SOME HOLOTHURIANS FROM GUAM AND VICINITY*

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ABSTRACT

Eighteen species of holothurians, none new to science, are reported: *Holothuria argus* Jaeger, *H. atra* Jaeger, *H. cinerascens* Brandt, *H. curiosa* Ludwig var. *pervicax* Selenka, *H. edulis*, Lesson, *H. gyrifer* Selenka, *H. impatiens* Forskal, *H. arenicola* Semper, *H. pulla* Selenka, *H. rugosa* Ludwig, *H. sanctori* Delle Chiaje, *Actinopyga mauritiana* Quoy & Gaimard, *Stichopus badionatus* Selenka *S. chloronotus* Brandt, *S. horrens* Selenka, *Euapta godeffroyi* Semper, *Synapta maculata* Chamisso & Eysenhardt, and *Opheodesoma spectabilis* Fisher. These represent two orders, *Aspidochirota* Grube and *Apoda* Brandt, six genera, *Holothuria* Linn., *Actinopyga* Bronn, *Stichopus* Brandt, *Euapta* Ostergen, *Synapta* Eschscholtz, and *Opheodesoma* Fisher.

INTRODUCTION

The materials used in this paper are parts of the Allan Hancock Foundation Collections obtained from the neighborhood of Guam and the Marshall Islands by Captain Fred C. Ziesenhenne, member of the Research Staff of the Allan Hancock Foundation who was connected with the U.S. Navy during the last world war. The materials reported in this paper may not represent the entire Holothurian fauna of the place although they represent the most common littoral forms that are easily collected during low tide. The similarity of the Holothurian fauna of the said places with those of the Philippines is due to the fact that they are in the same latitude and that they are located in the same body of water.

The method used in the determination of the species is by the microscopic examination of the spicules. A small bit of the integument is mounted on a micro-slide with a drop of 20%

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Sodium Hydroxide solution and heated over a flame or over an electric heater for a very short time until the tissue is macerated. The Sodium Hydroxide solution is washed off with ordinary tap water by draining it at one end of the cover slip with filter paper until thoroughly washed. Neutralizing it with a drop of 10% aceitic acid has been found very satisfactory. The slide is then dried over a heater with a regulated temperature to avoid cracking of the tiny spicules. When thoroughly dried, the cover slip is removed and a drop of Euphoral is applied after which the cover slip is returned to its original position. The mounted slide is then allowed to dry for at least a day or two at room temperature before keeping it in the slide box.

After the slide is properly labelled, a critical microscopic examination of the spicules is made. By referring to the published works in holothurians the species can easily be determined by the type of spicules. If the spicules of the specimen under study do not conform with any of the already known species, then it may be possible that the specimen belongs to a new species or variety. This paper reports 18 species of holothurians, none of which is new to science. They represent two orders, three families and six genera.

ENUMERATION OF THE SPECIES

Order: ASPIDOCHIROTA Grube, 1840
Family: HOLOTHURIIDAE Ludwig
Subfamily: HOLOTHURIINAE Ludwig
Genus: HOLOTHURIA Linnaeus 1758

1. *Holothuria argus* (Jaeger)
2. *H. atra* Jaeger
3. *H. cinerascens* (Brandt)
4. *H. curiosa* Ludwig var. *pervicax* Selenka
5. *H. edulis* Lesson
6. *H. gyrifer* (Selenka)
7. *H. impatiens* (Forskal)
8. *H. arenicola* Semper
9. *H. pulla* Selenka
10. *H. rugosa* Ludwig
11. *H. sanctori* Delle Chiaje

Genus ACTINOPYGA Bronn

12. *Actinopyga mauritiana* (Quoy & Gaimard)

Family STICHOPUDIDAE
Genus STICHOPUS Brandt 1835

13. *Stichopus badionatus* Selenka
14. *S. chloronotus* Brandt
15. *S. horrens* Selenka

Order APODA Brandt
Family SYNAPTIDAE Ostergren 1898
Genus EUAPTA Ostergen 1898

16. *Euapta Godeffroyi* (Semper)

Genus SYNAPTA Eschscholtz 1829

17. *Synapta maculata* (Chamisso & Eysenhardt)

Genus OPHEODESOMA Fisher 1907

18. *Opheodesoma spectabilis* Fisher

HOLOTHURIA ARGUS (Jaeger)

Bohadschia argus Jaeger 1833, p. 19, Pl.2, fig. 1; Selenka 1867, p. 320; Bell 1886, p. 27; Pearson 1914a, p. 170.

Holothuria argus Semper 1868, pp. 80, 277, Pl. 30, fig. 11; Ludwig 1882, p. 135; 1883, p. 168; 1889-92; p. 329; Lampert 1885, p. 87; 1889, p. 808; Theel 1886a, p. 203; Bell 1887c, p. 653; 1888, p. 389; Saville-Kent 1893, pp. 56, 237, Pl. 34, fig. 2; Colored Pl. 12, fig. 7; Studer 1893, pp. 234, 248; Koehler 1895c, p. 279; Whitelegge 1897, p. 161; Sluiter 1901, p. 12; Koningsberger 1904, p. 45; Mitsukuri 1912, p. 60, Pl.3, fig. 30, Text fig. 13; Pearson, 1913, p. 56, Pl. 7, fig. 5; Clark, H. L. 1921, p. 174; Panning 1929, p. 121, Text fig. 2; Domantay 1933, p. 60, Pl. 1, fig. 6.

