NEW SPECIES AND NEW RECORDS OF FISHES FROM BERMUDA

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In spite of the extensive collecting of shore fishes in Bermuda by the New York Zoological Society and earlier workers the fish fauna of these isolated islands is still far from completely known. During the summer of 1948 the members of the Bermuda Deep Sea Expedition of Chicago Natural History Museum, operating from the Bermuda Biological Station for Research, were able to engage in only a limited amount of shore fishing. The principal collecting of this expedition was by means of the Woods Hole Oceanographic Institution's vessel, the 98-foot ketch, Caryn.

Five poison stations in shoal waters were worked, four sweeps were made with a 75-foot otter trawl in 60 feet of water in the lagoon, and at odd times some additional specimens were gathered in traps and seines; a few pelagic fishes and young of shore fishes were taken in the deep sea nets at the surface, in sargassum, swimming to our light at night, or on a feather trolled behind the Caryn.

By far the greater number of new records and species of Bermuda fishes have been found during the course of cataloguing a large collection made during the past forty years by Mr. Louis L. Mowbray, former Director of the Bermuda Aquarium. This collection was presented to Chicago Natural History Museum by his son, Mr. L. S. Mowbray, present Director of the Bermuda Government Aquarium and Museum.

The history of each individual specimen so far as it is known is given in the account of the species.

1 The Bermuda Biological Station, Contribution No. 169.

In this account it has not been possible to include all the new species and records presented by Mr. Mowbray or collected by the Deep Sea Expedition.
Standard length was measured from tip of snout to base of middle caudal rays. Other measurements taken followed standard procedure, except when noted otherwise in description.

Miss Margaret Bradbury, Staff Artist of the Department of Zoology, prepared the three illustrations of new species herein described.

Family HEMIRAMPHIDAE

Euleptorhamphus velox Poey

_Euleptorhamphus velox_ Poey, 1867, Synopsis, p. 388—type locality, Cuba.

_Bermuda record._—C.N.H.M. No. 48437, Bermuda, Flatts Inlet, after a west-northwest gale, taken with dipnet, December 22, 1927, by L. L. Mowbray; 2 specimens, standard length 137 and 147.5 mm.

_Description._—Dorsal fin rays 22 or 23; anal rays 21 or 22; pectorals i, 6 or 7; pelvics i, 5; branched caudal rays 7 in upper lobe, 6 lower; scales in lateral line about 139 to 144 (many missing, scars counted); predorsal scales 53 to 55 (scar counted); gill rakers on first gill arch 7 or 8 on upper limb, 24 to 26 on lower limb.

Depth of body 1.62 to 1.7, length of head 7.6 to 7.63, length of lower jaw 1.86 to 2.16, all in standard length (tip of upper jaw to base of middle caudal rays); width of body 5.4 to 5.63, snout 3.35 to 3.53, eye 3.4 to 3.53, interorbital 4.0 to 4.52, postorbital part of head (hind margin of eye to upper edge of gill opening) 2.4 to 2.49, least depth of caudal peduncle 5.55 to 5.63, length of caudal peduncle 1.9 to 2.02, length of dorsal fin base 0.47 to 0.51, anal 0.55 to 0.57, length of pectoral fin 0.55 to 0.56, length of pelvic 3.13, all in length of head (tip of upper jaw to posterior bony margin of opercle); depth of caudal peduncle into length of caudal peduncle 2.74 to 2.96.

Body elongate, greatly compressed; maxillary plate bluntly pointed, with prominent median ridge, its upper surface scaled; interorbital concave; teeth of jaws larger in lower jaw than upper, in two irregular rows; dorsal and anal fins high anteriorly (broken in these specimens); no scales on bases of dorsal and anal; first anal ray inserted behind origin of dorsal; pelvics inserted nearer caudal than posterior margin of opercle by about the diameter of the eye.

_Color._—In alcohol, mandible light tan dorsally and laterally, tip black, and a black membrane along the ventral surface; head light tan, opercles dusky, body brownish, median dorsal coloration a single narrow dusky brown line; lateral stripe dusky brown, slightly
broad under dorsal base than before and behind dorsal base; upper caudal rays dusky blackish, lower lobe with trace of dusky on distal edge; rest of fins colorless.

