SMITHSONIAN MISCELLANEOUS COLLECTIONS
VOLUME 99 NUMBER 10

COELENTERATES COLLECTED ON THE PRESIDENTIAL CRUISE OF 1938

(With One Plate)

BY
ELISABETH DEICHMANN
Museum of Comparative Zoology
Cambridge, Mass.

(Publication 3595)

CITY OF WASHINGTON
PUBLISHED BY THE SMITHSONIAN INSTITUTION
JANUARY 27, 1941

SMITHSONIAN MISCELLANEOUS COLLECTIONS
VOLUME 99, NUMBER 10

COELENTERATES COLLECTED ON THE PRESIDENTIAL CRUISE OF 1938

(With One Plate)

BY
ELISABETH DEICHMANN
Museum of Comparative Zoology
Cambridge, Mass.

(Publication 3595)

CITY OF WASHINGTON
PUBLISHED BY THE SMITHSONIAN INSTITUTION
JANUARY 27, 1941

The Lord Baltimore Press
BALTIMORE, MD., U. S. A.

COELENTERATES COLLECTED ON THE PRESIDENTIAL CRUISE OF 1938

By ELISABETH DEICHMANN

Museum of Comparative Zoology
Cambridge, Mass.

(With One Plate)

The coelenterates collected during the Presidential Cruise to the Galápagos Islands, the Caribbean Sea, and the west coast of Mexico, though few in number, are not without interest. Dr. Waldo L. Schmitt, who was naturalist to the President's party, obtained four species from Old Providence Island (Columbia) off Nicaragua, Caribbean Sea, and five from different localities in the Pacific. Practically nothing has been collected in the western part of the Caribbean Sea. Therefore, the commonest West Indian species represents a new locality record. The same is true of the material from the west coast of Mexico and South America. Almost nothing has been collected from this region since the Agassiz expeditions of the early sixties until the last few years, when the *Velero III, Zaca,* and other expeditions have continued explorations there. Most of the material from these later expeditions is, however, yet to be worked up.

Of the five species collected in the eastern Pacific, two are considered new species; one a new variety, formerly known under another name; one represents the first record since the type was obtained; and one extends the range of the species in question far northward on the west coast of Lower California.

CARIBBEAN COELENTERATES (FROM OLD PROVIDENCE ISLAND)

Erythropodium caribaeorum (Duchassaing and Michelotti)
Briareum asbestinum (Pallas)
Eunicea calyculata (Ellis and Solander)
Pterogorgia bipinnata Verrill

EASTERN PACIFIC COELENTERATES

Muricea (?) galapagensis, new species
Elizabeth Bay, Albemarle Island, Galápagos Islands.

Eugorgia rubens Verrill
San Jose del Cabo, Lower California.
Renilla köllikeri Pfeffer var. *tigrina,* new variety
San Lucas, Lower California.
Leioptilus undulatus Verrill
Magdalena Bay, Lower California.
Antipathes galapagensis, new species
Elizabeth Bay, Albemarle Island, Galápagos Islands.

Family BRIAREIDAE

Genus ERYTHROPODIUM Kölliker

ERYTHROPODIUM CARIBAEORUM (Duchassaing and Michelotti)

Text fig. 1

Xenia caribaeorum Duchassaing and Michelotti, 1860, p. 16, pl. 1, figs. 8-11.
Erythropodium caribaeorum Kölliker, 1865, p. 141, pl. 12, figs. 10-11.—Kükenthal, 1916, p. 445; 1924, p. 10, text fig. 8.—Deichmann, 1936a, p. 77.

Diagnosis.—Colonies encrusting, forming patches several cm. in diameter; thickness of colony up to 5 mm. Polyps small, completely retractile, placed a few millimeters apart. Spicules oblique crosses[1] or stars with clusters of spines; spicules in polyps small (0.03 mm.), larger in the coenenchyma (0.1 mm.). Color superficially dull yellowish or brownish, deeper layer dull brick red. Spicules white, yellow, or red.

Type.—Turin.

Type locality.—St. Thomas, Virgin Islands.

Distribution.—Known from St. Thomas and Jamaica, probably widespread in the West Indies. Now reported from the inner part of the Caribbean Sea, from Old Providence Island.

Depth.—Tide pools.

Specimens examined.—Three fragments of a colony taken in tide pools on the reefs in Old Providence Island.

Remarks.—The species was not represented in the *Blake* material, nor have I seen any material of it in the United States National Museum or the Museum of Comparative Zoology. It is probably much more common than the few records indicate; it is perhaps often mistaken for an encrusting calcareous alga.

[1] The name "crosses" is not quite correct. The spicules are obviously derived from a kind of "capstan," a short rod with three short arms at each end. In most cases the arms are unequally developed and the result is a cross with arms of unequal length and shorter arms on the external and internal side. The stars represent twinning or double-twinning of the typical warted "capstans."

Kükenthal, who found it in both St. Thomas and Jamaica and had occasion to compare his material with that of the type, gave a detailed description of it in 1916. The species cannot be mistaken for any other form known from the West Indian waters. The only form which has somewhat similar spicules is *Titanideum suberosum* (Ellis and Solander), but the latter is not known from any locality outside the southern Atlantic States. It forms tall cylindrical or bifurcating stems; the coenenchyma, moreover, contains, besides the characteristic