Holothuria leopardus Saville-Kent 1890, Pl. 1, fig. 2.

Large size, measures 200 mm. long, 60 mm. wide, 50 mm. deep. Body subcylindrical; mouth ventral with 20 peltate tentacles; anus terminal with five anal papillae. Pedicels numerous and crowded on trivium, papillae irregularly scattered on

bivium, most of which are encircled by an inner small purplish ring and other bigger grayish brown blotch. General color pattern is like that of a leopard. Ventral side lighter in color and without golden brown blotches.

Deposits: Numerous tiny dichotomous x-shaped spicules from simple to complex rosettes, and few wrench-like supporting rods of various sizes.

Specimens examined:

Acc. No.	*Locality*	*Date*	*Quantity*
	Asan Point, Guam	10-3-45	2

HOLOTHURIA ATRA Jaeger

Holothuria radackensis Chamisse & Eysenhardt 1821, p. 352, Pl. 26.

Holothuria amboinensis Semper 1868, pp. 92, 279.

Holothuria atra, Jaeger var. *amboinensis* Theel 1886 a, p. 214; Bedford 1898, p. 839; 1899, p. 147.

Holothuria sanguinolenta Bell 1893; Domantay 1933, p. 73, Pl.3, fig. 3.

Holothuria atra Jaeger 1833, p. 22; Selenka 1867, p. 327, Pl. 18, figs. 52-53; 1868, p. 250; Semper 1868, pp. 88, 250, 278, Pl. 26; 1869, p. 120; Ludwig 1881, p. 596; 1882, p. 137; 1883, p. 170; 1887b, p. 32, 1887d, p. 1217; 1887e, p. 1244; 1899, p. 559; Bell 1884, p. 510; 1886, p. 28; 1887a. p. 140; 1887c, pp. 654, 657; 1888 p. 389; Lampert 1885, p. 84; 1896, p. 55; Theel 1886a, pp. 181, 213, Pl. 7, fig. 4; Sluiter 1887, p. 188; 1894, p. 103; 1889-92, p. 329, Pl. 3, fig. 30, Pl. 6, fig. 6; 1895, p. 78; Saville-Kent 1893, pp. 49, 55, 102, 121, 234, 238, Pl. 33b; Studer 1893, pp. 191, 234; Koehler 1895a, p. 382; Whitelegge 1897, p. 161; 1903, pp. 8, 13; Hedley 1899, p. 530; Clark, H. L. 1901a, p. 495; 1902b, p. 530; 1920, p. 148; 1921, p. 174; 1923, p. 421; 1925, p. 102; 1932, p. 231; Voltzkow, 1902, p. 565; Konningsberger 1904, p. 47, Pl. 8, fig. 2; Gardiner 1904, p. 339; Edwards 1905, Herdman 1906, p. 447; Fisher 1907, p. 657, Pl. 70, fig. 2; Koehler & Vaney 1908, p. 5; 1910, p. 101; Pearson

1910a, p. 176; 1913, p. 67, Pl. 9, fig. 11; Mitsukuri 1912, p. 64, text fig. 14; Erwe 1913, p. 374, Pl. 6, fig. 14; Broeke 1927, p. 164; Panning 1928a, p. 221; 1935, p. 30, text fig. 22; Stephenson 1931, pp. 45, 50, 55; Baker 1929a, pp. 141-143; 1928b, pp. 167-171; Engel 1933, p. 4, Pl. 1, fig. 1, text fig. 1-6.

Body cylindrical, partly contracted measuring 160 mm. long, 25 mm. in diameter. With 20 peltate tentacles. Mouth terminal and slightly ventral, anus terminal. Body-wall tough. Pedicels scattered all over the body but most conspicuously and crowded at the ventral side. Color in preserved state blackish. There are nine in the collection from Guam and neighboring places of different sizes.

Deposits: Tables with small perforated disk, four pillars and two cross-beans. Spire terminate in spinous crown with usually 12 teeth or spines. Intermixed with the tables are few, sometimes numerous rosettes, some of which are incomplete. Pedicel with well-developed end-plate.

Specimens examined:

Acc. No.	*Locality*	*Date*	*Quantity*
1020-Lot 20		9-19-45	1
-Lot 25		9-19-45	1
-Lot 31-46	Eniwetok Atoll	1946	5
-Lot 17-45	Guam Is.	1945	2

HOLOTHURIA CINERASCENS (Brandt)

Stichopus (*Gymnochirota*) *cinerascens* Brandt, Prodr. 1835, p. 51.

Stichopus cinerascens Grube 1840, p. 36; Selenka 1867, p. 319; Semper 1868, pp. 74, 275.

Holothuria pulchella Selenka 1867, p. 329, Pl. 18, figs. 61-62; Semper 1868, pp. 89-90, 278; 1869 p. 120; Haacke 1880, p. 46; v. Marenzeller 1881, p. 139; Ludwig 1883, p. 171; Theel 1886a, p. 212; Sluiter 1887, p. 187; 1895, p. 77.

