

**FISHES OBTAINED BY MR. H. W. BELL-MARLEY CHIEFLY IN NATAL
AND ZULULAND IN 1929 TO 1932**

BY HENRY W. FOWLER.

This paper is based on extensive collections of fishes sent by Mr. H. W. Bell-Marley in 1931 and 1932. They include 855 specimens represented by 330 species, most of which are new to the Academy collection. The following appear to be new to science: *Caecula natalensis* (Ophichthyidae); *Gnathonemus pongolensis* (Mormyridae); *Barbus stigmaticus* (Cyprinidae), *B. grouti*, *B. dendrotrachelus*, *B. tugelensis*, *B. crocodilensis*, *B. ivongoensis*, *B. tristigmaturus*; *Cubiceps longimanus*, *Psenes guttatus* (Centrolophidae); *Parasphenanthias microlepis* (Pseudochromidae), *Pseudocrenilabrus natalensis*; *Drepanoscorpis gilchristi* (Scorpidae); *Chaetodon cingulatus* (Chaetodontidae); *Lepidotrigla stigmapteron* (Triglidae); *Lepidaplois trilineatus* (Labridae); *Leioeleotris zonatus* (Eleotridae); *Glossogobius tenuiformis* (Gobiidae); *Otophidium smithi* (Ophidiidae); *Antennarius leucus* (Antennariidae). *Pseudocrenilabrus*, *Drepanoscorpis* and *Leioeleotris* are new genera. Many of the included species are additions to the South African fauna, besides noteworthy, and for this reason I have given a number of descriptive notes. Thanks are due to Mr. Bell-Marley for his industry and labor in amassing this collection and sending it a gift to the Academy. Unless otherwise stated the localities pertaining to the specimens refer to Durban.

SCYLIORHINIDAE

Scyliorhinus natalensis Regan.

Depth $8\frac{2}{3}$ to subcaudal origin; head $6\frac{1}{2}$, width $1\frac{1}{5}$. Snout $2\frac{1}{4}$ in head; eye $5\frac{1}{3}$, $2\frac{1}{3}$ in snout, $2\frac{1}{5}$ in interorbital; infraorbital groove long as eye; mouth width $1\frac{1}{8}$ in head; lower labial fold $\frac{2}{3}$ to symphysis, upper $\frac{1}{2}$ lower; teeth 50 rows above, 48 below, with narrowly triangular median central cusp and small one each side, edges entire; preoral length $1\frac{1}{2}$ in mouth width; nostrils opposite last third of preoral length, internarial $1\frac{1}{3}$ in preoral length; interorbital $2\frac{1}{2}$ in head, flattened, depressed medially. Gill openings all well above pectoral base, first largest or twice last.

Scales minute, tridentate, median cusp usually largest.

First dorsal origin opposite last eighth of ventral base, front fin edge $1\frac{9}{10}$ in head; second dorsal inserted close behind anal base, front fin edge $1\frac{9}{10}$ in head; front anal edge $2\frac{1}{4}$, fin length $1\frac{1}{2}$; caudal 4 in rest of body, front subcaudal edge $2\frac{2}{3}$ in caudal or $1\frac{2}{3}$ in head; pectoral $1\frac{1}{2}$, width $1\frac{1}{4}$ its length; ventral length $1\frac{1}{10}$ in head.

Generally ecru drab, to vinaceous buff or whitish below. About 10 to 12 darker or fawn-colored narrow transverse bands across back. In

alternating spaces each space with slightly paler similar band. Whole back with appearance of finely mottled, vermiculate or speckled with darker and in areas of bands much darker. Dorsals mottled like back. Subcaudal with 3 dark blotches as reflections from paired bands on upper part of fin. Pectorals above with some rather coarse dark basal mottlings, edges pale. Ventrals similar, few dark basal spots above, fin otherwise broadly pale. Lower parts of paired fins uniformly whitish.

One, 563 mm., 1931, described above. Also smaller one, 500 mm. from Natal coast, 1932.

EULAMIIDAE

Scoliodon palasorrah (Cuvier). Figure 1.

Depth $5\frac{1}{2}$ to subcaudal origin; abdominal cavity $1\frac{2}{3}$; head $3\frac{2}{3}$, width $1\frac{1}{4}$, depressed. Snout $2\frac{1}{2}$ in head, long as wide; preoral length $2\frac{1}{4}$ in head; eye $13\frac{1}{8}$, $5\frac{5}{8}$ in snout, $5\frac{1}{2}$ in interorbital; mouth width 3 in head, length $1\frac{3}{8}$ in its width; very short fold at mouth angle at end of upper jaw, lower fold half of orbit; about 18 narrow entire teeth each side above, 15 each side below. Second gill opening 6 in head.

Scales quindentate, with 3 to 5 parallel keels extending to each point.

Front edge of first dorsal $1\frac{3}{4}$ in head, fin base little nearer ventral than pectoral origin; front edge of second dorsal 6, origin little behind anal origin; front anal edge $4\frac{1}{2}$, base equals second dorsal base; subcaudal $2\frac{3}{8}$ in caudal, which $2\frac{3}{8}$ in rest of fish; pectoral $1\frac{2}{3}$ in head, width $1\frac{1}{8}$ its length; ventral 3 in head.

Gray brown above, whitish below. Whitish of lower sides invaded by longitudinal lower gray band till above ventral. Fins gray brown, lower surfaces of paired fins, also hind pectoral edge, narrowly whitish.

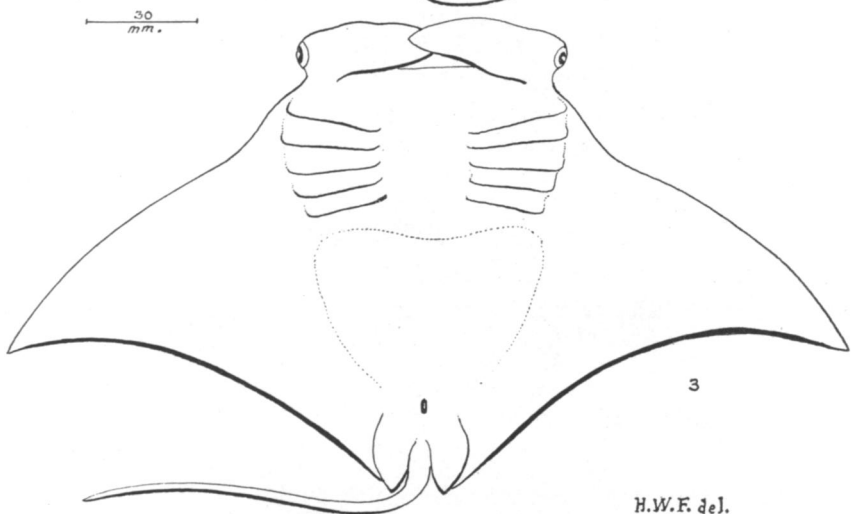
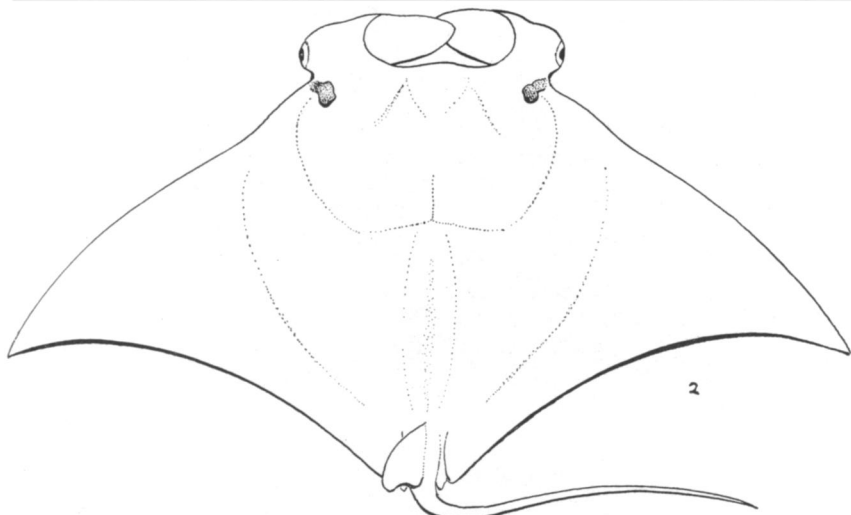
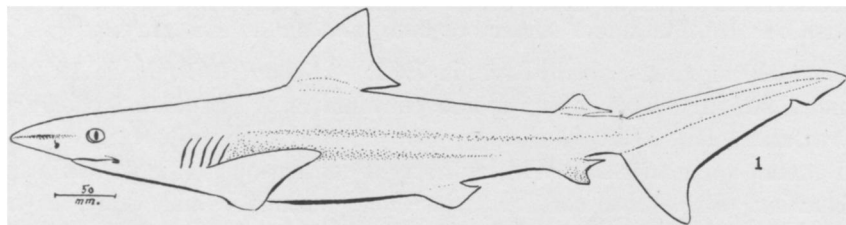
One, 720 mm., May 27, 1931. Garman says of this species "labial holds short, on the lower jaws, not on the upper". He wrongly quotes Day's figure of *Carcharias acutus* "pl. 188, fig. 2" though it is on pl. 184, figs. 3 and 3a. It shows a slight fold at the mouth corner on the upper jaw but none on the lower. This species not previously reported from Natal.

Scoliodon walbeehmi (Bleeker).

Depth to caudal notch 7; head $3\frac{3}{4}$, width $1\frac{1}{2}$. Snout $2\frac{1}{2}$ in head; eye $9\frac{1}{4}$, $4\frac{1}{2}$ in snout, $4\frac{2}{3}$ in interorbital; mouth width 3 in head, length $1\frac{1}{2}$ its width; lower labial fold 5 to symphysis or $\frac{2}{3}$ upper labial fold; teeth 28 rows above, 25 below, bases broad, cusps rather narrow, edges entire; preoral length 3 in head; nostril $2\frac{2}{3}$ in internasal, which $1\frac{1}{2}$ in preoral length; front inner nasal edge with short narrow point; interorbital $2\frac{1}{2}$ in head, broadly convex. Gill openings all above pectoral base, median largest or equals eye.

Scales minute, rather broad, with 3 or 4 points and as many parallel keels.

First dorsal origin opposite inner hind pectoral end, front fin edge $1\frac{5}{8}$ in head; second dorsal origin opposite last fifth of anal base, fin length $2\frac{3}{4}$ in head; A. with front fin edge $4\frac{1}{4}$, fin length $2\frac{1}{4}$; caudal $2\frac{3}{4}$ in rest of body, front edge of subcaudal $2\frac{3}{4}$ in caudal fin or $2\frac{1}{10}$ in head; pectoral $1\frac{1}{2}$, width $1\frac{1}{4}$ in its length; ventral length $2\frac{1}{5}$.



H.W.F. del.

1. *Scoliodon palasorrah*. 2, 3. *Manta ehrenbergii*.

Back and upper surfaces uniform olive gray, likewise dorsals, caudal and upper surfaces of paired fins. Under surfaces of paired fins very pale gray, whitish basally, like under surface of body and anal. Iris gray.

One, 640 mm., described above, in 1931. Also one 670 mm. in 1932. I cannot distinguish *Scoliodon vagatus* Garman, as it is founded chiefly on the variable labial folds.

I cannot agree with Mr. Whitley's recent contention that Bosc's informal designation of *Squalus carcharias*, without authority and therefore not certainly included in Blainville's genus *Carcharhinus* 1816, is available as its type.

GALEORHINIDAE

Mustelus manazo Bleeker.

Depth $7\frac{1}{5}$ to 9 to caudal notch; abdominal cavity $3\frac{1}{2}$; head $4\frac{2}{5}$ to $5\frac{4}{5}$, width $1\frac{1}{2}$ to $1\frac{3}{5}$; upper profile nearly straight. Snout $2\frac{1}{5}$ to $2\frac{3}{5}$ in head, length $\frac{3}{4}$ width; eye $4\frac{1}{4}$ to $5\frac{4}{5}$ in head, 2 to $2\frac{3}{5}$ in snout in profile; mouth length $1\frac{3}{5}$ to $1\frac{2}{5}$ in mouth width, latter $3\frac{1}{5}$ to $3\frac{3}{5}$ in head or less than preoral length; upper labial groove forms fold over mouth corner, equals nostril or lower groove, 3 to symphysis; teeth 60 rows above, 45 below, crown convex, with slight indentation on outer edge; nostrils at last third in preoral, front one edged with rather wide triangular flap, nostril length $1\frac{1}{5}$ to $1\frac{2}{5}$ in internarial, which $2\frac{1}{4}$ to $2\frac{1}{2}$ in preoral; preoral length $2\frac{1}{2}$ to $2\frac{3}{5}$ in head; interorbital $2\frac{1}{2}$ in head, broadly and slightly convex. Small spiracle close behind eye, equals half of pupil.

Scales foliate, with rather slender point and each with 3 longitudinal keels.

First dorsal origin little behind pectoral base, front edge $1\frac{2}{5}$ to $1\frac{3}{5}$ in head; second dorsal inserted little nearer upper caudal lobe origin than first dorsal base, front edge $1\frac{4}{5}$ to 2 in head; front anal edge $2\frac{1}{5}$ to 3, fin length $2\frac{1}{4}$ to $2\frac{2}{5}$; upper caudal lobe $3\frac{1}{2}$ to $4\frac{3}{5}$ in body to caudal notch; front subcaudal edge $2\frac{1}{3}$ to $2\frac{2}{5}$ in head; pectoral $1\frac{1}{3}$ to $1\frac{2}{5}$, width $1\frac{2}{5}$ to $1\frac{3}{5}$ its length; ventral length $1\frac{3}{4}$ to $1\frac{1}{5}$ in head.

Uniform drab gray above, under surfaces paler to white. Teeth whitish.

Two, 359 to 415 mm., 1931. Also two, 620 to 745 mm., 1932.

RHINOBATIDAE

Rhinobatos annulatus Müller and Henle.

Depth $11\frac{3}{5}$ to 18 to subcaudal origin; head $3\frac{3}{4}$ to $4\frac{1}{5}$. Snout tip to eye $1\frac{2}{5}$ to $1\frac{1}{2}$ in head, blunt at tip, edges straight or slightly concave; eye 7 to $11\frac{1}{2}$, 6 to $7\frac{2}{5}$ in snout, $2\frac{4}{5}$ to $3\frac{4}{5}$ in interorbital; mouth width $3\frac{3}{4}$ to $4\frac{1}{5}$ in head, nearly straight or undulations very feeble; teeth about 60 rows; nostrils large, oblique, $1\frac{3}{4}$ to $1\frac{4}{5}$ in mouth width, subequal with internarial, front valve nearly meeting fellow at mid line so lower edge little greater than internarial; preoral length $1\frac{1}{3}$ in head; interorbital $3\frac{1}{5}$ to $3\frac{2}{5}$, level. Second and third gill openings largest. Spiracle with 2 folds, outer little larger.

Scales minute, finely rough to touch. Median vertebral row of small, compressed spines down back, 1 or 2 groups on each shoulder; row of smaller spines around each inner edge of orbit and spiracle.

Front edge of first dorsal $2\frac{1}{3}$ to $2\frac{2}{3}$ in head; of second dorsal $2\frac{2}{5}$ to $2\frac{1}{2}$; caudal length $1\frac{1}{2}$ to $2\frac{1}{8}$; pectorals form triangular disk, width $1\frac{1}{2}$ its length as measured from snout tip; ventral length $1\frac{1}{3}$ to $1\frac{2}{3}$ in head; outer edge of clasper 3.

Olive or wood brown above. Fawn color to cinnamon on translucent area each side of snout and on outer margins of pectorals and ventrals. Some examples with very indistinct, mostly rounded, variable, dark blotches on disk and back above. Below whitish.

Two, 310 to 527 mm., in 1931. Larger "olive yellow, with darker round spots." Also one 675 mm., in 1932.

TORPEDINIDAE

Torpedo panthera (Olfers).

One, 145 mm., 1929.

DASYATIDAE

Dasyatis uarnak (Forskål).

Ventral region of disk and interorbital with small rough asperities; 2 broad tubercles in middle of disk, with row of 9 close-set forward.

Disk brown above, with numerous close-set deep brown rounded blotches, each much greater than pale interspaces and extend out well to disk edges. Tail marked with dark blotches its whole length. Under surfaces of disk and tail whitish.

One, 350 mm. to hind end of ventrals and tail 695 mm. longer, 1929.

Dasyatis schreineri (Gilchrist).

Depth 8 to origin of caudal spine; head $3\frac{3}{4}$. Snout $1\frac{1}{2}$ in head to first gill opening; eye $8\frac{3}{4}$, $6\frac{1}{4}$ in snout, 4 in firm interorbital; mouth width $4\frac{1}{4}$ in head, lower lip broadly papillose; teeth small, close set, about 28 rows above, 26 below; firm interorbital $2\frac{1}{4}$ in head, concave, broadly level medially. First gill opening 10 in head. Spiracle very large, $5\frac{1}{2}$ or about twice eye.

Upper surface of disk and tail finely roughened; row of vertebral tubercles beginning well behind spiracles; under surface of body smooth.

Tail long as disk length, lower terminal fold slightly over half tail length with its depth $\frac{3}{4}$ of eye; spine long as snout; disk broader than long, front pectoral edges convex.

Drab above, mottled rather finely and in contrast with blackish brown. Tail fold blackish. Under surface of body cream white, little grayish or neutral gray around edges of disk.

One, disk length 575 mm., tail 625 mm. Natal coast November 3, 1931. Said to be very uncommon.

MOBULIDAE

Manta ehrenbergii Müller and Henle. Figures 2 (dorsal view) and 3 (ventral view).

Depth $5\frac{1}{2}$ to hind basal edge of dorsal fin; head, measured from middle of snout to first gill opening, $4\frac{1}{2}$, width $1\frac{1}{2}$. Snout, measured from its middle to front eye edge, $1\frac{1}{2}$ times head length; eye $3\frac{1}{2}$ in head, 4 in snout, 8 in

interorbital; mouth width greatly exceeds head, $2\frac{1}{3}$ to hind basal edge of dorsal fin; only teeth in lower jaw, in 3 transverse series and about 42 in length of dental plate, though alternating; interorbital $1\frac{2}{3}$, nearly flat. First gill opening $1\frac{2}{3}$ in head. Spiracle small, about half eye-diameter.

Body entirely smooth.

Tail (tip broken off) to hind basal edge of dorsal $2\frac{4}{5}$ in rest of body length to end of snout, without spine and only very feeble, low median ridge above and below. Disk length from snout tip $2\frac{1}{8}$ in its width, edges of pectorals nearly straight anteriorly, hind ones concave.

Nearly uniform ecru drab. Eyes grayish.

One, 160 mm. to end of broken tail. Embryo from large specimen 5970 mm. (19 feet 7 inches) caught on Natal coast, September 4, 1931. Though I have noted only lower teeth, which are like feeble little papillae or points, the upper jaw shows most of its extent a band of still more feeble or minute points, obscure and only visible under a lens. They are similarly distributed and doubtless disappear with growth.

ALBULIDAE

Albula vulpes (Linnaeus).

Depth 5; head $3\frac{2}{3}$, width $2\frac{1}{2}$. Snout $2\frac{3}{5}$ in head; eye 5, $1\frac{1}{4}$ in snout, $1\frac{1}{2}$ in interorbital; maxillary reaches $\frac{2}{3}$ to eye, expansion $1\frac{1}{3}$ in eye, length $2\frac{1}{8}$ in head; broad bands of minute, villiform teeth in jaws, on vomer and palatines; interorbital $3\frac{1}{3}$, level. Gill rakers $10 + 11$, low rounded tubercles.

Scales $60 + 6$ in lateral line; 9 above, 6 below, 20 predorsal. Fins all more or less densely scaled. Scales with 2 basal radiating striae; apically membranous and finely fringed.

D. III, 14, 1, first branched ray $1\frac{1}{4}$ in head; A. II, 6, 1, first branched ray $3\frac{2}{3}$; caudal $1\frac{1}{2}$, widely forked; least depth of caudal peduncle 3; pectoral 2; ventral $2\frac{1}{2}$.

Dull brown in alcohol, evidently bright silvery white when fresh.

One, 244 mm., 1929. Also one 360 mm. in 1932.

CHIROCENTRIDAE

Chirocentrus dorab (Forskål).

Two, 255 and 352 mm., Natal, 1929.

Chirocentrus nudus (Swainson).

One, 290 mm., 1931. Depth $6\frac{2}{3}$. Following Delsman, and later Hardenberg, I admit this as distinct from the preceding species, chiefly in its shorter and deeper body.

DUSSUMIERIIDAE

Etrumeus micropus (Schlegel).

Depth $5\frac{2}{3}$; head $4\frac{1}{2}$, width $1\frac{1}{2}$. Snout $3\frac{1}{3}$ in head; eye $3\frac{1}{2}$, slightly greater than snout or interorbital, covered with broad adipose membranes; maxillary not quite reaching eye, length $2\frac{1}{2}$ in head; mouth small, terminal; teeth not distinct above, only in mandible, where minute, uniserial, simple; inter-

orbital $4\frac{1}{2}$, level; top of head, cheeks and humeral region venulose. Gill rakers $15 + 33$, finely lanceolate, nearly equal gill filaments or $1\frac{3}{4}$ in eye.

Scales $54 + 4$ (pockets counted); 14 transversely, 17 predorsal, all fallen.

D. III, 14, I, first branched ray $1\frac{3}{8}$ in head; A. III, 8, I, last ray enlarged or long as first branched, which $6\frac{1}{4}$ in head; caudal $1\frac{1}{5}$, well forked; least depth of caudal peduncle $3\frac{3}{4}$; pectoral $1\frac{1}{2}$; ventral $2\frac{5}{8}$.

Back neutral dusky, with under tone of sepia, each scale pocket neutral black. Sides of head and body, including iris, silvery white. Dorsal and caudal pale. Pectoral gray basally, paler to whitish terminally. Ventral and anal white.

One, 190 mm., 1931.

CLUPEIDAE

Sardinella jussieu (Lacépède).

Depth $3\frac{1}{2}$ to $3\frac{3}{4}$; head 4 to $4\frac{1}{4}$, width $2\frac{1}{8}$ to $2\frac{1}{4}$. Snout 3 to $3\frac{3}{8}$ in head from snout tip; eye $3\frac{3}{4}$ to 4, $1\frac{1}{8}$ to $1\frac{1}{4}$ in snout, greater than interorbital, adipose lids broadly covering iris; maxillary reaches to or $\frac{1}{3}$ in eye, expansion $1\frac{1}{2}$ to $1\frac{5}{8}$ in eye, length $2\frac{3}{8}$ to $2\frac{5}{8}$ in head; no median notch in upper jaw; no teeth; interorbital $4\frac{1}{4}$ to $4\frac{3}{4}$ in head, level; preorbital, cheek and preopercle, opercle above, suprascapula and cranial region, venulose. Gill rakers 21 to $28 + 53$ or 54, lanceolate, equal gill filaments or $1\frac{1}{3}$ to $1\frac{3}{8}$ in eye.

Scales 44 to $49 + 4$ or 5 in lateral series; 11 transversely, 12 to 14 predorsal. Scutes 17 to $19 + 14$ to 16. Dorsal and anal with basal scaly sheaths. Caudal largely scaly, 2 alar scales each side. Each scale with 5 to 7 transverse or vertical striae, most all broken at middle of scale; apically numerous minute pits or pores and scale edge fringed.

D. III or IV, 15, I or 16, I, first branched ray $1\frac{1}{4}$? to $1\frac{1}{5}$ in head; A. III, 16, I, last 2 rays enlarged, subequal with first branched ray which $3\frac{3}{8}$? to $4\frac{3}{8}$; caudal 1 to $1\frac{1}{10}$, forked; least depth of caudal peduncle $2\frac{3}{8}$ to $2\frac{1}{2}$; pectoral $1\frac{5}{8}$ to $1\frac{1}{2}$; ventral $2\frac{1}{8}$ to $2\frac{3}{4}$.

Back dark neutral gray to dusky, with slight blue tinge, sides and lower surfaces silvery white. Iris gray or silvery white. Fins pale. Dorsal and caudal pale brown, ends of fins dusky, and dusky blotch close behind fin origin. Lower fins pale to whitish.

One, 141 mm., Natal, 1931. Also one 180 mm., in 1929. Agrees with a series of 39 Philippine specimens, though all smaller. Some show increased gill rakers or ranging to 65 on lower branch of first arch.

Harengula punctata (Rüppell).

Seven, 68 to 102 mm., Natal, 1932.

Hilsa blochii (Valenciennes).

Two, 135 to 214 mm., Natal, 1931. Both with depth $3\frac{1}{5}$. Regan gives the depth for the present species as 3 to $3\frac{3}{8}$, and for the following species $3\frac{2}{5}$ to $3\frac{3}{4}$. Smaller example with $65 + 90$ gill rakers.

Hilsa durbanensis (Regan).

One, 118 mm., Natal, 1932. Differs from Regan's figure of *Clupea dur-*

banensis in the presence of a row of 6 more dark blotches behind suprascapular one, all these smaller, narrowly vertical and less vivid.

Sardinia sagax (Jenyns).

Depth $4\frac{1}{5}$ to 5; head $3\frac{3}{5}$ to $4\frac{1}{5}$, width 2 to $2\frac{1}{4}$. Snout $3\frac{1}{5}$ to $3\frac{1}{4}$ in head from snout tip; eye $3\frac{1}{2}$ to $3\frac{3}{4}$, subequal to little greater than snout or interorbital, adipose membrane broad; maxillary reaches $\frac{1}{3}$ to $\frac{2}{5}$ in eye, expansion $1\frac{2}{3}$ in eye, length $2\frac{2}{5}$ in head from snout tip; no teeth; interorbital 4 to $5\frac{1}{3}$, level; cranium, humeral region and side of head, venulose; opercle with 5 or 6 radiating striae. Gill rakers $50 + 85$, finely lanceolate, equal eye; gill filaments $1\frac{1}{2}$ in gill rakers.

Scales $50 + 4$ (pockets) in lateral series; 11 or 12 transversely, 19 or 20 predorsal. All scales fallen. Scutes $20 + 14$ or 15.

D. III, 14, I, first branched ray $1\frac{3}{4}$ to $2\frac{1}{2}$ in total head length; A. IV, 15, I, last 2 rays enlarged or last subequal with first branched ray, which $4\frac{1}{3}$ to $4\frac{4}{5}$; caudal $1\frac{1}{4}$ to $1\frac{1}{3}$, deeply forked; least depth of caudal peduncle $3\frac{3}{4}$ to $4\frac{1}{3}$; pectoral $1\frac{3}{4}$; ventral $2\frac{9}{10}$ to $3\frac{1}{5}$.

Back neutral dusky, with bluish tinge. Row of 14 dusky neutral spots from shoulder level with eye. Sides and lower surface silvery white. Dorsal and caudal gray, other fins white. Iris silvery white.

Two, 185 to 223 mm., 1931. Also six, 185 to 212 mm., June 23, 1931.

ENGRAULIDAE

Anchoviella indica (Van Hasselt).

Three, 101 to 127 mm., 1932.

Anchoviella holodon (Boulenger).

Depth $4\frac{3}{5}$ to $5\frac{2}{5}$; head $3\frac{3}{4}$ to $3\frac{4}{5}$, width $2\frac{1}{3}$ to $2\frac{1}{2}$. Snout $4\frac{3}{4}$ to 5 in head; eye $2\frac{3}{4}$ to $3\frac{1}{3}$, greater than snout or interorbital, adipose tissues thin; maxillary reaches gill opening, length from snout tip $1\frac{1}{5}$ in head; teeth minute, in narrow bands in jaws; interorbital $3\frac{5}{8}$ to $4\frac{1}{5}$, slightly convex. Gill rakers $23 + 25$, finely lanceolate, $1\frac{1}{4}$ in eye; gill filaments $\frac{1}{3}$ of gill rakers. Branchiostegal membrane narrowly connected across front of isthmus. Upper side of head and humeral region venulose.

Scales 42 or $43 +$ (pockets) in lateral series; 10? transversely, 19 predorsal. Scutes 6 or 7 between pectoral and ventral.

D. II, 12 or 13, first branched ray $1\frac{2}{5}$ to $1\frac{1}{2}$ in head; A. III, 19, I, first branched ray $1\frac{1}{2}$ to $1\frac{3}{5}$; caudal $3\frac{1}{2}$ to $3\frac{2}{3}$ in rest of body, well forked, lobes sharp pointed; least depth of caudal peduncle $2\frac{1}{3}$ to $2\frac{2}{5}$ in head; pectoral $1\frac{2}{5}$ to $1\frac{1}{2}$; ventral $2\frac{1}{5}$ to $2\frac{1}{4}$.

Pale brown, little lighter along ventral edge. Iris and broad lateral band equally wide, bright silvery white. Snout pale. Dark spot at occiput, also top of head and snout with scattered dark dots. Fins pale. Caudal dusted darker terminally.

Seven, 43 to 95 mm., Natal, 1931; eight, 56 to 80 mm., Durban, 1932; five, 55 to 75 mm., St. Lucia, coast of North Zululand. As these are formaline specimens they are very uniformly colored. Black parietal blotch present. Iris brilliant silvery white. Gray dots along body at dorsal and anal bases.

Rudimentary upper caudal rays with dusky dots and middle base of lower caudal lobe with dusky bar extending backward out on lobe. Caudal dusky terminally. The Zululand specimens are interesting as showing the northern extension for the species.

Thrissocles vitirostris (Gilchrist and Thompson).

Depth $3\frac{2}{3}$ to $3\frac{3}{4}$; head $3\frac{3}{4}$, width $2\frac{2}{3}$ to 3. Snout $4\frac{1}{5}$ to $5\frac{1}{5}$ in head; eye $3\frac{1}{5}$ to $3\frac{4}{5}$, greater than snout, greater than interorbital in young to subequal with age, adipose tissues broad and opaque; maxillary reaches slightly beyond gill opening in young, to pectoral origin with age, greatest expansion 2 in eye; teeth small, uniform, conic, uniserial in jaws and extend whole lower edge of maxillary; interorbital $3\frac{1}{2}$ to $3\frac{2}{3}$ in head, convex. Gill rakers $18 + 23$, finely lanceolate, longest $1\frac{1}{5}$ in eye; gill filaments $\frac{3}{4}$ of gill rakers.

Scales 40 or $41 + 3$ or 4 in lateral series; 14 transversely, 20 predorsal. Scutes 16 or $17 + 9$ or 10. Scales very caducous, with 11 or 12 transverse vertical striae, most incomplete medially; circuli very fine, transversely parallel.

D. I, III, 10, I, first branched ray $1\frac{1}{4}$ to $1\frac{1}{3}$ in head; A. III, 37, I or 38, I, first branched ray $1\frac{1}{5}$ to 2; caudal well forked, $3\frac{2}{3}$ to $3\frac{2}{3}$ in rest of body; least depth of caudal peduncle $2\frac{1}{2}$ to $2\frac{3}{4}$ in head; pectoral $1\frac{1}{4}$ to $1\frac{1}{2}$; ventral $2\frac{4}{5}$ to $3\frac{1}{5}$.

Back drab gray to pale brown, sides paler to gray white or silvery white, especially below, but no defined silvery lateral band. Snout pale or translucent and top of head gray. Iris silvery white. Lower side of head and mandible silvery white. Dorsal and caudal grayish, hind edges of latter dark gray, other fins whitish.

One from St. Lucia, 56 mm. in 1927 and two, 81 to 83 mm. in 1932. Also two 180 to 190 mm., Durban, former January 2, 1932, latter 1931.

Thrissocles setirostris (Broussonet).

Depth $3\frac{4}{5}$; head $4\frac{2}{3}$, width $2\frac{2}{3}$. Snout $4\frac{2}{3}$ in head; eye $4\frac{1}{4}$, greater than snout, $1\frac{1}{5}$ in interorbital; maxillary very long, medially with rather broad cutaneous flange above and reaches end of depressed ventral, expansion $1\frac{1}{3}$ in eye; interorbital $3\frac{2}{3}$ in head, convex. Gill rakers $6 + 10$, lanceolate, little longer than gill filaments or $1\frac{1}{3}$ in eye.

Scales $39 + 4$ (pockets) in lateral series; 9 transversely, 20 predorsal. Large venulose area at shoulder. Scutes $15 + 13$.

D. II, 11, I, first branched ray $1\frac{1}{6}$ in head; A. III, 34, I, first branched ray $1\frac{2}{5}$; least depth of caudal peduncle 2; caudal forked; pectoral $1\frac{1}{6}$; ventral $1\frac{1}{6}$.

Back gray brown, sides and below silvery white. Fins and maxillary all pale. Iris gray white.

One, 120? mm., 1929, also one 92 mm. in 1932.

GONORHYNCHIDAE

Gonorhynchus gonorynchus (Linnaeus).

One, 80 mm., Natal, 1931. Depth $12\frac{3}{4}$.

SALMONIDAE

Salmo fario Linnaeus.

One, 217 mm. Yarrow River, Natal (introduced), 1932.

SYNODONTIDAE

Saurida argyrophanes (Richardson). Figure 4.

Depth $6\frac{1}{2}$; head 4, width 2. Snout $4\frac{1}{2}$ in head; eye $5\frac{1}{2}$, $1\frac{1}{2}$ in snout, equals bony interorbital; adipose eyelids broad; maxillary extends $1\frac{1}{2}$ eye diameters beyond eye, length $1\frac{1}{2}$ in head; lower jaw little shorter than upper; single enlarged row of teeth in each jaw; 2 bands of palatine teeth, outer band longer and narrower; interorbital 5, concave.

Scales to 32 in lateral line; 4 above, 6 below, 15 predorsal; 3 basal radiating striae, circuli fine and obsolete apically. Axillary pectoral scale $1\frac{1}{2}$ in fin, ventral 2.

D. 1, 10, 1, first branched ray (broken) $1\frac{1}{2}$ in head; adipose fin length $4\frac{1}{2}$; A. 1, 9, 1, first branched ray $3\frac{1}{2}$; caudal $1\frac{1}{2}$; least depth of caudal peduncle 4; pectoral $1\frac{1}{2}$ or equals combined postocular, rays 1, 13; ventral $1\frac{1}{2}$ in head, rays 1, 9.

Brown above, paler below. Ten obscure ill-defined dark spots along lateral line. Iris slate, with violet and green reflections. Fins all brownish, lower ones paler.

One, 228 mm., Natal, 1932. An addition to the fauna of South Africa. It approaches the descriptions of *Saurida argyrophanes* more closely than any other. Only in the presence of 4 scales above the lateral line, instead of $4\frac{1}{2}$ as given by Günther, does it vary from his account. Jordan and Herre, however, give 4 scales above lateral line. Günther's description of *Saurida grandisquamis* differs as he gives D. 12 or 13 and A. 11, and orbit with adipose eyelids moderately developed.

Saurida gracilis (Quoy and Gaimard).

One, 203 mm., 1931.

Synodus japonicus (Houttuyn).

Two, 190 to 200 mm., Natal, 1932.

MURAENIDAE

Muraena mossambica (Peters).

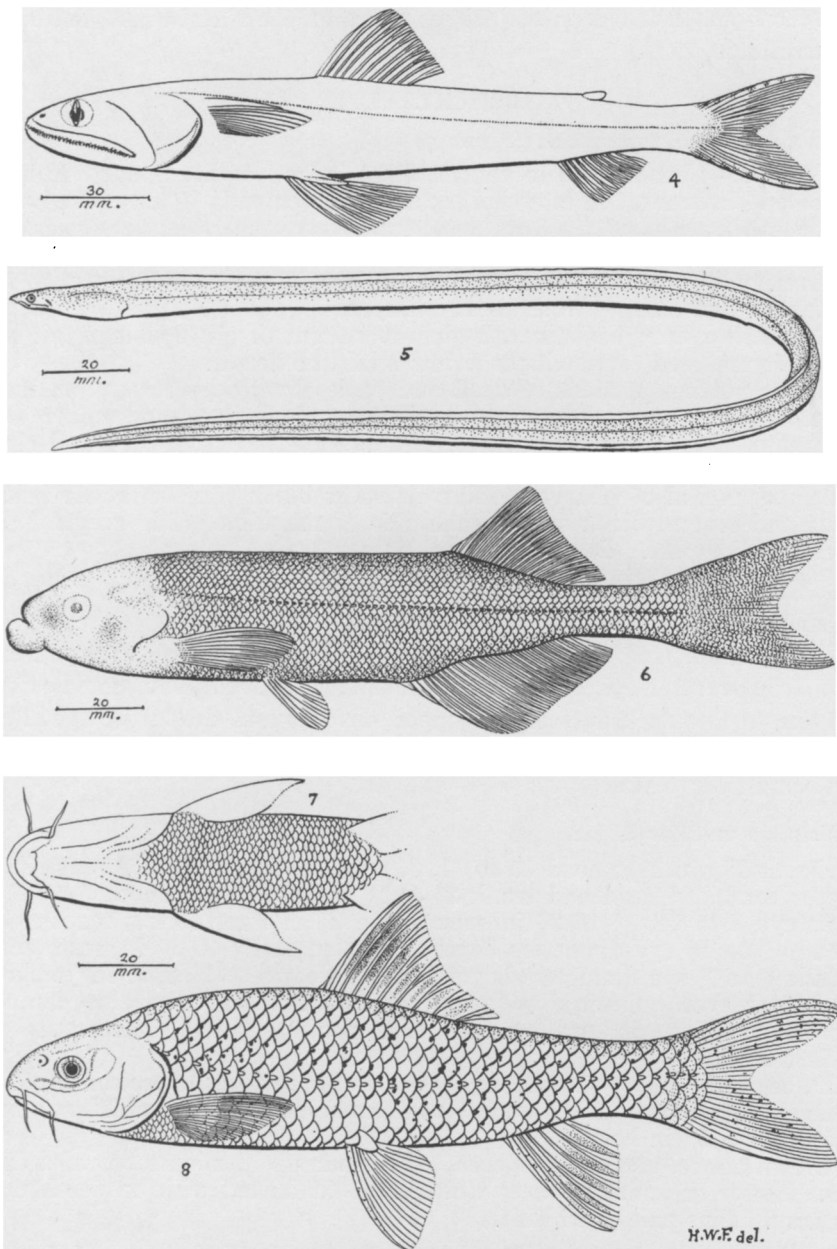
Depth $12\frac{1}{2}$ to $15\frac{1}{2}$; head $6\frac{1}{2}$ to $7\frac{1}{2}$, $3\frac{1}{2}$ to anal, width 2 to $2\frac{1}{2}$ in its length. Snout $4\frac{1}{2}$ to $4\frac{3}{4}$ in head from snout tip; eye $6\frac{1}{4}$ to 7, $1\frac{1}{4}$ to $1\frac{1}{2}$ in snout, subequal to $1\frac{1}{2}$ in interorbital; maxillary extends $\frac{1}{4}$ eye diameter beyond eye, length $2\frac{3}{8}$ to $2\frac{3}{4}$ in head from snout tip; lips broad and free laterally; broad bands of villiform teeth in jaws, about 6 irregular transverse series, lower in 5 to 7 series; interorbital $4\frac{1}{4}$ to 6 in head from snout tip, level. Gill opening $5\frac{1}{4}$.

Scales slender. Skin smooth. Lateral line distinct, axial.

Dorsal origin midway between gill opening and vent or nearer former, fin height 5 in total head length; caudal $5\frac{1}{4}$ to 6; pectoral $2\frac{3}{8}$ to 3.

Back and upper surfaces brown to slate gray, under surface of head, belly and tail whitish. Eye socket cream white. Iris gray. Lips pale. Vertical fins brown. Pectoral pale, dotted minutely with brown.

One, 352 mm., Klivot Spruit, South Africa, 1929; one 390 mm., Paulpietersburg Dam, January 20, 1932.



4. *Saurida argyrophanes*. 5. *Caecula natalensis*. 6. *Gnathonemus pongolensis*.
7, 8. *Barbus stigmaticus*.

A small eel, 107 mm. long, probably belongs in this genus. It was taken from the stomach of a deep-sea fish, captured off the Natal coast, and is now unidentifiable, 1932.

OPHICHTHYIDAE

Caecula natalensis new species. Figure 5.

Depth $41\frac{1}{2}$; head 13, $6\frac{1}{4}$ to vent, width 5 in its length. Snout 7 in head; eye $13\frac{1}{4}$, $1\frac{1}{5}$ in snout, 1 in interorbital; maxillary extends $1\frac{1}{5}$ times eye behind eye, length from snout tip 3 in head; teeth very small, simple, uniserial in jaws, narrow biserial rows on vomer, approximating posteriorly; interorbital 13, level. Gill opening $10\frac{1}{4}$, little greater than interbranchial space.

Lateral line distinct from above pharynx.

Dorsal low though distinct, begins over front of gill opening; tail ends in free compressed cartilaginous point; anal like dorsal.

Upper median portions of head and back olive, sides russet and under surfaces pale vinaceous cinnamon. Under a lens back and upper sides seen minutely dotted with dark olive, dark dots more crowded and closer along median line. Some scattered dusky dots or specks on sides of head and upper region of pharynx. Narrow short black transverse bar behind rictus and several black specks each side of mandible. Iris gray. Nasal tubes and lips pale. Dorsal and anal pale.

A.N.S.P., No. 55068, type. Blue Lagoon, Umgeni, Natal. Length 303 mm.

Differs from *Caecula acuticeps* (Barnard) in its better-developed fins, head little over 5 in space between gill openings and vent, variegated coloration due to fine dark dots on the upper surfaces and the larger eye, $1\frac{1}{5}$ in snout compared with 4.

(Named for Natal.)

Ophichthus unicolor Regan.

Depth $28\frac{7}{8}$ to $38\frac{3}{4}$; head 10 to 11, $3\frac{2}{3}$ to $4\frac{1}{4}$ to vent, width 3 to $4\frac{3}{8}$ in its length; combined head and trunk $2\frac{1}{3}$ to $2\frac{2}{5}$ in total fish. Snout 6 to $6\frac{1}{2}$ in head; eye 8 to 14, $1\frac{1}{4}$ to $2\frac{2}{5}$ in snout, 1 to $2\frac{1}{4}$ in interorbital; mouth cleft extends $\frac{3}{4}$ to $1\frac{1}{4}$ eye diameters beyond eye, length $2\frac{2}{5}$ to $3\frac{2}{5}$ in head, snout extends $\frac{2}{5}$ to $\frac{4}{5}$ eye diameters beyond mandible; teeth biserial in young to triserial or even quinserial with age, in jaws and on vomer; no canines; interorbital 7 to $7\frac{1}{4}$ in head, convex. Gill openings $1\frac{1}{5}$ to $1\frac{2}{5}$ in snout.

Skin smooth.

D. begins 1 to $1\frac{1}{2}$ pectoral lengths behind hind end of depressed pectoral, fin height equals eye; A. like dorsal; tail ends in firm adipose finless point; pectoral 4 to $5\frac{3}{4}$ in head.

Brown above, under a lens seen to be made up of minute crowded dark dots. Lower or under surfaces whitish. Chin dusted with brownish dots. Iris gray. Fins pale or whitish.

One, 800 mm., Richards Bay, 1928, Romer Robinson; one, 155 mm., Nikuzi River, Natal, 1931. The latter agrees fairly well with Regan's text figure in 1908, though with much shorter snout, doubtless due to age.

Evidently *Ophichthys algoensis* Barnard, described with triserial teeth, is synonymous.

Oxystomus serpens (Linnaeus).

Depth 44; head 13, $4\frac{2}{3}$ to vent, width $3\frac{3}{4}$ in its length; combined head and trunk $1\frac{1}{2}$ in tail. Snout $4\frac{1}{2}$ in head, conic, slender; eye 11, $2\frac{2}{3}$ in snout, equals interorbital; mouth cleft extends 2 eye diameters beyond eye, $2\frac{1}{4}$ in head, snout extends $\frac{1}{2}$ eye diameter beyond slender mandible; single row of conic teeth in each jaw, 4 canines in front above, first pair protruding beyond end of mandible; 3 lower front mandibular canines; median row of 7 vomerine teeth, not quite extended to eye, last 4 enlarged; inner lateral series of small upper teeth, begin little before eye; interorbital 11, nearly level. Gill opening $1\frac{3}{4}$ in snout.

Dorsal begins eye diameter behind pectoral, which rounded, $4\frac{1}{4}$ in head.

Dark brown above, little paler on under surface.

One, 922 mm., from line boat deep sea off Durban, 1929.

ECHIDNIDAE

Lycodontis picta (Ahl).

Two, 35 to 50 mm., rock pools Natal. Smaller uniformly dark with pale vertical fins, larger uniformly pale yellowish brown, August 29, 1931.

Lycodontis undulata (Lacépède).

One, 160 mm., Natal, 1932.

Uropterygius tigrinus (Lesson).

Depth $21\frac{1}{2}$; head $13\frac{1}{4}$, $8\frac{1}{2}$ to vent, width $2\frac{1}{2}$ in its length. Snout $6\frac{1}{2}$ in head; eye 15, $2\frac{1}{2}$ in snout, $2\frac{1}{3}$ in interorbital; mouth cleft extends $2\frac{1}{4}$ times eye behind eye, length from snout tip 3 in head; teeth rather large, biserial in jaws, patch of slightly larger anteriorly in each and row of smaller teeth down vomer; interorbital $7\frac{1}{8}$ in head, high, convex. Gill opening long as eye.

No fins. End of tail with slight terminal keel.

Back brick red to burnt sienna, becoming ecru drab on lower sides and under surfaces. About 50 large black blotches on back irregularly. An irregular lateral row of black blotches and also a median ventral row. Smaller black spots, very variable, in pale interspaces. Muzzle with small, crowded dark spots.

One 808 mm., Bluff Rocks, Natal, 1932.

PLOTOSIDAE

Plotosus anguillaris (Bloch).

Two, 175 to 238 mm., Natal, 1932. Also two, 154 to 158 mm. in 1931, and two, 250 to 270 mm. in 1929.

CLARIIDAE

Clarias capensis Valenciennes.

Depth $6\frac{7}{8}$; head $4\frac{2}{3}$, width $1\frac{1}{4}$. Snout $2\frac{3}{4}$ in head; eye $8\frac{1}{4}$, $3\frac{1}{4}$ in snout profile, 5 in interorbital; mandible included in upper jaw; villiform teeth

in moderately wide bands in jaws, slightly narrower similar band across vomer; maxillary barbel reaches little beyond depressed pectoral or very slightly beyond dorsal origin; nasal barbel slightly behind gill opening or $1\frac{1}{3}$ in head; outer mental barbel reaches little beyond depressed pectoral spine or slightly longer than head; inner mental reaches gill opening or $1\frac{1}{4}$ in head; interorbital $1\frac{1}{2}$, nearly level; interorbital fontanel $4\frac{1}{2}$, occipital fontanel little less than eye. Gill rakers $7 + 39$, lanceolate, $1\frac{1}{3}$ in gill filaments, which equal $1\frac{1}{3}$ eye diameters.

Head smooth above, covered with thin skin. Few feeble radiating striae on opercle. Occipital extension only reaches $\frac{1}{4}$ in space to dorsal. Predorsal, cranium and back above, with many minute pores.

D. 70, fifth ray $3\frac{1}{3}$ in head; A. 52, fifth ray 4; caudal $1\frac{1}{2}$, convex behind, free from dorsal and anal; least depth of caudal peduncle $2\frac{1}{8}$; pectoral $1\frac{1}{2}$, outer spine edge with 15 low spinules; ventral $2\frac{1}{4}$, inserted nearer snout tip than caudal base by ventral length.

Back brown, under surface whitish. Head above, back and sides marbled or blotched with darker brown. Dorsal marbled dark brown, edge pale. Anal whitish, marbled pale brown basally. Caudal pale brown, with broad white basal band. Paired fins pale brown, pale or whitish marginally. Nasal and maxillary barbels brown, mentals whitish. Iris gray.

One, 218 mm., Bethlehem, South Africa, 1929.

Approaches the description by Gilchrist and Thompson based on an example from German South West Africa, but it is said to have the nasal barbel only $\frac{2}{3}$ length of head and dark band on caudal base. It agrees, however, in the base of the last dorsal ray 2 eye diameters from caudal base.

SCHILBEIDAE

Eutropius depressirostris (Peters).

One, 175 mm., Wanetzi River.

AMPHILIIDAE

Amphilius natalensis Boulenger.

One, 36 mm., Reit Vlei, Natal, Feb. 1931; one, 33 mm., Karkloof River, Natal, Sept. 9, 1931. End of tail, as defined within limits of caudal, bordered with neutral blackish, broadly vertical at caudal base, though less conspicuous along bases of rudimentary rays invested with adipose tissue both above and below, and forward to adipose fin and anal alike.

Also one, 74 mm., Krantzklloof, Natal, May 24, 1917.

TACHYSURIDAE

Galeichthys feliceps Valenciennes.

Depth 5; head $3\frac{3}{4}$, width $1\frac{1}{3}$. Snout $2\frac{1}{8}$ in head; eye 7, $2\frac{3}{4}$ in snout, $3\frac{1}{4}$ in interorbital; teeth in broad villiform bands in jaws and similar band across palate; maxillary barbel reaches end of opercle; outer mental barbel $2\frac{1}{4}$ in head, inner $2\frac{1}{2}$; interorbital $2\frac{1}{4}$, with broad deep median depression; small occipital fontanel half of eye. Gill rakers $4 + 9$, lanceolate, equal gill filaments, which $1\frac{1}{3}$ in eye.

