

OCCASIONAL PAPERS

OF THE

California Academy of Sciences

No. 51, 38 pages.

April 15, 1966

Type Specimens
in the California Academy of Sciences,
Department of Invertebrate Zoology

By

Charles R. Stasek
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In 1960 the Department of Invertebrate Zoology of the California Academy of Sciences established a repository for type specimens of all invertebrate groups (Smith, 1964). Dry shells of molluscan type specimens are deposited in the Department of Geology. Although some of the types are of species recently described, the majority represent species characterized in the decades immediately before and after the turn of the twentieth century. Because certain types were said in the original descriptions to have been deposited elsewhere, such as at Stanford University and the University of California, but were later transferred to the California Academy of Sciences; because of the practice of Walter K. Fisher to apportion pieces of type sea stars to more than one institution; and because such a list might prove useful to taxonomists requiring such information, the following enumeration of type specimens in the Department of Invertebrate Zoology has been prepared. It is planned that information on type specimens to be catalogued in the future will appear in subsequent lists.

TERMINOLOGY

In many instances a type designation was not included in the original description of a species. If the author of such a species clearly utilized a single specimen for the description, that specimen is here regarded as a holotype; if there is a suggestion that more than one specimen was employed, the

available specimen or specimens are syntypes. If a holotype was designated, but the series of specimens described in the text were not specified as paratypes, those specimens are here said to be virtual paratypes.

Occasionally, a subsequent author has designated one specimen of a syntype lot as "Type." In the present list, this specimen is indicated as a lectotype. The present writer has not otherwise designated lectotypes, but has left that decision to specialists in the various groups.

A specimen illustrated or described in publication subsequent to the original description is designated as a hypotype.

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This work has been supported by NSF Grant GB1535. Mr. Allyn G. Smith and Dr. Leo G. Hertlein, of the California Academy of Sciences, have given freely of their knowledge and experience in taxonomic matters, thereby helping to clarify many problems relating to type designation. Dr. Raymond B. Manning, United States National Museum, aided in the verification of several crustacean types, and Mr. John Holleman directed me to literature on the platyhelminth *Syndesmis*. Mr. Dustin Chivers, Technical Assistant, has been primarily responsible for the location of many type specimens housed in the Academy collections. Miss Ludmeila Axionoff typed the manuscript.

LIST OF SPECIMENS

In the following list the specific name is followed by the name of the original describer; the year of publication; the type status, the number and condition of specimens, where applicable; the assigned Department of Invertebrate Zoology Number; the reference containing the original description, including figure designations where specimens are clearly those in the California Academy of Sciences, Department of Invertebrate Zoology Type Series; the type locality; and notes, in brackets. The notes include any necessary verification of type status; name changes, where known; correction of erroneous published information concerning the type locality; and any other information that may increase the value of the list. Unless stated as being a slide mount or as having been dried, all specimens may be presumed to have been preserved in alcohol or formalin.

Complete information on type localities of specimens obtained during the operations of the U.S.S. *Albatross* may be found in the Reports of the U. S. Commissioner of Fisheries for the years 1900, 1902-1906, 1910, and 1920. Unless stated as being hydrographic stations, all *Albatross* numbers refer to dredging stations. Station records of the Crocker-Stanford Deep-Sea Expedition of 1938 were compiled by Bolin and Myers (1950).

The following abbreviation symbols have been used: CAS, California Academy of Sciences; USNM, United States National Museum.

Phylum **COELENTERATA**
 Class **Hydroza**
 Family ATRACTYLIDAE

?*Bimeria pusilla* C. McLEAN FRASER, 1925. SYNTYPE: CAS no. 114, Univ. Calif. Publ. Zool., vol. 28, p. 168. Lime Point, San Francisco Bay, California. [Gonosomes lacking, hence generic placement is provisional.]

?*Bimeria tenella* C. McLEAN FRASER, 1925. SYNTYPE: CAS no. 115. Univ. Calif. Publ. Zool., vol. 28, p. 168. *Albatross* Hydrographic Station 5217; Southampton Light, bearing N. 10° E. Blunt Point, N. 65° W Alcatraz Light, S. 28° W.; San Francisco Bay, California [Gonosomes lacking, hence generic placement is provisional.]

Family CAMPANULARIIDAE

?*Campanularia castellata* C. McLEAN FRASER, 1925. SYNTYPE: CAS no. 116. Univ. Calif. Publ. Zool., vol. 28, p. 170. Near Alcatraz Island, entrance of San Francisco Bay, 10-17 fathoms, growing on *Sertularia desmoides* Torrey, 1902. [Published locality conflicts with original label that bears "XLIV. 3. 5257." This number refers to a Scripps Institution dredging station near San Pedro, California, as compiled by Michael and McEwen (1915, p. 196). Gonosomes lacking, hence generic placement is provisional.]

Campanularia eloisa CHARLES C. NUTTING, 1905. SYNTYPE: CAS no. 165. Bull. U. S. Fish Comm., vol. 23 for 1903, pt. 3, p. 943. *Albatross* Station 3859; Pailolo Channel, between Molokai and Maui islands, and NE. approach. [Label reads "Part of Type." Dried specimens placed in alcohol.]

Family CAMPANULINIDAE

Stegopoma gilberti CHARLES C. NUTTING, 1905. SYNTYPE: CAS no. 166. Bull. U. S. Fish Comm., vol. 23 for 1903, pt. 3, p. 943. *Albatross* Station 4098; north coast of Maui Island, Hawaiian Islands, 95 fathoms. [Label states "Cotype." Apparently through an oversight, Nutting did not list Station 4098 in his section on distribution of this species. Dried specimens placed in alcohol.]

Stegopoma plumicola CHARLES C. NUTTING, 1905. SYNTYPE: CAS no. 167. Bull. U. S. Fish Comm., vol. 23 for 1903, pt. 3, p. 944. *Albatross* Station 3939; vicinity of Laysan Island, Hawaiian Islands, 163 fathoms. [Label states "Part of Type" and "Parasitic on *Lytocarpus phoeniceus* (Busk.)" Dried specimens placed in alcohol.]

Family CLAVIDAE

Corydendrium minor CHARLES C. NUTTING, 1905. SYNTYPE: CAS no. 164. Bull. U. S. Fish Comm., vol. 23 for 1903, pt. 3, p. 941. *Albatross* Station 4098; north coast of Maui Island, Hawaiian Islands, 95 fathoms. [Label states "Cotype." Dried specimens placed in alcohol.]

Family CORYNIDAE

?*Coryne corrugata* C. McLEAN FRASER, 1925. SYNTYPE: CAS no. 113, Univ. Calif. Publ. Zool., vol. 28, p. 167. San Diego, California, near jetty. [Individuals of *Syncoryne eximia* (Allman, 1859) are included in the vial. Gonosomes lacking, hence generic placement is provisional.]

Family HYDRODENDRIDAE

Hydrodendrium gorgonoides CHARLES C. NUTTING, 1905. SYNTYPE: CAS no. 163. Bull. U. S. Fish Comm., vol. 23 for 1903, pt. 3, p. 936. *Albatross* Station 3991; Vicinity Kauai Island, Hawaiian Islands. [Label states "Piece of Type."]

Family LAFOEIDAE

Cryptolaria symmetrica CHARLES C. NUTTING, 1905. SYNTYPE: CAS no. 168. Bull. U. S. Fish Comm., vol. 23 for 1903, pt. 3, p. 947. *Albatross* Station number lacking from label. The date 1902 appears on the *Albatross* label as well as the designation "Hawaiian Islands." [Label states "cotype." Dried specimens placed in alcohol.]

Lafoea adnata C. McLEAN FRASER, 1925. SYNTYPE: CAS no. 117. Univ. Calif. Publ. Zool., vol. 28, p. 170. Near Farallon Islands, California, in 33-35 fathoms, on algae, bryozoa, and other hydroids. [These published data cannot be reconciled with those from two of the three labels in vial: "*Sertularella turgida* (Trask)" and "*Sertlla* [SiC] *turgida* XVI 5323 San Pedro June/01." This notation refers to a Scripps Institution dredging station, as compiled by Michael and McEwen (1915, p. 195).]

Family PLUMULARIIDAE

Antennella complexa CHARLES C. NUTTING, 1905. SYNTYPE: CAS no. 170. Bull. U. S. Fish Comm., vol. 23 for 1903, pt. 3, p. 952. *Albatross* Station 3859; Pailolo Channel, Between Molokai and Maui islands, Hawaiian Islands, 138 fathoms. Label states "Part of Type." [Dried specimens placed in alcohol.]

- Antennularia verticillata* C. McLEAN FRASER, 1925. SYNTYPE: CAS no. 118. Univ. Calif. Publ. Zool., vol. 28, p. 171, fig. 6, *Albatross* Hydrographic Station 5375; Heceta Head Light, bearing N. 75° E. 31.7 miles, Oregon Coast; 84 fathoms. [Type status is lacking from vial, but as the fragment described by Fraser was 2.5 cm. long and 1 mm. wide, thus matching the total length of the 3 pieces available, and as previous curatorial methods were identical to the other, designated Fraser types. I have concluded that this specimen is the syntype colony.]
- Halicornaria flava* CHARLES C. NUTTING, 1905. SYNTYPE. CAS no. 173. Bull. U. S. Fish Comm., vol. 23 for 1903, pt. 3, p. 955. *Albatross* Station 3939; vicinity of Laysan Island, Hawaiian Islands, 163 fathoms. [Label states "Part of Type." Dried specimens placed in alcohol.]
- Halicornaria sinuosa* C. McLEAN FRASER, 1925. SYNTYPE. CAS no. 119. Univ. Calif. Publ. Zool., vol. 28, p. 171. Bull. U. S. Fish Comm., *Fishhawk* Station 7511; 2 1/8 miles SSE. of Fowey Rock Light, Gulf Stream off Cape Florida, 45 fathoms. [With the hydroids *Aglaophenia rigida* and *Schizotricha tenella*.]
- Lytocarpus hawaiiensis* CHARLES C. NUTTING, 1905. SYNTYPE. CAS no. 171. Bull. U. S. Fish Comm., vol. 23 for 1903, pt. 3, p. 954. *Albatross* Station 3848; south coast of Molokai Island, Hawaiian Islands, 44-73 fathoms. [Label states "Cotype." Dried specimens placed in alcohol.]
- Lytocarpus similis* CHARLES C. NUTTING, 1905. SYNTYPE. CAS no. 172. Bull. U. S. Fish Comm., vol. 23 for 1903, pt. 3, p. 955. *Albatross* Station 4000; vicinity of Kauai Island, Hawaiian Islands, 213 fathoms. [Label states "Piece of Type." Nutting and the original label erroneously stated that Station 4000 was "Southwest of the island of Molokai." Dried specimens placed in alcohol.]
- Monostaechas fisheri* CHARLES C. NUTTING, 1905. SYNTYPE: CAS no. 169. Bull. U. S. Fish Comm., vol. 23 for 1903, pt. 3, p. 952. *Albatross* Station 3949; vicinity of Laysan Island, Hawaiian Islands, 59-152 fathoms. [Depth incorrectly reads "70-130 fms" on label. Type status lacking from label. Dried specimens placed in alcohol.]

