chusetts, in water that was fresh, or nearly so. It grew to the height of two inches or more, with long slender branches.

WILLIA ORNATA McCready. (p. 455.)

Op. cit., p. 149 (separate copies, p. 47), Plate 9, figs. 9–11, 1859 (Willsia); Agassiz, Contributions, vol. iv, p. 346, 1862; A. Agassiz, Catalogue, p. 171, figs. 274[a], 275.

Charleston, South Carolina (McCready). Buzzard's Bay (A. Agassiz).

CORYNE MIRABILIS Agassiz.

Contributions, vol. iii, Plate 11[c], figs. 14, 15, Plates 17–19; vol. iv, pp. 185–217, figs. 9–31, Plate 20, figs. 1–9, Plate 23[a], fig. 12; A. Agassiz, Catalogue, p. 175, figs. 283–287. *Sarsia mirabilis* Agassiz, Mem. Amer. Acad., vol. iv, p. 224, Plates 4, 5, 1849. ? *Tubularia stellifera* Couthouy, Boston Jour. Nat. Hist., vol. ii, p. 56, 1839. *Coryne gravata* Wright, Edinb. New Phil. Jour., Apr., 1858, Plate 7, fig. 5 (t. Hincks). *Syncoryne gravata* Hincks, Brit. Hydr. Zoöph., p. 53, Plate 10, fig. 1.

The species described by Couthouy may, possibly, have been this; but his species was described as unbranched, and as if it had two distinct circles of tentacles. Martha's Vineyard to Greenland. Common in Massachusetts Bay; Casco Bay; and Bay of Fundy. Scotland (Hincks).

DIPURENA CONICA A. Agassiz. (p. 455.)

In Agassiz, Contributions, vol. iv, p. 341, 1862; A. Agassiz, Catalogue, p. 181, figs. 301–305.

Buzzard's Bay, Naushon (A. Agassiz).

GEMMARIA GEMMOSA McCready. (p. 455.)

Op. cit., p. 151, Plate 8, figs. 4, 5, 1859; A. Agassiz, Catalogue, p. 184, fig. 306. *Zanclea gemmosa* McCready, op. cit., p. 151, 1849; Agassiz, Contributions, vol. iv, p. 344.

Charleston, South Carolina (McCready). Buzzard's Bay (A. Agassiz).

PENNARIA TIARELLA McCready. Plate XXXVII, figs. 277, 278. (p. 327.)

Op. cit., p. 153, 1859; A. Agassiz, Catalogue, p. 187, figs. 311–315. *Globiceps tiarella* Ayres, Proc. Boston Soc. Nat. Hist., vol. iv, p. 193, 1852. *Eucoryne elegans* Leidy, op. cit., p. 136, Plate 10, figs. 1–5, 1855. *Globiceps tiarella* Agassiz, Contributions, vol. iv, p. 344, 1862.

Charleston, South Carolina, to Massachusetts Bay. Great Egg Harbor, New Jersey; near New Haven; Vineyard Sound, common, low-water to 10 fathoms, and on floating algæ.

ECTOPLEURA OCHRACEA Agassiz. (p. 455.)

In Agassiz, Contributions, vol. iv, p. 343, 1862; Catalogue, p. 191, figs. 320–323.

Buzzard's Bay, Naushon (A. Agassiz).

CORYMORPHA PENDULA Agassiz. Plate XXXVI, fig. 273. (p. 510.)

Contributions, vol. iv, pp. 276, 343, Plate 26, figs. 7–17, 1862; A. Agassiz, Catalogue, p. 192, fig. 324. *Corymorpha nutans* Stimpson, Invert. of Grand Manan, p. 9, 1853.

Block Island to Gulf of Saint Lawrence. Common in Casco Bay and Bay of Fundy, 8 to 30 fathoms; off Block Island, 29 fathoms. Off Cape Cod (A. S. Bickmore).

HYBOCODON PROLIFER Agassiz. Plate XXXVIII, fig. 282. (p. 328.)

Contributions, vol. iv, pp. 243, 343, Plate 23[a], figs. 10, 11, Plate 25, figs. 1–15, 1862; A. Agassiz, Catalogue, p. 193, figs. 325–328.

Vineyard Sound to Massachusetts Bay.

PARYPHA CROCEA Agassiz. Plate XXXVI, fig. 274. (p. 390.)

Contributions, vol. iv, pp. 249, 342, Plates 23, 23[a], figs. 1–7, 1862; A. Agassiz, Catalogue, p. 195. ? *Tubularia cristata* McCready, op. cit., p. 156, 1859=*Parypha cristata* Ag., op. cit., p. 342.

Brooklyn, New York, to Boston, Massachusetts. Very abundant near New Haven, on piles in harbor, and in 2 to 6 fathoms, off Thimble Islands; Wood's Hole, on piles, abundant. Warren Bridge, Boston (Agassiz).

This is probably not distinct from *P. cristata*, which is abundant at Charleston, South Carolina, and Fort Macon, North Carolina.

THAMNOCNIDIA TENELLA Agassiz. (p. 407.)

Contributions, vol. iv, pp. 275, 342, Plate 22, figs. 21–30, 1862; A. Agassiz, Catalogue, p. 195.

