

of the first thoracic segment; the first three segments are scarcely longer than broad, the fourth about as long as the second segment of the antenna, and the fifth about twice as long as the fourth; the third, fourth, and fifth segments are flattened above, with the margins slightly raised, and with a strong median carina.

Length from front of head to tip of pleon, 37<sup>mm</sup>; length of pleon, 13<sup>mm</sup>; breadth of first thoracic segment, 24.5<sup>mm</sup>; greatest breadth at third thoracic segment, 26.5<sup>mm</sup>; breadth at last thoracic segment, 21.5<sup>mm</sup>.

## ANNELIDS AND ECHINODERMS.

BY A. E. VERRILL.

### ANNELIDA.

Very few species of annelids were collected, and only two species are represented by sufficiently well preserved specimens to warrant full descriptions. One of these is a large terebelloid worm belonging to a genus hitherto seldom met with and but imperfectly known.

#### NEREIS ANTARCTICA, Verrill, s. n.

One specimen of a *Nereis*, about two inches long, lacks some of the caudal segments and part of the tentacular cirri, but is otherwise pretty well preserved in glycerine.

The body is moderately stout and tapers from near the head backward. The cephalic lobe is rather narrow, and suddenly more narrowed in front of the eyes, which are large and prominent, those on the same side almost in contact and nearly in the same line; the frontal antennæ are rather long and slender; the upper tentacular cirri are wanting, but the lower ones are rather long and slender, those of the posterior pair reaching back to the sixth body-segment. The buccal segment is narrower but considerably longer than the following ones, and has a median obtuse angle projecting forward over the posterior border of the cephalic lobe. The lateral appendages of the anterior segments are rather stout, with a longer, slender dorsal cirrus. The upper ramus consists of two short, stout, obtusely rounded lobes, which are nearly equal in length and form, the upper one bearing the dorsal cirrus at about the middle of its upper side, on a slight swelling, while a fascicle of slender compound setæ comes out from between them; these setæ project about twice the length of the setigerous lobes, and all have a moderately

long, slender, acute terminal piece. The lower ramus consists of a smaller, subacute, lanceolate upper setigerous lobe, which is a little longer than the upper ramus, and of a shorter, broad, stout, rounded lower lobe, bearing the small, slender ventral cirrus at its base. The setæ of the lower ramus form two groups, the uppermost consisting partly of slender, acute setæ, like those of the upper ramus, but longer, and partly of somewhat shorter ones with a short, curved, bidentate terminal piece. Farther back the form of the appendages changes gradually, chiefly by all the lobes becoming more elongated and acute, and by the gradual development of a special acute setigerous lobe on the upper ramus. Toward the posterior end of the body the upper ramus becomes more elongated than the lower, with a narrow, elongated upper ligula with the elongated and slender dorsal cirrus arising from a decided hump on the middle of the upper edge, and extending more than half its length beyond the ligula; and the lower lobe is also elongated, lanceolate, obtuse, with a shorter, acute, setigerous lobe arising from its upper side. The lower ramus consists of two lanceolate lobes, the upper or setigerous one being about as long as the setigerous lobe of the upper ramus, while the lower one is a little shorter. The setæ are arranged as on the anterior segments, but those of the upper ramus are the longest; the ventral cirrus is very small and hardly one-fourth the length of the dorsal one.

Kerguelen Island, on the beach; Dr. J. H. Kidder.

It differs considerably from any of those known in the North Atlantic, and would hardly go into any of the generic divisions proposed by Dr. Malmgren.

In the same bottle with this species, and probably made by it, there was a curious nest, made of tough mucus threads, which inclosed numerous small eggs in a long crooked band of many rows. The nest is on the side of a flat alga, which is drawn together by the external looser threads, as leaves often are by *Tortrix* larvæ.

#### NEOTTIS, Malmgren (emended).

Nordiska Hafs-Annulater, in Öfversigt af Kong. Vet. Akad. Forhandlingar, 1865, 388.

