

II.—ADDITIONS TO THE FAUNA OF THE BERMUDAS FROM THE YALE EXPEDITION OF 1901, WITH NOTES ON OTHER SPECIES.

BY A. E. VERRILL.

THE following additions to the fauna of the Bermudas are due almost entirely to the large collections made in the spring of 1901, by Mr. A. H. Verrill, who was there from March 7th to May 9th, and the writer, who took part in the work from April 10th to May 9th. Dr. W. G. Van Name joined us during the latter part of the time, but he worked chiefly on the Tunicata, which are not included in this article.

About 75 species of insects and 25 species of spiders were also obtained. Many of these were not before known from Bermuda, but they will be treated in subsequent articles. The numerous Isopoda and Amphipoda, and most of the Annelida, also remain to be studied, as well as many of the smaller shells, among which there are probably many additions to the fauna. There are also some additional land shells, Myriapoda, earthworms, etc.

I have added notes on some of the rarer or less known species, of those previously recorded,* where such information seemed particularly desirable, for the benefit of future students.

That so many species of comparatively large and conspicuous marine animals could be added in a few weeks to the fauna of a locality, where so many previous collections have been made, may seem strange. This is due, however, partly to a very careful scrutiny of the hiding places of those forms that depend upon concealment for their safety, partly upon the fact that localities were visited where we did not collect in 1898, in which certain species seem to be localized, and perhaps, in some cases, upon the earlier season of the year (March), when some of the new forms came into shallow water to spawn.

The illustrations are mostly from colored drawings, made from life, by Mr. A. H. Verrill. Others are from photographs made by him, either from living or freshly killed specimens. It is unfortunate that the colored figures could not now be reproduced in colors by the Academy, for in these groups of soft-bodied animals the colors are often highly characteristic, as well as beautiful.

The marine invertebrate fauna of the Bermudas, now known, includes about 900 species. The known fishes are about 200.

* Species previously recorded are in italic type. Those now first recorded (so far as known) are in black-face type.

CRUSTACEA.

DECAPODA.

Epialtus bituberculatus M. Edw. (?) var. **Bermudensis** Ver.

PLATE I. FIGURE 1.

This form differs so decidedly from the several so-called varieties of *E. bituberculatus* figured by A. Milne-Edwards (Crust. Reg. Mex., p. 137, pl. xxvii) that it seems necessary to give it, at the least, a varietal name. Indeed, the differences are so great as to indicate a distinct species, but, unfortunately, we obtained only a single example. It resembles the *E. Braziliensis* Dana, considered a variety by A. M. Edw., more than var. *affinis* Stimp. From both it differs in having a much longer and differently shaped rostrum; in the more transverse front edge of the carapax and the much deeper emargination on the sides; the more prominent lateral tubercles; the much longer legs and chelipeds; and especially in the much longer and differently shaped chelæ.

The length of the rostrum to that of the rest of the carapax is as 1:1.62; the length of the carapax (without rostrum) to its breadth is as 1:1.30; the length of the chelæ is equal to that of the carapax to base of rostrum; the length of the chelæ to the breadth is as 3:1, their distal portion being decidedly the larger. Total length of carapax and rostrum, 15.7^{mm}; greatest breadth, 12.3^{mm}; length of rostrum, 12^{mm}; of chelæ, 10.3^{mm}.

The sides of the carapax are deeply concave in outline between the two tubercles; the anterior tubercles are much the larger, but the posterior are a little more prominent and more acutely angular, their anterior edge being incurved. The rostrum is rather long with the outlines in front of the eyes distinctly incurved, but the tip is obtusely rounded; there is a pair of distinct angular denticles in front of the eyes, back of which the outlines are nearly parallel. The front margins of the carapax are nearly transverse, sloping but little from the orbits to the antero-lateral tubercles, which are bluntly rounded.

The color in life was brownish purple, becoming greenish anteriorly and grayish on the legs; on the posterior part of the carapax there is a large, broad T-shaped spot of cream-color. Chelipeds yellowish brown, the claws whitish.

Flatts Inlet, cut out of a deep hole in a ledge, one specimen only, April, 1901 (A. H. V.).

The *E. bituberculatus* is recorded from Chili, Panama, Florida (var. *affinis*), Brazil, etc.

Pericera subparallela Stimp.

Pericera subparallela Stimpson, Ann. Lyc. Nat. Hist. N. York, vii, p. 182 [54], 1860, (St. Thomas.) A. Milne-Edw., Crust. Reg. Mex., p. 54, pl. xiii, figs. 3-3d, (Gaudaloupe.)

A single specimen of this species, from Bermuda, was in the collection of 1898. It has been determined by Miss M. J. Rathbun.

Platypodia spectabilis (Herbst).

Cancer lobatus Milne-Edw., Hist. Nat. Crust., i, p. 375.

Atergatis lobatus Stimpson, Ann. Lyc. Nat. Hist. N. York, 1860, p. 74.

Lophactea lobata A. Milne-Edwards, Nouv. Arch. Museum, Mem. I, p. 249, pl. xvi, fig. 3; Crust. Reg. Mexico, p. 242. Rankin, Annals N. York Acad., xii, p. 529.

PLATE I. FIGURE 2.

Several specimens of this beautiful species were obtained under stones and among bright colored sponges. In life its colors are very bright, but imitative of sponges, etc. The carapax is bright orange-red with particolored, irregular, broad streaks, blotches, and angular or rounded ocellated spots of various sizes. These generally have a small, bright yellow center, surrounded by a wide white band, which is edged with bright blue and surrounded by a thin black line. The arrangement of the spots and blotches is variable. Sometimes small, round, ocellated spots, with the several colors distinct, occur on the large light blotches, either singly or in lines or groups; others are scattered over the carapax. The chelipeds and legs are colored in the same way, but here the spots mostly take the form of half-bands, or angular patches at the joints. The tips of the claws are black. The larger patches of color are often unsymmetrically arranged on the carapax, which tends to obscure its outline and increases the imitative effect.

Cardiosoma Guanhumí Latr. Great Land Crab.

M.-Edw., Illust. ed. Cuvier, pl. xx, figs. 1-1i. S. I. Smith, these Trans., ii, p. 143, pl. v, fig. 3, 1870.

In addition to the locality for this large land crab on Cooper's Island, mentioned in my former paper (vol. x, p. 573), we this year found its large holes in considerable numbers near the shore at Hungry Bay, on the south side of the Main Island. As the holes are very deep and generally excavated among stones and the roots of trees, it is very difficult to dig them out. They are said to come out of their holes in the night, in summer. If so they might, perhaps, be captured by torchlight.

Cyclois Bairdii Stimpson.

Cyclois Bairdii Stimpson, Notes on N. Amer. Crust., II, Annals Lyc. Nat. Hist. New York, vol. vii, p. 237 [109], 1860, (Cape St. Lucas.)

M. J. Rathbun, Proc. U. S. Nat. Mus., xxi, p. 610, 1898; Bull. Univer. Iowa, 1898, p. 290, (Bahamas.)

PLATE II. FIGURES 1, 2.

In life the carapax is pale yellow or yellowish white with several rows of lemon-yellow spots and with rather numerous smaller spots of bright red or crimson, chiefly near the lateral margins and on the antero-lateral teeth. Chelipeds and legs brighter yellow, banded and spotted with bright red. The chelæ have a large crescent-shaped spot of red on the inner side at the joint, and the tips and dorsal spines are red; two spots of red on the carpus. Ambulatory legs brighter yellow, with three or four bands of red and purple at the joints and with marginal lines of purple; eye-stalks orange and yellow. Two living specimens of this species, about two inches broad, were taken by A. H. Verrill, in shallow water on a sandy bottom, near "Waterloo," Castle Harbor, April, 1901. The cast shells, some of them of larger size, were also found on the north side of Long Bird Island, opposite the sand flats, in May.

It was originally described from Cape St. Lucas, where it is abundant. Specimens from Panama (Capt. J. M. Dow) are in the Museum of Yale University. Miss M. J. Rathbun has recorded it from the West Indies. She considers our specimens identical (judging from the photographs).

Olibanarius Verrillii Rathbun.

Amer. Journ. Science, xi, p. 328, April, 1901.

PLATE VIII. FIGURE 2, 3.

A few small specimens that appear to belong to this species were taken this year, at Hungry Bay. The figure, here given, is from one of the original types.

Albunea oxycephala Miers.

PLATE VIII. FIGURE 1.

A large and perfect living specimen of this fine species was dug out of the sandy beach, between tides, near Hungry Bay, February, 1901, by Mr. T. G. Gosling, and presented to us. The photograph, here reproduced, was from this specimen. No other example was found. It is probably rare at this season of the year, but like *Hippa*, it may be more common in summer. Its color, in life, was

yellowish white, or about the color of the shell-sand in which it lives.

Tozeuma Carolinensis Kingsley.

Tozeuma Carolinensis Kingsley, Proc. Acad. Nat. Sci., Philad., 1878, pp. 90, 328, 1879, p. 413, pl. xiv, fig. 8; Amer. Naturalist, xxxiii, p. 715, fig. 8, 1899.

A small, slender and delicate shrimp. Rostrum long, flat, and narrow, its edge nearly straight above, without teeth, above or below but with a fine spinule at the base, back of the eyes; at tip, which is subacute, there are fine spinules, and hair-like ones below.

Chelipeds much shorter than the other legs, with a short swollen claw and a short, round carpus. Second pereopods much longer and more slender, with a small chela and a short carpus.

Other legs long and slender, not chelate; eye-stalks are short, swollen at base.

Dredged in three fathoms, on a soft weedy bottom, in Castle Harbor, May, 1901.

Thor Floridanus Kingsley.

Thor Floridanus Kingsley, Proc. Acad. Nat. Sci. Philad., 1878, p. 95; op. cit., 1879, p. 421, pl. xiv, fig. 6; Amer. Naturalist, xxxiii, p. 718, fig. 20, 1899.

A small, stout-bodied, smooth shrimp, with large conspicuous black eyes, on stout stalks, and a short rostrum, not quite reaching the tips of the eyes, and having four or five acute denticles on the sloping upper edge; but none below. The anterior feet are stouter and shorter than the next pair, with small, rather short chelæ. Those of the second pair are decidedly longer and filiform, with minute chelæ and a very slender, 5-jointed carpus. The other legs are of about the same length, but stouter and subequal.

The body and legs are translucent whitish with minute specks of orange-red; eye-stalks, antennal scales, and outer maxillipeds tinged with orange in formalin (this color was not noted in the living specimens). Eggs rather large, not very numerous, orange in formalin.

Dredged in "The Reach," in two to three fathoms, shell-sand and mud, May 5th, 1901. Two females with eggs.

Gnathophyllum Americanum Guérin.

Gnathophyllum Americanum Guérin, in La Sagra's Hist. I. Cuba, vol. vii, p. xx; atlas, vol. viii, pl. ii, f. 14, 1857.

Verrill, Amer. Journ. Sci., vol. xi, p. 328 (note), April, 1901; *Pontonidæ*, sp., these Trans., x, p. 579.

The carapax is smooth, curiously banded with black and yellow. In the egg-bearing female it is much swollen laterally. The first and second legs are chelate. The first leg is smaller and somewhat shorter; its carpus is elongated and clavate, longer than the chela. The second leg is much shorter and rather larger, and its chela is strong but not much enlarged; carpus shorter than chela (about one-half as long); hand much longer than claw. Other legs simple, slender, subequal, the last two rather longer. Rostrum short, obliquely truncated; the tip is acute and reaches almost to the end of the ocular peduncle, or to the base of the eye; basal part of the upper edge is short and straight, smooth; it then slopes rapidly to the tip, with about five close teeth. Eye-peduncles project straight forward, and are of moderate length; a spine is situated below and back of its base and above the base of the antenna. The edge of the carapax is cut away at the bases of the antennæ and then extends forward. Abdomen is swollen and the edges overlap in an angle below it, so as to conceal the cluster of eggs.

Color, in life, is conspicuous and characteristic. The carapax and abdomen are covered with many narrow, transverse bands of bright yellow and black of about equal width. The telson is pale yellow with basal and terminal spots of orange. Antennæ purplish blue; eye-stalks light yellow; legs pale yellow, each with two dark blue bands edged with orange; chelipeds with a single, blue carpal band, edged with orange; chelæ pale yellow. This curious species, of which only a few poor specimens have been previously recorded from Bermuda (*Amer. Journ. Sci.*, xi, p. 328, 1901), was taken alive at Hungry Bay, April 5th, 1901, by A. H. Verrill, who made a colored sketch of it.

This specimen is a female carrying a large cluster of eggs.

STOMATOPODA.

Pseudosquilla ciliata Miers.