Rhode Island to Bay of Fundy. Off Watch Hill, 4 to 5 fathoms; Vineyard Sound, 6 to 10 fathoms; common in Casco Bay and Bay of Fundy, low-water to 40 fathoms.

HYDRACTINIA POLYCLINA Agassiz. (p. 407.)

Contributions, vol. iii, Plate 16; vol. iv, pp. 227, 339, figs. 33–35, Plate 26, fig. 18, 1862; A. Agassiz, Catalogue, p. 198, figs. 329, 330. *Hydractinia echinata* Leidy, op. cit., p. 135, Plate xi, fig. 35, 1855 (? *not* of Johnston).

New Jersey to Labrador. Very abundant in Long Island Sound, Vineyard Sound, Casco Bay, and Bay of Fundy, low-water to 60 fathoms. Saint George's Bank (S. I. Smith). Labrador (Packard). Greenland (Mörch). ? Charleston, South Carolina (McCready).

The identity of this with the European species is somewhat doubtful, though united by Hincks and others. The latter extends southward on the European coasts to Great Britain and France.

*Physophoræ.*

NANOMIA CARA A. Agassiz. (p. 455.)

Proc. Boston Soc. Nat. Hist., vol. ix, p. 181, 1863; Catalogue, p. 200, figs. 332–350.

Newport, Rhode Island; Massachusetts Bay; Nahant (A. Agassiz).

*Porpitæ.*

PHYSALIA PELAGICA Lamarck. (p. 450.)

Syst. des Anim. sans Vert., p. 356, 1801; Lesson, Acalèphes, p. 545, 1843. *Physalis pelagica* Osbeck, Itin., p. 284, Plate 12, fig. 1, 1757 (t. Lesson). *Holothuria physalis* Linné, Syst. Nat., ed. xii, p. 1090, 1767. *Medusa caravella* Müller, Besch. der Berl. Naturf., vol. ii, p. 190, Plate 9, fig. 2 (t. Lesson); Gmelin, Syst. Nat., p. 3139, 1789. *Physalia caravella* Eschscholtz; Lesson, Hist. Nat. des Zooph. Acalèphes, Plate 11 (explanation). *Physalia arethusa* Tilesius, in Krusensterns Reise, vol. iii, p. 91, Plate 23, figs. 1–6, 1813 (t. Lesson); Agassiz, Contributions, vol. iv, pp. 335, 367, Plate 35, 1862; A. Agassiz, Catalogue, p. 214, figs. 351–354; this Report, p. 450. *Physalia aurigera* McCready, op. cit., p. 176, 1859.

Warmer parts of the Atlantic Ocean and Gulf of Mexico, coming northward in the Gulf Stream to the southern coast of New England and Long Island; and off Saint George's Bank and Nova Scotia. Not uncommon, in good condition, in Vineyard Sound and Buzzard's Bay. Watch Hill, Rhode Island (D. C. Eaton). East of Saint George's Bank (S. I. Smith). Fort Macon, North Carolina (coll. Dr. Yarrow).

VELELLA MUTICA Lamarck. (p. 455.)

Syst. des Anim. sans Vert., p. 355, 1801; Bosc, Hist. Nat. des Vers., vol. ii, p. 158; Lesson, Voy. de la Coquille, Zool., vol. ii, pp. 2, 52, Plate 6, figs. 1, 2; Acalèphes, p. 571, Plate 12, figs. 1, 2; A. Agassiz, Catalogue, p. 216, figs. 355–357. *Medusa velella* Linné, Syst. Nat., ed. xii, p. 1098.

Tropical parts of the Atlantic and Gulf of Mexico, coming northward in the Gulf Stream as far as Nantucket and off Saint George's Bank. Aspinwall (coll. F. H. Bradley); coasts of Florida (Agassiz); Long Island Sound (A. Agassiz).

## POLYPI or ANTHOZOA.

### ALCYONARIA.

ALCYONIUM CARNEUM Agassiz. Plate XXXVIII, fig. 283. (p. 497.)

Proc. American Association for Adv. of Science, 1850, p. 209; Verrill, Revision of Polyps of Eastern Coast U. S., in Memoirs Boston Soc. Nat. Hist., vol. i, p. 4, 1864; Verrill, Proc. Boston Soc. Nat. Hist., vol. x, p. 343, 1866. *Halcyonium carneum* A. and E. C. Agassiz, Sea-Side Studies, p. 19, figs. 21–23, 1865.

Rhode Island to Gulf of Saint Lawrence. Off Watch Hill, Rhode Island, 4 to 5 fathoms; off Cuttyhunk Island, 10 to 15 fathoms; off Gay Head, 8 to 10 fathoms; common in Massachusetts Bay, Casco Bay, Bay of Fundy, and coast of Nova Scotia, low-water to 80 fathoms. Gulf of Saint Lawrence (Whiteaves). Saint George's Bank (S. I. Smith).

*Leptogorgia tenuis* Verrill.

Memoirs Boston Soc. Nat. Hist., vol. i, p. 8, 1864. *Gorgonia tenuis* Verrill, Proc. Boston Soc. N. H., vol. x, p. 339, 1866. *Leptogorgia teres* (error typ.) Verrill, Amer. Jour. Science, vol. xlviii, p. 420, 1869.