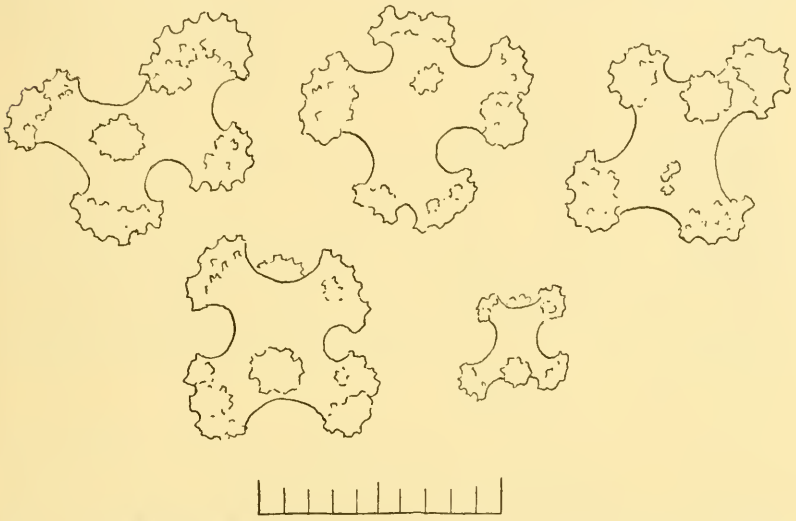


FIG. 1.—*Erythropodium caribaeorum* (Duchassaing and Michelotti). Spicules from coenenchyma and polyp. Scale 1/100 mm.

crosses, also shorter or longer rods. It is, however, possible that future investigations may show that *E. caribaeorum* must be transferred to *Titanideum*.

Genus BRIAREUM Blainville

BRIAREUM ASBESTINUM (Pallas)

Alcyonium asbestinum PALLAS, 1766, p. 344.

Briareum asbestinum KÜKENTHAL, 1924, p. 16, text fig. 15 (complete list of references).—STIASNY, 1935, p. 179, text figs. 1-8; 1937, p. 23, text fig. G.—DEICHMANN, 1936a, p. 79, pl. 5, figs. 1, 2.

Diagnosis.—Colonies forming thicker or thinner encrusting masses, with or without shorter or longer stems, usually 1–2 cm. in diameter, often bifurcate, sometimes developed as fan-shaped thickenings. Polyps distributed over entire colony, completely retractile and lacking spicules in the retractile upper portion. Length of expanded polyp 8–14 mm., in contracted condition 2–3 mm.

Spicules in the outer layer of the coenenchyma shorter or longer pointed rods, sometimes three-armed or branching, with numerous small clusters of spines arranged in more or less distinct transverse rows. Inner layer consisting of more slender rods with a few simple conical spines. No distinct axis, the spicules in the deeper layer surrounded by weakly developed membranes correspond to the horny axis. In the cylindrical stems a number of solenia are present in both the axial part and in the deeper layer of the external tissue. Color of spicules white or purplish, usually white in the external layer and purplish in the deeper layer and near the base of the polyps, but almost white colonies may be found. Shallow-water form.

Type.—Most likely lost.

Type locality.—West Indies.

Distribution.—Widespread in the West Indies.

Specimens examined.—Three fragments from Old Providence Island.

Remarks.—The three fragments differ in color; two are mottled white and purplish, the third is almost white except for a cluster of deep purplish spicules near the base; most striking is the total absence of purplish spicules in the central part of the stem, which makes the colony resemble an *Alcyonium.*

The species has recently been investigated by Stiasny (1935), who found that the polyps are much larger when fully expanded than indicated by previous writers, who had imperfectly preserved colonies before them. Also, Stiasny calls attention to the peculiar manner in which the spines or warts are arranged in transverse rows on the large spicules in the outer layer, a valuable character since it enables one to distinguish this form from species of *Alcyonium* which have spicules of an entirely different type.

As for the moot question whether the present form has short body cavities, as do all other Gorgonians, as Kükenthal maintains, or whether the body cavities are long, as in the Alcyonarians, as Stiasny holds, the present material is not sufficiently well preserved to give any additional information.

Family PLEXAURIDAE

Genus EUNICEA Lamouroux

EUNICEA CALYCULATA (Ellis and Solander)

Gorgonia calyculata Ellis and Solander, 1786, p. 95.

Eunicea calyculata Kükenthal, 1924, p. 120, text fig. 87 (complete list of references).

Diagnosis.—Colonies dichotomously branching, with mostly long branchlets with a diameter of 3–5 mm. Calicles up to 2 mm. long, di-

rected slightly upward; upper lip weakly developed or even missing; in some cases the calicle is almost completely retracted into the coenenchyma.

Spicules an external layer of small white clubs with spines which often are flattened into leaves, a middle layer of long tapering rods with numerous small clusters of warts or spines, color white or purplish or partly white and purplish, an inner layer of short rods with large blunt conical spines. Polyps with a few flat rods in the base of the tentacles and a weakly developed collaret below these. Color of colony purplish overlaid with a white or yellowish layer.

Type.—Probably lost.

Type locality.—West Indies.

Distribution.—Widespread in the West Indies.

Depth.—Shallow water.

Specimens examined.—A small colony from Old Providence Island.

Remarks.—The colony measures 9 cm. in height. It agrees well with Kunze's description (1916, p. 523, pl. 24, fig. 4) except that the branchlets are much shorter, as one must expect them to be in so young a colony. The spicules agree well with those figured by Kunze, text figures H-L (copied by Kükenthal).

Family GORGONIIDAE

Genus PTEROGORGIA Ehrenberg

PTEROGORGIA BIPINNATA Verrill

Pterogorgia bipinnata Verrill, 1864, p. 31.—Deichmann, 1936a, p. 195, pl. 21, figs. 1-16 (complete list of references). (Not *P. bipinnata* Kükenthal, 1924, p. 353 = *P. sparsiramosa* Bielschowsky; not *P. bipinnata* Bielschowsky, 1929, p. 213, pl. 4, fig. 21, text fig. 37 = *P. sparsiramosa* Bielschowsky; not *Gorgonia bipinnata* Hargitt and Rogers, 1902, p. 287, pl. 3, fig. 4, which is possibly a new species.)