Pseudosquilla ciliata Miers, *Annals and Mag. Nat. Hist.*, Ser. V, vol. v, p. 108, pl. iii, figs. 7, 8, 1880. Brooks, *Voy. Chall.*, xvi, pp. 53-55, pl. xv, fig. 10, 1886. Bigelow, *Proc. U. S. Nat. Mus.*, xvii, p. 499, 1894. Rankin, *Annals N. York Acad. Sci.*, xii, p. 545, 1899.

P. stylifera Von Martens (t. Miers).

The color of this species is quite variable, like that of *Gonodactylus chiragra*, with which it is often associated. Frequently the colors are imitative of the sandy bottom, the back being variegated or specked with white on a gray or pale yellow ground; in other cases

it is dull yellowish green or dark olive-green, but nearly always there is a pale median dorsal stripe of light gray or whitish, and usually a similar, but less distinct, stripe on each side. Frequently there are three pairs of blackish spots; one pair on the thorax, one on the first abdominal segment, and another at the base of the telson.

It was not uncommon, swimming near the bottom, in shallow water at Hungry Bay and at Long Bird Island. It was also found in cavities in loose stones, below low-tide. Clusters of its eggs were found in such cavities, April 19th; they were greenish yellow and resemble those of *G. chiragra*, which were found at the same time. This species resembles the latter in form and appearance, but it is usually larger and swims more freely, so that most of our specimens were taken with a hand-net, while swimming. It was not taken by our party in 1898, for lack of information as to its habits.

It can be distinguished at once from *G. chiragra* by its lacking the bulbous enlargement of the chelipeds.

It has been recorded from various parts of the Indo-Pacific region, including the Hawaiian Is., and also from the West Indies.

ARTHROSTRACA.

Cyamus fascicularis V., sp. nov. Sperm-whale Louse.

PLATE VIII. FIGURE 4.

Specimens of a slender-bodied *Cyamus*, which is probably a new species, were taken from the body of a young sperm whale, taken off Bermuda and brought to St. George's for exhibition, in April.

This species is much more slender than those of the right whales and allied cetaceans. The two branchial segments are about as wide as the following ones, and bear fascicles of small, short, somewhat unequal branchiæ, scarcely longer than the segments. There are about 10 to 12 branchial filaments in each of the four groups.

The first segment is consolidated with the head, which is narrow and rather long, with conspicuous eyes. Antennæ are about $\frac{2}{3}$ the length of the head. First pair of legs small, beneath the second. The hands of the second pair are not much swollen, and have two strong denticles, besides a similar one at the distal angle of the carpus. The three posterior feet have a recurved denticle on the distal angle of the carpus.

Color, yellowish white; branchiæ have small black spots. The specimens described are females. No males were taken.

Length of body and head, 9^{mm}; greatest breadth of body, 3.5^{mm}.

Orchestia agilis Smith.

Report U. S. Fish Com. for 1871 and 1872, I, p. 555 [261], pl. iv, fig. 14, 1873.

This abundant New England Amphipod occurs in equal abundance at Bermuda, under decaying sea-weeds at high-tide mark, on all the shores.

CIRRIPEDIA.**Balanus declivis** Darwin, var. **cuspidatus**, nov.

Balanus declivis Darwin, Mon. Cirripedia, ii, p. 275, pl. vii, figs. 4a-4d, 1854.
(West Indies.)

Our specimens differ as a variety from the typical form described by Darwin, in having the summit of the rostrum divided into 4 or 6 acute denticles; it is very convex and considerably incurved. The summit of the carina is bilobed by a narrow incision. The base is membranous and very obliquely placed, owing to the downward prolongation of the rostrum, as in the type.

Long Bird Island, on the flats, imbedded in a blackish, massive keratose sponge (*Spongia*, sp.), which often lives half buried in the calcareous sand at low tide, and which also harbors a small *Alpheus* and several isopod crustaceans.

This is a very singular barnacle, remarkable for the peculiar oblique membranous base, and the pointed basal end of the rostrum, which are characters developed to suit its mode of life, imbedded up to its aperture in sponges. The type was from the West Indies, in sponges.

Tetraclita porosa (Gm.) Darwin.

Darwin, Mon. Cirripedia, ii, p. 330, pl. x, figs. 1-1m, 1854.

This is the common, small, sessile barnacle found on the rocks between tides, with the general appearance of some species of *Balanus*. It can easily be distinguished by the 4-parted shell.

Catophragmus imbricatus Sowerby.

Sowerby, Genera of Recent and Fossil Shells, Plate. Darwin, Monog. Cirrip., ii, p. 490, 1854.

PLATE VIII. FIGURES 8, 9.

Several specimens of this interesting barnacle were found on littoral rocks. They are all young (about 5 to 8^{mm} in diameter) and agree well with the young one described by Darwin, from Antigua. The eight primary mural plates are pointed and surrounded and partially concealed by about three alternating whorls of smaller, pointed plates, rapidly decreasing in size exteriorly. The opercular

scuta are strongly concentrically ribbed and have a deep, median radial sulcus. The base is calcareous, but thin. The color is pure white.

MOLLUSCA.

CEPHALOPODA.

Loligo Pealei (Lesueur) Ev. Squid.

Loligo Pealei Verrill, Annual Report U. S. Fish Com. for 1879 [pp. 132-161], plates xxvi to xxxii, 1882; Verrill, these Trans., vol. v, 1879, pp. 308-340, pl. xxix, figs. 1-4, pl. xxxvii, figs. 1-3, pl. xxxix, fig. 4; pl. xl; pl. xlv, figs. 3, 4.

A single specimen of this species, about 6 inches long, was found floating and nearly dead at Long Bird Island, near the shore, April, 1901.

Ommastrephes Bartramii (Les.) D'Orb. Flying Squid.

Sthenoteuthis Bartramii Verrill, these Trans., v, pp. 223, 288, 1881; Annual Report U. S. Fish Com. for 1879 [pp. 112-114], 1882.

I was told by the fishermen that schools of the flying squid (*O. Bartramii*) are often seen, and that it is sometimes used for bait.

In this connection, it is of much interest to record that among large numbers of the shells of *Spirula Peronii*, cast up on the beach at Elbow Bay, March 10th, several were found by A. H. Verrill with portions of the flesh still attached. Two of these were preserved in formalin, with the remnants of the animal. This proves that this species lives not far away from that shore, and it may be abundant just outside the reefs, in rather deep water.

GASTROPODA.

TECTIBRANCHIATA.

Dolabrifera ascifera (Rang) Moreh.

Aplysia (Dolabella) ascifera Rang, Hist. Nat. Aplys., p. 51, pl. iv, figs. 7-9.

Dolabrifera ascifera Moreh, Mal. Bl., xxii, p. 176. Sowerby, Conch. Icon., xvi, pl. i, figs. 6a, 6b. Pilsbry, Man. Conchology, xvi, pt. 63, p. 124, pl. xxxiv, figs. 17, 19, 20, 29; pl. lxxv, figs. 10, 11. Berg., Verh. k. k. Zool. Bot. Gesellsch., Wien, xxii, 1872, p. 441, pl. v, figs. 25-29; pl. vi, figs. 1-10, anatomy.

PLATE II. FIGURES 6a, 6b. PLATE III. FIGURE 2. PLATE IV. FIGURE 12.

A rather small, ovate, light-colored species, the body covered with small, low, rounded verrucæ; the head with small papillæ.

Body depressed, broadly rounded posteriorly; foot broad, the edges thin and undulated. Mantle-lobe over the gill-cavity is short, leaving an open sinus at each end of the cavity. Tentacles and rhinophores about equal in length and similarly folded, the tentacles broader or more expanded distally.

Color of upper surface pale yellowish gray and brown, or light fawn-color, mottled with yellowish white; head paler. Under side of foot blue with white spots.

Length, 60^{mm}, in life; breadth, about 30^{mm}. The shell is narrow, oblong anteriorly, elongated, with a much produced beak, which is tapered but blunt. The sinus is slightly concave and about $\frac{1}{2}$ the total length of the shell, ending in a very obtuse angle. The anterior and inner margins are nearly parallel, narrowing slightly anteriorly; the anterior edges obliquely truncate, with rounded angles.

Hungry Bay, April 5, 1901, under stones at extreme low-tide. Two specimens found together, as if breeding. (A. H. V.)

Dolabrifera virens V., sp. nov.

PLATE II. FIGURES 4a, 4b, 5a, 5b. PLATE IV. FIGURE 11.



FIG. 1.—*Dolabrifera virens* V. About $\frac{1}{2}$ natural size.

A rather large, yellowish green species, covered with small, elongated, conical, acute or distally branched papillæ.

Body broad-ovate, broader and well rounded posteriorly; the whole upper surface of the body and head is covered with conical papillæ, 1 to 2^{mm} long, part of which are acute at tip and part are divided at the end into 2 to 4 small branches. Rhinophores shorter and much smaller than the tentacles, deeply folded and enlarged at the ends. Tentacles very large, elongated, with broadly expanded ends, the edges undulated and thin. Mantle-lobe rather small, nearly semicircular, leaving a small open sinus at each end of the branchial cavity.

Color above, in life, dull yellowish green, with ill-defined blotches of pale brownish, and with white spots; the papillæ are mostly lighter and more yellow; margin pale bluish with white specks; under

surface olive-green, spotted with white. Rhinophores green, with white spots and edges.

Length, in life, up to 100^{mm}; breadth, about 50^{mm}.

The shell is firm, calcareous, rather oblong, with the beak produced and grooved or sometimes spoon-shaped, being concavely excavated; the sinus is incurved and has the inner margin thickened; anterior end obliquely truncated and angular; a thin, high, median, vertical crest or keel runs about $\frac{1}{3}$ of the length, on the inside. Left margin nearly straight or slightly incurved. The outer surface is faintly radially ribbed. The shell varies considerably in form in the several examples examined, and especially in the ratios of length to breadth, as shown in the two figures given. The beak may be acute or spoon-shaped; in one it was wholly lacking, due apparently to injury and partial repair. In one specimen the shell was in two parts, having been broken before death and only slightly repaired.

Hungry Bay, under stones at low tide, April 5, 1901, 5 specimens. (A. H. V.) Another specimen was taken in May by Mr. W. G. VanName.

Tethys (Aplysia) morio V., sp. nov.

PLATE III. FIGURES 5, 5a.

A very large species, over a foot long, dark umber-brown or nearly black, without definite spots, but with black stripes on the head, and with very large broadly overlapping lateral flaps.

Body thick and stout, swollen, very obtuse posteriorly. Head and neck thick and stout (but perhaps not seen fully extended). Lateral natatorial flaps very wide and overlapping about half their breadth, entirely free posteriorly, and extending to the end of the short foot. Rhinophores rather small and short, conical. Tentacles large and very broad, foliaceous, with thin expanded margins.

Color of body and exterior of flaps very dark umber-brown or brownish black, with few obscure dusky blotches on the sides of foot and with a purplish tinge along the edges of the flaps. Head, above and on the sides, covered with a number of narrow, purplish black, longitudinal stripes.

Length, in life, when not fully extended, 400^{mm}; height, 145^{mm}.

The shell is very thin, transparent, pale yellow, oblong-ovate, obtusely rounded anteriorly, with the posterior sinus long and only slightly incurved; beak rather prominent, scarcely incurved, with a reflexed membranous edge, which also extends along both posterior margins. In the formalin preparation there is no calcareous layer present. The surface is concentrically undulated and faintly longi-

tudinally grooved. Length to breadth as 3 : 2. Length, 60^{mm}; breadth, 40^{mm}.

No mantle-pore could be found, nor any distinct pore for the "opaline gland"; the latter probably discharges through many minute pores.

A single specimen was found in Castle Harbor, March 21, cast upon the beach but still living and not damaged. (A. H. V.)

This species resembles *T. megaptera* V., in the great size of its lateral flaps, but differs very decidedly in its colors and other characters.

Tethys (Aplysia) tarda V., sp. nov.

PLATE III. FIGURES 4, 4a, 4b.

A rather small, short, thick species, with relatively narrow side-flaps and short rhinophores; dusky yellowish brown, irregularly streaked with darker brown or blackish on the head and sides.

Body ovate, obtuse posteriorly, the foot not produced. Head small, emarginate; neck short and thick. Rhinophores short, sub-conical, tapered. Tentacles larger and rather longer, wide at base, deeply folded. Side-flaps unusually narrow, scarcely meeting over the back, and apparently not capable of being used for swimming, the edges undulated and free to the posterior ends, which extend nearly to the short tip of the foot. Branchial siphon elongated, expanded distally. Mantle over shell with a small, simple, nearly central pore, often with white streaks, or rows of white spots, radiating from it.

