ZOOLOGICAL RESULTS OF THE THIRD DE SCHAUENSEE SIAMESE EXPEDITION, PART VI. — FISHES OBTAINED IN 1934

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Since the two papers on Siamese fishes published in these PROCEEDINGS in 1934 other extensive collections have been secured by Mr. Rodolphe Meyer de Schauensee for the Academy. These materials number 2394 specimens, represented by 298 species of which 25 are here described as new, besides a new subfamily. Many are marine or tidal, and were obtained at Bangkok in May, July and September, Paknam in August, and Sriracha in July. Fresh-water materials were obtained at Keng Sok, southwest Siam, in February; at Srisawat, in west central Siam, in July; at Khao Nam Poo, north central Siam, in October.

In comparison with the materials already reported it is interesting to note that comparatively few species have been duplicated, especially in the fresh-water forms. As several dates apply to the specimens taken at Bangkok, it is to be assumed all were obtained during May, unless otherwise mentioned.

The Academy is indebted to Mr. De Schauensee for this handsome gift to its museum, especially as so many of the species were not previously represented.

ORECTOLOBIDAE

Hemiscyllium griseum (Müller and Henle). Figure 1.

One, 300 mm., Bangkok. In these PROCEEDINGS vol. 85, 1933, p. 234, under Scyliorhinidae the subfamily name Galeinae should read Scyliorhiniae, type genus *Scyliorhinus* Blainville 1816.

GALEORHINIDAE

Scoliodon sarrakowah (Cuvier). Figures 2 (lateral view) and 3 (head below).

One, 293 mm., Bangkok.

Scoliodon walbeehmi (Bleeker). Figures 4 (lateral view) and 5 (head below).

One, 323 mm., Bangkok.

DASYATIDAE

Dasyatis imbricatus (Schneider). Figure 6 (Bangkok).

Five, disk length 50 to 104 mm., disk width 45 to 90 mm. Entirely smooth. Sriracha, July 19 and 24.

One, disk length 84 mm., disk width 83 mm. Body smooth, except 2 small asperities on middle of disk above. Paknam, August 28.

One, 400 mm. total length, disk width 180 mm. Bangkok.

Dasyatis kuhlii (Müller and Henle).

One, 290 mm. long, disk width 154 mm., Bangkok. Garman places his *Dasybatus varidens* as a doubtful synonym of this species. I have examined the type in the U. S. National Museum and find it synonymous.

MYLIOBATIDAE

Aetomylaeus maculatus (Gray). Figure 7.

One, disk length 120 mm., disk width 193 mm., tail 423 mm., Bangkok. The broad roof-like projection over the spiracle conspicuous. The coloration of this early stage of the specimen here figured not previously noticed.

The generic name has been changed to *Aetomyleus* by Sharp 1912. Wrongly spelled *Aetomylus* in my "Synopsis of the Fishes of China" 1930.

NOTOPTERIDAE

Notopterus chitala (Buchanan-Hamilton).

One, 274 mm. Tail with (5 on left, 6 on right side) large, black, pale edged ocelli posteriorly. Bangkok, May.

One, 49 mm., Paknam, August 28.

Notopterus notopterus (Pallas).

Three, 118 to 148 mm., Bangkok.

DUSSUMIERIIDAE

Dussumieria acuta Valenciennes.

One, 124 mm., Paknam; two, 110 to 145 mm., Bangkok. Depth 4½ to 5. Scales about 45.

DOROSOMIDAE

Nematalosa nasus (Bloch).

Six, 173 to 180 mm., Bangkok.

Anodontostoma chacunda (Buchanan-Hamilton).

One, 10 mm., Paknam, August 28; three, 56 to 99 mm., Sriracha, July 10 and 24, August 28; 49 examples, 52 to 88 mm., Bangkok.

CLUPEIDAE

Hilsa kanagurta (Bleeker). Figure 8.

Eleven, 163 to 185 mm., Bangkok, July 23.

Kowala thoracata Valenciennes. Figure 9 (Bangkok).

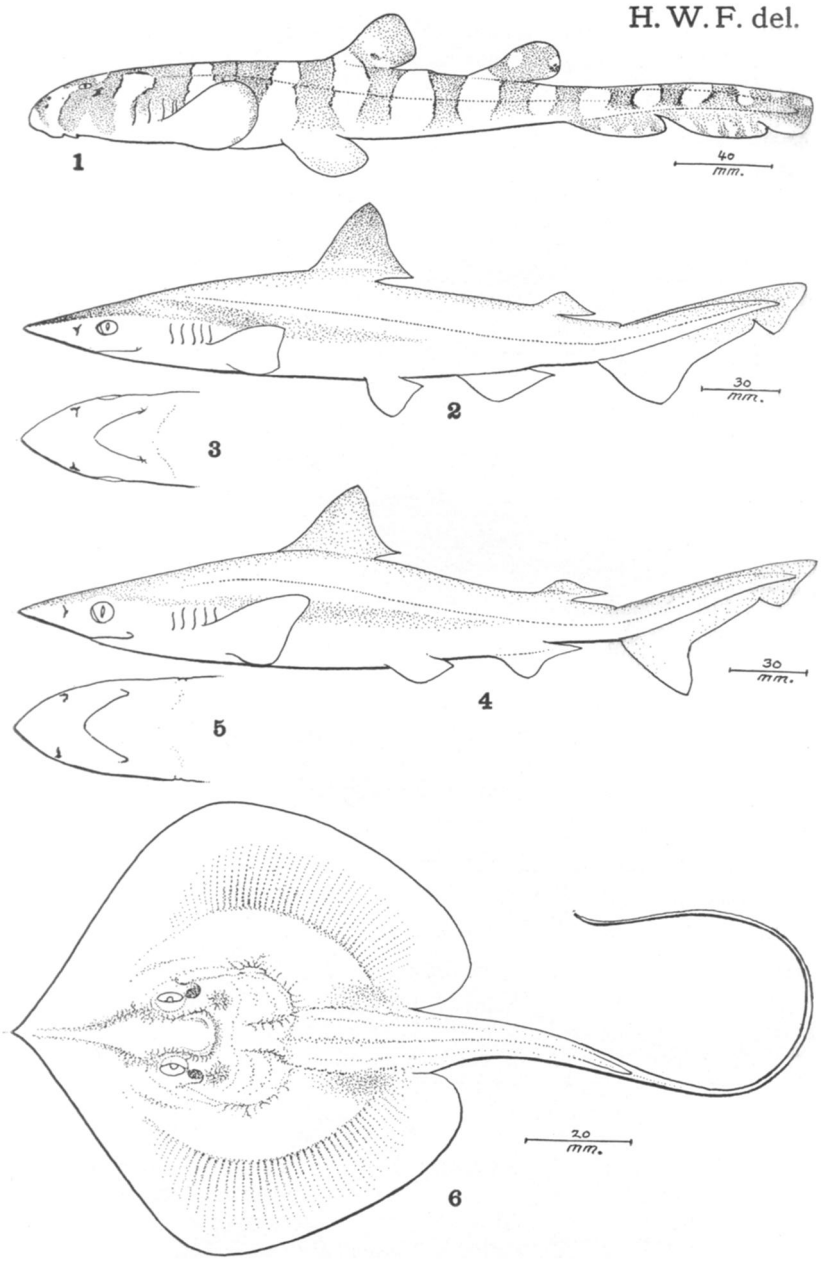
Six, 60 to 88 mm., Paknam; 17 examples, 44 to 98 mm., Bangkok.

Sardinella sirm (Rüppell). Figure 10 (Bangkok).

Seven, 165 to 200 mm., Bangkok; one, 168 mm., Sriracha, July 10.

Harengula brachysoma (Bleeker).

Eight, 74 to 137 mm., Bangkok; one, 133 mm., Sriracha; one, 109 mm., Paknam, August 28. All show blackish blotch at dorsal origin.



1. *Hemiscyllium griseum.* 2, 3. *Scoliodon sarrakowah.*
4, 5. *Scoliodon walbeehmi.* 6. *Dasyatis imbricatus.*

Corica laciniata, new species. Figure 11 (type).

Depth 4 to $4\frac{3}{4}$; head $3\frac{2}{3}$ to $3\frac{3}{4}$, width $2\frac{1}{4}$ to $2\frac{1}{2}$. Snout $3\frac{1}{2}$ to 4 in head from snout tip; eye 3 to $3\frac{1}{5}$, greater than snout or interorbital; maxillary reaches $\frac{1}{3}$ to $\frac{2}{5}$ in eye, expansion 2 in eye, length $2\frac{1}{3}$ to $2\frac{2}{5}$ in head from snout tip; apparently no teeth; interorbital 4 to $5\frac{1}{2}$, low, slightly convex. Gill rakers 11 + 21, $1\frac{1}{3}$ in eye; gill filaments $\frac{2}{3}$ of gill rakers.

Scales 30 or 31 in lateral series from shoulder to caudal base and 2 or 3 more on latter; 10 scales transversely at dorsal origin, 14 or 15 predorsal scales. Caudal base scaly. Scales with 12 to 14 well-contrasted, marginal, straight, basal striae, group above and below axis each with parallel striae so their angles would converge; basal circuli 35 to 38, obsolete apically. Abdominal scutes 10 or 11 + 8 or 9.

D. III, 11, I, first branched ray $1\frac{2}{5}$ to $1\frac{3}{5}$ in total head length; A. III, 11 + 2 or III, 12 + 2, first branched ray $2\frac{3}{5}$ to $2\frac{2}{3}$; caudal $1\frac{1}{3}$ to 1, forked, lobes pointed; least depth of caudal peduncle $2\frac{1}{5}$ to $2\frac{2}{3}$; pectoral $1\frac{1}{2}$ to $1\frac{2}{3}$, rays I, 10; ventral rays I, 7, fin $1\frac{1}{3}$ to 2 in total head length.

Color pale to whitish, fading pale brown in alcohol. Back above with dark spots or dots. Iris whitish. Dorsal and caudal dusted with dark gray.

A.N.S.P., No. 61415. Bangkok, Siam. May 1934. Length 65 mm. Type. Also Nos. 61416 to 61457 and 60519 to 60551, same data. Length 46 to 53 mm. Paratypes.

Also 2 from Paknam, 52 to 58 mm.

A species related to *Corica soborna* (Buchanan-Hamilton), reported from the Bangpakong River by Dr. H. M. Smith in 1933. According to Day its scales are given as 40 to 42. Day also places *Spratella pseudopterus* Bleeker as doubtful synonym. It was described from Borneo and is admitted as a valid species, *Corica pseudopterus* by Weber and Beaufort, with scales 37 to 40. The chief distinction for *Corica laciniata* would therefore be larger scales, or 32 to 34 in a lateral series. Day's figure of *Corica soborna* shows the dorsal origin midway between the front edge of the eye and the caudal base and the anal fins not distinctly separated.

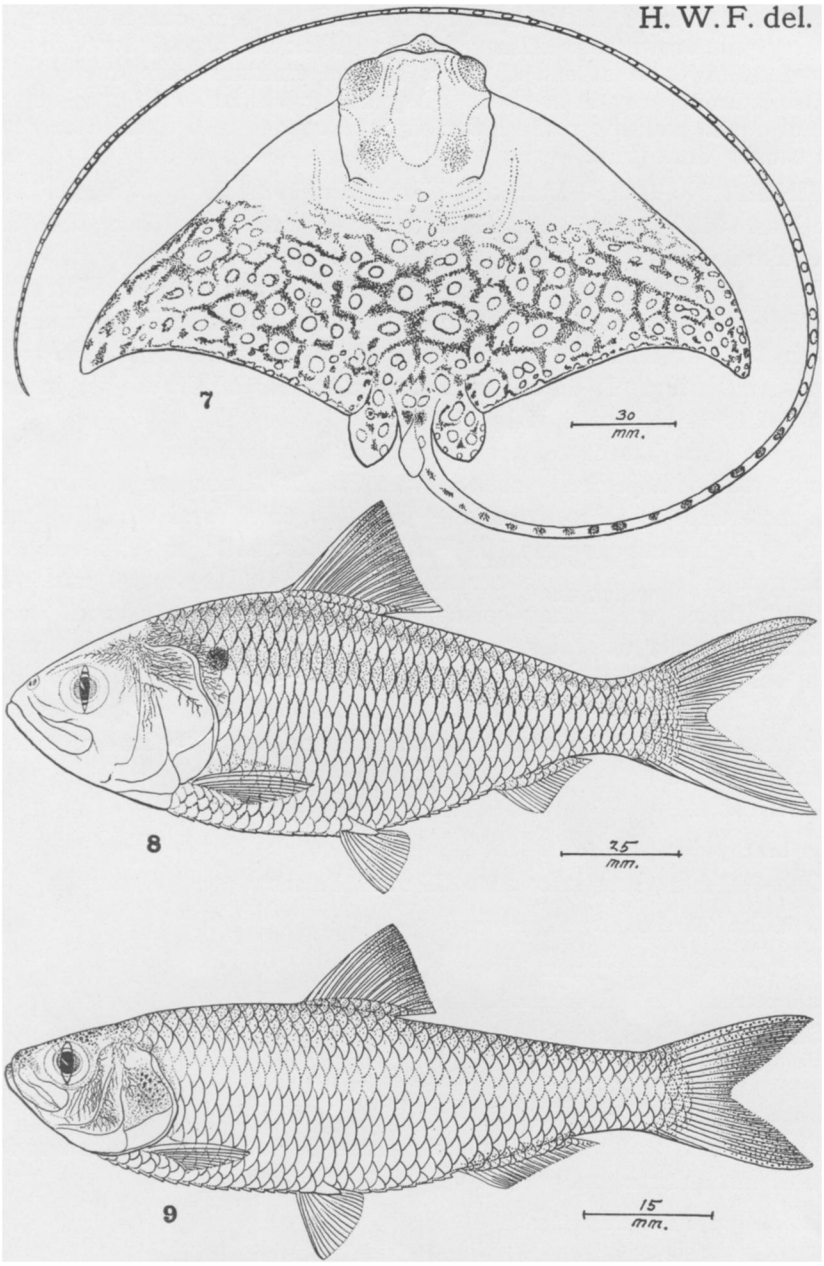
(*laciniata,* gashed, with reference to the divided anal fin.)

Clupeoides exilis, new species. Figure 12.

Depth 4 to $4\frac{1}{2}$; head $3\frac{1}{3}$ to $3\frac{3}{4}$, width $2\frac{1}{5}$ to $2\frac{1}{4}$. Snout 4 to $4\frac{1}{3}$ in head from snout tip; eye 3 to $3\frac{1}{2}$, greater than snout or interorbital; maxillary reaches $\frac{1}{5}$ to $\frac{1}{4}$ in eye, expansion $2\frac{1}{2}$ to $2\frac{3}{4}$ in eye, length $2\frac{1}{3}$ to $2\frac{2}{3}$ in head from snout tip; teeth not evident; interorbital $4\frac{1}{5}$ to $4\frac{1}{2}$, low, slightly convex. Gill rakers 13 + 23, lanceolate, $1\frac{2}{3}$ in eye; gill filaments $\frac{3}{4}$ of gill rakers.

Scales 30 or 31 in lateral series from shoulder to caudal base and 2 or 3 more on latter; 10 scales transversely at dorsal origin; 13 or 14 predorsal scales. Caudal base scaly. Scales with 4 to 6 basal, marginal, slightly radiating striae; circuli 45 to 50 basally, not extended apically. Abdominal scutes 10 or 11 + 9 or 10.

D. III, 11, I or III, 12, I, first branched ray $1\frac{1}{4}$ to $1\frac{1}{3}$ in total head length; A. III, 14, I to III, 16, I, first branched ray $1\frac{3}{4}$ to 2; caudal 1 to $1\frac{1}{3}$, deeply



7. *Aetomylaeus maculatus.* 8. *Hilsa kanagurta.*
9. *Kowala thoracata.*

forked, lobes sharp pointed; least depth of caudal peduncle $2\frac{1}{5}$ to $2\frac{1}{4}$; pectoral $1\frac{1}{5}$ to $1\frac{2}{5}$, rays I, 10; ventral rays I, 7, fin $1\frac{7}{8}$ to 2 in total head length.

Very pale brown to whitish generally. Back above with scattered dark gray dots, few also at end of snout and on cranium more distinct. Iris whitish, turning gray in alcohol. Fins pale or whitish, with gray on front edge of dorsal and upper and lower edges of caudal, also tip of each caudal lobe usually dark gray.

A.N.S.P., No. 60508. Bangkok, Siam. May 1934. Length 65 mm. Type. Also Nos. 60509 to 60518 and 61476 to 61488, same data. Length 46 to 58 mm. Paratypes.

This interesting fish has greatly the appearance of *Corica* Buchanan-Hamilton. I place it with *Clupeoides* Bleeker following Regan's distinctions in 1922, especially in its scale structure with a single transverse groove, the rest radiating. It differs from known species of *Clupeoides* in fewer scales, 32 to 34 compared with 35 to 42.

Clupea huae Tirant 1883, emended and called *Clupeoides hueensis* by Chevey 1932, is imperfectly noticed from Cochin China: Depth $4\frac{1}{2}$ in body; head more than 5; no teeth in jaws or on tongue; lateral scales 31, transversely 14; abdominal serrae 15 + 13; D. III, 12; A. 17 or 18; silvery, with black spot on neck and another at pectoral base; length 100 mm. This nominal species, which may belong to *Kowala*, differs in a much smaller head, more numerous scales transversely, more abdominal serrae and different coloration.

Most of my examples of both *Corica laciniata* and *Clupeoides exilis* show traces of a faint lateral longitudinal band, more distinct on sides of caudal peduncle.

(*exilis* slim.)

Ilisha brachysoma (Bleeker).

One, 122 mm., Bangkok; one, 138 mm., Paknam, August 28.

Ilisha indica (Swainson). Figure 13.

Four, 223 to 228 mm., Bangkok.

Opisthopterus indicus (Swainson).

One, 154 mm., Bangkok.

ENGRAULIDAE

Thrissocles baelama (Forskål). Figure 14 (Bangkok).

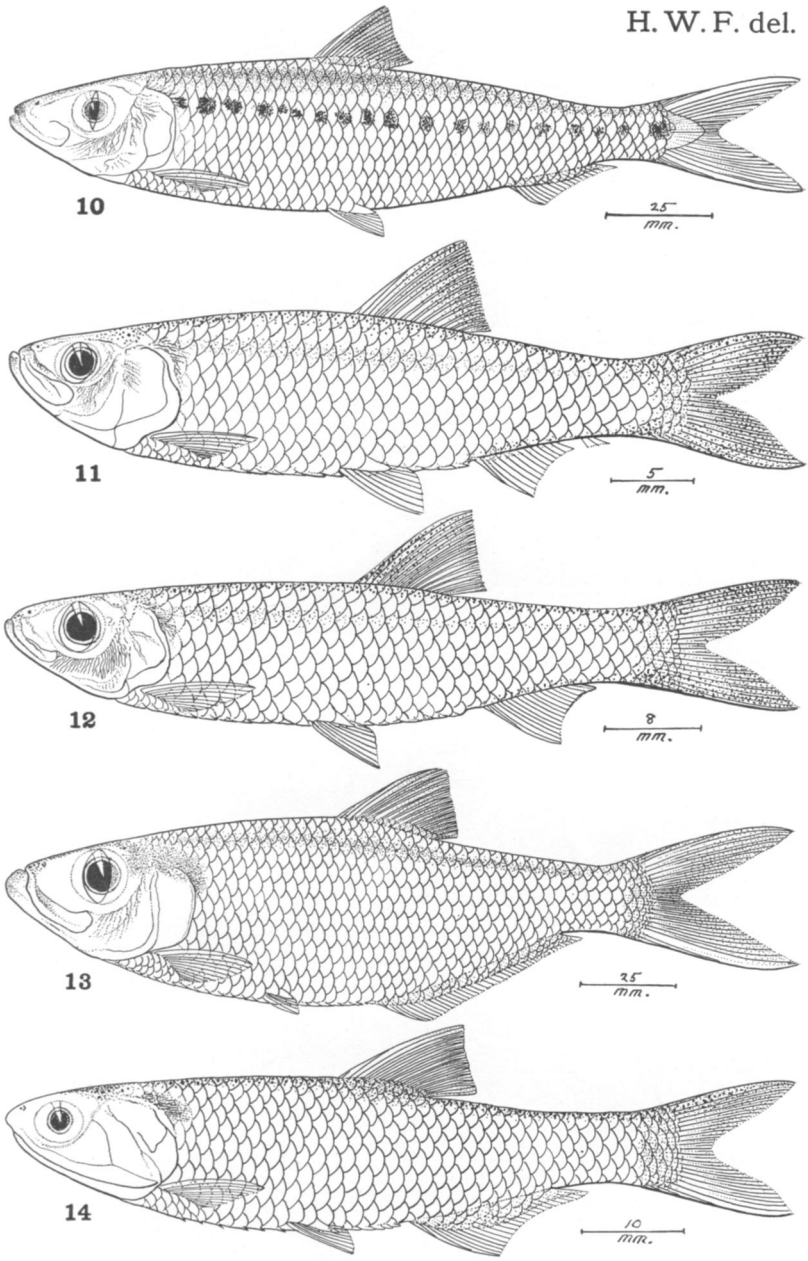
Fourteen, 56 to 82 mm., Bangkok; three, 64 to 85 mm., Paknam; four, 63 to 67 mm., Sriracha, June 10.

Thrissocles mystax (Schneider).

Fifteen, 110 to 186 mm., Bangkok; one, 188 mm., Paknam.

Thrissocles hamiltonii (Gray).

One, 113 mm., Bangkok, A. II, 34, I; one, 143 mm., Paknam, August 28, A. III, 36, I.



10. *Sardinella sirm.* 11. *Corica laciniata.*
12. *Clupeoides exilis.* 13. *Ilisha indica.*
14. *Thrissocles baelama.*

Lycothrissa crocodilus (Bleeker).

Nineteen, 69 to 230 mm., Bangkok.

Setipinna taty (Valenciennes).

Three, 48 to 168 mm., Paknam, August 28. A. III, 45, origin below front of dorsal base. Pectoral blackish subterminally and filament reaches first third in anal.

Coilia macrognathos Bleeker. Figure 15 (Bangkok).

Eight, 90 to 163 mm., Paknam, August 21 and 28; 25 examples, 44 to 170 mm., Bangkok, July 2 and 4. Agree largely with Weber and Beaufort's account in their free pectoral rays, anal fin rays and abdominal scutes. They differ a little in that the dorsal origin is mostly a little behind the ventral origin. Bleeker's figure shows the dorsal origin in advance of the ventral origin. The large, wide maxillary seems to be a character of distinction. Weber and Beaufort give "about 22 gill rakers" though my specimens show 30.

Coila macrognathus aequidentata Chabanaud from Saigon, on examples to 217 mm. is described with: D. 13; A. 75 to 80 (my specimens 70 to 72); abdominal serrae 36 to 38 (my specimens 32 to 35).

MONOPTERIDAE

Macrotrema caligans (Cantor).

One, 140 mm., Bangkok.

OPHICHTHYIDAE

Pisodonophis boro (Buchanan-Hamilton).

One, 422 mm., Bangkok.

PLOTOSIDAE

Plotosus canius Buchanan-Hamilton.

Three, 145 to 170 mm., Bangkok; four, 79 to 238 mm., Sriracha, June 10 and July 24.

SILURIDAE

Belodontichthys dinema (Bleeker).

One, 300 mm., Bangkok. A. 84.

Ompok bimaculatus (Bloch).

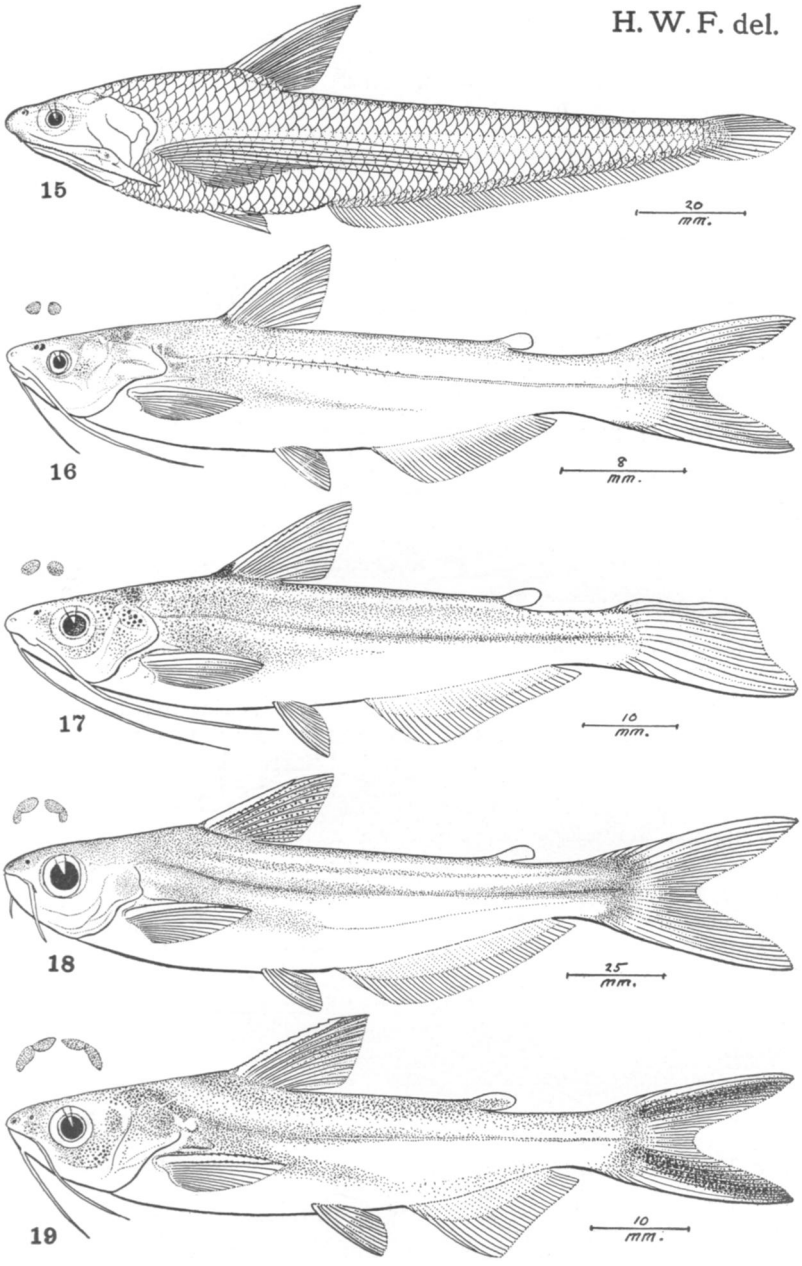
Two, 170 to 180 mm., Bangkok, September 24.

Kryptopterus bicirrhis (Valenciennes).

Six, 124 to 146 mm., Bangkok. Most have the rudimentary dorsal filament, evidently where absent due to damage of specimen.

Kryptopterus apogon (Bleeker).

One, 120 mm., Bangkok. More like Bleeker's figure of *Phalacronotus micropogon*, which does not show the mandibular barbel.



15. *Coilia macrognathos.* 16. *Pangasius siamensis.*
17. *Pangasius macronema.* 18. *Pangasius fowleri.*
19. *Pangasius taeniura.*

Kryptopterus hexapterus (Bleeker).

One, 123 mm., Bangkok. Nasal barbel reaches $\frac{1}{3}$ in pectoral and mandibular barbel 3 in head. No dorsal. A. II, 70.

PANGASIIDAE

Pangasius siamensis Steindachner. Figure 16, with vomerine teeth (upper insert).

Fifteen, 38 to 167 mm., Bangkok, May and July 2 to 4. Eye $4\frac{3}{4}$ to $5\frac{1}{2}$ in head; maxillary barbel reaches pectoral origin or end of fin; vomerine teeth in 2 large, rounded patches; A. II, 32 to 34. In the species of this genus and *Tachysurus* figured in this paper the small inserts above the head represent the vomerine teeth.

Pangasius macronema Bleeker. Figure 17 (caudal mutilated), with vomerine teeth (upper insert).

Two, 80 to 117 mm., Bangkok. Chevey 1930 has given a figure and description of a young example 56 mm. long doubtfully referred to this species. It differs strikingly in the ventral fin inserted slightly before the first dorsal.

Pangasius fowleri H. M. Smith. Figure 18, with vomerine teeth (upper insert).

One, 203 mm., Srisawat, July. A. IV, 38.