Diagnosis.—Colonies branching in one plane with flattened stem and branches of almost equal thickness, and with comparatively short branchlets well spaced. Polyps retractile, arranged along the edges of the flattened branchlets, usually also laterally placed on the stem and branches. Spicules an external layer of scaphoids (0.15–0.18 mm.) with 2–4 conical projections on the convex side and a similar number of clusters of warts on the concave side. Inner layer consisting of long belted rods of about the same length with pointed ends. Polyps without any spicules except a varying number of flattened rods (0.09 mm.) in the base of the tentacles, forming a low operculum. Color purplish to grayish white. Shallow water to about 50 fathoms.

Type.—Museum of Comparative Zoology.

Type locality.—Cumana, Venezuela.

Distribution.—Known from various localities of the northern coast of South America, also from Barbados and Florida.

Depth.—Occurs probably most in deeper water, down to 50 fathoms; therefore, it is comparatively seldom obtained by shore collectors.

Specimens examined.—Two fragments, upper parts of colonies, from Old Providence Island, from shallow water and the bottom of the anchorage.

Remarks.—The fragments are more delicate than the type, the branchlets being extremely soft and flexible, as in a fragment from Florida in the Museum of Comparative Zoology taken during the Pourtalès explorations. The fragment from shallow water is pale purplish and contains numerous purplish spicules in the inner layer. The fragment from the anchorage is dirty white; in life it was brilliant green and was at first taken to be an alga; it lacks the purplish spicules almost completely.

Verrill's species *P. bipinnata* is entirely different from the form which Bielschowsky (and Kükenthal) designate as *"bipinnata."* Their species is now called *P. sparsiramosa* Bielschowsky, as there seems no reason for upholding it as a variety of *bipinnata* since it merely represents a poorly developed form of the supposed *"bipinnata."* The two species are somewhat similar in their external shape, but Bielschowsky's species has long, smooth-backed scaphoids, and the scaphoids and the pointed rods are not distinctly segregated in an inner and outer layer. *P. sparsiramosa* may possibly be identical with Duchassaing and Michelotti's *P. lutescens* from the Antilles, but without the type specimens it seems safer to adopt Bielschowky's name.

Hargitt and Rogers' *P. bipinnata* (1902, p. 287, pl. 3, fig. 4, overlooked by Deichmann, 1936a) has spicules very similar to those of *P. sparsiramosa,* but it is a more delicate form and the branchlets are united into a regular, wide-meshed network. It probably deserves a new name.

Family MURICEIDAE

Genus MURICEA Lamouroux

MURICEA (?) GALAPAGENSIS, n. sp.

Text figs. 2-4

Diagnosis.—Colony branching almost in one plane with slender stem, branches and branchlets of almost same thickness (2-3 mm.).

Branchlets mostly diverging at wide angle (about 90°) and curved upward. Polyps not crowded, most numerous toward the tips of the branchlets, which are slightly swollen. Upper part of the polyp con-

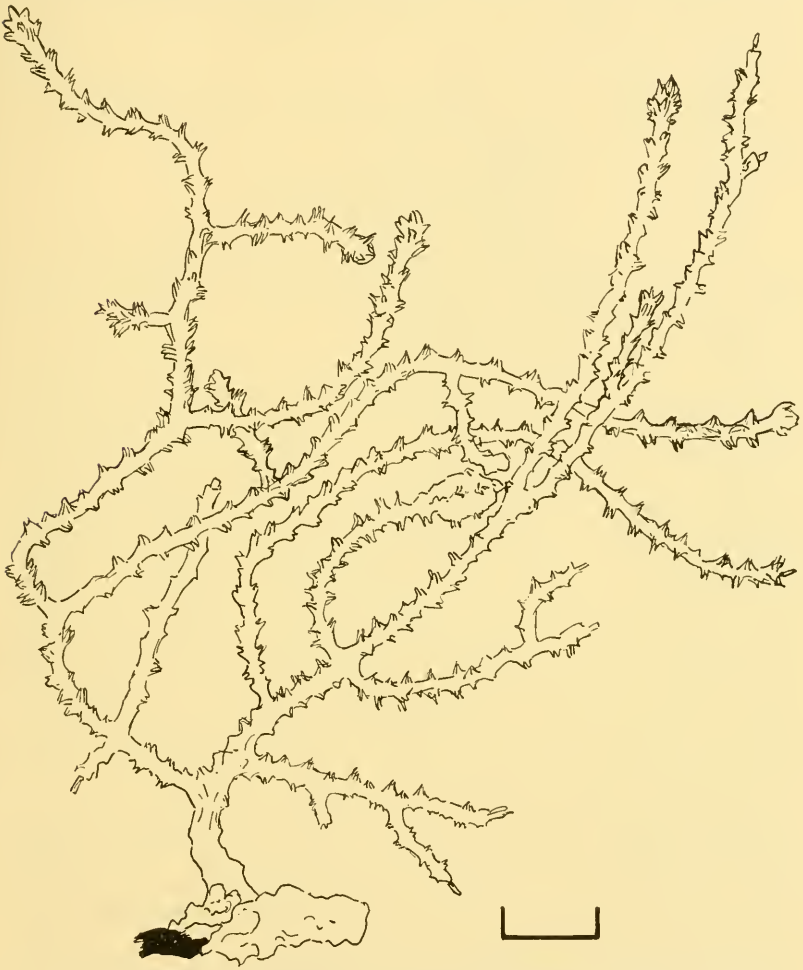


FIG. 2.—*Muricea* (?) *galapagensis,* n. sp. The entire colony, outline. Scale 1 cm.

tracted into the low calicles, which usually are obliquely appressed, with a short lower lip composed of 4–6 projecting spindles and an upper lip, which may be lacking, composed of smaller spindles. Polyps with a few thorny rods in the base of the tentacles forming an operculum, sometimes with a collaret of transversely placed rods. Spicules in coenenchyma: an outer layer of long, often curved spindles (up to

2 mm.), one side of which is covered by minute spines and the other with crowded wartlike projections; an inner layer of shorter rods with few blunt spines. Axis fibrous, brown, paler in the branchlets. Color of type dull orange, outer spicules deep amber, those of the inner layer pale. Another colony is much paler.