"Bay of New York." Specimens in the museum of Yale College are supposed to have come from Long Island Sound, but the exact locality is not known.

## ACTINARIA.

METRIDIUM MARGINATUM Milne-Edwards. (p. 329.)

Hist. Nat. des Coralliaires, vol. i, p. 254, 1857; Verrill, Revision of Polyps., in Mem. Boston Soc. Nat. Hist., vol. i, p. 22, 1864; Proc. Boston Soc. Nat. Hist., vol. x, p. 337, 1866; American Naturalist, vol. ii, p. 252; Tenney, Natural History, p. 523, figs. 515–517, 1865; A. and Mrs. E. C. Agassiz, Sea-Side Studies, p. 7, figs. 2–7, 1865. *Actinia marginata* Lesueur, Journal Acad. Nat. Sciences, Philad., vol. i, p. 172, 1817; Gould, Invert. Mass., ed. i, p. 349, 1841; Leidy, Journ. Acad. N. S., Philad., ser. ii, vol. iii, p. 140, 1855 Agassiz, Contributions, vol. iii, p. 39, fig. 8, 1860. *Actinia dianthus* Dawson, Canadian Naturalist and Geologist, vol. iii, p. 402, figs. 1, 2, 1858.

New Jersey to Labrador. Common in Long Island Sound, Buzzard's Bay, and Vineyard Sound, but mostly smaller than farther north; abundant in Massachusetts Bay, Casco Bay, and Bay of Fundy, low-water to 90 fathoms.

SAGARTIA LEUCOLENA Verrill. Plate XXXVIII, fig. 284. (p. 329.)

Proc. Boston Soc. Nat. Hist., vol. x, p. 336, 1866; American Naturalist, vol. ii, p. 261.

North Carolina to Cape Cod. Common in Long Island Sound, Buzzard's Bay, and Vineyard Sound; Great Egg Harbor, New Jersey. Fort Macon, North Carolina (coll. Dr. Yarrow).

SAGARTIA MODESTA Verrill. (p. 330.)

Proc. Boston Soc. Nat. Hist., vol. x, p. 337, 1866.

Long Island Sound to Vineyard Sound. Savin Rock, near New Haven; Goose Island; Stony Creek; Naushon Island; low-water, buried in sand or gravel.

PARACTIS RAPIFORMIS Milne-Edwards. (p. 363.)

Hist. Nat. des Coralliaires, vol. i, p. 249, 1857; Verrill, American Journal of Science, vol. iii, p. 436, 1872; Dana, Corals and Coral Islands, p. 23, figure, (in ed. i, as *Sagartia modesta* V.). *Actinia rapiformis* Lesueur, Journ. Acad. Nat. Sciences, Philad., vol. i, p. 171, 1817; Verrill, Memoirs Boston Soc. Nat. Hist., vol. i, p. 35, 1864; Proc. Boston Soc. N. H., vol. x, p. 338.

North Carolina to Long Island Sound. Fort Macon (coll. Dr. Yarrow); New Jersey (Lesueur); near New Haven (Dana).

HALOCAMPA PRODUCTA Stimpson, MSS. Plate XXXVIII, fig. 285. (p. 330.)

Verrill, Revision, in Memoirs Boston Soc. Nat. Hist., vol. i, p. 30, Plate 1, figs, 10, 11, 1864. *Actinia producta* Stimpson, Proc. Boston Soc. Nat. Hist., vol. v, p. 110, 1856. *Corynactis albida* Agassiz, Proc. Bost. Soc. Nat. Hist., vol. vii, p. 24, 1859. *Halcampa albida* Verrill, Memoirs Boston Soc. Nat. Hist., vol. i, p. 29, 1864; A. and E. C. Agassiz, Sea-Side Studies, p. 16, fig. 15, 1865; Verrill, Proc. Bost. Soc. Nat. Hist., vol. x, p. 338, 1870 (*Halocampa*).

South Carolina to Cape Cod. Shores of Long Island Sound, at Stony Creek, etc.; Naushon Island; Martha's Vineyard; Nantucket; Cape Cod. Charleston, South Carolina (Stimpson).

EDWARDSIA FARINACEA Verrill. (p. 510.)

American Journal of Science, vol. xlii, p. 118, 1866.

Off. Gay Head, 19 fathoms; Casco Bay, 10 to 70 fathoms; Bay of Fundy, 8 to 90 fathoms.

EDWARDSIA LINEATA Verrill, sp. nov. (p. 497.)

Body cylindrical, elongated, covered over the base and sides with a dirty, brownish, slightly rough and wrinkled epidermis, except anteriorly, below the tentacles, where it is smooth, translucent, and usually with eight impressed, longitudinal, flake-white lines, showing through. Tentacles, 24 to 30, or more, in the larger specimens, slender, tapering, obtuse, white or pale flesh-color, each with a flake-white, longitudinal line along the inner side. Disk, with a white circle around the mouth, and often with 8, or more, radiating, white lines, extending to the base of the inner tentacles; border of the mouth sometimes pale-red; naked part of column pale flesh-color, often with a circle of white below the bases of the tentacles, and usually with eight oblong or fusiform flake-white spots between the longitudinal impressed lines.