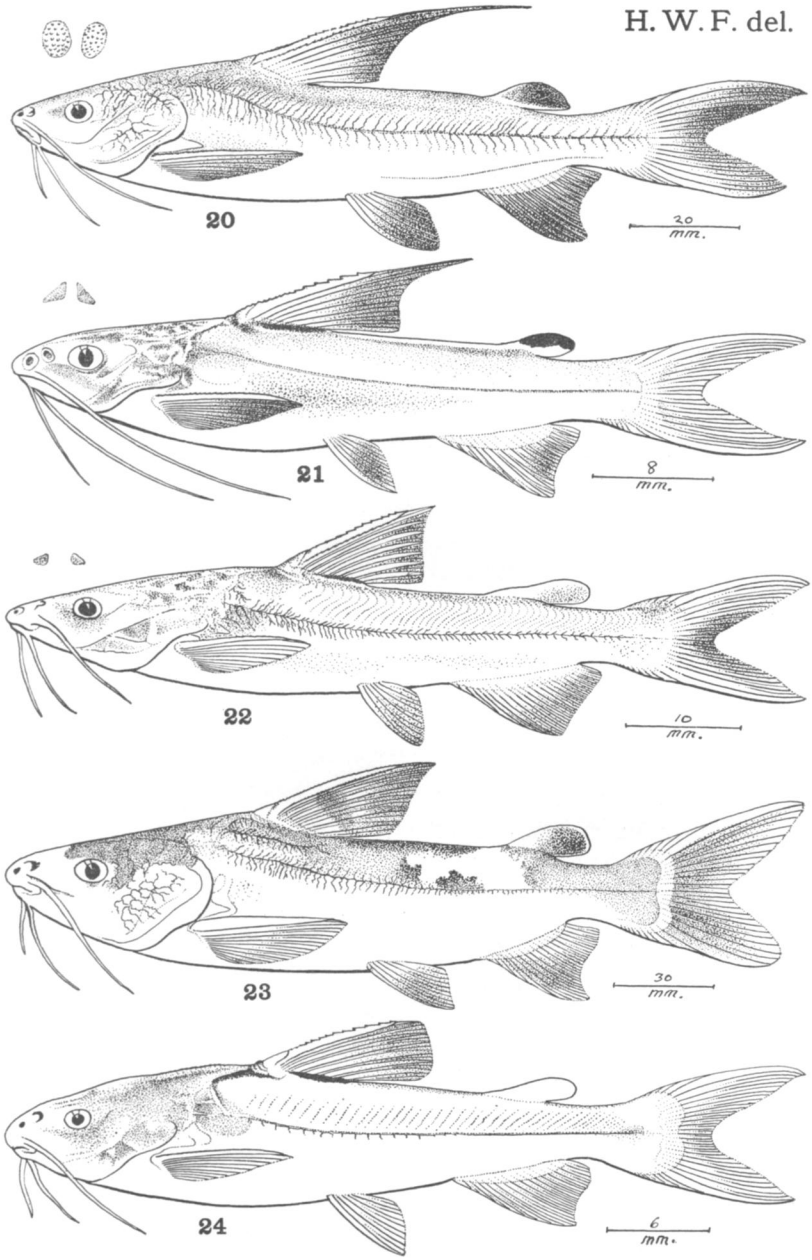
Pangasius taeniura, new species. Figure 19 (paratype), with vomerine teeth (upper insert).

Depth $4\frac{1}{4}$ to $4\frac{3}{4}$; head $3\frac{1}{2}$ to $3\frac{3}{5}$, width $1\frac{1}{2}$ to $1\frac{3}{5}$. Snout 3 to 4 in head; eye 4 to $4\frac{3}{4}$, 1 to $1\frac{3}{5}$ in snout, $3\frac{1}{5}$ to $3\frac{1}{4}$ in interorbital; mouth width $2\frac{1}{8}$ to $2\frac{2}{5}$ in head, gape nearly reaches eye; moderately narrow bands of minute villiform teeth in jaws and shorter arched band on vomer each side and parallel or only divided medially, also each section constricted a little medianly; maxillary barbel reaches slightly beyond pectoral origin, mental barbel reaches opercle; interorbital $1\frac{1}{2}$ to $1\frac{3}{5}$ in head, broadly convex. Gill rakers 4 + 9, short, lanceolate, $\frac{1}{2}$ of gill filaments, which $\frac{1}{2}$ of eye.

Upper surface of head covered with thin skin, smooth. Occipital extension continuous with bony spine forward from spinous dorsal base. Humeral extension moderate, $1\frac{1}{2}$ to twice eye diameter. Lateral line complete, axial along side of body and few short branches, chiefly below, on costal region.

D. I, 7, spine moderately robust, nearly straight, both edges with antrorse serrae and lower front edge with very small crowded spinules, first branched ray $1\frac{1}{5}$ to $1\frac{1}{3}$ in head; adipose fin $2\frac{1}{3}$ to $2\frac{1}{2}$; A. IV, 24, I or IV, 25, I, first branched ray $1\frac{7}{8}$ to 2; least depth of caudal peduncle $3\frac{1}{8}$ to $3\frac{1}{4}$; pectoral $1\frac{1}{5}$ to $1\frac{1}{4}$, spine with both edges serrate and 14 serrae along outer edge, rays 10 or 11; ventral I, 5, fin $1\frac{7}{8}$ in head; caudal $3\frac{1}{5}$ to $3\frac{3}{5}$ in rest of fish, deeply forked.

Back and upper surfaces dark grayish, with lateral extension along front of lateral line and another along side of abdomen inclined little backward towards front of anal. Iris gray. Under surfaces of body, including barbels, whitish. Dorsal dark gray terminally, pale to whitish basally. Adipose fin grayish basally, whitish terminally. Caudal with dark gray longitudinal band in each lobe, otherwise whitish. Lower fins whitish.



20. *Tachysurus maculatus.* 21. *Tachysurus caelatus.*
22. *Tachysurus melanochir.* 23. *Hemipimelodus bicolor.*
24. *Hemipimelodus borneensis.*

A.N.S.P., No. 61753. Bangkok, Siam. September 24, 1934. Length 85 mm. Type. Also No. 61754, same data, paratype. Length 83 mm.

Known by its coloration, especially the dark longitudinal band in each caudal lobe. Chevey 1930, figures and describes a small example 50 mm. long, which he doubtfully refers to *Pangasius pangasius* (Buchanan-Hamilton), differing in a greatly smaller eye little over 5 in the head and with different coloration. It thus follows that *P. pangasius* may be distinguished by its smaller eye, 4 to 6 according to Weber and Beaufort, and its caudal fin not contrasted.

(ταινία band + οὐρὰ tail.)

TACHYSURIDAE

Tachysurus maculatus (Thunberg). Figure 20 (young, Bangkok), with vomerine teeth (upper insert).

Two, 152 to 174 mm., Bangkok; one, 222 mm., Sriraja, June 10. Last with adipose fin brown like back.

Tachysurus caelatus (Valenciennes). Figure 21 (young, Bangkok), with vomerine teeth (upper insert).

Seven, 62 to 164 mm., Paknam, August 21; 81 examples, 48 to 179 mm., Bangkok, May and July. In small or young examples the first dorsal ray is elongate or well extended beyond the dorsal spine and may reach the middle of the adipose fin. These correspond to the *Pimelodus nenga* Buchanan-Hamilton, figured as *Arius nenga* by Day, who says it " is closely allied to *A. cælatus*, its maxillary barbel is longer, the dorsal spine more produced, and its colours different." His figure of " *Arius coelatus* " also has its posterior nostril midway in the snout, though in Bleeker's figures of *Arius arius* and *Arius pidada* the posterior nostril is well advanced or near the first third of the snout.

Tachysurus melanochir (Bleeker). Figure 22 (young), with vomerine teeth (upper insert).

Thirteen, 71 to 130 mm., Bangkok. All paler than Bleeker gives, or with but little dark pigment in fins.

Ketengus typus Bleeker.

Four in May, 114 to 168 mm., one in July, 118 mm., from Bangkok.

Hemipimelodus bicolor, new species. Figure 23.

Depth $4\frac{1}{8}$; head $3\frac{1}{8}$, width $1\frac{1}{2}$. Snout 3 in head; eye $6\frac{2}{3}$, $2\frac{1}{5}$ in snout, $3\frac{2}{5}$ in interorbital, eyelids free; mouth width $2\frac{4}{5}$ in head; maxillary reaches half way to eye; teeth in villiform bands in jaws, irregularly 5 to 8 teeth transversely above and 3 or 4 transversely below; no teeth on palate or tongue; maxillary barbel not quite reaching pectoral origin, outer mental reaching $\frac{2}{3}$ same space and inner mental but slightly over $\frac{1}{3}$; interorbital $2\frac{1}{10}$ in head, rather low and broadly convex; occipital fontanel broad, long, extends from little behind nostrils to front of occipital plate shortly before

hind edge of gill opening. Gill rakers 5 + 13, rather short, blunt, strong, $2\frac{1}{2}$ in gill filaments, which equal eye.

Cranium and occipital bridge rather coarsely rugose striate, latter continuous with dorsal plate. Humeral extension short, long as eye. Lateral line axial, distinct, with numerous short branches anteriorly.

D. I, 6, 1, spine with antrorse serrae along both edges, on front edge finer and more feeble basally, first branched ray $1\frac{1}{5}$ in head; adipose fin $2\frac{2}{5}$; A. IV, 14, 1, second branched ray $2\frac{1}{10}$; upper caudal lobe $1\frac{1}{6}$; least depth of caudal peduncle $3\frac{4}{5}$; pectoral $1\frac{1}{3}$, both edges of spine with antrorse serrae of which about 32 on inner edge more distinct, branched rays 9; ventral $2\frac{1}{10}$ in head, rays 1, 5.

Color, a large olive blotch on cranium extending back over to the predorsal along and below dorsal irregularly until half way or more in postdorsal region before adipose fin. Upper surface of tail below adipose fin and above lateral line, also same of caudal peduncle, olive. Rest of body white, with cream-colored tints on snout, cheeks, gill openings and most of fins basally. Iris gray. Barbels whitish. Dorsal grayish terminally, also obscure gray blotch medially and transversely. Adipose fin largely blackish terminally. Caudal with each lobe largely grayish medially. Lower fins with grays medially, little more dark on front of anal.

A.N.S.P., No. 60777. Bangkok, Siam. May 1934. Length 252 mm. Type.

Known by its greatly contrasted coloration. It approaches somewhat *Hemipimelodus velutinus* Weber, from New Guinea, in its adipose fin entirely above the anal, free edge of the eye, and number of gill rakers, but differs in shorter barbels and distinct axillary pore.

(*bicolor*, two colors.)

Hemipimelodus borneensis (Bleeker). Figure 24 (young).

Six, 40 to 130 mm., Bangkok.

Hemipimelodus cochlearis, new species. Figure 25, with upper teeth (upper insert).

Depth $5\frac{1}{2}$ to $6\frac{1}{5}$; head $3\frac{1}{5}$ to $3\frac{2}{5}$, width $1\frac{2}{3}$ to $1\frac{3}{4}$. Snout 3 to $3\frac{1}{4}$ in head; eye $9\frac{1}{2}$ to $10\frac{3}{4}$, $3\frac{1}{4}$ to $3\frac{1}{2}$ in snout, 4 to $4\frac{1}{2}$ in interorbital, eyelids free; mouth width $3\frac{1}{3}$ to $3\frac{2}{3}$ in head; lips smooth, upper surface of snout above upper lip and chin behind lower lip rather coarsely papillose; maxillary barbel falls little short of pectoral origin, outer mental barbel $\frac{3}{4}$ space to pectoral origin and inner mental barbel but little shorter; teeth in villiform bands in jaws, about 4 to 6 teeth irregularly and transversely; small patch of villiform teeth on each palatine, wide set; interorbital $2\frac{1}{2}$ to $2\frac{3}{4}$ in head, broad, low, slightly convex. Gill rakers 3 + 6, short points, $\frac{1}{2}$ of gill filaments, which subequal with eye.

Cranium and top of head covered with thin skin, though former and complete occipital bridge to dorsal plate, with rather large rugosities. Occipital fontanel long, extends from front of interorbital to occipital extension or above middle of opercle. Humeral extension short, but little longer than eye. Lateral line axial, distinct, with many short branches both above and below most of its extent. Humeral pore distinct.

D. I, 7, spine long, slender, both edges antrorsely serrate, with 22 to 28 serrae along front edge and 17 or 18 along hind edge, first branched ray $1\frac{1}{8}$ to $1\frac{1}{4}$ in head, depressed fin reaching about $1\frac{1}{4}$ to adipose fin; adipose fin length $2\frac{3}{5}$ to $2\frac{4}{5}$ in head; A. III or IV, 17 or 18, third or fourth ray $1\frac{4}{5}$ to $2\frac{1}{5}$; caudal $1\frac{1}{4}$ to $1\frac{1}{2}$, well-forked, rather short lobes broad and pointed; least depth of caudal peduncle 4 to $4\frac{2}{5}$; pectoral $1\frac{2}{5}$ to $1\frac{1}{2}$, rays 9 or 10, both edges of spine antrorsely serrate of which 14 on inner edge; ventral rays I, 5, fin 2 in head.

Back and upper surface grayish or drab, below whitish. Edges of snout pale or whitish all around. Barbels whitish. Iris grayish. Fins all pale or light, more or less grayish terminally. Adipose fin whitish, grayish basally.

A.N.S.P., No. 60767. Paknam, Siam. August 28. Length 205 mm. Type. Also Nos. 60768 to 60773, same data, except date August 21. Paratypes. Length 174 to 204 mm. One, 74 mm., Bangkok.

Related to *Hemipimelodus daugeti* Chevey 1932, based on an example 26 cm. long which differs in the absence of the axillary pore and palatine teeth. Its eyes are given as but 7 in the head, $2\frac{2}{3}$ in snout (on plate) and 3 in the interorbital. According to the plate the barbels are much shorter and the depressed dorsal reaches $1\frac{3}{5}$ to the adipose fin. The gill rakers (evidently lower?) are given as 7 and the anal rays 16 or 17.

(*cochleare*, spoon or scoop, with reference to the shape of the muzzle.)

Batrachocephalus mino (Buchanan-Hamilton).

One, 68 mm., Bangkok.

BAGRIDAE

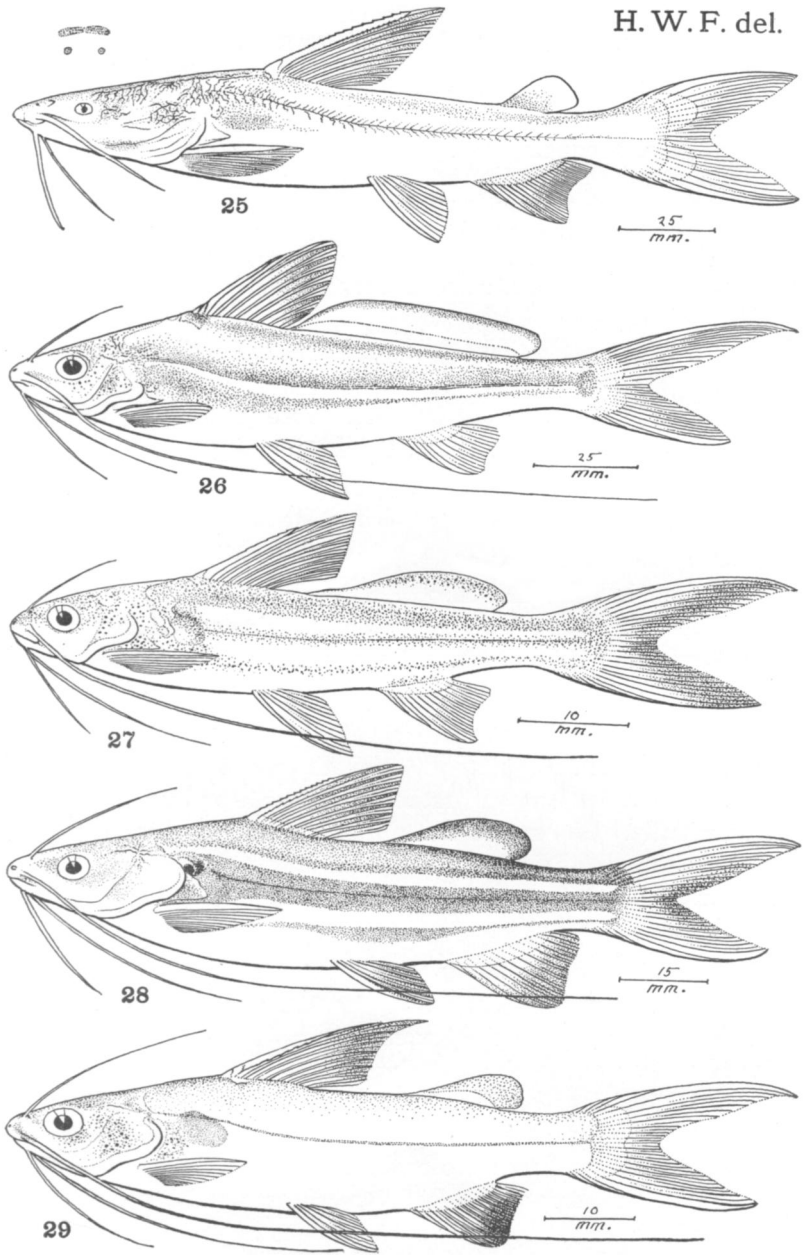
Mystus nigriceps (Valenciennes). Figure 26.

Three, 155 to 182 mm., Bangkok. All show the dorsal and adipose fins connected by a membrane and a pale or creamy streak along the lateral line for its greater part anteriorly, bounded above and below by a broad gray band, perhaps emphasized by formaline.

Mystus rhegma, new species. Figure 27.

Depth $5\frac{1}{5}$; head $4\frac{1}{2}$, width $1\frac{4}{7}$. Snout $3\frac{1}{4}$ in head; eye $3\frac{3}{4}$, $1\frac{1}{4}$ in snout, equals interorbital; mouth width 3 in head; lips broad, smooth; maxillary reaches $\frac{2}{3}$ to eye; nasal barbel not quite reaching gill opening, maxillary barbel reaches slightly beyond caudal base, outer mental barbel reaches end of depressed pectoral, inner mental barbel reaches first fourth in depressed pectoral; bands of villiform teeth in each jaw and on vomer, latter similar, parallel, curved band like those in upper jaw; interorbital $3\frac{1}{2}$ in head, rather low, convex. Gill rakers 5 + 14, finely lanceolate, $1\frac{1}{2}$ in eye; gill filaments $\frac{3}{4}$ of gill rakers.

Top of head covered with thin skin, occipital extension not forming complete bony bridge to dorsal plate. Occipital fontanel begins forward opposite nasal barbels and reaches base of occipital extension. Humeral extension little longer than eye. Lateral line axial, distinct, without branches.



25. *Hemipimelodus cochlearis.* 26. *Mystus nigriceps.*
27. *Mystus rhegma.* 28. *Mystus vittatus.*
29. *Mystus wolffii.*

D. I, 7, spine slender, straight, edges entire, first ray $3\frac{3}{4}$ in fish without caudal; adipose fin length $2\frac{1}{8}$, height equals eye; A. III, 9, second branched ray $1\frac{1}{4}$ in head; caudal $2\frac{4}{5}$ in rest of fish, deeply forked, slender lobes pointed; least depth of caudal peduncle $2\frac{3}{5}$ in head; pectoral 1, spine with front edge smooth and 10 recurved denticles, rather large, on inner edge, rays 10; ventral I, 5, equals head.

Very light or pale brown, lower or under surfaces more or less whitish. Upper surface of head and back sprinkled with dark gray dots. Band of dark dots along lateral line and broader one along lower side of trunk and tail parallel. Iris grayish, also maxillary barbel, other barbels whitish. Outer edge of adipose fin dusted with dark gray dots. Caudal dark gray. Other fins pale or whitish.

A.N.S.P., No. 61748. Bangkok, Siam. September 24, 1934. Length 68 mm. Type.

Greatly like *Mystus nigriceps* but with three lateral longitudinal dark bands and with a distinct interdorsal notch, this about $\frac{1}{7}$ of the length of the adipose fin.

(ῥῆγμα breach, with reference to the interdorsal notch.)

Mystus vittatus (Bloch). Figure 28.

One, 121 mm. in May and nine, 115 to 158 mm. September 24, from Bangkok. These specimens without a pale line along the back, or another along the lateral line within the dark lateral median or axial band, as shown by Day.

Mystus wolffii (Bleeker). Figure 29.

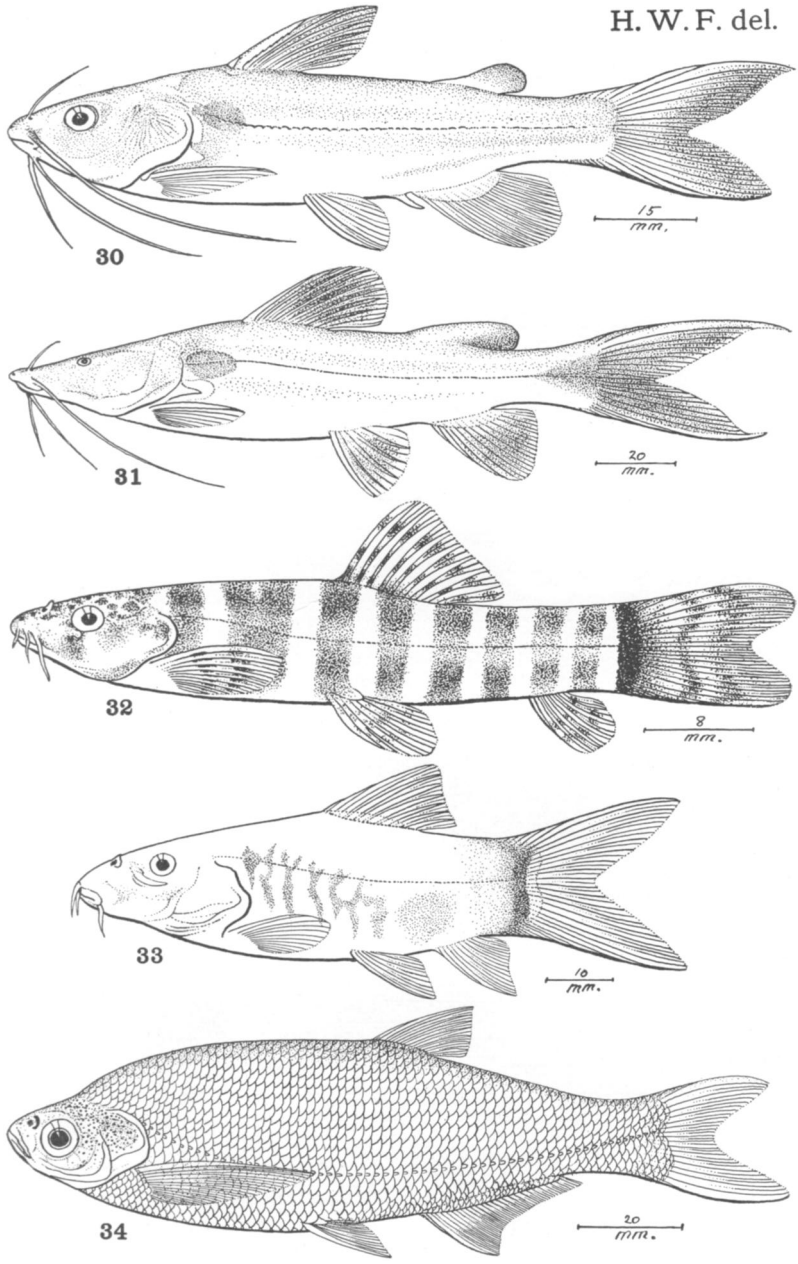
Five, 88 to 104 mm. in July and 33 examples, 74 to 148 mm. in May, from Bangkok. Bases of all fins rather bright yellow, dark gray to blackish gray terminally. Weber and Beaufort say "adipose fin about equal to anal and dorsal and to their distance," while Bleeker shows the adipose fin length $2\frac{1}{3}$ dorsal fin length or $1\frac{1}{4}$ in that of the anal or about $1\frac{1}{3}$ in interdorsal.

Mystus planiceps (Valenciennes). Figure 30.

Five, 108 to 280 mm. in May and one 122 mm. September 24, from Bangkok. Known by its occipital extension only reaching half way or less to the dorsal plate, nasal barbels reaching eye diameter beyond eye, dorsal base half interdorsal length, adipose fin length $1\frac{1}{5}$ to $1\frac{2}{5}$ in depressed anal length, and ventrals inserted distinctly behind first dorsal base, so that ventral origin midway between pectoral origin and base of last anal ray to tip of same ray. Fin bases of pectoral, ventral, anal and lower rudimentary caudal rays orange-yellow.

Mystus wyckii (Bleeker). Figure 31.

One, 190 mm., Bangkok. Differs slightly from Bleeker's figure in its narrow occipital fontanel reaching the base of the occipital extension, nasal



30. *Mystus planiceps.* 31. *Mystus wyckii.*
32. *Nemacheilus myrmekia.* 33. *Botia modesta.*
34. *Culter riveroi.*

barbels reaching eye, dorsal length greater than postorbital part of head, interdorsal $\frac{3}{4}$ first dorsal fin base, pectoral spine little longer than dorsal spine.

Prajadhipokia rex Fowler 1934 is a synonym of the rare *Heterobagrus bocourti* Bleeker 1864, based on an example 235 mm. long. Bleeker's figure shows, as is the case with so many of his siluroids, the nearly impossible and drooping position of the pectoral fin.

COBITIDAE

Acanthopsis choirorhynchos (Bleeker). Figures 35 to 42 (color variation).

Series of 75 examples, 53 to 125 mm., Khao Nam Poo, October.

Botia hymenophysa (Bleeker).

One, 153 mm., Srisawat, July; four, 78 to 82 mm., Khao Nam Poo, October. Greatly like *Botia beauforti* but in addition to their spotted coloration also with dark transverse bands.

Botia modesta Bleeker. Figure 33 (variation).

One, 93 mm. in May and two, 81 to 103 mm., September 24, Bangkok.

Nemacheilus masyae H. M. Smith.

One, 55 mm., Khao Nam Poo, October. No preorbital hook.

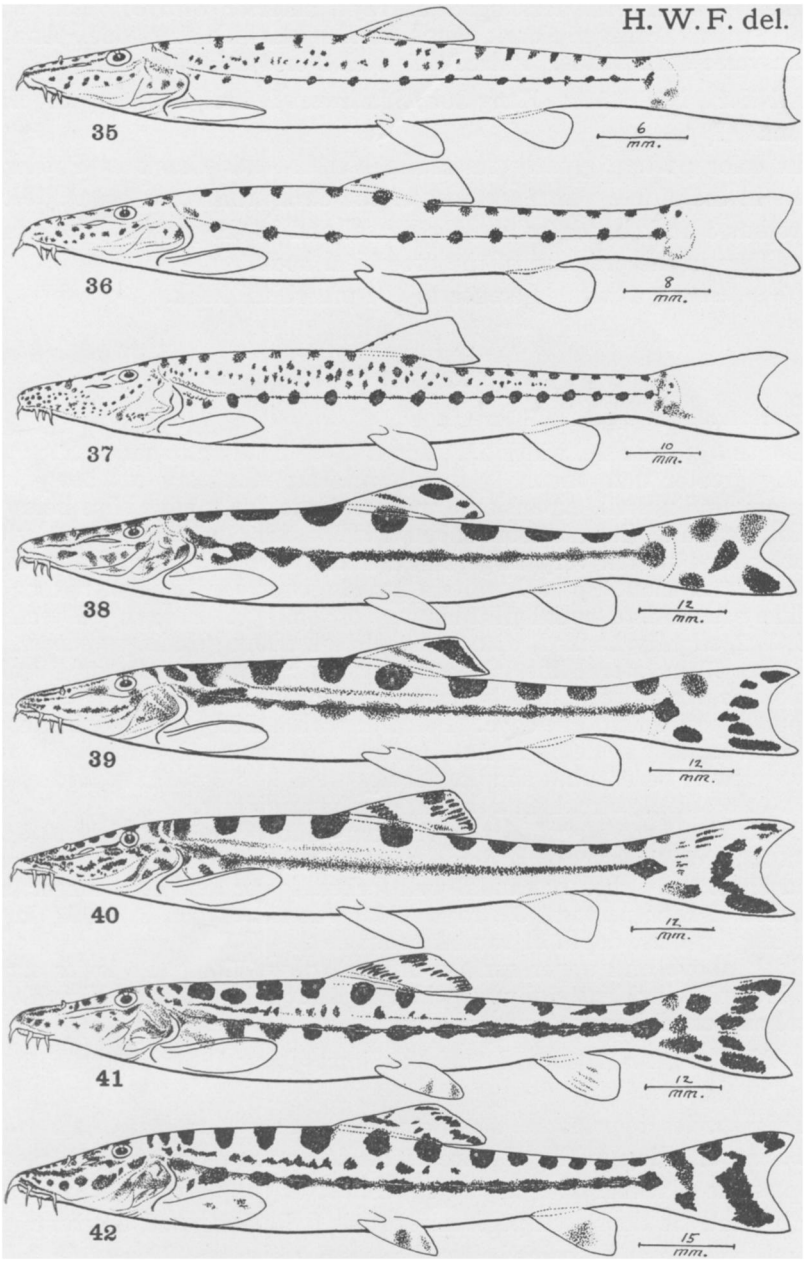
Nemacheilus myrmekia, new species. Figure 32.