Remarks.—This species has not previously been recorded from Bermuda.

Family CARANGIDAE

Caranx lugubris Poey

Caranx lugubris Poey, 1861, Memorias, 2: 222—type locality, Cuba.

Bermuda record.—C.N.H.M. No. 48389, Bermuda, offshore, south of Ariadne Bank, taken while trolling, August 5, 1948, by Richard Rutherford, presented by Harry Smith; standard length 635 mm., weight 15 1/2 pounds, ripe male.

Description.—Dorsal fin rays VIII–1, 21; anal rays II–I, 18; pectorals I, i, 19; pelvics I, 5; scales about 144 from upper edge of gill opening to base of caudal rays (too small to count accurately); scutes 27; gill rakers 7 on upper limb, 1 at angle, 19 on lower limb, longest 8.0 in head.

Depth of body (from origin of soft dorsal to insertion of first anal spine) 2.22, length of head 3.37, both in standard length (tip of snout to base of middle caudal rays); snout 2.85, least preorbital width 5.03, length of maxillary 2.36, its greatest width 6.28, eye 5.27, interorbital width 3.83, postorbital part of head (hind margin of eye to upper edge of gill opening) 2.57, length of longest dorsal spine (second) 3.88, length of first branched dorsal ray 1.17, length of first branched anal ray 1.41, length of upper caudal lobe (broken, approximate) 1.25, length of lower caudal lobe 1.11, length of pectoral fin 0.80, length of pelvic fin 2.21, least depth of caudal peduncle 7.25, greatest width of caudal peduncle 3.70, length of caudal peduncle 3.14, all in length of head (tip of snout to posterior margin of opercular membrane).

Body relatively short, deep, compressed, sides only slightly rounded; snout blunt, concave, lower jaw as long as upper, upper profile steep, concave anterior to nostrils; interorbital elevated, rounded; posterior part of head high, convex, carinate, forming an angle of 52 degrees with lengthwise axis of body; teeth of jaws small, sharp, conical, widely spaced; vomer and palatines toothed, also an elongate tooth patch on sides of tongue just back of tip; mouth nearly horizontal; nostrils close to anterior margin of eye, separated from each other only by a membrane, anterior opening
with a low flap on its posterior margin, posterior opening oval, larger than anterior; narrow adipose covering on anterior margin of eye scarcely continuous with broad adipose covering on posterior third of eye; vertical limb of preopercle finely serrate; nape, interorbital, snout, jaws, and preorbital naked, cheeks scaled, broad margin of preopercle naked, a patch of scales on opercle and a small patch on subopercle; breast completely scaled; lateral line strongly arched anteriorly, scutes covering entire straight portion, forming broad keel on caudal peduncle, smaller fleshy keels above and below on caudal fin; dorsal and anal fins high falcate; pectoral fin long, slender, falcate, extending to tenth scute; pelvics just reaching anus.

Color.—In alcohol, naked portions of head dark, shiny brownish black; rest of body rich dark brown, scutes black; vertical fins and pelvics black; pectoral fins black on upper rays, chocolate brown basally on lower rays, blackish distally with narrow white tips.

When fresh, very dark grayish brown to blackish; lips and velum black, opercular membrane black, branchiostegal membranes partly golden yellow; back and sides black, belly dark gray, not much lighter than sides; spiny dorsal membranes dark chocolate brown, soft dorsal, anal and caudal black; pectorals black, the rays tipped with bright yellow; pelvics black, inner ray brownish.

Remarks.—This species has not previously been recorded from Bermuda, where it is apparently rare. Mr. L. S. Mowbray in a letter informs us that there have been three previous reports of this species in Bermuda and the Government Museum has on exhibition a six-pound mounted specimen.

Family Coryphaenidae

Coryphaena equisetis Linnaeus


Bermuda record.—C.N.H.M. No. 48338, Bermuda, 15 miles southeast, offshore, surface light at night, August 25, 1948, collected by Bermuda Deep Sea Expedition; standard length 132.5 mm.