Holothuria cinerascens Ludwig 1881, p. 597; Lampert 1885, p. 82; 1896, pp. 55-56; Ludwig 1887a, p. 3; 1889-92,

p. 329; 1899, p. 561; Bell 1887a, pp. 654-657, Pl. 40, fig. 2; Mitsukuri 1896, p. 407; 1912, p. 71, text-fig. 16; Bedford 1898, p. 54; 1899, p. 148; Sluiter 1901, p. 9; Fisher 1907, p. 654, Pl. 68, fig. 1; Erwe 1913, p. 377, Pl. 6, fig. 15; Pearson 1913, p. 65, Pl. 9, fig. 10; Clark, H.L. 1920, p. 148; 1923, p. 422; 1925, p. 102; Schmidt 1930, p. 416; Panning 1934, p. 37, text-fig. 32.

Body subcylindrical, the dorsal and ventral sides sharply differentiated by papillae on the former and numerous robust pedicels on the latter. Medium size. Oral end broad with 20 large peltate tentacles, mouth slightly ventral. General color in preserved state is purplish black all over the body.

Deposits: Tables similar to those of *Holothuria atra* Jaeger with small annular disk and spire composed of 4 pillars and a crossbeam. Numerous slightly curved rods, finely granulated and slightly branched at tip in some.

Specimens examined:

Acc. No.	*Locality*	*Date*	*Quantity*
Lot 17	Guam Island	1945	2
Lot 34			5

HOLOTHURIA CURIOSA Ludwig var. PERVICAX Selenka

Holothuria fusco-cinerea Lampert, 1885, p. 64; Erwe 1913, p. 379, Pl. 6, fig. 16; Pearson 1913, p. 74, Pl. 10, fig. 15.

Holothuria fusco-cinera Jaeger var. *pervicax* Bedford 1898, pp. 837-838, Pl. 52, fig. 2a, b.

Holothuria pervicax Selenka 1867, p. 327, Pl. 18, fig. 54; Semper 1868, pp. 92, 251, 279; 1869, p. 120; Ludwig 1883, pp. 156, 173; 1887c, p. 32; 1889-92, p. 330; 1899, p. 560; Lampert 1885, p. 62, fig. 25; 1896, p. 53; Theel 1886a, p. 213; Ludwig & Bartheles 1892, p. 632; Sluiter 1894, p. 104; 1901, p. 9; Fisher 1907, p. 655, Pl. 68, fig. 2; Mitsukuri 1912, p. 128, text-fig. 23; Clark, H.L. 1921, p. 181; 1925a, p. 104; 1932, p. 234; Schmidt 1930, p. 416.

Holothuria mammiculata Haacke 1880, pp. 46, 48.

Holothuria depressa Ludwig 1875, p. 32, Pl. 7, fig. 44; Schmidt 1930, p. 416.

Holothuria dofleinii Augustin 1908, p. 4, text-fig. 1-3, Pl. 1, fig. 1; Pearson 1910a, pp. 177-178, fig. 17.

Holothuria curiosa Ludwig var. *percivax* Selenka 1867; Panning 1935, pp. 6-7, text-fig. 109.

Body subcylindrical, tapers slightly at both ends. Medium size, mostly eviscerated. Mouth slightly ventral and anus terminal. Pedicels crowded on ventral side. Pappilae on dorsal side. Color in preserved state grayish brown with several purplish irregular bands on dorsal side which may extend laterally in life.

Deposits: Numerous small imperfect buttons or branched rods. Tables very few with simple disk. Pedicels with endplate and high imperfect buttons and regular supporting rods, somewhat dilated and perforated at the middle and at both ends.

Specimens examined:

Acc. No.	*Locality*	*Date*	*Quantity*
Lot 27			6
Lot 31	Eniwetok Atoll, Marshall Is.	1946	1

HOLOTHURIA EDULIS Lesson

Holothuria edulis Lesson 1830, p. 125, Pl. 46, fig. 2; Selenka 1867, p. 341; Semper 1868, pp. 89, 278, Pl. 31, fig. 7, Pl. 32, fig. 4, Pl. 33, fig. 3, Pl. 36, figs. 2, 5, 9, 10; 1869, p. 120; Ludwig 1882, p. 137; 1887d, p. 1227; 1888, p. 807; 1899-92, p. 329; 1899, p. 559; Lampert 1885, p. 81; Theel 1886a, p. 216; Saville-Kent 1893, pp. 233, 237; Sluiter 1894, p. 103; 1895, p. 79; 1901, p. 8; Koehler 1895b, p. 281; Bedford 1898, p. 147; Koningsberger 1904, p. 49; Koehler & Vaney 1908, p. 7; Mitsukuri 1912, p. 77; Pearson 1913, p. 69, Pl. 9, fig. 12; Clark, H. L. 1921, p. 177, Pl. 19, fig. 1; 1923, p. 421; 1925, p. 103; 1932, p. 231; Panning 1928a, p. 231, figs. 35, 36; 1936, p. 43, text-fig. 36; Schmidt 1930, p. 465; Domantay 1933, p. 63, Pl. 1, fig. 11.

Trepang edulis Jaeger 1833, p. 24; Brandt 1835, p. 57.

