than snout, greater than interorbital in young to subequal with age; maxillary very oblique, not quite reaching opposite front eye edge and not below lower eye edge, length $3\frac{1}{10}$ to $3\frac{2}{5}$ in head from snout tip; lips rather thin, narrow, jaw edges little trenchant; interorbital $3\frac{1}{4}$ to $3\frac{1}{3}$, rather low, convex; suborbitals cover most of cheek to preopercle ridge. Gill rakers $10 + 33$, finely lanceolate, equal gill filaments or 2 in eye. Pharyngeal teeth 2, 4, 5 — 5, 4, 2, hooked, with moderate, entire, grinding surfaces.

Scales 50 to $52 + 4$ or 5 in lateral line; 12 above, 5 below to ventral base, 6 below to anal origin; 47 to 59 predorsal scales forward opposite hind eye edge. Pectoral axillary scale $4\frac{1}{4}$ in fin. Ventral axillary scale $3\frac{3}{8}$ in fin. Caudal base broadly scaly. Two rows of small basal scales on anal. Lateral line complete, distinct, well decurved, runs along lower side of tail up to middle of caudal basally; tubes all small, short, each directed downward. Scales with 3 to 6 apical radiating striae; none or 1 basal radiating stria; circuli fine, basal, obsolete apically.

D. II, 7, I, first branched ray $1\frac{1}{4}$ to $1\frac{1}{3}$ in total head length; A. III, 21, I to III, 25, I, first branched ray $1\frac{2}{3}$ to $1\frac{3}{4}$; caudal $3\frac{1}{5}$ to $3\frac{3}{4}$ in rest of fish, deeply forked, upper lobe $1\frac{1}{5}$ in lower; least depth of caudal peduncle $2\frac{1}{2}$ to $2\frac{3}{4}$ in total head length; pectoral $3\frac{1}{4}$ to $3\frac{1}{3}$ in fish without caudal, rays I, 14; ventral rays I, 8, fin $1\frac{2}{5}$ to $1\frac{3}{8}$ in total head length. Vent close before anal, with small fleshy papilla.

Brown, with coppery reflections, lower sides and under surfaces whitish. Iris white, also lower side of head. Fins pale brown or dull pink. Caudal sometimes with gray basally and hind border dark gray.

Nine, 123 to 150 mm., Pitsanulok; five, 65 to 140 mm., Me Poon. Only known previously from the type, which agrees in every way with the above.

Oxygaster oxygastroides (Bleeker).

Three, 40 to 48 mm., Me Poon; 100 specimens, 50 to 138 mm., Bangkok. Depth $3\frac{1}{8}$ to $3\frac{1}{4}$. When fresh very pale brown, with slight yellowish tinge below. Sides of head and iris largely silvery white. Broad silvery white band, wide as eye, along side of body axially, narrowing on caudal peduncle. Silvery white reflections also on lower side of body. Dorsal and caudal little grayish terminally, and gray dots on pectoral above variously obscured. Caudal usually tinged yellowish basally. Fins otherwise pale to whitish. In formaline eyes and opercle turn dark gray or leaden, and dark gray lateral streak forms along side of tail, bounding upper edge of silvery lateral band.

Me Poon materials differ from most all my large examples in having the dorsal origin well behind the anal origin.

Macrochirichthys macrochirus (Valenciennes).

One, 240 mm., Me Poon; two, 158 to 192 mm., Kemrat. Comparison of this material, representative of two distinct river basins, fails to show any differences other than age or individual variation.

RASBORINAE

Rasbora cromiei, new species. Figure 103 (type).

Depth $3\frac{1}{4}$ to $3\frac{1}{2}$; head $3\frac{2}{5}$ to $3\frac{1}{2}$, width $1\frac{1}{5}$ to 2. Snout $3\frac{7}{8}$ to 4 in head from snout tip; eye $3\frac{1}{4}$ to 4, greater than eye in young to subequal with age, $1\frac{1}{5}$ to $1\frac{3}{5}$ in interorbital; maxillary not quite reaching opposite front eye edge, length $2\frac{1}{5}$ to 3 in head from snout tip; mandible slightly protruded, symphysis with rounded knob fitting in depression at front of snout or upper jaw; no barbels; interorbital $2\frac{2}{5}$ to $2\frac{4}{5}$, convex; suborbitals broad, largely cover cheek to preopercle ridge. Gill rakers $2 + 11$, lanceolate, $\frac{1}{2}$ of gill filaments, which $\frac{2}{3}$ of eye. Pharyngeal teeth 2, 4, 5 — 5, 4, 2, hooked and larger with well developed, entire grinding surfaces.

Scales 25 to 28 + 3 in lateral line; 5 above, 2 below to ventral origin, 3 below to anal origin; 12 or 13 predorsal. Axillary pointed pectoral scale $\frac{1}{3}$ of fin. Ventral with axillary scale $2\frac{1}{8}$ in fin. Caudal base scaled. Anal base with row of large scales. Lateral line complete, continuous, well decurved, low along side of tail to median at caudal base; tubes long, slender, simple, well exposed. Scales with 17 to 24 apical radiating striae, variably incomplete or marginal; 21 to 24 more or less parallel basal striae; circuli fine, basal finer, apically convergent.

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

Back and upper surfaces umber, paler on lower sides and below, evidently white in life. Iris grayish. Mandible and lower lip pale, chin and median symphyseal region darker brown. Dark inclined bar along hind edge of shoulder girdle. Axial dark gray to black lateral band from behind head to middle of caudal base, narrow and pale at first it expands at caudal base as elongated lobe, its vertical diameter less than eye. Dorsal and caudal gray brown, former with each ray medially with slightly darker bar. Lower fins pale or dull, soiled brownish.

A.N.S.P., No. 68,021. Me Poon, Siam. Length 89 mm. Type. Also Nos. 68,022 to 68,046, paratypes, same data. Length 33 to 102 mm. Besides the above 75 others, 31 to 100 mm., Me Poon; 77 specimens, 51 to 77 mm., Rayong.

Apparently closely related to *Rasbora borapetensis* H. M. Smith, 1934, from Bung Borapet, central Siam. It is described from an example but 48 mm. long, and "readily recognizable by the incomplete lateral line (which never extends beyond the anal fin)". It is also described with a black lateral band, narrower than the eye extending from gill opening to base of caudal fin.

The imperfectly described *Rasbora paviana* Tirant 1883 seems to differ largely in coloration. It is described with an oblique black bar dividing the back at the top of the head and descends obliquely back along the flank and the breast, level with the first third of the pectoral.

(For Mr. George H. Cromie, of Atlantic City, N. J., who has secured many rare or interesting local fishes for me.)

Rasbora cheroni, new species. Figure 104.

Depth 3; head 4, width 2. Snout $3\frac{3}{4}$ in head from snout tip; eye $3\frac{1}{4}$, $1\frac{1}{2}$ in interorbital; maxillary not quite reaching opposite front eye edge, length $3\frac{1}{2}$ in head from snout tip; mandible well protruded in front, with broad symphyseal knob, received in depression at end of snout; lips thin, narrow; interorbital $2\frac{1}{2}$ in head from snout tip, convex; broad suborbitals largely cover cheek. Gill rakers $4 + 10$, lanceolate, $\frac{2}{3}$ of gill filaments, which $\frac{1}{2}$ of eye. Right pharyngeal teeth 5, 3, 2, hooked, with moderate, entire grinding surfaces.

Scales $30 + 2$ in lateral line; 5 above, 1 below to ventral origin, 2 below to anal origin, 14 predorsal forward opposite hind preopercle edge. Axillary pectoral scale $\frac{1}{4}$ of fin. Axillary ventral scale $2\frac{1}{4}$ in fin. Anal with basal row of large scales. Caudal base broadly scaly. Lateral line complete, distinct, decurved, low along side of caudal peduncle then up till median on caudal basally. Scales with 31 apical radiating striae of which many incomplete; 12 close-set basal radiating striae; circuli basally fine and numerous, apically less so and convergent to obsolete.

D. II, 6, I, first branched ray $1\frac{1}{2}$ in head from snout tip; A. III, 5, I, first ray $1\frac{1}{4}$; caudal $2\frac{3}{8}$ in rest of fish, deeply forked; least depth of caudal peduncle $1\frac{1}{8}$; pectoral 1 in total head length, rays I, 11; ventral rays I, 8, fin $1\frac{1}{8}$ in total head length.

Back pale brown, under surfaces scarcely lighter. Iris whitish. Narrow dark gray vertebral line axial on side of body, faint at first and darker posteriorly or along side of tail. Small round black spot, less than pupil, at middle of caudal base. Fins all pale, hind edge of caudal grayish.

U.S.N.M., No. 68,011. Pitsanulok, Siam. Length 97 mm. Type.

Known by its deep body, postmedian insertion of the dorsal and small, round, black basal caudal spot.

(For Peter Cheron, who assisted in forming the collection of Siamese fishes.)

Rasbora argyrotaenia (Bleeker).

Fifty, 46 to 145 mm., Bangkok; one 48 mm., Tachin; two, 25 to 27 mm., Me Poon; sixty, 51 to 104 mm., Kemrat.

Danio pulcher H. M. Smith. Figure 105.

Depth $3\frac{2}{3}$ to $3\frac{1}{2}$; head $3\frac{1}{2}$ to $3\frac{3}{4}$, width $1\frac{2}{3}$ to $1\frac{1}{4}$. Snout 5 to 6 in head from snout tip; eye $3\frac{1}{2}$ to $4\frac{1}{2}$, greater than snout, $1\frac{1}{3}$ to $1\frac{2}{3}$ in interorbital; maxillary reaching eye, length $3\frac{1}{4}$ to $3\frac{1}{2}$ in head from snout tip; jaw edges blunt, not trenchant, mandible well protruding in front; rostral barbel reaches well beyond eye or $1\frac{1}{2}$ to 2 in rest of head, maxillary barbel reaches pectoral origin or $\frac{1}{4}$ in pectoral fin; interorbital $2\frac{1}{4}$ to $2\frac{2}{3}$ in head, broadly convex; suborbitals broad, cover cheek. Gill rakers $2 + 10$, short, feeble points, $\frac{1}{3}$ of gill filaments, which 2 in eye. Pharyngeal teeth 1, 3, 5 — 5, 3, 2, hooked, with oblique, entire grinding surfaces.

Scales 27 to $29 + 2$ in lateral line course, with only 5 tubes anteriorly from shoulder girdle; 8 scales transversely, 12 to 14 predorsal. Paired fins each with pointed axillary scale. Caudal base scaly and row of 10 basal anal scales. Scales with 21 to 34 apical, close set, parallel striae; basal circuli fine, close set, not extending apically.

D. III, 7, 1, first branched ray $1\frac{1}{3}$ to $1\frac{1}{4}$ in total head length; A. III, 14, 1 or III, 15, 1, first branched ray $1\frac{1}{3}$ to $1\frac{2}{3}$; caudal 3 to $3\frac{1}{4}$ in rest of fish, deeply forked, lobes equal; least depth of caudal peduncle $2\frac{2}{3}$ to $2\frac{1}{2}$ in total head length; pectoral $1\frac{1}{3}$ to $1\frac{1}{2}$, rays 1, 11 or 12; ventral 1, 6, fin $1\frac{3}{4}$ to $1\frac{1}{2}$ in total head length.

Back and upper surface olive brown, lower or under surfaces paler to whitish. Iris pale to whitish. Dark median band down back. On each side of back 2 longitudinal dark streaks more or less obscured. Diffuse median broad dark band from behind head to caudal and along its upper border which becomes dark to blackish brown. Above last a pale or light streak, which narrowed forward and also bounded by a dark brown band along its upper edge. Two very obscure slightly dark streaks above anal, converging behind. Dorsal and caudal brownish, former with submarginal crescent of dark brown, and 2 dark bands on anal as one marginal and one submarginal.

Three, 29 to 40 mm., Pitsanulok; 166 specimens, 28 to 50 mm., Me Poon. Besides these are the specimens I reported as *Danio albolineata* (Blyth) in 1934 from Chantaboon. Smith's account of his *D. pulcher* in 1931 shows some points of difference as "eye situated low on side of head, 3 in head;

lower jaw slightly projecting, . . . rostral barbel . . . 0.5 maxillary barbel . . . reaching far beyond base of pectoral, . . . lateral line entirely absent, . . . pectorals nearly reaching ventrals."

***Esomus metallicus* Ahl.**

Two, 52 to 56 mm., Rayong. Scales $27 + 3$ in lateral line; 15 predorsal scales. Hora and Mukerji's figure shows scales $32 + 2$ in lateral line.

***Esomus goddardi*, new species. Figure 106 (Me Poon).**

Depth $3\frac{3}{5}$ to 4; head $3\frac{1}{2}$ to $3\frac{3}{4}$, width 2 to $2\frac{1}{5}$. Snout 4 to $4\frac{1}{2}$ in head, from snout tip; eye $3\frac{3}{4}$ to $4\frac{1}{4}$, greater than snout, $1\frac{1}{3}$ to $1\frac{1}{2}$ in interorbital; maxillary reaches $\frac{3}{4}$ to eye, length $3\frac{2}{5}$ to 4 in head from snout tip; mouth broad, jaw edges rather trenchant, lips thin and narrow and mandible protruding in front; rostral barbel reaches behind hind eye edge half to nearly entire eye diameter, maxillary barbel to front of anal or middle of anal base; interorbital 3 to $3\frac{1}{3}$ in head from snout tip, low, depressed; suborbitals broad, cover cheek to preopercle ridge. Gill opening extends forward opposite hind pupil edge. Gill rakers $4 + 18$, flexible, tentacular, slender, $\frac{1}{2}$ of gill filaments, which $1\frac{1}{3}$ in eye. Pharyngeal teeth 4—5, pointed, simple, each with entire, broad grinding surfaces.

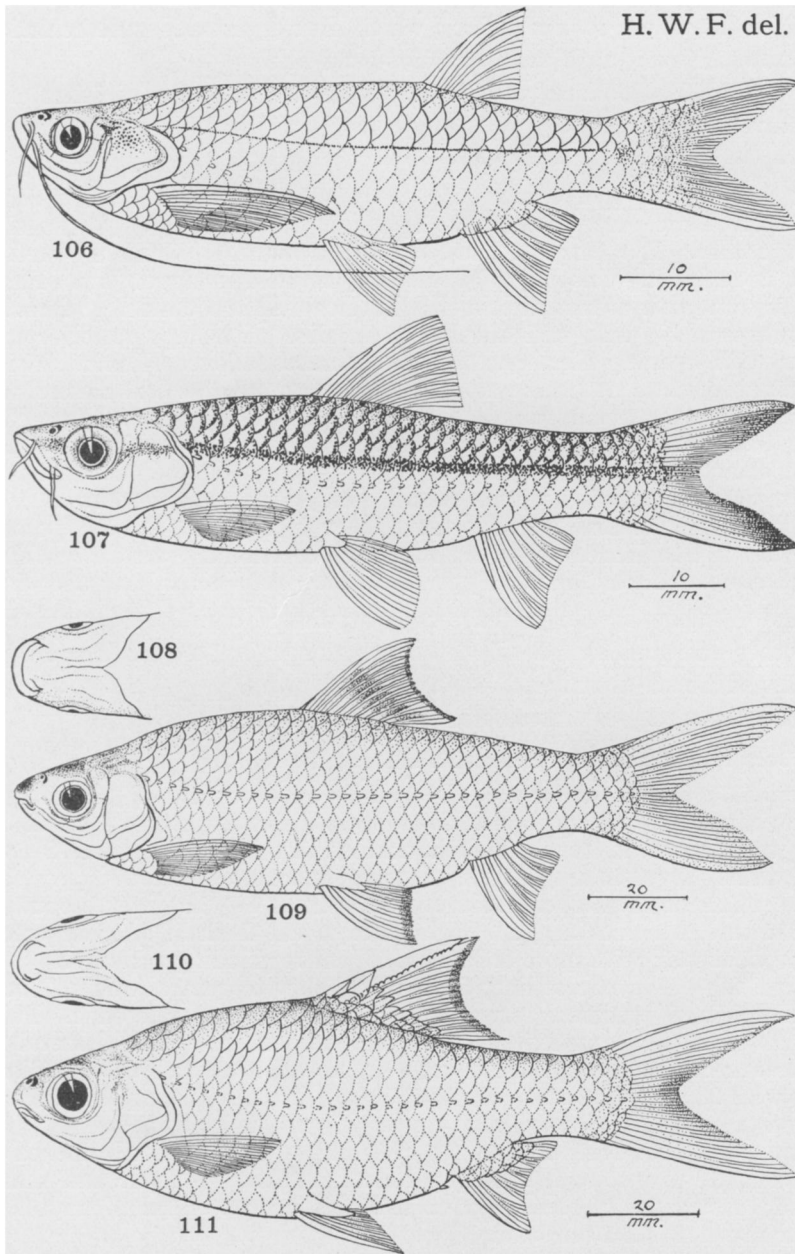
Scales 25 or $26 + 4$ or 5 in course of lateral line and only 11 or 12 of scales tubular or extending to above ventral origin; 8 scales transversely above anal origin, 17 or 18 predorsal forward until opposite hind preopercle edge. Ventral with rather long axillary scale, 2 to $2\frac{1}{5}$ in head. Caudal broadly scaled basally. Anal with single row of basal scales. Scales with 13 or 14 apical radiating striae; 4 to 8 basal variable striae; circuli fine basally, converging and fewer apically.

D. III, 5, 1, or III, 6, 1, first branched ray $1\frac{2}{5}$ to $1\frac{1}{2}$ in total head length; A. III, 5, 1, first branched ray $1\frac{1}{2}$ to $1\frac{3}{5}$; caudal $2\frac{1}{3}$ to $3\frac{1}{3}$ in rest of fish, deeply forked, slender lobes sharply pointed; least depth of caudal peduncle $2\frac{1}{4}$ to $2\frac{3}{5}$ in total head length; pectoral reaches little beyond ventral base, length $2\frac{4}{5}$ to $3\frac{1}{5}$ in fish without caudal, rays 1, 12; ventral rays 1, 7, fin $1\frac{1}{2}$ to $1\frac{3}{4}$ in total head length. Vent close before anal fin.

Pale brown, little lighter below. Sides of head and body with silvery white reflections. Narrow dark gray axial line along side of body, most distinct on tail. Iris white. Barbels pale brownish. Fins all pale to whitish.

A.N.S.P., No. 68,047. Me Poon, Siam. Length 73 mm. Type. Also Nos. 68,048 to 68,067, paratypes, same data. Length 42 to 84 mm. Other materials, 540 specimens, 27 to 78 mm., Me Poon; 47 specimens, 30 to 78 mm., Pitsanulok; one, 42 mm., Tachin; eleven, 48 to 64 mm., Bangkok; two, 39 to 50 mm., Kemrat.

Distinguished by its long rostral barbel extending well behind the eye, when laid back. The incomplete lateral line reaches above the ventral, usually far as anal. The uniform coloration is only varied by a diffuse silvery-white lateral band on the body, in which an obscure dark gray vertebral line traverses it and is distinct largely or only on the tail. It



106. *Esomus goddardi*. 107. *Filirasbora rubripinna*.
108, 109. *Cirrhinus marginipinnis*. 110, 111. *Xenocheilichthys gudgeri*.

differs from *Esomus metallicus* Ahl (1923, noticed by Hora and Mukerji 1928), in the longer rostral barbel, which always extends well behind the eye, and the narrow dark axial line, not band-like.

(For Paul B. Goddard, an early donor to the collection of fishes of the Academy.)

FILIRASBORA, new genus

Body elongate, well compressed, body edges rounded. Head robust, moderately large, depressed above and constricted below. Snout short, broad, obtuse. Eye large, advanced, high, rounded. Maxillary well inclined, not reaching below eye. Mandible included in upper jaw. Pair of maxillary and pair of rostral barbels. Interorbital broad, flat. Suborbitals very narrow. Nostrils well developed, anterior with flap, posterior much larger. Gill opening connected as free membrane over isthmus, incision extending forward not quite opposite hind eye edge. Gill rakers short points. Pseudobranchiae well developed. Pharyngeal teeth moderate, tri-serial. Scales large, in even longitudinal series, narrowly imbricated, present on breast and caudal base. Lateral line present, complete. Dorsal origin median between snout tip and caudal base, little before ventral origin. Anal small, well behind dorsal. Caudal large, forked. Caudal peduncle moderate, well compressed. Pectoral low, not reaching ventral. Ventral moderate, not reaching anal. Type *Filirasbora rubripinna*, new species.

Known chiefly by the presence of two pairs of barbels, in combination with other characters, such as the slightly longer upper jaw, narrow suborbitals, advanced dorsal, etc.

(*Filum* thread + *Rasbora*; with reference to the barbels.)

Filirasbora rubripinna, new species. Figure 107.

Depth $3\frac{3}{4}$; head $3\frac{1}{4}$, width $1\frac{1}{4}$. Snout $3\frac{3}{4}$ in head; eye $3\frac{3}{4}$, $1\frac{1}{2}$ in interorbital; maxillary not quite reaching opposite front eye edge, length 3 in head; jaw edges little trenchant, with narrow, thin lips; interorbital $2\frac{1}{4}$, very broad, nearly level or only slightly convex; suborbitals narrow, only cover about $\frac{1}{4}$ of cheek to preopercle ridge. Gill rakers $4 + 10$, short, about $\frac{1}{4}$ of gill filaments, which 2 in eye. Right pharyngeal teeth 5, 3, 1, larger ones without hooks, all with more or less broad, entire grinding surfaces.

Scales $28 + 4$ in lateral line; 5 above, 2 below to ventral origin, 3 below to anal origin, 9 predorsal forward opposite hind preopercle edge. Paired fins with small scales in axil. Breast and caudal fin scaled. Lateral line well decurved, extends upward along side of tail to caudal base medianly. Scales with 28 apical radiating striae; 15 short basal radiating striae; circuli fine and close set basally, apically converging and more wide set.

D. III, 8, 1, first branched ray $1\frac{1}{4}$ in head; A. II, 5, 1, first branched ray $1\frac{3}{4}$; caudal $3\frac{1}{4}$ in rest of fish, deeply forked and lobes slender and sharply pointed; least depth of caudal peduncle $2\frac{1}{4}$ in head; pectoral $1\frac{1}{2}$, rays 1, 14; ventral rays 1, 8, fin $1\frac{3}{4}$ in head.

Brown, paler below, evidently silvery white in life. Dark median streak down back. Each scale on back with slightly darker border or margin. Dorsal and caudal brownish, latter with ends of lobes dark, lower black. Other fins pale to whitish, with slight brown tinge on anal. Vent close before anal.

A.N.S.P., No. 68,068. Kemrat, Siam. Length 85 mm. Type.

Characters largely in the generic account. When freshly received the type had the lower fins, including the caudal and pectoral all more or less bright orange red.

(*Ruber* red + *pinna* fin.)

Luciosoma harmandi Sauvage.

Four, 142 to 153 mm., Kemrat; one, 168 mm., Pitsanulok.

CYPRININAE

Cyprinus carpio Linnaeus.

One, 239 mm., Bangkok.

Cirrhinus jullieni Sauvage.

Eight, 53 to 109 mm., Bangkok; 158 specimens, 32 to 180 mm., Me Poon; 21 specimens, 58 to 163 mm., Kemrat; nine, 42 to 49 mm., Pitsanulok. Sides of head below, also iris and most of lower surfaces bright silvery white. Barbels may be present on maxillary, one or both, small, very variable, and concealed. Distinguished from the following by its uniformly white ventrals.

Cirrhinus marginipinnis, new species. Figures 108 (head below), 109.

Depth $2\frac{7}{8}$ to $3\frac{1}{5}$; head $3\frac{3}{4}$ to 4, width $1\frac{1}{2}$ to $1\frac{7}{8}$. Snout $3\frac{3}{4}$ to 5 in head; eye 4 to $4\frac{1}{5}$, 1 to $1\frac{1}{2}$ in snout, 2 to $2\frac{1}{3}$ in interorbital; maxillary extends $\frac{2}{3}$ to eye, length $4\frac{1}{4}$ to $4\frac{2}{5}$ in head; mouth broadly obtuse as viewed from below, jaw edges firmly trenchant, and lower included in upper; no barbels; lips smooth, upper narrow, lower well forward on jaw though leaving broad entire symphyseal area; interorbital 2 to $2\frac{1}{8}$ in head, broadly convex; sub-orbitals broad, invade $\frac{2}{3}$ of cheek to preopercle ridge. Gill membranes joined to isthmus, extend forward opposite hind edge of eye. Gill rakers $5 + 40$, short, feeble, slender points, about $\frac{1}{10}$ of gill filaments, which long as eye. Pharyngeal teeth 2, 4, 5 — 5, 4, 2, close set, compressed, compact, all with bevelled, entire, well developed grinding surfaces, forming even triturating area.

Scales 30 to $32 + 2$ in lateral line; 6 above, 5 below to ventral origin, 5 below to anal origin; 13 or 14 predorsal scales. Axillary ventral scale $2\frac{1}{3}$ to $2\frac{2}{3}$ in fin. Caudal base scaled. Lateral line complete, straight, axial, along side of body; tubes simple, small, little exposed. Scales with 10 to 12 apical radiating striae and as many more incomplete, marginal ones variously imperfect; 6 basal radiating striae; circuli fine basally, divergent and fewer apically.

D. III, 8, 1, first branched ray $1\frac{1}{10}$ to $1\frac{1}{8}$ in head; A. III, 5, 1, first branched ray $1\frac{3}{4}$ to $1\frac{1}{4}$; caudal $2\frac{3}{4}$ to $3\frac{1}{8}$ in rest of fish, lobes slender, lower often shorter and fin deeply forked; least depth of caudal peduncle $1\frac{7}{8}$ to $2\frac{1}{8}$ in head; pectoral $1\frac{1}{4}$ to $1\frac{1}{2}$, rays 1, 17; ventral rays 1, 8, fin $1\frac{1}{4}$ to $1\frac{1}{3}$ in head. Vent close before anal.

Back and upper surface of head olive brown, lower sides and below pale to whitish. Side of head with silvery white reflections. Iris white. Jaws

pale. Dorsal pale brown, upper edge usually darker, and each membrane close before front edge of fin ray with blackish gray streak medially. Caudal pale brownish, upper and lower edges shaded broadly little darker. Lower fins all pale to whitish, with distinct and contrasted margin of ventral terminally dark brown.

A.N.S.P., No. 68,069. Pitsanulok, Siam. Length 153 mm. Type. Also Nos. 68,070 to 68,083 same data, paratypes. Length 107 to 170 mm. Other materials, 134 more specimens from same locality, and within same dimensions; 17 specimens, 65 to 159 mm., Bangkok; 44 specimens, 42 to 153 mm., Me Poon.

Always distinguished from *Cirrhinus jullieni* by its ventrals terminally edged dark gray to dusky.

(*Margo* border + *pinna* fin.)

Leptobarbus hoevenii (Bleeker).

Three, 180 to 220 mm., Bangkok. Ventrals intense and greatly contrasted vermilion in freshly received materials. The inner edge of eyeball orange and a flush of rose on the top of the head. Opercles rich gamboge or golden, with gray black blotch posteriorly. All scales above lateral line in contrast with blackish margins. Dorsal, anal and caudal dark gray, pectoral yellowish.

Amblyrhynchichthys truncatus (Bleeker).

Eleven, 130 to 148 mm., Bangkok; one, 153 mm., Me Poon; one, 162 mm., Kemrat.

Albulichthys albuloides (Bleeker).

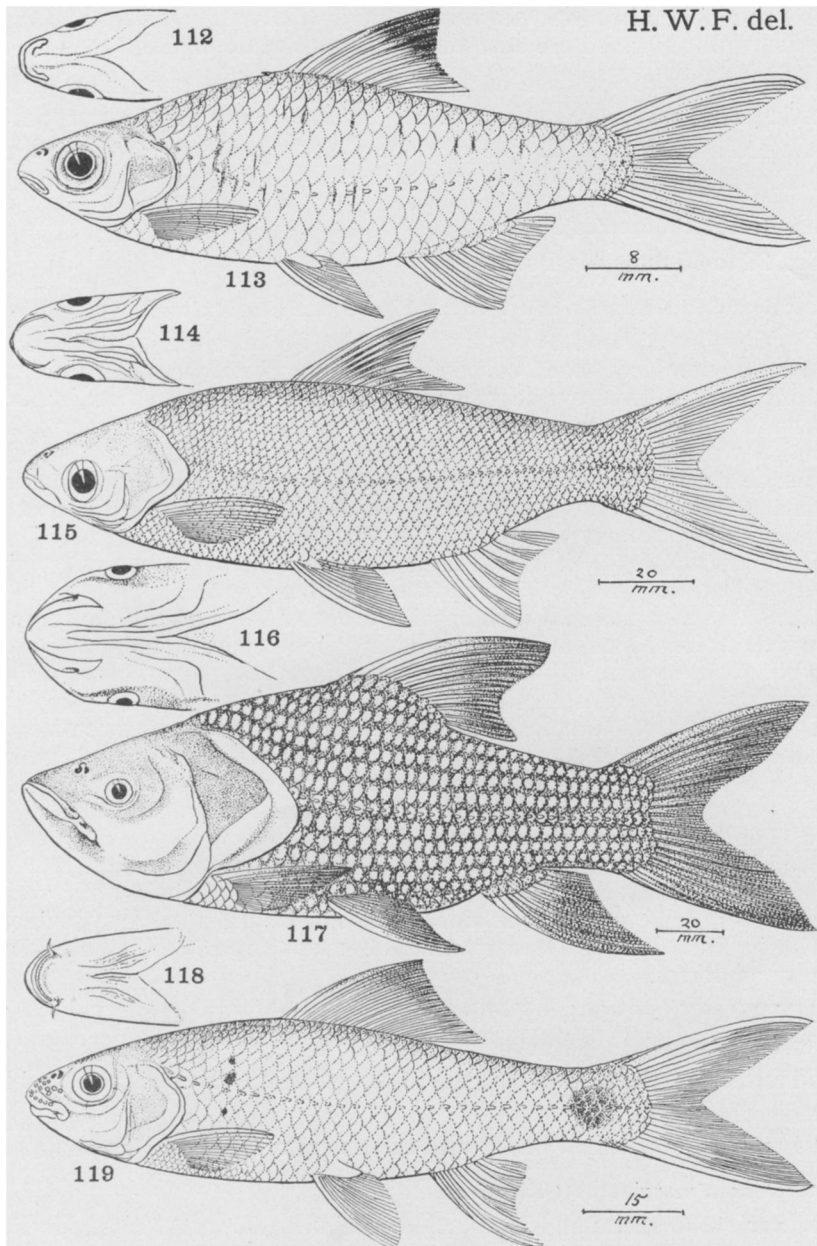
One, 174 mm., Bangkok.

Xenoeilichthys gudgeri H. M. Smith. Figures 110 (head below), 111.

Depth $2\frac{1}{2}$; head $3\frac{2}{3}$, width $1\frac{3}{4}$. Snout $4\frac{1}{3}$ in head; eye $3\frac{1}{4}$, greater than snout, $1\frac{1}{3}$ in interorbital; maxillary reaches to eye, length 4 in head; mouth width less than eye; mandible inferior, edge more trenchant than upper jaw edge, with short lateral cleft; interorbital $2\frac{3}{5}$ in head, broadly convex; suborbitals narrow, barely invading $\frac{1}{4}$ of cheek to preopercle ridge. Gill opening extends forward opposite hind eye edge. Gill rakers 6 + 30, short, compressed, close set, triangular points, $2\frac{1}{2}$ in gill filaments, which 2 in eye. Right pharyngeal teeth 4, 3, 1, or outer row only one tooth hooked and without grinding surface; all others large, without hooks and with broad oblique, entire grinding surfaces.

Scales 28 + 3 in lateral line; 5 above, 4 below to ventral, 4 below to anal, 10 predorsal. Ventral with long axillary scale, half length of fin. Dorsal, anal and caudal bases scaly. Lateral line complete, axial along side of body; tubes moderate, simple, exposure short. Scales with 27 apical striae, of which 5 to 7 completely radiating; 6 or 7 basal, of which 2 or 3 completely radiating; circuli fine basally, obsolete apically.

D. iv, 8, 1, last simple ray robust, osseous, hind edge with about 18 antrorse denticles, length 1 in head; A. iii, 5, 1, third simple ray 2; caudal



112, 113. *Mystacoleucus atridorsalis*.
116, 117. *Catlacarpio siamensis*.

114, 115. *Thynnichthys thai*.
118, 119. *Osteochilus tatumi*.

$2\frac{1}{3}$ in rest of fish, deeply forked, lobes slenderly angular; least depth of caudal peduncle 2 in head; pectoral $1\frac{2}{3}$, rays 1, 13; ventral rays 1, 8, fin $1\frac{2}{3}$ in head. Vent close before anal fin, with small conic papilla.

Back and upper surface of head dull olive, sides and below pale to whitish. Iris gray, evidently whitish in life. Jaws and lower part of muzzle pale. Fins pale, hind edge of dorsal and caudal narrowly dark gray.

One, 145 mm., Kemrat.

Mystacoleucus chilopecterus Fowler.

Six, 28 to 65 mm., Me Poon.

Mystacoleucus atridorsalis, new species. Figures 112 (head below), 113.

Depth $2\frac{1}{3}$ to 3; head $3\frac{3}{8}$ to $3\frac{1}{8}$, width $1\frac{1}{8}$. Snout $4\frac{1}{5}$ to $4\frac{1}{4}$ in head; eye $3\frac{1}{8}$ to $3\frac{1}{3}$, greater than snout, subequal with interorbital; maxillary not quite reaching opposite front eye edge, length $3\frac{1}{2}$ to 4 in head; jaws firm, edges not trenchant, obtuse, lower included in upper; lips narrow, lower short; interorbital $2\frac{3}{4}$ to $2\frac{4}{5}$, convex; suborbitals narrow, invade about $\frac{1}{3}$ of cheek to preopercle ridge. Gill rakers $4 + 12$, short, lanceolate, $\frac{1}{4}$ of gill filaments, which $1\frac{3}{4}$ in eye. Pharyngeal teeth 2, 4, 4 — 4, 2, 2, hooked, with moderate, entire, grinding surfaces.

Scales 28 or $29 + 3$ in lateral line; 6 above, 3 below to ventral origin, 4 below to anal origin, 8 or 9 predorsal. Axillary ventral scale $2\frac{2}{3}$ in fin. Caudal base scaly and anal with basal row of scales. Lateral line complete, decurved, becomes median at caudal base; tubes slender, simple, moderately exposed. Scales with 9 apical radiating striae; basal circuli fine, obsolete apically.

D. III, 8, 1, front simple rays pungent though not osseous, entire, first branched ray $1\frac{1}{10}$ in head; A. III, 10, 1, first branched ray $1\frac{3}{8}$ to $1\frac{3}{4}$; caudal $2\frac{1}{2}$ to $2\frac{3}{8}$ in rest of fish, deeply forked, lobes slenderly pointed; least depth of caudal peduncle 2 to $2\frac{1}{3}$ in head; pectoral $1\frac{1}{4}$, rays 1, 16; ventral rays 1, 8, fin $1\frac{1}{5}$ to $1\frac{1}{4}$ in head. Vent close before anal fin.

Pale brown, each scale on back with slightly darker median blotch so margins pale. On side of body imperfect or obscured short dark vertical streaks. Underlaid pale streak axial along side of tail. Iris gray, evidently whitish in life. Fins all pale to whitish, except contrasted jet black apex broadly on dorsal.

A.N.S.P., No. 68,084. Kemrat, Siam. Length 67 mm. Type. Also No. 68,085, same data, paratype. Length 66 mm.

Differs from the known species of its genus in the striking jet black summit of its dorsal fin.

(Ater black + dorsum back, with reference to the dorsal fin.)

Mystacoleucas marginatus (Valenciennes).

Eleven, 48 to 128 mm., Kemrat; 155 specimens, 33 to 147 mm., Me Poon.

Dangila leptocheila Valenciennes.

Three, 117 to 170 mm., Pitsanulok. Depth 3; head $4\frac{1}{4}$ to $4\frac{2}{5}$. Maxillary barbel $2\frac{1}{4}$ times eye; rostral barbel equals eye. Scales $35 + 4$ in lateral line;

6 below to ventral origin. D. III, 25, 1 or III, 26, 1. Large specimen without any trace of dark ring or blotch on lateral line over pectoral.

Dangila siamensis Sauvage.

Twenty, 98 to 260 mm., Bangkok; thirty, 48 to 82 mm., Me Poon; two, 57 to 74 mm., Pitsanulok; twenty-two, 68 to 158 mm., Kemrat. Depth 3 to $3\frac{3}{4}$. Upper lip with 6 to 8 distinct papillae. Lower lip along base of smooth trenchant, coriaceous jaw edge densely and finely papillose. Pearl organs present in smallest as well as in largest specimens. They form a band of 2 or 3 series around end of snout, as 6 or 7 in upper row, 4 or 5 in median row and a lower or imperfect row of 3 or 4, which usually smaller than the others. Scales 31 to $34 + 2$ or 3 in lateral line; 7 above, 4 below to ventral, 5 below to anal. D. III, 21, 1 to III, 23, 1.

Several details in the original account by Sauvage based on Petschaburi and Bangkok specimens 170 mm. long, do not altogether agree as he gives the snout with the pores arranged in a single line (these evidently pearl organs) and upper lip not fringed.

No mention is made of the dark spots over the pectoral on the lateral line as figured and described by Smith for his *Dangila spilopleura*. As these have largely faded out in many of my examples, likewise the dark blotch at the caudal base, I feel they were likely overlooked by Sauvage. This is also apparently true of the paired fins and anal, which were brilliant vermilion in fresh specimens, though now entirely faded whitish or light gray. Altogether Smith has admitted six Siamese species, though only two of these have been noticed above. They may now be distinguished as follows:

- a. Caudal without small scattered dark spots.
- b. No dark ring of spots over middle of pectoral.
 - c. Head $5\frac{1}{2}$ *burmanica*.
 - cc. Head $4\frac{1}{2}$ to $5\frac{1}{3}$ *leptocheila*.
 - ccc. Head 4 *kuhlii*.
- bb. Dark ring or group of dark spots over middle of pectoral; head $4\frac{1}{4}$ to $4\frac{3}{4}$ *siamensis*.
- aa. Caudal with small scattered dark spots; head $4\frac{3}{4}$ *lineata*.

THYNNICHTHYS Bleeker

Type *Leuciscus thynnoides* Bleeker

THYNNICHTHYINA, new subgenus

Distinguished from subgenus *Thynnichthys* Bleeker by its much larger scales 11 to 13 above the lateral line to the origin of the dorsal fin (compared with 16 or 17 in *Thynnichthys*) and scales 47 to 60 (65 to 75 in *Thynnichthys*). Type *Thynnichthys thai*, new species.

Thynnichthys thai, new species. Figures 114 (head below), 115.

Depth 3 to $3\frac{1}{4}$; head $3\frac{1}{3}$ to $3\frac{2}{3}$, width $1\frac{3}{4}$ to $2\frac{1}{4}$. Snout $3\frac{1}{3}$ to $4\frac{1}{4}$ in head; eye $3\frac{1}{3}$ to $4\frac{1}{3}$, subequal with snout, $1\frac{2}{3}$ to $1\frac{1}{2}$ in interorbital, with marginal

adipose lids moderately invading iris; maxillary reaches $\frac{3}{4}$ to $\frac{4}{5}$ to eye, length 4 to $4\frac{1}{2}$ in head; mouth moderately wide; jaw edges not trenchant and jaws equal or subequal; interorbital $2\frac{1}{2}$ or $2\frac{3}{4}$ in head, with eyes little or scarcely visible as viewed from above, lower interocular area, as seen across under surface of head, 3 to $3\frac{1}{2}$; suborbitals broad, cover cheek. No gill rakers; gill filaments equal eye. Pharyngeal teeth 2, 4, 5 — 5, 4, 2, compressed, close set, compact, all with oblique, smooth, grinding surfaces forming more or less common triturating area.

Scales 50 to $54 + 5$ in lateral line; 13 above, 9 or 10 below to ventral origin, 10 below to anal origin, 21 or 22 predorsal. Ventral with pointed axillary scale $\frac{1}{4}$ of fin. Caudal base broadly scaly. Lateral line complete, axial on side of body, nearly straight. Scales with 7 or 8 apical radiating striae, of which 4 or 5 may be incomplete; 1 to 3 short radiating basal striae; circuli fine basally, converge, coarser or obsolete apically.

D. III, 8, I, first branched ray $1\frac{1}{2}$ to 2 in head; A. III, 5, I, first branched ray $1\frac{1}{2}$ to $1\frac{3}{4}$; caudal $1\frac{2}{3}$ to $1\frac{4}{5}$ in rest of fish, slender lobes sharply pointed; least depth of caudal peduncle $2\frac{1}{2}$ to $2\frac{3}{4}$ in head; pectoral $1\frac{1}{4}$ to $1\frac{1}{3}$, rays I, 15; ventral I, 8, fin $1\frac{1}{2}$ to $1\frac{1}{3}$ in head. Vent close before anal.

Back and upper surface of head pale olive, sides and lower surfaces pale brownish, evidently silvery white in life. Iris grayish, evidently silvery white. Jaws pale. Fins pale brownish, lower ones evidently more or less whitish. On dorsal each membrane more or less dark or dusky brown medially.