Description.—Dorsal fin rays 50; anal rays 26; pectorals I, i, 18; gill rakers on lower limb of first arch 9.

Depth of body 4.65, length of head 5.82, both in standard length; snout 2.40, eye 2.15, length of upper jaw 1.66, interorbital 2.28, postorbital part of head (hind margin of eye to posterior edge of opercular membrane) 1.97, least depth of caudal peduncle 2.30,
length 2.33, length of pectoral fin 2.07, length of pelvic fin 1.21, all in length of head (tip of snout to posterior margin of opercular membrane); depth of caudal peduncle into length of caudal peduncle 1.42; angle of snout profile with lengthwise axis of body 30 degrees.

Teeth of jaws small, slender, sharp-pointed, an outer row of fixed teeth and an inner narrow band of depressible teeth; teeth on vomer and palatines; tongue broad, filling floor of mouth, tip broadly rounded, sides straight, tooth patch nearly straight across anterior edge, sides straight, posterior edge rounded as described and figured by Nichols (1909, pp. 131–133).

Color.—In alcohol, tip of lower jaw, snout, top of head and back dark brownish black; a black ring around eye; cheeks pale yellowish, opercles dusky; posterior sides with eight or nine faint vertical narrow black bars; dorsal fin blackish basally, tips of posterior rays white; caudal fin black basally, tips of inner rays white; anal fin white, faintly dusky on bases of posterior rays; pelvic fins pale; pectoral fin with black line across base of rays and along dorsal edge of upper ray, rest of fin pale.

In life, silvery all over with a lengthwise row of blue spots on back just below dorsal base.

Remarks.—Beebe and Tee-Van (1933, p. 100) include Coryphaena equisetis in their list of shore fishes but cast some doubt by saying, “Recorded from Bermuda, but it may possibly have been the common dolphin to which this record refers.” This doubt is hereby removed. There are two additional small specimens of C. equisetis in the Mowbray collection, but, though probably from Bermuda, they are without data.

Family SERRANIDAE

Liopropoma mowbrayi sp. nov. Figure 134.

Type.—C.N.H.M. No. 48544, south shore of Bermuda, on beach after a storm, August 20, 1933; collected by Louis L. Mowbray; standard length 66.8 mm.

Description.—Dorsal fin rays VIII, 12; anal rays III, 8; pectorals I, i, 11; branched caudal rays 8 in upper lobe, 7 in lower; scales from upper edge of gill opening to base of caudal rays about 43 (most scales missing, scars counted); gill rakers on first gill arch 4 on upper limb, 1 at angle, 10 on lower limb (all rudiments counted).

Depth of body 3.34, length of head 2.45, both in standard length; snout 3.78, eye 4.06, length of maxillary 2.26, its greatest breadth
6.63, interorbital 5.8, postorbital part of head (from hind margin of eye to upper edge of gill opening) 2.69, depth of caudal peduncle 2.59, length of caudal peduncle 1.97, length of fourth dorsal spine 3.63, length of second anal spine 3.09, caudal fin broken, length of pectoral fin 1.51, length of pelvic fin 1.88, all in length of head (tip of snout to posterior margin of opercular membrane); depth of caudal peduncle into length of caudal peduncle 1.31; angle of upper profile with lengthwise axis of body 20 degrees (see Table for measurements expressed in thousandths of standard length).

Teeth of jaws small, fine, sharp-pointed, in bands along jaws, three or four rows of teeth in each band, inner teeth longer and depressible, no canines; vomer and palatines toothed. Supramaxillary present; preopercle entire; opercle with a single rather weak, short, obtuse spine. Nostrils widely spaced, anterior opening with tube, posterior opening a narrow slit. Spiny dorsal fin deeply emarginate, no membrane between sixth and seventh spines; fourth spine apparently longest (tips of second and third spines broken, so this is not certain); soft rays of dorsal considerably longer than spines; caudal fin slightly emarginate; anal spines strong, the first a little more than one-third the length of the second and third, which are subequal, anal rays slightly longer than dorsal; pectoral fins pointed, upper rays longest; pelvic spine strong, the fin inserted slightly anterior to the insertion of the pectorals. Lateral line arched anteriorly; scales of body with very fine teeth on exposed edge.

