

Family Trichuridae

Hair Tails

Body extremely elongate, greatly compressed or band like, tail tapering to long slender point behind. Head greatly compressed, pointed. Eye moderate. Mouth wide. Teeth strong, rather large, unequal. Maxillary slips below preorbital. Premaxillaries not protractile. Gill membranes separate, free from isthmus. Gills 4, slit behind fourth. Pseudobranchiae present. Vertebral 100 to 159, ^{or more} of which 39 to 120 caudal. Air bladder present. Pyloric appendages numerous. Lateral line present. Dorsal and anal rays correspond to vertebrae, each interhaemal or interneural attached to haemal or neural

spine. Dorsal very low, long, usually continuous, rays all similar or spinous. Anal very long, spines numerous, low, scarcely above surface of skin. No caudal. Ventrals obsolete or absent, thoracic.

Surface fishes of tropical seas.

Genus Trichiurus Linnaeus

Hair Tails

Trichiurus Linnaeus, Syst. Nat., ed. 10, pt. 1, (1758) p. 246, (Type Trichiurus lepturus Linnaeus, monotypic.)

Gymnogaster Granow, Zoophylac., (1763) p. 136, Species nonbinomial. (Type Trichiurus lepturus Linnaeus, monotypic.)

Enchelyopus (not Granow 1763) Klein, Neuer Schauplatz, vol. 1, (1775) p. 32, (Type Trichiurus lepturus Linnaeus, designated by Fowler, Proc. Acad. Nat. Sci. Philadelphia, (1904) p. 770.)

Encheliopus Walbaum, Artedi Pisc., vol. 3, (1792) p. 583, Atypic. (Type Trichiurus lepturus Linnaeus.)

Case 129

Gerres filamentosus Cuvier

Gerres filamentosus Cuvier, Règne Animal, ed. 2, vol. 2, 1829, p. 188 (on Wodowahah

Russell, Fishes of Coromandel, vol. 1, 1803, p. 52, fig. 67. (Vijagapatam); Hist. nat. Poiss., vol. 6, 1831, p. 482 (Java, ^{New Guinea} Banicolo). $\frac{1}{m}$

Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 345 (Ambonia); vol. 4, 1863, p. 261

(Molucca Sea, Cape York, Pinang). $\frac{1}{m}$

Kner, Reise Novara, Fische, 1865, p. 56 (50 miles off Ceylon). $\frac{1}{m}$ Day, Fishes of

Malabar, 1865, p. 159. $\frac{1}{m}$ Steindachner, Sitz. Ber. Akad. Wiss. Wien, math.-naturw. Klasse, vol. 56, pt. 1, 1867, p. 317 (Cape York).

$\frac{1}{m}$ Peters, Monatsb. Akad. Wiss. Berlin, 1868, p. 257 (^{Catlogayan,} Samar). $\frac{1}{m}$ Jouan, Mém. Soc.

Hist. Nat. Cherbourg, series 2, vol. 3, 1868, p. 263 (Hong Kong). $\frac{1}{m}$ Klunzinger, Verhandl.

zool. bot. Gesellsch. Wien, vol. 20, 1870, p.

773 (Koseir, Red Sea). $\frac{1}{m}$ Day, Fishes of Proc. Zool. Soc. London, 1870, p. 698 (Andamans);

Dipinotus Rafinesque, Analyse de la nature, (1815) p. 91, Cotypic. (Type Trichurus lepturus Linnaeus.)

Symphocles Rafinesque, Analyse de la nature, (1815) p. 91, Cotypic. (Type Trichurus lepturus Linnaeus.)

Eupleurogrammus Gill, Proc. Acad. Nat. Sci. Philadelphia, (1862) p. 126, (Type Trichurus muticus Gray, orthotypic.)

Lepturus (not Mochring 1758, Brisson 1760) Gill, Proc. Acad. Nat. Sci. Philadelphia, (1862) p. 126, (Type Trichurus lepturus Linnaeus, tautotypic.)

Lepturacanthus Fowler, Proc. Acad. Nat. Sci. Philadelphia, (1904) p. 770, (Type Trichurus savalla Cuvier, orthotypic.)

~~nearly opposite the hind eye.~~

1 example. Varadero Bay, Mindoro. Length 59 mm.
Depth 3. Spinous dorsal tipped with black.

5257 U.S.N.M. Apia, Samoa.

Bureau of Fisheries. Length 78 to 240 mm.
3 examples.

66077 U.S.N.M. Funafuti, Ellice Islands.

Albatross collection (08855). Length 160 mm.

86332 U.S.N.M. Bonin Islands.

William Stimpson. Length 175 mm.

52970 A.N.S.P. Shortland Island, Solomons.

Alvin Seale. June-July 1903. Bishop Museum.

Length 130 mm.

52971 A.N.S.P. Faté, New Hebrides.

April May 1903. (Alvin Seale.) Bishop Museum.

Length 153 mm.

Body strongly compressed, with long, slender, strong, attenuated tail. Head long. Eye rounded, high. Mouth large, lower jaw protruded. Four long, strongly compressed, barbed upper teeth. Palatines toothed, none on vomer. Interorbital low. Gill rakers short slender points. Ribs very fragile. No scales. Lateral line decurved, concurrent with belly. Dorsal single, extends along whole back. Anal base more than half body length, of detached spines, anterior directed forward and posterior directed backward. Pectorals small. No ventrals.

Long, slender, band like, silvery fishes living in tropical or subtropical seas and very voracious, those of large size used as food. The known species are as follows below.

no dips

Follow—Incl Caps
Loaded

728

134789

760

Purchased.

52711 to 52716 A.N.S.P. #Orion, Luzon. May 11, 1923. Rev. Joseph Clemens./

□ Length 60 to 140 mm.

4 examples, A.N.S.P. □ Bombay. Bombay Natural History Society. Length, 144 to

□ 217 mm.

53023 A.N.S.P. #Durban beach, Natal. H.W. Bell Marley. Length, 243 mm.

Sciaena dubia Fowler and Bean ← 129

Sciaena dubia FOWLER and BEAN, Proc. U.S. Nat. Mus., vol. 63, 1923,

p. 19. (No locality.)

art. 19, p. 16

of paper

Depth $3\frac{1}{4}$; head $3\frac{1}{4}$, width $2\frac{1}{10}$. Snout 4 in head; eye $3\frac{1}{4}$, greater than snout or interorbital; maxillary reaches $\frac{3}{5}$ in eye, expansion 3 in eye, length $2\frac{2}{5}$ in head; chin with 4 pores and short median barbel; teeth uniformly fine, minute, in narrow band in each jaw; interorbital 4; preopercle entire. Gill rakers $8 + 14$, equal gill filaments or $2\frac{1}{2}$ in eye.

Scales (pockets) 42 in lateral line to caudal base; rows above lateral line parallel, below horizontal, largest and narrowly imbricated along sides medially; small scales on dorsal and caudal basally. Scales with 6 basal radiating striae; 30 short apical denticles; circuli fine.

De Witt

D. X, I, 23, fourth spine $2\frac{1}{3}$ in head; A. II, 8, I, second spine $2\frac{1}{10}$; caudal damaged; caudal peduncle 3; pectoral $1\frac{2}{5}$; ventral $1\frac{4}{5}$.

Back dull slate brown, belly and lower surface pale, with silvery white sheen. Fins and iris all dull brown.

In many ways this species resembles Sciaena russeli (Cuvier) but differs in its greatly longer gill rakers.

83309 U.S.N.M. #No locality (labeled "Fiji," which surely erroneous; obtained more likely in the Philippines?). Wilkes Exploring Expedition. Length 124 mm.

523

Analysis of Species

a.¹ no ventrals.

b.¹ Trichiurus. First anal spine not enlarged.

c.¹ Eye 5 to $6\frac{1}{2}$ in head, 2 to $2\frac{1}{3}$ in snout.

d.¹ Depth 14 to 18; head $6\frac{1}{3}$ to $8\frac{1}{4}$; eye 5 to 7 in head, 2 to $2\frac{1}{3}$ in snout.

e.¹ Atlantic.

lepturus.

e.² Indo-Pacific.

haumela.

d.² Depth 24; head $7\frac{1}{2}$ to 8; eye 5 to $5\frac{1}{2}$ in head, 2 to $2\frac{1}{5}$ in snout.

rollandti.

c.² Eye $6\frac{1}{2}$ in head, $2\frac{1}{2}$ in snout; depth $18\frac{1}{5}$ to $18\frac{4}{5}$; head 8 to 9.

japonicus.

c.³ Eye $7\frac{1}{5}$ to 8 in head, $2\frac{3}{4}$ to $3\frac{1}{6}$ in snout; depth $15\frac{2}{3}$ to $15\frac{3}{4}$; head $7\frac{2}{5}$.

coxi.

b.² Lepturacanthus. First anal spine enlarged and others all more or less distinct; eye usually small.

savala.

a.² Eupleurogrammus. Ventrals as 2 small rudimentary scales. muticus.

524

Trichiurus lepturus Linnaeus

Trichiurus lepturus Linnaeus, Syst.
Nat., ed. 10, pt. 1, p. 246, 1758
(type locality, America; China).
— Günther, Cat. Fish. Brit. Mus.,
vol. 2, p. 346, 1860 (

— Jordan and Gilbert, Bull. U.S. Nat.
Mus., no. 16, p. 422, 1882. — Jordan
and Evermann, Bull. U.S. Nat. Mus.,
no. 47, pt. 1, p. 889, 1896; pt. 4, pl. 137,
fig. 375, 1900. — Fowler, Proc. Acad.
Nat. Sci. Philadelphia, p. 770,
1904 (Jan. 30, 1905) (San Domingo;
St. Martin's; Surinam; Brazil);
Proc. U.S. Nat. Mus., vol. 56, p. 280,
1919 (Loando, Angola).
p. 248, 1915 (Palm Beach), p. 532 (Port-
of-Spain, Trinidad); p. 129, 1919 (Rio
Janeiro), p. 130 (Surinam), p. 137 (St. Martin's),
p. 147 (Kingston, Jamaica).

Trichivus argenteus Shaw, General
Zool., vol. 4, p. 90, pl. 12, 1803
(on Linnæus).

Trichivus hammela (not Forsk.)
Fowler, Proc. Acad. Nat. Sci.
Philadelphia, p. 771, Nov. 1904
(Beirut, Syria).

caudal base, 75 along below; 9 to 10 above (10 above ~~and~~ origin to lateral line origin to lateral line on figure).

D. X, I, 27 to 32, fourth spine 2 in total head length, first ray $2\frac{3}{4}$; A. II, 6 to 8, second spine strong, $1\frac{9}{10}$ in head or equals postocular; caudal $1\frac{1}{4}$ in head, cuneate; least depth of caudal peduncle $4\frac{1}{4}$; pectoral $1\frac{2}{5}$; ventral $1\frac{1}{3}$, first ray ends in short filament.

Above dilute blue gray, sides and below silvery. Iris yellow, brown above. Opercle with diffuse bluish purple blotch above. Fins yellowish. Dorsal and caudal dusted with brown.

Length 282 mm. (Bleeker.)

Known only from Sumatra and Singapore.

Depth $12\frac{1}{2}$ to ~~$16\frac{1}{4}$~~ ¹⁷ $\frac{1}{4}$; head ~~$6\frac{1}{2}$~~ ¹¹ $\frac{1}{2}$ to $7\frac{3}{4}$,
 Snout $2\frac{2}{5}$ to $3\frac{1}{6}$ in head, measured
 from upper jaw tip; eye 5 to 7, 2
 in snout, in interorbital;
 maxillary reaches $\frac{2}{5}$ in eye, length
 $2\frac{1}{2}$ to $2\frac{2}{3}$ in head from snout
 tip; teeth strongly knife like,
 unequal; palatine teeth small,
 uniserial, small; interorbital
 $6\frac{1}{3}$ to $7\frac{1}{6}$, little convex. Gill rakers
 8 to 10 + 15 to 18, short slender
 points, $\frac{1}{5}$ of eye.

