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**THE ARMORED SEA-ROBINS OF AMERICA
A REVISION OF THE AMERICAN SPECIES
OF THE FAMILY PERISTEDIIDAE**

by

GERARD WARDEN TEAGUE

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GENERAL REMARKS

With the increase, of late years, in deep-water trawling in the interests of science, and the consequent expansion of collections by a steady influx of new material, it has become a matter of no little urgency for those concerned with the ichthyology of the Americas to review and revise, as early as possible, the material now forming part of the major collections of America and Europe.

As a small contribution to this end, the writer now presents the following survey of the species of the Peristediidae already recognized as pertaining to American waters. And to this, he has added the description of three new species.

METHODS OF TAKING MEASUREMENTS AND COUNTS

The standard length, and the lengths of head, snout and maxillary (upper jaw) are measured back from the front of the premaxillary symphysis. The snout width is measured across the anterior nostrils. The head depth is taken from the middle of the supraocular rim. This latter measurement, on account of the elevation of the ridge, not infrequently gives a greater depth to the head than to the body, the depth of which is taken from the flat surface of the nuchal region.

Apart from these particularities and those shown below, the writer has followed the same methods as those indicated for the Triglidae in his paper "The Sea-robins of America," 1951, Com. zool. Mus. Hist. nat. Montevideo, vol. 3, N.º 61, p. 2.

SPINOUS LATERAL PLATE AND SCUTE COUNTS. — These comprise the spine-bearing, or keeled, nuchal¹ and abdominal plates, and all four series of lateral scutes. The plates anterior to the dorsal and ventral scute series, the scutes on the postopercular arc and that beyond the base of the hypural fan are separated from the main series by *plus* signs. The series are as follows:

DORSAL SERIES. — Spinous nuchal plate, *plus* main series, *plus* caudal base scute.

SUPEROMEDIAN SERIES. — Postopercular arc scutes,² *plus* main series, *plus* caudal base scute.

INFEROMEDIAN SERIES. — All spinous scutes commencing at naked area behind the pectoral fin base, *plus* caudal base scute.

VENTRAL SERIES. — Abdominal keeled plates,³ anterior to series, *plus* main series.⁴

ROSTRAL EXERTIONS. — The length is taken from the front of the premaxillary symphysis to the distal end of the process.

The proximal width between processes is measured between points on the same plane as that which would result from their bisection by a horizontal line drawn across the front of the premaxillary symphysis.

The distal width between processes is measured between points immediately below the initial curve of the convex extremity.

The breadth of a process is represented by the median width of same.

BARBEL COUNTS. — In the key, the barbel counts are limited to those occurring on one side only of the mandibular symphysis: for example, in *P. brevirostre* (Gunther) the count shown in the key is 1 (the filamentous barbel) + 25 to 26, but in the body of the work the number of barbels is shown in full and separated into those on the lip — 1 (the filamentous barbel) + 6 \neq 6 + 1 — and those on the chin: 20 \div 5 \neq 19 \div 5.

The initial figure in respect of the chin (20) represents the number of barbels on the left-hand side (ventral view) of the symphysis, and this is followed by a divisor of 5, which signifies the estimated number of groups into which the barbels are divided. This is again repeated in respect of the barbels and groups on the right-hand side.

All barbels, whether simple or, in their origin, stem from branching at the roots, are counted as separate units.

No attempt has been made to record the number of filaments that are to be found on each filamentous barbel.

The symbol \neq is used in the body of this work to separate the lip and chin barbels on one side of the symphysis from those on the other.

(1) For the purposes of this paper, it is accepted that the nuchal, or dorsal, plate is formed of a pair of sutured spine-bearing plates (see Gilbert and Cramer in *re Peristedion* (*Satyrichthys*) *hians*: "One pair of plates between occiput and origin of first dorsal spine." Proc. U.S. Natl. Mus., vol. 19, No 1114, pp. 419-421, pl. 41, figs. 1-2, 1896).

(2) The spines of the small anterior scutes of the postopercular arc are obsolete, their keel being barely discernible.

(3) In all the species under review, there are two pairs of keeled plates of which the spines are either obsolescent or obsolete.

(4) The scutes of the ventral series end below the posterior end of the anal fin where, at the caudal peduncle, the body becomes hexagonal. The spines of this series become progressively more and more obsolescent posteriorly, until the keel is barely discernible.

PERICRANIAL RIM: TERMINAL CHARACTERS. — Although there is a considerable variation in the terminal character of the pericranial rim, even from one side to the other in an individual specimen, the writer has observed, and has so recorded in this paper, that the terminations fall roundly into the following three categories:

1. An acute-angled wing, as shown in figure "A."
2. A right-angled wing, as in figure "B."
3. A backwardly directed spine.¹

CRANIAL SPINES. — Where in the description of a species no reference is made to any particular spine, it is to be understood that the said spine is absent.

An exception to this rule is made in respect of the rostral and nasal spines: these being important pivotal characters, the presence or absence of one or the other, or of both, is recorded in all cases.

The accompanying line drawing (Fig. "C") by DOROTHEA B. SCHULTZ, showing the site and adopted nomenclature of the spines, is a composite figure based on several species, including the European species *P. cataphractum* (LINN.), hence, for instance, the presence of the mesethmoid spine, which is not known to occur in any of the species under review.

CAUDAL RAY FORMULA. — (cf., explanations given in the "Mercator Sea-robins," Bull. Inst. roy. Sci. nat. de Belgique, vol. 28, N.º 59, Bruxelles, 1952). Reduced to its simplest terms, the conformation of the caudal fin—which in all the species under review is shallowly emarginate—is shown with precision by the following measurements expressed as percentages of the standard length: length of the upper lobe, *plus* that of the median ray, *plus* that of the lower lobe; all from the center of the base of the hypural fan to the tip.

DESCRIPTION OF SPECIES. — The figures shown in parentheses in the body of this paper are averages, and where more than one specimen of a species is reviewed the morphological appreciations of the species are based on the average figures.

PERICRANIAL RIM: GENERAL MORPHOLOGY. — The pericranial rim, its anterior extensions—the rostral processes—and, when present, its posterior terminal wings, acute-angled or right-angled, are invariably flattened dorso-ventrally; the terminal or preopercular spine, not always so (e.g. that of *P. gracile* GOODE and BEAN).

MEASUREMENTS. — The principal measurements in millimetres in respect of the new species recorded in this work will be found in tables at the end.

ABBREVIATIONS. — The following initials, without periods and in conjunction with the numerical identification of the material reviewed, have been used in the body of this paper: USNM: United States National Museum; MCZ: Museum of Comparative Zoology; ANSP: Academy of Natural Sciences of Philadelphia.

(1) In the descriptions of species, the terms "terminal spine of pericranial rim" and "preopercular spine" are synonymous.

ACKNOWLEDGMENTS

The author of this work is especially indebted to the courtesy of the authorities of the U. S. National Museum (Smithsonian Institution), Washington, D. C., the Museum of Comparative Zoology, Cambridge, Mass., the Academy of Natural Sciences of Philadelphia, Pa., and of the British Museum (Natural History), London, S. W., for the unrestricted facilities extended to him for reviewing the type and other material in their unrivalled collections.

His particular thanks are due to Dr. LEONARD P. SCHULTZ for his authoritative assistance in connection with the determination of the nomenclature of the cranial spines of the group of fishes under review, to Dr. ETHELWYN TREWAVAS for her technical help in regard to the exact definition of the basic linear measurements employed, and to Dr. ERNEST A. LACHNER for, among other services, his valuable criticism of the author's tentative draft of a key to the species.

Apart from the unvarying kind consideration shown him by the Curators and Associate Curators of fishes of the said institutes in the persons of the above mentioned ichthyologists and of WILLIAM C. SCHROEDER, HENRY W. FOWLER, JAMES E. BOHLKE and N. B. MARSHALL, he remembers with gratitude the skilled assistance of Mrs. MYVANWY M. DICK at the Museum of Comparative Zoology, Mrs. DOROTHEA B. SCHULTZ and ROBERT K. KAMAZAWA at the Smithsonian Institution, and J. PALMER at the British Museum (Natural History).

The writer has also to record his appreciation of the opportunities afforded him by Drs. GORDON GUNTER and HURST H. SHOEMAKER at the Gulf Coast Research Laboratory, Ocean Springs, Miss., FRED A. CAGLE and Royal Suttikus at the Department of Zoology, Tulane University, New Orleans, La., and JOHN C. BRIGGS, at the Department of Biological Sciences, University of Florida, Gainesville, Fla., to inspect recent material obtained in the Gulf of Mexico by the U. S. research ship *Oregon*.

A not inconsiderable addition to such merits as the present work may possess has been the generous gift by the authorities of the Smithsonian Institution, with whom must be coupled the name of Dr. LEONARD P. CARMICHAEL, of the pictures of the new species appearing in the accompanying plates, which owe their excellence to the unequalled skill and technical knowledge of the photographic staff of the Institution.

In Lisbon, Portugal, the author has to thank the Director, Sr. F. P. MENDES, and his staff, at the Aquario Vasco da Gama for facilities to examine preserved specimens of *Peristedion cataphractum* (LINN.) and for other attentions.

Last but not least, he has taken advantage of the present opportunity to dedicate one of his new species to Dr. WALDO L. SCHMITT of the Smithsonian Institution, Washington, D. C., under the title of *Peristedion schmitti*, as a small tribute to Dr. SCHMITT's outstanding friendship for all South American naturalists, among whom the author is happy to count himself.

At the time of writing, the writer has received intimation from Montevideo, Uruguay, of the acceptance of this paper for publication in the "Anales del Museo de Historia Natural de Montevideo". He is grateful for this further act of wholehearted support on the part of the authorities of the Museum and, in particular, of its esteemed director Sr. C. DIEGO LEGRAND.

G. W. T.

KEY TO THE AMERICAN SPECIES OF THE GENUS PERISTEDION

- 1a. Pericranial rim terminating in right-angled wing.
- 2a. Filamentous barbel long to extremely long: 1.45 to 2.85 in head length.
- 3a. Rostral and nasal spines present.
- 4a. Rostral exsertions moderately short to very short (3.40 to 5.40 in head length) and moderately broad to broad: 2.60 to 3.15 in length of process.

- 5a. Barbel formula $1+10$ to 11 ; gill-rakers 2 to $3+1+16$ to 18 ; lateral scute counts: inferomedian $0+23$ to $25+1$; ventral $2+17$ to $19+0$.
P. miniatum (GOODE).
- 5b. Barbel formula $1+26$ to 28 ; gill-rakers $3+1+20$; lateral scute counts: inferomedian $0+25+1$; ventral $2+20+0$.
P. truncatum (GUNTHER).
- 5c. Barbel formula $1+20$ to 21 ; gill-rakers $3+1+20$ to 21 ; lateral scute counts: inferomedian $0+25$ to $26+1$; plus 2 to 3 infraserial bifurcating scutes; ventral $2+20$ to $21+0$.
P. spiniger LONGLEY and HILDEBRAND.
- 4b. Rostral exsertions short (4.20 in head length) and narrow: 4.55 in length of process. Barbel formula $1+18$ to 20 ; gill-rakers 1 to $2+1+20$ to 24 ; lateral scute counts: inferomedian $0+24+1$; ventral $2+17$ to $18+0$.
P. crustosum (GARMAN).
- 3b. Rostral spine present, nasal absent.
6a. Rostral exsertions extremely short (5.25 to 7.10 in head length), extremely broad (1.10 to 1.30 in length of process) and triangular. Barbel formula $1+15$ to 18 ; gill-rakers 3 to $4+1+23$ to 24 ; lateral scute counts: inferomedian $0+26+1$; ventral $2+19$ to $22+0$.
P. ecuadorensis, new species.
- 6b. Rostral exsertions extremely long (1.45 to 1.60 in head length) and extremely slender; 13.00 in length of process. Barbel formula $1+1$; gill-rakers 2 to $4+1+17$ to 19 ; lateral scute counts: inferomedian $0+20$ to $21+1$; ventral $2+18+0$.
P. antillarum, new species.
- 3c. Rostral and nasal spines absent. Rostral exsertions very long (2.05 in head length) and very narrow: 5.50 in length of process. Barbel formula $1+14$; gill-rakers $3+1+16$; lateral scute counts: inferomedian $0+25+1$; ventral $2+19+0$.
P. bartschi MYERS.
- 2b. Filamentous barbel extremely variable: 2.25 to 4.55 in head length. Rostral spine present, nasal absent. Rostral exsertions very long (2.40 to 2.50 in head length) and very narrow: 6.45 in length of process. Barbel formula: $1+14$ to 16 ; gill-rakers $3+1+16$ to 24 ; lateral scute counts: inferomedian $0+24$ to $26+1$; ventral $2+20+0$.
P. longispathum (GOODE and BEAN).
- 1b. Pericranial rim terminating in acute-angled wing.
7a. Filamentous barbel moderately short: 3.00 to 3.30 in head length. Rostral and nasal spines present. Rostral exsertions moderately to very short (3.30 to 4.60 in head length) and very broad: 2.30 in length of process. Barbel formula $1+21$ to 26 ; gill-rakers 1 to $2+1+14$; lateral scute counts: inferomedian $0+24$ to $25+1$; ventral $2+19+0$.
P. barbiger (GARMAN).
- 7b. Filamentous barbel very to extremely short: 4.70 to 6.10 in head length.
8a. Rostral and nasal spines absent. Rostral exsertions very short (4.70 in head length) and broad: 2.60 in length of process. Barbel formula $1+26$ to 28 ; gill-rakers $2+1+14$; lateral scute counts: inferomedian $0+22+1$; ventral $2+19+0$.
P. altipinnis (REGAN).
- 8b. Rostral and nasal spines present; rostral exsertions moderately short to very short (3.65 to 4.35 in head length) and moderately broad: 3.00 to 3.20 in length of process. Barbel formula $1+19$ to 21 ; gill-rakers 1 to $2+1+13$ to 16 ; lateral scute counts: inferomedian $0+22$ to $23+1$; ventral $2+19$ to $20+0$.
P. schmitti, new species.
- 1c. Pericranial rim terminating in backwardly directed spine.
9a. Rostral and nasal spines absent.
10a. Filamentous barbel extremely long: 1.80 in head length; rostral exsertions long (2.80 in head length) and narrow: 3.75 in length of process. Barbel formula $1+10$; gill-rakers $4+1+22$; lateral scute counts: inferomedian $0+24+1$; ventral $2+20+0$.
P. taeniopteron FOWLER.