This genus was established for the *Terebella triserialis*, Grube,\* from Sicily, by Malmgren, but he states that he had only seen a mutilated specimen, and, owing, doubtless, to this fact, he erroneously gave as one of the characters of the genus the existence of fascicles of setæ on all

\*Archiv. fur Naturgeschichte, xxi, 118, 1851, tab. iv, fig. 16.

the segments of the body after the third. But Grube states that in his specimens they exist on twenty-nine to thirty-one segments, "fasciculi setarum capillarum utrinque 29 ad 31."

This genus, as thus emended, is characterized by having transverse groups of simple cirriform branchiæ on each side of the second, third, and fourth segments; fascicles of setæ commencing on the second branchiferous segment and extending to about the thirty-second to forty-eighth; uncini, commencing on the third setigerous segment; the tori, changing to prominent papillæ on the last setigerous segments, and as such extending to the posterior end. The cephalic lobe is short, semicircular, bearing on its front edge numerous tentacles, and on the narrow margin behind the tentacles numerous minute, dark, ocelliform specks.

The genus *Streblosoma*, Sars, is closely allied to *Neottis*, if not identical, but in the former ocelli were not noticed.

*Thelepus*, Leuck., and *Thelepodopsis*, Sars, are both closely related northern genera, the latter differing only in having gills on but two segments, while the former not only differs in the same way, but the fascicles of setæ extend to the posterior end of the body.

#### NEOTTIS SPECTABILIS, Verrill, s. n.

Body moderately stout, much elongated; the tubercles bearing fascicles of setæ commence on the second branchiferous segment and exist on from thirty-three to forty-four segments, the highest number occurring on a very large specimen; the size of the tubercles and the number and length of the setæ decreasing backward, so that the last tubercles are quite small, with a few inconspicuous setæ. The tori bearing the uncini, beginning on the third setigerous segment, are low and elongated elliptical, extending downward to the ventral shields; farther back they become narrower and more prominent, becoming quite narrow and elevated at about the twenty-fifth setigerous segment, beyond which the same changes increase at the last setigerous segment, and beyond, to the end of the body they become still more prominent and papilliform, exceeding the last of the setigerous tubercles; of the posterior segments there are 30 or more. On the second to the fifth setigerous segments there is a small rounded papilla between the setigerous tubercles and the tori, on each side. The ventral shields are not very distinctly defined in the alcoholic specimens, especially the posterior ones, so that the number cannot be accurately determined, but they are more numerous than usual; the anterior ones are short but transversely broad, with several deep trans-

verse wrinkles. The cephalic lobe is short and apparently broadly truncate in front, the margin being slightly revolute, and bearing on its anterior surface, in a semicircular group, very numerous long canaliculate tentacles, and on its posterior margin there are numerous minute, inconspicuous, blackish ocelli, forming a crowded row or band on each side; these ocelli are much smaller than in *Thelepus cincinnatus* of our coast. The upper lip is broad, somewhat cucullate, and is produced forward; in a front view it forms about two-thirds of a circle. The lower lip is crescent-shaped and less prominent. The branchiæ are slender, cirriform, much curled, and very numerous, forming transversely elongated groups on the second, third, and fourth segments; the most anterior group being considerably the largest, and extending down on the sides below the level of the setigerous tubercles of the succeeding segments; the third cluster of branchiæ is smaller than the second.

Length of alcoholic specimens, 150<sup>mm</sup> and upward; diameter, 6<sup>mm</sup> to 8<sup>mm</sup>; some of the empty tubes indicate still larger specimens.

The tubes are large and crooked, composed of a tough, thin, translucent, parchment-like lining, to which are firmly and closely cemented coarse grains and small pebbles of black volcanic rock, covering the whole surface, except on the upright terminal portion, which is usually coated with fragments of algæ, mixed with sand. The tubes were attached to stones and pebbles.