Top of head smooth, also predorsal and humeral regions.

D. I, 6, front edge of spine with weak antrorse serrae, first ray $1\frac{1}{2}$ in head; adipose fin length $2\frac{2}{3}$; A. v, 11, 1, first branched ray $2\frac{1}{4}$; caudal $1\frac{1}{8}$, upper lobe longer, fin well forked; least depth of caudal peduncle $3\frac{1}{3}$; pectoral $1\frac{2}{5}$, spine with 21 slight antrorse serrae along outer edge terminally; ventral $1\frac{3}{4}$.

Back dusky or neutral drab, below white. Barbels neutral drab. Iris gray. Fins brownish. Pectoral and dorsal spines pale.

One, 443 mm., Natal coast, 1929.

BAGRIDAE

Gephyroglanis sclateri Boulenger.

Depth 5; head $3\frac{4}{5}$, width $1\frac{1}{5}$. Snout $2\frac{1}{4}$ in head; eye $7\frac{4}{5}$, $3\frac{1}{3}$ in snout in profile, $2\frac{2}{3}$ in interorbital; maxillary reaches half way in snout, length $3\frac{1}{2}$ in head; mouth width $2\frac{2}{3}$; lower jaw little shorter than upper; lips rather thick and fleshy; maxillary barbel reaches $\frac{3}{4}$ in eye, outer mental extends slightly beyond eye, inner mental $\frac{1}{2}$ outer; teeth villiform, in bands, upper medianly with width half of eye; interorbital $3\frac{1}{5}$ in head, very slightly convex. Gill rakers $5 + 12$, lanceolate, $\frac{1}{2}$ of gill filaments, which equal $1\frac{1}{2}$ eye diameters.

Skin smooth. Humeral extension slightly rugose.

D. I, 6, 1, fin $1\frac{1}{3}$ in head, spine $1\frac{1}{3}$ in fin, edges smooth; adipose fin length $1\frac{1}{8}$ in head; A. iv, 10, 1, fin little smaller than adipose fin, third ray 3; caudal $1\frac{2}{5}$, with broadly rounded lobes, upper longer; least depth of caudal peduncle $2\frac{1}{4}$; pectoral $1\frac{3}{4}$, outer edge of spine smooth, inner with 13 serrae; ventral $2\frac{1}{3}$; humeral extension $1\frac{3}{8}$ in pectoral spine.

Back brown, below paler to creamy white. Few scattered ill defined dark spots or cloudings on back. Iris slate. Fins brownish, paired ones grayish terminally. Barbels dark.

One, 253 mm., Bethlehem, 1929.

MORMYRIDAE

Gnathonemus pongolensis, new species. Figure 6.

Depth $5\frac{1}{4}$; head $4\frac{1}{3}$, width $2\frac{1}{5}$. Snout $3\frac{1}{2}$ in head from snout tip; eye 9, $2\frac{2}{5}$ in snout, $3\frac{1}{2}$ in interorbital; mouth cleft short, broad, extends about $\frac{1}{4}$ to eye, width $4\frac{2}{3}$ in head; mandibular pad globular, large, extends well before snout; teeth 5 above, 6 below, small, truncate; interorbital $3\frac{1}{4}$, convex. Gill rakers $4 + 4$, short points, $\frac{1}{4}$ of gill filaments, which equal eye.

Scales $72 +$ in lateral line; 10 above, 13 below, 63 predorsal, 16 around caudal peduncle. Caudal largely scaly. Scales with 39 to 43 marginal striae; circuli moderately fine.

D. III, 19, 1, first branched ray $1\frac{3}{4}$ in total head length; A. III, 24, 1, first branched ray $1\frac{2}{5}$; caudal $1\frac{1}{5}$, well forked; least depth of caudal peduncle 3, or $2\frac{1}{2}$ in its length from last anal ray base; pectoral $1\frac{1}{3}$ in head, rays 1, 10; ventral $2\frac{1}{4}$.

Color olive to hair brown, irregularly mottled with paler, under surfaces not paler than upper. Iris grayish. Fins all pale brown.

A.N.S.P., No. 54950, type. Pongola River, Paulpietersburg District. Length 200 mm.

This species may be distinguished from *Gnathonemus macrolepidotus* (Peters) by its very slender body, its depth $5\frac{1}{4}$ as compared with $3\frac{3}{4}$ to $3\frac{9}{10}$. My species also has long pectorals and more slender caudal peduncle.

(Named for the Pongola River.)

CHARACIDAE

Alestes imberi Peters.

One, 157 mm., Wanetze River, 1932.

CYPRINIDAE

Labeo cylindricus Peters.

Depth $3\frac{3}{5}$; head $4\frac{1}{4}$, width $1\frac{3}{5}$. Snout 2 in head; eye 7, $3\frac{2}{5}$ in snout, $3\frac{3}{5}$ in interorbital; maxillary reaches $\frac{4}{5}$ to eye, length from snout tip $2\frac{1}{5}$ in head; mouth width with lips 2; lips above with minute papillae forming oblique plicae on inner faces, edges not fringed; row of papillae along edge of lower lip, but not forming fringe; edge of rostral flap unevenly fringed; no barbel; interorbital 2 in head, broadly convex. Gill rakers as $12 + 40?$ short bristles, $\frac{1}{5}$ of gill filaments, which equal eye. Pharyngeal teeth ? — 5, 4, 2, compressed, close set, pointed, all with bevelled or oblique grinding surfaces, no hooks.

Scales $37 + 3$ in lateral line; 6 above, 6 below, 14 predorsal, 15 around caudal peduncle. Head with little pit-like scars, evidently from pearl organs, on preorbital and end of snout. Axillary ventral scale $2\frac{3}{4}$ in fin. Scales with 3 to 6 basal radiating striae; 30 to 40 fine close-set incomplete radiating apical striae; circuli fine, obsolete apically.

D. III, 10, 1, first branched ray $1\frac{1}{10}$ times head, upper edge concave; A. III, 5, 1, first branched ray $1\frac{1}{4}$ in head; least depth of caudal peduncle $1\frac{3}{4}$; ventral 1; caudal $2\frac{4}{5}$ in rest of fish, lobes slenderly pointed, fin deeply forked; pectoral $3\frac{4}{5}$.

Back hair brown, under surfaces whitish. Each scale on back and upper surfaces with dark spot, form as longitudinal rows, especially above. Fins all more or less brownish terminally, paler basally, especially lower ones. Iris gray.

One, 275 mm. Mfongozi River. It differs from the figure by Peters as its lower lip is without a fringed edge.

Varicorhinus brucii Boulenger.

Depth $3\frac{3}{5}$; head 4, width $1\frac{3}{5}$. Snout 3 in head; eye $4\frac{3}{4}$, $1\frac{3}{5}$ in snout, $1\frac{3}{4}$ in interorbital; maxillary reaches $\frac{4}{5}$ to eye, length $3\frac{1}{5}$ in head; front barbel $1\frac{1}{2}$ in eye, hind barbel $1\frac{1}{4}$; mandible broad, obtuse, with firm coriaceous edge; interorbital $2\frac{3}{5}$, broadly convex; suborbitals cover $\frac{1}{3}$ of cheek, to preopercle ridge. Gill rakers $5 + 13$, lanceolate denticles, $\frac{1}{2}$ of gill filaments, which $1\frac{1}{4}$ in eye.

Scales $33 + 3$ in lateral line; 7 above, 5 below, 13 predorsal. Scales with 38 basal radiating striae, 27 terminal; circuli fine.

D. IV, 8, 1, first branched ray $1\frac{1}{5}$ in head; A. III, 5, 1, first branched ray $1\frac{1}{5}$; caudal forked; least depth of caudal peduncle 2; pectoral $1\frac{1}{5}$; ventral $1\frac{1}{5}$.

Back brown, below whitish. Iris gray. Dorsal and caudal brownish, other fins paler or only pale brownish medially.

One, 191 mm. (caudal damaged), Natal, 1929.

Varicorhinus nelspruitensis Gilchrist and Thompson.

Depth $3\frac{4}{5}$; head 4, width $1\frac{2}{3}$. Snout $3\frac{1}{10}$ in head; eye $4\frac{1}{3}$, $1\frac{1}{2}$ in snout, 2 in interorbital; maxillary reaches $\frac{7}{8}$ to eye, length from snout tip $3\frac{1}{4}$ in head; mouth width $2\frac{2}{3}$; no barbel; interorbital $2\frac{2}{3}$, broadly convex. Gill rakers $4 + 17$, short points, about $\frac{1}{5}$ of gill filaments which $1\frac{1}{5}$ in eye. Pharyngeal teeth 2, 3, 5—5, 3, 2, hooked, with grinding surfaces.

Scales $32 + 2$ in lateral line; 6 above, 4 below, 13 predorsal; very small on chest and front of belly. Axillary ventral scale 3 in fin. Scales with 17 to 26 basal short marginal striae, 25 to 30 longer apical and more radiating; circuli fine, obscure or absent apically.

D. III, 10, 1, first branched ray 1 in head; A. III, 5, 1, first branched ray $1\frac{1}{4}$; least depth of caudal peduncle 2; pectoral $1\frac{1}{4}$; ventral $1\frac{1}{3}$; caudal $3\frac{1}{4}$ in rest of body, deeply forked and slender lobes pointed.

Back prout's brown, olive above and on scale edges, lower surfaces pale, evidently whitish. Faint grayish underlaid axial band. Iris gray. Fins all pale gray brown. Lower jaw pale.

One, 158 mm., Paulpietersburg Dam, Transvaal, 1932.

Barbus holubi Steindachner.

Depth $3\frac{4}{5}$; head $4\frac{1}{3}$, width $1\frac{2}{3}$. Snout 3 in head; eye 6, $2\frac{2}{3}$ in snout, $2\frac{1}{3}$ in interorbital; maxillary reaches opposite hind nostril or $\frac{4}{5}$ in snout, length $3\frac{1}{2}$ in head; mouth inferior, broad, width 4; lips fleshy, broad, lower forming free hind edge over broad symphyseal region; barbels subequal, all long as eye; interorbital $2\frac{2}{3}$, broadly convex; suborbitals narrow, cover only $\frac{1}{3}$ of cheek. Gill rakers $3 + 11$, short points, $\frac{1}{2}$ of gill filaments, which slightly longer than eye. Pharyngeal teeth 2, 3, 5—5, 2, 2, with broad grinding surfaces and larger end in obtuse hooks.

Scales $36 + 3$ in lateral line; 7 above, 6 below, 16 predorsal, 16 around caudal peduncle; about 32 between isthmus and ventral origin, all much smaller than on sides of body. Scales with 30 basal radiating striae, 53 apical; circuli very fine.

D. III, 8, 1, first branched ray $1\frac{1}{5}$ in head, third simple ray slender, flexible terminally and smooth; A. III, 5, 1, first branched ray $1\frac{1}{4}$, third simple ray flexible, smooth, entire; caudal $1\frac{1}{4}$, well forked, lobes sharply pointed; least depth of caudal peduncle $2\frac{1}{3}$; pectoral $1\frac{1}{3}$; ventral $1\frac{2}{3}$.

Back and upper surfaces livid brown, below paler. Iris dull gray.

One, 235 mm., Natal, 1931. Differs a little from Steindachner's figure in the shorter paired fins and smaller scales on the belly.

Barbus stigmaticus, new species. Figures 7 (ventral view of head and trunk) and 8.

Depth 4 to $4\frac{1}{3}$; head $3\frac{3}{4}$ to $3\frac{4}{5}$, width $1\frac{1}{5}$ to $1\frac{7}{8}$. Snout 3 to $3\frac{1}{4}$ in head; eye $3\frac{3}{4}$ to $6\frac{1}{5}$, $1\frac{2}{3}$ to $2\frac{1}{5}$ in snout, $1\frac{1}{5}$ to $2\frac{1}{5}$ in interorbital; maxillary reaches $\frac{4}{5}$ to $\frac{7}{8}$ to eye, length from snout tip 3 to $3\frac{1}{4}$ in head; mouth width with lips $3\frac{1}{3}$ to $4\frac{1}{2}$, lower jaw shorter; front barbel 1 to $1\frac{1}{2}$ times eye, hind barbel $1\frac{1}{3}$ to $1\frac{2}{3}$; interorbital $2\frac{2}{3}$ to 3 in head, broadly convex; infraorbitals narrow. Gill rakers $5 + 10$, short points, $\frac{1}{4}$ of gill filaments, which $1\frac{1}{4}$ in eye. Pharyngeal teeth 2, 3, 6—5, 3, 2, hooked, with oblique grinding surfaces.

Scales 35 to $40 + 2$ or 3 in lateral line; 7 above, 5 or 6 below, 14 to 17 predorsal; small and crowded on chest and belly. Axillary ventral scale

$2\frac{3}{5}$ to $3\frac{1}{5}$ in fin. Scales with 14 to 16 radiating basal striae, 30 to 32 apical; circuli fine, obsolete or absent apically.

D. III, 8, 1, third simple ray pungent and entire, first branched ray $1\frac{1}{3}$ to $1\frac{2}{5}$ in head; A. III, 5, 1, first branched ray $1\frac{1}{3}$ to $1\frac{1}{5}$; least depth of caudal peduncle $2\frac{1}{4}$ to $2\frac{1}{2}$; pectoral $1\frac{1}{4}$ to $1\frac{1}{2}$, rays 1, 16; ventral $1\frac{1}{2}$ to $1\frac{1}{5}$; caudal $3\frac{2}{5}$ to $3\frac{3}{5}$ in rest of body.

Back dark to dusky olive brown, lower surfaces pale, evidently whitish. In young few scattered gray or dark spots, also over back, variable and often ill defined. With age spots much more distinct and numerous. Iris gray. Barbels brownish. Mandible pale. Fins more or less dusky, especially terminally, lower ones paler to whitish basally.

A.N.S.P., No. 54932, type. Mahai River, altitude 5000 feet. Length 295 mm.

Also Nos. 54928 to 54931, same data. Length 110 to 198 mm. Paratypes, 1932.

Two, 155 to 158 mm. Zunyati River at 4500 feet elevation, Natal. Said to live in stony pools and be a menace to trout culture. One, 100 mm. Singati River, L. A. Day, 1932.

Apparently very close to the imperfectly described *Barbus zuluensis* Gilchrist and Thompson. It is described with snout $3\frac{2}{5}$, barbels nearly long as eye, scales 38, and 3 scales between lateral line and ventral origin.

(*Stigmaticus*, spotty.)

Barbus grouti, new species. Figures 9 (head below) and 10.

Depth $3\frac{3}{5}$ to $3\frac{4}{5}$; head $3\frac{1}{5}$ to 4, width $1\frac{2}{5}$ to $1\frac{1}{5}$. Snout 3 to $3\frac{1}{3}$ in head; eye $4\frac{2}{5}$ to 5, $1\frac{1}{2}$ to $1\frac{1}{3}$ in snout, $1\frac{1}{2}$ to $1\frac{1}{5}$ in interorbital; maxillary reaches $\frac{4}{5}$ to $\frac{7}{5}$ to eye, length $3\frac{1}{3}$ to $3\frac{1}{2}$ in head; mouth width 4 to $4\frac{1}{4}$; lower lip forms complete fold across lower surface of mandible; barbels subequal, about long as eye; interorbital $2\frac{3}{5}$ to $2\frac{4}{5}$, broadly convex; infraorbitals narrow. Gill rakers 5 + 13, short points, about $\frac{1}{5}$ of gill filaments, which equal eye. Pharyngeal teeth 2, 3, 5 — 5, 3, 2, hooked, with oblique grinding surfaces.

Scales 31 or 32 + 2 or 3 in lateral line; 6 or 7 above, 4 below, 3 below to ventral, 14 or 15 predorsal; very small on breast and belly; axillary ventral scale 3 to $3\frac{1}{2}$ in fin. Scales with 18 to 25 basal radiating striae, 35 to 37 apically; circuli basal, fine.

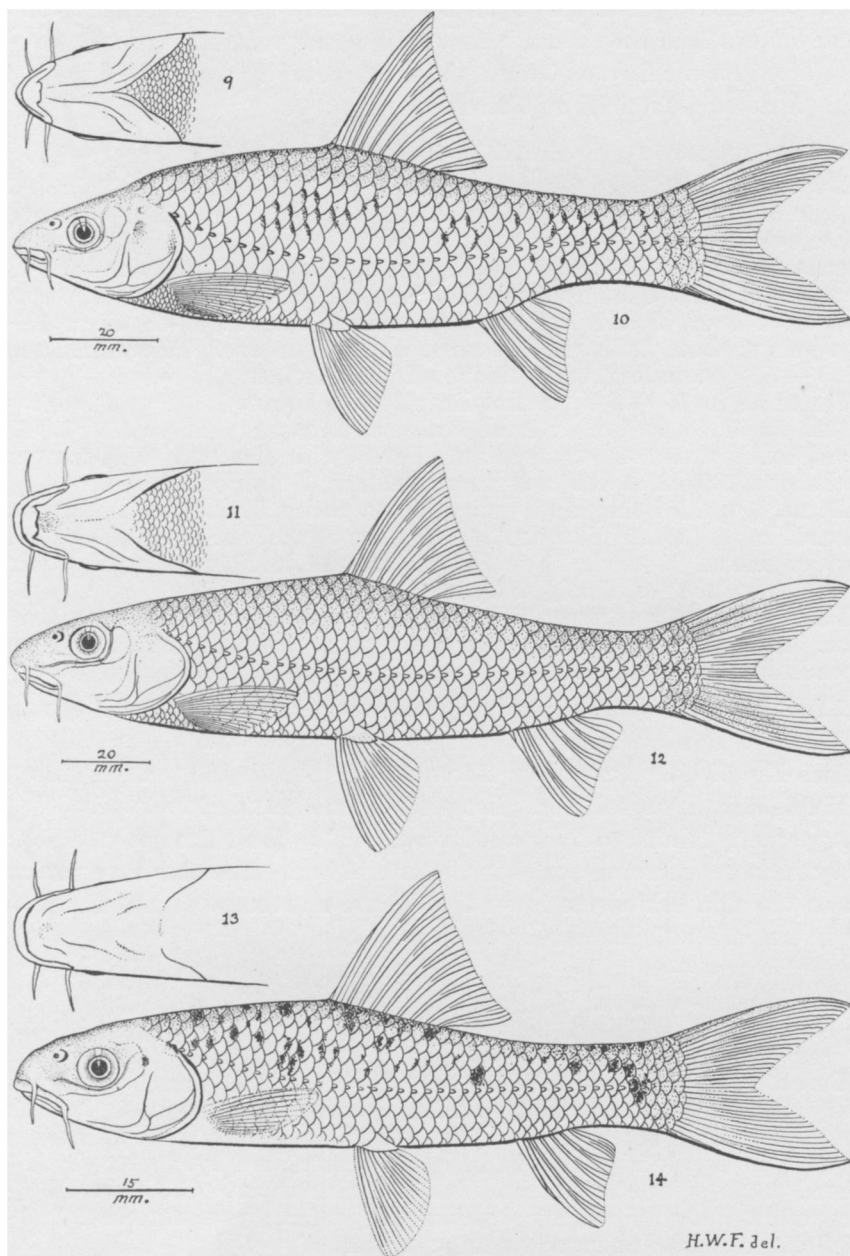
D. III, 8, 1, third simple ray entire, slender, flexible terminally, first branched ray $1\frac{1}{10}$ to $1\frac{1}{5}$; A. III, 5, 1, first branched ray $1\frac{2}{5}$; least depth of caudal peduncle 2 to $2\frac{2}{5}$; pectoral $1\frac{1}{4}$ to $1\frac{1}{3}$, rays 1, 17; ventral $1\frac{1}{3}$ to $1\frac{1}{2}$; caudal $3\frac{1}{4}$ to $3\frac{1}{3}$ in rest of fish, deeply forked and lobes pointed.

Back and upper surface of head olive, sides and lower surfaces much paler, evidently whitish. Some scales with short dark olive upper margins, contrasted or giving variegated appearance, especially left side of type. Iris silver gray. Fins pale, dorsal and caudal little more brown.

A.N.S.P., No. 54914, type. Umsinduzi River, Natal, January 20, 1932. Collection L. A. Day. Length 150 mm.

Also 54922, paratype. Ivongo River. Length 151 mm.

Related to *Barbus robinsoni* Gilchrist and Thompson, especially the lips as "lower with a small median lobe." That species differs in having but



9. 10. *Barbus groui*. 11, 12. *Barbus dendrotrachelus*.
13, 14. *Barbus tugelensis*.

30 scales in lateral line, and 6 above, also dorsal iv, 9 and "situated nearer to root of caudal than to eye". In my specimens the dorsal origin is much nearer the eye than the caudal base, also opposite ventral origin.

(Named for the Rev. A. Grout, who many years ago collected fishes, now in this Academy, obtained at Umvooti.)

Barbus dendrotrachelus, new species. Figures 11 (head below) and 12.

Depth $4\frac{1}{8}$ to $4\frac{1}{5}$; head $3\frac{2}{5}$ to $3\frac{1}{2}$, width $1\frac{9}{10}$ to 2. Snout 3 to $3\frac{1}{4}$ in head; eye 5 to $5\frac{1}{8}$, $1\frac{3}{8}$ to $1\frac{1}{4}$ in snout, $1\frac{3}{4}$ to $1\frac{7}{8}$ in interorbital; maxillary reaches $\frac{3}{4}$ to $\frac{4}{5}$ to eye, length $3\frac{1}{8}$ to $3\frac{1}{4}$ in head; lower lip broad, forms free fold across lower face of mandible, behind which well-developed group of dendritic-like perforations; barbels long, subequal, about long as $1\frac{1}{5}$ times eye; interorbital $2\frac{7}{8}$ to $3\frac{1}{8}$ in head, broadly convex; infraorbitals narrow. Gill rakers $4 + 9$ short points, about $2\frac{1}{4}$ in gill filaments, which $1\frac{3}{8}$ in eye. Pharyngeal teeth 2, 2, 5 — 5, 2, 2, hooked, with oblique grinding surfaces.

Scales 38 or $39 + 3$ in lateral line; 7 or 8 above, 5 below, 4 below to ventral, 15 or 16 predorsal; small scales on breast and most all of belly; ventral axillary scale $2\frac{3}{4}$ to $2\frac{5}{8}$ in fin. Scales with about 25 to 31 marginal basal striae, 23 to 27 apical and more radiating; circuli basal, fine.

D. III, 8, 1, third simple ray pungent and entire, flexible terminally, first branched ray $1\frac{1}{4}$ to $1\frac{1}{2}$ in head; A. III, 5, 1, first branched ray $1\frac{3}{8}$ to $1\frac{3}{4}$; least depth of caudal peduncle $2\frac{1}{2}$ to $2\frac{3}{8}$; pectoral $1\frac{1}{8}$ to $1\frac{3}{8}$, rays 1, 18; ventral $1\frac{3}{8}$ to $1\frac{1}{4}$, rays 1, 8; caudal $3\frac{1}{4}$ to $3\frac{3}{8}$ in rest of body.

Back and upper surfaces light olive, sides and below paler, evidently white. Iris grayish. Barbels and jaws pale. Dorsal and caudal pale brown, other fins whitish.

A.N.S.P., No. 54906, type. Paulpietersburg Dam, Transvaal. January 20, 1932. Length 188 mm.

Also No. 54915. Umsinduzi River, 1932. Length 180 mm. Paratype.

No. 54921. Ivongo River. Length 169 mm., 1932. Paratype.

Apparently related to *Barbus robinsoni* Gilchrist and Thompson, differing chiefly in more numerous scales in the lateral line. The elaborate perforation on the chin behind the lower lips I have not found noticed before for any species of South African *Barbus*.

($\Delta\acute{\epsilon}\nu\delta\rho\omicron\nu$ tree + $\tau\rho\chi\eta\lambda\omicron\varsigma$ throat; with reference to branch-like cluster of perforations behind lower lip.)

Barbus rapax Steindachner.

Depth 4; head $3\frac{1}{2}$, width 2. Snout $3\frac{1}{2}$ in head from snout tip; eye $4\frac{1}{2}$, $1\frac{1}{2}$ in snout, $1\frac{1}{2}$ in interorbital; maxillary reaches eye, length $2\frac{3}{8}$ in head; lower lip not forming fold over chin; mandible slightly protruded; front barbel $1\frac{1}{4}$ in eye, hind barbel but slightly longer than eye; interorbital $3\frac{1}{2}$ in head, broadly convex; infraorbitals low or narrow. Gill rakers $3 + 6$ short points, $\frac{1}{3}$ of gill filaments, which $1\frac{1}{4}$ in eye. Pharyngeal teeth 2, 3, 5 — 5, 3, 2, hooked, with oblique grinding surfaces.

Scales $27 + 3$ in lateral line; 5 above, 4 below, 3 below to ventral, 11 predorsal; scales on breast only slightly smaller than on sides; ventral axillary scale $2\frac{3}{8}$ in fin. Scales with 3 basal radiating striae, 20 to 32 radiating apically; circuli basal, fine.

D. III, 7, 1, third simple ray spine-like, hind edge serrate terminally, first branched ray $1\frac{3}{8}$ in total head length; A. III, 5, 1, first branched ray $2\frac{3}{8}$; least depth of caudal peduncle $2\frac{3}{4}$; caudal 1, well forked, lobes sharply pointed; pectoral $1\frac{3}{8}$; ventral $1\frac{3}{4}$.

Back and upper surfaces olive, each scale with darker olive submarginal blotch. Sides and lower surfaces whitish. Slight grayish axial underlaid streak along tail and sides of caudal peduncle. Iris gray. Barbels brownish whitish terminally. Ends of both jaws brownish. Lips below and posteriorly pale. Fins pale, dorsal and caudal with more or less brown.

One, 146 mm. Paulpietersburg Dam. April 20, 1930.

Barbus tugelensis, new species. Figures 13 (head below) and 14.

Depth $4\frac{1}{2}$; head $3\frac{1}{4}$, width $1\frac{3}{8}$. Snout 3 in head; eye $4\frac{1}{2}$, $1\frac{2}{3}$ in snout, $1\frac{1}{4}$ in interorbital; maxillary reaches $\frac{4}{5}$ to eye, length 3 in head; mouth inferior, lower lips lateral, lower jaw edge only very slightly curved, firm, trenchant and horny; front barbel $1\frac{1}{8}$ in eye, hind one 1; interorbital $3\frac{3}{8}$ in head, low, convex; infraorbitals very narrow. Gill rakers 3 + 10, short points, $2\frac{1}{2}$ in gill filaments, which $1\frac{1}{2}$ in eye. Pharyngeal teeth 2, 3, 5 — 5, 3, 2, hooked, with oblique grinding surfaces.

Scales 37 + 3 in lateral line; 6 above, 5 below, 3 below to ventral, 13 predorsal; breast and belly apparently naked; ventral axillary scale 1 in eye. Scales with 5 to 12 short basal marginal striae, 18 to 20 radiating apically; circuli basal, fine.

D. III, 8, 1, third simple ray pungent, flexible terminally, entire, first branched ray $1\frac{1}{10}$ in head; A. II, 5, 1, first branched ray $1\frac{3}{8}$; least depth of caudal peduncle $2\frac{1}{4}$; pectorals and ventrals broken off; caudal 3 in rest of body.

Back olive, sides and below paler, evidently whitish. Back mottled irregularly with dusky. Iris gray. Jaws and barbels pale. Dorsal and caudal brownish, anal pale or whitish.

A.N.S.P., No. 54916, type. Tugela River, Natal. Collection L. A. Day. Length 100 mm., 1932.

Compared with the types of *Barbus aureus* Cope this species differs in coloration, more advanced dorsal fin, scales and the sharp mandibular edge. This last character suggests the group of *Barbus rhodesianus* Boulenger, *B. victoriae* Boulenger, *B. nasutus* Gilchrist and Thompson, and *B. sabiensis* Gilchrist and Thompson. All these species differ in having much larger scales.

B. tugelensis also with very slight perforation on skin of chin behind symphysis.

(Named for the Tugela River.)

Barbus trevelyani Günther.

Depth 3 to $3\frac{2}{5}$; head $3\frac{1}{8}$ to $3\frac{1}{4}$, width $1\frac{3}{8}$ to $1\frac{3}{4}$. Snout $3\frac{1}{2}$ in head; eye 3, greater than snout, equals interorbital; maxillary reaches $\frac{4}{5}$ to eye, $3\frac{1}{8}$ to $3\frac{3}{8}$ in head; maxillary barbel $\frac{1}{3}$ of eye; interorbital $2\frac{1}{2}$ to $2\frac{3}{4}$ in head, broadly convex.

Scales $30 + 2$ or 3 in median lateral or axial series, only 3 or 4 anterior tubular; 9 transversely, 15 or 16 predorsal. Scales with 6 basal and 6 apical radiating striae; circuli 8 or 9.

D. III, 7, 1, first branched ray $1\frac{1}{2}$ in head; A. III, 5, 1, first branched ray $1\frac{1}{2}$; caudal 1, emarginate; least depth of caudal peduncle 2; pectoral $1\frac{1}{3}$; ventral $1\frac{2}{3}$.

Brown, belly and under surfaces paler. Diffuse dark spot at caudal base medially. Iris slaty. On trunk and tail narrow dusky axial vertebral line. Diffuse dark spot at caudal base medially.

Two, 28 to 35 mm., Rodivlerkji, Cape Province. L. A. Day. Received in first shipment.

***Barbus trimaculatus* Peters.**

Two, 53 or 54 mm., Campbell's Dam, 1931. Eye $1\frac{2}{3}$ in posterior barbel. Scales $25 + 2$ in lateral line. Only one black spot, which at caudal base.

Two, 115 to 118? mm., Mkuji River, Natal, 1931.

One, 100 mm., Wanetzi River, Natal, 1932.

***Barbus crocodilensis*, new species. Figures 15 (head below) and 16.**

Depth $3\frac{4}{5}$; head $3\frac{2}{3}$, width $1\frac{1}{5}$. Snout $3\frac{1}{4}$ in head; eye $4\frac{1}{2}$, $1\frac{1}{2}$ in snout, $1\frac{1}{3}$ in interorbital; maxillary reaches eye, oblique, length 3 in head; lower lips extend well forward on chin; front barbel $1\frac{1}{4}$ in eye, hind one long as eye; interorbital $3\frac{2}{3}$ in head, low, convex; infraorbitals narrow. Gill rakers $2 + 6$, short points, $\frac{1}{4}$ of gill filaments, which $1\frac{2}{3}$ in eye. Pharyngeal teeth 2, 3, 5 — 5, 3, 2, hooked, with grinding surfaces.

Scales $26 + 2$ in lateral line; 5 above, 3 below, 3 below to ventral, 11 predorsal; only slightly smaller on breast and belly than on sides; ventral axillary scale $3\frac{1}{3}$ in fin. Scales with 7 to 9 short basal marginal striae; 22 to 38 irregular and incomplete apically; circuli basal, moderately fine.

D. II, I, 8, 1, third simple ray enlarged, bony, with fine serrae along hind edge terminally, first branched ray $1\frac{2}{3}$ in head; A. III, 5, 1, first branched ray $1\frac{1}{3}$; least depth of caudal peduncle $2\frac{2}{3}$; pectoral $1\frac{2}{3}$, rays 1, 13; ventral $1\frac{3}{4}$, rays 1, 7; caudal $3\frac{2}{3}$ in rest of fish, well forked, lobes pointed.

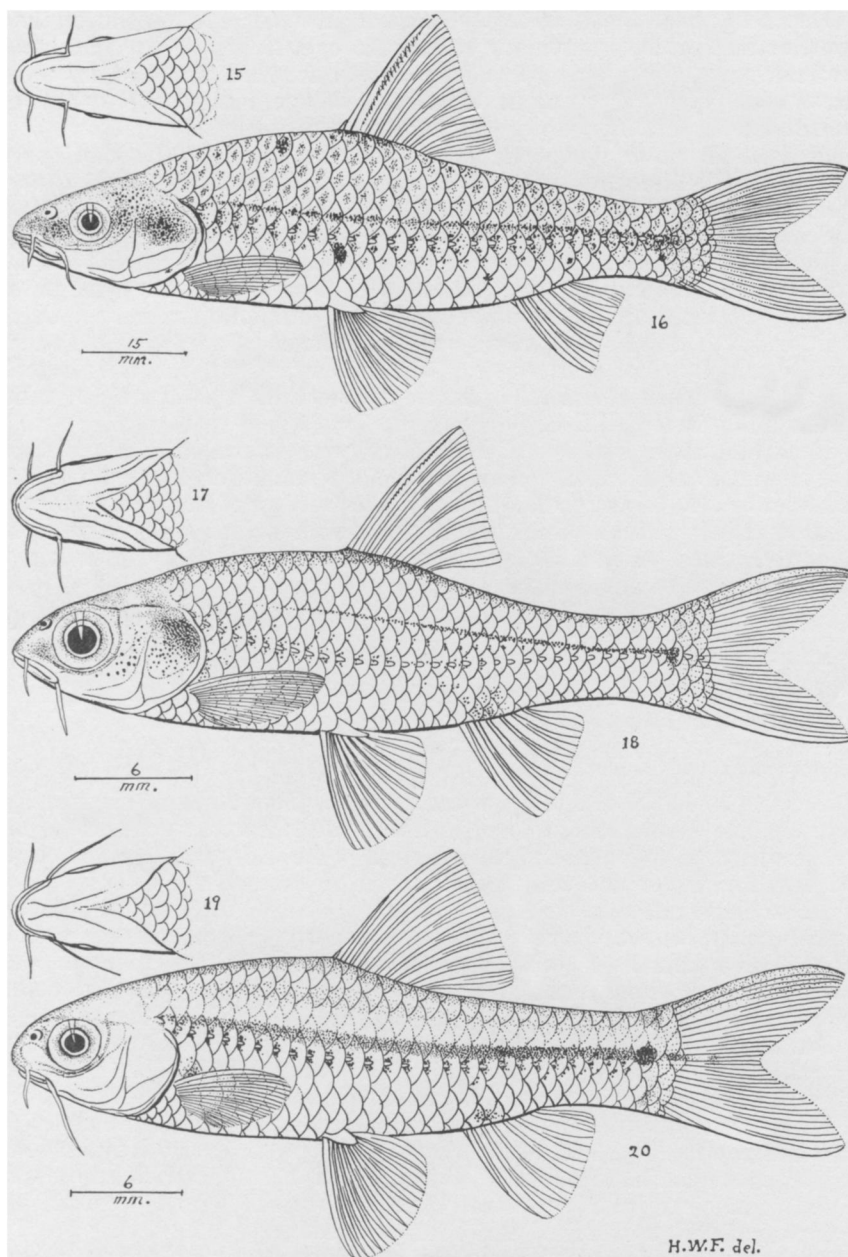
Back dark olive, also upper surface of head, all more or less mottled with darker or dusky. Along middle of side axial dusky line, most distinct on tail and caudal peduncle, though expanded as slightly dark area at caudal base. Under surfaces of body white. Lips dusted with brown dots. Dorsal and caudal brownish, other fins whitish.

A.N.S.P., No. 54917, type. Crocodile River. Collection L. A. Day. Length 119 mm., 1932.

This species is doubtless identifiable with *Barbus hamiltoni* Gilchrist and Thompson from the Sabi River, Transvaal. That species name, however, is precluded by *Barbus hamiltonii* Jerdon,¹ a synonym of *Cyprinus tor* Buchanan-Hamilton. My specimen without the dark borders to the scales shown and described by Gilchrist and Thompson.

(Named for the Crocodile River.)

¹ Madras Journ. Liter. Sci., 1849, pp. 311, 312.



15, 16. *Barbus crocodilensis*. 17, 18. *Barbus ivongoensis*.
19, 20. *Barbus tristigmaturus*.

Barbus ivongoensis, new species. Figures 17 (head below) and 18.

Depth $3\frac{2}{3}$; head $3\frac{2}{5}$, width $1\frac{1}{4}$. Snout $4\frac{2}{5}$ in head; eye $3\frac{1}{5}$, subequal with snout, or interorbital; maxillary reaches to eye, length $3\frac{2}{5}$ in head; mouth terminal, jaws about even; lips extend well forward on chin, leave only narrow symphyseal frenum; front barbel $\frac{2}{5}$ of eye, hind barbel equals eye; interorbital $3\frac{2}{5}$ in head, low, convex; infraorbital rather narrow, covers about $\frac{2}{5}$ of cheek to preopercle ridge. Gill rakers $3 + 10?$, short points, about $\frac{1}{4}$ of gill filaments, which $\frac{1}{2}$ of eye. Pharyngeal teeth 2, 3?, 5—5, 3, 1, hooked, with grinding surfaces.

Scales $31 + 3$ in lateral line; 6 above, 4 below, 3 below to ventral origin, 11 predorsal; scales little smaller on breast and belly than on sides; ventral axillary scale short and blunt. Scales with 5 or 6 basal close-set parallel striae, 7 or 8 longer radiating apically; circuli complete, moderately fine.

D. II, I, 7, I, third simple ray spine-like, pungent, finely serrated on hind edges terminally, first branched ray $1\frac{1}{8}?$ in head; A. III, 5, I, first branched ray $1\frac{2}{3}$; least depth of caudal peduncle $2\frac{1}{3}$; pectoral $1\frac{2}{5}$, rays I, 12; ventral $1\frac{1}{2}$; caudal $3\frac{1}{3}$ in rest of fish.

Back and upper surfaces of head olive, with lateral axial blackish line, most distinct on tail and caudal peduncle, terminating in slightly diffuse dark spot or clouding at caudal base. Under surface of body pale, evidently whitish. Dark median streak down back, both before and behind dorsal. Iris gray. Fins pale, also lips. Dorsal and caudal grayish, other fins whitish.

A.N.S.P., No. 54918, type. Ivongo River, Natal. Length 44 mm., 1932.

Related to *Barbus longicauda* Boulenger, but differing in a shorter caudal peduncle, longer ventral and dark lateral axial streak.

(Named for the Ivongo River.)

Barbus vulneratus Castelnau.

Depth 4 to $4\frac{1}{4}$; head 3 to $3\frac{1}{2}$, width $1\frac{7}{8}$ to 2. Snout $3\frac{1}{5}$ to $3\frac{1}{2}$ in head; eye $3\frac{1}{3}$ to $3\frac{3}{5}$, 1 to $1\frac{1}{3}$ in snout, 1 to $1\frac{1}{4}$ in interorbital; maxillary reaches $\frac{4}{5}$ or to eye, length 3 to $3\frac{4}{5}$ in head; mouth slightly inferior, width about 4; lips rather fleshy, lower not with continuous hind edge across chin; front and hind barbels variable, often subequal, $\frac{1}{3}$ to $\frac{2}{5}$ of eye; interorbital 3 to $3\frac{2}{5}$ in head, broadly convex; infraorbitals cover nearly $\frac{1}{2}$ of cheek to preopercle ridge. Gill rakers $3 + 8$ to 13, short points, $\frac{1}{3}$ of gill filaments, which 2 or nearly 3 in eye. Pharyngeal teeth 2, 3, 5—5, 3, 2, with grinding surfaces, larger hooked.

Scales 28 to $35 + 3$ in lateral line; 5 or 6 above, 4 below, 4 below to ventral origin, 11 to 13 predorsal; 15 around caudal peduncle. Scales with 12 or 13 basal radiating striae; circuli moderately numerous, complete.

D. III, 8, I, third simple ray slender, entire, terminally flexible, first branched ray $1\frac{1}{8}$ to $1\frac{1}{3}$ in head; A. III, 6, I or III, 5, I, third simple ray flexible and smooth, first branched ray $1\frac{2}{5}$ to $1\frac{3}{5}$ in head; least depth of caudal peduncle $2\frac{2}{3}$ to $2\frac{4}{5}$; pectoral $1\frac{1}{3}$ to $1\frac{3}{4}$; ventral $1\frac{2}{5}$ to $1\frac{3}{4}$; caudal $2\frac{4}{5}$ to $3\frac{1}{3}$ in rest of fish, well forked and lobes pointed.

Back brown, sides and below paler to whitish. Upper surface of body with scattered minute dots, darker than general color. Back also with few obscure scattered dark spots or blotches. Along medial axial row of 8 to 11 or more, most conspicuous on caudal peduncle, blackish blotches, each

made up of cluster of black dots, last at middle of caudal base. Iris gray. Mandible whitish. Fins pale, dorsal and caudal grayish.

Four, 40 to 58 mm., Natal, 1931.

One, 33 mm. Ivongo River, Natal, 1932. Differs a little from Gilchrist and Thompson's account as when viewed above shows 4 or 5 irregular incomplete dark cross bands of which 2 before dorsal, faintly connected with dark lateral blotches opposite.

***Barbus burchelli* Andrew Smith.**

Depth $3\frac{1}{2}$; head $3\frac{3}{4}$, width $1\frac{1}{4}$. Snout $3\frac{1}{2}$ in head; eye 5, $1\frac{1}{2}$ in snout, $1\frac{1}{3}$ in interorbital; maxillary reaches $\frac{4}{5}$ to eye or below hind nostril, length $3\frac{1}{3}$ in head; mouth terminal, slightly inferior; lips fleshy, rather narrow, lower largely free laterally, only leave median frenum $\frac{2}{3}$ eye diameter in width; front barbel $\frac{1}{3}$ hind one, which equals eye; interorbital $3\frac{1}{3}$ in head, broadly convex; suborbitals cover $\frac{1}{2}$ of cheek to preopercle ridge. Gill rakers 2 + 10, short rudimentary papillae; gill filaments $\frac{3}{4}$ of eye.

Scales 36 + 2 in lateral line; 6 above, 4 below, 15 predorsal; 16 around caudal peduncle. Scales small on belly, not crowded or especially numerous. Scales with 29 or 30 basal radiating striae, apical 30 to 32; circuli firm, obscure apically.

D. III, 7, 1, third simple ray smooth, flexible, slender, second branched ray $1\frac{1}{2}$ in head; A. III, 5, 1, third simple ray smooth, flexible, slender, first branched ray $1\frac{1}{2}$; caudal $3\frac{1}{3}$ in rest of body, well emarginate, with broad pointed lobes; least depth of caudal peduncle $2\frac{1}{10}$ in head; pectoral $1\frac{1}{2}$; ventral $1\frac{1}{2}$.

Back brown, paler on sides and below, where whitish. Iris gray. Dark brown band from eye median along side to caudal base. Barbels whitish. Lips gray. Dorsal and caudal gray, other fins whitish, though each dusted with gray brown medianly.

One, 81 mm., Umzuukulu District, 1931. Though with a few more scales on caudal peduncle than in Boulenger's description it agrees in every other way.

***Barbus gurneyi* Günther.**

Depth $4\frac{1}{4}$; head $3\frac{3}{4}$, width $1\frac{1}{2}$. Snout $3\frac{1}{3}$ in head; eye $3\frac{2}{5}$, subequal with snout, $1\frac{1}{2}$ in interorbital; maxillary reaches $\frac{2}{3}$ to eye, length $3\frac{1}{2}$ in head; front barbel $1\frac{1}{4}$ eye diameters, hind one $1\frac{1}{2}$; interorbital $2\frac{2}{3}$ in head, broadly convex; suborbitals narrow, leave $\frac{2}{3}$ of cheek exposed. Gill rakers 2 + 7, short weak points.

Scales 28 + 1 or 2 in lateral line; 5 above, 3 below, 11 predorsal. Scales with 12 to 16 basal parallel striae, reticulated medially with 13 to 22 parallel apical striae; circuli moderate.

D. III, 7, 1, first branched ray $1\frac{1}{2}$ in head; A. III, 5, 1, first branched ray $1\frac{1}{2}$; pectoral $1\frac{1}{2}$; ventral $1\frac{1}{2}$; least depth of caudal peduncle $2\frac{1}{5}$, or $1\frac{3}{4}$ in its own length; caudal $3\frac{1}{3}$ in combined head and body to caudal base.

Back brown, each scale dusted with darker. Dark median lateral band from snout tip to caudal base, rather ill defined on head and formed as rather narrow blackish axial or vertebral lateral band on trunk and tail, also ending before black median basal caudal spot of same width, which

not greater than pupil. Fins pale, grayish terminally. Small dark spot on tail close and opposite bases of front anal rays. Iris slaty. Barbels whitish.

One, 57 mm., Umsinduzi River, Natal, 1929, with parasites; and another small example, from Cape Province, 1929. Both differ from Boulenger's figure of the type, which shows the incomplete lateral line not extended beyond the anal fin.

Barbus tristigmaturus, new species. Figures 19 (head below) and 20.

Depth $3\frac{1}{2}$; head $3\frac{3}{4}$ to $3\frac{4}{5}$, width $1\frac{1}{4}$ to 2. Snout $3\frac{3}{8}$ to $3\frac{4}{5}$ in head; eye 3 to $3\frac{1}{8}$, slightly greater than snout, $1\frac{1}{8}$ to $1\frac{1}{4}$ in interorbital; maxillary reaches $\frac{4}{5}$ or to eye, length $3\frac{1}{8}$ to $3\frac{3}{4}$ in head; mouth inferior, mandible small; lower lips extend forward on mandible, though symphyseal frenum rather broad; front barbel $1\frac{1}{4}$ to $1\frac{1}{3}$ in eye, hind barbel $1\frac{1}{8}$ to $1\frac{1}{4}$ times eye; interorbital $2\frac{1}{8}$ to $2\frac{5}{8}$ in head, moderately high, convex; infraorbitals narrow. Gill rakers about $2 + 5$, short feeble points, about $\frac{1}{4}$ of gill filaments, which $1\frac{1}{4}$ in eye. Pharyngeal teeth 1?, 2?, 5—5, 2, 1, hooked, with grinding surfaces.

Scales 28 or $29 + 2$ or 3 in lateral line; 5 above, 3 below, 3 below to ventral origin, 10 or 11 predorsal; but little smaller on breast and belly; axillary ventral scale short, 4 to $4\frac{1}{3}$ in fin. Scales with 5 to 10 basal radiating striae, 5 to 10 longer apically; circuli moderately fine, basal.

D. III, 8, 1, third simple ray slender, entire, largely flexible, first branched ray 1 in head; A. III, 5, 1, first branched ray $1\frac{1}{8}$ to $1\frac{1}{2}$; least depth of caudal peduncle $1\frac{1}{8}$ to 2; pectoral $1\frac{1}{8}$, rays 1, 11; ventral $1\frac{1}{4}$; caudal 3 to $3\frac{1}{10}$ in rest of fish, forked, lobes broad and pointed.

Back and upper surfaces dark brown, well contrasted from pale or whitish sides and lower surfaces. Blackish axial lateral streak from head nearly to round black caudal spot, less than pupil, at caudal base. This set off and followed by another, though less distinct and at bases of median rays of caudal, best seen by transmitted light. Also faint trace of dark or blackish spot same level, or on median caudal rays, falling at center of caudal fin. Blackish spot, not very prominent, on body just above bases of front anal rays. Fins pale, dorsal and caudal scarcely darker. Iris gray. Barbels and mandible pale.

A.N.S.P., No. 54919, type. Ivongo River, Natal. Length 47 mm.

Also No. 54920, paratype. Same data. Length 48 mm.

In its large fins, advanced ventral origin and somewhat similar color pattern this species resembles *Barbus unitaeniatus* Günther. Compared with Angola specimens it is seen to differ in its more obtuse muzzle, hind barbel reaching back beyond eye, upper edge of dorsal fin straight and entirely different coloration.

(Τρία three + στίγμα spot + οὐρά tail; though only the basal spot prominent, the obscure two following are present in both specimens.)

Barbus anoplus Weber.

Depth $3\frac{3}{8}$ to 4; head $3\frac{1}{2}$ to $3\frac{4}{5}$, width $1\frac{3}{4}$ to $1\frac{1}{2}$. Snout $3\frac{1}{2}$ to $3\frac{3}{4}$ in head; eye $3\frac{3}{8}$ to $4\frac{1}{2}$, $1\frac{1}{8}$ to $1\frac{1}{4}$ in snout, $1\frac{1}{4}$ to $1\frac{3}{8}$ in interorbital; maxillary reaches $\frac{4}{5}$ in snout, length 4 in head; upper jaw slightly longer, lips extending well forward on lower jaw and leaving only rather narrow symphyseal frenum;

(only small papilla seems to represent front barbel (larger specimen)) barbel $1\frac{1}{3}$ to 1 in eye; interorbital $2\frac{2}{3}$ to $3\frac{1}{3}$ in head, low, broadly convex; infraorbitals rather narrow. Gill rakers $2 + 9$, short weak points, about $\frac{1}{4}$ of gill filaments, which $1\frac{1}{4}$ in eye. Pharyngeal teeth 2, 3, 5 — 5, 3?, 1?, hooked, with slight grinding surfaces.

Scales 30 to $32 + 2$ in lateral line; 6 above, 4 below, 4 below to ventral origin, 13 predorsal; little smaller on breast and belly than on sides; ventral axillary scale short, blunt, $\frac{1}{8}$ to $\frac{1}{4}$ fin. Scales with 16 to 22 basal radiating striae, 18 to 19 apically; circuli moderately fine, basal.