- 10b. Filamentous barbel moderately short to short: 3.90 to 4.50 in head length. Rostral exsertions moderately short to long (2.50 to 3.60 in head length) and moderately to very narrow: 3.70 to 5.65 in length of process. Barbel formula 1+30 to 36; gill-rakers 2 to 3+1+18 to 21; lateral scute counts: inferomedian 0+25+1; ventral 2+21 to 22+0.

P. gracile GOODE and BEAN.

- 9b. Rostral spine absent, nasal present.

- 11a. Filamentous barbel very short: 5.00 in head length. Rostral exsertions moderately short (3.85 in head length) and very broad: 2.15 in length of process. Barbel formula 1+35; gill-rakers 1+1+9; lateral scute counts: inferomedian 0+22+1; ventral 2+18+0.

P. platycephalum (GOODE and BEAN).

- 11b. Filamentous barbel very long: 2.20 in head length. Rostral exsertions short (4.40 in head length) and extremely broad: 1.90 in length of process. Barbel formula 1+25 to 26; gill-rakers unknown; lateral scute counts: inferomedian 0+22+1; ventral 2+18+0.

P. brevirostre (GUNTHER).

- 9c. Rostral spine present, nasal absent.

- 12a. Filamentous barbel extremely long: 1.90 in head length. Rostral exsertions very short (6.80 in head length) and extremely broad: 1.65 in length of process. Barbel formula 1+10; gill-rakers 2+1+8; lateral scute counts: inferomedian 0+23 to 24+1; ventral 2+19+0.

P. mcgintyi FOWLER.

- 12b. Filamentous barbel extremely short: 5.65 in head length. Rostral exsertions very short (4.85 in head length) and very broad: 2.35 in length of process. Barbel formula 1+0; gill-rakers 2+1+6; lateral scute counts: inferomedian 0+22+1; ventral 2+19+0.

P. thompsoni FOWLER.

- 9d. Rostral and nasal spines absent. Filamentous barbel missing. Rostral exsertions very short (4.75 in head length) and very broad: 2.00 in length of process. Barbel formula 0+1; gill-rakers 1+1+18; lateral scute counts: inferomedian 0+24+1; ventral 2+19+0.

P. imberbe (POEY).

DESCRIPTION OF THE SPECIES

Peristedion miniatum (GOODE)

Peristedion miniatum GOODE, 1880, Proc. U.S. Natl. Mus. vol. 3, p. 349; S. New Engl. coast.
Peristedion miniatum, GOODE and BEAN, 1895, Oceanic Ichthyology, U.S. Natl. Mus. Spec. Bull. pp. 470-475, 2 pls.

MATERIAL REVIEWED. — MCZ 38349 (Coll. W. C. Schroeder), two specimens, 170-174 mm in standard length, taken by "Capt. Bill II", sta. 145, 37° 51' 00" N., 74° 09' 00" W., in 70.72 fathoms, June 29, 1953; MCZ 38030, 146 mm, taken by "Caryn", C. 14, sta. 2, 40° 01' 00" N., 70° 42' 00" W., in 130-150 fathoms, September 10, 1949; USNM 26023, holotype, 264 mm, taken by "Fish Hawk", 40° 02' 18" N., 70° 23' 06" W.; Tul. Un. coll. 10994, 209 mm, taken by "Oregon", 1094, 27° 10' 00" N., 96° 20' 00" W., in 150 fathoms, June 5, 1954.

DESCRIPTION. — Body moderately low but very broad. Head very short and somewhat depressed. Snout very long and narrow. Mouth very small. Eye very small. Interorbital space extremely narrow. Nape short and broad. Pectoral fin proper and free rays short. Pelvic fin short. Spinous dorsal fin high; soft dorsal fin low; anal fin very low. Filamentous barbel extremely long. Opercular spine extremely long.

Measurements divided into standard length: greatest body depth 4.64 to 5.67 (5.28); greatest width 4.71 to 5.48 (5.06); head length 2.70 to 2.96 (2.83); depth 4.98 to 6.34 (5.76); pectoral fin length: webbed rays 4.87 to 5.44 (5.19); free rays 4.86 to 5.74 (5.21); pelvic fin length 5.03 to 5.74 (5.28).

Measurements into head length: snout length 1.98 to 2.06 (2.01), width 2.34 to 2.52 (2.42); maxillary length 2.62 to 2.84 (2.76); orbital width 4.53 to 5.24 (4.89); depth 5.62 to 6.74 (6.18); interorbital width 4.61 to 5.62 (5.11); nape length 5.00 to 6.84 (6.08), width 3.53 to 4.06 (3.68); rostral exertions: premaxillary to tip 4.61 to 5.40 (4.87); proximal width between processes 6.00 to 8.90 (6.92), distal width 3.75 to 6.36 (5.01); second dorsal spine length 2.86 to 3.48 (3.24); sixth soft dorsal ray 3.27 to 4.60 (3.81); longest anal ray 4.05 to 5.64 (4.72); filamentous barbel length 1.44 to 1.80 (1.62); opercular spine length (three specimens), tip to anterior margin of opercle, 3.29 to 3.44 (3.37); terminal wing of pericranial rim to vertical ridge over preopercular sensory canal 3.87 to 4.45 (4.16).

Dorsal VII to VIII, 17 to 18. Anal 17 to 19. Pectoral fin rays 12 to 13 + 2. Gill-rakers 2 to 3 + 1 + 16 to 18. Barbels: lip and chin together, 1 + 10 to 11 \neq 10 to 11 + 1; mode, lip 1 + 2 \neq 2 + 1, chin 9 \div 4 \neq 9 \div 4.

Spinous lateral plates and scutes: dorsal series 1 + 24 to 26 + 1; superomedian 5 + 25 to 27 + 1; inferomedian 0 + 23 to 25 + 1; ventral 2 + 17 to 19 + 0. Superomedian bicuspid spines 7 to 8. Caudal fin formula (average five specimens) 13.50 + 12.50 + 13.00.

Cranial spines: rostral and nasal spines strong, elevated, retrorse; second suborbitals: two to three elevated, retrorse lateral spines; preocular, spiny ridge; supraoculars, keeled spine sometimes present; postocular stout, elevated; pterotic, elevated serrulate ridge; parietal stout, elevated; post-temporal, ridge terminating in small, depressed spine.

Rostral exertions: short, stout, moderately broad (median width in length of process [two specimens] 3.00 to 3.17) and divergent.

Pericranial rim: widens conspicuously below fourth suborbital and terminates posteriorly in broad right-angled wing. In holotype, which is atypical, rim narrows progressively after fourth suborbital and terminates obtusely.

Color pattern in alcohol (specimen MCZ 38030): head and body yellow, with diffuse black markings on head and with vestiges of four or five dark bars across dorsum.

Pectoral fin: diffuse black bar traversing upper half of base; distal two-thirds, black. Caudal fin: distal third nearly black, excepting lower lobe; dark bar crossing upper two-thirds of fin base; some dark transverse markings between base and distal third. Anal and pelvic fins nearly plain.

Peristedion truncatum (GUNTHER)

Peristethus truncatum GUNTHER, 1830, Proc. Zool. Soc. London, p. 7, pl. 2, fig. A; *Pernambuco*.

MATERIAL REVIEWED. — Br. Mus. 1879. 5. 14. 266, holotype, 133 mm in standard length, coll. by "Challenger" Exped., Pernambuco.

DESCRIPTION. — Body somewhat low but very broad. Head very short and depressed. Snout moderately long and rather broad. Mouth moderately large. Eye large. Interorbital space narrow. Nape long and somewhat narrow.

Pectoral fin proper short; free rays long. Pelvic fin extremely short. Spinous dorsal, soft dorsal and anal fins low. Filamentous barbel very long. Opercular spine long.

Measurements divided into standard length: greatest body depth 5.54; greatest width 5.02; head length 2.72, depth 6.04; pectoral fin length: webbed rays 5.12, free rays 4.44; pelvic fin length 6.65.

Measurements into head length: snout length 2.23, width 2.33; maxillary length 2.45; orbital width 3.92, depth 4.90; interorbital width 4.45; nape length 5.16, width 4.08; rostral exertions: premaxillary to tip 3.63, proximal width between processes 6.12, distal width 4.45; second dorsal spine 3.77;

sixth soft dorsal ray 3.63; longest anal ray 3.92; filamentous barbel length 2.13; opercular spine, tip to anterior margin of opercle, 4.08; terminal wing of pericranial rim to vertical ridge over preopercular sensory canal 5.44.

Dorsal VIII, 21. Anal 18. Pectoral fin rays 12 + 2. Gill-rakers 3 + 1 + 20.

Barbels: lip 1 + 5 \neq 5 + 1, chin 23 \div 7 \neq 21 \div 7.

Spinous lateral plates and scutes: dorsal series 1 + 26 + 1; superomedian 5 + 26 + 1; inferomedian 0 + 25 + 1; ventral 2 + 20 + 0; superomedian bicuspid spines 11. Caudal ray formula: 11 + 12.50 + 11.50.¹

Cranial spines: rostral, small retrorse; nasal, very small; second sub-orbital, two serrulate ridges; fourth suborbital, four serrulate ridges; postocular, elevated; pterotic, slightly elevated striate ridge; parietal and post-temporal, elevated striate ridges.

Rostral exertions: short, broad (median width in length of process, 2.84) and slightly divergent. Pericranial rim: laterally roughly undulate, broadening in preopercular region and terminating in right-angled wing with rounded apex.

Color pattern in alcohol, indiscernible.

Peristedion spiniger LONGLEY and HILDEBRAND

Peristedion spiniger LONGLEY and HILDEBRAND, 1940, Pap. Tort. Lab., Carn. Inst., vol. 32, pp. 223-285, pl., 28 text-figs.; Tortugas.

MATERIAL REVIEWED. — USNM 108866, holotype, 153 mm in standard length, taken south of Tortugas, in 295/315 fathoms, July 19, 1932, and USNM 117172 (Coll. W. H. Longley), 154 mm, off Tortugas.

DESCRIPTION. — Body extremely low and narrow. Head very short but moderately deep. Snout long and narrow. Mouth large. Eye large. Interorbital space somewhat narrow. Nape long and broad.

Pectoral fin proper very short; free rays moderately long. Pelvic fin very short. Spinous and soft dorsal fins low; anal fin very low. Filamentous barbel very long. Opercular spine very long.

Measurements divided into standard length: greatest body depth 6.38 to 7.33 (6.86); greatest width 5.28 to 7.33 (6.31); head length 2.78 to 2.85 (2.82), depth 5.10 to 5.70 (5.40); pectoral fin length: webbed rays 5.10 to 5.92 (5.51), free rays 4.37 to 4.97 (4.67); pelvic fin length 4.78 to 7.33 (6.06).