Kerguelen Island, twelve fathoms, with roots of *Macrocystis pyrifera*; Dr. J. H. Kidder.

An allied species has been described from the Falkland Islands by Dr. W. Baird as *Terebella bilineata*, but he states that it has 36 segments, with fascicles of setæ, which extend to the posterior end; but it is quite probable that his specimen had lost the posterior segments and really belongs to *Neottis*, with which it agrees in the character of the branchiæ.

#### SPIRORBIS, species undetermined.

The tubes of a species of *Spirorbis*, having three or four rather slender whorls, either coiled nearly in one plane, or with the part near the aperture turned upward, smooth, or with slight transverse wrinkles, occurred attached to the tubes of the preceding species, and on algæ.

Without the animal, it is impossible to identify with certainty the species of this genus.

## ECHINODERMATA.

## HOLOTHURIOIDEA.

## PENTACTELLA, g. n.

In general appearance like *Pentacta*, but destitute of calcareous plates around the œsophagus, and having a distinct muscular gizzard. Tentacles ten, arborescent, nearly all equal in the typical species. Suckers in five double rows; the intervening spaces smooth.

## PENTACTELLA LÆVIGATA, Verrill, s. n.

Body elongated, fusiform, rounded, with thin integuments. Suckers alternating in two rows in each zone, not crowded, larger and more numerous in the three lower zones than in the two upper. Cloacal orifice with small and inconspicuous papillæ. Tentacles ten, subequal, elongated, much divided arborescently from close to the base. Three very elongated vesicles, much dilated in the middle; slender at tips, where one of them is forked. Œsophagus not surrounded by any calcareous plates, with the first portion for about half an inch cylindrical, minutely papillose externally. This is followed by a distinct, rounded gizzard, smooth externally; beyond this the intestine is constricted, but soon expands into the wider part, which is long and convoluted, with two principal folds, so that it is about three times the length of the body. Two arborescently branched respiratory organs; one of them smaller than the other, with its numerous terminal branches among and around the ovaries; the branches of both are elongated and slender; the ultimate ramuli are also elongated and often dilated at the tips. Ovaries in a large cluster; the numerous tubes are simple and more or less moniliform, about half an inch long. The retractor muscles are well developed and extend from the base of the tentacles nearly to the posterior end. The cloacal cavity is large. The calcareous plates of the skin are few in number, minute, and widely scattered, irregularly rounded, with lobed or crenated edges, and perforated by four to eight or more rounded pores, of which two or four primary ones are largest. The smaller plates are often four-lobed, the lobes rounded and each of them perforated by a rounded pore, with narrow interstices, two of the pores often larger; this is perhaps the primary form, from which, by additions to one or several parts of the border, the somewhat larger and

more irregular plates may have been derived. Color in alcohol, dull yellowish brown; tentacles yellowish white.

Length of body, 80<sup>mm</sup>; diameter, 24<sup>mm</sup>; length of tentacles, 8<sup>mm</sup>.

Kerguelen Island, twelve fathoms, January, 1875 (No. 214); Dr. J. H. Kidder.

## ECHINOIDEA.

### HEMIASTER CORDATUS, Verrill, s. n.

Two quite distinct forms, which, for reasons given below, I believe to be the males and females of one species, occurred together in about equal numbers. The specimens believed to be females have very deep lateral ambulacral grooves and large genital openings; in nearly every specimen several young ones,\* varying in size, were found in the ambulacral grooves, held in place by the convergent spines of the borders, which meet across the grooves and interlock. Two of these specimens, on dissection, proved to be females. Those supposed to be males have much shallower ambulacral grooves and differ somewhat in form.