D. III, 7, 1, third simple ray slender, entire, flexible terminally, first branched ray $1\frac{1}{8}$ to $1\frac{1}{3}$ in head; A. III, 5, 1, first branched ray 2 to $2\frac{2}{3}$; least depth of caudal peduncle 2 to $2\frac{1}{5}$; pectoral $1\frac{2}{3}$ to $1\frac{3}{5}$; ventral $1\frac{2}{3}$ to $1\frac{2}{5}$; caudal $3\frac{1}{3}$ to $3\frac{1}{2}$ in rest of fish, forked, broad lobes pointed.

Brown above, sides and below paler, evidently whitish. Dark median line down back. Diffuse dark to blackish axial band, obscurely on side of head behind eye to caudal base, where ending in small diffuse spot. Iris gray. Lips pale, edged with brown. Barbels pale. Fins brownish, lower ones little paler.

One, 55 mm., Paulpietersburg Dam, January 20, 1932; one, 76 mm., Umkamozana River. Both collection L. A. Day.

Barbus karkensis Gilchrist and Thompson.

Depth $3\frac{2}{3}$ to 4; head $3\frac{1}{2}$ to $3\frac{1}{5}$, width $1\frac{2}{3}$ to 2. Snout $3\frac{2}{3}$ to 4 in head; eye 4 to $4\frac{1}{5}$, 1 to $1\frac{1}{2}$ in snout, $1\frac{1}{10}$ to $1\frac{1}{3}$ in interorbital; maxillary reaches $\frac{7}{8}$ or to eye, length 3 to $3\frac{1}{2}$ in head; mouth terminal or slightly inferior; lower lip extends well forward, leaving rather narrow symphyseal frenum; small subterminal maxillary barbel $\frac{3}{8}$ to equal to eye; interorbital $2\frac{1}{5}$ to $3\frac{1}{3}$ in head, broadly convex; suborbitals narrow, cover $\frac{2}{3}$ of cheek to preopercle ridge. Gill rakers $2 + 7$ or 8 short points, $1\frac{1}{4}$ in gill filaments, which $1\frac{1}{4}$ in eye.

Scales 31 to $34 + 2$ or 3 in lateral line, only first 10 in young tubular with 11 or 12 transversely; older with 7 above, 4 below, 4 below to ventral origin; 13 to 16 predorsal. Scales with 20 to 22 basal radiating striae, 22 to 27 apical, reticulated medially on scale; circuli moderate.

D. III, 7, 1, third simple ray entire, slender, flexible, first branched ray $1\frac{1}{8}$ to $1\frac{1}{4}$ in head; A. II or III, 5, 1, first branched ray $1\frac{1}{2}$ to $1\frac{4}{5}$; least depth of caudal peduncle $2\frac{1}{3}$ to $2\frac{2}{5}$; pectoral $1\frac{1}{5}$ to $1\frac{2}{5}$; ventral $1\frac{2}{3}$ to $1\frac{2}{5}$; caudal $3\frac{1}{8}$ to $3\frac{2}{5}$ in rest of fish.

Brown above, dusted with dusky, lower surfaces paler to whitish. Diffuse dusky lateral band from snout, over postocular and with small dark detached spot at caudal base. Iris gray. Lower jaw dusted with brownish along lips laterally. Barbels whitish. Fins more or less pale brownish.

One, 98 mm., Stegen, Helpma Kaon, April 30, 1928.

One, 58 mm., Helpmahoa, 1931.

Five, 50 to 63 mm., Bethlehem, 1931.

One, 55 mm., Zwartsberg River, 1932. All collection of L. A. Day.

Barbus afer Peters.

Depth $3\frac{1}{2}$ to 4; head $3\frac{1}{4}$ to $3\frac{1}{2}$, width $1\frac{1}{5}$. Snout $3\frac{1}{4}$ to $3\frac{1}{2}$ in head; eye $3\frac{1}{4}$ to $3\frac{1}{2}$, subequal with snout, $1\frac{1}{5}$ to $1\frac{1}{4}$ in interorbital; maxillary reaches $\frac{3}{4}$

to eye or opposite hind nostril, length $3\frac{1}{2}$ to $3\frac{3}{5}$ in head; mouth slightly superior; lips rather fleshy, moderate, lower forms nearly free fold across symphysis or at least defined by shallow crease; single short terminal maxillary barbel each side $\frac{1}{2}$ of eye; interorbital 3 to $3\frac{1}{5}$ in head, convex; suborbitals narrow, cover only $\frac{1}{3}$ of cheek to preopercle ridge. Gill rakers $3 + 11$ short rudimentary papillae; gill filaments $1\frac{2}{3}$ in eye.

Scales 30 or $31 + 2$ in median lateral series, lateral line only developed anteriorly; 10 transversely, 14 predorsal, 12 around caudal peduncle. Scales on belly not crowded, moderate, smaller than on flanks. Scales with 9 basal radiating striae, 6 apical; circuli coarse, rather few, none apical.

D. III, 7, 1 or III, 8, 1, first branched ray $1\frac{1}{4}$ in head, third simple ray flexible, smooth, slender; A. III, 5, 1, first branched ray $1\frac{1}{2}$ to $1\frac{2}{5}$; least depth of caudal peduncle 2 to $2\frac{1}{5}$; pectoral $1\frac{1}{2}$ to $1\frac{2}{5}$; ventral $1\frac{2}{5}$ to $1\frac{9}{10}$; caudal $2\frac{7}{8}$ to $3\frac{1}{5}$ in rest of fish.

Brown above, sides and below paler to whitish. Each scale of upper surfaces with dark submarginal arc. Dark axial line, most distinct on tail and caudal peduncle, ends in small neutral gray spot at caudal base medially. Fins pale, lower ones little lighter marginally. Iris gray. Barbels pale.

One, 35 mm., Mkuzi River, Natal, 1931.

One, 37 mm., Cape Province, 1931. L. A. Day.

Cyprinus carpio Linnaeus.

Two, 100 to 128 mm., Campbell's Dam, Natal, 1931 (introduced).

HEMIRAMPHIDAE

Hyporhamphus knysnaensis (J. L. B. Smith).

Three, 104 to 122 mm., St. Lucia coast, north Zululand, 1932. Ventral origin midway between gill opening and caudal base, beak before upper jaw tip $3\frac{1}{5}$ in rest of body to caudal base. All have lower caudal lobe little longer. Also three, 73 to 100 mm., False Bay, Natal, 1931.

Hemiramphus marginatus (Forskål). Figure 21.

One, 65 mm., St. Lucia Lake, Zululand. Jan. 14, 1932. A very interesting young stage, showing a rather short beak and the long ventrals posterior. New to South Africa.

EXOCOETIDAE

Parexocoetus brachypterus (Richardson).

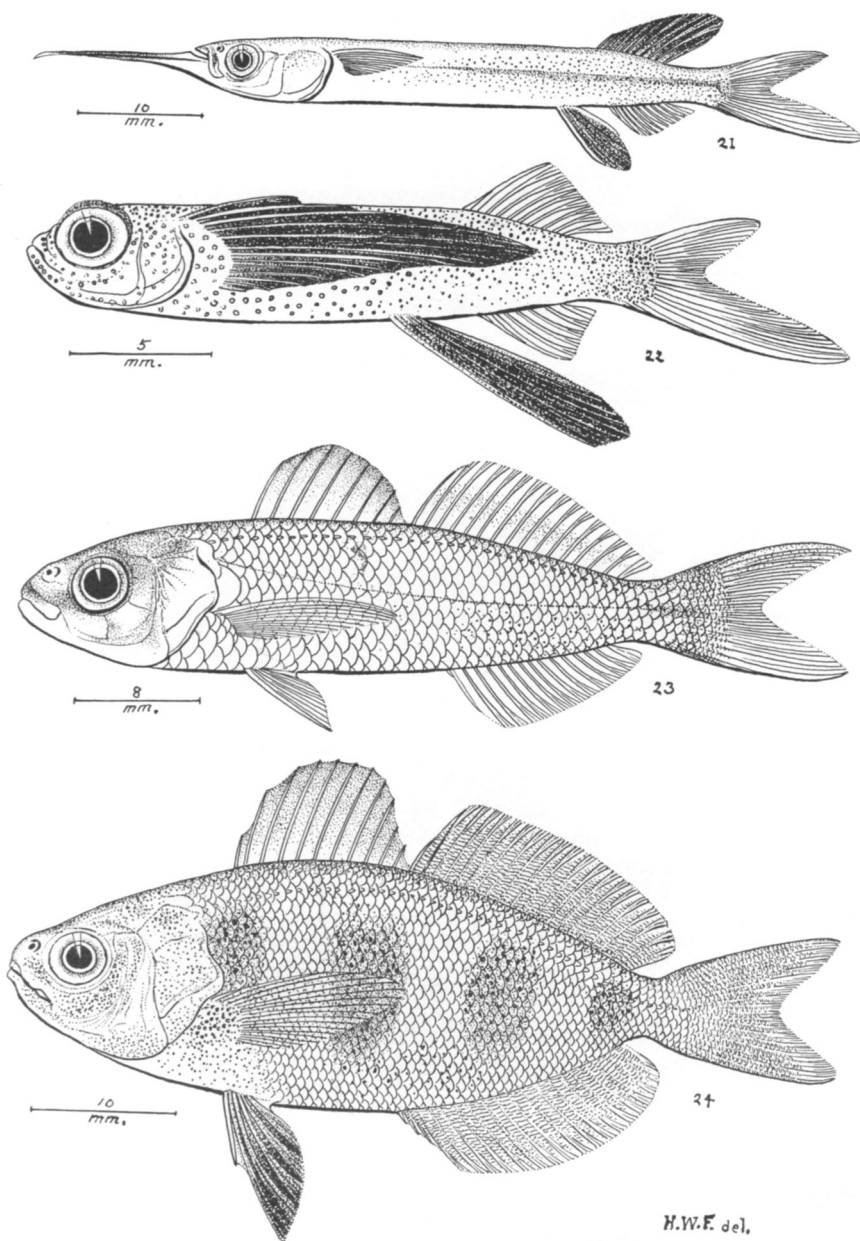
Two, 103 to 143 mm., Natal, 1932; three, 100 to 130 mm., Natal, 1931; two, 117 to 134 mm., Durban, 1929.

Cypselurus nigripennis (Valenciennes). Figure 22.

One, 30 mm., Lake St. Lucia, Zululand, August 27, 1931. New for South Africa.

Cypselurus bahiensis (Ranzani).

Two, 385 to 403 mm., Natal, 1931.



21. *Hemiramphus marginatus*. 22. *Cypselurus nigripennis*.
23. *Cubiceps longimanus*. 24. *Psenes guttatus*.

CORYPHAENOIDIDAE***Coelorhynchus flabellispinis* (Alcock).**

Depth $8\frac{1}{8}$; head $3\frac{5}{8}$, width $2\frac{3}{8}$. Snout $2\frac{1}{4}$ in head; eye $5\frac{1}{8}$, orbit 4, eye $2\frac{1}{3}$ in snout, $1\frac{1}{8}$ in interorbital; preoral length $2\frac{3}{8}$; maxillary extends back opposite hind eye edge, length from its own tip in front $3\frac{1}{8}$ in head; mouth width $4\frac{2}{5}$; mandibular barbel $\frac{1}{2}$ orbit; teeth conic, moderate, 3 or 4 irregular rows above and little larger, 5 or 6 rows below; interorbital $4\frac{3}{4}$, low, nearly level or only slightly depressed medially. Gill rakers on second arch as 7 low spinescent tubercles, about $\frac{1}{3}$ gill filaments, which $3\frac{1}{2}$ in orbit.

Scales about 120 in lateral line; 4 above, 9 below, 10 predorsal; but little smaller on breast than on sides. Scales with 5 entire, radiating, apical keels, not extended beyond scale edges; circuli moderate, complete.

D. II, 9—107, first branched ray $2\frac{3}{8}$ in head; A. 109, fin height $5\frac{4}{5}$; pectoral $2\frac{3}{8}$; ventral 3, first ray filamentous.

Back brown, sides and below paler. Belly with gray blue tint. Iris gray. Mandible whitish. Fins all more or less brownish.

One, 330 mm., Natal coast, 1932.

***Coelorhynchus denticulatus* Regan.**

One, 200 mm., off Tegula River mouth, Natal, 1929.

BOTHIDAE***Pseudorhombus arsius* (Buchanan-Hamilton).**

Two, 68 to 169 mm., Natal, 1931; two, 92 to 123 mm., Durban, 1932.

***Engyprosopon grandisquama* (Schlegel).**

Depth $1\frac{7}{8}$; head $3\frac{4}{5}$, width $3\frac{1}{5}$. Snout $4\frac{4}{5}$ in head from snout tip; eye 3, greater than snout or interorbital; maxillary vertical, reaches front of eye, length $3\frac{1}{2}$ in head from snout tip; interorbital $5\frac{1}{3}$, concave. Gill rakers 7 short points, $\frac{1}{3}$ of gill filaments, which $\frac{1}{2}$ of lower eye.

Scales 42 in lateral line to caudal base; arch $4\frac{1}{4}$ in straight section; 13 scales above, 17 below.

D. 84, fin height $2\frac{1}{4}$ in total head; A. 60, fin height $2\frac{1}{8}$; least depth of caudal peduncle $2\frac{1}{4}$; caudal $1\frac{1}{2}$; pectoral $1\frac{1}{5}$.

Left side pale brown, right side whitish. Eyes gray. Fins of left side gray brown, specked with minute dusky dots, verticals also with dusky specks on right side.

One, 76 mm., from stomach of *Dentex filusus* obtained 12 miles west of Sordwana Road, in 13 fathoms. Steamer "Pickle." April 17, 1931.

***Bothus mancus* (Broussonet).**

Large female, 380 mm., 1931.

***Bothus pantherinus* (Rüppell).**

One, 46 mm., Natal, 1931; three, 74 to 167 mm., Durban, 1932.

***Crossorhombus valde-rostratus* (Alcock).**

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

reaches $\frac{1}{4}$ in lower eye, expansion 3 in lower eye, length $3\frac{1}{3}$ in head from snout tip; teeth minute, uniform, uniserial in jaws, none on palate; interorbital 2 in head from snout tip, slightly concave. Gill rakers $0 + 6$, low tubercles.

Scales $52 + 4$ in lateral line; 21 above, 21 below, 6 rows across cheek to hind preopercle edge; bases of vertical fins covered with fine scales. Bony tubercle near snout tip, another at mandibular symphysis and 2 or 3 above each eye edge. Arch of lateral line $3\frac{1}{3}$ in straight section. Left scales with fine radiating striae basally, apical denticles 53; right scales similar, except without apical denticles.

D. 85, eighth ray $1\frac{1}{8}$ in total head length; A. 70, median rays $1\frac{1}{3}$; least depth of caudal peduncle $1\frac{1}{3}$; caudal 1; left ventral $1\frac{1}{4}$; pectoral 3 in fish without caudal, ends in upper filamentous ray.

Left side largely brown, obscurely clouded darker; with 3 large dusky blotches along lateral line, first at beginning of straight section. Eyes dark gray. Vertical fins with dark dots or specks, less distinct on blind side.

One, 124 mm., 1929.

PLEURONECTIDAE

Marleyella bicolorata (Von Bonde).

Depth 2; head $3\frac{1}{3}$, width 3. Snout 5 in head; lower eye $3\frac{1}{3}$, greatly exceeds snout or narrow interorbital; maxillary reaches middle of lower eye, expansion $2\frac{3}{4}$ in lower eye, length $2\frac{1}{2}$ in head; teeth better developed on left or blind side, in 3 or 4 irregular series, on right side in an irregular biserial row; interorbital $3\frac{1}{2}$ in eye, slightly elevated narrow ridge. Gill rakers $5 + 12$, lanceolate, $1\frac{3}{8}$ in gill filaments, which $1\frac{3}{4}$ in lower eye.

Scales $70 + 10$ in lateral line, arch $2\frac{1}{2}$ in straight section to caudal base; 8 above, 22 below; on blind side lateral line only evident axially on tail; 7 rows of scales below lower eye to lower preopercle ridge. Scales with 9 basal radiating striae, 1 to 4 incomplete auxiliaries; 11 to 14 rows of apical denticles, 4 to 6 transversely.

D. 56, fin height $1\frac{1}{5}$ in head; A. 47, fin height $1\frac{9}{10}$; least depth of caudal peduncle 2; caudal 1, convex behind; pectoral $1\frac{1}{2}$; right ventral 1; left ventral 2.

Left side scarcely paler than right, which with 5 widely diffuse transverse blackish bands. Iris dark gray. Branchiostegal membranes bright blue. Fins all pale grayish marked with blackish blotches, variable and more or less basal. Caudal with 3 dark transverse bands. Pectoral marked with numerous small dark spots. Spots on vertical fins reflected on left side. Left pectoral uniform brownish.

One, 156 mm., Natal, 1932. Barnard's contention for *Limanda* "Teeth mostly on blind side only" had better refer to the teeth as quite or irregularly uniserial, while in the present genus about 4 irregular rows on blind side. The bright blue branchiostegal region more striking or extensive also on left side.

Paralichthodes algoensis Gilchrist.

Depth $2\frac{1}{3}$ to $2\frac{2}{3}$; head $3\frac{1}{3}$ to 4, width $3\frac{1}{5}$ to 4. Snout to lower eye $3\frac{3}{5}$ to $4\frac{1}{5}$ in head from snout tip; eye 4 to 5, 1 to $1\frac{1}{5}$ in snout, greatly exceeds interorbital; maxillary reaches $\frac{2}{3}$ to $\frac{3}{4}$ in eye, expansion $1\frac{3}{4}$ to 2 in eye, length 2 to $2\frac{1}{4}$ in head from snout tip; teeth in 2 or 3 rows in jaws and 4 or 5

transversely at front of upper jaw; interorbital with low keel over lower eye, surface little convex and wider with age. Gill rakers $9 + 20$, lanceolate, equal gill filaments, which $1\frac{3}{4}$ in eye.

Scales 100 or $102 + 10$ to 12 in lateral line, arch 3 in straight section; 33 above, 36 below; 8 below lower eye to lower ridge of preopercle, flange naked; small scales over basal $\frac{2}{3}$ of caudal. Scales with 17 to 25 basal radiating striae; circuli fine.

D. 70 or 71 , first to eighth rays more or less separated and branched, fin height $2\frac{3}{8}$ to $2\frac{5}{8}$ in total head length; A. 50 , fin height $2\frac{3}{8}$ to $2\frac{3}{4}$; least depth of caudal peduncle $2\frac{1}{8}$ to 3 ; caudal $1\frac{1}{4}$, obtusely angular behind; right pectoral $1\frac{3}{8}$ to $1\frac{3}{4}$; left pectoral $2\frac{2}{8}$ to $2\frac{1}{4}$.

Right side drab to light olive, with obscure, scattered, variable dusky dots or specks. Left side whitish. Iris gray. Fins paler than right side with obscure minute dark specks or dots, scarcely evident on left side. Right pectoral specked with dull brown, left white.

Seven, 77 to 270 mm., Natal, 1931.

SOLEIDAE

Solea bleekeri Boulenger.

Three, 84 to 99 mm., Natal, 1931; two, 91 to 108 mm., Lake St. Lucia, Zululand, October 1931; one, 121 mm., Blue Lagoon, Umgeni. Noted by me from Delagoa Bay as *Solea turbynei* in 1925.

Synaptura marginata Boulenger.

One, 168 mm., 1931; two, 168 to 190 mm., 1932.

CYNOGLOSSIDAE

Arelia attenuata (Gilchrist).

Depth $4\frac{1}{8}$; head $4\frac{2}{8}$, width $4\frac{2}{8}$. Snout $2\frac{1}{8}$ in head as measured to lower eye; lower eye 10 , 5 in snout, little greater than interorbital; left mouth cleft extends below hind eye edge, length $4\frac{3}{8}$ in head, rictus slightly nearer gill opening than snout tip; preoral length $2\frac{1}{8}$; right mouth cleft $1\frac{3}{4}$ in left; interorbital low, flat. Gill rakers as few small, low, feeble papillae; gill filaments long as left mouth cleft.

Scales from above gill opening 71 in axial or median lateral line to caudal base; 10 above to upper lateral line, 10 or 11 below; 2 lateral lines each side. Scales with 33 or 34 basal radiating striae; 25 to 30 apical denticles with 6 or 7 series transversely; circuli very fine.

D. 116 , fin height $4\frac{1}{4}$ in head; A. 92 , fin height $3\frac{1}{8}$; caudal $2\frac{1}{4}$.

Olive or drab on left side, right side whitish. Iris gray. Vertical fins pale grayish, on left side rays dusted pale brown, on right side fins paler.

One, 272 mm., Natal, 1932.

Cynoglossus lida Bleeker.

One, 196 mm., 1929. D. 100 . A. 83 .

MONOCENTRIDAE

Monocentris japonicus (Houttuyn).

One, 130 mm., 1931.

SYNGNATHIDAE***Syngnathus spicifer* Rüppell.**

Two, 83 to 110 mm., Durban, 1931; one, 104 mm., Umgene, March 2, 1928. The last without the row of large black spots along each lower side of head. All are without the rather short, broad snout shown by Weber and Beaufort's figure, but are more like Rüppell's original figure in 1835.

***Syngnathus temmincki* Kaup.**

Depth 25; head $7\frac{1}{4}$, width $4\frac{1}{2}$. Snout $1\frac{3}{4}$ in head from snout tip, much greater than postocular; eye $7\frac{2}{3}$, $4\frac{1}{2}$ in snout, greater than interorbital; mouth small, terminally superior; maxillary length $1\frac{1}{2}$ in eye; interorbital $13\frac{1}{2}$ in head from snout tip, slightly concave; opercle with finely rugose radiating striae, without horizontal keel.

Rings 20 + 37, without spines; upper dorsal keel extends opposite 28th dorsal ray; median lateral trunk keel continuous with upper caudal keel; lower lateral trunk keel continuous with lower caudal keel; median ventral keel on trunk.

D. 30, on 1 trunk and 8 caudal rings, height $4\frac{2}{5}$ in head; A. equals orbit; caudal rays 10, fin 3 in head; pectoral $4\frac{1}{2}$, rays 12.

Brown above, under surfaces slightly paler. Underlaid dusky clouding on side of snout, cranium and opercles. Iris gray. Fins pale, transparent, rays brownish.

One, 210 mm., 1931.

***Yozia bicoarctata* (Bleeker).**

Depth $40\frac{1}{2}$; head $11\frac{1}{4}$, width $5\frac{1}{2}$. Snout $1\frac{5}{8}$ in head from snout tip; eye 7, $3\frac{3}{4}$ in snout, greater than interorbital; maxillary very small, $1\frac{1}{4}$ in orbit; interorbital $1\frac{2}{5}$ in orbit, concave; opercle with radiating striae, without keel.

Rings 24 + 63; superior trunk keel approximates dorsal base closely, not continuous with superior caudal keel, though last extends over last 3 body rings; median lateral trunk keel continuous with lower caudal keel; inferior trunk keel not reaching lower caudal keel, extends only far as vent.

D. 28, on 3 trunk and 4 caudal rings, fin base $1\frac{2}{5}$ in total head; A. very small, $1\frac{1}{4}$ orbit; combined head and trunk $1\frac{9}{10}$ in rest of body; P. 16.

Largely uniform brownish, with obscure dark blotches on sides of trunk and smaller ones on head. Iris gray. Fins pale.

One, 313 mm., north Natal coast, 1932. Mr. Bell-Marley's notes give "Olive brown, snout point coral."

***Hippocampus kuda* Bleeker.**

One, 235 mm., Durban Bay, March 27, 1929; one, 160 mm., Durban Bay, 1931, male with emaciated egg pouch.

FISTULARIIDAE***Fistularia serrata* Cuvier.**

Two, 1000 mm. (105 to inner fork of caudal) to 1400 mm. (120 to inner caudal fork), 1929. Both with skin smooth, except roughly keeled scales of lateral line, also row of median vertebral keels down back and other down belly, which well developed.

CENTRISCIDAE***Aeoliscus punctulatus* (Bianconi).**

Depth $6\frac{1}{2}$ to $6\frac{3}{4}$ measured to caudal base; head $2\frac{1}{2}$ to $2\frac{3}{4}$, width $9\frac{3}{4}$ to 11. Snout $1\frac{1}{3}$ to $1\frac{2}{3}$ in head from snout tip; eye 10 to 11, $7\frac{1}{3}$ to $7\frac{3}{4}$ in snout, greatly exceeds interorbital in young to subequal with age; maxillary 2 to $2\frac{1}{2}$ in eye; interorbital 11 to $12\frac{1}{2}$ in head from snout tip, moderately high, convex.

Dorsal cuirass with 6 large plates, third and fourth subequally largest; ventral plates 5 + 7.

D. III, 10, terminal (first) spine posterior of cuirass, free section $5\frac{1}{2}$ to $5\frac{3}{8}$ in total head length; fin height $4\frac{1}{2}$ to $4\frac{3}{8}$; A. 11 or 12, fin height 6 to $6\frac{2}{5}$; caudal $4\frac{1}{2}$ to $5\frac{1}{4}$; pectoral 4 to $4\frac{1}{3}$, rays 10 or 11; ventral $6\frac{2}{3}$ to 8 in total head.

Pale translucent brown. Dark or blackish-brown band from lower terminal part of snout to eye, then to pectoral, finally concurrent with lower profile to dorsal fin base. Iris silvery white. Small, scattered blackish brown spots, over most of body and on head along sides of snout and opercle. Fins pale.

Three, 135 to 180 mm. in 1931; and four, 128 to 175 mm. in 1932.

MACRORHAMPHOSIDAE***Notopogon natalensis* (Gilchrist).**

Depth $2\frac{1}{3}$ to $2\frac{2}{5}$; head $2\frac{1}{3}$, width $3\frac{3}{4}$ to $3\frac{7}{8}$. Snout $1\frac{1}{5}$ to $1\frac{1}{3}$ in head; eye $4\frac{1}{2}$ to $4\frac{2}{3}$, $2\frac{1}{2}$ to $2\frac{3}{5}$ in snout, greatly exceeds interorbital; mouth width $2\frac{1}{3}$ to $2\frac{3}{4}$ in eye; interorbital $10\frac{1}{4}$ to $10\frac{2}{3}$ in head, very low, level. Gill rakers 7 + 16, low, short points, $\frac{1}{3}$ of gill filaments, which 3 in eye.

Skin finely asperous, rough velvety to touch.

D. VIII, 14, 1 or 15, 1, second spine $1\frac{3}{8}$ to 2 in head, third ray $2\frac{1}{4}$ to $2\frac{1}{2}$; A. 17, third ray $3\frac{1}{2}$ to $3\frac{4}{5}$; least depth of caudal peduncle $5\frac{1}{2}$ to $6\frac{1}{2}$; caudal $1\frac{7}{8}$ to $2\frac{1}{5}$; pectoral $1\frac{9}{10}$ to $2\frac{1}{5}$, rays 15; ventral fin $5\frac{1}{2}$ to $6\frac{1}{5}$ in head; about 18 to 21 pairs, variably, of short bristles on predorsal behind occiput.

Vinaceous buff to ecru drab. Iris grayish. Fins paler than body to whitish.

Two, both 170 mm. Lat. $29^{\circ} 50' 29''$ S., long. $31^{\circ} 16' 30''$ W., in 154 fathoms. Steamer "Africana".

ATHERINIDAE***Hepsetus pinguis* (Lacépède).**

Depth $4\frac{2}{3}$ to $4\frac{3}{8}$; head 4 to $4\frac{1}{8}$, width $1\frac{2}{3}$ to $1\frac{3}{4}$. Snout $3\frac{1}{2}$ to 4; eye $2\frac{3}{4}$ to $2\frac{1}{2}$, greatly exceeds snout, subequal with interorbital; maxillary reaches $\frac{1}{2}$ to $\frac{1}{4}$ in head, length 2 to $2\frac{1}{5}$ in head; rami of mandible low inside mouth; teeth minute, in narrow bands in jaws, on vomer and palatines; interorbital 2 to $2\frac{3}{8}$, nearly level, depressed medially. Gill rakers 5 + 19, lanceolate, $\frac{2}{3}$ of gill filaments, which $2\frac{1}{8}$ in eye.

Scales 41 or 42 + 4 in median lateral series; 8 between soft dorsal and anal, 21 or 22 predorsal of which 17 or 18 forward to occiput. Scales with 2 basal points on nearly straight basal edge; 60 to 20 parallel vertical circuli basally.

D. V — I, 1, 8, 1 or I, 1, 9, 1, third spine $2\frac{3}{8}$ to $2\frac{3}{4}$ in head, first branched ray $1\frac{1}{5}$ to 2; A. I, 1, 13, 1, first branched ray $1\frac{1}{4}$ to $2\frac{1}{10}$; least depth of caudal

peduncle $3\frac{1}{3}$ to $3\frac{2}{5}$; caudal 1 to $1\frac{1}{3}$, forked; pectoral 1 to $1\frac{1}{3}$; ventral $1\frac{1}{5}$ to $1\frac{1}{3}$; vent at tips of depressed ventrals, slightly before spinous dorsal origin.

Pale brown, to vinaceous cinnamon or cream buff on sides and below, evidently paler in life. Scales of head above and back dusted with blackish dots marginally. Along side underlaid dark gray axial line to caudal base, forms along band little wider than pupil or darker brown than body color. Iris silvery gray. Lips with dark dots. Fins pale or grayish, lower ones more whitish.

Three, 134 to 154 mm., Natal, 1932; two, 90 to 100 mm., 1929.

MUGILIDAE

Mugil auratus Risso.

Two, 203 to 207 mm., Durban Bay, 1932. The most common mullet, always resident. Color bright silvery, with steel blue back and gold spot on cheek. Fins green.

One, 131 mm., Saint Lucia, coast of north Zululand, 1932.

Mugil robustus Günther.

Depth $4\frac{1}{5}$; head 4, width $1\frac{2}{3}$. Snout $3\frac{1}{2}$ in head; eye $4\frac{1}{3}$, $1\frac{2}{5}$ in snout, $1\frac{3}{4}$ in interorbital, adipose lids anterior and posterior to eye and not extending on iris; mouth terminally inferior, mandible forming obtuse angle; maxillary exposed, reaches $\frac{7}{8}$ to eye; lower preorbital edge serrate; upper lip rather wide, transversely $\frac{1}{3}$ of eye; interorbital $2\frac{2}{5}$, low, broad, but slightly convex. Gill rakers $31 + 43$ short, fine, slender, flexible points, $\frac{1}{2}$ of gill filaments which equal eye.

Scales 35 in lateral series to caudal base; 13 transversely between soft dorsal origin and anal, 28 predorsal of which 18 forward to occiput; pectoral scaly axillary flap $4\frac{1}{2}$ in fin, ventral 2 in fin; soft dorsal with small scales anteriorly, caudal and anal nearly entirely scaly. Scales with 7 to 11 basal radiating striae; 37 to 55 short low apical points, with 2 to 6 series transversely, circuli fine, basal.

D. IV — I, 1, 7, 1, second spine $1\frac{1}{5}$ in head, first branched ray $1\frac{2}{3}$; A. III, 9, 1, first branched ray $1\frac{1}{3}$; least depth of caudal peduncle $2\frac{1}{3}$; pectoral $1\frac{1}{4}$; ventral $1\frac{3}{5}$, spine $1\frac{1}{2}$ in fin; caudal $3\frac{2}{5}$ in rest of fish.

Back dark brown, sides and below pale brown, evidently whitish. Iris gray. Mandible pale. Dorsals and caudal brownish, other fins paler to whitish with slight dusky tinge on pectoral above and front of anal. Inside pectoral base with dark or blackish brown blotch.

One, 157 mm., 1932.

Mugil ramada Risso.

One, 158 mm., 1931.

Mugil seheli Forskål.

Two, larger 214 mm., Durban, 1931.

Also 2 young *Mugil* 27 to 35 mm., Mkuzi River in Natal, 1931; one, 29 mm., St. Lucia Lake, 20 miles up, Zululand, 1931.

SPHYRAENIDAE

Sphyraena langsar Bleeker.

Depth $6\frac{1}{2}$ to $6\frac{3}{4}$; head $2\frac{5}{8}$ to $3\frac{1}{4}$, width $3\frac{1}{10}$ to $3\frac{2}{5}$. Snout $2\frac{1}{4}$ to $2\frac{2}{5}$ in head from snout tip; eye 5 to $5\frac{1}{5}$, $2\frac{1}{5}$ to $2\frac{1}{5}$ in snout, exceeds bony interorbital; maxillary reaches $\frac{2}{3}$ to eye, length $2\frac{2}{5}$ in head from snout tip; upper jaw teeth uniserial, small, directed backward, 4 canines anterior; lower jaw teeth larger, vertical, with single canine at symphysis; 3 or 4 large vertical fangs anteriorly on each palatine; bony interorbital $7\frac{2}{5}$ to $7\frac{1}{2}$, low, nearly level; preopercle edge broadly obtuse. Gill rakers 2, upper at angle of gill arch, $1\frac{1}{3}$ in gill filaments, which $2\frac{1}{3}$ in eye.

Scales 70 or $71 + 5$ or 6 in lateral line; 8 above, 10 below, 20 predorsal forward to occiput; ventral axillary scale $1\frac{1}{5}$ in fin. Scales with 43 to 50 basal radiating striae; apically thin scale edge worn to ragged fringe; circuli basal, fine.

D. V — I, 1, 8, 1, second spine $2\frac{3}{5}$ to $2\frac{9}{10}$ in total head length, first branched ray $3\frac{1}{5}$ to $3\frac{1}{4}$; A. II, 8, first branched ray $2\frac{3}{5}$ to $3\frac{1}{3}$; least depth of caudal peduncle $4\frac{1}{5}$ to $4\frac{3}{4}$; caudal length $1\frac{4}{5}$ to $1\frac{1}{3}$; pectoral $2\frac{1}{5}$ to $2\frac{2}{5}$, reach little beyond first dorsal; ventral $2\frac{2}{5}$ to $2\frac{3}{4}$.

Above brown, darker or dusky on head above. Sides and lower surfaces whitish, with silvery reflections. First dorsal pale or dull brown, like caudal, other fins still lighter. Iris white, gray above.

Two, 153 to 270 mm. Although this Indo-Australian species has not before been reported from South Africa, the specimens before me surely show they are Bleeker's species. Weber and Beaufort have questionably placed *Sphyraena chinensis* Lacépède as a synonym of *Sphyraena obtusata* Cuvier, though the crude original figure of Lacépède may equally apply to the present species. Barnard identifies *Sphyraena commersonii* Castelnau with that of Cuvier, which has been shown by Weber and Beaufort to be synonymous with *Sphyraena barracuda* (Walbaum). Castelnau's account in 1861, imperfect as it is would seem to apply equally to the present species, so that it is quite uncertain if *S. barracuda* really occurs in South Africa. Castelnau gives the following:

Lower jaw obtuse, longer than upper. Preopercle with 1 point. D. V — I, 9; A. I, 9; pectoral 14; ventral 15; second dorsal and anal very long, pointed; upper caudal lobe longer. Silvery white, above gray-blue and gold. Dorsals obscure, bases white, rays silvery. Caudal black. Other fins yellow. Gray spot in opercular angle.

Sphyraena jello Cuvier.

Depth $6\frac{1}{2}$; head $3\frac{1}{3}$, width $3\frac{2}{5}$. Snout $2\frac{1}{5}$ in head from snout tip; eye $5\frac{3}{5}$, $2\frac{1}{5}$ in snout, $1\frac{1}{5}$ in interorbital; maxillary reaches eye, expansion $1\frac{3}{4}$ in eye, length $2\frac{1}{5}$ in head from snout tip; 4 front upper canines and single lower symphyseal inclined backward, other larger teeth erect; interorbital 5 in head from snout tip, level; preopercle edge convex.

Scales $112 + 8$ in lateral line, 18 above, 16 below, 40 predorsal. Scales with 54 to 58 basal slightly radiating to parallel striae.

D. V — I, 1, 8, 1, second spine $3\frac{3}{4}$ in total head length, first branched ray $2\frac{3}{5}$; A. II, 1, 7, 1, second spine 5, first branched ray $2\frac{3}{4}$; caudal $1\frac{1}{3}$; least depth of caudal peduncle $4\frac{1}{4}$; pectoral $2\frac{3}{5}$; ventral $3\frac{1}{5}$.

Back dark olive, sides and below pale to whitish. Iris brown. Dorsals and caudal dark brown, lower fins paler, with brown blotch apically on anal.

One, 473 mm., Natal.

POLYNEMIDAE

Polydactylus sextarius (Bloch).

One, 83 mm., 1932.

Polydactylus plebeius (Broussonet).

One, 89 mm., 1932. Pectoral filaments 5. One, 348 mm., 1931.

SCOMBRIDAE

Scomber colias Gmelin.

Two, 260 to 265 mm., 1929.

Scomber microlepidotus Rüppell.

Six, 190 to 230 mm., 1929.

Scomberomorus commerson (Lacépède).

One, 580 mm., April 29, 1930. "Caught with shoal of Natal Snoek."

Scomberomorus lineolatus (Cuvier).

One, 245 mm., 1931.

Euthynnus alletteratus (Rafinesque).

One, 635 mm., Natal, 1932. Apparently in every way agrees with Atlantic and Hawaiian examples. Not previously listed from Natal.

TRICHIURIDAE

Trichiurus haumela (Forskål).

One, 523 mm., Natal, 1929; one, 490 mm., Durban, 1932; one, 173 mm., washed on Uvongo beach, August 20, 1930.

NOMEIDAE

Nomeus gronovii (Gmelin).

Depth 4; head $3\frac{3}{4}$, width $2\frac{1}{4}$. Snout 4 in head; eye 4, equals snout, $1\frac{1}{2}$ in interorbital; maxillary reaches eye, length $3\frac{7}{8}$ in head; teeth small, simple, conic, uniserial in jaws, on vomer and palatines, none on tongue; interorbital 4, broadly convex. Gill rakers $8+15$, lanceolate, $\frac{1}{2}$ gill filaments, which $1\frac{2}{3}$ in eye.

Scales (pockets) 50 in lateral line to caudal base; 10 above, 14 below, 30? predorsal forward to nostrils.

D. X—III, 25, third spine $2\frac{1}{2}$ in head, first branched ray 2; A. II, 26, first branched ray $2\frac{4}{5}$; least depth of caudal peduncle 4; ventral $1\frac{1}{5}$; caudal $2\frac{4}{5}$ in rest of fish; pectoral 3.

Dark drab generally, paler or grayish below. Back with 4 large saddle-like dark blotches and smaller similar colored spots below on body, 3 on anal fin and 2 on each caudal lobe basally. Spinous dorsal blackish brown.

Soft dorsal dark brown, paler basally. Pectoral gray brown. Ventral neutral black. Iris gray brown.

One, 122 mm., ocean beach, Natal, 1931.

Cubiceps longimanus, new species. Figure 23.

Depth $4\frac{1}{2}$; head $3\frac{1}{4}$, width 3. Snout 4 in head from snout tip; eye $3\frac{2}{3}$, exceeds snout or interorbital; maxillary reaches very nearly to front eye edge, expansion 4 in eye, length 4 in head from snout tip; teeth minute, uniform, in narrow band or row in each jaw; interorbital $3\frac{1}{4}$, very low or but little convex, broad. Gill rakers $9 + 19$, lanceolate, long as gill filaments, which $2\frac{1}{4}$ in eye.

Scales thin, caducous or most all fallen, according to pockets about 36? in median or axial lateral series to caudal base; lateral line $34? +$; 2 scales above, 18? below to anal origin; 19? predorsal forward to front of snout. Caudal largely covered with small scales basally. Scales with 2 short basal radiating striae, edge deeply scalloped; circuli coarse, complete, 20 to 22.

D. VIII — I, 15, 1, third spine $2\frac{1}{2}$ in total head length, first branched ray $2\frac{1}{2}$; A. I, 14, 1, first branched ray $2\frac{1}{4}$; caudal deeply forked, lobes pointed, long as head; least depth of caudal peduncle $3\frac{1}{4}$; pectoral $1\frac{1}{2}$; ventral 2.

Back dark brown, sides and below paler to whitish. Iris gray, evidently white in life. Dorsals and caudal brownish, other fins whitish. Above anal on tail scattered dark gray dots or specks.

A.N.S.P., No. 55058, type. Durban, Natal. Length 55 mm., 1931.

Apparently related to *Cubiceps brevimanus* Klunzinger from the Red Sea, but that species shown with entirely different physiognomy, large scales, and though lateral line elevated, much lower than in the present species. Possibly, however, the differences in Klunzinger's figure may be accounted for by age, as his specimen was 800 mm. long. Only the type known.

(*Longus long + manus* hand; with reference to the long pectoral.)

Psenes guttatus, new species. Figure 24.

Depth $2\frac{3}{4}$; head 3, width $2\frac{1}{4}$. Snout $5\frac{1}{2}$ in head; eye $3\frac{2}{3}$, greater than snout, equals interorbital; maxillary concealed, reaches $\frac{1}{4}$ in eye, length $3\frac{2}{3}$ in head; teeth conic, slender, short, uniserial in jaws, none on palate; interorbital $3\frac{1}{2}$, slightly convex. Gill rakers $7 + 18$, lanceolate.

Scales $46 + 5$ tubes in lateral line; 7 scales above, 19 below, 32? predorsal forward to snout end. Scales with 2 basal radiating striae; circuli coarse, complete.

D. XI — I, 20, fourth spine 2 in head, first branched ray $2\frac{2}{3}$; A. III, 18, first branched ray $2\frac{1}{10}$; caudal $1\frac{1}{2}$, deeply forked, slender lobes pointed; pectoral $1\frac{1}{2}$; ventral $1\frac{1}{2}$.

Brown, dotted all over with dusky. Iris gray. Spinous dorsal neutral black. Soft dorsal, anal and caudal with dark dots. Pectoral uniformly pale. Ventral neutral black.

A.N.S.P., No. 60245, type. Natal, 1931. Length 60 mm.

Apparently differs from known forms in the fin rays, in combination with its coloration. It approaches *Psenes maculatus* Lütken from the open Atlantic, said to have D. XI, I, 22 or 23 and A. III, 23. *P. cyanophrys*

Valenciennes, also a South African species, has still more soft or branched dorsal and anal rays. *P. chapmani* Fowler I later thought synonymous with *P. cyanophrys*, though it has slightly more scales, and *P. pacificus* Meek and Hildebrand is also very closely related. *P. edwardsi* Eigenmann, from south of Newport, seems very close to *P. pellucidus* Lütken from Surabaya Straits, later reported from the Gulf Stream.

(*Guttatus*, spotted.)

***Psenes indicus* Day.**

Depth $2\frac{3}{4}$; head $3\frac{1}{2}$, width $1\frac{1}{4}$. Snout $3\frac{3}{4}$ in head from snout tip; eye $3\frac{3}{4}$, equals snout, $1\frac{1}{4}$ in interorbital; maxillary reaches $\frac{3}{4}$ to eye, expansion $3\frac{1}{2}$ in eye, length $4\frac{1}{2}$ in head; teeth minute, form very narrow cutting edge, none on palate; interorbital $2\frac{3}{4}$, greatly elevated convexly. Gill rakers $7 + 16$, lanceolate, $1\frac{3}{8}$ in gill filaments, which $1\frac{3}{8}$ in eye.

Scales $51 + 6?$ in lateral line, tubes mostly trifid; 5 scales above, 14 below, 21 predorsal forward opposite front nostrils. Fins all more or less covered with fine scales. Upper side of head, above opercle, venulose. Scales with 4 basal radiating striae; circuli fine.

D. X, I, 16, fourth spine $1\frac{3}{4}$ in total head length, first branched ray $3\frac{1}{2}$; A. III, 15, third spine 5, first branched ray $2\frac{3}{4}$; caudal $1\frac{1}{8}$, forked, lobes slender; least depth of caudal peduncle $4\frac{1}{4}$, or $1\frac{1}{8}$ in its own length; ventral $2\frac{1}{10}$; pectoral 3 in fish without caudal, reaches beyond anal origin.

Brown, silvery white on sides and below. Iris brown. Fins pale brown.

One, 207 mm., deep sea off Natal coast, 1929. Also one, 36 mm., from inside ctenophore 305 mm. in diameter, Durban Bay, Natal, May 3, 1921.

CARANGIDAE

***Scomberoides tol* (Cuvier).**

One, 145 mm., 1932. Gill rakers $+ 20$. Agrees with examples from Padang, Sumatra and the Philippines.

***Scomberoides sancti petri* (Cuvier).**

Two, 114 to 125 mm., 1929.

***Seriola nigrofasciata* (Rüppell).**

Four, 92 to 113 mm., 1932.

***Trachurus trachurus* (Linnaeus).**

One, 127 mm., Durban, 1932; one, 68 mm., Umhlali rocks pools, March 5, 1931; one, 210 mm., Durban, 1931.

***Decapterus sanctae-helenae* (Valenciennes).**

Two, 155 to 160 mm., Natal, 1929. Scutes 33 in lateral line, "Natal pilchard".

***Decapterus muroadsi* (Schlegel).**

One, 65 mm., Durban; one, 71 mm., Umhlali rocks pools, March 5, 1931. Barnard identifies my small Delagoa Bay specimen 145 mm. long, which I

listed as *Decapterus sanctae helenae* Valenciennes in 1925, with the present species. He thinks the Atlantic *D. sanctae helenae* differs in a series of black lateral spots. Although he also admits *D. macrosoma* Bleeker as distinct, I am hardly able to see that it differs from the present species, even when allowance is made for Wakiya's distinctions. Depth of my larger specimens $4\frac{1}{4}$.

Magalaspis cordyla (Linnaeus).

Two, 106 and 107 mm., 1932; two, 116 to 124 mm., March 5, 1928; one, 218 mm., 1931; one, 107 mm., 1929.

Caranx equula Schlegel.

One, 222 mm., Natal, 1931. This species reported by me in 1925 as *C. dasson*.

Caranx sexfasciatus Quoy and Gaimard.

Eight, 55 to 164 mm., 1932. Breast scaly. Scutes in straight section of lateral line 29 to 32. Small ones with 7 dark transverse bands. One, 155 mm., 1931.

Caranx mate Cuvier.

One, 153 mm., February 15, 1932. Scutes 44.

Caranx djedaba (Forskål).

Depth $2\frac{2}{3}$; head $3\frac{1}{2}$, width 2. Snout $3\frac{1}{3}$ in head from snout tip; eye $3\frac{1}{3}$, equals snout or interorbital; maxillary reaches $\frac{1}{3}$ in eye, expansion 2, length $2\frac{1}{3}$ in head; single row of small, uniform, conic teeth in jaws; small patch of minute teeth on vomer; interorbital 3, convex. Preorbital and preopercle venulose. Gill rakers $11 + 29$, lanceolate, equal gill filaments or $1\frac{1}{2}$ in eye.

Scales $35 + 48$ in lateral line, arch $2\frac{1}{3}$ in straight section; 22 above, 21 below, scute depth $1\frac{2}{3}$ in eye; chest and breast finely scaled.

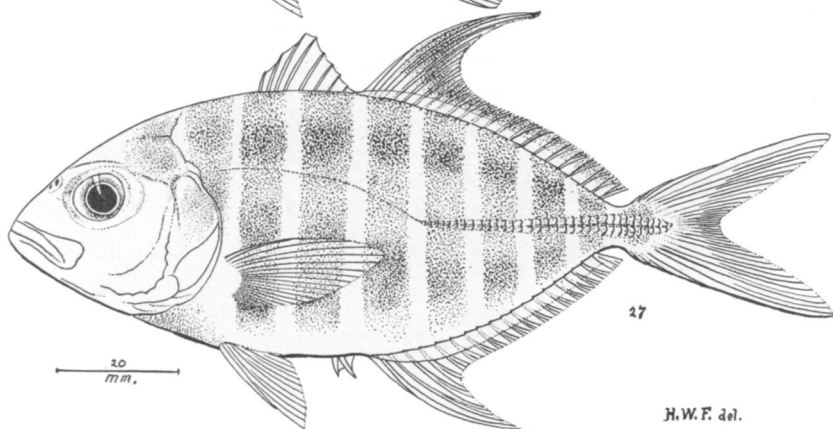
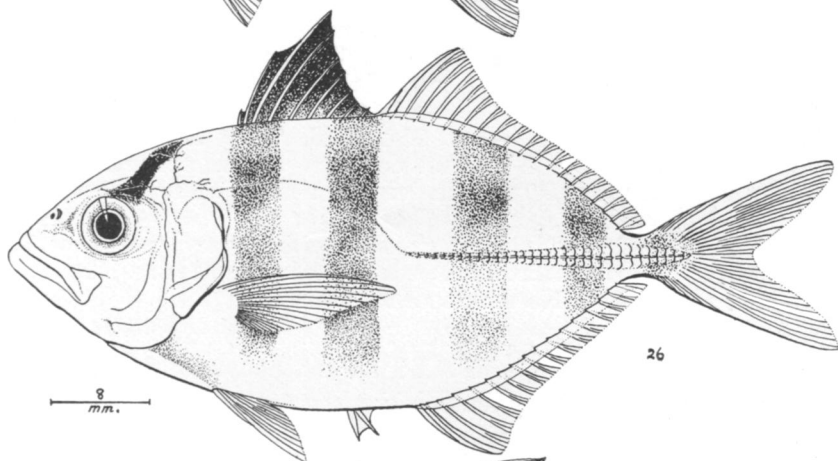
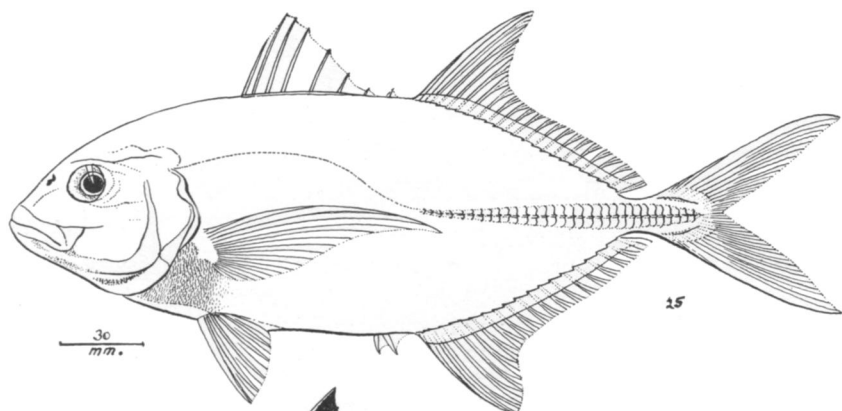
D. I, VIII — I, 25, 1, third spine $2\frac{1}{3}$? in total head length, first ray 2; A. II — I, 20, 1, first ray $2\frac{2}{3}$; caudal forked; least depth of caudal peduncle 5; ventral $2\frac{1}{10}$; pectoral $3\frac{2}{5}$ in combined head and body to caudal base.