Family SERTULARIIDAE

- Sertularella halecina* HARRY BEAL TORREY, 1902. SYNTYPE. CAS no. 126. Univ. Calif. Publ. Zool., vol. 1, p. 61. San Diego Bay, California, 5-12 fathoms. [This species was placed in synonymy with *Synthecium cylindricum* (Bale), family Syntheeciidae, by C. McLean Fraser, Hydroids of the Pacific Coast of Canada and the United States, Toronto, 1937. p. 124.]

Class **Scyphozoa**

Family PELAGIDAE

Chrysaora gilberti K. KISHINOUE, 1899. SYNTYPE. CAS no. 162. Zool. Anz., vol. 22, p. 44. Monterey Bay, California. [This specimen is one of three used by Kishinouye in his description. Another of the three he took with him to Japan. The third specimen has not been accounted for.]

Class **Anthozoa**

Order PENNATULACEA

Family PENNATULIDAE

Pennatula sanguinea CHARLES C. NUTTING, 1908. VIRTUAL PARATYPE. CAS no. 157. Proc. U. S. Nat. Mus., vol. 34, p. 557. *Albatross* Station 4116; Kahuku Point, northwest coast of Oahu, Hawaiian Islands, 241-282 fathoms. [Original label reads "*Pennatula pendula* T. & H. [Thomson & Henderson] = *P. sanguinea* Nutting teste Nutting Cotype sta. 4116." This is the type locality, but Nutting did not refer to the number of specimens obtained in the haul. Presumably Nutting's original determination was *P. pendula*, the species later being designated as new. Holotype is U. S. Nat. Mus. no. 22597.]

Order GORGONACEA

Family CHRYSOGORGIDAE

Iridogorgia bella CHARLES C. NUTTING, 1908. VIRTUAL PARATYPE. CAS no. 159. Proc. U. S. Nat. Mus., vol. 34, p. 594. *Albatross* Station 4019; vicinity of Kauai Island, Hawaiian Islands, 550-409 fathoms. [The depth given by Nutting is 405-550 fathoms, which is incorrect. The holotype is USNM no. 25359.]

Family PRIMNOIDAE

Stenella helminthophora CHARLES C. NUTTING, 1908. VIRTUAL PARATYPE. CAS no. 158. Proc. U. S. Nat. Mus., vol. 34, p. 575. *Albatross* Station 3973; French Frigate Shoal, Hawaiian Islands, 395-397 fathoms. [Nutting stated that Station 3973 was between Molokai and Maui, 32-37 fathoms, which is erroneous. This error probably accounts for Nutting's statement that "The bathymetric distribution of this species is greater than of any other in the collection." Original label states "Cotype," but no paratypes were designated. Holotype is USNM no. 25385.]

Phylum **PLATYHELMINTHES**

Class **Turbellaria**

Order **RHABDOCOELA**

Family **UMAGILLIDAE**

Syndisyrinx franciscanus H. E. LEHMAN, 1946. VIRTUAL PARATYPES (approximately 160). CAS no. 161. Biol. Bull., vol. 91, p. 296. Mussel Point, Monterey Peninsula, California, 36° 37' 20" N. Lat., 121° 54' 15" W. Long.; inhabiting the intestine of the sea urchin *Strongylocentrotus franciscanus*. [Holotype in U. S. Nat. Mus. Paratypes were not so designated, but Lehman stated under "Repositories of type material" that additional specimens may be obtained from several institutions, including the California Academy of Sciences and Stanford University. *Syndisyrinx* was given subgeneric rank under *Syndesmis* by E. Marcus, 1949, Universidade de São Paulo, Faculdade de Filosofia Ciências e Letras, Boletim no. 99, Zoologia 14, pp. 24,96.]

Order **POLYCLADIDA**

Family **EURYLEPTIDAE**

Eurylepta aurantiaca HAROLD HEATH and ERNEST A. MCGREGOR, 1912. LECTOTYPE. CAS no. 234. Proc. Acad. Nat. Sci. Phila., vol. 64, p. 481. Carmel, Monterey County, California. [Whole mount on slide no. 302. Lectotype designated by L. H. Hyman, 1953, Bull. Amer. Mus. Nat. Hist., vol. 100, p. 372.]

Family **LEPTOPLANIDAE**

Copidoplana triplya LIBBIE H. HYMAN, 1953. HOLOTYPE. CAS no. 235. Bull. Amer. Nat. Hist., vol. 100, p. 339, figs. 97-100. Monterey, California. [Whole mount of anterior end on CAS slide no. 303; serial sections of posterior end on slides nos. 304-305. The specimen was originally identified as *Leptoplana acticola* by Eleanor S. Boone.]

Diplandros singularis LIBBIE H. HYMAN, 1953. HOLOTYPE. CAS no. 236. Bull. Amer. Mus. Nat. Hist., vol. 100 p. 341, figs. 103-104. La Jolla, California. [Whole mount of anterior end on CAS slide no. 306; serial sections of posterior end on slides nos. 307-309. The specimen was originally identified as *Leptoplana acticola* by Eleanor S. Boone.]

Leptoplana acticola ELEANOR S. BOONE, 1929. LECTOTYPE. CAS no. 237. Ann. Mag. Nat. Hist., ser. 10, vol. 3, p. 38. Shores of Monterey Bay, California. [Whole mount of anterior end on CAS slide no. 310; serial sec-

tions of posterior end on slides nos. 311-313. Although slide number 310 bears the word "type," a holotype was not designated in the original description. L. H. Hyman, 1953, Bull. Amer. Mus. Nat. Hist., vol. 100, p. 323, does refer to this specimen as the holotype; however, "lectotype" appears to be the preferred designation. Hyman placed this species in *Notoplana*.[]]

Leptoplana acticola ELEANOR S. BOONE, 1929. VIRTUAL PARATYPES. CAS nos. 238 and 239. Ann. Mag. Nat. Hist., ser. 10, vol. 3, p. 38. Shores of Monterey Bay, California. [Whole mounts on CAS slides nos. 314 and 315, respectively.]

Leptoplana saxicola HAROLD HEATH and ERNEST A. MCGREGOR, 1912. LECTOTYPE. CAS no. 240. Proc. Acad. Nat. Sci. Phil., vol. 64, p. 481. A point a few miles south of the entrance to Monterey Bay, California, in masses of algae (*Cladophora*) in high tide pools. [Whole mount of anterior end on slides nos. 317-318. Lectotype designated by L. H. Hyman, 1953, Bull. Amer. Mus. Nat. Hist., vol. 100, p. 319. Hyman placed this species in *Notoplana*.[]]

Leptoplana sciophila ELEANOR S. BOONE, 1929. LECTOTYPE. CAS no. 241. Ann. Mag. Nat. Hist., ser. 10, vol. 3, p. 40. Bird Rock, about 2 miles south of La Jolla, California. [Whole mount of anterior end on CAS slide no. 319; serial sections of posterior end on slide no. 320. Although slide 319 bears the word "type," a holotype was not designated in the original description. L. H. Hyman, 1953, Bull. Amer. Mus. Nat. Hist., vol. 100, p. 325, does refer to this specimen as the holotype; however, "lectotype" appears to be the preferred designation. Hyman placed this species in *Notoplana*.[]]

Leptoplana sciophila ELEANOR S. BOONE, 1929. VIRTUAL PARATYPES. CAS nos. 242 and 243. Ann. Mag. Nat. Hist., ser. 10, vol. 3, p. 40. Bird Rock, about 2 miles south of La Jolla, California. [Whole mounts on CAS slide nos. 321 and 322, respectively.]

Phylloplana chloranota ELEANOR S. BOONE, 1929. HOLOTYPE. CAS no. 244. Ann. Mag. Nat. Hist., ser. 10, vol. 3, p. 43; text fig. 4; pl. II, fig. 5; pl. III, fig. 12. Monterey Peninsula, California. [Whole mount on CAS slide no. 323. L. H. Hyman, 1953, Bull. Amer. Mus. Nat. Hist., vol. 100, p. 310, placed this species in *Leptoplana*.[]]

Phylloplana litoricola HAROLD HEATH and ERNEST A. MCGREGOR, 1912. LECTOTYPE. CAS no. 245. Proc. Acad. Nat. Sci. Phil., Vol. 64, p. 472. Southern shore of Monterey Bay, California, living on the under surfaces of stones below the medium-tide mark. [Whole mount on CAS slide no. 324. This species was made the type species of the genus *Freemania* by L. H. Hyman, 1953, Bull. Amer. Mus. Nat. Hist., vol. 100, p. 336.]

Phylloplana litoricola HAROLD HEATH and ERNEST A. MCGREGOR, 1912. VIRTUAL

PARATYPES. CAS nos. 246-249. Proc. Acad. Nat. Sci. Phil., vol. 64, p. 472. Southern shore of Monterey Bay, California, living on the under surfaces of stones below the medium tide mark. [Whole mounts on CAS slides nos. 325-328, respectively.]

Stylochoplana heathi ELEANOR S. BOONE, 1929. HOLOTYPE. CAS no. 250. Ann. Mag. Nat. Hist., ser. 10, vol. 3, p. 35; text fig. 1; pl. II, fig. 2; pl. III, fig. 9. Elkhorn Slough, Monterey Bay, California. [Whole mount on CAS slide no. 329. L. H. Hyman, 1953, Bull. Amer. Mus. Nat. Hist., vol. 100, p. 321, stated that "Through the kindness of Miss Boone, I have had available the type (and only) specimen of *Stylochoplana heathi* that she described in 1929. Examination of this specimen as a whole mount showed without any doubt that it is identical with *Notoplana iniquieta*."]]

Family PLANOCERIDAE

Planocera californica HAROLD HEATH and ERNEST A. MCGREGOR, 1912. LECTOTYPE. CAS no. 251. Proc. Acad. Nat. Sci., Phil., vol. 64, p. 459. "... along the southern coast of Monterey Bay, [California] and to the south for at least thirty-four miles." [Whole mount on CAS slide no. 330. Although the authors refer to a type and cotype (p. 460), there was no distinction of the specimens on the slides. Lectotype designated by L. H. Hyman, 1953, Bull. Amer. Mus. Nat. Hist., vol. 100, p. 347, who placed this species in *Alloioiplana*. Hyman stated that "This specimen is clearly the cotype mentioned by Heath and McGregor (1912, p. 460), since it contains the radula of a snail in its pharynx." However, those authors state that "...both the type and cotype contain radulae of some gastropod mollusk."]