General color usually is dark dusky brown or umber-brown. The ground-color is a dull, dark yellowish brown on the sides and head, but irregularly blotched, striped and streaked with dark, dusky brown or sepia. The streaks on the head mostly take the form of narrow lines, those on the sides of the body are broader and more irregular, and are united by transverse lines, so as to form a coarse, irregular reticulation. Edges of side-flaps and siphon bluish gray with a purplish tinge, or grayish white. Inner surface of flaps dark brown with dark gray blotches. Shell-mantle dark brown, irregularly spotted with grayish white, some of the spots usually arranged radially around the central pore. Siphon similar in color. Tentacles and rhinophores light brown, with transverse patches or lines of dark brown.

Length, in life, 62^{mm}; height, 30^{mm}.

The shell is thin, translucent, pale yellow, ovate-elliptical, rather narrow, ratios as 3.2 : 2; the posterior end is produced, with the

beak rather acute, not incurved, but with a small, narrow, reflexed terminal and marginal fold; posterior sinus rather long, decidedly incurved, ending anteriorly in a broadly rounded angle; the anterior half of the shell forms about half of a regular ellipse. In the formalin preparation there is a thin, white posterior calcareous layer, that has mostly fallen off. The surface is slightly undulated concentrically. Length, 32^{mm}; breadth, 20^{mm}.

Cony Island, buried in sand nearly out of sight, April 4; also at Long Bird Island, in shallow water, in May, buried in sand, with only the back slightly exposed. (A. H. V.)

This species seems to live habitually nearly buried in sand. It is very sluggish and probably cannot swim freely, at least in confinement it made no effort to swim. Its back, as exposed, resembles in color a keratose sponge found in the same localities and partly buried in the sand.

In color and form this species somewhat resembles *T. Floridensis* Pilsbry (Man. Conch., xvi, p. 82, pl. xxxvii, figs. 15-19), but the latter is described as having the side-flaps "ample," while in the present species they are unusually small. The shell of *Floridensis* is wide, and quite different in form, being nearly as broad as long, while in our species it is unusually narrow. In respect to the form of the shell, *T. Braziliana* D'Orb. is much like this, but it has large side-flaps, a tubular mantle-pore, a long neck, and other differential characters.

Tethys dactylomela Rang.

Verrill, these Trans., x, p. 545, 1900.

PLATE III. FIGURE 3.

This was very common this year on the shores of Castle Harbor, breeding in April. Its eggs were laid in clusters of long thin, terete, yellow strings, attached by one end to weeds; the eggs are very small and very numerous, in 6 to 8 rows. The colors were generally as ordinarily described, the ground-color varying from light yellow to dark olive-green. A few that were nearly albinos were seen, and one that was melanistic, the ground-color being so dark that the round black spots were barely visible.

Placobranchopsis niveus V., sp. nov.

PLATE IV. FIGURE 10.

A very small, nearly pure white species. Mantle broad-elliptical, slightly emarginate anteriorly, and with a distinct lateral branchial

sinus; its surface is minutely papillose and rough. Head broad, with the angles somewhat produced into short, broad tentacles. Rhinophores stout, rather long, strongly folded, of nearly uniform breadth, obtuse. Foot wider than the mantle, and only slightly longer, the edges thin and undulated, the anterior angles a little produced but obtuse. Gill plumose, attached for about half its length, white. The mantle contains spicules, but, as preserved in formalin, it is soft and rather thick.

Color pale grayish white or translucent white, specked with flake-white, and with a purplish gray visceral organ showing through on the back.

Length, in life, 16^{mm}.

Harrington Sound, in shallow water, on the under side of a coral (*Isophyllia dipsacea*), April 9th; also in Castle Harbor, low-tide, under stones, in May.

Runcina inconspicua V., sp. nov.

PLATE III. FIGURE 6.

A very small dark green and brown species. Head bilobed and emarginate in front with a pair of small, round black eyes near the front edge. Mantle oblong or subelliptical, evenly rounded posteriorly. Foot wider than mantle, with thin undulated margins, well rounded posteriorly. Gill small with fine filaments situated under the right mantle-border, near the posterior end.

Color of mantle very dark green or greenish brown with a narrow orange border; upper side of foot light green, specked with white and edged with a narrow orange or violet line.

Length, 2 to 3^{mm} in life.

Castle Harbor, at low-tide, under stones, in May. Several specimens.

NUDIBRANCHIATA.

Elysia ornata (Swainson) Ver.

Thallepas ornatus Swainson, Treatise Malac., pp. 250, 359, 1840, from a drawing, (West Indies.)

Dalabrifera (?) *ornata* Pilsbry, Man. Conchology, vol. xvi, p. 126.

PLATE IV. FIGURE 5.

This beautiful species was originally imperfectly described, as indicated above, from the West Indies. The description was from a colored drawing only, and was so imperfect that the place of the species in the Mollusca has never been settled. The colors, as

described, are so characteristic and striking that there can be no doubt of its specific identity with our specimens.

The body, in life, is usually yellowish olive-green, but it varies from light yellowish green to dark olive-green; both surfaces of the flaps and the sides of the body are finely specked with black and flake-white dots, often appearing to be slightly raised above the surface. The side flaps are wide with thin flexible and usually undulated margins, which are elegantly bordered with a narrow bright orange band, outside of which the edge is marked by a black line. The folded rhinophores are large and long, with the posterior side orange and the edge black. There is often a white patch on the top of the head. Under side of foot paler green than the body.

This interesting species was found pairing and spawning in considerable numbers on the shore of Castle Harbor in March, by A. H. Verrill. It occurred mostly on a curious bright green alga (*Caulerpa clavifera*), on which it laid its eggs in a long coiled ribbon. According to the notes, the egg-band, when first laid, floated freely in the water, being attached only by the proximal end, but it was afterwards cleverly coiled up and attached for its whole length by the parent, before being left to its fate. The species became comparatively rare in a few days, perhaps retiring into deeper water. Only a very few could be found at the same place after my arrival in April. The last specimens seen occurred April 17th.

Elysia subornata V., sp. nov.

PLATE IV. FIGURE 4.

Head large; body elongated, acute behind; neck long in extension. Rhinophores large and long, folded and strongly expanded at the tip. Side flaps large, pointed posteriorly; their outer surfaces and the sides of the body are covered with small scattered verrucæ.

Color of body and outside of flaps olive-green, finely mottled with grayish white. Close to the edge there is a very narrow orange-brown line; the extreme edge is darker brown. Inner surface of flaps dark green with pale dendritic and inosculating vessels. Rhinophores marked distally with brown; more proximally there is a gray patch; base green specked with gray.

Length, up to 25^{mm} in extension.

Castle Harbor, under stones, in May. Rare.

This species is evidently closely allied to *E. ornata*, but the latter was very constant in its markings, in over 200 specimens examined,

and did not show, in any case, the distinctly, though minutely, papillose surface of this species, which also appeared later and with somewhat different habits.

Elysia flava V., sp. nov.

PLATE IV. FIGURE 1.

Body much elongated in extension ; head relatively small, bilobed in front. Rhinophores rather small, about as long as the breadth of the head, folded but not much expanded distally. Side flaps moderately wide, undulated, rounded anteriorly, narrow posteriorly, and extending nearly to tip of the pointed foot.

Color of head, neck, rhinophores, back, and foot light yellow, with white specks on the back, and faint dull brown markings back of the head and on the sides of the neck. Outside of the flaps olive-green, specked with white and covered with very minute papillæ ; edges of flaps flake-white, with dendritic branches of white extending inward. Inner surface of flaps are almost black, due to the very dark or blackish green, arborescently branched internal organs.

Length, about 18^{mm} while living and in extension.

Castle Harbor, at Waterloo, under stones at low-tide, April 17, 1901. Rare.

Elysia picta V., sp. nov.

PLATE IV. FIGURE 2.

A small, very brilliantly colored species. Body rather stout. Head large and neck rather long ; rhinophores long, clavate, and deeply folded ; their length is equal to twice the breadth of the head. Side-flaps large and broad, their edges thin and strongly undulated ; they extend posteriorly to the tip of the foot.

Color of upper side of head, upper part of sides of neck, and whole of back and inner surface of flaps dark reddish brown, with a purplish spot between anterior ends of flaps ; front of head bright red ; a line of the same red runs back on each side of the neck and along the entire edge of the flaps to the end of the foot ; below this red border there is a band of bright blue ; middle of head and bases of rhinophores light yellow, and this color extends backward as a broad median stripe on the neck, thus forming a cross-shaped mark of yellow, which terminates posteriorly in a blue spot on the neck, and in a blue band on each rhinophore ; on the latter the blue is followed by a brown band, this by a wider red band, while the tip is brown. A blue spot centered with yellow surrounds the genital openings, on the right side of the neck.

Outer surface of lateral flaps olive-green below, becoming yellowish above, and nearly white next to the blue submarginal band ; its surface is thickly specked with yellowish white.

Length, 16^{mm} ; length of rhinophores, 3.5^{mm}.

Hungry Bay, April 5, 1901, under stones at low-tide ; two specimens, pairing. (A. H. V.) Very rare.

This species can be recognized at once by its many brilliant colors, and especially by the marginal bands of red and blue, and by the yellow cross on the head and neck. It can swim freely by means of its large side-flaps.

Elysia papillosa V., sp. nov.

PLATE IV. FIGURE 3.

A small, grayish, distinctly papillose species. Body rather elongated in extension ; head large ; neck long ; rhinophores large ; strongly folded and wide at the tips. Side-flaps large, thin, usually with the edges deeply undulated. Whole surface of body, head, and outside of flaps thickly covered with small conical papillæ.

Color of head, neck, and outside of flaps grayish blue, paler anteriorly, and spotted with darker gray on the outside of the flaps, and specked with flake-white over the whole surface. Inside of flaps darker ash-gray ; the edges bordered with white. Rhinophores are like the head, but with two indistinct transverse bands of orange-brown on the posterior side.

Length, about 12^{mm} in extension.

Hungry Bay, under stones, at a very low-tide, April 5, 1901. (A. H. V.) Rare.

This species can swim freely by means of its ample lateral flaps.

Lamellidoris aureopuncta V., sp. nov.

PLATE IV., FIGURE 9.

A very small, nearly white species, with a row of small, round, yellow spots near each lateral edge of the mantle.

Body elliptical, obtuse at both ends. The foot is longer and wider than the mantle ; anteriorly it is subtruncate with obtuse angles, posteriorly it is rather obtuse and not much produced. The mantle is evenly convex, nearly smooth, but hardened by spicules.

Rhinophores small, slender, acute, with many oblique plications and no distinct sheath. Gills 6 or 7, simply pinnate, with fine branches, retractile.

Color of mantle and foot and gills pale, translucent, yellowish white, with whiter specks, due to spicules; near each lateral margin of the mantle there is a row usually of five small, round, golden yellow spots, to which the name refers. A greenish visceral organ often shows through on the back. Rhinophores yellowish.

Length, 10^{mm}; breadth, 5^{mm}, in life.

Harrington Sound, in shallow water, under corals, April 28, 1901.

Lamellidoris miniata V., sp. nov.

PLATE III. FIGURE 1.

See figure 3, below.

A small, bright red, finely papillose species. Head rounded, emarginate in front, with a pair of slender oral tentacles. Body elliptical, strongly convex. Foot thin, wider and much longer than the mantle, its anterior angles produced into folded lobes. Rhinophores rather large, fusiform or subelavate; thick and strongly plicated, basal part smooth; tip naked, acute and white; no evident sheaths. Gills about eight, rather large, simply pinnate, with fine filaments, retractile. Surface of mantle covered with minute, conical, pointed papillæ.

Color of mantle bright red or deep orange-red, with an obscure median brownish stripe; gills and middle of rhinophores darker red, surrounded at base with grayish blue; the rhinophores are tipped with white. Foot and head paler orange or pinkish.

Length of foot, of largest, in extension, 10^{mm}; of mantle, 7.5^{mm}; another was 6^{mm} long, 3.5^{mm} broad.

Castle Harbor, under stones at low-tide, April 10th and 17th, 1901.

Lamellidoris lactea Ver.

These Trans., x, p. 548, 1900.

PLATE IV. FIGURES 8a, 8b.

A few additional specimens of this rare species were obtained. In these the dorsal surface of the mantle and the sides below its border were milk-white, spotted and specked with purplish gray or pale lavender, some of the spots near the middle being larger and roundish; there was a tinge of orange around the bases of the gills and on the low thick sheaths of the rhinophores. The gills are rather long, simply pinnate; about 7 to 9 were counted. The rhinophores are small, conical, dark gray.

Lamellidoris (?) *olivacea* V.

Doris (?) *olivacea* Verrill, these Trans., x, p. 548, 1900.