Depth 5; head $3\frac{3}{5}$, width $1\frac{3}{5}$. Snout $2\frac{4}{5}$ in head; eye $5\frac{1}{4}$, $2\frac{1}{8}$ in snout, $1\frac{3}{4}$ in interorbital; maxillary reaches half way in snout; mouth width $3\frac{1}{2}$ in head; lower jaw shorter; lips entire; no nasal barbel; outer rostral barbel $4\frac{2}{5}$ in head, inner little shorter, maxillary barbel $3\frac{3}{4}$; interorbital $1\frac{2}{3}$, low, slightly convex. Front nostril with cutaneous margin, at last $\frac{2}{5}$ in snout. Gill openings lateral, broad isthmus width $2\frac{2}{3}$ in head.

Scales minute, about 77 along and close above lateral line to caudal base; 13 above lateral line, 12 below to ventral and 15 below to anal origin; entire predorsal region more or less naked, or only with few, minute, scattered scales; chest, breast and belly posteriorly nearly far as middle of depressed pectoral naked. Lateral line distinct, axial along side, complete, tubes simple. Small wart-like flap or spine close below front of eye.

D. I, 8, I, first branched ray $1\frac{1}{2}$ in head; A. II, 5, I, first branched ray 2; caudal 1, emarginate, lobes rounded; least depth of caudal peduncle $1\frac{7}{8}$; pectoral $1\frac{1}{5}$, rays I, 10; ventral rays I, 6, fin $1\frac{1}{4}$ in head.

Brownish generally. Head with dark brown spots above, chiefly on cranium. On body 8 broad dark brown transverse bands, wider than pale interspaces; first above pectoral base; second wide, as result of 2 bands above fusing below, and occupies greater part of predorsal; third at front of dorsal to front of ventral; fourth from middle of dorsal; fifth from last dorsal ray; sixth behind dorsal and before anal; seventh to anal base; eighth behind anal base. Also darker transverse band at caudal base. Iris gray. Lips and barbels drab or brownish. Under surfaces of head and body but little paler than lighter shades of back. Dark transverse bands of sides not extending across abdomen or only last 3 on tail crossing. Fins



35 to 42. *Acanthopsis choirorhynchos.*

grayish. Dorsal with dark spots on rays, anterior with 3, others with 2. Caudal with 2 transverse dark bands, besides blackish basal one. Anal with 2 transverse dark bands. Paired fins with 2 or 3 dark bands.

A.N.S.P., No. 63546. Keng Sok, Southwest Siam. February 3. Length 58 mm. Type.

In color pattern greatly resembles *Nemacheilus desmotes* Fowler, but differs in the different arrangement of the dark transverse bands. *N. desmotes* has 3 dark bands behind the dorsal and in the present species 4. It also differs in the presence of the preorbital hook.

(*μυρμήκια* wart, with reference to the preorbital hook.)

CYPRINIDAE

ABRAMIDINAE

Culter riveroi, new species. Figure 34.

Depth $3\frac{1}{4}$; head $4\frac{1}{2}$, width $2\frac{1}{8}$. Snout $4\frac{1}{4}$ in head from snout tip; eye $3\frac{3}{4}$, slightly greater than snout, $1\frac{1}{5}$ in interorbital; maxillary reaches $\frac{4}{5}$ to eye or below hind nostril, expansion 3 in eye, whole upper edge slips below preorbital, length $3\frac{7}{8}$ in head from snout tip; lips thin, little developed, without barbels; hind nostril very large, more than twice front one; interorbital 3 in head from snout tip; suborbitals broad, cover cheek. Gill rakers 12 + 30, finely lanceolate, equal gill filaments or $\frac{1}{2}$ of eye. Pharyngeal teeth 2, 3, 4—5, 3, 2, slightly hooked, with rather broad, entire grinding surfaces.

Scales 53 in lateral line to caudal base and 2 more on latter; 12 above, 4 below to ventral origin, 6 below to anal origin, 42 predorsal forward to occiput opposite hind eye edge. Pectoral with axillary scale $4\frac{3}{5}$ in fin; ventral with axillary scale $3\frac{1}{2}$ in fin. Lateral line complete, strongly decurved above ventral base, tubes simple. Scales with 1 to 3 basal radiating striae and 3 to 6 apical; circuli fine, basal, obsolete apically.

D. II, 7, I, first branched ray (broken) about $1\frac{1}{2}$ in total head length; A. III, 25, I, origin below last dorsal rays, first branched ray $1\frac{3}{4}$, with rather broad basal scaly sheath; caudal well forked, lower lobe little longer, about 4 in rest of fish; pectoral $3\frac{1}{2}$, rays I, 13; ventral rays I, 8, fin $1\frac{2}{3}$ in total head length; least depth of caudal peduncle 2.

Back above and upper surface of head olive, sides and lower surfaces pale brownish, evidently silvery white in life. Iris whitish. Fins all pale, dorsal and caudal grayish marginally.

A. N. S. P., No. 60803. Bangkok, Siam. May 1934. Length 153 mm. Type.

This species appears to be related most nearly to my *Chela stigmabrachium*, differing in the absence of black on the outside of the pectoral, except some blackish dots on the uppermost or simple ray. It differs further in that the depressed pectoral extends a little beyond the base of the ventral, and the anal begins below the last dorsal rays. I was first inclined to identify it with *Paralaubuca typus* Bleeker 1865, but it is described with anal rays III, 29 or III, 30, the eye $2\frac{1}{2}$ to $2\frac{3}{5}$ in head or equal to the interorbital, the types 112 to 120 mm. long.

(Named for Dr. Luis Howell Rivero, of Havana, Cuba, to whom I am indebted for collections of Cuban fishes.)

Culter typus (Bleeker).

One, 83 mm., Bangkok, September 21. Depth $3\frac{1}{5}$; head 4; eye $2\frac{1}{2}$ in head. Scales 18 (overlap 8) + 38 + 4 in lateral line; 14 above, 3 below to ventral origin, 6 below to anal origin. A. III, 27, I. Middle of upper pectoral rays with dark and gray dots.

The above agrees in all essentials with the two Bangkok specimens I reported in 1934, especially with its anal origin below or behind the base of the last dorsal ray, the chief character of distinction for *Paralaubuca* as employed by Bleeker. The larger of my specimens with gill rakers 7 + 30. Bleeker also notes the pectoral especially with blackish dots. For these reasons *Paralaubuca* may be placed with *Culter*, perhaps as a subgenus.

Culter siamensis Hora.

Four, 143 to 220 mm., Bangkok. Upper profile of head convexly curved. Eye $4\frac{1}{4}$ to 5 in head. Maxillary extends below level of eye. Lower gill rakers 26. Scales 64 + 5 in lateral line, sometimes right side interrupted as 25 (11 overlap) + 47 + 5. Predorsal scales extend forward nearly opposite hind eye edge. Below lateral line 5 scales to origin of ventral fin. A. III, 23, I or III, 24, I. Pectoral reaches ventral in young, falls 3 or 4 scales short with age. Pectoral grayish above, little darker or more distinct on inner side of fin.

I do not think the figure of *Paralaubuca typus* of Hora 1923, based on 3 examples 58.6 to 69 mm. (without caudal) from Bangkok and Montaburi, is Bleeker's species of that name. Bleeker's description gives the scales as 20 transversely at base of ventral fin, of which 12 to 14 above the lateral line, which would suggest 5 to 7 below. Hora's figure shows 2 or $2\frac{1}{2}$ scales below lateral line to ventral fin origin. This is like my *Chela barroni* of 1934. His figure also shows 59 or 60 in a lateral count, compared with 46 for *C. barroni*. In many other ways it is greatly similar.

To the present time I have accepted *Chela* Buchanan-Hamilton 1822 for the species of the present genus, following most European authors. As Bleeker 1862 formally designated *Cyprinus* (*Chela*) *cachia* Buchanan-Hamilton as genotype, *Chela* will supersede *Perilampus* McClelland 1839 as used by Day. *Oxygaster* Van Hasselt 1823 (type *Oxygaster anomalurus* Van Hasselt 1823 = *Cyprinus oxygaster* Valenciennes 1844) is the name now applicable to the group called Chela by Günther and Day, distinguished by the predorsal scales extending forward above the front or middle of the eye. *Culter* Basilewsky 1855, with *Culter alburnus* Basilewsky as the designated genotype of Bleeker 1862, includes species with the predorsal scales beginning behind the eyes. The Siamese species may then stand as: *Culter pointoni* (Fowler), *C. barroni* (Fowler), and *C. stigmabrachium*

(Fowler), besides those listed above. *Chela maculicauda* H. M. Smith **1934** I am unable to place generically. Bleeker spells *Macrochirichthys* **1859,** not as I use *Macrocheirichthys* in 1934.

Oxygaster oxygastroides (Bleeker). Figure 43.

Nineteen, 84 to 108 mm., Bangkok. Depth $3\frac{1}{4}$ to $3\frac{2}{5}$. Scales 35 + 3 in lateral line. A. III, 23, I to III, 29, I. All with under surface of tail quite yellowish.

Oxygaster siamensis (Günther). Figure 44.

Depth $2\frac{3}{4}$; head $3\frac{2}{3}$, width $2\frac{1}{8}$. Snout $4\frac{1}{2}$ in head from snout tip; eye $3\frac{2}{5}$, greater than snout, equals interorbital; maxillary reaches front eye edge, expansion $\frac{1}{3}$ of eye, length $3\frac{1}{3}$ in head from snout tip; lips thin, narrow; mandibular symphysis with knob fitting in corresponding notch in front of upper jaw; interorbital $3\frac{2}{5}$, convexly elevated; suborbitals rather narrow, cover about $\frac{3}{4}$ of cheek. Gill rakers 3+ 9, short points, $\frac{1}{3}$ of gill filaments, which $\frac{1}{2}$ of eye. Pharyngeal teeth 2, 3, 5—4, 4, 2, small, but slightly hooked, each of larger with entire, moderate, grinding surfaces.

Scales 32 in lateral line to caudal base and 3 more on latter; 8 above, 3 below to ventral origin, 4 below to anal origin, 32 predorsal forward opposite front edge of eye. Caudal base scaly. Rather narrow scaly basal sheath on anal. Scales with 6 or 7 apical radiating striae; circuli fine, mostly basal, less numerous apically.

D. III, 7, I, first branched ray $\frac{1}{5}$ in total head length; A. III, 25, I, first branched ray $1\frac{1}{3}$; caudal $3\frac{3}{5}$ in rest of fish, well forked, lower lobe longer; least depth of caudal peduncle $2\frac{2}{5}$; ventral 2, rays I, 6; pectoral rays I, 10, fin 3 in fish without caudal, nearly reaches middle of depressed ventral.

Pale brownish, sides and below apparently whitish in life. Sides of head with silvery white. Iris grayish. Gray longitudinal axial streaks along tail to caudal base. Snout brownish above. Fins all pale, only few gray dots on inside of pectoral rays basally.

One, 83 mm., Bangkok. Agrees largely with Günther's account of *Chela siamensis,* especially the coloration noted as uniform silvery. Several items would differ slightly as A. 30, scales in lateral line 43, depth 3, head $4\frac{1}{2}$. *Chela siamensis* as described by Tirant 1929, differs in "Pectoral jaune pigmentée de noir et portant une large tache noire."

RASBORINAE

Rasbora lateristriata (Bleeker).

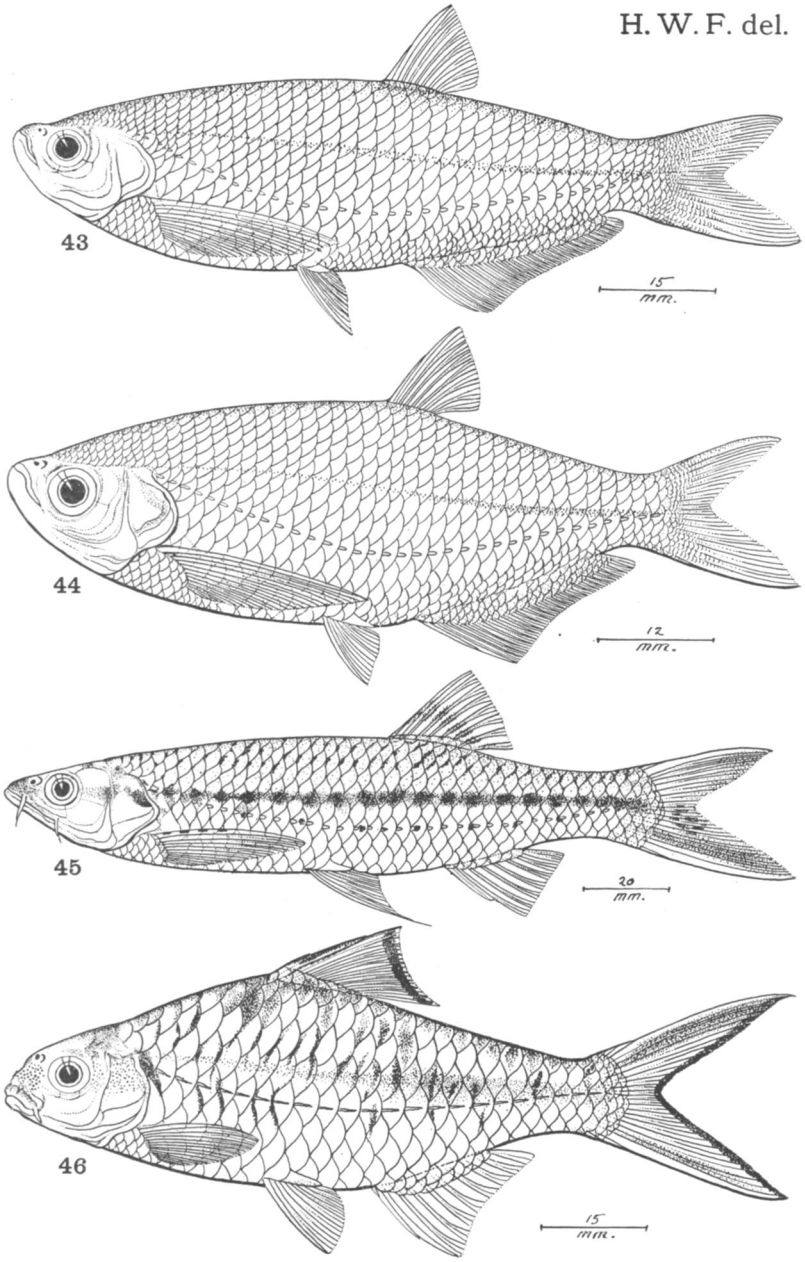
Sixty, 44 to 118 mm., Bangkok, May; also ten, 51 to 98 mm., July; one, 62 mm., September 24.

Esomus danrica (Buchanan-Hamilton).

Fifty-seven, 62 to 80 mm., Bangkok; two, 68 to 76 mm., Sriracha, July 10.

Luciosoma harmandi Sauvage. Figure 45.

Two, 154 to 178 mm., Bangkok.



43. *Oxyaster oxygastroides.* 44. *Oxygaster siamensis.*
45. *Luciosoma harmandi.* 46. *Mystacoleucus chilopterus.*

CYPRININAE

Leptobarbus hoevenii (Bleeker).

One, 190 mm., Bangkok. Depth $3\frac{1}{2}$; head $3\frac{2}{5}$. Eye $4\frac{2}{3}$ in head; 4 barbels. Scales 33 + 3 in lateral line; 3 below to ventral or anal. D. III, 7, I; A. III, 5, I.

Albulichthys albuloides (Bleeker).

One, 283 mm., Bangkok. Differs a little from Bleeker's figure in that the tip of the closed mandible about level with the lower edge of pupil. Bleeker shows the end or tip of the snout slightly below the level of the eye.

Albulichthys krempfi Pellegrin and Chevey 1927, from Cambodia, is based on a specimen but 170 mm. long, said to differ in its larger eye $3\frac{1}{6}$ in the head (4 in my specimen), more truncate snout, dorsal less elevated and last simple ray less serrated, also caudal peduncle more slender. Chevey 1930 thinks it probably the young of *A. albuloides*.

Mystacoleucus chilopterus, new species. Figure 46.

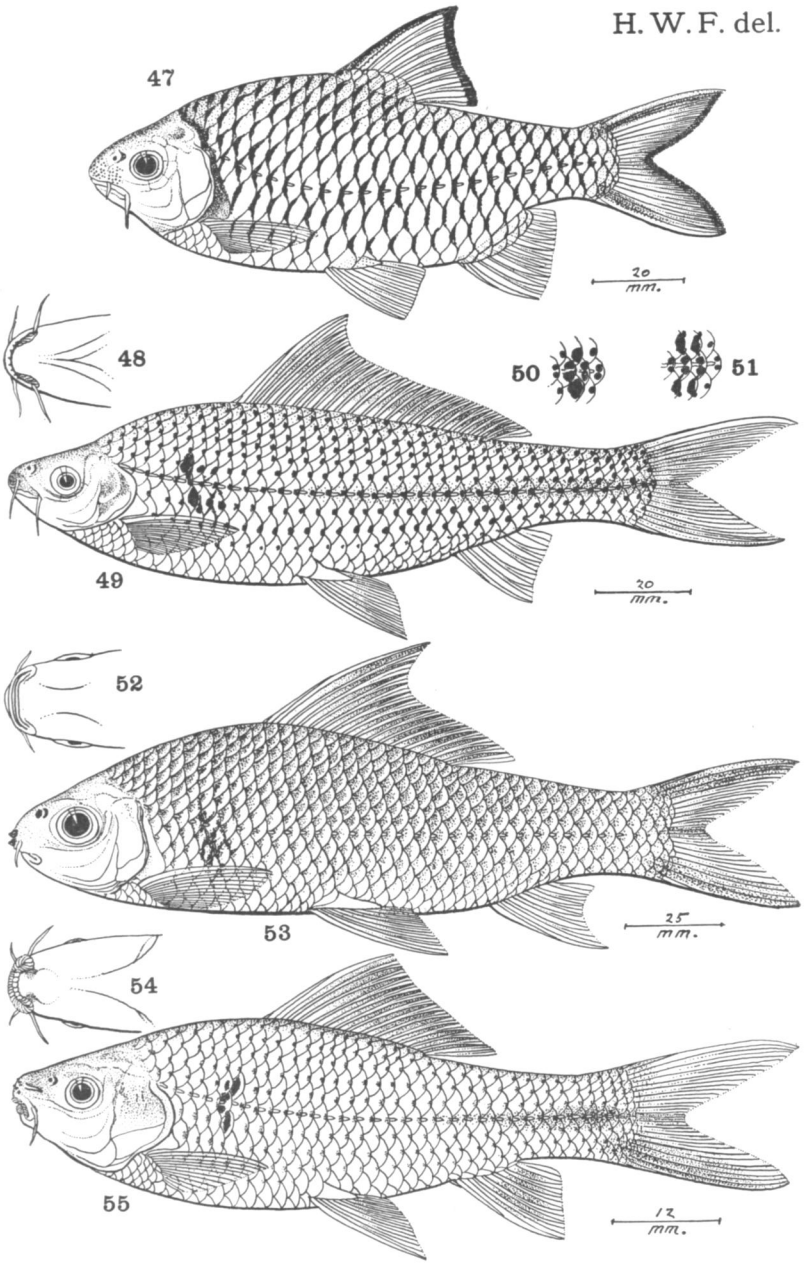
Depth $2\frac{2}{3}$ to 3; head $3\frac{3}{4}$ to 4, width $1\frac{3}{5}$ to $1\frac{4}{5}$. Snout $3\frac{1}{8}$ to $3\frac{2}{5}$ in head; eye 3 to $3\frac{1}{4}$, greater than to subequal with snout, equals interorbital; maxillary reaches $\frac{7}{8}$ to or to eye, expansion $2\frac{3}{4}$ in eye, length $3\frac{1}{4}$ to $3\frac{4}{5}$ in head; lips rather narrow, fleshy; 4 barbels, rostral $\frac{1}{2}$ of maxillary barbel, which 2 in eye; interorbital $2\frac{1}{2}$ to $2\frac{3}{4}$ in head, convex; suborbitals narrow, about $\frac{1}{3}$ of cheek to preopercular ridge. Gill rakers 4 + 10, short points, $\frac{1}{3}$ of gill filaments, which half of eye. Pharyngeal teeth 2, 3, 4—4, 3, 2, rather large in outer row, hooked, and most with broad, entire grinding surfaces.

Scales 22 to 24 in lateral line to caudal base and 2 or 3 more on latter; 5 above, 3 below to ventral or anal origin, 6 or 7 predorsal. Snout end and around below nostrils studded with small close-set pearl organs, about 5 or 6 in transverse or vertical series. Anal base with scaly sheath. Caudal base scaly. Lateral line complete, little decurved from axis of body, tubes slender, rather long and simple. Scales with 2 to 5 short radiating basal striae and 16 or 17 longer apical; circuli moderate, mostly basal.

D. III, 8, I, third ray rather thin, firmly pungent and with about 13 to 15 rather feeble serrae along hind edge, front edge entire, first branched ray $1\frac{1}{5}$ to $1\frac{1}{10}$ in head; A. III, 8, I, third simple ray firm, pungent, entire, $1\frac{1}{4}$ to $1\frac{1}{2}$; caudal $2\frac{3}{5}$ to $2\frac{2}{3}$ in rest of fish, widely forked, lobes rather slender and sharply pointed; least depth of caudal peduncle 2 to $2\frac{1}{8}$ in head; pectoral $1\frac{1}{8}$ to $1\frac{1}{5}$, rays I, 14; ventral rays I, 8, fin $1\frac{1}{3}$ to $1\frac{2}{5}$ in head.

Back and upper surfaces dull or pale olive, mostly as median area on each scale. Sides from axial line below and under surface pale or light brown or drab, evidently whitish in life. Along middle of sides are scattered dark basal crescents to some few scales, irregular and contrasted. Iris gray. Fins pale, front and upper edges of dorsal and hind caudal edge narrowly blackish. Upper and lower edges of caudal with dark submarginal streak whole extent of each lobe. Anal and paired fins whitish.

A. N. S. P., No. 61785. Srisawat, Siam. July 1934. Length 104 mm. Type.



47. *Mystacoleucus marginatus.* 48 to 51. *Dangila siamensis.*
52, 53. *Osteochilus spilopleura.* 54, 55. *Osteochilus lini.*

A. N. S. P., Nos. 61786 and 61787, same data. Length 95 to 103 mm. Paratypes.

Differs from the following species in coloration, much shorter maxillary barbels, concave edge of the anal fin, 3 scales below the lateral line to ventral origin, upper and lower caudal lobes with a submarginal dark gray to blackish streak, axillary ventral scale over half ventral fin, large eye and scales only with scattered dark or blackish basal-arcs, not forming an even reticulated pattern. The procumbent predorsal spine is concealed.

(χείλος edge or rim + πτερὸν fin; with reference to the dark borders of the dorsal and caudal.)

Mystacoleucus marginatus (Valenciennes). Figure 47.

Twelve, 70 to 142 mm., Srisawat, July; five, 95 to 115 mm., Khao Nam Poo, October. Bleeker's figure of *Puntius* (*Barbodes*) *obtusirostris* shows short maxillary barbels $\frac{1}{2}$ of eye, anal edge convex, a strong robust serrated spine, upper and lower caudal edges pale like most of fin, axillary ventral scale little less than half of fin, eye $3\frac{1}{4}$ (3 to $3\frac{1}{3}$ in description) and pectoral reaching $1\frac{2}{3}$ to ventral. The above specimens have a maxillary barbel long as the eye, serrated dorsal spine with its whole front edge blackish, upper and lower caudal edges grayish, axillary ventral scale $\frac{3}{5}$ of the fin, eye $3\frac{2}{5}$ to $3\frac{3}{4}$ in head and pectoral reaching to one scale of ventral fin. The procumbent dorsal spine, before the dorsal fin, distinct though not free. In my largest example about 210 mm. long (caudal broken), from Ban Thung Luang, the maxillary barbel is half the eye and the axillary ventral scale nearly as long as the ventral fin.

Dangila siamensis Sauvage. Figures 48 (head below), 49 (lateral view of Khao Nam Poo specimen), 50 and 51 (variants of scapular blotch in Chieng Mai specimens).

Depth $3\frac{1}{4}$ to $3\frac{3}{4}$; head $4\frac{1}{4}$ to $4\frac{3}{4}$, width $1\frac{1}{2}$ to $1\frac{7}{8}$. Snout 3 to $3\frac{1}{2}$ in head; eye $3\frac{1}{5}$ to $4\frac{3}{4}$, $1\frac{1}{8}$ to $1\frac{2}{5}$ in snout, $1\frac{2}{5}$ to 2 in interorbital; maxillary reaches $\frac{2}{3}$ to $\frac{3}{4}$ in snout, length 3 to $4\frac{1}{4}$ in head; barbels long, front one $1\frac{1}{8}$ in snout, hind one long as snout; upper lip with 5 papillae; lower lip with lateral plications, width of broad entire section $1\frac{2}{3}$ in eye; interorbital $1\frac{4}{5}$ to $2\frac{1}{3}$ in head, moderately high, broadly convex; suborbitals cover about $\frac{1}{3}$ of cheek to preopercular ridge. Gill rakers 5 + 27, short points, $\frac{1}{3}$ of gill filaments, which $1\frac{2}{5}$ in eye. Pharyngeal teeth 2, 3, 5—4, 3, 2, small, little hooked, with moderate, entire, grinding surfaces.

Scales 33 to 36 in lateral line to caudal base and 3 more on latter; 7 above, 4 below to ventral, 5 below to anal origin, 10 or 11 predorsal. Caudal base scaly. Ventral axillary scale $2\frac{1}{2}$ in fin. Lateral line complete, axial, tubes simple, moderate. Scales with 17 to 22 apical radiating striae; circuli fine, mostly basal, mostly obsolete apically.

D. III, 24, I, first branched ray $4\frac{1}{3}$ to $4\frac{1}{2}$ in fish without caudal; A. III, 5, I, first branched ray $1\frac{1}{2}$ to $1\frac{2}{3}$; caudal with upper lobe little longer, $2\frac{3}{4}$ to $3\frac{1}{4}$ in rest of fish, lobes slender and sharply pointed; least depth of caudal peduncle $1\frac{4}{5}$ to $2\frac{1}{4}$ in head; pectoral 1 to $1\frac{1}{3}$, rays I, 14; ventral rays I, 8, fin 1 to $1\frac{1}{8}$ in head.

Back and upper surfaces olive, sides and lower surfaces paler to whitish. Each scale on sides with rounded, contrasted, blackish spot basally showing through preceding overlapping scale. Along lateral line on tail dark to blackish axial streaks, more distinct or conspicuous at caudal base. No distinct or defined black spot, however, at caudal base. At fifth scale of lateral line large black blotch on both scale above and scale below. Dorsal with membranes largely grayish terminally. Caudal grayish. Lower fins whitish.

Three, 78 to 163 mm., Khao Nam Poo, October. I have also compared the other materials reported in 1934. These show, even some of the small specimens, 2 rows of pearl organs on the front surface of the snout with 3 to 7 or more in each row, the median ones larger.

The original account of Sauvage, based on Bleeker's MS. name in the Paris Museum, is imperfect and unsatisfactory. It makes no mention of the peculiar dark blotch on the lateral line above the pectoral, which is quite conspicuous and very variable. The dark caudal spot is also equally distinct or absent. *Dangila spilopleura* H. M. Smith 1934 is apparently synonymous, though its scales are given as 44. Smith does not describe the lips and Sauvage says "lèvre supérieure non frangée." Some Chieng Mai specimens show the eye slightly longer than the snout.

Dangila leptocheilus (Van Hasselt).

Depth $3\frac{1}{3}$ to $3\frac{3}{5}$; head $4\frac{1}{2}$ to $4\frac{4}{5}$. Snout $3\frac{3}{4}$ to $3\frac{4}{5}$ in head; eye $3\frac{2}{5}$ to $4\frac{1}{5}$, 1 to $1\frac{1}{8}$ in snout, $1\frac{3}{4}$ to 2 in interorbital; maxillary reaches $\frac{3}{5}$ to $\frac{2}{3}$ in eye, length $4\frac{1}{5}$ to $4\frac{2}{3}$ in head; interorbital $1\frac{7}{8}$ to $2\frac{1}{5}$, broadly convex. Upper lip with 8 rather large papillae; rostral barbel long as eye, half long as maxillary barbel; suborbitals narrow, on $\frac{1}{3}$ of cheek to preopercular ridge. Gill rakers 7 + 35, short weak close-set points, $3\frac{1}{2}$ in gill filaments, which nearly equal eye. Scales 37 or 38 + 2 in lateral line; 8 above, 6 below to ventral [figure transposed wrongly as 9 in my 1934 paper], 6 below to anal, 10 or 11 predorsal. D. III, 24, I or III, 25, I; A. III, 5, I. Back and above olive, sides and below whitish. Iris gray. Barbels whitish. Dorsal membranes and caudal gray other fins whitish. Three 140 to 182 mm., Bangkok.

Osteochilus hasseltii (Valenciennes).

Four, 119 to 173 mm., Bangkok.

Osteochilus melanopleurus (Bleeker).

Four, 122 to 174 mm., Bangkok. Scales 50 + 4 in lateral line; 8 below to ventral. D. III, 17, I.

Osteochilus spilopleura, new species. Figures 52 (head below) and 53.