Type.—U.S.N.M. No. 43449.

Type locality.—Elizabeth Bay, Albemarle Island, Galápagos Islands, attached to *Antipathes galapagensis,* new species, pulled up with anchor chain, July 26, 1938.

Distribution.—Known from the type locality.

Depth.—About 50 fathoms.

Specimens examined.—The type and a smaller pale colony, also from off the Galápagos (53 fathoms, *Albatross* Sta. 3405) in the Museum of Comparative Zoology.

Remarks.—The type measures about 10 cm. in height. It has a short stem, 1 cm. high, which divides into two branches carrying a few long, well-spaced branchlets which diverge at a wide angle and then usually curve upward; some shorter branchlets diverge almost vertically. The polyps are contracted into low calicles which usually consist of a sheaf of large, pointed spindles that form the lower lip and some smaller spindles that form an indistinct upper lip, which is sometimes lacking or level with the coenenchyma. The coenenchyma is covered by large spindles (1 mm. or more), often curved. Their external side is usually covered by fine spinules, and the inner side is covered by clusters of low warts. Besides, smaller spinules may be present. The inner layer consists of pale, blunt rods or capstans with broad, blunt spines. The polyps have an indistinct operculum of short, spinous rods or spindles; sometimes a collaret is present.

It is with some doubt that the present form is referred to the genus *Muricea,* which is well represented in the tropical western Pacific. The calicles are less numerous and less developed than in most of the species described, but it is possible that the colony represents a poorly developed form. It does not agree with any of the species described by Verrill which I have been able to examine. Aside from the simple mode of branching, it resembles such forms as *Muricea horrida* and *M. fructicosa,* which have fairly scattered calicles and slender stem and branchlets. The spicules are so typical of *Muricea* in their character that it seems natural to keep the species within that genus, or possibly a new genus should be created to take in all the less typical forms.

Studer describes (1894, p. 67) a *Psammogorgia variabilis* from off Colombia, 50 and 100 fathoms. He gives no measurements of the

large spicules, but his description is rather suggestive of the present species, except that the calicles are described as being flattened. His colonies, which were white or terra-cotta brown, are not to be found in the Museum of Comparative Zoology. The specimen from *Albatross* Sta. 3405 was unidentified, and Studer lists no species from that station.

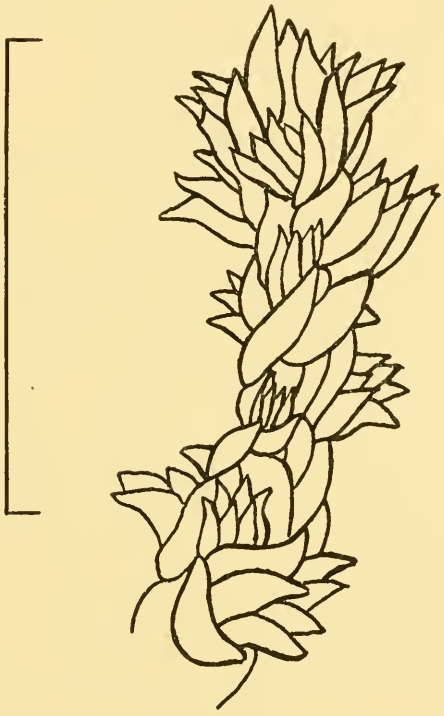


FIG. 3.—*Muricea* (?) *galapagensis*, n. sp. Tip of branchlets, strongly magnified. Scale 1 cm.

Family GORGONIIDAE

Genus EUGORGIA Verrill

EUGORGIA RUBENS Verrill

Eugorgia rubens VERRILL, 1868, p. 411.—KÜKENTHAL, 1924, p. 346.—BIELSCHOWSKY, 1929, p. 183.

Diagnosis.—Colony branching in one plane with stem and branches of varying thickness according to the age of the colony; branchlets shorter or longer, with a diameter of about 1 mm. and mostly diverging at about 45°. Polyps small, retracted into low conical warts, arranged along the edge of the branchlets, more irregularly placed on

the branches and the stem. Spicules numerous, short, almost ball-shaped bodies with more or less flattened ends, and one pair of belts with warts, sometimes modified into two disks. A few longer rods with pointed ends and two pairs of warted belts are found here and