Planocera californica HAROLD HEATH and ERNEST A. MCGREGOR, 1912. VIRTUAL PARATYPE. CAS no. 252. Proc. Acad. Nat. Sci. Phil., vol. 64, p. 459. Slide label gives "La Jolla" although that locality was not mentioned in the published description and is not the type locality (see previous entry). [Whole mount on CAS slide no. 331. Although of the original lot, this specimen is neither the type nor the cotype mentioned by the authors, since it lacks gastropod radulae in the gut.]

Planocera sandiegensis ELEANOR S. BOONE, 1929. HOLOTYPE. CAS no. 253. Ann. Mag. Nat. Hist., ser. 10, vol. 3, p. 33; pl. II, fig. 4. About 1 mile north of La Jolla, California. [Whole mount on CAS slide no. 332. This species was placed in *Alloioiplana* by L. H. Hyman, 1953, Bull. Amer. Mus. Nat. Hist., vol. 100, p. 349.]

Planocera sandiegensis ELEANOR S. BOONE, 1929. PARATYPES. CAS nos. 254 and 255. Ann. Mag. Nat. Hist., ser. 10, vol. 3, p. 33. About 1 mile north of La Jolla, California. [Whole mounts on CAS slides nos. 333 and 334, respectively.]

Phylum **ANNELIDA**
 Class **Polychaeta**
 Family ARABELLIDAE

- Drilonereis nuda* J. PERCY MOORE, 1909. HOLOTYPE. CAS no. 56. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 254. Vicinity Monterey Bay, California, at a big tide pool. [The type locality undoubtedly refers to the "Big Tide Pool" on Pt. Pinos. *Drilonereis* was placed in Lumbrineridae by Moore.]
- Drilonereis nuda* J. PERCY MOORE, 1909. VIRTUAL PARATYPES. CAS no. 77. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 254. Big Tide Pool, vicinity Monterey Bay, California. [One complete specimen 327 mm. long (as stated by Moore), and one piece 93 mm. long, probably a portion of the specimen reported by Moore to be 630 mm. long.]

Family CAPITELLIDAE

- Dasybranchus glabrus* J. PERCY MOORE, 1909. HOLOTYPE. CAS no. 46. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 280, pl. 9, fig. 58. San Diego Bay, California.
- Eunotomastus gordiodes* J. PERCY MOORE, 1909. SYNTYPE (2 pieces). CAS no. 47. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 278. San Diego, California, at low water. [Label states "TYPE," but no holotype designated. This species was placed in a new genus, *Anotomastus*, by Hartman, O., 1947, Allan Hancock Pacific Expedition, vol. 10, p. 442.]
- Eunotomastus gordiodes* J. PERCY MOORE, 1909. SYNTYPE. CAS No. 73. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 278, San Diego, California, at low water. [Label stated "Cotype" but no holotype designated.]
- Notomastus tenuis* J. PERCY MOORE, 1909. HOLOTYPE. CAS no. 65. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 277, pl. 9, fig. 55. San Diego, California.

Family CIRRATULIDAE

- Cirratulus luxuriosus* J. PERCY MOORE, 1904. HOLOTYPE. CAS no. 52. Proc. Acad. Nat. Sci. Phil., vol. 56, p. 493. San Diego, California. [This species now known as *Cirriformia luxuriosa* (Moore); see Hartman, O., 1944, Allan Hancock Pacific Expeditions, vol. 10, p. 263.]
- Cirratulus luxuriosus* J. PERCY MOORE, 1904. VIRTUAL PARATYPE. CAS no. 76. Proc. Acad. Nat. Sci. Phil., vol. 56, p. 493. San Diego, California.
- Cirratulus spirabranchnus* J. PERCY MOORE, 1904. HOLOTYPE. CAS no. 63. Proc. Acad. Nat. Sci. Phil., vol. 56, p. 492. San Diego, California. [This species now known as *Cirriformia spirabranchna* (Moore); see Hartman, O., 1944, Allan Hancock Pacific Expeditions, vol. 10, p. 263.]

Tharyx multifilis J. PERCY MOORE, 1909. HOLOTYPE. CAS no. 55. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 267. San Diego, California, between tides

Family DORVILLEIDAE

Stauronereis moniloceros J. PERCY MOORE, 1909. HOLOTYPE. CAS no. 54. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 256. Vicinity Monterey Bay, California. [This species now known as *Dorvillea moniloceras* (Moore); see Hartman, O., 1944, Allan Hancock Pacific Expeditions, vol. 10, p. 190.]

Family EUNICIDAE

Eunice biannulata J. PERCY MOORE, 1904. HOLOTYPE. CAS no. 35. Proc. Acad. Nat. Sci. Phil., vol. 56, p. 487. San Diego, California. [Placed in synonymy with *E. longicirrata* Webster, 1884, by Hartman, O., 1944. Allan Hancock Pacific Expeditions, vol. 10, p. 104.]

Eunice interrupta AARON L. TREADWELL, 1906. VIRTUAL PARATYPE. CAS no. 74. Bull. U.S. Fish Comm., vol. 23 for 1903, part 3, p. 1167. Albatross Station 3940; Laysan Island, Hawaiian Islands.

Eunice (*Eriphyle*) *paloloides* J. PERCY MOORE, 1909. HOLOTYPE. CAS no. 58. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 246. San Diego, California. [This species now known as *Palola palolooides* (Moore); see Hartman, O., 1944, Allan Hancock Pacific Expeditions, vol. 10, p. 131.]

Marphysa californica J. PERCY MOORE, 1909. HOLOTYPE. CAS no. 37. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 251. San Diego, California. [Placed in synonymy with *M. sanguinea* (Montagu) by Monro, C.C.A., 1933, Proceedings of the Zoological Society of London, p. 69.]

Marphysa stylobranchiata J. PERCY MOORE, 1909. SYNTYPE. CAS no. 64. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 249. Vicinity of Monterey Bay, California, "Big Tide Pool." [Small labels in vial indicate that a "small cotype" has been removed. Although the included label refers to this specimen as the type, no holotype was designated in Moore's publication.]

Marphysa stylobranchiata J. PERCY MOORE, 1909. SYNTYPES (two specimens, the smaller in two pieces). CAS no. 78. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 249. Big Tide Pool, vicinity Monterey Bay, California.

Family FLABELLIGERIDAE

Flabelligera commensalis J. PERCY MOORE, 1909. HOLOTYPE. CAS no. 41. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 286. Vicinity Monterey Bay, California, at picnic tables, from among spines of *Strongylocentrotus purpuratus*. [Locality probably refers to Picnic Ground Point, an unofficial name for Pescadero Point. Flabelligeridae=Chlorhaemidae, as given on jar label.]

Flabelligera commensalis J. PERCY MOORE, 1909. VIRTUAL PARATYPE. CAS no. 42. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 286. Vicinity Monterey Bay, California, at picnicles, from among spines of *Strongylocentrotus purpuratus*.

Trophonia capulata J. PERCY MOORE, 1909. HOLOTYPE. CAS no. 40. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 284, pl. 9, figs. 60, 61. San Diego Bay, California, between tide limits. [*Trophonia* Audouin & Milne Edwards, 1830, = *Pherusa* Oken, 1807. See Hartman, O., 1959, Allan Hancock Foundation Publications, Occ. Pap. no. 23, p. 417.]

Family LUMBRINERIDAE

Lumbriconereis erecta J. PERCY MOORE, 1904. SYNTYPE. CAS no. 45, Proc. Acad. Nat. Sci. Phil., vol. 56, p. 490. San Diego, California. [Label states "Type," but a holotype was not designated in publication. This species placed in *Lumbrineris* by Moore, J. P., 1909, Proc. Acad. Nat. Sci. Phil., vol. 61, p. 254.]

Lumbriconereis erecta J. PERCY MOORE, 1904. SYNTYPES (4 specimens). CAS no. 72. Proc. Acad. Nat. Sci. Phil., vol. 56, p. 490. San Diego, California. [Label states "Cotypes," but no holotype was designated in publication.]

Family MALDANIDAE

Maldane disparidentata J. PERCY MOORE, 1904. SYNTYPE. CAS no. 43. Proc. Acad. Nat. Sci. Phil., vol. 56, p. 494. San Diego, California. [Label states "Syntypes" although only one specimen is in vial. This species now known as *Asychis disparidentata* (Moore); see Berkeley, E. & C., 1941, Bull. So. Calif. Acad. Sci., vol. 40, p. 50.]

Family ONUPHIDAE

Diopatra californica J. PERCY MOORE, 1904. SYNTYPE. CAS no. 36. Proc. Acad. Nat. Sci. Phil., vol. 56, p. 484. San Diego, California. [Placed in synonymy with *D. splendidissima* Kinberg, 1857, by Hartman, O., 1944, Allan Hancock Pacific Expeditions, vol. 10, p. 56.]

Family ORBINIIDAE

Aricia johnsoni J. PERCY MOORE, 1909. HOLOTYPE. CAS no. 49. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 260, pl. 8, figs. 30-33. Moss Beach, near Monterey, California. [This species now known as *Orbinia johnsoni*; see Hartman, O., 1944, Allan Hancock Pacific Expeditions, vol. 10, p. 258.]

Naineris longa J. PERCY MOORE, 1909. SYNTYPE. CAS no. 51. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 264. Big Tide Pool, vicinity Monterey Bay, California. [Labels enclosed in jar state "Type," but a holotype was not designated in publication. The locality given on the label does not co-

incide with that given by Moore in his description, where he stated that Third Beach Point was the type locality. This species was synonymized with *Naineris dendritica* (Kinberg, 1867) by Hartman, O., 1957, Allan Hancock Pacific Expeditions, vol. 15, p. 299. See also, Hartman, O. 1948, Arkiv för Zoologi utgivet av K. Svenska Vetenskapsakademien, vol. 42, p. 103.]

Naineris longa J. PERCY MOORE, 1909. SYNTYPES. (5 complete specimens plus 4 pieces of perhaps two individuals). CAS no. 75. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 264. Third Beach Point, Monterey Bay, California. [Enclosed label states "Cotypes," but no holotype was designated in publication. "Third Beach" refers to the third beach west of Point Aulon.]

Naineris robusta J. PERCY MOORE, 1909. HOLOTYPE. CAS no. 59. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 262. San Diego, California, between tides. [This species was synonymized with *Naineris dendritica* (Kinberg, 1867), by Hartman, O., 1957, Allan Hancock Pacific Expeditions, vol. 15, p. 299. See also, Hartman, O., 1948, Arkiv för Zoologi utgivet av K. Svenska Vetenskapsakademien, vol. 42, p. 103.]

Naineris robusta J. PERCY MOORE, 1909. VIRTUAL PARATYPE. CAS No. 60. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 262. San Diego, California, between tides.

Naineris robusta J. PERCY MOORE, 1909. VIRTUAL PARATYPE. CAS no. 61. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 262. Vicinity Monterey Bay, California, Big Tide Pool.