Depth $3\frac{1}{5}$, head $4\frac{1}{2}$ width $1\frac{1}{2}$. Snout $3\frac{1}{8}$ in head; eye $3\frac{1}{4}$, $1\frac{1}{10}$ in snout, $1\frac{4}{5}$ in interorbital; maxillary reaches $\frac{3}{5}$ in snout, length $3\frac{2}{3}$ in head; lips entire, thin; only a single pair of barbels, rostral, $1\frac{2}{3}$ in eye; edges of jaws firmly cartilaginous, trenchant; 2 series of rather large, close set pearl organs, 5 in upper and 4 in lower, not extending laterally beyond rostral barbel; nostrils together, separated by cutaneous flap; interorbital 2 in head,

moderately high, broadly convex; suborbitals narrow, cover $\frac{1}{3}$ of cheek to ridge of preopercle. Gill rakers 10 + 44, short, low, crowded, weak points, $\frac{1}{5}$ of gill filaments, which $1\frac{1}{2}$ in eye. Pharyngeal teeth 2, 3, 5—5, 3, 2, cuneiform, compressed, most all with broad, oblique, entire grinding surfaces.

Scales 31 in lateral line to caudal base and 4 more on latter; 8 above, 6 below to ventral or anal, 12 predorsal. Ventral axillary scale $2\frac{1}{5}$ in fin. Caudal base scaly. Scales on breast small. Lateral line complete, axial, with short simple tubes. Scales with 25 to 27 radiating apical striae; circuli fine, mostly basal and more or less obsolete apically.

D. III, 15, I, third simple ray $3\frac{2}{5}$ in fish without caudal, reaches $1\frac{2}{5}$ in fin; A. III, 5, I, third simple ray 1 in head; least depth of caudal peduncle $1\frac{2}{3}$; pectoral 1, rays I, 15; ventral rays I, 8, fin $4\frac{1}{4}$ in fish without caudal.

Back olive, sides and below paler, evidently whitish in life. Back and sides with dark spot at base of each scale. At fifth and sixth scales of lateral line, one scale above and 3 or 4 below base of each with dark or blackish crescent. Iris grayish. Barbels pale. Dorsal and caudal grayish, rays of former paler and upper and lower edges of caudal rather dark grayish. Other fins pale to whitish.

A.N.S.P., No. 60808. Srisawat, Siam. July 1934. Length 213 mm. Type.

Only known from the type. Apparently close to *Rohita sima* Sauvage in proportions, scale and fin formulas, but that species described with its lower lips fringed and with uniform coloration. The very conspicuous dark or blackish bar across the lateral line from the fourth to sixth scales of the lateral line not mentioned by Sauvage.

(σπῖλος blot + πλευρὰ rib; with reference to the large dark blotch above the pectoral.

Osteochilus macrosemion, new species.

Depth $3\frac{1}{6}$; head 5, width $1\frac{1}{2}$. Snout $3\frac{1}{4}$ in head; eye $3\frac{2}{5}$, $1\frac{1}{10}$ in snout, 2 in interorbital; maxillary reaches $\frac{3}{4}$ to eye, length 4 in head; lip entire, narrow; jaw-edges firmly cartilaginous, trenchant; only a single pair of small barbels, rostral, $1\frac{1}{8}$ in eye; interorbital $1\frac{4}{5}$ in head, rather low, broadly convex; nostrils equal, together, separated by cutaneous flap; suborbitals rather narrow, cover about $\frac{2}{3}$ of cheek to preopercular ridge. Gill rakers 3 + 50?, short, feeble, points, $\frac{1}{4}$ of gill filaments, which $1\frac{2}{5}$ in eye. Right pharyngeal teeth 5, 3, 2, cuneate, compressed, all with broad, entire and well-developed grinding surfaces.

Scales 33 in lateral line to caudal base and 4 more on latter; 8 above, 6 below to ventral origin, 12 predorsal. Long axillary ventral scale $2\frac{1}{3}$ in fin. Caudal base scaly. Lateral line axial, complete, tubes small and simple. Scales with 29 to 34 apical radiating striae, 0 to 4 short marginal ones basally; circuli fine, mostly basal, obsolete apically.

D. III, 15, I, third simple ray slender, entire, prolonged until nearly reaching end of last ray when depressed, 3 in fish without caudal; A. III, 5, I, third simple ray slender, entire, $4\frac{1}{5}$; caudal 3, deeply forked, lobes pointed; least depth of caudal peduncle $1\frac{4}{5}$ in head; pectoral 1, rays I, 16; ventral I, 5, fin $3\frac{4}{5}$ in fish without caudal.

Back and upper surfaces olive, sides and below paler to whitish. Each scale on back and sides with dark brown basal spot, paler on lowest scales of side. At fifth and sixth scales of lateral line, as 2 scales above and 3 or 4 below with dark or blackish crescent. Iris grayish. Barbels pale. Dorsal with membranes before each ray and over greater upper portions dark gray, fin nearly blackish marginally. Caudal grayish, inner edge dark gray. Lower fins all whitish.

A.N.S.P., No. 60809. Srisawat, Siam. July 1934. Length 185 mm. Type.

This species is apparently distinct from the preceding and differs from all known to me in the greatly elongated front lobe of the dorsal. Only *Rohita (Rohita) triporus*, as figured by Bleeker, approaches this character, though it is with entirely different coloration and structural characters. My specimen shows no traces of pores, the scars of the pearl organs, on its snout.

(*μακρὸς* long + *σημεῖον* banner or dorsal; with references to the prolonged front dorsal lobe.)

Osteochilus sima (Sauvage).

Depth $2\frac{3}{4}$ to $2\frac{4}{5}$; head $4\frac{1}{3}$ to $4\frac{1}{2}$, width $1\frac{1}{2}$. Snout $3\frac{1}{8}$ to $3\frac{3}{5}$ in head; eye $3\frac{1}{4}$ to $3\frac{3}{4}$, $1\frac{1}{10}$ in snout, $1\frac{4}{5}$ to $1\frac{7}{8}$ in interorbital; maxillary reaches $\frac{3}{4}$ in snout, length $3\frac{1}{8}$ to $3\frac{2}{5}$ in head; single pair of barbels, rostral, $1\frac{3}{4}$ in eye; upper lip entire, narrow, lower across broad symphyseal area papillate (not fringed as described by Sauvage); jaw edges firmly cartilaginous; interorbital $1\frac{4}{5}$ in head, broadly convex; suborbitals narrow, cover about $\frac{1}{3}$ of cheek to preopercular ridge. Gill rakers 0 + 33, short, curved points, $\frac{1}{4}$ of gill filaments which $1\frac{2}{3}$ in eye. Left pharyngeal teeth 2, 3, 5, cuneate, compressed, with broad, entire, grinding surfaces.

Scales 33 in lateral line to caudal base and 3 more on latter; 8 above, 7 below (counting largely concealed scales below pointed axillary scale) to ventral origin, 6 below to anal origin, 10 to 12 predorsal. Scales on breast and chest small. Caudal base scaly. Axillary ventral scale $2\frac{1}{4}$ to $2\frac{1}{3}$ in fin. End of snout with 2 rows of pearl organs, of which 4 in upper row and 5 in lower, all close set. Scales with 2 to 5 short basal radiating striae and 25 or 26 apical; circuli fine, mostly basal, obsolete apically.

D. v, 15, i, fifth simple ray $3\frac{1}{2}$ to $3\frac{2}{3}$ in fish without caudal; A. iii, 5, i, third simple ray 1 in head; least depth of caudal peduncle $1\frac{3}{4}$ to $1\frac{4}{5}$; pectoral 1 to $1\frac{1}{10}$, rays i, 14 or i, 15; ventral rays i, 8, fin 4 in fish without caudal; caudal $2\frac{3}{4}$ to $2\frac{4}{5}$ in rest of fish, lobes slender, sharp pointed.

Back and sides above olive, each scale with dark basal spot. Sides below and under surfaces whitish. Iris gray. Barbels and lips pale or whitish. At fifth scale of lateral blackish basal crescent, one above and double series below 4 scales deep, each with similar blackish crescent. Dorsal fin with each membrane on its posterior half before ray dark to blackish gray. Caudal grayish marginally all around. Lower fins whitish.

Two, 161 to 180 mm., Srisawat, July.

This species apparently not noticed since originally described in 1878 and mentioned in 1881 as *Rohita sima* by Sauvage from the Mekong and Phnom Penh.

Osteochilus lini, new species. Figures 54 (head below) and 55.

Depth $2\frac{4}{5}$ to $3\frac{1}{4}$; head $3\frac{2}{5}$ to 4, width $1\frac{1}{2}$ to $1\frac{2}{3}$. Snout 3 to $3\frac{1}{10}$ in head; eye $3\frac{7}{8}$ to $4\frac{1}{10}$, $1\frac{1}{4}$ to $1\frac{1}{2}$ in snout, 2 to $2\frac{1}{10}$ in interorbital; maxillary reaches $\frac{3}{5}$ to eye, length $3\frac{1}{5}$ to $3\frac{1}{2}$ in head; 2 pairs of barbels, rostral $1\frac{2}{5}$ to 2 in maxillary which equal or little longer than eye; both lips plicate and well fringed all around, broad, fleshy; interorbital $2\frac{1}{5}$ to $2\frac{2}{5}$, broadly convex; suborbitals narrow, cover about $\frac{1}{3}$ of cheek to preopercular ridge. Gill rakers 6 + 20, short, weak points, $\frac{1}{4}$ of gill filaments, which equal eye. Pharyngeal teeth 2, 3, 5—5, 3, 2, compressed, but slightly hooked, with broad, entire, grinding surfaces.

Scales 30 or 31 in lateral line to caudal base and 3 more on latter; 6 above, 4 below to ventral origin, 5 below to anal origin, 10 or 11 predorsal. Breast and chest covered with small scales. Axillary ventral scale $2\frac{2}{5}$ to $2\frac{2}{3}$ in fin. Lateral line of slender simple tubes, axial, complete. End of snout with 2 or 3 irregular rows of minute pores (scars of pearl organs), 5 or 6 in upper row and usually fewer in lower. Scales with 3 to 10 short basal radiating striae, 17 to 21 longer apical; circuli fine, mostly basal, obsolete apically.

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

Back and upper part of sides olive with brownish shade, each scale darker medially though little contrasted or as somewhat small basal spot to each scale. Fifth scale of lateral line with blackish basal crescent also scale immediately above and immediately below with similar blackish crescent. On tail posteriorly and caudal peduncle dark gray ill-defined and rather broad streaks usually as well-defined dark spot at caudal base, which may be reflected out over median caudal rays. Iris gray. Barbels with brown above, pale below. Lips whitish, like lower surface of head. Dorsal with each membrane dark gray over its posterior half or before fin ray following. Anal dark gray medially, pale marginally. Caudal grayish marginally, sometimes most of lower lobe very dark gray. Other fins pale.

A.N.S.P., No. 60812. Khao Nam Poo, Siam. October 1934. Length 84 mm. Type.

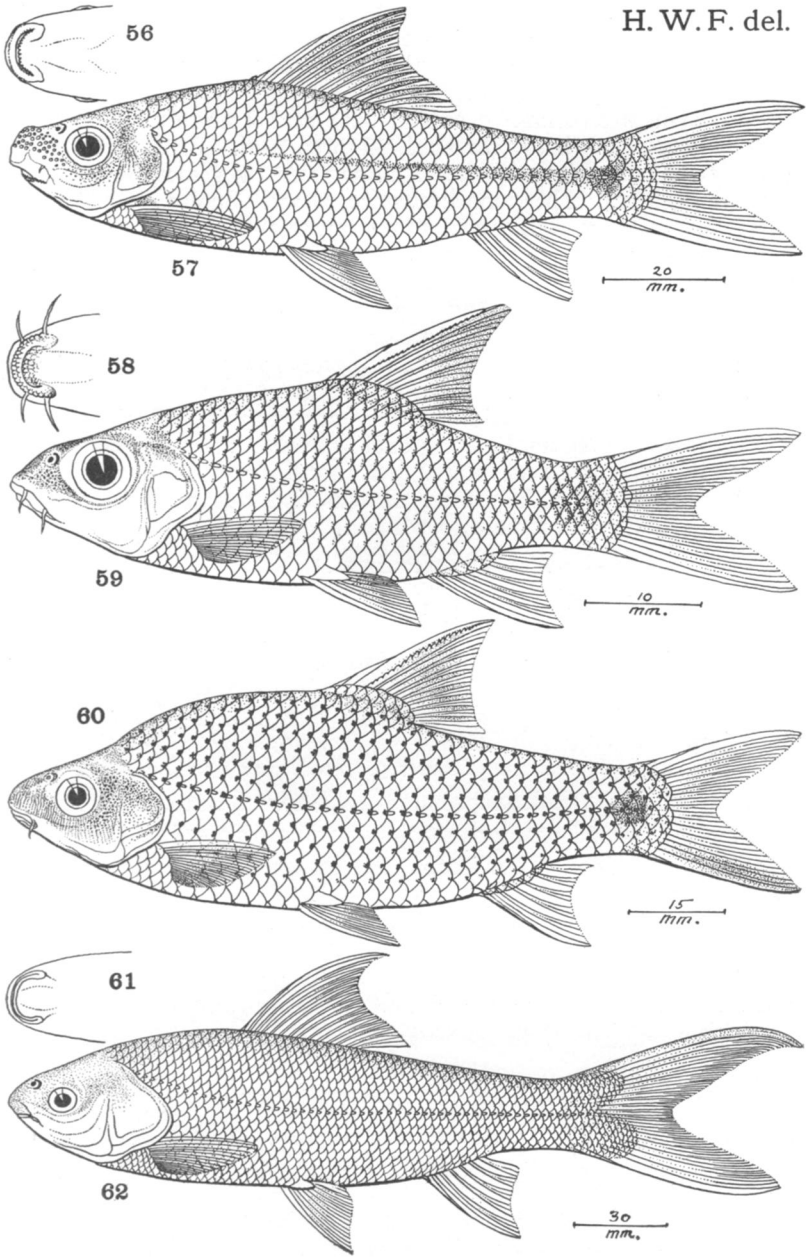
A.N.S.P., Nos. 60813 to 60842, same data, paratypes. Length 65 to 83 mm.

Related to *Osteochilus prosemion* Fowler 1934, but differing in 2 pairs of barbels, but 4 scales below lateral line to ventral origin and different dark blotch on lateral line.

(For Mr. S. Y. Lin, of Tinghai, in appreciation of his valuable studies on Chinese fishes.)

Osteochilus ochrus, new species. Figures 56 (head below) and 57.

Depth $3\frac{2}{5}$; head $3\frac{2}{3}$, width $1\frac{3}{4}$. Snout $2\frac{7}{8}$ in head; eye $3\frac{3}{4}$, $1\frac{1}{3}$ in snout, $1\frac{4}{5}$ in interorbital; maxillary reaches $\frac{4}{5}$ to eye, length $3\frac{2}{5}$ in head; pair of small, short, nearly concealed maxillary barbels; upper lip smooth, thick, fleshy, only with slight marginal fringe short space before each fold at rictus; lower lip with edge fringed all around; jaw edges entire, trenchant,



56, 57. *Osteochilus ochrus.* 58, 59. *Cosmochilus harmandi.*
60. *Cyclocheilichthys armatus.* 61, 62. *Cirrhinus auratus.*

firmly cartilaginous; interorbital $2\frac{2}{5}$ in head, rather low, broadly convex; suborbitals rather broad, cover nearly half of cheek to preopercular keel. Gill rakers about 7 + 38, short, weak, flexible points, $3\frac{1}{2}$ in gill filaments which $1\frac{3}{4}$ in eye. Right pharyngeal teeth 5, 3, 2, compressed, cuneate, all with entire, broad, grinding surfaces.

Scales 38 in lateral line to caudal base and 2 more on latter; 8 above, 5 below to ventral, 6 below to anal, 11 predorsal. Breast and chest with small scales. Caudal base scaly. Axillary ventral scale $2\frac{2}{5}$ in fin. Lateral line complete, axial, tubes small, slender, short. Scales with 2 to 10 very short, basal striae, variable and often imperfect, and 25 to 28 radiating apically; circuli fine, coarser or obsolete apically. Snout with 3 or 4 irregular close-set pearl organ scars, extend over preorbital.

D. IV, 11, I, fourth simple ray 1 in head; A. III, 5, I, third simple ray $1\frac{1}{4}$; least depth of caudal peduncle 2; pectoral $1\frac{1}{5}$, rays I, 15; ventral rays I, 8, fin $1\frac{1}{5}$ in head; caudal 3 in rest of fish, well forked, lobes slender, sharp-pointed.

Upper surface of head and body olive and grayish. Darker gray-brown median streak on predorsal, along each side of dorsal fin base and down postdorsal medially. Faint lateral gray band, forming more definite dark gray diffuse spot at caudal base. Dorsal and caudal grayish, other fins whitish. Iris gray. Lips pale to whitish.

A.N.S.P., No. 61781. Bangkok, Siam. May 1934. Length 130 mm. Type.

Apparently unique among Siamese species in the presence of but 2 maxillary barbels, the disposition and number of its pearl organs on the snout, structure of its mouth and coloration.

('ωχρὸς pale, with reference to its color.)

Cosmochilus harmandi Sauvage. Figures 58 (head below) and 59.

One, 70 mm., Bangkok, September 24. Agrees fundamentally with the original account based on an example 370 mm. long. The eye and barbels are greatly larger in my specimen, also the papillae of the lips, the proportions different and the fins a little shorter. Chevey 1930 gives three figures and notes of postlarval *Cosmochilus*, all of which differ in the presence of more anal rays.

Hampala macrolepidota (Valenciennes).

One, 253 mm., Keng Sok, February 3.

Scaphiodontopsis acanthopterus Fowler 1934, as Dr. H. M. Smith has informed me, is synonymous with *Scaphiodonichthys burmanicus* Vinciguerra 1890, described from Meekalan and Tao.

Labeobarbus douronensis (Valenciennes).

One, 140 mm., Srisawat, July.

Labeobarbus soro (Valenciennes).

Two, 290 to 315 mm., Keng Sok, February. These specimens quite dark, nearly gray-black above.

Cyclocheilichthys apogon (Valenciennes).

Two, 109 to 117 mm., Bangkok. Vertical fins dark gray, paired fins whitish and little or no trace of dark spot at caudal base.

Cyclocheilichthys anoplos (Bleeker).

Nine, 97 to 245 mm., Bangkok. In smallest only one scale in the lateral line with bifurcate tube.

Cyclocheilichthys armatus (Valenciennes). Figure 60.

Three, 106 to 123 mm., Khao Nam Poo, October. Depth $2\frac{4}{5}$ to 3; head $3\frac{1}{3}$ to $3\frac{3}{4}$. Eye $3\frac{7}{8}$ to $4\frac{1}{8}$ in head; only one pair of short barbels, each on maxillary. Scales 30 to 33 in lateral line to caudal base and 3 more on latter; 7 above, 5 below to ventral, 6 below to anal, 12 predorsal.

Cyclocheilichthys jullieni Sauvage 1880, based on an example 330 mm. long, may possibly be the adult? It is described with the third simple dorsal ray bony and entire, depth $3\frac{1}{2}$, head 4, and with 6 black longitudinal bands, narrower than pale interspaces.

Barbus spilopterus Fowler.

Six, 70 to 117 mm., Bangkok, May, and two, 95 to 104 mm., September 24; one, 83 mm., Khao Nam Poo, October. All much larger than my original specimens. They also show 4 scales, counting the axillary, between the lateral line and the ventral origin.

Barbus schwanefeldii Bleeker.

Seven, 125 to 153 mm., Srisawat, July.

Barbus binotatus Valenciennes.

Six, 64 to 96 mm., Khao Nam Poo, October; 28 examples, 38 to 174 mm., Bangkok. Those from first locality interesting variants, as some show upper and lower caudal edges blackish, dark axial lateral streak or several black spots along axial line and black blotch at dorsal origin, also anal edge blackish.

Barbus javanicus Bleeker.

Four, 140 to 170 mm., Bangkok, in May, and one, 54 mm., September 24. In last rostral barbels rudimentary. Scales 25 + 3; 7 above, 4 below to ventral origin. A. III, 6, I.

Barbus proctozysron (Bleeker).

Ten, 104 to 173 mm., Bangkok.

Barbichthys laevis (Valenciennes).

One, 174 mm. to end of broken caudal, Srisawat, July.

Morulius erythrostictus Fowler.

Seven 121 to 176 mm., Bangkok.

Cirrhinus auratus Sauvage. Figures 61 (head below) and 62.

Depth $3\frac{2}{5}$ to $3\frac{3}{5}$; head $3\frac{1}{5}$ to $3\frac{2}{5}$, width $1\frac{3}{5}$ to $1\frac{3}{4}$. Snout 4 to $4\frac{1}{8}$ in head; eye $5\frac{1}{2}$ to 6, $1\frac{2}{5}$ to $1\frac{1}{2}$ in snout, $2\frac{1}{2}$ to $2\frac{3}{5}$ in interorbital; maxillary reaches $\frac{3}{4}$ to eye, length 4 to $4\frac{1}{8}$ in head; no barbels; lips entire, little free from trenchant, cartilaginous, firm jaw edges; interorbital $1\frac{7}{8}$ to $2\frac{1}{5}$, broadly convex; suborbitals cover nearly half of cheek to preopercular ridge. Gill rakers 10 + 60, short, weak, uniform points, $\frac{1}{6}$ of gill filaments, which equal eye. Right pharyngeal teeth 5, 3, 2, compressed, with broad, entire, oblique grinding surfaces.

Scales 52 to 54 in lateral line to caudal base and 3 or 4 more on latter; 12 above, 9 below to ventral or anal, 19 predorsal. Scales on breast and chest small. Axillary ventral scale 3 in fin. Caudal base scaly. Lateral line axial, complete, small tubes simple, short. Scales with 6 to 8 feeble, imperfect, submarginal striae, and 27 to 30 apical radiating striae; circuli fine, obsolete apically.

D. III, 11, I or III, 12, I, third simple ray 1 to $1\frac{1}{3}$ in head; A. III, 5, I, third simple ray $1\frac{1}{2}$ to $1\frac{2}{5}$; least depth of caudal peduncle $2\frac{1}{4}$ to $2\frac{2}{3}$; pectoral $1\frac{1}{5}$ to $1\frac{2}{5}$, rays I, 18; ventral I, 8, fin $1\frac{1}{2}$ to $1\frac{2}{5}$ in head; caudal $2\frac{2}{5}$ to $2\frac{3}{4}$ in rest of fish.

Back gray-brown or drab, sides below and under surfaces whitish. Iris and lips pale. Dorsal and caudal grayish marginally. Lower fins whitish.

Two, 225 to 245 mm., Bangkok.

Cirrhinus jullieni Sauvage. Figures 63 (head below) and 64.

Depth 3; head 4, width $1\frac{3}{5}$. Snout 4 in head; eye 4, 2 in interorbital; maxillary reaches $\frac{3}{5}$ to eye, length $4\frac{1}{4}$ in head; no barbels; lips thin, narrow, smooth, adnate with firm, cartilaginous, trenchant edges of jaws; interorbital 2 in head; suborbitals broad, cover most of cheek to preopercular ridge.

Scales 32 + 2 in lateral line; 6 above, 4 below to ventral origin, 5 below to anal origin, 11 predorsal. Axillary ventral scale $\frac{1}{3}$ of fin. Caudal base scaly. Lateral line complete, very slightly decurved, axial.

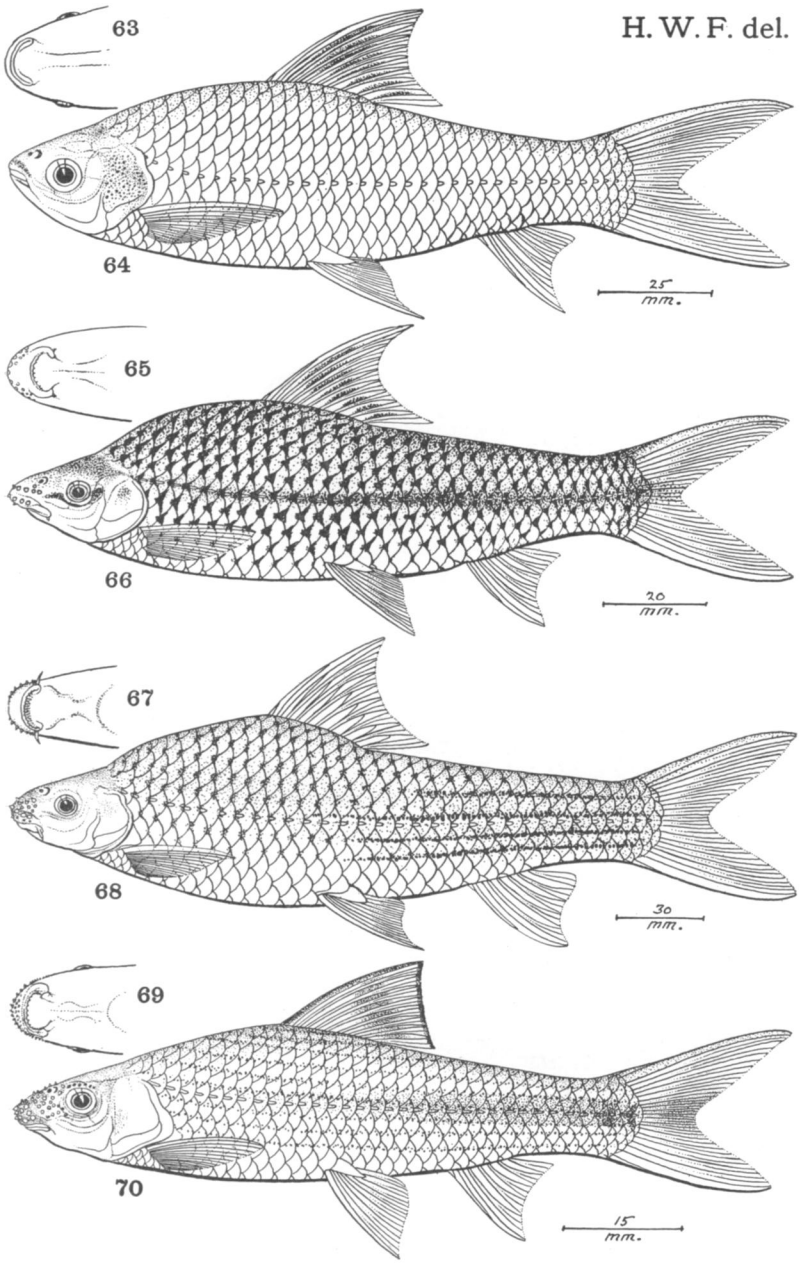
D. III, 8, I, third simple ray $3\frac{2}{3}$ in fish to caudal base; A. III, 5, I, third simple ray $1\frac{1}{4}$ in head; least depth of caudal peduncle $1\frac{3}{4}$; pectoral 1, rays I, 14; ventral I, 8, fin $1\frac{1}{10}$ in head; caudal $2\frac{4}{5}$ in rest of fish, widely forked, slender lobes sharply pointed.

Back pale olive to brownish, sides and below pale to whitish. Iris whitish. Lips pale. Dorsal very pale grayish, each membrane medially and posteriorly before ray following, with dark gray area. Caudal grayish. Lower fins whitish.

One, 176 mm., Bangkok. Differs from the account of Sauvage in 1881 as it was said to have the lips fringed, pores 2 or 3 or more, pair of rostral barbels present shorter than eye, on an example 130 mm.

Tylognathus melanotaenia, new species. Figures 65 (head below) and 66.

Depth $3\frac{1}{4}$; head $4\frac{2}{5}$, width $1\frac{3}{4}$. Snout $2\frac{1}{2}$ in head; eye $5\frac{3}{4}$, $2\frac{1}{5}$ in snout, $2\frac{3}{5}$ in interorbital; maxillary reaches $\frac{3}{4}$ to eye, length 3 in head; maxillary with small terminal barbel, largely concealed, only tip exposed; upper lip entire, lower with greater median margin papillose; jaw edges firmly trenchant, entire; interorbital $2\frac{1}{8}$ in head, moderately high, broadly convex;



63, 64. *Cirrhinus jullieni.*
65, 66. *Tylognathus melanotaenia.*
67, 68. *Tylognathus quadrilineatus.*
69, 70. *Tylognathus cryptopogon.*

suborbitals about cover half of cheek to preopercular ridge. Gill rakers 5 + 20, short, feeble, uniform, flexible points, $\frac{1}{4}$ of gill filaments, which long as eye. Right pharyngeal teeth 5, 5, 4, 2, compressed, scarcely hooked, each with oblique, entire, broad grinding surfaces.

Scales 31 in lateral line to caudal base and 3 more on latter; 6 above, 4 below to ventral origin, 5 below to anal origin, 11 predorsal. Ventral with axillary scale $2\frac{1}{2}$ in fin. Caudal base scaled. Lateral line complete, axial, tubes small, slender, simple. Scales with 1 to 3 short basal striae, sometimes 1 to 4 short incomplete auxiliaries also, and 32 or 33 radiating apical striae; circŭli fine, mostly basal, obsolete apically.