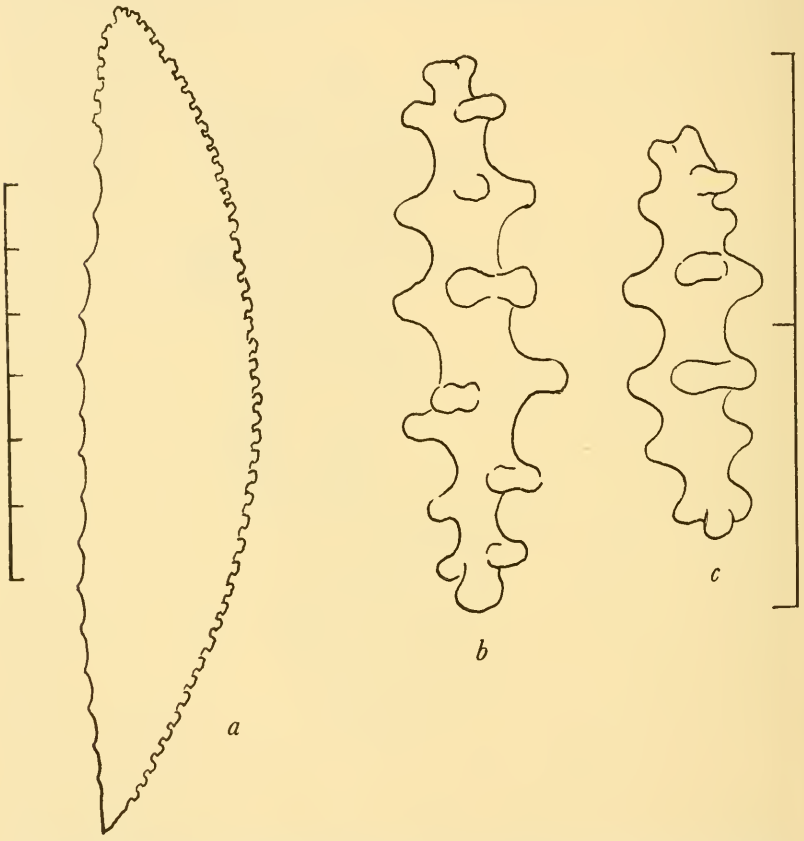


FIG. 4.—*Muricea* (?) *galapagensis*, n. sp. *a*, outline of common spindle-shaped spicule from external layer, medium-sized. *b*, *c*, spicules from inner layer. Scales 1/10 mm.

there. Polyps apparently without any spicules in the upper part. Color of colony purplish or white.

Type.—Probably lost.

Type locality.—Payta, Peru.

Distribution.—Known from the type locality and from San Jose del Cabo, Lower California.

Specimens examined.—A fragment, the upper part of a white colony, from San Jose del Cabo, Lower California.

Remarks.—The fragment agrees in all respects with a large, almost complete colony in the Museum of Comparative Zoology from the type locality, depth unknown. There is nothing surprising in the great distance between the two localities in which the species has been taken. Most of the forms in the Panama region have a rather wide distribution from north to south. Apparently the present species occurs below tidemark and has therefore rarely been collected.

Family RENILLIDAE

Genus RENILLA Lamarck

RENILLA KÖLLIKERI Pfeffer var. TIGRINA, n. var.

Plate 1, figs. a, b

Renilla amethystina KÜKENTHAL and BROCH, 1911, p. 213, figs. 46, 47.—KÜKENTHAL, 1913, p. 263; 1915, p. 23, text figs. 31-34 (complete list of references). (Not *R. amethystina* Verrill, 1864, p. 29 [*Renilla mülleri* Kölliker].)

Diagnosis.—Renillid with long stalk and almost circular frond with deep incision. Autozooids few, well spaced, with three well-developed marginal teeth and occasionally two more which are feebly developed. Siphonozooids in groups of 3-7, groups distinctly arranged in rows; one or two of the siphonozooids carry a fingerlike tentacle; a few spicules may be present in the center of the groups.

Spicules of the same size as in the typical form, shorter rods (0.25 mm. long) in the stalk and longer (0.40–0.45 mm.) three-flanged needles in the frond. Color of spicules purplish and bright yellow, those of the latter colors being more numerous than in the typical form and occurring around the autozooids and the groups of siphonozooids. Underside of frond and stalk pale purplish except for the tip of the stalk. Autozooids and siphonozooids colorless and without spicules.

Type.—U.S.N.M. No. 43447.

Type locality.—San Lucas, Lower California, 10–15 fathoms.

Distribution.—Known from the type locality and southward (material in other collections). Exact range not known, as it has been more or less confused with other forms.

Depth.—Shallow water to about 15 fathoms.

Specimens examined.—The type and seven paratypes from the same lot.

Remarks.—The material studied consists of large, well-developed colonies, the largest measuring 5 cm. across the frond. In some of the colonies the stalk has been damaged so that it appears as an abnormally small stump.

The typical form is known to reach a much larger size, but colonies of the same size as the present material or smaller have numerous autozooids. Also, the number of teeth around the autozooids is typically 5, sometimes 7 (while the autozooid nearest to the oozooid often has 8 teeth). Furthermore, it is invariably deep purple in color, with few yellow spicules, whereas the variety is pale purplish in color with distinct stripes of yellow radiating from the central midline. Young colonies of the typical form have few autozooids and often a tendency toward striation, but can nevertheless always be distinguished on account of the fewer yellow spicules and the number of teeth around the autozooids.

As far as is known, the areas of distribution for the typical form and the variety are separate. The northern form is known as far south as Ensenada Beach, Lower California, and may be expected to reach Cedros Island, Lower California, which seems to be the southern limit for the Californian shallow-water forms. The variety is known from San Lucas and may possibly reach Magdalena Bay, which seems to be the northern limit for the tropical forms (for example, for *Leioptilus undulatus* Verrill, which often is found in the same localities as this variety of *Renilla*). Nothing, however, is known about the stretch of shore between Magdalena Bay and Cedros Island, which still remains an almost completely unexplored region without any records of either northern or southern forms.

Family PENNATULIDAE

Genus LEIOPTILUS Gray

LEIOPTILUS UNDULATUS Verrill

Plate 1, figs. e, f

Leioptilum undulatum Verrill, 1865, p. 182.

Leioptilus sinuosus Kükenthal, 1915, p. 95, text fig. 102 (complete list of references). (Not *L. sinuosus* (Gray), 1860, p. 23, pl. 3, fig. 1 [from New Guinea].)

Leioptilus verrilli Kükenthal, 1915, p. 94, text figs. 100-101.