A.N.S.P., No. 68,086. Me Poon, Siam. Length 162 mm. Type. Also Nos. 68,087 and 68,088, same data, paratypes. Length 152 and 158 mm. Three, 135 to 140 mm., Pitsanulok, Nos. 68,089 to 68,091, also paratypes.

Differs from the closely related *Thynnichthys thynnoides* (Bleeker) in the scales only 22 or less on the predorsal (30 accorded by Weber and Beaufort to *T. thynnoides*). Their figure of the latter shows only 9 scales between the lateral line and ventral origin, while Bleeker would show about 10 and the pectoral fin reaching over the ventral base.

(*Thai*, the ancient name of the Siamese.)

CATLACARPIO Boulenger

Body short, deep, compressed, deepest at dorsal origin. Head very large, robust, long as body without caudal. Snout large, broad, obtuse as viewed above. Eye small, at first third in head, lateral, with free margin all around, above middle in depth of head. Mouth large, little inclined, lower jaw slightly projecting when closed. Lips narrow above, lower coriaceous, broader, end close but not meeting at lower front end of chin. Jaw edge rounded, lower broader. Nostrils together, similar, above level of eye and anterior with cutaneous flap. Interorbital broadly convex. Suborbitals narrow. Opercle and edge of gill opening with broad membraneous border. Gill opening very large and deep, extends forward opposite front eye edge. Gill rakers finely lanceolate, long, numerous. No pseudobranchiae. Pharyngeal bones small, teeth short, close set, uniserial on each bone. Scales large, narrowly imbricated, in even longitudinal rows parallel with lateral line. No scales on head. Breast, chest and bases of dorsal, anal and caudal

scaled. Lateral line complete, distinct. Dorsal rather large, at summit of back, its insertion slightly post-median, anterior simple rays flexible. Anal rather large, inserted behind dorsal, anterior simple rays flexible and fin extends when depressed behind squamous area on base of caudal. Caudal large, well forked, fulcrum moderate. Caudal peduncle deep, short, well compressed. Pectoral low, short, reaches little beyond origin of ventral, fin pointed. Ventral inserted slightly before dorsal, slightly longer than pectoral.

A very curious genus characterized by its remarkable combination of characters. The head is extraordinarily large, the fins all with greatly falcate lobes and the large scales even and firmly adherent. The mouth is remarkable in the extended maxillary with the rictus distant subterminally.

Catlacarpio siamensis Boulenger. Figures 116 (head below), 117.

Depth $2\frac{1}{2}$ to $2\frac{4}{5}$; head 2 to $2\frac{1}{3}$, width $1\frac{1}{8}$ to 2. Snout $3\frac{1}{3}$ to $3\frac{3}{4}$ in head from snout tip; eye $7\frac{1}{4}$ to 9, $2\frac{3}{8}$ to $2\frac{3}{4}$ in snout, $3\frac{1}{2}$ to 4 in interorbital; maxillary reaches opposite front eye edge, length $2\frac{1}{8}$ to 3 in head from snout tip; interorbital $2\frac{1}{5}$, broadly convex, eyes only very slightly evident as seen from above; suborbitals invade about $\frac{1}{3}$ of cheek. Gill rakers $32 + 65$, length $1\frac{1}{2}$ times eye; gill filaments $\frac{4}{5}$ long as gill rakers. Pharyngeal teeth 4 - 4, strong, obtuse with entire grinding surfaces, all close set.

Scales 28 or $29 + 3$ to 5 in lateral line; 7 above, 5 below to ventral origin, 6 below to anal origin, 20 to 21 predorsal. Paired fins without distinct axillary scaly flaps. Row of rather large scales along bases of dorsal and anal. Caudal base with several rows of scales. Lateral line slopes down little at first until median along side; tubes small, simple, little exposed. Scales with 40 to 45 apical radiating striae; 5 or 6 short basal striae; circuli fine basally, obscure or obsolete apically.

D. III, 9, 1, first branched ray $1\frac{1}{3}$ to $1\frac{2}{5}$ in total head length; A. III, 5, 1, first branched ray $1\frac{2}{5}$ to $1\frac{1}{2}$; caudal 1 to $1\frac{1}{6}$, deeply forked, lobes sharply pointed; least depth of caudal peduncle $2\frac{3}{4}$ to 3; pectoral $1\frac{1}{8}$ to 2, rays 1, 16; ventral $1\frac{1}{3}$ to $1\frac{1}{5}$, rays 1, 8. Vent close before anal.

Back and upper surface of head dark olivaceous brown, sides and lower surfaces paler to whitish. Scales on back and sides all with dark edges, and at scale junctures above and below more extended to form dark longitudinal bands. Iris pale or whitish. Upper lip narrowly and whole mandible pale or whitish. Fins all pale olivaceous basally, becoming gray black to black terminally, all well contrasted.

Three, 208 to 235 mm., Bangkok.

OSTEOCHILUS Günther

Subgenus OSTEOCHILUS Günther

Scales small, 45 to 55 in lateral line. Scales 8 to 10 below lateral line to ventral origin. Eye small. Dark blotch or bar on lateral line above pectoral. Type *Rohita melanopleura* Bleeker.

The species are *O. melanopleurus* (Bleeker) and *O. borneensis* (Bleeker).

Osteochilus melanopleurus (Bleeker).

Seven, 69 to 153 mm., Bangkok.

NEOROHITA, new subgenus

Body elongately ovoid, well compressed. Head small, compressed. Snout rounded, moderate, its front edge entire and no lateral lobe covering upper lip. Eye small or moderate, lateral, little advanced in head. Mouth more or less terminal, protractile, usually partly to quite inferior. Bony part of lower jaw forms trenchant, firm edge, without symphyseal tubercle. Usually 2 pairs of barbels, as rostral and maxillary. Lips continuous all around, fimbriate or fringed, especially lower. Nostrils together on upper side of snout, posterior usually with cutaneous margin. Suborbitals narrow or moderate. Gill membranes broadly united to isthmus. Pharyngeal teeth triserial. Scales moderate or large, 30 to 40 in lateral line. Lateral line distinct, complete, axial along side of body, tubes simple. Males with large or small pearl organs on end of snout. Dorsal inserted premedially, front simple rays slender or not bony, branched rays 10 to 18, begins before ventrals and ends before or behind anal origin. Anal short, with 5 branched rays. Caudal forked or emarginate. Pectoral short, low. Ventral similar. Type *Rohita hasseltii* Valenciennes.

Includes mainly the East Indian species of Weber and Beaufort, as: *Osteochilus kelabau* Popta, *O. schlegelii* (Bleeker), *O. kahajanensis* (Bleeker), *O. repang* Popta, *O. triporos* (Bleeker), *O. intermedius* Weber and Beaufort, *O. bellus* Popta, *O. brachynotopterus* (Bleeker), *O. hasseltii* (Valenciennes), *O. waandersii* (Bleeker), *O. kappenii* (Bleeker), *O. brevicauda* Weber and Beaufort, *O. spirulus* (Bleeker) and *O. harrisoni* Fowler. This arrangement, in which the physiognomy is also different in the present forms, is due largely to the more elevated eyes and shorter snout. Besides the species listed below the following are Siamese: *O. spilopleura* Fowler, *O. macrosemion* Fowler, *O. sima* (Sauvage) and *O. lini* Fowler.

(*Néos* new + *Rohita*.)

Osteochilus vittatus (Valenciennes). Figures 122 (head below), 123 (Kemrat).

Five, 55 to 123 mm., Bangkok; two, 128 to 130 mm., Kemrat.

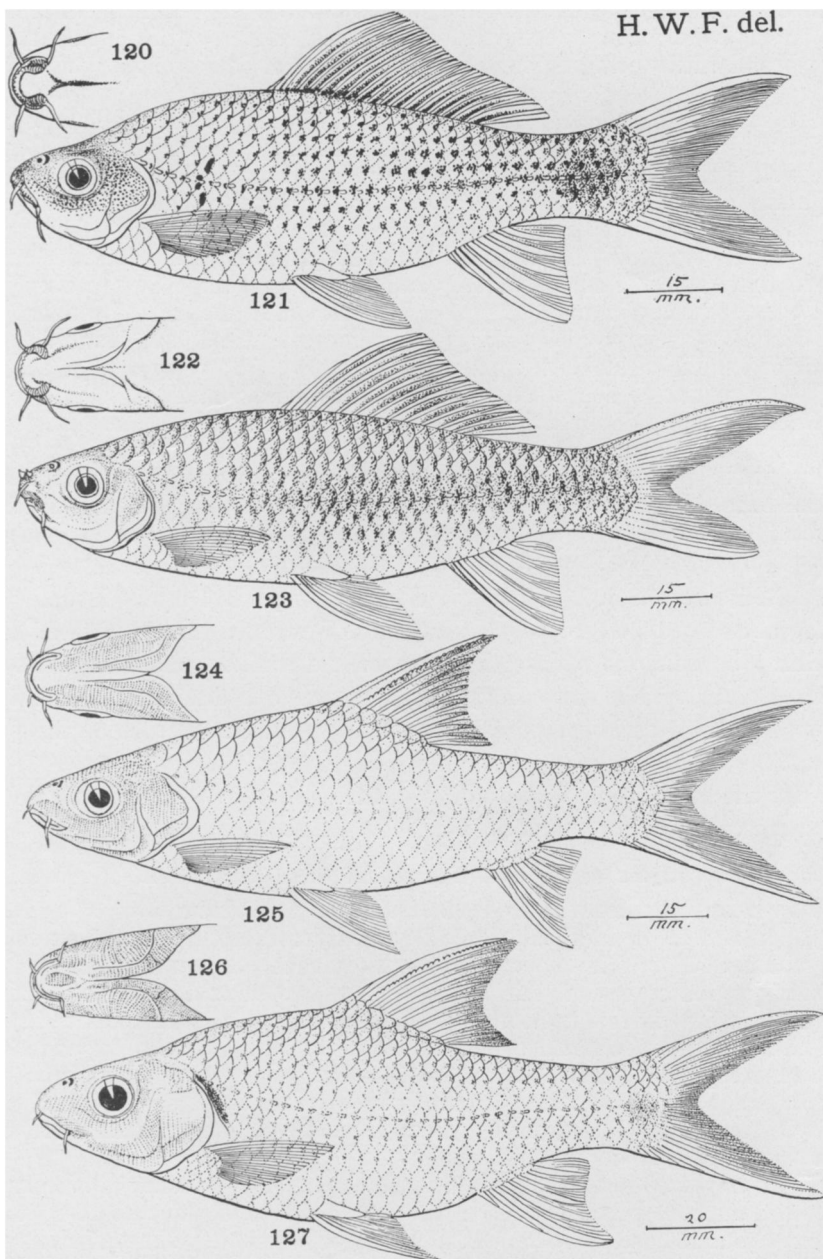
These agree with former materials I have studied from Siam, though are far more brilliant in coloration. In the Kemrat specimens the dorsal and caudal were largely with orange red when freshly received, and the lower fins orange. All have the usual rostral pearl-organs. The Kemrat specimens also show a dark streak on each fin membrane of the dorsal parallel with its rays. All are without trace of a dark pectoral blotch.

Osteochilus ochrus Fowler.

One, 94 mm., Kemrat.

Osteochilus tatumi, new species. Figures 118 (head below), 119.

Depth $3\frac{1}{2}$; head $3\frac{1}{2}$, width $1\frac{4}{5}$. Snout $3\frac{1}{8}$ in head; eye $4\frac{1}{2}$, $1\frac{1}{3}$ in snout, 2 in interorbital; maxillary extends $\frac{3}{8}$ to eye, length $3\frac{3}{8}$ in head; lips entire, narrow; lower labial fold with edge rather feebly fimbriate; only one pair of barbels present, maxillary, about $\frac{2}{3}$ of eye; interorbital $2\frac{3}{4}$ in head, convex; suborbitals moderate, invade about $\frac{2}{3}$ of cheek. Gill opening extends forward

120, 121. *Osteochilus duostigma*.122, 123. *Osteochilus vittatus*.124, 125. *Cyclocheilichthys dumerilii*.126, 127. *Cyclocheilichthys mekongensis*.

below opposite hind preopercle ridge. Gill rakers $5 + 30?$, short, feeble, ciliaform, barely $\frac{1}{4}$ of gill filaments, which equal eye. Pharyngeal teeth 5, 4, 3 on left bone, strongly compressed, close set, cuneate, without hooks, ends with broad entire grinding surfaces, form more or less compact triturating area.

Scales $30 + 5$ in lateral line; 6 below to ventral origin, 6 below to anal origin, 22 predorsal. Ventral with pointed axillary scale $2\frac{1}{2}$ in fin. Caudal base well scaled. Scales along edge of predorsal or in narrow median area, and along dorsal base fine, close set, and much smaller than those adjacent. Lateral line complete, axial or median along side of body; tubes small, simple, little exposed. Scales with 30 to 32 radiating apical striae; circuli fine basally, apically coarser, feeble and broken and imperfect to obsolete.

D. III, 13, 1, first branched ray $1\frac{1}{10}$ in head; A. III, 5, 1, first branched ray $1\frac{1}{4}$; caudal $2\frac{3}{8}$ in rest of fish, deeply forked, slender lobes, pointed; least depth of caudal peduncle $2\frac{1}{2}$; pectoral $1\frac{1}{2}$, rays 1, 18; ventral rays 1, 8, fin $1\frac{3}{8}$. Vent at tips of depressed ventrals a little before anal.

Back brown, sides and below paler to whitish. Lips pale. Iris gray, evidently white in life. At fifth scale of lateral line above 2 dark brown to dusky small spots, and one below. Diffuse grayish blotch or clouding at caudal base. Fins pale brownish, dorsal with dark to blackish gray apex. Caudal pale or slightly ochraceous basally, hind margin of fin grayish. Other fins all pale to whitish, with yellowish tints basally.

A.N.S.P., No. 68,095. Bangkok, Siam. Length 117 mm. Type.

Apparently related to *Osteochilus ochrus* Fowler in the presence of but 2 maxillary barbels, the scales a little larger and smaller predorsal scales (22 in place of 11). The coloration, while suggestive is dissimilar. *O. tatumi* shows at least 4 series of pores on the snout, evidently scars of the pearl organs.

(For the late Joseph W. Tatum, of Philadelphia, to whom I am indebted for interesting specimens and data on local fishes.)

Osteochilus duostigma, new species. Figures 120 (head below), 121.

Depth $2\frac{3}{4}$ to 3; head $3\frac{1}{8}$ to $4\frac{1}{8}$, width $1\frac{3}{4}$ to $1\frac{1}{2}$. Snout 3 to $3\frac{1}{2}$ in head; eye $3\frac{1}{2}$ to 4, 1 to $1\frac{1}{2}$ in snout, $1\frac{3}{4}$ to $2\frac{1}{8}$ in interorbital; maxillary extends $\frac{3}{4}$ to eye, length $3\frac{1}{2}$ to 4 in head; lips broadly fringed continuously, inner faces broadly papillate; rostral barbel $1\frac{2}{3}$ to 2 in eye, maxillary 1 to $1\frac{1}{8}$ times eye; interorbital $1\frac{1}{8}$ to 2 in head, broadly convex; suborbitals narrow, invade $\frac{1}{3}$ of cheek to preopercle ridge. Gill opening extends forward opposite hind edge of preopercle. Gill rakers $6 + 19$, short, weak, close set points, $\frac{1}{8}$ of gill filaments which equal eye. Pharyngeal teeth 2, 4, 5—5, 4, 2, compressed, close set, without hooks, all with entire oblique grinding surfaces, whole forming compact triturating area.

Scales 27 to $30 + 2$ or 3 in lateral line; 6 above, 4 below to ventral, 5 below to anal; 11 predorsal. Ventral with pointed axillary scale $2\frac{1}{2}$ to $2\frac{3}{8}$ in fin. Caudal base scaled. Chest and breast scaled. Lateral line complete, axial, midway along side of body; tubes small, simple, short, little exposed. Scales with 27 or 28 apical radiating striae; 3 or 4 short radiating basal striae; circuli fine basally, obsolete apically.

D. III, 14, 1 to III, 16, 1, first branched ray $1\frac{1}{8}$ to $1\frac{1}{10}$ in head; A. III, 5, 1, first branched ray $1\frac{1}{8}$ to $1\frac{1}{5}$; caudal $2\frac{3}{8}$ to $2\frac{3}{4}$ in rest of fish, fin deeply forked, lobes sharply pointed; least depth of caudal peduncle $1\frac{3}{4}$ to $1\frac{1}{2}$ in head; pectoral $1\frac{1}{8}$ to $1\frac{1}{10}$, rays 1, 15; ventral rays 1, 8, fin $1\frac{1}{8}$ in head. Vent close before anal.

When fresh most all with a brilliant vermilion or orange spot on each scale of back and sides, fading to gamboge and finally to dark gray, or may disappear eventually. Large dark gray to blackish blotch $1\frac{1}{2}$ times eye at caudal base. Iris gray, evidently pale in life. Lips brownish. At fourth scale of lateral line blackish bar, also one on scale above and another on scale below. Fins with bright red tinge when fresh, brilliant vermilion on ventrals and anal. In preservative fins fade to orange and then pale or whitish, at least basally, dorsal with grayish.

A.N.S.P., No. 68,096. Kemrat, Siam. Length 115 mm. Type. Also No. 68,097, same data, paratype. Length 112 mm. Other examples Nos. 68,098 to 68,111. Bangkok, Siam. Length 73 to 158 mm. Paratypes.

Agrees with *Osteochilus hasseltii* in the absence of pores on the snout, but differs in the presence of the dark or black spot at the fourth scale of the lateral line and others, both above and below.

($\Delta\upsilon\omicron$ two + $\sigma\tau\acute{\iota}\gamma\mu\alpha$ spot; with reference to the dark blotch each side of the body above the pectoral fin.)

***Osteochilus prosemion* Fowler.**

One, 148 mm., Kemrat.

***Cosmochilus harmandi* Sauvage.** Figures 149 (head below), 150.

Depth $2\frac{3}{4}$ to 3; head 3 to $3\frac{1}{4}$, width $1\frac{3}{8}$ to 2. Snout $3\frac{1}{8}$ to $4\frac{1}{8}$ in head; eye 3 to $3\frac{1}{4}$, greater than to subequal with snout, $1\frac{1}{8}$ to $1\frac{3}{4}$ in interorbital; maxillary extends $\frac{3}{4}$ to $\frac{7}{8}$ to eye, length $3\frac{1}{4}$ to $4\frac{1}{2}$ in head; lips broadly papillate, with entire, firmly trenchant jaw edges, and lateral labial groove deep; rostral barbel 1 to 2 in eye, maxillary barbel $1\frac{1}{8}$ to $1\frac{1}{8}$; interorbital $2\frac{1}{4}$ to $2\frac{1}{2}$ in head, broadly convex; suborbitals narrow. Gill opening extends forward opposite hind eye edge. Gill rakers 4 + 11, short, cuneate, with broad bases, length $4\frac{1}{2}$ gill filaments, which $1\frac{1}{8}$ in eye. Pharyngeal teeth 2, 3, 5 — 5, 3, 2, hooked moderately, with moderate, entire grinding surfaces.

Scales 34 or 35 + 3 in lateral line; 8 above, 5 or 6 below to ventral, 6 below to anal; 14 predorsal. Ventral with pointed axillary scaly flap $2\frac{1}{8}$ to $2\frac{3}{4}$ in fin. Vertical fins all with broad scaly bases. Lateral line distinct, complete, axial along side of body; tubes slender, well exposed. Scales with 8 to 28 apical radiating striae; 5 to 15 short basal striae; circuli basal, fine, obsolete apically.

D. IV, 8, 1, fourth osseous ray with 24 antrorse denticles along its hind edge, all smaller basally, first branched ray $2\frac{1}{8}$ to $3\frac{1}{4}$ in fish without caudal; A. III, 5, 1, front rudimentary rays pungent, entire, first branched ray $1\frac{7}{8}$ to $1\frac{3}{4}$ in head; caudal $2\frac{7}{8}$ to $3\frac{1}{8}$ in rest of fish, fin deeply forked, long lobes slender, pointed; least depth of caudal peduncle 2 to $2\frac{1}{8}$ in head; pectoral $1\frac{1}{8}$ to $1\frac{3}{8}$, rays 1, 16; ventral rays 1, 8, fin $1\frac{1}{4}$ in head. Vent close before anal.

Light brown generally, lower sides and under surfaces paler to whitish with silvery white reflections. Iris silvery white. Jaws, lips and barbels

pale. Cheeks silvery white. Dorsal and caudal light brownish, former with upper edge and latter with hind edge dark gray. Lower fins whitish.

Eight, 76 to 183 mm., Bangkok.

Hampala macrolepidota (Valenciennes). Figures 128 to 131 (Bangkok), 132 to 134 (Kemrat), 135 to 139 (Tachin).

Forty-three, 40 to 197 mm., Bangkok; ten, 40 to 97 mm., Tachin; one, 191 mm., Me Poon; eight, 74 to 180 mm., Kemrat. Most have the caudal brilliant vermilion, though after the specimens were placed in alcohol it faded to yellowish and finally whitish.

Three, 108 to 120 mm., from Kemrat represent *Hampala dispar* H. M. Smith, two showing the black spot exactly as the figures in the Chitrakarn drawing, though the dark borders of the caudal, both above and below are dark gray to blackish. The caudal is also bright vermilion, a condition not mentioned by Smith.

Cyclocheilichthys apogon (Valenciennes).

Eighty-four, 43 to 169 mm., Bangkok; eighteen, 28 to 58 mm., Me Poon; seventeen, 40 to 52 mm., Tachin. In most all the fins were more or less vermilion when freshly received. Iris and side of head silvery white.

Cyclocheilichthys enoplus (Bleeker).

Depth 3; head $3\frac{1}{2}$, width $1\frac{3}{4}$. Snout $3\frac{3}{4}$ in head; eye $4\frac{3}{4}$, $1\frac{1}{2}$ in snout, 2 in interorbital; maxillary reaches $\frac{2}{3}$ to eye, length $4\frac{1}{5}$ in head; lips narrow, smooth, lower moderately interrupted at symphysis; front barbel $\frac{2}{5}$ of eye, hind barbel 2 in eye; interorbital $2\frac{1}{2}$, broadly convex; suborbitals narrow, invade about $\frac{1}{3}$ of cheek to preopercle ridge. Gill opening extends forward opposite angle of preopercle ridge. Gill rakers $9 + 12$, short bifid points, $2\frac{1}{2}$ in gill filaments, which $1\frac{1}{4}$ in eye. Right pharyngeal teeth 5, 3, 2, outer larger, molariform and with entire, moderate concave grinding surfaces.

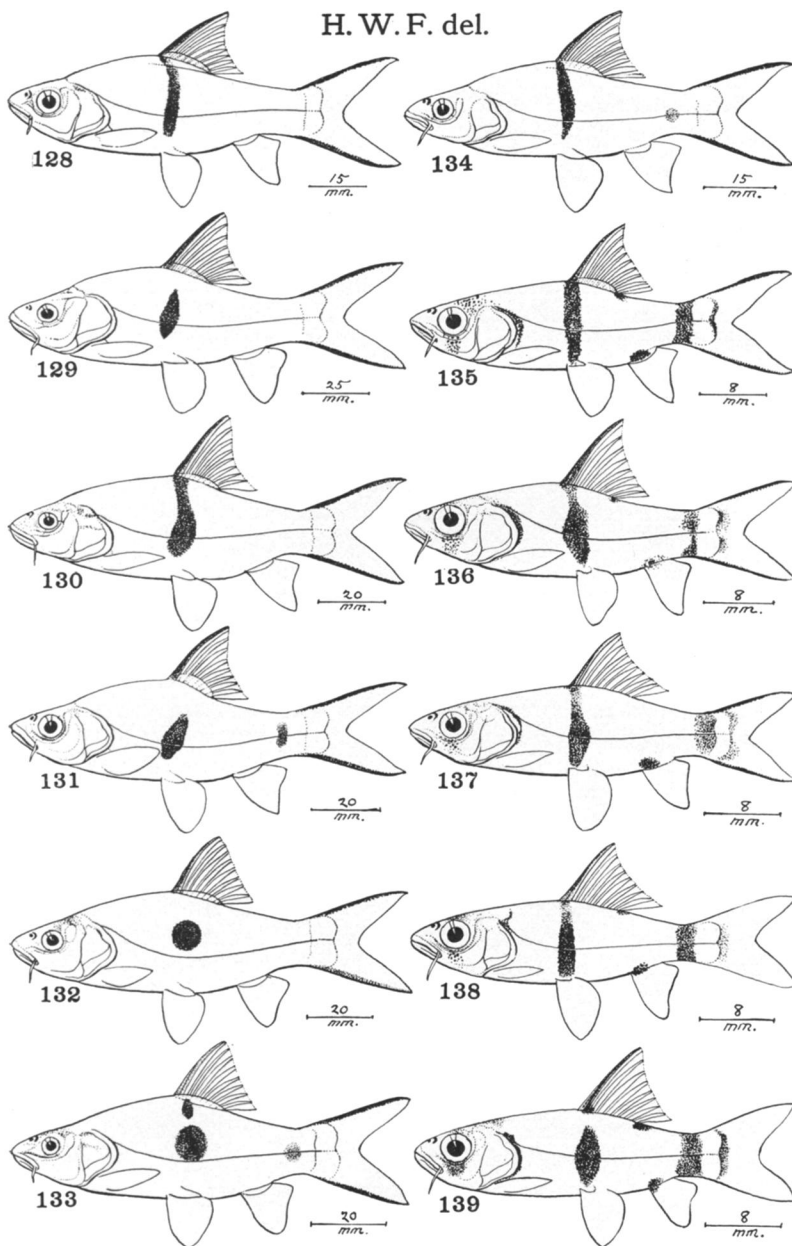
Scales $36 + 4$ in lateral line; 6 above, 5 below to ventral origin, 6 below to anal origin, 14 predorsal. Ventral with free, pointed axillary scale, $2\frac{1}{2}$ in fin. Dorsal, anal and caudal bases scaly. Head all more or less marked with fine, inconspicuous vertical striae. Lateral line axial along side of body, each scale with tubular bifurcation. Scales with 46 apical radiating striae; 15 short basal striae; circuli fine, largely basal, obsolete apically.

D. IV, 8, 1, fourth ray osseous, robust, with about 22 antrorse denticles along its hind edge, first branched ray equals head; A. III, 5, 1, simple rays pungent, first branched ray $1\frac{2}{5}$; caudal $2\frac{2}{5}$ in rest of fish, fin deeply forked, lobes slender, pointed; least depth of caudal peduncle $2\frac{2}{5}$ in head; pectoral $1\frac{1}{2}$, rays 1, 14; ventral rays 1, 9, fin $1\frac{1}{2}$ in head. Vent nearer tips of depressed ventrals than anal origin.

Head and back brown, sides below and under surfaces whitish. Iris light or whitish. Sides of head with silvery reflections. Jaws pale. Dorsal and caudal brownish, upper hind edge of former and hind edge of latter grayish. Lower fins pale to whitish.

One, 312 mm., Bangkok. The specific name wrongly spelled *anoplos* in my listing of 1934 material.

H. W. F. del.

128 to 139. *Hampala macrolepidota* (variation).

Cyclocheilichthys repasson (Bleeker).

Eleven, 51 to 93 mm., Me Poon; seven, 88 to 115 mm., Pitsanulok; seventy-two, 43 to 95 mm., Tachin. Barbels 4. Dark basal caudal spot.

Cyclocheilichthys armatus (Valenciennes).

Sixteen, 49 to 134 mm., Pitsanulok; one, 120 mm., Kemrat. Only 2 barbels present, these maxillary.

Cyclocheilichthys dumerilii Sauvage. Figures 124 (head below), 125.

Depth 3 to $3\frac{1}{2}$; head 3 to $3\frac{2}{3}$, width $1\frac{1}{8}$ to $2\frac{1}{4}$. Snout $3\frac{2}{5}$ to $3\frac{3}{4}$ in head; eye $3\frac{1}{2}$ to 4, greater than snout in young to $1\frac{1}{5}$ in snout with age, $1\frac{1}{3}$ to $1\frac{1}{2}$ in interorbital; with age moderate, marginal adipose lids develop; maxillary not quite reaching opposite eye, length $3\frac{1}{8}$ to $4\frac{1}{4}$ in head; lips rather narrow, smooth, firm, lower moderately interrupted at symphysis; front or rostral barbel 3 in eye, maxillary barbel $\frac{2}{3}$ of eye; interorbital $2\frac{1}{8}$ to 3 in head, broadly convex; suborbitals narrow, invade $\frac{1}{3}$ of cheek to preopercle ridge. Gill opening extends forward opposite hind angle of preopercle ridge. Gill rakers 6 + 11, lanceolate, with broad bases, $\frac{1}{3}$ of gill filaments, which $\frac{1}{2}$ of eye. Pharyngeal teeth 2, 3, 5 — 5, 3, 2, hooked and with moderate, entire grinding surfaces.

Scales 28 to 33 + 2 or 3 in lateral line; 6 above, 4 below to ventral, 5 below to anal, 11 predorsal. Pointed ventral axillary scale 3 in fin. Dorsal, anal and caudal bases scaly. Chest and breast scaled. Lateral line complete, axial along side of body; tubes simple, moderate. Whole surface of head with nearly transverse close set, inconspicuous striae. Scales with 6 to 12 apical radiating striae; 6 to 8 short basal striae; circuli fine, basal, become obsolete apically.

D. IV, 8, 1, osseous front simple rays slender with fourth furnished with about 24 antrorse denticles along its hind edge, first branched ray 1 to $1\frac{1}{5}$ in head; A. III, 5, 1, first branched ray $1\frac{1}{5}$ to $1\frac{1}{2}$; caudal $2\frac{2}{3}$ to 3 in rest of fish; least depth of caudal peduncle $2\frac{1}{3}$ to $2\frac{3}{4}$ in head; pectoral rays 1, 17, fin $1\frac{1}{2}$ to $1\frac{1}{2}$ in head; ventral $1\frac{1}{3}$ to $1\frac{2}{3}$, rays 1, 9.

Pale brown generally, sides and lower surfaces all with more or less silvery white reflections. A more or less distinct silvery lateral streak along lateral line. Iris bright silvery white. Lower side of head bright silvery white. Dorsal and caudal very light brown, slightly gray marginally. Lower fins whitish.

Forty-four, 54 to 140 mm., Bangkok; four, 76 to 131 mm., Me Poon; one, 64 mm., Tachin.; two, 78 to 85 mm., Paknam; five 68 to 78 mm., Kemrat. This interesting species does not seem to have been seen since originally described in 1881. It is characterized chiefly by its very light and silvery white color. Resemblance is seen with *C. tapiensis* H. M. Smith 1931, but the present species is without a vestige of a dark spot at the caudal base, the dorsal inserted more anterior or midway between the snout tip and caudal base, and the pectoral not reaching the ventral.

Cyclocheilichthys mekongensis, new species. Figures 126 (head below), 127.

Depth $2\frac{3}{8}$ to $3\frac{3}{4}$; head $3\frac{1}{4}$ to $3\frac{1}{3}$, width 2 to $2\frac{1}{8}$. Snout $3\frac{1}{2}$ in head; eye 3 to $3\frac{5}{8}$, 1 to $1\frac{1}{8}$ in snout, 1 to $1\frac{1}{5}$ in interorbital; maxillary extends $\frac{3}{8}$ to $\frac{3}{4}$ to eye, length 4 to $4\frac{1}{2}$ in head; lips fleshy, rather narrow, lower with free edge across symphysis of mandible; rostral barbel feeble, short, $4\frac{1}{2}$ in eye, maxillary barbel 3; interorbital $3\frac{3}{5}$ to $3\frac{1}{4}$ in head, low, broadly convex; suborbitals narrow, invade $\frac{1}{3}$ of cheek to preopercle ridge. Gill rakers 4 + 5, moderate, firm, strong, 2 in gill filaments, which 2 in eye. Pharyngeal teeth 2, 3, 5 — 5, 3, 2, hooked, with moderate, entire, grinding surfaces.

Scales 32 or 33 + 2 in lateral line; 6 above, 4 below to ventral origin, 5 below to anal origin. Ventral with pointed axillary scaly flap, $2\frac{1}{2}$ to $2\frac{3}{4}$ in fin. Dorsal, anal and caudal bases scaly. Small scales on chest. Whole surface of head with distinct, close set or finely parallel transverse striae. Lateral line distinct, complete, axial along side of body; tubes small, simple, slender, all well exposed. Scales with 12 to 23 apical radiating striae; 2 or 3 basal striae; circuli fine, coarser to obsolete apically.

D. IV, 8, 1, fourth osseous ray with 22 antrorse denticles along hind edge, first branched ray 1 to $1\frac{1}{5}$ in head; A. III, 5, 1, first branched ray $1\frac{3}{5}$ to $1\frac{1}{2}$; caudal $2\frac{3}{4}$ to 3 in rest of fish, deeply forked, long slender lobes sharply pointed; least depth of caudal peduncle $2\frac{1}{5}$ to $2\frac{1}{2}$ in head; pectoral $1\frac{1}{3}$ to $1\frac{2}{5}$, rays 11, 15; ventral rays 1, 8, fin $1\frac{1}{4}$ to $1\frac{2}{5}$ in head. Vent 2 scales before anal origin or trifle before tips of depressed ventral rays.

Back and upper surface of head light brown, each scale with brown marginal spot. Dark brown bar along and obliquely behind gill opening. Underlaid, ill defined gray band axially along side of tail and little expanded at caudal base. Whole lower side and under surfaces with silvery white sheen. Fins pale, dorsal and caudal grayish marginally.

A.N.S.P., No. 68,112. Kemrat, Siam. Length 151 mm. Type. Also Nos. 68,113 to 68,132, same data, paratypes. Length 48 to 150 mm. Other material, eight, 88 to 114 mm., Pitsanulok.

Close to *C. tapiensis* H. M. Smith 1931, but that species said to be "Plain silvery, a round dusky spot on caudal peduncle; fins hyaline", and the figure without the dark oblique bar behind the gill opening. It is also said to have 37 scales in the lateral line, and the figure shows 5 below the lateral line to the origin of the ventral fin. No mention is made of its gill rakers.

(Named for the Mekong River, where the types were obtained.)

Cyclocheilichthys amblyceps, new species. Figures 140 (head below), 141.

Depth $3\frac{1}{3}$ to $3\frac{3}{4}$; head $3\frac{2}{5}$, width $1\frac{1}{5}$ to $1\frac{1}{3}$. Snout $4\frac{1}{4}$ to 5 in head; eye 3 to $3\frac{1}{4}$, slightly greater than snout, $1\frac{1}{4}$ to $1\frac{1}{3}$ in interorbital; maxillary reaches nearly to, or quite to eye, length $3\frac{1}{2}$ to $4\frac{1}{2}$ in head; lips rather narrow, thin, lower interrupted at mandibular symphysis; barbels minute to vestigial or even absent, rostral always smaller or shorter, maxillary barely $\frac{1}{4}$ of eye; interorbital 3 to $3\frac{1}{3}$ in head, low, broadly convex. Gill opening extends forward opposite hind edge of eye. Gill rakers 4 + 10, short, firm points, $\frac{1}{4}$ of gill filaments, which $1\frac{1}{3}$ in eye. Pharyngeal teeth on right bone 5, 3, 2, hooked, with small, even grinding surfaces.

Scales 34 or 35 + 2 or 3 in lateral line; 6 above, 4 below to ventral origin, 5 below to anal origin, 9 or 10 predorsal of which most anterior largest. Axillary ventral scale 3 to $3\frac{1}{2}$ in fin. Dorsal, anal and caudal scaly basally. Head with numerous fine, parallel, transverse striae, less distinct on cheek and opercle. Lateral line complete, distinct, axial along side of body; tubes moderate, simple, short. Scales with 13 to 21 apical radiating striae; 7 to 10 short basal striae; circuli fine, basal, obsolete apically.

D. IV, 8, 1, fourth simple ray osseous, rather slender, with 22 antrorse denticles along its hind edge, first branched ray $1\frac{1}{10}$ in head; A. III, 5, 1, first branched ray $1\frac{1}{2}$ to $1\frac{1}{2}$; caudal $3\frac{1}{4}$ to $3\frac{1}{2}$ in rest of fish, deeply forked, slender lobes sharply pointed; least depth of caudal peduncle $2\frac{1}{4}$ to $2\frac{1}{2}$ in head; pectoral $1\frac{1}{2}$ to $1\frac{1}{2}$, rays 1, 19; ventral rays 1, 9, fin $1\frac{1}{3}$ to $1\frac{1}{2}$ in head. Vent little nearer depressed ventral tips than anal origin.

Light brown, sides and below paler to whitish, with silvery reflections. Axial along side of body underlaid and indistinctly defined silvery band. No dark spot at caudal base. Iris gray, evidently silvery white in life. Fins pale, dorsal with upper edge and caudal with hind edge gray, and lower fins nearly whitish.

A.N.S.P., No. 68,133. Bangkok, Siam. Length 104 mm. Type. Also No. 68,134, same data, paratype. Length 90 mm.

Known by its short blunt muzzle, less than the large eye, small barbels and pale coloration.

('Αμβλυσ blunt + κεφαλή head.)

Lissochilus dukai (Day).

Twelve, 65 to 139 mm., Me Poon.

Varicorhinus dyocheilus (Mac Clelland). Figures 142 (head below), 143.

One, 103 mm., Bangkok; one, 230 mm., Pitsanulok; eighty-nine, 64 to 212 mm., Kemrat. The young are somewhat different in appearance from the adult. They also have a dark caudal blotch and some are furnished with pearl organs. Mature or adult specimens with the dorsal often ruddy medially. Lower fins tinged with vermilion, especially the ventrals. All the lower fins show narrow pale to whitish edges.

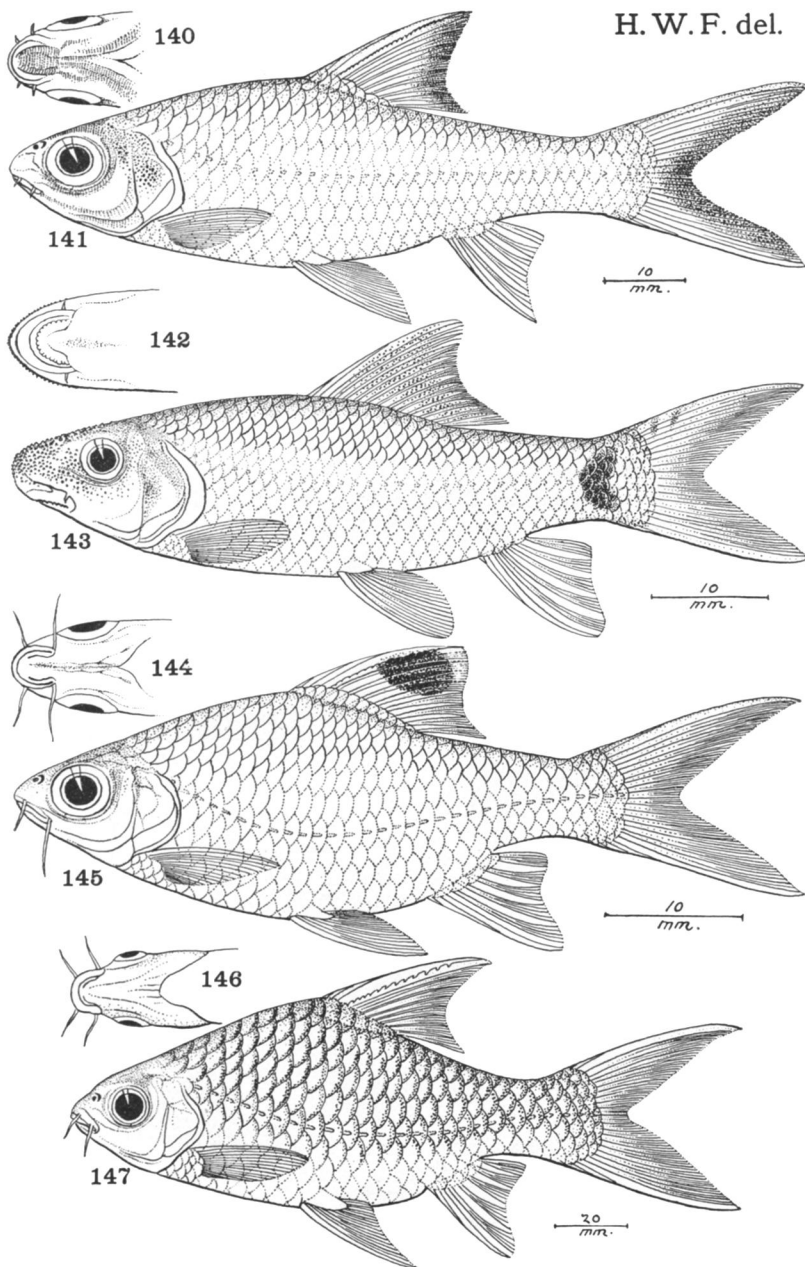
Barbus spilopterus Fowler.

One-hundred and seventeen, 48 to 117 mm., Tachin.

Barbus foxi, new species. Figures 144 (head below), 145.