Color.—In alcohol, lips pale whitish, a faint, thin, brown line from anterior margin of eye to tip of snout; rest of body pale yellowish
brown (faded), spiny dorsal rays pale; soft dorsal rays pale basally; a round dark brown spot about as large as pupil on tips of third to seventh rays; a dusky brown submarginal spot on second and third soft anal rays; outer caudal rays dusky brown near distal edge (whether or not the dusky brown extended to the tips cannot be determined because tips of rays are broken); pectoral and pelvic fins white.

According to a note by Mr. Mowbray, on a fresh specimen "color as in Gonioplectrus hispanus (Poey). Red and yellow longitudinal stripes. Soft dorsal, anal and caudal tipped with jet black."

Remarks.—This species appears to be most closely related to Chorististium rubrum Poey but differs from it and other members of the genus (as defined by Boulenger, 1895, pp. 154–157) in the shape of the spiny dorsal fin. From L. aberrans it differs in number of dorsal spines, and relative length of anal spines. From C. rubrum it differs also in having base of soft dorsal naked (densely scaled in rubrum).

A note by Mowbray accompanying this specimen indicates that he intended to place this species in a new genus with a name referring to its resemblance to Gonioplectrus. We believe that it fits the genus Liopropoma Hill very well as typified by L. aberrans, being similar to aberrans in most respects and differing only sufficiently to indicate a separate species.

<table>
<thead>
<tr>
<th>Liopropoma mowbrayi sp. nov.</th>
<th>Liopropoma rubre Poey</th>
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<tbody>
<tr>
<td>1. Eight dorsal spines.</td>
<td>1. Eight dorsal spines.</td>
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<tr>
<td>2. Spiny dorsal deeply emarginate; membrane between all spines, almost divided.</td>
<td>2. Spiny dorsal ap- parently completely divided; third spine longest, eighth spine close to first dorsal ray.</td>
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<tr>
<td>3. Area between spiny and soft dorsal not scaled over, spines erectile.</td>
<td>3. Area between spiny and soft dorsal scaled over covering two of dorsal spines, no groove present.</td>
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<tr>
<td>5. Anal spines weak; third longer than second, which is longer than first.</td>
<td>5. Anal spines strong; second and third equal length, longer than first.</td>
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1 Original description (Poey, 1856–58, p. 125, pl. 12, figs. 2, 3) gives 6–3.
Mr. William C. Schroeder, Curator of Fishes, Museum of Comparative Zoology, has kindly examined the type of *Liopropoma rubre* Poey and determined that it has eight dorsal spines. Two of the dorsal spines have been found to be buried under scales and apparently not erectile, as the space between the fifth and eighth dorsal spines is covered over by scales and there is no groove. *Chorististium rubrum* is similar to *Liopropoma aberrans*, differing apparently only in coloration and in having one less spine in the dorsal fin, a more deeply emarginate spiny dorsal, and a truncate caudal. Hence, with these additional facts we believe it is not necessary to keep *rubrum* Poey in a separate genus any longer.

Family **CHAETODONTIDAE**

Subfamily **Pomacanthinae**

**Centropyge argi** sp. nov.  Figure 135.

_Type._—C.N.H.M. No. 48494, Bermuda, Argus Bank, 93 fathoms, December 25, 1908, collected by Louis L. Mowbray; standard length 44.5 mm.

_Description._—Dorsal fin rays XV, 15; anal rays III, 17; pectorals I, i, 12 or 13; pelvics I, 5; branched caudal rays 8 in upper lobe, 7 in lower; scales from upper edge of gill opening to base of caudal rays 45, 4 between lateral line and origin of dorsal, 17 between lateral line and origin of anal.