Holothuria fusco-cinerea Selenka 1867, p. 337, Pl. 19, fig. 86.

Holothuria signata Ludwig 1875, p. 23, fig. 36; Lampert 1885, p. 64; 1896, p. 53; Theel 1886a, p. 222; Ludwig 1889-92, p. 330.

Body cylindrical, integument hardy, partly contracted. Measures 65 mm. long, 20 mm. diameter, mouth slightly ventral with 20 peltate tentacles. Anus terminal. Pedicels scattered all over the body, slightly crowded ventrally. In life the dorsal side is pinkish dark brown, almost black; ventral and part of lateral sides pinkish red.

Deposits: Numerous high tables, with height twice the width of base, and 4 large pillars connected together about the middle and at distal part by cross-beams. Crown of spire as wide or even wider than the disk. Numerous irregular buttons of various sizes and shapes. With 4 or more holes. Pedicels with end-plate.

Specimens examined:

Acc. No.	*Locality*	*Date*	*Quantity*
	Asan Point, Guam Islands	10-3-45	4

HOLOTHURIA GYRIFER (Selenka)

Stichopus gyrifer Selenka 1867, p. 319.

Holothuria monacaria Selenka 1867, p. 331; Semper 1868, pp. 78, 276; 1869, p. 120; Ludwig 1882, p. 134; 1883, pp. 155, 165; 1887d, p. 1224; 1888, p. 806; 1889-92, p. 330; 1899, p. 557; Lampert 1885, pp. 72-73; 1889, p. 808; 1896, p. 54; Theel 1886a, pp. 172-173, Pl. 8, fig. 19; Sluiter 1887, p. 189; 1894, p. 103; 1895, p. 77; 1901, p. 11; Bell 1887, p. 140; 1888, pp. 385, 389; Thurston 1890; Koehler 1895a, p. 381; 1895, p. 281; Bedford 1898, p. 841; 1899, p. 146; Pearson 1903, p. 201; 1910, p. 180; 1913 p. 71, Pl. 10, fig. 13; Fisher 1907, p. 659; Mitsukuri 1912, p. 112; Oshima 1915, pp. 216, 217; Clark, H. L. 1920, p. 150; 1925, pp. 103-104; 1932, p. 233; Domantay 1933, p. 67, Pl. 1, fig. 10; Engel 1933, p. 9, Pl. 1, fig. 3, text-figs. 9, 10; Panning 1935, pp. 69-70, text-fig. 4.

Thelenota monacaria Brandt 1835, p. 55.

Stichopus monacaria Selenka 1868, p. 117.

Holothuria flammea Quoy & Gaimard 1833, p. 117, Pl. 6, figs. 5-6.

Stichopus flammeus Brandt 1835, p. 73; Selenka 1867, p. 320.

Labidodemas leucopus Haacke 1880, pp. 46-47.

Labidodemas neglectus Haacke 1880, p. 48.

Holothuria decorata v. Marenzeler 1881, pp. 137-139.

Holothuria gyrifer Deichmann 1938, p. 371.

Body cylindrical and slightly tapers at both ends. Medium size. Average measurement 55 mm. long, 12 mm. diameter. Mouth slightly ventral with 20 small peltate tentacles. Anus terminal. Pedicels in three indistinct double rows on trivium; papillae on bivium. Color in preserved state grayish brown with distinct yellowish circular blotch around each papilla.

Deposits: Numerous tables and smooth buttons. Tables with circular disk with smooth edge and regular marginal holes. Spire of table with four pillars and one cross-beam, terminating in a crown of 8-12 spines. Buttons smooth with usually 3 pairs of oval holes and some with more, up to 5 pairs.

Specimens examined:

Acc. No.	*Locality*	*Date*	*Quantity*
1020-Lot 20	Guam Island	9-19-45	2
Lot 23	Cocos Island, Guam		3
	Asan Point, Guam	1945	1

HOLOTHURIA IMPATIENS (Forskal)

Fistularia impatiens Forskal 1775, pp. 121-129, Pl. 39, fig. B.

Holothuria aphanes Lampert 1885, p. 242; Ostergren 1898, p. 233; Sluiter 1901, p. 16.

Holothuria fulva Quoy & Gaimard 1833, p. 135.

Holothuria botellus Selenka 1867, p. 335, Pl. 19, figs. 82-84; 1868, p. 117; Semper 1868, pp. 82, 248; Saville-Kent 1893, pp. 234, 238.