PLATE IV. FIGURE 7.

A larger and better specimen of this species was obtained this season. The central area of the back, in this example, is covered with small, conical, whitish or grayish papillæ. The rhinophores are long, tapered, subacute, with an orange ring at base. The wide undulated mantle-border contains spicules.

Chromodoris (?) *roseopicta* V.

These Trans., x. p. 549, pl. lxvi, fig. 1, 1900.



FIG. 2.—*Chromodoris roseopicta* V., gills in profile, enlarged. 2a.—The same, posterior view of gills. 3.—*Lamellidoris miniata* V. Head and front part of foot, enlarged.

Larger and better specimens of this beautiful species were obtained this year; they show that some of the characters of the type-specimens were due to immaturity or imperfect expansion.

In the best examples the mantle border is broad, strongly undulated, and projects beyond the margins of the foot. The back is everywhere covered with prominent rosy-tipped, rather blunt papillæ; some of these, larger than the rest, form three rows of 5 or 6 along the back, and these are surrounded at base with bright yellow specks. The rhinophores, in expansion, are clavate-fusiform, stout, subacute, plicated, bright red, striped with narrow lines of white spots. The gills are large and long, about 24; of these 12 or 14 are simple, long, tapered, pinnate plumes; behind and within these there is, on each side, a group of 5 or 6 smaller divergent plumes, which arise in a subspiral manner from a common stem.

The color, in general, is the same as in the type.

Harrington Sound, Hungry Bay, Long Bird Island, etc., usually on the under side of a massive, brown keratose sponge (*Spongia*, sp.)

Scyllæa pelagica (Linné).

A single large living specimen of this species was found at Long Bird Island, on the flats, in May. Its color was light orange, with a marginal band of deep orange, edged with white around the lateral lobes and along the upper lateral margins of the body; sides of body were specked with flake-white, but without purple spots. Back of rhinophores deep orange; edges white.

Length, 55^{mm}.

Facelina Goslingii V., sp. nov.

PLATE IV. FIGURE 6.

Body, in life, when extended, elongated and rather slender, tapered to an acute point posteriorly. Head large, rounded, with a pair of very long, slender, tapered, acute tentacles. Rhinophores much smaller, not half as long, acute, with strong plications on the distal portion, naked near the base. Foot with the anterior angles prolonged into a pair of long, tapered, tentacle-like organs, more than half as long as the true tentacles and similarly colored. Dorsal papillæ numerous, long, very slender, fusiform, acute, easily deciduous, arranged in numerous (about 10 to 12) double groups along each side, leaving a broad naked dorsal region. The anterior groups contain numerous crowded papillæ, in two or more transverse rows; the posterior groups gradually diminish till the last contain very few papillæ.

Color of back pale, translucent, grayish white, with a median stripe of white, edged with narrow red lines, and with a lateral stripe of orange on each side along the bases of the papillæ, which are white crossed by numerous bands of light rose-red or pink. Head white in front, tinged with pink around the mouth and with a median, usually Y-shaped streak of red on the front and extending between the tentacles, and an ocellated, round, blue spot at the upper base of each tentacle; back of neck with a median blue streak. Tentacles and tentacular processes of foot white proximally, then with a light red band followed by a wide blue distal band. Rhinophores nearly white. Foot edged with blue anteriorly.

The odontophore has but a single row of teeth; these have broad, thick bases and taper rather rapidly to the acute, naked, somewhat incurved tips. There are about 10 to 12 acute serrations on each edge, the distal ones becoming very small. The cutting edges of the jaws are brown and chitons with a submarginal rib; the two edges form nearly a right angle, when flattened by pressure.

Length, in life, 35 to 45^{mm}.

Taken in considerable numbers in the mangrove swamp at Hungry Bay, on a filamentous green alga, March 10th, 1901 (A. H. V.). In April (5th) both the alga and the mollusk had disappeared.

This is a very handsome and active species. It is difficult to preserve entire, for it casts its papillæ very readily when irritated in any way.

It is named in honor of Mr. T. Goodwin Gosling, of Bermuda, who first discovered it. I have referred it to *Facelina* with some doubt, for its anatomy has not yet been fully studied.

PROSOBRANCHIATA.

Volva uniplicata (Sowerby).

Orulum uniplicatum Sowerby, Proc. Zoöl. Soc. London, 1848, p. 135.

Volva uniplicata Tryon, Amer. Marine Conch., p. 93, pl. ix, fig. 93, 1873.

The purple variety of this species was found adhering to a purple specimen of *Gorgonia flabellum*, from Castle Harbor reefs.

PULMONATA.

Among the Pulmonata, apparently not before recorded, are the following:

Melampus bullimoides Mont. Shore of Hungry Bay.

?*Blaumeria heteroclita* Mont. Shore near Hungry Bay, under stones.

Also an undetermined, small, strongly depressed, smooth, helicoid shell, 8 to 10^{mm} in diameter; the aperture is simple, lunate; lip acute; umbilicus open and deep, but not very large. Hamilton, in gardens.

BIVALVIA.

Cardium medium Linné.

A single dead specimen of this West Indian species was found in the cavities of a stone fished up from about 100 feet deep, off the outer reefs.

ECHINODERMA.

Only one species, so far as positively determined, was added to the Echinoderma this year. This was an interesting simple-armed astrophytid (*Astroporpa affinis*), which was found clinging to a *Verrucella* from off the outer reefs.

Several other species of special interest were obtained, which we did not collect in 1898.

OPHIUROIDEA.

Astroporpa affinis Lutken.

Lutken, *Addit. ad Hist. Ophiur.*, II, p. 154, pl. v, figs 5a, 5b, 1859.

Four specimens of this rare species were found clinging to the branches of a large gorgonian (*Verrucella grandis* V.), brought up from about 100 feet, off the outer reefs, on a fisherman's hook. The color, as dried, after a few days, is light yellowish or grayish-brown on the raised annulations of the arms and ribs, and darker brown on the annular grooves.

ASTERIOIDEA.

Luidia clathrata (Say).

Asterias clathrata Say, *Journ. Acad. Nat. Sci. Philad.*, v, p. 141, 1825.

Luidia clathrata Lutken, *Vidensk. Meddel.*, p. 37, 1859. A. Agassiz, *N. Amer. Starfishes*, p. 117, pl. xx. Perrier, *Arch. Zoöl. Exper.*, v, p. 252, 1876. Sladen, *Voy. Challenger, Zoöl.*, vol. xxx, pp. 245, 353, 1889.

Several fine specimens of this species were taken on a white shell-sand bottom in shallow water, at Trunk Island, Harrington Sound. It also occurred at Long Bird Island and other localities, on shell-sand bottoms in shallow water. Its presence is indicated by a star-shaped impression in the sand. But it moves about under the sand with remarkable rapidity, when disturbed, by means of its large ambulacral tubes, so that it is not easy to capture it, after it has taken alarm.

Its color in life is generally light cream-color, often with a rosy or flesh-colored tint, and frequently with a darker grayish or greenish median streak on each ray. It becomes at least a foot in diameter at Bermuda.

Linckia Guildingii Gray.

Linckia Guildingii Gray, *Ann. and Mag. Nat. Hist.*, vi, p. 285. Perrier, *Arch. Zoöl. Exper.*, iv, p. 408, 1875. A. Agassiz, *N. Amer. Starfishes*, p. 105, pl. xiv, figs. 1-6. H. L. Clark, *Ann. N. York Acad.*, xi, p. 412, 1898. Verrill, *these Trans.*, x, p. 671. (*Ophidiaster*, by error, on p. 584.)

Ophidiaster ornithopus Müll. & Troschel, *Syst. Aster.*, p. 31, 1842.

Linckia ornithopus Verrill, *these Trans.*, vol. i, p. 367.

Several small specimens of this species were taken, mostly at Hungry Bay and Long Bird Island, under stones below low-tide. It is dull orange or orange-brown in life.

ECHINOIDEA.

The most interesting species of this group, taken this year, is the following :

Echinoneus semilunaris (Gm.) Lam.

Echinoneus semilunaris Lam., Anim. s. Vert., p. 19, 1816. A. Agassiz, Revis-
Echin., p. 118 (Syn.), 333 (deser.), 550, pl. xiv, figs. 1-5, pl. xxxviii, fig. 26,
1872.

Echinoneus gibbosus Lam., Anim. s. Vert., p. 16, 1816.

Echinoneus elegans Desor, in Agassiz, Mon. Echin., p. 47, pl. vi, figs. 4-6, 1842.

Echinoneus conformis Desor, op. cit., p. 48, pl. vi, figs. 11-21, 1842.

This interesting species appears not to have been obtained there for many years, though it was recorded by Mr. A. Agassiz. Two living specimens were taken at Hungry Bay in March, by A. H. Verrill. They were found buried in sand and gravel, under stones, in small tide-pools, at extreme low-tide. Their color in life was purplish red or bright copper-red.

HOLOTHURIOIDEA.

Holothuria Rathbuni Lampert.

Holothuria, sp., Rathbun, these Trans., v, p. 141, 1879. (Description.)

PLATE I. FIGURES 6a, 6b, 7.

The most interesting holothurian was a large species of *Holothuria* which has the habit, unusual in this genus, of burrowing deeply in the sand at and below low-tide mark on the sand flats, much like the *Arenicola cristata*, with which it is usually associated. It makes a distinct mound of sand around the mouth of its burrow, which runs obliquely downward, often to the depth of two feet or more.

This holothurian itself, when expanded, was often 18 to 20 inches long and 1 inch to 1½ inches in diameter in the middle.

It is usually long-fusiform in extension, tapering gradually to each end. Its color is usually gray, pale grayish brown, or purplish brown, with irregular rows of roundish brown or purplish spots. It is often stained with rusty brown or yellow. The surface is papillose, and the integument is firm and tough.

This was not uncommon on the flats exposed at low-tide at Long Bird Island, and other similar localities. A single specimen was in Mr. Goode's collection of 1876, without special locality.

This is probably *H. Rathbuni* Lamp., recently recorded from Bermuda by Mr. H. L. Clark (Proc. Boston Soc. N. Hist., xxix, pp. 343, 344, May, 1901).

ANNELIDA.

CHÆTOPODA.

An important collection of marine annelids was made this year, but it has not yet been studied in detail. A number of new forms are known to be included in the lot. Among the additional genera are *Terebellides*, *Pterosyllis*, and others.

Several interesting species of earthworms were also obtained, but they have not yet been examined with care.

The following large and handsome new *Pectinaria* was found in considerable numbers:—

Pectinaria regalis V., sp. nov.

PLATE VIII. FIGURES 6, 7.

A large, stout species, with large groups of bright golden, acute opercular setæ, of which there are 11 to 13 in each group, the outermost and two to four of the inner ones much smaller than the rest.

Opercular disk broadly rounded, smooth, with the dorsal edge crenulated, and with a slender acute antenna on the ventro-lateral angles; a stouter, bent, obtuse lobule stands at the base of the ventral edge, on each side. The ventral lobe has about ten slender marginal papillæ on each half of the ventral edge, besides three or four smaller ones on the incurved lateral edges.

The buccal segment bears a pair of slender tentacular cirri, longer than the antennæ, and below these, on each side, four rounded prominent lobules. The gills are large, the anterior pair much the larger; below each gill there is a prominent transverse ridge separated below by a median glandular pad. Similar ridges occur on the next two segments, but the fourth ventral pad is bilobed.

On fifteen segments, following the 2d branchial, there is a conspicuous dorsal fascicle of golden setæ, largest on the 3d to 9th. The two next segments appear to lack dorsal setæ; the next (last thoracic) has a small group of recurved setæ on the dorsal side. The caudal region has five segments, besides the caudal, which is semicircular, with about 24 rounded marginal papillæ. Rows of uncini begin on the 4th post-branchial segment.

Length, up to 95^{mm}; diameter, 12–13^{mm}.

The tube is regularly tapered and considerably bent; it is composed of rather large, nearly uniform, rounded grains of calcareous sand. This fine species was found at Cony Island and the "Scaur," between tides, in shell-sand. Very local.

Arenicola cristata Stimpson.

Proceedings Boston Soc. Nat. Hist., v, p. 114. Webster, Bull. U. S. Nat. Mus., No. 25, p. 323, 1884.

This large species was very common at low-tide and down to three fathoms at several localities, especially at Long Bird Island on the flats, Castle Harbor at Waterloo and Tuckers Town, at Hungry Bay, etc. It makes a conspicuous burrow, at the mouth of which there is usually a long cylindrical or coiled roll of mucus, nearly an inch in diameter.

Fullacia protochona (Schmarda) Quatr.