Depth of body 2.33, length of head 3.42, both in standard length; snout 3.25, eye 2.77, interorbital 3.61, postorbital part of head (hind margin of eye to upper edge of gill opening) 3.10, length of fifteenth dorsal spine 1.63, length of middle caudal rays 1.30 (caudal rays broken; caudal is longer than this measurement indicates), length of pectoral rays 1.21, length of pelvic rays 1.07, least depth of caudal peduncle 2.5, length of caudal peduncle 3.25, all in length of head (tip of snout to posterior bony margin of opercle); angle of snout profile with lengthwise axis of body 48 degrees, upper profile convex (see Table for measurements expressed in thousandths of standard length).

Suborbital with three strong spines, upper one largest, curving downward and backward; preopercle denticulate, at its angle a strong spine extending posteriorly to level of posterior edge of opercle, anterior to this on lower margin of preopercle a smaller spine; opercle with a single broad, flat, triangular spine; margin of
subopercle finely serrate; interopercle with three spines, posterior one strongest. Lateral line strongly arched anteriorly, close to dorsal margin of body for most of its length and ending under thirteenth dorsal soft ray. Dorsal spines gradually increasing in length to last; soft dorsal and anal margins angular; pectoral angular; pelvies pointed, outer ray filamentous; caudal broken so its shape unknown, presumably rounded.

**Color.**—In alcohol, head pale greenish-yellow, a dusky brown spot at rictus; narrow brown ring around eye; a black spot about as large as eye on anterior part of body just above pectoral fin; breast and belly greenish-yellow; back and sides dark sooty brown to black; vertical fins dark brownish-black, pelvics light brown, pectoral pale yellowish, trace of dusky brown on its base.

Color in life not known.

**Remarks.**—This species is certainly a member of the genus *Centropyge* as defined by Frazer-Brunner (1933, p. 588); previously known only from the Pacific. It is most closely related to *C. fisheri* Snyder in coloration, spines on the suborbital, pre- and interopercles. It differs from this species and all others of the genus *Centropyge* in the number of dorsal and anal fin rays. This is the first species of this genus to be described from the Atlantic. *Holacanthus lunatus* Blosser (1909, p. 299), placed in the genus *Centropyge* by Jordan, Evermann and Clark (1930), is the young of *Holacanthus ciliaris*. 
Named *argi* for Argus Bank, an offshore coral bank about fifteen miles southwest of Bermuda.

**Family POMACENTRIDAE**

**Chromis insolatus** Cuvier and Valenciennes

*Helias insolatus* Cuvier and Valenciennes, 1830, Hist. nat. poissons, 5: 370, pl. 137—type locality, Martinique.

*Bermuda record.*—C.N.H.M. No. 48496, Bermuda, Challenger Bank, surface, January, 1919, collected by L. L. Mowbray; standard length 74.5 mm.

*Description.*—Dorsal fin rays XIII, 12; anal rays II, 11; pectorals I, i, 16; pelvics I, 5; branched caudal rays 7 upper, 6 lower; scales from upper edge of gill opening to base of caudal fin 25, 3 between lateral line and origin of dorsal fin, 10 between lateral line and origin of anal fin; lateral line with 18 tubular scales followed by 2 pores; gill rakers on first arch 8 on upper limb, 1 at angle, 18 on lower limb.

Depth of body 1.83, length of head 3.07, both in standard length (tip of snout to base of middle caudal rays); snout 3.69, least preorbital width 1.16, length of upper jaw 3.16, diameter of eye 2.86, interorbital 3.0, postorbital part of head (hind margin of eye to upper edge of gill opening) 3.0, least depth of caudal peduncle 2.03, length of pectoral fin 1.0, length of pelvic fin 0.83, length of longest dorsal spine 1.47, length of upper caudal lobe 0.83, length of lower caudal lobe 0.95, all in length of head (tip of snout to posterior bony margin of opercle); depth of caudal peduncle into length of caudal peduncle 1.09; angle of upper profile with lengthwise axis of body 45 degrees, profile slightly convex.