Depth $2\frac{1}{4}$ to $2\frac{1}{2}$; head $3\frac{1}{4}$ to $3\frac{1}{2}$, width $1\frac{1}{3}$ to 2. Snout $4\frac{1}{2}$ to $4\frac{1}{2}$ in head; eye $2\frac{1}{2}$ to $2\frac{3}{4}$, greatly exceeds snout, $2\frac{3}{4}$ to $2\frac{5}{8}$ in interorbital; maxillary reaches eye, length $3\frac{1}{2}$ in head; lips narrow, firm, entire, lower moderately interrupted across chin; rostral barbel $1\frac{1}{2}$ in eye, maxillary barbel equals eye, interorbital 3 in head, low, broad convex; suborbitals narrow, invade $\frac{1}{3}$ of cheek to preopercle ridge. Gill opening extends forward opposite hind eye edge. Gill rakers 3 + 9, short, firm points, $\frac{1}{4}$ of gill filaments, which 2 in eye. Right pharyngeal teeth 5, 3, 2, little hooked and with moderate, entire grinding surfaces.

H. W. F. del.

140, 141. *Cyclocheilichthys amblyiceps*.144, 145. *Barbus foxi*.142, 143. *Varicorhinus dyocheilus*.146, 147. *Barbus daruphani*.

Scales $29 + 3$ in lateral line; 7 above, 4 below to ventral, 4 below to anal, 12 predorsal. Ventral with axillary scaly flap 3 to 4 in fin. Dorsal, anal and caudal bases scaly. Small scales on breast. Lateral line distinct, complete, well decurved and becomes medial at caudal base; tubes slender, well exposed, simple. Scales with 6 apical radiating striae; 1 short basal stria; circuli fine and close set basally, obsolete apically.

D. IV, 8, 1, fourth simple ray, osseous, with 12 antrorse serrae along its hind edge, first branched ray equals head; A. III, 5, 1, front simple rays pungent, first branched ray $1\frac{1}{2}$ to $1\frac{1}{4}$ in head; caudal $2\frac{1}{2}$ to $2\frac{3}{4}$ in rest of fish, lobes long, narrowly pointed, fin deeply forked; least depth of caudal peduncle $2\frac{1}{2}$ to $2\frac{1}{4}$ in head; pectoral $1\frac{1}{2}$ to $1\frac{1}{4}$, rays 1, 16; ventral rays 1, 8, fin $1\frac{1}{2}$ to $1\frac{1}{4}$ in head. Vent close before anal origin.

Pale brown, sides and below with silvery white reflections. Iris gray, evidently white in life. Barbels and lips pale. Fins pale to whitish, only dorsal contrasted with rounded, jet black blotch apically larger than eye, and upper and front edges of fin pale all around.

A.N.S.P., No. 68,135. Kemrat, Siam. Length 57 mm. Type. No. 68,136, same data, paratype. Length 52 mm.

Characteristic of this species is the large, contrasted black apical blotch on the dorsal fin, leaving a narrow pale edge to the fin all around in front and above. *Puntius siamensis* Sauvage 1883 is based on an example 110 mm. long and largely agrees in its body contour, barbels, snout shorter than the eye, and large scales (28) in the lateral line. It differs markedly in the anal rays 11, but 5 scales above the lateral line and 3 below, and the ventrals inserted below the median part of the dorsal.

(To Mr. William J. Fox, to whom I am indebted for many valuable American fishes.)

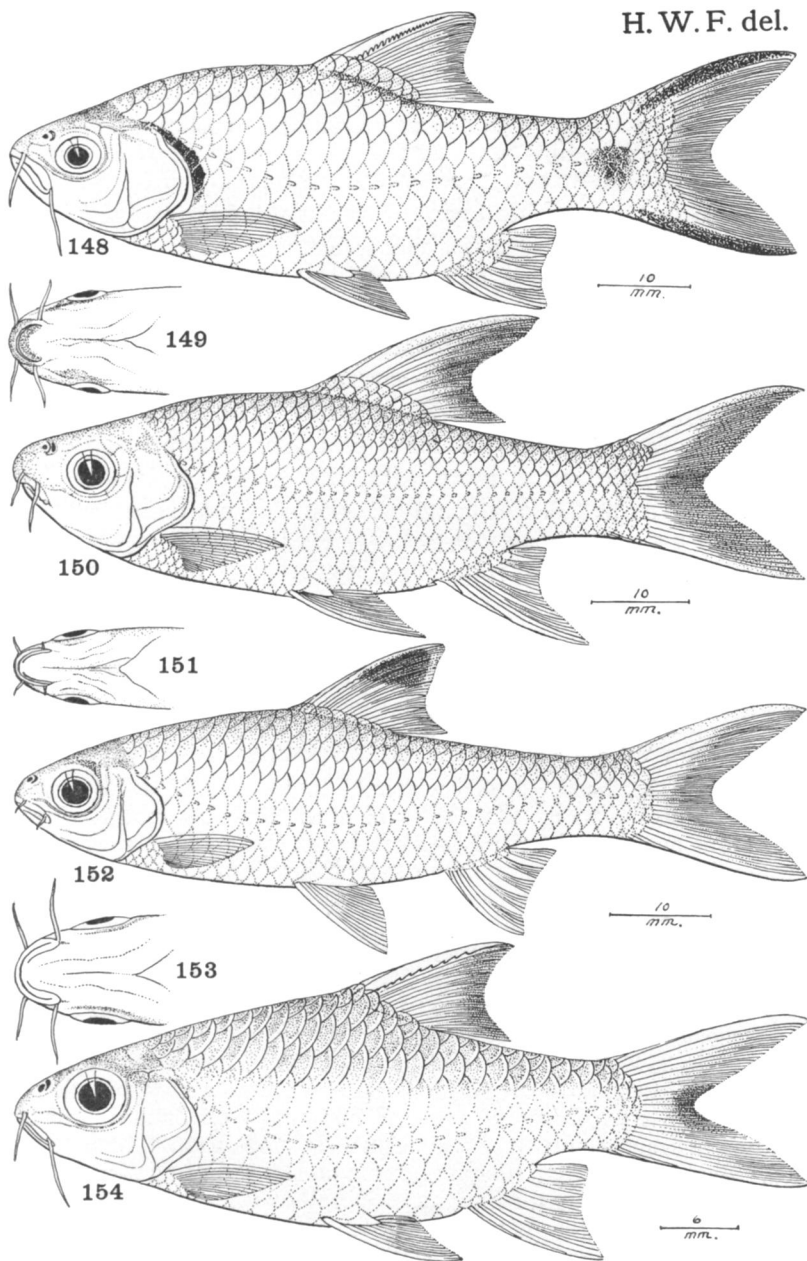
Barbus daruphani (H. M. Smith). Figures 146 (head below), 147.

Depth $2\frac{1}{4}$ to $2\frac{3}{4}$; head $3\frac{1}{2}$ to $3\frac{3}{4}$, width $1\frac{3}{4}$ to $1\frac{1}{2}$. Snout $3\frac{1}{4}$ to $3\frac{1}{2}$ in head; eye $2\frac{1}{2}$ to 4, $\frac{1}{4}$ greater than snout in young to $1\frac{1}{2}$ in snout with age, $1\frac{1}{2}$ to $1\frac{3}{4}$ in interorbital; maxillary reaches nearly or quite to eye, length $3\frac{1}{2}$ to $4\frac{1}{2}$ in head; lips fleshy, narrow, smooth, lower moderately interrupted at mandibular symphysis; rostral barbel 1 to $1\frac{3}{4}$ in eye or one may be absent, maxillary $1\frac{1}{2}$ in eye to $1\frac{1}{2}$ times eye; interorbital $2\frac{1}{4}$ to $2\frac{1}{2}$ in head, broadly convex; suborbitals moderate, invade $\frac{1}{2}$ of cheek to preopercle ridge. Gill opening extends forward opposite hind eye edge. Gill rakers $5 + 8$, lanceolate, $\frac{1}{4}$ of gill filaments, which $1\frac{1}{2}$ in eye. Pharyngeal teeth 2, 3, 5 — 5, 3, 2, compressed, several of larger row enlarged, with narrow, entire grinding surfaces, and end in small points.

Scales 22 to $26 + 2$ or 3 in lateral line; 6 above, 3 below to ventral origin, 4 below to anal origin, 8 to 10 predorsal. Axillary pointed ventral scale $2\frac{1}{2}$ to 3 in fin. Dorsal, anal and caudal bases scaly. Small scales on breast and chest. Lateral line complete, distinct, little decurved, becomes median at caudal base; tubes small, simple, well exposed. Scales with 47 apical radiating striae; 22 basal striae; circuli fine, basal, obsolete apically.

D. IV, 8, 1, fourth ray robust, osseous, with 17 strong antrorse striae along its hind edge, first branched ray $2\frac{3}{4}$ to $3\frac{1}{4}$ in fish without caudal; A. III, 5, 1,

H. W. F. del.



148. *Barbus orphoides*.
151, 152. *Barbus ashmeadi*.

149, 150. *Cosmochilus harmandi*.
153, 154. *Barbus beasleyi*.

first simple rays pungent with third entire and flexible terminally, 1 to $1\frac{1}{4}$ in head; caudal $2\frac{1}{4}$ to $2\frac{3}{8}$ in rest of fish, deeply forked, with long slender lobes sharply pointed; least depth of caudal peduncle $1\frac{1}{4}$ to $2\frac{1}{4}$ in head; pectoral $1\frac{1}{8}$ to $1\frac{1}{4}$, rays 1, 16; ventral 1 to $1\frac{1}{5}$, rays 1, 8. Vent close before anal.

Pale brown above, sides and below paler to whitish, with silvery reflections. On back each scale with darker brown basal pocket than body color. Iris pale to whitish. Lips and barbels pale. Fins all pale, dorsal and caudal little grayish terminally and lower fins whitish.

Fifteen, 92 to 178 mm., Me Poon; 67 specimens, 48 to 203 mm., Kemrat. These materials differ from *Puntius pierrei* Sauvage 1880. His figure shows an example, evidently large as he gives the length as 300 mm. It differs in much smaller fins, the pectorals reach $1\frac{1}{3}$ to ventrals, 5 scales above the nearly straight lateral line and the small head ($5\frac{1}{4}$ according to figure). The suborbitals are also shown as nearly covering the cheek.

Puntius (Barbodes) daruphani H. M. Smith 1934, based on a specimen 135 mm. long (and another 163 mm.) is rather incompletely described, especially as it is without a figure. Its head is slightly smaller than my materials, or given as 3.9. Although the scales below the lateral line are indicated as "4.5 in transverse series", the number to the ventral origin is not given. It is known from Raheng and Ban Pong. *Poropuntius normani* H. M. Smith is based on a single specimen 105 mm. long from near Chantaboon. It differs largely in having the bluntly rounded snout covered with rows of large pores medianly, depth 3, scales 31, fourth osseous simple dorsal ray less than head or $1\frac{1}{2}$ in body depth.

Barbus orphoides Valenciennes. Figure 148 (Bangkok).

Depth $2\frac{2}{5}$ to $2\frac{4}{5}$; head 3 to $3\frac{1}{3}$, width $1\frac{1}{2}$ to $1\frac{3}{4}$. Snout $3\frac{1}{8}$ to 4 in head; eye $3\frac{3}{4}$ to 4, subequal with snout, $1\frac{1}{8}$ to $1\frac{1}{4}$ in interorbital; maxillary reaches opposite front eye edge, length 3 to $3\frac{1}{2}$ in head; lips moderate, fleshy, lower moderately interrupted at mandibular symphysis; lower jaw usually slightly shorter, or included in upper; rostral barbel $\frac{1}{3}$ of eye to $1\frac{1}{4}$ times eye, maxillary $1\frac{1}{2}$ to 2 times eye; interorbital $2\frac{1}{4}$ to $2\frac{1}{3}$ in head, convex; suborbitals narrow, invade $\frac{1}{3}$ of cheek to preopercle ridge. Gill opening extends forward opposite hind eye edge. Gill rakers 4 + 9, short, firm points, $\frac{2}{3}$ of gill filaments, which $1\frac{1}{4}$ in eye. Pharyngeal teeth 2, 3, 5 — 5, 3, 2, some of larger row enlarged, ends conic, grinding surfaces broad and uneven.

Scales 21 to 28 + 3 to 5 in lateral line; 6 above, 4 below to ventral origin, 5 below to anal origin, 10 or 11 predorsal. Ventral with pointed axillary scale 2 to $2\frac{1}{2}$ in fin. Bases of vertical fins scaly, on caudal broadly so. Lateral line distinct, complete, little decurved; tubes simple, moderate, well exposed. Scales with 15 or 16 apical, more or less radiating striae; 12 to 15 basal radiating striae; circuli fine, basal, obsolete apically.

D. IV, 8, 1, fourth osseous ray moderate, with about 20 close set more or less erect conic denticles on hind edge, first branched ray $1\frac{1}{10}$ to $1\frac{1}{5}$ in head; A. III, 5, 1, front simple rays moderately flexible, first branched ray $1\frac{1}{3}$ to $1\frac{1}{2}$; caudal $2\frac{3}{4}$ to 3 in rest of fish, deeply emarginate; least depth of caudal peduncle 2 to $2\frac{1}{2}$ in head; pectoral $1\frac{1}{4}$ to $1\frac{1}{3}$, rays 1, 14; ventral rays 1, 8, fin $1\frac{1}{3}$ to $1\frac{2}{3}$ in head. Vent close before anal.

Back and head above brown, sides and below paler to whitish, usually with silvery white reflections. In some specimens sides and lower surfaces with brassy tint. Iris white to silvery white. Barbels and lips pale. Close behind along upper edge of gill opening dark brown band. More or less diffuse dark median blotch, large as eye, at caudal base. Dorsal and caudal pale brownish, latter with upper and lower edges dark gray to blackish. Paired fins and anal whitish. When fresh opercle red, also paired fins, anal and caudal.

Ten, 90 to 160 mm., Bangkok; two, 110 to 153 mm., Pitsanulok; three, 73 to 78 mm., Me Poon; 56 specimens, 80 to 32 mm., Tachin. The last have the dark borders to the caudal variously distinct. The dark basal caudal spot is more or less evident in all.

Barbus ashmeadi, new species. Figures 151 (head below), 152.

Depth $3\frac{2}{3}$ to $3\frac{1}{4}$; head $3\frac{3}{4}$ to 4, width $1\frac{1}{5}$ to 2. Snout $3\frac{1}{2}$ to 4 in head; eye 3 to $3\frac{1}{2}$, greater than snout, 1 to $1\frac{1}{2}$ in interorbital; maxillary reaches opposite or nearly opposite to front eye edge, length $3\frac{2}{3}$ to $3\frac{1}{2}$ in head; lips smooth, narrow, lower interrupted at mandibular symphysis; barbels feeble, small, rostral little longer than maxillary or about $\frac{2}{3}$ of eye, maxillary less than $\frac{1}{4}$ of eye; interorbital 3 to $3\frac{1}{4}$ in head, low, broadly convex; suborbitals moderate, invade about $\frac{2}{3}$ of cheek to preopercle ridge. Gill rakers 3 + 7, short points, $\frac{1}{4}$ of gill filaments, which 2 in eye. Pharyngeal teeth 2, 4 — 4, 2, of which one enlarged in longer series, ends short conic points.

Scales 31 or 32 + 3 in lateral line; 5 above, 3 below to ventral origin, 4 below to anal origin, 11 predorsal. Pointed axillary ventral scale half or more or fin. Vertical fin bases scaly. Small scales on breast and chest. Lateral line distinct, complete, little decurved, ascends behind to middle of caudal base; pores all slender, simple, well exposed. Scales with 12 to 22 apical radiating striae; 8 to 14 short basal striae; circuli moderate, basal, less distinct apically.

D. III, 8, 1, first simple rays pungent, slender, hind edge of third with about 8 feeble denticles, first branched ray slightly less than head; A. III, 5, 1, first simple rays pungent, first branched ray $1\frac{1}{2}$ to $1\frac{2}{3}$ in head; caudal $2\frac{2}{3}$ to 3 in rest of fish, deeply forked; least depth of caudal peduncle $1\frac{1}{5}$ to $2\frac{1}{4}$ in head; pectoral $1\frac{1}{2}$ to $1\frac{2}{3}$, rays 1, 15; ventral rays 1, 8, fin $1\frac{1}{4}$ to $1\frac{2}{3}$ in head. Vent slightly nearer tips of depressed ventrals than anal origin.

Light brown, paler to whitish on lower or under surfaces. Iris gray, evidently pale to whitish in life. Lips and barbels pale. Fins all pale to whitish, dorsal with jet black apical blotch $1\frac{1}{2}$ times eye, but with narrow white border all around upper edge.

A.N.S.P., No. 68,137. Kemrat, Siam. Length 77 mm. Type. Also Nos. 68,138 and 68,139, same data, paratypes. Length 53 and 68 mm.

Distinguished by its slender form, short feeble barbels with the rostral a trifle longer than the maxillary pair and the dorsal with a conspicuous, contrasted, large, jet black apical blotch.

(For Charles C. Ashmead, an early local contributor to the Academy's collection of fishes.)

Barbus beasleyi, new species. Figures 153 (head below), 154.

Depth $2\frac{3}{5}$; head $3\frac{1}{8}$, width $1\frac{1}{8}$. Snout $3\frac{3}{8}$ in head; eye 3, $\frac{1}{4}$ times greater than snout, equals interorbital; maxillary reaches $\frac{2}{3}$ to eye, length $3\frac{3}{8}$ in head; lips moderate, smooth, fleshy, lower broadly interrupted at mandibular symphysis; rostral barbel $\frac{3}{4}$ of eye, maxillary about $1\frac{1}{10}$ times eye; interorbital 3 in head, low, convex; suborbitals narrow, invade $\frac{1}{4}$ of cheek to preopercle ridge. Gill rakers $3 + 5$ short points, $\frac{1}{4}$ of gill filaments, which 2 in eye. Right pharyngeal teeth 5, 3, 2, several of larger row enlarged and compressed tips short conic points, grinding surfaces narrow, oblique.

Scales $23 + 3$ in lateral line; 5 above, 3 below to ventral origin, 4 below to anal origin, 9 predorsal. Ventral with free pointed scaly flap $2\frac{3}{8}$ in fin. Dorsal, anal and caudal bases scaly. Lateral line complete, continuous, decurved, ascends to caudal base medially; tubes simple, slender, well exposed. Scales with 19 apical, radiating striae; 12 short basal striae; circuli fine, basal, apically obsolete.

D. IV, 8, 1, osseous anterior simple rays slender, with 13 antrorse denticles along hind edge of fourth, first branched ray $1\frac{1}{10}$ in head; A. III, 5, 1, first 3 simple rays pungent and entire, first branched ray $1\frac{1}{8}$ in head; caudal $2\frac{3}{8}$ in rest of fish, deeply forked, lobes slender and sharply pointed; least depth of caudal peduncle $2\frac{1}{10}$ in head; pectoral $1\frac{2}{5}$, rays 1, 14; ventral rays 1, 8, fin $1\frac{1}{8}$ in head. Vent close before anal.

Pale brown, lighter or with silvery white reflections below or on sides. An ill-defined silvery white underlaid lateral band axial along side of body. On back each scale with brown basal pocket, little darker than general body color. Iris gray. Barbels and lips pale. Dorsal and caudal pale brownish, former with upper margin gray, and latter with edge of inner angle gray.

A.N.S.P., No. 68,140. Kemrat, Siam. Length 62 mm. Type.

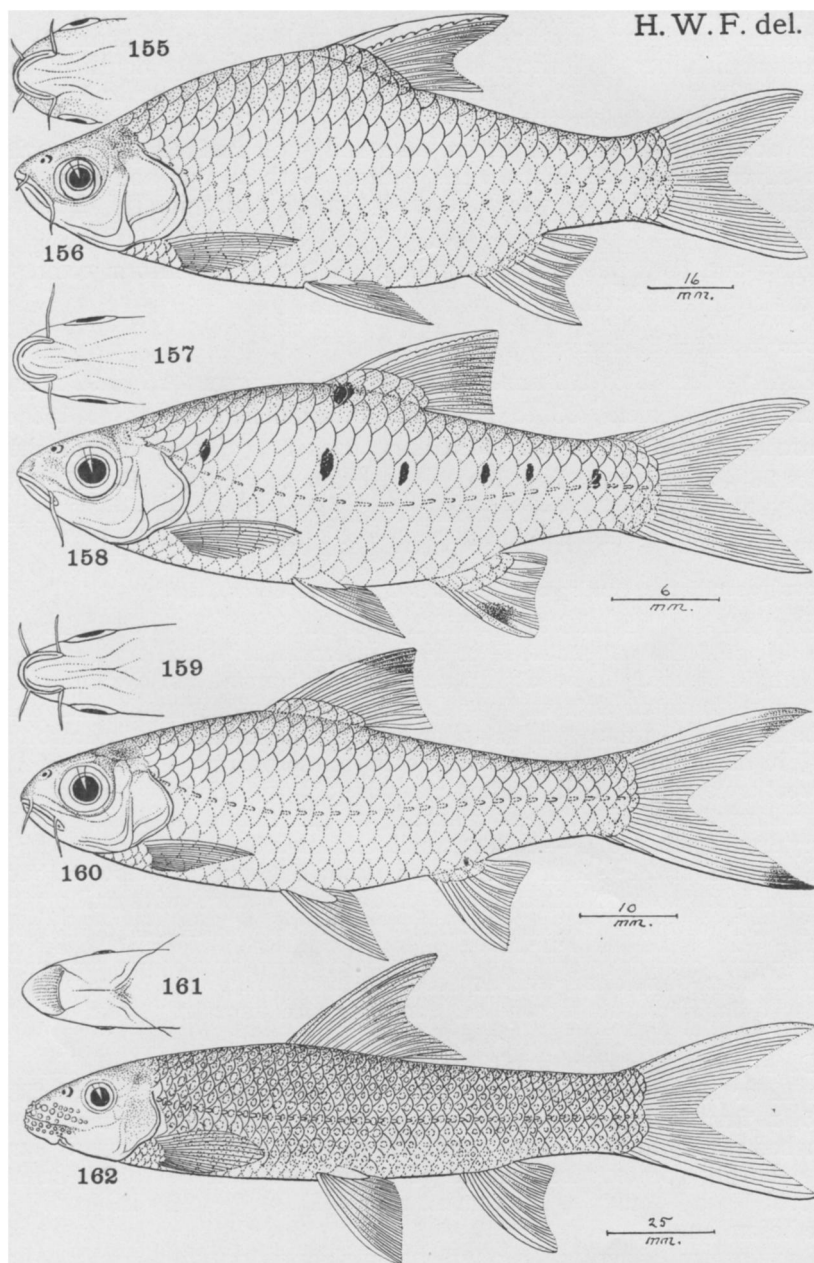
Resembles *Barbus pessuliferus*, but with much larger eye.

(For Dr. Morris Beasley, who early contributed to the collection of fishes of the Academy.)

Barbus jolamarki (H. M. Smith). Figures 155 (head below), 156.

Depth $2\frac{1}{4}$ to $2\frac{3}{5}$; head $3\frac{1}{4}$ to $3\frac{2}{5}$, width $1\frac{3}{4}$ to $1\frac{1}{8}$. Snout $3\frac{3}{8}$ to 4 in head; eye $3\frac{1}{5}$ to $4\frac{2}{5}$, little greater than snout in young to subequal with age, $1\frac{2}{5}$ to $1\frac{3}{4}$ in interorbital; maxillary reaches $\frac{2}{3}$, or to front eye edge, length $3\frac{1}{4}$ to 4 in head; lips narrow, smooth, lower interrupted rather broadly at mandibular symphysis; interorbital $2\frac{1}{8}$ to $2\frac{1}{2}$ in head, broadly convex; suborbitals narrow, invade $\frac{1}{3}$ of cheek to preopercle ridge. Gill rakers $6 + 10$, short points, $\frac{1}{4}$ of gill filaments, which $1\frac{1}{5}$ in eye. Pharyngeal teeth 2, 3, 5—5, 3, 2, compressed, several in outer row enlarged, end in short conic tips, with narrow grinding surfaces smooth.

Scales 26 or $27 + 2$ or 3 in lateral line; 6 above, 4 below to ventral origin, 5 below to anal origin, 10 or 11 predorsal. Ventral with free pointed axillary scale $2\frac{1}{4}$ to $2\frac{3}{4}$ in fin. Dorsal, anal and caudal bases scaly. Chest and breast scaled. Lateral line complete, distinct, decurved, ascends caudal base medially; tubes slender, simple, well exposed. Scales with 23 to 49 apical radiating striae; 5 to 20 basal, short; circuli fine, basal, obsolete apically.



155, 156. *Barbus jolamarki*.
 159, 160. *Barbus colemani*.

157, 158. *Barbus pessuliferus*.
 161, 162. *Mekongina erythrospila*.

D. IV, 8, 1, front simple rays osseous, compressed, fourth with 12 antrorse denticles along hind edge, first branched ray equals head; A. III, 6, 1, first simple rays pungent, first branched ray $1\frac{2}{3}$ to $1\frac{3}{4}$ in head; caudal $2\frac{7}{8}$ to $3\frac{1}{8}$ in rest of fish, deeply forked, lobes broad, pointed; least depth of caudal peduncle 2; pectoral $1\frac{1}{2}$ to $1\frac{1}{4}$, rays 1, 14; ventral rays 1, 8, fin $1\frac{1}{2}$ to $1\frac{1}{4}$ in head. Vent close before anal.

Back and upper surfaces brown, sides and lower surfaces paler to whitish with silvery white reflections. Iris white. Barbels, lips and mouth pale. Dorsal and caudal pale, whitish basally, grayish marginally. Lower fins whitish.

Fifty-one, 60 to 109 mm., Pitsanulok. A species of uniform color, without dark caudal blotch.

Barbus javanicus Bleeker.

Eighty-four, 48 to 179 mm., Bangkok; 119 specimens, 25 to 92 mm., Me Poon; 117 specimens, 33 to 175 mm., Pitsanulok; five, 43 to 153 mm., Kemrat. Depth $2\frac{1}{2}$ to $2\frac{3}{5}$. Maxillary barbel $\frac{2}{3}$ of eye, rostral shorter. Scales $28 + 3$ in lateral line; 6 above, 4 below to ventral. D. III, 8, 1; A. III, 6, 1. No markings except sometimes faint gray blotch on caudal peduncle at caudal base. Eyes and lower side of head bright silvery white.

Barbus pessuliferus, new species. Figures 157 (head below), 158.

Depth $2\frac{4}{5}$ to 3; head 3 to $3\frac{1}{3}$, width $1\frac{1}{2}$ to 2. Snout $3\frac{2}{3}$ to $3\frac{4}{5}$ in head; eye $3\frac{1}{5}$ to $3\frac{2}{5}$, greater than snout, $1\frac{1}{5}$ to $1\frac{1}{4}$ in interorbital; maxillary reaches $\frac{7}{8}$ to eye, length $3\frac{1}{5}$ to $3\frac{2}{3}$ in head; lips thin, narrow, smooth, entire, lower rather narrowly separated at symphyseal region of mandible; only one pair of barbels, $1\frac{1}{3}$ to $1\frac{1}{2}$ times eye, on upper hind end of maxillary; interorbital $2\frac{4}{5}$ to $2\frac{7}{5}$ in head, low, broadly convex; suborbitals narrow, invade $\frac{1}{2}$ of cheek to preopercle ridge. Gill opening extends forward opposite hind eye edge. Gill rakers $3 + 8$, short weak points, $\frac{1}{4}$ of gill filaments, which $\frac{2}{3}$ of eye. Pharyngeal teeth 2, 3, 5 — 5, 3, 2, small, ends pointed.

Scales 23 or $24 + 2$ or 3 in lateral line; 5 above, 3 below to ventral origin, 4 below to anal origin; 8 or 9 predorsal. Ventral with axillary scaly flap $2\frac{1}{8}$ to $2\frac{1}{2}$ in fin. Vertical fins with scaly bases. Chest and breast scaled. Lateral line complete, distinct, decurved, ascends middle of caudal base; tubes slender, simple, all well exposed. Scales with 5 to 7 apical radiating striae; 5 to 10 basal, mostly all complete and radiating from center of scale; circuli moderate, basal, obsolete apically.

D. IV, 8, 1, anterior simple osseous rays rather slender and hind edge with 12 or 13 small antrorse denticles, first branched ray equals head; A. III, 5, 1, first 3 simple rays slender, entire, third flexible terminally, first branched ray $1\frac{1}{2}$ to $1\frac{1}{4}$ in head; caudal $2\frac{2}{3}$ to $2\frac{3}{4}$ in rest of fish, deeply forked, lobes sharply pointed; least depth of caudal peduncle $1\frac{1}{2}$ to $2\frac{1}{10}$ in head; pectoral $1\frac{1}{2}$ to $1\frac{1}{3}$, rays 1, 12; ventral rays 1, 8, fin $1\frac{1}{4}$ to $1\frac{2}{5}$ in head. Vent close before anal.

Body brown, above, scales often showing darker pockets basally. Lower and under surfaces of body whitish with silvery reflections. Iris gray, evidently whitish in life. Lips brownish, barbels paler. Along side of body above lateral line series of 6 or 7 blackish brown to blackish variable short

vertical bars, in some specimens anterior ones may reach extent of 2 or 3 scales vertically; interspaces variable, though in none are all equidistant. Fins pale brownish, lower ones whitish, sometimes dorsal terminally and front of anal subterminally with brownish. Usually dark or blackish blotch at front of dorsal basally.

A.N.S.P., No. 68,141. Kemrat, Siam. Length 42 mm. Type. Also Nos. 68,142 to 68,151, same data, paratypes. Length 34 to 54 mm.

Known by the presence of only two rather long barbels, the distinctive color pattern of several narrow short vertical black bars on the side of the body above the lateral line, and the black blotch at the front of the dorsal basally.

(*Pessulus* a little bar + *fero* to bear.)

Barbus colemani, new species. Figures 159 (head below), 160.

Depth $3\frac{1}{2}$; head 4, width $1\frac{1}{4}$. Snout 4 in head; eye 3, greatly exceeds snout, $1\frac{1}{8}$ in interorbital; maxillary reaches slightly below front of eye, length $2\frac{3}{4}$ in head; lips thin, narrow, smooth, lower moderately interrupted at symphysis of mandible; rostral barbel $1\frac{1}{2}$ in eye, maxillary $1\frac{1}{2}$; interorbital $2\frac{1}{2}$ in head, low, broad, slightly convex; suborbitals narrow, invade about $\frac{2}{3}$ of cheek to preopercle ridge. Gill opening extends forward opposite hind eye edge. Gill rakers $4 + 6$, short, robust points, $\frac{1}{3}$ of gill filaments, which 2 in eye. Right pharyngeal teeth 5, 3, with penultimate from lowermost of larger series, enlarged and ends in short conic point, others with smooth, entire, moderate grinding surfaces.

Scales $26 + 3$ in lateral line; 5 above, 3 below to ventral origin, 4 below to anal origin, 9 predorsal. Ventral with free, pointed axillary scale $2\frac{1}{2}$ in fin. Bases of vertical fins scaly. Chest and breast scaled. Lateral line complete, distinct, decurved, ascends medianly to caudal base; tubes small simple, slender. Scales with 14 apical radiating striae; 8 basal, short; circuli fine, obsolete apically.

D. III, 8, 1, front simple rays slender, pungent, entire, first branched ray equals head; A. III, 5, 1, first simple rays slender and third flexible terminally, first branched ray $1\frac{1}{2}$ in head; caudal $2\frac{3}{5}$ in rest of fish, deeply forked and long slender lobes sharply pointed; least depth of caudal peduncle 2 in head; pectoral $1\frac{1}{4}$, rays 1, 18; ventral rays 1, 9, fin $1\frac{1}{2}$ in head. Vent at ends of depressed ventrals.

Pale brown, sides and below lighter with bright or silvery white tinge. Iris pale or whitish. Barbels pale, also jaws and lips. Fins light to whitish, apices of dorsal and caudal lobes black.

A.N.S.P., No. 68,152. Me Poon, Siam. Length 80 mm. Type.

Distinguished by its combination of characters, trim contour of the body and contrasted coloration.

(For Waldburg Coleman, an early contributor to the collection of fishes in the Academy.)

Barbus binotatus Valenciennes.

One, 25 mm., Pitsanulok; twenty, 48 to 67 mm., Rayong; 68 specimens, 42 to 94 mm., Tachin; 327 specimens, 25 to 128 mm., Me Poon. One specimen from Me Poon has the left eye completely atrophied. In most all Me Poon specimens the black spot below the front of the dorsal is present, likewise the black caudal spot. A black bar on the shoulder girdle, behind the gill opening, also often present.

Barbus brevis (Bleeker). Figures 165 (head below), 166 (Bangkok).

Two, 70 to 78 mm., Tachin; 26 specimens, 45 to 64 mm., Rayong; 300 specimens, 65 to 110 mm., Bangkok. Scales $21 + 3$ in lateral line. D. III, 8, 1; A. III, 5, 1. Only 2 barbels. Black spot, little smaller than eye, before caudal base. End of anal usually dusky to blackish. Lower fins vermilion.

Barbus altus Günther.* Figures 163 (head below), 164 (young, Bangkok), 167 (head below), 168 (adult, Bangkok).

Depth $1\frac{1}{2}$ to $2\frac{1}{2}$; head $3\frac{1}{2}$ to $3\frac{1}{2}$, width $1\frac{3}{4}$ to $1\frac{1}{2}$. Snout 4 to $5\frac{1}{2}$ in head; eye $2\frac{1}{2}$ to $3\frac{1}{2}$, greater than snout, 1 to $1\frac{3}{4}$ in interorbital; maxillary reaches nearly or quite opposite front eye edge, length 3 to 4 in head; lips thin, narrow, smooth, lower moderately interrupted at mandibular symphysis; rostral barbel 1 to $1\frac{1}{2}$ in eye, maxillary barbel equals eye; interorbital $2\frac{1}{4}$ to $2\frac{3}{4}$ in head, low, slightly convex; suborbitals invade $\frac{1}{4}$ to $\frac{2}{5}$ of cheek to preopercle ridge. Gill opening extends forward opposite hind edge of eye. Gill rakers $5 + 8$ short, robust points, $\frac{1}{4}$ of gill filaments, which $1\frac{1}{2}$ in eye. Right pharyngeal teeth 5, 3, 2, penultimate from below enlarged, tips short conic points, and smooth, moderate grinding surfaces developed.

Scales 28 to $30 + 2$ in lateral line; 8 or 9 above, 5 below to ventral origin, 5 below to anal origin; 9 predorsal. Axillary ventral scale $2\frac{1}{2}$ to $2\frac{3}{4}$ in fin. Vertical fins with scaly bases. Small scales on chest and breast. Lateral line complete, distinct, decurved, ascends caudal base medially; tubes simple, short. Scales with 10 to 18 apical radiating striae; 5 short basal striae; circuli fine basally, obsolete apically.

D. IV, 8, 1, anterior osseous rays robust, fourth with 12 antrorse denticles along its hind edge, first branched $1\frac{1}{10}$ in head to $1\frac{1}{2}$ times head; A. III, 5, 1, first 3 simple rays strongly pungent, in smallest specimen end flexible, first branched ray $1\frac{1}{2}$ to $1\frac{1}{4}$ in head; caudal $2\frac{1}{2}$ to $2\frac{1}{2}$ in rest of fish, deeply forked, long slender lobes sharply pointed; least depth of caudal peduncle $1\frac{1}{2}$ to $2\frac{1}{2}$ in head; pectoral $1\frac{1}{2}$ to $1\frac{1}{2}$, rays 1, 14 to 1, 16; ventral rays 1, 8, fin $1\frac{1}{4}$ to $1\frac{1}{2}$ in head. Vent close before anal.

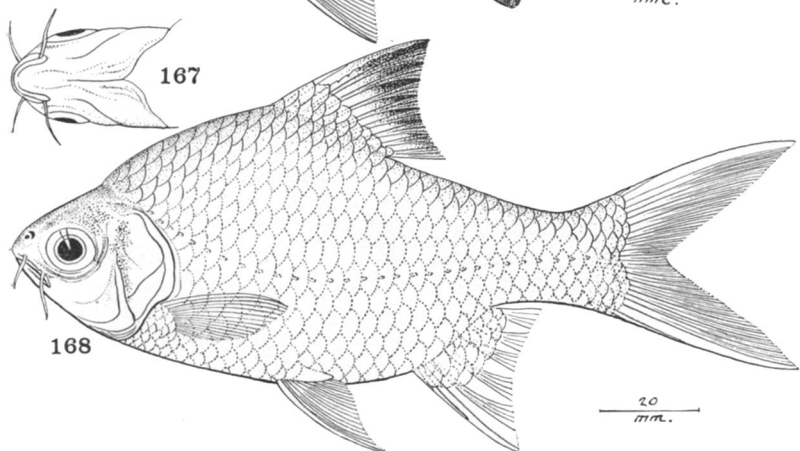
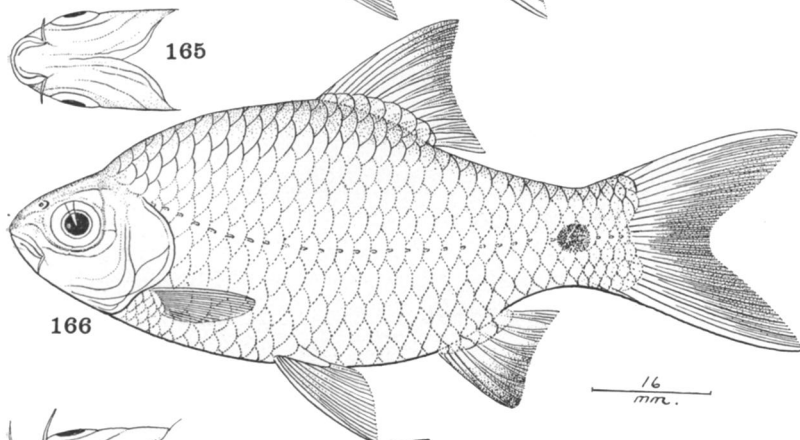
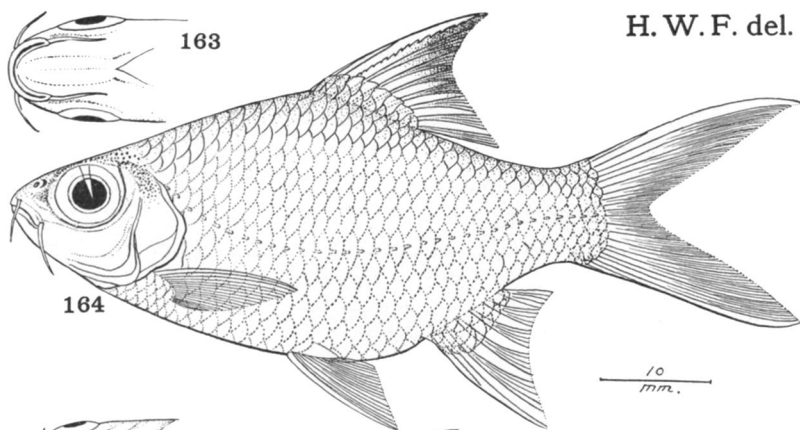
Light brown, paler to whitish with silvery reflections on sides and below. Iris white. Lips and barbels pale. Fins pale to whitish, dorsal with gray black apex, and some specimens with yellowish tinge to lower fins.

Three, 81 to 150 mm., Bangkok; one 58 mm., Paknam; one, 58 mm., Kemrat. An interesting species not previously represented in our collections.

Puntioplites proctozysron (Bleeker).

Seven, 78 to 130 mm., Bangkok; two, 64 to 195 mm., Me Poon; one, 160 mm., Pitsanulok; thirteen, 68 to 180 mm., Kemrat.

H. W. F. del.



163, 164 and 167, 168. *Barbus altus*. 165 and 166. *Barbus brevis*.

Balantiocheilus melanopterus (Bleeker).* Figures 185 (head below), 186 (Kemrat).

Two, 155 to 160 mm., Bangkok; three, 73 to 76 mm., Kemrat. The original figure by Bleeker in his Atlas gives a very poor idea of the species as compared with my specimens. The black borders to the fins are entirely different, very broad, and merge or become pale against the flushed or rosy bases. Also the upper lip is shown as greatly papillose. Weber and Beaufort have also given an equally perplexing figure. It shows the eye as longer than the snout and 6 scales between the lateral line and the ventral origin. Their description however rectifies this as it gives "eye $3\frac{1}{2}$ -4, less than snout," and "Ventrals . . . separated by $3\frac{1}{2}$ scales from the 9th scale of lateral line." This figure while showing the black borders to the fins, better contrasted than Bleeker's, indicates a black bar before the lateral line on the head, not found in my specimens.

Barbichthys laevis (Valenciennes).

Seven, 152 to 183 mm., Me Poon; two, 115 to 128 mm., Kemrat.

Morulus pectoralis (Sauvage).

Two, 72 to 101 mm., Tachin; nine, 80 to 157 mm., Bangkok; thirteen, 108 to 228 mm., Kemrat. In none does the pectoral extend over the ventral base. The front lobe of the dorsal is, however, quite variable, and in one large specimen at least reaches back nearly far as end of last dorsal ray. Most have the fin edges more or less pale gray or whitish, though the general color gray black. No orange or red on scales at present.