Measurements into head length: snout length 2.16 to 2.20 (2.18), width 2.35 to 2.50 (2.43); maxillary length 2.35 to 2.39 (2.37); orbital width 4.15 to 4.23 (4.19), depth 4.50 to 5.00 (4.75); interorbital width 4.23 to 4.50 (4.37); nape length 5.00 to 5.40 (5.20), width 3.67 to 3.86 (3.77); rostral exertions: premaxillary to tip 3.38 to 4.23 (3.81), proximal width between processes 9.00 to 11.00 (10.00), distal width 3.86 to 4.58 (4.22); second dorsal spine 3.93 to 4.15 (4.04); sixth soft dorsal ray 3.60 to 4.40 (4.00); longest anal ray 4.50 to 4.78 (4.64); filamentous barbel length 1.54 to 2.50 (2.02); opercular spine, tip to anterior margin of opercle, 3.60 to 3.93 (3.77); terminal wing of pericranial rim to vertical ridge over preopercular sensory canal 4.91 to 5.50 (5.21).

Dorsal VIII, 18 to 19. Anal 18 to 19. Pectoral fin rays 12 + 2. Gill-rakers 3 + 1 + 20 to 21. Barbels: lip 1 + 5 \neq 5 + 1, chin 16 \div 6 \neq 15 to 16 \div 6.

Spinous lateral plates and scutes: dorsal series 1 + 26 to 27 + 1; superomedian 5 + 27 to 28 + 1; inferomedian 0 + 25 to 26 + 1, but series bifurcates anteriorly into a short additional row of 2 to 3 infraserial spinous scutes; ventral 2 + 20 to 21 + 0. Superomedian bicuspid spines 10 to 13. Caudal fin formula: 12.00 + 11.00 + 11.50.

(1) Disproportionate length of median ray in relation to length of lobes, attributable to erosion of tips of lobes.

Cranial spines: rostral very small or absent; nasal very small or vestigial; postocular stout; pterotic, slanting ridge; parietal stout, elevated; post-temporal short, elevated ridge.

Rostral exsertions: short, moderately broad (median width in length of process, 2.60 to 2.67) and divergent.

Pericranial rim: laterally undulate, widening interruptedly at second and fourth suborbitals and then again at preopercle, where it terminates in a right-angled wing, with slight anterior slant.

Color pattern in alcohol: head and body yellow, with diffuse brown markings on proximal half of head; a few spots on opercular flap and along superomedian line of scutes as far as vertical from last dorsal spine. Distal half of first four membranes of first dorsal fin, black; soft dorsal fin with vestiges of a double series of transverse dark spots. Distal two-thirds of pectoral fin with remains of dark pigment; other fins plain.

Peristedion crustosum (GARMAN)

Peristedion crustosum GARMAN, 1899, Mem. Mus. Comp. Zool., vol. 24, p. 112, pl. A, Fig. 2, off Bay of Panama.

MATERIAL REVIEWED. — MCZ 28704, 111 mm in standard length; MCZ 28705, 102 mm, both cotypes taken by "Albatross", stas. 3391, 7° 33' 40" N., 79° 43' 20" W., and 3355, 7° 12' 20" N., 80° 55' 00" W., in 153 and 182 fathoms, respectively, Exped. 1890-91, and USNM 153603, paratype, 105 mm.

DESCRIPTION. — Body rather low but broad. Head short and slightly depressed. Snout short and very narrow. Mouth extremely small. Eye large. Interorbital space extremely narrow. Nape very short and narrow.

Pectoral fin proper very short; free rays long. Pelvic fin extremely short. Spinous dorsal fin moderately high; soft dorsal fin low; anal fin very low. Filamentous barbel extremely long. Opercular spine very long.

Measurements divided into standard length: greatest body depth 5.25 to 5.67 (5.49); greatest width 5.29 to 5.53 (5.40); head length 2.50 to 2.71 (2.62), depth 5.52 to 5.66 (5.57); pectoral fin length: webbed rays 5.10 to 6.18 (5.71), free rays 4.08 to 5.00 (4.45); pelvic fin length 6.16 to 6.38 (6.24).

Measurements into head length: snout length 2.21 to 2.44 (2.31), width 2.56 to 2.80 (2.65); maxillary length 2.80 to 3.15 (3.02); orbital width 3.73 to 3.90 (3.82), depth 4.87 to 5.25 (5.08); interorbital width 4.55 to 6.00 (5.37); nape length 6.50 to 7.00 (6.77), width (one specimen) 4.20; rostral exsertions: premaxillary to tip (one) 4.20; proximal width between processes (two) 7.00 to 7.46 (7.23), distal width (two) 6.00 to 6.31 (6.16); second dorsal spine 3.25 to 3.82 (3.50); second soft dorsal ray 3.56 to 3.90 (3.76); longest anal ray 4.20 to 4.55 (4.36); filamentous barbel length (two) 1.75 to 1.86 (1.81); opercular spine, tip to anterior margin of opercle, 3.42 to 3.82 (3.65); terminal wing of pericranial rim to vertical ridge over preopercular sensory canal 3.57 to 3.82 (3.70).

Dorsal VIII, 17. Anal 16 to 18. Pectoral fin rays 11 to 12 + 2. Gill-rakers 1 to 2 + 1 + 20 to 24. Barbels: (one) lip 1 + 5 \neq 5 + 1, chin 14 \div 5 \neq 13 \div 5 (cotype 28704 has 1 + 20 \neq 18 + 1, lip and chin together).

Spinous lateral plates and scutes: dorsal series 1 + 24 to 25 + 1; superomedian 5 + 25 to 26 + 1; inferomedian 0 + 24 + 1; ventral 2 + 17 to 18 + 0; superomedian bicuspid spines 8 to 10. Caudal ray formula (average two specimens): 12.50 + 12.00 + 13.00.

Cranial spines: rostral and nasal small, elevated, retrorse; second suborbital, 1 and 2, small, retrorse; fourth suborbital, small, retrorse; preocular, small, retrorse; postocular, stout, worn; pterotic, elevated; parietal, stout, elevated; post-temporal, obtusely ended ridge.

Rostral exsertions: short, narrow (median width [one] in length of process 4.55) and medially divergent, but becoming convergent at distal ends.

Pericranial rim: commencing at fourth suborbital, rim expands into two angular wings and, finally, into a terminal right-angled wing.

Color pattern in alcohol: broad dark blotch traversing distal half to distal third of first dorsal fin, from first interradiar membrane to fifth.

Peristedion ecuadorensis, new species

MATERIAL REVIEWED. — USNM 133598, holotype, 181 mm in standard length, and USNM 164365, four specimens, paratypes, taken by "Albatross", sta. 2624, 1° 18' 00" N., 80° 01' 00" W., off coast of Ecuador, in 724 fathoms, March 23, 1891.

DESCRIPTION. — Body moderately low but very broad. Head very short and somewhat depressed. Snout long and rather broad. Mouth extremely small. Eye of moderate size. Interorbital space narrow. Nape very long and broad.

Pectoral fin proper extremely short; free rays very short. Pelvic fin extremely short. Spinous dorsal fin very low; soft dorsal fin low; anal fin very low. Filamentous barbel very long. Opercular spine long.

Measurements divided into standard length: greatest body depth 4.91 to 5.37 (5.19); greatest width 4.91 to 5.48 (5.19); head length 2.69 to 2.78 (2.73); depth 5.46 to 5.93 (5.70); pectoral fin length: webbed rays 6.17 to 6.96 (6.60), free rays 5.32 to 6.04 (5.61); pelvic fin length 5.92 to 6.96 (6.49).

Measurements into head length: snout length 2.00 to 2.21 (2.15), width 2.21 to 2.41 (2.30); maxillary length 2.89 to 3.41 (3.11); orbital width 4.08 to 4.46 (4.29), depth 5.00 to 5.82 (5.54); interorbital width 4.08 to 4.92 (4.50); nape length 4.82 to 5.78 (5.01), width 3.61 to 4.00 (3.85); rostral exsertions: premaxillary to tip 5.27 to 7.11 (6.11); proximal width between processes 11.55 to 26.50 (17.24), distal width 6.50 to 11.60 (7.96). Second dorsal spine length 4.14 to 4.64 (4.42); sixth soft dorsal ray 4.00 to 4.33 (4.16); longest anal ray 3.85 to 4.64 (4.32); filamentous barbel length 1.68 to 2.17 (2.00); opercular spine, tip to anterior margin of opercle, 3.85 to 4.33 (4.13); terminal wing of pericranial rim to vertical ridge over preopercular sensory canal 2.94 to 3.56 (3.28).

Dorsal VIII, 16 to 19. Anal 17 to 19. Pectoral fin rays 13 to 14 + 2. Gill-rakers 3 to 4 + 1 + 23 to 24. Barbels: lip 1 + 5 ≠ 5 + 1; chin 11 to 13 ÷ 4 to 5 ≠ 10 to 13 ÷ 4 to 5.

Spinous lateral plates and scutes: dorsal series 1 + 26 to 27 + 1; superomedian 5 + 27 to 29 + 1; inferomedian 0 + 26 + 1; but series breaking up anteriorly into a secondary row of 3 to 4 spinous scutes; ventral 2 + 19 to 22 + 0; superomedian bicuspid spines 7 to 9. Caudal fin ray formula (average all specimens) 14.00 + 12.50 + 13.25.

Cranial spines: rostral stout, elevated; nasal absent; postocular, obtusely ended ridge; pterotic, ridge; parietal, elevated ridge; post-temporal, elevated ridge.

Rostral exsertions: extremely short, very broad (median width in length of process [two specimens] 1.11 to 1.29) and triangular.

Pericranial rim: laterally undulate, broadening greatly from fourth suborbital as far as anterior margin of opercle, thence curving inwards to form a terminal right-angled wing (n.b. in holotype, the apical angle is rounded).

Color pattern in alcohol: yellowish-brown. Distal half of first dorsal fin and distal third of soft dorsal, black. Distal half of pectoral fin also black.

REMARKS. — Of the only recorded species found off the Pacific coast of the Americas, *P. barbiger* (GARMAN) differs from *P. ecuadorensis* in the longer and strongly convergent rostral exsertions, the conformation of the

terminal wing of the pericranial rim, the considerably lower number of gill-rakers, the higher number of chin barbels, and in the exceptionally fringed filamentous barbel.

In *P. crustosum* (GARMAN), as compared with *P. ecuadorensis*, the rostral exsertions, while medially divergent, converge slightly at the distal end, whereas, in the new species, these processes are shorter, much broader and markedly triangular.

In *P. crustosum*, there is also a uniformly lower count of spinous scutes in each of the main lateral series.

Furthermore, in neither of the two comparing species does the inferomedian series of scutes bifurcate into a short infraserial secondary row, as in *P. ecuadorensis*.

Peristedion antillarum, new species

Peristedium longispatha GOODE and BEAN, 1886, Bull. Mus. Comp. Zool., vol. 12, No 5, p. 166.

MATERIAL REVIEWED. — MCZ 28088, holotype, 135 mm in standard length; MCZ 28089, paratype, 70 mm; USNM 153584 (ex MCZ 28088), paratype, 112 mm, all taken off Barbados by "Blake", Exped. 1878-79; and USNM 164123, two paratypes of 127 and 130 mm in standard length respectively, from W. of Key West, Gulf of Mexico.

DESCRIPTION. — Body moderately low but very narrow. Head short and depressed. Snout extremely long and very narrow. Mouth very small. Eye small. Interorbital space very narrow. Nape short and somewhat narrow.

Pectoral fin proper rather short; free rays extremely long. Pelvic fin very short. Spinous dorsal fin high; soft dorsal fin extremely high; anal fin high. Filamentous barbel long to very long. Opercular spine very short.

Measurements divided into standard length: greatest body depth 5.09 to 5.83 (5.41); greatest width 6.14 to 6.68 (6.32); head length 2.50 to 2.65 (2.59), depth 5.32 to 6.35 (5.92); pectoral fin length: webbed rays 4.12 to 5.20 (4.80); free rays 3.51 to 4.23 (3.90); pelvic fin length 4.67 to 6.35 (5.75).