Back brown, below body silvery white. Neutral black blotch, little smaller than eye on opercle above and slightly reflected on gill opening. Fins pale.

One, 195 mm., 1929. Also one, 155 mm., 1932, with scutes 49. Very close to *Caranx sem* Valenciennes, which differs in the slightly deeper body, teeth anteriorly in narrow band narrowing posteriorly, greater arch to lateral line and usually fewer scutes.

Caranx stellatus Eydoux and Souleyet.

Though not represented in the present collection this species was admitted as *Caranx adscensionis* (Osbeck), with which I formerly (1928) united it. According to Günther that species has 22 soft dorsal rays, 18 soft anal rays and 27 to 30 scutes in lateral line. Its occurrence in South



H.W.F. del.

25. *Caranx xanthopygus*. 26. *Caranx ignobilis*.
27. *Carangoides oblongus*.

Africa is recorded on my wrongly determined *Caranx sansun* (not Forskål) in 1925, based on Delagoa Bay specimens in the Academy. It is, therefore, an additional species to those in Barnard's catalogue.

Caranx ignobilis (Forskål). Figure 26 (young).

Two, 65 and 133 mm., 1932. Scutes 33 to 36 + 6. D. 19 to 20 soft rays: A. 16 or 17. Smaller specimen greatly like *Caranx latus* Agassiz as figured by Meek and Hildebrand in 1925.

Caranx xanthopygus Valenciennes. Figure 25.

Depth $2\frac{1}{2}$; head $3\frac{2}{5}$, width 2 to $2\frac{1}{5}$. Snout $3\frac{1}{5}$ to $3\frac{1}{4}$ in head from snout tip; eye $4\frac{1}{4}$ to $4\frac{2}{5}$, $1\frac{2}{5}$ in snout, $1\frac{1}{5}$ to $1\frac{1}{4}$ in interorbital; hind adipose lid covers $\frac{1}{3}$ to $\frac{2}{5}$ of eye; maxillary reaches $\frac{2}{5}$ to $\frac{1}{2}$ in eye, expansion $1\frac{1}{2}$ to $1\frac{3}{4}$ in eye, length $2\frac{1}{3}$ to $2\frac{2}{5}$ in head from snout tip; interorbital $3\frac{1}{4}$ to $3\frac{2}{3}$, convexly elevated. Gill rakers 7 + 17, lanceolate, equal gill filaments or $1\frac{1}{5}$ in eye.

Chest and breast below naked, except small patch of small scales close before ventrals. Arch of lateral line $1\frac{1}{4}$ to $1\frac{1}{2}$ in straight section, in which 33 to 36 scutes of which last 2 or 3 on caudal base.

D. VIII—I, 1, 20, 1 or 22, 1, third spine $2\frac{2}{5}$ to 2 in total head, first branched ray $1\frac{3}{5}$ to $1\frac{3}{4}$; A. II—I, 1, 16 1 to 18, 1, first branched ray $1\frac{3}{5}$ to 2; upper caudal lobe 1 to $1\frac{1}{10}$; least depth of caudal peduncle $7\frac{2}{5}$ to 8; ventral 2 to $2\frac{1}{5}$; pectoral $2\frac{3}{4}$ to 3 in length of body without caudal, rays 11, 19.

Above brown, sides and below whitish, with silvery reflections. Iris gray. Dorsals and caudal brownish, soft dorsal pale basally. Lower fins much lighter to whitish. No dark spot on opercle.

Two, 283 to 370 mm., Natal, 1931. I do not accept the contention that the American *Scomber carangus* Bloch is not a synonym of *Scomber hippos* Linnaeus. It therefore follows that Wakiya's acceptance of *Caranx xanthopygus* Valenciennes may rest with this as the next available name for the Indo-Pacific form.

Carangoides oblongus (Cuvier). Figure 27 (young).

Depth $2\frac{1}{4}$ to $2\frac{2}{5}$; head 3 to $3\frac{1}{5}$, width 2 to $2\frac{1}{5}$. Snout $2\frac{7}{8}$ to 3 in head from snout tip; eye $3\frac{1}{5}$ to $3\frac{7}{8}$, $1\frac{1}{5}$ to $1\frac{2}{5}$ in snout, $1\frac{1}{5}$ to $1\frac{1}{4}$ in interorbital, gelatinous margin narrow all around eye; maxillary reaches $\frac{1}{3}$ in eye, expansion $1\frac{2}{5}$ to $1\frac{1}{2}$ in eye, length $2\frac{1}{8}$ to $2\frac{1}{2}$ in head from snout tip; interorbital $3\frac{1}{8}$ to $3\frac{1}{2}$, convexly elevated. Gill rakers 7 to 8 + 18 to 19, lanceolate, equal gill filaments or $\frac{1}{2}$ of eye.

Breast and chest naked, extends on sides $\frac{3}{5}$ to pectoral base. Arch of lateral line 1 to $1\frac{1}{8}$ in straight section, scutes 37 to 40.

D. VIII—I, 1, 20, 1 or 21, 1, third erect spine $2\frac{3}{5}$ to $2\frac{4}{5}$ in total head length, first branched ray 1; A. II—I, 1, 18, 1 or 19, 1, first branched ray 1 to $1\frac{1}{10}$; upper caudal lobe $1\frac{1}{10}$; least depth of caudal peduncle 5 to $5\frac{1}{2}$; pectoral $1\frac{1}{5}$ to $1\frac{1}{2}$, rays 1, 20, not reaching beginning of straight section of lateral line; ventral $1\frac{3}{4}$ to $1\frac{7}{8}$.

Back brown, sides and below pale to whitish with silvery reflections. Though opercle dark brown above no distinct dark marginal blotch. Iris gray. Fins pale brownish, spinous dorsal, ends of ventrals and caudal lobes

dark or dusky. Both soft dorsal and anal marginally dark brown. Smallest with 8 broad dark vertical bands, greatly wider than interspaces.

Three, 135 to 168 mm., 1932. These interesting specimens of this Indo-Pacific species enable me to record it as a new addition to South Africa. They agree with the two I noted from Sumatra in 1905 and Day's figure of *Caranx oblongus* (pl. 51, fig. 1). *Caranx deani* Jordan and Seale, described in 1905 from an example 150 mm. long from Negros, Philippines, agrees in most of its characters and therefore appears synonymous.

Carangoides ferdau (Forskål). Figure 28 (young).

Depth $2\frac{1}{4}$ to $2\frac{1}{3}$; head $3\frac{1}{8}$ to $3\frac{1}{4}$, width $2\frac{1}{10}$ to $2\frac{1}{8}$. Snout 3 in head; eye $4\frac{2}{5}$ to $4\frac{3}{4}$, $1\frac{2}{5}$ to $1\frac{3}{8}$ in snout, $1\frac{3}{8}$ to $1\frac{1}{4}$ in interorbital, gelatinous lids narrow all around; maxillary reaches $\frac{1}{2}$ in eye, expansion $1\frac{3}{8}$ to $1\frac{3}{4}$, length $2\frac{1}{2}$ to $2\frac{3}{4}$ in head; interorbital $2\frac{9}{10}$ to 3, convexly elevated. Gill rakers 6 or 7 + 18 or 19, lanceolate, little longer than gill filaments or $1\frac{1}{2}$ in eye.

Chest and breast naked, extends upward laterally only $\frac{1}{2}$ to pectoral base. Straight section of lateral line $1\frac{1}{8}$ to $1\frac{1}{4}$ in arch, with 40 to 45 scutes of which 30 to 35 keeled.

D. VII — I, 1, 26, 1 to 28, 1, third spine 5 to $5\frac{1}{2}$ in head, first branched ray $1\frac{1}{10}$ to $1\frac{1}{8}$; A. II — I, 21, 1 to 23, 1, first branched ray $1\frac{1}{2}$ to $1\frac{3}{4}$; upper caudal lobe 1 to $1\frac{1}{8}$; least depth of caudal peduncle $5\frac{1}{2}$ to $6\frac{1}{4}$; pectoral 1 to $1\frac{1}{4}$, rays II, 20; ventral $1\frac{9}{10}$ to 2, rays I, 5.

Back brown to mauve, sides and below whitish. Sides with 6 transverse dark or brown bands, first narrowest, none wider than pale interspaces and all narrowing little below. Opercle above and behind with narrow submarginal blackish bar, vertical, and edge of gill opening pale or whitish. Iris gray, evidently white in life. Spinous dorsal dark neutral gray or blackish. Other fins pale or yellowish, with soft dorsal and anal marginally grayish, also each with median longitudinal row of gray spots.

Three, 165 to 219 mm., 1932. Smallest obtained September 12, 1931 with smaller pectorals only reaching $\frac{2}{3}$ to straight section of lateral line. This species an interesting addition to the fauna of South Africa.

Caranx novae guineae Cuvier, associated with this species, is a young unidentifiable carangid.

Carangoides malabaricus (Schneider).

Five, 131 to 300 mm., Natal, largest in 1931. It has 25 lower gill rakers. Both soft dorsal and anal conspicuously high and yellowish. Resembles Day's figure, only the soft dorsal smaller and both soft dorsal and anal with scarcely anterior lobes. Also four, 103 to 248 mm., Durban, 1929.

Carangoides dinema Bleeker. Figure 29 (young).

Depth $2\frac{1}{8}$ to $2\frac{3}{8}$; head $2\frac{3}{4}$ to $3\frac{1}{8}$, width 2 to $2\frac{1}{8}$. Snout 3 to $3\frac{1}{2}$ in head from snout tip; eye $3\frac{3}{8}$ to $4\frac{2}{5}$, $1\frac{1}{8}$ to $1\frac{1}{2}$ in snout, $1\frac{1}{8}$ to $1\frac{1}{2}$ in interorbital, gelatinous eyelid narrow and marginal; maxillary reaches $\frac{2}{5}$ to $\frac{1}{2}$ in eye, expansion $1\frac{1}{4}$ to $1\frac{1}{2}$, length $2\frac{1}{10}$ to $2\frac{2}{5}$ in head from snout tip; interorbital 3 to $3\frac{3}{4}$, convexly elevated. Gill rakers 8 + 18 or 19, lanceolate, little longer than gill filaments or $1\frac{1}{2}$ in eye.

Breast and chest naked, extends up sides over half way to pectoral base, which also naked. Straight section of lateral line $1\frac{1}{4}$ to $1\frac{1}{3}$ in arch, scutes 23 to 25.

D. VIII — I, 1, 17, 1 to 20, 1, third spine $2\frac{1}{2}$ to $2\frac{3}{4}$ in total head, first simple ray $2\frac{3}{4}$ to 3 in length without caudal; A. II — I, 1, 16 1 to 18, 1, first simple ray $1\frac{1}{2}$ to $1\frac{1}{3}$ in total head; upper caudal lobe 1 to $1\frac{1}{2}$; least depth of caudal peduncle 5 to 7; ventral $1\frac{1}{2}$ to $1\frac{1}{3}$; pectoral $2\frac{3}{8}$ to $4\frac{1}{4}$ in length without caudal, rays 1, 16.

Back brown, sides and below whitish. Opercle with large neutral black vertical submarginal blotch, nearly twice eye in diameter. Iris gray. Spinous dorsal and ventrals blackish terminally. Other vertical fins dark gray marginally, and caudal lobes of small examples tipped with white, subterminally dark gray. Most specimens show dark neutral gray blotch on edge of back, one behind and below each fin-ray base.

Six, 80 to 209 mm., Natal, 1932. New to the fauna of South Africa.

***Carangoides armatus* (Forskål).**

Two, 132 to 183 mm., Natal, 1932. Lower gill rakers 21. Body with 6 dark vertical bands, more or less complete.

***Carangoides chrysophrys* (Valenciennes).**

Six, 70 to 107 mm., 1932. Gill rakers $5 + 18$. A. II — II, 18, 1. Interesting as showing early stages in which dorsal and anal fin lobes vary. Smallest with long slender filament reaching caudal base from both dorsal and anal. Larger ones with filaments moderate. All with dark transverse bands wide as interspaces. Opercle without marginal dark blotch.

Weber and Beaufort have called attention to Sauvage's figure of *Caranx chrysophrys*, which shows the breast scaled, though the description says "corselet nu".

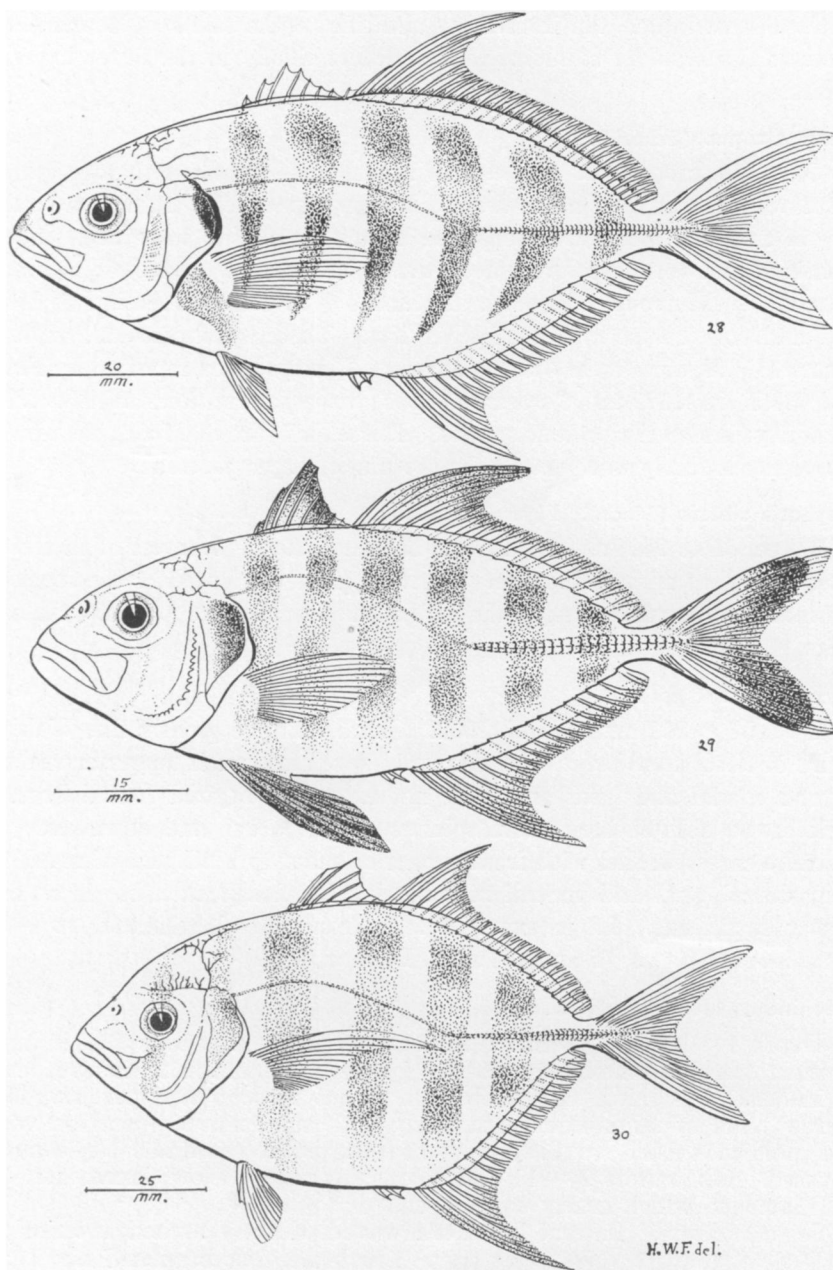
***Carangoides coeruleopinnatus* (Rüppell). Figure 30.**

Depth $1\frac{1}{2}$; head 3 to $3\frac{1}{5}$, width $2\frac{1}{10}$ to $2\frac{2}{5}$. Snout $2\frac{3}{8}$ to $2\frac{3}{4}$ in head from snout tip; eye $3\frac{3}{4}$ to $4\frac{1}{2}$, $1\frac{1}{3}$ to 2 in snout, $1\frac{1}{4}$ to $1\frac{1}{3}$ in interorbital, gelatinous lids narrow and marginal; maxillary reaches front eye edge, $\frac{1}{5}$ in eye in young, expansion $1\frac{1}{2}$ to $1\frac{2}{3}$ in eye, length $2\frac{2}{5}$ to $2\frac{3}{5}$ in head from snout tip; interorbital $3\frac{1}{8}$ to $3\frac{3}{4}$, convexly elevated. Gill rakers 5 or $6 + 16$ to 18, lanceolate, subequal with gill filaments or $1\frac{1}{2}$ in eye.

Breast and chest naked, which area including pectoral and ventral bases and beyond. Straight section of lateral line $1\frac{1}{2}$ to 2 in arch, with 30 to 35 scutes of which 21 to 30 keeled.

D. VIII — I, 1, 20, 1 or, I, 1, 21, third spine 3 to $3\frac{1}{10}$ in total head length, first branched ray $1\frac{1}{10}$ to $1\frac{3}{5}$; A. II — I, 17, 1, first branched ray 1 to 2; upper caudal lobe $1\frac{1}{10}$ to $1\frac{1}{2}$; least depth of caudal peduncle 7; ventral 2 to $2\frac{1}{2}$; pectoral $2\frac{2}{5}$ to $2\frac{4}{5}$ in length without caudal, rays II, 17.

Back brown, below pale to whitish. Smaller examples with 5 broad dark brown transverse bands, little wider than pale interspaces. Iris gray. Opercle with large neutral black blotch, edge of gill opening pale. Dorsal and caudal brownish, other fins whitish.



28. *Carangoides ferdau*. 29. *Carangoides dinema*.
30. *Carangoides coeruleopinnatus*.

Three, 138 to 200 mm., smallest 1932, others 1931. Both dorsal and anal lobes variable. An interesting addition to the fauna of South Africa. Close to *Carangoides malabaricus* but differs chiefly in the fewer lower gill rakers.

Citula atropus (Schneider).

One, 110 mm., 1932. Lower gill rakers 18. Agrees with my figure of *Citula atropus* in 1904 made from a Padang specimen. It had gill rakers $7 + 16$ and was afterwards supposed by me in 1905 to have been wrongly identified and was therefore placed with specimens of *Carangoides armatus* (Forskål). Moreover the pectoral reaches $\frac{3}{5}$ to straight section of lateral line and soft dorsal and anal lobes low. These specimens, all with gill rakers $7 + 18$, seem to be *Citula atropus*. The specimen reported by Fowler and Bean in 1922 as *Caranx atropus*, wrongly credited to Forskål as authority, is also the present species. Russell's figure of *Mais parah* pl. 152 represents it fairly well, except for the much longer pectoral.

Blepharis ciliaris (Bloch). Figure 31 (adult).

Three, 61 to 260 mm., 1932; one 133 mm., 1929. Largest of interest as such specimens apparently rare. Barnard gives the length of the species as 247 mm. Apparently none of the published illustrations represents the adult stage.

Scyris indica Rüppell.

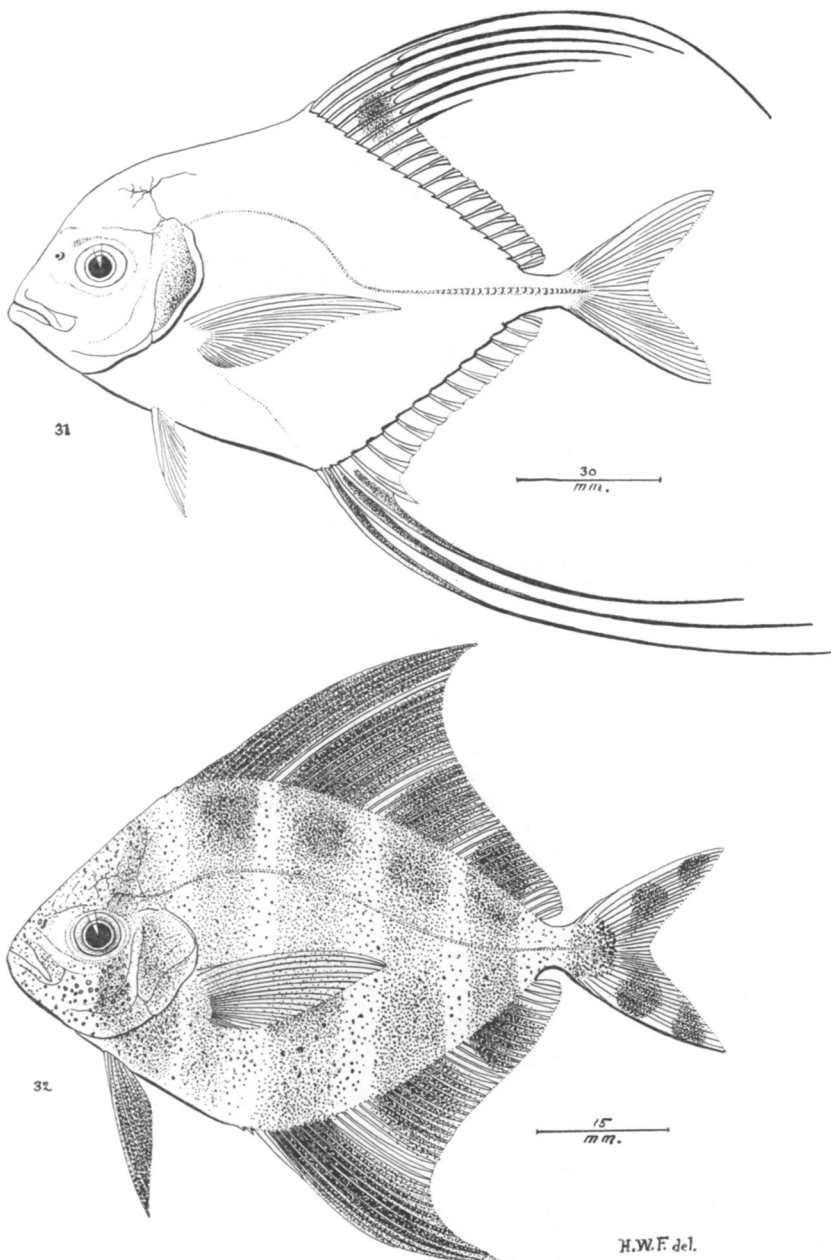
Two, 97 to 265 mm., Natal, 1932. Small example greatly like Wakiya's figure of *Alectis major*. Ventrals of my specimen much longer or reaching beyond caudal and front anal rays not extending beyond caudal base. A dark brown oblique band from spinous dorsal to eye and down over pre-orbital, nearly parallel with front profile of snout to hind part of maxillary. Long dorsal, anal and ventral rays black. Vertical leaden bands on body mostly faded out. Large example with front dorsal and anal rays filamentous. Also two, 75 and 153 mm., Durban, 1929.

Trachinotus blochii Lacépède.

Depth $1\frac{1}{3}$; head $3\frac{1}{2}$, width $1\frac{1}{3}$. Snout $3\frac{1}{4}$ in head; eye $4\frac{3}{4}$, $1\frac{1}{3}$ in snout, $1\frac{3}{5}$ in interorbital; maxillary reaches $\frac{1}{5}$ in eye, expansion $2\frac{1}{5}$ in eye, length $2\frac{3}{4}$ in head; lips thick, fleshy, obsolete or not evident in upper jaw, lower narrow band of minute ones anteriorly and small narrow band on vomer and palatines, also small patch on tongue; interorbital $1\frac{1}{2}$, convexly elevated. Gill rakers $8 + 11$ and 5 low rudiments below, lanceolate, $\frac{1}{2}$ of gill filaments, which nearly equal eye.

Scales minute. Lateral line little waved, slightly arched anteriorly.

D. I, VII, 23, 1, third erect spine 5 in head, first branched ray $1\frac{2}{5}$; A. II — I, 22, 1, first branched ray $1\frac{2}{5}$; least depth of caudal peduncle 4; pectoral $1\frac{2}{5}$; ventral $2\frac{1}{4}$; caudal $3\frac{1}{3}$ in rest of fish, widely forked, slender lobes sharply pointed.



31. *Blepharis ciliaris*. 32. *Formio niger*.

Back drab to neutral brown, sides paler and below silvery white. Iris gray. Spinous dorsal membranes transparent, dark on fin spines. Soft dorsal with front lobe black, rest of fin pale brown. Caudal light brown. Pectoral brownish, other fins whitish.

One, 228 mm., 1931. Also one, 407 mm., 1932.

Trachinotus bailloni (Lacépède).

Depth $2\frac{3}{8}$ to $3\frac{3}{8}$; head $3\frac{1}{4}$ to $4\frac{1}{8}$, width $1\frac{1}{8}$ to 2. Snout $3\frac{1}{4}$ to $3\frac{1}{2}$ in head; eye $4\frac{3}{8}$ to 5, $1\frac{1}{8}$ to $1\frac{1}{2}$ in snout, $1\frac{1}{8}$ to 2 in interorbital; maxillary reaches $\frac{1}{8}$ to $\frac{3}{8}$ in eye, expansion 2 to $2\frac{1}{4}$, length $2\frac{1}{4}$ to $2\frac{5}{8}$ in head; bands of minute villiform teeth in jaws, on vomer and palatines, none on tongue; interorbital $2\frac{5}{8}$ to $3\frac{1}{4}$, convexly elevated. Gill rakers 7 + 13, lanceolate, $1\frac{1}{8}$ in gill filaments, which $1\frac{1}{8}$ in eye.

Scales minute in young, rather large with age posteriorly or on tail. Lateral line axial, but very slightly irregular; pores 80 in lateral line in adult. Scales with 2 or 3 basal radiating striae; circuli moderately fine, complete.

D. I, VII, 22, 1 or 23, 1, last spine 3 to $3\frac{3}{4}$ in head, first branched ray $2\frac{1}{2}$ in fish without caudal, $1\frac{2}{5}$ in head in young; A. II—1, 21, 1, first branched ray $2\frac{3}{4}$ in fish without caudal, $1\frac{1}{8}$ in head in young; caudal $2\frac{3}{8}$ to $2\frac{5}{8}$ rest of fish, widely forked, slender, long lobes pointed; least depth of caudal peduncle $2\frac{3}{8}$ to $3\frac{1}{4}$ in head; pectoral $1\frac{1}{4}$ to $1\frac{3}{8}$; ventral $1\frac{1}{8}$ to $2\frac{1}{8}$.

Back light olive brown, sides and below white, with silvery tinge. Adult with 5 black round spots close along and largely above lateral line, first 3 greatly contrasted and much larger than eye; last 2 smaller than eye and not especially dark. Spinous dorsal dusky. Soft dorsal and anal with long front lobes dusky to blackish, edge of lower part of fin dark gray. Caudal dusky, darker marginally. Pectoral grayish, paler below. Iris silvery white.

Young paler and without dark spots, or only faint traces, along lateral line. Coloration much more uniform and silvery white.

Three, 140 to 440 mm., 1931; one, 407 mm., 1932. Lacépède's name, accepted above, has priority over *Scomber botla* Shaw 1803, *Trachinotus russelii* Cuvier 1831, and *T. oblongus* Cuvier 1831.

Barnard has surely confused *Caesiomorus glaucus* (Linnaeus) with *Trachinotus glaucus* (Bloch). My reference, which he places with the latter, pertains to *Caesiomorus glaucus* (Linnaeus), later called *Campogramma* by Regan. It was based on Azores and Mediterranean material, surely the *Lichia graycos* as figured by Valenciennes and in no sense *Trachinotus*. Barnard's description also seems to be based on *Caesiomorus glaucus* (Linnaeus). *Trachinotus bailloni* may easily be distinguished from *Caesiomorus glaucus* by the presence of only 12 or 13 lower gill rakers (28 to 31 in *C. glaucus*).

Hypacanthus amia (Linnaeus).

Depth $2\frac{3}{4}$; head $3\frac{4}{5}$, width 2. Snout $3\frac{1}{8}$ in head from snout tip; eye $6\frac{1}{8}$, 2 in snout, $2\frac{1}{2}$ in interorbital, gelatinous lids narrow and marginal; maxillary extends $\frac{1}{4}$ eye diameter beyond eye, expansion $1\frac{3}{4}$ in eye, length $1\frac{1}{8}$ in head

from snout tip; interorbital 3, broadly convex. Gill rakers $5 + 8$, lanceolate, $1\frac{3}{4}$ in gill filaments, which equal $1\frac{1}{2}$ eye diameters.

Lateral line with slight arch in front followed by deep curve below median lateral body axis, rising to horizontal on tail posteriorly.

D. VII—II, 19, 1, spines all short, strong, low, first branched ray $1\frac{2}{3}$ in total head; A. II—II, 19, 1, first branched ray $1\frac{2}{3}$; upper caudal lobe $3\frac{1}{2}$ in length without caudal; least depth of caudal peduncle $3\frac{1}{5}$ in total head; pectoral $1\frac{3}{4}$; ventral 2.

Back dull olive brown, sides and below white. Iris gray. Soft dorsal dark brown above, paler basally. Caudal brown. Anal whitish, front lobe deep neutral gray apically, with narrow whitish edge terminally and posteriorly. Pectoral brownish. Ventral dark neutral gray terminally, hind edge whitish like base of fin.

One, 395 mm., 1931.

Formio niger (Bloch). Figure 32 (young).

Two 80 to 82 mm., November 20, 1931. Figured as young, which quite different from the adult.

RACHYCENTRIDAE

Rachycentron canadus (Linnaeus).

One, 485 mm., Natal, March 14, 1931. Called "Prodigal Son." Barnard says "This species is included here solely for the sake of comparison. Mr. R. Robinson's identification is probably erroneous, as there is another fish *Elagatis bipinnulatus* . . . which bears the same colloquial name Prodigal Son, and the generic name (*Elacate*) might easily be confounded with *Elagatis*". The chances are, however, that Mr. Robinson was right, as the present specimen would certainly seem to vindicate his contention.

POMATOMIDAE

Pomatomus saltator (Linnaeus).

Three, 100 to 132 mm., 1932. "Locally spawned from eastward direction". One, 83 mm., St. Lucia Lake, North Zululand. October 31, 1931; three, 106 to 280 mm., Natal, 1931; one, 143 mm., Durban, March 3, 1928; one, 202 mm., Natal, 1929.

LEIOGNATHIDAE

Secutor insidiator (Bloch).

Three, 54 to 70 mm., 1932; two, 54 and 55 mm., 1931. Barnard has confused my account of *Secutor ruconius* (Buchanan-Hamilton) 1925, based on specimens from Delagoa Bay and Natal, with this species. The depth of those 3 specimens is $1\frac{1}{4}$ to $1\frac{1}{5}$, while the 2 specimens of the present species show $2\frac{1}{4}$ to $2\frac{1}{3}$. Thus the body contour of *S. ruconius* is much more deeply ovate. Under *Leiognathus equula* (Forskål) Barnard wrongly places after my reference to this species "(references and synonymy)", though as I have

not given any references or synonymy it evidently pertains to Gilchrist and Thompson 1917.

Secutor ruconius (Buchanan-Hamilton).

Five, 85 to 129 mm., 1932. Barnard says "the true *ruconius*, if maintained as a separate species, differs in having distinctly larger scales, which are very deciduous." He does not give any scale counts. My specimens have 42 to 52 pores in lateral line, which ends opposite middle of soft dorsal, and about 40? to 75 scales (pockets) in an axial count to the caudal base.

Leiognathus equula (Forskål).

Two, 129 to 145 mm., 1932. Chaudhuri, also Weber and Beaufort, have needlessly changed this name to *Leiognathus equulus* (Forskål). It was originally proposed as *Scomber equula* Forskål, and therefore the specific name could not be modified by inflexion from a noun in apposition.

Gazza minuta (Bloch).

One, 90 mm., 1932; three, 88 to 178 mm., 1931.

AMIIDAE

Amia fraenata (Valenciennes).

One, 74 mm., 1932; one, 78 mm., 1929. Compared with Günther's figure of *Apogon frenatus* differs in showing some gray spots on second dorsal membranes, anteriorly 2 rows and posteriorly fusing as a single row.

Amia taeniata (Cuvier).

Two, 92 to 105 mm., larger September 12, 1931. Neither Rüppell or Day figure a specimen so ornate as my smaller one. It has 3 dark lines radiating from the eye posteriorly. Ventral black. Second dark transverse band continuous from soft dorsal to anal. Also third transverse dark or blackish band at caudal base followed by parallel narrow streak, broken as 4 dark spots on caudal base. Intervals between broad dark bands on body sprinkled with dusky or forming less defined alternating bands. Pectoral and caudal uniformly pale.

Amia fleuriu (Lacépède).

Two, 123 to 130 mm., 1932 and one, 134 mm., in 1931.

Archamia lineolata (Cuvier).

One, 72 mm., 1932. Although Barnard admits *Apogon macropterus* Cuvier as a distinct species, it seems to me hardly more than varietal of *Apogon lineolatus*.

CHANDIDAE

Ambassis natalensis Gilchrist and Thompson.

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

reaches to or $\frac{1}{8}$ in eye, expansion $3\frac{1}{2}$ to 5, length $2\frac{2}{3}$ to $2\frac{7}{8}$ in head from snout tip; inner ridge of preopercle entire, with only 2 spines at angle; interorbital $3\frac{1}{2}$ to $3\frac{2}{3}$, broadly convex. Gill rakers 8 or $9 + 18$ to 21, lanceolate, equal gill filaments or $2\frac{1}{8}$ to $2\frac{1}{3}$ in eye.

Scales 24 to $28 + 2$ or 3 in lateral line; 2 or 3 above, 6 below, 8 to 11 predorsal, 2 rows on cheek. Scales with 5 to 8 short and slightly radiating basal striae; circuli fine, more or less complete.

D. VII, 1 or II, 10, 1 or II, 1, second spine $1\frac{1}{3}$ to $1\frac{2}{5}$ in total head length, first branched ray $1\frac{3}{8}$ to $1\frac{4}{5}$; A. III, 10, 1, third spine $1\frac{1}{5}$ to 2, first branched ray $1\frac{3}{4}$ to $1\frac{5}{8}$; least depth of caudal peduncle $2\frac{1}{4}$ to $2\frac{3}{5}$; pectoral $1\frac{1}{2}$ to $1\frac{3}{4}$; ventral $1\frac{1}{3}$ to $1\frac{1}{2}$; caudal $2\frac{1}{2}$ to 3 in rest of fish.

Back pale brown, each scale with broad submarginal band of dark dots. Sides and lower surfaces silvery white. Iris gray, evidently silvery white in life. Neutral gray axial streak along side of tail. Fins largely pale to whitish, second membrane of spinous dorsal largely covered with neutral gray dots terminally, and same of third and fourth membranes, blackish. Hind or inner edges of caudal grayish.

Four, 70 to 121 mm., 1932; one, 60 mm., 1931; one, 44 mm., St. Lucia Lake, Zululand, 1931.

Ambassis safgha (Forskål).

Two, 118 to 137 mm., 1932. My example listed as *Ambassis ambassis* (Lacépède) in 1925 is the present species, rather than *Ambassis natalensis*, with which Barnard identifies it. Predorsal scales at least 16.

DULEIDAE

Dules taeniurus Cuvier.

Five, 63 to 130 mm., Durban, 1932, except largest from Umhlali rock pools March 5, 1931.

SERRANIDAE

Variola louti (Forskål).

One, 332 mm., Zululand coast, 1932. Previously known from East Africa, Zanzibar, Mauritius, Réunion, and Madagascar. New for South Africa.

Cephalopholis sonnerati (Valenciennes).

One, 230 mm., from Umllynaas River, in 3 fathoms, 1932. Agrees with Day's figure of *Serranus sonnerati*.

Cephalopholis miniatus (Forskål).

One, 350 mm., Natal coast, 1929.

Serranus morrhua Valenciennes.

Depth 3; head $2\frac{1}{4}$, width $2\frac{2}{5}$. Snout $3\frac{4}{5}$ in head from snout tip; eye 5, $1\frac{1}{4}$ in snout, greatly exceeds interorbital; maxillary reaches opposite hind eye edge, expansion $1\frac{3}{4}$ in eye, length $2\frac{1}{10}$ in head from snout tip; lower teeth biserial along sides of jaws; interorbital 6, low, little convex; 3 rather large spines at preopercle angle. Gill rakers $10 + 15$, of which 8 upper and 5 lower anterior very short, others long as gill filaments or $2\frac{1}{3}$ in eye.

Scales $105 + 8$ along lateral line; pores in lateral line $58 + 4$; 21 scales above, 36 below, 65 predorsal forward to front of snout; 23 obliquely across cheek to preopercle angle. Maxillary naked. Fins all with small scales basally.

D. XI, 15, 1, third spine 3 in total head length, third ray $2\frac{7}{8}$; A. III, 8, 1, third spine $3\frac{1}{4}$, second ray $2\frac{3}{4}$; caudal $1\frac{1}{3}$, hind edge little convex; least depth of caudal peduncle $4\frac{3}{8}$; pectoral $1\frac{7}{8}$; ventral $2\frac{1}{4}$.

Sepia brown, under surface scarcely paler. Back with 5 dark saddles; first obscure; second below forward part of spinous dorsal over which it extends at least half way up, below touching lateral line; third at last dorsal spine and front dorsal rays; fourth at last dorsal rays; fifth on caudal peduncle above and small. Two dark brown lines from behind eye, lower to pectoral origin and upper bends down and finally up until reaching saddle on caudal peduncle above; another parallel dark brown line from suprascapula and forking posteriorly reaches third and fourth saddles of soft dorsal fin. Dark line along lower suborbital over cheek to angle of preopercle, not in maxillary groove. Edge of spinous dorsal dull brown, with pale to whitish submarginal band. Basal parts of most all fins rather warm brown.

One, 210 mm., alluvial shoal at 25 fathoms on Natal coast, 1932.

Serranus praeopercularis Boulenger.

Depth $3\frac{2}{5}$; head $2\frac{1}{2}$, width 2. Snout 5 in head from snout tip; eye $5\frac{3}{8}$, $1\frac{1}{8}$ in snout, greater than interorbital; maxillary reaches slightly behind hind eye edge, expansion $1\frac{3}{8}$ in eye, length $2\frac{1}{3}$ in head; teeth small, in narrow bands in jaws, biserial along sides of mandible; interorbital $7\frac{1}{8}$, nearly level. Hind preopercle edge with 15 denticles, lowest largest and just below another directed downwards. Gill rakers $9 + 16$, of which 8 rudiments above and below, equal gill filaments or half of eye.

Scales $80 + 12$ in lateral line; tubes $65 + 7$ in lateral line; 20 scales above, 32 below, 65 predorsal forward to snout tip; 26 rows across cheek; maxillary scaleless; very fine scales on breast and chest; fins more or less finely scaled basally. Scales with 5 to 7 basal radiating striae, 18 to 20 apical denticles in 6 to 8 transverse series; circuli fine.

D. XI, 14, 1, third spine 3 in total head length, first branched ray $2\frac{5}{8}$; A. III, 8, 1, third spine 4, sixth ray $2\frac{1}{5}$; caudal $1\frac{3}{8}$, rounded; least depth of caudal peduncle $3\frac{2}{5}$; pectoral $1\frac{3}{4}$; ventral $2\frac{1}{4}$.

Largely heliotrope purple, paler below. Body and vertical fins with large dusky or blackish ill-defined blotches, rounded and none large as eye. Blackish line from upper hind eye edge back across opercle above, another from middle of hind eye edge to below second opercular spine, third from lower eye edge crosses preopercle just above angle; fourth along upper edge of maxillary groove back over interopercle. Edges of vertical fins all narrowly whitish. Paired fins dusky or blackish terminally. Iris dark gray.

One, 206 mm., 1929. The dark lines radiating from behind the eye are more distinct than in Boulenger's figure.

Serranus albomarginatus (Boulenger).

Depth $2\frac{7}{8}$; head $2\frac{1}{3}$, width $2\frac{1}{2}$. Snout $3\frac{9}{10}$ in head from snout tip; eye $4\frac{3}{8}$, $1\frac{1}{8}$ in snout, greater than interorbital; maxillary reaches opposite hind

eye edge, expansion 2 in orbit, length $2\frac{1}{10}$ in head from snout tip; mandibular teeth biserial; interorbital $5\frac{2}{3}$, low, slightly convex. Gill rakers $8 + 14$, lanceolate, $1\frac{3}{4}$ in eye; gill filaments $\frac{3}{4}$ of gill rakers.

Scales $106 + 8$ in lateral line; pores $58 + 3$ or 4 ; 23 scales above, 38 below, 72 predorsal to front part of snout; 30 across cheek to preopercle angle. Bases of vertical fins all densely scaly. Scales with 6 short basal radiating striae; 9 to 10 apical denticles, with 3 or 4 series transversely; circuli moderate.

D. XI, 14, 1, third spine $3\frac{1}{2}$ in total head length, first ray 3; A. III, 8, 1, third spine $3\frac{3}{4}$, third ray $2\frac{1}{2}$; caudal 1; least depth of caudal peduncle 4; pectoral $1\frac{9}{10}$; ventral 2.

Brown, paler below. Back and upper surface marked with numerous close-set dark spots less than eye, and extending on dorsals and caudal. Groove of maxillary dark brown. Iris dark brown. Fins otherwise than noted uniform pale brown.

One, 251 mm., Natal, 1932.

Serranus flavo-caeruleus (Lacépède).

One, 300 mm., 1913. Resembles Day's figure except the spinous dorsal entirely, as well as basal half of soft dorsal, blackish brown like back. Also black submarginal band on soft dorsal. Anal largely blackish brown, with pale or whitish submarginal blotch. Ventral dark like body. Snout uniformly dark like top of head and only upper lip little pale.

Two, 203 to 245 mm., Natal, 1931.

Serranus areolatus (Forskål).

Depth 3; head $2\frac{2}{3}$, width $2\frac{1}{8}$. Snout 4 in head from snout tip; eye $5\frac{3}{4}$, $1\frac{1}{2}$ in snout, equals interorbital; maxillary $\frac{1}{2}$ in eye, expansion $1\frac{1}{2}$, length $2\frac{1}{3}$ in head from snout tip; teeth in narrow bands, 2 series along each side of mandible; interorbital $5\frac{2}{3}$, convex; preopercle finely denticulate on hind edge and 5 or 6 enlarged denticles at angle, also several along lower edge. Gill rakers $10 + 13$, of which 5 above and 1 below rudiments, lanceolate, longer than gill filaments or $1\frac{1}{4}$ in eye.

Scales $90 + 15?$ in lateral line; tubes $46 + 4$ in lateral line; 22 scales above, 29 below, 60? predorsal; 25 rows across cheek; maxillary expansion with upper $\frac{2}{3}$ finely scaly; fins all with fine scales basally. Scales with 4 or 5 basal radiating striae; 40 to 44 apical denticles, with 8 to 11 transverse series of basal elements; circuli fine.

D. XI, 16, 1, third spine 3 in total head length, first ray $2\frac{2}{3}$; A. III, 8, 1, third spine $3\frac{1}{3}$, third ray $2\frac{1}{3}$; caudal $1\frac{4}{5}$, convex behind; least depth of caudal peduncle $3\frac{1}{8}$; pectoral $1\frac{3}{4}$; ventral $1\frac{7}{8}$.

Brown, more or less uniform. Body thickly marked with dusky brown round spots, extending over all fins and very numerous and small on pectoral.

One, 150 mm., 1929.

Serranus fario (Thunberg).

Two, 172 to 212 mm., May 18, 1931. Show extremes in color variation, or largest with large coarse markings, while smaller with finer and more numerous blotches.

Serranus spiniger Günther. Figure 33 (young).

One, 29 mm., Umhlali, Natal, March 5, 1931. In 1928 I pointed out the distribution of this interesting species in Micronesia and Polynesia, as it was originally described without type locality. Its occurrence in South Africa is therefore quite interesting, not only as showing a still greater distribution to the Eastern confines of the Indo Pacific, but also as addition to that fauna. I have made the accompanying figure as it shows some early characters, such as the long preopercular spine and color pattern, not noticed in all the known specimens heretofore studied which are of more advanced age.

Serranus chlorostigma Valenciennes.

Depth 3; head $2\frac{2}{3}$, width $2\frac{2}{3}$. Snout $3\frac{2}{3}$ in head from snout tip; eye 6, $1\frac{2}{3}$ in snout, equals interorbital; maxillary $\frac{3}{8}$ in eye, expansion $1\frac{1}{2}$, length $2\frac{1}{8}$ in head from snout tip; teeth in narrow bands in jaws, lower biserial; interorbital 6, convex; hind preopercle edge minutely serrate, with cluster of 6 enlarged denticles at angle; upper opercular spine most advanced, middle one median and lowest most posterior. Gill rakers $8 + 15$, lanceolate, $1\frac{2}{3}$ in eye.

Scales $100 +$ in lateral line; tubes $48 + 6$ in lateral line; 23 scales above, 32 below, 70 predorsal forward to snout end; 16 rows across cheek to preopercle ridge; maxillary with upper $\frac{3}{4}$ finely scaled; fins all more or less minutely scaled. Scales with 4 or 5 basal radiating striae; 32 to 40 apical denticles, with 3 to 10 transverse series of basal elements; circuli fine.

D. XI, 16, 1, third spine 3 in total head length, third ray 3; A. III, 8, 1, third spine $3\frac{2}{3}$, fourth ray $2\frac{1}{4}$; caudal $1\frac{2}{3}$, truncate behind; least depth of caudal peduncle $3\frac{1}{2}$; pectoral 2; ventral 2.

Warm brownish, marked all over with close-set hexagonal dark spots, crowded and smaller on caudal terminally, anal posteriorly and formed as transverse dark bands on pale or whitish pectoral. Breast and belly, also under surface of head, uniformly pale brown. Caudal with hind edge narrowly whitish. Ventral neutral dusky. Iris gray.

One, 275 mm., 1929.

Serranus diacanthus Valenciennes.

One, 140 mm., 1931.

Serranus fasciatus (Forskål).

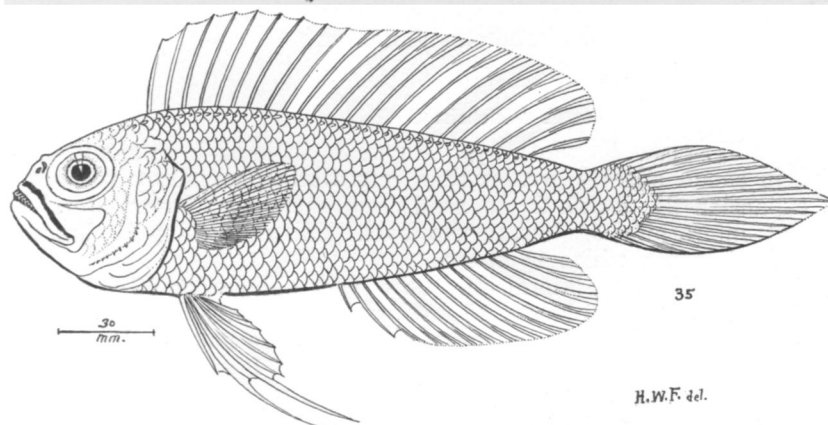
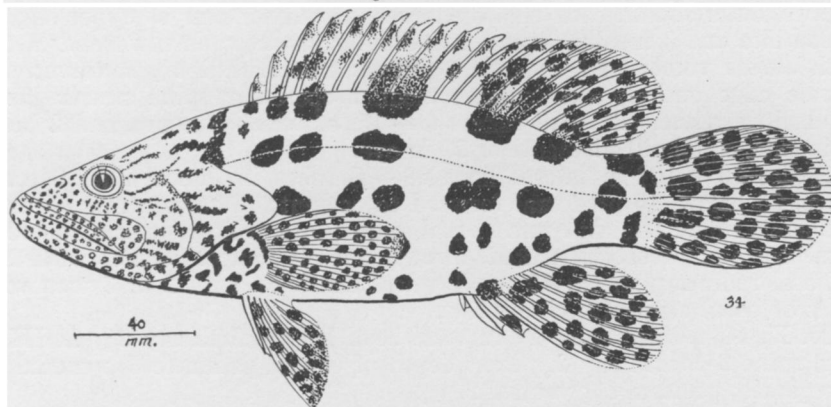
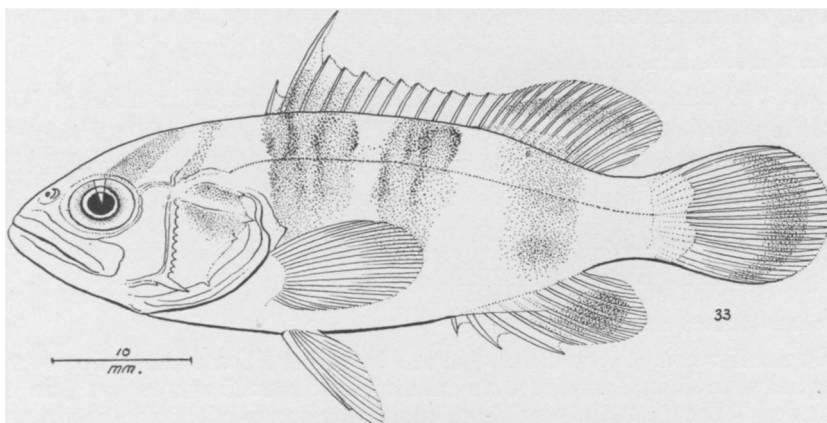
One, 180 mm., Natal, 1929. Dark brown, without darker transverse bands.