Ptilosarcus undulatus Deichmann, 1936b, p. 7.[2]

[2] Reexamination of a large number of colonies of *Pennatula fimbriata* (Herklots) in the U. S. National Museum has proved, contrary to the belief of Kükenthal and others, that this species does not properly belong in *Pennatula* and that Gray was correct in placing it in a separate genus, *Leioptilus*. The latter name was unfortunately rejected by me in 1936, as I at that time had not examined any material of *fimbriata*. Nutting's *L. brevicaulis*, in the U. S. National Museum, was found to be a synonym of *L. fimbriata*.

Ptilosarcus gurneyi Boone, 1933, p. 57. (Not *P. gurneyi* (Gray), 1860, p. 23, pl. 3, fig. 2, a northern form.)

Diagnosis.—Leioptilid up to about 15 cm. long, with up to about 26 pairs of leaves, with more than 100 autozooids on the mature leaves. Autozooids with a single tooth on the calicles. Siphonozooids in clusters on the dorsal side; large isolated mesozooids often found between the leaves on the dorsal side, sometimes lacking. Spicules: broad, flat rods in the stalk and scattered in other parts of the colony; long, three-flanged needles in the leaves and in the calicles. Color brownish to purplish, often with white or yellow stem and stalk, sometimes a band of purplish spicules across the stalk. Distal end of autozooid and siphonozooids colorless. Pure white colonies may occur.

Type.—Said to be in the Smithsonian collections, but seems not to be there.

Type locality.—Pinnacati Bay in the northern end of the Gulf of California.

Distribution.—With certainty known from the type locality to Panama, possibly farther south.[3] On the western coast of Lower California reported from Magdalena Bay.

Depth.—Shallow water to about 15 fathoms.

Specimens examined.—One small colony from Magdalena Bay, Lower California, 10-15 fathoms.

Remarks.—The single colony measures 1.1 cm. in length, the smallest colony described from any collection. It was taken July 18, 1938, and undoubtedly represents a colony only a few weeks old. The colony has 7 pairs of leaves with respectively 1, 2, 4, 4, 3, 3, and 2 autozooids in each, beginning with the uppermost ones which are the oldest. Even at this early stage the autozooids have a definite tooth on the edge of the calicles. On the dorsal side a few clusters of siphonozooids (with 2 in each cluster) have appeared; no mesozooids were observed.

The spicules are of the same type as in the adult colonies, but of course much smaller and less clean-cut in form. In the stalk the flat rods or plates measure 0.015 mm. in length; in the leaves the longest needles measure 0.15 mm. In the adult colony the plates in the stalk measure about 0.3 mm. and the three-flanged needles 0.7–0.8 mm., according to Kükenthal's measurements.

[3] Boone mentions a fine specimen of *"guerneyi"* from Cocos Island in shallow water (p. 16), but later she mentions Costa Rica as the southernmost locality. One would expect *L. undulatus* to occur as far south as Peru or Ecuador, but comparatively little collecting has been done south of Panama.

The color of the small colony is purplish with white stalk and stem and white autozooids. The spicules are mostly pale purplish in color.

Family ANTIPATHIDAE

Genus ANTIPATHES Pallas

ANTIPATHES GALAPAGENSIS, n. sp.

Plate 1, fig. g

Diagnosis.—Tall, bushy colony, with main stem and main branches of various thicknesses, and long, thin branchlets of different orders well spaced in an irregularly pinnate fashion. Stem and branches with scattered spines; branchlets covered with a fine shagreen of delicate spines with the points distally directed. Polyps scattered irregularly on the stem and branches, on the branchlets arranged in a more or less crowded single row on the upper side. Diameter of the individual polyps about 2 mm.; outline circular or slightly oval; mouth conical, surrounded by 6 tentacles of almost equal size, the lateral ones sometimes being slightly larger.

Type.—U.S.N.M. No. 43443.

Type locality.—Elizabeth Bay, Albemarle Island, Galápagos Islands; pulled up with anchor chain, July 26, 1938.

Range.—Galápagos Islands.

Depth.—About 50 fathoms.

Specimens examined.—The type, consisting of a single large dry colony and a few branchlets in alcohol.

Remarks.—The colony must have measured more than 1 meter in height when alive. The lower part of the stem partly lacks living tissue and is more or less overgrown by various encrusting animals, and on the branches the desiccated polyps are visible as small, pearl-like thickenings on the upper side.

Our species may possibly be found to be identical with the one described by Pourtalès in 1874 (p. 47) as *A. fernandezi.* His description[4] suggests that that is the case. But if that is true, another name must be given to the large specimen with numerous short branchlets which Looser (*Parantipathes? fernandezi* Brook, 1926, p. 272, text fig. 38)[5] redescribed and figured, and referred to Pourtalès' species without having seen Pourtalès' description.

---

[4] "Main stem unknown, branchlets pinnate with alternate and rather long pinnules. Densely hirsute with short spines disposed in longitudinal rows. Spines somewhat compressed and hooked upwards near the tip. Polyps elongated with short tentacles, rather crowded on upper part of pinnules."

[5] "Height 1.70 m. or more, with a conical holdfast 5–7.5 cm. in diameter. The trunk has a diameter of 12.5–18.5 mm. and becomes much branched a few centi-

It is impossible to identify the new species with the form which Verrill (*Antipathes panamensis,* 1868, p. 499) described from 6-8 fathoms off Pearl Islands near Panama.[6] His description suggests Looser's species. Of the latter I have examined a large colony possessed by the National Museum which was collected by Dr. Waldo L. Schmitt in 1926 while at Juan Fernandez under the auspices of the Walter Rathbone Bacon Scholarship of the Smithsonian Institution.

On account of the great uncertainty which prevails in this matter, I have chosen to give the Galápagos specimen a new specific name.

REFERENCES

Bielschowsky, Eva

1929. Die Gorgonarien West Indiens. Kap. 6. Die Familie Gorgoniidae, zugleich eine Revision. Zool. Jahrb., suppl. 16, heft 1, pp. 63-234, figs. 1-40, pls. 1-5. (In briefer form, first appeared as a published dissertation: Revision der Familie Gorgoniidae, pp. 1-65, Breslau, 1918.)