D. III, 8, I, third simple ray $3\frac{2}{3}$ in fish without caudal; A. III, 5, I, third simple ray $1\frac{1}{3}$ in head; least depth of caudal peduncle $1\frac{3}{4}$; pectoral $1\frac{1}{8}$, rays I, 16; ventral I, 8, fin $1\frac{1}{8}$ in head; caudal $2\frac{3}{4}$ in rest of fish, deeply forked, slender lobes sharply pointed.

Back olive, also upper surface of head. Along side of trunk dark brown axial band, becomes blackish along side of tail and along caudal peduncle side, also reflected out on median caudal rays. On back and sides each scale with dark or blackish brown crescent. Iris pale to whitish. Dorsal grayish olive, membranes pale and each with dark gray median area narrowly on posterior half close before ray following. Caudal gray. Other fins whitish.

A.N.S.P., No. 61502. Khao Nam Poo, Siam. October 1934. Length 158 mm. Type.

Agrees with the species following in the presence of maxillary barbels only, the squamation and fin rays. It differs in the dark or blackish axial lateral band, darker and most prominent on caudal peduncle. Its pearl organs are extensive around the front border of the snout, forming 2 rather regular rows with a third incomplete below posteriorly of smaller tubercles. Moreover the entire top of the head is finely studded or crowded with minute papillae.

(μελας black + ταινία band; with reference to the dark lateral band.)

Tylognathus quadrilineatus, new species. Figures 67 (head below) and 68.

Depth 3 to $3\frac{4}{5}$; head $4\frac{2}{5}$ to 5, width $1\frac{1}{4}$ to $1\frac{3}{5}$. Snout $2\frac{1}{4}$ to $2\frac{1}{3}$ in head; eye $4\frac{1}{3}$ to $5\frac{3}{4}$, $1\frac{4}{5}$ to $2\frac{3}{5}$ in snout, $2\frac{1}{2}$ to 3 in interorbital; maxillary reaches $\frac{3}{4}$ to eye, length $2\frac{1}{2}$ to $2\frac{7}{8}$ in head; single pair of short barbels, one on each maxillary, about $\frac{1}{2}$ of eye; upper lip entire, lower with broad median area furnished with about 5 irregular rows of small papillae; jaw edges entire, firmly cartilaginous, trenchant; interorbital $1\frac{2}{3}$ to $1\frac{3}{4}$, moderately high, broadly convex; suborbitals moderate, cover about half of cheek to preopercular ridge. Gill rakers 5 + 20, short, uniform, flexible, feeble points, $3\frac{1}{2}$ in gill filaments, which equal eye. Pharyngeal teeth 2, 4, 5—5, 4, 2, compressed, scarcely hooked with broad, entire grinding surfaces.

Scales 30 to 32 in lateral line to caudal base and 3 more on latter; 6 above, 4 or 5 below to ventral, 5 below to anal origin, 11 or 12 predorsal. Axillary ventral scale $2\frac{3}{4}$ in fin. Caudal base scaly. Lateral line complete, axial along side, with small, short, simple tubes. Scales with 1 or 2 short basal striae, sometimes with as many as 5 or 6 more imperfect or incom-

plete shorter auxiliaries, and 29 to 62 apical radiating striae, more or less obsolete with age; circuli fine, basal, obsolete apically with age. Males with 4 series of pearl organs around end of snout, extend forward from below nostrils.

D. III, 8, I, third simple ray $3\frac{7}{8}$ to $4\frac{2}{3}$ in fish without caudal; A. III, 5, I, third simple ray $1\frac{1}{8}$ to $1\frac{1}{4}$ in head; least depth of caudal peduncle $1\frac{2}{5}$ to $1\frac{4}{5}$; pectoral 1 to $1\frac{1}{8}$, rays I, 15; ventral rays I, 8, fin 1 to $1\frac{1}{8}$ in head; caudal $2\frac{2}{3}$ to $3\frac{1}{5}$ in rest of fish, deeply forked, long slender lobes sharply pointed.

Back brown or olive, sides paler and below whitish. Above on body each scale with basal blackish pocket, showing through overlapping scales as subdued short dark bar. On side of tail 4 rows of blackish brown spots, parallel with lateral line. Iris grayish. Lips and mouth pale. Dorsal and caudal brownish, other fins whitish. In small or young examples second dark band on tail emphasized more blackish and ends in rather large diffused blackish blotch at caudal base.

A.N.S.P., No. 61791. Srisawat, Siam. July 1934. Length 258 mm. Type.

A.N.S.P., Nos. 61792 to 61795, same data, paratypes. Length 160 to 183 mm. Also nine, 75 to 153 mm., Khao Nam Poo, October.

Known chiefly by its coloration, especially the four blackish or dark longitudinal lines along side of tail and caudal peduncle. Small as well as large examples have the snout studded with pearl organs.

(*quadri* four + *lineatus* lined, with reference to the coloration.)

Tylognathus brunneus Fowler.

One, 67 mm., Bangkok, May, and five, 52 to 90 mm., September 24; seven, 82 to 118 mm., Khao Nam Poo, October. Small examples show the caudal base with a slightly dark spot, also the dorsal fin contrasted. No barbels.

Tylognathus caudimaculatus Fowler.

One, 127 mm., Srisawat, July.

Tylognathus cryptopogon, new species. Figures 69 (head below) and 70.

Depth $3\frac{3}{4}$ to 4; head $3\frac{1}{4}$ to $3\frac{4}{5}$, width $1\frac{4}{5}$ to $2\frac{1}{5}$. Snout 3 to $3\frac{1}{4}$ in head; eye 4 to $5\frac{1}{5}$, $1\frac{1}{4}$ to $1\frac{3}{4}$ in snout, 2 to $2\frac{1}{5}$ in interorbital; maxillary reaches $\frac{3}{5}$ to $\frac{4}{5}$ to eye, length $3\frac{2}{3}$ to $3\frac{7}{8}$ in head; a small concealed maxillary barbel in each posterior labial sulcus; upper lip entire, lower lip rather coarsely fringed or papillate its whole extent; jaw edges firmly cartilaginous, trenchant, entire; interorbital $2\frac{1}{2}$ to $2\frac{3}{5}$ in head, rather low, broadly convex; suborbitals wide, cover most of cheek to preopercular ridge. Gill filaments 7 + 30, short, weak, flexible, uniform points, $3\frac{1}{2}$ in gill filaments, which equal eye. Pharyngeal teeth 1, 4, 5—4, 5, 4, 2, compressed, cuneate, with broad, entire, large grinding surfaces.

Scales 31 in lateral line to caudal base and 3 more on latter; 5 above, 4 below to ventral, 5 below to anal origin, 10 predorsal. Ventral axillary scale $2\frac{1}{5}$ to $2\frac{2}{3}$ in fin. Small scales on breast and chest. Caudal base scaly. Lateral line complete, axial, with small, slender, simple tubes. Scales with 3 or 4 short basal striae and 11 to 15 radiating apical; circuli fine basally, fewer and coarser apically. Entire end of snout studded with pearl organs,

extend into internasal where much smaller, also row above eye or on superciliary region, others below over preorbital to lower front eye-edge and under forward surface of snout; largest tubercles around front end of snout.

D. III, 8, I, third simple ray slender, 1 to $1\frac{1}{5}$ in head; A. III, 5, I, third simple ray $1\frac{2}{3}$ to $1\frac{4}{5}$; least depth of caudal peduncle 2 to $2\frac{2}{5}$; pectoral $2\frac{1}{3}$ to $2\frac{3}{5}$, rays I, 16; ventral I, 5, fin $1\frac{2}{5}$ to $1\frac{1}{2}$ in head; caudal $2\frac{4}{5}$ to 3 in rest of fish, deeply forked, slender lobes pointed.

Back and upper surfaces dull olive or brownish, each row of scale junctures with slightly darker longitudinal streak. At base of caudal obsolete dark gray transverse short diffuse bar and another smaller, near basal end of squamation. In small specimens these basal caudal bars may be almost blackish. Iris whitish, also lips. Dorsal largely pale gray to whitish, front and upper edge narrowly gray black, and each membrane in upper section or above middle of fin with gray black streak on its posterior area close before each ray following. Caudal grayish, sometimes each lobe may have slightly darker longitudinal streak. Other fins whitish.

A.N.S.P., No. 61273. Khao Nam Poo, Siam. October 1934. Length 104 mm. Type.

A.N.S.P., Nos. 61274 to 61282, same data, paratypes. Length 68 to 103 mm.

Differs chiefly from the species of *Tylognathus* in its concealed maxillary barbels. From *T. brunneus* Fowler and *T. caudimaculatus* Fowler it further differs in the lower lip fringed and extensive rostral pearl organs. It is also of different coloration.

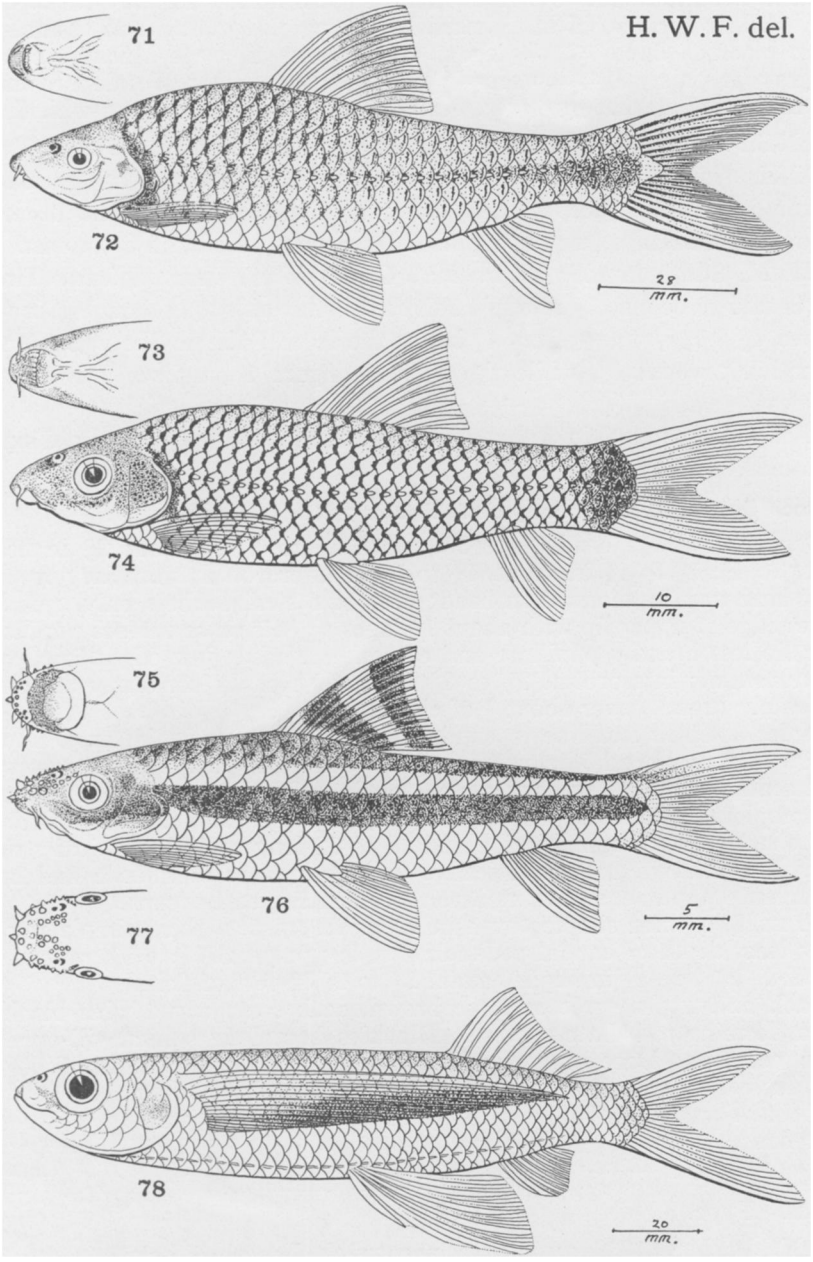
(*κρυπτὸς* concealed + *πώγων* beard; with reference to the concealed pair of maxillary barbels.)

Crossocheilus tchangi, new species. Figures 71 (head below) and 72.

Depth $3\frac{2}{5}$; head $4\frac{1}{4}$, width $1\frac{1}{2}$. Snout $2\frac{1}{3}$ in head; eye $5\frac{1}{4}$, $2\frac{1}{8}$ in snout, $2\frac{1}{2}$ in interorbital; maxillary reaches $\frac{3}{5}$ to eye, length $3\frac{1}{2}$ in head; one pair of barbels, rostral, separated by interspace equal to $\frac{2}{3}$ of eye; upper lip plaited, broadly papillate, lower also less papillate, with submarginal series of about 7 large papillae; jaw edges firm, even, trenchant, cartilaginous; interorbital 2 in head, broadly convex; suborbitals broad, about half cover cheek to preopercular ridge. Gill rakers about 5 + 30, short, weak, slender, uniform points, $4\frac{1}{2}$ in gill filaments, which equal eye. Right pharyngeal teeth 4, 5, 4, 2, compressed, little hooked, with broad, entire grinding surfaces.

Scales 28 in lateral line to caudal base and 2 more on latter; 5 above, 4 below to ventral or anal, 9 predorsal. Scales on chest and breast small. Axillary ventral scale $2\frac{2}{3}$ in fin. Caudal base scaly. Lateral line complete, axial along side, of small, short, simple tubes. Muzzle, top of head and median predorsal studded very closely with minute papilla-like pearl organs.

D. III, 8, I, third simple ray 4 in fish without caudal; A. III, 5, I, third simple ray $1\frac{1}{8}$ in head; least depth of caudal peduncle 2; pectoral 1, rays I, 13; ventral I, 8, fin 1 in head; caudal $2\frac{3}{4}$ in rest of fish, deeply forked lobes pointed.



71, 72. *Crossocheilus tchangi.* 73, 74. *Crossocheilus reticulatus.*
75 to 77. *Garra taeniatops.* 78. *Cypselurus arcticeps.*

Back, head and sides above olivaceous, with darker bar at base of each scale. Under surfaces of body whitish. Along side of tail and caudal peduncle blackish band, expanding at caudal base to large blackish blotch. Iris gray or pale. Barbels brownish. Lips pale. Dorsal pale brownish, each membrane darker medially. Caudal brownish. Lower fins whitish.

A.N.S.P., No. 61690. Srisawat, Siam. July 1934. Length 173 mm. Type.

Differs from *Crossocheilus oblongus* (Valenciennes) 1842 as figured by Bleeker, in its much deeper body, different mouth structure, and different coloration. That species was reported from west of Nakon Sritamarat by Dr. H. M. Smith in 1931. *Cirrhina* (*Crossochilus*) *cambodgiensis* Tirant 1883 is said to be closely related to *Crossocheilus oblongus* though it is said to have $4\frac{1}{2}$ (= 5) rows of scales below the lateral line to the ventral, and in another account 3!, while the barbaric figure 1 on plate 2 is equally worthless.

(For Dr. Tchung-Lin Tchang, in appreciation of his work on Chinese cyprinoids.)

Crossocheilus reticulatus, new species. Figures 73 (head below) and 74.

Depth $3\frac{2}{3}$ to $4\frac{1}{4}$; head $3\frac{2}{3}$ to $3\frac{7}{8}$, width $1\frac{3}{4}$ to $1\frac{9}{10}$. Snout $2\frac{3}{5}$ in head; eye $4\frac{1}{8}$ to $4\frac{1}{4}$, $1\frac{3}{5}$ to $1\frac{3}{4}$ in snout, $1\frac{3}{5}$ to $1\frac{7}{8}$ in interorbital; maxillary reaches about half way in snout, 5 in head; pair of rostral barbels only, small, $\frac{1}{2}$ of eye; edge of upper lip with about 14 lobes and its outer surface papillate; lower lip less broadly papillate and edge not fringed; jaw edges firm, even and trenchant; interorbital $2\frac{1}{5}$ to $2\frac{2}{3}$ in head, broadly convex; suborbitals moderately broad, cover about $\frac{1}{2}$ of cheek.

Scales 30 in lateral line to caudal base and 2 more on latter; 5 above, 4 below to ventral and 5 below to anal, 10 predorsal. Chest and breast with small scales. Ventral axillary scale $\frac{1}{3}$ of fin. Caudal base scaly. Lateral line complete, axial along side of body, tubes short, simple. Scales with 15 to 17 short basal marginal striae and 18 to 22 long radiating apical striae; circuli fine basally, coarser apically. Upper surface of muzzle and head with minute papillae, rather numerous, evidently pearl organs.

D. III, 8, I, third simple ray 1 in head; A. III, 5, I, third simple ray $1\frac{2}{5}$ to $1\frac{1}{2}$; least depth of caudal peduncle 2 to $2\frac{1}{8}$; pectoral $1\frac{1}{5}$ to $1\frac{1}{4}$, rays I, 15; ventral I, 8, $1\frac{1}{8}$ to $1\frac{1}{5}$ in head; caudal $2\frac{3}{5}$ to $2\frac{4}{5}$ in rest of fish.

Back and upper surfaces olive brown, each scale edged with blackish brown, forming reticulate pattern. Blackish bar along behind gill-opening above pectoral. Base of caudal largely and broadly blackish. Sides of head dusted with dark brown. Iris grayish. Barbels brown. Lips whitish. Under surface of body whitish. Fins all pale to whitish, especially lower ones.

A.N.S.P., No. 61335. Khao Nam Poo, Siam. October 1934. Length 70 mm. Type.

A.N.S.P., No. 61336, same data, paratype. Length 66 mm.

Known by its coloration, especially the dark bar behind gill opening, the large black caudal spot and the dark edges to the scales, also its pale

or light-colored fins. It resembles *Crossocheilus tchangi* in mouth structure and squamation.

(*reticulatus* netted, with reference to the dark edges of the scales forming a net or chainlike pattern.)

Garra taeniatops, new species. Figures 75 (head below), 76 (lateral view) and 77 (head above).

Depth 4 to $4\frac{1}{5}$; head $3\frac{1}{2}$ to 4, width $1\frac{1}{2}$ to $1\frac{2}{3}$. Snout $2\frac{4}{5}$ to 3 in head; eye $3\frac{1}{2}$ to $3\frac{7}{8}$, $1\frac{1}{3}$ to $1\frac{1}{2}$ in snout, $1\frac{3}{4}$ to 2 in interorbital; maxillary reaches opposite front eye edge, length from snout tip $2\frac{2}{3}$ to $2\frac{3}{4}$ in head; pair of short rostral barbels, widely separated as mouth width, each little shorter than eye; lower face of broad upper lip and front portion of still broader lower lip minutely papillate, posteriorly latter smooth and entire; jaw edges even, firm, trenchant; interorbital $2\frac{1}{8}$ to $2\frac{1}{5}$ in head, rather low, broadly convex; suborbitals narrow, would cover nearly half of cheek to preopercular ridge. Gill rakers as 8 or 10 short feeble points about $\frac{1}{5}$ of gill filaments. Pharyngeal teeth 1 or 2, 4, 5—5, 4 or 3, 2, small, compressed, with slight entire grinding surfaces.

Scales 29 or 30 in lateral line to caudal base and 2 more on latter; 5 above, 3 below to ventral, 4 below to anal, 9 or 10 predorsal. Breast and chest with small scales. Axillary ventral scale $3\frac{1}{4}$ to 4 in fin. Caudal base scaly. Lateral line complete, axial, with small, short, simple tubes. Scales with 9 to 10 short basal striae, 15 to 20 radiating apically, circuli moderate basally, fewer to obsolete apically. Pair of large laterally divergent pearl organs each side of snout tip, followed by row of small ones back below nostrils then to upper front edge of eye, also 2 large lower ones on front of preorbital. Upper surface of snout with small pearl organs scattered back to internasal and irregular row on lower front face of snout.

D. III, 8, I, third simple ray $3\frac{3}{4}$ to 4 in fish without caudal; A. III, 5, I, third ray $1\frac{1}{5}$ to $1\frac{1}{4}$ in head; least depth of caudal peduncle 2 to $2\frac{1}{8}$; pectoral 1 to $1\frac{1}{8}$, rays I, 15; ventral rays I, 8, fin 1 in head; caudal $2\frac{7}{8}$ to $3\frac{1}{5}$ in rest of fish.

Back olive, sides and below paler and under surfaces whitish. Broad blackish brown lateral axial band, narrowing little on caudal base. Above adjoins narrower pale well-defined parallel band, which separated from upper side of back by dark or blackish edge delimiting olive color of back. Iris gray. Pearl organs whitish or creamy. Lips and mouth whitish. Barbels brown. Dorsal whitish, with 2 broad transverse blackish bands, upper submarginal and lower in basal half of fin. Other fins pale or whitish with grayish tints.

A.N.S.P., No. 61692. Khao Nam Poo, Siam. October 1934. Length 50 mm.

A.N.S.P., Nos. 61693 to 61746, same data, paratypes. Length 33 to 50 mm.

A diminutive species greatly resembling *Garra taeniata* H. M. Smith 1931, but differs in its larger and fewer pearl organs, depressed anal reaching caudal base, shorter barbel and different arrangement of the black bands on the dorsal fin, the upper of which exposes a narrow white margin in the

present species. Other species I described, *Garra spinosa* and *Garra fuliginosa* are without contrasted coloration and with fine numerous pearl organs. (*taeniata* + ὦψ appearance.)

LEUCISCINAE

Barilius harmandi (Sauvage).

Two, 208 to 264 mm., Sriracha, July.

SYNODONTIDAE

Saurida tumbil (Bloch).

Two, 198 to 255 mm., Bangkok; two, 135 to 148 mm., Sriracha.

BELONIDAE

Strongylura strongylura (Van Hasselt).

Three, 252 to 404 mm., Bangkok; one, 287 mm., Paknam, August 28; one, 140 mm., Khao Nam Poo, October. All with A. II, 14.

Strongylura leiura (Bleeker).

One, 325 mm., Paknam, August 28. A. II, 21, I.

Xenentodon canciloides (Bleeker).

One, 202 mm., Bangkok. A. II, 15.

HEMIRAMPHIDAE

Hemiramphus marginatus (Forskål).

Six, 237 to 288 mm., Bangkok; one, 254 mm., Paknam, August 28.

Hemiramphus erythrorinchus Le Sueur.

One, 133 mm., long without caudal, Sriracha, July 10. A. II, 12, I. Ventral origin midway between pectoral tip and caudal base.

Hyporhamphus neglectus (Bleeker).

Two, 144 to 154 mm., Bangkok; one, 104 mm. without beak, July 10, and one, 152 mm. long, July 24, Sriracha. A. II, 12 or II, 13.

EXOCOETIDAE

Cypselurus arcticeps (Günther). Figure 78.

Eleven, 180 to 238 mm., Bangkok; one, 182 mm., Paknam, August 28. D. III, 11 or IV, 10; A. II, 6 to II, 8. Scales 47 in lateral series to caudal base.

PSETTODIDAE

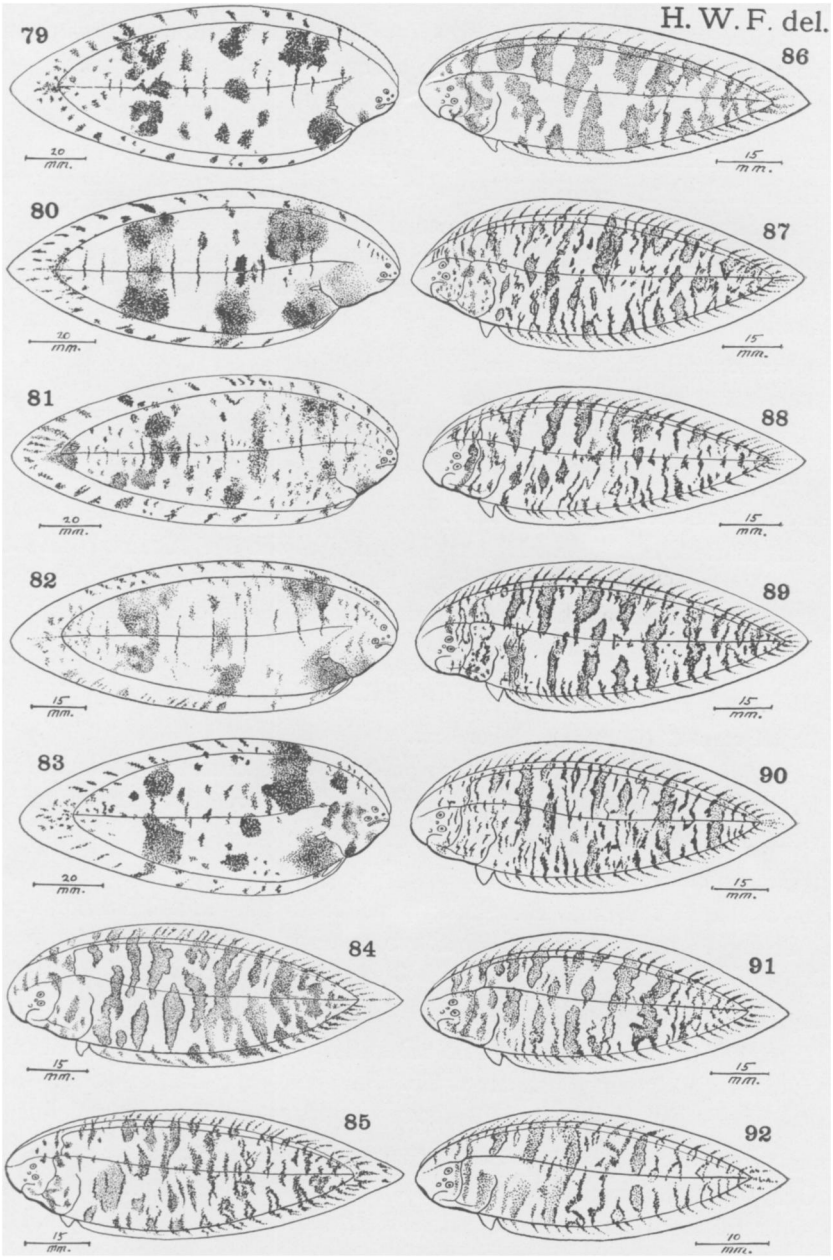
Psettodes erumei (Schneider).

Two, 194 to 202 mm., Bangkok.

BOTHIDAE

Pseudorhombus arsius (Buchanan-Hamilton).

Two, 163 to 224 mm., Bangkok.



79 to 83. *Synaptura orientalis.* 84 to 92. *Cynoglossus puncticeps.*

Pseudorhombus javanicus (Bleeker).

One, 145 mm., Sriracha, July 24. Agrees with Norman's figure in most all details. Both body and fins with obscure or dark gray spots.

SOLEIDAE

Synaptura orientalis (Schneider). Figures 79 to 83 (variation).

Eight, 113 to 190 mm. in May and one, 55 mm., in July, from Bangkok.

Pleuronectes orientalis Schneider 1801, is the common genotype for *Brachirus* Swainson 1839, *Synaptura* Cantor 1850, and *Euryglossa* Kaup 1858. As Swainson's name is preoccupied, *Synaptura* Cantor is the next available.

Synaptura commersoni (Swainson).

Three, 123 to 204 mm., Paknam, August 28.

Zebrias zebra (Bloch).

One, 145 mm., Bangkok; one, 153 mm., Paknam, August 28.

Heteromycterus hartzfeldii (Bleeker).

One, 92 mm., Sriracha, July 24. Depth $2\frac{3}{5}$; head $3\frac{3}{4}$. Scales 70 in lateral series. Vertical fins scaly basally. Three series of dark blotches, quite obsolete, as well as number of smaller and still more obscure dark gray spots in intervening pale areas.

CYNOGLOSSIDAE

Trulla trigramma (Günther). Figure 102.

One, 212 mm., Bangkok. Scales on both sides ctenoid. Lateral lines 3 on left side, with 150 scales in median and 20 above to upper lateral line; no right lateral line.

Cynoglossus bilineatus (Lacépède).

Two, 173 to 218 mm., Bangkok; three, 98 to 148 mm., Paknam, August 21. Scales 76 in lateral line, 15 above to upper. Right side with cycloid scales, left side with ctenoid. Depth $3\frac{3}{4}$.

Cynoglossus lingua Buchanan-Hamilton.

Two, 114 to 180 mm., Bangkok. Depth $5\frac{1}{5}$; head 4. Hind end of maxillary nearer gill opening than snout tip. All scales cycloid. Two left lateral lines, 85 scales in median and 10 above to upper; one right lateral line.

Cynoglossus puncticeps (Richardson). Figures 84 to 92 (variation).

One, 64 mm., Bangkok, July 2 to 4; four, 101 to 113 mm. on August 21 and four, 90 to 104 mm. on August 28, Paknam. Day's figure shows 4 eyes, the posterior pair more emphasized, apparently the ones intended by the artist and likely less accurate.

Cynoglossus cynoglossus (Buchanan-Hamilton).

Two, 118 to 124 mm., Bangkok, May; also one, 133 mm., July 23; eight, 50 to 83 mm., August 21 and one, 118 mm., August 28, from Paknam. Depth $3\frac{1}{4}$; head $4\frac{1}{8}$. Scales 73 in left lateral line, 15 or 16 above to upper; no right lateral line. On left or colored side olive gray, nearly uniform. All specimens quite pale or gray-white on snout and front of head. On left or white side fins quite deep gray.