Serranus caeruleo-punctatus (Bloch).

Two, 203 to 235 mm., Natal, 1929; two, 193 to 233 mm., 1931. Smallest with: Gill rakers $9 + 16$, of which 8 above and 7 below rudimentary; scales 80 in lateral line; D. XI, 15, 1, A. III, 8, 1.

Serranus fuscoguttatus (Forskål). Figure 34 (variation).

One, 284 mm., Natal, 1932. An interesting variant, body marked with large black blotches.



H.W.F. del.

33. *Serranus spiniger*. 34. *Serranus fuscoguttatus*.
35. *Parasphenanthias microlepis*.

Serranus tauvina (Forskål).

One, 203 mm., 1932.

Serranus malabaricus (Schneider).

One, 200 mm., St. Lucia Lake estuary, Zululand, November 24, 1931. Following Boulenger this species would be merged with *S. tauvina*. It agrees, however, with Philippine materials in which the large well-spaced dark spots are as large on the fins as on body.

Aulacocephalus temminckii Bleeker.

One, 305 mm., Natal coast, 1929.

Paracentropristes cabrilla (Linnaeus).

Depth $3\frac{1}{5}$; head $2\frac{3}{4}$, width 2. Snout $3\frac{1}{5}$ in head from snout tip; eye $3\frac{4}{5}$, subequal with snout, greater than interorbital; maxillary reaches $\frac{1}{4}$ in eye, expansion 3, length $2\frac{1}{4}$ in head from snout tip; bands of firm villiform teeth in jaws, outer row in each slightly larger, also inner pair of upper slightly canine like and 3 median lateral mandibular canines; narrow band of fine teeth across vomer and on each palatine; interorbital $5\frac{1}{4}$, concave; preopercle edge entirely denticulate; median opercular spine nearer lower, which little advanced. Gill rakers 6 + 15, of which 5 above and 2 below rudiments, equal gill filaments or $2\frac{1}{2}$ in eye.

Scales 76 + 10? in lateral line; 68 + 8 tubes in lateral line; 9 scales above, 25 below, 15 predorsal forward to occiput; 11 rows across cheek to preopercle ridge; fins with small basal scales; interorbital, muzzle, including maxillary and preorbital naked, also preopercle flange. Scales with 9 or 10 basal radiating striae; 40 to 44 apical denticles, with 2 or 3 transverse series of basal elements; circuli fine.

D. X, 14, 1, third spine $2\frac{4}{5}$ in total head length, fifth ray $2\frac{1}{2}$; A. III, 7, third spine $3\frac{7}{8}$, third ray $2\frac{1}{5}$; least depth of caudal peduncle $3\frac{3}{8}$; caudal $1\frac{1}{2}$, emarginate; pectoral $1\frac{2}{5}$; ventral 2.

Dark brown above, paler or light brown below. Iris gray. Fins all pale brown, bases of dorsal and caudal darker.

One, 220 mm., 1929.

Paracentropristes knysnaensis (Gilchrist).

Depth $3\frac{1}{8}$; head $2\frac{3}{4}$, width $2\frac{1}{10}$. Snout $3\frac{4}{5}$ in head from snout tip; eye $4\frac{1}{3}$, $1\frac{1}{4}$ in snout, slightly greater than interorbital; maxillary reaches $\frac{1}{2}$ in eye, expansion $2\frac{1}{4}$, length $2\frac{2}{5}$ in head from snout tip; lower lateral teeth uniserial; interorbital $5\frac{2}{5}$, low, nearly level. Gill rakers 8 + 12, lanceolate. $1\frac{1}{4}$ in gill filaments, which $1\frac{1}{2}$ in eye.

Scales 74 + 9 along lateral line; tubes very oblique, on 68 + 4 scales in lateral line; 8 above, 23 below, 15 predorsal to occiput; 11 obliquely across cheek to angle of preopercle ridge, preopercle flange naked. Fins all scaly basally. Maxillary naked. Scales with 8 to 11 short radiating basal striae; 41 to 51 short close-set apical denticles with 4 transverse series of basal elements, circuli fine.

D. X, 13, 1, fifth spine $3\frac{1}{5}$ in total head length, fourth ray $2\frac{1}{5}$; A. III, 7, 1, third spine 4, third ray $2\frac{2}{5}$; caudal $1\frac{3}{4}$?, forked; least depth of caudal peduncle $3\frac{3}{8}$; pectoral $1\frac{1}{2}$; ventral $1\frac{2}{10}$.

Largely uniform brownish, scarcely paler below. Iris gray.

One, 198 mm., 1932. Only known previously from the unique type in the South African Museum.

***Grammistes sexlineatus* (Thunberg).**

Depth $2\frac{3}{5}$; head $2\frac{2}{3}$, width $2\frac{1}{3}$. Snout 5 in head from snout tip; eye $4\frac{2}{5}$, greater than snout or interorbital; maxillary nearly reaches opposite hind eye edge, expansion $1\frac{1}{2}$ in eye, length 2 in head; teeth in villiform bands in jaws, on vomer and palatines; interorbital $6\frac{3}{4}$, level; 3 strong opercular spines, equidistant and lower most advanced. Gill rakers $5 + 11$, of which 3 above and 3 below rudiments, lanceolate, $1\frac{1}{2}$ in gill filaments or $2\frac{3}{4}$ in eye.

Tubes $53 + 6$ in lateral line; 14 scales above, 25 below, 16 predorsal forward to occiput, 12 rows across cheek to angle of preopercle; muzzle, including maxillary, naked; each scale with median keel.

D. VII, 12, second spine 3 in total head length, third ray 3; A. I, 8, I, third ray $2\frac{3}{4}$; caudal $1\frac{3}{4}$, convex behind; least depth of caudal peduncle $3\frac{1}{2}$; pectoral $1\frac{1}{2}$; ventral $2\frac{1}{2}$.

Head and body generally blackish, with 4 narrow whitish lateral bands, uppermost along edge of back to second dorsal, second from above eye to bases of upper caudal rays, third from near maxillary end to bases of lower caudal rays, fourth from maxillary end along lower side of chest and abdomen to anal. Also whitish line from upper end of maxillary expansion to pectoral base medially and another on median line of chest between ventrals back to vent. Fins all pale or light brownish.

One, 84 mm., Natal, 1929. Also one, 143 mm., Durban, 1932.

PSEUDOCROMIDAE

Subfamily PSEUDOPLESIOPSINAE

PARASPHENANTHIAS Gilchrist

Body elongate, well compressed. Head moderate, obtuse, compressed. Snout very short. Mouth large, terminally superior. Maxillary large, conspicuous, exposed, without supplemental bone. Teeth large, simple, uniserial and conic in jaws. Palate and tongue edentulous. Hind preopercle edge uneven, with 3 small denticles at angle and 7 to 8 inconspicuous serrae along lower edge directed forwards. Gill rakers fine, slender, numerous, close-set. Branchiostegals 6. Scales moderate, smooth. Head scaly on occiput, cheeks and opercles. Caudal base scaly, fins otherwise largely naked. Lateral line single, incomplete, extends close along bases of dorsals and ends at caudal peduncle. Tubes in lateral line large and each with branch above and below. Dorsal with articulated rays, of which 3 to 9 simple and 15 to 20 branched. Anal with articulated rays, of which 1 or 2 simple and 13 branched. Caudal extended in long point. Pectoral with 2 simple and 17 to 18 branched rays. Ventrals inserted slightly before pectoral, with slender spine and 5 branched rays.

Related to *Pseudoplesiops* Bleeker in its soft dorsal and anal rays and the single lateral line extending along the base of the dorsal fin. It differs greatly in its physiognomy, superiorly terminal mouth, greatly expanded maxillary, dentition, gill rakers, fin formula, different shape of fins, etc.

It also has much in common with *Sphenanthias* Weber, but that genus with much larger scales. I do not feel, however, that either should be placed with the Anthiinae, with which Weber and Beaufort associate *Sphenanthias*.

Parasphenanthias microlepis, new species. Figure 35.

Depth $3\frac{1}{2}$; head $3\frac{1}{2}$, width $1\frac{3}{8}$. Snout 5 in head from snout tip; eye $2\frac{1}{2}$, greatly exceeds snout or interorbital; maxillary reaches $\frac{7}{8}$ in orbit, expansion $1\frac{1}{4}$, hind edge truncate, length $1\frac{7}{8}$ in head from snout tip; teeth slender, rather long, slightly pointed, uniserial in each jaw, upper and only anterior lower closed; rami of lower jaw greatly elevated inside mouth; interorbital $4\frac{4}{5}$ in head from snout tip, low, little depressed; nostrils close together and close before front of eye; opercle ends in blunt point behind; suprascapula entire. Gill rakers $17 + 30$, slender, twice gill filaments or $1\frac{1}{2}$ in orbit. Branchiostegals 6, large, conspicuous.

Scales 46 in lateral axial count from suprascapula to middle of caudal base, and 6 more on latter; tubular scales $4 + 40$ in upper lateral line, last below end of base of soft dorsal; 15 scales from anal origin to lateral line; 6 predorsal; 4 rows on cheek to angle of preopercle ridge and 1 or 2 more along flange. Maxillary scaleless. Except caudal base fins apparently all scaleless. Predorsal and breast scales moderately small. Scales with 10 strongly radiating basal striae; apically 8 to 13 rather obscure radiating ridges; circuli more or less complete, fine basally, coarser apically.

D. IX, 14, first simple ray $2\frac{1}{2}$ in total head length, first branched ray $1\frac{1}{2}$, eleventh $1\frac{3}{8}$; A. II, 13, second simple ray $2\frac{1}{2}$, ninth $1\frac{3}{8}$; least depth of caudal peduncle 3; pectoral $1\frac{1}{2}$; ventral $2\frac{3}{4}$ in combined head and trunk to caudal base; caudal $2\frac{3}{8}$.

Color in alcohol nearly vinaceous cinnamon, more or less uniform. Iris neutral gray. Lateral groove of maxillary and premaxillary black, though not crossing posterior premaxillary extensions in front. Iris neutral gray. Fins all of uniform pale shade like body, though posteriorly and terminally vertical fins tinged gray.

A.N.S.P., No. 54940, type. Durban, Natal, 1932. Length 265 mm.

(Μικρός small + λεπὶς scale.)

PEUDOCRENILABRINAE, new subfamily

Palate edentulous. Scales cycloid, moderately large. Dorsal spines 15, pungent, rays 10. Anal rays 8.

Type genus *Pseudocrenilabrus* new genus.

PEUDOCRENILABRUS, new genus

Body elongately ovoid, compressed. Head large, compressed. Snout rather conic. Eye large, advanced, high. Maxillary short, not quite reaches eye. Mouth terminal, lower jaw slightly protruding. Teeth small, conic, in bands in jaws, outer row slightly larger though none canine-like. No teeth on palate. Tongue small, free in front. Interorbital low. Gill membranes form broad free fold over rather wide isthmus. Gill rakers short, rather few, robust. Scales large. Small scales on breast and caudal base. Head scaly forward to front of interorbital. Spinous dorsal base nearly 3 times base of soft dorsal. Soft anal much longer basally than soft dorsal. Caudal rounded. Caudal peduncle rather deep. Pectoral reaches

anal. Ventral long as pectoral, spine little over half fin length. Coloration brownish.

Type *Pseudocrenilabrus natalensis*, new species.

A very interesting genus, differing from all other Pseudochromidae in the above combination of characters, therefore more typically percoid, especially in the increased dorsal spines and scaly head.

($\Psi\epsilon\upsilon\delta\eta\varsigma$ false + *Crenilabrus*, a genus of *Labridae* which superficially somewhat similar.)

Pseudocrenilabrus natalensis, new species. Figure 36.

Depth 3; head $2\frac{2}{3}$, width 2. Snout 4 in head from snout tip; eye $4\frac{2}{3}$, $1\frac{1}{3}$ in snout, greater than interorbital; maxillary with upper edge ensheathed by preorbital, reaching opposite front eye edge, expansion $2\frac{1}{2}$ in eye, length $3\frac{1}{8}$ in head from snout tip; teeth uniform, small, simple, form inner band of 3 or 4 series irregularly transversely and outer enlarged series, though latter not conspicuously much longer; interorbital $4\frac{1}{4}$, low, nearly level; preopercle entire; nostril single, about last $\frac{2}{3}$ in snout. Gill rakers $3 + 9$, short, cuneate, $\frac{1}{2}$ of gill filaments, which $\frac{1}{2}$ of eye.

Scales 18 tubular in upper section of lateral line, and 9 in lower section to caudal base; 4 above, 7 below, 12 predorsal forward opposite middle of eye, 3 rows on cheek. Muzzle, including snout, preorbital and mandible, naked. Fins, except small scales on caudal base, naked. Scales with 15 to 18 marginal, short, slightly radiating, basal striae; circuli fine basally, more or less complete but coarser apically.

D. XV, 9, 1, first spine $6\frac{3}{4}$ in total head length, last spine $2\frac{3}{4}$, fifth ray 2; A. III, 8, 1, third spine 3, fourth ray $2\frac{1}{3}$; caudal $1\frac{1}{3}$, convex behind; least depth of caudal peduncle $3\frac{1}{4}$; pectoral $1\frac{3}{4}$, rays 1, 11; ventral $1\frac{1}{2}$, rays I, 5.

Brownish generally, little paler below and especially so on head below. An indistinct or ill defined axial lateral pale line along side of body. Iris neutral gray. Rounded dusky blotch on upper hind part of opercle. Jaws and under surface of head pale. Fins all pale gray brown, mostly with little more grayish marginally.

A.N.S.P., No. 55175, Type. Durban, Natal, 1932. Length 77 mm. (Named for Natal.)

PEMPHERIDAE

Pempheris mangula Cuvier.

Depth $2\frac{1}{8}$; head $3\frac{1}{3}$, width $1\frac{4}{5}$. Snout $4\frac{2}{3}$ in head from snout tip; eye $2\frac{2}{3}$, greater than snout or interorbital; maxillary reaches $\frac{2}{3}$ in eye, expansion $2\frac{1}{4}$ in eye, length 2 in head from snout tip; interorbital 3, broadly convex. Gill rakers $9 + 21$, lanceolate, longer than gill filaments or 2 in eye.

Scales (pockets) $52 + 11?$ in lateral line; 6 above, 14 below, 40 predorsal forward to snout tip; 5 rows across cheek to preopercle ridge. Lateral line slightly arched. Scales with 8 to 10 basal radiating striae; circuli 95.

D. VI, 9, 1, last spine 2 in total head length, first branched ray $1\frac{1}{3}$; A. III, 38, 1, third spine $3\frac{3}{4}$, first branched ray 2; least depth of caudal peduncle $3\frac{3}{4}$; pectoral 1; ventral $1\frac{1}{3}$.

Heliotrope purple, with 4 or 5 series of short narrow dusky bars above lateral line and 12 below. Vertical fins more or less deep gray terminally. Paired fins pale brownish.

One, 180 mm., Durban Bay, 1929. Also three, 70 to 170 mm., in 1931 and one, 136 mm., January 7, 1932.

PRIACANTHIDAE

Priacanthus hamrur (Forskål). Figure 37 (young).

Two, 52 to 298 mm., 1932.

LUTJANIDAE

Lutjanus argentimaculatus (Forskål).

One, 282 mm., Natal, 1932. Scales above lateral line in rows parallel with same throughout its course, in both this and the following. The varying nature of these scale rows has induced me to follow Day as well as include several other of his species. The present specimen seems to vary in its pale or nearly whitish pectorals.

One, 385 mm., 1929. Dark brown, below reddish brown. No dark blotch on back. "Rock Salmon".

Likely *Lutjanus salmonoides* (Gilchrist) is a synonym, though the disposition of its scales above the lateral line is not given in the original description. Mr. Bell-Marley thinks it differs from *L. johnii*, which a small yellow species with a black spot. I have, however, examined examples of *L. johnii* over 900 mm. in length.

Lutjanus bohar (Forskål).

Depth $2\frac{2}{3}$; head $2\frac{2}{3}$, width $2\frac{1}{3}$. Snout $2\frac{2}{3}$ in head; eye $4\frac{1}{2}$, 2 in snout, $1\frac{1}{4}$ in interorbital; maxillary reaches eye, expansion $1\frac{1}{2}$ in eye, length $2\frac{1}{10}$ in head; interorbital $3\frac{1}{3}$, convex; hind preopercle edge with slight emargination.

Tubes $41 + 8$ in lateral line; 7 scales above, 17 below, 17 predorsal; 7 rows across cheek. Scales with 18 or 19 basal radiating striae; 119 to 144 apical denticles, with 8 to 12 transverse series of basal elements; circuli fine.

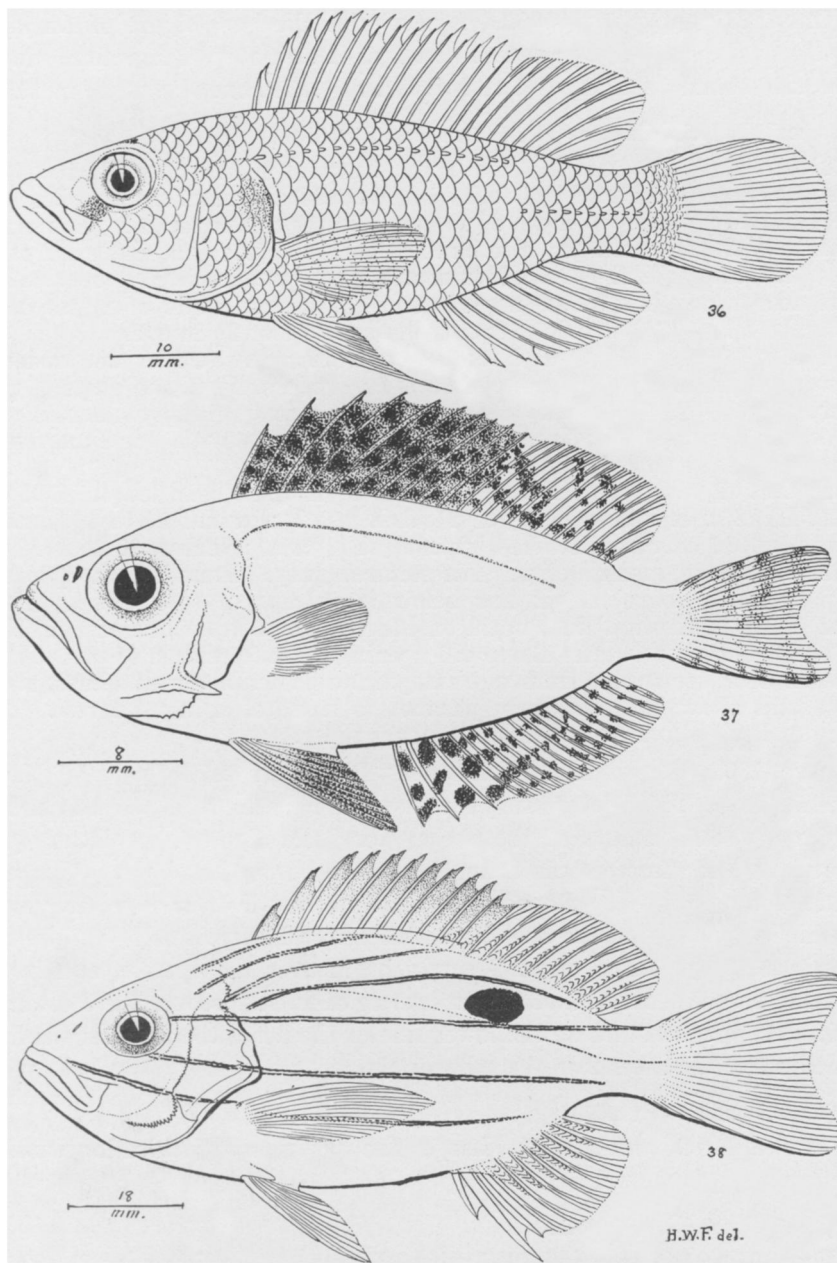
D. XI, 14, 1, fifth spine $3\frac{1}{8}$ in head; second ray 4; A. III, 7, 1, third spine 4, third ray 3?; caudal $1\frac{1}{2}$, little emarginate behind; least depth of caudal peduncle $3\frac{1}{4}$; pectoral $1\frac{1}{3}$; ventral 2.

Back brown, below whitish. Iris dully brown. Spinous dorsal dusky. Lower anal edge, or spinous portion, blackish brown. Caudal and pectoral pale brown, latter with axil blackish brown. Ventral brownish, terminally blackish.

One, 410 mm., from deep-sea boat 135 miles off Durban, 1929.

Lutjanus fulviflamma (Forskål).

Two, 198 to 214 mm., 1931. One, 188 mm., 1932. Natal and Delagoa Bay examples I reported in 1925 as *L. johnii* are the present species.



36. *Pseudocrenilabrus natalensis*. 37. *Priacanthus hamrur*.
38. *Lutjanus duodecim lineatus*.

Lutjanus lineatus (Quoy and Gaimard).

One, 123 mm., Natal, 1932. Agrees with Bleeker's figure of *Lutjanus lineatus*. Caudal largely neutral dusky. Dorsals with marginal dusky area, also submarginal as well on soft dorsal. Also one, 120 mm., in 1931.

Lutjanus duodecim lineatus (Valenciennes). Figure 38.

Depth $2\frac{1}{2}$ to $2\frac{3}{5}$; head $2\frac{3}{5}$, width $2\frac{1}{8}$. Snout 3 in head; eye $3\frac{3}{8}$ to $3\frac{1}{4}$, $1\frac{1}{2}$ in snout, exceeds interorbital to $1\frac{1}{8}$ in interorbital; maxillary reaches $\frac{1}{4}$ in eye, expansion $\frac{1}{2}$ of eye, length $2\frac{1}{2}$ in head; bands of fine teeth in jaws, outer series in each little enlarged, also band on each palatine and triangular patch on vomer; interorbital $4\frac{1}{2}$ to 5, low, nearly level; preopercle edge denticulate, with deep notch just above angle receiving bony tubercle of interopercle. Gill rakers $7 + 13$, lanceolate, equal gill filaments or $2\frac{1}{2}$ in eye.

Scales $44 + 4$ in lateral line; 8 above, 19 below, 25 or 26 predorsal forward opposite front eye edge; 8 rows on cheek obliquely to angle of preopercle ridge, flange naked. Soft vertical fins scaly basally. Scales with 9 basal radiating striae; 58 to 62 fine apical denticles, with 7 or 8 transverse series of basal elements and circuli fine.

D. XI, 12, 1 or 13, 1, third spine $2\frac{3}{8}$ to $2\frac{3}{4}$ in total head length, first ray 3; A. III, 8, 1, second spine $2\frac{1}{8}$ to $2\frac{1}{4}$, first ray $2\frac{1}{8}$; caudal $1\frac{1}{8}$ to $1\frac{2}{5}$, lunate; least depth of caudal peduncle $3\frac{1}{4}$; pectoral $1\frac{1}{4}$ to $1\frac{1}{3}$; ventral $1\frac{3}{8}$ to $1\frac{3}{5}$.

Light brown, paler below. Iris neutral gray. Round dark spot size of pupil close above lateral line below front rays of soft dorsal. Three dark brown horizontal lines begin on head, upper 2 from behind eye, back on body; uppermost forks above gill opening back to middle of soft dorsal; another dark brown line from suprascapula to posterior dorsal spines, also 2 more still above and obliquely parallel to front of spinous dorsal. Fins more or less uniformly brown, paired ones paler.

Two, 130 mm., obtained by Steamer "Pickle", in 25 fathoms off Natal, June 5, 1931. These interesting specimens are the first I have seen and as they vary somewhat from the descriptions and figures, the latter quite inaccurate and therefore confusing, I have prepared the above. The color pattern as described by Barnard "with 6 narrow lilac or blue streaks all of which begin behind the opercle", is therefore incorrect as my figure and description show. The upper 3 surely begin over the opercle, and in the first and second close behind the preopercle edge. Moreover the 3 lower or horizontal streaks begin on the lower side of the head, the axial at the hind eye edge and the other 2 on the suborbitals.

Lutjanus kasmira (Forskål).

Two, 128 to 200 mm., 1932. Larger fine specimen with third longitudinal line beginning on opercle.²

Lutjanus erythropterus Bloch.

Four, 98 to 144 mm., all 1932 except largest, which February 8, 1926.

² In Bull. U. S. Nat. Mus., No. 100, vol. 11, 1931, p. 159, line 26, the reference to Barnard should be placed on p. 158, line 27 after *Lutjanus kasmira*.

POMADASYIDAE***Plectorhinchus schotaf* (Forskål).**

One, 137 mm., 1931.

***Plectorhinchus chubbi* (Regan).**

Depth $2\frac{1}{2}$ to $2\frac{2}{3}$; head $2\frac{4}{5}$ to $3\frac{1}{8}$, width 2. Snout $2\frac{4}{5}$ to 3 in head; eye $3\frac{1}{2}$ to $3\frac{3}{4}$, $1\frac{1}{8}$ to $1\frac{1}{4}$ in snout, slightly exceeds to $1\frac{1}{8}$ in interorbital; maxillary reaches $\frac{2}{3}$ to $\frac{3}{4}$ in snout, expansion $2\frac{1}{4}$ in eye, length $3\frac{1}{8}$ to $3\frac{1}{2}$ in head; teeth small, simple, conic, uniform, in 4 or 5 series with outermost row in each jaw little enlarged; interorbital $3\frac{3}{8}$ to $3\frac{4}{5}$, low, broadly convex; preopercle edge finely serrate. Gill rakers $13 + 22$, slightly clavate, $\frac{1}{2}$ gill filaments, which $1\frac{4}{5}$ in eye.

Scales 100 to $102 + 12$ or 13 in lateral line; 17 or 20 above, 20 to 23 below; 50 to 54 predorsal forward to nostrils. Soft vertical fins finely scaled basally. Scales with 4 basal radiating striae; 17 to 34 apical denticles, with 4 to 9 transverse series of basal elements; circuli fine.

D. XI, 16, 1 or 17, 1, fourth spine $2\frac{2}{3}$ to $2\frac{3}{4}$ in head, third ray $2\frac{1}{8}$ to $2\frac{1}{2}$; A. III, 8, 1, second spine $2\frac{1}{8}$ to $2\frac{1}{4}$, third ray $1\frac{4}{5}$ to 2; caudal $1\frac{1}{3}$, truncate; least depth of caudal peduncle $2\frac{4}{5}$ to $2\frac{7}{8}$; pectoral $1\frac{2}{5}$ to $1\frac{3}{4}$; ventral $1\frac{2}{5}$ to $1\frac{3}{5}$.

Back dark olive to sepia, under surfaces fading to fawn color or whitish. Iris gray brown. Fins all more or less dark brown, ventrals, anal and caudal largely dusky to blackish terminally. Young with upper caudal edge broadly pale to whitish, also pectorals much paler than other fins and with dark diffuse basal blotch above.

Six, 105 to 200 mm., 1931.

***Plectorhinchus pictus* (Thunberg).**

One, 208 mm., Durban Bay, February 8, 1932.

***Pomadasys incisus* (Bowdich).**

Seven, 56 to 108 mm., Durban, 1932; one, 71 mm., St. Lucia coast, north Zululand, 1931.

***Pomadasys hasta* (Bloch).**

One, 153 mm., 1929.

***Pomadasys opercularis* (Playfair).**

One, 168 mm., 1931. Also one, 273 mm., in 1929.

***Pomadasys striatus* (Gilchrist and Thompson).** Figure 39.

Depth $2\frac{4}{5}$; head 3, width 2. Snout 3 in head; eye $3\frac{1}{2}$, $1\frac{1}{8}$ in snout, $1\frac{1}{4}$ in interorbital; maxillary reaches $\frac{4}{5}$ to eye, expansion $3\frac{1}{8}$ in eye, length $3\frac{1}{3}$ in head; interorbital $3\frac{1}{2}$. Gill rakers $10 + 13$, of which 5 lower rudiments.

Scales $50 + 4$ in lateral line; 10 above, 17 below, 55 predorsal forward little before nostril; 18 across cheek to preopercle angle.

D. XIII, 14, 1, fifth spine $2\frac{1}{10}$ in head, first ray $2\frac{4}{5}$?; A. III, 7, 1, second spine 2, first ray $2\frac{1}{3}$; caudal $1\frac{2}{5}$, emarginate; least depth of caudal peduncle $3\frac{1}{2}$; pectoral $1\frac{1}{10}$; ventral $1\frac{2}{3}$.

Brown, with 3 longitudinal dusky or blackish lines, lowest and broadest from eye along median body axis to caudal base, median along lateral line and uppermost along back above lateral line.

One, 190 mm., Durban Bay, 1929. Also one, 188 mm., from fishing boat "Blue Bird" at Durban, 1932.

Pomadasys furcatus (Schneider).

One, 210 mm., Natal, 1932.

TERAPONIDAE

Terapon jarbua (Forskål).

Four, 122 to 190 mm., 1932. Also one, 152 mm., in 1931.

LETHRINIDAE

Lethrinus nebulosus (Forskål).

Three, 109 to 121 mm., 1932. Two smaller with dark blotch over pectoral in second dark transverse band. Also one, 160 mm., in 1931.

SPARIDAE

Dentex filusus Valenciennes.

Two, 108 to 118 mm., 1932. Gill rakers $8 + 14$. Cheek with row of 8 scales, preopercle flange naked. Third dorsal spine $1\frac{2}{3}$ in head. Four dark vertical bands, first on middle of predorsal, second at front of spinous dorsal, third little behind middle of spinous dorsal and fourth from soft dorsal.

Sparus sarba Forskål.

One, 78 mm., Durban, 1932; one, 158 mm., St. Lucia Lake, Zululand, October 1931. "Silvery, with gold stripe running through center of body. Caudal points blackish. Ventral yellow silvery." Also three, 120 to 218, Durban, 1931.

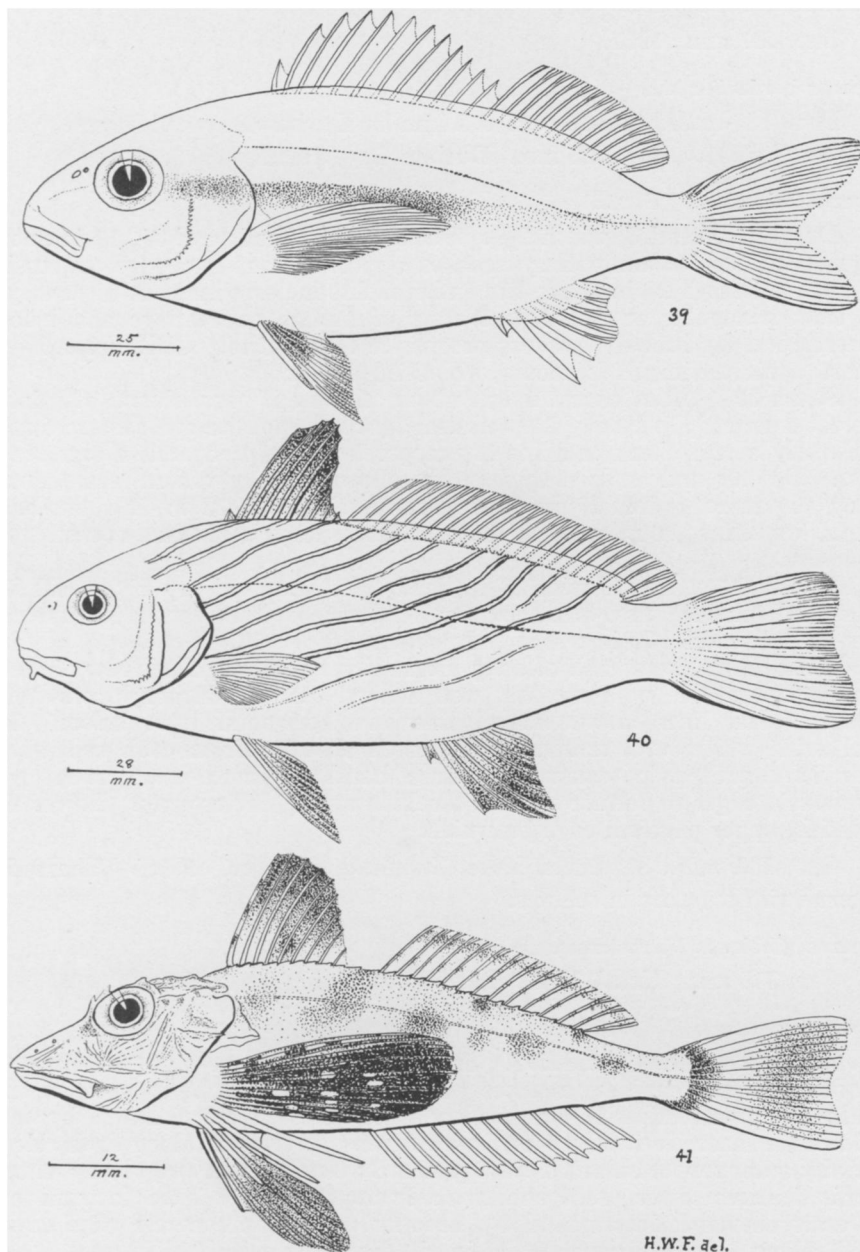
Sparus nasutus (Castelnau).

Depth $2\frac{1}{2}$; head 3, width $1\frac{2}{3}$. Snout $2\frac{1}{3}$ in head; eye 5, $2\frac{1}{3}$ in snout, $1\frac{1}{3}$ in interorbital; maxillary reaches $\frac{7}{8}$ in snout or opposite hind nostril, expansion $1\frac{3}{5}$ in eye, length $2\frac{1}{3}$ in head; 4 strong conic canines in front of each jaw, 2 rows of convex molars along each side of jaw with outer row in each larger; interorbital 3, convex; hind nostril short horizontal slit. Gill rakers $6 + 10$, lanceolate, $\frac{1}{2}$ of gill filaments, which $1\frac{1}{2}$ in eye.

Scales (tubes) 58 in lateral line to caudal base; 11 above, 19 below, 55 predorsal forward opposite hind nostril; 19 scales on cheek vertically below eye of which 3 below preopercle ridge, flange broadly naked. Scales on head, predorsal, axial region of pectoral, chest and breast all very small and crowded. Fin bases, except spinous dorsal all well covered with small scales. Scales with 7 basal radiating striae; 123 to 210 apical denticles, with 15 to 22 transverse series of basal elements.

D. XII, 10, 1, fifth spine $2\frac{3}{4}$ in head, second ray $2\frac{3}{4}$; A. III, 8, 1, second spine $3\frac{1}{2}$, second ray $2\frac{1}{3}$; caudal $1\frac{1}{4}$, moderately emarginate behind, broad lobes triangular; least depth of caudal peduncle $2\frac{1}{3}$; pectoral 1; ventral $1\frac{3}{4}$.

Back and upper surfaces gray brown, below paler to vinaceous cinnamon or pinkish buff. Iris dark gray. Lips and under surface of head pinkish

39. *Pomadasys striatus*. 40. *Sciaena robinsoni*.41. *Chelidonichthys capensis*.

buff. Vertical fins all dark neutral brown or gray. Pectoral gray brown. Ventral neutral black.

One, 437 mm., 1931.

Sparus berda Forskål.

Five, 156 to 242 mm., of which 2 smaller Durban Bay and largest "Blue Lagoon", 1931. One, 223 mm., Durban Bay, 1929.

Sparus bifasciatus (Forskål).

Depth $2\frac{3}{8}$; head 3, width $2\frac{1}{10}$. Snout $2\frac{1}{10}$ in head; eye $3\frac{3}{4}$, $1\frac{3}{8}$ in snout, equals interorbital; maxillary reaches opposite front eye edge, expansion $2\frac{1}{4}$ in eye, length $2\frac{3}{8}$ in head; front row of flat incisors in front of each jaw 6, ends triangular or rounded; 3 rows of molars both above and below; interorbital $3\frac{3}{8}$, broadly convex; preopercle edge entire. Gill rakers $5 + 9$, short, conic, $2\frac{3}{8}$ in gill filaments, which $1\frac{9}{10}$ in eye.

Scales $56 + 10$ in lateral line; 7 above (2 more if basal sheath of spinous dorsal counted), 14 below, 24 predorsal forward opposite eye center; 5 rows obliquely across cheek to angle of preopercle ridge, preopercle flange scaleless. Dorsals and anals scaly basally. Long axillary ventral scale nearly long as ventral spine, $1\frac{3}{4}$ in entire fin. Scales with 12 to 14 short basal radiating striae; 46 minute feeble apical denticles; circuli fine, not extended apically.

D. XI, 13, 1, fourth spine $1\frac{3}{8}$ in head, first branched ray $2\frac{1}{4}$; A. III, 11, 1, second spine $2\frac{1}{4}$, first branched ray $2\frac{3}{8}$; least depth of caudal peduncle 3; ventral $1\frac{3}{8}$; caudal $2\frac{5}{8}$ in rest of fish; pectoral $2\frac{1}{2}$.

Back brown, lower half of body bright silvery white. Each row of scales on back and side with median, well defined, narrow darker brown band, form arched lines above lateral line and horizontal ones below. Iris yellowish white, with neutral gray blotch above. From each eye, above nostrils, broad pale transverse diffuse band. Dorsals and caudal pale brownish, edges of former neutral blackish and of latter gray. Lower fins whitish, upper pectoral edge brownish.

One, 164 mm., St. Lucia Lake, Zululand, October, 1931. "These fish never swim together in schools."

Sparus gibbiceps Valenciennes.

One, 310 mm., Natal, 1931. Also one, 265 mm., in 1929.

Sparus cristiceps (Valenciennes).

Depth 2; head $3\frac{1}{5}$, width 2. Snout $2\frac{2}{5}$ in head; eye 4, $1\frac{3}{4}$ in snout, $1\frac{1}{4}$ in interorbital; maxillary reaches $\frac{4}{5}$ in snout, expansion $1\frac{1}{5}$ in eye, length 3 in head; upper teeth with 4 rather low outer conic canines, followed by band of minute inner teeth with 4 or 5 series transversely and along each side of jaw by outer row of enlarged teeth gradually larger posteriorly, last 3 almost conic molars; lower teeth similar, only front canines flare forward and laterals outward; interorbital $3\frac{1}{8}$, broadly convex; preopercle edge entire. Gill rakers $8 + 14$, lanceolate, $1\frac{3}{4}$ in gill filaments, which $1\frac{1}{5}$ in eye.

Scales 50 in lateral line to caudal base; 10 above, 16 below, 74 forward on predorsal until nearly over hind nostril; 14 rows on cheek, of which 8 rows on preopercle flange; scales on top of head and predorsal extremely

small and crowded. Soft vertical fins with fine scales, more or less completely cover caudal. Scales with 11 or 12 basal radiating striae; 110 to 120 minute apical denticles, with 18 to 20 transverse series of basal elements; circuli very fine.

D. XII, 10, 1, fourth spine $1\frac{1}{8}$ in head, third ray $2\frac{1}{8}$; A. III, 9, 1, second spine $2\frac{1}{8}$, fourth ray $2\frac{1}{2}$; caudal 1?; least depth of caudal peduncle $2\frac{1}{4}$; ventral $1\frac{1}{2}$; axillary scale $2\frac{1}{8}$ in fin; pectoral $2\frac{3}{8}$ in length of fish without caudal.

Nearly walnut brown, scarcely paler below. Iris dark neutral brown. Blackish streak along lower orbital edge. Fins all uniform like body. Small black spot at origin of pectoral.

One, 285 mm., Natal, 1932. Known as "slinger"

Diplodus trifasciatus (Rafinesque).

Depth 2; head $3\frac{1}{4}$ to $3\frac{1}{2}$, width $1\frac{1}{8}$ to 2. Snout $2\frac{1}{2}$ to $2\frac{3}{8}$ in head; eye 3 to $3\frac{1}{4}$, 1 to $1\frac{1}{4}$ in snout, 1 to $1\frac{1}{8}$ in interorbital; maxillary reaches $\frac{3}{4}$ to $\frac{7}{8}$ to eye, length $3\frac{1}{3}$ to $3\frac{2}{3}$ in head; incisors oblique, 12 above, 8 or 9 below; molars small, uniserial in each jaw and inner row larger; preorbital entirely conceals maxillary; interorbital $2\frac{1}{8}$ to 3, broadly convex; nostrils together, hind one oblique slit close before middle of front of eye; hind preopercle edge entire. Gill rakers 8 + 9, short, conic, $\frac{1}{3}$ of gill filaments, which $1\frac{3}{8}$ in eye.

Scales 54 to 60 + 6 or 7 in lateral line; 11 or 12 above, 15 or 16 below, 22 to 26 predorsal forward opposite hind eye edge; 5 rows on cheek to preopercle ridge, none on preopercle flange. Scales with 9 to 11 basal radiating striae; 47 to 52 apical denticles, with 7 to 9 transverse series of basal elements; circuli very fine.

D. XI, 13, 1, fourth spine $1\frac{1}{8}$ to 2, third ray $2\frac{1}{8}$ to $2\frac{1}{4}$; A. III, 11, 1, second spine $2\frac{1}{8}$ to $2\frac{1}{4}$; least depth of caudal peduncle $2\frac{1}{4}$ to $2\frac{3}{8}$; ventral $1\frac{1}{8}$ to $1\frac{1}{4}$; caudal $2\frac{1}{8}$ to $3\frac{1}{4}$ in rest of fish; pectoral $2\frac{3}{8}$ to $3\frac{1}{8}$.

Back brown, lower surfaces paler. Six broad blackish brown transverse bands; first through eye and down over cheek, but not united over throat; second from close before dorsal down over pectoral base; third from middle of spinous dorsal behind anal base; fourth from last dorsal spines to anal spines; fifth from last half of soft dorsal to same of anal; sixth on caudal peduncle. Front of snout also blackish brown. Iris neutral gray. On abdomen in each pale interspace between dark bands dark narrow parallel band, which may have still paler similar narrow band or streak parallel in resulting still narrower intervening pale areas. Vertical fins gray brown, dark bands reflected across. Pectoral pale, basally neutral black. Ventral neutral black, paler basally.

Two, 144 to 168 mm., 1931.

Pagellus lithognathus Cuvier.

Depth $2\frac{3}{8}$; head 3, width $2\frac{1}{8}$. Snout $2\frac{1}{8}$ in head; eye 5, $2\frac{1}{2}$ in snout, $1\frac{1}{8}$ in interorbital; maxillary reaches $\frac{3}{4}$ to eye, expansion $1\frac{3}{8}$ in eye, length 3 in head; each jaw with outer row of slightly enlarged conic teeth, followed by rather broad band of villiform teeth 11 to 13 irregular transverse rows; interorbital $3\frac{1}{2}$, broadly convex; front nostril about last third in snout, hind one little higher as rather long slit; preopercle edge entire. Gill rakers 8 + 14, lanceolate, $\frac{1}{2}$ of gill filaments, which equal eye.

Scales 44 + 6 in lateral line; 5 above, 9 below, 20 predorsal forward to eye center; 7 rows on cheek to preopercle ridge, none on preopercle flange. Soft dorsal and anal with small scales basally; caudal more extensively scaly basally. Scales with 17 to 20 basal radiating striae; 89 to 100 very minute apical denticles, with about 20 transverse series of basal elements; circuli very fine.

D. XI, 10, 1, fourth spine $2\frac{1}{8}$ in head, first ray $2\frac{7}{8}$; A. III, 8, 1, second spine $3\frac{1}{8}$, second ray $2\frac{1}{8}$; caudal $1\frac{1}{5}$, deeply lunate; least depth of caudal peduncle $3\frac{1}{8}$; pectoral $1\frac{1}{10}$; ventral $1\frac{3}{4}$.

Back olive brown, lower sides and under surfaces cream buff, evidently white in life. Back with 6 vertical or transverse narrow dark brown bands, not extending below level of pectoral, intervening spaces each with slightly paler similar parallel band. Iris pale yellowish with gray blotch above and below. Vertical fins brownish, on spinous dorsal darker or more grayish terminally, also front part of anal dark. Paired fins largely pale, pectoral gray brown above and ventral dusky brown subterminally.

One, 350 mm., Natal, 1932.

Pagellus mormyrus (Linnaeus).

Two, 104 to 109 mm., 1932. Scales 60 in lateral line, of which 5 on caudal base. Large isopod crustacean taken from gullet. One, 210 mm., Delagoa Bay.

Pagellus natalensis Steindachner.

One, 175 mm., 1932. Also one, 178 mm., 1931.

Sarpa sarpa (Linnaeus).

One, 183 mm., 1932.

GIRELLIDAE

Crenidens crenidens (Forskål).

One, 225 mm., 1929.

GERRIDAE

Gerres poietii Cuvier.

One, 205 mm., Natal, 1929.

Gerres rappa (Barnard).

One, 263 mm., Natal, 1932. Also one in 1931.

Gerres oyena (Forskål).

One, 275 mm., Natal, 1931.

Gerres filamentosus Cuvier.

Two, 99 to 180 mm., 1931.

MULLIDAE

Pseudupeneus fraterculus (Valenciennes).

Five, 92 to 190 mm., largest August 5, 1931.

Pseudupeneus barberinus (Lacépède).

One, 228 mm., 1932.

Upeneus vittatus (Forskål).

Two, 84 to 89 mm. Also one, 145 mm., Durban Bay, 1929. Differs from Day's figure in the spinous dorsal with black apex, median dark horizontal band and another at base. Soft dorsal with dark apex, median horizontal dark band and another basal. Four dark bars on caudal, including dark apex and 3 on lower lobe, but lowest subterminal and broadly black.

SCIAENIDAE**Otolithes ruber** (Schneider).

Two, 138 to 150 mm., 1932. Also two others in 1929, 198 to 275 mm., smaller November 27, 1925.

Johnius hololepidotus (Lacépède).

Two, 128 to 185, 1932. Eye $4\frac{1}{2}$ in head. Inner row of mandibular teeth slightly enlarged. Gill rakers $5 + 11$. Scales 68 in lateral line to caudal base; tubes 47; 11 scales above lateral line. Second anal spine $1\frac{1}{4}$ times orbit. Tubes of lateral line not arborescent, likely a condition of youth. A larger example, 315 mm. from "Blue Lagoon", February 27, 1931, has arborescent tubes in lateral line, 10 scales above and eye $5\frac{1}{2}$ in head.

While I am willing to accept Barnard's contention that my specimens of *Sciaena parvus* Gilchrist and Thompson and *Sciaena marleyi* Norman are synonymous with *Otolithus vogleri* Bleeker; and also the Delagoa Bay and Natal materials I have determined as *Johnius parvus*, the Natal specimen of *J. marleyi* is the present species. This is very evident from its fine scales (about 80) which about 10 above lateral line. Norman describes the scales "about 52 in lateral line; and 6 from origin of dorsal to lateral line" for his *Sciaena marleyi*. In this connection it is interesting to note Day describes *Sciaena bleekeri*, which is surely very close, if not the same as the present species. His figure, in fact, appears indistinguishable from my specimens. He gives scales above along lateral line 85 to 90, along below lateral line 60 to 70 and 60 in lateral line (presumably 9 or 10 above lateral line). There are scarcely any other characters which are sufficient for specific distinction. Day says the tubes of the lateral line have simple bifurcations and his larger specimen less than 200 mm.

Johnius sina (Cuvier).

One, 218 mm., 1932. One, 155 mm., Natal coast, 1929.

Sciaena robinsoni (Gilchrist and Thompson). Figure 40.

Depth $2\frac{3}{8}$; head $3\frac{2}{5}$, width $1\frac{1}{5}$. Snout $3\frac{2}{5}$ in head; eye 4, $1\frac{1}{4}$ in snout, $1\frac{1}{4}$ in interorbital; maxillary greatly protractile downwards, reaches $\frac{1}{5}$ in orbit,

length 3 in head; barbel $3\frac{1}{2}$ in eye; bands of villiform teeth in jaws, about 6 to 8 transversely, all more or less uniform; interorbital $3\frac{1}{2}$ in head, convex; hind nostril rather large oblique slit close before front of eye; preopercle edge serrate. Gill rakers $6 + 11$, short points, $2\frac{3}{4}$ in gill filaments, which $1\frac{1}{2}$ in eye.