Family PHYLLODOCIDAE

Phyllodoce medipapillata J. PERCY MOORE, 1909. HOLOTYPE. CAS no. 53. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 237. Vicinity Monterey Bay, California. [This species now known as *Anaitides medipapillata*; see Hartman, O., 1959, Allan Hancock Found. Publ. Occ. Pap. no. 23, p. 143.]

Family SABELLIDAE

Distylia rugosa J. PERCY MOORE, 1904. HOLOTYPE. CAS no. 62. Proc. Acad. Nat. Sci. Phil., vol. 56, p. 499. [San Diego, California. According to Hartman, O., 1959, Allan Hancock Found. Publ. Occ. Pap. no. 23, p. 542, this species represents an unnamed genus.]

Family SCALIBREGMIDAE

Sclerocheilus pacificus J. PERCY MOORE, 1909. HOLOTYPE. CAS no. 57. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 282. Third Beach Point, Monterey Bay, California. [This species now known as *Oncoscolex pacificus* (Moore); see Hartman, O., 1959, Allan Hancock Found. Publ. Occ. Pap. no. 23, p. 426. Moore placed the species in the Ammocharidae.]

Family SYLLIDAE

- Trypanosyllis intermedia* J. PERCY MOORE, 1909. HOLOTYPE. CAS no. 48. Proc. Acad. Nat. Sci. Phil., vol. 61. p. 236, pl. 7, figs. 1 & 2, "Point above Third Beach," Monterey Bay, California. [No holotype designated; the species described from "The single incomplete specimen...taken at 'point above Third Beach'..."]
- Pista (Scionopsis) alata* J. PERCY MOORE, 1909. HOLOTYPE. CAS no. 50. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 273. San Diego, California.
- Pista elongata* J. PERCY MOORE, 1909. SYNTYPE. CAS no. 44, Proc. Acad. Nat. Sci. Phil., vol. 61, p. 270. San Diego, California, between tides. [Label states "Type", but no holotype designated in publication.]
- Pista elongata* J. PERCY MOORE, 1909. SYNTYPES (2 nearly complete specimens, one large fragment, and many small fragments). CAS no. 71. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 270. San Diego, California, between tides. [Label states "Cotypes," but no holotype designated in publication.]
- Polycirrus californicus* J. PERCY MOORE, 1909. HOLOTYPE. CAS no. 39. Proc. Acad. Nat. Sci. Phil., vol. 61, p. 276. San Diego, California.
- Terebella (Schmardanella) californica* J. PERCY MOORE, 1904. HOLOTYPE. CAS no. 38, Proc. Acad. Nat. Sci. Phil., vol. 56, p. 496. San Diego, California.
- Terebella (Schmardanella) californica* J. PERCY MOORE, 1904. VIRTUAL PARATYPE. CAS no. 70. Proc. Acad. Nat. Sci. Phil., vol. 56, p. 496. San Diego Bay, California.

Class **Oligochaeta**

Family MEGASCOLECIDAE

- Plutellus blacki* JAS. A. MACNAB and DOROTHY MCKEY-FENDER, 1952. HOLOTYPE. CAS no. 10. Wasmann Jour. Biol., vol. 10, p. 347. Bethel-Orchard Heights Road, Eola Hills, near Salem, Oregon, under isolated Douglas fir on bare hillside. [Clitellate.]
- Plutellus davisii* JAS. A. MACNAB and DOROTHY MCKEY-FENDER, 1952. HOLOTYPE. CAS no. 11. Wasmann Jour. Biol., vol. 10, p. 344. Chetko River, 6 miles above Brookings, Oregon, in myrtle grove...just beneath leaf-mold. [Clitellate.]

Family OCTOCHAETIDAE

- Ramiellona balantina* G. E. GATES, 1962. SYNTYPES (1 entire specimen; 2 others, each bisected). CAS no. 67. Proc. Calif. Acad. Sci., vol. 31, no. 8, p. 202. Vicinity of Totonicapan, Guatemala. Highlands of Huehuetenango.
- Ramiellona guatemalana* G. E. GATES, 1962. SYNTYPES (32 specimens, pieces and entire). CAS no. 66. Proc. Calif. Acad. Sci., vol. 31, no. 8, p. 195.

Vicinity of Totonicapan, Guatemala. Highlands of Huehuetenango.

Ramiellona mexicana G. E. GATES, 1962. SYNTYPES (2 specimens, one of which is bisected; also an isolated piece of body wall). CAS no. 69. Proc. Calif. Acad. Sci., vol. 31, no. 8, p. 209. Dos Rios, Tehuantepec, Mexico.

Ramiellona strigosa G. E. GATES, 1962. SYNTYPES (1 entire specimen and 6 pieces). CAS no. 68. Proc. Calif. Acad. Sci., vol. 31, no. 8, p. 206. Vicinity of Totonicapan, Guatemala. Highlands of Huehuetenango.

Phylum **ARTHROPODA**

Class **Pycnogonida**

Family NYMPHONIDAE

Nymphon heterodenticulatum JOEL W. HEDGPETH, 1941. HOLOTYPE. CAS no. 151. American Midland Naturalist, vol. 25, no. 2, p. 447, pl. 1, fig. a. Crocker-Stanford Deep-Sea Expedition Station 30; off Avalon, Santa Catalina Island, California, 33° 23' N. Lat., 118° 20' W. Long.; 80 fathoms; bottom, dead and bleached corallines. [Locality according to Hedgpeth paper is incorrectly given as 32° 23' N. This female specimen was referred to as Stanford Natural History Museum no. 3215.]

Nymphon heterodenticulatum JOEL W. HEDGPETH, 1941. PARATYPE. CAS no. 81. Amer. Midl. Nat., vol. 25, no. 2, p. 447, pl. 1, figs. b, d-f, h. Crocker-Stanford Deep-Sea Expedition Station 30; off Avalon, Santa Catalina Island, California, 33° 23' N. Lat., 118° 20' W. Long.; 80 fathoms; bottom, dead and bleached corallines. [This female specimen was referred to as Stanford Natural History Museum no. 3216.]

Family PALLENIDAE

Pallene pacifica JOEL W. HEDGPETH, 1939. HOLOTYPE. CAS no. 79. Amer. Midl. Nat., vol. 22, no. 2, p. 460, pl. 1, figs. f-i; pl. 2, figs. j-l. Crocker-Stanford Deep-Sea Expedition Station 5; off Point San Luis, California, 35° 08' N. Lat., 120° 52' W. Long., 56 fathoms, rock (?). [This female specimen referred to as Stanford Natural History Museum no. 3211.]

Pallene pacifica JOEL W. HEDGPETH, 1939. PARATYPE. CAS no. 80. Amer. Midl. Nat., Vol. 22, no. 2, p. 460. Crocker-Stanford Deep-Sea Expedition Station 5; off Point San Luis, 35° 08' N. Lat., 120° 52' W. Long; 56 fathoms, rock (?). [This female specimen referred to as Stanford Natural History Museum no. 3212.]

Class **Tardigrada**

Family SCUTECHINISCIDAE

Pseudechiniscus goedeni ALBERT A. GRIGARICK, FRANC MEHELČIČ, AND ROBERT O. SCHUSTER, 1964. PARATYPES. CAS no. 184-186. Proceedings of the

Biol. Soc. Wash., vol. 77, p. 5. 6 miles SSW. of Breitenbush Hot Springs, Marion County, Oregon. In lichens on cedar and Douglas Fir. [3 whole mounts, CAS type-slide series, slide nos. 82-84, originally deposited in the Department of Entomology, University of California, Davis.]

Pseudechiniscus raneyi ALBERT A. GRIGARICK, FRANC MIHELČIČ, AND ROBERT O. SCHUSTER, 1964. PARATYPES. CAS no. 187-189. Proc. Biol. Soc. Wash. vol. 77, p. 6. 46 miles E. of Fresno on Highway 180, Tulare County, California; 4300 feet, from mixed lichen and moss on pine. [3 whole mounts, CAS type slide series, slide nos. 85-87, originally deposited in the Department of Entomology, University of California, Davis.]

Superclass **CRUSTACEA**

Class **Copepoda**

Family MEGACALANIDAE

Bathycalanus sverdrupi MARTIN W. JOHNSON, 1958. PARATYPE. CAS no. 8. Proc. Calif. Acad. Sci., 4th ser., vol. 29, no. 6, p. 258, fig. A, 3-14. "Two adult females were found in an open trawl collection made by the Scripps Institution of Oceanography vessel *Horizon* at a towing depth of 2103 meters at 12° 33' N., 164° 49' E." [Originally catalogued in CAS Department of Geology Type Collection, no. 34987. Certain appendages have been mounted on CAS type slide series, slide nos. 54-58. The holotype of this species is USNM no. 101078.]

Class **Malacostraca**

Order TANAIIDACEA

Family TANAIIDAE

Tanais stanfordi HARRIET RICHARDSON, 1901. VIRTUAL PARATYPES. (approximately 65 specimens). CAS no. 89. Proc. Wash. Acad. Sci., vol. 3, p. 565. Clipperton Island Lagoon, Clipperton Island, eastern Pacific Ocean. [Holotype is in USNM.]

Order ISOPODA

Family SCYPHACIDAE

Armadilloniscus coronacapitalis ROBERT JAMES MENZIES, 1950. HOLOTYPE. CAS no. 181. Proc. Calif. Acad. Sci., ser. 4, vol. 26, p. 468, pl. 22. The cove opposite Hog Island on the east side of Tomales Point, Tomales Bay, Marin County, California; under rocks at high tide line. The substratum

consisted of coarsely grained granite sand. [Female; male paratype no. 182 is in same sealed vial. Originally assigned CAS, Dept. of Paleontology Type Collection, no. 9502 (Holotype).]

Armadilloniscus coronacapitalis ROBERT JAMES MENZIES, 1950. PARATYPE. CAS no. 182. Proc. Calif. Acad. Sci., ser. 4, vol. 26, p. 468. The cove opposite Hog Island on the east side of Tomales Point, Tomales Bay, Marin County, California; under rocks at high tide line. The substratum consisted of coarsely grained granite sand. [Male; female holotype no. 181 is in same sealed vial. Originally assigned CAS, Dept. of Paleontology Type Collection no. 9502a (Allotype), here termed a paratype.]

Armadilloniscus coronacapitalis ROBERT JAMES MENZIES, 1950. PARATYPES (3 males; 1 female). CAS no. 183. Proc. Calif. Acad. Sci., ser. 4, vol. 26, p. 468. The Cove opposite Hog Island on the east side of Tomales Point, Tomales Bay, Marin County, California; under rocks at high tide line. The substratum consisted of coarsely grained granite sand. [Originally assigned CAS, Dept. of Paleontology Type Collection no. 9503, 9503 a-c, inc.]