Skin smooth. Lateral line
 arched over pectoral, then slopes
 down rather close to lower profile.

D. ~~124~~ to 138, fin height 4
 in total head length; A. ~~88~~⁸⁰ to
 107, origin about first $\frac{3}{8}$ in
 entire body length, first but
 trifle larger than others; pectoral
 $3\frac{1}{3}$ to $3\frac{1}{2}$, pointed.

Bright silvery white. Iris
white. Dorsal edged with dusky
or blackish, rest of fin
whitish. Pectoral gray white.
Tropical Atlantic?

A. N. S. P., no. 11438. Beirut,
Syria. As Trichurus haumela.

A. N. S. P., no. 11442, no data.

A. N. S. P., nos. 11443 to 11445.
Santo Domingo, W. I. Prof. W. M. Gabb.

A. N. S. P., nos. 11446 to 11447.
Beasley's Point, N. J. Samuel Ashmead.

A. N. S. P., nos. 11448 and 11449.
Surinam. Dr. C. Hering.

A. N. S. P., no. 11450. Coast of Brazil.
Prof. E. D. Cope.

A. N. S. P., no. 11451. East coast of
United States. Bonaparte Collection
(482). Dr. J. B. Wilson.

A. N. S. P., nos. 11452 and 11453.
St. Martin's, W. I. Dr. R. E. Van Riggerma.

Cover 129

Johnius microlepis Bleeker ¹⁶²⁷

~~Johnius microlepis Bleeker, Act. Soc. Sci. Ind. Néerland. (Sumatra), vol. 5, 1858-59, p. 11. Palembang, Musi River mouth, Sumatra.~~

Pseudosciaena microlepis Bleeker, Verhandl. Kon. Akad. Wetensch. Amsterdam, seriff 3, vol. 14, 1874, p. 23 (Sumatra; Singapore); Atlas Ichth. Ind. Néerland., vol. 9, 1877, pl. (4) 387, fig. 3.

Depth $3\frac{4}{5}$ to 4; head $3\frac{1}{2}$ to $3\frac{1}{3}$, width $2\frac{1}{4}$ to $2\frac{1}{3}$. Snout $3\frac{2}{3}$ in head from snout tip; eye $3\frac{2}{3}$ to $4\frac{1}{2}$, $1\frac{3}{5}$ in snout, greater than interorbital; maxillary reaches opposite eye center, length $2\frac{3}{5}$ in head; teeth villiform, outer row enlarged above, inner row enlarged below; interorbital low; preopercle edge entire.

Scales 90 along, above lateral line to

A.N.S.P., No. 11454. Ft. Macon, ⁵²⁹
D.C. Dr. H. C. Yarrow.

interorbital rather low; preopercle edge denticulate.

Scales 75 to 80 along above lateral line, 65 to 70 along below; 8 or 9 above, figure shows 10 above anal origin; vertical fins all largely with fine scales basally.

D. VIII, I, 24 to 28 (II spines in figure), third spine $2\frac{1}{10}$ in head, fourth ray $2\frac{1}{3}$; A. II, 6 or 7, second spine moderate, $3\frac{1}{5}$ in head or $1\frac{3}{4}$ in postocular, third ray $2\frac{1}{4}$ in head; caudal 1, cuneate; least depth of caudal peduncle 4; pectoral $1\frac{1}{3}$; ventral $1\frac{1}{2}$, first ray ending in filament.

Above bluish or yellowish gray, sides and below yellowish silvery. Iris yellowish. Fins yellowish with more or less gray brown tint. Length 105 to 130 mm. (Bleeker.) East Indies, Indo China.

530

Trichurus haumela (Forskål)

Clupea haumela Forskål, Descript.
Animal., (1775, pp. ^{13, 78} 78) (type locality,
Mochha, Red Sea). — Bonnaterre,
Tabl. Ichth., p. 187, 1788 (Red Sea).
— Gmelin, Syst. Nat. Linn., vol. 1,
p. 1408, 1789 (Red Sea). —
Walbaum, Artedi Pisc., vol. 3, p.
43, 1792 (copied).

Trichurus haumela Cuvier, Hist.
Nat. Poiss., vol. 8, p. 249, 1831 (Malabar).
— Rüppell, Neue Wirbelth., Fische, p.
41, 1835 (reference). — Swainson,
Nat. Hist. Animals, vol. 2, p. 254,
fig. 72, 1839 (on Cuvier). — Cantor,
Journ. Asiatic Soc. Bengal, vol.
18, pt. 2, p. 1095, 1849 (Pinang Sea,
Malay Peninsula, Singapore).

Paraguana bicornis Steindachner,
~~Denksch. Akad. Wiss. Wien, math.-~~
~~physik. Klasse, vol. 41, pt. 1, 1879, p. 8.~~
 Hobson Bay and Murray River, Victoria.

depth 2; head $3\frac{1}{2}$. Eye subequal
 with snout, about 3 in head. Maxillary
 reaches eye, about 3 in head. Interorbital
 low.

Scales 34 or 35 in lateral line to
 caudal base and 2 or 3 more on latter;
 4 or 5 above, 11 below; 5 rows on cheek
 to preopercle ridge.

Dorsal IX, 16 or 17, last spine long
 as first soft ray or 3 in total head;
 A. III, 18, like dorsals, last spine $3\frac{1}{4}$;
 caudal small, emarginate; least depth
 of caudal peduncle $2\frac{2}{3}$; pectoral 1;
 ventral $2\frac{1}{2}$.

General color silvery. Upper parts
 blue and sides with copper tinge.

Bleeker, Verh. Batavia. Genoot.

(Madura), vol. 22, (1849) p. 4,

(Bangcallang, Kammal, Tanjung);
Nat. Tijds. Ned. Indie, vol. 2,

(1851) p. 471, (Rio); vol. 3, ¹⁸⁵¹ p. 139, ^{Bleeker, Verh. Batavia. Genoot.}

p. 53 (Singapore), p. 409

(Pamangbat), p. 690 (Wahai),

p. 740 (Macassar); Verh. Batavia.

Genoot. (Makreel), vol. 24, ~~1852~~,

p. 41, ¹⁸⁵² (Batavia), Samarang,

Rembang, Tegal, Pasuruan,
Surabaya); (hal. Ich. Bengal),

vol. 25, (1853) p. 42, (reference);

Nat. Tijds. Ned. Indie, vol. 7,

(1854) p. 227, (Macassar), p. 312

(Bantem, Anjer, Tjiringin), p.

361 (Batjan); vol. 8, ~~1855~~, p.

p. 345, ¹⁸⁵⁵ (Tibol, Sumatra), p. 393

(Amboina); vol. 9, (1855) p. 394,

(North Pasuruan); vol. 11, ~~1856~~,

p. 253, ¹⁸⁵⁶ (Luboeha, Batjan), p. 419

(Muntok, Banka); vol. 12, ~~1856~~,
 p. 214¹⁸⁵⁶, (Nias); Act. Soc. Sci. Ind.
 Néerl., vol. 1, no. 3, (1856) p. 9,
 (Macassar); vol. 2, no. 7, ~~1857~~, p.
 5¹⁸⁵⁷, (Amboina); Nat. Tijds. Ned.
 Indie, vol. 15, (1858) p. 242,
 (Singapore); vol. 16, (1858) p. 407,
 (Japara, Java); vol. 17, ~~1858-59~~,
 p. 130¹⁸⁵⁹⁻⁶⁰, (Atapoefoe, Timor); Act.
 Soc. Sci. Ind. Néerl., vol. 5, no. 7,
~~1858-59~~, p. 2¹⁸⁵⁸⁻⁵⁹, (Sunkawang, Borneo);
 vol. 8 (Sumatra), (1859) p. 12,
 (Benculen); Nat. Tijds. Ned.
 Indie, vol. 21, (1860) p. 138, (Muntok,
 Banka). — Günther, Cat. Fish.
 Brit. Mus., vol. 2, (1860) p. 348,
 (Malay Peninsula and Amboina).
 — Bleeker, Verslag. Akad. Wet.
 Amsterdam, vol. 12, (1861) p. 64,
 (Pinang).

— Day, Fishes of Malabar, p. 66, 1865. — Kner, Reise Novara, Fische, p. 140, 1865 (Java; 50 miles off Ceylon). — Playfair, Fishes of Zanzibar, p. 55, 1866 (Bagamoia, east coast of Africa). — Klunzinger, Verh. zool. bot. Gesell. Wien, vol. 21, p. 471, 1871 (Red Sea).

— Day, Fishes of India, pt. 2, p. 201, 1876. — Klunzinger, Fische Roth. Meer.,

[vol. 1, p. 121, 1884.
— Károli, Termesz. Füzetek, Budapest, vol. 5, p. 160, 1881 (Matang, Celebes).

— Meyer, Anal. Soc. Españ. Hist. Nat., Madrid, vol. 14, p. 23, 1885 (Manado, Celebes; Manila Bay). — Day,

Fauna British India, Fishes, vol. 2, p. 134, 1889.

— Gorgoza, Anal. Soc. Españ. Hist. Nat., Madrid, vol. 17, p. 289, 1888 (Manila).

534

— Elera, Cat. Fauna Filipinas, vol. 1, ~~1895~~, p. 505, ¹⁸⁹⁵ (Luzon, Cavite, Santa Cruz).

— Jordan and Snyder, Annot. Zool. Japon., vol. 3, (1901) p. 65, (Yokohama, Kagoshima, Kochi).

— Fowler, Journ. Acad. Nat. Sci. Philadelphia, ser. 2, vol. 12, (1904) p. 506, pl. 7, lower figure, (Padang); Proc. Acad. Nat. Sci. Philadelphia,

(1904 (January 30, 1905) p. 771,

(Padang material); (1905) p. 499,

(Baram, Borneo) — Steindachner, Denks. Akad. Wiss. Wien, math.-naturw. Kl., vol. 71, p. 142, 1907 (Gitchin).

— Evermann and Seale, Bull. Bur.

Fisher, vol. 26, (1906 (1907) p. 62) (San Fabian). — Jordan and Richardson,

Bull. Bur. Fisher, vol. 27, ^{p. 251,} 1907 (1908), ~~p. 251~~ (Manila). — Snyder, ^{p. 238,} ¹⁹⁰⁹ (Manila).

Proc. U. S. Nat. Mus., vol. 42, ~~1912~~,

¹⁹¹² p. 411, (Tokyo), p. 496 (Okinawa).

Weber, Siboga Exped., vol. 57, p. 406, 1913

(Lombok; Flores; Bawean).

— Gilchrist and Thompson, Ann. Durban Mus., ⁵³⁵
vol. 1, pt. 4, p. 397, May 21, 1917 (reference).

— Fowler, Copeia, no. 58, ^{p. 63,} June 18, 1918, ~~for~~
~~the~~ (Philippines).

— Barnard, Ann. South Afric. Mus., vol. 21, pt. 1,
p. 792, Oct. 1927 (Agulhas Bank, Natal, Delagoa
Bay, Chinde).

— Fowler, Mem. Bishop Mus., vol. 10, ~~1928~~,
p. 134 (compiled). — McCulloch, Austral.
Mus. Mem., ¹⁹²⁸ no. 5, pt. 2, p. 268, September
10, 1929 (reference).

— Fowler, Proc. Acad. Nat. Sci. Philadelphia,
vol. 86, (1934) p. 71 (Sanoer, Bali), p.
441 (Natal; Durban, Uvongo); vol. 87,
p. 138, 1935 (Bangkok).

Enchelyopus haumela Bleeker, Ned.
 Tijds. Dierk., vol. 1, (1863) p. 153,
 (Galela, Halmahera), p. 240 (Obi
 Island), p. 270 (Letapupu, Timor);
 Verslag. Akad. Wet. Amsterdam,
 ser. 2, vol. 2, (1868) p. 291. (Rio,
 Bintang), p. 300 (Waigiu).

