

SPONGES COLLECTED ON THE PRESIDENTIAL  
CRUISE OF 1938

By M. W. DE LAUBENFELS

*Pasadena Junior College*

In the summer of 1938 President Franklin D. Roosevelt made a trip from San Diego to the Galápagos Islands, through the Panama Canal (August 5), stopping at Old Providence Island in the extreme western Caribbean Sea, and thence returning to Washington, D. C. Thirteen species of Porifera were collected and preserved by Dr. Waldo L. Schmitt, of the United States National Museum, Naturalist to the expedition, with assistance from various members of the ship's personnel.

The sponges in the following annotated list are arranged in systematic order. A new species (No. 5 below) of the genus *Merriamium* I take pleasure in naming *M. roosevelti* for the President of the United States, whose interest in marine zoology made possible this very successful expedition. In certain instances reference is made to species which were also collected in the same area by the Hancock Pacific Expeditions on the motor cruiser, *Velero III*, under the direction of Captain G. Allan Hancock; owner and sponsor.

ANNOTATED LIST OF SPONGES

1. *Haliclona enamela* de Laubenfels 1930, p. 28. One specimen collected July 25 at Clipperton Island (Galápagos). This species was originally described from Southern California. It has been collected by Capt. Allan Hancock in Mexico and on Charles Island (Galápagos).
2. *Haliclona permollis* (Bowerbank) 1866, p. 278. Two specimens collected July 26 at Albemarle Island (Galápagos). This species was originally described from British waters, but is cosmopolitan. Captain Hancock collected it, also at Albemarle Island.
3. *Adocia simulans* (Johnston) 1842, p. 109. One specimen collected July 26 at Albemarle Island (Galápagos). This species was originally described from British waters, but is cosmopolitan. Captain Hancock collected it, also at Albemarle Island.

4. *Callyspongia vaginalis* (?) (Lamarck) 1814, p. 436. One small specimen collected July 21 at Clipperton Island (Galápagos). This species is nearly cosmopolitan. The specimen in question does not agree well with ordinary examples of *vaginalis*, but is approached by occasional specimens.

5. MERRIAMIUM ROOSEVELTI, n. sp.

Fig. 1

*Holotype*.—The sponge (U.S.N.M. no. 22614) was scraped from an old anchor chain at Elizabeth Bay, Albemarle Island, Galápagos, July 26, 1938 (sta. 20-38). It covers some other object, perhaps a barnacle, and is 1 or 2 mm. thick.

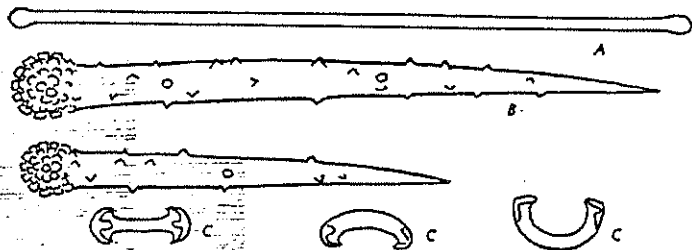


FIG. 1.—*Merriamium roosevelti*. A, dermal tylote; B, endosomal acanthostyle; C, arcuate isochelas. All  $\times 500$ .

*Description*.—Color nearly white, consistency soft. The entire organism is very fine-grained, with pores and oscules too small to be made out. The most remarkable items involved concern the skeleton; three sorts of spicules are present.

1. Ectosomal special spicules are tylotes 3 by 180 micra.
2. Endosomal spicules are abundant acanthostyles, heads with tubercles rather than spines, size 11 by 120 to 15 by 170 micra.
3. Microscleres are abundant arcuate isochelas with a semicircularly curved shaft and very small clads; the chord diameter varies from 21 to 24 micra.

*Remarks*.—A review of the genus *Merriamium* and a key to its several species is here presented to indicate better the relation of the new species to the members of the genus and also their relation to each other.