Scales 52 in lateral line to caudal base, tubes with 3 to 6 branches; 9 above, 12 below, 44 predorsal to front of snout; 11 rows on cheek of which 6 on preopercle flange. Soft vertical fins scaly basally. Scales with 6 to 13 basal radiating striae; 50 to 52 minute short apical denticles, with 6 or 7 transverse series of basal elements; circuli very fine.

D. X—I, 24, 1, fourth spine $1\frac{2}{3}$ in head, second ray $2\frac{1}{4}$; A. II, 7, 1, second spine $2\frac{1}{4}$, second ray $1\frac{2}{3}$; caudal 1, hind edge oblique; least depth of caudal peduncle $2\frac{2}{5}$; pectoral $1\frac{3}{4}$, rays 1, 14; ventral $1\frac{1}{3}$.

Back dark vandyke brown, under surfaces but slightly paler and sides with numerous pale or light oblique lines, each usually about 2 scales apart. Iris neutral black. Spinous dorsal, anal and ventrals neutral black, other fins brownish.

One, 205 mm., February, 1930.

***Sciaena fuscolineata* (Von Bonde).**

Depth $3\frac{2}{5}$; head $3\frac{1}{4}$, width $1\frac{3}{4}$. Snout $3\frac{1}{5}$ in head; eye $4\frac{1}{5}$, $1\frac{2}{5}$ in snout, $1\frac{2}{5}$ in interorbital; maxillary reaches $\frac{1}{4}$ in eye, length $2\frac{2}{5}$ in head; barbel $\frac{1}{3}$ of eye; teeth in villiform bands in jaws, about 5 or 6 irregular transverse rows above besides outer row of slightly larger conic ones; 7 nearly uniform rows of lower teeth; interorbital $3\frac{1}{4}$, broadly convex; preopercle edge cutaneous. Gill rakers $4 + 11$, short points, $\frac{1}{4}$ of gill filaments, which $1\frac{1}{3}$ in eye.

Scales $48 +$ in lateral line, tubes bifid; 6 scales above, 9 below, 30 predorsal, 14 rows across cheek; fins more or less scaly, at least basally. Scales with 10 to 12 basal radiating striae; circuli very fine.

D. XI, I, 26, 1, third spine $1\frac{3}{4}$? in head, first ray 3; A. II, 7, 1, second spine $3\frac{1}{5}$, third ray $2\frac{2}{5}$; caudal $1\frac{1}{3}$, hind edge sigmoid; least depth of caudal peduncle $3\frac{1}{2}$; pectoral $1\frac{1}{2}$; ventral $1\frac{1}{5}$.

Back olivaceous brown, below paler, evidently whitish in life (now nearly walnut brown, due to preservation). Vertical fins brownish, dusted dusky, anal pale. Pectoral gray above, white below. Ventral pale, dusted dusky in front and medially. Mouth pale. Iris gray.

One, 233 mm., 1931. Agrees largely with Von Bonde's rather crude figure of *Umbrina fuscolineata*. This shows the front dorsal rays too short and the caudal truncate, different from my specimen, in which the upper rays are shorter than the lower.

SILLAGINIDAE

***Sillago sihama* (Forskål).**

One, 141 mm., 1929; one, 115 mm., 1931; one, 178 mm., 1932. "Yellow line through body." Called "smelt"

BRANCHIOSTEGIDAE

***Branchiostegus japonicus* (Houttuyn).**

One, 265 mm., 1932.

HISTIOPTERIDAE**Histiopater spinifer** Gilchrist.

Depth $1\frac{3}{4}$; head $2\frac{1}{2}$, width $2\frac{1}{5}$. Snout 2 in head from snout tip; eye $4\frac{4}{5}$, $2\frac{1}{2}$ in snout, equals interorbital; maxillary reaches $\frac{3}{8}$ in snout, expansion 2 in eye, length $3\frac{1}{3}$ in head; lips finely fringed, also most of chin; teeth with outer row of larger conic canines and 7 irregular rows of gradually smaller pointed inner teeth; interorbital $4\frac{4}{5}$, with median concave depression; cranial bones, orbital rim, preorbital, opercle, preopercle, scapula and supra-scapula, with finely rugose striae. Gill rakers $6 + 14$, short points, $\frac{1}{3}$ of gill filaments, which $1\frac{3}{8}$ in eye.

Scales $47 + 13 + 5$ in lateral line; 14 above, 21 below, 20 predorsal, 14 rows vertically on cheek. Scales with 8 or 9 basal radiating striae; 44 to 50 apical denticles, with 9 to 11 transverse series; circuli fine.

D. IV, 27, fourth spine $2\frac{1}{4}$ in fish without caudal, first ray 2; A. III, 8, second spine $1\frac{3}{4}$, first ray $1\frac{3}{8}$; caudal $1\frac{1}{4}$, emarginate; least depth of caudal peduncle $3\frac{1}{4}$; pectoral $1\frac{1}{8}$; ventral $1\frac{1}{8}$.

Brown, membranes largely darker. Iris brown. Ventral membranes neutral blackish, also those of spinous dorsal and anal.

One, 295 mm., off South African coast by trawler "John C. Meikk", Captain G. Pace, January 2, 1923. Evidently an adult example and differs from Gilchrist's figure chiefly in the lower dorsal. It also does not show the occipital protuberance as the surface of the occipital extension is only a little convex at its apex.

CIRRHITIDAE**Cirrhitus pinnulatus** (Schneider).

One, 245 mm., 1931.

CHEILODACTYLIDAE**Palunolepis brachydactylus** (Cuvier).

Depth $2\frac{3}{5}$?; head $3\frac{1}{5}$, width $2\frac{3}{5}$. Snout 3 in head; eye $3\frac{1}{2}$, $1\frac{1}{2}$ in snout, greater than interorbital; maxillary reaches $\frac{3}{4}$ in snout, expansion $3\frac{1}{2}$ in eye, length $3\frac{3}{4}$ in head; interorbital 4, low, broadly convex; preopercle edge entire. Gill rakers $6 + 14$, slender, lanceolate, $\frac{1}{2}$ of gill filaments which $\frac{1}{2}$ of eye.

Scales $48 + 4$ in lateral line; 5 above to soft dorsal origin, 12 below, 22 predorsal forward to front of eye; cheek scaly. Distinct naked groove narrowly along dorsal bases, and like that of the anal furnished with rather low basal scaly sheaths; caudal scaly basally. Scales with 8 or 9 short marginal basal striae; striae moderate, complete.

D. XVIII, 28, 1, sixth spines $3\frac{1}{2}$ in head, fifth ray $2\frac{1}{8}$; A. III, 9, third spine $3\frac{1}{2}$; third ray 2; caudal $1\frac{1}{4}$, well emarginate; least depth of caudal peduncle $3\frac{3}{8}$; pectoral 1, rays I, 7, VI; ventral $2\frac{1}{8}$.

Back mouse gray, paler to drab or gray white below. Iris neutral gray. Fins all pale grayish, anal darker gray.

One, 51 mm., 1932.

SCORPIDAE

DREPANOSCORPIS, new genus

Body rather deeply ovoid, strongly compressed. Head small, compressed. Snout moderate, longer than eye. Eye small, rather high, advanced. Mouth small, terminal. Maxillary short, not reaching eye, without supplemental bone. Lips rather broad and thick. Each jaw with single row of incisor-like teeth, narrowing posteriorly in jaws. No teeth on palate. Preopercle edge minutely denticulate. Nostrils 2, close-set and anterior larger. Interorbital elevated. Gill rakers lanceolate, rather strong. Scales very small, finely ctenoid, extend over head except muzzle, body and most all of soft parts of fins. Lateral line little arched, continuous to caudal base. Dorsal spines 10, strong, much elevated anteriorly, also base much longer than spinous fin. Anal with 3 short strong spines and soft fin similar, though its base only little over half base of soft dorsal. Caudal forked. Paired fins well developed, ventrals little shorter.

Type *Drepanoscorpis gilchristi*, new species.

An interesting genus, noted for its obscurely variegated coloration. It enters the "Analysis of the genera" as given by Fowler and Bean³ in "*a*² Coloration variegated, with dark horizontal or oblique bands; mouth very small," thus allied with *Atypichthys* Günther and *Neatypus* Waite. *Neoscorpis* J. L. B. Smith, 1931, is described without preopercle serrae, without lingual teeth and fewer dorsal spines, the only species *N. lithophilus* (Gilchrist and Thompson). It differs from either in its large, firmly erect, incisor-like, uniserial teeth in each jaw.

(Named for *Drepane*, a genus of the related family Ephippidae, which it not only superficially suggests but is also still more similar to in its vertically banded color pattern + *Scorpis*.)

Drepanoscorpis gilchristi, new species. Figure 42.

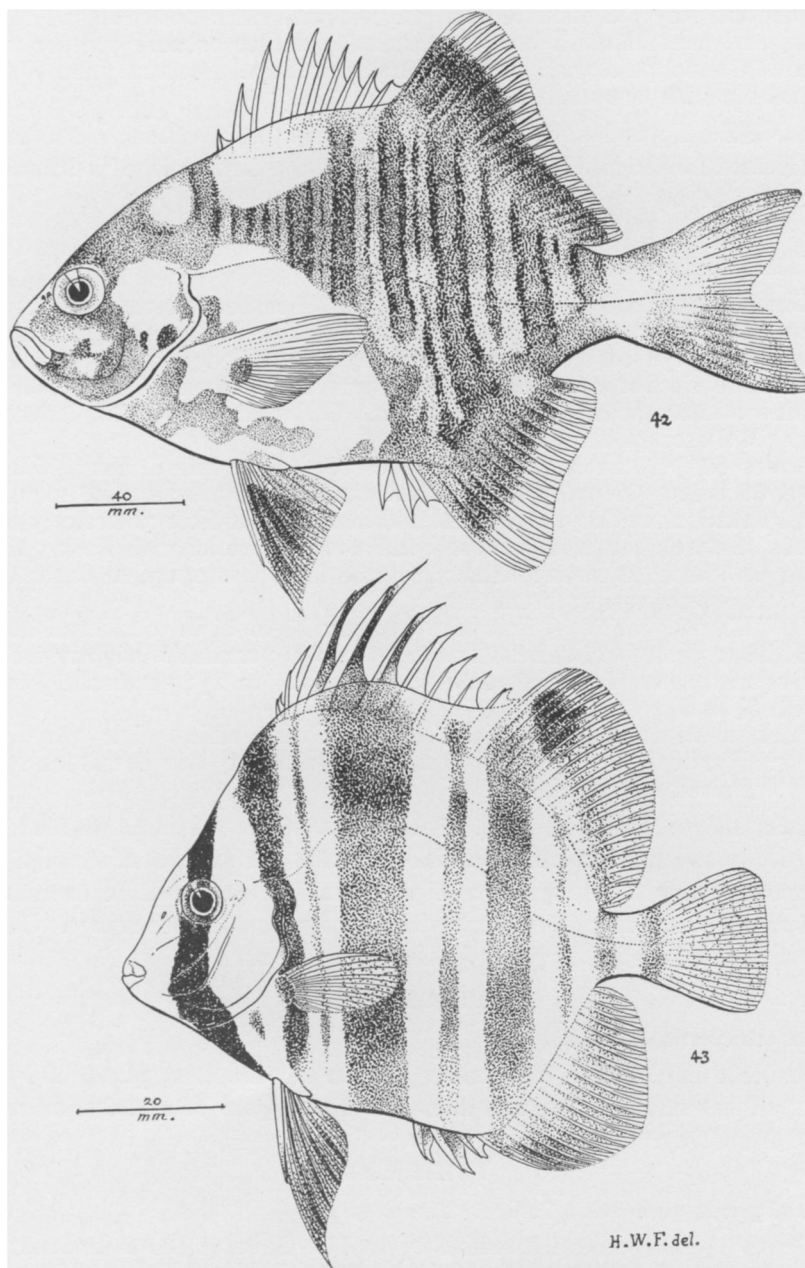
Depth $1\frac{1}{2}$; head $3\frac{1}{2}$, width 2. Snout $3\frac{1}{2}$ in head; eye $3\frac{3}{8}$, 1 in snout, $1\frac{1}{2}$ in interorbital; maxillary reaches $\frac{2}{3}$ in snout, expansion $2\frac{1}{10}$ in eye, length $3\frac{1}{4}$ in head; teeth 28 incisors above, 24 below, ends truncate; lips rather broad, coriaceous; interorbital $3\frac{1}{8}$, convex. Gill rakers 5 + 14, lanceolate, $1\frac{2}{3}$ in gill filaments, which $1\frac{1}{4}$ in eye.

Scales 86 along lateral line to caudal base; tubes 68 + 5 in lateral line; 31 scales above, 37 below, 50 predorsal forward opposite or over nostrils; 20 scales across cheek, of which 5 rows on preopercle flange. Soft vertical fins all more or less scaly, except marginally; other fins more or less from base with minute scales. Scales with 8 or 9 basal radiating striae; 35 to 45 slender apical denticles, with 4 to 11 transverse series of basal elements; circuli fine.

D. X, 21, I, fourth spine 2 in head, second ray $1\frac{1}{2}$; A. III, 14, I, second spine 3, second ray $1\frac{1}{4}$; caudal 1, deeply emarginate; least depth of caudal peduncle $2\frac{3}{4}$; pectoral 1, rays I, 17; ventral $1\frac{1}{4}$, spine $1\frac{1}{2}$ in fin, rays I, 5.

Brown, with paler bleached areas below. Trunk and tail with 8 darker vertical bands, little narrower than interspaces, most of which with still

³ Bull. U.S. Nat. Mus., No. 100, vol. 8, 1829, p. 7.



42. *Drepanoscorpis gilchristi*. 43. *Chaetodipterus gorensis*.

narrower parallel narrow dark line thus formed alternately. Lips pale. Iris neutral gray. Spinous dorsal grayish, with dark brown basally. Soft dorsal and anal blackish brown, marginally rather broadly pale or transparent. Caudal pale, with dark irregular cloudings. Pectoral pale. Ventral neutral blackish, brownish basally.

A.N.S.P., Type, No. 60247. Durban, Natal, 1931. Length 250 mm.

(Named for the late Dr. J. D. F. Gilchrist, the distinguished ichthyologist of South Africa.)

MONODACTYLIDAE

Monodactylus falciformis Lacépède.

Depth $1\frac{2}{3}$; head 3 to $3\frac{1}{2}$, width 2. Snout 4 in head from snout tip; eye $2\frac{3}{4}$ to $2\frac{4}{5}$, greater than snout or interorbital; maxillary reaches slightly beyond front eye edge, expansion 3 to $3\frac{1}{2}$ in eye, length $2\frac{2}{5}$ to $2\frac{3}{5}$ in head from snout tip; broad bands of villiform teeth in jaws, on vomer and palatines; interorbital 3 to $3\frac{1}{4}$, convex. Gill rakers $11 + 22$, lanceolate, equal gill filaments or $2\frac{1}{4}$ in eye.

Scales $80 + 10$ in lateral line; tubes $52 + 7$ in lateral line; 15 scales above, 36 below, 58 predorsal forward opposite nostrils; end of muzzle to nostril naked; maxillary, preorbital and most of mandible posteriorly finely scaled. Lateral line evenly arched and nearly parallel with back. Scales with 4 or 5 basal radiating striae; 26 to 58 low, obtuse, apical denticles, in 4 to 7 transverse series; circuli fine.

D. VIII, 28, 1 or 29, 1, first branched ray $1\frac{2}{5}$ to $1\frac{1}{2}$ in total head length; A. III, 29, 1, or 30, 1, first branched ray $1\frac{3}{5}$ to $1\frac{2}{3}$; caudal 1, slightly emarginate behind; least depth of caudal peduncle $2\frac{3}{4}$ to $2\frac{4}{5}$; pectoral $1\frac{1}{2}$ to $1\frac{2}{3}$; ventral $5\frac{1}{4}$ to $5\frac{1}{2}$.

Back neutral gray, sides and below silvery white. Iris gray, with silvery. Vertical fins grayish terminally, lobes of soft dorsal and anal dusky. Paired fins whitish.

Two, 165 to 169 mm., 1929. Also three, 98 to 178 mm., in 1931, and four 67 to 180 mm. in 1932. Dusky neutral vertical band through eye, wider over cheek in young. Dorsal and anal neutral black on front lobes, short rays all pale marginally and with slight yellowish green tinge. Caudal yellow, hind edge slightly gray. Pectoral pale buff.

PLATACIDAE

Platax orbicularis (Forskål).

One, 133 mm., 1931. Resembles Bleeker's figure 1 on pl. 20 of *Platax teira*. It has much higher fins than Barnard's figure of *P. teira*, as reproduced from Day.

EPHIPPIDAE

Chaetodipterus gorensis (Cuvier). Figure 43.

Depth $1\frac{1}{5}$ to $1\frac{1}{3}$; head 3, width $1\frac{4}{5}$ to $1\frac{1}{5}$. Snout $1\frac{1}{5}$ to 2 in head; eye $2\frac{1}{5}$ to $3\frac{1}{5}$, $1\frac{1}{5}$ to 2 in snout, $1\frac{1}{4}$ to $1\frac{1}{3}$ in interorbital; maxillary reaches $\frac{2}{3}$ in snout, expansion $2\frac{1}{2}$ to $2\frac{4}{5}$ in eye, length $3\frac{2}{5}$ to $3\frac{3}{5}$ in head; interorbital $2\frac{2}{5}$ to $3\frac{1}{5}$, convex. Gill rakers $8 + 11$, short points, $3\frac{1}{2}$ in gill filaments, which $1\frac{1}{2}$ in eye.

Scales 38 to 41 + in lateral line; 13 above, 23 below, 25 predorsal forward till over eye center; 10 rows on cheek of which 3 on preopercle flange. Soft vertical fins densely scaled. Scales with single basal radiating stria; 31 to 33 minute apical denticles, with 3 or 4 transverse series of basal elements; circuli fine.

D. IX, 1, 19 or 20, 1, fourth spine $1\frac{2}{3}$ to $2\frac{1}{3}$ in length without caudal, second ray $1\frac{1}{8}$ to $1\frac{1}{2}$ in head; A. III, 1, 16, 1, second spine $2\frac{1}{3}$ to $2\frac{2}{3}$, second ray $1\frac{1}{4}$ to $1\frac{1}{2}$; caudal $1\frac{1}{3}$ to $1\frac{1}{2}$, hind edge broadly obtuse with angle at ends of median rays; least depth of caudal peduncle $2\frac{1}{2}$ to $2\frac{3}{4}$; pectoral $1\frac{2}{3}$ to $1\frac{1}{2}$; ventral $2\frac{1}{4}$ to $2\frac{3}{4}$ in length without caudal.

Light or drab brown generally. Six broad dark brown vertical bands, alternating narrower and less distinct one parallel in each paler interspace; front of snout dark brown; second broad band through eye to chest; third from predorsal to pectoral and ventral bases; fourth from long dorsal spines to vent; fifth from front of soft dorsal to front of anal; sixth on caudal peduncle; spinous dorsal and ventrals neutral black. Soft vertical fins pale gray with darker gray waved lines. Pectoral pale, base dark. Iris neutral gray.

Four, 88 to 103 mm., 1932. The name *Chaetodipterus robinsoni* is given by Barnard from the MS register book of the South African museum, for this species.

Drepane punctata (Linnaeus).

One, 192 mm., Durban Bay, 1929, also one 87 mm. from Tugela River mouth.

CHAETODONTIDAE

Chaetodon setifer Bloch.

Three, 68 to 98 mm., 1932. Soft dorsal without filament. Also two, 144 to 159 mm., 1931.

Chaetodon marleyi Regan. Figure 44 (young).

Nine, 76 to 110 mm., 1932. Largest differs from the descriptions in the presence of a second black spot, apparently ocellated, on front half of soft dorsal. This ocellus smaller in size than anterior one and little lower in position, though slightly higher on fin.

Chaetodon vagabundus Linnaeus.

One, 87 mm., 1932; one 95 mm., 1931. Differs a little from Day's figure 1 on pl. 27 in that the submarginal black line on the caudal is nearer the basal black crescent, thus leaving a broader pale margin behind.

Chaetodon lunula (Lacépède).

One, 50 mm., 1932.

Chaetodon unimaculatus Bloch.

One, 44 mm., Umhlali, May 3, 1931. Though partly in *Tholichthys* stage this interesting young example shows the black ocular bar extending below only far as preopercle limb. Not previously reported from Natal.

Subgenus CITHAROEDUS Kaup

Chaetodon cingulatus, new species. Figure 45.

Depth $1\frac{3}{8}$; head $3\frac{5}{8}$, width $1\frac{3}{8}$. Snout $3\frac{1}{2}$ in head; eye 3, little longer than snout, subequal with interorbital; mouth width $3\frac{1}{2}$ in head; preopercle edge minutely serrated; interorbital 3, convex. Gill rakers $6 + 19$, short, uniform points, $\frac{1}{8}$ of gill filaments, which $1\frac{3}{8}$ in eye.

Scales 38 in median axial series from gill opening to caudal base; 34 tubular scales in lateral line, ending below last dorsal rays; 6 above, 15 below, 40 predorsal; 9 rows on cheek to preopercle angle. Axillary ventral scale $\frac{1}{3}$ of fin. Scales largest on middle of side of body and rows converging on caudal peduncle. Vertical fins all finely scaled. Scales with 13 to 16 basal radiating striae; apical denticles 150, with 12 to 16 transverse series of basal elements; circuli very fine.

D. XIII, 21, 1, fifth spine $1\frac{1}{2}$ in head, seventh ray $1\frac{1}{8}$; A. III, 18, 1, third spine $1\frac{1}{4}$, third ray $1\frac{1}{8}$; caudal $1\frac{1}{8}$, convex behind; least depth of caudal peduncle $2\frac{3}{8}$; pectoral $1\frac{1}{8}$, rays 1, 13; ventral 1, rays I, 5.

Largely uniform pale brownish. Iris grayish. Broad dark brown band, little less in width than eye, from predorsal down to eye and below to breast where joined with its fellow. Both lips dark brown. Vertical fins pale terminally, soft dorsal and anal each with dark brown submarginal line leaving fin edges very narrowly pale. Caudal with submarginal broad gray band, fin edge broadly pale.

A.N.S.P., No. 55264, type. Durban, Natal, 1931. Length 110 mm.

Differs from all known species in its coloration. Only dark ocular band, which extends from predorsal to chest, forms contrast in design.

(*Cingulatus* belted, with reference to the dark transverse ocular band.)

Heniochus acuminatus (Linnaeus).

Five, 69 to 115 mm., Durban Bay, 1932.

Holacanthus semicirculatus Bleeker.

One, 64 mm., Port Shepstone, 1932.

HEPATIDAE

Hepatus triostegus (Linnaeus).

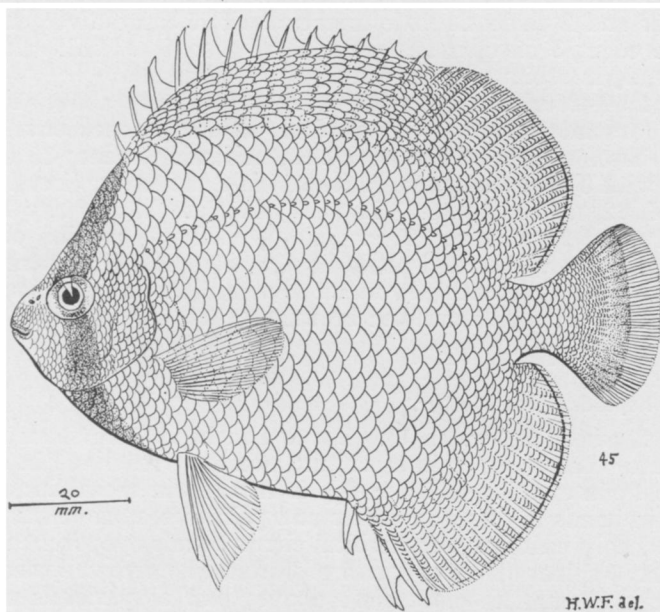
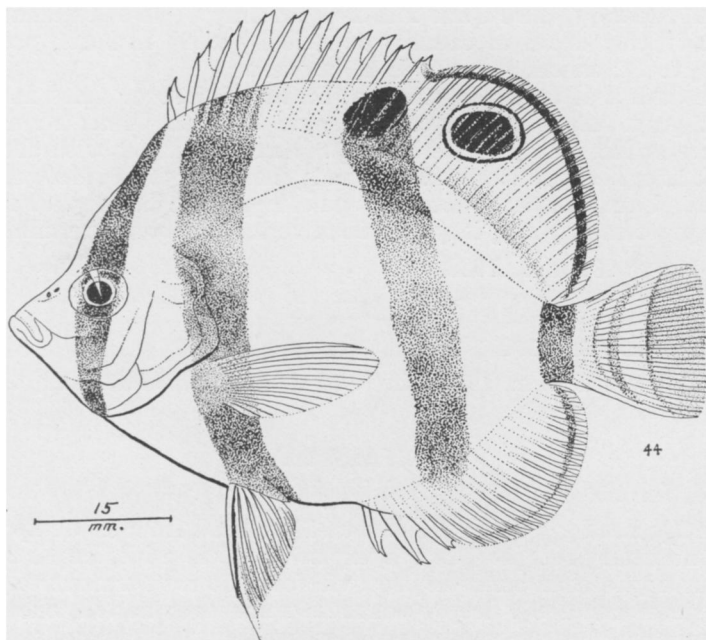
Two, 72 to 168 mm., Durban Bay, 1932. Two, 182 to 187 mm., 1929.

Also young *Acronurus* stage of specimen of the present genus, 50 mm., Durban Bay, 1932. This not sufficient for specific determination. Likewise one 42 mm., 1931.

Hepatus fuliginosus (Lesson).

Depth $1\frac{3}{4}$ to $1\frac{1}{2}$; head $3\frac{1}{2}$ to $3\frac{3}{8}$, width $1\frac{1}{8}$ to 2. Snout $1\frac{1}{2}$ to $1\frac{1}{2}$ in head; eye $3\frac{1}{2}$ to 4, $2\frac{1}{3}$ to 3 in snout, $1\frac{1}{8}$ to $1\frac{3}{8}$ in interorbital; maxillary reaches half way to eye, length $3\frac{3}{4}$ to 4 in head; teeth 16 above, 18 below, compressed incisors, edges serrulated; interorbital 3 to $3\frac{1}{2}$, convex. Gill rakers $5 + 12$, short points, $\frac{1}{5}$ of gill filaments, which equal eye.

Scales with 13 to 16 apical denticles, small, uniform, with 4 transverse series of basal elements; circuli very fine and poorly defined.



44. *Chaetodon marleyi*. 45. *Chaetodon cingulatus*.

D. IX, 25, 1 or 26, 1, last spine $1\frac{3}{8}$ to $1\frac{3}{4}$ in head, twelfth ray $1\frac{1}{2}$ to $1\frac{3}{4}$; A. III, 22, 1 to 25, 1, third spine 2 to $2\frac{1}{10}$, first ray $1\frac{3}{8}$ to $1\frac{3}{4}$; caudal 1 to $1\frac{1}{8}$ times head; least depth of caudal peduncle $2\frac{3}{4}$ to $2\frac{5}{8}$ in head; pectoral 1; ventral $1\frac{1}{8}$ to $1\frac{1}{4}$; caudal spine $1\frac{3}{8}$ to $1\frac{3}{4}$ in eye.

Above dark seal brown to vandyke brown or drab on sides and below. Iris dark gray. Area around caudal spine blackish. Fins all dark like body, more or less dark gray terminally. Small examples with obscure ill-defined dark or blackish longitudinal bands, usually 2 to 4 evident on dorsals and anals. Caudal usually obscurely pale to grayish basally. Paired fins blackish, pectoral in young largely pale olive to light brown terminally.

Five, 113 to 232 mm., 1932.

SIGANIDAE

Siganus rivulatus (Forskål).

Three, 60 to 125 mm., 1932; three, 72 to 103 mm., 1931; one, 250 mm., 1929.

SCORPAENIDAE

Helicolenus maculatus (Cuvier).

Depth $3\frac{1}{8}$; head $2\frac{1}{2}$, width $2\frac{1}{8}$. Snout $5\frac{1}{4}$ in head from snout tip; eye $3\frac{1}{8}$, orbit $2\frac{1}{8}$; maxillary reaches $\frac{3}{4}$ in eye, expansion $2\frac{1}{2}$ in orbit, length 2 in head from snout tip; teeth in bands in jaws, villiform, 10 rows transversely above, 4 below; interorbital $8\frac{1}{2}$, deeply concave; spine over nostril, one at front upper eye edge, 1 over upper eye edge medially followed closely by 2 postoculars and 2 parietals little further back; 5 large divergent spines on preopercle edge; 3 on opercle, lowest most posterior. Gill rakers 9 + 21, lanceolate, $2\frac{5}{8}$ in orbit; gill filaments $\frac{3}{8}$ of gill filaments.

Scales 26 + 2 tubular in lateral line; 6 (pockets) above, 16 below, 20 predorsal forward midway in interorbital; 52 along close above lateral line to caudal base. Scales with 8 or 9 basal radiating striae; 35 to 43 apical denticles, with 3 or 4 transverse series of basal elements; circuli very fine.

D. XII, 12, 1, third spine $2\frac{1}{8}$ in total head length, first ray $1\frac{9}{10}$; A. III, 5, 1, third spine $2\frac{1}{8}$, first ray 2; caudal $1\frac{3}{8}$, ending in median convex point behind; least depth of caudal peduncle $4\frac{1}{8}$; pectoral $1\frac{1}{10}$; ventral $1\frac{1}{8}$.

Back vinaceous, becoming lavender to pearl blue on under surfaces. Iris glaucous blue. Fins pale uniform brown.

One, 218 mm., Natal, 1931.

Scorpaena haplodactylus Bleeker.

Depth $2\frac{3}{8}$; head $2\frac{3}{8}$, width $1\frac{1}{8}$. Snout 4 in head from snout tip; eye $3\frac{1}{8}$ to $3\frac{3}{8}$, greater than snout or interorbital; maxillary reaches $\frac{1}{2}$ in eye, expansion $1\frac{1}{2}$ to $1\frac{3}{4}$ in eye, length $1\frac{1}{8}$ to $2\frac{1}{10}$ in head from snout tip; teeth finely villiform, in bands in jaws, on vomer and palatines, none on tongue; interorbital 6, deeply concave; supraorbital cirrus equals eye; front nostril with short cirrus; 5 spines above eye with postorbital longest, followed by supra-scapular and 3 smaller spines close above; pair of parietals and pair of occipitals; 2 opercular spines; strong spine directed down from preorbital and 2 spines from suborbital stay on cheek; lower preopercle edge with 5 spines, largest uppermost. Gill rakers 5 + 10, lowest 4 as rudiments, all short, lanceolate, $\frac{3}{8}$ of gill filaments, which $2\frac{1}{2}$ in eye.

Scales 42 or 43 + 2 in lateral line; tubes 21 or 22 + 1 in lateral line; 6 scales above, 11 below. Scales with 6 basal radiating striae; 18 rather strong slender apical denticles; circuli moderately fine.

D. XII, 9, 1, third spine $2\frac{1}{3}$ to $2\frac{1}{4}$ in total head length, second ray $1\frac{7}{8}$ to $1\frac{9}{10}$; A. III, 5, 1, second spine 2, first ray $1\frac{3}{4}$ to $1\frac{4}{5}$; caudal $1\frac{1}{5}$ to $1\frac{1}{4}$, convex behind; least depth of caudal peduncle $3\frac{2}{3}$ to 4; pectoral $1\frac{1}{3}$ to $1\frac{1}{5}$; ventral $1\frac{2}{3}$.

Light brown generally, mottled or marbled with darker, also several dark to blackish clouded areas, as 2 or 3 on side of body. Two blackish bars from hind eye edge and broader one down over cheek to preopercle edge. Lower jaw with 5 dark bars on each ramus. Dorsals pale gray, with dusky cloudings over spinous fin more extensive, more basal on soft fin, which terminally with less intense shades. Caudal with blackish basal bar and outer half mottled with blackish gray. Anal marbled with blackish gray, as 5 irregular cross bars on spinous fin. Paired fins pale, mottled with dusky, on ventral with 5 blackish cross bars anteriorly. Iris gray.

Two, 40 to 47 mm., 1931.

Scorpaenopsis roseus (Day).

Depth 3 to $3\frac{2}{3}$; head $2\frac{1}{3}$ to $2\frac{1}{4}$, width $1\frac{1}{2}$ to $1\frac{3}{5}$. Snout $2\frac{1}{5}$ to $3\frac{1}{4}$ in head from snout tip; eye 6, 2 to $2\frac{1}{3}$ in snout, 1 in interorbital; maxillary reaches $\frac{2}{3}$ or to hind eye edge, expansion equals eye, length 2 in head from snout tip; teeth in villiform bands in jaws and on vomer, none on palatines, 5 or 6 transversely in jaws; interorbital $6\frac{1}{4}$ in head from snout tip, very deeply concave; nasal spine, 4 supraorbitals, 1 postocular low, 2 large parietals; suborbital stay with 4 spines, 1 antrorse in front, followed by 1 on preopercle and 1 on opercle; 3 spines on lower hind preopercle edge; 2 low spines close behind middle of hind eye edge, then large one below parietals and 3 large ones about suprascapula; 2 on opercle above, lower opposite upper. Gill rakers 5 + 9, low, short, rough, $\frac{1}{4}$ of gill filaments which $1\frac{1}{4}$ in eye.

Scales 42 + 4 close along lateral line; tubular scales 21 to 23 + 2 or 3 in lateral line; 6 above, 18 below, 7 predorsal. Skinny flaps on head and body, one over each eye long as eye besides many short fleshy points; 5 or 6 large ones along lateral line. Scales with 11 or 12 basal radiating striae; 60 to 62 slender minute apical denticles; circuli very fine.

D. XII, 9, 1, third spine $2\frac{2}{3}$ to 3 in total head, third ray $2\frac{1}{3}$ to $2\frac{2}{3}$; A. III, 5, 1, second spine $2\frac{2}{3}$ to $2\frac{1}{2}$, second ray $2\frac{1}{3}$ to $2\frac{1}{4}$; caudal $1\frac{3}{4}$ to $1\frac{4}{5}$, little convex behind; least depth of caudal peduncle $3\frac{2}{3}$ to 4; pectoral $1\frac{2}{3}$ to $1\frac{1}{2}$; ventral $1\frac{2}{3}$ to $1\frac{9}{10}$.

Dark brown above, clouded and mottled with darker, belly and under surface of head pale to whitish. Iris slate gray. Fins brown, all mottled, barred and blotched with various shades of darker.

Two, 205 to 208 mm., Natal, 1932.

Pterois volitans (Linnaeus).

Five, 90 to 204 mm., Durban, 1932; one, 56 mm., Umhlali rock pools.

Pterois miles (Bennett).

Depth 3; head $2\frac{2}{3}$, width $1\frac{7}{8}$. Snout $2\frac{2}{3}$ in head; eye $5\frac{1}{4}$, 2 in snout, 1 in interorbital; maxillary nearly reaches eye, expansion $1\frac{1}{4}$, length $2\frac{1}{4}$ in head;

interorbital $5\frac{1}{4}$, concave. Gill rakers $5 + 11$, lanceolate, equal gill filaments or $\frac{1}{2}$ of eye.

Tubular scales $32 + 2$ in lateral line; scales $72 + 4$ in lateral line; 12 above, 18 below, 7 predorsal to occiput, 12 rows across cheek. Scales with 7 to 13 basal radiating striae; circuli very fine.

D. XII, I, 10, 1, fifth spine equals head, fourth ray $1\frac{3}{8}$; A. III, 6, 1, third spine $3\frac{3}{4}$, third ray $1\frac{3}{4}$; caudal $1\frac{2}{5}$, rounded behind; least depth of caudal peduncle $4\frac{1}{8}$; ventral $1\frac{1}{8}$; pectoral $2\frac{1}{4}$ in fish without caudal.

Whitish, with blackish brown cross bands, narrow and close on front of head, broader one through eye and down over cheek, 2 over occipital region and 8 broad ones on body, with 3 narrow parallel ones in each interspace. Iris grayish. Dorsals whitish, each spine with 1 to 4 broad blackish bars and soft fin with scattered black dots on rays. Anal and caudal like soft dorsal. Paired fins largely neutral black, barred broadly with blackish, though pectoral rays more or less whitish.

One, 268 mm., 1929, Durban coast. Differs from Bleeker's figure of *Pseudomonopterus* (*Pterois*) *volitans* as this shows a long supraorbital tentacle and pectoral reaching at least $\frac{2}{3}$ in caudal, whereas my specimen without supraorbital flap and pectoral reaching soft anal origin. Bleeker shows the infraorbital stay with small spines at first biserial and then uniserial. Gilchrist and Thompson describe an example 188 mm. long and state the pectorals "reach to posterior end of soft dorsal." They mention a second specimen in which "the pectorals extend to the root of the caudal." The broadly spinate infraorbital stay, with 4 or 5 irregular rows of small spines, seems to be the most distinctive character of the present species. Though Cuvier's figure of *P. volitans* has no supraorbital tentacle, its pectoral would appear to reach the middle of the caudal fin and he indicates only a single row of small spines on the infraorbital stay. Klunzinger's figure of a young *P. volitans* has the supraorbital flap nearly long as head and pectoral reaches well beyond caudal, also dark spots very large on soft vertical fins.

***Pterois russellii* Bennett.**

Depth $2\frac{4}{5}$; head $2\frac{1}{5}$, width $1\frac{2}{5}$. Snout $2\frac{3}{5}$ in head from snout tip; eye 5, 2 in snout, 1 in interorbital; maxillary reaches $\frac{2}{3}$ to eye, expansion $1\frac{1}{4}$ in eye, length $2\frac{1}{5}$ in head from snout tip; teeth in villiform bands in jaws, patch also on vomer, none on palatines or tongue; interorbital 5, deeply concave; front nostril with fleshy flap and short spine; 6 short spines along upper orbital margin, with 2 or 3 back from postorbital to suprascapula; strong occipital ridges each end in 2 blunt spines posteriorly; preorbital with cluster of small spines, anteriorly with long cutaneous flap and suborbital stay variously denticulate across cheek; preopercle edge with 5 spines, with flap from first and lower ridge denticulate. Gill rakers $6 + 12$, $1\frac{1}{3}$ in gill filaments, which $1\frac{1}{4}$ in eye.

Scales $77 + 4$ in lateral line; tubes $32 + 1$ in lateral line; 12 scales above, 17 below, 9 predorsal forward to occiput. Head largely scaly, except under surface and muzzle. Scales with 8 to 14 basal radiating striae; apical

denticles very small or rudimentary, sometimes 6 to 8, usually absent; circuli fine.

D. XII, I, 11, 1, eighth spine $1\frac{1}{8}$ in total head length, fifth ray $1\frac{1}{8}$; A. III, 8, 1, third spine $2\frac{1}{5}$, third ray 1; caudal $2\frac{3}{8}$ in rest of fish, fin rounded; least depth of caudal peduncle $3\frac{3}{4}$ in total head length; ventral 1; pectoral nearly reaches caudal base or $2\frac{1}{4}$ in entire fish.

Generally pinkish or vinaceous. Head with 7 blackish brown narrower bands transversely, in intervals between each similar colored parallel dark line. On trunk and tail 14 blackish-brown transverse bands, interspaces each with narrow dark parallel line. Iris gray, orbit invaded by dark bands of head. Spinous dorsal with dark spots or dark bands, reflected on base, less so on soft dorsal, which with rest of paired fins uniformly pinkish, though several dark body bands invade from base of anal. Pectoral dark neutral gray, with small blackish spots on rays. Ventral like pectoral.

One, 260 mm., September 9, 1929. Differs from Bleeker's figure of *Pseudomonopterus* (*Pterois*) *kodpungi* in that it has no supraorbital flap, each pectoral ray with membrane terminally broad, dark spots on pectoral rays to their ends, dark spots on ventral rays, dark bands far more numerous and contrasted on head and no cutaneous flaps on lower side of head. Barnard uses "*Pterois kodipungi* (Russell)" though Russell's non-binomial work is not now accepted by most ichthyologists.

Dendrochirus brachypterus (Cuvier).

Depth $2\frac{2}{5}$ to $2\frac{3}{5}$; head $2\frac{1}{2}$ to $2\frac{3}{5}$, width $1\frac{3}{4}$ to $1\frac{1}{5}$. Snout $3\frac{1}{8}$ to 4 in head; orbit $3\frac{2}{5}$ to $3\frac{3}{4}$; eye $4\frac{1}{5}$ to $4\frac{3}{4}$, $1\frac{1}{5}$ to $1\frac{1}{4}$ in snout, greater than interorbital in young to subequal with age; maxillary reaches $\frac{1}{2}$ to $\frac{3}{4}$ in eye, expansion $1\frac{3}{8}$ to 2 in orbit; length $1\frac{1}{5}$ to $2\frac{1}{8}$ in head; teeth in villiform bands in jaws and on vomer, none on palatines, 5 or 6 transversely on former; interorbital $4\frac{3}{4}$ to $6\frac{1}{2}$, deeply convex; supraorbital edge denticulate, several postfrontal denticles; rather long denticulate parietal ridge; denticulate postocular ridge, continuous on suprascapula; suborbital stay denticulate ridge. Gill rakers 3 + 9 low, rough tubercles, $\frac{1}{3}$ of gill filaments, which $2\frac{1}{8}$ in eye.

Scales 30 or 31 + 2 in lateral line; 7 above, 14 below, 6 predorsal, 7 across cheek to preopercle angle. Few skinny flaps on head. Scales with 8 to 12 basal radiating striae; 34 to 36 weak, short, minute apical denticles, with 2 or 3 transversely; circuli very fine.

D. XIII, 9, 1, third spine $1\frac{1}{2}$ to $1\frac{2}{5}$ in total head length, third ray $1\frac{1}{2}$ to $1\frac{3}{4}$; A. III, 5, 1, third spine $2\frac{1}{2}$ to $2\frac{3}{8}$, third ray $1\frac{1}{5}$ to $1\frac{2}{5}$; caudal $1\frac{1}{5}$ to $1\frac{1}{2}$, convex behind; least depth of caudal peduncle 4; ventral $1\frac{2}{5}$ to $1\frac{1}{2}$; pectoral 2 to $2\frac{1}{5}$ in combined head and trunk to caudal base.

Back brown, under surfaces paler, former more or less clouded or mottled with darker. Vertical fins pale, each spine and ray finely spotted with blackish. Iris dark neutral gray. Paired fins dark neutral gray barred with blackish.

Four, 58 to 122 mm., 1932.

Choridactylus natalensis (Gilchrist).

Three, 140 to 145 mm., Durban, 1932; one 138 mm., Natal; one, 87 mm., "Pickle" Survey, August 11, 1920.

Amblyapistus marleyi Regan.

Depth $2\frac{2}{3}$; head 3, width $1\frac{2}{3}$. Snout $4\frac{1}{3}$ in head; orbit $3\frac{1}{3}$; eye 4, $1\frac{1}{8}$ in snout to eye, greater than interorbital; maxillary reaches $\frac{1}{4}$ in eye, length $3\frac{2}{5}$ in head from snout tip; interorbital $5\frac{3}{4}$, convex, profile nearly vertical; preopercular spine long as eye, suborbital spine slightly longer. Gill rakers 3 + 4, low, finely asperous plates; gill filaments $\frac{1}{2}$ of eye.

Scales small, cycloid, imbedded. Tubes 27 in lateral line, last on caudal base.

D. XV, 10, first spine before front of eye $2\frac{1}{5}$ in head, fifth spine $1\frac{1}{5}$, fourth ray 1; A. III, 5, 1, third spine $1\frac{2}{5}$, third ray 1; least depth of caudal peduncle $2\frac{1}{2}$; second dorsal spine $2\frac{3}{4}$ in combined head and body to caudal base; caudal $2\frac{3}{4}$, obtusely convex behind; pectoral $2\frac{1}{3}$; ventral $2\frac{1}{8}$.

Dark brown, clouded with darker, or as 3 blackish brown blotches along back and reflected on fins. Caudal also clouded with blackish and paired fins mostly with blackish cloudings. Iris dark neutral gray.

One, 153 mm., 1932.

Minous superciliosus Gilchrist and Thompson.

Depth 3; head 2, width $1\frac{1}{3}$. Snout 3 in head from snout tip; eye $3\frac{1}{2}$, $1\frac{1}{5}$ in snout, slightly greater than interorbital; maxillary reaches $\frac{1}{4}$ in eye, expansion $1\frac{3}{4}$ in eye, length $2\frac{1}{2}$ in head from snout tip; teeth fine, villiform, about 4 irregular series in band in upper jaw, lower band similar though narrowing laterally in jaws and short single row each side of vomer; interorbital $4\frac{1}{3}$, deeply concave; preorbital with 2 strong spines, directed downward and posterior extends backward, its length $1\frac{1}{2}$ in eye; 5 strong, large spines from preopercle edge, second longest or $1\frac{1}{3}$ in eye; top and upper sides of head rugose and osseous. Gill rakers 4 + 9, short, clavate, $\frac{1}{2}$ of gill filaments, which $2\frac{3}{5}$ in eye.

Skin on body smooth. Lateral line little waved, parallel with back and superior along tail and caudal peduncle.

D. XI, 12, fifth spine $2\frac{2}{5}$ in total head, last spine $1\frac{1}{8}$; A. I, 10, seventh ray $1\frac{1}{8}$; caudal $1\frac{1}{4}$, convex behind; least depth of caudal peduncle 4; pectoral $1\frac{1}{8}$, rays 10, 1, lowest free; ventral $1\frac{3}{8}$.

Generally mars brown, little pale below and on vertical fins, though anal little darker terminally. Oblique pale streaks from lower half chiefly of soft dorsal slope backward on back, where more or less waved and somewhat irregular. Iris dark gray. Paired fins dark neutral gray. Pectorals blackish terminally where with pale reticulating lines.

One, 110 mm., from "Pickle" Survey, August 17, 1930. Its coloration appears sufficiently distinct from *M. monodactylus* Valenciennes or *M. trachycephalus* Günther.

TRIGLIDAE**Chelidonichthys capensis** (Cuvier). Figure 41.

Two, 84 to 279 mm., larger from "John Mapangeo Glough," 1932.

Lepidotrigla faurei Gilchrist and Thompson.

Depth 4; head $3\frac{1}{10}$, width $1\frac{1}{3}$. Snout $2\frac{1}{4}$ in head; eye $3\frac{1}{3}$, $1\frac{2}{5}$ in snout, greater than interorbital; maxillary reaches $\frac{1}{3}$ in eye, length $2\frac{2}{5}$ in head;

teeth in villiform bands in jaws, none on palate or tongue; interorbital $4\frac{4}{5}$, deeply concave; opercle ends in strong spine, also larger humeral spine. Gill rakers $2 + 14$, of which upper and 7 lower rudiments, clavate, rather slender, $1\frac{3}{4}$ in gill filaments, which $2\frac{1}{8}$ in eye.

Scales $50 + 4$ in lateral line; tubes in lateral line mostly trifid; 3 scales above, 11 below, 6 predorsal; 27 basal denticles along each side of dorsal bases. Caudal largely covered with small scales. Scales with 11 to 16 basal radiating striae; 10 to 22 short apical denticles; circuli fine, obsolete apically.

D. IX — 16, 1, third spine $1\frac{1}{2}$ in head, third ray 2; A. 17, 1, fourth ray $3\frac{1}{8}$; caudal $1\frac{3}{8}$, nearly truncate; least depth of caudal peduncle $5\frac{1}{2}$; pectoral 1, rays 9, 1 + 3.

Vinaceous buff, scales on back above with very slight brownish tinge, also upper surface of head. Iris gray. Fins all pale, like body color, except dark neutral brown rayed pectoral, which area also with obscure blackish blotches or spots.

One, 158 mm., 1931.

Lepidotrigla stigmatreron, new species. Figure 46.

Depth $4\frac{1}{5}$; head $3\frac{1}{4}$, width $1\frac{3}{8}$. Snout 2 in head; orbit $3\frac{3}{8}$; eye $4\frac{4}{5}$, $1\frac{1}{8}$ in snout, equals bony interorbital; maxillary reaches opposite front eye edge, length $2\frac{1}{2}$ in head; teeth in villiform bands in jaws, 5 transversely; small patch of villiform teeth on vomer; interorbital $5\frac{1}{4}$, very deeply concave; strong preorbital spine each side of snout; supraocular spines anterior, small, 2 in number; opercular spine $\frac{1}{2}$ of orbit; bones of head finely rugose striate. Gill rakers $1 + 11$, lanceolate, slightly less than gill filaments or $\frac{1}{3}$ of eye.

Scales $59 +$ in lateral line, large, narrowly imbricated; 2 above to soft dorsal origin, 10 below, 5 predorsal. Suprascapular spine moderate and humeral spine longer than opercular. Caudal largely covered with small scales from base, other fins, chest and breast naked. Along spinous dorsal base 15 low spines each side and 16 along each side of soft dorsal base. Scales with 7 or 8 basal radiating striae, fin edge scalloped; 16 to 22 short apical denticles irregularly biserial; circuli fine.

D. VIII — 17, 1, third spine $1\frac{3}{8}$ in head, third ray $1\frac{1}{8}$; A. 17, 1, third ray $2\frac{2}{5}$; caudal 1, concave behind; least depth of caudal peduncle $4\frac{2}{5}$; ventral 1, with spine and 5 rays; pectoral 3 in combined head and body without caudal, rays $10 + 3$.