Trichiurus lepturus (not Linnaeus)
Lacépède, Hist. nat. Poiss., vol. 2,
 (opposite p. 182)
~~pl. 7, fig. 1, 1800.~~ — Buchanan-Hamilton,
 Fishes of Ganges, pp. 31, 364, 1822.

Trichiurus malabaricus Day, Fishes
 of Malabar, (1865) p. 65, pl. 5 (type
 locality, Malabar).
 Cochin,

Trichiurus savala (not Bleeker) Elera,
 Cat. Fauna Filipinas, vol. 1, 1895, p.
 505 (Luzon, Manila Bay, Cavite). —
Jordan and Seale, Bull. Bur.
 Fisher., vol. 26, 1906 (1907), p. 13
 (Cavite).

Body oblong, compressed. Mouth
~~protractile. Teeth~~ small, pointed,
 none on palate. Preopercle edge
 denticulate. Opercle without spine.
 Dorsal and anal with low, basal, scaly
 sheaths. Lateral line complete. D. IX, 17,
 continuous, equally high. A. III, 18.

One species.

Curr 29 Parequula melbournensis (Castelnau)

Genes melbournensis Castelnau, Proc.

Zool. Acclimatist. Soc. Victoria, vol. 1,

1872, p. 158. Melbourne; vol. 2, 1873, p.

37 (Melbourne); Record London Internat.

Exhib., 1873, pt. 7, no. 5, p. 14 (Victoria).

Chthamalopteryx melbournensis Ogilby,

Proc. Zool. Soc. London, 1881, p. 616.

fig. — McCulloch, Zool. Results Endeavour, vol. 1, pt., Dec.
 22, 1911, p. 63 (Stinders Island, Murray River, Kingston, Investigator Group).

Parequula melbournensis Waite, Records

South Australia Mus., vol. 2, no. 1, April

23, 1921, p. 106, fig. 163.

Trichurus lajor Bleeker, Nat.
Tijds. ned. Indië, vol. 7, (1854)
 p. 228, (type locality, Manado,
 Celebes). — Kner, Reise Novara,
Fische, (1865) p. 141, (Manila).
 — Károli, Termész. Füzetek, Budapest,
 vol. 1, p. 160, 1881 (Sarawak).

Gerrus argyreus Klunzinger 1884
is described with depth 3, equals
head (figure shows head $3\frac{1}{5}$);
snout shorter than eye (figure shows
it longer); second dorsal spine nearly
double eye (figure shows it little over
2), $1\frac{1}{4}$ (~~2~~ 2?) in body
depth (figure shows $1\frac{3}{5}$); second anal
spine high as second, somewhat stronger,
shorter than eye (figure shows it equal);
pectoral scarcely reaches anal. The
figure is interesting as differing from
any of Bleeker's figures of East Indian
gerrids in that the last dorsal spines
are shown equally high as the soft
rays following. Three rows of scales
are shown on the cheek, of which the lowest
row on the preopercle flange. In the
dorsal view of the head the scaleless
premaxillary groove is carried back

Trichurus japonicus (not Schlegel)
Steindachner, Sitzs. Ber. Akad. Wiss.
Wien, math.-naturw. Kl., vol. 60, pt. 1,
p. 563, 1870 (Singapore).

541

2564. D. 5444. Atalaya Point,
Batag Island, S. 65° E., 5.1 miles (lat.
12° 43' 51" N., long. 124° 58' 50" E.),
east coast of Luzon. In 308 fathoms.
June 3, 1909. Length 198 mm.

10185. D. 5658. Cape Loko Loko, S. 31°
W., 12 miles (lat. 3° 32' 40" S., long.
120° 31' 30" E.), Gulf of Boni. In
510 fathoms. December 19, 1909.
Length 310 mm.

7933 and 7934. D. 5361. Corregidor
Light, S. 89° W., 7.2 miles (lat. 14° 24'
15" N., long. 130° 41' 30" E.), Manila Bay.
In 12 fathoms. February 8, 1909.
Length 323 to 368 mm.

11764. Iloilo market. June 2, 1908.
Length 223 mm.

5699. Manila market. April 27,
1908. Length 524 mm.

Cover 29

Johnius trachycephalus (Bleeker)

Corvina trachycephalus Bleeker, Natuurk.

Tijdschr. Nederl. Indië, vol. 1, 1850, p.

269. Bandjermassing, in rivers (Borneo).

Sciaena trachycephalus Günther, Cat.

Fishes Brit. Mus., vol. 2, 1860, p. 293 (compiled).

Schmeltz, Cat. Mus. Godeffroy, vol. 4, 1869,

p. 16 (Saigon).

Johnius trachycephalus Bleeker, Verhandel.

Kon. Akad. Wetensch. Amsterdam, vol. 14,

series 3, 1874, p. 41 (Sumatra; Borneo); Atlas

Ichth. Ind. Néerland., vol. 9, 1877, pl. (3)

386, fig. 1.

Depth 4 to 4 1/3; head 3 1/2 to 4, width 2.

Snout 3 1/3 in head; eye 4 1/3 to 5, 1 1/3 in

snout, 1 1/3 in interorbital; maxillary

reaches 2/3 in eye, length 2 1/2 in head;

lower jaw little shorter than upper; teeth

villiform, outer upper row but little

enlarged, mandibular subequal;

542

21571. Manila, Luzon. December
10, 1907. Length 253 mm.

19503. Manila market. December
12-18, 1909. Length 250 mm.

2653, 2655, 2656. D. 5547.
Hoble Point, Tulayan Island (E.),
S. 38° E., 9.5 miles (lat. $6^{\circ}09'20''$
N., long. $121^{\circ}13'40''$ E.), vicinity
Jolo Island. In 155 fathoms.
September 15, 1909. Length 190 to
340 mm.

11735. Sandakan market,
Borneo. March 2, 1908. Length
360 mm.

20896. Santiago River, Pagapas
Bay, Luzon. February 20, 1909.
Length 303 mm.

short filamentous tip.

Mostly silvery, some yellow tints
on fore part of anal and paired fins.

Length 175 mm.

3582. D. 5391. Tubbig Point
(Ile Tacado Island), N. 31° E., 3
miles (lat. 12° 13' 15" N., long. 124°
05' 03" E.), between Samar and
Masbate. In 118 fathoms.
March 13, 1909. Length 385 mm.

10184. No tag. 1909.
Length 365 mm.

India, Burma, Malacca, Indo China, China. Also reported from the Philippines by Elera. Quite likely Corvina grypota Richardson may be a synonym.

It is incompletely noticed as follows:

Maxillary slips below preorbital its entire length; upper teeth villiform, with stronger, subulate outer row; lower teeth villiform; minute pores on snout, 5 large pores at end of mandible; preopercle with wide set slender denticles.

Scales tender, nacre, very deciduous; cheek and mandible scaly. Lateral line of simple tubes, boldly arched anteriorly.

D. X, I, 29; A. II, 7 or 8, second spine not strong, little shorter than soft rays; caudal partly rhomboidal; ventral with

544

U. S. N. M., No. 12628. No locality.
British Museum. Length 350 mm.
Eye $2\frac{1}{6}$ in snout.

U. S. N. M., No. 72077. Naha, Okinawa.
Albatross Collection. 1906. Length
480 mm.

U. S. N. M., No. 72078. Naha.
Albatross Collection: 1906. Length
467 mm.

U. S. N. M., No. 72079. Naha.
Albatross Collection, 1906. Length
517 mm.

U. S. N. M., No. 72080. Naha.
Albatross Collection, 1906. Length
520 mm.

U. S. N. M., No. 56006. Philippines.
Bureau of Fisheries (3381). Length
490 mm.

U. S. N. M., No. 72635. Batavia, Java.
Bryant and W. Palmer. Length
255 mm. Eye 2 in snout.

no dips

Leaded

Follow—Incl Caps

134789

674

slits and pores. Mouth moderate or small, inclined or oblique. Chin with pores, rarely with small rudimentary barbel at symphysis. Teeth villiform; outer premaxillary row enlarged, sometimes inner mandibular row enlarged; no distinct canines. Interorbital rather wide, slightly convex. Gill rakers rather few, short. Pseudobranchiae present. Air bladder present. Pyloric coeca few or in moderate number. Scales ctenoid, extend over head and snout, more or less over vertical fins and mostly adherent. Lateral line with simple, bifurcate or branched tubes. Dorsals as 2 deeply separated fins, first of 9 or 10 spine joined at least basally with 23 to 32 soft rays. Anal with 1 or 2 spines, 6 to 9, second spine variably weak or strong. Caudal variably with age truncate, cuneate or rounded. Pectoral rays 16 to 20. Outer or first ventral ray often as prolonged filament, especially in young.

The largest group of the Indian and West Pacific sciaenids, also with fewer species in the tropical Atlantic. As here understood they differ from Sciaena chiefly in the absence of the mandibular barbel. (I do not accept Jordan and Thompson's conclusions as to the nomenclature of this genus. It appears to me formal designation of type is surely a a priori claim in all cases. Bola Buchanan-Hamilton cannot be admitted as a sciaenid as its tautonymic genotype Cyprinus bola is a cyprinid.

typed locality:

Johnius amoyensis (Bleeker)

129 W

10 Pseudosciaena amoyensis BLEEKER, Nederlandsche Tijdschr. Dierk., vol. 1, 1863, p. 144 (Amoy); vol. 2, 1865, p. 53 (Amoy).

10 Sciaena amoyensis STEINDACHNER, Denkschr. Akad. Wiss. Wien, Math.-nat. Kl., vol. 59, pt. 1, 1892, p. 362 (Shanghai).

U. S. N. M., No. 72636. Batavia,
Java. Bryant and W. Palmer.
April 2, 1909. Length 216 to 240 mm.
Two examples. Eye $2\frac{1}{10}$ to $2\frac{1}{5}$ in
snout.

U. S. N. M., No. 88031. Benkulen,
Sumatra. Lieut. H. C. Kellers.
Length 234 to 263 mm. Two examples.
Large isopod on tongue. Eye $2\frac{1}{10}$
to $2\frac{1}{4}$ in snout.

A. N. S. P., No. 27492. Padang,
Sumatra. A. C. Harrison and H. M.
Heller. 1905. Length 687 mm.

no dips

Follow - Incl Caps
8 pt. Teaded

134789

676

⑩ d². Dorsal rays (very numerous) 24 to 26.

1¹. Spinous dorsal dusky marginally; no dark opercular blotch

laeneus

1². Spinous dorsal black in young, leaving only black edge with age; diffuse dark blotch on opercle, paler with age

coiboro

⑪ c². Depth of body 3¹/₂ to 4.

6 g¹. Body without black transverse bands.

7 h¹. Opercle and first dorsal pale

borneensis

7 h². Opercle blue gray; first dorsal black on upper half, outer edges of caudal, anal and paired fins gray

osseus

6 g². Silvery with 4 or 5 black transverse bands

maculatus

⑫ b². Dorsal rays 26 to 30.

8 i¹. Depth of body 2⁴/₅ to 3¹/₂.

9 j¹. Teeth above uniserial, lower biserial, at least anteriorly

leptolepis

9 j². No enlarged inner row of mandibular teeth.

10 k¹. No pale band along lateral line.

11 l¹. Eye 3⁴/₅ to 4¹/₈ in head

belengerii

11 l². Eye 4¹/₃ to 4²/₅ in head

novae-hollandiae

10 k². Pale band along lateral line

caruttai

9 j³. Inner row of mandibular teeth, at least distinctly larger than others.