Holothuria impatiens Selenka, p. 340; Semper 1868, pp. 82, 277; 1869, p. 120; Gray 1872, p. 123; v. Marenzeller 1874, p. 320; Ludwig 1879, p. 569; 1880, p. 6; 1882, p. 126; 1883, p. 169; 1887c, p. 31; 1887d, p. 1226; 1888, p. 806; 1889-92, p. 329; 1899, p. 558; Haacke 1880, p. 46; Bell 1894c, p. 510; 1887a, p. 510; 1887b, p. 140; 1887c, p. 654; 1888, p. 389; Lampert 1885, p. 65; 1889, p. 812; 1896, p. 54; 1889, p. 312; Theel 1886, p. 7; Sluiter 1887, p. 47; 1895, p. 78; 1901, p. 9; Herourd 1889, p. 677; 1893, p. 134; Saville-Kent 1893, pp. 233, 237; Koehler 1895b, p. 282; 1895c, p. 12, fig. 11; 1921, p. 173, fig. 129; 1927, p. 214, Pl. 16, fig. 19; Bordas 1898, p. 840; 1889a, pp. 187-204; 1899, p. 16, Pl. 1; Bedford, 1898, p. 840; 1899, p. 145; Ostergren 1898, pp. 233-237; Risso 1899, pp. 133-141; 1900, pp. 38-41; Clark, H. L. 1902a, p. 258; 1902b, p. 528; 1920, p. 149; 1921, p. 178, fig. 2; 1923, p. 423; 1925, p. 103; 1926, p. 192; 1932, p. 232; Koningsberger 1904, p. 51, Pl. 8, fig. 3; Fisher 1907, p. 660, Pl. 69, fig. 4; Koehler & Vaney, 1908, p. 8; Pearson, 1910a, p. 178; 1910b, p. 192; 1913, p. 85, Pl. 13, fig. 21; 1914, p. 171; Mitsukuri 1912, p. 80, text-fig. 17; Erwe 1913, p. 369; Mortensen 1926, p. 117; Deichmann 1926, fig. 11; 1930, p. 64, Pl. 3, figs. 17, 18; Schmidt 1929, pp. 1365, 1391, figs. 197-198; 1930, pp. 406-412; 419-424; 459, 483, figs. 36-43, 52, 53, 64, 75, 85, 98; Stephenson, T. A. et at 1931, p. 55; Domantay 1933, Pl. 2, fig. 4; Panning 1935, pp. 86-88, text-fig. 72.

Body cylindrical, mouth and anus terminal; with 18-20 small peltate tentacles. Medium size; average size measures 110 mm. long, 20 mm. diameter. Pedicels scattered all over the body and distinctly papillated, the conical tips with warty bases. Integument rough to the touch and tough. Color in preserved state dark brown mottled with tiny spots, with two rows of dark purplish blotches on dorsal side with the anterior ones united together.

Deposits: Numerous buttons and tables. Tables large with squarish disk and large holes. Spire somewhat massive with a crossbeam, crown spinous. Buttons smooth and regular with 3 pairs of holes and few with more pairs. Pedicels with endplate and supporting rods, the latter with dilated central perforated shaft somewhat symmetrical, both ends with small perforations.

Specimens examined:

Acc. No.	*Locality*	*Date*	*Quantity*
	Sorlen Is.	8-26-45	2
1020-Lot 20	Guam Is.	9-19-45	1

HOLOTHURIA ARENICOLA Semper

Holothuria arenicola Semper 1868, pp. 81, 277, Pl. 20, Pl. 30, fig. 13, Pl. 35, fig. 4; Ludwig 1881, p. 595; Lampert 1885, p. 97; Theel 1886a, p. 222; Clark, H.L. 1902b, p. 528; Koningsberger 1904, p. 50; Fisher 1907, p. 662; Sluiter 1910, p. 332; Clark, H. L. 1920, p. 146; 1921, p. 173; 1925, p. 102; Deichmann 1926, p. 13; Schmidt 1930, p. 416; Deichmann 1930, p. 66, Pl. 4; figs. 1-9; Stephenson T. A. et al 1931, p. 56; Clark, H. L. 1922, p. 231.

Sporadipus (*Acolpos*) *maculatus* Brandt 1835; Semper 1868, pp. 92, 279.

Holothuria maculata Selenka 1867, p. 331; Ludwig 1881, p. 595; 1883, p. 156, 157, 167, 168; 1887a, p. 2; 1888, p. 807; 1889-92, p. 330; 1894, p. 7; 1899, p. 561; Lampert 1885, p. 73; 1896, p. 54; Theel 1886a, pp. 198, 222; Bell 1887a, p. 140; 1888, p. 839; Herouard 1893, p. 133, Pl. 7, fig. B; Sluiter 1895, p. 79; 1901, p. 9; Mitsukuri 1896; Bedford 1898, p. 842; 1899, p. 146; Gardiner 1901-1903, p. 12; Koehler & Vaney 1908, p. 11; Pearson 1913, p. 80, Pl. 11, fig. 18; Domantay 1934, p. 110, Pl. 1, figs. A-H.

Holothuria humilis Selenka 1867, p. 339, Pl. 19, fig. 89; Theel 1886a, p. 218; Fisher 1907, p. 660.

Holothuria densipedes Clark, H. L. 1902a, p. 257, Pl. 17, figs. 1, 3-10; Deichmann 1930, p. 68.

Holothuria rathbuni Lampert 1885, p. 73; Theel 1886a, p. 68; Clark, H. L. 1901, p. 343; 1902a, p. 259, Pl. 17, figs. 2-10; 1919, p. 63; Sluiter 1910, p. 332; Verrill 1902, p. 37, figs. 6, 7; 1905, p. 145, fig. 37.

Body cylindrical, slightly tapers at both ends. Medium size,

the average measurement in preserved state is 100 mm. long, 22 mm. diameter. Mouth small slightly ventral with 20 medium peltate tentacles. Anus terminal with pappilae. Pedicels equally distributed all over the body. Color pattern variable although in majority with two rows of 7-9 dark purplish blotches on the dorsal side, each row in some seems to be connected together by lighter straight line.