The form of the body in the female is broadly cordate, depressed, with a decided emargination in front; vertically truncate and slightly emarginate posteriorly; broadest a little in advance of the middle. The lower surface is convex and swollen, especially posteriorly; the sides well rounded; the interambulacral areas are swollen on the upper side; the abactinal area and the anterior ambulacrum are considerably sunken; the latter has two well-defined double rows of pores extending to the mouth. The lateral ambulacra are elliptical, rather broad, obtuse at the outer end, and deeply sunken, the anterior ones broader, but scarcely longer than the posterior ones, but those of the opposite sides are not quite equal in size or form. Ovarial openings large, usually but three, that opposite the right anterior interambulacrum being abortive. Lower border of actinostome rather narrow, prominent, and obtuse. Anal area ovate, the lower border rounded, the upper narrowed, but scarcely acute. Peripetalous fasciole well defined, bending upward but little on the posterior and anterior interambulacral areas, and passing nearly straight across the anterior ambulacrum, but bending upward nearly parallel with the antero-lateral ambulacra, so as to form a decided angle in the front part of the lateral interambulacral areas. Subanal fasciole indistinct or wholly wanting. The tubercles of the upper surface are small, crowded, and pretty uniform in size, ex.

---

\* These young have been sent to Mr. A. Agassiz for examination and description.

cept along the borders of the ambulacral grooves, and especially along the anterior one, where they are somewhat larger; beneath they are considerably larger, but not crowded, the largest ones in front, the size decreasing toward the sides, and especially posteriorly. The spines are rather slender, mostly slightly curved, obtuse, and usually flattened at the tips; the larger ones, bordering the ambulacra, are mostly wider, flattened, and canaliculate at the tip; those within the grooves are very slender, and often capitate; the longer spines of the lower side are 6<sup>mm</sup> to 8<sup>mm</sup> in length, and much flatter toward the end. Color of spines, in alcohol, dark greenish brown or olive-green; test, yellowish brown. The ovaries are composed of rather large lobules, looking like immature clusters of grapes, and containing large ova. A specimen measures from centre to anterior emargination, 18.5<sup>mm</sup>; to border of anterior interambulacra, 21<sup>mm</sup>; to posterior end, 20<sup>mm</sup>; to lateral border, 18<sup>mm</sup>; to end of antero-lateral ambulacral grooves, 15<sup>mm</sup>; to end of posterior ones, 15<sup>mm</sup>; breadth of antero-lateral grooves, 5 to 5.5<sup>mm</sup>; of posterior ones, 4.5<sup>mm</sup>; depth of each, 5<sup>mm</sup>; height of test, 21<sup>mm</sup>; of anal area, 6.5<sup>mm</sup>; breadth of latter, 4.5<sup>mm</sup>.

The specimens regarded as males are also cordate, and decidedly emarginate in front, but the form is more elliptical, owing to the ambitus being narrowed opposite and in front of the antero-lateral ambulacra, so that the width decreases nearly equally from the middle, though somewhat more so posteriorly. The interambulacra are less swollen, and consequently the abactinal area is less sunken. The anterior ambulacral furrow is decidedly sunken, though somewhat less so than in the female; but the four other ambulacra are narrower and very much shallower than in the female, being but little deeper than the anterior odd one, with the sides sloping gradually to the central line, while in the female the sides of the grooves are perpendicular, or even overhanging, with a broadly-rounded bottom. The three genital openings are only about half as large as in the female. In the character of the spines, tubercles, peripetalous fasciole, anal area, plastron, actinal area, and lower lip, the two forms agree very closely.

Kerguelen Island, 7 fathoms; Dr. J. H. Kidder.

On most of the specimens were several specimens of a small bivalve shell (*Lepton parasiticum*, Dall) most frequently attached to the under surface, near the mouth. This is evidently a case of "commensualism," for the mollusk is not a genuine parasite but a "messmate" of the echi-  
noderm.

The specimens of this species described as *females* have some resemblance to *H. cavernosus*, A. Ag.\* (*Tripylus cavernosus*, Phil.), from Patagonia, which is the nearest allied form hitherto described. The latter differs, however, in its pentagonal or elliptical form, less emarginate in front, the anterior ambulacrum being but slightly sunken; in having the anal area elliptical and pointed at both ends; the peripetalous fasciole less angulated laterally; the tubercles of the lower surface larger, etc.