Hesione protochona Schmarda, Neue Wirb. Thiere, I, p. 79, pl. xxviii, fig. 226, 1861. Quatrefages, Hist. Nat. des Ann., II, p. 98, 1865. Webster, op. cit., p. 311, pl. viii, fig. 21, 1884.

PLATE VIII. FIGURE 5.

Some large and fine specimens of this species were taken in 1901. Some of them were at least six inches (150^{mm}) long while living. They were mostly found under stones at low-tide at Hungry Bay, the Scaur, Cony Island, Castle Harbor, etc.

Some of the largest were found swimming rapidly at the surface, by rapid undulations of the body.

In life the color is pale brownish yellow, striped longitudinally with many fine dark brown lines.

GEPHYRÆA.

Sipunculus nudus Linné (?)

Selenka in Semper's Reisen in den Philippinen, ii, Bd. iv, 1883.
Ward, Bull. Mus. Comp. Zool., xxi, pp. 147-182, 1891.

A large species, 200 to 250^{mm} in length and 15 to 20^{mm} in diameter when expanded. It contracts variously in formalin, sometimes to a cylindrical form, 150^{mm} in length and 10 to 12^{mm} in diameter; in other cases the middle of the body is much narrower and both ends are bulbous.

The body is longitudinally sulcate, with about 32 grooves, separating wider muscular bands. These are crossed by numerous circular grooves and bands, which divide the surface into more or less conspicuous squarish or oblong areas, which are often distinctly raised, especially posteriorly. The posterior end is suddenly tapered to an obtuse point, the tapered portion being nearly smooth, but longitudinally sulcated; that portion of the base of the proboscis which is visible is closely covered with small broad-based, obtuse, conical, pale brown verrucæ.

The anus is a conspicuous transverse slit, on a slightly raised or thickened brownish area, covered with radial grooves. The nephridial pores are very distinctly transversely bilabiate; they are separated by about seven longitudinal muscular bands, and are situated on the eighth muscular band in front of the anal pore.

The color in life is brownish flesh-color, or light yellowish brown. In formalin it is dull, pale yellowish brown, a little darker on the posterior end and at the base of the proboscis, as well as around the anal pore; the surface has a glistening appearance.

One specimen is somewhat darker, being covered with fine dark brown specks, which form alternately lighter and darker, very narrow stripes on the body, two narrow dark lines being situated on each longitudinal muscular band.

The internal anatomy has not yet been studied sufficiently to determine positively whether this be identical with the European *S. nudus*, which has been reported also from Florida.

Sand flats of Long Bird Island, in deep burrows, April, 1901.

Physcosoma, sp.

A large species, 150 to 175^{mm} long, and about 8 to 10^{mm} in diameter, when expanded.

It was translucent flesh-color, finely specked with yellowish brown. The two long and large segmental organs showed through the integument as purplish folded tubes 20 to 30^{mm} long.

There are 20 wide muscular bands; seven on each side between the anal and nephridial pores and six between the two latter. The surface is covered with fine granule-like elevations; around the posterior end is a wide zone of larger, crowded, low, yellow, rounded verrucæ, not chitinous; a similar zone surrounds the base of the proboscis. On the inner surface of the longitudinal muscles are scattered, oblong, low, verruciform bodies, about .5^{mm} long. The intestine is long and large, forming about 45 spiral turns. The transverse muscles form thin narrow bands or lines, very near together.

Thalassema Baronii Greef.

Thalassema Baronii Greef, Acta Ac. Germ., xli, p. 151, 1879. Shipley in Willey's Zoöl. Results, part iii, p. 745, pl. xxxiii, figs. 1 and 7, 1899; Proc. Zoöl. Soc. London, 1899, p. 55. Selenka, Challenger Voy., Zoöl., xiii, p. 1.

PLATE V. FIGURE 9.

Length, in life, in extension, 50 to 65^{mm}, diameter 12 to 15^{mm}, but the form is very changeable. The color of the body was bluish-

green, striped longitudinally with about eight bands of bright pink or light violet-red, these stripes being of nearly the same breadth as the green ones. Proboscis similar to the greenish parts of the body, but rather lighter, or more distinctly bluish, without stripes.

The body, in expansion, was usually thick-fusiform or larger in front of the middle. The proboscis was usually short, stout and blunt, but changeable according to state of expansion.

Three specimens were collected on one of the serpuline atolls near Hungry Bay, at a very low tide in March. They were imbedded in loose sand and gravel. (A. H. V.)

TURBELLARIA.

POLYCLADIA.

Thysanozoön nigrum Girard.

Thysanozoön nigrum Girard, Proc. Boston Soc. Nat. Hist., vol. iv, p. 137, 1854 (from Cape Florida).

Thysanozoön Brochii, var. *nigrum* Lang, Die Polycladen, Fauna und Flora des Golfes von Neapel, p. 535, 1884.

A large, nearly jet black species, thickly covered above with large obtuse or subacute, unequal papillæ.

Body broad, oblong-elliptical, with thin undulated margins, used actively in swimming. Tentacular lobes elongated, projecting upward and forward, deeply folded. A small, roundish or cordate cerebral cluster of minute ocelli, surrounded by a small pale area. Whole dorsal side covered with rather closely crowded papillæ, part of which are much smaller than the others; they are mostly tapered and rather obtuse, but many are fusiform and subacute.

Color usually nearly pure black, sometimes with patches of dark gray and fine specks of white, and with faint yellowish reticulated lines anteriorly; under side light smoky brown. Papillæ blackish, often tinged with greenish yellow.

Length, in life, up to 60^{mm}; breadth, 30 to 45^{mm}.

Castle Harbor and Harrington Sound, in May, usually found swimming actively at the surface, but sometimes living under stones.

It was called "sea-devil" by some of the fishermen, probably owing to its black color.

Thysanozoön griseum V., sp. nov.

PLATE V. FIGURE 7.

Body usually oblong-elliptical or ovate in extension, but changeable. Length to breadth often as 2: 1. Dorsal surface thickly cov-

ered with elongated, acute, unequal papillæ. Tentacular folds prominent, not very near together. Cerebral ocelli form two slightly separated, small, nearly semicircular groups, surrounded by a pale area. Color of dorsal side mostly brownish gray, tinged with yellow, and with a broad median stripe of white, on which the papillæ are also white; the other papillæ are spotted with orange, white, and dark brown. Tentacles gray, spotted with flake-white. On their anterior edges there are, apparently, many minute black ocelli; other black specks that may be ocelli form a row on the front margin, between the tentacles and on the lateral margins as far back as the cerebral ocelli, or farther.

Length, 35 to 40^{mm}; breadth, 16 to 20^{mm}.

Harrington Sound, under dead corals, in April.

This may, perhaps, prove to be only a pale variety of *T. nigrum*, when a larger series can be studied, but aside from the difference in color, the separate groups of cerebral ocelli and the more prominent tentacles seem to be important characters. Only one specimen was taken.

Pseudoceros bicolor V., sp. nov.

PLATE V. FIGURE 5.

Body broadly elliptical with very thin undulated edges. Pseudotentacles are broad, short, rounded folds with a deep sinus between them, and with numerous minute ocelli on their front edges. Farther back than the bases of the pseudotentacles there is a round median group of numerous small cerebral ocelli. There are also two small light colored elevations.

Color of the central area very dark, almost black, with acute lobes of the same color extending toward the margin, which is translucent white, tinged with gray.

Length, about 30^{mm}; breadth, 15^{mm}, but the form is very changeable.

Long Bird Island, under stones at low-tide, April, 1901 (A. H. V.).

Pseudoceros aureolineata V., sp. nov.

PLATE V. FIGURE 6.

Body broadly elliptical, with thin undulated margins, but very changeable in form. Pseudotentacles broadly folded, bearing numerous small ocelli on the margin; rows of similar ocelli extend along the whole margin of the body. A round cluster of small cerebral ocelli is situated anteriorly.

Color, above, in life, light purplish-brown or purplish fawn-color, irregularly spotted and specked with white, and with a median row of white spots or small blotches; toward the margin is a row of greenish spots, about at the edge of the brown area. The margin is translucent white, with a narrow, bright, light orange line at the edge; Under side anteriorly specked with flake-white.

Length, about 25^{mm}; breadth, 18 to 20^{mm}.

Long Bird Island, under stones just below low-tide, April 19, rare.

Stylochus Bermudensis V., sp. nov.

Body oblong-elliptical in life, with thin undulated edges. Tentacles not long, rather far apart, situated about at the anterior fourth, conical and subacute in extension, short and blunt in partial contraction. Ocelli form a cluster in the base of each tentacle, and two or three marginal rows along the anterior part of the body, extending back past the middle.

Color, above, grayish green on a white ground color. The greenish color forms specks and blotches over the surface, with the white ground-color showing between them, and specked with flake-white. Just back of the tentacles there is a transverse row of three white spots, the median one the largest; under side white, mouth central.

Length, 18^{mm} in extension; breadth, 8 to 9^{mm}.

Harrington Sound, in shallow water, under corals, April 14, 1901.

The only specimen found was accidentally lost before a detailed figure had been made. The clusters of cerebral ocelli were not noted.

Discocelis binoculata V., sp. nov.

PLATE V. FIGURES 3, 4.

A long, narrow, very active and changeable species, with thin and much undulated edges; anterior end generally obtusely rounded; posterior end tapered. Breadth to length often as 1 to 6 or 8, in extension.

The cerebral ocelli form two distinct round clusters, separated by a space greater than their diameters.

No marginal ocelli could be seen in one specimen, but in others there seemed to be a row of very small ones anteriorly.

Ground-color, pale flesh-color; light pink; pale yellowish-orange; or salmon, paler and translucent toward the margins; a row of about 12 orange-brown, roundish spots along each side of the back,

about midway between the middle and the edges; outside and between these are numerous small specks of the same color. A median pale gastric streak extends from the ocelli to near the posterior end; it is usually bordered by a deeper colored, salmon or light orange band.

The stomach is long and narrow, occupying most of the length of the body behind the eyes. It gives off, mostly at right angles, a large number of narrow, lateral, dendritic branches. The pharynx is not very long, subcentral, lobulated.

Length in extension, up to 30 or 40^{mm}; breadth, 6 to 8^{mm}, but it often contracted to a shorter and broader form.

Under stones and dead corals, and in their crevices, at low-tide, Long Bird Island, April 19th and 29th. It is a very active species and creeps rapidly into holes and crevices, when disturbed.

This closely resembles, in color, general appearance, and in the cerebral eyes, the *Leptoplana Alcinoi* of the Bay of Naples, as figured by Lang (Polycladen, p. 486, pl. ii, figs. 2 and 5). But our specimens appeared to have a row of small, anterior marginal ocelli, that are not present in the former.

Discocelis cyclops V., sp. nov.

PLATE V. FIGURE 1.

Body usually much elongated, rather narrow, with thin, more or less undulated margins; anterior margin usually obtusely rounded; posterior end often tapered.

The two cerebral groups of ocelli are semicircular or semielliptical and very close together, so that they seem to form a single, rather conspicuous, rounded or elliptical eye, of larger size than usual in this group. Around the front margin there are also two or three rows of minute ocelli, which extend somewhat farther back than the cerebral groups.

Color of the body usually pale, translucent flesh-color or pale cream-color, but nearly white toward the margins; there is a rather wide median dorsal stripe of orange-brown, made up of minute round brown specks; similar specks are scattered over the whole surface, except near the edges, which are pale and translucent.

One specimen was, in general, reddish brown, due to the color of the dendritic gastric branches showing through. Another was nearly white, specked with orange. The dark median gastric stripe is often bordered with whitish.

The mouth is far forward, only a little behind the eyes.

The proboscis, which is often ejected in formalin solution, is large and clavate, four-lobed at the end, 12 to 14^{mm} long.

Length, up to 75 to 90^{mm}; breadth, 10 to 15^{mm}, in extension; it often contracts into much shorter and broader forms.

Harrington Sound, April 28th, on under side of dead corals, in shallow water. Castle Harbor, at Waterloo, low-tide, under stones, May 5th. The Scaur, under stones at low-tide, May.

This species is here referred to the genus *Discocelis* with some doubt, for its anatomy has not yet been sufficiently studied.

Trigonoporus microps V., sp. nov.

PLATE V. FIGURE 2.

Body thin, usually long and narrow, very extensile and changeable, the edges usually much undulated and very thin; both ends may be subacute in extension. When fully extended the body is very narrow, the breadth being about one-sixth to one-eighth of the length.

Cerebral clusters of ocelli are lacking; but numerous minute ocelli are scattered over the anterior dorsal region and along the anterior margins, becoming much more numerous and crowded into several rows close to the anterior end. The stomach is very long, extending through most of the length of the body, and it gives off very numerous, nearly transverse, lateral branches, which are subdivided into numerous dendritic branchlets.