MEKONGINA, new genus

Body elongate, slender, trim, moderately compressed. Head small, robust, subpyramidal. Snout long, obtuse. Eye large, elevated, largely postmedian in head. Mouth transversely inferior. No barbels. No distinct rostral fold. Upper lip broad, flat, with wide papillate areas and its hind edge festooned, or with a series of small papillate lappets. Nostrils close together, nearer eye than end of snout, separated by a broad membranous flap. Interorbital broad. Gill openings lateral, leave broad isthmus. Scales moderate, more or less uniform over most of body, in even longitudinal rows, small and crowded on chest. Lateral line distinct, nearly straight. Dorsal origin premedian, with 10 branched rays. Anal small, begins behind depressed dorsal, and falcate like dorsal. Caudal deeply forked. Pectoral small, low, reaches $\frac{2}{3}$ to ventral. Ventral begins below first third of dorsal base. Coloration brilliant. Type *Mekongina erythrospila*, new species.

Differs from *Labeo* in its lip structure, and the absence of barbels. Pearl organs a band of several series around the end of the muzzle.

(For the Mekong River.)

Mekongina erythrospila, new species. Figures 161 (head below), 162.

Depth 4 to $4\frac{1}{4}$; head $3\frac{2}{3}$ to $4\frac{1}{3}$, width $1\frac{2}{3}$ to $1\frac{3}{4}$. Snout 2 to $2\frac{1}{4}$ in head; eye $3\frac{1}{2}$ to $4\frac{1}{4}$, $1\frac{2}{3}$ to 2 in snout, $1\frac{3}{4}$ to 2 in interorbital; mouth width $2\frac{1}{3}$ to 3

in head; no rostral fold; broad upper lip broadly papillate, festooned, with about 18 to 20 marginal lappets; lower lip broad, smooth, little papillate marginally in young, forms entire margin across symphysis; no barbels; from each mouth corner rather deep groove converges toward isthmus; interorbital 2 to $2\frac{1}{4}$ in head, slightly convex; suborbitals moderately wide, invade $\frac{1}{3}$ of cheek. Gill rakers $5 + 34$, largely uniform short points, $\frac{1}{3}$ of gill filaments, which equal eye. Pharyngeal teeth 3, 5—5, 3, small, compressed, close set, cultrate, all with oblique, smooth grinding surfaces.

Scales 30 to $35 + 3$ or 4 in lateral line; 7 above, 4 below to ventral origin, 5 below to anal origin, 12 predorsal along each side of narrow naked predorsal strip its entire length. Ventral with pointed free scaly axillary flap, 2 to $2\frac{1}{4}$ in fin. Caudal base scaly. Lateral line axial along side of body, median; tubes small and little exposed. Scales with 23 to 37 apical radiating striae; no basal striae; circuli fine, basal, obsolete apically. From below each eye forward around end of snout 4 rows of pearl organs, lower two rows with largest tubercles.

D. III, 10, I, first branched ray $3\frac{1}{2}$ to $3\frac{3}{8}$ in fish without caudal; A. III, 5, I, first branched ray $1\frac{1}{10}$ to $1\frac{1}{5}$ in head; caudal $2\frac{3}{8}$ to $2\frac{3}{4}$ in rest of fish, slender lobes sharply jointed; least depth of caudal peduncle $1\frac{1}{5}$ to 2 in head; pectoral $1\frac{1}{10}$ to $1\frac{1}{4}$, rays I, 17; ventral rays I, 8, fin $1\frac{1}{10}$ to $1\frac{1}{5}$ in head. Vent opposite last fourth or opposite ends of depressed ventrals.

Back and sides brown, each scale with a bright vermilion spot. Under surface of head and body pale to whitish. Iris gray. Lips and cheeks pale. Young with diffuse dark gray blotch at caudal base, about large as eye, obliterated or less distinct with age. Dorsal and caudal brownish, grayish terminally, some specimens with reddish tinge. Lower fins, as pectoral, ventral and anal deep vermilion, pale or whitish in alcohol.

A.N.S.P., No. 68,158. Kemrat, Siam. Length 193 mm. Type. Also Nos. 68,159 to 68,168, same data, paratypes. Length 73 to 183 mm. Also 56 others, same data.

Small examples only 100 mm. long show the pearl organs and coloration of the largest. The species is known by its brilliant coloration and structural characters as given above, especially noteworthy in the naked predorsal strip.

(*Ερυθρός* red + *σπίλος* spot.)

LABEO Cuvier

Labeo bicolor H. M. Smith.

Depth $3\frac{1}{4}$; head $4\frac{1}{8}$, width $1\frac{3}{8}$. Snout 3 in head; eye $4\frac{1}{4}$, $1\frac{1}{2}$ in snout, $1\frac{1}{8}$ in interorbital; maxillary reaches below nostrils; mouth as seen below broad shallow arc, width $3\frac{1}{5}$ in head; lips broad, smooth, entire; rostral barbel well anterior, $\frac{1}{5}$ of eye, maxillary long as eye; interorbital $2\frac{3}{4}$ in head, low, broadly convex; suborbitals narrow. Gill rakers $3 + 15$, short feeble points, $\frac{1}{4}$ of gill filaments, which $1\frac{1}{3}$ in eye. Right pharyngeal teeth 5, 3, 2, pointed, with entire, narrow grinding surfaces.

Scales $30 + 3$ in lateral line; 6 above, 5 below to ventral origin, 6 below to anal origin, 11 predorsal. Ventral with pointed axillary scale $2\frac{1}{2}$ in fin. Caudal base scaly. Small scales on chest and breast. Lateral line straight,

axial along middle of side of body; tubes moderate, simple, well exposed. Scales with 16 to 20 radiating apical striae; 4 to 9 short basal striae; circuli fine, basal, obsolete apically.

D. III, 12, 1, front simple rays slender, entire, longest terminally flexible, first branched ray $1\frac{1}{2}$ in head; A. III, 5, 1, front simple rays entire and slender, first branched ray $1\frac{1}{2}$; caudal $2\frac{3}{4}$ in rest of fish, deeply forked, slender lobes sharp pointed; least depth of caudal peduncle 2 in head; pectoral $1\frac{1}{2}$, rays 1, 16; ventral rays 1, 8, fin $1\frac{1}{2}$ in head. Vent at tips of depressed ventrals close before anal.

Brown above, paler to whitish on lower surfaces and below. Whole side sprinkled with dark dots, not extending on under surface of belly. On scale at beginning of lateral line small blackish spot less than pupil, and another large as pupil on scale above fifth scale of lateral line, besides less distinct one on scale below it. Rounded black blotch at caudal base large as eye. Rostral barbel brown, maxillary barbel whitish. Iris gray. Lips whitish. Dorsal, ventral and anal blackish, basally each fin paler, and ventrals and anal with narrow whitish margin. Caudal white, also pectoral.

One, 70 mm., Tachin. Agrees with the original account except the dark spot below the fifth scale of the lateral line is not mentioned.

Labeo frenatus Fowler.

Two, 60 to 68 mm., Tachin. Differ slightly in the nearly blackish anal with white edge. Small black spot over fifth scale of lateral line.

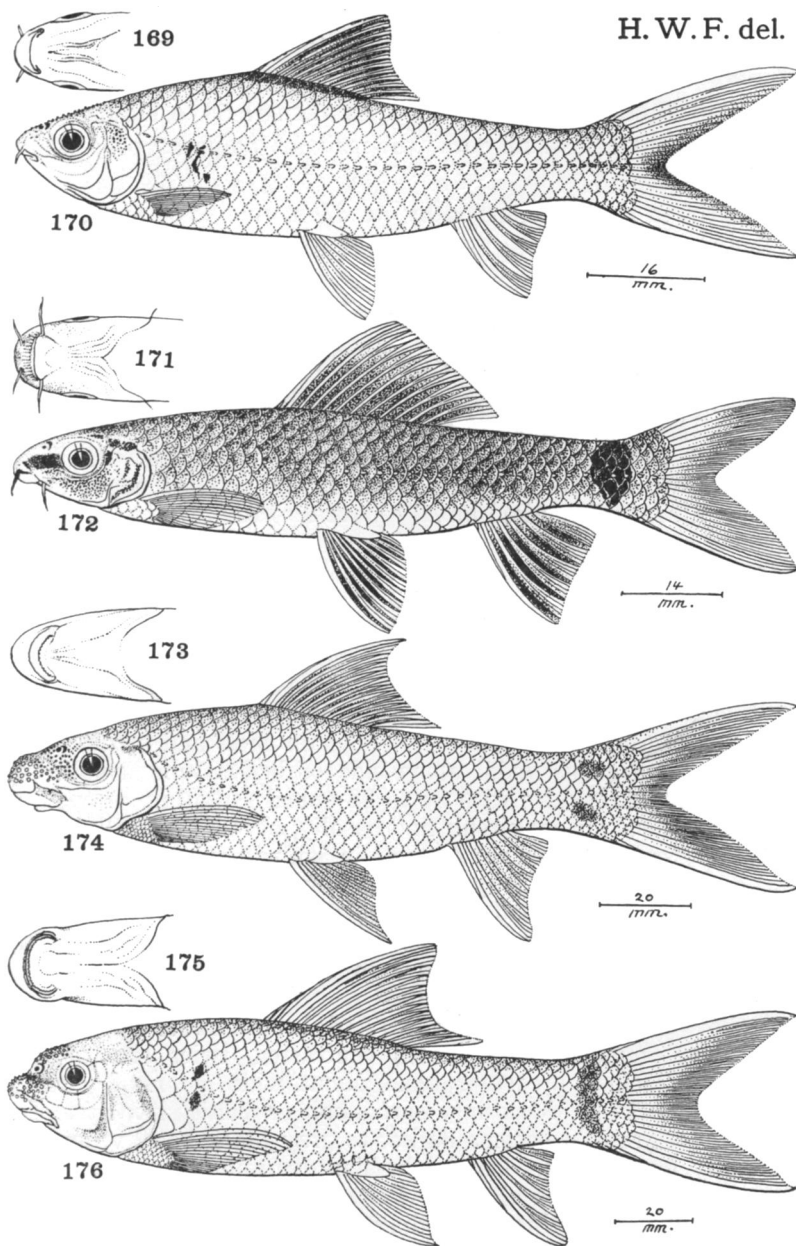
Labeo stigmapleura, new species. Figures 169 (head below), 170 (Kemrat).

Depth $3\frac{1}{2}$ to 4; head 4 to $4\frac{3}{8}$, width $1\frac{1}{2}$ to $1\frac{3}{4}$. Snout 3 to $3\frac{1}{2}$ in head; eye $2\frac{7}{8}$ to $3\frac{1}{2}$, little greater than snout in young to equal with age, $1\frac{1}{2}$ to $1\frac{3}{4}$ in interorbital; mouth rather small, inferiorly transverse, width $3\frac{1}{4}$ to $3\frac{1}{2}$ in head; lips entire, smooth; rostral barbel $\frac{1}{2}$ to $\frac{3}{4}$ of eye, no maxillary barbel; interorbital $2\frac{1}{8}$ to $2\frac{7}{8}$ in head, low broadly convex; suborbitals narrow. Gill rakers 6 + 40, short, feeble points, $\frac{1}{3}$ of gill filaments, which $\frac{2}{3}$ of eye. Pharyngeal teeth 2, 4, 5—5, 4, 2, compressed, with well-developed concave, smooth grinding surfaces, no hooks.

Scales 33 or 34 + 3 in lateral line; 7 above, 5 below to ventral origin, 5 or 6 below to anal origin, 12 or 13 predorsal. Ventral with pointed axillary scale $2\frac{1}{4}$ to 3 in fin. Caudal base scaly. Rather small scales on chest and breast. Lateral line complete, axial on side of body, well marked; each scale with short simple tube. Scales with 12 to 17 apical radiating striae; 0 to 5 short basal striae; circuli fine, basal, obsolete apically. Top of head from snout above to predorsal scales studded with numerous, close set, minute pearl organs.

D. III, 11, 1, front simple rays slender, entire, first branched ray 4 to $4\frac{1}{4}$ in fish without caudal; A. III, 5, 1, first branched ray $1\frac{1}{2}$ to $1\frac{1}{4}$ in head; caudal $2\frac{1}{2}$ to $2\frac{3}{4}$ in rest of fish, deeply forked, long slender lobes sharply pointed; least depth of caudal peduncle $1\frac{1}{3}$ to 2 in head; pectoral $1\frac{1}{4}$ to $1\frac{1}{2}$, rays 1, 15; ventral 1, 8, fin $1\frac{1}{2}$ to $1\frac{1}{4}$ in head. Vent close before anal.

Dull brown, sides and below pale to whitish. At fourth and fifth scales of lateral line each scale black bordered, also 2 scales below, or may even include 3. Lips and barbels pale. Iris whitish. Dorsal rays pale or light



169, 170. *Labeo stigmatpleura*.
173, 174. *Labeo cheveyi*.

171, 172. *Labeo erythrura*.
175, 176. *Labeo behri*.

brown, membranes dotted with dark gray to gray black terminally, also ends of rays so upper edge of fin dark. Caudal light brown, inner and hind edge gray. Lower fins all pale or whitish, with some yellowish tints basally.

A.N.S.P., No. 68,169. Kemrat, Siam. Length 104 mm. Type. Also Nos. 68,170 to 68,179, same data, paratypes. Length 50 to 115 mm. Besides these 53 specimens also same data, not included as paratypes; two, 63 to 80 mm., Bangkok.

Apparently to be distinguished by its distinctive color marking on the lateral line above the pectoral, suggestive of certain species of *Dangila*.

(Στίγμα spot + πλευρά rib; with reference to the dark marking above the pectoral.)

Labeo erythrura, new species. Figures 171 (head below), 172.

Depth $3\frac{3}{5}$ to $4\frac{4}{5}$; head $4\frac{1}{2}$ to $4\frac{1}{2}$, width $1\frac{3}{5}$ to $1\frac{1}{5}$. Snout $2\frac{1}{2}$ to $2\frac{3}{5}$ in head; eye $3\frac{3}{4}$ to 4, $1\frac{1}{3}$ to $1\frac{3}{5}$ in snout, $1\frac{3}{5}$ to $2\frac{1}{5}$ in interorbital; mouth transverse, slightly before nostrils, width 3 to $3\frac{2}{5}$ in head; upper lip with about 16 broadly papillate lappets or plaits, form finely notched edge; lower lip entire, with rather well-marked labial groove directed toward isthmus, from each angle or corner of mouth; rostral barbel $\frac{3}{4}$ to $\frac{7}{8}$ of eye, maxillary barbel $\frac{2}{3}$ to $\frac{7}{8}$; interorbital $2\frac{1}{4}$ to $2\frac{3}{5}$ in head, low, broadly convex; suborbitals narrow. Gill rakers 4 + 26, short, lanceolate, $\frac{1}{8}$ of gill filaments, which equal eye. Pharyngeal teeth 2, 4, 5 — 5, 4, 2, cultrate, without terminal hooks, with concave, smooth grinding surfaces.

Scales 27 to 30 + 3 or 4 in lateral line; 5 above, 4 below to ventral origin, 5 below to anal origin, 10 or 11 predorsal. Ventral with scaly flap 2 to $2\frac{1}{5}$ in fin. Caudal base scaly. Moderate scales on chest and breast. Lateral line complete, continuous, axial along side of body; tubes small, simple, short, little exposed. Scales with 34 to 38 apical radiating striae; 6 to 22 short marginal basal striae; circuli fine basally, obsolete apically.

D. III, 11, 1, first branched ray $4\frac{1}{8}$ to $4\frac{3}{8}$ in fish without caudal, first simple rays slender and smooth, longest terminally flexible; A. III, 5, 1, first branched ray 1 to $1\frac{1}{10}$ in head; caudal $2\frac{3}{4}$ to 3 in rest of fish, well forked, lobes pointed; least depth of caudal peduncle $1\frac{2}{3}$ to 2 in head; pectoral 1 to $1\frac{1}{8}$, rays 1, 15; ventral rays 1, 9, fin 1 to $1\frac{1}{10}$. Vent a little before anal origin or at ends of depressed ventrals.

Body above and on sides more or less dark brown, under surfaces pale or whitish. Large rounded black blotch contrasted, twice size of eye, at caudal base. Blackish preocular band about wide as pupil. Iris gray. Rostral barbel blackish. Maxillary barbel pale or whitish like lips. Dorsal with membranes grayish, become darker to gray black basally, upper edge of fin broadly much paler. Caudal brilliant vermilion, turns orange and then brownish to whitish in alcohol. Pectoral pale to whitish. Anal dark gray, gray black on membranes medially. Ventral like anal, often paler and ends and border pale to whitish.

A.N.S.P., No. 68,180. Kemrat, Siam. Length 119 mm. Type. Also Nos. 68,181 and 68,182, same data, paratypes. Length 103 to 117 mm.

Greatly like *Labeo munensis* H. M. Smith 1934 from the Menam Mun at Tha Chang, in eastern Siam, also the Mekong basin. *L. erythrura* differs in several very distinct characters; its dorsal and ventrals all rather broadly pale or whitish, though the pale margin not in contrast or sharply defined; no dark humeral spot and black blotch on caudal peduncle without forward extension on lateral line; pectoral not reaching opposite dorsal origin; black band along each side of snout before eye and slightly behind eye.

(*Ἐρυθρὸς* red + *ὀνὸς* tail.)

Labeo cheveyi, new species. Figures 173 (head below), 174.

Depth $3\frac{3}{8}$ to $3\frac{1}{8}$; head $3\frac{3}{8}$ to $3\frac{1}{8}$, width $1\frac{3}{8}$ to $1\frac{1}{8}$. Snout $2\frac{1}{4}$ to $2\frac{1}{8}$ in head; eye 4 to $4\frac{1}{4}$, $1\frac{3}{4}$ to 2 in snout, $1\frac{3}{4}$ to $2\frac{1}{8}$ in interorbital; mouth broadly crescentic as viewed below, width 3 to $3\frac{1}{4}$ in head; lips broadly fleshy, smooth, edge of upper entire though edge of labial fold slightly uneven, hardly fringed, and lower lip edge fringed or papillate all around; a very small and largely concealed maxillary barbel; interorbital $2\frac{1}{4}$ to $2\frac{3}{8}$ in head, low, broadly convex; suborbitals narrow. Gill opening extends forward opposite hind eye edge. Gill rakers 4 + 40, short, slender, close set points, $\frac{1}{4}$ of gill filaments, which $1\frac{1}{2}$ in eye. Pharyngeal teeth 2, 4, 5 — 5, 4, 2, close set, compact, cultrate, with broad, entire grinding surfaces.

Scales 34 or 35 + 4 in lateral line; 9 above, 6 below to ventral origin, 6 below to anal origin, 14 predorsal. Ventral with pointed axillary scale $2\frac{1}{4}$ to $2\frac{1}{2}$ in fin. Caudal base scaly. Scales small and crowded on chest and breast. Lateral line complete, continuous, axial along side of body; tubes short, simple, little exposed. Scales with 24 to 25 radiating apical striae; 1 to 4 short basal striae; circuli fine, basal, obsolete apically. Pearl organs extensive over whole of snout, largest and most conspicuous on front sides and around end of snout, small and minute above arc in internasal space; all are close set, and smooth to touch.

D. III, 11, I, front simple rays pungent, entire; first branched ray equals head; A. III, 5, I, first branched ray $1\frac{1}{8}$ to $1\frac{1}{4}$; caudal $2\frac{1}{2}$ to $2\frac{3}{8}$ in rest of fish, deeply forked, slender lobes sharply pointed; least depth of caudal peduncle 2 to $2\frac{1}{8}$ in head; pectoral $1\frac{1}{8}$ to $1\frac{1}{4}$, rays 1, 17; ventral rays 1, 8, fin $1\frac{1}{8}$ to $1\frac{1}{4}$ in head. Vent little before anal at ends of depressed ventral.

Back and upper surfaces olivaceous, sides and below whitish. Very obscure darker longitudinal dark bands along middle of each scale row on back. A diffuse gray blotch size of eye at caudal base in small specimen, fades with age so that in large specimens pair of well separated dark spots, opposite, one above and the other below the lateral line result. Iris pale brownish. Lips and under surface of body pale or whitish. Dorsal and caudal pale brownish, former with membranes grayish basally. Lower fins pale, all more or less grayish medially.

A.N.S.P., No. 68,184. Me Poon, Siam. Length 182 mm. Type. Also Nos. 68,185 to 68,189, same data, paratypes. Length 154 to 181 mm.

An interesting species known by its large prominent lips, the largely concealed maxillary barbel and other structural characters in combination, besides the pair of dark spots at the caudal base in mature specimens.

(For Dr. Paul Chevey of the Institut Océanographique de l'Indochine.)

INCISILABEO, new subgenus

Differs from subgenus *Labeo* in the notch or transverse groove on the snout, the lower lip with a fringed edge, and the upper lip and edge of the rostral fold entire. Pair of maxillary barbels become smaller and concealed with age. Type *Labeo behri*, new species.

(*Incisum* notch + *Labeo*; with reference to the groove on the snout separating a very distinct arrangement of the pearl organs.)

Labeo behri, new species. Figures 175 (head below), 176 (Kemrat).

Depth $3\frac{2}{3}$ to $3\frac{4}{5}$; head $2\frac{7}{8}$ to $3\frac{3}{4}$, width $1\frac{3}{4}$ to $2\frac{1}{10}$. Snout $2\frac{7}{8}$ to $3\frac{1}{10}$ in head; eye 4 to 5, $1\frac{1}{3}$ to $1\frac{1}{5}$ in snout, $1\frac{1}{3}$ to $2\frac{1}{4}$ in interorbital; mouth broad, width $2\frac{3}{4}$ to $4\frac{1}{2}$ in head; maxillary reaches $\frac{3}{4}$ or nearly opposite front eye edge, length $2\frac{3}{8}$ to $3\frac{1}{2}$ in head; upper labial fold broad, leaves only narrow margin of upper lip exposed, edges of both entire; lower lip with fine marginal fringe all around and front inner area well papillated; edge of lower jaw horny, trenchant keel; young with pair of very minute, inconspicuous rostral barbels, disappearing with age; maxillary barbel half long as eye in young and terminally exposed, with age much smaller and concealed in labial groove; interorbital $2\frac{2}{5}$ to $2\frac{1}{2}$ in head, broadly convex; suborbitals moderate, width $\frac{2}{3}$ of eye. Gill opening extends forward opposite hind eye edge. Gill rakers 7 + 32, compressed, pointed, laminate, $\frac{1}{5}$ of gill filaments, which equal eye. Pharyngeal teeth 2, 4, 5—5, 4, 2, close set, cultrate, each with more or less of entire oblique grinding surface.

Scales 34 or 35 + 3 or 4 in lateral line; 10 above, 6 below to ventral origin, 6 or 7 below to anal origin, 15 to 24 predorsal with those down its median ridge little defined. Ventral with pointed axillary scale $2\frac{1}{2}$ to $2\frac{3}{5}$ in fin. Caudal base scaly. Scales very small and crowded on chest and breast. Lateral line complete, little decurved, axial along side of tail; tubes small, short, simple. Scales with 24 to 56 apical radiating striae; 4 to 12 short basal striae; circuli fine, basal, become obsolete apically. Band of small, close set pearl organs on end of snout, extend back below nostrils, made up of 4 irregular series; broad band of smaller tubercles across internasal space; in young specimens tubercles fewer and comparatively larger.

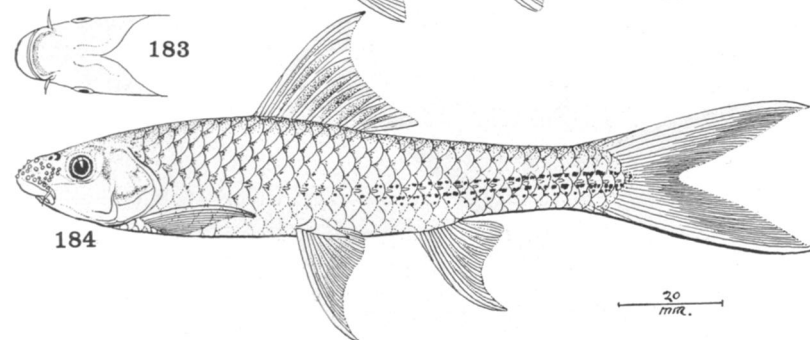
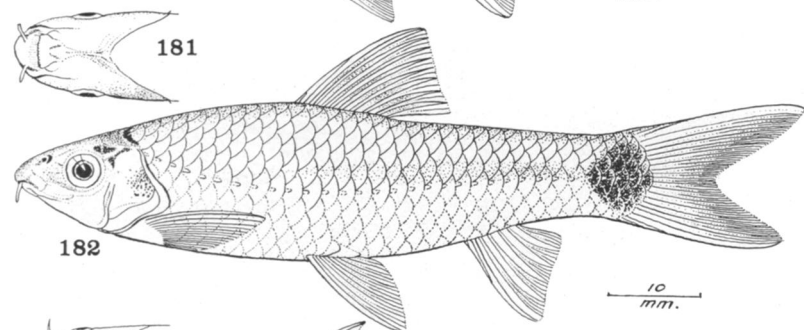
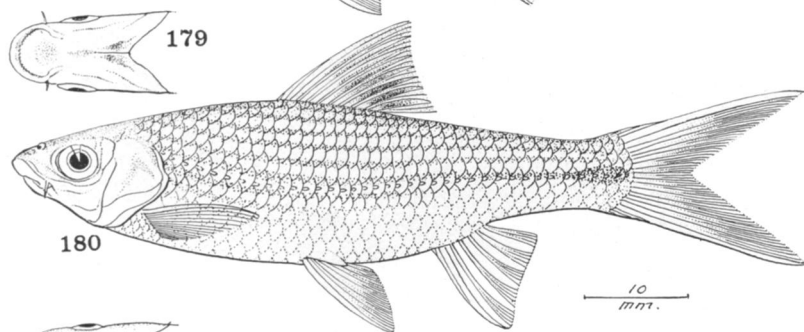
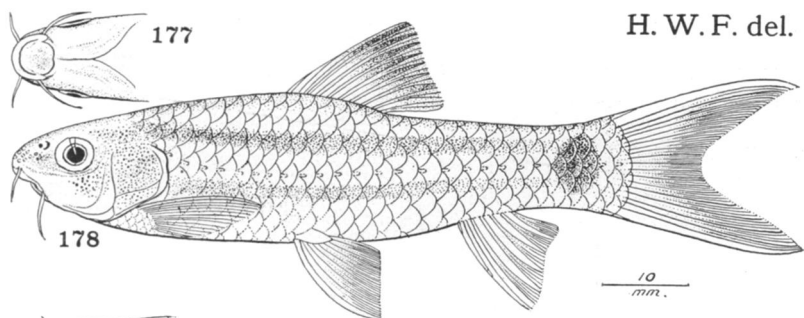
D. iv, 12, 1, first simple rays pungent with fourth terminally flexible, first branched ray $1\frac{1}{4}$ in head to $1\frac{1}{3}$ times head; A. iii, 5, 1, first branched ray $1\frac{1}{4}$ to $1\frac{1}{2}$ in head; caudal $2\frac{3}{5}$ to 3 in rest of fish, deeply forked; least depth of caudal peduncle $1\frac{7}{8}$ to $2\frac{1}{4}$ in head; pectoral $1\frac{1}{8}$ to $1\frac{1}{2}$, rays 1, 18; ventral rays 1, 8, fin $1\frac{1}{2}$ to $1\frac{3}{5}$. Vent slightly before ends of depressed ventrals.

Dark or olivaceous brown on back or upper surface, lower sides and under surfaces whitish. Above fifth scale of lateral line scale gray black, also one below and sometimes second one. Dark gray transverse bar at caudal base. Iris brown. Lips whitish. Dorsal gray, more contrasted or rays paler in young. Caudal brownish. Lower fins largely pale brown, medially darker or gray brown.

A.N.S.P., No. 68,190. Kemrat, Siam. Length 208 mm. Type. Also Nos. 68,191 to 68,200, same data, paratypes. Length 40 to 208 mm.

Besides these a series of 77 specimens with same data, not paratypes, and one example 65 mm. long from Bangkok.

H. W. F. del.

177, 178. *Discolabeo fisheri*.179, 180. *Tylognathus davisi*.181, 182. *Tylognathus coatesi*.183, 184. *Tylognathus gracilis*.

Known among Siamese species by its coloration and combination of structural characters.

(Named for the late Otto Behr, of Lopez, Pa., to whom the Academy is indebted for many specimens of the natural history of his region.)

Tylognathus davisii, new species. Figures 179 (head below), 180.

Depth $3\frac{1}{2}$; head $3\frac{3}{4}$, width 2. Snout $3\frac{1}{2}$ in head; eye 4, $1\frac{1}{2}$ in snout, $1\frac{2}{3}$ in interorbital; maxillary reaches $\frac{2}{3}$ to eye, length $3\frac{1}{4}$ in head; upper labial fold broad, its edge and that of upper lip entire, and lower lip with papillate edge, otherwise smooth; small maxillary barbel $1\frac{1}{2}$ in eye, largely concealed; interorbital $2\frac{1}{4}$ in head; suborbitals narrow, width $\frac{1}{3}$ of eye. Gill opening extends forward nearly opposite hind eye edge.

Scales $30 + 2$ in lateral line; 6 above, 4 below to ventral origin, 5 below to anal origin, 12 predorsal. Ventral with pointed axillary scale $2\frac{2}{3}$ in fin. Caudal base scaly. Small scales on chest and breast. Lateral line complete, slightly decurved, median at caudal base; tubes small, slender, simple. Scales with 15 apical radiating striae; 6 short basal striae; circuli fine, basal, more or less obsolete apically.

D. III, 8, 1, simple rays slender, entire, first branched ray $1\frac{1}{2}$ in head; A. III, 5, 1, first branched ray $1\frac{1}{2}$; caudal $2\frac{1}{2}$ in rest of fish, deeply forked, slender lobes sharply pointed; least depth of caudal peduncle $2\frac{1}{2}$ in head; pectoral $1\frac{1}{4}$, rays 1, 15; ventral rays 1, 8, fin $1\frac{1}{3}$ in head. Vent close before tip of depressed ventrals.

Back and upper surfaces brown, sides below and under surfaces whitish. On tail narrow dark axial line, ending in elongate black blotch, about long as snout, at base of caudal. Iris gray. Lips whitish. On back forming slightly darker longitudinal streaks at scale junctures, about 6 distinguished above lateral line. Dorsal pale brown, each membrane medially rather dark gray. Caudal brownish, little yellowish basally. Lower fins all pale or whitish.

A.N.S.P., No. 68,201. Kemrat, Siam. Length 78 mm. Type.

Apparently related to *Tylognathus siamensis* Beaufort 1927, but that species described with 35 or 36 scales, 5 scales above lateral line, uniform, dorsal with blackish border and a row of oblong blackish spots on membranes between fin rays, forming a cross bar, specimen 135 mm., from Payao Swamp.

(For Mr. William Baldwin Davis, of Philadelphia, who contributed numerous local fishes to the Academy.)

Tylognathus coatesi, new species. Figures 181 (head below), 182.

Depth 4; head 4, width $1\frac{1}{2}$. Snout 3 in head; eye $4\frac{1}{2}$, $1\frac{2}{3}$ in snout, $1\frac{1}{4}$ in interorbital; mouth small, transverse, width $4\frac{1}{2}$ in head; upper lip with about 16 plicae, tip of each free and forming more or less free edge, their surfaces entirely finely papillate; edge of lower lip papillate and uneven, though outer surface smooth, rictal groove moderate and converging a little toward isthmus; rather robust rostral barbel $1\frac{1}{2}$ in eye, interorbital $2\frac{2}{3}$ in head; suborbitals narrow, width about $\frac{1}{3}$ of eye. Gill opening extends forward opposite hind eye edge.

Scales $29 + 3$ in lateral line; 5 above, 4 below to ventral origin, 4 below to anal origin, 10 predorsal. Ventral with free, pointed axillary scale, $2\frac{1}{2}$ in fin. Caudal base scaly. Chest and front of breast before pectorals naked. Lateral line continuous, slightly decurved, midway at caudal base; tubes small, simple, slender, well exposed. Scales with 29 radiating apical striae; 15 short basal striae and many as 10 more incomplete auxiliaries; circuli fine, basal, apically obsolete.

D. III, 8, 1, front simple rays pungent, slender, smooth, third flexible terminally, first branched ray 1 in head; A. III, 5, 1, first branched ray $1\frac{1}{2}$, caudal $2\frac{1}{2}$ in rest of fish, deeply forked, lower lobe little shorter; least depth of caudal peduncle 2 in head; pectoral $1\frac{1}{2}$, rays 1, 14; ventral rays 1, 8, fin $1\frac{1}{2}$ in head. Vent little in advance of anal, opposite tips of depressed ventrals.

Back and upper surfaces light brown, scale pockets showing through as darker brown though in little contrast. Along side of tail medially an underlaid ill defined lateral band ending at caudal base in a contrasted blackish blotch larger than eye. Iris gray. Rostral barbel and lips pale. Dorsal pale brown, each membrane with slightly darker or dark gray median streak. Caudal pale brown, with dull yellowish tinge basally. Lower fins whitish.

A.N.S.P., No. 68,202. Bangkok, Siam. Length 83 mm. Type.

Known by the possession of only two barbels, the rostral pair, the scaleless breast, and structural characters as noticed above.

(For Josiah L. Coates, an early contributor to the Academy's collection of fishes.)

Tylognathus gracilis, new species. Figures 183 (head below), 184.

Depth $4\frac{1}{2}$ to $4\frac{3}{4}$; head $3\frac{1}{8}$ to $4\frac{1}{5}$, width $1\frac{3}{4}$ to $1\frac{7}{8}$. Snout $2\frac{1}{2}$ to $2\frac{5}{8}$ in head; eye 5 to 6, 2 to $2\frac{1}{2}$ in snout, $2\frac{1}{2}$ to 3 in interorbital; mouth broad, transverse, width $2\frac{1}{8}$ to $3\frac{1}{5}$ in head; maxillary extends $\frac{3}{4}$ to $\frac{5}{8}$ to eye, length $2\frac{1}{2}$ to $3\frac{1}{5}$ in head; rostral fold broad, edge entire, leaving narrowly exposed upper lip entire; lower lip with broad free inner face entire, outer face with broad marginal band of papillae; lower jaw edge trenchantly coriaceous, broad; single maxillary barbel each side, partly concealed and little less than eye; interorbital 2 to $2\frac{1}{2}$ in head, broadly convex, rather low; suborbitals narrow, width about $\frac{2}{3}$ of eye. Gill opening extends forward opposite hind eye edge. Gill rakers $6 + 25$, short, compressed, laminated, pointed, $\frac{1}{2}$ of gill filaments, which equal eye. Pharyngeal teeth 2, 4, 5 — 5, 4, 2, small, compact, compressed, cultrate, with broad, smooth grinding surfaces.

Scales 28 or $29 + 2$ or 3; 6 above, 3 below to ventral base, 4 below to anal origin, 10 or 11 predorsal. Ventral with free pointed axillary scale $2\frac{1}{2}$ to $2\frac{3}{5}$ in fin. Caudal base scaled. Chest and breast finely and closely scaled. Lateral line complete, distinct, axial along side of body; tubes small, simple, little exposed. Scales with 43 or 44 apical radiating striae; 3 to 5 short basal striae; circuli fine, basal, obsolete apically. Five irregular rows of pearl organs around end of snout to below nostrils. Some examples even show cheeks and most of upper surface of head minutely tuberculate.

D. III, 8, 1, simple rays slender, first branched ray $1\frac{1}{2}$ to $1\frac{1}{5}$ times head; A. III, 5, 1, first branched ray $1\frac{1}{2}$ to $1\frac{1}{5}$ in head; caudal $2\frac{1}{2}$ to $2\frac{3}{5}$ in rest of fish,

deeply forked, long slender lobes sharply pointed; least depth of caudal peduncle $2\frac{2}{3}$ to $2\frac{3}{5}$ in head; pectoral 1 to $1\frac{1}{4}$, rays 1, 16; ventral rays 1, 8, fin $1\frac{1}{10}$ to $1\frac{1}{8}$ in head. Vent at last fifth to third in space between ventral and anal origins.

Back gray brown, each scale with dark blotch, and along sides of body each scale with small and still darker spot. On side of tail small dark spots form, with others present in interspaces, 3 distinct nearly blackish longitudinal lines. At caudal base a broad axial dark gray band continued out over middle of caudal fin. Sides of head with gray and olive tints, below whitish. Iris gray. Lips and barbels pale to whitish. Dorsal grayish, each membrane with gray black streak medially. Caudal brownish, except for dark gray median band as described. Lower fins all pale to whitish.

A.N.S.P., No. 68,203. Me Poon, Siam. Length 233 mm. Type. Also Nos. 68,204 to 68,218, same data, paratypes. Length 164 to 228 mm. One, 153 mm., Kemrat.

A handsome slender species, related to *T. quadrilineatus* Fowler 1935, but with long falcate fins and three dark lines on the caudal peduncle.

(*Gracilis* slender.)

Tylognathus melanotaenia Fowler.

Three, 142 to 158 mm., Kemrat. As this is known only from the type I have the following notes: Depth $3\frac{3}{4}$ to 4; head 4 to $4\frac{1}{3}$, width $1\frac{3}{4}$ to $1\frac{4}{5}$. Snout $2\frac{3}{4}$ to 3 in head; eye $4\frac{1}{2}$ to 5, $1\frac{1}{2}$ to $1\frac{3}{4}$ in snout, 2 to $2\frac{1}{5}$ in interorbital; maxillary reaches $\frac{3}{4}$ to $\frac{7}{8}$ to eye, length $2\frac{4}{5}$ to 3 in head; interorbital 2 to $2\frac{1}{8}$. Gill rakers 5 + 25. Right pharyngeal teeth 5, 4, 2. Scales 27 to 29 + 3 in lateral line; 11 or 12 predorsal. Ventral axillary scale 2 to $2\frac{1}{2}$ in fin. Small scales crowded on chest and breast. Pearl organs (scars) in 4 or 5 irregular rows around end of snout, extend below nostrils; head above and median predorsal ridge with minute, inconspicuous, numerous tubercles or papillae. First branched dorsal ray $1\frac{1}{8}$ to $1\frac{1}{5}$ times head; first branched anal ray $1\frac{1}{5}$ to $1\frac{1}{4}$ in head; caudal $2\frac{1}{2}$ to $2\frac{3}{5}$ in rest of fish; least depth of caudal peduncle $1\frac{1}{5}$ to 2 in head; pectoral 1 to $1\frac{1}{5}$; ventral 1 to $1\frac{1}{10}$. Each specimen with subopercle brilliant red when first received.

DISCOLABEO, new genus

Body moderately long, compressed. Head moderate, little compressed. Snout obtuse. Eye small, elevated, entirely in front half of head. Mouth inferior, broad. Lips not greatly developed. Two pairs of barbels, well developed. Mandible modified, disk like, with velum behind. Nostrils together, little nearer eye than end of snout. Gill opening lateral, with broad isthmus. Pseudobranchiae moderate. Gill rakers minute. Scales rather large, well exposed, in even longitudinal rows. Lateral line complete, simple. Dorsal origin but slightly premedian, branched rays 8. Anal small, entirely behind dorsal, branched rays 5. Caudal large, forked. Pectoral low, less than head. Ventral inserted little behind dorsal origin, moderate. Type *Discolabeo fisheri*, new species.

Small cyprinids allied to *Tylognathus*, remarkable for the mandibular disk and somewhat contrasted coloration.

(*Discus* disk + *Labeo*.)

Discolabeo fisheri, new species. Figures 177 (head below), 178.

Depth $3\frac{3}{4}$; head $3\frac{2}{3}$ to $3\frac{3}{4}$, width $1\frac{1}{3}$. Snout $3\frac{1}{8}$ to $3\frac{1}{4}$ in head; eye 4, $1\frac{1}{3}$ to $1\frac{1}{4}$ in snout, $1\frac{1}{3}$ to $1\frac{1}{2}$ in interorbital; maxillary not quite reaching opposite front eye edge, length $3\frac{1}{2}$ to $3\frac{3}{4}$ in head; mouth broad, width 4 to $4\frac{1}{4}$; upper lip entire, lower broadly interrupted and entering broad rounded mental disk with broad, free, entire edge behind; rostral barbel $\frac{7}{8}$ to equal to eye, maxillary barbel $1\frac{1}{3}$ to $1\frac{1}{2}$ times eye; interorbital $2\frac{1}{4}$ to $2\frac{1}{2}$ in head, low, broadly convex; suborbitals narrow, width about $\frac{1}{4}$ of eye. Gill opening extends forward about opposite hind eye edge. Gill rakers very short feeble rudiments, about $\frac{1}{2}$ of gill filaments, apparently 20 on lower part of arch. Gill filaments about $\frac{2}{3}$ of eye. Right pharyngeal teeth 5, 4, 2, small, slender, ends curved, with entire, concave grinding surfaces.

Scales 27 or 28 + 2 or 3 in lateral line; 5 above, 4 below to ventral base, 4 below to anal origin, 10 predorsal. Ventral with pointed axillary scale 3 in fin. Caudal base scaled. Chest and breast covered with small scales. Lateral line complete, distinct, nearly straight and axial along side of body; tubes small, simple, little exposed. Scales with 16 apical striae; 2 short basal striae; circuli fine, basal, obsolete apically. Pearl organs (scars) as 2 or 3 irregular series around end of snout.