Order AMPHIPODA

Family CAPRELLIDAE

Caprella acutifrons incisa PAUL MAYER, 1903. SYNTYPES (25 specimens). CAS no. 102. Siboga Expeditie, vol. 34, p. 82. Pacific Grove, California. [This variety was raised to specific status by Dougherty and Steinberg, 1953, Proc. Biol. Soc. Wash., vol. 66, p. 47. No lectotype seems to have been selected.]

Caprella acutifrons verrucosa A. BOECK, 1872, as subsequently designated by Paul Mayer, 1903. SYNTYPE (male). CAS no. 156. Siboga Expeditie, vol. 34, p. 83. Pacific Grove, California. [E. C. Dougherty and J. E. Steinberg, 1953, Proc. Biol. Soc. Wash., vol. 66, p. 47, synonymized this subspecies with *Caprella verrucosa* Boeck, 1872.]

Caprella laeviuscula PAUL MAYER, 1903. VIRTUAL SYNTYPES (6 specimens). CAS no. 103. Siboga Expeditie, vol. 34, p. 109. Dredged at Humboldt Bay, California. [Mayer (p. 109) quoted the original label for this species as follows: "On eel grass, Humboldt Bay, California, 6/12 1894' (...in California Museum)." Thus the label quoted differs from that in the jar in the CAS type series, which gives the same place and date, but states that the specimens were "dredged at Humboldt Bay." In all likelihood these are the specimens used by Mayer as a portion of the type lot, but this difference in wording throws some doubt upon the identity of the specimens. I have therefore designated them as "Virtual Syntypes."]

- Caprella paulina* PAUL MAYER, 1903. SYNTYPES (3 specimens). CAS no. 154. Siboga Expeditie, vol. 34, p. 116. St. Paul Island, Pribilof Islands, Alaska.
- Tritella laevis* PAUL MAYER, 1903. SYNTYPE. CAS no. 155. Siboga Expeditie, vol. 34, p. 48. Pacific Grove, California. [According to his account, Mayer stated "Pacific Grove, California, July 1895 (2♂, Museum der Academie in San Francisco)..."]

Order DECAPODA

Tribe Carides

Family DISCIDAE

- Discias serrifer* MARY J. RATHBUN, 1902. SYNTYPE. CAS no. 84. Proc. Wash. Acad. Sci., vol. 4, p. 290. Reef north of Tagus Hill, Tagus Cove, Albatross Island, Galápagos. [3 ovigerous females were listed in the original description. 2 females are in USNM no. 24836, and 1 ovigerous female is in CAS collection; therefore, CAS apparently has one of the 3 specimens from type lot.]

Family PONTONIIDAE

- Periclimenes pusillus* MARY J. RATHBUN, 1906. PARATYPE. CAS no. 87. Bull. U. S. Fish Comm., vol. 23 for 1903, pt. 3, p. 921. Albatross Station 3921; south coast Oahu Island, Diamond Head Light, Hawaiian Islands. S. 62°, E. 3.9' [USNM records show one specimen transferred from USNM to Stanford in 1908. This specimen transferred to CAS in 1964.]

Tribe Anomura

Family LITHODIDAE

- Paralithodes californiensis* BENEDICT, 1894. HYPOTYPE. CAS no. 121. Illustrated by Delbert G. Goodwin, 1952. California Fish and Game, vol. 38, p. 178, fig. 10. M/V *N. B. Scofield* Station 50-B71; off Pismo Beach, San Luis Obispo County, California, 81-83 fathoms.
- Paralithodes rathbuni* BENEDICT, 1894. HYPOTYPE. CAS no. 122. Illustrated by Delbert G. Goodwin, 1952. California Fish and Game, vol. 38, p. 177, fig. 9. M/V *N. B. Scofield* Station 50-B71; off Pismo Beach, San Luis Obispo County, California, 81-83 fathoms.
- Paralomis multispina* BENEDICT, 1894. HYPOTYPE. CAS no. 12. Illustrated by Delbert G. Goodwin, 1952. California Fish and Game, vol. 38, p. 176, fig. 8. M/V *N. B. Scofield* Station 50-B88; 10 miles from Southeast Farallon Island, California, 700-820 fathoms. [Dry specimen.]

Tribe Brachyura

Family DROMIIDAE

Dromidia segnipes FRANK W. WEYMOUTH, 1910. HOLOTYPE. CAS no. 20 Leland Stanford Junior Univ. Publ., Univ. Ser. no. 4, p. 15. Monterey Bay, California, 20 fathoms. [Originally no. 478, Invertebrate Series, Leland Stanford Junior University Zoological Museum. [Label states "Ascidian? carried on carapace."]]

Dromidia segnipes FRANK W. WEYMOUTH, 1910. PARATYPE. CAS no. 21. Leland Stanford Junior Univ. Publ., Univ. Ser. no. 4, p. 15, pl. 1, figs. 1 & 2. Monterey Bay, 15 fathoms. [Originally no. 479, Invertebrate Series, Leland Stanford Junior University Zoological Museum. Indicated as "cotype."]]

Family INACHIDAE or MAJIDAE

Libinia setosa LOCKINGTON, 1877. NEOTYPE. CAS no. 120. Proc. Calif. Acad. Sci., vol. 7, p. 68. Female holotype, originally in the collections of the CAS, was destroyed in the 1906 fire. Present male specimen designated neotype by John S. Garth, 1958, Allan Hancock Pac. Exped., vol. 21, p. 323; pl. 36 (entire specimen); pl. T, figs. 2, 3 (right first pleopod). Department of Geology, CAS, Locality 27594. Santa Maria Bay, Baja California, below Cape San Lazaro, 10-16 fathoms. Dredge no. 24 R. Templeton Crocker Expedition ("ZACA").

Family LEUCOSIIDAE

Ebalia jordani MARY J. RATHBUN, 1906. PARATYPE. CAS no. 86. Bull. U. S. Fish Comm., vol. 23 for 1903, pt. 3, p. 889. *Albatross* Station 3855; South coast Molokai Island, Mokuhooniki Islet, Hawaiian Islands, bearing N. 50° 15', E. 11'. [USNM records show one specimen transferred to Stanford in 1908. This male specimen transferred to CAS in 1964.]

Family OCYPODIDAE

Uca thayeri MARY J. RATHBUN, 1900. SYNTYPE. CAS no. 90. Proc. Wash. Acad. Sci., vol. 2, p. 134. Among mangroves, Rio Parahyba do Norte at Cabedello, Brazil. [Original description listed 8 males; 1 female. USNM no. 23753 has 7 males and 1 female. Label in CAS jar states "male cotype," hence probably one of type lot.]

Uca helleri MARY J. RATHBUN, 1902. SYNTYPES (4 males; 2 females). CAS no. 82. Proc. Wash. Acad. Sci., vol. 4, p. 277. Mangrove Point, Narborough Island, Galápagos Islands. [6 males and 3 females listed in original description (number of males possibly incorrect). 3 males and 1 female in USNM no. 24829; no record of transfer.]

Family XANTHIDAE

Carpilodes virgatus MARY J. RATHBUN, 1906. PARATYPE. CAS no. 88. Bull. U. S. Fish Comm., vol. 23 for 1903, pt. 3, p. 843. *Albatross* Station 3876; Auau Channel between Maui and Lanai islands, Lahaina Light, Hawaiian Islands, bearing N. 60° 45', E. 1.6'. [USNM records show that one specimen was transferred to Stanford in 1908. This specimen transferred to CAS in 1964.]

Platypodia gemmata MARY J. RATHBUN, 1902. SYNTYPE. CAS no. 83. Proc. Wash. Acad. Sci., vol. 4, p. 279. Reef north of Tagus Hill, Tagus Cove, Albebarle Island, Galápagos Islands. [1 male, 1 ovigerous female, and 2 immature females listed in original description. 1 male and 1 female are in USNM, no. 24850. CAS apparently has 1 of the original immature females; the label states "2 ♀ cotypes," but only one specimen is in vial.]

Xantho lacunosus MARY J. RATHBUN, 1906. PARATYPE. CAS no. 85. Bull. U. S. Fish Comm., vol. 23 for 1903, pt. 3, p. 847. *Albatross* Station 3876; Auau Channel between Maui and Lanai islands; Lahaina Light, Maui, Hawaiian Islands. [USNM records show one specimen transferred to Stanford in 1908. This specimen transferred to CAS in 1964.]

Phylum **MOLLUSCA**

Class **Gastropoda**

Subclass PROSOBRANCHIA

Family NEPTUNEIDAE

Beringius eyerdami ALLYN G. SMITH, 1959. HOLOTYPE. CAS no. 9. *Nautilus*, vol. 73, p. 5, pl. 2, figs. 3 & 4. Approximately 100 fathoms on La Perouse Bank about 40 miles off Cape Flattery opposite the entrance to the Strait of San Juan de Fuca, Washington. [Shell and operculum are in the CAS Paleontology Type Collection, no. 12217, not 36318 as published (p. 6), the latter being the locality number.]

Subclass OPISTHOBRANCHIA

Family AEOLIDIIDAE

Cerberilla pungoarena CLINTON L. COLLIER AND WESLEY M. FARMER, 1964. HOLOTYPE. CAS no. 28. *Trans. San Diego Soc. Nat. Hist.*, vol. 13, p. 391, pl. 6. Puerto Refugio on north end of Isla Angel de la Guarda, Gulf of California. [Radula dissected out and mounted on CAS slide no. 70.]

Family AGLAJIDAE

Chelidonura evelinae ERNESTO MARCUS, 1955. SYNTYPE. CAS no. 7. Universidade de São Paulo, Faculdade de Filosofia Ciências e Letras, Boletim no. 207, Zoologia 20, p. 95. Island of São Sebastião, Brazil, under stones with algae, chiefly *Padina*, in the upper littoral. [This is one of 15 specimens mentioned by Marcus, who did not designate a holotype. Of the original lot, this specimen was sent by Marcus to Mr. Lawrence Andrews, who deposited it in the California Academy of Sciences.]