539

Depth 14 to 16; head $6\frac{1}{3}$ to $7\frac{1}{3}$,
 $2\frac{2}{3}$ to vent, $2\frac{2}{3}$ in tail, width
 $5\frac{1}{5}$ to $5\frac{1}{2}$ in its length. Snout
 $2\frac{3}{4}$ to $2\frac{4}{5}$ in head from snout
tip; eye 6 to $6\frac{1}{2}$, $2\frac{1}{3}$ in snout,
equals interorbital; maxillary
reaches $\frac{1}{5}$ to $\frac{1}{8}$ in eye, length
 $2\frac{2}{5}$ to $2\frac{1}{2}$ in head from snout
tip; 4 front upper canines,
followed by row of 10 or 11 each
side of smaller ones; lower
front pair of canines, followed
by row of 10 to 12 each side;
interorbital $6\frac{2}{5}$ to $7\frac{1}{5}$ in
head, low, flat or broadly
depressed medially; mandible
 $1\frac{3}{4}$ to $1\frac{4}{5}$ in total head length.
Gill rakers 5 + 8, short, sharp
points.

no scales. Lateral line

Follow—Incl Caps
8 pt. Leaded

Amblyceps Bleeker

134789

670

Pseudosciaena amblyceps BLEEKER, Nederlandsche Tijdschr. Dierk., vol. 1,
p. 142 (Amoy); vol. 2, 1865, p. 53 (Amoy).
Meded.

Corvina amblyceps BLEEKER, Versl./Akad. Wet. Amsterdam, ser. 4, vol. 4,
1870, p. 250 (China). - SAUVAGE, Bull. Soc. Philom. Paris, ser. 7,
vol. 5, 1881, p. 106 (Swatow, China).

Sciaena amblyceps STEINDACHNER, Denkschr. Akad. Wiss. Wien, Math.-nat.
Kl., vol. 59, pt. 1, 1892, p. 63 (Shanghai). - RUTTER, Proc. Acad.
Nat. Sci. Philadelphia, 1893, p. 76 (compiled).

Sciaena crocea RICHARDSON, Anth. China Japan, 1846, p. 224 (South of
China, Canton). - ELERA, Act. Fauna Filip., vol. 1, 1895, p. 501
(Cavite; Luzon).

Pseudosciaena polyactis BLEEKER, Versl. Meded. Akad. Wet. Amsterdam, Proc.
Verb., vol. 24, Nov. 1870, Verh. Kon. Akad. Wet. Amsterdam, vol. 18,
1879, p. 5, pl. 1, fig. 1 (Shanghai, China). - JORDAN and SEALE, Proc.
U.S. Nat. Mus., vol. 29, 1906, p. 53 (probably Shanghai).

Pseudosciaena undovittatus JORDAN and SEALE, Proc. Davenport Acad. Sci.,
vol. 10, 1905, p. 11, pl. 6 (Hong Kong).

Othonias undovittatus JORDAN and HUBBS, Mem. Carnegie Mus., vol. 10, No.
2, June 27, 1925, p. 244 (type and paratypes of Sciaena manchurica;
Osaka).

Corvula argentata (not HOUTTUYN) JORDAN and STANLEY, Proc. U.S. Nat. Mus.,
vol. 31, 1906, p. 518 (Port Arthur, Manchuria).

Sciaena manchurica JORDAN and THOMPSON, Proc. U.S. Nat. Mus., vol. 39,
1911, p. 255, fig. 3 (Port Arthur, Manchuria). - JORDAN and METZ, Ann.
Carnegie Mus., vol. 6, 1913, p. 38, fig. 28 (copied).

type locality

handwritten scribble

decurved behind depressed pectoral, falls to lowest fourth in body depth.

D. 134 to 137, fin height $3\frac{3}{4}$ in total head length; A. CV to CVII, short, broad, truncated points or spines; pectoral rays I, 10, fin 3 to $3\frac{1}{5}$ in total head length.

Silvery white, back and head above grayish. Iris whitish. Pectoral gray. Dorsal with upper half grayish, anteriorly gray black, whole base whitish.

Red Sea, Arabia, East Africa, Delagoa Bay, Natal, India, Ceylon, Malacca, East Indies, Philippines, Siam, Riu Kiu, Japan.

no dips

Leaded
Follow - Incl Caps

Type locality 647
134789 671

Awa melanocephala NICHOLS, Bull. Amer. Mus. Nat. Hist., New York, vol. 32,
art. 7, July 19, 1913, p. 180, fig. 2. (Shimonoseki, Japan)

Depth $3\frac{1}{5}$ to $3\frac{4}{5}$; head 3 to $3\frac{2}{5}$, width $2\frac{1}{8}$ to $2\frac{3}{5}$. Snout 4 to 5 in head from snout tip; eye $3\frac{3}{5}$ to 5, greater than snout in young to 1 to $1\frac{1}{3}$ in head, $1\frac{1}{5}$ to $1\frac{3}{4}$ in interorbital; maxillary reaches $\frac{4}{5}$ or to opposite hind eye edge, expansion $1\frac{1}{5}$ to $1\frac{3}{4}$ in eye, length 2 to $2\frac{1}{10}$ in head from snout tip; mouth terminal, lower jaw slightly protruding; chin with pair of pores; upper teeth with narrow villiform band and outer row of curved canines exposed with closed mouth; lower teeth as single row of well spaced canines and small intervening teeth; interorbital $3\frac{1}{4}$ to $3\frac{3}{5}$, broadly convex; preopercle edge little distinct, only few weak spinules along lower edge; preorbital width from eye to maxillary $\frac{1}{2}$ of eye. Gill rakers $11+18$, lanceolate, little greater than gill filaments or $\frac{1}{2}$ in eye.

Scales 51 to 55 in lateral line to caudal base and 32 or 33 more out over caudal fin; 6 above, 8 or 9 below; 27 to 35 predorsal, of which 13 to 17 to occiput; 11 rows across cheek; soft vertical fins and ventrals finely scaled. Scales with 20 basal radiating striae; 29 to 30 small typical denticles, with 3 to 9 transverse series of basal elements; circuli moderately fine.

D. IX, I, 32, I or 33, I, fourth spine $2\frac{1}{5}$ to $2\frac{2}{5}$ in total head length, first ray 3 to $3\frac{7}{8}$; A. II, 10, I or 11, I, second spine 6 to $7\frac{1}{2}$, first ray 2 to 3; caudal $1\frac{1}{5}$ to $1\frac{1}{2}$, crenate; least depth of caudal peduncle $3\frac{3}{5}$ to $3\frac{3}{4}$; pectoral $1\frac{1}{8}$ to $1\frac{1}{3}$; ventral $1\frac{1}{3}$ to $1\frac{2}{5}$.

Back brown, sides and below silvery white. Slightly gray tinge on opercle, not conspicuous. Iris silvery white. Dorsals and caudal brown, dusted with little darker terminally. Lower fins whitish.

fol
punc

fol
text

546

Trichiurus rolandti Bleeker

Trichiurus rolandti Bleeker,
Nat. Tijds. Ned. Indië, vol. 20,
(1859-60, p. 331) (type locality,
Soengi doeri in ^(name only) Barkayang,
West Borneo); Act. Soc. Sci. Ind.
Néerl. (Borneo 13), vol. 8, p. 35,
1860 (description of type) [not seen].

eye, length 3 in head; interorbital $2\frac{2}{3}$, convex. Gill rakers short, lanceolate.

Scales 45 in lateral line to caudal base and 3 more on latter; 6 above, 12 below, 25 predorsal with premaxillary groove broadly scaleless. Scales with 5 basal radiating striae; circuli fine.

D. IX, 11, I, first ray $2\frac{1}{2}$ in head; A. III, 7, I, third spine $2\frac{2}{5}$, first ray $2\frac{4}{5}$; caudal 1, forked; ventral $1\frac{1}{5}$; pectoral $2\frac{3}{4}$ in combined head and body to caudal base.

Back pale olive brown, sides, below and iris silvery white. Back and side above with 8 rows of scales each with dark longitudinal line. Dorsals and caudal grayish, other fins whitish.

Cape Colony, Natal.

53020 A.N.S.P. Natal. H. W. Bell Marley.
Length 195 mm. 1925.

? Trichurus glossodon Bleeker,
 Nat. Tijds. Ned. Indië, vol. 20, p.
 331, 1859-60 (type locality,
 Soengidoeri in Bangkayang,
 western Borneo) (name only);
 Act. Soc. Sci. Ind. Neerl. (Borneo
 13), p. 38, 1860 (description of
 type) [not consulted]; Verslag. Kon.
 Akad. Wet. Amsterdam, vol. 12,
 p. 31, 1861 (Singapore).

Trichurus auriga Klunzinger,
 Fische Roth. Meer., vol. 1, p. 121,
 pl. 12, fig. 1, 1884 (type locality,
 Koseir, Red Sea). — Weber,
 Siboga Exped., vol. 57, Fische, p.
 406, 1913 (lat. 10° 27.9' S., long.
 123° 28.7' E., Timor Sea, in 216
 meters).

distinct at angle.

~~Vertical~~ ~~along~~ above lateral line,
50 in lateral line, 52 to 56 along below
lateral line; 5 or 6 above, 15 below;
cycloid on snout and below eyes,
elsewhere stenoid.

D. X, I or II, 26 to 29, second spine 2 in
head, first ray $2\frac{7}{8}$; A. II, 7, second spine
 $2\frac{1}{3}$ or equals postorbital, robust, first
ray $1\frac{4}{5}$; caudal $1\frac{1}{3}$, cuneate; least depth
of caudal peduncle $3\frac{4}{5}$; pectoral $1\frac{1}{3}$;
ventral $1\frac{3}{5}$.

Silvery, shot with gold and purple.
First dorsal with upper half black.
Soft dorsal, caudal and anal dark.
externally and last fin with dark basal
band. (Day.)

Depth 24, 3 in head; head $7\frac{1}{2}$ to 8 in fish to caudal, $1\frac{3}{5}$ in trunk. Snout 3 in head from snout tip; eye 7, $2\frac{1}{2}$ in snout; maxillary reaches nearly opposite front eye edge, length $2\frac{3}{4}$ in head from snout tip; interorbital low.

D.?, fin height $3\frac{1}{5}$ in total head; pectoral 5, low.

Silvery, fins hyaline. Length 260 mm. (Klunzinger.)

Red Sea, East Indies.

Weber gives depth 22 or $2\frac{2}{3}$ in head, his specimen 320 mm.

I am unable to consult the descriptions of either Trichinurus glossodon or T. roelandti.

Analysis of Species
at Trichinurus. no ventrals;

549

Trichiurus japonicus (Schlegel)

Trichiurus lepturus japonicus
Schlegel, Fauna Japonica, Poiss.,
pts. 5-6, p. 102, pl. 54, 1844 (type
locality, Simbara Bay, Japan).

Trichiurus japonicus Bleeker,
Verh. Batavia. Genoot. (Nal. Ichth.
Japan), vol. 26, pp. 5, 98, 1857
(Nagasaki); Act. Soc. Sci. Ind.
Nedl., vol. 3, no. 3, p. 5, 1857-58.

(Japan). — Günther, Cat. Fish.
Brit. Mus., vol. 2, p. 347, 1860
(copied) — Bleeker, Verh. ^(Ayeddo; Yokohama)
_(-Martenus, Preuss. Exped. Ost Asien, vol. 1, p. 390, 1876)

Akad. Wet. Amsterdam, ser. 2, vol.
18, p. 2, 1879 (China). — Peters,
Monatsb. Akad. Wiss. Berlin, p.
922, 1880 (Hingpo). — Károli,
Termesz. Füzetek, Budapest, vol.
5, p. 160, 1880 (Canton, Rugged Island).

vol. 21, 1903 (1904), p. 154 (Jeram).

{ ~~? *Cornina grypota* Richardson, Ichth.~~
 { China Japan, 1846, p. 225. Canton.