D. III, 8, 1, simple rays slender, entire, first branched ray $1\frac{1}{3}$ in head; A. III, 5, 1, first branched ray $1\frac{2}{3}$; caudal $2\frac{1}{3}$ to $2\frac{2}{3}$ in rest of fish, deeply forked, lobes sharply pointed; least depth of caudal peduncle $1\frac{9}{10}$ to 2 in head; pectoral $1\frac{1}{3}$, rays 1, 13; ventral rays 1, 8, fin $1\frac{1}{3}$ to $\frac{1}{4}$ in head. Vent little before anal origin, at depressed ventral tip.

Brown above, paler to whitish below or underneath. Two very obscure, ill defined or diffuse, slightly darker, longitudinal streaks. Side of head and body all more or less dusted with dark dots. Black blotch, larger than eye at caudal base. Iris gray. Barbels and lips whitish. Dorsal pale or very light brownish basally, apex broadly black. Caudal brownish. Lower fins all very pale brown to whitish.

A.N.S.P., No. 68,219. Tachin, Siam. Length 43 mm. Type. Also No. 68,220, same data, paratype. Length 42 mm.

The characters are included in the generic account.

(For Dr. J. C. Fisher, an early contributor to the natural history collections of the Academy.)

Garra taeniatops Fowler.

Series of 195 specimens, 28 to 87 mm., Me Poon. Many with the dark or blackish lateral band, and the dark border of the dark shade on the back each edged with black, and in sharp contrast. Lower caudal lobe with a median streak at the base of the lower lobe. Lateral line indistinct and not always evident with age, though in small or young mostly evident or quite distinct. One example, abnormal with greatly swollen predorsal, is 70 mm. long.

Garra fasciacauda, new species. Figures 187 (head below), 188.

Depth $5\frac{1}{5}$ to $5\frac{1}{3}$; head $3\frac{2}{5}$ to $4\frac{2}{5}$, width $1\frac{1}{3}$ to $1\frac{2}{5}$. Snout $1\frac{1}{8}$ to 2 in head; eye 4 to $5\frac{3}{4}$, 2 to $2\frac{1}{2}$ in snout, $1\frac{1}{8}$ to 2 in interorbital; mouth width $2\frac{1}{5}$ to $2\frac{7}{8}$ in head; upper lip broadly papillate, edge with 16 to 20 plaits and short free end of each with slight terminal notch; lower lip broad disk, also largely finely papillate around front border, more narrowly so behind; rostral barbel long as eye; interorbital 2 to $2\frac{1}{8}$ in head, low, scarcely convex; suborbitals narrow, width little less than half of eye. Gill opening lateral, extends forward opposite hind eye edge. Gill rakers 8 + 16, short, more or less uniform points, $\frac{1}{5}$ of gill filaments, which equal eye. Pharyngeal teeth 2, 3 or 4, 5 — 5 or 6, 3, 2, compressed, small, close set, without hooks, moderate, entire, oblique grinding surfaces.

Scales 28 + 2 or 3 in lateral line; 4 above, 3 below to ventral origin, 4 below to anal origin, 10 predorsal. Ventral with free pointed axillary scale $2\frac{3}{8}$ to $2\frac{3}{4}$ in fin. Caudal base scaly. Chest and breast naked. Lateral line complete, nearly straight, axial along side of body; tubes small, slender, simple. Scales with 37 to 58 apical radiating striae; 12 to 21 short basal striae; circuli fine, basal, obsolete apically. Pearl organs moderate, over end of snout back into internasal space and below nostrils on preorbital; pair of enlarged, wide set, laterally directed horny tubercles each side of snout end.

D. III, 8, 1, simple rays in front slender and smooth, first branched ray $1\frac{1}{8}$ to $1\frac{1}{6}$ times head; A. III, 5, 1, first branched ray $1\frac{1}{8}$ to $1\frac{1}{4}$ in head; caudal $2\frac{7}{8}$ to $3\frac{1}{8}$ in rest of fish, well forked, lobes sharply pointed; least depth of caudal peduncle $1\frac{1}{5}$ to $2\frac{1}{5}$ in head; pectoral 1, rays 1, 15; ventral rays 1, 8, fin 1 to $1\frac{1}{8}$ in head. Vent opposite last fourth or fifth of depressed ventrals.

Body brown above, lower sides and under surfaces pale to whitish. Pale spot, nearly whitish, and little smaller just before eye. Iris gray. Lips, barbel and disk whitish. Along side of body, from behind head, broad gray black lateral band, wider than eye, contains lateral line and reflected narrowly out over median caudal rays. Above band narrow parallel paler streak separates darker color of back. Dorsal grayish, paler basally, and each membrane medially with dark gray streak along front of each ray. Caudal pale to whitish, each lobe with narrow gray black submarginal band. Lower fins all more or less whitish, dusted with gray brown medially.

A.N.S.P., No. 68,222. Kemrat, Siam. Length 110 mm. Type. Also Nos. 68,223 to 68,231, same data, paratypes. Length 75 to 105 mm. Also 28 others, same data, not included as paratypes.

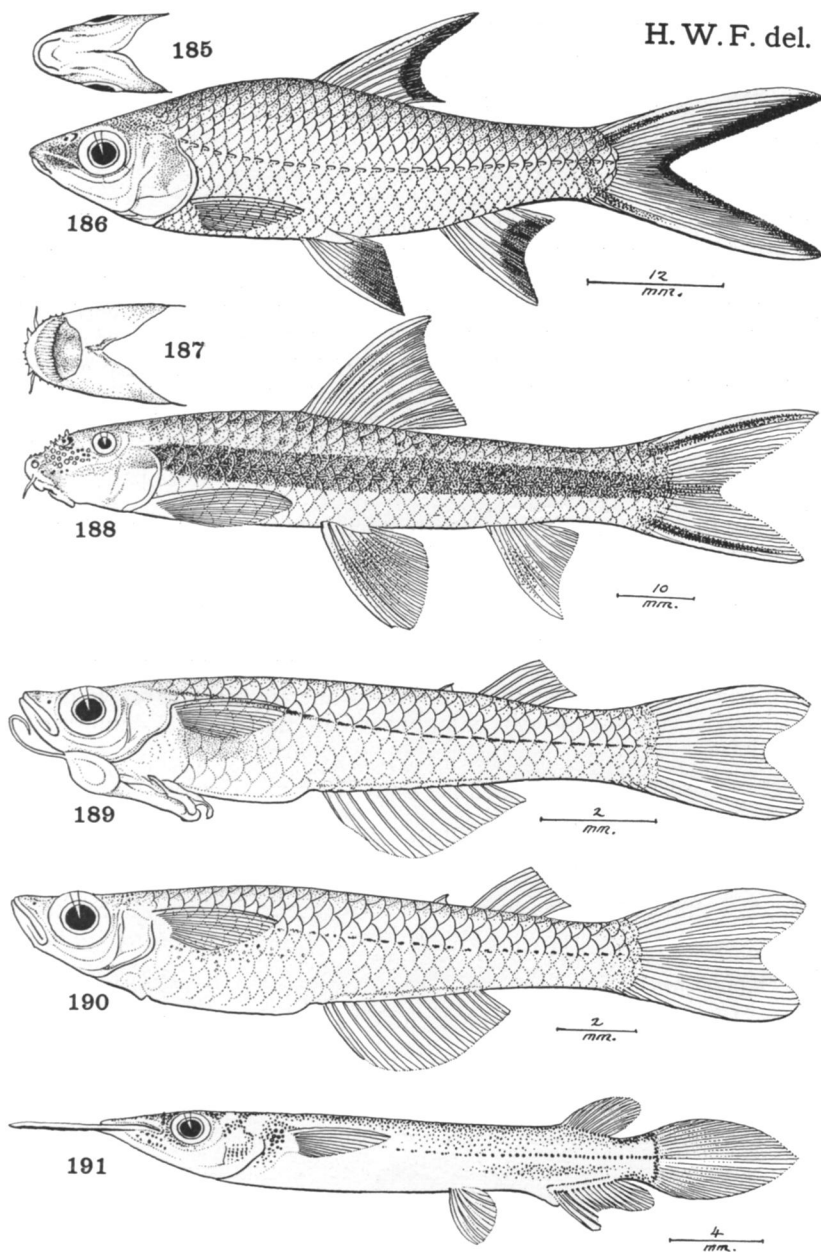
Related to *Garra taeniatops* Fowler, especially in its pearl organs. It differs in the dorsal less contrasted and not banded, its very slender and trim body, and each caudal lobe with a narrow black band nearly or quite to its hind edge. The species is also of moderate size.

(*Fascia* band + *cauda* tail.)

LEUCISCINAE

Barilius harmandi (Sauvage).

Two, 133 to 222 mm., Me Poon.



185, 186. *Balantiocheilus melanopterus*.
189, 190. *Phenacostethus thai*.

187, 188. *Garra fasciata*.
191. *Dermogenys siamensis*.

CYPRINODONTIDAE

Panchax panchax (Buchanan-Hamilton).

Two, 28 to 29 mm., Bangkok.

BELONIDAE

Strongylura leiura (Bleeker).

Three, 204 to 246 mm., Tachin.

Xenentodon canciloides (Bleeker).

Depth $11\frac{1}{2}$ to 14; head $2\frac{2}{3}$ to $2\frac{3}{4}$, width 7 to 8. Snout $1\frac{1}{2}$ to $1\frac{3}{4}$ in head from snout tip; eye 7 to $8\frac{1}{2}$ in snout, $2\frac{1}{2}$ to $3\frac{1}{2}$ in postocular region of head, $1\frac{1}{5}$ to $1\frac{1}{3}$ in interorbital; maxillary reaches below $\frac{1}{5}$ to $\frac{1}{4}$ of eye; canines in 14 to 16 pairs, subvertical; interorbital 2 to $2\frac{1}{2}$ in postocular region; deep groove along top of head conspicuous, its width half of eye. No gill rakers.

Scales about 200 to 205 in axial lateral series to caudal base and 7 or 8 more on latter; 20 or 21 scales between dorsal origin and lateral line; 110 to 146 predorsal scales forward to occiput. Lateral line low along side of body, after anal slopes up until median along side of caudal peduncle, without keel. Opercle naked.

D. II, 13 to II, 15, first branched ray $3\frac{1}{8}$ to 4 in lateral head length; A. II, 13 or II, 14, first branched ray $3\frac{1}{8}$ to $4\frac{3}{8}$; caudal $3\frac{2}{3}$ to $3\frac{7}{8}$, convex behind; least depth of caudal peduncle about equals eye; pectoral $3\frac{1}{8}$ to $4\frac{1}{8}$ in total head length, rays 1, 9; ventral rays 1, 5, fin $1\frac{1}{8}$ to 2 in postocular space. Vent rather close before anal.

Pale brown, lower sides and under surfaces white, evidently silvery white in life. Iris gray. Lateral mandibular cutaneous margin black in young, brownish with age. Fins all pale brownish, dorsal and caudal grayish marginally.

Eight, 111 to 260 mm., Bangkok; one, 212 mm., Kemrat.

HEMIRAMPHIDAE

Hemiramphus erythrorinchus Le Sueur.

One, 228 mm., Paknam; five, 158 to 213 mm., Tachin. Branched anal rays 10 or 11.

Hyporhamphus neglectus (Bleeker).

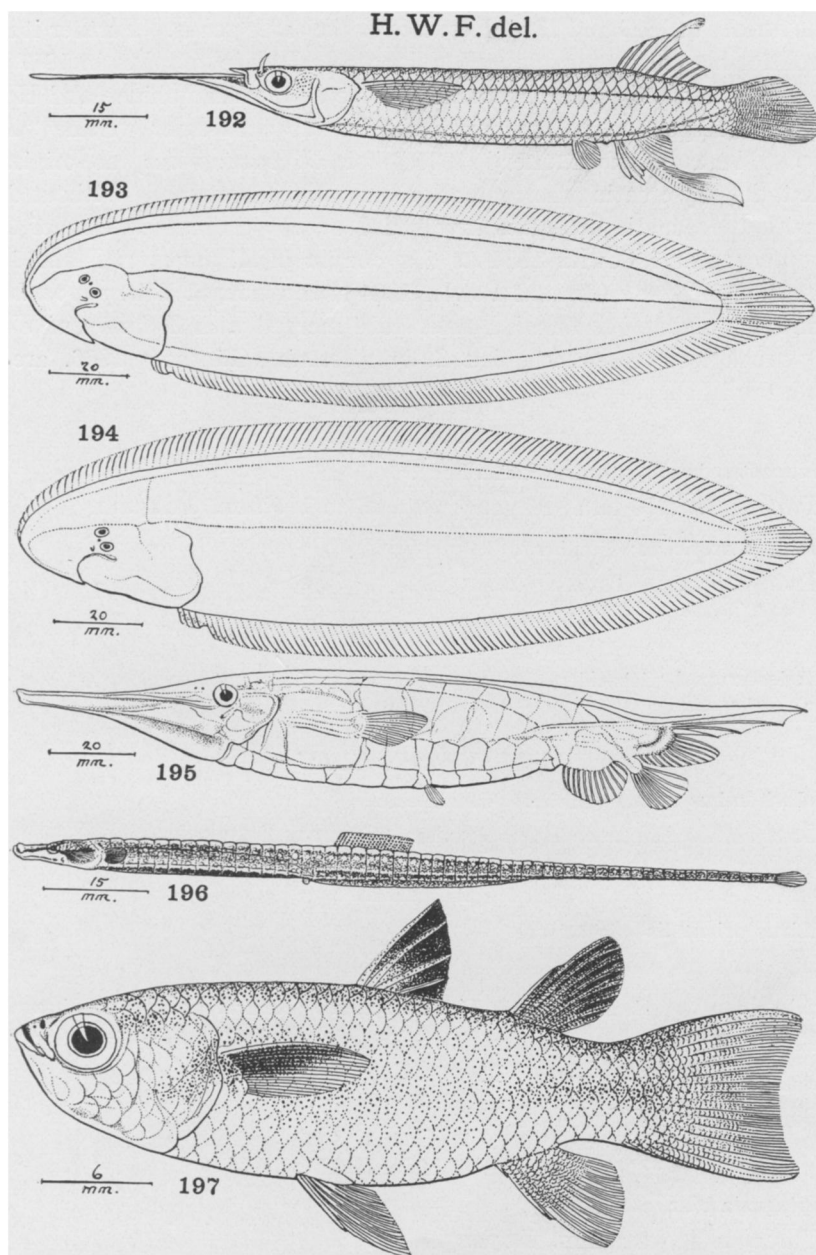
Two, 212 to 227 mm., Rayong; eight, 110 to 128 mm., Tachin.

Zenarchopterus dunckeri Mohr.* Figure 192.

Eight, 75 to 140 mm., Rayong.

Dermogenys siamensis Fowler. Figure 191 (Bangkok).

Two, 22 to 36 mm., Bangkok; one, 35 mm., Paknam. Mohr 1936 has suppressed this form, along with *D. burmanicus* Mukerji 1935, as synonyms of *D. pusillus* Van Hasselt. In this I am not altogether convinced as my specimens show only the first three anal rays simple and longer than those following, and in *D. burmanicus* at least five are shown in the figure of the anal fin of the male. In commenting on *Dermogenys pusillus* Van Hasselt

192. *Zenarchopterus dunckeri*.194. *Cynoglossus macrolepidotus*.196. *Syngnathus djarong*.193. *Cynoglossus microlepis*.195. *Centruscus scutatus*.197. *Mugil vaiensis*.

may she be reminded that Sherborn (Index Animalium) gives Van Hasselt as the author in 1823 and 1824, likewise for the same genus. Further it may be well for her to remember that Cuvier wrote *Hemi-Ramphus* in 1817 and that the family and subfamily names evolve as Hemiramphidae and Hemiramphinae respectively. Still more she has no excuse for writing "*Dermogenys burmanensis* Mukerji 1935" for *D. burmanicus*, as originally spelled, thereby creating the contention for a different name. Without dealing with the generic problems involved I accept the suppression of *Zenarchopterus kneri* Fowler 1934 as a synonym of *Z. dunckeri* Mohr 1926. Contention for *Z. atrodorsalis* Fowler 1934 as a synonym of *Z. pappenheimi* Mohr 1926, and *Z. basudensis* Fowler 1934 merged with *Z. kampeni* Weber 1913, much less the preoccupied *Z. brevirostris* (Günther) 1866, are far from established.

EXOCOETIDAE

Parexocoetus brachypterus (Richardson).*

Two, 110 to 116 mm., Rayong; two, 96 to 115 mm., Paknam.

Cypselurus arcticeps (Günther).

Two, 175 mm., Tachin. A. II, 7.

PSETTODIDAE

Psettodes erumei (Schneider).

One, 193 mm., Rayong.

PLEURONECTIDAE

Pseudorhombus arsius (Buchanan-Hamilton).

One, 139 to 170 mm., Rayong; one, 143 mm., Bangkok.

SOLEIDAE

Brachirus orientalis (Schneider).

One, 91 mm., Bangkok.

Brachirus aeneus (H. M. Smith). Figures 198, 200 (Kemrat), 201, 202 (Pitsanulok).

Three, 37 to 50 mm., Kemrat; two, 76 to 80 mm., Pitsanulok.

Zebrias zebra (Bloch). Figure 203.

One, 150 mm., Paknam.

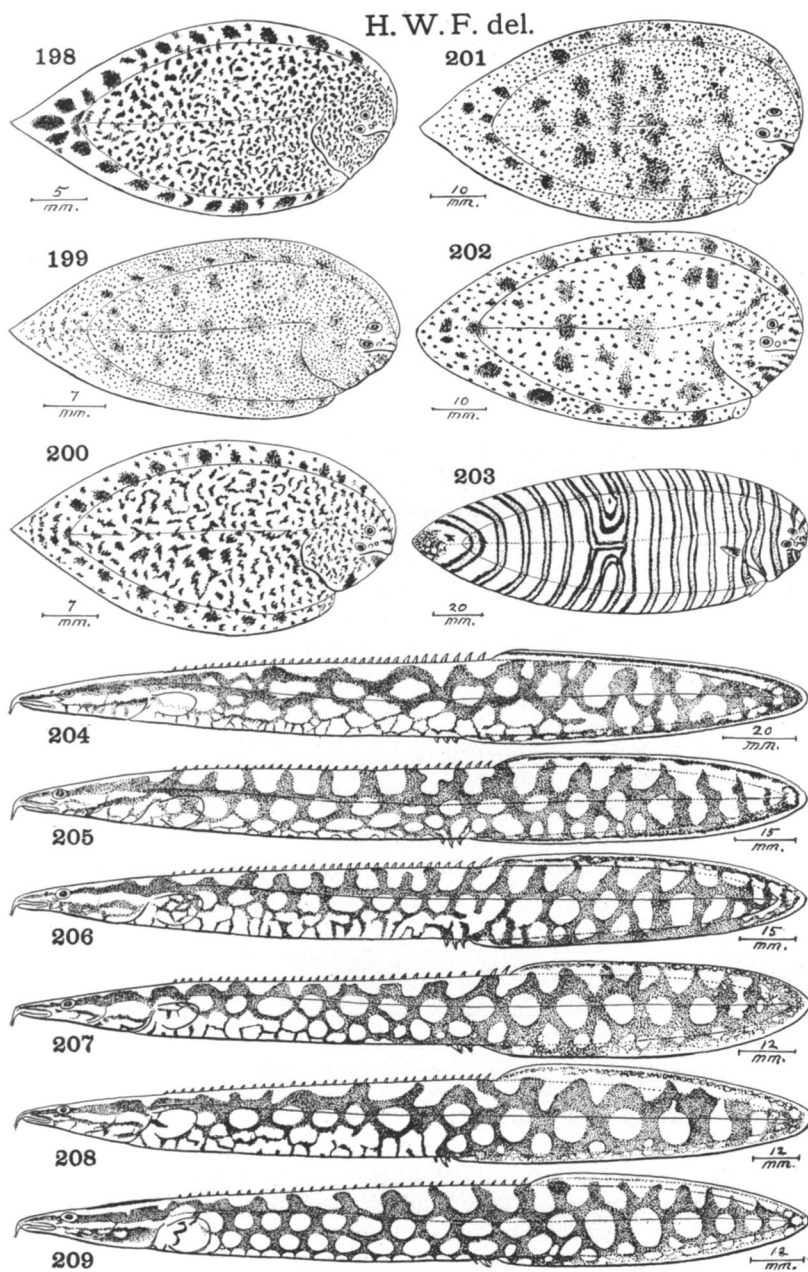
CYNOGLOSSIDAE

Paraplagusia bilineata (Bloch).*

Three, 165 to 168 mm., Rayong.

Cynoglossus lingua (Buchanan-Hamilton).

Six, 122 to 173 mm., Bangkok.



198 to 202. *Brachirus aeneus*. 203. *Zebrias zebra*.
 204 to 209. *Mastacembelus favus*.

Cynoglossus arel (Schneider).*

Depth $5\frac{1}{3}$ to $6\frac{1}{3}$; head 4 to $4\frac{1}{2}$. Snout $2\frac{1}{2}$ in head; upper eye 11 to 13, $3\frac{3}{4}$ to $4\frac{4}{5}$ in snout, greater than interorbital; rostral hook moderate, extends behind mandibular symphysis for space equal to $\frac{3}{4}$ eye; maxillary extends $\frac{1}{2}$ eye diameter behind eye, much nearer gill opening than end of snout; nostrils on eyed side, upper pore in front part of interorbital space, lower in tubule little before eye.

Scales ctenoid on eyed side, cycloid on blind side. Two lateral lines on eyed side, scales in median or axial from above gill opening to caudal base 63 to 65; 10 between lateral lines. No lateral line on blind side.

D. 120 to 123, fin height 4 in head; A. 103 to 104, fin height $4\frac{1}{3}$ to $4\frac{1}{2}$; caudal $2\frac{1}{3}$ to $2\frac{3}{5}$, ends in slender median point.

Uniform pale brown on left or eyed side, right side whitish. Iris gray. Fins pale.

Three, 130 to 142 mm., Tachin.

Cynoglossus microlepis (Bleeker).* Figure 193.

Depth $4\frac{1}{3}$ to $4\frac{3}{4}$; head $4\frac{1}{8}$. Snout to upper eye $2\frac{1}{4}$ to $2\frac{3}{4}$ in head; upper eye $13\frac{1}{2}$ to 15, $4\frac{3}{4}$ to 5 in snout, slightly greater than interorbital; rostral hook long, extends back over lower face of mandible opposite hind edge of lower eye; maxillary reaches opposite or little behind hind edge of lower eye, or mouth corner much nearer gill opening than snout end; upper nostril pore in interorbital slightly behind hind edge of upper eye, lower in short tube close to upper lip and below front part of upper eye; interorbital narrow, concave.

Scales ctenoid on both sides of body. Left or colored side with 3 lateral lines, on median or axial 110 to 120 scales from above gill opening to caudal base; 20 or 22 between median and upper lateral line; 24 between median and lower lateral line. Single median or axial lateral line on blind side.

D. 113 to 115, fin height $3\frac{1}{3}$ to 5 in head; A. 95, fin height $3\frac{3}{4}$ to $4\frac{4}{5}$; caudal $1\frac{1}{5}$ to $1\frac{1}{2}$, ends in median point behind.

Left side brown, right side pale to whitish. Fins grayish on upper surfaces, whitish on lower. Iris gray.

Two, 160 to 263 mm., Bangkok.

Cynoglossus borneensis (Bleeker).*

Seven, 78 to 197 mm., Bangkok. Rictus nearer gill opening than end of snout. On left side 16 to 18 scales between upper and median lateral line. On right side single lateral line.

Cynoglossus macrolepidotus (Bleeker).* Figure 194.

Depth $4\frac{1}{4}$; head $3\frac{4}{5}$. Snout to upper eye $2\frac{2}{3}$ in head; upper eye 15, $4\frac{1}{2}$ in snout, greater than interorbital; rostral hook encroaches very little on mandible; maxillary reaches very slightly behind eye, with rictus slightly nearer gill opening than end of snout; upper nostril pore at front of interorbital above front edge of lower eye, lower in short tube near upper lip and opposite front edge of upper eye.

Scales ctenoid on left or ocular side, smooth on right side. Lateral lines 2 on left side, medial with 52 scales from above gill opening to caudal base; 7 scales between. No lateral line on right side.

D. 106, fin height 4 in head; A. 84, fin height $3\frac{1}{4}$; caudal $2\frac{3}{8}$.

Left or eyed side brown, right side whitish. Fins grayish on eyed side, whitish on right. Eyes gray.

One 180 mm. Bangkok.

Cynoglossus puncticeps (Richardson).

Two, 74 to 82 mm., Bangkok; three, 61 to 98 mm., Paknam; nine, 78 to 104 mm., Tachin. Scales 16 to 18 between median and upper lateral line on eyed side.

Cynoglossus cynoglossus (Buchanan-Hamilton).

One, 103 mm., Tachin; eight, 73 to 94 mm., Paknam; 33 specimens, 62 to 100 mm., Bangkok.

CENTRISCIDAE

Centriscus scutatus Linnaeus.* Figure 195.

One, 160 mm., Rayong.

SYNGNATHIDAE

Syngnathus djarong Bleeker. Figure 196.

One, 122 mm., Bangkok.

PHALLOSTETHIDAE

Phenacostethus thai, new species. Figures 189 (male), 190 (female).

Depth $4\frac{3}{8}$ to $4\frac{7}{8}$; head 4 to $4\frac{1}{8}$, width $1\frac{1}{8}$ to 2. Snout $3\frac{7}{8}$ to 4 in head from snout tip; eye $2\frac{2}{5}$ to $3\frac{3}{5}$, greater than snout, 1 to $1\frac{1}{5}$ in interorbital; maxillary reaches slightly beyond front eye edge, length $2\frac{2}{3}$ to $2\frac{7}{8}$ in head from snout tip; mandible distinctly protruded; interorbital $1\frac{1}{8}$ to 2, depressed, with eye slightly impinging on upper profile.

Scales 28 or 29 + 2 or 3 in axial lateral series; 7 transversely above anal origin, about 14 predorsal. Caudal base scaly, fins otherwise and head naked.

D. I-6, 1, small detached spine less than pupil in length, first ray 2 to $2\frac{1}{5}$ in total head length; A. 1, 13, 1 or 1, 14, 1, third branched ray $1\frac{1}{2}$ to $1\frac{3}{4}$; caudal $3\frac{2}{5}$ to $3\frac{3}{5}$ in rest of fish, emarginate; least depth of caudal peduncle 2 to $2\frac{1}{8}$ in head; pectoral $1\frac{1}{5}$ to $1\frac{1}{4}$, rays 13. Male with priapium elongate, excluding toxactinium little longer than head; toxactinium, or hook-like structure at front of pulvinulus, extends forward below chin; pulvinulus disk-like below eye and slightly longer than its diameter; infra-pectoral expansion below fin base large as eye; abdominal ridge distinct.

Largely pale uniform brownish in alcohol. Iris gray. Median axial line dark to blackish brown, and another along anal base. Patch of dark dots below depressed pectoral. Fins all pale to whitish.

A.N.S.P., No. 51,352. Bangkok, Siam. August 1923. Dr. H. M. Smith. Length 17 mm. Type. Also Nos. 51,353 to 51,360, same data, paratypes. Length 15 to 18 mm. Of these 4 are males.

Apparently very closely related to *P. smithi* Myers 1928, but my specimens with a larger caudal or less than 4 in the rest of the fish (compared

with $4\frac{2}{3}$ in figure of *P. smithi*), anal origin midway, or but very slightly postmedian in female (anal origin midway between hind edge of eye and caudal base in *P. smithi*), longer pectoral reaching over $\frac{2}{3}$ to anal origin, and depth less than 5. As these characters seem to me distinctive, possibly they may in part at least be due to preservation and may eventually be found less contrasted than now appears.

(*Thai*, the ancient name of the Siamese.)

SPHYRAENIDAE

Sphyraena jello Cuvier.

One, 170 mm., Tachin; four, 81 to 83 mm., Rayong.

MUGILIDAE

Mugil vaigiensis Quoy and Gaimard.* Figure 197 (Rayong).

One, 42 mm., Rayong; one, 53 mm., Bangkok.

Mugil oligolepis Bleeker. Figure 210.

Seven, 68 to 142 mm., Tachin. Scales 24 to $28 + 3$ in median lateral series; 20 predorsal. Pectoral scale in axil 3 to $3\frac{1}{2}$ in fin. Soft vertical fins mostly scaly. A. III, 9, 1. Pectoral $1\frac{1}{3}$ to $1\frac{2}{3}$ in head.

Mugil troscheli Bleeker.* Figure 211.

One, 70 mm., Tachin.

Mugil longimanus Günther. Figure 212.

Twenty, 110 to 157 mm., Tachin.

Mugil seheli Forskål.* Figure 213.

Series of 133 specimens, 34 to 116 mm., Rayong.

ATHERINIDAE

Atherina valenciennesi Bleeker.

Two, 89 to 90 mm., Paknam; 19 specimens, 48 to 97 mm., Tachin.

Atherina duodecimalis Valenciennes.

Series of 220 specimens, 48 to 86 mm., Rayong; one, 48 mm., Bangkok.

POLYNEMIDAE

Eleutheronema tetradactylum (Shaw).

One, 111 mm., Paknam; three, 73 to 163 mm., Tachin.

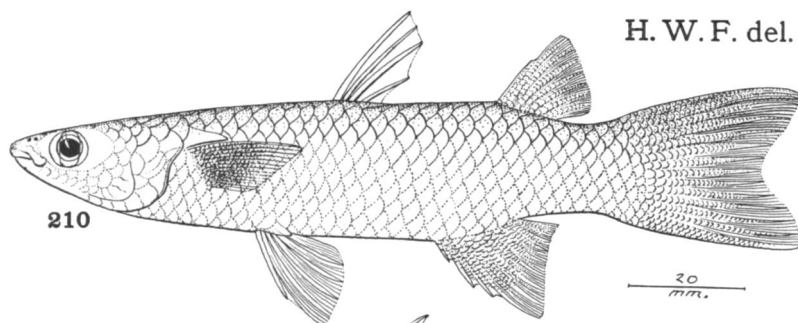
Polydactylus sextarius (Schneider). Figure 216 (Rayong).

One, 160 mm., Bangkok; seventeen, 63 to 95 mm., Rayong.

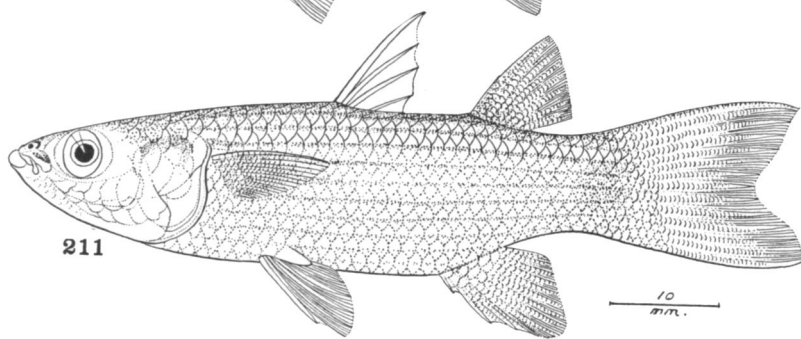
Polydactylus dubius (Rüppell).

Ten, 112 to 188 mm., Bangkok; one, 105 mm., Paknam.

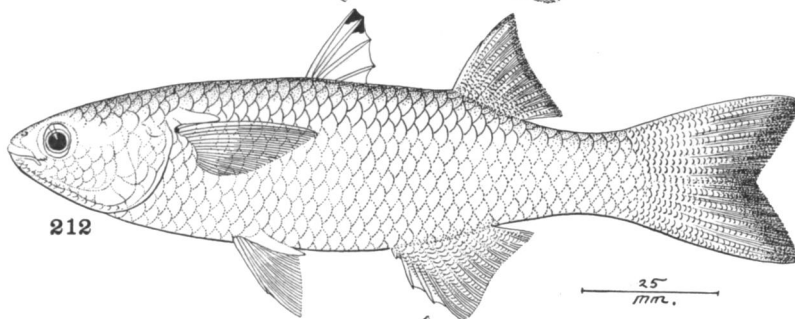
H. W. F. del.



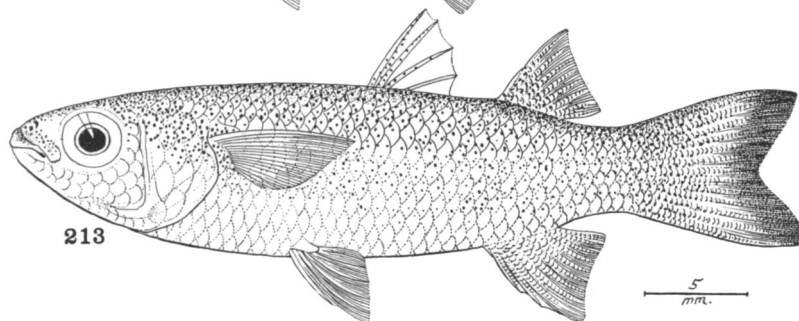
210

20
mm.

211

10
mm.

212

25
mm.

213

5
mm.210. *Mugil oligolepis*.211. *Mugil troscheli*.212. *Mugil longimanus*.213. *Mugil seheli*.

HOLOCENTRIDAE

Holocentrus ruber (Forskål).

One, 177 mm., Bangkok.

MASTACEMBELIDAE

Rhynchobdella aculeata (Bloch).

One, 215 mm., Bangkok; nine, 104 to 190 mm., Tachin; five, 95 to 253 mm., Me Poon; two, 92 to 112 mm., Kemrat.

Mastacembelus favus (Hora). Figures 204 (Me Poon), 205 to 209 (Bangkok).

One, 223 mm., Me Poon; five, 170 to 210 mm., Bangkok.

ANABANTIDAE

Anabas testudineus (Bloch).

Eight, 60 to 102 mm., Pitsanulok; five, 48 to 79 mm., Tachin; nineteen, 55 to 90 mm., Me Poon.

Trichopodus pectoralis Regan.

One, 143 mm., Bangkok; two, 93 to 100 mm., Pitsanulok; five, 60 to 98 mm., Me Poon; one, 83 mm., Kemrat. These identified tentatively as I have been unable to find very salient characters to distinguish them from *T. trichopterus*, except the generally shallower or narrower body depth and the color pattern. In small specimens the dark bands cross completely over the under side of the head as in *T. trichopterus*.

Trichopodus microlepis (Günther). Figure 214 (Me Poon).

Eleven, 90 to 156 mm., Bangkok; three, 40 to 101 mm., Me Poon; one, 62 mm., Tachin.

Trichopodus trichopterus (Pallas).

Twelve, 25 to 117 mm., Bangkok; twenty-eight, 33 to 87 mm., Me Poon; five, 38 to 100 mm., Pitsanulok; twenty, 35 to 73 mm., Rayong. Sometimes the median lateral dark spot is double though usually only on one side of the fish.

Trichopsis harrisi Fowler.

Four, 32 to 44 mm., Bangkok.

Trichopsis vittatus (Cuvier).

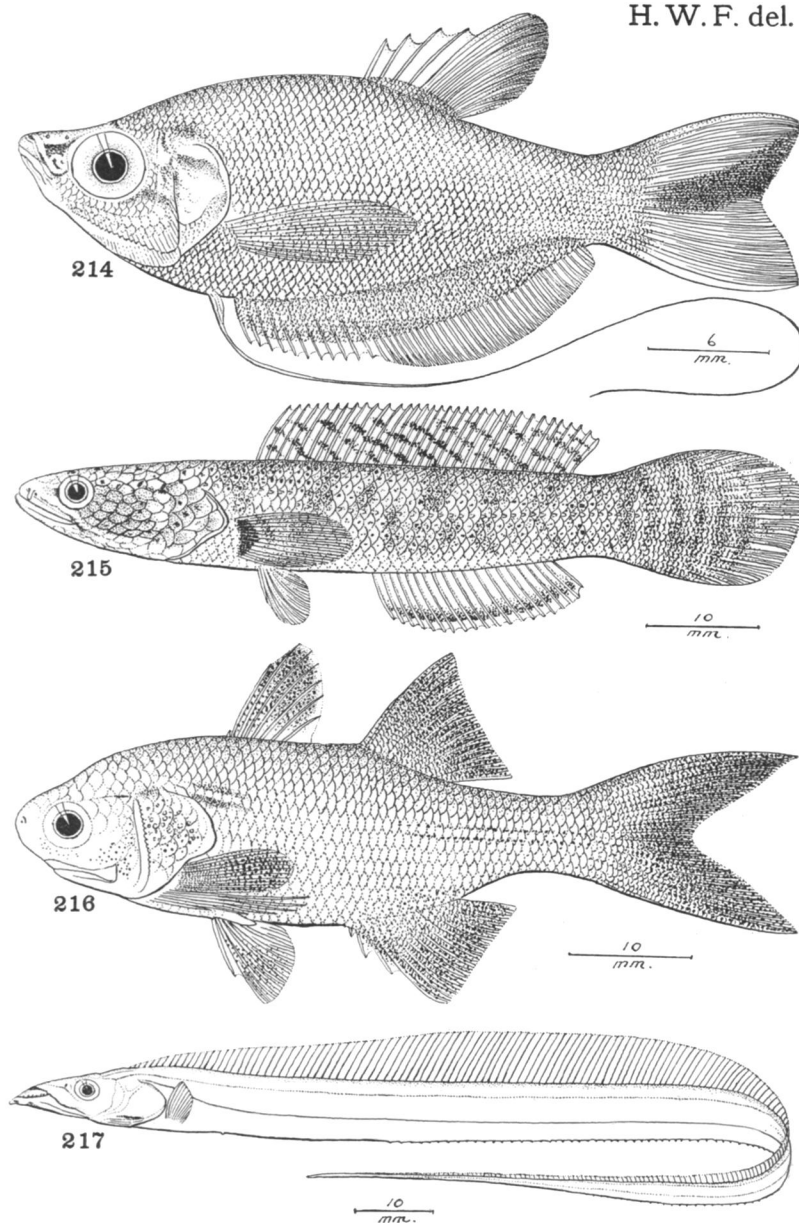
One, 43 mm., Me Poon. Anal spines 7 and no dark blotch at dorsal base or dark longitudinal line along lower side of head.

CHANNIDAE

Channa striata (Bloch).

One, 52 mm., Bangkok; seven, 113 to 160 mm., Pitsanulok; two, 71 to 96 mm., Tachin; one, 167 mm., Kemrat.

H. W. F. del.



214. *Trichopodus microlepis*.
216. *Polydactylus sextarius*.

215. *Channa melasoma*.
217. *Trichiurus muticus*.

Channa lucius (Cuvier).

Five, 134 to 213 mm., Bangkok; four, 27 to 148 mm., Pitsanulok; eight, 65 to 122 mm., Me Poon.

Channa melasoma (Bleeker).* Figure 215 (Me Poon).

Seven, 60 to 147 mm., Kemrat; 52 specimens, 30 to 128 mm., Me Poon.

Channa micropeltes (Valenciennes).

Fifteen, 37 to 43 mm., Kemrat.

SCOMBRIDAE**Rastrelliger kanagurta** (Rüppell).

One, 110 mm., Bangkok; forty-two, 89 to 112 mm., Rayong; fifty-three, 112 to 130 mm., Tachin.

Scomberomorus commerson (Lacépède).

One, 153 mm., Bangkok; one, 81 mm., Paknam; one, 143 mm., Rayong.

TRICHIURIDAE**Trichiurus muticus** Gray. Figure 217 (Bangkok).

Three, 145 to 230 mm., Bangkok; one, 158 mm., Tachin.

ISTIOPHORIDAE**Istiophorus gladius** (Broussonet). Figure 218.

The accompanying figure is modified from a photograph and a detailed sketch by Y. Sial, sent to Mr. de Schauensee under date of December 10, 1935. The fish was caught at Klong Yai, near Kok Kong, and reported as rare. It measured 148 cm. in total length, and the dorsal fin 50 cm. in height.

CARANGIDAE**Scomberoides sancti-petri** (Cuvier).* Figure 219 (Paknam).

One, 165 mm., Rayong; nine, 137 to 187 mm., Paknam.

Selar boops (Cuvier). Figure 220.

Eight, 61 to 168 mm., Rayong.

Magalaspis cordyla (Linnaeus).