Boone, Lee (Pearl)

1933. Scientific results of the cruises of the yachts *Eagle* and *Ara,* 1921-28; Coelenterata, Echinodermata, and Mollusca. Bull. Vanderbilt Marine Mus., vol. 4, 217 pp., 133 pls.

---

meters above the base, branches tapering at their extremities to less than 0.5 mm. Branchlets pinnate; pinnae alternate and much shorter than the branchlets, densely hirsute, and covered with short spines in longitudinal rows. Spines somewhat compressed, somewhat curved, the points directed toward the extremity of the pinna. The pinnae are very much longer and more numerous than in *Parantipathes tetrasticha* (*Parantipathes? tetrasticha* (Pourtalès) Brook, 1889, p. 143).

"Polyps elongated, 1–1.75 mm. long by 0.5–0.75 mm. broad, with short tentacles. The polyps are in a row on the upper part of the pinnae and slender branches."

[6] "Corallum arborescently and densely branched and finely subdivided; the small branches mostly bipinnate and tripinnate. The trunk is quite stout and subdivides in an irregularly arborescent manner into many secondary branches, which divide in the same way. The resulting small branches arise in large numbers along the sides of the larger branches, at distances of .08 to .20 of an inch, many of them remaining small, simple, or sparingly divided branchlets, but mostly subdividing in a pinnate, bipinnate, or even tripinnate manner. The final branchlets are .08 or .10 of an inch apart, small, slender, rather short, rarely more than .15 long without branches, scarcely .02 in diameter. Their surface is densely covered with small, sharp spinules, which are directed obliquely outward and toward the tips of the branchlets.

"Color of the trunk and main branches dull brownish black; branchlets very dark brown.

"Height 13 inches; breadth 10; diameter of trunk .50; of main branches .15 to .25 of an inch.

"Pearl Islands, brought from 6 to 8 fathoms by pearl divers." [Type apparently lost; may possibly be in the Peabody Museum in New Haven.]

Brook, George
1889. Report on the Antipatharia collected by H.M.S. *Challenger* during the years 1873-76. Challenger Rep., Zool., vol. 32, pt. 80, iii + 222 pp., pls. 1-15.

Deichmann, Elisabeth
1936a. The Alcyonaria of the western part of the Atlantic Ocean. Mem. Mus. Comp. Zool., vol. 53, 317 pp., 37 pls.
1936b. Notes on Pennatulacea and Holothurioidea collected by the first and second Bingham Oceanographic Expeditions 1925-1926. Bull. Bingham Oceanograph. Coll., vol. 5, art. 3, pp. 1-11, text fig. 1.

Duchassaing, P., and Michelotti, G.
1860. Mémoire sur les Corallaires des Antilles. Mem. Acad. Sci. Turin, pp. 279-365 (sep., pp. 1-89), pls. 1-10.

Ellis, J., and Solander, D.
1786. The natural history of many curious and uncommon zoophytes collected from various parts of the globe by the late John Ellis. Systematically arranged and described by the late Daniel Solander, xii + 208 pp., 63 pls. London.

Gray, J. E.
1860. Revision of the family Pennatulidae, with descriptions of new species in the British Museum. Ann. Mag. Nat. Hist., ser. 3, vol. 5, pp. 20-25, pls. 3-4.

Hargitt, Charles W., and Rogers, Charles G.
1902. The Alcyonaria of Porto Rico. Bull. U. S. Fish Comm., vol. 20, for 1900, pt. 2, pp. 267-287, pls. 1-4, text figs. A-K.

Hickson, S. J.
1930. Some alcyonarians from the eastern Pacific Ocean. Proc. Zool. Soc. London, pt. 1, 1930, pp. 209-227, text figs. 1-4, pls. 1-3.

Horn, George H.
1860. Descriptions of three new species of Gorgonidae, in the collection of the Academy. Proc. Acad. Nat. Sci., Philadelphia, p. 233.

Kölliker, A. v.
1865. Icones histiologiacae; oder, Atlas der vergleichenden Gewebelehre, 2. Abt. der feinere Bau der Hoheren Thiere, 1 hefte, die Bindesubstanz der Coelenteraten. Pp. 1-181, pls. 1-19. Leipzig.

Kükenthal, W.
1913. Über die Alcyonarienfauna Californiens und ihre tiergeographischen Beziehungen. Zool. Jahrb., vol. 35, Abt. Syst., pp. 219-270, pls. 7-8, text figs. A-Z, A^1-K^1.
1915. Pennatularia. Das Tierreich, 43 Lieferung, xv + 132 pp., 126 text figs.
1916. Die Gorgonarien West Indiens. Chapter 1, Die Scleraxonien. Zool. Jahrb., suppl. 11, pp. 443-504, pl. 23, text figs. A-Z, A_1.
1924. Gorgonaria. Das Tierreich, 47 Lieferung, xxviii + 478 pp., 209 text figs.

Kükenthal, W. and Broch, H.
1911. Pennatulacea. Wissensch. Ergebnisse Deutsche Tiefsee Exped., etc. (*Valdivia*), 1898-1899, vol. 13, teil 1, heft 2, pp. 113-576, pls. 13-29, 295 text figs. Jena.

Kunze, G.
1916. Die Gorgonarian West Indiens, 4, Die Gattung Eunicea Lamouroux. Zool. Jahrb., suppl. 11, heft 1, pp. 505-550, pls. 24-26, 25 text figs.

Looser, Gualterio
1926. Un zoofito de Juan Fernández peco concido: Parantipathes? fernandezi Brook. Rev. Chilena Hist. Nat., Santiago, vol. 30, pp. 269-274, fig. 38.