LIST OF PREVIOUSLY KNOWN SPECIES OF THE GENUS MERRIAMIUM

- a. *Merriamium atlanticum* was described as *Ectyodoryx a.* by Stephans, 1916, p. 238, from Ireland. The ectosomal spicules are

- inequidended strongyles. The endosomal spicules vary from entirely spined to spined only on the heads. All the spicules are much larger than in *roosevelti*.
- b. *Merriamium buchani* was described as *Lissodendoryx b.* by Topsent, 1913, p. 626, from the Antarctic. The ectosomal spicules are tylotes. The endosomal spicules are only rarely tuberculate, and all the spicules are much larger than in *roosevelti*.
- c. *Merriamium certum* was described as *Dendoryx c.* by Topsent, 1892, p. 99, from the North Atlantic. The ectosomal spicules are hastate tornotes. The endosomal spicules are acanthostyles (not tylote) and both sorts are much larger than in *roosevelti*. The microscleres are two sizes of arcuate isochelas, very different in shape from those of *roosevelti*.
- d. *Merriamium clavigerum* was described as *Esperella c.* by Levinson, 1886, p. 360, from the Arctic. The ectosomal spicules are oxeas nearly three times as large as the ectosomal tylotes of *roosevelti*. The other spicules are more nearly like those of *roosevelti* than is true of most species in the genus, but differ in many little details of shape.
- e. *Merriamium kymum* was described as *Lissodendoryx k.* by de Laubenfels, 1930, p. 27, from California. Both the ectosomal spicules and the microscleres are somewhat like those of *roosevelti*, but the endosomal spicules are about twice as thick and more than twice as long, and are mostly smooth; only an occasional one has a few scattered spines.
- f. *Merriamium lindgreni* was described as *Dendoryx mollis* by Lindgren, 1897, p. 482, and given the new name *lindgreni* by de Laubenfels, 1936, p. 83, because there was already another *Dendoryx mollis*. It is an East Indian species. The ectosomal spicules are much like those of *roosevelti*, but the endosomal spicules are nearly twice as long, but not thicker, and lack the tylote modification. The microscleres are much larger and of a different shape than those of *roosevelti*.
- g. *Merriamium lobosum* was described as *Lissodendoryx l.* by Lundbeck, 1905, p. 154, from the Arctic. All the spicules are much as in *M. lindgreni*, but the microscleres differ radically in shape from those of all others of the genus.
- h. *Merriamium lundbecki* was described as *Lissodendoryx l.* by Topsent, 1913, p. 41, from the North Atlantic. The spicules are much like those of *M. clavigerum* (d, above) but the endosomal

acanthostyles lack the tylote modification, and the microscleres are of two size ranges (60 micra and 23 micra).

- i. *Merriamium maculatum* was described as *Ectydoryx m.* by Hentschel, 1911, p. 342, from West Australia. The ectosomal spicules are hastate tornotes with swollen ends. The endosomal spicules range from smooth styles 10 by 244 micra to acanthostyles 9 by 120 micra. The microscleres are commonplace.
- j. *Merriamium paupertas* was described as *Hymeniacidon p.* by Bowerbank, 1866, p. 223, from Great Britain. Various authors report it from many locations in the North Atlantic. The ectosomal spicules are hastate tornotes. The endosomal spicules are acanthostyles ranging from shorter ones entirely spined to longer ones partly smooth. The microscleres are very much like those of *roosevelti*.
- k. *Merriamium sophium* was described as *Esperia s.* by Fristedt, 1887, p. 451, from the Arctic. The ectosomal spicules are strongyles, with ends sometimes microspined. The endosomal spicules are acanthostyles up to 578 micra long. The microscleres are, as in all this genus, arcuate isochelas.
- l. *Merriamium stylodermum* was described as *Lissodendoryx s.* by Hentschel, 1914, p. 101, from the Antarctic. The ectosomal spicules are hastate tornotes. The endosomal spicules are acanthostyles only partly spined, 15 by 284 micra. The microscleres have a very peculiar shape.
- m. *Merriamium tortugasensis* was so described by de Laubenfels, 1936, p. 83, simultaneously with the establishment of the genus, and is the genotype. It is from the West Indies. The ectosomal spicules are hastate tornotes. The endosomal spicules are thin acanthostyles, 5 by 180 micra. The microscleres are commonplace for the genus.