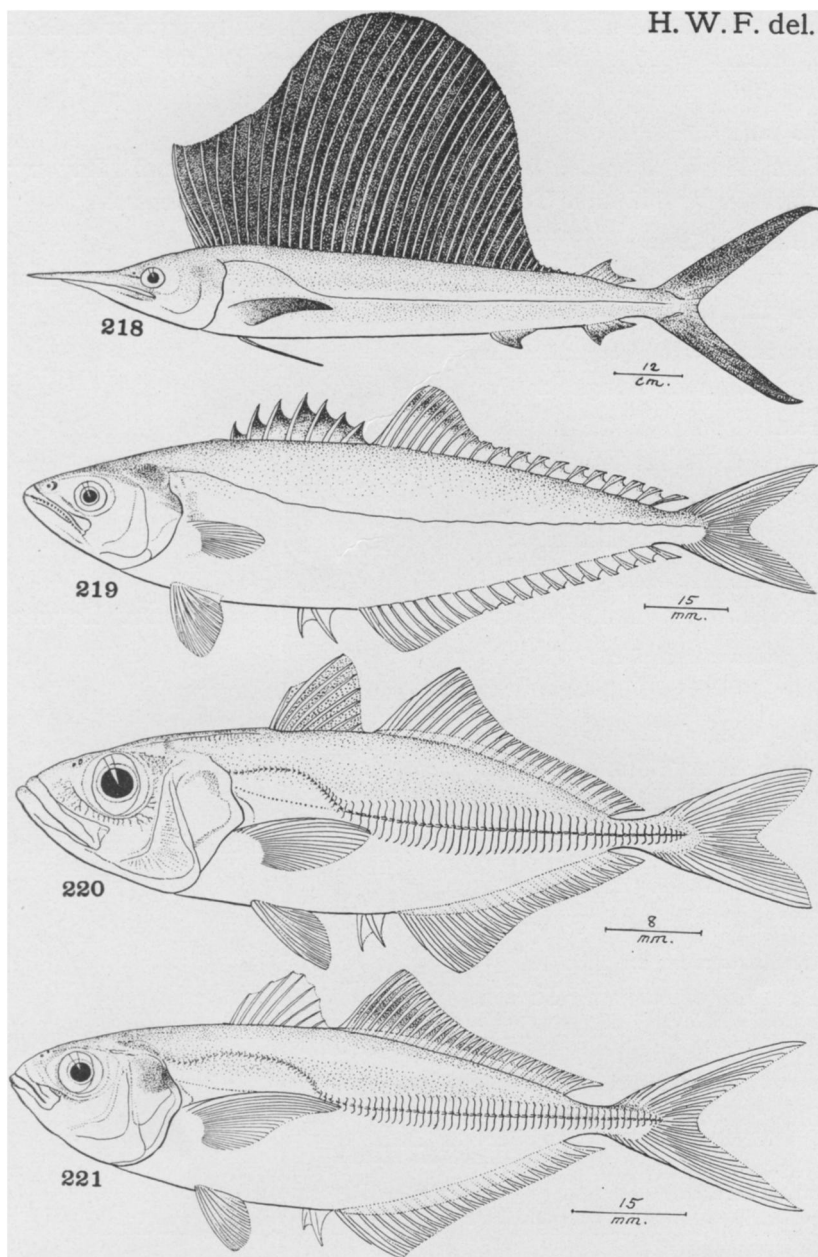
One, 143 mm., Paknam; five, 81 to 118 mm., Tachin; eight, 86 to 150 mm., Rayong.

Alepes melanoptera Swainson. Figure 221.

One, 101 mm., Paknam.

Alepes macrurus (Bleeker).

One, 162 mm., Rayong. Scutes in straight section of lateral line 57.

218. *Istiophorus gladius*.220. *Selar boops*.219. *Scomberoides sancti-petri*.221. *Alepes melanoptera*.

Alepes djedaba (Forskål).

Four, 123 to 146 mm., Bangkok; one, 127 mm., Rayong; three, 48 to 50 mm., Paknam; 25 specimens, 44 to 100 mm., Tachin; one, 59 mm., Pitsanulok.

Alepes kalla (Cuvier).

Four, 114 to 132 mm., Bangkok; thirteen, 88 to 128 mm., Rayong; 79 specimens, 44 to 112 mm., Tachin; five, 29 to 148 mm., Paknam.

Alepes mate (Cuvier).

Seven, 46 to 123 mm., Bangkok; three, 56 to 110 mm., Paknam; four, 44 to 108 mm., Rayong.

Caranx sexfasciatus Quoy and Gaimard.

One, 103 mm., Bangkok.

Selaroides leptolepis (Cuvier).

Three, 68 to 127 mm., Paknam; five, 106 to 117 mm., Rayong.

Carangoides praeustus (Bennett).

One, 160 mm., Paknam.

Carangoides malabaricus (Schneider). Figure 222 (Rayong).

One, 86 to 145 mm., Paknam; 47 specimens, 40 to 123 mm., Rayong.

Carangoides chrysophrys (Cuvier).

One, 100 mm., Paknam; seven, 74 to 103 mm., Rayong.

Atropus atropus (Bloch).

Seven, 57 to 135 mm., Paknam; two, 50 to 56 mm., Rayong.

Scyris indica Rüppell. Figure 223 (Rayong).

Nine, 47 to 117 mm., Rayong; five, 108 to 196 mm., Paknam.

Trachinotus blochii (Lacépède).*

One, 81 mm., Rayong.

Parastromateus niger (Bloch).

Two, 110 to 112 mm., Tachin.

RACHYCENTRIDAE**Rachycentron canadum** (Linnaeus).

One, 203 mm., Paknam.

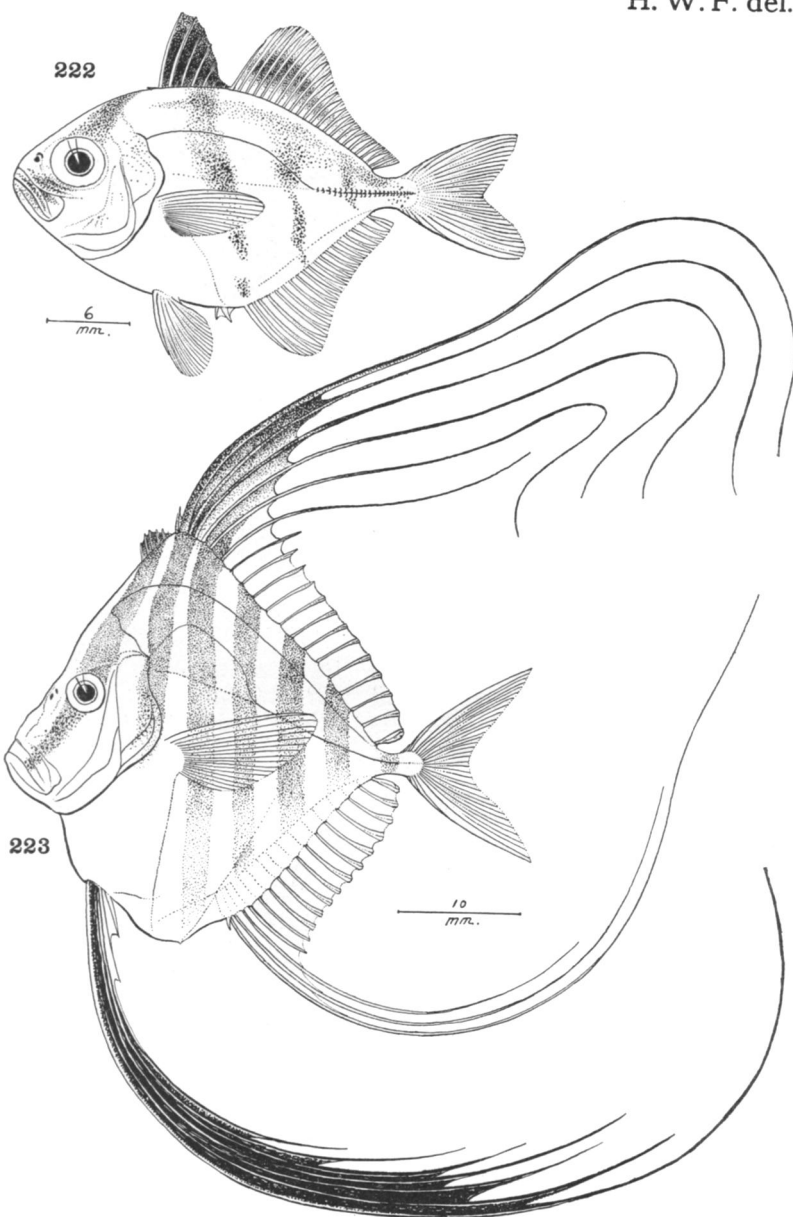
LACTARIIDAE**Lactarius lactarius** (Schneider). Figure 224 (Rayong).

Three, 30 to 88 mm., Rayong; three, 70 to 110 mm., Tachin.

LEIOGNATHIDAE**Macilenticthys berbis** (Valenciennes).

Two, 58 to 68 mm., Paknam.

H. W. F. del.



222. *Carangoides malabaricus*. 223. *Scyris indica*.

Macilentichthys leuciscus (Günther).

One, 118 mm., Rayong; one, 120 mm., Paknam.

Leiognathus blochii (Valenciennes).*

Two, 84 to 90 mm., Tachin; four, 116 to 123 mm., Paknam; six, 28 to 68 mm., Bangkok.

Leiognathus equilla (Forskål).

Two, 48 to 60 mm., Tachin; nine, 23 to 53 mm., Rayong.

Leiognathus splendens (Cuvier).

Eighteen, 41 to 75 mm., Paknam.

Leiognathus daura (Cuvier). Figure 225 (Bangkok).

Depth 2 to $2\frac{2}{3}$; head 3 to $3\frac{2}{3}$, width $1\frac{1}{3}$ to 2. Snout 3 to $3\frac{1}{4}$ in head; eye $2\frac{2}{3}$ to $3\frac{1}{4}$, greater than snout in young to subequal with age, 1 to $1\frac{2}{3}$ in interorbital; maxillary reaches $\frac{1}{4}$ in eye in young, to front eye edge with age; interorbital $2\frac{1}{3}$ to $2\frac{2}{3}$ in head, low, broadly convex. Inner edge of gill opening with 2 wide set bony knobs. Gill rakers $7 + 14$, lanceolate, $1\frac{1}{4}$ in gill filaments, which $2\frac{2}{3}$ in eye. No serrae or spines on ridges above eye or on sides of head.

Scales largely uniformly small on body. Chest and breast, up half way to pectoral and back to anal in narrow strip naked. Ventral with pointed scale in axil $\frac{4}{5}$ length of fin. Spinous dorsal and spinous anal each with basal scaly sheath, less developed in young. Lateral line of 56 or 57 rather large pores, continuous to caudal base.

D. VIII, 15, 1 or 16, 1, second spine $1\frac{2}{3}$ to $1\frac{1}{3}$ in head, soft fin height $3\frac{1}{4}$ to $4\frac{1}{2}$; A. III, 15, 1, or 16, 1, second spine $1\frac{4}{5}$ to $2\frac{1}{5}$, soft fin height $3\frac{2}{3}$ to 4; caudal 1 to $1\frac{1}{2}$, deeply emarginate; least depth of caudal peduncle $4\frac{1}{4}$ to $4\frac{1}{2}$; pectoral $1\frac{1}{4}$ to $1\frac{1}{3}$, rays 11, 18; ventral rays I, 5, fin 2 to 3 in head. Vent little before tips of depressed ventral spines.

Back gray, sides and below largely silvery white. Back with scattered and rather large blotches of darker gray in young, become broken as more or less vertical, variable lines on back with age. Iris white. End of snout gray brown, lips white. Fins pale, spinous dorsal with large black apical blotch.

Two, 33 to 79 mm., Bangkok; eight, 70 to 123 mm., Rayong.

Leiognathus bindus (Valenciennes).

Two, 43 to 60 mm., Bangkok; series of 184 specimens, 29 to 88 mm., Paknam.

Leiognathus fasciatus (Lacépède). Figure 226 (Rayong).

One, 97 mm., Rayong; one, 120 mm., Paknam.

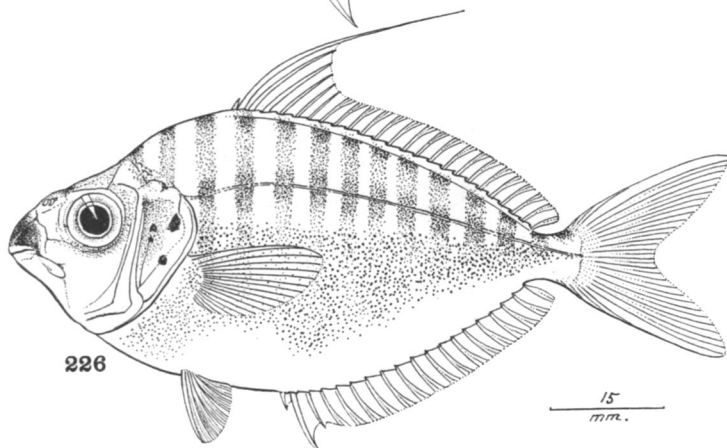
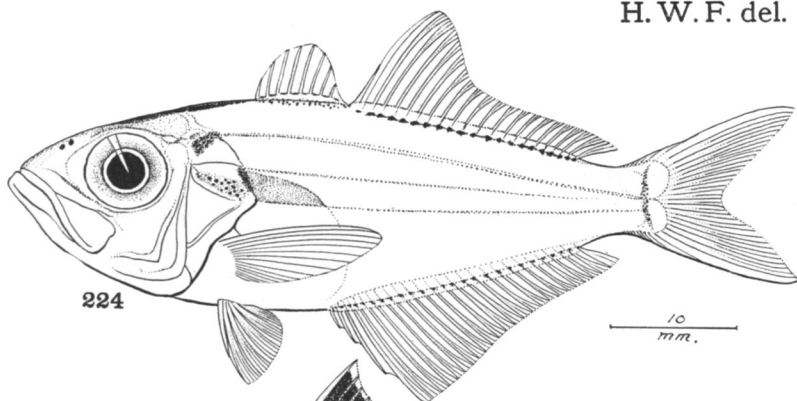
Secutor insidiator (Bloch).

Two, 69 to 78 mm., Bangkok; three, 54 to 70 mm., Tachin; thirteen, 50 to 80 mm., Paknam.

Secutor ruconius (Buchanan-Hamilton).*

Two, 44 to 60 mm., Tachin; 21 specimens, 40 to 95 mm., Paknam.

H. W. F. del.



224. *Lactarius lactarius*. 225. *Leiognathus daura*.
226. *Leiognathus fasciatus*.

Gazza equulaeformis Rüppell.

One, 125 mm., Paknam; ten, 40 to 72 mm., Rayong. Depth $2\frac{2}{5}$.

Gazza minuta (Bloch).*

Eight, 95 to 126 mm., Rayong. Depth 2 to $2\frac{1}{5}$.

CHANDIDAE**Acanthoperca wolffi** (Bleeker). Figure 227 (Bangkok).

Five, 61 to 118 mm., Bangkok; one, 112 mm., Paknam; two, 57 to 60 mm., Tachin.

Chanda siamensis, new species. Figure 228 (Bangkok).

Depth 2; head $2\frac{2}{3}$ to $2\frac{3}{4}$, width $2\frac{1}{5}$ to $2\frac{1}{4}$. Snout $4\frac{1}{4}$ to $4\frac{1}{2}$ in head from snout tip; eye $2\frac{2}{3}$ to 3, greater than snout or interorbital; maxillary reaches $\frac{1}{5}$ to $\frac{1}{3}$ in eye, expansion $1\frac{1}{3}$ to 3, length $2\frac{2}{3}$ to $2\frac{3}{4}$ in head from snout tip; interorbital $3\frac{2}{3}$ to $4\frac{1}{3}$, rather low, convex; hind preopercle edge denticulate, and ridge with lower edge denticulate, though vertical edge entire; lower preorbital edge serrate, small spine before and opposite middle in front of eye. Gill opening large, extends forward opposite front eye edge. Gill rakers $4 + 15$, lanceolate, equal gill-filaments, which 2 in eye.

Scales 46 or $47 + 5$ or 6 in lateral line; 11 above, 23 or 24 below to anal origin. Cheek with 4 or 5 rows of scales, head otherwise largely naked, also predorsal region. Dorsals and anals with rather broad basal scaly sheaths, caudal also well scaled basally. Ventral with pointed axillary scale $2\frac{1}{2}$ in fin. Lateral line well arched anteriorly, median along side of tail; tubes simple, all well exposed.

D. VIII, 13, 1 to 15, 1, second spine $1\frac{1}{3}$ to $1\frac{2}{5}$ in total head length, first branched ray $1\frac{1}{2}$ to $1\frac{2}{3}$; A. III, 14, 1, third spine $1\frac{1}{3}$ to $1\frac{2}{5}$, first branched ray $1\frac{1}{2}$ to $1\frac{2}{3}$; caudal $2\frac{1}{6}$ to $2\frac{2}{5}$ in rest of fish, deeply forked; least depth of caudal peduncle $2\frac{1}{4}$ to $2\frac{1}{2}$ in total head length; pectoral $1\frac{1}{2}$ to $1\frac{2}{3}$, rays 1, 13; ventral rays I, 5, fin $1\frac{1}{2}$ to $1\frac{3}{5}$. Vent at first $\frac{2}{5}$ in depressed ventrals.

Body pale to uniform light brown, with silvery reflections on head and sides. Iris gray. End of muzzle, predorsal, and back along base of dorsal sheaths with scattered dark brown dots. Fins whitish to transparent, with scattered dark to dusky dots terminally or marginally on vertical fins.

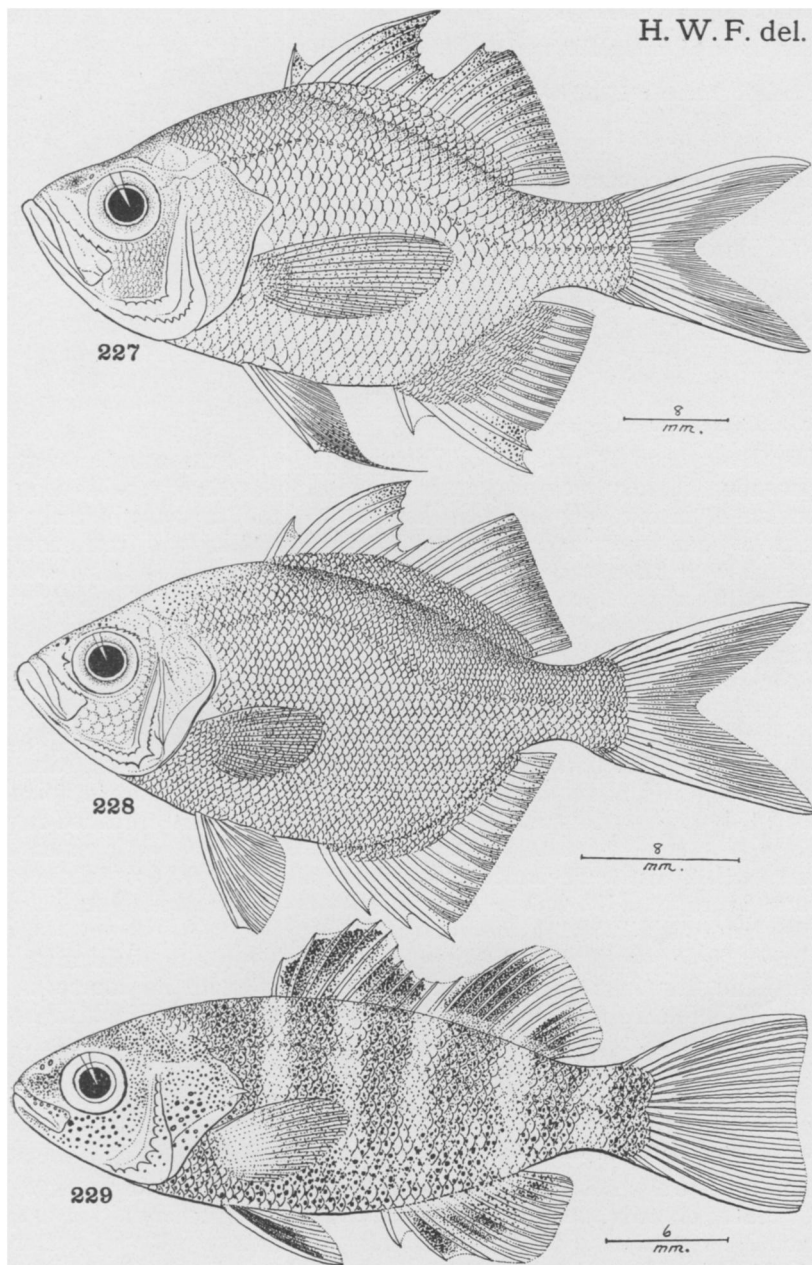
A.N.S.P., No. 68,233. Bangkok, Siam. Length 60 mm. Type. Also Nos. 68,234 to 68,243, same data, paratypes. Length 40 to 52 mm. Besides the above a series of 214 specimens 25 to 58 mm., Bangkok; 92 specimens, 29 to 59 mm., Kemrat. This material not considered paratype.

C. siamensis differs from the Indian species described by Day, in its larger scales. *C. ranga* Hamilton-Buchanan usually differs in the penultimate dorsal spine shorter than the spine immediately before it. Day gives the scales as 60 to 70 in the lateral line, besides no scales are shown on his figure of *C. ranga*.

(Named for Siam.)

Ambassis urotaenia Bleeker.*

Two, 80 to 90 mm., Rayong.



227. *Acanthoperca wolffi*. 228. *Chanda siamensis*.
229. *Serranus fario*.

Ambassis safgha (Forskål).*

Six, 63 to 68 mm., Rayong.

Ambassis buruensis Bleeker.*

Series of 318 specimens, 43 to 52 mm., Rayong.

Ambassis gymnocephalus (Lacépède).

Six, 42 to 66 mm.; Bangkok; two, 59 to 65 mm., Paknam; six, 43 to 70 mm., Tachin.

Ambassis kopsii Bleeker.

Seventeen, 28 to 80 mm., Rayong.

AMIIDAE**Amia multitaeniata** (Cuvier).*

Depth $2\frac{3}{4}$; head $2\frac{3}{8}$, width $1\frac{1}{8}$. Snout $3\frac{1}{2}$ in head from snout tip; eye $3\frac{3}{4}$, $1\frac{1}{10}$ in snout, slightly greater than interorbital; maxillary reaches $\frac{1}{2}$ in eye, expansion $1\frac{3}{4}$ in eye, length $1\frac{9}{10}$ in head from snout tip; teeth finely villiform in jaws, on vomer and palatines; interorbital $4\frac{1}{8}$ in head from snout tip; hind preopercle edge very feebly serrate. Gill rakers $5 + 14$, of which 3 above and 6 below rudimentary knobs; gill filaments $\frac{7}{8}$ of gill rakers, which 2 in eye.

Scales $33 + 6$ in lateral line; 5 above, 10 below, 8 predorsal, 3 rows on cheek to preopercle edge. Ventral axil with short scale, $\frac{1}{8}$ of fin. Caudal base scaly. Several rather large scales on opercle. Lateral line very distinct, mostly concurrent with profile of back, falls median along side of tail. Scales with 14 basal radiating striae; 114 apical denticles, each with a transverse series of basal elements; circuli fine, basal, obsolete apically.

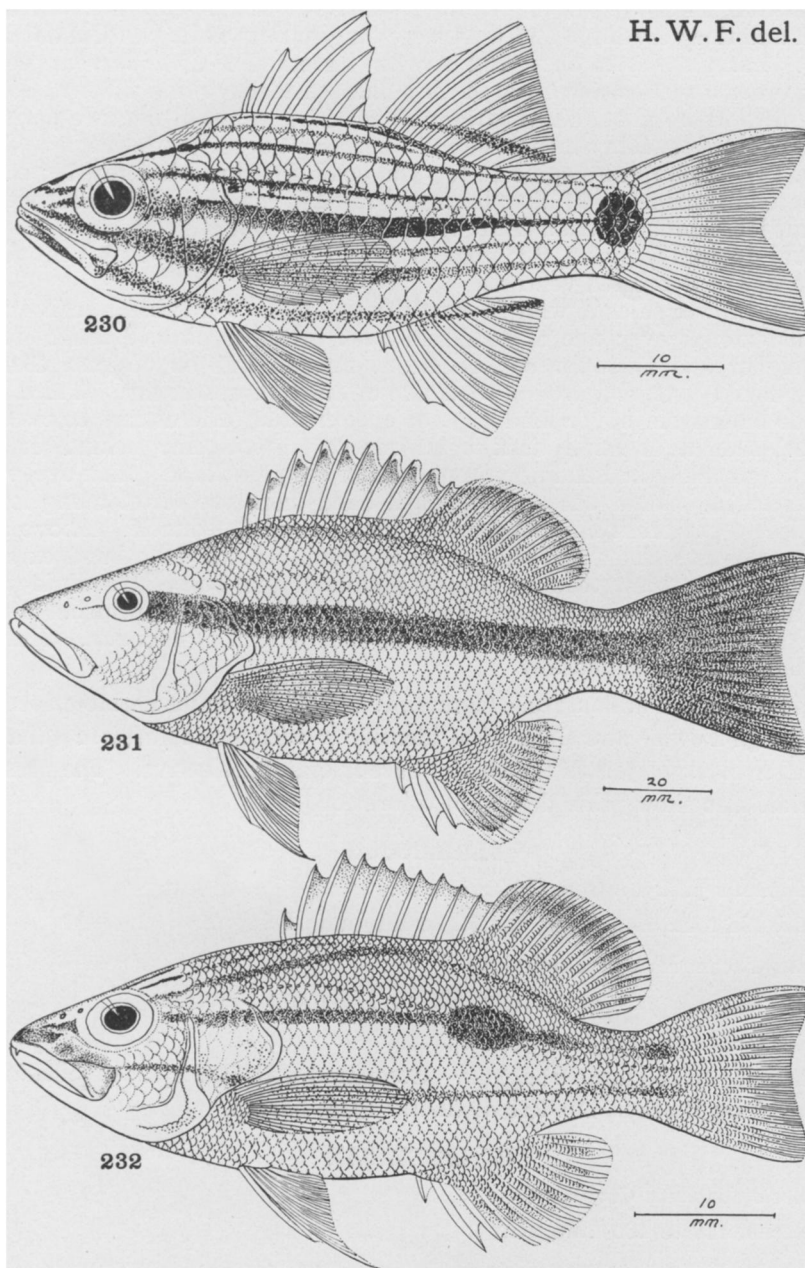
D. VI, I, 9, 1, second spine $2\frac{1}{4}$ in total head length, first branched ray $1\frac{3}{4}$; A. II, 8, 1, second spine $2\frac{3}{4}$, second ray $1\frac{1}{8}$; caudal $1\frac{1}{4}$, little emarginate behind, with 2 distinct rounded lobes; least depth of caudal peduncle $2\frac{3}{8}$; pectoral $1\frac{3}{8}$, rays 11, 13; ventral rays I, 5, fin $1\frac{1}{2}$ in total head length. Vent slightly before tips of depressed ventrals.

Brown, under surfaces a little paler. At junctures of scale rows dark brown band, forming 4 above lateral line parallel with its course and 10 below, all horizontal. Iris gray. Spinous dorsal largely blackish brown, basally behind and last membrane pale to whitish. Fins otherwise dull brown, with base of soft dorsal narrowly blackish brown.

One, 142 mm., Bangkok.

Amia robusta Smith and Radcliffe. Figure 230 (Paknam).

Depth $2\frac{3}{4}$ to $2\frac{5}{8}$; head $2\frac{1}{2}$ to $2\frac{3}{8}$, width 2. Snout $3\frac{3}{4}$ to 4 in head; eye $2\frac{3}{8}$ to 3, greatly exceeds snout or interorbital; maxillary reaches $\frac{3}{8}$ in eye, expansion 2, length 2 in head; teeth minutely villiform in jaws, on vomer and palatines; interorbital 4 to $4\frac{1}{2}$, low, nearly level; hind preopercle edge very minutely and feebly denticulated. Gill rakers $5 + 13$, of which 3 above and 5 below rudimentary low knobs; gill filaments $\frac{3}{4}$ of gill rakers, which $2\frac{1}{2}$ in eye.



230. *Amia robusta*. 231. *Lutjanus flavipes*.
232. *Lutjanus fulvivlamma*.

Scales 22 or 23 + 4 in lateral line; 2 above, 6 below, 3 or 4 predorsal of which anterior very large and with large longitudinal flutings. Caudal base scaly. Large scales on chest and breast. Lateral line little curved, prominent; tubes large, each with accessory like scale above and below. Scales with 15 to 21 basal radiating striae; 90 to 121 fine apical denticles, with 2 or 3 transverse basal elements; circuli fine, basal, obsolete apically.

D. VII - I, 9, 1, third spine $1\frac{1}{2}$ to $1\frac{3}{4}$ in head, first branched ray $1\frac{1}{4}$; A. II, 8, 1, second spine $2\frac{1}{2}$ to $2\frac{3}{4}$, first branched ray $1\frac{1}{2}$; caudal 1 to $1\frac{1}{8}$, emarginate behind, lobes broadly triangular; least depth of caudal peduncle $2\frac{1}{4}$ to $2\frac{3}{4}$; pectoral $1\frac{1}{2}$ to $1\frac{3}{4}$, rays 1, 12; ventral rays 1, 5, fin $1\frac{1}{2}$ to $1\frac{3}{4}$. Vent close before tips of depressed ventrals.

Light brown, paler to whitish on under surfaces. Dark band begins over nostrils extends over side of head and back to upper part of caudal base. Still higher and narrower one begins as median line on occiput, divides before dorsal to extend around each side of bases of dorsal fins. Third line extends back from upper hind edge of eye, crossing lateral line below soft dorsal. Fourth or axial dark band reaches lateral line behind dorsal, narrowing behind, and ending in round black blotch little less than eye, very contrasted, at caudal base. Fifth dark band from preorbital along lower eye edge to pectoral base along lower side of caudal peduncle. Above and parallel a less distinct and shorter dark streak. Sixth dark band extends from maxillary below pectoral back to middle of anal base. Iris dark gray. Fins all pale brownish, dorsals and caudal little more brownish. Dark subbasal horizontal band on soft dorsal, ends at end of last ray. Similar dark band on anal subbasally.

One, 82 mm., Paknam; one, 66 mm., Bangkok. A quite variable species, and though Fowler and Bean 1930 identify it with *Amia fasciata* (Shaw), the larger black blotch on the caudal base is quite distinctive. The present materials also show other details of coloration.

SERRANIDAE

Cephalopholis pachycentron (Valenciennes).

One, 198 mm., Bangkok; six, 72 to 139 mm., Rayong.

Serranus diacanthus Valenciennes.

One, 130 mm., Rayong; four, 166 to 178 mm., Paknam.

Serranus fario (Thunberg). Figure 229.

Three, 18 to 150 mm., Bangkok. Compared with *Epinephelus maculatus* as figured by Bleeker, but less distinctly cross-barred.

PEMPHERIDAE

Pempheris oualensis Cuvier.*

Fifteen, 117 to 135 mm., Rayong.

PRIACANTHIDAE

Priacanthus tayenus Richardson.

One, 268 mm., Bangkok.

LUTJANIDAE

Lutjanus flavipes (Valenciennes).* Figure 231.

One, 148 mm., Bangkok.

Lutjanus fulviflamma (Forskål). Figure 232 (Rayong).

One, 127 mm., Bangkok; one, 58 mm., Rayong.

Lutjanus vitta (Quoy and Gaimard).

One, 134 mm., Bangkok; seven, 129 to 255 mm., Rayong.

Lutjanus erythropterus Bloch.

Two, 160 to 172 mm., Rayong.

POMADASYIDAE

Caesio cuning (Bloch).

One, 204 mm., Rayong.

Plectorhinchus niger (Cuvier).

One, 80 mm., Bangkok; three, 40 to 50 mm., Rayong.

Plectorhinchus pictus (Thunberg).

One, 123 mm., Paknam; one, 169 mm., Rayong.

Pomadasys grunniens (Schneider).

One, 132 mm., Paknam.

Pomadasys maculatus (Bloch).

Two, 133 to 166 mm., Paknam; 36 specimens, 35 to 69 mm., Rayong.

Pomadasys hasta (Bloch). Figure 233.

Four, 35 to 84 mm., Rayong.

Pomadasys trifasciatus, new species. Figure 234.

Depth $2\frac{1}{2}$ to $2\frac{3}{4}$; head $2\frac{1}{2}$ to $2\frac{3}{4}$, width $2\frac{1}{5}$ to $2\frac{1}{2}$. Snout $3\frac{1}{4}$ to 4 in head from snout tip; eye $2\frac{3}{4}$ to 3, greatly exceeds snout or interorbital; maxillary largely concealed, reaches opposite front of eye, length $2\frac{1}{3}$ to $2\frac{3}{4}$ in head from snout tip; mandible well protruded in front; teeth very minute, in narrow bands in jaws; interorbital $4\frac{1}{2}$ to $4\frac{3}{4}$ in head from snout tip, with median convexity, and deep channel or groove over each eye parallel with same; preopercle edge serrate all around and serrae little larger around angle. Gill rakers $7 + 14$, lanceolate, slender, subequal with gill filaments or 2 in eye.

Scales 42 or $43 + 3$ or 4 in lateral line; 6 above to spinous dorsal origin, 13 below to spinous anal origin, 15 predorsal forward opposite hind eye edge. Head above and on sides very cavernous, with loose deciduous scales. Base of ventral with axillary scale $\frac{1}{3}$ of fin. Bases of vertical fins finely scaled. Lateral line little arched, concurrent with dorsal profile, becomes median along side of caudal peduncle, tubes simple, well exposed. Scales with 8 to 10 basal radiating striae; circuli fine basally, coarse though complete apically.

D. XII, 13, 1, fourth spine $1\frac{3}{4}$ to 2 in total head length, first branched ray $1\frac{1}{2}$ to $2\frac{1}{4}$; A. III, 7, 1, second spine 2 to $2\frac{1}{8}$, second branched ray 2 to $2\frac{1}{2}$; caudal $1\frac{2}{5}$ to $1\frac{1}{2}$, truncate, with edges rounded; least depth of caudal peduncle $3\frac{3}{4}$ to 4; pectoral $1\frac{1}{4}$ to $1\frac{1}{3}$, rays II, 12; ventral I, 5, fin $1\frac{1}{2}$ to $1\frac{3}{5}$. Vent little before ends of depressed ventrals.

Pale brown on back, sides and below whitish. Dark brown band includes region along dorsal bases and upper edge of caudal peduncle. Second broader dark brown longitudinal band from occiput to caudal base, with ill defined dark blotch above and below on last. Third short parallel dark brown band from behind opercle and narrowing backward ends opposite spinous dorsal. Snout brown above. Iris gray, evidently white in life. Blackish blotch about large as pupil on hind part of opercle. Vertical fins brownish; dark gray brown on membranes of spinous dorsal; soft dorsal dark gray on outer half and subbasal dark gray longitudinal band; anal dark gray on outer portion and each ray similar basally. Paired fins pale to whitish.

A.N.S.P., No. 68,244. Paknam, Siam. Length 52 mm. Type. Also Nos. 68,245 and 68,246, same data, paratypes. Length 51 mm.

Though based on small specimens this species appears to be quite distinctive in the 3 broad, dark longitudinal bands and their arrangement. It appears related to the South African *P. striatus* (Gilchrist and Thompson), though with more gill rakers and fewer scales in the lateral line.

(*Tres* three + *fascia* band.)

Scolopsis vosmeri (Bloch).

One, 140 mm., Bangkok.

Scolopsis temporalis (Cuvier). Figure 235.

Four, 158 to 200 mm., Rayong. Though the dark axial streak is not very distinct on the postocular region and the front of the costal region it is pronounced and broad as the pupil at least over the middle of the pectoral, and fades out behind as it crosses the lateral line on the side of the caudal peduncle. In most other respects it is greatly like my figure of the Sriracha specimen I identified as *S. monogramma*. It also has a dark, though inconspicuous streak across the pectoral base.

TERAPONIDAE

Datnioides polota (Buchanan-Hamilton).

Six, 82 to 98 mm., Bangkok.

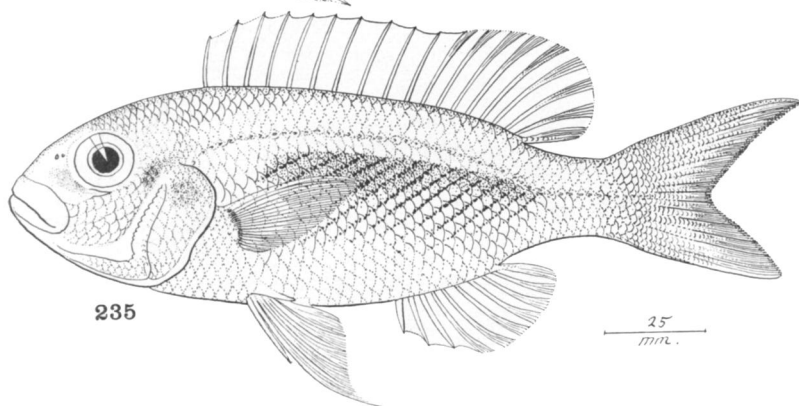
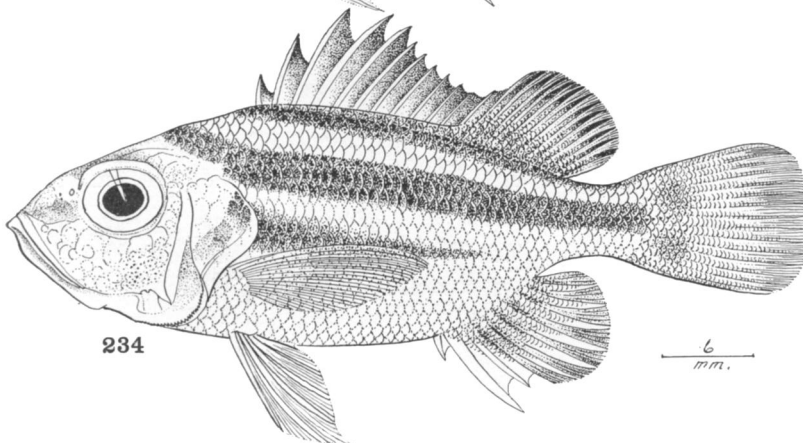
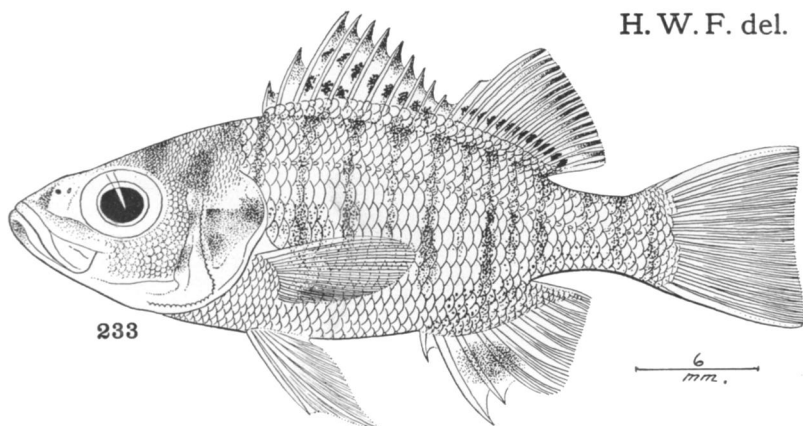
Terapon jarbua (Forskål).

Seven, 54 to 156 mm., Bangkok; eleven, 61 to 103 mm., Tachin; 22 specimens, 60 to 115 mm., Rayong.

Terapon theraps (Cuvier).

Four, 80 to 131 mm., Paknam; five, 30 to 49 mm., Rayong; eight, 97 to 148 mm., Tachin. Of the last only one specimen varies in the second black bar of the upper caudal lobe, broken as 3 subequal black spots.

H. W. F. del.



233. *Pomadasys hasta*. 234. *Pomadasys trifasciatus*.
235. *Scolopsis temporalis*.

Pelates quadrimaculatus (Bloch).*

One, 126 mm., Rayong.

LETHRINIDAE

Lethrinus frenatus Valenciennes.

One, 109 mm., Bangkok; one, 133 mm., Rayong.

SPARIDAE

Pentapodus setosus (Valenciennes).

One, 152 mm. to end of lower caudal lobe (upper filament 28 mm. longer from end of upper caudal lobe), Rayong.

Nemipterus luteus (Schneider). Figure 236.

Three, 149 to 173 mm., Rayong.

MULLIDAE

Upeneus sulphureus Cuvier.

One, 126 mm., Bangkok; three, 53 to 167 mm., Rayong; two, 97 to 139 mm., Paknam.

Upeneus tragula Richardson.

One, 170 mm., Bangkok; one, 94 mm., Paknam; one, 164 mm., Rayong.

Mulloidichthys auriflamma (Forskål).*

One, 180 mm., Rayong. The golden lateral band is now gray, paler on side of caudal peduncle. It is evidently intensified from preservation in formaline.

GERRIDAE

Gerres setifer (Buchanan-Hamilton).*

One, 43 mm., Rayong.

Gerres abbreviatus Bleeker.

Five, 29 to 52 mm., Rayong.

Gerres oblongus Cuvier.

One, 45 mm., Rayong.

Gerres kappas Bleeker.* Figure 247.

Nineteen, 23 to 105 mm., Rayong.

Gerres filamentosus Cuvier.

Four, 115 to 121 mm., Paknam.