Teeth of jaws biserial, outer row enlarged, conical, spaced, inner row smaller, some conical, some villiform, forming irregular band; snout not scaled anterior to nostrils; pre- and suborbital narrow, entire, scaled; vertical margin of preopercle not scaled, entire on upper part of vertical limb, crenulate at angle, horizontal limb entire, scaled to edge; opercular margin entire, with a small, flat triangular spine; 3 free spines at dorsal and ventral bases of caudal fin; dorsal fin spines increasing in length to fifth, the sixth and seventh subequal, then decreasing slightly to last; outline of soft dorsal fin pointed; upper caudal lobe pointed, lower lobe rounded; outline of soft anal fin angular; pelvic fins pointed, outer ray filamentous; pectoral fin angular.
Color.—In alcohol, light yellowish brown, interorbital area and nape slightly darker than back and sides; a narrow indistinct yellow band along middle of sides from opercular spine, fading about fifteenth scale; spiny dorsal membranes dusky brown; rest of vertical and paired fins pale yellowish white.

Remarks.—Mr. Mowbray had labeled this specimen Chromis sp. nov. but it is very similar to C. insolatus as described by Cuvier and Valenciennes, having only one more anal ray and having the same proportions and rather uniform coloration (though our specimen is paler) when compared with their plate. It has not been possible to compare this specimen with specimens of insolatus from Martinique but it is unlikely that a Bermuda population will prove to be different.

Family LABRIDAE

Doratonotus megalepis Günther


*Bermuda record.*—C.N.H.M. No. 48543, Bermuda, Hamilton Island, Whale Bay, July 10, 1908, collected with seine by L. L. Mowbray; 2 specimens, standard length 44.5 and 46 mm.

*Description.*—Dorsal fin rays IX, 10; anal rays III, 9; pectorals I, i, 10; pelvics I, 5; branched caudal rays 6–6; lateral line scales 20 and 21, 1½ or 2 between lateral line and origin of dorsal, 6 between lateral line and origin of anal; gill rakers on first arch, upper limb 5, lower 12.

Depth of body 2.99 to 3.16, length of head 2.78 to 2.91, both in standard length (tip of snout to base of middle caudal rays); snout 3.10 to 3.34, eye 4.94 to 5.17, length of upper jaw 3.77 to 4.0, interorbital width 5.53 to 5.65, postorbital part of head (hind margin of eye to posterior margin of opercular membrane) 2.11 to 2.19, depth of caudal peduncle 2.13 to 2.32, length of caudal peduncle 2.05 to 2.32, length of first dorsal spine 1.86 to 2.11, length of middle caudal rays 1.39 to 1.42, length of pectoral fin 1.68 to 1.70, length of pelvic fins 1.74 to 1.86, all in length of head (tip of snout to posterior margin of opercular membrane); depth of caudal peduncle into length of caudal peduncle 1.0 to 1.04; angle of upper profile with length-wise axis of body 32 to 34 degrees.

Teeth of jaws in single series on sides, at tips two teeth of each jaw elongated, slightly curved canines, those of lower jaw smaller,
fitting between those of upper, a few small slender teeth behind the enlarged canines; two or three canines present posteriorly on outer side of upper jaw. First three dorsal spines considerably longer than the rest and with membrane elongated; soft dorsal and anal rather high, their outlines angular; caudal rounded; pelves blunt, pectorals rounded; gill membranes forming broad fold across isthmus; lower pharyngeal bone triangular body with three or four irregular rows of heavy conical obtuse teeth, a single row of four teeth on anterior projection of pharyngeal, these teeth more slender, acute, a broad flange extending ventrally from anterior projection.

Color.—In alcohol, badly faded, pale yellowish-brown, only traces of reddish-brown short lines along middle of sides of body, some vertical, some lengthwise; a brown line just behind eye and a vertical line present on anterior part of opercle; fins all pale yellowish, elongated anterior dorsal rays slightly darker.

In life, eel-grass green, some darker points on body; eyes red (according to color note by L. L. Mowbray).

Remarks.—This species has not previously been reported from Bermuda.

Family OPHIDIIDAE

Otophidium schmidtii sp. nov. Figures 136, 137.

Type.—C.N.H.M. No. 48175, Bermuda, Castle Harbor inside of Cock Rock; taken with poison at low tide in a foot of water, bottom coral heads and sand, June 23, 1948, Bermuda Deep Sea Expedition; standard length 61 mm.