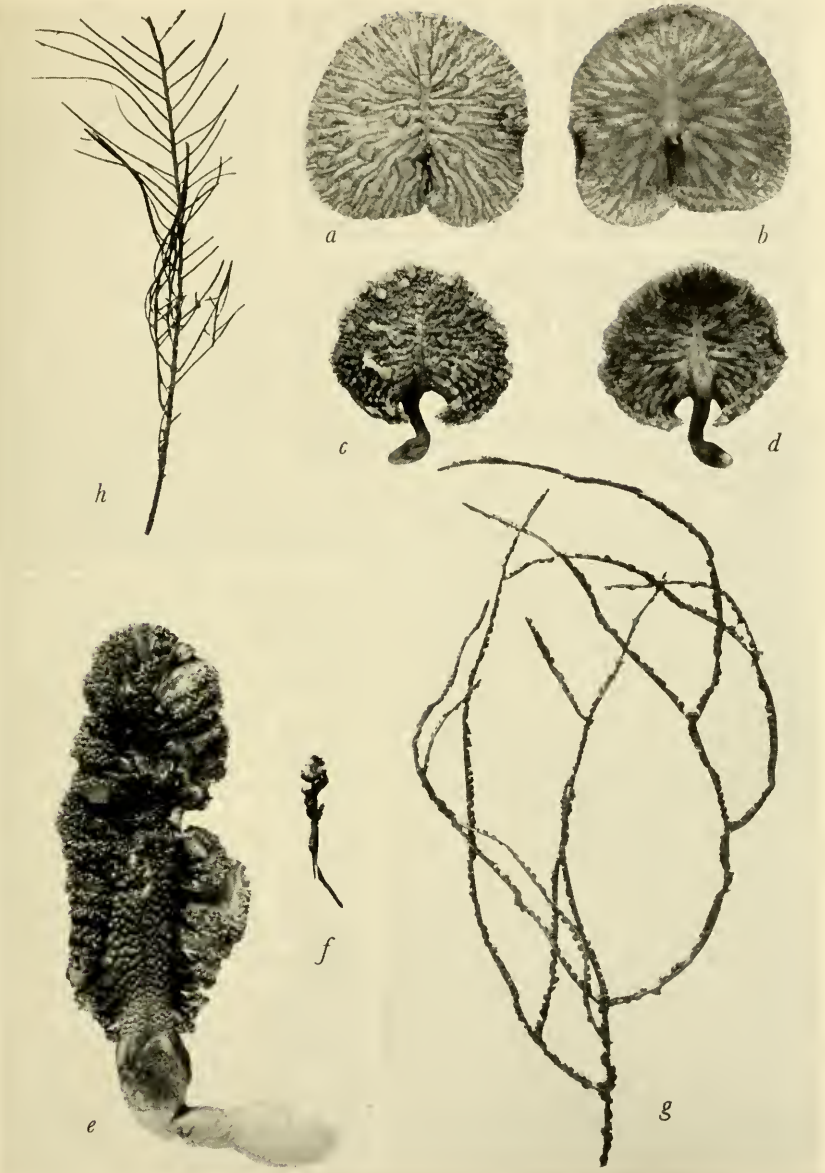
Pallas, P. S.
1766. Elenchus Zoophytorum, 432 pp.

Pourtalès, L. F. de
1874. Zoological results of the Hassler Expedition. Deep-sea corals. Illus. Cat. Mus. Comp. Zool., No. 8, pt. 1 (Mem. Mus. Comp. Zool., vol. 4), pp. 33-50, pls. 6-9.
1880. Report on the corals and Antipatharia. Bull. Mus. Comp. Zool., vol. 6, No. 4, pp. 95-120, pls. 1-3.

Stiasny, G.
1935. *Briareum asbestinum* (Pall.), wie ich es sehe. Zool. Anz., vol. 110, heft 7/8, pp. 179-190, figs. 1-8.
1937. Die Gorgonacea der *Siboga*-Expedition. Suppl. 2. Revision der Scleraxonia. *Siboga* Exped., Leiden, livr. 130, 138 pp., 8 pls., 38 text figs.

Studer, T.
1894. Note préliminaire sur les Alcyonaries. Report on the dredging operations off the west coast of Central America to the Galapagos, etc. Bull. Mus. Comp. Zool., vol. 25, No. 5, pp. 53-69.

Verrill, A. E.
1864. List of the polyps and corals sent by the Museum of Comparative Zoology to other institutions in exchange, with annotations. Bull. Mus. Comp. Zool., vol. 1, pp. 29-60.
1865. Classification of polyps; and synopsis of the polyps and corals of the North Pacific Exploring Expedition, etc. Proc. Essex Inst., vol. 4, No. 5, art. 9, pp. 145-152; and art. 12, pp. 181-196, pls. 5-6.
1868 [1869]. Review of the corals and polyps of the west coast of America. Trans. Connecticut Acad. Arts and Sci., vol. 1, No. 6, pp. 377-558 (reprinted in 1869 with some changes under the general title "Notes on Radiata").



a, *Renilla köllikeri* Pfeffer var. *tigrina*, new variety, dorsal view, ⅔ nat. size. *b*, *Renilla köllikeri* Pfeffer var. *tigrina*, new variety, ventral view, ⅔ nat. size. *c*, *Renilla köllikeri* Pfeffer, dorsal view, ⅔ nat. size. *d*, *Renilla köllikeri* Pfeffer, ventral view, ⅔ nat. size. *e*, *Leioptilus undulatus* Verrill, ⅔ nat. size. *f*, *Leioptilus undulatus* Verrill, ×2. *g*, *Antipathes galapagensis*, new species, ⅔ nat. size. *h*, *Antipathes panamensis* Verrill, ⅔ nat. size.