Family DORIDIDAE

- Atagema quadrimaculata* CLINTON L. COLLIER, 1963. HOLOTYPE. CAS no. 19. Veliger, vol. 6, p. 73, figs. 1-5. Intertidal region of Sunset Cliffs, San Diego, California. [Radula, labial cuticle, & serial sections of genital area are mounted on CAS slide nos. 60, 61, and 62-68, respectively. On p. 75 the CAS type number was omitted. This lapsus was corrected by A. G. Smith, Veliger, vol. 6, p. 172.]
- Chromodoris banksi* WESLEY M. FARMER, 1963. HOLOTYPE. CAS no. 1. Trans. San Diego Soc. Nat. Hist., vol. 13, no. 6, p. 84, fig. 1g-k. 2.3 miles South of Puertecitos (30° 24' N. Lat., 114° 40' W. Long.), Baja California, Mexico. [Consists of serial sections of specimen, CAS slide nos. 2-34, with radula on CAS slide no. 1.]
- Chromodoris banksi* WESLEY M. FARMER, 1963. PARATYPE. CAS no. 2. Trans. San Diego Soc. Nat. Hist., vol. 13, no. 6, p. 84. Gonzaga Bay, Baja California, Mexico. [Radula is mounted on CAS slide no. 35.]
- Chromodoris banksi* WESLEY M. FARMER, 1963. PARATYPE. CAS no. 3. Trans. San Diego Soc. Nat. Hist., vol. 13, no. 6, p. 84. Isla Angel de la Guarda, Gulf of California.
- Chromodoris norrisi* WESLEY M. FARMER, 1963. HOLOTYPE. CAS no. 4. Trans. San Diego Soc. Nat. Hist., vol. 13, p. 81. Cerralvo Island, Baja California, Mexico. [Radula is mounted on CAS slide no. 36.]
- Chromodoris norrisi* WESLEY M. FARMER, 1963. PARATYPE. CAS no. 5. Trans. San Diego Soc. Nat. Hist., vol. 13, p. 81. Cerralvo Island, Baja California, Mexico. [Radula is mounted on CAS slide no. 37.]
- Chromodoris norrisi* WESLEY M. FARMER, 1963. PARATYPE. CAS no. 6. Trans. San Diego Soc. Nat. Hist., vol. 13, p. 81. Cerralvo Island, Baja California, Mexico. [Serial sections of gonad are mounted on CAS slide nos. 39-53; radula on CAS slide no. 38.]
- Conualevia alba* CLINTON L. COLLIER, AND WESLEY M. FARMER, 1964. HOLOTYPE. CAS no. 29. Trans. San Diego Soc. Nat. Hist., vol. 13, p. 383. Newport Bay, California, under rocks.

- Conualevia alba* CLINTON L. COLLIER AND WESLEY M. FARMER, 1964. PARATYPE. CAS nos. 30 and 31. Trans. San Diego Soc. Nat. Hist., vol. 13, p. 383. Newport Bay, California.
- Conualevia marcusii* CLINTON L. COLLIER AND WESLEY M. FARMER, 1964. HOLOTYPE. CAS no. 25. Trans. San Diego Soc. Nat. Hist., vol. 13, p. 381, 3.8 miles south of Puertecitos, Baja California, Mexico.
- Conualevia marcusii* CLINTON L. COLLIER AND WESLEY M. FARMER, 1964. PARATYPE. CAS no. 26. Trans. San Diego Soc. Nat. Hist., vol. 13, p. 381. 3.8 miles south of Puertecitos, Baja California, Mexico. [Collier and Farmer apply the CAS no. "27" to both this specimen and to the holotype of *Polycera alabe*. Only *P. alabe*, Holotype, is CAS no. 27.]
- Conualevia marcusii* CLINTON L. COLLIER AND WESLEY M. FARMER, 1964. PARATYPE. CAS no. 33. Trans. San Diego Soc. Nat. Hist., vol. 13, p. 381. Puerto Refugio on Isla Angel de la Guarda, Baja California, Mexico.

Family GONIODORIDAE

- Ancula lentiginosa* WESLEY M. FARMER AND ALLAN J. SLOAN, 1964. HOLOTYPE. CAS no. 13. Veliger, vol. 6, p. 148, fig. 1. Scripps Institution of Oceanography, La Jolla, California.
- Ancula lentiginosa* WESLEY M. FARMER AND ALLAN J. SLOAN, 1964. PARATYPES. CAS nos. 14-18, inclusive. Veliger, vol. 6, p. 148, pl. 18, figs. 1 & 2. Scripps Institution of Oceanography, La Jolla, California. [Radula of paratype no. 14 is mounted on CAS slide no. 59.]

Family JULIIDAE

- Berthelinia pseudochloris* E. ALISON KAY, 1964. PARATYPE. CAS no. 34. Proc. Mal. Soc. Lond., vol. 36, p. 191. Near Kukuiula, Kauai, Hawaiian Islands; on *Caulerpa racemosa*, 1 meter above sea level on limestone beach.

Family POLYCERIDAE

- Polycera alabe* CLINTON L. COLLIER AND WESLEY M. FARMER. HOLOTYPE. CAS no. 27. Trans. San Diego Soc. Nat. Hist., vol. 13, p. 388, pl. 4. South-east side of Isla de Cedros, Baja California, Mexico. [Collier and Farmer apply the CAS no. 27 to both this specimen and to one paratype of *Conualevia marcusii*, the latter being CAS no. 26.]
- Polycera alabe* CLINTON L. COLLIER AND WESLEY M. FARMER. PARATYPE. CAS no. 32. Trans. San Diego Soc. Nat. Hist., vol. 13, p. 388. Puerto Refugio on Isla Angel de la Guarda, Gulf of California.

Class **Cephalopoda**

Family GONATIDAE

Gonatus anonychus WILLIAM G. PERCY AND GILBERT L. VOSS, 1963. PARATYPES. CAS no. 23 and 24. Proc. Biol. Soc. of Wash., vol. 76, p. 105. 42° 49.5' N. Lat.; 125° 55.5' W. Long. off the Oregon Coast. Taken with a night-light; R/V *Acona*. [Originally in the Department of Oceanography, Oregon State University.]

Phylum **ECHINODERMATA**Class **Crinoidea**

Family ANTEDONIDAE

Antedon asperrima AUSTIN HOBART CLARK, 1907. VIRTUAL PARATYPE. CAS no. 160. Proc. U. S. Nat. Mus., vol. 33, p. 73. *Albatross* Station 3332; 54° 02' 50" N. Lat., 166° 45' W. Long. (Bering Sea), 406 fathoms. [Holotype is USNM no. 22650, Station 3332 is the type locality. Clark did not enumerate the specimens used, but from his description he employed more than one to characterize the species.]

Class **Holothuroidea**

Family CUCUMARIIDAE

Sphaerothuria bitentaculata HUBERT LUDWIG, 1893. SYNTYPE. CAS no. 22. Zool. Anz., vol. 16, p. 184. *Albatross* Station 3399; off Panama, 1° 07' N. Lat., 81° 04' W. Long., 1740 fathoms, green ooze. [Indicated as "Cotypes" on original label. This species is more fully described by Ludwig in Mem. Comp. Zool., Harvard College, vol. 17, p. 141. 1894.]

Family HOLOTHURIIDAE

Holothuria frequentiamensis HUBERT LYMAN CLARK, 1902. SYNTYPES (7 specimens). CAS no. 150. Proc. Wash. Acad. Sci., vol. 4, p. 530. Clipperton Island, East Pacific Ocean. [No holotype designated.]

Paelopatides retifer WALTER K. FISHER, 1907. VIRTUAL PARATYPE. CAS no. 123. Proc. U. S. Nat. Mus., vol. 32, p. 693. *Albatross* Station 4151; vicinity of Modu Manu (Bird Island), Hawaiian Islands. 800-313 fathoms; fine coral sand, stones. [Original label reads "Cotype 4151", but Fisher, p. 694, records only the holotype from that station, the cotype being from Station 4110. I think the original labeling in the container is erroneous

and that the specimen is the cotype mentioned from Station 4110. However, I have drawn attention to the possibility of error by the designation "Virtual Paratype." Holotype is USNM no. 21218.]

Family PSOLIDAE

Psolidium panamense HUBERT LUDWIG, 1894. SYNTYPES (2 specimens). CAS no. 124. Mem. Mus. Comp. Zool., Harvard, vol. 17, p. 129. *Albatross* Station 3392; Gulf of Panama, 1270 fathoms. [Of the 135 specimens taken at this locality, none was designated as holotype; therefore, all are taken to be syntypes of equal rank.]

Family SYNAPTIDAE

Protankyra albatrossi WALTER K. FISHER, 1907. VIRTUAL PARATYPE. CAS no. 149. Proc. U. S. Nat. Mus., Vol. 32, p. 728. *Albatross* Station 3840; south coast of Molokai Island, Hawaiian Islands, 266-314 fathoms, light-brown mud, sand, rocks. [Only the type was recorded from Station 3840, and no paratypes were designated. However, the enclosed label states "Cotype," the specimen must therefore have been used by Fisher in establishing the species description.]

Class **Asteroidea**

Family ASTERIIDAE

Tarsaster distichopus WALTER K. FISHER, 1917. HOLOTYPE. CAS no. 128. Proc. Biol. Soc. Wash., vol. 30, p. 92. *Albatross* Station 5664; Macassar Strait (4° 43' 22" S. Lat.; 118° 53' 18" E. Long.) 400 fathoms, hard bottom. [Portion of a ray of USNM no. 37031.]

Family ASTROPECTINIDAE

Anthosticta aulophora WALTER K. FISHER, 1911. HOLOTYPE. CAS no. 130. Proc. U. S. Nat. Mus., vol. 40, p. 417. *Albatross* Station 5420; between Cebu and Bohol, 9° 49' 35" N. Lat., 123° 45' E. Long., Philippine Islands, 127 fathoms. [One ray of USNM no. 28656.]

Astropecten californicus WALTER K. FISHER, 1906. LECTOTYPE. CAS no. 106. Zool. Anz., vol. 30, p. 299. Monterey Bay, California. [A holotype was not selected from the specimens used for the original description. However, Fisher, 1911, U. S. Nat. Mus., Bull. 76, pt. 1, p. 64, stated that the "Type.--[is] is no. 157, Stanford University invertebrate collection. Transferred to CAS in 1964.]

Astropecten californicus WALTER K. FISHER, 1906. SYNTYPES (3 specimens). CAS no. 107. Zool. Anz., vol. 30, p. 299. Monterey Bay, California.

Astropecten pedicellaris WALTER K. FISHER, 1913. HOLOTYPE. CAS no. 129. Proc. U. S. Nat. Mus., vol. 43, p. 607. *Albatross* Station 5424, Sulu Sea, off Cagayan Island, Cagayanes Islands, 340 fathoms, coral sand. [One ray of USNM no. 30514.]

Bathybiaster pectinatus WALTER K. FISHER, 1905. SYNTYPE. CAS no. 105. Bull. Bur. Fish., vol. 24, p. 295. *Albatross* Station 4387; off San Diego, California (Longitude of Point Conception), 1,059 fathoms, mud. [This species now known as *Psilaster pectinatus* (Fisher); see Fisher, W. K., 1911, U. S. Nat. Mus. Bull. 76, pt. 1, p. 72. A holotype was not designated in the original description, but Fisher (1911, p. 77) distinguished a type as USNM no. 22327, which is therefore a lectotype.]