Measurements into head length: snout length 1.75 to 2.13 (1.96), width 2.55 to 3.19 (2.76); maxillary length 2.55 to 2.87 (2.69); orbital width 3.92 to 4.67 (4.30), depth 5.38 to 8.00 (6.53); interorbital width 4.30 to 5.10 (4.63); nape length 4.43 to 6.86 (5.71), width 3.64 to 5.09 (4.07); rostral exsertions: premaxillary to tip (four specimens) 1.46 to 1.59 (1.52); proximal width between processes 4.80 to 5.67 (5.30); distal width 2.87 to 3.69 (3.42); second dorsal spine (three) 2.68 to 3.12 (2.87); sixth soft dorsal ray (two) 2.14 to 2.32 (2.23); longest anal ray (three) 2.23 to 4.00 (2.97); filamentous barbel length 2.07 to 2.83 (2.45); opercular spine, tip to anterior margin of opercle, 5.10 to 6.00 (5.38); terminal wing of pericranial rim to vertical ridge over preopercular sensory canal 4.64 to 5.66 (5.00).

Dorsal VII to VIII, 16 to 17. Anal 15 to 18. Pectoral fin rays 12 to 13 + 2. Gill-rakers 2 to 4 + 1 + 17 to 19. Barbels: lip 1 + 1 ≠ 1 + 1; chin none.

Spinous lateral plates and scutes (four): dorsal series 1 + 24 to 25 + 1; superomedian 5 + 25 + 1; inferomedian 0 + 20 to 21 + 1; ventral 2 + 18 + 0; superomedian bicuspid spines 9 to 10. Caudal ray formula (average three specimens): 14 + 12 + 13.

Cranial spines: rostral very small, elevated or absent; nasal absent; fourth suborbital, vestigial or absent; preocular absent; postocular small, elevated; sphenotic small, elevated; pterotic absent (serrulate ridge in one paratype); parietal, small to moderate, elevated (strong in holotype); post-temporal small, elevated (obtusely ended ridge in two paratypes).

Rostral exsertions: very long and extremely narrow (median width in length of process of paratype 153584 of 112 mm, 13.50, and of paratype

164123 of 130 mm, 13.20), delicate and slightly divergent; proximal ends but little broader than extremities.

Pericranial rim: narrow but broadening slightly and progressively from suborbital region to terminal right-angled wing (n.b. in paratype MCZ 28089 a shallow concavity in posterior rim renders wing slightly falciform).

Color pattern in alcohol: head and body yellow with some darkish residual overtones. First dorsal fin: black blotch along distal half of first three interradiial membranes and along distal third of fourth; similar markings along first three membranes of soft dorsal fin, with extension of same along distal third of remaining membranes.

Black blotch along distal half of first eight membranes of anal fin and continuing thence along distal third of remainder. Pectoral fin with some dark markings on proximal third and distal half. In the smallest paratype the whole of the distal two-thirds of the fin is black.

REMARKS. — The new species is closer to *P. longispathum* (GOODE and BEAN) than to any other species, but *P. antillarum* differs trenchantly from the former in the longer and narrower rostral exsertions and in the complete absence of chin barbels.

Other, less obvious, differences are the higher median fins, the longer free pectoral rays, and, also, the much shorter opercular spine in *P. antillarum*.

In their original description of *P. longispathum* (Bull. Mus. Comp. Zool., vol. 12, N.º 5, p. 166, 1886) GOODE and BEAN designated as the type of *Peristedium longispatha*, a specimen of 174 mm in standard length, taken by "Blake", sta. 58, off Santa Cruz (St. Croire) during the expedition of 1878-79, and the following description of the barbels by the authors corresponds, as the writer has verified, to those of the said specimen: "the lower jaw with two long, much fringed barbels, and 14 shorter ones," but along with their "cotypes" (paratypes), the authors included the three MCZ specimens that appear above as corresponding to *P. antillarum*.

In brief, of the five specimens in the original jar at the Museum of Comparative Zoology and one ceded to the U.S. National Museum, only one (MCZ 28022 of 103 mm in standard length) besides the holotype (MCZ 28009 of 174 mm) responded to GOODE and BEAN's diagnosis of *P. longispathum*.

Peristedion bartschi MYERS

Peristedion bartschi MYERS, 1934, *Smithson. Misc. Coll.* 91, Nº 9, p. 10, text-fig. 2, West Indies.

MATERIAL REVIEWED. — USNM 93186, holotype, 179 mm in standard length, taken by "Caroline", sta. 1, off Punta Boca Juana, north coast Puerto Rico, 18° 33' 45" N., 65° 15' 00" W., in 300/600 fathoms, January 30, 1933.

DESCRIPTION. — Body moderately low but very broad. Head short and rather depressed. Snout very long and extremely broad. Mouth large. Eye somewhat large. Interorbital space broad. Nape very long and very broad.

Pectoral fin proper and free rays extremely short. Pelvic fin very short. Spinous dorsal fin high, soft dorsal fin very low; anal fin extremely low. Filamentous barbel long. Opercular spine very long.

Measurements divided into standard length: greatest body depth 4.98; greatest width 4.71; head length 2.63, depth 5.60; pectoral fin length: webbed rays 5.98, free rays 6.18; pelvic fin length 5.60.

Measurements into head length: snout length 2.00, width 2.12; maxillary length 2.35; orbital width 3.78, depth 5.24; interorbital width 3.58; nape length 4.86, width 3.40; rostral exsertions: premaxillary to tip 2.06, proximal width between processes 3.24, distal width 2.34; second dorsal spine 3.02; sixth soft dorsal ray 5.24; longest anal ray 5.91; filamentous barbel length

2.43; opercular spine, tip to anterior margin of opercle, 3.78; terminal wing of pericranial rim to vertical ridge over preopercular sensory canal 4.25.

Dorsal VIII, 17. Anal 17. Pectoral fin rays $12 + 2$. Gill-rakers $3 + 1 + 16$. Barbels: lip $1 + 2 \neq 2 + 1$, chin $?12 \div 5 \neq ?12 \div 5$.

Spinous lateral plates and scutes: dorsal series $1 + 25 + 1$; superomedian $5 + 26 + 1$; inferomedian $0 + 25 + 1$; ventral $2 + 19 + 0$. Superomedian bicuspid spines 9 (vestigial). Caudal ray formula: $14 + 12.25 + 12.75$.

Cranial spines: rostral and nasal spines absent; postocular vestigial; pterotic, serrulate ridge; parietal, serrulate ridge ending in small spine; post-temporal, stout, elevated, serrulate ridge.

Rostral exsertions: very long and very narrow (median width in length of process 5.50), divergent; tip serrulate. Pericranial rim laterally undulate, broadening at third suborbital and then again progressively from fourth suborbital to posterior end, where it widens into a conspicuous right-angled wing. Rim serrulate.

Color pattern in alcohol: body yellow, marbled with dark brown on dorsum as far down as superomedian series of spinous scutes. Head similarly marbled, but markings becoming faint on preorbital area. First dorsal fin: black blotch along distal half of first few interradiial membranes and continuing thence diagonally upward along posterior membranes. Soft dorsal fin: distal half of membranes black; intermittent black markings adjacent to proximal third of each ray. Caudal fin mottled with black. Pectoral fin: proximal third marbled with black; distal two-thirds dark along fin rays.

REMARKS. — The barbels of the holotype are in bad condition and this precludes an accurate count, but specimen USNM 158161 of 170 mm in standard length, Gulf of Mexico, which appears to have been correctly diagnosed as *P. bartschi* MYERS has the following count: lip $1 + 2 \neq 2 + 1$; chin $12 \div 5 \neq 12 \div 5$. Specimen USNM 46031 of 100 mm, Gulf of Mexico, which also bears the legend *P. bartschi* MYERS has a like number of barbels, but this relatively small specimen bears both rostral and nasal spines, which are absent from the two mature specimens. Both of these appear to have suffered considerably from abrasion and, in the course of which, may have lost these spines, but even conceding that the said spines may have been initially weak, it is much to accept the disappearance of both pairs of spines by abrasion in the case of both adult fishes.

Peristedion longispathum (GOODE and BEAN)

Peristedium longispatha GOODE and BEAN, 1886, Bull. Mus. Comp. Zool., vol. 12, N^o 5, p. 166.
Peristedion longispatha, GOODE and BEAN, 1895, Oceanic Ichthyology, U.S. Natl. Mus. Spec. Bull., pp. 470-475, 2 pls.

MATERIAL REVIEWED. — MCZ 28009, holotype, 174 mm in standard length, taken by "Blake", sta. 58, in 314 fathoms, off Santa Cruz (St. Croire); MCZ 28022, paratype, 103 mm, taken by same off Barbados, Exped. 1878-79; USNM 117051 (Coll. W. H. Longley), 134 mm; and a further specimen N.^o 210952 of 134 mm from Coll. H. A. Bullis Jr., U.S. Fish and Wild Life, Pascagoula, Miss.

DESCRIPTION. — Body very low and very narrow. Head very short and depressed. Snout very long and very narrow. Mouth very small. Eye small. Interorbital space very narrow. Nape short and narrow.

Pectoral fin proper and free rays short. Pelvic fin extremely short. Spinous dorsal fin moderately high; soft dorsal and anal fins very low. Filamentous barbel variable. Opercular spine very long.

Measurements divided into standard length: greatest body depth 4.71 to 6.38 (5.74); greatest width 4.84 to 9.36 (6.77); head length 2.52 to 3.12 (2.73),

2.43; opercular spine, tip to anterior margin of opercle, 3.78; terminal wing of pericranial rim to vertical ridge over preopercular sensory canal 4.25.

Dorsal VIII, 17. Anal 17. Pectoral fin rays $12 + 2$. Gill-rakers $3 + 1 + 16$. Barbels: lip $1 + 2 \neq 2 + 1$, chin $?12 \div 5 \neq ?12 \div 5$.

Spinous lateral plates and scutes: dorsal series $1 + 25 + 1$; superomedian $5 + 26 + 1$; inferomedian $0 + 25 + 1$; ventral $2 + 19 + 0$. Superomedian bicuspid spines 9 (vestigial). Caudal ray formula: $14 + 12.25 + 12.75$.

Cranial spines: rostral and nasal spines absent; postocular vestigial; pterotic, serrulate ridge; parietal, serrulate ridge ending in small spine; post-temporal, stout, elevated, serrulate ridge.

Rostral exsertions: very long and very narrow (median width in length of process 5.50), divergent; tip serrulate. Pericranial rim laterally undulate, broadening at third suborbital and then again progressively from fourth suborbital to posterior end, where it widens into a conspicuous right-angled wing. Rim serrulate.

Color pattern in alcohol: body yellow, marbled with dark brown on dorsum as far down as superomedian series of spinous scutes. Head similarly marbled, but markings becoming faint on preorbital area. First dorsal fin: black blotch along distal half of first few interradiial membranes and continuing thence diagonally upward along posterior membranes. Soft dorsal fin: distal half of membranes black; intermittent black markings adjacent to proximal third of each ray. Caudal fin mottled with black. Pectoral fin: proximal third marbled with black; distal two-thirds dark along fin rays.

REMARKS. — The barbels of the holotype are in bad condition and this precludes an accurate count, but specimen USNM 158161 of 170 mm in standard length, Gulf of Mexico, which appears to have been correctly diagnosed as *P. bartschi* MYERS has the following count: lip $1 + 2 \neq 2 + 1$; chin $12 \div 5 \neq 12 \div 5$. Specimen USNM 46031 of 100 mm, Gulf of Mexico, which also bears the legend *P. bartschi* MYERS has a like number of barbels, but this relatively small specimen bears both rostral and nasal spines, which are absent from the two mature specimens. Both of these appear to have suffered considerably from abrasion and, in the course of which, may have lost these spines, but even conceding that the said spines may have been initially weak, it is much to accept the disappearance of both pairs of spines by abrasion in the case of both adult fishes.

Peristedion longispathum (GOODE and BEAN)

Peristedium longispatha GOODE and BEAN, 1886, Bull. Mus. Comp. Zool., vol. 12, N^o 5, p. 166.
Peristedion longispatha, GOODE and BEAN, 1895, Oceanic Ichthyology, U.S. Natl. Mus. Spec. Bull., pp. 470-475, 2 pls.

MATERIAL REVIEWED. — MCZ 28009, holotype, 174 mm in standard length, taken by "Blake", sta. 58, in 314 fathoms, off Santa Cruz (St. Croire); MCZ 28022, paratype, 103 mm, taken by same off Barbados, Exped. 1878-79; USNM 117051 (Coll. W. H. Longley), 134 mm; and a further specimen N.^o 210952 of 134 mm from Coll. H. A. Bullis Jr., U.S. Fish and Wild Life, Pascagoula, Miss.

DESCRIPTION. — Body very low and very narrow. Head very short and depressed. Snout very long and very narrow. Mouth very small. Eye small. Interorbital space very narrow. Nape short and narrow.