It may be noted that the generic characteristics include a principal (endosomal) skeleton of spiny monactinal spicules with a special dermal skeleton of smooth diactines, and microscleres that are exclusively arcuate isochelas.

#### KEY TO THE SPECIES OF THE GENUS MERRIAMIMUM

(The letter in parentheses following each species name corresponds to the lettering of the species in the review of the genus *Merriamium* just preceding.)

- I. The dermal diacts are hastate tornotes.
- A. The isochelas are typically arcuate.
- i. The principal spicules are entirely spined.
- a. The microscleres are of one size range.
- i. Principal spicules about 5 micra thick.....*tortugasensis* (m)
- ii. Principal spicules about 10 micra thick.....*maculatum* (i)
- b. The microscleres are of two size ranges.....*lundbecki* (h)
2. The principal spicules vary from shorter, entirely spined, to longer, only partially spined.....*paupertas* (j)
3. The principal spicules have extremely few, blunt spines.....*buchani* (b)
- B. The isochelas have peculiar, long, thin, lateral alae.....*stylodermum* (l)
- II. The dermal diacts are oxeas.....*clavigerum* (d)
- III. The dermal diacts are strongyles.
- A. The principal spicules up to 950 micra, microscleres to 60 micra .....*atlanticum* (a)
- B. The principal spicules under 518 micra, microscleres under 34 micra .....*sophium* (k)
- IV. The dermal diacts are tylotes.
- A. The isochelas have peculiar, thin, sharp, lateral alae,
- i. otherwise commonplace .....*certum* (c)
2. also having a peculiarly keeled central shaft.....*lobosum* (g)
- B. The isochelas are typically arcuate.
- i. The principal spicules are very thick (over 20 micra) and scarcely spined at all.....*kynnum* (e)
2. The principal spicules are entirely spined, and
- a. about 8 micra thick; the chelas about 36 micra.....*lindgreni* (f)
- b. about 15 micra thick; the chelas about 24 micra.....*roosevelti*
6. *Tedania nigrescens* (Schmidt) 1862, p. 74. Three specimens, collected at James Island (Galápagos), July 24, and one specimen collected in Mexico (Magdalena Bay), July 18. This species is nearly cosmopolitan. It was also collected by Captain Hancock on Albemarle Island (Galápagos), also in Mexico and Central America.
7. *Higginsia papillosa* Thiele 1905, p. 428. Four specimens, collected July 26 at Albemarle Island (Galápagos), two preserved dry. This species was originally described from Chile. Captain Hancock also collected it at Albemarle Island.
8. *Cliona celata* Grant 1826, p. 79. Two specimens, collected July 26 at Albemarle Island (Galápagos), both preserved dry. This species was originally described from British waters, but is extremely cosmopolitan.
9. *Geodia paupera* Bowerbank 1873, p. 329. Three specimens, two collected at Albemarle Island (Galápagos), July 26, and one at James Island, July 24. This species was originally described from specimens of unknown locality. Captain Hancock also

- collected it from two islands of the Galápagos archipelago, namely Albemarle and Tower.
10. *Geodia gibberosa* Lamarck 1815, p. 333. One specimen, collected August 6 at Old Providence Island, Caribbean Sea. This species was originally described from the West Indian region, where it is widespread and abundant.
11. *Tethya diploderma* Schmidt 1870, p. 52. One specimen, collected August 6 at Old Providence Island, Caribbean Sea. This species was originally described from the West Indies, where it is very widespread and common.
12. *Leucosolenia canariensis* Miklucho-Maclay 1868, p. 230. One specimen collected at Old Providence Island, Caribbean Sea, August 6. This species was described originally from the Canary Islands, and recorded as being also West Indian by de Laubenfels in 1936. The specimen in the present collection has remarkably large triaxons, and remarkably few tetraxon spicules, but otherwise agrees rather well with the specimens previously described.
13. *Oligoceras* (?) sp. Three small specimens of Keratosa were collected August 6 at Old Providence Island. No one of them is large enough for satisfactory identification.

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