SILLAGINIDAE

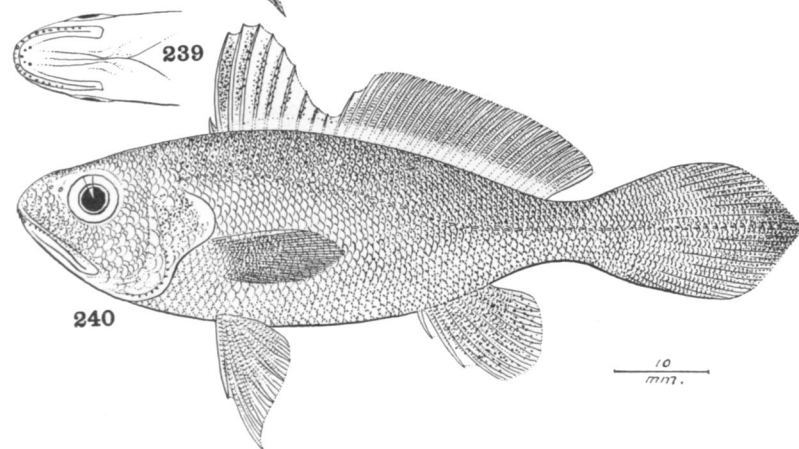
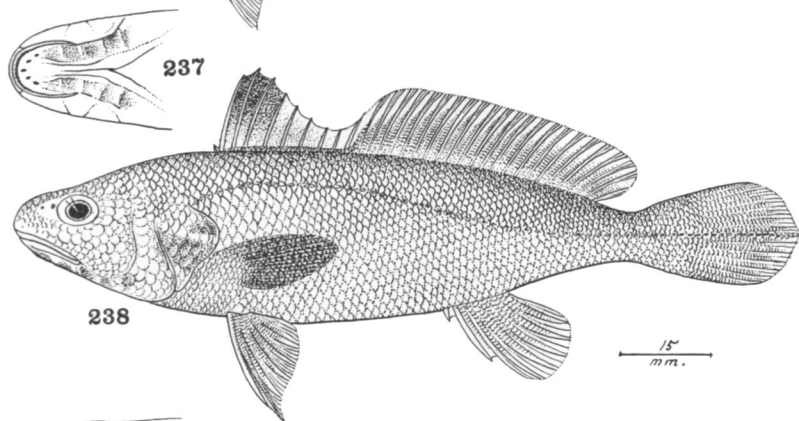
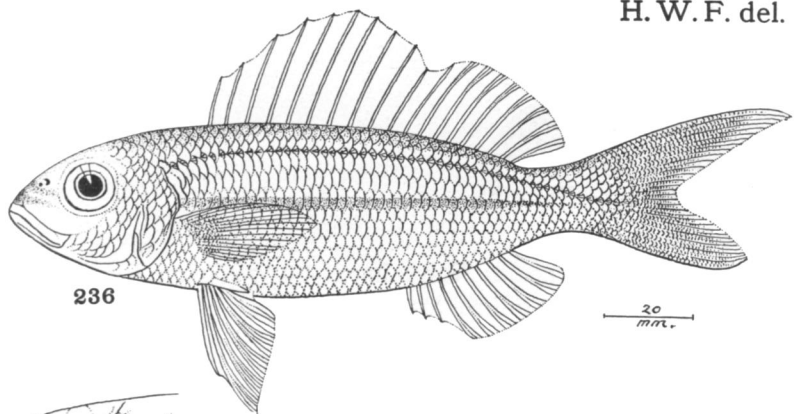
Sillago sihama (Forskål).

Thirty-three, 60 to 149 mm., Rayong.

Sillago maculata Quoy and Gaimard.

One, 178 mm., Rayong.

H. W. F. del.



236. *Nemipterus luteus*. 237, 238. *Johnius osseus*.
239, 240. *Johnius sina*.

SCIAENIDAE

Otolithes argenteus Cuvier.

Two, 147 to 158 mm., Tachin.

Otolithes ruber (Schneider).

One, 81 mm., Paknam.

Johnius diacanthus (Lacépède).*

Five, 33 to 61 mm., Paknam.

Johnius aneus Bloch.

Nine, 47 to 83 mm., Tachin; 33 specimens, 60 to 90 mm., Rayong. D. X, I, 23, 1; A. II, 7, 1. Lower gill rakers 14.

Johnius osseus (Day). Figures 237 (head below), 238.

Four, 100 to 126 mm., Tachin. Depth $3\frac{3}{4}$ to $3\frac{7}{8}$. Pores 43 to 46 in lateral line to caudal base. Lower gill rakers 10. D. X, 23, 1 or 24, 1; A. II, 6, 1, second anal spine $2\frac{1}{4}$ to $2\frac{3}{5}$ in postocular or $2\frac{1}{2}$ to 3 in head. These specimens seem to agree with Day's account. They differ only in that the second anal spine is longer and the pectoral dark or dusky.

Johnius sina (Cuvier).* Figures 239 (head below), 240.

One, 86 mm., Bangkok; 22 specimens, 62 to 82 mm., Rayong. Depth $3\frac{1}{2}$ to $3\frac{1}{4}$. Several external canines along outer front edge of upper jaw when closed. Mandible included in upper jaw. Lower gill rakers 10, lanceolate. Pores 38 to 40 in lateral line to caudal base. D. X, I, 27, 1 to 29; 1; A. II, 7, 1. Pectoral $1\frac{1}{3}$ to $1\frac{1}{2}$ in head. Spinous dorsal gray black marginally.

Johnius soldado (Lacépède). Figures 241 (head below), 242.

One, 63 mm., Paknam. Lower gill rakers 13.

Johnius dussumieri (Cuvier).

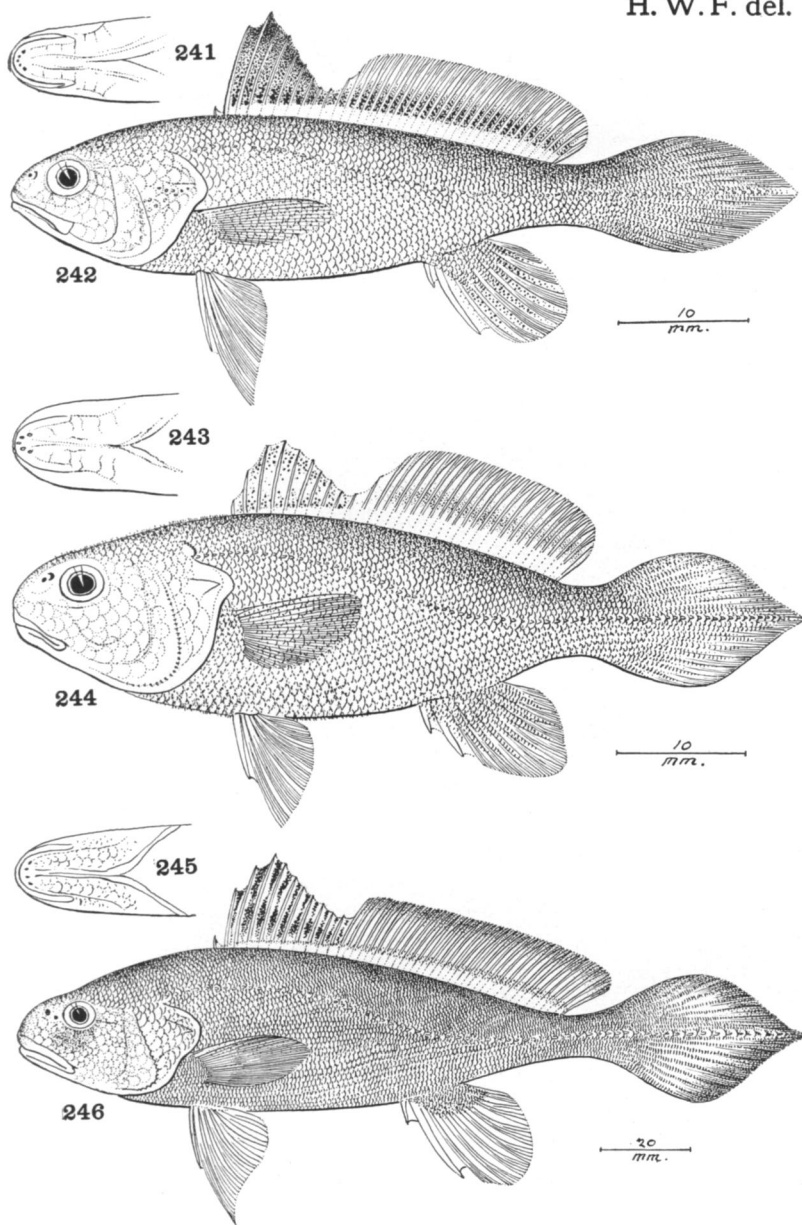
Fifteen, 95 to 157 mm., Tachin; one, 108 mm., Bangkok. Depth $3\frac{2}{3}$ to 4. Lower gill rakers 9 to 11. Tubes 40 to 48 in lateral line to caudal base. D. X, I, 26, 1 to 30, 1; A. II, 7, 1, second spine $2\frac{1}{4}$ to $2\frac{3}{5}$ in head. The figure given by Valenciennes shows jaws about equal, depth $3\frac{1}{3}$, third anal spine 4 in head.

Johnius trachycephalus (Bleeker).*

Depth $3\frac{3}{4}$ to $3\frac{4}{5}$; head 3 to $3\frac{1}{5}$, width 2. Snout $3\frac{1}{2}$ to $3\frac{3}{4}$ in head, with upper conic protuberance in front; eye $4\frac{1}{2}$ to $4\frac{3}{4}$, $1\frac{1}{5}$ to $1\frac{1}{4}$ in snout, $1\frac{1}{2}$ to $1\frac{3}{4}$ in interorbital; maxillary reaches $\frac{1}{2}$ in eye, length from snout tip 2 to $2\frac{1}{3}$ in head; teeth in villiform bands in jaws, upper outer little enlarged and exposed when jaws close; interorbital $3\frac{1}{5}$ to $3\frac{1}{2}$, low, broadly and unevenly convex; hind preopercle edge denticulate, several denticles little enlarged at angle. Gill rakers 7 + 15, lanceolate, $1\frac{1}{2}$ in fill filaments, which $1\frac{2}{3}$ in eye.

Scales 44 to 48 in lateral line to caudal base; 10 above to spinous dorsal origin, 10 or 11 above spinous anal origin to lateral line. Soft dorsal, anal

H. W. F. del.



241, 242. *Johnius soldado*. 243, 244. *Johnius melanobrachium*.
245, 246. *Johnius microlepis*.

and caudal with fine scales basally. Head very cavernous and with rather loosely attached scales. Body scales small and crowded anteriorly, larger on tail. Lateral line arched little at first, becomes median on tail above anal; tubes large, simple, well exposed. Scales with 7 or 8 basal radiating striae, close set, evenly spaced; circuli fine, a little coarser apically.

D. IX, I, 23, 1 to 27, 1, third spine $1\frac{1}{8}$ to $2\frac{1}{5}$ in head, first branched ray $3\frac{3}{4}$ to 4; A. II, 6, 1 or 7, 1, second spine $2\frac{1}{3}$ to $2\frac{1}{2}$, second branched ray $2\frac{2}{5}$ to $2\frac{1}{2}$; caudal $1\frac{1}{4}$ to $1\frac{2}{5}$, ends in median point behind; least depth of caudal peduncle 4 to $4\frac{2}{5}$; pectoral $1\frac{3}{8}$ to $1\frac{3}{4}$, rays 1, 17; ventral rays I, 5, fin $1\frac{3}{4}$ to $1\frac{7}{8}$. Vent close before anal origin.

Head brownish, body drab, pale to whitish below. Whole upper surfaces dusted with minute blackish dots. Iris gray. Jaws and lips pale or whitish. Spinous dorsal gray, membranes dusted with blackish terminally and basally. Soft dorsal whitish basally, dusted with gray black broadly over outer surface. Caudal pale, grayish terminally. Anal whitish, with gray black dots on outer portion. Pectoral with upper half blackish brown, lower half whitish. Ventral whitish.

Six, 84 to 100 mm., Tachin.

Johnius melanobranchium Fowler. Figures 243 (head below), 244.

Six, 62 to 113 mm., Tachin.

Johnius microlepis (Bleeker). Figures 245 (head below), 246.

One, 164 mm., Bangkok; one, 174 mm., Tachin. Depth $3\frac{1}{3}$ to $4\frac{2}{3}$. Eye $5\frac{1}{5}$ to $6\frac{3}{4}$ in head. Scales 90 counted along and above lateral line to caudal base. D. X, I, 33, 1 or 34, 1; A. III, 7, 1. Anal scaly. Paired fins small, pale.

Sciaena indica Kuhl and Van Hasselt.

Three, 50 to 67 mm., Paknam.

Sciaena dussumieri (Valenciennes).

Three, 61 to 70 mm., Rayong; eight, 42 to 55 mm., Tachin.

NANDIDAE

Pristolepis fasciatus (Bleeker).

Six, 62 to 78 mm., Bangkok; 24 specimens, 37 to 72 mm., Tachin.

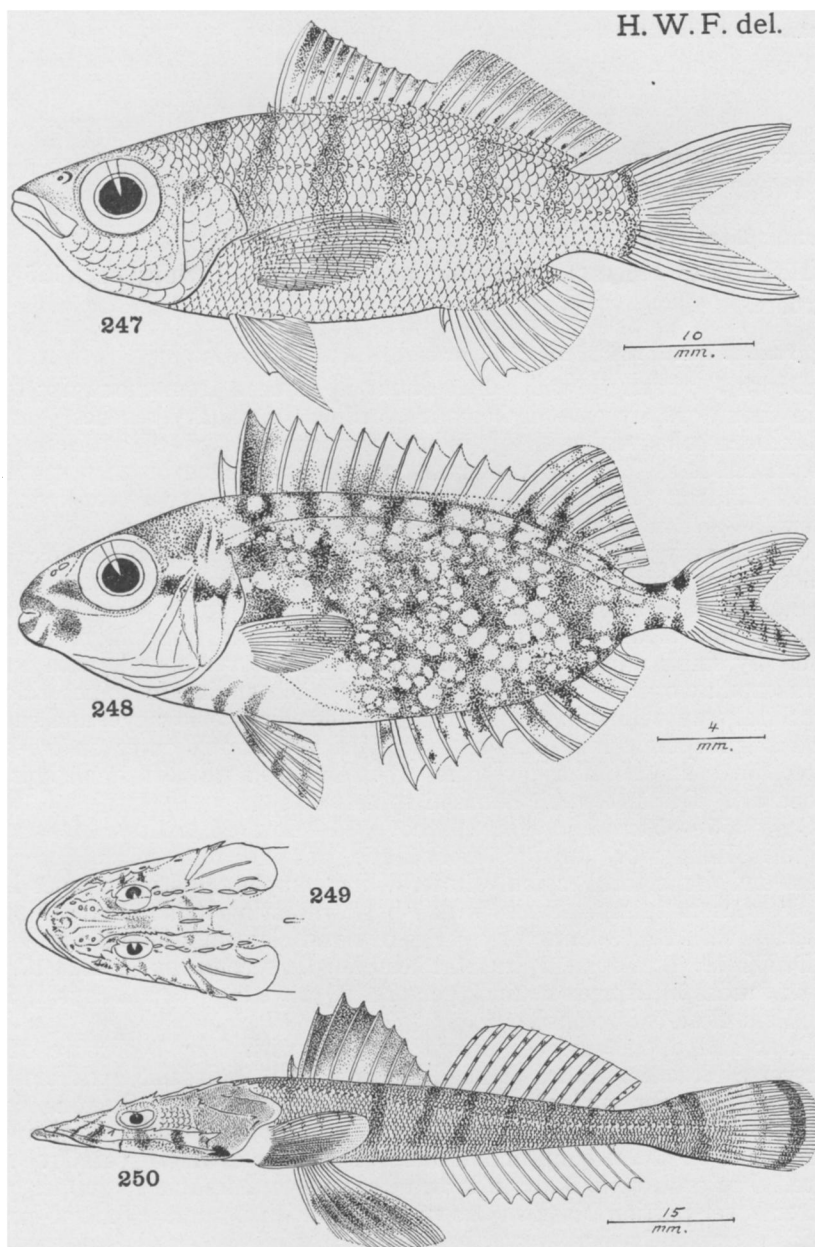
SCORPAENIDAE

Prosopodasys gogarzae Jordan and Seale.*

One, 59 mm., Port Nakara, Gulf of Siam, Oct. 20, 1923, Dr. H. M. Smith. It agrees in most every detail with the original figure and description of this Philippine species.

Pterois volitans (Linnaeus).

Three, 158 to 222 mm., Rayong.



247. *Gerres kappas*. 248. *Siganus rivulatus*.
249, 250. *Suggrundus hunti*.

SYNANCEJIDAE

Synancidium horridum (Linnaeus).*

One, 207 mm., Rayong.

PLATYCEPHALIDAE

Platycephalus indicus (Linnaeus).

Two, 218 to 268 mm., Paknam.

Grammolites scaber (Linnaeus).

Five, 62 to 105 mm., Bangkok; one, 154 mm., Tachin; one, 185 mm., Paknam.

Suggrundus huntii, new species. Figures 249 (head above), 250.

Depth $7\frac{1}{2}$; head $2\frac{3}{4}$, width $1\frac{3}{4}$. Snout $3\frac{1}{2}$ in head from snout tip; eye 7, $1\frac{1}{2}$ in snout, greatly exceeds bony interorbital; maxillary reaches $\frac{1}{2}$ in eye, its hind end concave, length $2\frac{9}{10}$ in head from snout tip; teeth villiform, very fine, in bands in jaws, on vomer and palatines; tongue broadly spatulate, truncate in front; interorbital about half eye diameter, deeply concave. Gill rakers $2 + 4$, lanceolate, subequal with gill filaments, $\frac{1}{2}$ of eye.

Pair of very small, close set internasal spines; supraorbital ridge with rather larger anterior spine and posteriorly 4 spines, then pair of long parallel keels to occiput with spine on each small space from end; short spineless low median interparietal keel; postocular spine high, followed closely by small spine, one over preopercle and 3 over opercle with last at suprascapula; opercle with 2 oblique keels, each ending in spine; ridge of suborbital stay with spine at preorbital, 2 low spines below eye, and ends in spine at preopercle half long as eye; with very small outer antero-basal spine; lower suborbital ridge forms keel and also ends in small spine at preopercle. Distinct small humeral spine.

Scales $55 + 5$ in lateral line; 6 above, 14 below, 15 predorsal forward to occiput. Head scaly on sides behind eye. Caudal base scaly, also chest, breast and prepectoral region. Lateral line complete, distinct; tubes large, simple, without spines. Scales with 7 basal radiating striae; 12 or 13 apical denticles, with 2 or 3 transverse series of basal elements; circuli fine.

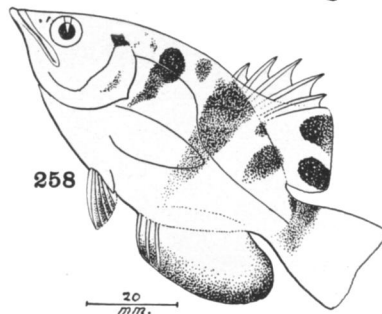
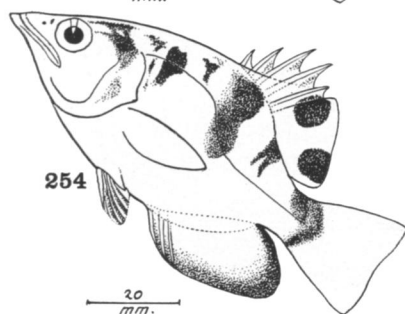
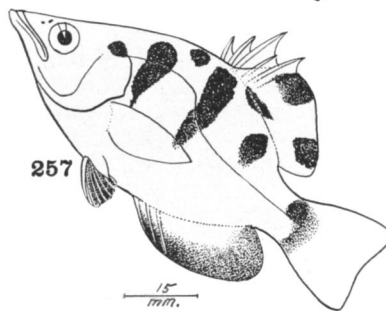
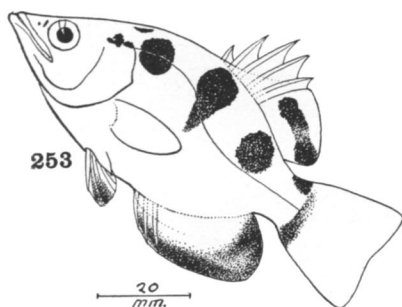
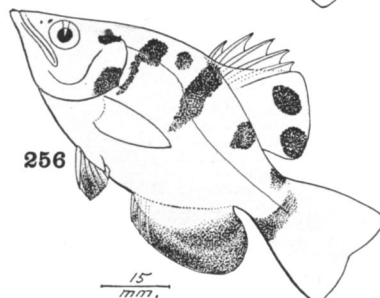
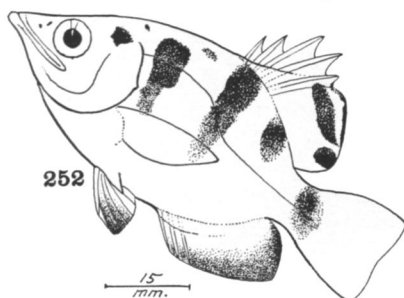
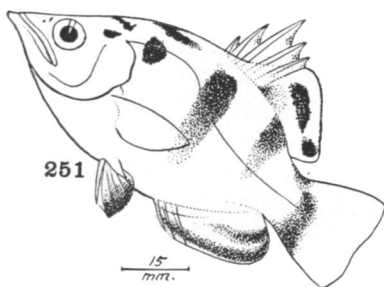
D. IX, 11, third spine $2\frac{3}{4}$ in total head length, second ray 3; A. I, 10, first ray 4; caudal $1\frac{3}{4}$, convex behind; pectoral $2\frac{1}{2}$, rays 20; ventral rays I, 5, fin $1\frac{1}{2}$. Vent close before anal.

Back and upper surfaces brown or drab, with 6 or 7 obscure darker transverse blotches. Sides of head below with 6 indistinct dark blotches. Iris gray. Under surfaces, except paired fins, whitish. Spinous dorsal blackish. Soft dorsal pale, on each ray 4 dark spots. Caudal whitish, with broad black basal and subterminal bands, and 2 less distinct medially. Anal white. Pectoral with 5 dark brown transverse bars on its upper part, greater lower portion blackish brown with whitish border. Ventral largely blackish terminally, border and base pale.

A.N.S.P., No. 68,247. Rayong, Siam. Length 94 mm. Type.

Compared with the East Indian species grouped by Bleeker with 50 to 60 rows of scales, as *Platycephalus malayanus* Bleeker, *P. pristiger* Cuvier,

H. W. F. del.

251 to 258. *Toxotes chatareus* (variation).

and *P. celebicus* Bleeker, all differ in the more or less serrated supraorbital ridges, the last also with other ridges serrated. *Suggrundus crocodilus* (Tilesius) has far more scales (90).

(For the late Chreswell J. Hunt, of Chicago, to whom the Academy is indebted for local fishes.)

TOXOTIDAE

Toxotes chatareus (Buchanan-Hamilton).* Figures 251 to 258 (variation).

Nine, 64 to 111 mm., Bangkok. Scales 33 or 34.

EPHIPPIDAE

Drepane punctata (Linnaeus).

Seven, 27 to 55 mm., Tachin; 25 specimens, 43 to 92 mm., Paknam.

SCATOPHAGIDAE

Scatophagus argus (Linnaeus).

One, 83 mm., Bangkok; one, 12 mm., Rayong; five, 53 to 108 mm., Tachin; four, 18 to 74 mm., Paknam.

PLATACIDAE

Platax orbicularis (Forskål).

One, 39 mm., Paknam.

CHAETODONTIDAE

Chelmo rostratus (Linnaeus).

Two, 88 to 133 mm., Bangkok.

Parachaetodon ocellatus (Cuvier).*

Six, 92 to 118 mm., Rayong.

Chaetodon octofasciatus Bloch.*

Two, 112 to 118 mm., Bangkok.

SIGANIDAE

Siganus rivulatus (Forskål).* Figure 248.

Six, 24 to 30 mm., Bangkok.

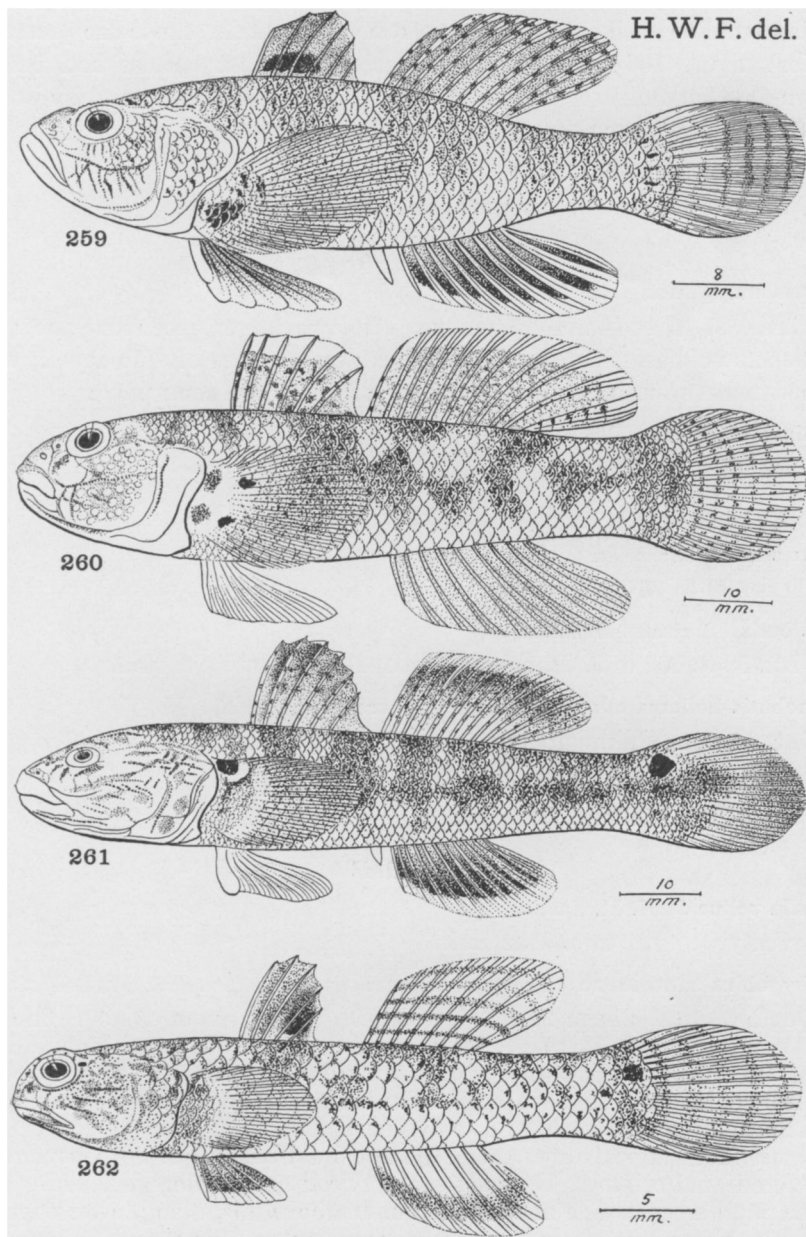
Siganus oramin (Schneider).

One, 164 mm., Rayong; six, 25 to 30 mm., Bangkok.

POMACENTRIDAE

Abudefduf saxatilis (Linnaeus).

Two, 172 to 183 mm., Rayong; five, 17 to 34 mm., Bangkok. Both large specimens have but 5 transverse dark bands, and not 6 as shown in Lacépède's figure of *Labrus saxatilis*, pl. 19, fig. It shows a dark transverse postocular band, which was evidently included when counting the dark



259. *Prionobutis koilomatodon*.
261. *Tukagobius ocellatus*.

260. *Bathygobius fuscus*.
262. *Vaimosa chulae*.

bands. It does not show a dark blotch at the pectoral origin, or a dark median band on each caudal lobe. As the dark caudal bands are present in Cuvier's figure 135 of *Glyphisodon coelestinus*, that species had best be known as *Abudefduf coelestinus* (Cuvier), and later also figured by Jordan and Seale. My young specimens with blackish ventrals.

Abudefduf sordidus* (Forskål).

Two, 51 to 180 mm., Bangkok; one, 80 mm., Rayong.

LABRIDAE

***Thalassoma schwanefeldi* (Bleeker).**

Three, 61 to 104 mm., Bangkok. The two larger specimens show two dark spots subbasally on third and fourth membranes of soft dorsal, while in the smallest specimen it is single, larger and more contrasted.

***Cheilinus chlorurus* (Bloch).**

One, 202 mm., Rayong.

ELEOTRIDAE

***Eleotris fusca* (Schneider).**

Three, 66 to 73 mm., Tachin.

***Butis butis* (Buchanan-Hamilton).**

Five, 58 to 102 mm., Bangkok; three, 41 to 98 mm., Tachin.

Prionobutis koilomatodon* (Bleeker). Figure 259 (Tachin).

One, 51 mm., Paknam; five, 44 to 73 mm., Tachin.

***Oxyeleotris marmorata* (Bleeker).**

Four, 135 to 154 mm., Bangkok.

Gobiidae

***Gobiella pellucida* H. M. Smith.**

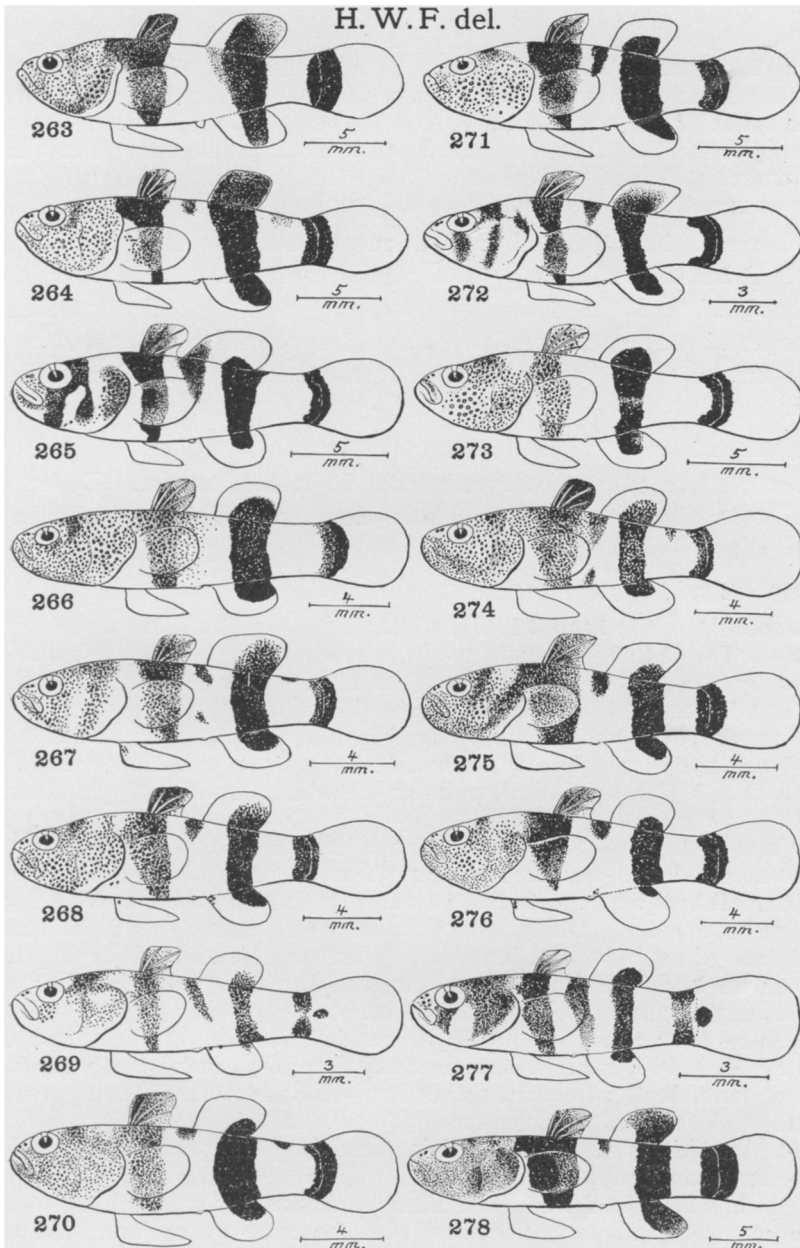
Seventy, 18 to 23 mm., Bangkok.

***Brachygobius xanthozona* (Bleeker). Figures 263 to 277 (Bangkok), 278 (Medan).**

Depth $3\frac{3}{8}$ to $4\frac{2}{3}$; head $2\frac{3}{8}$ to $2\frac{3}{4}$, width $1\frac{1}{8}$ to $1\frac{1}{5}$. Snout $4\frac{3}{8}$ to $4\frac{5}{8}$ in head from snout tip; eye $3\frac{1}{2}$ to $4\frac{1}{8}$, little greater to subequal with snout, little greater to subequal with interorbital; maxillary reaches to front eye edge to $\frac{1}{5}$ in eye, length 3 to $3\frac{1}{4}$ in head from snout tip; teeth minute, in narrow band in each jaw; interorbital 3 to $3\frac{3}{4}$, level.

Scales 26 in lateral series medially to caudal base; 9 or 10 between soft dorsal and anal origins. Opercles scaly, cheek and predorsal naked. Row of fine papillae each side of snout, around suborbitals, along lower edges of mandible, along preopercle, 2 rows horizontally on cheek, and oblique row over opercle. Scales with 12 or 13 basal radiating flutings; 11 or 12 apical denticles graduated shorter medially; circuli fine.

D. V - I, 8, third spine $2\frac{1}{2}$ to $2\frac{3}{4}$ in total head length, soft dorsal height $2\frac{1}{2}$ to $2\frac{3}{8}$; A. I, 8, fin height $2\frac{3}{8}$ to $2\frac{1}{2}$; caudal $1\frac{1}{8}$ to $1\frac{3}{4}$, convex behind; least depth

263 to 278. *Brachygnathus xanthozona* (variation).

of caudal peduncle 2 to $2\frac{1}{3}$; pectoral $1\frac{2}{3}$ to $1\frac{1}{2}$, rays I, 14; ventral I, 5, fin $1\frac{1}{2}$ to $1\frac{3}{4}$. Vent close before anal, with rather broad papilla.

Pale yellowish to whitish. Head more or less dotted with dark gray to blackish. Usually blackish transverse band on top of head behind eyes, sometimes extended down below eyes on cheek. Broad black transverse band connects spinous dorsal with belly at postventral region, sometimes crossing to meet its fellow. Second broad black band connects last half of soft dorsal and anal. Third broad black band at caudal base. Variation may be seen by reference to the accompanying figures.

Nineteen, 10 to 28 mm., Bangkok; one, 28 mm., Medan, Sumatra, March 1934. A beautiful littly goby with greatly contrasted color pattern.

Thaigobiella H. M. Smith, with its genotype *T. sua* H. M. Smith, is a synonym of the present species. The genotype of *Brachygobius* was long made known (1849) as *Gobius xanthozona* Bleeker, from Surabaija, east Java.

Bathygobius fuscus (Rüppell).* Figure 260 (Paknam).

Four, 42 to 64 mm., Rayong; one, 90 mm., Paknam. Differs from Herre's grouping in coloration, greating suggesting *Rhinogobius baliuroides* (Bleeker).

Tukagobius ocellatus, new species. Figure 261.

Depth $5\frac{1}{5}$ to $5\frac{2}{5}$; head 3 to $3\frac{1}{6}$, width $1\frac{1}{3}$ to $1\frac{2}{5}$. Snout $3\frac{1}{3}$ to $3\frac{1}{2}$ in head; eye $5\frac{1}{3}$ to $5\frac{1}{4}$, $1\frac{2}{3}$ to $1\frac{3}{4}$ in snout, greatly exceeds bony interorbital; maxillary reaches $\frac{2}{3}$ to $\frac{1}{2}$ in eye, length $2\frac{1}{2}$ to $3\frac{1}{8}$ in head; lower jaw slightly included; lips broad, smooth, thick, fleshy; tongue spatulate, slightly convex in front; teeth small, conic, simple, strong, uniform, in 4 or 5 rows in front of each jaw which narrow posteriorly; interorbital 6 to $7\frac{1}{4}$ in head, low, nearly level. Gill rakers 3 + 5, short, low, pointed, knoblike, about $\frac{2}{5}$ of gill filaments, which $\frac{2}{5}$ of eye.

Scales 43 to 45 + 4 or 5 in median lateral series; 15 to 17 transversely between soft dorsal and anal origins; 18 to 22 predorsal scales forward to occiput. Breast scaly. Median naked strip, from behind ventrals to vent. Caudal base scaly. Head naked, with very fine, inconspicuous and mostly short rows of papillae, best indicated by means of the accompanying figure. Scales with 9 to 16 radiating basal striae; 33 to 50 apical denticles; circuli fine basally, coarser to obsolete apically.

D. VI - I, 10, 1 or I, 11, 1, third spine $1\frac{1}{2}$ to 2 in head, first branched ray 2 to $2\frac{1}{2}$; A. I, 9, 1, seventh branched ray 2 to $2\frac{1}{5}$; caudal $1\frac{1}{3}$ to $1\frac{2}{5}$, convex behind; least depth of caudal peduncle $2\frac{3}{4}$ to 3; pectoral $1\frac{1}{3}$ to $1\frac{2}{5}$, rays 16; ventral I, 5, front edge of ventral disk as broad bilobate flap, fin length $1\frac{1}{2}$ to $1\frac{3}{4}$. Vent little nearer anal origin than tips of depressed ventrals, with rather long conic papilla $\frac{2}{3}$ of eye.

Brown, with 7 or 8 transverse ill defined saddles across middle of back; these variously distinct, variably wide or narrow, or even as double transverse bands, and usually with more or less mottled or marbled appearance, not extending on lower sides or under surfaces, which uniform whitish. Upper surface of head with variable brownish blotches, more or less streaked longitudinally. Iris gray, jaws and lips dull brownish. First dorsal

brownish, paler basally, and 5 dark blotches on each spine. Soft dorsal similar, with paler or whitish upper anterior border. Caudal brownish, clouded or blotched with darker to blackish, especially in smaller specimens, and dark or blackish blotch at bases of upper rays usually large and distinct. Anal dark brown medially, pale basally and with broad whitish lower border. Pectoral brownish, with small black, white-bordered ocellus at origin and more or less distinct whitish subbasal bar. Ventral whitish.

A.N.S.P., No. 68,248. Kemrat, Siam. Length 103 mm. Type. Also Nos. 68,249 to 68,251, same data, paratypes. Length 78 to 80 mm.

Known by its coloration, especially the pectoral ocellus and dark blotch at the upper basal part of the caudal, though this less distinctive as sometimes an obscure lower or even median blotch may be present.

(*Ocellatus* with eye-like spots.)

***Pseudogobiopsis oligactis* (Bleeker).**

Twelve, 28 to 42 mm., Bangkok. I refer these specimens to the account by Koumans 1935, he mentioning six specimens of which one the type and two others from Bangpakong River, Siam.

***Vaimosa chulae* H. M. Smith. Figure 262.**

Depth 5; head $3\frac{2}{3}$, width $1\frac{1}{2}$. Snout $5\frac{1}{3}$ in head; eye $4\frac{1}{3}$, greater than snout, twice bony interorbital; maxillary reaches back little behind eye edge, length $2\frac{1}{2}$ in head; mandible included in upper jaw; single row of very small, simple, curved, short, conic teeth along front edge of upper jaw, visible when mouth is closed; front of mandible with 4 large strong conic teeth, and set off near middle of each mandibular ramus several other rather large teeth; tongue adnate in front to floor of mouth, appearing rounded; interorbital width low, depressed. Gill opening lateral, extends forward opposite hind preopercle edge.

Scales 24 + 3 in median lateral series; 7 transversely between dorsal and anal origins; 11 predorsal scales forward to eyes. Opercles scaly, muzzle, cheek, interorbital and under surface of head naked. Row of minute close set papillae on suborbitals, close to eye, 3 parallel horizontal rows on cheek, and row along each lower face of mandibular rami. Small scales on chest and breast, belly and caudal base also scaly. Scales with 15 parallel slightly converging basal striae; 47 apical denticles; circuli fine.

D. V - I, 7, 1, second spine $1\frac{3}{4}$ in head, second dorsal height $1\frac{1}{4}$; A. I, 7, 1, fin height $1\frac{1}{2}$; caudal 1, convex behind; least depth of caudal peduncle $2\frac{1}{4}$; pectoral $1\frac{1}{3}$, rays 15; ventral I, 5, with even, entire membranous border in front, fin $1\frac{1}{2}$. Vent little nearer anal origin than tips of depressed ventrals, papilla flattened, pointed, $\frac{1}{2}$ of eye.

Pale brown, each scale on body with dark basal pocket, and 6 ill defined dark saddle-like blotches down middle of back, with 5 still paler alternating blotches axial along side. Head with various dark spots. Iris gray. Jaws dotted with gray and branchiostegal region with blackish gray. First dorsal with gray brown, large blackish blotch on last 2 membranes. Second dorsal pale, with 5 dark longitudinal bands. Caudal grayish with 5 darker transverse bands and black spots, about size of pupil at bases of upper rays. Pectoral pale, dusted with brownish, and blackish blotch above and another below basally. Ventral rather dark gray, outer border whitish.

One, 41 mm., Tachin. Known by its coloration, obtuse muzzle, large scales and fin formula. It somewhat resembles *V. piapensis* Herre from the Philippines, but with greatly larger mouth and different coloration.

Vaimosa spilopleura H. M. Smith. Figure 279.

One, 46 mm., Tachin.

Glossogobius giuris (Buchanan-Hamilton).

Seven, 92 to 172 mm., Bangkok; one, 205 mm., Paknam; one, 103 mm., Tachin.

Ctenogobius caninus (Valenciennes).

Two, 85 to 93 mm., Tachin.

Ctenogobius viridipunctatus (Valenciennes). Figure 280.