Head and body brownish above, under surfaces whitish. Iris neutral gray. Fins all pale. Spinous dorsal with large dark brown round blotch, large as eye, on fin posteriorly. Soft dorsal with 3 or 4 brownish bars on each fin ray. Caudal with 4 very indistinct or slightly darker transverse bars. Pectoral with longest rays and membranes neutral black terminally. Anal whitish with median dark brown longitudinal band.

A.N.S.P., No. 54803, type. Durban, Natal. Length 119 mm.

Differs from *Lepidotrigla faurei* Gilchrist and Thompson, with its synonym *Lepidotrigla natalensis* Gilchrist and Thompson, in the presence of a dark spot on the lateral membranes of the spinous dorsal.

(Στίγμα spot + πτερὸν fin; with reference to the dark spot on the spinous dorsal.)

PERISTEDIIDAE

Peristedion adeni Lloyd.

One, 415 mm., Lat. $29^{\circ} 44' 40''$ S., Long. $31^{\circ} 23' 34''$ E., in 120 fathoms. Steamer "Africanus", 1932.

PLATYCEPHALIDAE

Platycephalus crocodilus Tilesius.

Four, 80 to 721 mm., 1932. Smallest without dark saddles on back and caudal with 5 dark cross bars, of which last 3 widest and most distinct. Pectoral well spotted.

Agree with the detailed figure of the head as shown by Sauvage for *Platycephalus punctatus*. Differ a little from the figure under the same name by Day and later as *Thysanophrys crocodilus* Jordan and Richardson, in that the caudal is contrasted blackish, both basally and subterminally.

Platycephalus heterolepis Barnard.

Depth 7; head $2\frac{2}{3}$, width $1\frac{2}{3}$. Snout $3\frac{1}{2}$ in head from snout tip; eye $3\frac{2}{3}$, $1\frac{1}{10}$ in snout, 4 times bony interorbital width, with very short supraocular tentacle; maxillary $2\frac{2}{3}$ in head, reaches $\frac{1}{3}$ in eye; bony interorbital concave. Gill rakers $1 + 7$, lanceolate, equal gill filaments or $3\frac{1}{2}$ in eye.

Scales $44 + 1$ in lateral line, only first 8 to 10 each with small, slender, short spine; 4 above, 12 below, 6 predorsal forward to occiput; sides of cranium and opercles scaly. Scales with 6 basal radiating striae; 25 to 28 apical denticles, with 3 irregular series of fine basal elements; circuli fine.

D. I, VII — 13, third spine $2\frac{1}{2}$ in total head length, first ray $2\frac{3}{4}$; A. 13, 1, fifth ray 3; caudal $1\frac{1}{2}$, convex behind; pectoral $2\frac{3}{4}$; ventral $1\frac{2}{3}$.

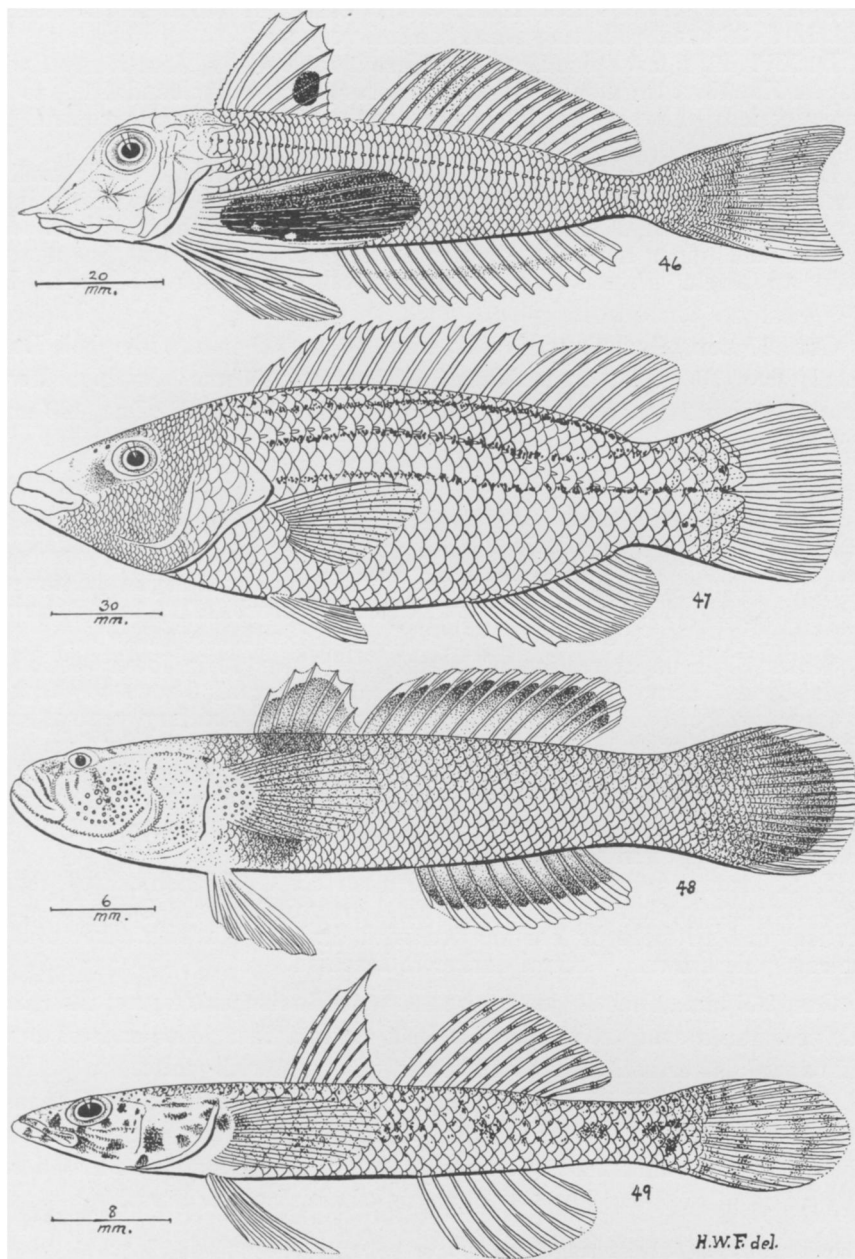
Brown above, with 4 obscure transverse bands, first at nape, second at front of soft dorsal, third at middle of soft dorsal and fourth at caudal peduncle, also whole upper surface with some scattered paler areas or blotches. Under surface of body white. Dark blotch on cheek below eye and smaller one on preorbital. Iris dark gray. Spinous dorsal dark terminally, each spine with 5 or 6 obscure dark blotches. Soft dorsal pale and each ray with 5 dark blotches. Caudal pale, with blackish subbasal transverse band and several less defined and paler terminally. Paired fins pale, each pectoral ray spotted with blackish. Ventral with 4 broad bands terminally, made up of blackish spots.

One, 72 mm., 1929. As noticed by Barnard this species differs in the large scales on the breast.

CICHLIDAE

Tilapia natalensis (Weber).

Depth $2\frac{1}{3}$; head $2\frac{3}{4}$ to 3, width $1\frac{1}{2}$ to 2. Snout $2\frac{1}{4}$ to $2\frac{2}{3}$ in head; eye 5 to $7\frac{1}{5}$, $1\frac{1}{5}$ to 3 in snout, 2 to 3 in interorbital; maxillary reaches $\frac{2}{3}$ to $\frac{1}{2}$ to eye, expansion $1\frac{1}{5}$ to $2\frac{1}{5}$ in eye, length $2\frac{1}{4}$ to $3\frac{1}{3}$ in head; teeth in 5 to 8 transverse rows in jaws, bifid or trifid, outer bifid, larger simple with age; interorbital $2\frac{2}{3}$, convex; preopercle edge entire; preorbital width equals eye in young, eye $1\frac{1}{2}$ in preorbital width with age. Gill rakers 3 or $4 + 17$ to 20, lanceolate, short, $2\frac{1}{3}$ in gill filaments, which 1 to $1\frac{1}{3}$ in eye.

46. *Lepidotrigla stigmapteron*.47. *Lepidaplois trilineatus*.48. *Leioeleotris zonatus*.49. *Glossogobius tenuiformis*.

Scales $21 + 10$ to $13 + 2$ or 3 ; 5 above, 10 below, 11 to 13 predorsal; 2 rows on cheek; chest scales small; caudal base with small scales. Scales with 13 to 28 basal radiating striae; circuli very fine.

D. XVI, 11 , 1 , last spine $2\frac{1}{8}$ to $2\frac{1}{5}$ in head, sixth ray $1\frac{1}{3}$, fourth ray 1 with age; A. III, 10 , 1 , third spine $2\frac{2}{3}$ to $3\frac{2}{3}$, sixth ray $1\frac{1}{5}$ to $1\frac{2}{5}$; caudal $1\frac{1}{10}$ to $1\frac{1}{3}$, truncate; least depth of caudal peduncle $2\frac{1}{5}$ to $2\frac{1}{2}$; pectoral 1 ; ventral $1\frac{1}{10}$ to $1\frac{1}{5}$.

Brown, paler to whitish below. Blackish opercular spot, little smaller than eye. Row of 4 deep, dusky and somewhat diffuse spots nearly large as eye along middle of side, last above middle of caudal base. Each scale on back and upper side with slightly darker center. Vertical fins neutral dusky to black. Paired fins brown, ventrals often neutral black. Iris brown.

One, 67 mm., Sydenham, Natal; nine, 56 to 108 mm., Campbell Dam, Natal; two, 70 to 230 mm., Natal, 1931; one, 288 mm., Isipingo River, Natal, October 24, 1928; one 328 mm. on October 10, 1928. One, 180 mm., Blue Lagoon, 1932.

***Tilapia mossambica* (Peters).**

Depth $2\frac{3}{5}$ to $2\frac{4}{5}$; head 3 to $3\frac{1}{4}$, width $1\frac{3}{4}$ to $1\frac{5}{8}$. Snout $2\frac{1}{5}$ to $2\frac{1}{4}$ in head; eye $5\frac{1}{5}$ to 6 , $2\frac{1}{2}$ to $2\frac{3}{5}$ in snout, $2\frac{3}{5}$ to 3 in interorbital; maxillary reaches $\frac{1}{3}$ or to eye, length $2\frac{1}{3}$ to $2\frac{3}{5}$ in head; teeth in villiform bands in jaws, outer row in each slightly enlarged and 5 rows in each; interorbital $2\frac{2}{5}$ to $2\frac{1}{2}$, convex. Gill rakers $3 + 19$, lanceolate, $\frac{1}{4}$ of gill filaments, which equal orbit.

Scales 20 in upper section of lateral line, 12 or 13 in lower section to caudal base; 5 above, 13 or 14 below, 12 to 14 predorsal; 3 rows on cheek to preopercle ridge, flange naked. Caudal base scaly. Axillary ventral scale 6 in fin. Scales with 13 to 20 basal radiating striae; circuli very fine.

D. XV, or XVI, 11 , 1 or 12 , 1 , fifth spine $3\frac{2}{5}$ to $4\frac{1}{2}$ in head, tenth ray $1\frac{1}{3}$ to $1\frac{2}{5}$; A. III, 9 , 1 , or 10 , 1 , third spine $2\frac{2}{5}$ to 3 , fifth ray $1\frac{2}{5}$ to $1\frac{3}{5}$; caudal $1\frac{1}{5}$ to $1\frac{1}{2}$, hind edge slightly convex; least depth of caudal peduncle $2\frac{1}{3}$ to $2\frac{1}{2}$; pectoral 1 to $1\frac{1}{10}$; ventral $1\frac{1}{5}$ to $1\frac{1}{4}$.

Dark brown, scarcely paler on under surfaces. Branchiostegal region and chin more or less soiled dark neutral gray or brown. Iris dark gray. Vertical fins all more or less mottled with dark or blackish. Pectoral in contrast pale brown. Ventral darker to blackish.

One, 260 mm., Blue Lagoon. Agrees with Boulenger's figure, though its pale pectoral in contrast with its blackish vertical fins. Also ends of dorsal and caudal, latter both above and below, pale yellowish white.

One, 300 mm., Durban Bay, high salinity in water. One, 290 mm., Hartbeeste Dam at Pretoria, 1931. Two young, 41 to 44 mm., Ivongo River. With 10 dark narrow transverse bars. Black blotch on first dorsal rays subbasally followed by 3 oblique dark bands on soft dorsal.

***Tilapia rumsayi* Gilchrist and Thompson.**

Two, 50 to 55 mm., Ivongo River. Depth $2\frac{3}{4}$ to $2\frac{4}{5}$. D. XIV or XV, 8 , 1 or 9 , 1 ; A. III, 8 , 1 .

Tilapia kafuensis Boulenger.

One, 290 mm., Hartebeeste Poort Dam, Pretoria District, 1931. Agrees with my example 280 mm. long from Maun, reported in 1931.

Tilapia sparrmani Andrew Smith.

One, 87 mm., Mkuzi River, 1931. Lower gill rakers 11.

Paratilapia thumbergi (Castelnau).

Two, 210 to 220 mm., Hartebeeste Poort Dam, Pretoria District, 1931. Agrees with my example 290 mm. from the Bechuanaland Protectorate, reported in 1931. The above record extends its distribution south of the Zambesi into the Limpopo basin.

POMACENTRIDAE**Abudefduf sordidus** (Forskål).

One, 163 mm., 1931; one, 103 mm., Umhlali rock pools, March 5, 1931.

Abudefduf saxatilis (Linnaeus).

One, 162 mm. in 1931, one 93 mm. in 1932, Durban. Differs from Bleeker's figure of *Glyphidodon coelestinus* in that the vertical dark or blackish bands extend on bases of both dorsals and anal fins.

Abudefduf leucozonus (Bleeker).

Depth 2 to $2\frac{1}{5}$; head $2\frac{1}{8}$ to $3\frac{2}{5}$, width $1\frac{1}{2}$ to $1\frac{3}{4}$. Snout $3\frac{2}{5}$ to $3\frac{1}{2}$ in head; eye 3 to $3\frac{1}{2}$, exceeds snout in young to $1\frac{1}{5}$ in snout with age, exceeds interorbital in young to $1\frac{1}{4}$ in interorbital with age; maxillary reaches $\frac{4}{5}$ to eye, length $3\frac{2}{5}$ to $3\frac{1}{2}$ in head; interorbital 3 to $3\frac{2}{5}$, convex. Gill rakers $5 + 13$, lanceolate, $2\frac{1}{4}$ in gill filaments, which $1\frac{1}{3}$ in eye.

Scales 19 in upper section of lateral line, pores 10 to 12 in straight section to caudal base; 4 or 5 scales above, 10 or 11 below, 17 to 22 predorsal forward to nostril; 3 rows on preorbital; 3 rows on cheek, 11 rows on preopercle flange. Vertical fins all densely scaled vertically. Scales with 7 or 8 basal radiating striae; 47 to 136 slender minute apical denticles, with 3 or 4 transverse series of basal elements; circuli very fine.

D. XII, 15, 1, fourth spine $1\frac{1}{3}$ to 2 in head, fourth ray $1\frac{2}{5}$ to $1\frac{1}{2}$; A. II, 12, 1 or 13, 1, second spine $1\frac{3}{4}$ to $1\frac{4}{5}$, fourth ray $1\frac{1}{3}$ to $1\frac{2}{5}$; caudal 1 to $2\frac{1}{5}$; least depth of caudal peduncle 2 to $2\frac{1}{5}$; pectoral $1\frac{1}{5}$ to $1\frac{1}{4}$; ventral $1\frac{1}{8}$ to $1\frac{1}{3}$.

Dark olive brown, scarcely paler below. Iris dark neutral gray. Blackish blotch at pectoral origin about size of pupil. Fins all brown, pectoral mostly paler.

One, 126 mm., 1932; one, 55 mm., Umhlali, March 5, 1931; five, 31 to 71 mm., St. Lucia coast, north Zululand, 1932. An interesting series, and variable. The young are quite unlike Bleeker's figure of *Glyphidodon leucozona*. The largest has a large blackish blotch at the pectoral origin, though otherwise is uniformly dark.

Abudefduf glaucus (Cuvier).

Two, 50 to 55 mm., St. Lucia coast, north Zululand, 1932. D. XIII, 11 or 12; A. II, 11 or 12. *Glyphisodon fallax* Peters, from Mozambique, I

believe to be a synonym. As now understood the present species ranges as far west in the Indian Ocean as Zululand and Mozambique, heretofore not known west of India.

Abudefduf biocellatus (Quoy and Gaimard).

Two, 30 to 41 mm., Umhlali, February 5, 1931. Blue black band from upper hind edge of eye to below soft dorsal where basal third of fin black, also bases of last dorsal spines for similar space and upper edge of caudal peduncle.

LABRIDAE

Lepidaplois hirsutus (Lacépède).

Two, 308 to 440 mm., Natal coast in 20 to 30 fathoms, 1932.

Lepidaplois trilineatus, new species. Figure 47.

Depth 3; head $2\frac{3}{5}$, width $2\frac{1}{4}$. Snout $2\frac{2}{3}$ in head from snout tip; eye $5\frac{1}{4}$, $2\frac{1}{6}$ in snout, $1\frac{1}{4}$ in interorbital; maxillary reaches $\frac{3}{4}$ to eye, length $3\frac{3}{5}$ in head; lips rather fleshy; 4 canines in front of each jaw, upper especially flaring forward and outward; small canine projects forward from each maxillary near hind mouth angle; interorbital $4\frac{1}{5}$, low, slightly convex, depressed medially; hind preopercle edge minutely and evenly serrated. Gill rakers $6 + 7$, lanceolate, $\frac{1}{3}$ of gill filaments, which $1\frac{1}{2}$ in eye.

Scales $30 + 2$ in lateral line; 5 above, 12 below, 24 predorsal forward little before front nostril; 11 rows across cheek, of which 3 on preopercle flange. Scales small on top of head, cheeks and below, large on opercles; small scales also on predorsal, chest and breast. Caudal largely scaly basally. Scales with 23 to 29 basal radiating striae; circuli very fine basally, extended partly and rather feebly apically.

D. XII, 9, 1, fifth spine $3\frac{2}{5}$ in total head, sixth ray $2\frac{1}{4}$; A. III, 12, 1, third spine $3\frac{1}{5}$, second ray 3; caudal $1\frac{1}{2}$, rounded behind; least depth of caudal peduncle $2\frac{1}{2}$; pectoral $1\frac{3}{5}$, rays 1, 14; ventral $2\frac{1}{4}$.

Light brown, nearly uniform fawn color, fins uniform and paler. Iris dark gray. Along side, axially from gill opening to caudal base, narrow blackish brown band; another above follows course of lateral line until posteriorly where crossing to upper edge of caudal peduncle; third band similar and still higher or marking dorsal profile.

A.N.S.P., No. 55993, type. Natal coast, 1932. Length 230 mm.

Known by its 3 longitudinal, dark narrow, parallel bands along the back. (*Trilineatus*, three lined.)

Hologymnosus semidiscus (Lacépède).

Depth $3\frac{3}{4}$; head $3\frac{1}{4}$, width $2\frac{3}{4}$. Snout $2\frac{2}{3}$ in head; eye $11\frac{1}{5}$, $4\frac{1}{5}$ in snout, 2 in eye; maxillary $4\frac{1}{5}$ in head; mouth cleft reaches $\frac{3}{5}$ to eye, lower jaw little shorter; 4 front canines in each jaw; interorbital $5\frac{2}{5}$ in head, elevated, convex. Gill rakers $7 + 12$, short robust points, spinescent, $3\frac{1}{3}$ in gill filaments, which $2\frac{4}{5}$ in snout.

Scales $99 + 4$ in lateral line; 12 above, 46 below, 20 predorsal though with median naked strip whole extent.

D. IX, 12, 1, first spine $4\frac{1}{2}$ in head, first ray 3; A. III, 12, 1, third spine $4\frac{2}{3}$, first ray $3\frac{1}{4}$; caudal $1\frac{1}{2}$, truncate; least depth of caudal peduncle $3\frac{1}{10}$; pectoral $1\frac{3}{4}$; ventral 3.

Brown, scarcely paler below. Broad transverse pale band, about equal in width to terminal $\frac{2}{3}$ of pectoral, from back to belly; 17 dark vertical lines, much narrower than interspaces, on tail. Before pale transverse band broad, neutral, dusky band on back. Iris reddish. Pale band obliquely from interorbital down over nostrils to bar parallel and above maxillary, also joined behind or above rictus by band from occiput extending down and touching front eye edge. Pale band from upper hind eye edge and arc arches from lower eye edge toward opercle and down over cheek. Small black spot on opercle edge above, little less than eye. Dorsals neutral dusky, with row of brown basal spots; narrow brown margin defined by black border line, leaving edge narrowly white. Anal brown, with neutral dusky round basal blotch on each membrane and fin margin with dark line. Caudal dark brown, neutral dusky basally. Ventral pale.

One, 394 mm., Natal coast, 1929. Also one 410 mm. from Natal in 1931.

Stethojulis interrupta (Bleeker).

One, 120 mm., Natal, 1931.

Thalassoma umbrostygma (Rüppell).

Two, 38 to 67 mm., 1932; one, 70 mm., St. Lucia coast, north Zululand, 1932.

Thalassoma purpureum (Forskål).

One, 343 mm., Natal, 1932.

Thalassoma lunare (Linnaeus).

One, 154 mm., 1932.

CALLYODONTIDAE

Scarichthys auritus (Valenciennes).

One, 174 mm., Durban, December 24, 1929. Also two, 44 to 97 mm., Natal, 1931 and two, 46 to 52 mm. from 20 miles up St. Lucia Lake, Zululand, 1931. Outer dental surface of upper jaw without flaring canines. This species, known from the Indian Ocean and western Pacific, does not seem to have been previously reported from Natal.

ECHENEIDIDAE

Leptecheneis naucrates (Linnaeus).

Two, 175 to 390 mm., 1932. Also one 204 mm. in 1931. Disk plates 23 to 25.

CALLIONYMIDAE

Callionymus marleyi Regan.

Depth 7; head 4, width 1. Snout 3 in head; eye $3\frac{1}{2}$, subequal with snout, 5 times narrow interorbital width; maxillary reaches eye, length $3\frac{1}{10}$ in

head; teeth in villiform bands in jaws, none on palate or tongue; interorbital narrowly concave; preopercular spine little longer than eye, ends in spine and 5 more on inner edge. Gill opening small slit about size of pupil, level with same.

Skin smooth, covers striae on cranium. Lateral line complete, with connecting branch over caudal peduncle behind soft dorsal.

D. IV—9, 1, first spine $1\frac{1}{10}$ in head, first ray $1\frac{2}{5}$, last ray $1\frac{1}{10}$; A. 8, 1, last ray $1\frac{1}{4}$; least depth of caudal peduncle $4\frac{1}{4}$; caudal $3\frac{1}{4}$ in rest of body, little convex behind; pectoral $3\frac{3}{4}$; ventral $3\frac{1}{4}$.

Light brown above, paler and with whitish reflections below. Back dusted with dusky dots, leaving irregular scattered pale spots or circles. Row of 4 or 5 slightly larger dusky spots close along below lateral line. Iris gray white. Under surfaces of body immaculate. Dorsals gray white, with dark gray penciled lines, variably horizontal on soft dorsal and uppermost horizontal on spinous dorsal with basal variably vertical or transverse. Caudal with dark gray dots and short horizontal marginal ones terminally, lowest as black spot. Paired fins above with obscure darker specks or dots.

One, 96 mm., Natal, 1931.

ELEOTRIDAE

LEIOELEOTRIS, new genus

Body moderately compressed, elongate. Caudal peduncle rather deep. Head wide, moderately long, depressed. Snout short, wide. Eyes small, directed upwards, well separated, anterior in head. Mouth large, superiorly terminal, lower jaw protruding. Lips rather broad and fleshy. Tongue convex in front. Gill rakers few, short, feeble points. Head with papillate ridges on snout, cheeks, mandible and preopercle. Gill opening restricted, short vertical slit entirely before pectoral base. Branchiostegals 4. Scales very small, cycloid, more or less imbedded. Two dorsals, spinous fin less than half of second fin, spines soft and flexible. Anal opposite long second dorsal, little smaller. Caudal rounded. Pectoral large, rounded. Ventrals small, well separated, inserted opposite pectoral bases.

Type *Leioeleotris zonatus*, new species.

Apparently unique in the combination of its characters, this genus not approaching any of the known forms closely. The head, unarmed or without spines, allies it with most of the known genera. In *Eleotris*, *Asterropteryx*, and *Belobranchus* the head is furnished with 1 or more spines.

(*Aelios* smooth + *Eleotris*.)

Leioeleotris zonatus, new species. Figure 48.

Depth $5\frac{1}{3}$ to 6; head $3\frac{1}{5}$ to $3\frac{1}{4}$, width $1\frac{1}{5}$ to $1\frac{2}{5}$. Snout $4\frac{1}{5}$ to $4\frac{2}{5}$ in head from snout tip; eye $4\frac{2}{5}$ to 5, 1 to $1\frac{1}{8}$ in snout, little greater than interorbital; maxillary reaches $\frac{1}{3}$ to $\frac{1}{2}$ in eye, length $2\frac{1}{4}$ to $2\frac{1}{2}$ in head; teeth large, simple, conic, well spaced, uniserial in jaws, and small band on each palatine; interorbital 6 to 7, level. Gill rakers on second arch 5, $\frac{1}{3}$ of gill filaments, which 3 in eye.

Scales $40 + 4$ in axial lateral series; about 18 transversely. Caudal base scaly, otherwise fins naked. Scales with 16 radiating striae basally; circuli rather coarse, more or less continuous.

D. VI, 12, 1 or 13, 1, third spine $2\frac{1}{4}$ to $2\frac{1}{3}$ in head, fin height $1\frac{1}{8}$ to 2; A. I, 9, 1 or 10, 1, fin height $1\frac{1}{8}$ to $2\frac{1}{8}$; caudal 1 to $1\frac{1}{2}$, rudimentary rays well developed; least depth of caudal peduncle $2\frac{3}{8}$ to $2\frac{3}{4}$; pectoral $1\frac{1}{4}$ to $1\frac{1}{3}$, rays 20; ventral $1\frac{1}{3}$ to $1\frac{2}{3}$.

Brown, above and on sides sprinkled with innumerable darker dots, some rather pale extending on breast and belly. Broad blackish brown band, bordered broadly by pale in front and behind, not crossing belly, also reflected up on spinous dorsal. Dark line forward and down from front eye edge toward middle of maxillary. Broad blackish brown band, less than eye in width, obliquely down toward preopercle angle. Blackish brown spot about size of pupil before pectoral origin. Fins all more or less gray brown, soft verticals broadly edged paler to whitish. Ventrals whitish. Iris neutral gray.

A.N.S.P., No. 54992, type. St. Lucia coast, north Zululand, 1932. Length 47 mm.

Also Nos. 54993 and 54994, paratypes, same data, 35 to 44 mm. Eight, 38 to 44 mm., Durban.

Readily known among all South African eleotrids by its coloration, the dark postocular band and the still broader band from the spinous dorsal very contrasted and conspicuous.

(*Zonatus*, banded.)

GOBIIDAE

Mugilogobius durbanensis (Barnard).

Depth 5 to $5\frac{1}{4}$; head $3\frac{2}{3}$ to $3\frac{3}{4}$, width $1\frac{1}{3}$. Snout $3\frac{1}{2}$ to $4\frac{2}{3}$ in head; eye $3\frac{1}{4}$ to $4\frac{1}{5}$, much greater than snout, equals interorbital; maxillary reaches $\frac{1}{4}$ in eye, length $2\frac{1}{2}$ to $2\frac{3}{4}$ in head; mouth width $2\frac{1}{2}$ to 3; teeth minute, in narrow bands in jaws; tongue truncate; interorbital level. Gill opening exposes wide isthmus, without fold across.

Scales 33 to 35 + 3 or 4 in median lateral series from above gill opening to caudal; 11 scales transversely at soft dorsal and anal; 17 or 18 predorsal scales forward opposite middle of eyes; muzzle naked; opercles and postocular region scaled; breast and belly completely scaly. Several longitudinal rows of papillae on cheek. Scales with 11 or 12 basal parallel striae; 15 to 17 apical denticles; circuli coarse.

D. VI — 1, 7, 1, third spine 2 to $2\frac{1}{2}$ in head, last ray $1\frac{3}{8}$ to 2; A. 1, 6, 1 or 1, 7, 1, last ray 2; least depth of caudal peduncle $1\frac{1}{8}$ in its length or 2 in head; caudal $1\frac{1}{8}$ to $1\frac{1}{4}$, rounded or convex behind; pectoral $1\frac{1}{2}$ to $1\frac{3}{4}$, upper rays not silky; ventral $1\frac{3}{8}$ to $1\frac{3}{4}$.

Pale brown generally, back with rather coarse deeper reticulations leaving 2 or 3 longitudinal rows of pale round spots. Muzzle grayish. Dusky blotch on opercle. Two dark spots at caudal base. Dorsals, anal and caudal with grayish. Paired fins pale. Iris gray.

Two, 26 to 40 mm., False Bay, North Zululand, 1931. "From beneath clods of earth at water side, water fresh and drinkable. Color pale purplish with black markings."

This species is unlike the genotype *Ctenogobius abei* Jordan and Snyder from Japan, in its less slender body, more distinct opercular scales, dorsal spines not produced and its coloration.

Bathygobius fuscus (Rüppell).

One, 47 mm., St. Lucia Lake, north Zululand, 1932; four, 40 to 80 mm., Umhlali rock pools, March 5, 1931.

Bathygobius saldanha (Barnard).

Depth $4\frac{4}{5}$; head 3, width $1\frac{2}{7}$. Snout $4\frac{1}{5}$ in head; eye $3\frac{7}{8}$, greater than snout or interorbital; maxillary reaches $\frac{3}{8}$ in eye, length 2 in head; teeth in rather narrow bands in jaws, simple, small, conic, outer row slightly enlarged, none on palate; tongue slightly emarginate in front; interorbital $6\frac{1}{4}$, depressed, slightly concave. Gill rakers $1 + 5$ short points, $\frac{1}{4}$ of gill filaments, which 2 in eye.

Scales $44 + 5$ in lateral axial series; 20 transversely at soft dorsal origin. Scales with 14 to 20 basal radiating striae; circuli moderately fine, complete. Rows of fine papillae along maxillary, preorbital, along preopercle, mandible and 3 rows on each cheek.

D. VI — 10, 1, fourth spine $2\frac{2}{5}$ in head; A. 1, 7, 1, fifth ray $2\frac{1}{2}$; caudal $1\frac{2}{5}$, rounded behind; pectoral $1\frac{2}{5}$, upper rays silk-like; ventral $1\frac{7}{8}$.

Largely blackish brown, under surface of head and belly brownish. Iris dark neutral gray. Fins more or less blackish, ventrals neutral gray.

One, 46 mm., St. Lucia Lake, rock pools north Zululand, 1932.

Glossogobius giuris (Buchanan-Hamilton).

Two, 135 to 335 mm., Blue Lagoon, Umgani, Natal, larger May 27, 1931; three, 46 to 51 mm., Ivongo River, Natal, 1932; one, 63 mm., Natal, 1931.

Glossogobius tenuiformis, new species. Figure 49.

Depth $7\frac{1}{5}$ to $7\frac{1}{2}$; head 3 to $3\frac{1}{3}$, width 2 to $2\frac{1}{8}$. Snout $3\frac{1}{4}$ to $3\frac{1}{3}$ in head from snout tip; eye 4, equals snout, 4 times interorbital; maxillary reaches $\frac{1}{5}$ to $\frac{1}{4}$ in eye, length $2\frac{2}{5}$ to $2\frac{1}{2}$ in head from snout tip; teeth small, simple, biserial in jaws, with inner upper largest, none on palate or tongue; tongue with median notch in front; interorbital narrowly constricted, level. Gill rakers $2 + 8$, lanceolate, $1\frac{1}{4}$ in gill filaments, which $2\frac{1}{2}$ in eye.

Scales $30 + 2$ or 1 in median lateral series; 10 transversely, 13 or 14 predorsal forward opposite vertical edge of preopercle. Except occipital region, head entirely naked. Cheek with 4 horizontal rows of papillae, row around orbit, 1 postocular, 1 across preorbital, 1 on each mandibular ramus below and 1 close behind preopercle edge on front of opercle. Scales with 14 basal radiating striae; 35 apical denticles; circuli moderate, not complete apically.

D. VI — 10 or 11, second spine ends in filament or $1\frac{3}{8}$ to 2 in total head length, second ray $1\frac{3}{8}$ to $1\frac{3}{4}$; A. 1, 7, last ray $2\frac{1}{8}$ to $2\frac{1}{3}$; caudal 1 to $1\frac{1}{10}$, convex behind; least depth of caudal peduncle $3\frac{7}{8}$ to 4; pectoral $1\frac{1}{5}$ to $1\frac{1}{4}$, rays 17, not silky; ventral $1\frac{2}{7}$ to $1\frac{1}{3}$.

Light brown above, with variable darker scattered spots and mottling. Along middle of side 5 groups of dark blotches, each formed of 2 or 3 dark spots, also smaller neutral black one at median caudal base. Sides of head with some dark blotches. Dark bar from front eye edge, another forward from lower eye edge down over cheek and 2 back over postocular from hind eye edge. Lips reflect 3 dark blotches from anterior bars from eye. Iris dark gray. Spinous dorsal transparent brownish, with darker

cloudings on spines. Soft dorsal with each ray spotted darker. Caudal with 5 or 6 dark transverse bars. Anal pale. Pectoral pale, dark basal spot close below origin. Ventral uniformly pale.

A.N.S.P., No. 60250, type. St. Lucia Lake, 20 miles up, north Zululand, 1931. Length 57 mm.

Also Nos. 60248 and 60249, Natal, 1931, paratypes. Length 51 to 57 mm.

Distinguished from *G. giuris* by its more slender body.

(*Tenuis* slender + *forma* form.)

Amoya nudiceps (Valenciennes).

Depth $4\frac{3}{4}$ to $4\frac{3}{4}$; head 3 to $3\frac{2}{5}$, width $1\frac{1}{3}$ to $1\frac{1}{2}$. Snout $3\frac{3}{4}$ to 4 in head from snout tip; eye $4\frac{2}{5}$ to $4\frac{1}{2}$, 1 to $1\frac{1}{3}$ in snout, greater than interorbital; maxillary reaches $\frac{1}{2}$ in eye, length $2\frac{1}{3}$ to $2\frac{2}{5}$ in head from snout tip; lips broad, lower forms free crease across symphysis; teeth fine, in bands in jaws, outer row in each little enlarged; tongue broadly rounded in front; interorbital $8\frac{1}{4}$ to 10, level. Gill rakers 1 + 10, lanceolate, $1\frac{2}{3}$ in gill filaments, which $1\frac{1}{2}$ in eye.

Scales 50 to 53 + 3 in median lateral series; 17 or 18 transversely, predorsal naked. Cheek with 6 vertical rows of papillae from eye, crossed by 2 horizontal rows, one median and other low, small preocular row, another postocular, 3 short parallel rows above nostrils, vertical row on opercle close behind preopercle edge and short horizontal bar below, row along lower edge of each mandibular ramus and lower preopercle edge, also row in mandibular crease below, 2 short horizontal rows close above opercle. Scales with 12 to 15 basal radiating striae; 15 to 25 apical denticles, rather large, uniform; circuli coarse.

D. VI — I, 10, 1, second spine $1\frac{3}{5}$ to $1\frac{4}{5}$ in total head length, ninth ray $1\frac{1}{3}$ to $1\frac{1}{2}$; A. I, 9, 1, eighth ray $1\frac{1}{3}$ to $1\frac{2}{5}$; caudal 1, convex behind; least depth of caudal peduncle $2\frac{1}{2}$; pectoral 1 to $1\frac{1}{5}$; ventral $1\frac{1}{3}$ to $1\frac{2}{5}$; anal papilla long as eye.

Burnt umber generally, scarcely paler below. Side of body with about 16 indistinctly defined dark or dusky transverse streaks or bars, variously broken or irregular, though not encroaching on under surface. Head and predorsal speckled with darker, also some on cheek. Edge of gill opening pale. Iris gray. Lips livid neutral drab. Fins all dull brownish, with narrow pale subbasal longitudinal band, bordered above and below with gray brown. Soft dorsal with similar, pale, narrow, subbasal lateral band, bordered above and below only by dark spot on each fin ray. Anal with each membrane terminally with dark brown transverse streaks, darkest terminally. Caudal with few scattered dark basal spots. Pectoral clouded darker basally or with several pale or dark indistinct spots. Ventral membranes with more or less dusky.

Three, 70 to 82 mm., Natal, 1931; four, 38 to 51 mm., Durban, 1932.

Falls with *Amoya brevirostris* (Günther) from Amoy, China, from which it differs chiefly in its variegated coloration.

Periophthalmus barbarus (Linnaeus).

Nine, 69 to 93 mm., Natal, 1931; one, 90 mm., Durban, 1932.

Aparrius acutipinnis (Valenciennes).

Depth $5\frac{2}{3}$; head $3\frac{1}{4}$, width 2. Snout $4\frac{1}{2}$ in head; eye $4\frac{1}{4}$, $1\frac{1}{8}$ in snout, greatly exceeds interorbital; maxillary reaches $\frac{2}{3}$ in eye, length $2\frac{1}{10}$ in head; teeth fine, slender, simple, conic, in 2 or 3 close-set irregular series in jaws, pair of upper front small canines and 2 well-spaced larger recurved canines at each side in front below; interorbital very narrow frenum above which each eye impinges. Gill rakers $3 + 12$, lanceolate, $1\frac{1}{2}$ in gill filaments, which $2\frac{1}{2}$ in eye.

Scales $48 + ?$ (pockets) in axial lateral series, 13 transversely from second dorsal origin. Caudal base scaly. Scales with 14 to 20 basal radiating striae; 22 to 32 apical denticles; circuli fine.

D. VI—I, 13, 1, third spine long as head, first ray 2 in head, eleventh ray $1\frac{1}{4}$; A. I, 11, tenth ray $1\frac{1}{3}$; caudal $2\frac{1}{2}$ in rest of fish, ends in long slender point behind; least depth of caudal peduncle $3\frac{2}{5}$; pectoral $1\frac{1}{10}$; ventral $1\frac{1}{4}$.

Back pale olive, under surfaces still paler, grayish on under surface of head. Iris dark neutral slate. Fins light olivaceous.

One, 103 mm., from stomach of deep-sea fish on Natal coast. In rather poor condition. "Pale mauve, with lemon yellow spots."

BLENNIIDAE**Petroscirtes woodi** (Gilchrist and Thompson). Figure 50.

Depth $5\frac{1}{4}$ to $6\frac{3}{8}$; head 4 to $4\frac{3}{8}$, width $1\frac{1}{2}$ to 2. Snout $3\frac{1}{4}$ to $3\frac{1}{2}$ in head; eye $3\frac{1}{2}$ to $3\frac{3}{8}$, subequal with snout, greatly exceeds interorbital; mouth cleft reaches $\frac{1}{5}$ to $\frac{1}{2}$ in eye, $2\frac{2}{5}$ to 3 in head; teeth uniserial, slender, pointed, curved slightly, rather compressed, firm, 20 in each jaw, and pair of large inner curved lower canines; lips not completely covering teeth; interorbital 2 to $2\frac{1}{4}$ in eye, in male median elevated cutaneous ridge. Gill opening short inclined slit above pectoral origin, $1\frac{1}{2}$ in eye.

Lateral line incomplete, as 6 to 8 rather long tubes above and parallel with pectoral.

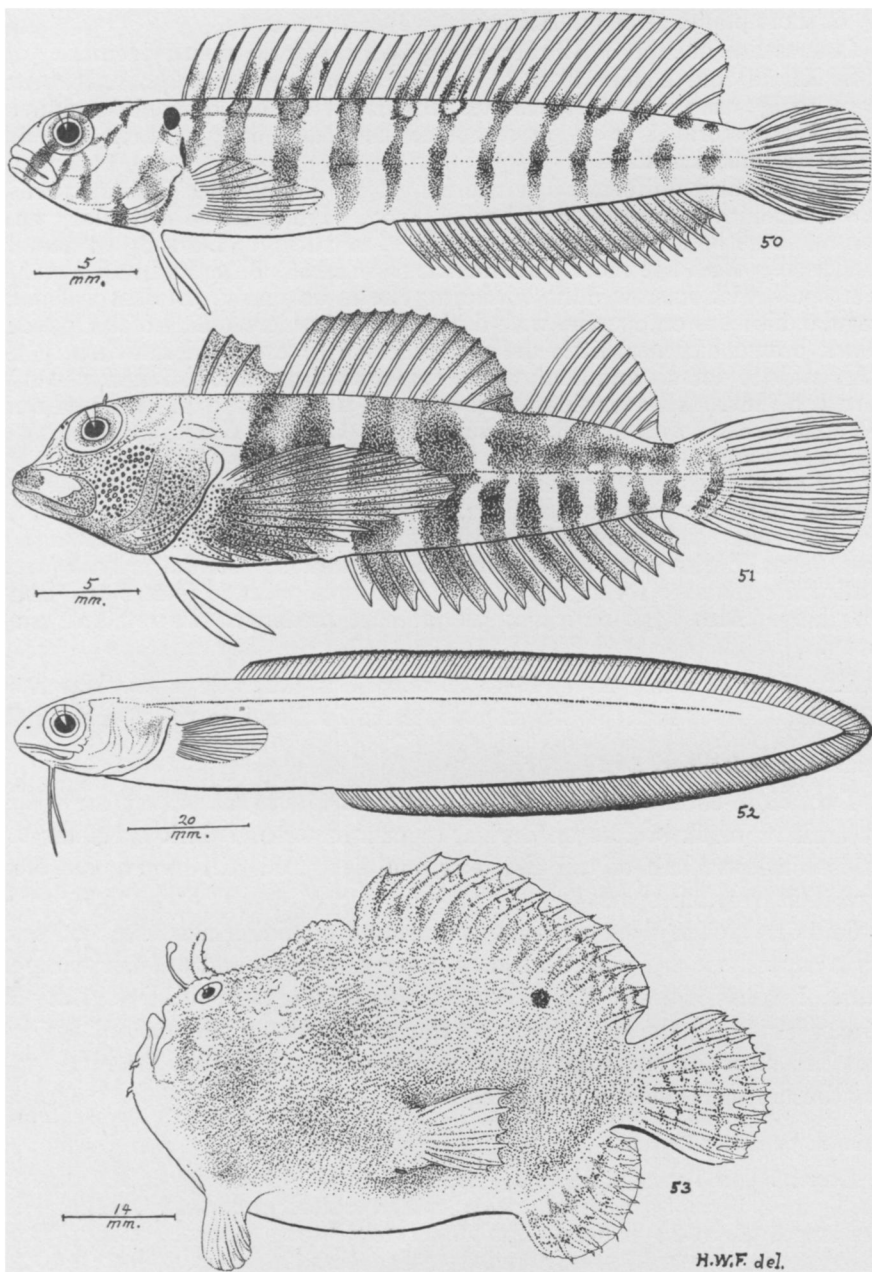
D. XI, 18 to 21, first fin height $2\frac{1}{5}$ to $2\frac{1}{2}$ in head, second fin height $1\frac{1}{8}$ to $1\frac{1}{3}$; A. 22 or 23, fin height $2\frac{1}{10}$ to $2\frac{1}{5}$, fin edge notched; caudal $1\frac{1}{4}$ to $1\frac{1}{2}$, convex behind; least depth of caudal peduncle $2\frac{1}{2}$ to $2\frac{4}{5}$; pectoral 1 to $1\frac{1}{5}$, rays 13; ventral $1\frac{2}{5}$ to $1\frac{1}{2}$.

Brown generally. Head with 4 dark narrow vertical bands, crossing under surface of head, last forked behind on opercle with narrower line extended down and crossing indistinctly just before ventral; on body 13 broader dark transverse bands, forked little above and all reflected on vertical fins. Black ocellus above opercle little larger than pupil but not so large as eye.

Two, 38 to 44 mm., St. Lucia, north Zululand; three, 42 to 62 mm., Durban, 1931; one, 47 mm., Durban Bay, 1929.

Blennius bifilum Günther.

Depth $4\frac{1}{2}$ to $4\frac{3}{4}$; head 4 to $4\frac{1}{8}$, width $1\frac{2}{5}$ to $1\frac{1}{2}$. Snout $2\frac{7}{8}$ to 3 in head; eye $4\frac{1}{8}$ to $4\frac{1}{2}$, $1\frac{1}{2}$ in snout, greatly exceeds interorbital; mouth slightly inferior, front profile of head little inclined from vertical; maxillary reaches $\frac{1}{5}$ to $\frac{2}{5}$ in eye, length 3 to $3\frac{1}{3}$ in head; teeth fine, even, compressed, ends pointed, firm, no canines; interorbital $1\frac{2}{5}$ to 2 in eye; short front nasal barbel; pair of close-set fleshy tentacles on occiput long as snout. Gill



50. *Petroscirtes woodi*. 51. *Helcogramma obtusirostre*.
52. *Otophidium smithi*. 53. *Antennarius leucus*.

membranes form free fold completely across broad isthmus. Gill rakers $3 + 6$, short points, $\frac{1}{5}$ of gill filaments, which $1\frac{2}{5}$ in eye.

Lateral line at arch of 12 rather long tubes over depressed pectoral.

D. XI, 18, fourth spine $1\frac{4}{5}$ to $1\frac{7}{8}$ in head, second ray $1\frac{1}{2}$ to $1\frac{3}{8}$; A. 21, third ray $1\frac{4}{5}$ to $1\frac{7}{8}$; caudal $1\frac{1}{8}$ to $1\frac{1}{4}$, convex behind; least depth of caudal peduncle $2\frac{2}{5}$ to $2\frac{3}{4}$; pectoral 4 to $4\frac{1}{5}$ in combined head and body without caudal; ventral $1\frac{3}{8}$ to 2 in head.

Brown, nearly uniform. Iris neutral gray. Young with 3 oblique dark brown bands over lower side of head. Front edge of snout little dark and dark bar from before eye down on middle of maxillary. Dark brown blotch on opercle. With age most dark markings on head obliterated and 2 small paler spots with narrow dark bordering circles on cheek, also several pale irregular blotches on opercle, with dark narrow borders. Side of body with 8 dark brown blotches, little defined, reflected or extended indistinctly as dark bands to dorsals and anal, where emphasized as dark blotch subbasally on each of fins. All over sides of body small pale spots, as if scattered and well spaced, each with dark bordering circle. On belly 5 broad dark brown transverse bands, each much wider than pale interspace. Dorsals generally pale or grayish, except for dark basal blotches, on spinous fin with several irregular dark blotches or cloudings, on soft fin a few median small dark irregular spots and marginally with many still smaller close-set whitish spots. Anal darker brown, marginally little darker. Caudal grayish with small white spots, so arranged to allow dark interspaces to form 5 or 6 dark cross bars. Also dark blotch at caudal base medially. Paired fins gray brown.

Six, 35 to 76 mm.; three, 44 to 72 mm., Umhlali rock pools, March 5, 1931; six, 37 to 62 mm., St. Lucia coast, north Zululand, in rock pools, 1932.

***Blennius steindachneri* Day.**

Two, 68 to 83 mm., 1931. Differ a little in coloration as they are without dark or black ocellus on dorsal fin membrane and dark spots larger, besides on lower half of tail and over anal scattered still larger pale blue or whitish irregular spots.

Salarias cyclops does not show the median cranial fringe, the head and trunk as well spotted with dark dots, though the fins and tail are without spots. Regan's figure of *Blennius punctatus* is in agreement largely, except he does not show the dark spots regular and large on the caudal, besides there are no white spots on the lower side of the tail or on the anal, and they are not mentioned in his description.

***Blennius punctifer* Regan.**

Depth $3\frac{1}{2}$ to $3\frac{3}{8}$; head $3\frac{1}{2}$ to $3\frac{3}{8}$, width $1\frac{2}{5}$ to $1\frac{3}{8}$. Snout $2\frac{3}{8}$ to $3\frac{1}{8}$ in head; eye $3\frac{3}{4}$ to 4, $1\frac{1}{3}$ to $1\frac{2}{5}$ in snout, twice in interorbital; maxillary reaches $\frac{1}{4}$ in eye, length $2\frac{1}{2}$ to $2\frac{3}{4}$ in head; lips moderately broad, smooth, entire; teeth uniserial, compressed, ends rounded and entire, 24 in each jaw and no canines; interorbital narrow frenum half of eye; cranium with median or longitudinal row of fleshy tentacles; supraocular flap of about 7 tentacles; fringed nasal flap present. Gill opening broadly free across broad isthmus.

Gill rakers as 8 or 9 short rudimentary points, greatly less than gill filaments.

Skin smooth; about 14 tubes form upper section of lateral line far as vent.

D. XII, 13 or 14, fin entire, last ray free from caudal, fin height $1\frac{3}{4}$ to $2\frac{1}{4}$ in head; A. II, 16, each ray with free tip, first 2 with fleshy lobes, free from caudal, fin height $2\frac{1}{5}$ to $2\frac{1}{5}$; depth of caudal peduncle $2\frac{1}{2}$ to $3\frac{1}{2}$; caudal $1\frac{1}{4}$ to $1\frac{2}{5}$, rounded behind; pectoral $1\frac{1}{10}$; ventral $1\frac{2}{5}$ to $1\frac{3}{5}$.