Depth $3\frac{3}{5}$; head $3\frac{1}{3}$, width $1\frac{1}{2}$. Snout $3\frac{1}{8}$ in head; eye 4 to $5\frac{1}{2}$, $1\frac{1}{2}$ to 2 in snout, $1\frac{1}{3}$ in interorbital; maxillary reaches opposite eye center, length $2\frac{4}{5}$ in head; 3 small open pores across snout, 5 much larger ones along free edge of skin of snout and well developed lateral lobe; 1 central and 2 lateral orifices below mandibular symphysis; upper jaw somewhat longer; teeth villiform, outer upper row slightly enlarged, and inner similar in lower jaw; interorbital nearly flat; preopercle serrate, serrae most

— Klunzinger, Fische Roth. Meer.,
vol. 1, p. 120, 1884 (diagnosis in
key). — Rutter, Proc. Acad. Nat.
Sci. Philadelphia, p. 72, 1897
(Swatow).

— Jordan and Snyder, Annot. Zool.
Japan., vol. 3, p. 65, 1901 (reference).

— Jordan and Evermann, Proc. U.
S. Nat. Mus., vol. 25, p. 335, 1902

(Formosa; Hoboto). — Jordan and

Richardson, Mem. Carnegie Mus.,

vol. 4, no. 4, p. 180, Aug. 28, 1909

(Hoboto record). — Snyder,

Proc. U. S. Nat. Mus., vol. 42, p. 411,

1912 (Tokyo; Kagoshima).

Sciaena coitor Day, Fishes of India, pt. 2, 1876, p. 187, pl. 46, fig. 3 (Irrawaddi).
 $\frac{1}{m}$ Vinciguerra, Ann. Mus. Civico Stor. Nat. Genova, 1882-83 (February 3, 1883), p. 652 (Minka on the Irrawaddi, Burma). $\frac{1}{m}$ Day, Fauna British India, Fishes, vol. 2, 1889, p. 115, fig. 49. $\frac{1}{m}$ Tirant, Service Géomorph. Pêch. Indo Chine, 1929, note 6, p. 169 (Cochina China).

Corvina malla-batchelee Richardson, Ichth. China Japan, 1846, p. 226. Canton; China Sea.

Sciaena (Corvina) nasus Steindachner, Verhandl. zool. bot. Gesell. Wien, vol. 16, 1866, p. 771, pl. 15, fig. 1. Calcutta.

Corvina furcata (not Lacépède) Schmeltz, Cat. Mus. Godeffroy, no. 4, 1869, p. 16 (Saigon); no. 7, 1879, p. 44 (Saigon).

$\frac{1}{m}$ Duncker, Mitteil. Naturh. Mus. Hamburg,

— Jordan and Metz, Mem. Carnegie Mus., vol. 6, no. 1, p. 27, June 1913 (Chinampo, Fusan, Chemulpo).

— Jordan and Thompson, Mem. Carnegie Mus., vol. 6, no. 4, p. 240, Sep. 1914 (Misaki).

— Izuka and Matsura, Cat. Zool. Spec. Tokyo Mus., Vertebr., p. 160, 1920 (Tobushima, Awa).

— Jordan and Hubbs, Mem. Carnegie Mus., vol. 10, no. 2, p. 222, June 27, 1925 (Tokyo, Toyama, Fukuoka, Koo). — Sowerby, Natural. in Manchuria, vol. 4, p. 200, pl. 26, 1930 (Pei tai Ho; Chin wang Tao; Dalny; Antung; Tientsin). — Anonymous, Illustrat. Jap. Aquat. Animals, vol. 1, pl. 27, fig. 6, 1931. — Herre, Hong Kong Naturalist, Suppl. no. 3, p. 28, Feb. 1934 (Hong Kong).

Trichiuris japonicus Hystrom, Bih. Kon. Svensk. Vet. Akad. Handl., vol. 13, afd. 4, no. 4, p. 30, 1887 (Nagasaki) (error).

Trichurus lepturus (not
Linnaeus) Bleeker, Verh. Batavia.
Genoot. (Nal. Ichth. Japan), vol.
25, 1853, p. 14 (reference). —
Günther, Rep. Voy. Challenger, vol. 1,
pt. 6, p. 66, 1880 (off Iriomote in
345 fathoms).

or obtusely triangular premaxillary
groove scaleless; 3 rows on cheeks.
Scales with 8 or 9 basal radiating striae;
circuli basal, very fine parallel transverse
striae.

D. X, 9, I, second spine $1\frac{1}{2}$ to $1\frac{2}{3}$ in head,
first ray $2\frac{1}{8}$ to $2\frac{1}{5}$; A. III, 7, I, second
spine $2\frac{2}{5}$, third spine $2\frac{1}{4}$, first ray
2 to $2\frac{1}{10}$; least depth of caudal peduncle
 $2\frac{1}{2}$ to $2\frac{3}{5}$; ventral $1\frac{2}{5}$; caudal 3 in
combined head and body to caudal base;
pectoral $2\frac{4}{5}$ to 3.

Back drab or brown, sides and below
white, everywhere with silvery white reflections.
Iris bright silvery white. Snout brown,
also front of upper lip. Fins pale or
whitish. Dorsals dusky marginally,
blackish on spinous fin and each
membrane subbasally with dusky spot
just below basal scaly sheaths.

Trichurus haumela (not Forsk.)
Jordan and Richardson, Mem. Carnegie
Mus., vol. 4, no. 4, p. 180, Aug. 28, 1909
(~~Hoboto~~ Takao, Formosa). — Fowler,
Proc. Acad. Nat. Sci. Philadelphia,
vol. 81, p. 596, 1929 (Shanghai), p. 604
(Hong Kong).

554

Depth $18\frac{1}{5}$ to $18\frac{4}{5}$; head 8 to $8\frac{2}{3}$,
 $2\frac{1}{2}$ to 3 to vent, trunk $2\frac{1}{2}$ to
 $3\frac{1}{3}$ in tail; head width $5\frac{1}{5}$ to
 $5\frac{1}{4}$ in its length. Snout 3 in
head; eye $5\frac{1}{5}$ to $5\frac{1}{4}$, $1\frac{3}{4}$ to $1\frac{7}{8}$
in snout, greatly exceeds
interorbital; maxillary reaches
 $\frac{1}{8}$ in eye, length $2\frac{3}{4}$ in head
from snout tip; 3 large upper
front canines followed by 10 or
11 smaller compressed teeth each
side; pair of small lower front
canines, followed by 10 to 12 teeth
each side, median longest or
larger than front canines;
interorbital 7 to $7\frac{1}{4}$, concave.

No scales. Lateral line
greatly decurved behind
depressed pectoral, falls to
lower fourth in trunk and

Follow—Incl Caps
Loaded

Family Sillaginidae ← 12/ ev

134789

761

Body long, rather slender or tapering from spinous dorsal forward and backward, little or slightly compressed. Head elongate, with conic contour and forehead depressed. Eyes lateral or directed little upward, nearly median. Mouth small, terminal, cleft, short. Premaxillaries protractile. Teeth small, in jaws and on front of vomer, none on palatines. Preopercle entire or crenulated, bent to cover under surface of head. Opercle small, with short spine. Gill opening wide. Pseudobranchiae present. Branchiostegals 6. Stomach caecal. Pyloric appendages few. Air bladder simple. Skull with mucous cavities. Vertebrae 34 to 43, of which 22 to 27 caudal. Scales small, stenoid. Lateral line complete to caudal base or little beyond, nearly straight. Dorsals 2, first short and second with long base. Anal with 1 or 2 small spines, like soft dorsal. Caudal emarginate, lobes rounded. Pectorals normal. Ventrals with spine and 5 rays, thoracic, nearly scaleless.

Shore fishes of small or moderate size, living in the Indo-Pacific and valued as food. In several respects they approach the Sciaenidae. The rather few species were listed and their generic divisions best determined by Gill in 1861. These results, with slight modification, are followed in the present work.

Analysis of genera ← c. 11

h a¹ Sillaginae. Snout conic; teeth uniformly small; dorsal spines 10 to 12, moderate.

□ b¹. Scales moderately small, 50 to 80; dorsal spines 10 or 11; soft dorsal and anal subequal

Sillago

h b². Scales very small, about 170; dorsal spines 12; soft dorsal much longer than anal

Sillaginodes

h a² Sillaginopsinae. Snout depressed; outer teeth in front enlarged; scales small, about 90; dorsal spines 9, second elongated

Sillaginopsis

tail depth.

535

D. 160 to 168, fin height $2\frac{2}{3}$ in total head; A. 100 to 107?, as imperfect, low, spinous reticulations; pectoral rays I, 12, fin $3\frac{2}{3}$ in total head length.

Largely silvery white. Dorsal more or less dark gray above, at least anteriorly; pale or whitish basally. Pectoral pale. Iris white.

China, Japan. Apparently differs from Trichiurus haumela in the greatly larger eye, usually less than 2 in snout. The details as given by Günther in 1860 in his description of Trichiurus japonicus are certainly not specific characters. Its interorbital is slightly

134789

753

Analysis of species

a¹. Sillago. □ Ventral spine normal, slender, bony.

□ b¹. Anal with 1 or 2 spines, rays 19 to 23.

○ c¹. Cheek and interocular scales cycloid.

II d¹. Scales large, 50 to 55 along lateral line --- macrolepis

d². Scales moderate, 70 to 75 along lateral line.

III e¹. Scales 4 above lateral line; dorsal rays 20 or 21, anal 22 or 23.

IV f¹. Eye 4 to 5 in head --- sihama

f². Eye 7 in head --- boutani

V e². Scales 5 or 6 above lateral line; dorsal rays 22, anal 19 or 21.

bems g¹. Body immaculate; dorsal spotted between rays --- bassensis

bems g². Body spotted; first dorsal brownish above, dotted below; second dorsal edged brown and with 2 longitudinal vittae; caudal with 3 transverse orange vittae --- maculata

○ c². Cheek and interocular scales ctenoid.

tema h¹. Scales 70 to 75 in lateral line; 3 rows above --- japonica

tema h². Scales 82 to 86 in lateral line; 7 rows above --- parvisquamis

□ b². Anal spines 2, rays 15 or 16 (rarely 18); first dorsal marbled blackish, second with 4 or 5 rows of oblong spots --- ciliata

556

concave as in Trichiurus haumela.

U. S. N. M., no. 45219. Japan.

P. L. Jouy. Length 764 mm.

U. S. N. M., no. 45220. Japan.

P. L. Jouy. Length 815 mm.

U. S. N. M., no. 49412. Tokio
market. K. Otaki. Length 1004 mm.

U. S. N. M., no. 49413. Tokio
market. K. Otaki. Length 1110 mm.

U. S. N. M., no. 71317. Tokio
market. Albatross Collection.

Length 515 mm. Eye $2\frac{1}{4}$ in snout.
End of tail regenerated.

U. S. N. M., no. 85859. China.

Sowerby. Length 187 to 222 mm.
Two examples.

U. S. N. M., no. ⁸⁶⁰¹⁰~~87061~~. China.

Sowerby. Length 234 to 242 mm.
Two examples. As Trichiurus lajor.

Genus Sillago Cuvier ← 130 ✓

134789

762

H Sillago CUVIER, Règne Animal, vol. 2, 1817, p. 258. (Type, Sillago acuta
CUVIER, designated by GILL, Proc. Acad. Nat. Sci. Philadelphia, 1861,
p. 503.)

H Sillago SWAINSON, Nat. Hist. Animals, vol. 2, 1839, p. 205. (Type, Sillago
acuta CUVIER.)

Body long, slender, little compressed, rounded above to level below. Head conic, elongate, compressed, gradually narrowed forward. Eyes moderate or large, nearly median. Mouth small, jaws nearly even or lower shorter. Teeth villiform. Scales 50 to 90 in lateral line. First dorsal slopes down backward, spines 11 or 12, rays 17 to 23. Anal with 2 slender spines, nearly long as second dorsal, rays 15 to 23. Caudal emarginate. Ventral spine sometimes cartilaginous.