Pectoral fin proper and free rays short. Pelvic fin extremely short. Spinous dorsal fin moderately high; soft dorsal and anal fins very low. Filamentous barbel variable. Opercular spine very long.

Measurements divided into standard length: greatest body depth 4.71 to 6.38 (5.74); greatest width 4.84 to 9.36 (6.77); head length 2.52 to 3.12 (2.73),

depth 5.12 to 6.70 (6.02); pectoral fin length: webbed rays 4.29 to 5.80 (5.21), free rays 4.11 to 5.62 (4.96); pelvic fin length 4.97 to 7.05 (6.20).

Measurements into head length: snout length 2.03 to 2.08 (2.05), width 2.03 to 3.15 (2.62); maxillary length 2.41 to 2.93 (2.69); orbital width 3.91 to 5.12 (4.52), depth 5.66 to 6.40 (5.89); interorbital width 4.07 to 5.20 (4.79); nape length 4.64 to 6.83 (5.70), width 3.61 to 4.56 (4.20); rostral exsertions: premaxillary to tip (two specimens) 2.39 to 2.48 (2.44), proximal width between processes (four) 3.61 to 6.40 (5.33), distal width (three) 2.24 to 4.00 (3.10); second dorsal spine 2.73 to 4.10 (3.48); sixth soft dorsal ray (two) 4.10 to 4.34 (4.22); longest anal ray 4.34 to 5.42 (4.84); filamentous barbel length 2.26 to 4.56 (3.15); opercular spine, tip to anterior margin of opercle (three), 3.61 to 4.09 (3.81); terminal wing of pericranial rim to vertical ridge over preopercular sensory canal (three) 3.91 to 5.20 (4.58).

Dorsal VIII, 18 to 19. Anal 19 to 20. Pectoral fin rays 12 to 13 + 2. Gill-rakers 3 to 5 + 1 + 16 to 24. Barbels: lip 1 + 2 to 4 \neq 2 to 4 + 1, chin 12 \div 5 \neq 11 to 12 \div 5.

Spinous lateral plates and scutes: dorsal series 1 + 27 + 1; superomedian 5 + 27 to 28 + 1; inferomedian 0 + 24 to 26 + 1; ventral 2 + 20 + 0. Superomedian bicuspid spines 8 to 10. Caudal fin formula (average two specimens) 13.25 + 10.75 + 12.25.

Cranial spines: rostral slightly retrorse, elevated in specimen 210592 but absent from holotype and paratype; nasal absent; second suborbital, one very small spine present in 210952 but absent from remainder; fourth suborbital, vestigial in 210952; postocular small, elevated; pterotic, ridge; parietal small, slightly elevated; post-temporal, an obtusely ended ridge.

Rostral exsertions: the processes of both the holotype and the paratype are broken off short. Those of the remaining two specimens reviewed above are very long, averaging 2.44 in head length, and very narrow, their respective widths in length of process being 6.00 and 6.45. The exsertions are divergent.

Pericranial rim: laterally minutely serrulate and but little undulate; widens very gradually from rostrum to posterior end, where it forms a right-angled wing.

Color pattern in alcohol: distal third of first and second dorsal fins and caudal fin, black. Distal two-thirds of pectoral fin also black.

Peristedion barbiger (GARMAN)

Peristedium barbiger GARMAN, 1899, Mem. Mus. Comp. Zool., vol. 24, p. 110, off Bay of Panama.

MATERIAL REVIEWED. — MCZ 28707, two specimens, cotypes, of 137-121 mm in standard length (the second examined for barbel and scute counts only), taken by "Albatross", sta. 3387, 7° 40' 00" N., 79° 17' 50" W., in 127 fathoms, Exped. 1890-91; USNM 153601, paratype, of 143 mm.

DESCRIPTION. — Body of moderate depth but broad. Head short and somewhat low. Snout moderately long and rather broad. Mouth extremely small. Eye of medium size. Interorbital space somewhat narrow. Nape short and narrow.

Pectoral fin proper very short; free rays moderately long. Pelvic fin very short. Spinous dorsal fin extremely low; soft dorsal fin low; anal fin very low. Filamentous barbel moderately short. Opercular spine short.

Measurements divided into standard length: greatest body depth 5.07 to 5.10 (5.09); greatest width 5.07 to 5.50 (5.29); head length 2.58 to 2.65 (2.62), depth 5.48 to 5.50 (5.49); pectoral fin length: webbed rays 5.48 to 5.96 (5.72), free rays 4.73 to 5.10 (4.92); pelvic fin length 5.70 to 5.72 (5.71).

Measurements into head length: snout length 2.21 to 2.35 (2.28), width 2.35 to 2.36 (2.36); maxillary length 3.18 to 3.53 (3.36); orbital width 3.60 to 4.08 (3.84), depth 5.40 to 5.90 (5.65); interorbital width 4.08 to 4.50 (4.29); nape length 5.40 to 5.90 (5.65), width 3.38 to 5.30 (4.34); rostral exsertions: premaxillary to tip 3.31 to 4.62 (3.97); proximal width between processes 10.80 to 13.25 (12.03); distal width 17.65 to 27.00 (22.33); second dorsal spine 4.61 to 5.40 (5.01); sixth soft dorsal ray 3.93 to 4.15 (4.04); longest anal ray 4.42 to 4.90 (4.66); filamentous barbel length 3.00 to 3.78 (3.39); opercular spine, tip to anterior margin of opercle, 4.42 to 4.50 (4.46); terminal wing of pericranial rim to vertical ridge over preopercular sensory canal 3.53 to 3.86 (3.70).

Dorsal VIII, 18. Anal 18 to 20. Pectoral fin rays 13 + 2. Gill-rakers 1 to 2 + 1 + 14. Barbels: lip 1 + 4 to 5 \neq 4 to 5 + 1; chin 18 to 21 \div 4 to 6 \neq 17 to 21 \div 4 to 6.

Spinous lateral plates and scutes: dorsal series (three specimens) 1 + 25 to 26 + 1; superomedian 5 + 27 + 1; inferomedian 0 + 24 to 25 + 1; ventral 2 + 19 + 0. Superomedian bicuspid spines 9. Caudal ray formula: 14.25 + 12.25 + 13.50.

Cranial spines: rostral elevated, retrorse; nasal elevated, retrorse; second suborbital (1 spine) small, retrorse; postocular strong, elevated; pterotic, slightly elevated ridge; parietal strong, elevated; post-temporal, low ridge with blunt spine.

Rostral exsertions: moderately short to very short, very broad (median width in length of process [paratype 153601] 2.29), and convergent.

Pericranial rim: laterally undulate between rostrum and preopercle, where it broadens greatly and terminates in an acute-angled wing.

Peristedion altipinnis (REGAN)

Peristedium altipinnis REGAN, 1903, Proc. Zool. Soc. London, vol. 2, p. 65, pl. 8, fig. 1; Rio de Janeiro.

MATERIAL REVIEWED. — Br. Mus. 1903. 6. 9. 69, holotype (Coll. Goeldi), 163 mm in standard length; Rio de Janeiro.

DESCRIPTION. — Body very low and broad. Head short and rather deep. Snout very short and narrow. Mouth moderately large. Eye very large. Interorbital space rather broad. Nape short but very broad.

Pectoral fin proper extremely long; free rays moderately long. Pelvic fin extremely long. Spinous dorsal, soft dorsal and anal fins extremely high. Filamentous barbel extremely short. Opercular spine long.

Measurements divided into standard length: greatest body depth 6.27; greatest width 5.26; head length 2.67, depth 5.44; pectoral fin length: webbed rays 3.97; free rays 4.53; pelvic fin length 3.88.

Measurements into head length: snout length 2.44; orbital width 3.30, depth 4.36; interorbital width 4.07; nape length 6.10, width 3.39; rostral exsertions: premaxillary to tip. 4.70; proximal width between processes 5.82; distal width 7.62; second dorsal spine 1.74; sixth soft dorsal ray 1.74; longest anal ray 2.34; filamentous barbel length 5.54; opercular spine, tip to anterior margin of opercle, 4.06; terminal wing of pericranial rim to vertical ridge over preopercular sensory canal 4.06.

Dorsal VIII, 17. Anal 16. Pectoral fin rays 11 + 2. Gill-rakers 2 + 1 + 14. Barbels: lip 1 + 6 \neq 5 + 1; chin 22 \div 6 \neq 21 \div 6.

Spinous lateral plates and scutes: dorsal series 1 + 24 + 1; superomedian 5 + 24 + 1; inferomedian 0 + 22 + 1; ventral 2 + 19 + 0. Superomedian bicuspid spines 10. Caudal ray formula: 16.50 + 13.50 + 15.25.

Cranial spines: rostral and nasal absent; postocular small, blunt, retrorse; parietal stout, elevated; post-temporal stout, blunt and depressed.

Rostral exsertions: very short, broad (median width in length of process 2.60) and slightly convergent; strongly serrulate.

Pericranial rim: narrow but broader at preopercle and terminating in a dorso-ventrally flattened, acute-angled wing.

Color pattern in alcohol: indiscernible.

REMARKS. — *Peristedium roseum* MIRANDA RIBEIRO, 1904, "A Lavoura," Bol. Soc. Agric. Rio de Janeiro, 53 pp.

This new species was first recorded in "A Lavoura" in 1903, under the heading "Pescas do «Anie», April to July, p. 180.

In "Archivos do Museu Nacional do Rio de Janeiro," vol. 21, Rio de Janeiro, Imprensa Nacional, 1918, *P. altipinnis* REGAN is treated as a synonym of *P. roseum* MIRANDA RIBEIRO.

Both species are assigned to the locality of Rio de Janeiro, and if both were taken in the Bay of Guanabara, which is relatively shallow and nearly land-locked, the presumption of specific identity would be strong, but the deep-sea trawlers based on Rio de Janeiro fish the continental shelf between this port and Cabo Frio, so that the possibility of finding two different species in this area cannot be ruled out.

An analysis of the data given by MIRANDA RIBEIRO in respect of barbels, gives the following formula: lip $1 + 3 \neq 3 + 1$; chin $18 \div 5 \neq 18 \div 5$ — differences too wide to be written off as acceptable variations.

Peristedion schmitti, new species

MATERIAL REVIEWED. — USNM 117055, holotype, 168 mm in standard length, and USNM 177726, four specimens, paratypes, 142-196 mm; all taken off Tortugas.

DESCRIPTION. — Body very low and very broad. Head short but of moderate depth. Snout very short and narrow. Mouth rather large. Eye large. Interorbital space very broad. Nape short and broad.

Pectoral fin proper long; free rays short. Pelvic fin short. Spinous and soft dorsal fins very high; anal fin low. Filamentous barbel very short. Opercular spine short.

Measurements divided into standard length: greatest body depth 5.42 to 7.00 (6.30); greatest width 4.66 to 6.23 (5.18); head length 2.65 to 2.73 (2.68), depth 5.42 to 5.68 (5.55); pectoral fin length: webbed rays 4.26 to 4.56 (4.40), free rays 4.54 to 5.68 (5.06); pelvic fin length 4.42 to 5.76 (5.03).

Measurements into head length: snout length 2.35 to 2.44 (2.39), width 2.33 to 2.70 (2.49); maxillary length 2.36 to 2.62 (2.49); orbital width 3.44 to 3.65 (3.53), depth 4.33 to 5.08 (4.76); interorbital width 3.70 to 4.30 (3.89); nape length 5.62 to 6.12 (5.87), width 3.23 to 3.84 (3.57); rostral exsertions: premaxillary to tip (four specimens) 3.67 to 4.33 (3.97); proximal width between processes (four) 9.00 to 9.44 (9.25), distal width (three) 3.46 to 4.84 (4.22). Second dorsal spine length 1.77 to 3.17 (2.54); sixth soft dorsal ray 2.29 to 3.74 (2.94); longest anal ray 3.39 to 4.56 (3.90); filamentous barbel length 4.69 to 6.08 (5.17); opercular spine, tip to anterior margin of opercle, 4.06 to 5.20 (4.51); terminal wing of pericranial rim to vertical ridge over preopercular sensory canal 3.46 to 4.87 (3.91).

Dorsal VIII, 17 to 18. Anal 17. Pectoral fin rays 11 to 12 + 2. Gill-rakers 1 to 2 + 1 + 13 to 16. Barbels: lip $1 + 5$ to $6 \neq 5 + 1$; chin 14 to $15 \div 5 \neq 14$ to $15 \div 5$.

Spinous lateral plates and scutes: dorsal series $1 + 25$ to $26 + 1$; supero-median $5 + 26$ to $27 + 1$; inferomedian $0 + 22$ to $23 + 1$; ventral $2 + 19$ to

20 + 0. Superomedian bicuspid spines 10 to 11. Caudal ray formula (average three specimens) 14.00 + 12.00 + 13.00.