Brown, slightly paler or more grayish on belly, under surfaces whitish. Small scattered dusky dots all over head and trunk above, also over tail where larger and more distinct. Dark spots also extend over vertical fins, which dark gray, though tips of anal membranes all pale. Paired fins grayish, whitish below. Iris slaty.

Six, 55 to 75 mm., Durban, 1929; also 6 in 1931, 54 to 98 mm. from same locality; one, 68 mm., Umhlali rock pools, March 5, 1931; three, 26 to 53 mm., St. Lucia coast, north Zululand, 1932. None shows "back with 6 more or less distinct dark cross-bars" as described by Regan.

Helcogramma obtusirostre (Klunzinger). Figure 51.

Depth $3\frac{3}{5}$ to $4\frac{2}{5}$; head 3 to $3\frac{2}{5}$, width $1\frac{2}{5}$ to $1\frac{3}{5}$. Snout 3 to $3\frac{1}{5}$ in head; eye $3\frac{1}{2}$ to $3\frac{3}{4}$, little greater to subequal with snout, greatly exceeds interorbital; maxillary reaches $\frac{1}{5}$ to $\frac{1}{4}$ in eye, length $2\frac{1}{5}$ to $2\frac{1}{2}$ in head; edge of upper lip with short fringe; teeth in villiform bands in jaws, 5 or 6 transversely above, 4 below, in each also outer enlarged row; interorbital $2\frac{1}{4}$ to 3 in eye, narrowly concave; front nostril with short fringed flap; short simple tentacle above eye. Gill rakers 7 short points, $\frac{1}{4}$ of gill filaments, which $\frac{1}{2}$ of eye.

Scales $35 + 3$ or 4 in lateral line; 6 above, 8 below. Lateral line complete, axial along side. Scales with 8 or 9 slightly radiating basal striae; 13 to 19 uniform rather large apical denticles; circuli moderate, more or less complete.

D. III, XIII, 10 or 11, first spine 3 to $3\frac{1}{2}$ in head, second fin height $1\frac{7}{8}$ to $2\frac{1}{2}$, first ray $1\frac{7}{8}$ to 2; A. I, 18 or 19, fin height $2\frac{1}{2}$ to $2\frac{3}{5}$; caudal $1\frac{2}{5}$ to $1\frac{3}{4}$, convex behind; least depth of caudal peduncle 3 to $3\frac{1}{5}$; pectoral 1 to $1\frac{1}{10}$, rays 9, 6; ventral $1\frac{1}{3}$ to $1\frac{1}{2}$.

Lower half of head blackish, usually maxillary with more or less whitish. Upper part of head pale brown like rest of general body color. Five pairs of dark cross bars made up of dusky sprinkling, less distinct on lower half of body, which also darker than upper half. Iris neutral gray. Fins pale or whitish. Black blotch at pectoral base, with white blotch above and smaller white spot below, rest of fin grayish, darker below. First and second dorsals with dark neutral gray margins and second with some obscure dark spots. Anal grayish. Ventrals whitish.

Four, 35 to 42 mm., Durban, 1932; twelve, 27 to 42 mm., St. Lucia coast, north Zululand, 1931. A very variable species with color pattern not alike in any two individuals.

Cirrhipectes kosiensis (Regan).

Depth 3 to $3\frac{1}{2}$; head $3\frac{1}{3}$ to $3\frac{3}{4}$, width $1\frac{1}{5}$ to $1\frac{1}{5}$. Snout $2\frac{2}{5}$ to $2\frac{4}{5}$ in head; eye $4\frac{2}{5}$ to 5, $1\frac{1}{2}$ to $1\frac{3}{4}$ in snout, exceeds interorbital; maxillary extends $\frac{1}{4}$ to

$\frac{3}{5}$ in eye, length $2\frac{1}{8}$ to $2\frac{1}{4}$ in head; upper lip broad as eye; teeth firm, compressed, uniserial, ends rounded, pair of inner small lower canines; interorbital $5\frac{7}{8}$ to $6\frac{1}{2}$ in head; pair of supraorbital tentacles $1\frac{1}{2}$ to $2\frac{1}{4}$; fringed flap over front nostril; fringe of short tentacles transversely across occiput. Gill rakers 13 short points, $\frac{1}{4}$ of gill filaments, which $1\frac{1}{2}$ in eye.

Lateral line continuous, arched over pectoral until median above anal along side of tail.

D. XI, 12, third spine $2\frac{1}{3}$ in head, third ray $1\frac{1}{2}$ to $1\frac{3}{4}$; A. II, 12, 1 or 13, 1, penultimate ray $1\frac{3}{8}$ to 2, each membrane deeply notched terminally; caudal $1\frac{1}{2}$ to $1\frac{1}{4}$, convex behind; least depth of caudal peduncle $2\frac{3}{8}$ to 3; pectoral 1 to $1\frac{1}{4}$, five lowest rays graduated and adipose like terminally; ventral $1\frac{5}{8}$ to $1\frac{3}{4}$.

Above blackish slate, under surface of head drab and belly lilac gray. Sides of body each with 6 divided obscure darker blotches, crossed along upper side of back by obscure imperfect blackish band. Tail, especially below, with many obscure small scattered pale spots. Vertical fins all dark brown, with obscure small pale scattered spots, each with median dark dot. Paired fins dark brown or blackish, lower or front edges paler.

Two, 151 to 162 mm., 1932.

Salarias edentulus (Schneider).

Three, 27 to 45 mm., St. Lucia coast, north Zululand, 1932. Uniformly dark. Three, 123 to 155 mm., Durban, 1932. D. XII, 20. In largest left supraorbital tentacle bifid, right simple and same of pair at nape.

Salarias unicolor Rüppell.

Depth $4\frac{1}{3}$ to $4\frac{7}{8}$; head $4\frac{1}{4}$ to $4\frac{1}{3}$, width $1\frac{1}{4}$ to $1\frac{3}{8}$. Snout $2\frac{3}{8}$ to $2\frac{3}{4}$ in head; eye 5 to $5\frac{1}{2}$, $2\frac{1}{8}$ to $2\frac{1}{2}$ in snout, greatly exceeds interorbital; maxillary reaches to or slightly behind hind maxillary edge, length $2\frac{1}{8}$ to $2\frac{1}{4}$ in head; edges of lips crenulate; teeth fine, slender, loosely attached, ends truncate, no canines; interorbital very narrow frenum, 2 to $2\frac{1}{2}$ in eye. Short fringed nasal flap. Supraorbital tentacle $2\frac{1}{8}$ in head, fringed. Median cutaneous flap on occiput. Gill rakers 4 + 14, short points, $\frac{1}{4}$ of gill filaments, which $1\frac{1}{4}$ in eye.

Lateral line continuous, arched over pectoral, median on side of tail.

D. XII, 18, spinous fin height $1\frac{7}{8}$ to $2\frac{1}{8}$ in head, soft fin height $1\frac{5}{8}$ to $1\frac{1}{2}$; A. 18, 1, or 19, 1, fin height $1\frac{3}{4}$ to $1\frac{7}{8}$; caudal $1\frac{1}{8}$ to $1\frac{1}{2}$, slightly cuneate to truncate behind; least depth of caudal peduncle $2\frac{1}{4}$ to $2\frac{1}{2}$; pectoral 1 to $1\frac{1}{8}$; ventral $1\frac{5}{8}$ to $1\frac{3}{4}$.

Body brown, mottled paler, with about 7 pairs of obscure vertical dark bars on side, alternating with pale bar in paler interspace between each pair. Iris dark gray. Dark slate gray blotch behind eye and smaller. Spinous dorsal with oblique dark neutral gray bands. Similar narrower and more inclined dark gray lines crossing soft dorsal rays. Anal pale basally, dark neutral gray terminally. Caudal neutral gray to pale olive. Paired fins brownish, sometimes light.

Three, 136 to 157 mm., of which 2 smaller females, 1932. It is interesting to note Rüppell says "margine labiali crenato" and in all my examples they are well crenate. This fact is ignored or overlooked by most all subsequent authors. In coloration they differ from Day's figures. The

female has dark oblique lines crossing the fin rays, not reticulations as he shows, on the soft dorsal.

Salarias fraenatus Valenciennes.

Depth $4\frac{3}{4}$ to 5; head $3\frac{3}{4}$ to 4, width $1\frac{1}{4}$ to $1\frac{3}{4}$. Snout $3\frac{1}{4}$ to 4 in head; eye $4\frac{1}{2}$ to 5, $1\frac{2}{3}$ to $1\frac{3}{4}$ in snout, greatly exceeds interorbital; maxillary reaches $\frac{1}{2}$ to $\frac{3}{4}$ in eye, length 2 to $2\frac{1}{2}$ in head; upper lip crenate, lower entire; teeth fine, slender, loosely attached, truncate; small inner canine each side below; narrow concave interorbital $\frac{1}{2}$ of eye. Front nostril with fringed flap. Fringed supraorbital flap $\frac{1}{2}$ to 1 in eye. Short tentacle each side of occiput. Gill rakers $5 + 13$, short points $\frac{1}{4}$ of gill filaments, which $1\frac{1}{4}$ in eye.

Lateral line distinct, arched over pectoral, midway along side of tail.

D. XII, 14 or 15, first fin height $2\frac{1}{3}$ to $2\frac{3}{4}$ in head, third ray $1\frac{1}{4}$ to $1\frac{1}{2}$; A. 17, 1 or 18, fin height $2\frac{1}{2}$ to $2\frac{1}{2}$, fin edge deeply notched; caudal 1 to $1\frac{1}{10}$, hind edge obliquely convex; least depth of caudal peduncle $2\frac{1}{2}$ to $2\frac{2}{3}$; ventral $1\frac{1}{3}$ to $1\frac{2}{3}$; pectoral $3\frac{1}{2}$ to $4\frac{1}{4}$ in combined head and body to caudal base.

Back fawn color, lower sides fawn color and under surfaces whitish. Narrow neutral black bar behind eye. Lower side of head with 3 brown bands obscurely and obliquely below, on upper lip showing as median band and 1 each side from nostrils. Back and upper side with numerous close-set neutral brown spots, forming 7 groups of neutral black spots along axial line and reflected on dorsal bases. Dorsals and caudal cream buff, each ray with several dark brown contracted spots, forming oblique cross bars. Pectorals pale brown. Lower fins whitish. Iris gray. Adult with pectoral axil and space behind base of ventral dark neutral gray.

One, 81 mm., Durban, 1932; three, 56 to 65 mm., St. Lucia rock pools, north Zululand, 1932. Day's figure differs strikingly in the dark oblique lines on the soft dorsal, inclined in exactly the opposite direction from my specimens. While the pigment spots forming the clusters of dark lateral groups result as Day shows, yet the effect of the arrangement, due to greater segregation of the chromatophores produces more the appearance of streaks inclined downward posteriorly.

Salarias dussumieri Valenciennes.

Depth $4\frac{3}{4}$ to 5; head $4\frac{2}{3}$ to $4\frac{2}{3}$, width $1\frac{1}{4}$ to $1\frac{1}{2}$. Snout $2\frac{3}{4}$ to $3\frac{1}{10}$ in head; eye 4 to $4\frac{1}{4}$, $1\frac{2}{3}$ to $1\frac{3}{4}$ in snout, greatly exceeds interorbital; maxillary reaches hind eye edge; both lips entire; teeth fine, slender, loosely attached, truncate, no canines; interorbital 2 in eye, concave. Small, short, simple anterior nasal tentacle, fringed in male. Supraorbital tentacle fringed, $1\frac{1}{4}$ to $1\frac{2}{3}$ times eye. Male with median cutaneous keel on top of head. Gill rakers 11 short points, about $\frac{1}{2}$ to gill filaments, which $1\frac{1}{2}$ in eye.

Lateral line arched over pectoral, median on tail laterally where obscure.

D. XII, 21, first fin height 2 to $2\frac{1}{4}$ in head, second fin height $1\frac{1}{2}$ to $1\frac{3}{4}$; A. 22 to 25, fin height $1\frac{1}{2}$ to 2; caudal 1, cuneately rounded behind; least depth of caudal peduncle $2\frac{2}{3}$ to $2\frac{2}{3}$; pectoral 1 to $1\frac{1}{10}$; ventral $1\frac{1}{4}$ to $1\frac{1}{2}$.

Back dark brown or gray brown, becoming gray or drab on under surface of head and belly and more or less pale brown on tail below. Iris dark gray. Male with obscure dark marbling above and below about 10 pairs of dark spots or broken bars. Dorsals dark brown. First dorsal with supermedian dark or black blotch on first and second membranes and one

less distinct similarly on each following membrane; marginally fin with 3 or 4 waved blackish longitudinal lines. Second dorsal with many oblique pale or gray lines crossing rays, fin marginally with 3 or 4 waved blackish longitudinal lines. Caudal and anal dark neutral gray, latter darker terminally. Paired fins gray brown. Female more contrasted or with dark or blackish longitudinal lines, obsolete on caudal below; lower side of tail with dark streaks and spots more contrasted; pectoral with dark gray spots on rays.

One, 120 mm., Durban, 1932; four, 46 to 107 mm., Umhlali rock pools, March 5, 1931.

Salarias periophthalmus Valenciennes.

Depth 5; head $4\frac{2}{3}$, width $1\frac{2}{3}$. Snout $3\frac{1}{2}$ in head; eye $4\frac{1}{2}$, $1\frac{1}{3}$ in snout, greater than interorbital; maxillary reaches opposite hind eye edge, length $2\frac{1}{3}$ in head; lips entire; teeth slender, compressed, loosely set, ends truncate; pair of small inner lower canines; interorbital $2\frac{1}{2}$ in eye, concave; front nostril with short fringed flap; simple slender supraorbital tentacle nearly long as eye; no other tentacles. Gill rakers about 14 short feeble points, $\frac{1}{5}$ of gill filaments, which $1\frac{1}{4}$ in eye.

Lateral line arched above pectoral, falls midway along side of tail though obscure.

D. XIV, 19, first fin height $2\frac{1}{8}$ in head, second fin height $1\frac{3}{8}$; A. 20, 1, fin height $1\frac{9}{10}$; caudal 1, cuneate and rounded behind; least depth of caudal peduncle $2\frac{1}{4}$; pectoral $1\frac{1}{3}$; ventral $1\frac{3}{8}$.

Light brown, little more whitish below. Iris neutral gray. Edge of lower lip blackish. Head with numerous small, close-set, gray spots, not on under surface. Below spinous dorsal back with crowded small gray spots, larger, more scattered and with slightly darker edges on trunk below and on tail. Dorsals pale brown, with close-set gray to dark gray spots, pale interspaces forming reticulations. Soft dorsal largely gray, with pale spots or bars, former mostly marginal. Caudal pale brown, with darker gray spots on rays. Anal whitish basally, dark neutral gray marginally. Paired fins pale brown to whitish.

One, 75 mm., 1932.

CLINIDAE

Enneapterygius pusillus Rüppell.

Depth $4\frac{3}{5}$; head $3\frac{1}{5}$, width $1\frac{4}{5}$. Snout $3\frac{1}{5}$ in head; eye $3\frac{1}{5}$, greatly exceeds snout or very narrow interorbital; maxillary reaches $\frac{1}{4}$ in eye, length $2\frac{1}{2}$ in head; teeth small, simple, in narrow band in each jaw, outer row little larger; interorbital 3 in eye, concave; short flap over front nostril and little smaller one over each eye. Gill rakers about 6 short points, $\frac{1}{5}$ of gill filaments, which $\frac{1}{2}$ of eye.

Scales about 32? in lateral line, of which 14 in upper section and 16 in lower median lateral section to caudal base; 2 above, 5 below from upper section of lateral line; head and fins naked, except caudal base. Scales with 9 to 11 radiating marginal striae; 23 to 24 apical denticles, uniform; circuli rather coarse, peripheral complete.

D. III — XII — 10, first spine $2\frac{1}{3}$ in head, second spine of second spinous fin 2, first ray $1\frac{3}{4}$; A. 17, fin height $3\frac{1}{8}$; caudal $1\frac{1}{3}$, convex behind; least depth of caudal peduncle 3; pectoral 1, rays 14; ventral $1\frac{1}{4}$ in head.

Pale brown. Snout pale. Eye neutral gray. Head largely specked with dusky to blackish. Each scale of back with row of blackish dots, along lower side as irregular short blackish bars. Triangular neutral black blotch before vent. First dorsal dusted with blackish, others more transparent and second with about 4 marginal blackish diffuse blotches. Anal with 7 oblique black bars. Paired fins transparent to whitish, with 4 transverse series of blackish spots. Caudal with 4 dark bars.

One, 30 mm. (caudal damaged), Umhlali rock pools, March 5, 1931. Rüppell's crude figure fails to indicate any of the quite delicate and variegated color pattern.

Clinus capensis (Valenciennes).

Depth $4\frac{2}{3}$ to $5\frac{1}{2}$; head $3\frac{3}{4}$ to 4, width $2\frac{1}{3}$ to $2\frac{2}{3}$. Snout $3\frac{1}{3}$ to $3\frac{1}{2}$ in head from snout tip; eye $4\frac{1}{5}$ to $5\frac{2}{5}$, $1\frac{1}{3}$ to 2 in snout, greater than interorbital; maxillary reaches to front eye edge or $\frac{1}{3}$ in eye, length $2\frac{2}{3}$ to $2\frac{3}{4}$ in head from snout tip; upper teeth in villiform band, anteriorly 3 transversely with outer series little larger; lower teeth uniserial, like upper outer series; interorbital $1\frac{1}{5}$ to 2, convex; front nostril with short simple flap; supraorbital with fringed flap $\frac{3}{4}$ of eye; snout end with 3 tentacles, 8 at mandibular symphysis. Gill rakers 3 + 6, lanceolate, $\frac{2}{3}$ of gill filaments, which $1\frac{2}{3}$ in eye.

Tubes 34 in arch of lateral line and 30 more well spaced in straight section to caudal base; 9 scales above, 19 below; about 144 scales along lateral line to caudal base. Cheeks scaly. Scales with 37 or 38 marginal short radiating striae all around; circuli moderate, more or less complete.

D. XXXVIII to XL, 6, spinous fin height 3 to $3\frac{1}{2}$ in total length of head, end of each spine with several short cutaneous filaments, third ray $2\frac{1}{3}$ to $2\frac{2}{3}$; A. II, 27 or 28, soft fin height $2\frac{3}{4}$ to $3\frac{1}{8}$; caudal 2 to $2\frac{1}{8}$, convex behind; least depth of caudal peduncle $4\frac{1}{3}$ to $4\frac{2}{3}$; pectoral $1\frac{2}{3}$ to $1\frac{4}{5}$; ventral $1\frac{9}{10}$ to $2\frac{2}{5}$.

Uniform pale yellowish. Iris neutral gray.

Three, 83 to 120 mm., 1932.

Clinus superciliosus (Linnaeus).

Depth $4\frac{1}{6}$ to $4\frac{1}{3}$; head $3\frac{1}{5}$ to $3\frac{2}{5}$, width $1\frac{2}{3}$ to $1\frac{4}{5}$. Snout $3\frac{2}{5}$ to $3\frac{1}{2}$ in head; eye $4\frac{1}{2}$ to $5\frac{1}{4}$, little greater than interorbital; maxillary reaches $\frac{1}{5}$ in eye, length $2\frac{2}{3}$ to $2\frac{3}{4}$ in head; upper teeth in villiform band, 5 or 6 transversely with outer row enlarged; lower teeth similar, 3 or 4 transversely; interorbital 6 to $6\frac{2}{5}$, low, convex; front nostril with short cutaneous flap; upper posterior eye edge with cutaneous flap $2\frac{1}{5}$ to $2\frac{1}{3}$ in eye. Gill rakers 2 + 7, lanceolate, $\frac{1}{4}$ of gill filaments, which $1\frac{1}{5}$ in eye.

Scales 155 + close above along lateral line; tubes 63 to 65 + in lateral line; 18 scales above lateral line, 26 below. Head naked. Scales with 20 or 21 radiating striae all around; circuli coarse, continuous.

D. III, XXXI or XXXII, 7 to 9, first fin height $2\frac{1}{3}$ to $2\frac{3}{4}$ in head, second fin height 3 to $3\frac{1}{5}$, third ray $2\frac{1}{5}$ to $2\frac{1}{4}$; A. 26 or 27, fin height 3 to $3\frac{1}{3}$; caudal $1\frac{1}{2}$ to $1\frac{3}{5}$, truncate, slightly convex behind as expanded; least depth of caudal peduncle $3\frac{1}{3}$ to $3\frac{1}{2}$; pectoral $1\frac{1}{3}$ to $1\frac{2}{5}$; ventral $1\frac{1}{5}$ to $1\frac{4}{5}$.

Brown, little paler below. Body with 6 irregular dark cross bands or blotches along middle of side, alternating above or along dorsal bases with as many or more smaller blotches. Head and body above, inclusive of

dark blotches, more or less mottled or marbled with darker. Vertical fins light brown, spotted with darker, with large round black blotch on first dorsal and as 5 transverse bands on caudal. Pectoral brownish with 5 transverse rows of small dark spots, basal broadest and most contrasted. Ventrals gray brown, each with 2 slightly darker spots.

Two, 119 to 122 mm., 1932.

Clinus cottoides Valenciennes.

Depth $4\frac{1}{3}$ to $4\frac{2}{3}$; head $3\frac{3}{4}$, width $1\frac{1}{4}$. Snout 4 to $4\frac{1}{4}$ in head; eye $3\frac{5}{8}$ to 4, greater than snout or interorbital; maxillary reaches $\frac{3}{4}$ to $\frac{1}{2}$ in eye, length $2\frac{1}{10}$ to $2\frac{2}{5}$ in head; teeth in villiform bands in jaws, 4 or 5 transversely and outer row slightly enlarged, and angular narrower band on vomer; interorbital 6 to $6\frac{2}{3}$, concave; front nostril with short fringed flap; broad fringed supraorbital tentacle half long as eye. Gill rakers 3 + 6, short points, $\frac{1}{4}$ of gill filaments, which $2\frac{1}{4}$ in head.

Scales 128 + 5 above along lateral line; tubes 63 + in lateral line; 10 scales above lateral line, 30 below from upper arch of lateral line. Head naked. Scales 30 marginal radiating striae all around; circuli rather coarse, complete.

D. XXXIII or XXXIV, 5, spinous fin height $2\frac{4}{5}$ to $3\frac{2}{5}$ in head, third ray $2\frac{2}{5}$ to $2\frac{3}{5}$; A. II, 23 or 24, fin height 3 to $3\frac{1}{4}$; caudal $1\frac{3}{4}$ to $1\frac{1}{2}$, convex behind; least depth of caudal peduncle $4\frac{1}{3}$ to $4\frac{2}{3}$; pectoral $1\frac{1}{8}$ to $1\frac{1}{5}$; ventral $1\frac{1}{5}$ to 2.

Back brown, sides naples yellow and under surfaces paler. About 5 dark brown saddles on back and reflected on dorsals, in pale areas alternating smaller and paler blotches. Four dark bars radiate back from eye. Opercle with large rounded blackish blotch, nearly large as eye. Dark blotch at pectoral base. Dark blotches along dorsal with more or less alternating dark clusters of dark marbling. Smaller example more mottled and dark blotches less defined. Dorsals and anals with pale edge all around, rest of fin more or less grayish and mottled. Anal pale edge more definite and with broad median neutral gray band. Caudal spotted or barred transversely with dark gray. Pectoral gray, each ray with dark gray spots. Ventral pale or whitish.

Two, 90 to 103 mm., 1932.

Clinus robustus Gilchrist and Thompson.

Depth $3\frac{7}{8}$; head $3\frac{1}{4}$, width $1\frac{1}{3}$. Snout 4 in head from snout tip; eye $9\frac{1}{4}$, $2\frac{1}{2}$ in snout, $1\frac{1}{3}$ in interorbital; maxillary reaches $\frac{1}{2}$ in eye, expansion $1\frac{1}{8}$ in eye, length 2 in head from snout tip; teeth in broad villiform bands in jaws, 15 transversely and outer row little enlarged; broad band of villiform teeth on vomer, 10 transversely; interorbital 7, convex; front nostril with short flap; broad fringed supraorbital flap $\frac{4}{5}$ of eye. Gill rakers 1 + 6, short points $\frac{1}{8}$ of gill filaments, which $1\frac{1}{5}$ times eye.

Scales very minute, imbedded. Tubes 60 in lateral line to caudal base. Scales with 42 to 47 radiating striae all around; circuli moderate, mostly complete.

D. XXXIII, 11, second spine $3\frac{2}{3}$ in total head length, second spinous fin $3\frac{1}{2}$, second ray $2\frac{2}{5}$; A. II, 27, fin height $3\frac{1}{2}$; caudal 2, hind edge rounded; least depth of caudal peduncle 6; pectoral $1\frac{1}{2}$; ventral $1\frac{9}{10}$.

Ochraceous, paler below. Iris gray.

One, 340 mm., Umzumbi, Natal, 1931. "Lake, with reticulations of pale blue on white, cheeks silvery, with various shades of lake and blue."

Clinus anguillaris Valenciennes.

Depth 6 to 7; head $4\frac{1}{5}$ to $4\frac{1}{3}$, width $2\frac{1}{4}$ to $2\frac{2}{5}$. Snout $4\frac{1}{5}$ to $4\frac{2}{5}$ in head from snout tip; eye 5 to $5\frac{1}{5}$, $1\frac{1}{3}$ to $1\frac{1}{2}$ in snout, greater than interorbital; maxillary reaches $\frac{1}{4}$ to $\frac{1}{3}$ in eye, length 3 in head from snout tip; teeth in villiform bands in jaws, 3 or 4 transversely, outer row slightly larger; triangular narrow band of fine teeth on vomer; interorbital $1\frac{1}{2}$ to $1\frac{3}{4}$ in eye, convex; front nostril with short fringed flap; broad fringed supraorbital flap $\frac{2}{3}$ of eye. Gill rakers 3 + 8, lanceolate, $\frac{1}{3}$ of gill filaments, which $1\frac{1}{3}$ in eye.

Scales about $195 + 5$ above and along lateral line; tubes $63 +$ in lateral line; 9 scales above lateral line, 30 below arch of lateral line to vent. Cheek and postocular scaly, otherwise head largely naked. Scales with 23 to 32 marginal radiating striae all around; circuli coarse, complete.

D. XLVIII, 3 or 4, spinous fin height 3 to $3\frac{1}{2}$ in total head, second ray $2\frac{1}{2}$ to $2\frac{3}{5}$; A. II, 34, fin height 3 to $3\frac{2}{5}$; caudal $1\frac{1}{5}$ to $1\frac{1}{3}$, convex behind; least depth of caudal peduncle 4; pectoral $1\frac{1}{4}$ to $1\frac{9}{10}$; ventral $2\frac{1}{10}$ to $2\frac{1}{4}$.

Uniform pale yellowish brown. Iris gray.

Two, 101 to 108 mm., 1932.

Petraites mentalis (Gilchrist and Thompson).

Depth $4\frac{1}{5}$; head $3\frac{1}{5}$, width $2\frac{1}{4}$. Snout $3\frac{1}{3}$ in head; eye $6\frac{2}{5}$, 2 in snout, greater than interorbital; maxillary reaches $\frac{1}{4}$ in eye, length $2\frac{2}{5}$ in head; upper lip broad, width $\frac{2}{3}$ of eye, lower broader and with broad triangular cutaneous flap in front, little broader than upper lip; teeth in moderate villiform bands in jaws, 4 or 5 transversely above and 2 or 3 below, also outer enlarged row in each jaw; narrow band, broadly triangular, of fine teeth on vomer; interorbital $8\frac{1}{3}$, convex; front nostril with very small fringed flap, none above eye. Gill rakers 3 + 7 short points, $\frac{1}{4}$ of gill filaments, which $1\frac{1}{3}$ in eye.

Scales $200 + 20$ along close above lateral line; tubular scales $62 +$ in lateral line; 15 scales above lateral line, 50 below upper section of lateral line to vent. Small scales on bases of all vertical fins. Scales with 53 to 63 marginal radiating striae all around; circuli moderate, complete.

D. III — XXXIII, 6, second spine $3\frac{1}{5}$ in head, second fin height 4, second ray $2\frac{2}{5}$; A. II, 28, soft fin height $3\frac{1}{4}$; caudal 2, convex behind; least depth of caudal peduncle 6; pectoral $1\frac{1}{5}$; ventral $2\frac{1}{4}$.

Back and upper surfaces raw sienna, with 7 darker or more tawny obscure saddles and reflected up over dorsals to margins as orange ochraceous, interspaces all pale. Lower surface of body vinaceous buff. Iris gray. Caudal pale with broad basal and 2 submarginal transverse orange, ochraceous bands. Anal more or less pale orange ochraceous, other fins still paler.

One, 240 mm., 1932.

Petraites laurentii (Gilchrist and Thompson).

Depth $4\frac{2}{5}$ to 5; head $3\frac{3}{4}$ to $3\frac{4}{5}$, width $1\frac{1}{4}$ to $1\frac{1}{3}$. Snout $4\frac{1}{5}$ to $4\frac{2}{5}$ in head from snout tip; eye $3\frac{1}{4}$ to $4\frac{1}{5}$, greater than snout or interorbital; maxillary reaches $\frac{1}{4}$ to $\frac{1}{3}$ in eye, length $2\frac{1}{2}$ to 3 in head from snout tip; lips broad,

lower without median flap, broader than upper or $2\frac{1}{5}$ in eye; band of villiform teeth in each jaw, 3 or 4 transversely and outer enlarged row; triangular single row of small teeth on vomer; interorbital 7 or 8 in head, convex; short flap over front nostril, none over eye. Gill rakers $3 + 5$, lanceolate, $\frac{1}{3}$ of gill filaments, which $1\frac{1}{3}$ in eye.

Scales $123 + 5$ along and close above lateral line; tubes $70 +$ in lateral line; 10 scales above arch of lateral line, 30 below to vent. Vertical fins scaly basally. Scales with 28 to 32 radiating marginal striae; circuli fine, complete.

D. III, XXVIII or XXIX, 4 or 5, first spine $2\frac{2}{3}$ to $2\frac{1}{2}$ in total head, second fin height $2\frac{1}{4}$ to $2\frac{2}{3}$, first ray $1\frac{9}{10}$ to $2\frac{1}{5}$; A. II, 21 or 22, soft fin height $2\frac{2}{3}$ to $3\frac{1}{3}$; caudal $1\frac{2}{3}$ to $1\frac{1}{5}$, convex behind; least depth of caudal peduncle $3\frac{2}{3}$ to 5; pectoral $1\frac{2}{3}$ to $1\frac{3}{5}$; ventral $1\frac{3}{4}$ to $1\frac{1}{2}$.

Body and head ochraceous buff, fins buff. Iris gray.

Fourteen, 23 to 97 mm., St. Lucia Lake rock pool, north Zululand, 1932; one, 106 mm., Umhlali rock pools, March 31, 1931. One 93 mm. from Durban, 1932, light yellowish brown. About 10 indistinct golden orange blotches on dorsals and 7 on anals. Caudal reticulated with golden orange. Pectoral with obscure golden orange bars. Under surface of head and belly whitish.

OPISTHOGNATHIDAE

Opisthognathus muscatensis Boulenger.

One, 318 mm., Natal coast, October 31, 1931. More contrasted than Boulenger's figure, its markings or blotches far more numerous.

OPHIDIIDAE

OTOPHIDIUM Gill

Body moderately long, compressed. Head moderate, little less than trunk, compressed. Snout short. Eye large. Mouth large, lower jaw little shorter. Maxillary rather large. Teeth in bands in jaws. Opercle ends in concealed spine. Gill rakers large, few. Air bladder short, thick, reniform, with large foramen behind. Scales rudimentary, scarcely imbedded, small, not present on head. Dorsal begins behind head. Vent premedian.

Species few; with that described below one each in the Gulf of Mexico, Gulf of California, Galapagos and Japan.

Otophidium smithi, new species. Figure 52.

Depth $7\frac{2}{3}$; head $5\frac{1}{3}$, width $2\frac{1}{6}$. Snout $4\frac{1}{3}$ in head; eye $3\frac{3}{4}$, greatly exceeds snout or interorbital; maxillary reaches $\frac{4}{5}$ in eye, width $3\frac{1}{4}$ in eye, length $2\frac{1}{2}$ in head; teeth in villiform bands in jaws, in 3 to 5 rows transversely with outermost row little enlarged; patch of small villiform teeth on vomer, followed by band on each palatine; interorbital $6\frac{1}{2}$, very slightly convex, low. Gill rakers $1 + 4$, lanceolate, equal gill filaments or $3\frac{3}{4}$ in eye.

Scales lozenge-shaped, small, thin. Lateral line superior along upper side of back, extends to last fifth in tail.

D. 98, fin height $4\frac{3}{4}$ in head; A. 95, fin height 5; caudal $5\frac{1}{4}$, rays 8; pectoral $1\frac{9}{10}$ in head, rays 22; ventral $1\frac{1}{5}$ in head, rays 2.

Brown generally, paler on under surface of head and belly. Iris dark neutral gray. Vertical fins pale brown, margined with dark neutral gray. Pectoral brownish. Ventral drab.

A.N.S.P., No. 55227. Umgui, Natal. February 23, 1931. Length 142 mm.

This species, the first for South Africa, differs from all known in the combination of its characters, fin rays, etc.

(For Sir Andrew Smith, the distinguished author of the "Zoology of South Africa" 1838-1850, and the first to describe an ophidiid from the Cape.)

URANOSCOPIDAE

Uranoscopus archionema Regan.

Depth $4\frac{1}{5}$; head $2\frac{1}{2}$, width $1\frac{1}{3}$. Snout $5\frac{2}{3}$ in head from snout tip; eye 7, $1\frac{1}{5}$ in snout, $1\frac{2}{5}$ in interorbital; lips fringed, lower longer; maxillary vertical, reaches opposite front pupil edge, expansion equals eye, length $2\frac{1}{3}$ in head from snout tip; interorbital width from bony edges $5\frac{2}{3}$, level. Gill rakers $7 + 16$, of which 5 of lower rudiments, lanceolate, equal gill filaments or $1\frac{2}{3}$ in eye. Edge of gill opening fringed.

Scales $52 + 5$ rows laterally; 30 transversely. Short, strong spine above each side of occiput, larger externally. Long strong suprascapular spine equals $1\frac{1}{2}$ eye diameters. Lower preopercular edge with 4 short, broad spines. Scales with 5 or 6 basal radiating striae and 4 or 5 auxiliaries; circuli fine.

D. IV — iv, 9, spines flexible, second $4\frac{3}{4}$ in total head length, third simple ray $2\frac{2}{5}$; A. 13, i, fourth ray 4; least depth of caudal peduncle $4\frac{2}{5}$; caudal $1\frac{2}{5}$, truncate, little convex as expanded; pectoral from origin $1\frac{2}{3}$; ventral length $2\frac{1}{5}$.

Brown generally, little paler below. Second and third membranes of dorsal spines blackish brown, though most of edges pale.

One, 355 mm., 72 miles off Umvooti River, Natal, in 130 fathoms, 1929.

PARAPERCIDAE

Parapercis nebulosa (Quoy and Gaimard).

Four, 183 to 250 mm., Natal coast, 1931; one, 212 mm., Durban, 1931.

Parapercis robinsoni Fowler 1929 is synonymous. It differs only in minor details from Barnard's account of the present species. The largest of my specimens show the first blackish infero-lateral band connected with the black blotch at front of pectoral base, this extended forward into the gill opening. Also the other black lower blotches extend down on the under surface of the tail nearly to the anal base.

BALISTIDAE

Balistes capistratus Shaw.

One, 340 mm., 1931.

Balistes flavimarginatus Rüppell.

One, 29 mm., St. Lucia Lake 20 miles up, north Zululand, 1931. Barnard wrongly names the figure of the present species as "*Balistes stellatus* Lac. (after Day) " in 1927.

MONACANTHIDAE**Monacanthus setifer** Bennett.

One, 85 mm., Natal, 1931; three, 117 to 137 mm., Durban, 1932.

Cantherines modestus (Günther).

One, 392 mm., 1931. Barnard distinguishes his *C. arenaceus* by the "Skin with distinct scales, each of which is granular or spinulose" and adds "The character of the skin distinguishes [it] . . . from all the other South African species." It is thus evident that this character is also shared by *C. modestoides*. The present species falls in the subgenus *Pseudomonacanthus* Bleeker, agreeing entirely with the figure of *P. modestus* Jordan and Fowler, 1902.

Cantherines sandwichiensis (Quoy and Gaimard).

One, 193 mm., 1931; one, 205 mm., Natal, 1932.

Alutera scripta (Osbeck).

Two, 103 to 108 mm., April 5, 1931.

OSTRACIIDAE**Ostracion cornutus** Linnaeus.

One, 234 mm., 1931.

Ostracion lentiginosus Schneider.

One, 27 mm., Natal, 1931.

Ostracion diaphanus Schneider.

One, 48 mm., Natal, 1931.

Ostracion fornasini Bianconi.

One, 70 mm., Port Shepstone, Natal, 1931, from stomach of mussel-cracker in 25 fathoms.

TETRODONTIDAE**Sphoeroides lunaris** (Shneider).

Depth (contracted) $3\frac{1}{2}$; head $2\frac{3}{4}$, width $1\frac{1}{2}$. Snout $2\frac{1}{2}$ in head; eye $3\frac{1}{2}$ in snout, $1\frac{1}{2}$ in interorbital; mouth width 4 in head; lips rather broad, with fine papillate wrinkles; interorbital $2\frac{3}{4}$, broadly convex, with slight median depression. Gill opening equals eye.

Interorbital and occipital region $\frac{2}{3}$ to dorsal origin finely spinescent, also abdomen below though with larger spines, not extending to chin or vent, body otherwise smooth. Lateral fold along each side of tail below. Lateral

line high at first, drops midway along side of caudal peduncle after dorsal and anal.

D. II, 11, first branched ray $1\frac{2}{3}$ in head; A. II, 10, first branched ray $1\frac{2}{3}$; caudal $1\frac{1}{2}$, lunate; least depth of caudal peduncle 6; pectoral $1\frac{3}{4}$.

Neutral gray above, with 2 obscure dark transverse bands across occiput, another obliquely above and before gill opening and one across middle of predorsal down level with pectoral fin. Under surfaces of most of fins whitish, with subterminal median dusky black area at emargination of caudal. Iris gray. Lips pale like chin and belly.

One, 75 mm., deep water trawl off Natal, 1929.

Sphoeroides oblongus (Bloch).

Depth $3\frac{1}{2}$; head $2\frac{1}{8}$, width $1\frac{3}{8}$. Snout $2\frac{2}{5}$ in head; eye $3\frac{1}{8}$, $1\frac{2}{5}$ in snout, $1\frac{2}{3}$ in interorbital; mouth width $4\frac{3}{8}$; lips plaited; interorbital $2\frac{1}{5}$, low, level medially. Gill opening 3, crescentic.

Top of head and anterior predorsal finely spinescent. Under surface of head and belly with small spines. Rest of body smooth. Lower side of body with keel each side. Lateral line high at first, drops little below middle of side behind dorsal and anal, then slopes until median at caudal base.

D. II, 11, first branched ray 2 in head; A. I, 10, first branched ray 2; caudal $1\frac{2}{3}$, emarginate; least depth of caudal peduncle 6; pectoral $1\frac{3}{4}$.

Back above and upper surface of head neutral brown. Sides and under surface whitish. Iris neutral gray. Dorsal and caudal brownish, other fins whitish. Lips pale.

One, 98 mm., 1932. New to the Natal fauna.

Sphoeroides marleyi Fowler.

One, 88 mm., 1932.

Lagocephalus scleratus (Gmelin).

One, 150 mm., 1932.

Tetrodon hispidus Lacépède.

Three, 31 to 205 mm., 1932. Smallest with upper and lower caudal edges blackish. Top of head with rather large scattered spines.

Tetrodon immaculatus Schneider.

One, 36 mm., 1931.

CANTHIGASTERIDAE

Canthigaster cinctus (Richardson).

One, 25 mm., 1932. New to the Natal fauna.

DIODONTIDAE

Diodon hystrix Linnaeus.

Two, 150 to 223 mm., Natal, 1932. Smaller with black band behind eye across nape, not reaching postocular. Back and sides of head and trunk covered with small black spots, some extending well down on sides of body,

none on fins. Larger without dark bands across back. Sides with numerous black spots, also bases of dorsal and caudal.

ANTENNARIIDAE

Antennarius leucus, new species. Figure 53.

Depth $1\frac{3}{4}$; head $1\frac{1}{2}$, width $2\frac{2}{5}$. Snout 7 in head from snout tip; eye 10, $1\frac{1}{4}$ in snout, $2\frac{1}{4}$ in interorbital; maxillary vertical, extends only half way to eye, length $3\frac{2}{3}$ in head from snout tip; teeth fine, simple, in rather narrow bands in jaws; interorbital $5\frac{2}{3}$ in head from snout tip, broadly convex. Gill opening $\frac{1}{2}$ of eye.

Skin rough velvety.

D. I—I—I—12, first spine slender, with small simple terminal bulb, reaches $\frac{3}{4}$ in second spine, length 6 in total head length, sixth ray 3; A. 7, third ray $3\frac{3}{4}$; caudal $2\frac{2}{5}$; least depth of caudal peduncle $3\frac{1}{3}$; pectoral $2\frac{3}{4}$, rays 10; ventral $3\frac{1}{4}$ in head, rays 6.

Drab, with darker shading above. Iris neutral gray. Whole body with minute blackish scattered dots or specks. Blackish spot nearly large as eye at posterior third of second dorsal basally and on back. Vertical fins with obscure scattered brown spots.

A.N.S.P., No. 54955, type. Durban, Natal. Length 80 mm., 1932.

Resembles *Antennarius coccineus* Günther, as figured by Bleeker, but differs in its coloration, both the dorsal and anal variegated with darker and a blackish spot at the posterior part of the dorsal fin base.

(Λευκός, pale.)

Antennarius pinniceps Valenciennes.

Depth $1\frac{1}{2}$; head $1\frac{3}{5}$, width $1\frac{3}{5}$. Snout 5 in head measured from snout tip to gill opening; eye 3 in snout; maxillary $3\frac{1}{2}$ in head; mouth width $3\frac{1}{4}$; interorbital $3\frac{1}{5}$, little convex.

Skin finely roughened; head, back and tail with cutaneous flaps, some of larger several times eye diameter and most numerous on head above, on chin and throat. Soft dorsal terminally and upper surface of pectoral limb with small flaps.

D. I—I—I—12, first spine long and reaches $\frac{3}{4}$ in depressed third spine, ending in 3 elongated flaps, median or anterior smallest, others long as main basal element; second and third spines each with terminal cluster of small flaps, with third shorter than second, fifth ray $2\frac{2}{3}$ in total head length; A. 7, third ray 3; caudal peduncle depth $4\frac{2}{5}$; caudal $2\frac{2}{5}$; pectoral $2\frac{1}{3}$; ventral $4\frac{1}{5}$.

Brown, with uniform appearance generally. Radiating darker streaks and lines from eye. Blackish lines inclined from pectoral axil to caudal base and others above broader and arch up over soft dorsal, where forming 6 vertical dark bands more or less complete. Belly and throat with dark blotches, smaller on latter. Other fins all spotted or blotched with black.

One, 135 mm., Durban Bay, 1929. Bleeker's colored figure shows the "bait" bifid, no flaps on ends of second and third dorsal spines, soft dorsal or back and dark markings on body more or less broken as spots or blotches. Gilchrist and Thompson describe an example 118 mm. and state its belly is without markings.

***Antennarius commersonii* (Shaw).**

Depth $1\frac{1}{2}$; head $1\frac{3}{4}$, width $2\frac{4}{5}$. Snout $6\frac{1}{2}$ in head from snout tip; eye $18\frac{1}{2}$, 3 in snout or interorbital; maxillary vertical, length $3\frac{2}{5}$ in head from snout tip; broad bands of fine teeth in jaws, 4 or 5 transversely, also on vomer and palatines; interorbital 5, broadly convex. Gill opening equals eye.

Skin finely asperous.

D. I—I—I—14, first spine damaged, second reaches base of third, which 3 in total head, sixth ray $2\frac{4}{5}$; A. 8, fifth ray $3\frac{1}{5}$; caudal $2\frac{1}{5}$, convex behind; least depth of caudal peduncle 4; pectoral $2\frac{3}{4}$, rays 11; ventral $4\frac{1}{3}$ in total head, rays 6.

Drab, with darker to blackish cloudings, especially on vertical fins. Iris neutral gray.

One, 220 mm., Natal, 1931. Approaches very nearly to Günther's figure

B. Also one, 268 mm., Durban, 1931, bait damaged.

New to the Natal fauna.

***Antennarius hispidus* Schneider.**

Depth $1\frac{3}{4}$ to 2; head $1\frac{3}{4}$ to $1\frac{4}{5}$, width $1\frac{3}{4}$ to 2. Snout $6\frac{1}{4}$ to 7 in head from snout tip; eye 12 to 14, $1\frac{3}{4}$ to 2 in snout, 3 in interorbital; maxillary vertical, length 3 to $3\frac{1}{3}$ in head from snout tip; bands of fine teeth in jaws, 4 or 5 transversely, also on vomer and palatines; interorbital $4\frac{1}{3}$ to 5, convex. Gill opening equals eye.

Skin finely asperous. Line of asperous tubercles above eye and along upper front of back, others scattered about cheek and chin.

D. I—I—I, 11 to 13, first spine slender, with large terminal papillate bulb $1\frac{1}{2}$ to 2 times eye, and reaching to tip or little beyond of second spine, which reaches nearly or to origin of third; third spine $3\frac{2}{5}$ to $3\frac{3}{4}$ in total head, soft fin height $2\frac{1}{5}$ to $2\frac{2}{5}$; A. 7, fin height $2\frac{1}{3}$ to $2\frac{2}{5}$; caudal $1\frac{7}{8}$ to $2\frac{2}{5}$, convex behind; least depth of caudal peduncle $4\frac{3}{4}$ to 5; pectoral 3, rays 9 or 10; ventral $3\frac{4}{5}$ to 4 in total head, rays 5.

Drab, with dark neutral gray to blackish lines radiating from eye, vertically from dorsal fins and blackish band transversely on anal, also fin with rather large blackish submarginal spots. On sides dark bars or spots, very irregular. Iris gray. Belly immaculate.

Two, 153 to 222 mm., Natal, 1931.

***Antennarius striatus* (Shaw and Nodder).**

One, 158 mm., Durban. Also one, 66 mm., St. Lucia Lake, north Zululand, October 31, 1931.

CHAUNACIDAE***Chaunax pictus* Lowe.**

Depth $3\frac{1}{2}$; head $1\frac{3}{5}$, width $1\frac{7}{8}$. Snout $5\frac{3}{4}$ in head from snout tip; eye 9, $1\frac{1}{2}$ in snout, $1\frac{1}{4}$ in interorbital; maxillary reaches eye, expansion $1\frac{1}{5}$ in eye, length $3\frac{1}{5}$ in head from snout tip; teeth in villiform bands in jaws, 6 to 8 transversely and narrower bands on vomer and palatines; interorbital 5, convex. Gill opening small slit $\frac{1}{2}$ of eye.

Skin finely asperous. Lateral canal system very distinct; first section above nostrils and eye and gill opening, then along lower side of tail to caudal base; second section horizontally on cheek to preopercle; lower section encircles front face of mandible, then along lower side of head over pectoral base.

D. I — 11, spine long as eye, fin height $5\frac{3}{4}$ in head; A. 7, fourth ray $4\frac{1}{2}$; caudal $2\frac{1}{2}$, truncate; least depth of caudal peduncle 8; pectoral $3\frac{2}{5}$, rays 11; ventral 5 in total head, rays 4.

Pale ecru drab to fawn color, lighter underneath. Iris neutral gray.

One, 210 mm., Lat. $29^{\circ} 50' 12''$ S., Long. $31^{\circ} 19' 48''$ E., in 202 fathoms, "Africanus" Collection, 1932.

ONCOCEPHALIDAE

Halieutaea liogaster Regan.

Depth 6; head to gill opening $1\frac{3}{5}$, disk width equals its length. Snout $4\frac{3}{4}$ to gill opening; eye $7\frac{1}{3}$, $1\frac{2}{5}$ in snout, $1\frac{2}{5}$ in interorbital; mouth width 2; interorbital $4\frac{1}{4}$. Gill opening small slit long as pupil.

Large scattered spines with 4 divergent roots to each, on body and tail; ridge above nasal cavity with 3 spines; each supraorbital ridge with 5 spines, besides spine anteriorly between median on ridge over nasal cavity; disk edge with strong robust short spine, furnished with numerous short filaments; row of small spines all along lower face of mandible; under surface of disk, except marginally, smooth.

Rostral tentacle short, trilobate and lower edge each with short fringe; D. 4, fin $1\frac{1}{2}$ in interorbital; A. 4, fin 2 in interorbital; caudal $2\frac{1}{2}$ in head; pectoral 13, fin to elbow 2 in head; ventral 5, fin equals interorbital.

Back drab, with irregular dark to blackish brown variously reticulated lines, forming somewhat venulose network. Iris gray. Under surfaces paler or clay color.

One, 194 mm., 1931. Barnard gives a rather indifferent figure, showing and his account stating "pectorals and caudal apically blackish," also "a pair of rings in the middle of the disc being the most conspicuous", though these not present in my example.