Deposits: Tables and buttons. Tables resemble in form that of *Holothuria impatiens* (Forskal) but very much smaller, about one-fourth in size. Buttons of various sizes. Pedicel with end-plate and supporting rods.

Specimens examined:

Acc. No.	*Locality*	*Date*	*Quantity*
Lot 31	Eniwetok Atoll Marshall Is.	1946	3

HOLOTHURIA PULLA Selenka

Holothuria pulla Selenka 1867, p. 326, Pl. 18, fig. 51; Semper 1868, pp. 92, 279; Bell 1884c, p. 510; Theel 1886a, p. 214; Pearson 1913, p. 69, Panning 1934, p. 34.

Microthele aethiops Brandt 1835, p. 55.

Holothuria aethiops Selenka 1867, p. 331; Semper 1868, pp. 90, 250; Ludwig 1881, p. 597; Lampert 1885, p. 84; Theel 1886a, p. 214.

Holothuria atra Domantay 1933, p. 61, Pl. 2, fig. 6.

Body cylindrical, contracted in preserved state due to preservation. Mouth and anus terminal; 20 medium peltate tentacles. Body-wall soft and thin, and in life capable of considerable contraction and relaxation with Cuvierian organs. Pedicles numerous and crowded in trivium, pappillae widely spaced on bivium. Color in preserved state purplish brown.

Deposits: Tables of two types, one with simpler disk and the other with regular circular one with more holes like that of *Holothuria gyrifer* (Selenka). Spire terminates in somewhat spinous crown with a cross-beam. With numerous buttons usually 3 pairs of oval holes, some imperfect ones with regular numbers and shapes of holes.

Specimens examined:

Acc. No.	*Locality*	*Date*	*Quantity*
Lot 23	Cocos Is. Guam		2
Lot 20			1
Lot 31	Eniwetok Atoll Marshall Is.	1946	3

HOLOTHURIA RUGOSA Ludwig

Holothuria rugosa Ludwig 1875, p. 34; Pl. 7, fig. 33; 1882, p. 137; Lampert 1885, p. 67; Theel 1886a, p. 226; Bedford 1898, p. 839, Pl. 53, fig. 4; Koehler & Vaney 1908, p. 15; Pearson 1913, p. 82, Pl. 12, fig. 19; Clark, H. L. 1921, p. 181; 1925, p. 104; Domantay 1934, p. 111, Pl. 1, fig. 2; Panning 1934, p. 75, text-fig. 56.

Holothuria triremis Sluiter 1902, p. 19, Pl. 6, fig. 3.

Body cylindrical, mouth and anus terminal; apparently eviscerated although somewhat extended. Measures 130 mm. long, 12 mm. diameter. With apparently 20 small peltate tentacles. Pedicels somewhat contracted and arranged in indistinct rows. Pappillae fully retracted. Color in preserved state yellowish with tentacles and tips of pedicels purplish brown.

Deposits: Tables and buttons. Tables with high spinous spire, the spines in some are long and prominent. Buttons few and irregular in form. Pedicels with end-plate and supporting buttons.

Specimens examined:

Acc. No.	*Locality*	*Date*	*Quantity*
1013-Lot 13		8-26-45	1

HOLOTHURIA SANCTORI Delle Chiaje

Holothuria sanctori Delle Chiaje 1823; 1841, Pl. 106, 110, 114, 155; Theel 1886a, p. 224; Minchin 1892, p. 281; Koehler 1893, p. 365, fig. 15; 1921, p. 171, figs. 127-128; 1927, p. 207, Pl. 16, fig. 21; Marchisio 1896, p. 4; Russo 1899b, p. 481; Panning 1934, p. 74, fig. 55.

Holothuria farcimen Selenka 1867, p. 330, Pl. 18, fig. 65;

Theel 1886a, p. 220; Perrier 1899, p. 299; 1902b, p. 477, Pl. 15, figs. 15-27; Mitsukuri 1912, pp. 76-77; Mortensen 1933, p. 471, fig. 29.

Body subcylindrical, usually small size, average size 40 mm. long, 10 mm. wide, 6 mm. deep. Mouth ventral with 18-20 peltate tentacles; anus terminal. Pedicels on the ventral side only and somewhat arranged in indistinct rows all over the trivium. Papillae scattered all over the dorsal side on warty protuberances. Color in preserved state brown. Integument tough and rough.

Deposits: Numerous tables with two kinds of disk, one with 9 marginal holes and the other with more holes around the central one. Buttons large and somewhat elliptical with indistinct ridge along the axis. Pedicel with end-plate and supporting perforated plates. Tentacles with supporting rods.

Specimens examined:

Acc. No.	*Locality*	*Date*	*Quantity*
Lot 31	Eniwetok Atoll Marshall Is.	1946	8

Genus ACTINOPYGA Bronn

ACTINOPYGA MAURITIANA (Quoy & Gaimard)

Holothuria mauritiana Quoy & Gaimard 1833, p. 138; Selenka 1867; p. 315; 1868, p. 117; Semper 1868, pp. 76, 276; 1869, p. 120; Ludwig 1882, p. 134; 1887e, p. 26; 1888, p. 812; 1899, p. 557; Lampert 1885, p. 98; Theel 1886a, p. 201.