Family BENTHOPECTINIDAE

Acantharchaster aciculosus WALTER K. FISHER, 1910. SYNTYPE. CAS no. 110. Zool. Anz., vol. 35, p. 550. *Albatross* Station 4402; between San Diego and San Clemente Island, California, 542 fathoms, green mud. [A holotype was not designated in the original description, but a lectotype was given USNM no. 27799 according to Fisher, 1911, U. S. Nat. Mus. Bull. 76, pt. 1, p. 136. This species was made the type species of a new genus, *Nearchaster*, by Fisher, 1911. Ann. Mag. Nat. Hist., ser. 8, vol. 7, p. 91.]

Acantharchaster aciculosus WALTER K. FISHER, 1910. HYPOTYPES (2 specimens and a portion of the body wall of a third individual). CAS no. 109. *Albatross* Stations 4335, 4353, 4400; all near San Diego, California. Specimens from these stations examined and listed but unfigured by Fisher, W.K., 1911, U. S. Nat. Mus. Bull. 76, pt. 1, p. 136. [The "fragment of Holotype USNM 27799" mentioned on the label is lacking without notation of removal. A hand written label "*Luidiaster aciculosus* Fisher" is included with the specimens.]

Benthopecten polyctenus WALTER K. FISHER, 1913. HOLOTYPE. CAS no. 95. Proc. U. S. Nat. Mus., vol. 46, p. 208. *Albatross* Station 5654; Gulf of Boni, Celebes, 805 fathoms. [Composed of several fragments of USNM no. 32630.]

Family BRISINGIDAE

Brisinga evermanni WALTER K. FISHER, 1906. HOLOTYPE. CAS no. 132. Bull. U. S. Fish Comm., vol. 23 for 1903, p. 1113. *Albatross* Station 3992; Mokuaeae Islet, bearing S. 54°, E. 3.5', vicinity of Kauai Island, Hawaiian Islands, 528 fathoms, fine gray sand, mud. [Composed of several rays of USNM no. 21193.]

- Brisinga fragilis* WALTER K. FISHER, 1906. VIRTUAL PARATYPE (10 fragments). CAS no. 104. Bull. U. S. Fish Comm., vol. 23 for 1903, p. 1115. *Albatross* Station 3920; south coast of Oahu Island, Hawaiian Islands. [On p. 1117 Fisher stated "Localities: Type (No. 21194, U. S. National Museum) taken from station 3824... Typical specimens also from the following localities: Stations ...3920..." This species was made the type of new genus, *Brisingella*, by Fisher, W. K., 1917, Ann. Mag. Nat. Hist. ser. 8, vol. 20, p. 427.]
- Brisinga mimica* WALTER K. FISHER, 1916. HOLOTYPE. CAS no. 133. Proc. Biol. Soc. Wash., vol. 29, p. 32. *Albatross* Station 5648; Buton Strait, Celebes, (5° 35' S. Lat., 122° 20' E. Long.), 559 fathoms green mud. [Comprised of several rays of USNM no. 37021. This species was made the type of a new genus, *Brisingenes*, by Fisher, W. K., 1917, Ann. Mag. Nat. Hist., ser. 8, vol. 20, p. 427.]
- Brisinga moluccana* WALTER K. FISHER, 1916. HOLOTYPE. CAS no. 127. Proc. Biol. Soc. Wash., vol. 29, p. 32. *Albatross* Station 5626; between Gillo-lo and Kayoa islands, Molucca Islands, 265 fathoms, gray mud, fine sand. [Two rays of USNM no. 37022. This species was made the type of the genus *Arostephane* by Fisher, W. K., 1917, Ann. Mag. Nat. Hist., ser. 8, vol. 20, p. 421. Although it was not stated that *Arostephane* was a new genus, there appears to be no earlier reference to the name.]
- Craterobrisinga analoga* WALTER K. FISHER, 1919. HOLOTYPE. CAS no. 134. Bull. U. S. Nat. Mus., no. 100., vol. 3, p. 516, pl. 148, figs. 7 & 8; pl. 149, fig. 1. *Albatross* Station 5348; Point Tabonan (10° 57' 45" N. Lat., 118° 38' 15" E. Long.), Palawan Passage, Philippine Islands. [One ray from USNM no. 37034.]
- Freyella pacifica* HUBERT LUDWIG, 1905. HOLOTYPE. CAS no. 131. Mem. Mus. Comp. Zool., Harvard, vol. 32, p. 267. *Albatross* Station 3690; N.W. face Hao Atoll, East 2 miles, Paumotu Island, Pacific Ocean. 812 fathoms, coral sand. [Although no holotype was designated, the species was described on the basis of a single specimen collected at the above station. The holotype is represented here by one ray; the disposition of the remainder of the animal is unknown.]
- Freyella propinqua* HUBERT LUDWIG, 1905. HOLOTYPE. CAS no. 97. Mem. Mus. Comp. Zool., Harvard, vol. 32, p. 280. *Albatross* Station 3398; 1° 7' N. Lat.; 80° 21' W. Long., north of Cape San Francisco, Gulf of Panama. 3877 M. [This is a single, fragmented arm of the sole specimen collected by the *Albatross* at this station, thus although Ludwig did not designate a holotype, that status applies to this specimen. The disposition of the remainder of the animal is not known.]
- Odinia penichra* WALTER K. FISHER, 1916. HOLOTYPE. CAS no. 135. Proc. Biol. Soc. Wash., vol. 29, p. 31. *Albatross* Station 5217; Anima Sola Island

(13°20' N. Lat., 123°14'15" E. Long.), between Burias and Luzon islands, Philippine Islands, 105 fathoms, coarse gray sand. [3 rays from USNM no. 37019.]

Family ECHINASTERIDAE

- Henricia pauperrima* WALTER K. FISHER, 1906. HOLOTYPE. CAS no. 125. Bull. U. S. Fish Comm., vol. 23 for 1903, pt. 3, p. 1091, pl. 35, figs. 3 & 4. *Albatross* Station 4166; vicinity of Modu Mano (Bird Island), Hawaiian Islands, 293-800 fathoms, coral sand, foraminifera, rocks. [One ray of USNM no. 21182.]
- Henricia rubusta* WALTER K. FISHER, 1906. HOLOTYPE. CAS no. 92. Bull. U. S. Fish Comm., vol. 23 for 1903, pt. 3, p. 1090, pl. 35, figs. 1 & 2. *Albatross* Station 4115; northwest coast Oahu Island, Kahuku Point, Hawaiian Islands. [Fragment of USNM no. 21181.]
- Poraniopsis inflata flexilis* WALTER K. FISHER, 1910. HOLOTYPE. CAS no. 148. Zool. Anz., vol. 35, p. 568. *Albatross* Station 4407; off Catalina Island, California, 334-600 fathoms, gray sand, rock. [One ray and a portion of the body wall of USNM no. 27778. No holotype was designated in the original description, but as stated by Fisher, 1911, U. S. Nat. Mus. Bull. 76, pt. 1, p. 266, the description was based upon one individual. A second, smaller specimen, was "not quite typical".]

Family GONIASTERIDAE

- Atelorias anacanthus* WALTER K. FISHER, 1911. HOLOTYPE. CAS no. 139. Proc. U. S. Nat. Mus., vol. 40, p. 424. *Albatross* Station 5655; Gulf of Boni, Celebes, 608 fathoms, gray mud, fine sand. [A fragment of the body wall of USNM no. 28659.]
- Hippasteria heathi* WALTER K. FISHER, 1905. HOLOTYPE. CAS no. 138. Bull. Bur. Fish., vol. 24 for 1904, p. 309. *Albatross* Station 4239; Clarence Straits, Alaska, 206-248 fathoms, coarse sand, rocky. [Two dried fragments of the body wall of the unique specimen, USNM no. 22338.]
- Mediaster tenellus* WALTER K. FISHER, 1905. HOLOTYPE. CAS no. 137. Bull. Bur. Fish., vol. 24 for 1904, p. 307. *Albatross* Station 4427; off Santa Cruz Island, California, 476-510 fathoms, black mud, broken stones. [A dissected fragment of USNM no. 22337. Although a holotype was not designated, only a single adult specimen was obtained on the *Albatross* (See Fisher, W. K., 1911, U. S. Nat. Mus. Bull. 76, pt. 1, p. 204). The present specimen is therefore taken to be the holotype.]
- Mediaster tenellus* WALTER K. FISHER, 1905. HYPOTYPE. CAS no. 93. This juvenile specimen described and distinguished from adults by Fisher, W. K.,

1911, U. S. Nat. Mus. Bull. 76, pt. 1, p. 203; again mentioned on p. 204 under subheading "Type-locality." *Albatross* Station 4421; between Santa Barbara and San Nicholas islands, California, 291-229 fathoms gray mud, rocks. [Hypotype designation is based on description, not on figure in this instance.]

Peltaster cycloplax WALTER K. FISHER, 1913. HOLOTYPE. CAS no. 140. Proc. U. S. Nat. Mus., vol. 43, p. 641. *Albatross* Station 5279; China Sea, near Malavatuan Island, southern Luzon, Philippine Islands, 117 fathoms, green mud. [A fragment of the body wall of USNM no. 30552.]

Tosia (*Ceramaster*) *micropelta* WALTER K. FISHER, 1906. HOLOTYPE. CAS no. 136. Bull. U. S. Fish Comm., vol. 23 for 1903, pt. 3, p. 1054. *Albatross* Station 4151; Center of Bird Island (Modu Manu), bearing S. 32°, W. 12.8' vicinity of Kauai Island, Hawaiian Islands, 800-313 fathoms. [This is a completely dissociated fragment of USNM no. 21164. Fisher, W.K., 1911, U. S. Nat. Mus. Bull. 76, pt. 1, p. 205, stated that this species is not a *Ceramaster*, but belongs to *Peltaster* or to a closely related genus.]

Family GONIOPECTINIDAE

Goniopecten asiaticus WALTER K. FISHER, 1913. HOLOTYPE. CAS no. 141. Proc. U. S. Nat. Mus., vol. 43, p. 601. *Albatross* Station 5121; east coast of Mindoro, Philippine Islands, 108 fathoms, dark-green mud. [One ray from USNM no. 30506.]

Family LINCKIIDAE

Ophidiaster trychnus WALTER K. FISHER, 1913. VIRTUAL PARATYPE. CAS no. 94. Proc. U. S. Nat. Mus., vol. 46, p. 215. Port Palapag, north coast of Samar, Philippine Islands. [*Albatross* number and date are lacking. Only the type specimen (USNM no. 32639) was distinguished in the original description, but Fisher used other specimens in defining the species. This was somewhat clarified in his paper "Starfishes of the Philippine Seas and Adjacent Waters," U. S. Nat. Mus. Bull. 100, vol. 3, p. 392, 1919, in which he mentioned the type but extended his description of the material he originally used by stating that there were two specimens from the type locality. Under "Specimens examined" he stated, "The types [sic] and a very small specimen..." thus obscurely indicating that he employed more than one specimen and intended more than one to represent the species.]