Length, $25^{mm}$ to $35^{mm}$; diameter, $2.5^{mm}$ to $3^{mm}$. A very young specimen had 18 slender, equal, long tentacles, each with a median longitudinal line of white on the inside; disk with 6 radiating lines of white; naked part of the column with 6 impressed white lines, and with 6 oblong, flake-white spots between them. Breadth across the expanded tentacles, $3^{mm}$.

This species is remarkable for not having, in any of the specimens found, a naked basal area, nor any true disk for attachment, thus differing both from *Phellia* and the other species of *Edwardsia*. This may be due to its peculiar habit of nestling in the crevices and interstices between rocks, ascidians, worm-tubes, etc.

Off Watch Hill, Rhode Island, 4 to 5 fathoms, in cavities in and beneath *Astrangia*, etc.; Vineyard Sound and off Gay Head, 6 to 12 fathoms, among ascidians, annelid-tubes, etc., abundant.

*Arachnactis brachiolata* A. Agassiz. (p. 451.)

Proc. Boston Soc. Nat. Hist., vol. ix, p. 159, 1862; Boston Journal of Nat. Hist., vol. vii, p. 525, 1863; Verrill, Memoirs Boston Soc. N. H., p. 33; Proceedings, vol. x, p. 343.

Mr. A. Agassiz has recently ascertained that this is only a larval form of some species of *Edwardsia*. As it had already developed 16 tentacles, it must belong to one of the species having numerous tentacles when adult.

*Peachia parasitica* Verrill.

Proc. Boston Soc. Nat. Hist., vol. x, p. 338, 1866; *Bicidium parasiticum* Agassiz, Proc. Boston S. N. H., vol. vii, p. 24, 1859; Verrill, Revision of Polyps, in Memoirs Boston S. N. H., vol. i, p. 31, Plate 1, figs. 14, 15, 1864; A. and Mrs. E. C. Agassiz, Sea-Side Studies, p. 15, fig. 14, 1865.

Cape Cod to Bay of Fundy, on *Cyanea arctica*; Eastport, Maine, buried in gravel at low-water mark (two specimens, of very large size). I am

not aware that this species has been found south of Cape Cod, but it will probably be found hereafter, since the *Cyanea* is common.

EPIZOANTHUS AMERICANUS Verrill. Plate XXXVIII, figs. 286, 287. (p. 510.)

American Journal of Science, vol. ii, p. 361, 1871; Dana, Corals and Coral Islands, ed. i, p. 62, figs 1, 2, 1872. *Zoanthus parasiticus* Verrill, Revision of Polyps, in Mem. Boston Soc. N. H., vol. i, p. 34, 1864, (*not* of Duch. and Mich., 1860.) *Zoanthus Americanus* Verrill, op. cit., p. 45; Proc. Boston Soc. Nat. Hist., vol. x, p. 335, 1866. *Gemmaria Americana* Verrill, American Naturalist, vol. ii, p. 9, fig. 42.

Off New Jersey to Gulf of Saint Lawrence, in deep water. Off Block Island, 29 fathoms, on shells occupied by *Eupagurus*; off Grand Manan, in 40 to 50 fathoms, on shells covering *Eupagurus*, and in 109 fathoms, on rocks; off Saint George's Bank, 430 fathoms, on rocks, (S. I. Smith and O. Harger); Saint George's Bank, 60 fathoms, on shells occupied by *Eupagurus* (Smith and Harger); Gulf of Saint Lawrence, on rocks, (Whiteaves); Massachusetts Bay (J. E. Gray). Off New Jersey, N. lat. 40°, W. long. 73°, 32 fathoms, on shells inhabited by *Eupagurus pubescens*, (coll. Captain Gedney).

### MADREPORARIA.

ASTRANGIA DANÆ Agassiz. (p. 408.)

Proc. American Assoc., vol. ii, p. 68, 1849 (*not* of Edw. and Haime, 1850); Verrill, Revision Polyps, p. 40, 1864; A. and Mrs. E. C. Agassiz, Sea-Side Studies, p. 16, figs. 16–20, 1865; Verrill, Proc. Boston Soc. Nat. Hist., vol. x, p. 335, 1866; Dana, Corals and Coral Islands, p. 68, figures, 1872. *Astrangia astræiformis* Edw. and Haime, Ann. des. Sci. Nat., vol. xii, p. 181, 1850; Coralliaires, vol. ii, p. 614, 1857; Leidy, Journ. Acad. Nat. Sciences, Philad., vol. iii, p. 139, Plate x, figs. 9–16, 1855; Verrill, Revision of Polyps, p. 39, 1864.

North Florida and west Florida to Cape Cod. Common in Long Island Sound, near New Haven, at Savin Rock, off Thimble Islands, etc., 1 to 6 fathoms, rocks; Watch Hill, Rhode Island, 4 to 5 fathoms; Vineyard Sound and Buzzard's Bay, 2 to 15 fathoms; Fort Macon, North Carolina (coll. Dr. Yarrow). Charleston, South Carolina (Agassiz). West Florida (E. Jewett).