Color of the body pale flesh-color or cream-color, the stomach and its branches showing through as rather darker pale ocher or brownish markings.

Length up to 50 or 60^{mm}; breadth, in extension, 5 to 10^{mm}.

Castle Harbor and "The Scaur," under stones at low-tide; May 1st to 5th.

This species closely resembles *T. cephalophthalma*, of the Gulf of Naples, (see Lang, Polycladen, p. 503, pl. ii, fig. 1), in form and in the arrangement of the ocelli. The latter, however, differs in color and, apparently, in the relative length of the median gastric cavity, which is about one-third the total length, yet when more fully studied they may prove to be identical. The internal reproductive organs of our species have not been studied, so that its generic position is not positively settled. I have placed it in *Trigonoporus* mainly because of its close resemblance to the Naples species, as to form of body and arrangement of the ocelli. In the latter the gastric streak is white, bordered and continued by orange-brown, otherwise the upper side is pale greenish gray.

Leptoplana lactoalba V.

These Trans., x, p. 595, fig. 9, 1900.

Numerous specimens of this species were taken in 1901, many of which differ from the typical form, in being more or less tinged with flesh-color or pale yellowish brown. For this variety it may be convenient to have a special name. No differences, except in color, were noticed.

Var. *tincta*, nov.

PLATE V. FIGURE 8.

Color of dorsal surface pale flesh-color, light salmon-color, or pale brownish yellow, due to numerous minute specks of pigment scattered in the tissues; margins paler; not very translucent. In this species the principal or most conspicuous cerebral ocelli form a pair of round clusters, well apart, on slightly elevated verrucæ. There is a simple row of two or three ocelli behind the round groups and a crowded, usually curved row in front. The stomach is not very long. No marginal ocelli were observed.

The form is very changeable and the species is very active, both in creeping and swimming.

Length up to 40 or 50^{mm}; breadth, 18 to 25^{mm}.

Long Bird Island; Harrington Sound; Castle Harbor, etc., under stones and corals. Common.

NEMERTINA.

Two or three additional species of Nemerteans were obtained in 1901, but they have not yet been fully studied.

The most interesting one was taken singly, two or three times, under stones, at low-tide. It was 150 to 175^{mm} long, and about 4 or 5^{mm} broad. It was somewhat flattened, except anteriorly. Its color was bright orange or scarlet; no eyes were seen. It appeared to be related to *Polia* or *Eupolia*.

A species of *Lineus* was found in May by Mr. W. G. Van Name, among algæ, in a rather brackish pond near Bailey Bay. It was dark grayish brown on the upper side, paler beneath. Length, 75 to 100^{mm}. It occurred in considerable numbers, but it has not yet been studied with care.

The terrestrial nemertean (*Tetrastemma agricola* W. Suhn) was found common in April, near Hungry Bay, under stones and burrowing in the soil like an earthworm. They were from 2 to 4 inches

long, when extended, but they are said to grow to the length of 6 inches. They are quite active and can be kept alive for a long time in jars of moist earth. They occurred not only near the shore, but on the uplands where the soil was almost dry. The larger ones, in life, were dark grayish brown or slate-color along the back, but the smaller ones were nearly white.

ANTHOZOA.

ACTINARIA.

Cerianthus natans V., sp. nov.

PLATE IX. FIGURE 6.

Body in extension when swimming, rather long, bulbous or clavate near the base and enlarged rapidly close to the disk. Outer tentacles about 38, subequal, tapered, not very long, thin, length usually less than one-half the diameter of the disk; they appear to form two or three rows. Inner or oral tentacles much smaller and more slender, about 24, apparently forming two series, owing to their alternate positions.

Color of body orange-brown, tinged with yellow. Outer tentacles reddish brown, crossed by five or six bands of white; disk yellowish around bases of tentacles with a brown spot in front of the base of each; central part of disk bluish gray. Oral tentacles nearly white; mouth yellow, with lines of red running in from between the oral tentacles.

Length, in life 110^{mm}; diameter of column, 10 to 22^{mm}; of disk and tentacles, 45^{mm}, length of outer tentacles, about 10^{mm}.

Cony Island, floating free among algæ, March 26, 1901. (A. H. V.)

This species, when kept in confinement, could swim about actively by expelling water from the pore in the bulbous base. Only one example was taken. The tentacles are much shorter than usual in this group.

Epicystis osculifera (Lesueur) Ver.

Verrill, these Trans., x, p. 556, 1900.

PLATE VII. FIGURE 1.

Numerous specimens of this elegant actinian were obtained, some of them of large size. These render it still more probable that this form is distinct from *E. crucifera*, for it seems to have a characteristic pattern of colors.

The column is usually streaked with light red and pale pink, much as in *crucifera*, but the tentacles are longitudinally striped with green and white, one of the green stripes on the outside and two on the inside being dark green, while the lateral ones are light green; there is often an inner median streak or spot of yellow or orange; the bases are surrounded by dark green lines which run in on the disk as radial lines. The disk is generally lined or striped radially with green and white, variegated with orange and dark green spots. The lips are bright yellow, edged with green. The suckers are bright red and form short rows on the upper part.

There are usually only 6 or 12 of the primary and secondary tentacles that have more or less evident transverse raised ridges on the inner face of the tentacles. One of these usually occupies the inner end of each of the six infoldings of the disk.

It is sometimes 150^{mm} or more in diameter.

Hungry Bay; Castle Harbor; Harrington Sound. It lives between stones and in crevices of rocks and corals.

Lebrunia Danæ (D. & M.) Ver.

Verrill, Amer. Journ. Sci., vii, p. 46, fig. 15, 1899. These Trans., x, p. 555, pl. lxvii, fig. 3; pl. lix, fig. 1, 1900.

PLATE VI. FIGURE 1.

A number of large specimens of this species were obtained. They varied considerably in color, but none were distinctly green like those obtained in 1898.

The column, tentacles, and disk were generally light yellowish brown or fawn-color. The branchiæ were usually darker brown, often light umber-brown or chocolate-brown. The tentacles often had pale tips. The gills in extension were usually much longer than the tentacles; they were much branched arborescently, but they had few or no distinct rounded aerorhagi.

In this last character and in color they differed decidedly from the 1898 specimens, described and figured by me in 1900, and agreed nearly with *L. neglecta*, as described by McMurrich, from the Bahamas.

Phellia simplex V., sp. nov.

Column slender, elongated, often vermiform, changeable, covered with a closely adherent, brownish or dirty epidermis, except close to each end.

Tentacles about 24; inner ones slender, tapered but little, longer and larger than the outer ones, and equal to the diameter of the disk; outer ones small.

Color of disk usually buff, with white radii; tentacles translucent buff with a broad proximal patch of flake-white, beyond which there are two or three transverse bands of dark reddish brown. The lowest of these bands is W-shaped; the others are simple annulations.

Length, in life, 18 to 24^{mm}; diameter, 4 to 5^{mm}.

Long Bird Island, under stones at low-tide, April 19th; also at Waterloo, Castle Harbor.

This species has the aspect of an *Edwardsia*, but its basal disk is well developed.

Phellia rufa Ver.

These Trans., x, p. 557, pl. lxxiii, fig. 2, 1900.

PLATE VI. FIGURE 5.

Numerous fine specimens of this species were found under stones in several localities, but it was particularly abundant and large at Waterloo, Castle Harbor, where the tidal streams from the adjacent caves flow out of the stony shores between tides.

At the latter locality specimens very much larger than the types were obtained. Some of these, in life, were 75 to 100^{mm} long, and 20 to 36^{mm} in diameter of body, with a correspondingly increased number of tentacles, which were often 96 to 120; the inner 12 are often erect and decidedly the largest. The form of the body is very changeable.

In nearly all cases the column is a deep brownish red or dull salmon-brown, and the tough epidermis, which adheres very closely and extends nearly to the tentacles, is wrinkled in contraction. The disk and tentacles vary much in color, but are nearly always handsomely variegated with red, salmon-brown, or purplish brown, and flake-white. The tentacles are generally banded with flake-white and often they have two or three W-shaped bands of dark purplish brown or reddish brown. The disk has radial stripes or spots of the same brown colors, alternating with white, or the brown spots may be V-shaped.

Aiptasia tugetes (D. & M.) Andres.

PLATE VI. FIGURE 6.

Verrill, these Trans., x, p. 557, pl. lxxvii, fig. 2, 1900.

This species was found very common in 1901, and numerous marked variations in its colors were observed.

The most prolific locality was the mangrove swamp at "Fairy Lands," where it occurred in great numbers, in April, attached to the fallen and floating mangrove leaves and twigs. At this place numerous color-varieties occurred. Many of the specimens had one or both of the directive tentacles longer than the rest and partially or wholly flake-white; a band of white also crossed the disk in line with these tentacles. The other tentacles and disk were variously spotted and barred with flake-white; most commonly the ground-color of the tentacles was pale umber-brown or greenish, crossed by two to five unequal half bands and crescents of flake-white, on the inside.

One nearly albino specimen occurred at Waterloo. This had a pale flesh-colored, translucent column, with white specks above. The long, slender, acute tentacles were pale yellowish, crossed on the inside, mostly near the middle, with 8-12 crescent-shaped, flake-white spots and intermediate specks; disk pale, with radial flake-white specks and spots.

***Anemonia elegans* V., sp. nov.**

PLATE VI. FIGURE 4.

Column smooth, in ordinary expansion short, cylindrical, expanded at the base and summit; basal disk large, with undulated edges. Tentacles not retractile, numerous, in three or four rows, the inner ones much the longer, about equal to the diameter of the disk, slender, but little tapered, obtuse. Disk usually depressed with the mouth raised, but it is very changeable.

Color of column pale, brownish yellow or light fawn-color, sometimes light orange; tentacles light yellow or pale orange-yellow, with light purple or pink tips, edged below with whitish, and with a red basal line on each side and behind the base, and a triangular spot of whitish on the inner base in some cases; lips light red or scarlet; inside of mouth darker red, with two whitish gonidial grooves; disk yellowish, with narrow radial red or brown lines.

Height of column, in life, 12 to 15^{mm}; diameter, 10 to 12^{mm}; length of longest tentacles, 10 to 12^{mm}.

Cony Island, March 26, 1901 (A. H. V.).

Castle Harbor, under stones at low-tide, in May. Rare.

In color this resembles some varieties of *Condylactis passiflora*, but it has much more numerous and smaller tentacles than the young of that species of similar size.

Actinia melanaster V., sp. nov.

PLATE VI. FIGURES 2, 3.

Column in life rather short and broad, nearly cylindrical, expanded at base, but probably capable of much greater elongation. Tentacles numerous (about 76), retractile, very unequal, forming three or more rows, the inner 24 much the largest and longest, tapered, acute, arising well in from the edge of the disk; outer ones not half as long and much smaller. Two gonidial grooves; lips raised.

Color of column, in life, dark reddish brown; disk with a large, dark brown, stellate central area, with about 24 tapered radii, which run out between the bases of the inner tentacles, and with narrow, pale radial lines; outer portion of disk, between the brown radii, and inner bases of tentacles light yellow. Tentacles, except at base, dark reddish brown, with a central lighter reddish brown stripe. Mouth red, the lips edged with bluish white.

Specimens preserved in formalin have the following characters:

Tentacles about 96, long, tapered, acute, strongly sulcated in formalin preparations, length of inner ones about half the diameter of the disk. They are not very unequal; the inner 24 are, however, larger and longer than the rest and set in considerably from the border of the disk, and rather swollen near the base. They form five cycles or more, and seem to stand in three or four rows. More or less of the outer ones are imperfectly developed and short. Below the tentacles there is a distinct fosse and a marginal fold. On the latter there is a circle of about 24 larger acrorhagi, alternating with smaller ones. The larger ones are prominent, verruciform, and slightly lobulate on the outer or lower side, but apparently not perforated. The column below the margin, as preserved, is strongly vermiculate and sulcate, with about 96 sulci, alternately larger and smaller. The ridges between the sulci are crossed irregularly and closely by strong transverse and oblique or zigzag wrinkles, giving them a vermiculate appearance. No distinct suckers could be seen.

Mouth has two strong gonidial grooves and numerous lateral folds.

Diameter of disk as preserved, 25^{mm}; height of column, 20^{mm}; length of tentacles, 10–15^{mm}.

Diameter of the column in life, 20 to 30^{mm}; its length, 40 to 60^{mm}; diameter of disk and tentacles, 40 to 50^{mm}.

Several specimens of this species were found at the entrance of Flagg's Inlet, deeply buried in crevices of the ledges, from which they could not be extracted except by cutting away the rock. (A. H. V.)

Condylactis passiflora (Duch. and Mich.).