Mulleria mauritiana Ludwig 1883, pp. 157, 165; 1887b, p. 32; 1889-92, p. 327; Bell 1884c, p. 510; Sluiter 1887, p. 199; 1896, p. 7; 1901, p. 24; Lampert 1889, p. 813; 1896, p. 59; Koehler 1895a, p. 380; Koehler & Vaney 1908, p. 22; Pearson 1910a, p. 174, text-fig. 16; Mitsukuri 1912, p. 53, Pl. 3, figs. 25-27, text-fig. 11.

Mulleria varians Selenka 1867, p. 310, Pl. 17, figs. 4-9.

Holothuria (Actinopyga) mauritiana Panning 1929, p. 128, text-fig. 11.

Actinopyga mauritiana Bell 1887c, p. 653, Pl. 39, fig. 1; Saville-Kent 1893, pp. 229, 236; Bedford 1898, p. 835;

1899, p. 149; Pearson 1903, p. 199; 1914, p. 185, Pl. 29, fig. 8; Fisher 1907, p. 648, Pl. 67, fig. 1; Clark, H. L. 1925, p. 105 Domantay 1933, p. 51, Pl. 1, fig. 4.

Body subcylindrical, partly contracted, usually large size. Average size 90 mm. long, 40 mm. wide, 30 mm. deep. Mouth ventral and anus terminal with 5 calcareous teeth. Tentacles retracted. Pedicels crowded on trivium in three distinct bands. Papillae scattered irregularly on bivium. Color in preserved state dark brown on dorsal side with few white spots at posterior end, lighter on ventral. Integument thick and tough, somewhat wrinkled on dorsal side.

Deposits: Numerous simple elongated and oval tiny rods, irregularly branched tiny rods and dichotomously branched rosettes.

Specimens examined:

Acc. No.	*Locality*	*Date*	*Quantity*
1023	Cocos Is. Guam	9-23-45	2
Lot 20	Cocos Is. Guam	9-23-45	1
	Sorlen Is. Ulithi Atoll	8-26-46	2
1020-Lot 20	Guam Is.	9-19-49	1
Lot 31	Eniwetok Atoll	1946	6
Lot 17	Guam Is.	1945	2

Family STRICHOPODIDAE Brandt, 1835

Genus STICHOPUS Brandt, 1935

STICHOPUS BADIONATUS Selenka

Stichopus badionatus Selenka 1867, p. 316, Pl. 18, fig. 26; Theel 1886, p. 196; Clark, H. L. 1922, p. 55, Pl. 2, figs. 11-18; Deichmann 1930, p. 80, Pl. 5, figs. 30-36.

Stichopus haytiensis Semper 1868, p. 75, Pl. 30, fig. 5

Stichopus mobii Semper 1868, p. 246, Pl. 7, fig. 11.

Stichopus errans Ludwig 1875, p. 97.

Stichopus maculatus Greef 1882, p. 158; Sluiter 1910, p. 333.

Stichopus diaboli Heilprin 1888, p. 312.

Stichopus xanthomela Heilprin 1888, p. 313.

Body subcylindrical, large sized; average size 55 mm. long, 20 mm. wide, 15 mm. deep. Mouth ventral with 20 peltate tentacles. Anus terminal. Pedicels on the ventral side and papillae on warty protuberances on the dorsal side. Color in preserved state grayish brown.

Deposits: Numerous small tables with small disk and series of small marginal holes around 4 smaller central ones; spire cylindrical with two cross-beams and variable number of small teeth on the truncate crown. With numerous C-shaped bodies usually found in the deeper layer of the integument. Pedicels with large end-plate and numerous supporting rods, some of which are broad perforated plates.

Specimens examined:

Acc. No.	*Locality*	*Date*	*Quantity*
Lot 27			1

STICHOPUS CHLORONOTUS Brandt

Stichopus chloronotus Brandt 1835, p. 50; Selenka 1867, pp. 315-316, Pl. 17, figs. 20-24, Pl. 18, fig. 25; Theel 1886, p. 189; Saville-Kent 1893, p. 235, Chromo Pl. 12, fig. 3; Fisher 1907, pp. 675-676; Koehler & Vaney 1908, p. 23; Clark, H. L. 1921, pp. 186-187, Pl. 18, fig. 2; Sivickis-Domantay 1928, pp. 298-332, Pl. 1-11; Domantay 1933, pp. 77-78, Pl. 3, figs. 2a-f.

Stichopus cylindricus Haacke 1928.

Body quadrangular slightly tapers at both ends, partly contracted. Large sized; average size measures 75 mm. long, 25 mm. wide, 20 mm. deep. Mouth slightly ventral and anus terminal. Conical papillae in alternate arrangement on dorso- and ventro-lateral ambulacra. Pedicels in three bands on trivium, the middle band much wider than the laterals. Color in preserved state black all over the body.

Deposits: Numerous tables with simple disk and spire of 4 pillars and a cross-beam, and numerous small rosettes, apparently earlier stages of the tables. Deeper in the integument are numerous C-shaped bodies. Pedicels with regular end-plate

and supporting rods varying from simple curve rods to a more complex form with the middle dilated and perforated, highly racemose on one side.