## PROTOZOA.

## PORIFERA or SPONGIÆ.

### CALCAREA.

GRANTIA CILIATA Fleming. (p. 330.)

British Anim., p, 325; Johnston, Brit. Sponges and Lithophytes, p. 176, Plate 20, figs. 4, 5, Plate 21, figs. 6, 7, 1842; Bowerbank, Monog. British Spongiadæ, vol. i, Plate 26, figs. 345, 346[a]; vol. ii, p. 19, 1866. *Spongia ciliata* Fabricius, Fauna Grœnlandica, p. 448, 1780. *Sycandra ciliata* Hæckel, Die Kalkschwämme,

vol. ii, p. 296, Plate 51, figs. 1a–1t, Plate 58, fig. 9, 1872. *Spongia coronata* Ellis and Solander, Zoöphytes, p. 190, Plate 58, figs. 8, 9. *Grantia coronata* Hassall, Ann. and Mag. Nat. Hist., vol. vi, p. 174.

Rhode Island to Greenland; northern coasts of Europe. Common in Casco Bay and Bay of Fundy, low-water to 60 fathoms; Vineyard Sound, not uncommon. Point Judith, Rhode Island (Leidy).

? LEUCOSOLENIA BOTRYOIDES Bowerbank. (p. 500.)

Brit. Spong., vol. ii, p. 28, 1866. *Spongia botryoides* Ellis and Solander, Zoöph., p. 190, Plate 58, figs. 1–4, 1786. *Grantia botryoides* Fleming, Brit. Anim., p. 525; Johnston, op. cit., p. 178, Plate 21, figs. 1–5. *Ascaltis botryoides* Hæckel, op. cit., vol. ii, p. 65, Plate 9, fig. 10, Plate 10, figs. 7a–7e.

Martha's Vineyard to Gulf of Saint Lawrence; northern coasts of Europe to England and France.

I refer some of our larger specimens to this species with considerable doubt. They appear to be distinct from the following species, with which they have formerly been confounded.

ASCORTIS FRAGILIS Hæckel.

Op. cit., vol. ii, p. 74, Plate 11, figs. 5–9, Plate 12, figs. 5a–5i, 1872. *Leucosolenia thamnoides* Hæckel, Prodrom., p. 243, spec. 70. *Leucosolenia botryoides* H. J. Clark, Mem. Boston Soc. Nat. Hist., vol. i, part 3, p. 323, (sep. copies, p. 19), Plate 9, figs. 40–44, Plate 10, fig. 64, 1866 (*not* of Bowerbank); this Report, pp. 334, 391. *Grantia botryoides* Leidy, op. cit., p. 135, 1855.

Long Island Sound to Gulf of Saint Lawrence. Western coast of Norway, at Bergen, etc. (Hæckel). Common in Long Island Sound, near New Haven, at Thimble Islands, etc.; Watch Hill, Rhode Island; Vineyard Sound; Casco Bay, etc. Massachusetts Bay (H. J. Clark).

Hæckel names the form figured by Clark var. *bifida*.

SILICEA.

MICROCIONA PROLIFERA Verrill.

*Spongia prolifera* Ellis and Solander, Zoöphytes, p. 189, Plate 58, fig. 5, 1786; Lamouroux, Expos. Méthodique, p. 31, Plate 58, fig. 5. Red sponge, this Report, pp. 330, 409, 476.

This species, when young, forms broad, thin, bright red incrustations over the surfaces of stones and shells. In this stage it agrees well with the British species of *Microciona* described by Bowerbank, all of which are said to be incrusting forms. Our species, at a later period, rises up into irregular lobes and tubercular prominences, which eventually become elongated and subdivided into slender branches, until they often form a profusely and intricately branched sponge, frequently six inches high and as much in diameter. The branches are repeatedly dichotomous, more or less flattened, and often digitate or palmate at the ends They also frequently anastomose irregularly. The branches, when dry, are brittle and hispid. They consist of stout, horny fibers, which radiate outward and upward from the axis to the periphery, terminating in

more or less irregular, slender, blunt papillæ, each of which bears a tuft of numerous slender, acute, more or less bent spicules, arising from its lateral and terminal surfaces. At the tips of the branches the papillæ are more slender and divergent, and the texture is more open and loose. During life these papillæ are connected together by a thin dermal membrane, through which the spicules project but little. The oscules are small and scattered over the surface. Color, when living, dark red to orange-red; when dried, generally dark grayish brown or umber-colored, fading to dull yellowish brown and gray. Diameter of branches mostly $2^{mm}$ to $5^{mm}$.

South Carolina to Cape Cod. Very abundant in Long Island Sound and Vineyard Sound, low-water to 10 fathoms, on oysters and other shells, stones, etc.; Great Egg Harbor, New Jersey; Fort Macon, North Carolina (coll. Dr. Yarrow).

ISODICTYA, species undetermined.

Watch Hill, Rhode Island; Vineyard Sound and Nantucket, washed ashore after storms in winter; Casco Bay; Bay of Fundy.

The specimens from Watch Hill have few broad, thick, palmate branches, with large oscules and an open texture, with multispiculose fibers. They resemble *Isodictya palmata* Bowerbank.