Day's figure of *Cynoglossus bengalensis* is closest to my specimens. Buchanan-Hamilton's figure of *Achirus cynoglossus*, published by Hora in 1929, is apparently inaccurate, showing but one lateral line, the eyes nearly opposite and the mouth cleft reaching only $\frac{2}{3}$ in the lower eye. Head shown as $4\frac{2}{5}$.

SYNGNATHIDAE

Syngnathus djarong Bleeker.

One, 90 mm., Bangkok. Dorsal begins on fourth caudal ring. Dark band through eye.

Syngnathus spicifer Rüppell.

One, 110 mm. August 28 and one 94 mm. August 21, Paknam. Dorsal begins on first caudal ring. Dark bar through eye, blotch below and bar from lateral hind eye edge backward. Belly with 13 white cross bands.

SPHYRAENIDAE

Sphyraena jello Cuvier.

Four, 142 to 180 mm., Bangkok; one, 174 mm., Sriracha, July 24; one, 188 mm., Paknam, August 28.

ATHERINIDAE

Atherina valenciennei Bleeker.

Three, 92 to 95 mm., Sriracha, July 10.

Atherina duodecimalis Valenciennes.

One, 65 mm., Paknam, August 28.

MUGILIDAE

Mugil dussumieri Valenciennes.

Nineteen, 64 to 191 mm., Bangkok; three, 87 to 108 mm., Paknam, August 21. Adipose eyelids broad. Scales 29 in lateral series. A. III, 9. Pectoral $1\frac{1}{2}$ in head, without axillary scale. Lower surfaces silvery white, especially in young.

Mugil longimanus Günther.

Ten, 76 to 170 mm., Bangkok; one, 127 mm., Paknam, August 28. Adipose eyelids wide. Scales 32 to 36 in lateral series. A. III, 9. Pectoral nearly or quite equals head, with axillary scale.

Mugil oligolepis Bleeker.

One, 133 mm., Bangkok; one, 100 mm., Paknam, August 28. Adipose eyelids moderate. Scales 24 to 26 in lateral series. A. III, 9. Pectoral $1\frac{1}{5}$ in head, without axillary scale.

POLYNEMIDAE

Eleutheronema tridactylum (Bleeker).

Two, 82 to 129 mm., Bangkok, in May, also one 128 mm. in July. Only 3 free pectoral filaments.

Eleutheronema tetradactylum (Shaw).

Five, 133 to 158 mm., Bangkok, May; two, 106 to 108 mm., August 21, also one, 148 mm., August 28, from Paknam.

Polydactylus sextarius (Schneider).

Four, 149 to 158 mm., Bangkok. Free pectoral rays 6.

Polydactylus dubius (Bleeker). Figure 103.

Five, 70 to 220 mm., Bangkok; two, 104 to 115 mm., Paknam, August 28. All with 7 free pectoral filaments longest, or upper two longer than entire length of fish including caudal. Differs from Weber and Beaufort's account of *Polynemus dubius* in that they say "Pectoral . . . . longer than head by almost 2 eye diameters." In my specimens this is only true of the young, as in the adults the pectoral reaches the middle of the soft dorsal and is 6 eye-diameters longer than head. *Polynemus longipectoralis* Weber and Beaufort differs in a shorter pectoral and its scales are given as 84. My specimens of the present species show 65 to 70 tubular scales in lateral line to caudal base.

HOLOCENTRIDAE

Holocentrus ruber (Forskål).

One, 170 mm., Sriracha, July 24.

MASTACEMBELIDAE

Rhynchobdella aculeata (Bloch).

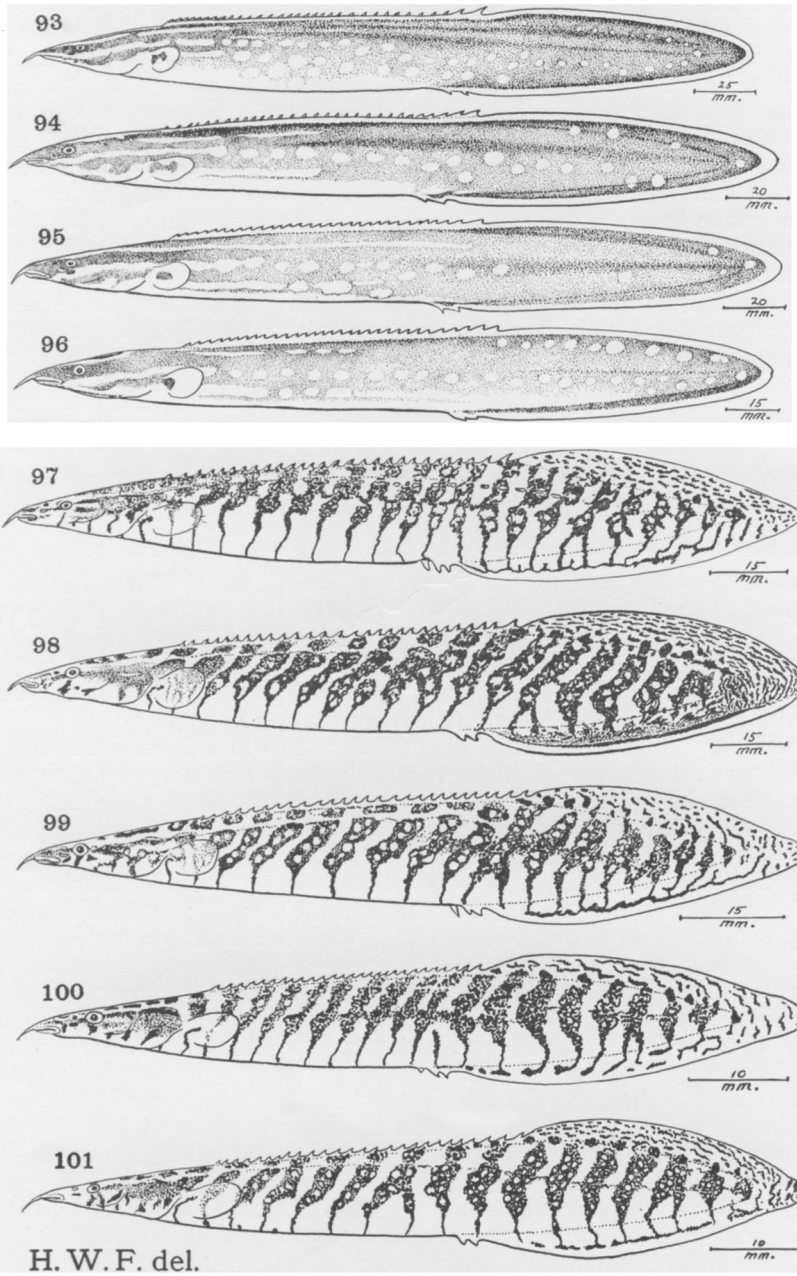
Ten, 130 to 247 mm. Bangkok. Ocelli variable, 3 to 6, though alike on each side of the same fish. None with ocellus on anal.

Mastacembelus armatus (Lacépède).

One, 230 mm., Bangkok.

Mastacembelus argus Günther. Figures 93 to 96 (variation).

Depth 9 to $9\frac{3}{4}$; head $5\frac{4}{5}$ to $6\frac{1}{4}$, width 3 to $3\frac{1}{8}$. Snout from base of nasal flap $3\frac{1}{4}$ to $3\frac{2}{5}$ in head; eye $8\frac{1}{4}$ to 10, $2\frac{2}{5}$ to $3\frac{1}{5}$ in snout from base of nasal flap, subequal with interorbital; maxillary reaches $\frac{3}{4}$ to $\frac{4}{5}$ to eye, length $3\frac{1}{2}$ to $3\frac{3}{5}$ in head from base of nasal flap, which trifid terminally and $2\frac{1}{3}$ to $2\frac{2}{5}$ in snout; strong infraorbital spine; interorbital 8 to $8\frac{1}{3}$ in head from base of nasal flap, low. No gill rakers. Gill filaments equal eye.



93 to 96. *Mastacembelus argus.* 97 to 101. *Mastacembelus taeniagaster.*

Scales minute, imbedded. Snout scaly on sides above lips. Lateral line distinct, axial, complete; tubes small, slender.

D. XXVIII to XXXII, rays about 73, soft fin height $3\frac{2}{5}$ to 4 in head without nasal flap; A. II or III, 60, second spine $3\frac{1}{4}$ to $3\frac{1}{2}$, soft fin height $4\frac{3}{4}$ to $5\frac{1}{2}$; caudal $2\frac{1}{3}$ to 3, rounded behind; pectoral 3 to $3\frac{1}{2}$, rays 20 to 22.

Back and upper surfaces brown. On snout above narrow whitish band, forks before interorbital, then extends back along each side of back anteriorly, variously broken as spots or bars. At occiput it usually joins parallel white band to spinous dorsal which includes whole fin as well as bordering all around rest of vertical fins. From below eye parallel white band extends back over head above pectoral and back over trunk and tail as somewhat irregular row of large white spots. Still lower and variably another forms parallel and continues along lower side of abdomen. Brown line usually extends along median line of abdomen to vent. Bases of vertical fins more or less dark brown to blackish. Nasal tube brown. Iris gray. Lips largely whitish. Mandible whitish, with subterminal transverse gray band below. Pectoral whitish, with dark basal blotch.

Four, 197 to 263 mm., Bangkok, May. A variable species, briefly described by Günther 1861, and crudely figured by Von Martens in 1876.

Mastacembelus taeniagaster, new species. Figures 97 to 101 (variation).

Depth $7\frac{1}{4}$ to $8\frac{1}{3}$; head $4\frac{3}{4}$ to $5\frac{3}{5}$, width 3 to $3\frac{2}{5}$. Snout from the base of nasal flap $2\frac{4}{5}$ to $3\frac{1}{5}$ in head; eye $6\frac{1}{2}$ to $7\frac{1}{2}$, $2\frac{1}{4}$ to $2\frac{4}{5}$ in snout from base of nasal flap, subequal with interorbital; maxillary reaches $\frac{2}{3}$ to $\frac{3}{4}$ to eye, length 4 to $4\frac{1}{4}$ in head from base of nasal flap; nasal flap trifid, 2 to $2\frac{1}{3}$ in snout; strong infraorbital spine; interorbital $7\frac{1}{2}$ to 8 in head from base of nasal flap, low. No gill rakers. Gill filaments long as eye.

Scales very small, imbedded, about 155 to 160 in axial lateral series to caudal base; lateral line of 32 to 36 small, slender or narrow tubes along upper side of back and sloping lower along side of tail to middle of small caudal base. Cheek and side of snout scaly, top of head largely naked forward. Anal papilla usually rather long and prominent.

D. XXVI to XXVIII, 45 to 48, soft fin height $2\frac{2}{5}$ to 4 in head without nasal flap; A. III, 41 to 43, soft fin height $3\frac{3}{5}$ to $3\frac{7}{8}$; caudal $1\frac{4}{5}$ to $2\frac{1}{8}$, convex behind, little exserted from soft dorsal and anal; pectoral $2\frac{3}{5}$ to $2\frac{7}{8}$ in head, rays 18 to 20.

Back and sides above brown, under surfaces whitish. Dark bar across interorbital connecting eyes. Dark brown band on side of snout to eye, continued over postocular region. Parallel and adjoining above whitish band of narrower width and broken along upper side of back into narrow long bars or blotches. Under surface of head with 6 narrow dark brown contrasted cross bars, variously broken but usually more or less complete, third extending from lower eye edge. Iris gray. Nasal flap brown. Side of trunk and tail with 16 to 20 double, blackish blotches, lower little advanced so as to produce inclination and both variously variegated or marbled with paler or brownish; also from lower part of each blackish bar extends downward, narrowing nearly as line, of which 9 or 11 or those from side of trunk completely cross abdomen; on tail they variably may arch or extend down to anal fin, in young usually more or less joining with submarginal blackish line on fin little below middle in fin depth, along base of

soft dorsal bars may variably give off dark spots. Soft dorsal pale with various short, waved lines or bars, some as small spots, mostly longitudinal, and these may extend on caudal. In largest example entire subbasal part of anal dark gray or brown. Pectoral pale, with obscure or dark transverse bars.

A.N.S.P., No. 59852. Chantaboon, southeast Siam. March 1933. Length 153 mm. Type.

A.N.S.P., Nos. 59853 to 59859, same data, paratypes. Length 89 to 148 mm.

The above were all reported by me in 1934 as *Mastacembelus circumcinctus* Hora. Though similar in a general way to that species, it differs readily in the termination of the dark blotches on the anal fin. Hora describes them as "short bands on the anal" and his figure shows them a little inclined forward and reaching the edge of the anal fin. In my examples of *M. taeniagaster* they do not reach the anal edge but only the black submarginal line as indicated in the accompanying figures 97 to 101.

(ταινία band + γαστὴρ belly; with reference to the black transverse lines.)

ANABANTIDAE

Anabas testudineus (Bloch).

Three, 94 to 141 mm., Bangkok.

Betta splendens Regan.

One, 48 mm., Bangkok. Scales 30. A. I, 24.

Trichopodus microlepis (Günther). Figure 111.

Five, 98 to 145 mm., Bangkok. Interesting materials, as showing the long ventral ray, in each case simple and not bifid terminally where intact. All have rather short pectorals and in the young the caudal more emarginate. In my largest specimen (figured) the lower caudal lobe is more extensive than the upper and its depressed dorsal reaches $\frac{1}{8}$ or more to the caudal base. The vertical fins are all finely and distinctly reticulated with dark gray, producing a finely pencilled appearance. Several specimens show a rather distinct basal ill-defined gray caudal spot, less than the eye in size. Anal base sometimes uniform golden or orange, again it may be marked with the pencilled or waved lines like on the tail. Regan gives the depth as 2 while my specimens show $2\frac{2}{5}$ to $2\frac{3}{5}$. Eye 2 to 3 in postorbital. D. III or IV, 9 to 11. A. XI, 35 to 38.

Deschauenseeia chryseus Fowler 1934 is therefore a synonym of *Osphromenus microlepis* Günther and of the synonym *Trichopus parvipinnis* Sauvage 1881.

Trichopus trichopterus (Pallas).

Sixteen, 83 to 116 mm., Bangkok, May, and one 90 mm., September 24. Quite variable in color pattern. All have back median basal caudal spot.

Dr. H. M. Smith 1932 calls attention to *Osphronemus saigonensis* Borodin 1930 as a synonym of the present species.

CHANNIDAE

Channa lucius (Cuvier).

One, 245 mm., Bangkok. Scales 58 in lateral line.

SCOMBRIDAE

Rastrelliger kanagurta (Rüppell).

Nine, 130 to 145 mm., Bangkok. All with 35 or 36 lower gill rakers. Agree with 12 specimens 150 to 205 mm. long from Madras, received from the Madras Fisheries Department in 1934. Mostly in agreement with Kishinouye's figure of *Rastrelliger chrysozonus* except he shows the pectoral much too low in the body depth. In all my specimens it is at least level with, if not higher, than the upper edge of the eye.

Rastrelliger kanagurta is best distinguished by its very long mandible, length $1\frac{1}{2}$ or less in head. Its synonyms are *Scomber loo* Lesson 1830 and *S. microlepidotus* Rüppell 1835. Russell's figure of *Kanagurta* is shown with a large maxillary reaching opposite the hind edge of eye or $1\frac{2}{3}$ in head from snout tip. The pectoral appears a little too low. It appears necessary to restrict it with the materials studied above. *Scomber reani* Day 1870, imperfectly described, is also said to have its maxillary reaching opposite the posterior margin of the orbit and is therefore evidently another synonym. *Scomber moluccensis* Bleeker 1858, is described with "maxillis aequalibus, superiore sub oculi parte posteriore desinente" and "vesica natatoria", characters in accord with *R. kanagurta*. Weber 1913, however, has admitted it distinct from his *S. loo* (= *R. kanagurta*). *Scomber neglectus* Van Kampen 1907, is probably a synonym.

Scomber kanagurta as described and figured by me in 1905 from Padang materials showing but 23 lower gill rakers is the true *Scomber chrysozonus* Rüppell 1835. Its comparative short mandible is $1\frac{7}{8}$ in its head, a character in agreement with Rüppell's figure. Meek's *Scomber microlepidotus* from Aden, with 30 lower gill rakers, and Formosan materials with but 21 lower gill rakers, reported as *S. kanagurta* by Fowler and Bean 1922 are *S. chrysozonus* Rüppell.

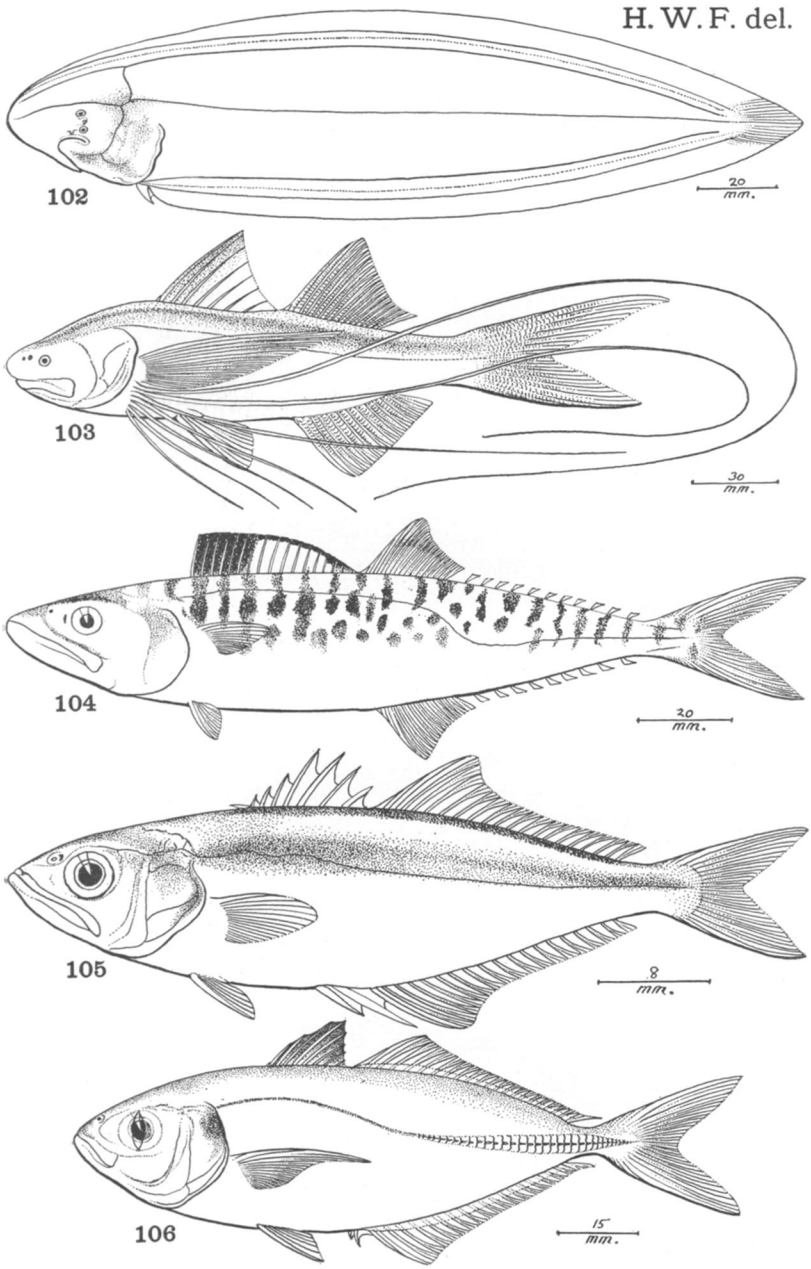
Scomberomorus commerson (Lacépède). Figure 104 (Bangkok).

Three, 165 to 235 mm., Bangkok; one, 172 mm., Paknam, August 28.

TRICHIURIDAE

Trichiurus haumela (Forskål).

One, 170 mm., Bangkok. Head 8. Eye 2 in snout. Anal spines minute, distinct. Uniform whitish, dorsal pale.



102. *Trulla trigramma.* 103. *Polydactylus dubius.*
104. *Scomberomorus commerson.* 105. *Scomberoides lysan.*
106. *Alepes mate.*

RACHYCENTRIDAE

Rachycentron canadum (Linnaeus).

One, 275 mm., Bangkok.

CARANGIDAE

Scomberoides lysan (Forskål). Figure 105 (Bangkok).

One, 88 mm., Bangkok, July, and 22 specimens, 56 to 238 mm. in May; one, 130 mm., Sriracha, July 24; one, 93 mm., Paknam, August 28.

Scomberoides tolooparah (Rüppell).

One, 203 mm., Paknam.

Decapterus maru-adsi (Schlegel).

One, 178 mm., Bangkok.

Depth 4; head 3. Snout $2\frac{1}{8}$ in head from snout tip; eye $3\frac{3}{4}$, $1\frac{1}{3}$ in snout, slightly exceeds interorbital; maxillary reaches eye, length $2\frac{2}{3}$ in head from snout tip; interorbital $4\frac{1}{8}$, low, slightly convex. Lower gill rakers 33. Scutes 32. D. VIII—I, 33 + 1; A. II—I, 27 + 1; pectoral $1\frac{1}{3}$ in head; ventral $2\frac{1}{5}$. Back gray, below whitish. Opercle with black spot above on hind edge, also reflected on shoulder girdle. Iris gray. Dorsals grayish, end of soft lobe whitish. Caudal and pectoral gray. Lower fins whitish.

Selar boops (Cuvier).

Seven, 185 to 200 mm., Bangkok.

Trachurops crumenophthalmus (Bloch).

One, 140 mm., Bangkok.

Megalaspis cordyla (Linnaeus).

Fifteen, 108 to 163 mm., Bangkok; five, 56 to 179 mm., Paknam, August 28; one, 144 mm., Sriracha, June 10.

Alepes microbrachium (Fowler).

One, 41 mm., Sriracha. Pectoral 4 in fish without caudal. Blackish opercular blotch reflected on shoulder girdle.

Alepes kalla (Cuvier).

Three, 67 to 75 mm., Bangkok, May, also one, 140 mm., July 23; three, 121 to 164 mm., Paknam, August 28.

Alepes mate (Cuvier). Figure 106.

One, 128 mm., Bangkok.

Caranx sexfasciatus Quoy and Gaimard.

Three, 103 to 158 mm., Bangkok; one, 133 mm., Sriracha, July 24; two, 88 to 92 mm., Paknam, August 28.

Caranx guara (Bonnaterre).

Depth $2\frac{2}{5}$; head $3\frac{1}{8}$. Snout $2\frac{1}{2}$ in head from snout tip; eye $4\frac{3}{4}$, $1\frac{3}{4}$ in snout, $1\frac{3}{4}$ in interorbital, without adipose lids; maxillary reaches $\frac{1}{3}$ in eye, length $2\frac{1}{8}$ in head from snout tip; interorbital $2\frac{9}{10}$, convexly elevated. Lower

gill rakers 21. Scutes 28. Straight section of lateral line $1\frac{2}{5}$ in arch. D. I, VIII—I, 31, first branched ray $1\frac{3}{4}$ in total head length; A. II—I, 24, first branched ray 2; caudal $1\frac{1}{5}$; ventral $2\frac{1}{6}$; pectoral $2\frac{3}{4}$ in fish without caudal. Back brown, below white. Dark shade on opercle above medianly, not distinct spot. Iris whitish. Fins brownish, lower ones whitish.

One, 191 mm., Bangkok, May.

Longirostrum Wakiya 1924, was proposed to replace *Selenia* Bonaparte 1846, preoccupied in Coleoptera, its genotype therefore *Caranx luna* Geoffroy St. Hilaire. He includes *Caranx platessa* Cuvier, *C. delicatissimus* Steindachner and Döderlein and *C. mertensi* Cuvier, all regarded here as synonyms of the present species. *Pseudocaranx* Bleeker 1863, monotype *Scomber dentex* Schneider, is a neglected earlier name and is here accepted as a valid subgenus, chiefly in its uniserial teeth, snout much longer than eye, no adipose eyelids and scutes only present on the posterior part of the lateral line.

Selaroides leptolepis (Cuvier).

Three, 101 to 110 mm., Bangkok; one, 128 mm., Sriracha, June 19.

Carangoides praeustus (Bennett). Figure 107 (Bangkok).

One, 161 mm., Bangkok; one, 123 mm., Sriracha, July 24, 1930. Agree with Day's figure of *Caranx ire*. General color dark gray-brown, soft dorsal and anal dark or gray-black medially, otherwise fins paler. Pectoral with dark gray blotch basally. Sides of head more or less dusky. Dorsal and anal with basal scaly sheaths of deep, narrowly exposed scales. Smaller specimen with black blotch at soft dorsal anteriorly and subterminal.

Carangoides armatus (Forskål).

Four, 108 to 130 mm., Bangkok, May; two, 80 to 95 mm., Paknam, August 21. Lower gill rakers 24. A. II—I, 17.

Carangoides ciliaris (Rüppell).

One, 113 mm., Bangkok. Depth $1\frac{3}{4}$. Lower gill rakers 16. A. II—I, 17. Pectoral with dark blotch. Ventral whitish.

Greatly like Cuvier's figure of *Caranx cirrhosus* Ehrenberg. This differs a little in the longer soft dorsal and anal filaments, depth 2, A. II—I, 18. It is placed as a synonym of *Carangoides armatus* by Day, who is followed by Wakiya. My example agrees in most respects with Wakiya's account and figure, except its body is deeper and the ventrals uniformly pale or whitish. As its soft anal filament is broken it was likely extended like the dorsal. The middle soft dorsal rays not extended.

Carangoides malabaricus (Schneider).

Eleven, 104 to 129 mm., Bangkok. Lower gill rakers 22 to 25. A. II—I, 17 or 18.

Carangoides chrysophrys (Cuvier).

One, 101 mm., Bangkok; one, 135 mm., Sriracha, July 10. Depth $1\frac{4}{5}$. Lower gill rakers 16. A. II—I, 16. Larger with pale ventrals or only slightly gray terminally, also soft dorsal and anal filaments rather short. Smaller with long first dorsal and anal rays and with much the appearance of Wakiya's figure of *Caranx* (*Citula*) *uii* 1924, except its ventrals are dusky or dark terminally.

Gnathanodon speciosus (Forskål).

Seven, 154 to 174 mm., Bangkok; one, 142 mm., Sriracha, June 24.

Atropus atropos (Bloch).

Two, 113 to 173 mm. in May and two, 195 to 198 mm., July 23, from Bangkok; one, 114 mm., June 10, and one, 65 mm., July 24, from Sriracha; one, 86 mm., Paknam, August 21.

Scyris indica Rüppell.

Six, 133 to 168 mm., Bangkok; one, 123 mm., Sriracha, June 10; one, 154 mm., Paknam, August 28.

PARASTROMATEINAE, new subfamily

Differs from the other subfamilies of Carangidae in a single long dorsal fin, the spines rudimentary and the ventrals obsolete with age.

Type genus *Parastromateus* Bleeker 1865 (type *Stromateus niger* Bloch 1785) = *Apolectus* (not Bennett 1831) Cuvier 1831 = *Formio* Whitley 1927. One species.

Parastromateus niger (Bloch).

Five, 125 to 155 mm., Bangkok.

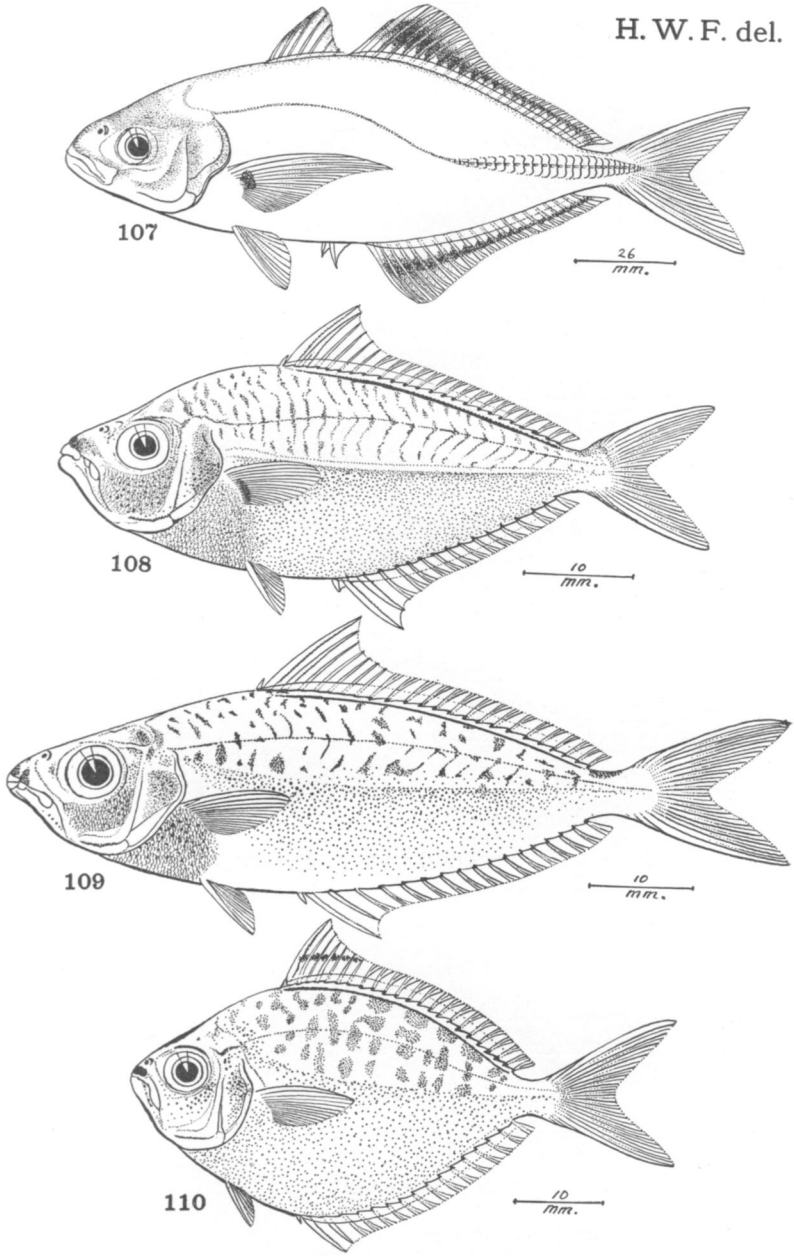
STROMATEIDAE

Pampus chinensis (Euphrasen).