Sillago is now restricted to the species having similar forms, scales of moderate size, and nearly equal dorsal and anal fins; and it consequently excludes some species that have been referred to it by previous naturalists, the Sillago punctatus being taken as the type of one, and S. domina as that of another genus. Even in the genus as now restricted, there are more considerable variations than are often found in the same genus. While the ventral spine is slender and, as usual, osseous in most species, it is in one thick and cartilaginous. Again, some species have cycloid scales in the cheek and forehead, while others have ctênoid. The preoperculum is almost entire in some, while in others it is ciliated. As these differences do not, however, appear to be supported by others, they perhaps can scarcely be regarded as generic, and the species so distinguished have been therefore retained in the same genus. (Gill.)

U. S. N. M., No. 87061. Foochow.
Sowerby. Length 137 to 230 mm.
Seven examples.

U. S. N. M., No. 87062. Foochow.
Sowerby. Length 320 mm.

Loaded
Follow - Incl Caps

732

134789

764

107 a². Sillaginopodys, new subgenus. Ventral spine expanded as
thick cartilaginous pad, joined with first ventral ray - - - chondropus.

Subgenus Sillago Cuvier

4 Ventral spine normal, slender, bony.

Sillago macrolepis Bleeker

type locality:
H Sillago macrolepis BLEEKER, Nat. Tijds. Nederland. Indië, vol. 17,
1858-1859, p. 166. (Batavia; Bodeling, Bali). - GILL, Proc. Acad. Nat.
Sci. Philadelphia, 1861, p. 504 (compiled). - GÜNTHER, Cat. Fish.
Brit. Mus., vol. 2, (1861, p. 246 (compiled). - BLEEKER, Verh. Kon.
Akad. Wet. Amsterdam, vol. 14, (1874, p. 72 (Java; Bali); Atlas Ichth.
Ind. Néerland., vol. 9, (1877, pl. (1)389, fig. 1. - MEYER, Anal. Soc.
Españ. Hist. Nat. Madrid, vol. 14, (1885, p. 28 (Manado, Celebes). -
BEAUFORT, Bijdr. Dierk., Amsterdam, vol. 19, (1913, p. 120 (Saonek,
Waigiu; Ambon). - FOWLER, Mem. Bishop Mus., vol. 10, (1928, p. 235
(copied GÜNTHER).

Sillago maculato (not QUOY and GAIMARD) SEALE and BEAN, Proc. U.S. Nat.
Mus., vol. 33, (1907, p. 245 (Zamboanga). (Misprint.)

total pinnae
Depth $4\frac{1}{2}$; head $3\frac{1}{5}$; width $1\frac{7}{8}$. Snout $2\frac{1}{2}$ in head; eye $3\frac{2}{3}$ in
snout, greater than interorbital; maxillary reaches $1\frac{2}{5}$ in snout, length $3\frac{7}{8}$
in head; teeth fine, villiform, in bands in jaws and on vomer; interorbital
 $4\frac{1}{2}$ in head, nearly level or only slightly depressed; preopercle edge entire.
Gill rakers $4 + 9$, lanceolate, $1\frac{3}{4}$ in gill filaments, which $2\frac{1}{2}$ in eye.

Trichiurus coxi, Ogilby

Trichiurus coxi Ramsay and Ogilby,
 Proc. Linn. Soc. New South Wales, ~~vol.~~
 ser. 2, vol. 2nd ~~September~~ 28, 1887, ~~p.~~
 (562, type locality, Broken Bay,
 New South Wales).

Trichiurus coxi McCulloch, Mem.
 Austral. Mus., ~~vol.~~ ^{no.} 5, pt. 2, ~~Septem~~
~~ber~~ 10, 1929, (p. 268) (reference).

Cur 29 Gerrhonomorphia setifera (Buchanan-Hamilton)

Chanda? setifer Buchanan-Hamilton, Fishes of Ganges, 1872, pp. 105, 370. Ganges estuaries.

Gerrhon setifer Day, Fishes of India, pt. 1, 1875, p. 97 text figure (copied Buchanan-Hamilton), pl. 25, fig. 1 (Hooghly at Calcutta). ¹/_m Günther, Introduct. Study of Fishes, 1880, p. 388, fig. 159. ¹/_m Day, Fishes of India, Supplem., 1888, p. 786; Fauna British India, vol. 2, 1889, p. 536.

Gerrhon altispinis Günther, Cat. Fishes Brit. Mus., vol. 4, 1862, p. 58. Ganges River.

Depth 2; head 3 1/5. Snout 3 2/3 in head; eye 3 2/3, equals snout or interorbital; maxillary reaches eye, length 3 1/4 in head; interorbital low; lower preopercle edge serrated on posterior half.

Scales 38 in lateral line; 5 above, 10 below; premaxillary groove scaleless.

559

Depth $15\frac{2}{3}$ to $15\frac{3}{4}$; head $7\frac{2}{5}$, $2\frac{1}{8}$
to vent, $2\frac{2}{5}$ to $2\frac{1}{2}$ in tail, width
 $5\frac{1}{2}$ to $6\frac{1}{4}$ in its length. Snout $2\frac{2}{3}$
in head from snout tip; eye $7\frac{1}{5}$ to
8, $2\frac{3}{4}$ to $3\frac{1}{6}$ in snout, 1 to $1\frac{1}{8}$ in
interorbital; maxillary reaches
 $\frac{1}{8}$ to $\frac{1}{2}$ in eye, length $2\frac{1}{2}$ in head
from snout tip; 3 to 5 upper
front canines, large, followed
by 9 or 10 each side; pair of
small, lower, front canines, well
inclined back, followed by 9 or
10 each side below; interorbital
7 to $7\frac{1}{2}$, low, depressed concavely;
mandible $1\frac{9}{10}$ in total head
length. Gill rakers 9 or 10 + 18,
slender denticles, $\frac{1}{3}$ of gill filaments,
which 2 in eye.

No scales. Lateral line falls
behind depressed pectoral to
lowest fourth of body depth.

Follow—Incl Caps
Leader

134789

755

tail
dit

D. XI, 26, I or 27, I, second spine $2\frac{1}{3}$ to $2\frac{1}{5}$ in head, first ray $2\frac{1}{4}$ to $2\frac{2}{5}$; A. II, 7, I, second spine $2\frac{1}{3}$ to $2\frac{2}{5}$, first ray $1\frac{3}{4}$ to $1\frac{7}{8}$; caudal $1\frac{1}{10}$ to $1\frac{1}{8}$, cuneate; least depth of caudal peduncle 3 to $3\frac{1}{4}$; pectoral $1\frac{1}{2}$ to $1\frac{3}{5}$; ventral $1\frac{2}{5}$ to $1\frac{1}{2}$.

Light brown generally, little paler below, back and head above dusted with dusky brown. Opercle largely dusky. Iris slate. Barbel pale or whitish. Spinous dorsal largely blackish terminally. Soft vertical fins with gray on outer portions. Paired fins whitish.

India, Ceylon, Malayan Peninsula, East Indies, Philippines, Indo China, Amoy.

- D. 5461. # Caringo Island (W.), N. 12° (W.), 4.9 miles (lat. $13^{\circ} 57' 42''$ N., $123^{\circ} 06' 42''$ E.) June 14, 1909. Length, 115 to 138 mm. (15) examples.
- 19759 [1526]. # Manila market. April 20, 1909. Length, 178 mm.
- 17549. # Sorsogon market. March 12, 1909. Length, 171 mm.
- 11830. Sandakan market, Borneo. March 2, 1908. Length, 104 mm.
- 56210 U.S.N.M. # San Fabian, Philippines. Bureau of Fisheries (3268). Length 123 mm.

Sciaena macroptera (Bleeker) ← 1129

H Umbrina macropterus BLEEKER, Nat. Tijds. Nederland. Indië, vol. 4, 1853, p. 254, (Priaman, Sumatra).

type locality:
H Umbrina macroptera GÜNTHER, Cat. Fish. Brit. Mus., vol. 2, (1860, p. 279 (compiled). - DAY, Fishes of India, pt. 2, (1876, p. 182 (Madras); Fauna Brit. India, Fishes, vol. 2, (1889, p. 108 (Madras). - JORDAN and STARKS, Ann. Carnegie Mus., vol. 11, (1917, p. 454 (Ceylon). - BARNARD, Ann. South Afric. Mus., vol. 21, pt. 2, 1927, p. 581 (Natal).

560

D. 140 to 148, fin height $2\frac{4}{5}$
in total head length, origin over
hind preopercle edge; d. spines
about C, low, inconspicuous, very
short points; pectoral $3\frac{2}{3}$ in
total head length, rays I, 9 or
10.

Silvery. Dorsal gray marginally,
with obscure gray black blotch
anteriorly, basally pale or whitish.
Pectoral gray or brown. Iris
silvery white. Inside mouth
and gill opening dark gray.

Though known only from
New South Wales the characters
of this species have not been
contrasted with its nearest ally
or Trichurus haumela, from
which it is scarcely distinguished.

no dips

Follow—Incl Caps
Loaded

H Sciaena macropterus BLEEKER, Verh. Kon. Akad. Wet. Amsterdam, No. 3, Ind. Néerland., vol. 14, (1874), p. 30 (Sumatra; Nias); Atlas Ichth.,/vol. 9, 1877, pl. (1)384, fig. 5. 1877.

H Sciaena macroptera FOWLER, Journ. Acad. Nat. Sci. Philadelphia, ser. 2, vol. 12, (1904), p. 530 (Padang). - FOWLER and BEAN, Proc. U.S. Nat. Mus., vol. 53, 1923, p. 18 (Sumatra). - FOWLER, Journ. Bombay Nat. Hist. Soc., vol. 25, (1925), p. 320 (Bombay).

H Johnius macropterus FOWLER, Proc. Acad. Nat. Sci. Philadelphia, 1929 (1930), p. 652 (Padang specimen). (Error.)

Johnius

Depth $3\frac{1}{3}$ to $3\frac{2}{3}$; head $3\frac{3}{5}$ to $3\frac{2}{3}$, width $1\frac{3}{5}$ to $1\frac{4}{5}$. Snout $3\frac{1}{2}$ to $3\frac{1}{2}$ in head; eye $4\frac{1}{2}$ to 5, $1\frac{1}{2}$ in snout, $1\frac{1}{4}$ in interorbital; maxillary reaches $\frac{1}{2}$ to $\frac{2}{3}$ in eye, expansion 2 in eye, length $2\frac{1}{8}$ to $2\frac{1}{2}$ series, in head; bands of fine teeth in jaws, in 4 or 5 irregular/short mandibular barbel $5\frac{1}{2}$ to 6 in eye; outer upper row scarcely enlarged; interorbital 3 to $3\frac{3}{4}$ in head, broadly convex. Gill rakers 5 + 7 or 8 short points, $\frac{1}{3}$ to $\frac{1}{2}$ of gill filaments, which $\frac{1}{3}$ of eye.

Scales 43 to 45 in lateral line to caudal base and 18 to 20 more out over caudal medianly; 4 above, 7 or 8 below, 26 or 27 predorsal. Scales to with 7 to 11 basal radiating striae; 31 to 65 short apical denticles, with 5/18 transverse series of basal elements; circuli fine.

Johnius

D. X, I, 31, I, third spine 2 to $2\frac{3}{5}$ in head, third ray $2\frac{1}{8}$ to $2\frac{4}{5}$; A. II, 7, I, second spine $2\frac{2}{5}$ to $2\frac{7}{8}$, second ray $1\frac{3}{4}$ to 2; least dep of caudal peduncle 3 to $3\frac{2}{3}$; pectoral $1\frac{1}{4}$ to $1\frac{2}{5}$; ventral $1\frac{2}{5}$ to $1\frac{2}{3}$; caudal 3 to $4\frac{3}{4}$ in rest of body.

Back dark brown, also sides below and on under surfaces whitish with silvery white reflections. Iris pale yellowish white. Vertical fins dusted with dull drab or dusky, spinous dorsal darkest. Barbel and chin whitish. Pectoral pale brownish above, whitish below. Ventrals white.