CHALINA OCULATA Bowerbank. (p. 497.)

British Spongiadæ, vol. i, p. 208, Plate 13, fig. 262; vol. ii, p. 361. *Spongia oculata* Linné, Syst. Nat., ed. x, sp. 2; ed. xii, p. 1299; Pallas, Elench. Zooph., p. 390, 1766. *Halichondria oculata* Johnston, op. cit., p. 94, Plate 3.

Rhode Island to Labrador; northern coast of Europe to Great Britain. Off Watch Hill, Rhode Island, 4 to 5 fathoms; off Gay Head, 4 to 15 fathoms; very common in Massachusetts Bay, Casco Bay, and Bay of Fundy; low-water to 80 fathoms.

CHALINA ARBUSCULA Verrill, sp. nov. (p. 409.)

Sponge profusely branched, from close to the thick base; branches repeatedly dichotomous, slender, round or somewhat compressed, seldom broad or palmate. Oscules small, round, irregularly scattered. Texture of the surface finely reticulated when dry, with very delicate fibers, which usually have but a single row of very slender fusiform spicules, covered by a thin layer of horny matter; the reticulations do not usually exceed the length of a single spicule. Primary longitudinal fibers of the larger branches strong, horny, with several lines of spicules; secondary fibers at right angles to the primary ones, much smaller, with fewer spicules. The spicules are slender, fusiform ("acerate"), much smaller and more slender than in the preceding species. Color, when living, dull gray; when dried, brownish, yellowish, or white. The largest specimens are about one foot high; more commonly 6 to 8 inches ($150^{mm}$ to $200^{mm}$); breadth often nearly as much; diameter of branches,

$4^{mm}$ to $10^{mm}$, mostly about $5^{mm}$ to $6^{mm}$; diameter of the oscules, in dry specimens, about $1^{mm}$.

North Carolina to Cape Cod. Very common in Long Island Sound and Vineyard Sound, 1 to 8 fathoms; Watch Hill, Rhode Island; Great Egg Harbor, New Jersey.

This species has a much finer and more delicate texture than *C. oculata*, due to the smaller fibers and spicules, as well as to the smaller meshes of the skeleton. The branches are also smaller and much more numerous than they usually are in that species.

HALICHONDRIA PANICEA Johnston.

Brit. Sponges, p. 114, Plate 10, Plate 11, fig. 5, 1842; Bowerbank, British Spongiadæ, vol. i, p. 195, Plate 19, figs. 300, 303; vol. ii, p. 229, 1866. *Spongia panicea* Pallas, Elench. Zooph., p. 388, 1766. *Tedania* (?), this Report, p. 498.

Rhode Island to the Arctic Ocean; northern coasts of Europe to Great Britain. Abundant at Watch Hill, Rhode Island, on algæ, in 4 to 8 fathoms; off Gay Head; Casco Bay; Bay of Fundy.

HALICHONDRIA, species undetermined, *a*.

Watch Hill, Rhode Island, associated with the preceding.

Grows in large tuberous masses, on algæ, like the last, but has a smoother surface and finer and firmer texture. (See p. 498.)

HALICHONDRIA ?, species undetermined, *b*. (p. 334.)

Long Island Sound near New Haven; Vineyard Sound.

Forms broad, uneven incrustations on the under side of stones, at low-water mark. Color when living, bright yellow. Oscules rather large, conspicuous.

HALICHONDRIA ?, species undetermined, *c*.

Vineyard Sound, on the under side of overhanging banks, on the salt marshes near Waquoit; on the piles of wharves at Wood's Hole.

Forms large, irregular, thick masses, often containing much foreign matter; surface uneven, rising into irregular prominences. Soft and brittle.

This is, perhaps, a species of *Reniera* Schmidt (*Hymeniacidon* Bowerbank).*

RENIERA ?, species undetermined, *a*. (p. 334.)

Vineyard Sound, 1 to 10 fathoms. Forms large, irregular, soft masses, 3 to 5 inches in diameter, of a light yellow color when living.

RENIERA ?, species undetermined, *b*.

Vineyard Sound, 3 to 10 fathoms. Forms large, irregular, thick masses, with numerous acute, irregular, often ragged, conical prominences, rising from its upper surface.

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* It was not studied carefully when recent; and I have no specimens of this and several of the other species at hand, for most of the sponges were sent elsewhere for comparison with named types, and have not yet been returned.

HALISARCA ?, Species undetermined, *a*.

Watch Hill, Rhode Island, 4 to 5 fathoms. Forms small, soft, somewhat gelatinous masses, on red algæ. (See p. 498.)

SUBERITES COMPACTA Verrill, sp. nov.

This species is remarkable for the compactness of its tissues and the smallness of the canals and pores permeating its substance, as well as for the large size of the plates and crest-like lobes in which it grows. A transverse section of the dried sponge shows very numerous irregular canals, most of them not larger than pin-holes (or less than $0.15^{mm}$ in diameter). The tissue is very compact throughout, but is more dense close to the surface, which is nearly smooth, the oscules being small and inconspicuous. The spicules are very abundant, crowded, very slender, mostly pin-shaped (spinulate), with the point very acute and the "head" but little enlarged, and often largest a slight distance from the end, so as to give the head a slightly ovate form. Color, when living, bright yellow.