Specimens examined:

Acc. No.	*Locality*	*Date*	*Quantity*
1020-Lot 20		9-19-45	1
	Asan Point, Guam Is.	1945	3

STICHOPUS HORRENS Selenka

Stichopus horrens Selenka 1867, pp. 316-317, Pl. 18, figs. 27-29; Domantay 1933, pp. 78-79, Pl. 3, fig. 1.

Stichopus godeffroyi var. *b.* Semper 1868; Theel 1873-76, p. 168, Pl. 7, fig. 8.

Stichopus tropicalis Fisher 1907, pp. 676-679, Pl. 70, figs. 1, 1a-i.

Body subquadrangular, elongate and flattened ventrally. Mouth ventral with 20 short peltate tentacles. Pedicels numerous and arranged in three longitudinal rows on trivium with median row much wider than laterals. Warty papillae in irregular rows on each dorso- and ventro-lateral ambulacra. Tiny papillae are often overlooked on interambulacra. In life body-wall delicate and somewhat transparent but in preserved state soft and hardy. Biggest one measures 120 mm. long, 36 mm. wide, 25 mm. deep.

Deposits: Two kinds of tables, one big with large disk and tall conical spire, and another smaller type with simpler disk and spire of 4 pillars terminating in a crown of 8-12 spines. Numerous dichotomous x-shaped rosettes and large C-shaped bodies. Pedicels with regular end-plate and large supporting rods, dilated and perforated at the middle, rather asymmetrical.

Specimens examined:

Acc. No.	*Locality*	*Date*	*Quantity*
Lot 25			3

Order APODA Brandt, 1835

Family SYNAPTIDAE Ostergren, 1905

Genus EUAPTA Ostergren, 1905

EUAPTA GODEFFROYI (Semper)

Synapta godeffroyi Semper 1868, p. 231.

Euapta godeffroyi Ostergren 1898, p. 113; Clark, H. L. 1924, p. 462, Pl. 1. figs. 1-4; Domantay 1933, p. 85, Pl. 2, fig. 9.

Body long, snake-like in life although badly contracted in preserved state. Integument sticky due to presence of numerous anchors which usually hook to the skin even in preserved condition. Mouth and anus terminal; 15 pinnate tentacles though occasionally with 16. Immature or young ones usually with less than 15. Cartilagenous ring usually wanting. Polian vesicles numerous. One or more stone-canals. General color in preserved state shows different shades of brown with longitudinal bands along the ambulacral area.

Deposits: Numerous anchors and anchor-plates and miliary bodies typical of the species. Stock of anchors distinctly branched with 8 spinous processes, smooth arms and minutely knobbed vertex. Anchor-plate with large central hole surrounded by six other holes, usually dentate, and with several smaller ones at handle.

Specimens examined:

Acc. No.	*Locality*	*Date*	*Quantity*
Lot 31	Eniwetok Atoll Marshall Is.	1946	1

Genus SYNAPTA Eschscholtz 1829

SYNAPTA MACULATA (Chamisso & Eysenhardt)

Holothuria maculata Chamisso & Eysenhardt 1821.

Synapta mammilosa Eschscholtz 1829; Jaeger 1833.

Holothruria beseli Jaeger 1833; Semper 1868; Theel 1886a.

Synapta oceanica Jaeger 1833.

Chondrochloea beseli Ostergren 1898b.

Synapta maculata Jaeger 1833; Clark, H. L. 1907; Domantay 1933,, pp. 89-90, Pl. 2, fig. 7.

Body long, snake-like in life; integument rough and sticky to the touch due to numerous projecting anchors. Mouth

and anus terminal; 14-15 pinnate tentacles, fewer in younger specimens. In life the color is variegated brown of darker and lighter shades alternated by black. In preserved contracted form the color is greatly obscured.

Deposits: Large anchors and anchor-plates and numerous miliary bodies. Anchor-plate almost as long as shaft of anchor. Anchor-plate with a central hole surrounded by six to seven similar ones and many smaller ones at both ends. With 2 bows at posterior end. Stock of anchors finely toothed, not branched; arms smooth; vertex with several minute knobs arranged in one or two groups. Numerous miliary rosette-like bodies.

Specimens examined:

Acc. No.	*Locality*	*Date*	*Quantity*
Lot 20			1

Genus OPHEODESOMA Fisher, 1907

OPHEODESOMA SPECTABILIS Fisher

Opheodesoma spectabilis Fisher 1907, p. 723, Pl. 66, Pl. 80, figs. 1-2; Clark, H. L. 1924, p. 467, Pl. 2, figs. 7-9.

One small specimen, apparently dried up for some time. Although it was not properly preserved, still the integument and color pattern are in good shape. Measures 200 mm. long.

Deposits: Symmetrical anchor-plates with 6 large toothed or dentate holes. Handle with one large hole and 4-5 small smooth holes along the edge of handle. Anchor with smooth flukes, and about 7-10 minutely spinous protuberances on the stock. Numerous rosette-like miliary granules, usually with tiny hole in the center.

Specimens examined:

Acc. No.	*Locality*	*Date*	*Quantity*
	Sorlen Is. Ulithi Atoll	8-26-45	1

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