Cranial spines: rostral small, retrorse, usually absent or vestigial; nasal small, retrorse, usually absent; postocular small, elevated; pterotic, ridge; parietal stout, elevated; post-temporal stout, depressed or just a ridge.

Rostral excursions: moderately short to very short, moderately broad (median width in length of process: holotype 3.20, paratype of 142 mm 3.00), strongly serrulate and divergent.

Pericranial rim: narrow, slightly undulate laterally and terminating in an acute-angled wing.

Filamentous barbel heavily filamented from base to tip.

Color pattern in alcohol: indiscernible.

REMARKS. — The new species appears to be closer to *P. spiniger* LONGLEY and HILDEBRAND than to any other species, but *P. schmitti* differs from the former in the conformation of the terminal wing of the pericranial rim, the much shorter filamentous barbel, the lower number of gill-rakers and of the inferomedian lateral scutes, and, also, in the shorter opercular spine.

Furthermore, in *P. schmitti* the pectoral fin proper is longer and the dorsal fins higher than in the comparing species.

Lastly, in the new species, there is no bifurcation of the inferomedian scute series as has been observed in *P. spiniger*.

P. schmitti has been so named in honor of Dr. Waldo L. Schmitt of the Smithsonian Institution.

Peristedion taeniopteron FOWLER

Peristedion taeniopteron FOWLER, 1952, Notulae Naturae, Acad. Nat. Sci. Philadelphia, No 246, p. 5, figs. 1 and 2.

MATERIAL REVIEWED. — ANSP 71952, holotype, 54 mm in standard length, taken by "Triton" S. E. of Sombrero Key Light, southern Florida, in 70 fathoms, July 1952.

DESCRIPTION. — Body very low. Head very short and moderately deep. Snout extremely long and extremely narrow. Mouth extremely small. Eye very small. Interorbital space extremely narrow. Nape very short and very broad.

Pectoral fin proper long. Pelvic fin long. Spinous dorsal fin very high; soft dorsal and anal fins high (cf. Fowler, op. cit.). Filamentous barbel extremely long. Opercular spine short. Preopercular spine extremely short.

Measurements divided into standard length; greatest body depth 6.00; head length 2.70, depth 5.40; pectoral fin length: webbed rays 4.15; pelvic fin length 4.50.

Measurements into head length: snout length 1.91, width 3.50; maxillary length 3.00; orbital width 5.25, depth 7.00; interorbital width 5.25; nape length 7.00, width 3.50; rostral excursions: premaxillary to tip 2.80; proximal width between processes 6.00; distal width 4.20; filamentous barbel length 1.82; opercular spine, tip to anterior margin of opercle, 4.66; terminal spine of pericranial rim to vertical ridge over preopercular sensory canal 5.25.

Dorsal (including paratype 71955) VIII, 17 to 18. Anal 16 to 19. Pectoral fin rays 12 + 2. Barbels: lip and chin together 1 + 10 \neq 10 + 1. Gill-rakers 4 + 1 + 22.

Spinous lateral plates and scutes: dorsal series 1 + 28 + 1; superomedian 5 + 28 + 1; inferomedian 0 + 24 + 1; ventral 2 + 20 + 0. Superomedian bicuspid spines 8.

Cranial spines: rostral and nasal spines absent; postocular small, elevated; pterotic, ridge; parietal stout, slightly elevated.

Rostral exsertions: long and moderately narrow (median width in length of process 3.75), slightly divergent.

Pericranial rim: straight, narrow and terminating in vestigial spine.

Color pattern in alcohol: indiscernible.

Peristedion gracile GOODE and BEAN

Peristedion gracile GOODE and BEAN, 1895, Oceanic Ichthyology, U.S. Natl. Mus. Spec. Bull., pp. 470-475, 2 pls. Gulf of Mexico.

MATERIAL REVIEWED. — USNM 39319, holotype, 98 mm in standard length, taken by "Albatross", sta. 2401, 28° 38' 30" N., 85° 52' 30" W., in 142 fathoms, Gulf of Mexico; Tul. Un. Coll. 374/2851, specimen of 129 mm, taken by "Oregon", 29° 20' 00" N., 88° 07' 00" W., in 47 fathoms, August 9, 1950; USNM 117061 (Coll. W. H. Longley), specimen 122 mm, south of Tortugas, Florida, in 60 fathoms, June 30, 1932; and, also, four further specimens, same number and source, of 83 to 129 mm, examined, as shown below, for selected data only.

DESCRIPTION. — Body low and extremely narrow. Head very short and much depressed. Snout extremely long and very narrow. Mouth extremely small. Eye small. Interorbital space broad. Nape very short but broad.

Pectoral fin proper short; free rays moderately short. Pelvic fin extremely short. Spinous dorsal fin very high; soft dorsal and anal fins low. Filamentous barbel rather short to short. Opercular spine somewhat long. Preopercular spine extremely short to vestigial.

Measurements divided into standard length: greatest body depth 4.96 to 6.10 (5.61); greatest width 6.78 to 8.16 (7.52); head length 2.71 to 2.74 (2.72), depth 5.60 to 7.00 (6.46); pectoral fin length: webbed rays 4.88 to 5.60 (5.13), free rays 4.08 to 5.60 (4.85); pelvic fin length 4.66 to 7.16 (6.20).

Measurements into head length: snout length 1.87 to 1.89 (1.88), width 3.13 to 3.75 (3.50); maxillary length 2.77 to 3.00 (2.90); orbital width 4.24 to 4.50 (4.34), depth 5.62 to 6.71 (6.11); interorbital width 3.60 to 4.09 (3.87); nape length 5.62 to 7.20 (6.51), width 3.75 to 4.27 (3.94); rostral exsertions: (seven examples) premaxillary to tip 2.50 to 3.60 (2.88); proximal width between processes 5.00 to 9.00 (6.97); distal width 4.29 to 6.71 (5.08); second dorsal spine (two specimens) 2.40 to 2.50 (2.45); sixth soft dorsal ray (three) 3.61 to 4.09 (3.90); longest anal ray (three) 3.79 to 4.09 (3.93); filamentous barbel length (three) 3.91 to 4.50 (4.14); opercular spine, tip to anterior margin of opercle (seven), 3.75 to 5.13 (4.22); terminal spine (or, alternatively, a minute wing; see below) of pericranial rim to vertical ridge over preopercular sensory canal 5.00 to 7.50 (6.55).

Dorsal (seven) VIII, 20. Anal (seven) 20 to 21. Pectoral fin rays (six) 12 + 2. Gill-rakers (seven) 2 to 3 + 1 + 18 to 21. Barbels: (six) lip 1 + 5 \neq 5 + 1; chin 25 to 30 \div 7 \neq 25 to 31 \div 7.

Spinous lateral plates and scutes (seven): dorsal series 1 + 27 to 28 + 1; superomedian 5 + 28 to 29 + 1; inferomedian 0 + 25 + 1; ventral 2 + 21 to 22 + 0. Superomedian bicuspid spines 6 to 9.

Caudal fin formula (three): 14.50 + 11.00 + 13.50.

Cranial spines: rostral and nasal spines absent; postocular small, depressed; pterotic, serrulate ridge; parietal, in young, very long and slightly elevated; post-temporal, obtusely ended ridge.

Rostral exsertions moderately short to long and moderately to very narrow (median width in length of process [three examples] 3.70 to 5.65) and nearly parallel.

Pericranial rim: very narrow, laterally scarcely undulate and terminating in an obtuse vestigial spine, but occasionally in a minute acute-angled wing.

Color pattern in alcohol: bronze-yellow on dorsal and ventral areas; silvery between superomedian and inferomedian series of lateral scutes; inter-orbital region also bronze-yellow.

The Tulane University specimen of 129 mm had a dark interrupted band traversing the dorsal fins from the sixth dorsal spine to the eighth and from the first to the last ray of the soft dorsal. This latter band was submarginal and covered two-thirds of the distal third of the fin; the band was interrupted on the interradial membranes.

Peristedion platycephalum (GOODE and BEAN)

Peristedium platycephalum GOODE and BEAN, 1886, Bull. Mus. Comp. Zool., vol. 12, No 5, p. 167.

Peristedion platycephalum (GOODE and BEAN), 1896, Oceanic Ichthyology, 472, pl. 114, fig. 386.

MATERIAL REVIEWED. — MCZ 28028, holotype, 140 mm in standard length, taken by "Blake" off Barbados in 123 fathoms, Exped. 1878-79.

DESCRIPTION. — Body very low and very broad. Head very short and very depressed. Snout moderately long but extremely broad. Mouth rather small. Eye somewhat small. Interorbital space broad. Nape very long and broad.

Pectoral fin proper long; free rays extremely short. Pelvic fin short. Spinous dorsal fin very high; soft dorsal fin high; anal fin low. Filamentous barbel very short. Opercular spine very long. Preopercular spine moderately long.

Measurements divided into standard length: greatest body depth 5.83, greatest width 4.83; head length 2.80, depth 6.36; pectoral fin length: webbed rays 4.24, free rays 5.83; pelvic fin length 5.18.

Measurements into head length: snout length 2.27, width 2.17; maxillary length 2.50; orbital width 3.84, depth 5.56; interorbital width 3.71; nape length 4.55, width 3.85; rostral exsertions: premaxillary to tip 3.85; proximal width between processes 10.00, distal width 5.00; second dorsal spine 2.57; sixth soft dorsal ray 2.94; longest anal ray 4.16; filamentous barbel length 5.00; opercular spine, tip to anterior margin of opercle, 3.57; terminal spine of pericranial rim to vertical ridge over preopercular sensory canal 3.33.

Dorsal VIII, 17. Anal 17. Pectoral fin rays 13 + 2. Gill-rakers 1 + 1 + 9. Barbels: lip 1 + 4 \neq 4 + 1, chin 31 \div 6 \neq 31 \div 6.

Spinous lateral plates and scutes: dorsal series 1 + 26 + 1; superomedian 5 + 28 + 1; inferomedian 0 + 22 + 1; ventral 2 + 18 + 0. Superomedian bicuspid spines 10. Caudal fin formula: 15 + 13 + 15.

Cranial spines: rostral absent; nasal strong, elevated; postocular weak, elevated; sphenotic small, elevated; pterotic, slightly serrulate ridge; parietal strong, elevated; post-temporal small, depressed.

Rostral exsertions: moderately short and very broad (median width in length of process 2.17).

Pericranial rim: laterally granulate to finely serrulate, but little undulate, and terminating posteriorly in a strong and sharp, backwardly directed spine; this flattened dorso-ventrally.

Color pattern in alcohol: residual dark chromatophores traversing all but distal and proximal ends of pectoral fin.

Peristedion brevirostre (GUNTHER)

Peristethus brevirostre GUNTHER, 1860, Cat. Fishes, Br. Mus. (Nat. Hist.), vol. 2, p. 217, West Indies.

MATERIAL REVIEWED. — Br. Mus. 1847. 6. 27. 7., holotype, 195 mm in standard length. Coll. Sir R. Schomburgk.

DESCRIPTION. — Body very low and moderately broad. Head extremely short and very depressed. Snout rather long but extremely broad. Mouth very small. Eye somewhat large. Interorbital space very broad. Nape rather short but very broad.

Pectoral fin proper extremely long; free rays short. Pelvic fin long. Spinous dorsal fin high; soft dorsal fin moderately high; anal fin low. Filamentous barbel very long. Opercular spine very long. Preopercular spine long. Measurements divided into standard length: greatest body depth 5.91, width 5.42; head length 2.95; depth 6.10; pectoral fin length: webbed rays 3.90; free rays 5.28; pelvic fin length 4.64.

Measurements into head length: snout length 2.28, width 2.20; maxillary length 2.54; orbital width 3.67, depth 5.08; interorbital width 3.30; nape length 5.50, width 3.30; rostral exsertions: premaxillary to tip 4.40; proximal width between processes 9.44; distal width 6.00; second dorsal spine 3.00; sixth soft dorsal ray 3.47; longest anal ray 4.12; filamentous barbel length 2.20; opercular spine, tip to anterior margin of opercle, 3.67; terminal spine of pericranial rim to vertical ridge over preopercular sensory canal 3.15.

Dorsal VIII, 17. Anal 17. Pectoral fin rays 12 + 2. Gill-rakers unknown: gills removed. Barbels: lip 1 + 6 \neq 6 + 1, chin 20 \div 5 \neq 19 \div 5.