Natal, India, Ceylon, East Indies.

U.S.N.M., No. 47924. Broken Bay,
New South Wales. Australian Museum.
Length 1040 mm.

U.S.N.M., No. 47925. Broken Bay,
New South Wales. Australian Museum.
Length 1220 mm.

nearly opposite the hind eye edge.

Whitley in re-describing and figuring the holotype of Gerres splendens shows a fish certainly very close, if not identical with the present species. Though its first dorsal ray is broken the dotted line of the figure indicates it is subequal with the last dorsal spine.

My materials differ from Klunzinger's figure in that they clearly show 3 rows of scales on the cheek, ^{1 above the preopercle ridge,} with a fourth row on the preopercle flange; the scaleless premaxillary groove is greatly shorter than in his figure of the top of the head; they agree, however, in that the axillary ventral scale is $\frac{3}{5}$ fin length.

Trichiurus savala Cuvier

Trichiurus savala Cuvier, Hist.

Nat. Poiss., vol. 8, (1831), p. 184,

pl. 224, (~~type locality, Pondicherry.~~)

Règne Animal, ed. 2, vol. 2, p.

219, April 1829 (type locality,

"Mer des Indes");

— Cantor, Journ. Asiatic Soc.

Bengal, vol. 18, pt. 2, p. 1097, 1849

(1850) (Pinang Sea; Malay Penin-
sula; Singapore).

Page 129

Gerres rappi (Barnard).

Xystaema rappi ^{Ann.} Barnard, South African Mus., vol. 21, pt. 2, 1917, p. 630, fig. 21 (lower pharyngeal teeth) (on Günther).

Gerres longirostris (not Labrus longirostris Lacépède 1803) (Rapp) Günther, Proc.

Zool. Soc. London, 1861, p. 142, pl. 24. Cape of Good Hope; Cat. Fishes Brit. Mus., vol. 4, 1862, p. 253 (copied). ¹/₂ Regan,

Ann. Natal Gov. Mus., 1908, p. 245 (Kosi Bay). ¹/₂ Gilchrist and Thompson,

Ann. South African Mus., vol. 6, 1908-11, p. 158 (Natal; Durban Harbour); Ann.

Durban Mus., vol. 1, pt. 4, 1917, p. 352 (compiled). ¹/₂ Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1925, p. 244 (Natal).

Depth 2 1/4; head 3 1/3, width 2. Snout 3 2/5 in head; eye 2/5, equals snout, 1 1/3 in interorbital; maxillary reaches opposite front eye edge, expansion 1/3 of

— Bleeker, Nat. Tijds. Ned. Indie,
vol. 1, (1850, p. 160) (Banka); vol. 2,
(1851, p. 471) (Rio) ^{Bleeker, Nat. Tijds. Ned. Indie,}
53¹⁸⁵² (Singapore), p. 445 (Banka);
Verh. Batavia. Genoot. (makreel),
vol. 24, (1852, p. 41) (Batavia);
Nat. Tijds. Ned. Indie, vol. 7,
(1854, p. 312) (Bantern); vol. 9, ~~1855~~
p. 394¹⁸⁵⁵ (North Pasuruan); Act.
Soc. Sci. Ind. Néerl., vol. 2, no. 6,
(1857, p. 3) (Kahajan and Barito
River, Bandjermasin, Borneo);
vol. 3, no. 6, (1857-58, p. 2,
(Sinkawang, Borneo); Nat. Tijds.
Ned. Indie, vol. 16, (1858, p. 317,
(Tanara), p. 434 (Pamangkak);
vol. 17, (1858-59, p. 143) (Boleling,
Bali); Act. Soc. Sci. Ind. Néerl.,
vol. 5, no. 7, (1858-59, p. 2) (Sinkawang,
Borneo); Nat. Tijds. Ned. Indie,

Iris silvery white. Lips pale or whitish. Dorsals pale or whitish, terminally spinous membranes dusky to even blackish; on each membrane basally pale brown blotch, at least concealed by basal scaly sheaths. Anal pale, some brown dots on anterior membranes. Fins otherwise pale to whitish, especially terminal edges of ventrals.

Known only from the Philippines, ^{previously} and not a synonym of Syngnathus philippinus Günther, as I stated in 1927. from the following specimens:

- Known 2 examples. Fort San Vicente, Luzon. November 18, 1908. Length 181 to 221 mm.
- 55912 U.S.N.M. Bacon, Sorsogon, Luzon. Bureau of Fisheries (3116). C. J. Pierson. Length 180 mm. Type of Xystaema bacuensis.
- 6276 U.S.N.M. Bonin Islands. Capt. William Stimpson. Length 170 mm.

vol. 19, (1859, p. 435) (Sumbawa);
 vol. 21, (1860, p. 138) (Muntok, Banca).

Verslag. Akad. Wet. Amsterdam,
 vol. 12, (1861, p. 64) (Penang).

— Günther, Cat. Fish. Brit. Mus., vol. 2,
 p. 347, 1860 (type of Trichiurus armatus;
 China; Malay Peninsula). — Bleeker,

— Day, Fishes of Malabar, p. 67, 1865;
 Fishes of India, pt. 2, p. 201, pl.
 47, fig. 4, 1876 (Bombay). — Martens,
 Preuss. Exped. Ost Asien, vol. 1, p. 390, 1876
 (Manila). — Károli, Termesz. Füzetek, Budapest,
 vol. 5, p. 160, 1881 (Singapore).

— Klunzinger, Fische Roth. Meer, vol. 1,
 p. 120, 1884 (diagnosis in key). —
Day, Fauna British India, Fishes,
 vol. 2, p. 135, fig. 53, 1889.

Eucinostomus japonicus Jordan and Snyder,
 Annotat. Zool. Japon., vol. 3, 1901, p. 81
 (Nagasaki).

Gerreomorpha japonica Jordan, Proc. U. S.
 Nat. Mus., vol. 32, 1907, p. 247, fig. 2 (Naha,
 Riu Kiu; Wakanoura).

Depth $2\frac{1}{2}$ to $2\frac{2}{3}$; head $3\frac{1}{8}$ to $3\frac{1}{2}$, width
 2. Snout $3\frac{1}{6}$ to 4 in head; eye $2\frac{3}{4}$ to $3\frac{1}{4}$,
 greater than snout in young to subequal
 with age, greater than interorbital in
 young to $1\frac{1}{4}$ with age; maxillary reaches
 $\frac{1}{8}$ in eye, expansion 3 to $3\frac{1}{2}$ in eye,
 length $2\frac{7}{8}$ to 3 in head; interorbital
 $2\frac{3}{5}$ to 3, broadly convex. Gill rakers
 6+7, short points, $\frac{1}{2}$ of gill filaments
 which $2\frac{1}{3}$ in eye.

Scales 41 or 42 in lateral line to
 caudal base and 3 or 4 more on latter;
 6 above, 9 below, 18 or 19 predorsal forward
 opposite front eye edge, with broad

— Fowler, Proc. Acad. Nat. Sci.
Philadelphia, 1904, p. 770 (Singapore).

— Fowler, Journ. Bombay Nat. Hist.
Soc., October 20, 1927, p. 257 (Bombay);
vol. 33, no. 1, September 30, 1928, p.
109 (Bombay). — McCulloch, Austral.
Mus. Mem., No. 5, pt. 2, p. 268, September
10, 1929 (reference).

Genus 29 Gerreomorpha japonica (Bleeker)

Gerres japonicus Bleeker, Naturk. Tijdschr.
Nederl. Indië, vol. 6, 1854, p. 404. Nagasaki
; Verhandel. Batavia. Genootsch. (Japan),
vol. 26, 1857, p. 93, pl. 5, fig. 2 (Nagasaki);
Act. Soc. Sci. Ind. Néerland., (no. 3) vol.
3, 1857-58, p. 3 (Niolsio), p. 5 (Japan).

Günther, Cat. Fishes Brit. Mus., vol. 1, 1859,
p. 351 (China); vol. 4, 1862, p. 260 (Amoy and
China). Sauvage, Bull. Soc. Philomat.,
Paris, series 7, vol. 5, 1881, p. 105 (Swatow, China).

Elera, Cat. Fauna Filip., vol. 1, 1895, p.
476 (Luzon, Cavite, Santa Cruz). Rutter,
Proc. Acad. Nat. Sci. Philadelphia, 1897, p.
76 (Swatow). Izuka and Matsunura,
Cat. Zool. Spec. Tokyo Mus. Vertebrata, 1920,
p. 148 (Tateyama, Boshu).

Diapterus japonicus Bleeker, Nederland.
Tijdschr. Dierk., vol. 2, 1865, p. 56
(Amoy).

Enchelyopus savala Bleeker,
Verslag. Akad. Wet. Amsterdam,
ser. 2, vol. 2, 1868, p. 291 (Rio,
Bintang).

Trichiurus armatus Gray, Zool.
miscellany, ^{vol. 1, February} 1831, p. 9 (type locality,
India); Illustrat. Indian Zool.,
vol. 2, pl. 93, fig. 1, 1833-34.

— Richardson, Ichth. China and
Japan, p. 268, 1846 (China Sea).

— Griffith, Animal Kingd. Cuvier,
Fishes, p. 349, pl. 6, fig. 1, 1834.

Trichiurus lepturus (not Linnaeus)
Basilewsky, Nouv. Mém. Soc. Nat. Moscou,
vol. 10, p. 224, 1855 ("in foris
Pekinensibus").

Analysis of ~~the~~ species left em
C. 4/1

- a.¹ Cheek with 3 rows of scales.
- b.¹ Lower preopercle edge entire; tip of spinous dorsal black. japonica.
- b.² Lower preopercle edge serrated on posterior half; upper edge of spinous dorsal narrowly black. retifera.
- a.² Cheek with more than 3 rows of scales; preopercle edge entire; tips of spinous dorsal and caudal black. rostrata.

(over 3
names only)

561

Depth $2\frac{1}{4}$; head 8, width $5\frac{3}{5}$,
combined head and trunk $3\frac{3}{4}$
in tail. Snout $2\frac{3}{5}$ in head
from snout tip; eye 7, $2\frac{1}{2}$ to 3
in snout, greater than interorbital,
maxillary reaches $\frac{1}{3}$ in eye, length
 $2\frac{1}{3}$ in head from snout tip;
interorbital $8\frac{1}{5}$, depressed
concavely. Gill rakers 5+9, short,
very slender, $\frac{2}{5}$ of gill filaments
or 4 in eye.

Skin smooth. Lateral line
slopes down to lower fourth
in body depth at anal origin.

D. 115, begins midway between
hind eye edge and pectoral origin,
last $\frac{2}{5}$ of tail free of rays,
fin height $2\frac{1}{2}$ in total head
length; A. 67, first spine
equals eye, all others short,

no dips

Loaded

Follow - Incl Caps

134789

675

Depth 5 in total; head $4\frac{1}{2}$. Eye 4 in head, greater than inter-orbital; mouth moderately oblique, jaws equal, maxillary $2\frac{1}{4}$ to $2\frac{1}{3}$ in head; teeth in bands in jaws, outer upper and inner lower row enlarged, no canines; preopercle denticulate.

Scales 55 in lateral line to caudal base; 75 along above lateral line; 8 or 9 above lateral line to spinous dorsal.

D. XI, 27, spines slender, fourth longest and less twice body depth, soft fin with low basal bony sheath; A. II, 7 or 8; caudal $5\frac{1}{4}$ in body; pectoral acute, $6\frac{3}{5}$ in body.

Bluish green above, silvery below. Iris yellow. Fins yellow, membranes brownish gray. Length, 270 mm. (Bleeker.)

China. Perhaps not distinct from Johnius plagiostomus, the imperfect description hardly permitting identification.

Sciaena distincta Tanaka (Dobuts. Zasshi, Tokyo, vol. 23, 1916, pp. 26-27) and Sciaena aurea Tanaka (^{idem} Dobuts. Zasshi, Tokyo, vol. 23, 1916, pp. 27-28) both from Japan, I have been unable to consult.