One, 149 mm., Bangkok. Agrees with Day's fine figure.

Pampus argenteus (Euphrasen).

Five, 103 to 130 mm., Bangkok; one, 62 mm., Paknam, August 28. They largely agree with *Pampus simoprosopus* Fowler 1934, here regarded as a synonym, though it has a smaller pectoral, and comparatively shorter caudal lobes, also less deeply forked. In one of the present examples the greatly forked caudal has the lower lobe $1\frac{1}{2}$ in the rest of the fish or the upper lobe $1\frac{3}{4}$ in the lower. Pectoral $2\frac{1}{2}$ to $2\frac{2}{3}$ in fish without caudal. Snout tip high in the upper profile or nearly level with upper eye edge. Russell's figure of *Sudi sandawah* shows a still more exaggerated figure with rounded snout, lower caudal and front anal lobes subequal or nearly long as rest of fish. *Stromateus securifer* Cuvier 1833, is more like *Pampus simoprosopus* in its profile, short pectoral, though its anal lobe is shorter than the dorsal and the lower caudal lobe is shorter than the moderate upper.



107. *Carangoides praeustus.* 108. *Macilentichthys berbis.*
109. *Macilentichthys leuciscus.* 110. *Leiognathus bindus.*

LACTARIIDAE

Lactarius lactarius (Schneider).

Two, 91 to 100 mm., Bangkok.

MENIDAE

Mene maculata (Schneider).

Ten, 138 to 163 mm., Bangkok.

LEIOGNATHIDAE

Macilentichthys berbis (Valenciennes). Figure 108.

Two, 50 to 62 mm., Sriracha, June 10. *Leiognathus edwardsi* Evermann and Seale 1907, is evidently synonymous. Though its breast is said to be naked and the cheek without mention of scales, the figure appears to reveal them faintly on the latter.

Macilentichthys leuciscus (Günther). Figure 109.

Two, 74 and 75 mm., Sriracha, June 10. Surely *Leiognathus stercorarius* Evermann and Seale 1907, is very similar if not synonymous. I cannot help thinking the "peculiar lanceolate area on middle of side shaded with black dots, and having the appearance of an abrasion" is an abrasion or the result of preservation.

Leiognathus faciatus (Lacépède).

Eight, 29 to 159 mm., Bangkok; four, 58 to 104 mm., Paknam, August 21.

Leiognathus equula (Forskål).

One, 69 mm., Paknam, August 28.

Leiognathus splendens (Cuvier).

Three, 120 to 133 mm., Bangkok.

Leiognathus bindus (Valenciennes). Figure 110 (young).

Four, 55 to 60 mm., Bangkok.

Secutor insidiator (Bloch).

Seven, 83 to 90 mm., Bangkok; eight, 48 to 80 mm., Paknam, August 21.

Gazza equulaeformis Rüppell.

One, 50 mm., Sriracha, June 10. Depth $2\frac{3}{4}$.

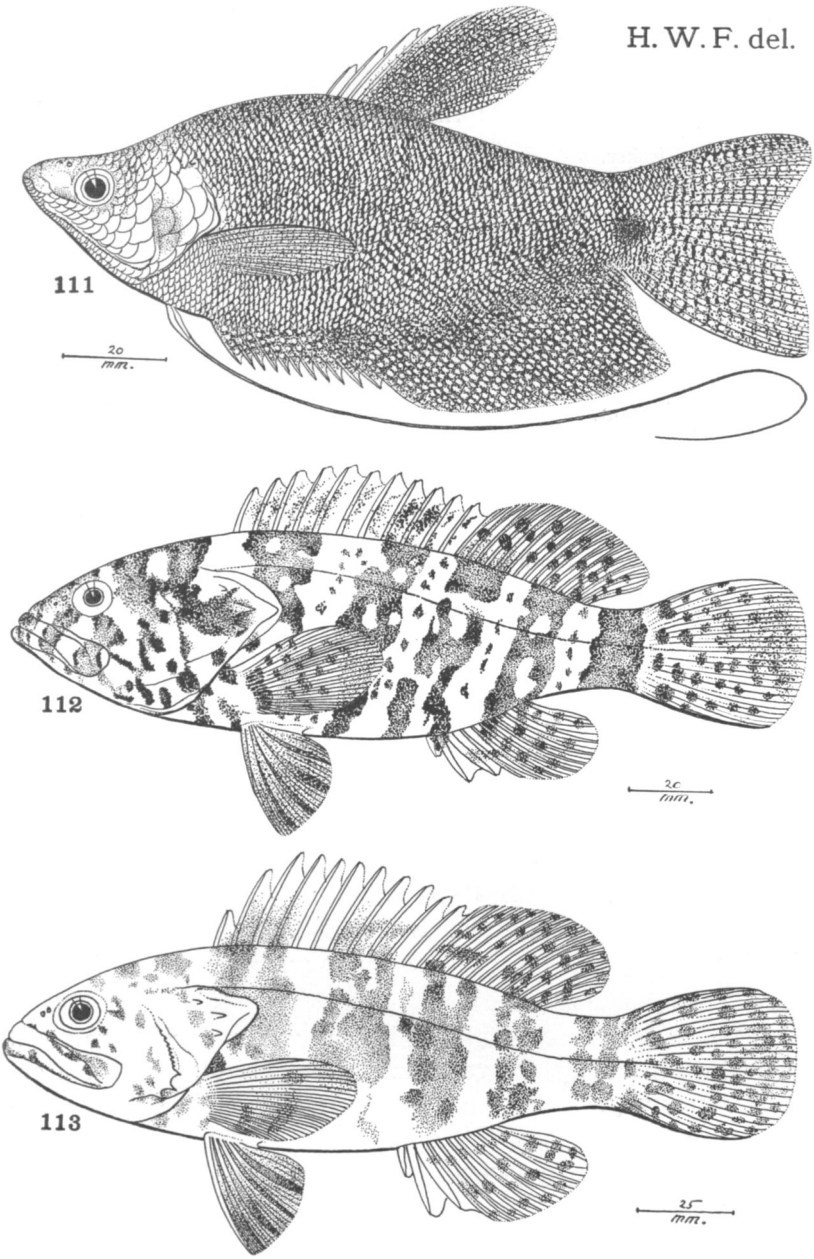
CHANDIDAE

Ambassis wolffi Bleeker.

Eight, 30 to 68 mm., in July, 67 specimens, 33 to 147 mm., in May, one, 69 mm., September 24, from Bangkok.

Ambassis gymnocephalus (Lacépède).

Three, 65 to 69 mm., Paknam, August 28. Bleeker's figure shows but 4 postero-supraorbital spines while in my specimens 7. He shows predorsal scales forward little beyond front pupil edge, whereas in my specimens they scarcely extend before middle of eye.



111. *Trichopodus microlepis.* 112. *Serranus fasciatomaculatus.*
113. *Serranus diacanthus.*

Ambassis buruensis Bleeker.

Two, 35 to 39 mm., Bangkok; one, 41 mm., Keng Sok, February 3. One or 2 postero-supraocular spines, second membrane of spinous dorsal with black spots and caudal uniformly pale.

Ambassis kopsii Bleeker.

Four, 79 to 87 mm., Bangkok.

SERRANIDAE

Cephalopholis argus Schneider.

Two, 272 to 290 mm., Bangkok.

Cephalopholis pachycentron (Valenciennes).

Four, 130 to 260 mm., Bangkok; one, 82 mm., June 10 and one, 108 mm., July 24, from Sriracha.

Cephalopholis boenack (Bloch).

Four, 178 to 275 mm., in May and one, 187 mm., June 10, from Bangkok.

Plectropomus maculatus (Bloch).

One, 277 mm., Bangkok.

Serranus nebulosus Valenciennes.

One, 227 mm., Bangkok.

Serranus fasciatus (Forskål).

Three, 218 to 253 mm., Bangkok; one, 245 mm., Sriracha, June 10.

Serranus fasciatomaculatus Peters. Figure 112 (Bangkok).

One, 136 mm., in May and one, 180 mm., July 20, from Bangkok; one, 183 mm., Sriracha, June 10.

Serranus diacanthus Valenciennes. Figure 113.

Five, 173 to 206 mm., Bangkok. Soft vertical fins only are largely with large black spots.

Serranus caeruleo-punctatus (Bloch).

Eight, 146 to 213 mm., Bangkok. Brown, with only obscure mottling. Black streak in maxillary groove. Fins, except pectoral, all more or less gray-black terminally.

Serranus megachir (Richardson).

Five, 177 to 217 mm., Bangkok.

LUTJANIDAE

Lutjanus johnii (Bloch).

Two, 128 to 180 mm., Bangkok.

Lutjanus decussatus (Cuvier).

One, 340 mm., Bangkok.

Lutjanus fulviflamma (Forskål).

Three, 143 to 222 mm., Bangkok. Largest without dark lateral blotch, so distinct in all smaller ones.

Lutjanus vitta (Quoy and Gaimard).

Five, 142 to 204 mm., Bangkok; one, 103 mm., Sriracha, June 10.

Lutjanus chrysotaenia (Bleeker).

One, 238 mm., Bangkok.

Lutjanus lineolatus (Rüppell).

Two, 163 to 165 mm., Bangkok; one, 100 mm., June 10 and two, 92 mm., July 24, from Sriracha.

Lutjanus lineatus (Quoy and Gaimard).

One, 222 mm., Bangkok. Unlike Bleeker's figure, this shows lower half of anal and all of caudal blackish.

Lutjanus erythropterus Bloch.

Ten, 125 to 212 mm., Bangkok; one, 220 mm., Sriracha, June 10.

Lutjanus sebae (Cuvier).

Three, 176 to 196 mm., Bangkok.

POMADASYIDAE

Caesio chrysozonus Cuvier.

Six, 110 to 150 mm., Bangkok.

Caesio caerulaureus Lacépède.

Two, 197 to 202 mm., Bangkok.

Caesio cuning (Bloch).

Five, 143 to 192 mm., Bangkok.

Plectorhinchus pictus (Thunberg).

Two, 190 to 250 mm., Bangkok.

Pomadasys grunniens (Schneider).

Four, 102 to 129 mm., Bangkok; one, 137 mm., Paknam, August 28.

Pomadasys maculatus (Bloch).

Eleven, 118 to 173 mm., Bangkok; one, 120 mm., Sriracha, July 24; one, 47 mm., Paknam, August 21. Blackish brown blotches on back slightly variable, not exactly alike in any 2 specimens and vary on different sides of the same fish.

Pomadasys hasta (Bloch).

Three, 143 to 224 mm., Bangkok.

Scolopsis vosmeri (Bloch).

Ten, 150 to 210 mm., Bangkok; one, 147 mm., June 10 and one, 134 mm., July 20, from Sriracha. Agree with Day's figure 2, except eye larger or $2\frac{1}{2}$ in head.

Scolopsis temporalis (Cuvier).

Two, 160 to 240 mm., Bangkok. Agree with McCulloch's figure and description, showing the dark transverse bar across the pectoral base. The original gaudy-colored figure of Lesson 1830, shows somewhat similar proportions though has no dark basal pectoral bar. The above specimens also show the dark longitudinal diffuse shade along the flanks as in East Indian, Philippine, and Formosan specimens.

Scolopsis monogramma (Cuvier). Figure 114.

One, 107 mm., Sriracha, June 19.

TERAPONIDAE

Datnioides polota (Buchanan-Hamilton).

Four, 62 to 223 mm., Bangkok.

Terapon jarbua (Forskål).

Two, 55 to 100 mm., Bangkok; one, 125 mm., Paknam, August 28.

Terapon theraps Cuvier. Figure 115 (young).

One, 172 mm., Bangkok; two, 40 to 148 mm., Paknam, August 28.

LETHRINIDAE

Lethrinus hypselopterus Bleeker.

One, 245 mm., Bangkok.

Lethrinus frenatus Valenciennes. Figure 116 (Sriracha).

Three, 150 to 192 mm., Bangkok; two, 120 to 128 mm., Sriracha.

SPARIDAE

Pentapodus setosus (Valenciennes).

Two, 195 to 230 mm., Bangkok; one, 140 mm., Sriracha, June 10.

Synagris luteus (Schneider).

One, 132 mm., Sriracha, June 10.

Synagris japonicus (Bloch).

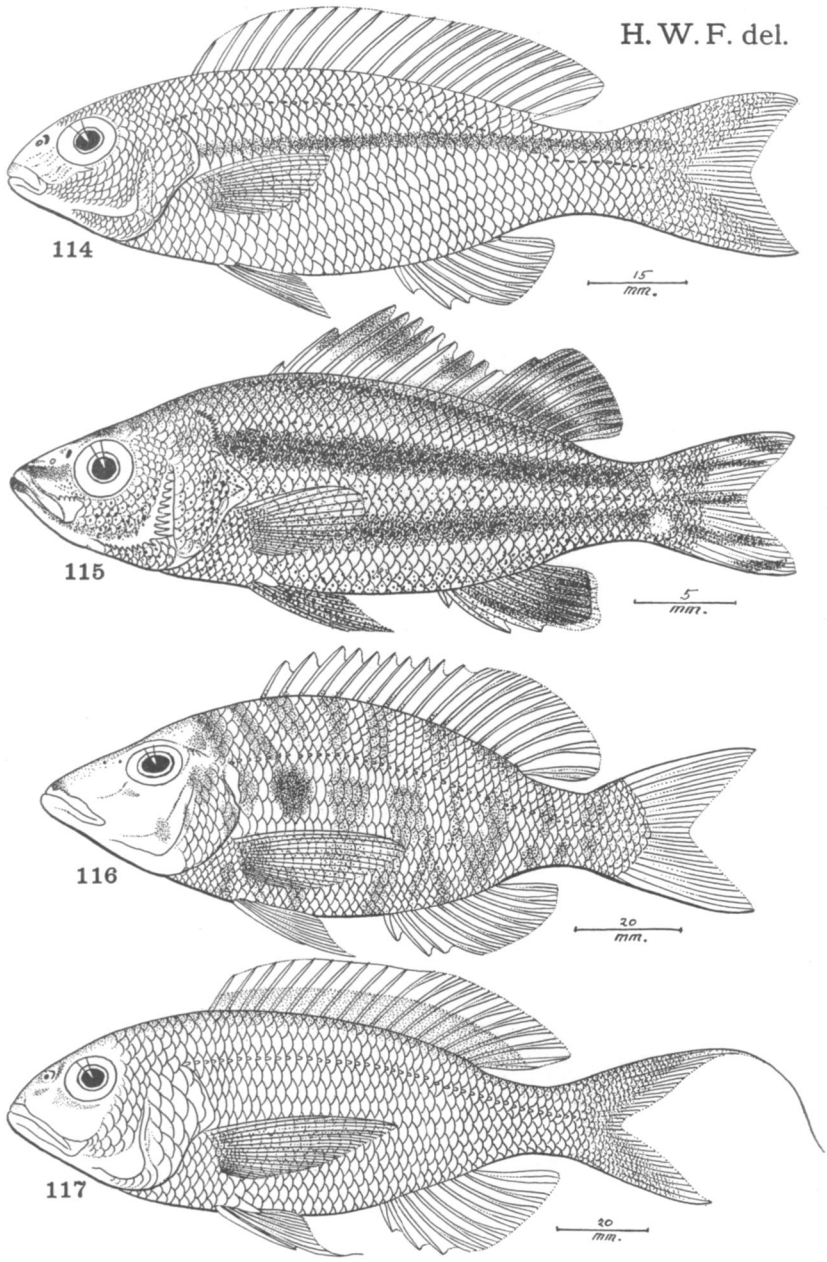
Five, 142 to 170 mm. to end of caudal filaments, Bangkok.

Synagris furcosus (Valenciennes). Figure 117.

One, 197 mm. to end of caudal filament, Bangkok, July 23. Agrees largely with Bleeker's figure of *Dentex taeniopterus*, differing slightly in little larger pectoral and caudal ending in filament above. At present no trace of lateral yellow bands as Bleeker shows.

Sparus latus Houttuyn.

One, 98 mm., Bangkok. Depth $2\frac{1}{3}$. Scales 43 in lateral line, 5 above.



114. *Scolopsis monogramma.* 115. *Terapon theraps.*
116. *Lethrinus frenatus.* 117. *Synagris furcosus.*

MULLIDAE

Upeneus sulphureus Cuvier.

Thirteen, 93 to 150 mm., Bangkok. Quite variable, though all with uniform caudal and its hind edge dark gray. Often quite difficult to identify formaline specimens. None of mine shows "upper caudal lobe with 4 oblique dark bands about wide as interspaces and lower lobe with 3 oblique bands", or even traces of such as I found in Philippine materials. As this is a character more like *Upeneus vittatus* likely some of the materials may refer to that species. The eye is very variable, both as to position and proportion.

Upeneus tragula Richardson.

One, 168 mm., Bangkok; three, 103 to 144 mm., Sriracha, July 24.

Pseudupeneus indicus (Shaw).

One, 280 mm., Bangkok.

GERRIDAE

Gerres abbreviatus Bleeker.

Four, 128 to 145 mm., Bangkok; one, 102 mm., Sriracha.

Gerres filamentosus Cuvier.

Six, 125 to 175 mm., Bangkok; one, 70 mm., Sriracha, June 10.

SILLAGINIDAE

Sillago sihama (Forskål).

Four, 115 to 150 mm., in May and one, 140 mm., July 23, from Bangkok; one, 253 mm., Sriracha, July 10; two, 108 to 118 mm., Paknam, August 28.

Sillago maculata Quoy and Gaimard.

One, 196 mm., Bangkok.

SCIAENIDAE

Otolithes argenteus Cuvier).

Five, 118 to 200 mm., Bangkok; one, 108 mm., Paknam, August 28. Agrees with Day's figure of *Otolithus argenteus* in its slender body and maxillary reaches below eye center.

Otolithes ruber (Schneider). Figure 118.

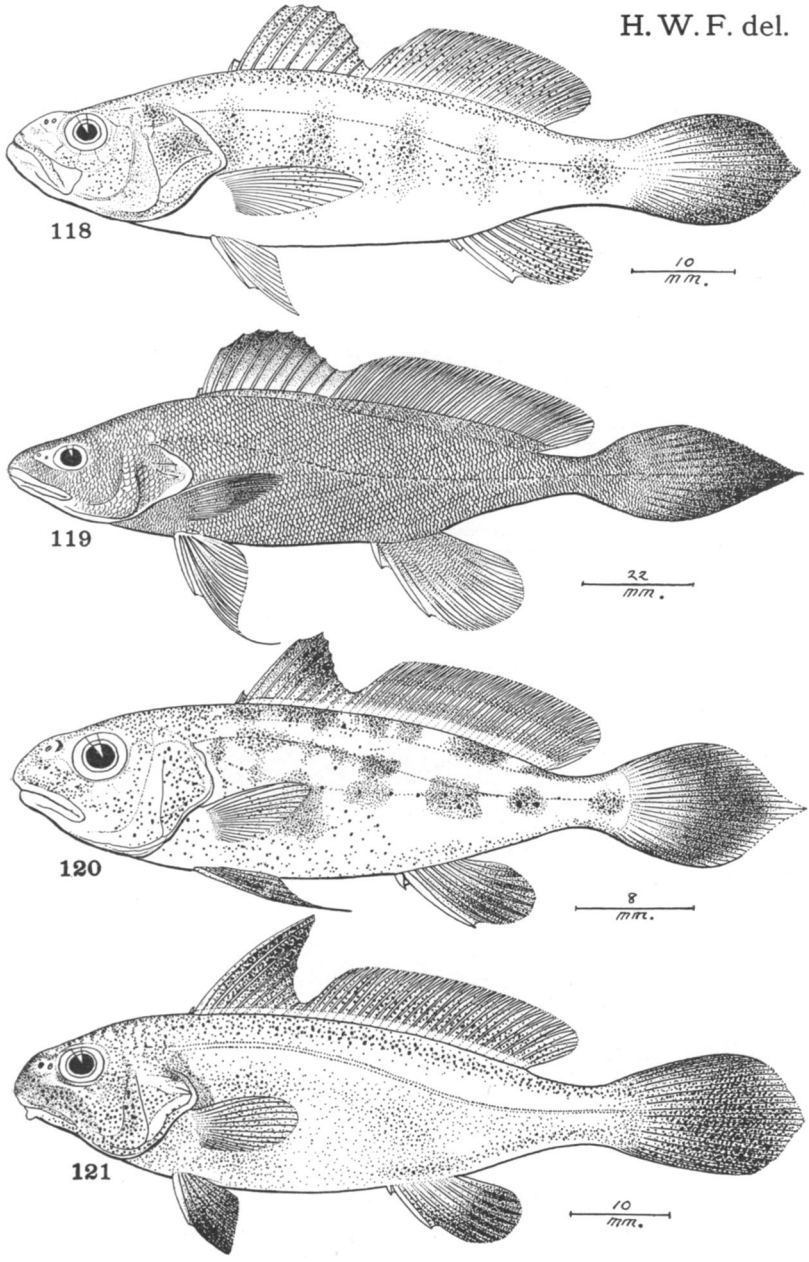
Three, 78 to 97 mm., Bangkok; one, 121 mm., Sriracha, June 10; three, 48 to 80 mm., Paknam, August 28.

Otolithoides siamensis Fowler.

Eight, 60 to 160 mm., Bangkok, May, three, 52 to 90 mm., in July; three, 98 to 122 mm., August 21 and two, 114 to 147 mm. August 28, Paknam.

Otolithoides aeneocorpus, new species. Figure 119.

Depth $3\frac{4}{5}$ to 4; head $3\frac{1}{4}$ to $3\frac{2}{5}$, width $2\frac{1}{8}$ to $2\frac{1}{5}$. Snout $4\frac{1}{5}$ to $4\frac{1}{4}$ in head; eye $4\frac{3}{5}$ to $5\frac{3}{4}$, $1\frac{1}{8}$ to $1\frac{1}{4}$ in snout, slightly greater than interorbital; maxillary



118. *Otolithes ruber.* 119. *Otolithoides aeneocorpus.*
120. *Johnius carutta.* 121. *Sciaena dussumieri.*

reaches $\frac{1}{2}$ to $\frac{3}{5}$ in eye, expansion $1\frac{3}{5}$ to $1\frac{2}{3}$ in eye, length $2\frac{2}{3}$ to $2\frac{3}{4}$ in head; narrow band of villiform teeth above, with outer row of large conic teeth, also band below; interorbital 5 to 6, low, broad, convex; preopercle edge with weak, small, few, feeble denticulations. Gill rakers 6 + 10, lanceolate, 2 above and below rudiments; lanceolate, longest $\frac{1}{4}$ of eye or $2\frac{1}{4}$ in gill filaments.

Scales 54 to 56 in lateral line to caudal base and about 38 more out over middle of caudal to its tip; 10 above, 12 below, 33 or 34 predorsal. Head largely scaly, cheeks and suborbitals cavernous. Scales small and crowded on chest and breast. Scales on sides of body all in oblique rows. Bases of vertical fins all more or less finely scaled. Scales with 6 or 7 basal radiating striae; 34 to 36 apical denticles with 4 to 6 transverse series of basal elements; circuli moderate.

D. X, I, 31 to 35, spinous fin height $2\frac{1}{4}$ to $2\frac{1}{2}$ in head, soft fin height $2\frac{1}{4}$ to 3; A. II, 7, I, second spine 2 to $2\frac{1}{3}$, soft fin height $1\frac{2}{5}$ to $1\frac{2}{3}$; caudal 1 to $1\frac{1}{8}$, ends in median point behind; least depth of caudal peduncle $4\frac{4}{5}$ to $5\frac{3}{4}$; pectoral $1\frac{1}{3}$ to $1\frac{3}{5}$, rays II, 15; ventral I, 5, first ray ends in filaments, $1\frac{1}{8}$ to $1\frac{1}{4}$ in head.

Back gray or drab, sides and below paler, evidently whitish in life. Iris gray. Spinous dorsal and caudal blackish terminally, other fins pale, with soft dorsal grayish marginally.

A.N.S.P., No. 62510. Bangkok, Siam. May 1934. Length 160 mm. Type.

A.N.S.P., Nos. 62511 to 62525, same data, paratypes. Length 78 to 158 mm. Also 2 specimens, 63 to 92 mm., Bangkok, July.

Differs in its short maxillary reaching only to about middle of eye in young and adult alike. Caudal long, pointed behind and nearly long as head. Caudal peduncle narrowly constricted or its least depth equals eye, greatly less than head. In many ways it approaches *Otolithes brunneus* (Day) but differs at once in the characters of the maxillary, caudal peduncle and caudal as noted above.

Sciaenoides cochinchinensis Bleeker as listed by Triant from Phuoc Hai I have been unable to locate.

(*aeneus* of brass or bronze color + *corpus* body.)

Johnius diacanthus (Lacépède).

Two, 139 to 160 mm., Paknam, August 28.

Johnius coibor (Buchanan-Hamilton).

Four, 108 to 225 mm., Bangkok. Depth $3\frac{1}{8}$ to $3\frac{1}{4}$. D. 27 or 28.

Johnius belengeri (Cuvier).

Nine, 160 to 208 mm., Bangkok; one, 140 mm., Paknam, August 28. D. X, I, 26 to 29; A. II, 7. Known by its dark smutty coloration, fins more or less blackish in some examples, especially lower ones. Snout obtuse and short, but little longer than eye and has a very snub-nosed appearance. Often lips contrasted white.

Johnius carutta Bloch. Figure 120 (Bangkok).

Three, 148 to 154 mm., Bangkok, May and fifteen, 46 mm., in July; two, 48 to 85 mm., Paknam, August 21 and two, 83 to 115 mm., August 28.

Johnius argentatus (Houttuyn).

One, 157 mm., Paknam, August 21. Depth $3\frac{3}{4}$. Tubular scales 40 in lateral line to caudal base. Lower gill rakers 15. D. X, I, 27. Seems to agree with Tanaka's figure of *Sciaena argentata*. My specimen with lower jaw slightly shorter than upper and second anal spine twice eye.

Sciaena indica Kuhl and Van Hasselt.

One, 70 mm., Paknam, August 21.

Sciaena dussumieri (Valenciennes). Figure 121.

One, 69 mm., Paknam, August 21, and three, 60 to 70 mm., August 28.

NANDIDAE

Pristolepis fasciatus (Bleeker).

Four, 80 to 102 mm., Bangkok.

SCORPAENIDAE

Scorpaenopsis novae-guineae (Bleeker).

One, 177 mm., Bangkok; one, 153 mm., Sriracha, July 24.

Pterois volitans (Linnaeus).

One, 245 mm., Sriracha, June 10.

Polycaulus uranoscopus (Schneider).

One, 85 mm., Bangkok. Agrees with Bleeker's figure of *Polycaulus elongatus*.

PLATYCEPHALIDAE

Platycephalus indicus (Linnaeus).

One, 193 mm., Bangkok.

Grammoplites scaber (Linnaeus).

Three, 140 to 210 mm., Bangkok; one, 84 mm., Paknam, August 21 and three, 68 to 128 mm., August 28.

Thysanophrys crocodilus (Tilesius).

One, 188 mm., Sriracha, June 10.

TOXOTIDAE

Toxotes jaculator (Pallas).

Fifteen, 39 to 205 mm., Bangkok, May, two, 46 to 56 mm., in July; one, 90 mm., Paknam, August 28.

EPHIPPIDAE

Ephippus orbis (Bloch).

Five, 112 to 138 mm., Bangkok; one, 110 mm., Sriracha, July 24.

Drepane punctata (Linnaeus).

Seven, 67 to 145 mm., Bangkok, May, one, 164 mm., July 23; one, 115 mm., Sriracha, July 10; thirty-eight, 24 to 93 mm., Paknam, August 21, and six, 37 to 74 mm., August 28.