Duchass. and Michelotti, Corall. Antilles, Supl., p. 31, pl. v, fig. 7. Verrill, these Trans., x. p. 555, 1900.

Some additional color-varieties of this very common species were observed this year. The most remarkable one was a large specimen, over a foot in diameter when expanded, found at "Sans Souci," in the interstices of a sea-wall. In this the column was light red, as usual, but the tentacles were pea-green with bright blue tips, instead of the usual pink, magenta, or violet tips. The tentacles, as seen expanded, were large and swollen, three to four inches long, with enlarged, obtuse or swollen tips.

Some pale or nearly albino specimens were also observed. The tips of the tentacles frequently lack the bright colors.

Palythoa grandiflora Ver.

Verrill, these Trans., x, p. 564, pl. lxxviii, fig. 6, 1901.

PLATE VII. FIGURE 2.

Very extensive colonies of this species, several feet across, were found between tides, at Waterloo, in the course of the tidal streams. These were nearly uniform in color. The disk was generally orange-brown or dark yellowish brown, with paler radii and tentacles. A small portion of one of these groups was photographed while living and expanded, and this photograph is here reproduced.

GORGONIACEA.

Eunicea atra V., sp. nov.

PLATE IX. FIGURES 4, 5.

A black, rather large, much-branched species with the branches dichotomously divided, subparallel, often crooked, and very variable in size on the same specimen. The edges of the large calicles are only a little raised, and generally have a small, acute, angular lower lip, which may be obsolete. Most of the branches arise from near the base; many are rather long and cylindrical; others are more or less clavate, some are tapered and not more than two-thirds as large as the average. The calicles are variable in size and form; the larger ones are usually elliptical and rather close together.

Height, 12 to 16 inches (300 to 400^{mm}); breadth of the clusters of branches, about the same; diameter of branches, 10 to 12^{mm}; of calicles, 0.5 to 1.5^{mm}.

When living the color is black, and when first taken from the sea the water, mixed with mucus, that drips from the branches is almost ink-black and imparts a black stain to one's clothes and hands. This black coloring matter gives a black color to a large quantity of alcohol or formalin solution.

When dried the coral is black or dark umber. The polyps are yellowish brown, large and long in expansion. They contract rather slowly, but completely.

The spicules of the *cœnenchyma* (pl. ix) are mostly rather large and variable in form; the most characteristic are moderately stout, roughly warted spindles, sometimes with a side-lobe or branch; others are short thick spindles; with these are many others of smaller size.

This species was taken in about eight feet of water at "The Reach," where there is a rather strong tidal current.

The size and form of the calicles and slight development of their lower lip will distinguish this from the allied species.

Verrucella grandis V., sp. nov.

PLATE IX. FIGURES 1, 2, 3.

This is a large, dichotomously branched, arborescent, yellow species, that grows at least five feet high.

The trunk is 12 to 16^{mm} in diameter, and the axis is round, very hard, calcareous, light brownish yellow. The *cœnenchyma* is rather thin, but hard, deep ocher-yellow, or inclining to orange-yellow. It forks repeatedly, so that there are numerous long and rather slender terminal branches, 12 to 18 inches long (300 to 450^{mm}) and 2 to 4^{mm} in diameter. The branches are somewhat flattened and occasionally squarish, with a sulcation along each side. The verrucæ, on the trunk and larger branches, are low and broadly rounded, about 1 to 1.5^{mm} in diameter, crowded in 3 or 4 rows on each side; on the branchlets they are mostly in two alternating rows on each side and are more elevated; their wider bases are in contact; summit rounded.

The spicules of the *cœnenchyma* (figure 3) are orange-colored, and small; the most abundant are short, strongly warted, double spindles; with these are many short forms, not much longer than broad, with papillose ends; several other smaller forms also occur.

A single large specimen, five feet high, was brought up from the depth of about 100 feet, outside the North Reefs, on a fisherman's hook, May, 1901.

POLYZOA.

The following additional species of bryozoa have been noticed in the collections made this year. The nomenclature followed is that of Smitt, (Florida Bryozoa, 1872). See also *Amathia Goodei* Ver., described last spring (Amer. Journ. Science, xi, p. 329, Apr., 1901), but not figured.

Idmonea Atlantica Forbes.

Smitt, Florida Bryozoa, p. 6, pl. ii, fig. 7.

Off the North Reefs, 16 fathoms.

Mollia patellaria (Moll, as *Eschara*).

Mollia patellaria Smitt, op. cit., p. 12, pl. ii, fig. 72.

Off the North Reefs, 16 fathoms.

Porina subsulcata Smitt.

Op. cit., p. 28, pl. vi, figs. 136-140.

With the preceding.

Porina plagiopora (Busk).

Lepralia plagiopora Busk, Crag Polyzoa, p. 44, pl. iv, fig. 5.

Porina plagiopora Smitt, op. cit., p. 30, pl. vi, figs. 134, 135.

With the preceding.

Anarthropora minuscula Smitt, 1867.

Op. cit., p. 31, pl. vi, fig. 141.

With the preceding.

Gemellipora glabra Smitt.

Op. cit., p. 37, pl. xi, figs. 207-210.

With the preceding.

Hippothoa mucronata Smitt.

Op. cit., p. 45, pl. viii, fig. 169.

On under side of corals, shallow water.

Lepralia edax Busk.

Cellepora edax Busk, Crag Polyzoa, p. 59, pl. ix, fig. 6, pl. xxii, fig. 3.

Lepralia edax Smitt, op. cit., p. 63, pl. xi, figs. 220-225.

On under side of corals, shallow water.

Cellepora avicularis.

Smitt, op. cit., p. 53, pl. ix, figs. 193-198.

Off North Reefs, on *Verrucella*, 16 fathoms.

ENTEROPNEUSTA.

Balanoglossus, sp.

A species of *Balanoglossus* was found this year burrowing in the sand-flats on the north side of Long Bird Island. It was about 150^{mm} in length. Its color was ocher-yellow to dull orange-brown. Its structure has not yet been studied with care. No species of this group has hitherto been reported from the Bermudas.

LEPTOCARDIA.

Branchiostoma Caribæum Sund. · Lancelet.

Sundevall, Olfers, Vet. Akad. Forhandl., xii, 1853. Andrews, Synopsis Studies Biol. Lab., Johns Hopkins Univ., v, 4, p. 240, 1893. Jord. and Everm., Fishes Amer., i, p. 3, 1896.

Hitherto no locality for this *Amphioxus* has been known at Bermuda except on the west side of the inlet at the Flatts, where it was first discovered by Mr. Goode, in 1876. This year we dredged it on



Figure 4.—Lancelet (*Branchiostoma Caribæum*). $\times 1\frac{1}{2}$.

a bottom of hard shell-sand and mud, in Castle Harbor, about one-half a mile north of Castle Island, in 15 to 20 feet of water. This is also one of the localities for *Strombus gigas*. Another similar locality, near Tucker's Island, in Great Sound, where *Strombus gigas* is found, would very likely also yield the lancelet.

FISHES.

Carcharinus platyodon (Poey). Shark.

Squalus platyodon Poey, Memorias, ii, p. 331, 1861.

Carcharias platyodon Jordan and Gilbert, Proc. U. S. Nat. Mus., p. 243, 1882.

Carcharinus platyodon Jord. and Ever., Fishes N. Amer., i, p. 39, 1896.

A dead specimen of this species, about four feet long, was found on the south beach near Tuckerstown, in April. It was badly decomposed and only some teeth could be preserved. From these the species has been identified by Mr. Samuel Garman. The color of the upper side was grayish blue; white below.

It has been recorded from Cuba, Texas, and the Gulf of Mexico, where it grows to a much larger size (10 to 15 feet long).

Pseudoscarus guacamaia (Cuv.). Green Parrot Fish.

Searus guacamaia Cuv., Reg. Anim., ed. ii, vol. ii, p. 265, 1829.

Pseudoscarus guacamaia Jordan and Ever., Fishes North Amer., ii, p. 1657; iv, pl. 246, fig. 617. Evermann and Marsh, Fishes and Fisheries of Porto Rico, p. 245, fig. 68, 1900.

Many specimens of this species were found among the dead fishes on the beach of Long Bird Island, early in March, 1901. The turquoise-blue teeth were conspicuous. No other parts could be saved. (Coll. A. H. V.)

Eques lanceolatus (Linné) Gunther. Gnapena. Ribbon Fish.

Chatodon lanceolatus Linné, Syst. Nat., ed. x, p. 277, 1758.

Eques balteatus Cuvier, Reg. Anim., ed. 2, ii, pl. xxix, fig. 2, 1829.

Eques lanceolatus Gunther, Catal. Fishes, ii, p. 279, 1860. Jordan and Everm., Fishes N. Amer., ii, p. 1489, 1898.

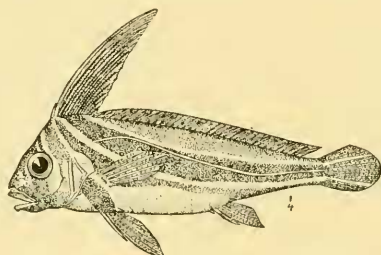


Figure 5.—Ribbon Fish. *Eques lanceolatus*. $\frac{1}{4}$.

One specimen, retaining its characteristic color-marks, was found among the dead fishes cast on the beach near Hamilton early in March, 1901. (A. H. V.)

Eupomacentrus fuscus (Cuv. and Val.) J. and Ever. Maria Molly. Brown Cock-eye Pilot.

Pomacentrus fuscus Cuv. and Val., Hist. Nat. Pois., v, p. 432, 1830.

Eupomacentrus fuscus Jord. and Everm., Fishes N. Amer., ii, p. 1552, 1898. Everm. and Marsh, Fishes of Porto Rico, p. 224, pl. xxvii, colored, 1900.

Common in the mangrove swamp at Hungry Bay, April, 1901. (A. H. V.)

Scomberomorus maculatus (Mitch.). Spanish Mackerel. Carita.

Scomber maculatus Mitchell, Trans. Lit. and Phil. Soc. N. York, i, p. 426, 1815.

Scomberomorus maculatus Jordan and Everm., Fishes N. Am., i, p. 874, iv, pl. cxxxiv, fig. 368. Everm. and Marsh, Fishes Porto Rico, p. 123, pl. vi (colored), 1900.

I was told by some of the inhabitants that this species is occasionally taken, but I saw no specimens.

Lycodontis funebris (Ranz.) J. and Ever.

Green Moray. Black Moray.

Gymnothorax funebris Ranzani, Nov. Com. Ac. Sci. Bonon., iv, p. 76, 1840, Brazil.

Lycodontis funebris J. and Ever., Fishes N. Amer., i, p. 396, 1896. Ever. and Marsh, op. cit., p. 77, 1900.

One specimen of this species was found among the dead fishes on the shore, early in March. I have seen two large living specimens in the New York Aquarium, brought from Bermuda by Prof. C. E. Bristol and party, in 1899.

REPTILES.

Anolis principalis (Linné). Blue-tailed Lizard. American Chameleon.

Anolis Carolinensis Dum. and Bibron.

PLATE I. FIGURE 5.

A single specimen of this small lizard was recently found in a jar containing a mixed lot of marine invertebrates collected by Mr. G. Brown Goode, at Bermuda, in 1876.

The only label was "Bermuda," in Mr. Goode's handwriting. As the specimens in the jar had never been assorted and all the other things were common Bermudian species, we must infer that the locality label is correct. But since there is no special note in respect to the lizard, it is quite possible that Mr. Goode knew that it had been carried to Bermuda, in captivity. It is possible, however, that he did not distinguish it from the young of the common Bermuda species and for that reason made no special note of it. No other example has occurred, so far as I know, but that proves very little, for no systematic search for reptiles has been made by any one in Bermuda.

Mr. Samuel Garman has compared this specimen with those taken in the southern United States and Cuba, and finds no differences whatever.

It is quite possible that it has recently been introduced into Bermuda, either accidentally or intentionally, and that it has become locally naturalized there, in small numbers, like several foreign birds. This lizard was first mentioned by me in the Amer. Journ. Sci., xi, p. 330, April, 1901.

BIRDS.

A list of 17 species of birds that have been recently added to the fauna has been published by Mr. A. H. Verrill.*

Of these, five species are recent successful introductions by commerce, either intentional or accidental. These are the American Goldfinch, the European Goldfinch, the European Tree-Sparrow, the Wheatear, and the Mockingbird, all of which are now resident and breed. The others (12) are rare migrants that probably do not breed there, though it is possible that the Red-billed Tropic Bird,

* Amer. Journ. Sci., xii, p. 64, for July (issued June 22d to 28th), 1901. He has also printed a more detailed article in "The Osprey," v, pp. 83-85, for June, 1901, with figures of the three following species and of the Tropic Bird, photographed from life. In these articles he has described the Bermuda Cardinal Bird and the Blue Bird as new subspecies, peculiar to Bermuda. The Cardinal Bird is named *Cardinalis cardinalis Somersii*; the Blue Bird, *Sialia sialis Bermudensis*; the Ground Dove, *Columbigallina passerina Bahamensis*.