Besides the little known species I have arranged the following tentative key to include the established species of this genus in the Indo-Pacific.

Analysis of species ← S.C.U

a¹. Tubular scales in lateral line 43 to 53.

b¹. Dorsal rays 22 to 26.

c¹. Depth of body 3 to $3\frac{1}{2}$.

d¹. Dorsal rays 22 or 23.

e¹. Lower gill rakers 7; scales 52 in lateral line. --- #goma

e². Lower gill rakers 9; scales 41 to 43 in lateral line. --- #diacanthus

568
though distinct; pectoral $2\frac{7}{8}$ in
head; no ventral.

Pale brown, with leaden to
silvery reflections or whitish
below. Iris gray. Fins whitish.

A. N. S. P., one example. Bombay.
Dr. F. Hallberg. 1925. Purchased.
Length 305 mm.

A. N. S. P., one example. Bombay.
Dr. F. Hallberg. 1925. Purchased.
Length 465 mm.

134789

683

Johnius diacanthus (Lacépède)

← 1129 or

Lutjanus diacanthus LACÉPÈDE, Hist. Nat. Poiss., vol. 4, 1802, pp. 195,

240, ¹⁸⁰² "La collection hollandoise cédée à France" (No locality)

Johnius diacanthus CANTOR, Journ. Asiat. Soc. Bengal, vol. 18, pt. 2,

(1849, p. 1049) (Pinang, Malay Peninsula, Singapore). ¹ MASON, Burmah

Nat. Resources, 1860, p. 6. ¹ KNER, Reise Novara, Fische, 1865,

p. 133 (Madras and 50 miles off Ceylon). ¹ FOWLER, Journ. Bombay Nat.

Hist. Soc., vol. 30, no. 4, Nov. (1926, p. 777) (Bombay); vol. 33, no.

1, (1928, p. 115) (Bombay); Proc. Acad. Nat. Sci. Philadelphia, 1929

(1930), p. 596 (Shanghai), p. 611 (Hong Kong).

Sciaena diacanthus GÜNTHER, Cat. Fish. Brit. Mus., vol. 2, (1860, p. 290)

(China, Bay of Bengal, Malayan Peninsula, Calcutta). ¹ DAY, Proc.

Zool. Soc. London, 1855, p. 18 (Cochin, Malabar); Fishes of India, pt.

2, (1876, p. 189) (Hooghly high as Calcutta). ¹ KÁROLI, Termész. Füzetek,

Budapest, vol. 5, 1881, p. 159 (Singapore). ¹ DAY, Fauna Brit. India,

vol. 2, (1889, p. 118). ¹ ELERA, Cat. Fauna Filip., vol. 1, (1895, p. 501)

(Manila, Luzon). ¹ DÜNCKER, Mitt. Naturhist. Mus. Hamburg, vol. 21,

(1903/1904), p. 154 (Kuala Selangor). ¹ SEALE, Philippine Journ. Sci.,

vol. 9, no. 1, (1914, p. 68) (Hong Kong). ¹ VINCIGUERRA, Ann. Mus. Civ.

Stor. Nat. Genova, ser. 3, vol. 10, (1926, p. 578) (Sarawak).

Pseudosciaena diacanthus BLEEKER, Verh. Kon. Akad. Wet. Amsterdam, vol.

14, ser. 3, 1874, p. 27 (Singapore, Pinang, Banka, Java, Madura);

Atlas Ichth. Ind. Néerland. vol. 9, (1877, pl. (5)388, fig. 2. ¹

SEALE, Philippine Journ. Sci., vol. 5, no. 4, Oct. 1910, p. 279

(Sandakan, Borneo).

Johnius cataleus CUVIER, Règne Animal, ed. 2, vol. 2, (1829, p. 173) (on

Katchelee RUSSELL, Fishes of Coromandel, vol. 2, 1803, p. 12, pl. 116,

Vizagapatam). ¹ VALENCIENNES, Règne Animal Cuvier, Ed. Ill., 1839, p. 81.

569

Trichiurus muticus Gray

Trichiurus muticus Gray, Zool.

Miscellany, (1831) p. 10, (type
locality, ~~China~~); — Günther, Cat.

Fish. Brit. Mus., vol. 2, ~~1860~~, p.

348, ¹⁸³⁰ (China; Chusan; type; India).

— Griffith, Animal Kingd. Cuvier, Fishes,
p. 349, pl. 6, fig. 2, 1834 (type).
(head and trunk)

— Day, Fishes of India, pt. 2, p. 200, pl.
47, fig. 5, 1876 (Orissa). — Klunzinger,

Fische Roth. Meer., vol. 1, p. 120, 1884 (diagnosis in key).

— Elera, Cat. Fauna Filipinas, vol. 1,
1895, p. 505, (Luzon, Cavite, Santa Cruz).

; Suppl., p. 788, 1888; Fauna British India,
Fishes, vol. 2, p. 134, 1889.

— Fowler, Journ. Bombay Nat. Hist.

Soc., (October 20, 1927) p. 257, (Bombay).

Enchelyopus muticus Gill, Proc.
Acad. Nat. Sci. Philadelphia,
(1862) p. 126 (reference). — Goode
and Bean, Oceanic Ichth., ~~1895~~, p.
208 (reference).
1895

? Trichiurus intermedius Gray,
Zool. Miscellany, (1831) p. 10, (type
locality ~~not~~). — Richard-
son, Ichth. China and Japan,
(1846) p. 268. (Canton; Seas of China).

? Trichiurus medius Griffiths,
Animal Kingd. Cuvier, Fishes,
(1834) p. 349, pl. 6, fig. 3. (type
locality).

Trichiurus acutirostris Günther,
Cat. Fish. Brit. Mus., vol. 2, ~~1860~~,
p. 348, ¹⁸⁶⁰ (type locality, India) (name
in text).

~~571~~

571

Trichiurus cristatus Klunzinger,
Fische Roth. Meer., 1884, pp. 102 D, pl.
13, fig. 5 (type locality,
Koseir, Red Sea).

D. \overline{X} , 10, I, second spine $1\frac{2}{3}$ in head;
 A. \overline{III} , 7, second and third spines
 subequal or second $2\frac{1}{8}$ in head;
 caudal slightly longer than head,
 deeply emarginate; least depth of
 caudal peduncle $2\frac{1}{8}$ in head; ventral
 $1\frac{1}{4}$; pectoral $2\frac{3}{4}$ in combined head
 and body to caudal base.

Silvery. narrow dark edge to
 dorsal interspinous membrane and
 brown spot at middle of each dorsal
 ray just above sheath. Length 100 mm.
 (Day.)

Houghly River at Calcutta, India.

572

Depth 14 to $15\frac{1}{3}$; head $7\frac{3}{4}$ to $8\frac{4}{5}$,
width 5 to $5\frac{3}{4}$; combined head
and trunk $3\frac{1}{3}$ to $3\frac{3}{5}$ in tail.
Snout $2\frac{1}{2}$ to $2\frac{3}{4}$ in head from
snout tip; eye 6 to $6\frac{1}{4}$, $2\frac{1}{8}$ to $2\frac{2}{5}$
in snout, greater than interorbital;
maxillary reaches eye, length $2\frac{1}{2}$
to $2\frac{3}{4}$ in head; interorbital 8 to
 $8\frac{1}{5}$, convex. Gill rakers 11 + 16,
very slender, short, $3\frac{1}{2}$ in gill
filaments, which $1\frac{2}{5}$ in eye.

Skin smooth. Lateral line
slopes down to lower third in
body depth at anal origin.

D. 112 to 145, begins at
first fourth in space between
hind eye edge and pectoral origin,
last fourth of tail free of
rays, fin height $2\frac{1}{8}$ to $3\frac{1}{4}$ in
total head length; A. 90 to 116,
low short spines, little distinct,

first little developed or rudimentary; pectoral 3 to $3\frac{2}{3}$ in head; ventral as 2 close set small scales on ventral median line of abdomen behind head a space equal to postocular.

Brown above, sides and below silvery white. Iris slate.

India, China, East Indies, Japan, Korea.

racilispinis, *Holocentrus* 99 - R
raeffei, *Anomalops* 97 -
virius 61
raeffi, *Apogon* 163
minorus 163
raeffii, *Apogon* 163
Gobius 410
minorus 163
trammatonotus *laysanus* 187 -
trammator *regius* 135
thompsoni 135 -
trammepomus, *Gobius* 410 -
trammicolepidae 96
trammicolepis *brachiusculus* 96 -
trammistes *forsteri* 239
orientalis 188
punctatus 187
sexfasciatus 183, 188
sexlineatus 7, 187
trammistes, *Blechnichis* 429.
Petroscirtes 429 -
trammistinae 187
randisquamis, *Platycephalus* 301
Xawrida 66
Thysanophrys 301
randoculis, *monotaxis* 8, 218, 219 -
— (*Sphaerodon*) 219
Paragobioides 399
Sciaena 219

U. S. N. M., no. 6083. Japan.
Morrow. Length 275 mm. As
Trichiurus japonicus. Eye $2\frac{1}{3}$ in
snout. Ventral scale distinct.

U. S. N. M., no. 37974. Korea.
H. M. Ferebee. Length 330 mm. Eye $2\frac{1}{5}$
in snout. One (left) ventral scale
present, imperfect.

U. S. N. M., no. 62495. Western Borneo.
Dr. W. L. Abbott. September 18, 1907.
Length 349 mm.

U. S. N. M., no. [with 85859]. China
Sowerby. Length * 388 to 428 mm.
Two examples. As Trichiurus
japonicus.

20747. Sebatic Island, Borneo.
October 1, 1909. Albatross Collection.
Length 309 mm.

Hoplostethus metallicus new species

575
A. N. S. P., one example. Bombay,
India. Prof. F. Hallberg. 1925.
Purchased. Length 361 mm.

Follow—Incl Caps
Loaded

721

134789

753

Brown, little paler below. Back and upper side with 9 broad neutral dusky, oblique bands, counted vertically, all crossing lateral line and posterior broader. Fins brown, front of anal and ventral dusky terminally.

Arabia, Oman, Natal, South Africa. Differs from Sciaena capensis in that the dark bands are less oblique, as dark band from pectoral axil extends to last dorsal rays (not middle) or upper part of caudal peduncle.

53045 A.N.S.P. Natal coast south, in 20 fathoms. 1925. H.W. Bell Marley.

Length 332 mm.

Sciaena russelii (Cuvier)

Ombrina russelii CUVIER, Règne Animal, ed. 2, vol. 2, (1829, p. 174)

(On Qualar katchelee RUSSELL, Fishes of Coromandel, vol. 2, 1803, p. 13, pl. 118, ^{1803,} Vizagapatam.) (Ombrina misprint)

Umbrina russelii CUVIER, Hist. Nat. Poiss., vol. 5, (1830, p. 178 (Coro-

mandel). — Lay and Bennett, Zool. Beechey's Voy., 1839, p. 51 (Macao).
— Richardson, Ichth. China Japan, 1846, p. 226 (China Seas, Canton).

Umbrina russelii

GÜNTHER, Cat. Fish. Brit. Mus., vol. 1, (1859, p. 278 (May-

layan Peninsula). — KNER, Reise Novara, Fische, (1865, p. 131 (Ceylon).

— DAY, Fishes of India, pt. 2, 1876, p. 183, pl. 43, fig. 4; Fauna

Brit. India, Fishes, vol. 2, 1889, p. 110. — ELERA, Cat. Fauna Filip.,

vol. 1, 1895, p. 500 (Manila; Luzon). — Duncker, Mitt.

Naturhist. Mus. Hamburg, vol. 2, ^{p. 154,} 1903

(1904), p. 154 (Bandar Maharani). — Tirant,

Service Océanogr. Pêche Indo Chine, (6^e note), 1929, pp.

9, 16 (169) (Hué River).