Family LUIDIIDAE

Luidia avicularia WALTER K. FISHER, 1913. HOLOTYPE. CAS no. 142. Proc. U. S. Nat. Mus., vol. 46, p. 203. *Albatross* Station 5391; between Samar and Masbate ($12^{\circ}13'15''$ N. Lat., $124^{\circ}05'03''$ E. Long.), Philippine Islands, 118 fathoms. [3 rays from USNM no. 32624.]

Family MYXASTERIDAE

Asthenactis papyraceus WALTER K. FISHER, 1906. HOLOTYPE. CAS no. 91. Bull. U. S. Fish Comm., vol. 23 for 1903, pt. 3, p. 1097. *Albatross* Station 4157; vicinity Modu Manu (Bird Island), center of Bird Island, bearing S. $77^{\circ}30'$, E. $11.1'$, Hawaiian Islands, 762-1000 fathoms. [One ray of USNM no. 21183.]

Family PEDICELLASTERIDAE

Pedicellaster chirophorus WALTER K. FISHER, 1917. HOLOTYPE. CAS no. 143. Proc. Biol. Soc. Wash., vol. 30, p. 93. *Albatross* Station 5656; Gulf of Boni, Celebes ($3^{\circ}17'40''$ S. Lat., $120^{\circ}36'45''$ E. Long.), 484 fathoms, gray mud. [One ray from USNM no. 37030.]

Family PORCELLANASTERIDAE

Benthogenia cribellosa WALTER K. FISHER, 1911. HOLOTYPE. CAS no. 144. Proc. U. S. Nat. Mus., vol. 40, p. 415. *Albatross* Station 5513; off northern Mindanao ($8^{\circ}16'45''$ N. Lat., $124^{\circ}02'48''$ E. Long.), Philippine Islands, 505 fathoms, gray mud, fine sand. [A partially fragmented portion of the body wall of USNM no. 28655.]

Family SOLASTERIDAE

Lophaster suluensis WALTER K. FISHER, 1913. HOLOTYPE. CAS no. 96. Proc. U. S. Nat. Mus., vol. 46, p. 219. *Albatross* Station 5654; Gulf of Boni, Celebes, 805 fathoms. [One ray of USNM holotype 32646.]

Rhipidaster (Xenorias) polyctenius WALTER K. FISHER, 1913. HOLOTYPE. CAS no. 146. Proc. U. S. Nat. Mus., vol. 46, p. 222. *Albatross* Station 5622; off Makyan Island, Molucca Islands, 275 fathoms, gray mud. [3 fragments of the body wall of USNM no. 32649. *Xenorias* was raised to full generic standing by Fisher, 1919, U. S. Nat. Mus. Bull. 100, vol. 3, p. 451.]

Solaster tropicus WALTER K. FISHER, 1913. HOLOTYPE. CAS no. 145. Proc. U. S. Nat. Mus., vol. 46, p. 221. *Albatross* Station 5654; Gulf of Boni, Celebes, 805 fathoms. [One ray from USNM no. 32647.]

Family ZOROASTERIDAE

- Bythiolophus acanthinus* WALTER K. FISHER, 1916. HOLOTYPE. CAS no. 112. Proc. Biol. Soc. Wash., vol. 29, p. 31. *Albatross* Station 5648; Buton Strait, Celebes, 559 fathoms, green mud. [A portion of USNM no. 37011. See Fisher's corrected diagnosis in U. S. Nat. Mus. Bull. 76, pt. 2, p. 33, 1928.]
- Myxoderma sacculatum* WALTER K. FISHER, 1905. HYPOTYPE. CAS no. 180. Described by Fisher, W. K., 1928, U. S. Nat. Mus. Bull. 76, pt. 2, p. 49. *Albatross* Station 4775; Bowers Bank, Bering Sea, 584 fathoms. [One ray from one of two specimens described, but unfigured, by Fisher under the heading "Variations."]
- Myxoderma sacculatum ectenes* WALTER K. FISHER, 1919. HOLOTYPE. CAS no. 174. Ann. Mag. Nat. Hist. ser. 9, vol. 3, p. 392. *Albatross* Station 5694; NW. of San Nicholas Island, Coast of California, 640 fathoms. [Fisher's published locality reads "South-west of Santa Cruz Island, California." Although Fisher did not designate a holotype in the original description, the "Type locality" yielded 1 specimen only. Fisher, 1928, U. S. Nat. Mus. Bull. 76, p. 51, referred to this specimen as type, USNM no. E. 1417, of which this is one ray.]
- Myxoderma sacculatum ectenes* WALTER K. FISHER, 1919. HYPOTYPE. CAS no. 175. This specimen described, but unfigured by Fisher, W. K., 1928, U. S. Nat. Mus. Bull. 76, pt. 2, p. 50. *Albatross* Station 4425; between Santa Barbara and San Nicholas Island, California, 1,100-1,084 fathoms. [1 specimen in 2 dried pieces, one of which is a ray prepared to show the skeleton.]
- Zoroaster actinocles* WALTER K. FISHER, 1919. HOLOTYPE. CAS no. 177. Ann. Mag. Nat. Hist., ser. 9, vol. 3, p. 390. *Albatross* Station 4765; 43.5 miles northwest of west point of Yunaska Island, Aleutian Islands, 1217 fathoms. [1 ray of USNM no. 37039. Although no holotype was designated in the original description, this species was collected only from Station 4765, and presumably only one specimen was involved. This specimen was referred to as the type by Fisher, 1928, U. S. Nat. Mus. Bull. 76, pt. 2, p. 39.]
- Zoroaster evermanni* WALTER K. FISHER, 1905. SYNTYPES (2 fragmented specimens). CAS no. 152. Bull. U. S. Fish Comm., vol. 24 for 1904, p. 317. *Albatross* Station 4400; between San Diego and San Clemente Island, California, 500-507 fathoms, green mud. [Type indicated by Fisher, U. S. Nat. Mus. Bull. 76, pt. 2, p. 43, 1928, and given USNM no. 22347.]
- Zoroaster evermanni* WALTER K. FISHER, 1905. HYPOTYPE. CAS no. 153. This very young unfigured specimen described in detail by Fisher, W. K., 1928, U. S. Nat. Mus. Bull. 76, pt. 2, p. 42. *Albatross* Station 4400; between

San Diego and San Clemente Island, California, 500-507 fathoms, green mud.

Zoroaster evermanni mordax WALTER K. FISHER, 1919. SYNTYPE. CAS no. 98. Ann. Mag. Nat. Hist., ser. 9, vol. 3, p. 391. *Albatross* Station 3073; off Washington, 47° 28' N. Lat., 125° 15' W. Long., 477 fathoms, green mud. [An incomplete specimen consisting of 5 fragments, two of which include portions of the disk. Fisher did not designate a holotype, although he did include a section on the "Type-locality." Subsequently (1928, U. S. Nat. Mus. Bull. 76, pt. 2, p. 44) he referred to a "Type.--Cat. No. 37040, USNM" and stated that 5 specimens had been collected from Station 3073. The type therefore seems best regarded as lectotype, the present specimen being part of the original syntype lot.]

Zoroaster evermanni mordax WALTER K. FISHER, 1919. SYNTYPE. CAS no. 178. Ann. Mag. Nat. Hist., ser. 9, vol. 3, p. 391. *Albatross* Station 3073; off Washington, 47° 28' N. Lat., 125° 15' W. Long., 477 fathoms, green mud. [This is a portion of one ray from a specimen designated by Fisher as "large Spec." This specimen may be part of syntypes nos. 98 or 179.]

Zoroaster evermanni mordax WALTER K. FISHER, 1919. SYNTYPE. CAS no. 179. Ann. Mag. Nat. Hist., ser. 9, vol. 3, p. 391. *Albatross* Station 3073; off Washington, 47° 28' N. Lat., 125° 15' W. Long., 477 fathoms, green mud. [2 pieces of one ray. Whether this is a portion of syntypes nos. 98 or 178 is not known but seems probable.]

Zoroaster ophiactis WALTER K. FISHER, 1916. HOLOTYPE. CAS no. 147. Proc. Biol. Soc. Wash., vol. 29, p. 29. *Albatross* Station 5606; Gulf of Tomini, Celebes, 834 fathoms, green mud. [One ray from USNM no. 37008.]

Zoroaster ophiurus WALTER K. FISHER, 1905. HOLOTYPE. CAS no. 176. Bull. Bur. Fish., vol. 24, for 1904, p. 315. *Albatross* Station 4387; off San Diego, California (longitude of Point Conception), 1,059 fathoms, mud. [One ray of USNM no. 22345. Although no holotype was designated in the original description, a single specimen only was obtained from Station 4387. Fisher, W. K., 1928, U. S. Nat. Bull. 76, pt. 2, p. 36, gave this information and referred to this specimen as "Type."]

Class **Ophiuroidea**

Family AMPHIURIDAE

Amphiura diomedea C. H. LÜTKEN AND TH. MORTENSEN, 1899. SYNTYPE. CAS no. 111. Mem. Mus. Comp. Zool., Harvard, vol. 23, p. 151. *Albatross* Station 3393; off Panama, 7° 15' N. Lat., 79° 36' W. Long. [In the original description a holotype was not designated; therefore, the type lot may be regarded as syntypes of equal rank.]

Family TRICHAsteridae

Astroschema sublaeve C. F. LÜTKEN AND TH. MORTENSEN, 1899. SYNTYPE. CAS no. 99. Mem. Mus. Comp. Zool., Harvard, vol. 23, p. 187. *Albatross* Station 3406; off Galápagos Islands, 00° 16' S. Lat., 90° 21' 30" W. Long., 551 fathoms. [A holotype was not distinguished by authors, who mentioned only that there were numerous specimens from 4 stations.]

Phylum **CHORDATA**Subphylum **Urochordata**

Dendrodoa subpedunculata WILLIAM EMERSON RITTER, 1899. SYNTYPES (14 specimens, plus pieces of perhaps 4 others). CAS no. 108. The fur seals and fur seal islands of the North Pacific Ocean, part 3. Washington, p. 514. St. Paul Island, Alaska. [Ritter stated, p. 516, that there were some hundreds originally present in his series.]

LITERATURE CITED

BOLIN, R. L., AND G. S. MYERS

1950. Station records of the Crocker-Stanford Deep-Sea Expedition, coast of California, September, 1938. Stanford Ichthyological Bulletin, vol. 3, no. 4, pp. 203-208.

MICHAEL, E. L., AND G. F. MCEWEN

1915. Hydrographic, plankton, and dredging records of the Scripps Institution for Biological Research of the University of California 1901 to 1912. University of California Publications in Zoology, vol. 15, no. 1, pp. 1-206.

SMITH, A. G.

1964. The Department of Invertebrate Zoology of the California Academy of Sciences. The Veliger, vol. 6, no. 4, p. 229.

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