Off Martha's Vineyard, 10 fathoms, sand; Nantucket; Eastern Shore of Virginia.

This is the species described as a "firm siliceous sponge," on page 503. In general appearance it somewhat resembles *Suberites suberea* Gray (*Hymeniacidon suberea* Bowerbank).

CLIONA SULPHUREA Verrill. (p. 421.)

*Spongia sulphurea* Desor, Proc. Boston Soc. Nat. Hist., vol. iii, p. 68, 1848.

South Carolina to Cape Cod; local farther north. Great Egg Harbor, New Jersey; very abundant in Long Island Sound and Vineyard Sound, on oysters and various other shells, 1 to 15 fathoms. Portland Harbor, Maine, in sheltered localities (C. B. Fuller).

? POLYMASTIA ROBUSTA Bowerbank. (p. 497.)

British Spongiadæ, vol. i, p. 178, Plate 29, fig. 358; vol. ii, p. 62, 1866.

Off Gay Head, 18 to 20 fathoms; common in Casco Bay and Bay of Fundy, 8 to 70 fathoms. Coast of Great Britain (Bowerbank).

The American specimens do not agree in all respects with the description, and may prove to be distinct when a direct comparison can be made. In our specimens the surface is finely hispid; the dermal tissue is firm, and filled with small, slender, often curved, needle-shaped ("acuate"), and pin-shaped ("spinulate") spicules, which project from the surface. The latter form is the predominant one, but the "head" is very small, and they pass gradually into the former kind, in which the "head" is obsolete, or not larger than the shaft. The spicules of the large, radiating fascicles in the body of the sponge are long and large, needle-shaped, with the central portion thickest ("fusiformi-acuate"). The large spicules in the longitudinal fascicles of the cloacal fistulæ are of the same form; the secondary fascicles of the body and the transverse secondary spicules of the fistulæ also have the same form, though much

smaller. The "cloacal fistulæ" are numerous, and, when living, are round and tapering, but when dry become flat and bent, or curved to one side. They are mostly $20^{mm}$ to $40^{mm}$ long, and $4^{mm}$ to $6^{mm}$ in diameter near the base.

Several other species of sponges were collected, which have not been examined.

I have been unable to identify any of our specimens with the *Spongia urceolata* of Desor (Proceedings Boston Soc. Nat. History, vol. iii, p. 67). Possibly it was based on a peculiarly-shaped young specimen of *Microciona prolifera*.

FORAMINIFERA.

Numerous species were collected, especially in the deeper parts of Vineyard Sound and off Martha's Vineyard, but they have not been identified.

## ADDENDA.

### *Crustacea.*

CANCER BOREALIS Stimpson. (p. 546.)

A small specimen of this species was dredged off Watch Hill, Rhode Island, in 4 to 5 fathoms, among rocks and algæ, in April. It was found in abundance, and of large size, at Peak's Island and Pumkin Knob, in Casco Bay, Maine, in August, clinging to the sea-weeds, and in tide-pools, above low-water mark.

OCYPODA ARENARIA Say. (Megalops stage.) (p. 337.)

The megalops of this species was found in large numbers, swimming at the surface of Vineyard Sound in, September, by Mr. Vinal N. Edwards.

HOMARUS AMERICANUS Edw. (Lobster.) (p. 492.)

Subsequent observations have shown that the breeding-season of the lobster extends over a large part of the year. In Casco Bay female lobsters were found carrying eggs in August and September. Mr. Vinal N. Edwards has forwarded two living females, of medium size, taken in Vineyard Sound, December 12th, both carying an abundance of freshly laid eggs. He states that he finds about "one in twenty" carrying eggs at that season.

THEMISTO, species undetermined.

A species of this genus was taken in large quantities in Vineyard Sound, in September, by Mr. Vinal N. Edwards. It occurred swimming at the surface in vast numbers, and was thrown up by the waves in windrows, extending several miles along the shores of Martha's Vineyard.

CONILERA CONCHARUM Harger. (p. 572.)

This species, previously quite rare, was taken this year in large numbers, in Vineyard Sound, both in spring and autumn, by Mr. Vinal N. Edwards.

*Annelida.*

PROCERÆA ORNATA Verrill, sp. nov.

*Autolytus* (?), banded species, this Report, p. 398.

Head short and broad, bluntly rounded or subtruncate above, slightly bilobed or emarginate below. Eyes moderately large; the anterior pair wider apart. Median antenna white, very long, slender, variously curled, reaching to about the twelfth body-segment; posterior tentacles also very long and slender, reaching to about the ninth segment, white at the tips; inner antennæ about one-fourth as long as the median one; the other two pairs of antennæ and tentacles about one-fourth as long as the median one; tentacular cirri of the second (post-buccal) segment short, about equal to the diameter of the body. Dorsal cirri short, about one-third as long as the breadth of the body; setigerous lobe short and broadly rounded; setæ short. Gizzard small, short, elliptical, situated at about the eighth segment. Caudal cirri two, slender, tapering, their length about equal to the diameter of the body. Color of the body white or pale yellowish, annulated with bands of bright red at unequal distances. Length, about $15^{mm}$; breadth, $0.5^{mm}$.