SCATOPHAGIDAE

Scatophagus argus (Linnaeus).

Forty-two, 28 to 212 mm., Bangkok, May, two, 34 to 56 mm., July; one, 60 mm., Paknam, August 21 and one, 145 mm., August 28; three, 19 to 144 mm., Keng Sok, February 3.

PLATACIDAE

Platax orbicularis (Forskål). Figure 122 (Sriracha).

Two, 170 to 200 mm., Bangkok; one, 20 mm., Sriracha, July 24. When fresh brilliant vermilion, fins dusky.

CHAETODONTIDAE

Chelmo rostratus (Linnaeus).

Four, 162 to 180 mm., Bangkok; three, 112 to 150 mm., Sriracha, July 10 and one, 108 mm., July 24.

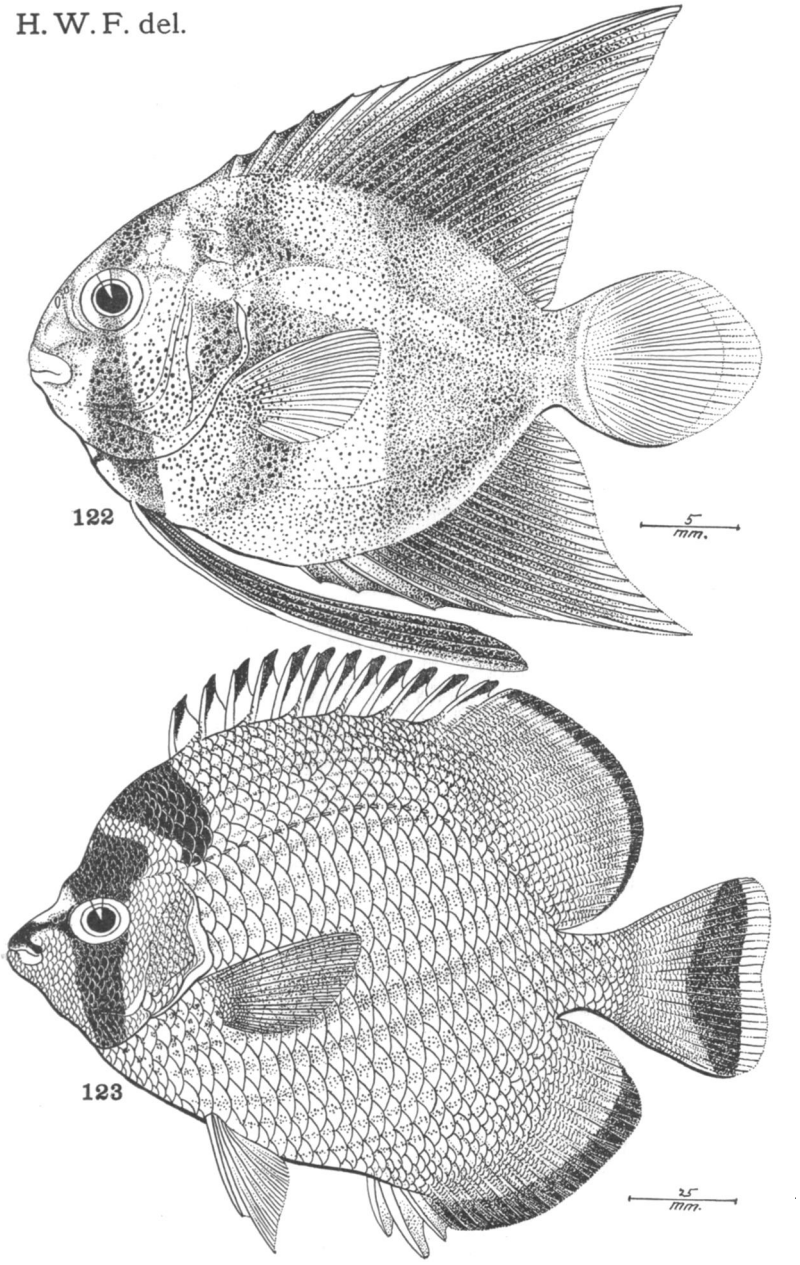
Chaetodon frenatus, new species. Figure 123.

Depth $1\frac{2}{5}$ to $1\frac{3}{5}$; head 3, width 2 to $2\frac{1}{10}$. Snout $2\frac{4}{5}$ to 3 in head; eye $3\frac{1}{4}$ to $3\frac{1}{2}$, $1\frac{1}{8}$ to $1\frac{1}{5}$ in snout, $1\frac{1}{3}$ to $1\frac{2}{5}$ in interorbital; maxillary reaches $\frac{3}{5}$ to $\frac{2}{3}$ in snout, length 4 to $4\frac{1}{2}$ in head; interorbital $2\frac{7}{8}$ to 3, convex, with sinuous profile; preopercle edge entire. Gill rakers 5 + 15, short points, $\frac{1}{5}$ of gill filaments, which $1\frac{1}{3}$ in eye.

Scales about 33 in median lateral series from head to caudal base; 22 or 23 tubular scales in lateral line, ending below last dorsal ray; 7 above, 12 below. All fins more or less finely scaled. Ventral with axillary scale $3\frac{1}{5}$ to $3\frac{4}{5}$ in fin. Scales with 7 to 18 basal, slightly radiating striae; 90 to 164 apical denticles, with 13 to 16 transverse series of basal elements, circuli very fine, more indefinite though fine apically.

D. XII, 24, I or 25, I, fourth spine $2\frac{1}{8}$ to $2\frac{1}{3}$ in head, first branched ray $1\frac{1}{3}$ to $1\frac{2}{5}$; A. III, 18, I or 19, I, second spine 2 to $2\frac{1}{10}$, fifth ray $1\frac{1}{3}$ to $1\frac{2}{5}$; caudal $1\frac{1}{8}$ to $1\frac{1}{4}$, nearly truncate; least depth of caudal peduncle $2\frac{3}{4}$ to $3\frac{1}{8}$; pectoral $1\frac{1}{8}$ to $1\frac{1}{5}$, rays II, 14, ventral I, 5, fin $1\frac{1}{10}$ to $1\frac{1}{3}$.

Generally yellow fading to buff in alcohol. On sides of body each row of large scales with brilliant golden band, broad, before pectoral and ventral broken into golden spots, and upper courses of bands sometimes tinged with brown to chestnut orange. On head, outer portions of vertical fins and most of paired fins whitish generally. Broad black vertical band over eye, extends down and narrowing over cheek, but not on chest. Black broadly over end of snout and extends back over preorbital to eye, variously broken in some specimens. Second black band, saddle-like, broad and close before spinous dorsal, narrowing suddenly and reaching down to upper end of gill opening, below reflected as more or less olive on opercle. Iris dark gray. Dorsal with flap behind end of each spine black, fin largely whitish basally.



122. *Platax orbicularis.* 123. *Chaetodon frenatus.*

On soft dorsal and soft anal blackish marginal band, narrower whitish one adjoining. Black marginal band on anal much broader. Caudal with white edge behind, then broad black submarginal band and fin buff basally. Paired fins pale.

A.N.S.P., No. 62658. Bangkok, Siam. May 1934. Length 198 mm.

A.N.S.P., No. 62659 to 62665, same data, paratypes. Length 163 to 188 mm.

Related to *Chaetodon bella-maris* Seale but that species described with "tip of the upper jaw black" and the figure shows but a small black subterminal spot on the snout. My examples of the present species show a much more extensive black blotch and variously extended back, complete or incomplete to the eye.

(*frenatus*, bridled.)

Heniochus acuminatus (Linnaeus).

Four, 155 to 193 mm., Bangkok. Smallest with dorsal filament 253 mm. long.

Holacanthus annularis (Bloch).

Two, 200 to 240 mm., Bangkok.

Holacanthus sexstriatus Cuvier.

One, 240 mm., Bangkok.

SIGANIDAE

Siganus javus (Linnaeus).

Nine, 135 to 190 mm., Bangkok.

Siganus concatenatus (Valenciennes).

Two, 155 to 215 mm., Bangkok.

Siganus corallinus (Valenciennes).

Two, 203 to 240 mm., Bangkok, May and one, 235 mm., on July 23.

Siganus virgatus (Valenciennes).

Ten, 164 to 185 mm., Bangkok; one, 154 mm., Sriracha, June 10.

Siganus oramin (Schneider).

Ten, 119 to 131 mm., Bangkok; one, 148 mm., Sriracha, June 10.

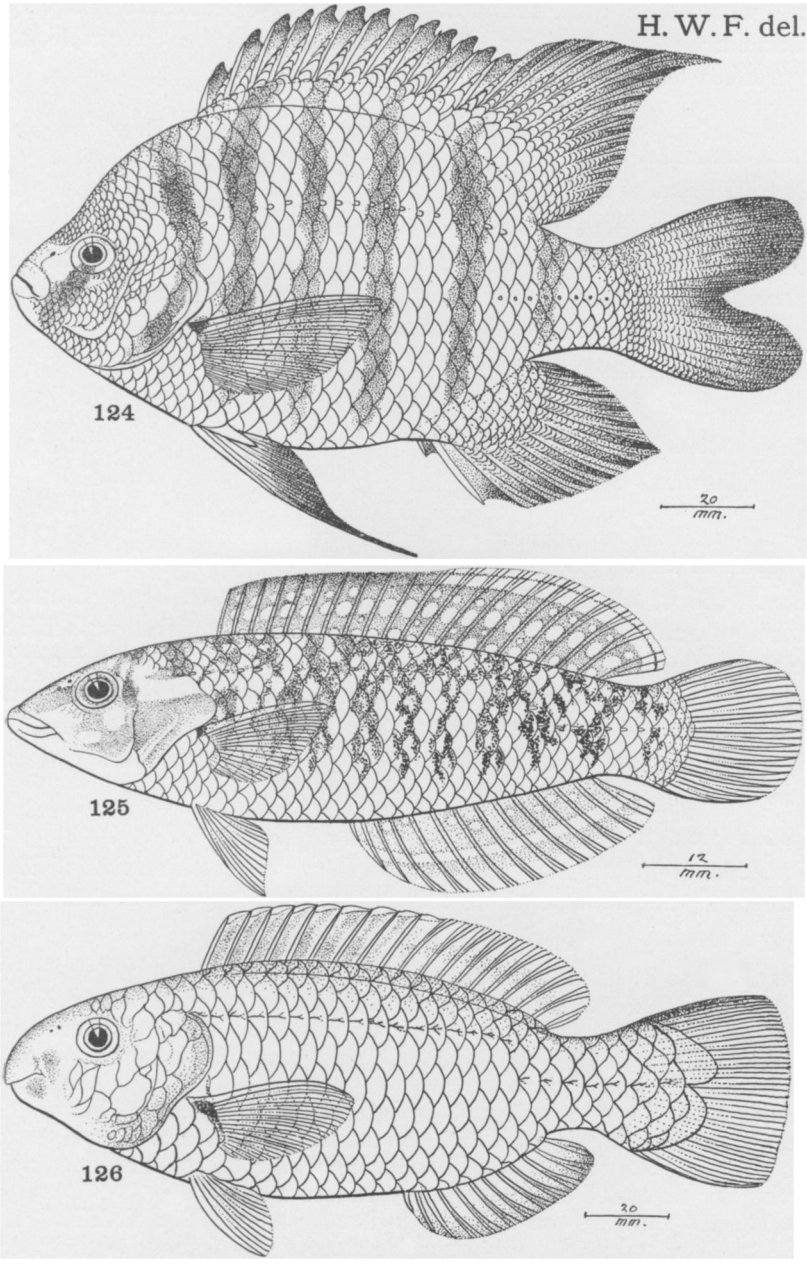
POMACENTRIDAE

Pomacentrus littoralis Cuvier.

One, 104 mm., Sriracha, June 10.

Abudefduf saxatilis (Linnaeus). Figure 124 (adult from Bangkok).

Four, 165 to 173 mm., Bangkok; one, 149 mm., Sriracha, June 10. Compared with Day's figure of *Glyphidodon coelestinus* my larger specimens have a much higher and extended soft dorsal, reaching back near end of



124. *Abudefduf saxatilis.* 125. *Thalassoma schwanefeldi.*
126. *Callyodon muricatus.*

caudal, whose lobes quite rounded. Black spot at pectoral origin very distinct and not shown by Day. The dark transverse bars variable, though always much less in width than pale interspaces.

LABRIDAE

Epibulus insidiator (Pallas).

One, 320 mm., Bangkok.

Thalassoma schwanefeldi (Bleeker). Figure 125.

One, 93 mm., Sriracha, June 10. As Bleeker's figure of *Julis* (*Julis*) *schwanenfeldi* is crude I have given the accompanying one. I have seen but one other specimen, obtained at Palawan, Philippines.

Cheilinus fasciatus (Bloch).

Two, 273 to 315 mm., Bangkok.

Cheilinus chlorurus (Bloch).

One, 292 mm., Bangkok.

CALLYODONTIDAE

Callyodon muricatus (Valenciennes). Figure 126.

Eight, 168 to 192 mm., Bangkok. All young apparently, as I have seen East Indian and Philippine materials to 510 mm. Compared with Bleeker's plate they differ in upper profile convex and caudal with usually very slight convex edge and upper and lower corners not exserted. All dark mauve brown, scale center of each darker. They suggest *Scarus visayanus* Herre 1933, which appears to differ in color, its lower regions, anal and caudal yellow.

Callyodon fasciatus (Valenciennes). Figure 127.

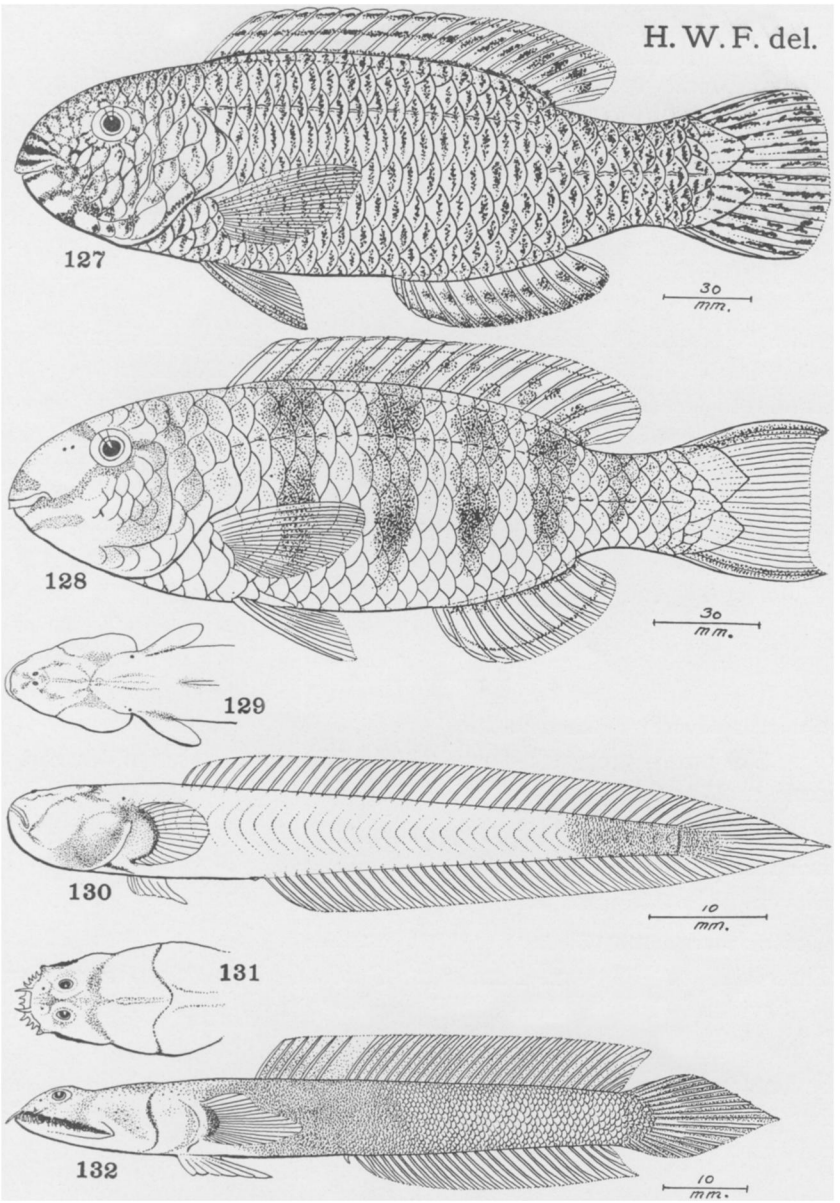
One, 288 mm., Bangkok. Approaches *Pseudoscarus rivulatus* of Bleeker, but differs in the presence of but 2 scales on the preopercular flange.

Callyodon fuscocuneus, new species. Figure 128.

Depth $2\frac{4}{5}$ to 3; head $2\frac{4}{5}$ to $2\frac{7}{8}$, width 2. Snout $2\frac{1}{3}$ to $2\frac{3}{4}$ in head; eye $5\frac{1}{4}$ to $5\frac{2}{3}$, $2\frac{1}{3}$ to $2\frac{2}{5}$ in snout, 2 in interorbital; rictus extends nearly half way to eye; mouth width 4 to $4\frac{1}{2}$ in head; no posterior canines; interorbital 3, convex. Gill rakers 12 + 24, slender, fine, $3\frac{3}{4}$ in gill filaments, which subequal or slightly longer than eye.

Scales 17 or 18 + 5 + 1 or 2 in lateral line; 2 above, 6 below, 7 predorsal; 3 rows on cheek, of which lowest row as 2 scales on preopercular flange. Scales with 18 to 20 basal radiating striae, 38 to 43 apically; circuli fine, obsolete or scale surface minutely rugose apically.

D. IX, 10, 1, first spine $2\frac{4}{5}$ to $3\frac{1}{8}$ in head, first ray $2\frac{2}{3}$; A. III, 9, 1, first ray $2\frac{2}{3}$ to $2\frac{3}{4}$; caudal $1\frac{1}{5}$ to $1\frac{1}{4}$, a little concave as folded, slightly double convex as expanded with ends slightly exserted; least depth of caudal peduncle $2\frac{1}{4}$ to $2\frac{1}{2}$; pectoral $1\frac{2}{5}$ to $1\frac{1}{2}$, rays 1, 13; ventral rays I, 5, fin $1\frac{3}{4}$ to $1\frac{7}{8}$ in head, axillary scale $2\frac{1}{10}$ in fin.



127. *Callyodon fasciatus.* 128. *Callyodon fuscocuneus.*
129, 130. *Caragobius geomys.* 131, 132. *Apocryptichthys livingstoni.*

Drab, paler below, each scale on back and sides with slightly dark median area. On body 5 dark transverse bands, narrowing slightly below. Rather broad greenish transverse band from upper front eye edge across to its fellow. Broad greenish band across front of snout above upper lip, and one from rictus to lower eye edge and short space behind eye. Preopercle greenish. Greenish band across chin, rather low, not quite extended back opposite front eye edge. Iris gray. Upper dorsal edge greenish, and both fins basally with large greenish spots, variable, some smaller and subbasally invade fins. Anal pale or whitish, with greenish border, greenish ill-defined basal band. Caudal grayish, bordered above and below with greenish. Paired fins whitish, pectoral narrowly edged above and ventral in front with greenish.

A.N.S.P., No. 62771. Bangkok, Siam. May 1934. Length 255 mm. Type.

A.N.S.P., No. 62772, same data, paratype. Length 243 mm.

Similar to *Callyodon dussumieri* (Valenciennes), especially in the color pattern on the head. It differs, however, from any specimen of that species examined, in the presence of the 5 dark transverse bands on its body and the irregular greenish spots on its dorsals.

(*fuscus* dark + *cuneus* wedge; with reference to the transverse bands on the body.)

Callyodon blochii (Valenciennes).

One, 240 mm., Bangkok.

ECHENEIDAE

Leptecheneis naucrates (Linnaeus).

One, 288 mm., Bangkok; three, 217 to 280 mm., Paknam, August 28. Disk plates 23 to 26.

ELEOTRIDAE

Eleotris fusca (Schneider).

Eleven, 78 to 156 mm., Bangkok.

Oxyeleotris marmorata (Bleeker).

Three, 162 to 173 mm., Bangkok. *Callieleotris platycephalus* Fowler 1934, is evidently a synonym of this species and must be suppressed.

Butis butis (Buchanan-Hamilton).

Seventeen, 55 to 132 mm., Bangkok, May, and two, 94 to 113 mm., September 24; one, 70 mm., Paknam, August 28; twelve, 38 to 82 mm., Keng Sok, February 3.

GOBIIDAE

Glossogobius giurus (Buchanan-Hamilton).

Fifty-nine, 65 to 275 mm., Bangkok, May, and five, 69 to 128 mm., in July; one, 97 mm., Paknam, August 28; two, 61 to 89 mm., Keng Sok. February 3.

Rhinogobius caninus (Valenciennes).

One, 52 mm., Bangkok; four, 60 to 89 mm., Paknam, August 21 and seven, 55 to 92 mm. on August 28. Without dark lateral blotches. Each scale on side of body, however, with dark median spot. Large specimens show a divided flap on the chin below the symphyseal angle and another behind the nostril on the upper lip. My materials differ from the figures of the species in the presence of a dark gray blotch, nearly large as pupil over the opercle. The dark blotch shown above the pectoral fin origin is usually absent, though some specimens have a dark spot on the upper basal part of the pectoral fin.

Stigmatogobius sadanundio (Buchanan-Hamilton).

Nine, 37 to 55 mm., Bangkok.

Pogonogobius planifrons (Day).

One, 78 mm., Paknam.

Vaimosa siamensis Fowler.

Three, 35 to 37 mm., Bangkok. Only known from the type.

Caragobius geomys, new species. Figures 129 (head above) and 130.

Depth 7 to $8\frac{1}{2}$; head $5\frac{2}{5}$ to $5\frac{1}{2}$, width $1\frac{1}{5}$ to $1\frac{2}{5}$. Snout $4\frac{1}{2}$ to 5 in head from snout tip; eye very small, $3\frac{1}{2}$ to 4 in snout, separated by less than diameter; maxillary very oblique, $3\frac{1}{4}$ to $4\frac{1}{5}$ in head from snout end; teeth very minute, small, apparently uniserial; tongue convex in front; small pore over each gill opening. Gill opening broad, straight, lateral, with broad isthmus below, width equals snout.

Scales small, crowded, present only on posterior fifth of body and caudal basally, about 13 or 14 scales in transverse series. About 35 muscular bands along body.

D. X, 27 or 28, origin of fin about over middle of pectoral, fin height 2 to $2\frac{1}{5}$ in total head; A. 33 or 34, fin height 2 to $2\frac{1}{8}$; pectoral $1\frac{2}{3}$ to $1\frac{3}{5}$, rays 16 or 17; ventral I, 5, fin $1\frac{4}{5}$ to 2 in head; caudal long, pointed, $4\frac{1}{4}$ to $5\frac{1}{4}$ in rest of fish.

Light drab, with gray shades on head. Dark gray line obliquely up from behind end of maxillary to occiput. Also one above and another below pectoral base, while latter encircled in grayish area. Fins pale or transparent.

A.N.S.P., No. 63078. Bangkok, Siam. July 2-4, 1934. Length 74 mm.

A.N.S.P., Nos. 63079 to 63082, same data, paratypes. Length 61 to 67 mm. Also from same locality one, 75 mm. in May and two, 64 to 74 mm., in July.

Differs from *Caragobius typhlops* Smith and Seale in its different physiognomy, proportions, and especially in its caudal long as head or more.

I may note that Dr. H. M. Smith in proposing *Mahidolia* 1932, has also introduced *Rictugobius* Koumans (in Smith 1932) both bearing the same genotypic name *normani,* therefore an exact synonym. As this is not mentioned in the Zoological Record so far, attention is here called to it.

(*geomys* the pocket gopher, with reference to its swollen cheeks superficially suggestive.)

Boleophthalmus boddaerti (Pallas).

Twelve, 133 to 165 mm., Bangkok, May, and three, 88 to 100 mm., July 2 to 4; two, 137 to 150 mm., Paknam, August 28.

Boleophthalmus taylori Fowler.

Two, 175 to 233, Bangkok; one, 170 mm., Paknam, August 28.

Boleophthalmus smithi Fowler.

Eight, 85 to 115 mm., Bangkok, July and 49 specimens, 65 to 215 mm., in May; one, 178 mm., Paknam, August 8.

Scartelaos viridis (Buchanan-Hamilton).

One, 110 mm., Bangkok. Long filamentous spinous dorsal $\frac{1}{3}$ total length of fish or reaches middle of soft dorsal when depressed.

Apocryptichthys livingstoni, new species. Figures 131 (head above) and 132.

Depth $7\frac{3}{4}$ to 8; head $3\frac{1}{4}$ to $3\frac{1}{2}$, width $1\frac{3}{5}$ to $1\frac{4}{5}$. Snout $5\frac{1}{2}$ to 6 in head; eye $10\frac{3}{4}$ to 13, orbit $7\frac{1}{4}$ to $7\frac{1}{2}$, subequal with snout; maxillary $1\frac{3}{4}$ to $1\frac{4}{5}$ in head; 2 long protruding upper front canines long as orbit, followed by row of 10 short flaring teeth each side concealed by upper lip; 11 to 13 long, protruding teeth flaring out from each side of lower jaw; posteriorly lower lip with 7 low marginal lobes before rictus; tongue little distinct from floor of mouth; flexible preorbital flap extends down over dentition of closed jaws before eye. Gill opening short, little less than orbit, mostly below pectoral base.

Head naked, also chest, breast, paired fin bases and belly little behind ventral bases. Scales cycloid, small and crowded over most of trunk, larger on tail, especially posteriorly and on caudal base. Caudal base scaly. About 50 scales in lateral axial series to caudal base and 3 or 4 more on latter; 15 or 16 transversely. Scales with 20 to 22 slightly radiating basal striae; circuli moderate, fewer or obsolete apically.

D. VI, 27, spinous fin height $3\frac{1}{2}$ to 4 in total head length, spines flexible and joined by broad membrance with rayed fin, height of last $2\frac{3}{4}$ to $3\frac{1}{2}$; A. 25 or 26, fin height 3 to 4; caudal $1\frac{1}{4}$ to $1\frac{1}{2}$, ends in median point behind; caudal peduncle depth $3\frac{1}{3}$ to 4; pectoral $1\frac{3}{5}$ to $1\frac{3}{4}$, rays 20; ventral rays I, 5, fin $1\frac{3}{5}$ to $1\frac{4}{5}$ in total head.

Largely gray, little lighter on under surfaces. Upper lip blackish, also end of suborbital flap. Iris gray. Lower lip quite pale or light drab. Top of head and predorsal region obscurely speckled with darker. Dorsals and caudal largely dark gray on membranes. Anal whitish, also ventrals. Pectorals with dark gray bases, fins dull brownish above, whitish below.

A.N.S.P., No. 63091. Paknam, Siam. August 28, 1934. Length 94 mm. Type.

A.N.S.P., Nos. 63092 and 63093, same data, paratypes. Length 93 and 94 mm.

Distinguished from *Apocryptichthys cantoris* Day from India and the Andamans, said to have two separate dorsal fins, about 90 scales in a lateral series, the caudal dark and longitudinally banded, and the dark caudal with some spots on its upper half.

(For Mr. C. Carey Livingston, who has entered our Siamese fishes in the museum catalogue.)

PERIOPHTHALMIDAE

Periophthalmus barbarus (Linnaeus).

Two, 213 to 225 mm., Paknam, August 28.

TAENIOIDIDAE

Taenioides anguillaris (Linnaeus).

Two, 210 to 236 mm., Bangkok, May and one, 108 mm. in July; one, 162 mm., Paknam, August 28. All agree and have the cutaneous ridges on the muzzle, mandible and cheeks, as shown by Ogilby and McCulloch in their figures of *Leme purpurascens* De Vis and *L. mordax* De Vis. In figures of *Amblyopus hermannianus* by Valenciennes and *Gobioides anguillaris* by Day, they are not indicated at all. My specimens also show the caudal dark gray or dusky, in contrast with the paler annectant dorsal and anal.

TRYPAUCHENIDAE

Trypauchen vagina Schneider.

Eleven, 55 to 19 mm., Bangkok, May, and eleven, 54 to 80 mm. in July; two, 154 to 160 mm., Paknam, August 28.

BATRACHOIDIDAE

Coryzichthys gangene (Buchanan-Hamilton).

Forty-three, 58 to 137 mm., Bangkok, May, and one, 95 mm., in July; one, 230 mm., Sriracha, July 10, and one, 73 mm., July 24; seven, 90 to 210 mm., Paknam, August 21, and two, 78 to 183 mm., August 28.

MONACANTHIDAE

Monacanthus chinensis (Bloch).

Three, 185 to 255 mm., Bangkok; one, 155 mm., Sriracha, July 10.

Chaetoderma pencilligerus (Cuvier).

One, 188 mm., Bangkok.

Paramonacanthus cryptodon (Bleeker).

One, 86 mm., Bangkok. D. 28.

TETRODONTIDAE

Tetrodon palembangensis Bleeker.

One, 61 mm., Srisawat, July 24.