Outram Bangs and Thos. S. Bradlee have also published a paper on the Birds of Bermuda in "The Auk" for July, 1901, pp. 249-257, in which new names are given to some of these birds and others.

They name the Ground Dove, *Columbigallina bermudiana*; the White-eyed Vireo, *Vireo bermudianus*; the Catbird, *Galeoscoptes bermudianus*; the Cardinal, *Cardinalis bermudianus*.

Mr. Verrill's article appears to have been published a few days earlier than the latter.

To me it seems quite useless to regard these very slightly differentiated forms as distinct "species." The differences noted, especially in the Ground Dove, Catbird, and Vireo, are trivial and scarcely sufficient to constitute *varieties*. To consider them as "subspecies" is certainly a sufficient strain on the much-stretched meaning of the term "subspecies." I should, therefore, call them mere local varieties, scarcely differentiated.

In respect to the Ground Dove, there are reasons for believing that it was introduced to Bermuda from the Bahamas, since the settlement of the islands, like many other things. None of the earlier writers mentioned it in the lists of birds that they gave. This would hardly have been the case had it been present, for it is exceedingly tame and familiar.

A. K. Fisher, Bird Lore, Oct., 1901, p. 178, states that the original *Motacilla sialis* Linné, ed. x, p. 187, was from Bermuda. This is not true. He gave it as from "Bermudis & America calidore." He also quotes Catesby, Hist. Carolina, etc., p. 47, pl. 47, 1731. Catesby says that he had seen it in "Carolina, Virginia, Maryland, and the Bermudas." But he states in his preface that his birds were mostly drawn in Carolina and Georgia, where he spent several years in drawing them. A few were drawn in the Bahamas, where he spent about a year, mostly on the fishes and plants. He does not say that he made *any* drawings in Bermuda, where he probably made a mere passing visit. The Bluebird does not occur in the Bahamas. His figure clearly represents the common North American variety.

of which a few were seen, may breed in small numbers with the common species. I may add that the European Starling has been taken several times, and may have become naturalized, but if so it is still rare.

MAMMALS.

Phoca vetulina? (Linné). Common Harbor Seal.

A seal, apparently of this species, has been taken at Bermuda. A skin is still preserved in the local collection made by the late Mr. Bartram, at St. Georges. It may, however, be the young of the West Indian seal.

Orca gladiator Gray=*Orca orca* (Linné). Killer.

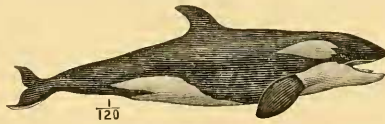


Figure 6.—Killer.

I was told by fishermen that this species is occasionally seen in Bermuda waters.

Grampus griseus Cuvier. Grampus.

This species is also found in Bermuda waters, according to the local whalers.

Delphinus delphis (Linné). Dolphin.

This common oceanic dolphin also occurs in the waters around the Bermudas and should be considered as belonging to its fauna.

Probably several other related cetaceans occur, more or less frequently, in the vicinity of the islands.

While we were at Bermuda, in April, 1901, a small sperm whale, about 30 feet long, was captured and brought to St. Georges, where it was put on exhibition for a few days.

Sperm whales are not rare in the waters a few miles from Bermuda, but they are far less common than they were formerly.

The Biscay Right Whale (*Balæna cisarctica* Cope=*B. Biscayensis* Gervais) is now very rare in these waters, where it was once common.

EXPLANATION OF PLATES.

PLATE I.

- Figure 1.—*Epiplatys bituberculatus*, var. *Bermudensis* V., new var. Photog. from life, $\times 1\frac{3}{4}$.
- Figure 2.—*Platypodia spectabilis* (Herbst). Photog. from life. $\times 1\frac{1}{4}$.
- Figure 3.—*Pagurias insignis* (Saussure) Benedict=*Petrocheirus insignis*, vol. x, p. 578.
- Figure 4.—*Calcinus sulcatus* Edw. Photog. from life. Natural size.
- Figure 5.—*Anolis principalis* (L.). Dorsal view of head and neck of a Bermuda specimen. Photog. from nature. $\times 3$.
- Figures 6a, b.—*Hotothuria Kathbuni* Lamp. Photog. of two living specimens. $\frac{1}{4}$.
- Figure 7.—The same. Tentacles expanded. Drawn from life. $\times 1\frac{1}{4}$.

PLATE II.

- Figure 1.—*Cyclois Bairdii* Stimp. Photog. from life. $\times 1\frac{1}{4}$.
- Figure 2.—The same. Front view. Photog. from life. About natural size.
- Figure 3.—*Ophiolepis paucispina* M. and Tr. See vol. x, p. 585. Enlarged.
- Figures 4a, 4b.—*Dolabrifera virens* V., sp. nov. Dorsal and ventral sides of the shell. Photog. from nature. Natural size.
- Figures 5a, 5b.—The same. Shell of another specimen. Dorsal and ventral sides. Natural size.
- Figures 6a, 6b.—*Dolabrifera ascifera*. Shell, dorsal and ventral sides. Photog. from nature. Natural size.

PLATE III.

- Figure 1.—*Lamellidoris miniata* V., sp. nov. Type. From life. $\times 3$.
- Figure 2.—*Dolabrifera ascifera*. Dorsal side. From life. $\frac{3}{4}$.
- Figure 3.—*Tethys (Aplysia) dactylomela* Rang. Dorsal side. Photog. from living specimen. $\frac{1}{8}$.
- Figure 4.—*Tethys (Aplysia) tarda* V., sp. nov. Type. From life. Natural size.
- Figure 4a.—The same. Shell. Dorsal side. $\frac{3}{8}$.
- Figure 4b.—The same. Shell. Ventral side. $\frac{3}{8}$.
- Figure 5.—*Tethys (Aplysia) morio* V., sp. nov. Type. From life. $\frac{1}{4}$.
- Figure 5a.—The same. Shell. Dorsal side. $\frac{3}{8}$.
- Figure 6.—*Runcina inconspicua* V., sp. nov. Type. Dorsal side. From life. $\times 16$.

PLATE IV.

- Figure 1.—*Elysia flava* V., sp. nov. Type. Dorsal side. From life. $\times 2\frac{1}{2}$.
- Figure 2.—*Elysia picta* V., sp. nov. Type. Two specimens. From life. $\times 2\frac{1}{4}$.
- Figure 3.—*Elysia papillosa* V., sp. nov. Type. Side view. From life. $\times 3\frac{1}{2}$.
- Figure 4.—*Elysia subornata* Ver., sp. nov. Type. From nature. $\times 1\frac{1}{4}$.
- Figure 5.—*Elysia ornata* (Swain) Ver. Dorsal view, with side-flaps expanded. From life. $\frac{3}{4}$ natural size.
- Figure 6.—*Facelina Gostingi* V., sp. nov. Type. From life. $\frac{7}{8}$.
- Figure 7.—*Lamellidoris ? olivacea* Ver. Dorsal view. From life. $\times 3$.
- Figures 8a, b.—*Lamellidoris lactea* V., sp. nov. Type. Dorsal and side views. $\times 3$.

Figure 9.—*Lamellidoris aureopunctata* V., sp. nov. Type. Side view. From life. $\times 3$.

Figure 10.—*Pleurobranchopsis niveus* V., sp. nov. Type. Side view. From life. $\times 1\frac{3}{4}$.

Figure 11.—*Dolabrifera virens* V., sp. nov. Type. Dorsal side. Photog. from a living specimen. $\frac{2}{3}$.

Figure 12.—*Dolabrifera ascifera*. Dorsal side. Photog. from life. Natural size.

PLATE V.

Figure 1.—*Discocelis cyclops* V., sp. nov. Type. Drawn from life. $\times 2$.

Figure 2.—*Trigonoporus microps* V., sp. nov. Type. Drawn from life. $\times 2$.

Figure 3.—*Discocelis binoculata* V., sp. nov. Type. Drawn from life. $\times 2$.

Figure 4.—The same. Type. Drawn from life. $\times 2$.

Figure 5.—*Pseudoceros bicolor* V., sp. nov. Type. Drawn from life. $\times 1\frac{3}{8}$.

Figure 6.—*Pseudoceros aureolineata* V., sp. nov. Type. Drawn from life. $\times 1\frac{3}{8}$.

Figure 7.—*Thysanozoon griseum* V., sp. nov. Type. Drawn from life. Natural size.

Figure 8.—*Leptoplana lactoalba* Ver., var. *tincta* V. Drawn from life. $\times 1\frac{1}{4}$.

Figure 9.—*Thalassema Baronii* Greef. Photog. from a colored drawing from life. Natural size.

Figure 10.—*Golfingia elongata* Ver., vol. x, p. 670. Type. Photog. from nature. $\times 2$.

PLATE VI.

Figure 1.—*Lebrunia Danae* (D. & M.) Ver. Side view. Photog. of a living specimen. $\frac{1}{2}$.

Figure 2.—*Actinia melanaster* V., sp. nov. Type. From life. Natural size.

Figure 3.—The same. Photog. of a living specimen. $\frac{2}{3}$.

Figure 4.—*Anemonia elegans* V., sp. nov. Type. Specimen with the stomodæum protruded from the mouth. $\times 1\frac{1}{4}$.

Figure 5.—*Phellia rufa* Ver. From life. $\frac{1}{2}$.

Figure 6.—*Aiptasia tagetes* (D. and M.) Andres. Photograph from life of two specimens attached to floating mangrove leaves. About $\frac{2}{3}$ natural size.

PLATE VII.

Figure 1.—*Epicystis osculifera* (Les.) Ver. Photog. from a living specimen. $\frac{1}{2}$.

Figure 2.—*Palythoa grandiflora* Ver. Photog. of a living group in expansion. Natural size.

PLATE VIII.

Figure 1.—*Albunea oxyophthalma* Miers. (See errata.) Photog. from a preserved specimen. $\frac{2}{3}$.

Figure 2.—*Clibanarius Verrillii* Rathbun, 1901. Type. Photog. from nature. Left side. $\times 1\frac{1}{2}$.

Figure 3.—The same. Another specimen. Dorsal. $\times 1\frac{1}{2}$.

Figure 4.—*Cyamus fascicularis* V., sp. nov. Type. Photog. from nature. $\times 4$.

Figure 5.—*Follacia protochona* Schmarda. Photog. from a living specimen. $\frac{1}{3}$.

Figure 6.—*Pectinaria regalis* Ver., sp. nov. Type, with tube. Photog. from a preserved specimen. Side view. $\frac{2}{3}$.

Figure 7.—The same. Another specimen. $\frac{2}{3}$.

Figures 8, 9.—*Catophragnus imbricatus* Sowerby. Two specimens. Photog. from nature. $\times 2\frac{1}{2}$.

PLATE IX.

- Figure 1a.—*Verrucella grandis* V., sp. nov. Part of a terminal branch of the type.
Front view. $\times 1\frac{1}{2}$.
- Figure 1b.—Part of a large branch. Front view. Photog. from nature. $\times 1\frac{1}{2}$.
- Figure 2.—The same. Part of one of the larger branches, seen edgewise. $\times 1\frac{1}{2}$.
- Figure 3.—The same. Spicules, various forms. Camera drawings. $\times 170$.
- Figure 4a, b.—*Eunicea atra* V., sp. nov. Type. Distal portions of two branches
from one specimen. About $\frac{2}{3}$ natural size.
- Figure 5.—The same specimen. Group of spicules of various kinds. From camera
drawings. $\times 17$.
- Figure 6.—*Cerianthus natans* V., sp. nov. Type. Side view. From life. $\frac{1}{2}$.
- Figure 7.—*Polycarpa multiphiala* Ver. One of the gonads. Much enlarged. See
vol. x, p. 591.
- Figure 8.—*Styela partita* (Stimp.), from the New England coast. See vol. x, p. 588.
Gonads much enlarged.

[All the figures on the above plates are from photographs and drawings by Mr. A. Hyatt Verrill.]

ERRATA.

- Page 17, line 1. For *Pericera subparallela*, read *Macroceloma subparallellum* Miers.
- Page 18, line 8 from bottom. For *Albunea oxycephala*, read *Albunea oxyophthalma* Miers.
- Page 35, line 21. For *Blaumeria*, read *Blauneria*.
- Page 35, line 22. The undetermined helicoid shell may be *Helicina lucida* (Drap.) of southern Europe.