Long Island Sound, off New Haven; and at Thimble Islands, 1 to 5 fathoms, among hydroids and bryozoa.

ETEONE ROBUSTA Verrill. (p. 588.)

This species, previously known only from a single specimen, was taken at Wood's Hole, in abundance, and of large size, in November, by Mr. Vinal N. Edwards.

*Turbellaria.*

RHYNCHOSCOLEX PAPILLOSUS Diesing.

Revision der Turbellarien, op. cit., vol. xlv., p. 245, 1862. *Rhynchoprobolus papillosus* Schmarda, Neue wirbell. Thiere, i, p. 1, 11, Plate 2, fig. 25 (t. Diesing). Hoboken, New Jersey, in brackish water, (Schmarda).

POLYCELIS MUTABILIS Verrill, sp. nov.

Body much depressed, thin, changeable in form, often elliptical or oval, frequently broad and emarginate in front, and tapered posteriorly. Marginal ocelli minute, black, forming several rows along the front border, but only one row laterally. Dorsal ocelli larger, forming three pairs of rather ill-defined clusters; the outer clusters are largest, convergent backward; a pair of smaller clusters are situated a little in advance, and nearer together; the third pair is a little farther forward

and closer together, often more or less confused with those next behind them. Color, yellowish brown, darker centrally; or pale yellowish, thickly specked with yellowish brown. Length, about $7^{mm}$ to $9^{mm}$, breadth, $5^{mm}$ to $6^{mm}$.

Thimble Islands, 1 to 2 fathoms, among algæ.

### *Bryozoa.*

GEMELLARIA LORICATA Busk.

Catal. Mar. Polyzoa, Brit. Mus., part i, p. 34; Smitt, op, cit., p. 286, Plate 17, fig. 54. *Sertularia loricata* Linné, Syst. Nat., ed. x, p. 285 (t. Smitt). *Gemellaria loriculata* Johnston, Brit. Zoöph., ed. ii, pp. 293, 477, Plate 47, figs. 12, 13.

Nantucket to the Arctic Ocean; northern coasts of Europe to Great Britain. Very common in Casco Bay and Bay of Fundy, low-water to 110 fathoms.

The specimens from Nantucket differ somewhat from the ordinary form. They consist of rather dense tufts of stout stems, two or three inches high, and rather sparingly branched. The cells are larger than usual, elongated obovate, five or six times as long as broad; those of the same pair are not exactly opposite. Aperture deeply crescent-shaped, facing a little outward. Many of the cells, toward the base of the stems, give rise to one or more curious processes from near the base of the cell; these are, at first, slender tubes, rising from a thin roundish spot on the cell, but soon they divide at the tip into two, three, or four forks, which are at first regularly recurved; later these become much elongated, and are converted into slender rootlets or stolons.

## ERRATA.

Page 307, line 23, for cavaluted, read convoluted.
Page 310, line 8, page 401, line 12, and elsewhere, for *Ostræa*, read *Ostrea*.
Page 383, line 23, for *Æolidia*, read *Montagua*.
Page 383, line 26, for *Cavolina*, read *Coryphella*.
Page 392, line 23, for micropthalma, read microphthalma.
Page 393, last line, for *Sargatia*, read *Sagartia*.
Page 399, line 21, for *Leptochiton*, read *Chætopleura*.
Page 399, line 32, for *Leptochiton*, read *Trachydermon*.
Page 405, line 27, for *Eucrate*, read *Eucratea*.
Page 407, line 38, for reproducsive, read reproductive.
Page 415 line 25, for *Unicola*, read *Unciola*.
Page 427, line 15, and page 429, line 28, for *Melitta testudinaria*, read *Mellita pentapor*
Page 433, line 34, for *Amphipholis*, read *Amphiura*.
Page 444, line 12, for *tidentata*, read *tridentata*.
Page 457, line 39, for *Pandaru*, read *Pandarus*.
Page 459, line 36, for *Echthrogalus*, read *Echthrogaleus*.
Page 487, line 10, for A. *planaria*, read A *Planaria*.
Page 488, line 4, for *cantenula*, read *catenula*.
Page 496, line 28, for *A. ternata*, read *C. ternata*.
Page 498, line 5, for *Tedania*, read *Halichondria panicea*.
Page 498, line 30, for Augustus, read angustus.
Page 504, line 41, for page 433, read 432.
Page 508, line 5, for *Acutum*, read *A. acutum*.
Page 509, line 18, for *lævigata*, read *discors*.
Page 509, line 32, for *thraci-formis*, read *thraciformis*.
Page 509, line 33, for Simpson, read Stimpson.
Page 547, line 15, for *Panopius*, read *Panopeus*.
Page 561, line 43, for *pingus*, read *pinguis*.
Page 619, line 16, for Cosco, read Casco.
Page 619, last line, for Cisco, read Casco.
Page 640, first line, for fig. 127, read fig. 124.
Page 666, line 15, after Montagua pilata, insert Plate XXV, fig. 124.
Page 680, line 18, for 185, B., read 184, B.
Page 695, line 34, for fig. 238, read 243.
Page 716, line 35, for fig. 368, read 268.