Spinous lateral plates and scutes: dorsal series 1 + 24 + 1; superomedian 5 + 26 + 1; inferomedian 0 + 22 + 1; ventral 2 + 18 + 0. Supero-medial bicuspid spines 9. Caudal ray formula 13.25 + 11.25 + 12.75.

Cranial spines: rostral absent; nasal very stout; preocular and postocular spines absent; pterotic, rough ridge; parietal rather strong, elevated; post-temporal strong depressed spine with ridge.

Rostral exsertions: short, extremely broad (median width in length of process 1.88) and slightly divergent.

Pericranial rim: narrow, terminating posteriorly in long sharp dorso-ventrally flattened spine.

Color pattern in alcohol: indiscernible.

Peristedion mcgintyi FOWLER

Peristedion mcgintyi FOWLER, 1952, Notulae Naturae, Acad. Nat. Sci. Philadelphia, No 246, p. 8, figs. 5 and 6.

MATERIAL REVIEWED. — ANSP 71958, holotype, 42 mm in standard length, taken by "Triton" south of Sombrero Key Light, southern Florida, in 80 fathoms, June 1952.

DESCRIPTION. — Body moderately low but broad. Head very long and extremely deep. Snout very short and very narrow. Mouth very large. Eye rather large. Interorbital space very broad. Nape short but very broad.

Pectoral fin proper and free rays moderately long. Pelvic fin very short. Spinous dorsal fin somewhat high; soft dorsal fin low; anal fin very low. Filamentous barbel extremely long. Opercular spine very short. Preopercular spine short.

Measurements divided into standard length: greatest body depth 5.25; greatest width 5.25; head length 2.47, depth 4.66; pectoral fin length: webbed rays 4.66, free rays 4.66; pelvic fin length 5.60.

Measurements into head length: snout length 2.43, width 2.84; maxillary length 2.00; orbital width 4.25, depth 4.25; interorbital width 3.40; nape length 5.66, width 3.40; rostral exsertions: premaxillary to tip 6.80; proximal width between processes 8.50; distal width 4.86; second dorsal spine 3.40; sixth soft dorsal ray 3.78; longest anal ray 4.25; filamentous barbel length 1.89; opercular spine, tip to anterior margin of opercle, 4.86; terminal spine of pericranial rim to vertical ridge over preopercular sensory canal 3.78.

Dorsal VII, 15. Anal 15. Pectoral rays 12 + 2. Gill-rakers 2 + 1 + 8. Barbels: lip and chin together, 1 + 10 \neq 10 + 1; spinous lateral plates and scutes (including those of paratype 71959): dorsal series 1 + 26 to 27 + 1; superomedian 5 + 27 to 28 + 1; inferomedian 0 + 23 to 24 + 1; ventral 2 + 19 + 0. Superomedian bicuspid spines 7.

Cranial spines: rostral (situated laterally as in *Triglidae*: see FOWLER, *op. cit.*, fig. 5), small, elevated; nasal absent; second suborbital (1 spine) small, elevated; postocular strong, elevated; parietal strong, high; posttemporal small, obtuse.

Rostral exsertions: extremely short and extremely broad (median width in length of process 1.65), divergent.

Pericranial rim: terminates posteriorly in short spine.

Color pattern in alcohol: indiscernible.

Peristedion thompsoni FOWLER

Peristedion thompsoni FOWLER, 1952, *Notulae Naturae*, Acad. Nat. Sci. Philadelphia, No 246, p. 7, figs. 3 and 4.

MATERIAL REVIEWED. — ANSP 71957, paratype, 41 mm in standard length, taken by "Triton" south of Sombrero Key Light, southern Florida, in 80 fathoms, June 1952.

DESCRIPTION. — Body rather deep and extremely broad. Head very long and very deep. Snout very short but very broad. Mouth extremely large. Eye moderately large. Interorbital space extremely broad. Nape short but very broad.

Pectoral fin proper somewhat long; free rays long. Pelvic fin moderately long. Spinous dorsal fin rather high; soft dorsal fin very high; anal fin high. Filamentous barbel extremely short. Opercular spine moderately long. Preopercular spine extremely long.

Measurements divided into standard length: greatest body depth 4.55; greatest width 4.10; head length 2.41, depth 4.82; pectoral fin length: webbed rays 4.55; free rays 4.32; pelvic fin length 4.82.

Measurements into head length: snout length 2.43, width 2.27; maxillary length 1.89; orbital width 4.25, depth 4.25; interorbital width 2.84; nape length 5.66, width 2.61; rostral exsertions: premaxillary to tip 4.86; proximal width between processes 5.66; distal width 3.78; second dorsal spine 3.40; sixth soft dorsal ray 2.43; longest anal ray 3.09; filamentous barbel length 5.66; opercular spine, tip to anterior margin of opercle, 4.25; terminal spine of pericranial rim to vertical ridge over preopercular sensory canal 2.13.

Dorsal VII, 15. Anal 16. Pectoral rays 12 + 2. Gill-rakers 2 + 1 + 6. Barbels: lip 1 + 0 \neq 0 + 1; chin none.

Spinous lateral plates and scutes (including those of holotype 71956): dorsal series 1 + 24 + 1; superomedian 5 + 26 + 1; inferomedian 0 + 22 + 1; ventral 2 + 19 + 0. Superomedian bicuspid spines 10.

Cranial spines: rostral small, elevated, retrorse; nasal absent; second suborbital very small, elevated (1 spine); postocular strong, elevated; pterotic, serrulate ridge; parietal, strong, high; post-temporal, small, sharp.

Rostral exsertions: very short and very broad (median width in length of process 2.35); divergent and strongly serrulate at distal end.

Pericranial rim: broadens into triangle at preopercle and terminates posteriorly in long, sharp, dorso-ventrally flattened spine.

Color pattern in alcohol: yellow, mottled with dark brown, these pigments forming some five broad bands across dorsum.

Peristedion imberbe (POEY)

Pterystedion imberbe POEY, 1861, *Memorias*, vol. 2, p. 367, Cuba.

Peristedion micronemus POEY, 1870, *Ann. Lyc. Nat. Hist. New York*, vol. 9, p. 321, Cuba.

Peristedion imberbe, GOODE and BEAN, 1895, *Oceanic Ichthyology*, U.S. Natl. Mus. Spec. Bull., pp. 470-475, 2 pls.

Peristedion gracile, LONGLEY in LONGLEY and HILDEBRAND, 1940, *Pap. Tort. Lab. Carn. Inst. Washington*, vol. 32, pp. 167-170.

MATERIAL REVIEWED. — MCZ 13566, holotype, 45 mm in standard length, off Cuba.

DESCRIPTION. — Body low and narrow. Head extremely long and deep. Snout very long and very narrow. Mouth very large. Eye very large. Interorbital space moderately narrow. Nape very short and very narrow.

Pectoral fin proper extremely long; free rays long. Pelvic fin long. Spinous dorsal and soft dorsal fins low. Filamentous barbel absent. Opercular spine very short. Preopercular spine short.

Measurements divided into standard length: greatest body depth 5.62; greatest width 6.00; head length 2.37, depth 5.00; pectoral fin length: webbed rays 3.46; free rays 4.28; pelvic fin length 4.50.

Measurements into head length: snout length 1.90, width 3.17; maxillary length 2.00; orbital width 3.45, depth 4.75; interorbital width 4.22; nape length 6.33, width 5.43; rostral exsertions: premaxillary to tip 4.75; third dorsal spine 3.80; sixth soft dorsal ray 3.80; opercular spine, tip to anterior margin of opercle, 5.43; terminal spine of pericranial rim to vertical ridge over preopercular sensory canal 4.75.

Dorsal VIII, 16. Anal 11. Pectoral fin rays 11 + 2. Gill-rakers 1 + 1 + 18. Barbels: lip, none (filamentous barbel missing); chin $1 \div 1 \neq 1 \div 1$ (n.b. LONGLEY, *op. cit.*, in ascribing *P. imberbe* to *P. gracile* ignores FELIPE POEY's observation of 1870: "with lens a very small tentacle is seen near the angle of the mouth on each side.")

Spinous lateral plates and scutes: dorsal series 1 + 27 + 1; superomedian 5 + 27 + 1; inferomedian 0 + 24 + 1; ventral 2 + 19 + 0. Supero-medial bicuspids 8. Caudal fin formula 11 + 10 + 12.

Cranial spines: rostral absent; nasal absent; postocular stout, elevated; pterotic, ridge; parietal strong, elevated; post-temporal small, depressed.

Rostral exsertions: very short¹ and very broad (median width in length of process 2.00), divergent.

(1) Against an early measurement, the writer wrote "broken," but a subsequent examination did not definitely confirm this conclusion.

Pericranial rim: laterally somewhat undulate and very finely serrulate; distal end produced sharply into dorso-ventrally flattened spine.

Color pattern in alcohol: body dark brown; pectoral fin: distal two-thirds blackish.

REMARKS. -- JORDAN and EVERMANN state in "The Fishes of North and Middle America" (Bull. U.S. Natl. Mus., N.^o 47, pt. 2, p. 2181, 1898), "A few specimens in bad condition were taken by Jordan and Stearns from stomachs of Groupers and Snappers on the Snapper Banks of Pensacola."

These alleged examples of *P. imberbe* (POEY) could have been the young of *P. gracile* GOODE and BEAN — a common fish in the district mentioned and with which Longley, as the writer has pointed out above, overlooking a number of salient characters of both species, confused *P. imberbe*.

TABLE I

Principal measurements in millimetres of the holotype and paratypes of *Peristedion ecuaadorensis*, new species.

	Type	mm	Paratypes		
	mm		mm	mm	mm
Standard length	181	145	153	172	142
Body depth	34	27	31	35	27
" width	33	28	32	35	26
Head length	65	53	58	64	52
" depth	32	25	28	29	26
Pectoral fin, webbed rays	26	21	24	27	23
" " free "	34	24	28	32	25
Pelvic fin length	26	22	24	27	24
Snout length	30	25	28	29	26
" width	27	24	26	27	23
Maxillary length	22	17	17	20	18
Orbital width	15	13	13	15	12
" depth	13	10	10	11	9
Interorbital width	15	13	13	13	11
Nape length	13	11	12	12	9
" width	18	14	15	16	13
Rostral exsertions length	10	9	11	9	9
Second dorsal spine length	14	11.5	14	14	12.5
Sixth soft dorsal ray length	15	13	14	15	13
Filamentous barbel length	33	26	27	38	24
Opercular spine length	15	13	14	15	13.5

TABLE II

Principal measurements in millimetres of the holotype and three paratypes of *Peristedion antillarum*, new species.

	Type	Paratypes		
	mm	mm	mm	mm
Standard length	135	112	130	127
Body depth	24	22	25	24
" width	22	18	21	19
Head length	51	43	51	48
" depth	22	19	22	20
Pectoral fin, webbed rays	27	24	25	25
" " free "	33	28	37	30
Pelvic fin length	23	18	23	20
Snout length	25	22	24	25
" width	19	16	16	18
Maxillary length	19	15	19	18
Orbital width	12	10	13	11
" depth	7	8	8	6
Interorbital width	11	10	10	10
Nape length	11.5	8	9	7
" width	14	10	14	13
Rostral exsertions length	35	27	33	32
Second dorsal spine length	19	—	—	17
Sixth soft dorsal ray length	22	—	—	22.5
Filamentous barbel length	24	17	18	18
Opercular spine length	10	8	8.5	9

TABLE III

Principal measurements in millimetres of the holotype and paratypes of *Peristedion schmitti*, new species.

	Type mm	mm	Paratypes mm	mm	mm
Standard length	168	142	162	196	147
Body depth	31	22	26	28	23
" width	36	27	26	39	31
Head length	63	52	61	73	55
" depth	31	25	29	35	27
Pectoral fin, webbed rays	39	31	38	43	34
" " free	37	25	33	37	30
Pelvic fin length	38	26	35	34	30
Snout length	26	22	25	31	23
" width	27	21	25	27	22
Maxillary length	25	22	24	30	21
Orbital width	18	15	17	20	16
" depth	13	12	12	16	11
Interorbital width	17	14	16	17	14
Nape length	11	9	10	13	9
" width	18	15	16	19	17
Rostral exsertions length	16	12	15.5	—	15
Second dorsal spine length	27	17	27	23	31
Sixth soft dorsal ray length	24	14.5	25	19.5	24
Filamentous barbel length	13	11	13	12	10
Opercular spine length	14	10	15	16	13

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PLATES

TEXT-FIGURE 1

Composite cranial diagram of armored sea-robin of the genus *Peristedion* drawn by DOROTHY B. SCHULTZ, and checked by DR. LEONARD P. SCHULTZ, from material in the U. S. National Museum, to illustrate the distribution of the spines and the respective nomenclature applied in the present revision.