Five, 48 to 114 mm. Tachin.

Ctenogobius masoni (Day). Figure 281 (Paknam).

Depth $4\frac{2}{3}$ to $4\frac{1}{2}$; head 3 to $3\frac{1}{4}$, width $1\frac{1}{2}$ to $1\frac{3}{4}$. Snout $3\frac{2}{3}$ to $4\frac{1}{3}$ in head from snout tip; eye $5\frac{1}{3}$ to $6\frac{1}{3}$, $1\frac{1}{3}$ to $1\frac{1}{2}$ in snout, subequal with interorbital; maxillary reaches $\frac{1}{2}$ in eye, length $2\frac{1}{8}$ to $2\frac{2}{5}$ in head from snout tip; mandible slightly protrudes, broadly convex; tongue broad, rounded in front; teeth small, in narrow band in each jaw, with pair of small, curved, wide-set canines in each jaw anteriorly and another at middle of each mandibular ramus; interorbital 6 to $6\frac{3}{4}$, concave. Gill rakers 6 + 12, mostly very short points, longest $\frac{1}{2}$ of gill filaments, which subequal with eye.

Scales 24 to 26 + 4 or 5 in median lateral series; 10 or 11 transversely at soft dorsal and anal origins, 21 or 22 predorsal scales forward to eye. Few small scales on opercle above, head otherwise naked. Row of fine close set papillae along suborbitals up over postocular region and back to supra-scapula; row along upper edge of maxillary; 2 double rows horizontally on cheek; several rows on preopercle and opercle; row along each mandibular ramus and lower part of preopercle. Small bilobate cutaneous flap on front of mandible or chin. Prepectoral and caudal base scaly. Scales with 9 basal radiating striae; row of 9 or 10 apical denticles; circuli fine, basal, coarser apically.

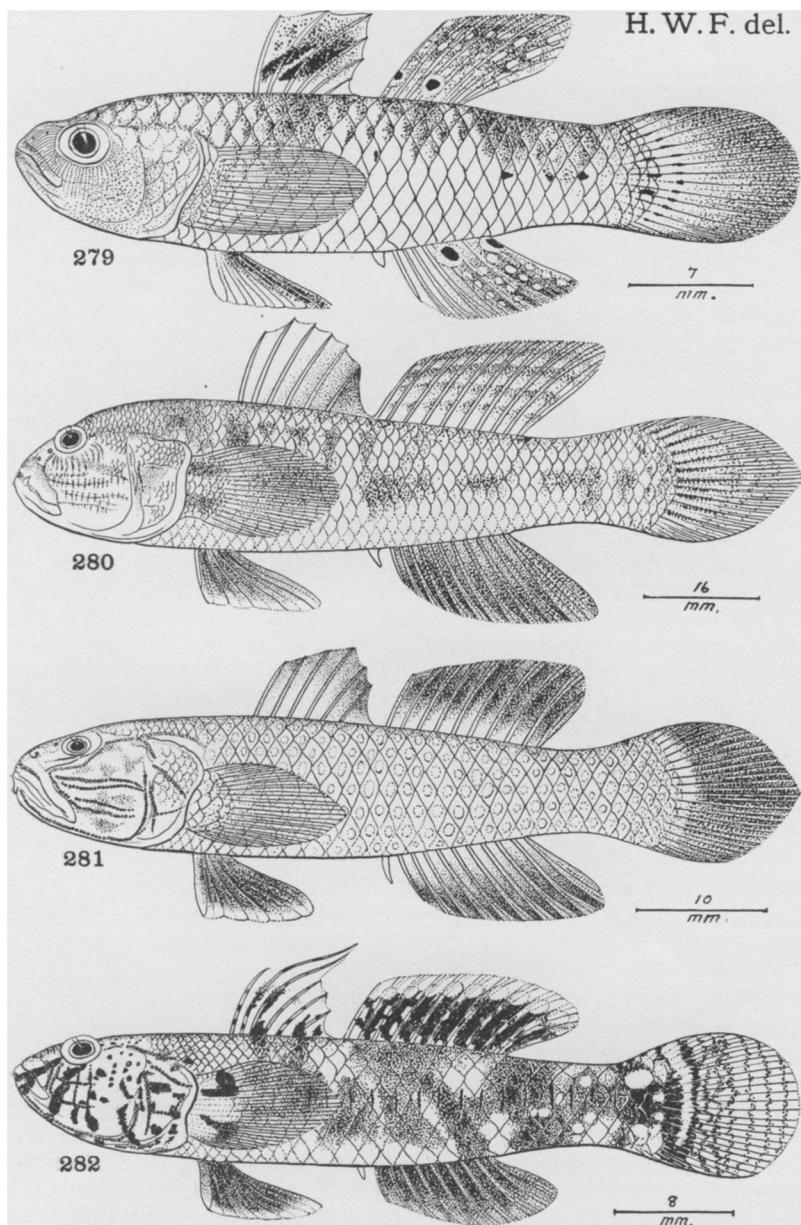
D. VI - I, 9, 1, fourth spine 2 to $2\frac{1}{2}$ in total head length, second dorsal height $1\frac{1}{8}$ to 2; A. I, 9, 1, fin height $1\frac{3}{4}$ to $1\frac{5}{8}$; caudal 1 to $1\frac{1}{8}$, ends in blunt median point behind; least depth of caudal peduncle $2\frac{1}{4}$ to $2\frac{5}{8}$; pectoral $1\frac{1}{3}$ to $1\frac{2}{3}$, rays 17; ventral rays I, 5, with simple, entire, broad membrane in front, length $1\frac{1}{2}$ to $1\frac{3}{5}$. Anal papilla pointed, close before anal.

Body and head pale or dull brown, with pale or pearly spot on each scale. Iris gray. Fins all dark to blackish gray, paired fins all little brownish basally.

Four, 49 to 67 mm., Tachin; one, 62 mm., Paknam.

Ctenogobius vexillifer, new species. Figure 282.

Depth $4\frac{4}{5}$; head $3\frac{1}{3}$, width $1\frac{1}{4}$. Snout $4\frac{2}{3}$ in head from snout tip; eye $4\frac{2}{3}$, impinges on upper profile of head, equals snout, greatly exceeds interorbital; maxillary reaches opposite front eye edge, length $3\frac{4}{5}$ in head from snout tip;



279. *Vaimosa spilopleura*.
281. *Ctenogobius masoni*.

280. *Ctenogobius viridipunctatus*.
282. *Ctenogobius vexillifer*.

mandible well protruded in front, with broad fleshy lips; band of small pointed teeth in each jaw, with 5 or 6 lower outer little enlarged curved canines; tongue, rounded, free in front; interorbital narrow, width about $\frac{1}{4}$ of eye, concave. Gill opening extends forward about last half of postocular.

Scales $27 + 2$ in median lateral series; 11 transversely at soft dorsal and anal origins, 10 predorsal extending about last $\frac{2}{3}$ in postocular. Head naked, with 4 rows of fine papillae radiating down on cheek and crossed by median and terminal rows; row along lower face of mandible and lower part of preopercle; row forward from suprascapula; two rows on opercle. Breast and caudal base scaly. Scales with 22 basal radiating striae; 39 or 40 apical denticles, graduated little shorter to apex of scale; circuli fine.

D. VI - I, 10, 1, third spine $1\frac{1}{6}$ in total head length, soft fin height $1\frac{1}{8}$; A. I, 8, 1, fin height $2\frac{1}{8}$; caudal 1, little convex behind; least depth of caudal peduncle $2\frac{1}{4}$; pectoral $1\frac{1}{4}$, rays 16; ventral rays I, 5, front membrane entire, rather broad, fin length $1\frac{1}{2}$. Anal papilla flat, pointed, close before anal fin.

Brown generally, under surfaces scarcely paler. Back with 5 variable blackish-brown saddle-like blotches, variously mottled paler and darker, and alternating with as many dark blotches along lower half of side. Head marked with dark to blackish brown blotches, arranged as 5 inclined bars along lower side of head. Dorsals grayish medially with blackish brown, broadly pale marginally. Caudal with 6 or 7 transverse blackish brown bands; in basal half several reticulated to form rather broad band; 2 pale round spots, smaller than eye, at caudal base. Anal gray, each membrane over great basal portion blackish. Pectoral gray, with 2 blackish blotches basally, upper larger and preceded by conspicuous white spot. Ventrals gray black, margin of disk whitish. Iris gray.

A.N.S.P., No. 68,252. Bangkok, Siam. Length 48 mm. Type.

Apparently related to *C. hongkongensis* (Seale) 1910 in its squamation, though with less extended scaly predorsal region made up of fine scales. The physiognomy is also quite different, the projecting mandible subvertically protruded in front, a ladder of papillae on the cheek, the front dorsal spines extended and the coloration quite different.

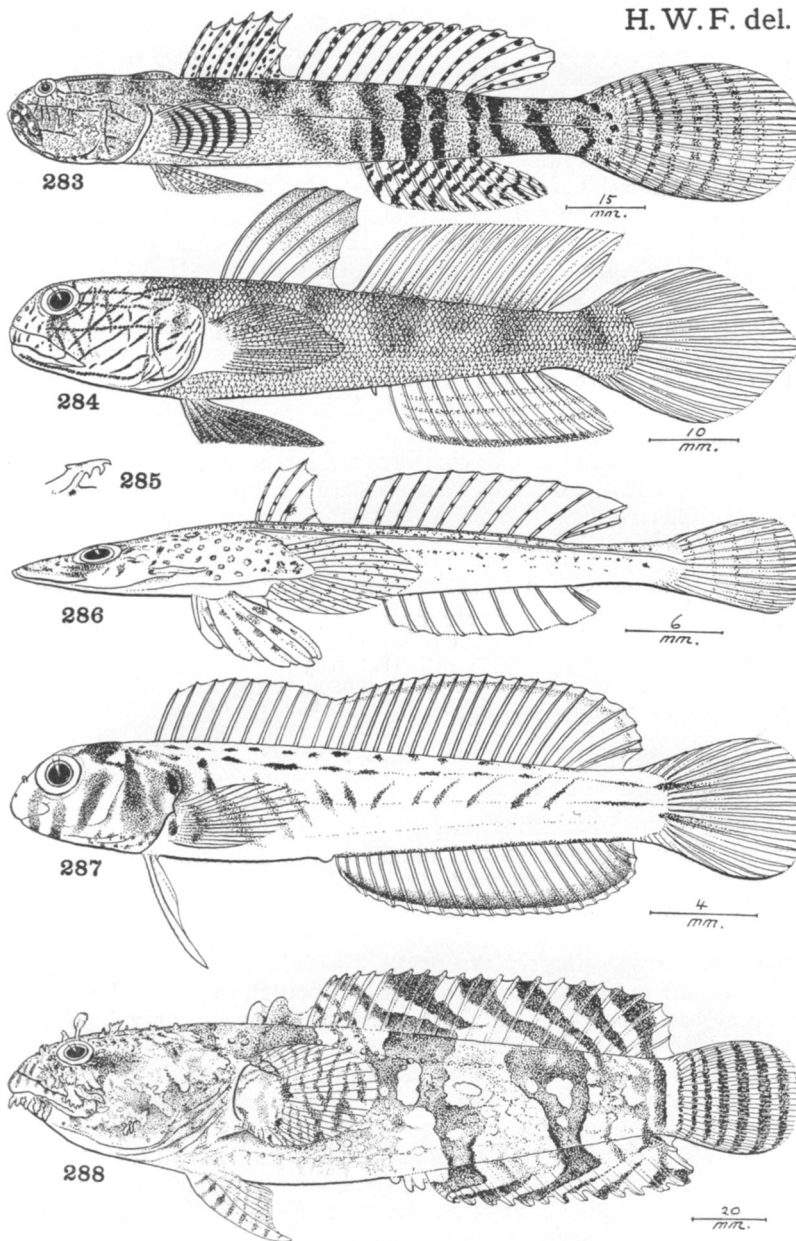
(*Vexillum* banner + *fero* to bear, with reference to the first dorsal fin.)

Cryptocentrus maudae, new species. Figure 283.

Depth $6\frac{3}{4}$; head 4, width $1\frac{3}{4}$. Snout 5 in head from snout tip; eye $5\frac{1}{4}$, $1\frac{1}{8}$ in snout, greater than interorbital; maxillary reaches opposite $\frac{2}{3}$ in eye, length 3 in head from snout tip; lips broad, fleshy, smooth, entire; bands of finely villiform teeth in jaws, with pair of wide set canines anteriorly in each, besides middle of each mandibular ramus with well-hooked canine pointing posteriorly; interorbital $\frac{1}{2}$ of eye, level, and little below level of upper edges of eyes. Gill opening extends forward opposite hind edge of preopercle. Gill rakers $6 + 12$, lanceolate, $\frac{2}{3}$ of gill filaments or $\frac{1}{2}$ of eye. Inside gill opening below on shoulder girdle rather broad deep notch.

Scales $90 + 4$ in median lateral series; 33 transversely about anal origin; predorsal naked. Rather long and slightly elevated convexity, with swollen appearance on predorsal immediately before dorsal fin. Head naked, with ladder-like arrangement of minute papillae on cheek, row back over post-

H. W. F. del.



283. *Cryptocentrus maudae*. 284. *Cryptocentrus wehrlei*.
 285, 286. *Callionymus fluviatilis*. 287. *Petroscirtes dispar*.
 288. *Pseudobatrachus eugeneius*.

ocular, line along lower face of each mandibular ramus and preopercle, several bars on opercle; transverse intersection over top of head behind eyes with parietal extension back each side of occiput; very inconspicuous vertical bars of minute bead-like papillae, well spaced, along sides of body. Chest, breast, and prepectoral regions naked. Scales with 14 to 20 radiating striae, largely basal; circuli fine, basal, obsolete apically.

D. VI, 11, 1, fifth spine $1\frac{3}{4}$ in total head, soft fin height $1\frac{1}{2}$; A. I, 10, 1, fin height $2\frac{1}{2}$; caudal 3 in rest of fish, broadly expanded, ovoid; least depth of caudal peduncle $2\frac{3}{4}$ in total head; pectoral $1\frac{1}{4}$, rays 15; ventral rays I, 5, with broad, entire connecting membrane in front, fin $1\frac{1}{2}$ in total head length. Anal papilla rather large, fleshy, truncate, little extruded.

Largely brownish, with very numerous, little contrasted, close set, small paler spots, crowded to form obscure reticulated appearance over anterior half of body. Thirteen dark to blackish transverse bands, most distinct on tail and several more or less paired. Iris gray. Jaws with obscurely defined darker blotches. Fins pale to light gray. Spinous dorsal with gray black blotches on spines, and smaller variable spots on membranes. Each dorsal ray with 6 variable blackish brown blotches. Anal with contrasted black sigmoid bands. Caudal with about 10 transverse series of dark to blackish blotches. Pectoral with 6 dark transverse variable bars. Ventral dark gray, with whitish spots.

A.N.S.P., No. 68,253. Bangkok, Siam. Length 148 mm. Type.

Only known from the above example, which appears unique in its coloration, dorsal and anal not reaching caudal and its small paired fins.

(Named for Miss Maude de Schauensee, daughter of Mr. and Mrs. Rodolphe Meyer de Schauensee.)

Cryptocentrus wehrlei, new species. Figure 284.

Depth $4\frac{1}{2}$; head 3, width $1\frac{1}{2}$. Snout $4\frac{3}{4}$ in head; eye $4\frac{1}{2}$, $1\frac{1}{10}$ in snout, greater than interorbital; maxillary reaches behind eye, length $2\frac{2}{3}$ in head; lips broad, fleshy, smooth, entire; band of fine, uniform, villiform teeth in each jaw; tongue with slight medial notch in front; interorbital width 2 in eye, level. Gill opening lateral, extends forward in last half of postorbital region.

Scales very small, largely uniform, $73 + 6$ in median lateral series; 21 transversely, 22 predorsal forward $\frac{2}{3}$ of postocular region of head. Breast and caudal base scaly. Head and prepectoral region naked. Ladder of minute papillae on postocular region and cheek; row of papillae along lower face of each mandibular ramus and lower part of preopercle; several bars of papillae on opercle. Scales with 18 or 19 basal radiating striae; circuli moderate, obsolete apically.

D. VI - 12, 1, third spine $1\frac{1}{2}$ in head, soft dorsal height $1\frac{3}{4}$; A. 11, 1, fin height 2; caudal 1, with obtuse median point behind; least depth of caudal peduncle $3\frac{1}{4}$; pectoral $1\frac{1}{2}$, rays 11, 17; ventral I, 5, fin $1\frac{1}{4}$. Vent short, flattened, close before anal.

Pale brown, general color largely uniform. Back with 6 dark brown saddles, first, second, fourth and fifth most distinct. Also large dark rounded blotch size of eye at caudal base. Dark blotch below eye. Eye gray. Two dark bars on side of snout, and 5 broken, parallel dark lines on

side of head behind eye. First dorsal gray, paler below. Second dorsal pale to transparent, with brown line on each membrane between and parallel. Anal pale, with 4 dark parallel longitudinal bands, outermost or border dark gray. Ventral dark gray.

A.N.S.P., No. 68,254. Bangkok, Siam. Length 90 mm. Type.

Greatly like *Cryptocentrus leonis* H. M. Smith, but that species said to have scales "about 125 in longitudinal series from upper angle of branchial aperture and about 30 in transverse series between origin of second dorsal and anal." On "predorsal region scales to a point half way between gill opening and eyes, the scales small, about 33 in median line." In *C. wehrlei* about 22 scales on predorsal. Smith's species further differs in "Entire body a uniform reddish-brown without any markings," whereas *C. wehrlei* has five dark cross bands. *C. leonis* was based on a specimen 135 mm. long. In general coloration, though without the dark oblique lines on the side of the head, *Biat luzonicus* Seale is somewhat suggestive.

(For the late Richard W. Wehrle, of Indiana, Penna., who obtained many collections of fishes for the Academy.)

Apocryptodon malcolmi H. M. Smith.

Eight, 145 to 177 mm., Bangkok; two, 103 to 143 mm., Tachin. A re-examination of the types of *Boleophthalmus smithi* Fowler 1934, show them synonymous with the present species, and wrongly referred to *Boleophthalmus*. The Bangkok and Tachin materials listed above, show a more definite color pattern than my drawing of the type. The dark blotches along the bases of the dorsal fins are all extended obliquely forward to a dark, lateral, median axial blotch. A gray streak extends down from the lower eye edge until opposite the hind end of the maxillary. Lower eyelid free in all the specimens.

Apocryptodon edwardi, new species.

This species was also wrongly referred to *Boleophthalmus*, as *Boleophthalmus taylori* Fowler 1934, in these Proceedings, p. 159, figure 128, based on No. 60019 A.N.S.P. from Bangkok. As it is now necessary to place it in *Apocryptodon* Bleeker 1874, where it is precluded by *A. taylori* Herre 1927, I have substituted the above name, based on the designated haplotype. The present collection contains an additional specimen, 205 mm. long, from Tachin.

(For Prof. Edward H. Taylor of the University of Kansas.)

TAENIOIDIDAE

Taenioides angularis (Linnaeus).

Three, 113 mm., Bangkok.

TRYPACHENIDAE

Trypauchen vagina Schneider.

Three, 166 to 198 mm., Tachin.

CALLIONYMIDAE

Callionymus fluviatilis Day.* Figures 285 (preopercular spine), 286.

Depth $8\frac{3}{4}$ to $9\frac{1}{2}$; head $3\frac{1}{2}$ to $3\frac{3}{4}$, width 1 to $1\frac{1}{8}$. Snout 3 to $3\frac{1}{2}$ in head from snout tip; eye $2\frac{5}{8}$ to $3\frac{1}{2}$, greater than snout in small specimens to $1\frac{1}{2}$ in snout with age, greatly exceeds narrow interorbital; maxillary extends $\frac{1}{2}$ in eye, length $2\frac{1}{4}$ to $2\frac{1}{2}$ in head from snout tip; lips narrow forward, lower laterally broad and fleshy; interorbital $\frac{1}{3}$ of eye, little concave; preopercular spine nearly long as eye, with outer basal, short, antero-basal retrose spine, and besides strong terminal denticle 2 or 3 strong curved spines on inner edge.

Skin smooth. Lateral cutaneous ridge distinct, high along back, finally reaches caudal base medially.

D. IV - 10, 1, second spine $2\frac{1}{3}$ to $2\frac{3}{4}$ in head from mandible tip, soft fin height $2\frac{1}{3}$ to $3\frac{1}{4}$; caudal $1\frac{1}{2}$ to $1\frac{5}{8}$, little convex behind; least depth of caudal peduncle $4\frac{1}{3}$ to 6; pectoral $1\frac{1}{2}$, rays 16; ventral rays I, 5, fin $1\frac{1}{2}$ to $1\frac{1}{4}$ in total head length. Vent close before anal, with small, conic papilla.

Pale brown above, mottled with darker brown, numerous variable small spots, specks and dots. Row of dark spots along upper edge of cutaneous lateral keel, variable, best seen as viewed above. Iris gray. Under surfaces of head and body uniform whitish. Fins largely pale to translucent, rays and spines of dorsals with dark spots, blackish on spines of first dorsal. Four dull transverse bars on caudal, fading out below. Pectoral specked with brown. Several rows of rather large brown spots on ventral.

Six, 37 to 50 mm., Bangkok. Agrees with Day's description. He gives "First dorsal black, or only spotted, second with four or five rows of spots. Upper half of caudal spotted. Anal colourless." Described from the Hoogly at Calcutta, and said to reach 75 mm. in length.

ECHENEIDIDAE

Leptecheneis naucrates (Linnaeus).

Two, 232 to 234 mm., Bangkok; two, 206 to 238 mm., Rayong; fourteen, 119 to 265 mm., Paknam.

BLENNIIDAE

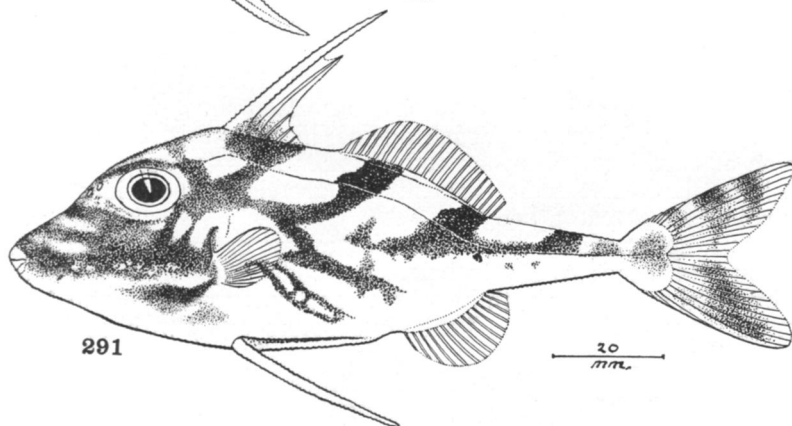
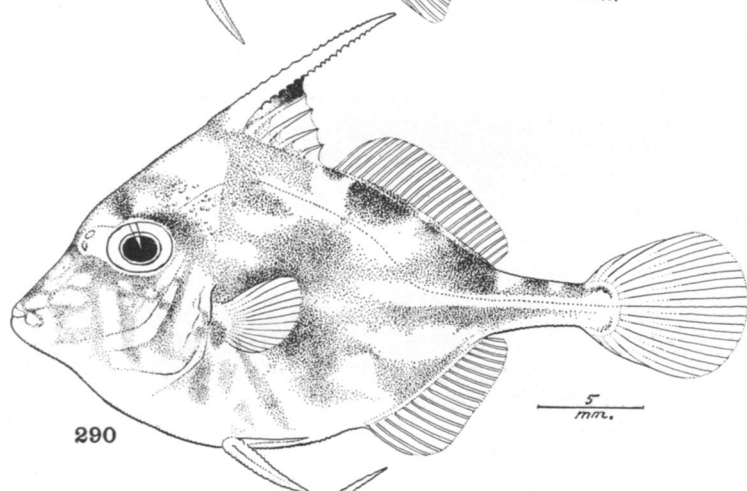
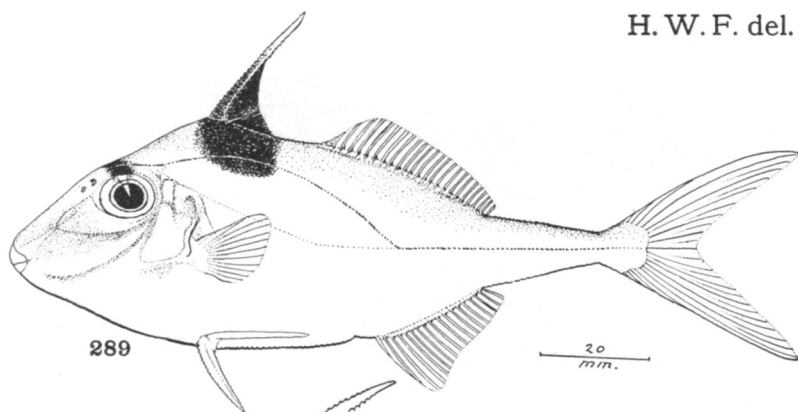
Petroscirtes dispar, new species. Figure 287.

Depth $5\frac{1}{2}$; head $3\frac{1}{2}$, width $1\frac{3}{4}$. Snout $4\frac{3}{4}$ in head; eye $3\frac{1}{2}$, greater than snout, greatly exceeds interorbital; mouth cleft reaches $\frac{2}{3}$ in eye, length $4\frac{1}{2}$ in head; teeth firmly erect, close set, pointed, with 2 pairs of canines in mandible of which anterior pair shorter and posterior pair greatly longer; interorbital narrow, width $\frac{2}{3}$ of eye. Gill opening with distinct fold down across isthmus, only free below to bases of upper pectoral rays, its length $3\frac{1}{2}$ in head.

Skin smooth. Hind nostril in small tube. Head and body without ridges, keels or cirri.

D. X, 20, fins scarcely notched, spines and rays flexible, first fin height $2\frac{1}{2}$ in head, second fin height $1\frac{1}{2}$; A. I, 21, fin height 2; caudal $1\frac{1}{4}$, convex behind; least depth of caudal peduncle $2\frac{1}{2}$; pectoral $1\frac{1}{2}$, rays 14; ventral rays 2, fin $1\frac{1}{4}$ in head. Vent with convex, low, fleshy papilla.

H. W. F. del.



289. *Triacanthus brevirostris*. 290. *Triacanthus oxycephalus*.
291. *Triacanthus strigilifer*.

Head and body very light brown, belly and under surfaces whitish. Five transverse dark brown bands on head, with some spots on branchiostegal region. Two rows of dark brown spots along each side of back. Side of body with 12 dark brown bars transversely, first 6 inclined backward, and others forward. Iris gray. Fins translucent, soft dorsal with submarginal gray band, anal with dark brown submarginal band, and 2 dark bars from base on caudal besides dark lower border to fin. Pectoral with dark median spot, and much larger dark brown subbasal blotch.

A.N.S.P., No. 68, 255. Bangkok, Siam. Length 29 mm. Type.

Closely related to *Petroscirtes masyae* H. M. Smith, based on 2 specimens 53 to 59 mm. long from the Chantaboon estuary. My specimen differs so strikingly in coloration that it appears to me distinct. *P. masyae* is described with 10 or 11 dark green cross bars on the back which meet at the median dorsal line. Smith describes 5 longitudinal dark green lines on the back and sides (in no way present in my specimen), the upper and longest immediately below the cross bars, extending from head to under posterior dorsal rays, other lines progressively shorter, fourth and fifth confluent behind pectoral and extending about half length of body. The head is described with 3 dark brown cross bands.

(*Dispar* unlike, as the dark lateral bars diverge.)

BATRACHOIDIDAE

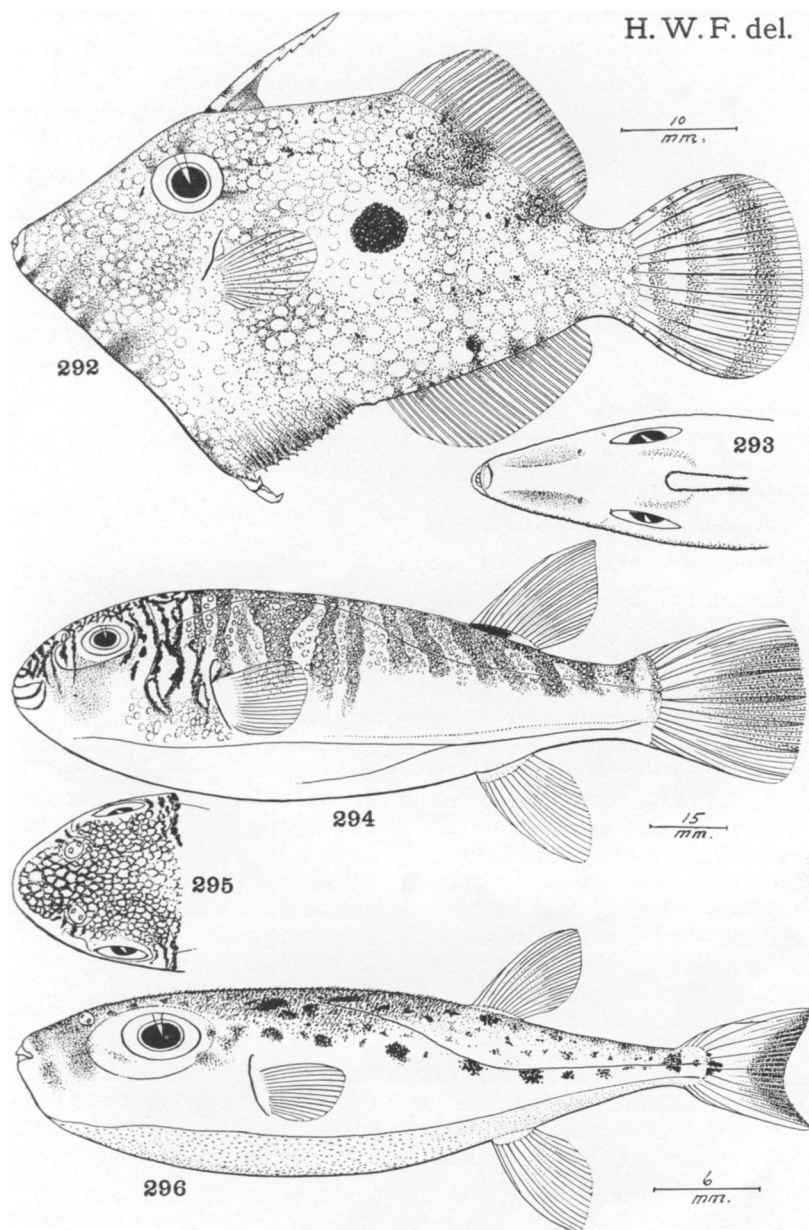
Pseudobatrachus eugeneius, new species. Figure 288.

Depth 4; head 3, width 1. Snout $5\frac{1}{2}$ in head from snout tip; eye 6, $1\frac{1}{4}$ in snout, $1\frac{3}{4}$ in interorbital; maxillary extends little behind eye, expansion $1\frac{1}{8}$ in eye, length $2\frac{1}{2}$ in head from snout tip; lips thick, fleshy; mandible well protruded; teeth small, strong, short, conic, in 3 or 4 series in front of jaws; interorbital 4 in head from snout tip, level; opercle ends in 2 strong spines and another strong one below. Gill opening before pectoral base, length $3\frac{3}{4}$ in head.

Skin rather thin and loose, smooth. Eye with 2 flaps above, hind one long as eye, and arch of 7 short flaps on suborbitals; short scattered flaps on top of broad head; 5 flaps along each side of chin; several fringed flaps over expansion of maxillary, with 2 on end of latter largest; preopercle fringed, with 4 large flaps, also some filaments on opercles. Short inconspicuous skinny points scattered on body.

D. II, 21, spines short, erect, posterior longer or long as eye, soft fin height 3 in total head; A. 16, fin height 3; caudal $1\frac{2}{3}$, convex behind, connected by basal membrane with last dorsal and anal rays; pectoral $1\frac{2}{3}$, rays 15; ventral rays I, 2, fin $1\frac{3}{4}$. Vent close before anal, with short fleshy, pointed papilla.

Light brown, with 4 irregular, large, darker, marbled areas, the whole variegated with darker and light cloudings. Iris gray. Dark bar down from lower hind eye edge. Under surfaces of body uniformly pale drab to whitish. Fins all very light or pale brown; soft dorsal with 6 obliquely parallel dark bars, anal with 6 dark bars but inclined opposite to those on soft dorsal; caudal with 7 dark transverse bands, those basally narrower; paired fins with narrow irregular dark cross bars.



292, 293. *Stephanolepis choirocephalus*. 294, 295. *Lagocephalus oblongus*.
296. *Lagocephalus scleratus*.

A.N.S.P., No. 68,256. Rayong, Siam. Length 218 mm. Type.

An interesting species evidently related to *P. trispinosus* (Günther). It differs in coloration, the dorsal and anal connected with the caudal, proportions, and apparently with more filaments on the head. *P. dussumieri* (Valenciennes) is shown with a rude figure having a greatly broader interorbital.

(For the late Eugene Smith, an aquarist interested in the fishes about New York City, to whom I am indebted for details and materials from his region.)

Coryzichthys gangene (Buchanan-Hamilton).

One, 160 mm., Paknam. Caudal atrophied and small.

TRIACANTHIDAE

Triacanthus brevirostris Schlegel. Figure 289.

Four, 130 to 143 mm., Paknam. Soft dorsal 23 or 24; A. 17 or 18.

Triacanthus oxycephalus Bleeker. Figure 290.

Four, 31 to 98 mm., Paknam. Soft dorsal 23 to 25; A. 17 to 19.

Triacanthus strigilifer Cantor. Figure 291.

Fourteen, 116 to 205 mm., Rayong. Soft dorsal rays 20 to 22; A. 15.

MONACANTHIDAE

Monacanthus chinensis (Bloch).

Two, 70 to 73 mm., Paknam; seven, 113 to 164 mm., Rayong.

Stephanolepis choirocephalus (Bleeker). Figures 292, 293 (head above).

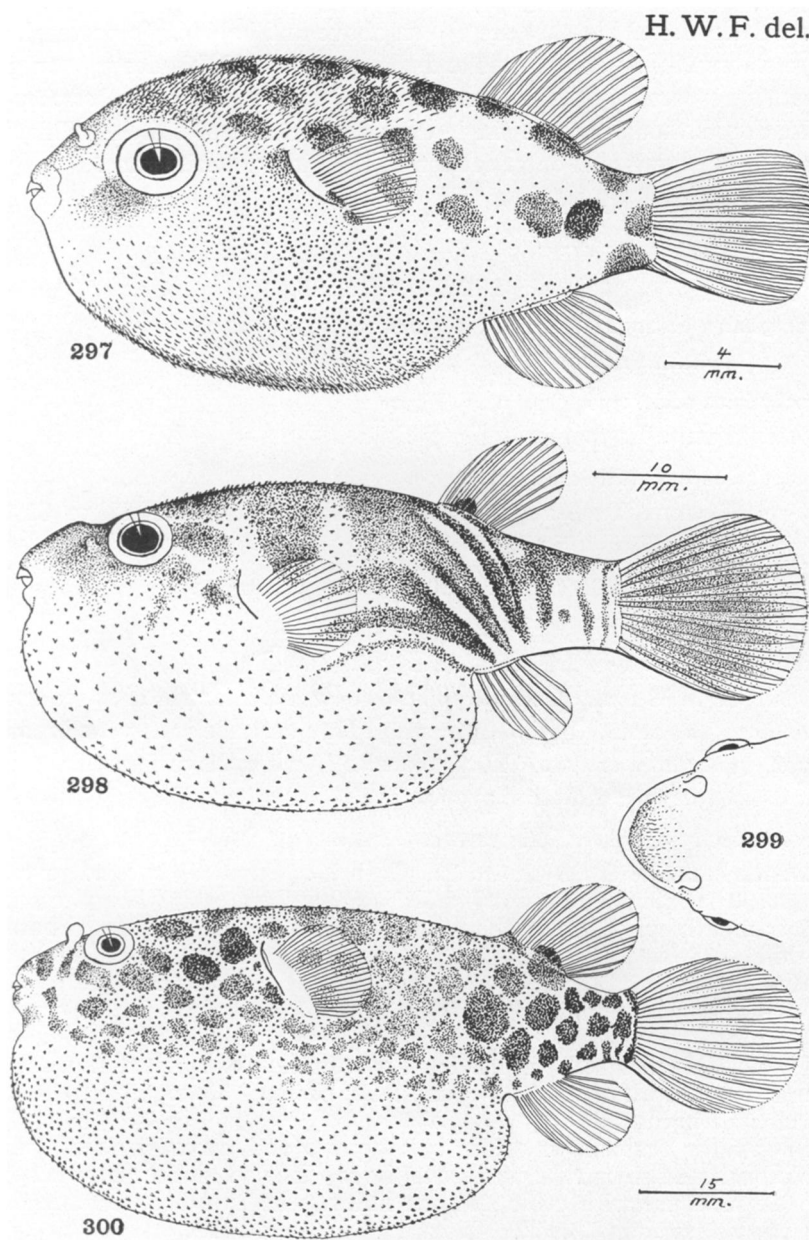
Depth $1\frac{3}{4}$; head $3\frac{1}{2}$, width 2. Snout $1\frac{1}{4}$ in head; eye $2\frac{3}{4}$, 2 in snout, 1 in interorbital; mouth small, level with pectoral origin; interorbital elevated convexly. Gill opening small, about $\frac{3}{4}$ of eye.

Skin finely roughened. No spines on caudal peduncle. No lateral line.

D. II-28, first spine $1\frac{1}{2}$ in head, each hind edge with row of 9 antrorse strong denticles, second fin height 2; A. 29, fin height $2\frac{1}{2}$; caudal $1\frac{1}{10}$, convex behind; least depth of caudal peduncle $2\frac{1}{2}$; pectoral $1\frac{3}{4}$, rays 15; pubic spine divided by hinge, end with spine hooked back each side, and followed by low membrane with row of very slender spines, of which only tips slightly protrude.

Dull drab, with slightly darker mottling. Rounded blackish spot, nearly large as eye, on middle of side. Several dark blotches along lower profile of head. Various dark blotches at bases of dorsal and anal. Fins pale, caudal with 3 dark transverse bands. Iris gray.

One, 71 mm., Paknam. Apparently closer to this species than any other known, though Bleeker's figure of "*Monacanthus choirocephalus*" apparently quite inaccurate, as he shows the gill opening above the origin of the pectoral and its upper portion approaching very close to the eye. Though the color pattern of its tail is somewhat similar, the posterior transverse



297. *Dichotomycter fluviatilis*. 298. *Tetrodon immaculatus*.

299 to 300. *Tetrodon leiurus*.

dark band is shown as marginal, not submarginal as in my specimen. Moreover 2 dark lateral blotches are shown above and behind the pectoral. His figure shows 29 soft dorsal rays and the anal with 28, his description giving 28 and 30 respectively. His later figure of *Paramonacanthus choirocephalus* is also crude, though with a single dark median lateral blotch. This figure differs in the spinescent outer section of the hinged pubic spine.

Alutera monoceros (Linnaeus).*

One, 213 mm., Rayong.

TETRODONTIDAE

Lagocephalus oblongus (Bloch).* Figures 294, 295 (head above).

One, 158 mm., Rayong.

Lagocephalus scleratus (Gmelin).* Figure 296.

One, 48 mm., Rayong.

Lagocephalus lunaris (Schneider).*

One, 35 mm., Tachin; one, 35 mm., Pitsanulok; six, 42 to 61 mm., Rayong; three, 77 to 105 mm., Paknam.

Dichomycter fluviatilis (Buchanan-Hamilton).* Figure 297.

Four, 28 to 40 mm., Tachin.

Tetrodon immaculatus Schneider.* Figure 298.

Four, 58 to 83 mm., Kemrat. These show the interorbital space and top of the head flat though both Günther and Day describe it as very broad and convex, or slightly convex. Day, likewise Bleeker, have figured the interorbital as somewhat raised above the eye.

Tetrodon leiurus Bleeker.* Figures 299 (head above), 300.

Depth (contracted) $3\frac{1}{2}$; head $2\frac{1}{2}$, width $1\frac{1}{4}$. Snout $3\frac{1}{2}$ in head; eye 5, $1\frac{3}{4}$ in snout, 3 in interorbital; lips broad, thick, fleshy, feebly though distinctly plicate; mouth below eye or about on level with middle of pectoral base; interorbital $1\frac{3}{4}$ in head, low and flat. Gill opening oblique, length $4\frac{1}{4}$ in head.

Head and body largely spinescent, except smooth muzzle, concealed axillary region behind pectoral, and caudal peduncle. Lateral line not evident.

D. II, 11, fin height $2\frac{1}{2}$ in head; A. I, 9, fin height $2\frac{1}{2}$; caudal $1\frac{1}{2}$, convex behind; least depth of caudal peduncle $3\frac{2}{3}$; pectoral $3\frac{2}{3}$, rays 23, base of fin exceeds its length.

Back dark drab brown, sides below paler and under surfaces whitish. Whole back and sides with numerous, large, close set darker blotches, most on back subequal with orbit and one midway on side between dorsal and anal origins large and black. Iris gray. Fins all drab.

One, 81 mm., Pitsanulok.