Description.—Dorsal fin rays about 120; anal rays about 109; pectorals 20 (fin rays very delicate and counts very difficult to make); gill rakers 2 on upper lobe (rudimentary), 4 on lower lobe, length of gill rakers 1.75 in diameter of eye; pelvic fin bifid, under chin; lateral line incomplete, ending a little behind vent.

Greatest depth of body 8.78, length of head 5.81, tip of snout to origin of dorsal fin 4.35, tip of snout to origin of anal fin 2.77, all in standard length; width of body 2.62, head width 2.10, snout 5.25, eye 4.10, postorbital 1.75, interorbital 5.25, posterior margin of eye to ridge of preopercle 3.00, upper jaw 1.91, longest pelvic ray 1.35, longest pectoral ray 1.91, all in length of head (tip of snout to posterior margin of opercular membrane. See Table for measurements expressed in thousandths of standard length).
FIG. 186. *Ophidiidum schmidti* sp. nov., type; C.N.H.M. No. 48175; standard length 61 mm.
Body moderately elongate, compressed; scales small, not imbricated, arranged in oblique series or at right angles with each other; head naked; teeth curved and conical, larger near symphysis; teeth on vomer and palatines small and blunt; upper and lower lip minutely crenulated on inner side; snout without spine; broad fleshy extension of skin above upper jaw; lower jaw included in upper; maxillary fitting under fold of skin, extending about 0.5 diameter of eye beyond posterior margin of eye; two nostrils on each side, anterior tubular, ending in bifid flaps; opercles with a hidden spine; pseudo-

brane present; anus well behind pectoral fin, just in front of origin of anal; dorsal and anal fins low, confluent with caudal fin; origin of dorsal fin above middle of pectoral fin; air bladder ovate with a constriction on the posterior portion with a foramen behind (see fig. 137).

**Color.**—In alcohol, body dusky along dorsal base to lip, lighter laterally, pale ventrally; small dusky spots along anal base; fins pale; upper preopercle with scattered spots; opercle, lower preopercle, upper and lower jaws pale. Scales with dusky pigment, surrounded by pale area.

**Remarks.**—This species belongs to the genus *Otophidium* Gill, as proved by the following characters: opercles with spines, a short thick air bladder with a large foramen posteriorly and the snout without a spine. *Otophidium schmidtii* differs greatly in shape and color patterns from the other members of this genus found in the western Atlantic and the Gulf of Mexico. It is closest to *O. marginata* DeKay; however, it differs from *marginata* in the following characters: the foramen of the air bladder is located on the posterior end instead of on the ventral side; the constriction is near the posterior end rather than on the anterior as figured by Putnam (1874, p. 340). In *schmidtii* the maxillary is longer, the ventral barbels are nearly equal, and the dorsal and anal fins not margined with black.
This species is named *schmidti* in honor of Karl P. Schmidt, Chief Curator, Department of Zoology, Chicago Natural History Museum, who took especial interest in the plans for the expedition that collected this new species.

**Measurements of New Species of Centropyge, Liopropoma, and Otophidium**

Expressed in thousandths of standard length

<table>
<thead>
<tr>
<th>Measurements</th>
<th>Centropyge argi</th>
<th>Liopropoma mowbrayi</th>
<th>Otophidium schmidti</th>
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<tr>
<td>Standard length</td>
<td>44.5 mm.</td>
<td>66.8 mm.</td>
<td>61 mm.</td>
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<tr>
<td>Depth of body</td>
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<td>Longest dorsal spine</td>
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<td>Pectoral length</td>
<td>241</td>
<td>269</td>
<td>090</td>
</tr>
<tr>
<td>Pelvic length</td>
<td>272</td>
<td>217</td>
<td>148</td>
</tr>
<tr>
<td>Tip of snout to origin of dorsal fin</td>
<td></td>
<td></td>
<td>230</td>
</tr>
<tr>
<td>Tip of snout to origin of anal fin</td>
<td></td>
<td></td>
<td>360</td>
</tr>
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