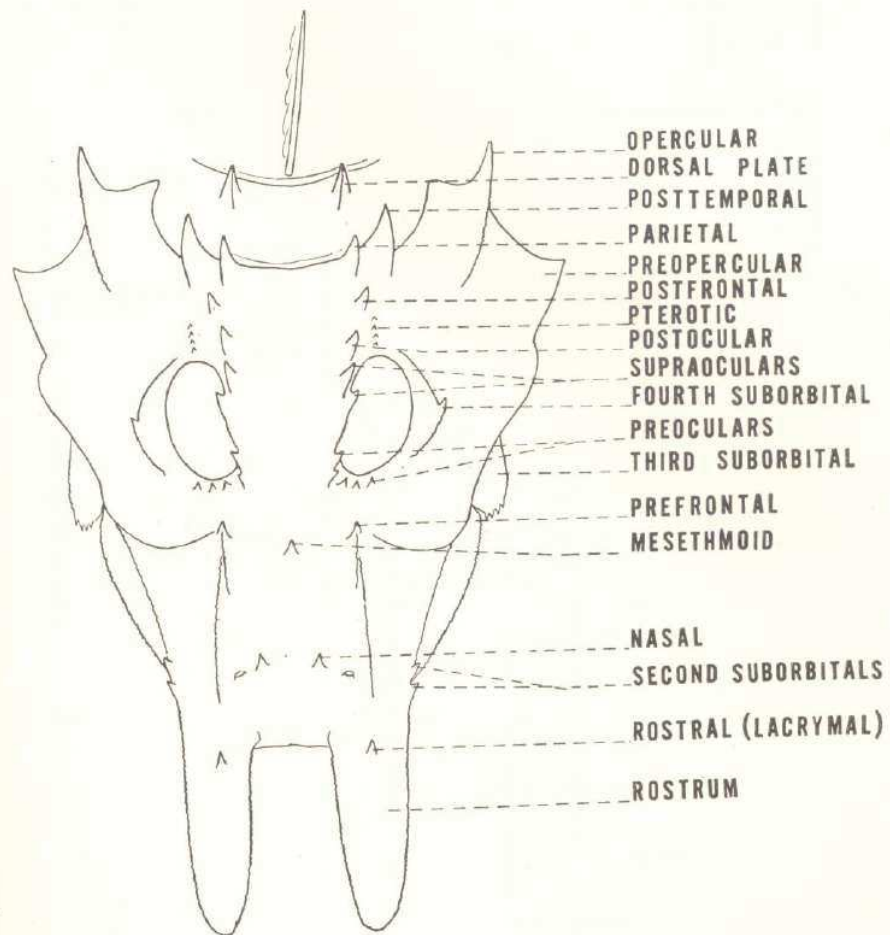


FIGURE A.

Dorsal view of pericranial rim of *Peristedion schmitti*, new species, paratype, USNM 177726, 162 mm in standard length, showing example of an acute-angled wing. Drawing of 1:1 scale by DOROTHEA B. SCHULTZ.

FIGURE B.

Dorsal view of pericranial rim of *Peristedion ecuadorensis*, new species, paratype, USNM 164365, 158 mm in standard length, showing example of a right-angled wing. Drawing of 1:1 scale by DOROTHEA B. SCHULTZ.

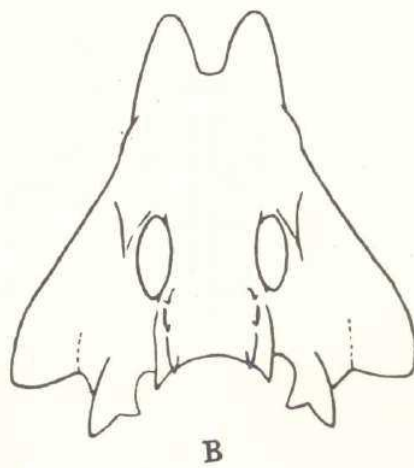
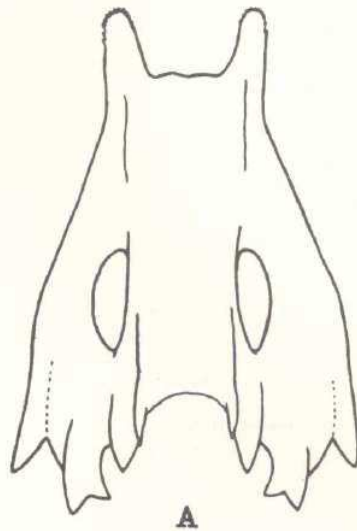


PLATE I

1. *Peristedion ecuadorensis*, new species, Holotype N^o 133598, U. S. Natl. Mus., of 181 mm
in standard length.

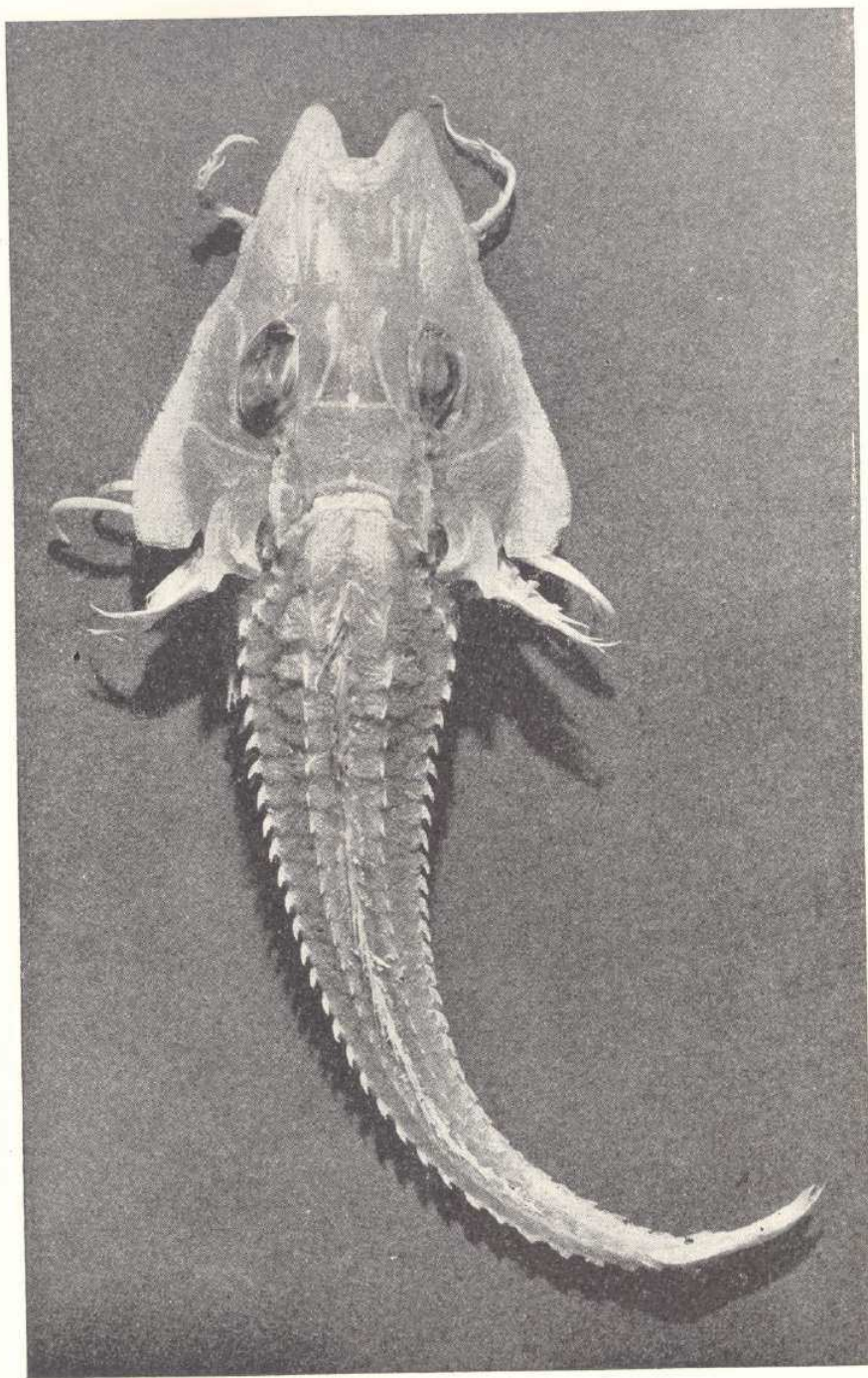


PLATE II

2. *Peristedion antillarum*, new species, Paratype N^o 153584 (ex MCZ 28088), U. S. Natl. Mus., of 112 mm in standard length.

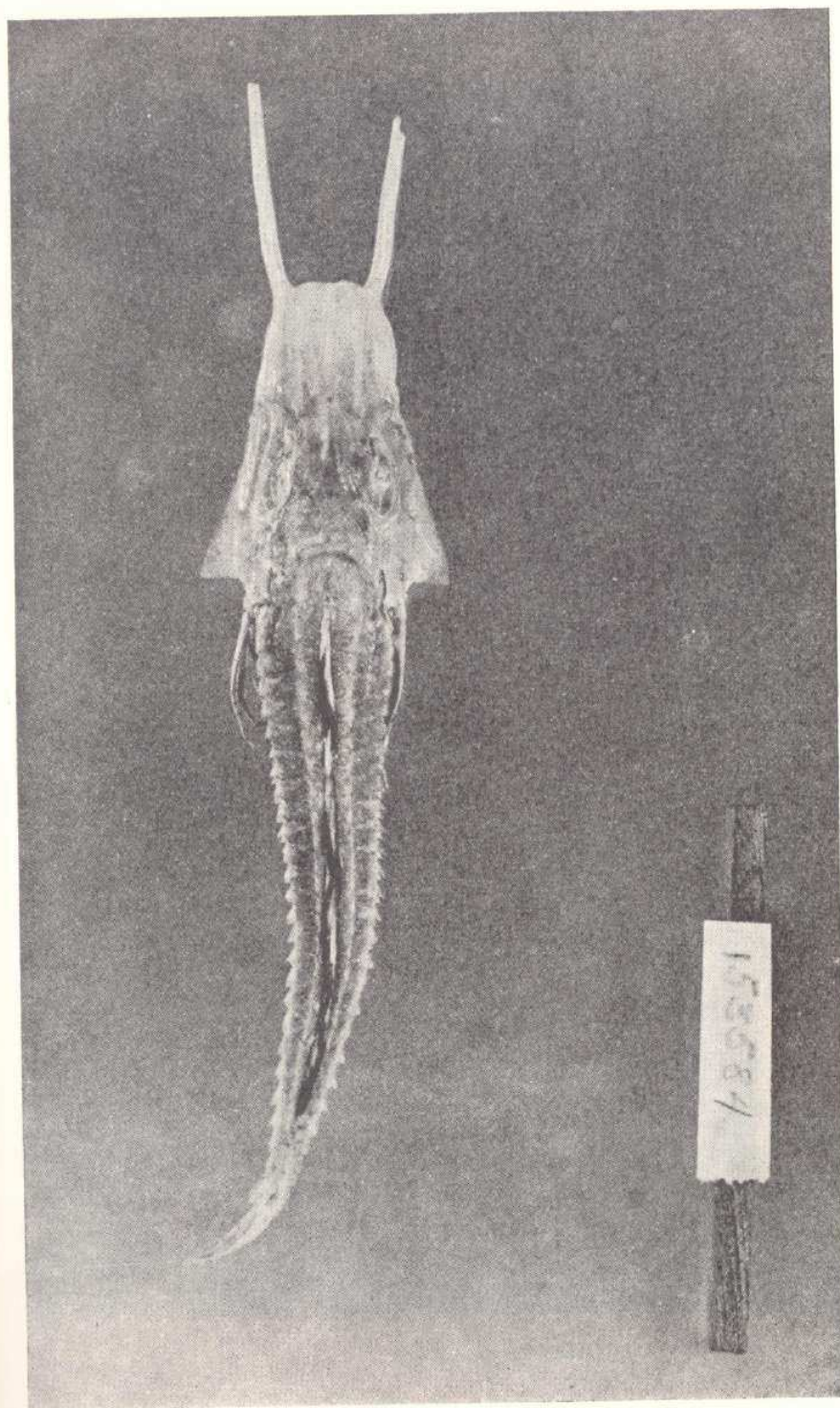


PLATE III

3. *Peristedion schmitti*, new species, Paratype N^o 177726, U. S. Natl. Mus., of 142 mm in standard length.