The specimens regarded as *males* resemble to about the same extent *H. australis*, A. Ag.† (Phil. sp.), also from Patagonia. The latter differs in being scarcely emarginate anteriorly and not cordate, in having the fasciole less angulated laterally, etc. The two forms from Patagonia differ one from the other in the same way as do the two supposed sexes of *H. cordatus* described above, so that, if my view be correct, the two forms described by Philippi will prove to be only the two sexes of one species for which the name *australis* would be the most appropriate. In *H. cavernosus* the genital pores are large, and the lateral ambulacral grooves are deep. In *H. australis* the genital pores are small, and the ambulacral grooves shallow. It is also probable that the sexes may differ in a similar manner in other related genera.

## ASTERIOIDEA.

### ASTERIAS RUPICOLA, Verrill, s. n.

A small species, with five short, broad, rapidly tapered rays, but little longer than the radius of the disk. Disk rather thick and swollen, relatively large. Rays swollen, convex above, flat below, broad at base, where the breadth is often equal to half the total length, measuring from the mouth. The longer radius is from two to two and a half times as great as that of the disk. The ambulacral furrows are broad, with very numerous, closely crowded, slender sucker-feet. The grooves are bordered by a single and very regular row of slender, slightly clavate, obtuse adambulacral spines, which are generally spread outward from

\* Revision of the Echini, part iii, p. 587, pl. XXI<sup>c</sup>, figs. 1 and 2, 1873.

† Op. cit., p. 586, pl. XXI<sup>c</sup>, fig. 3. It is proper for me to state that after the above description was in type, Mr. A. Agassiz, to whom I had sent a specimen of each of the forms for examination, wrote to me that he thinks them identical respectively with the two species of Philippi here referred to, notwithstanding the differences noted. I have thought it best, however, to keep them separate until a larger series of specimens of the American species can be studied.



the grooves at a wide angle. Beyond these there is a longitudinal series of larger and stouter obtusely conical ventral spines, arranged in divergent clusters of two to four. Between these and the adambulacral series there are a few scattered spines and a series of large branchial papillæ, mostly placed singly; but above them the papillæ are numerous, mostly crowded in clusters of four to six, both on the sides and dorsal surface. Along the sides of the rays and separated from the ventral series by a wide space there is a row of plates a little more prominent and larger than the rest, bearing spines that are a little larger and more elongated; otherwise the spines are irregularly scattered, and nearly uniform in character, over the upper surfaces of the rays and disk. These spines are small, short, with obtusely rounded, and usually swollen, rough tips; they mostly arise singly from the dorsal plates, which are thin and flat, and rather closely united together. Madreporic plate nearer the centre than the edge of the disk, small, inconspicuous, rather sunken, composed of few convolutions. Major pedicellariæ few, mostly situated along the inner border of the ambulacral grooves, longovate, with obtuse tips; minor pedicellariæ few, with appressed spatulate or broadly rounded valves; they do not form wreaths around the spines, but are mostly placed singly on the naked spaces between them, especially on the sides and ventral surface of the rays. Color of alcoholic specimens, dark reddish brown above, yellowish beneath.

One of the largest specimens measures from mouth to edge of disk, 12<sup>mm</sup>; mouth to tip of rays, 30<sup>mm</sup>; breadth of rays at base, 12<sup>mm</sup>; length of adambulacral spines, 2.5<sup>mm</sup>. Smaller specimens have the rays relatively stouter and broader.

Kerguelen Island, on rocky beach, common; Dr. J. H. Kidder, 1874.

## OPHIUROIDEA.

### OPHIOGLYPHA HEXACTIS, E. A. Smith.\*

Annals and Magazine of Natural History. Vol. 17, iii, February, 1876.

Disk hexagonal, with very shallow notches at the bases of the six rays; upper surface slightly swollen, covered with numerous irregular,

---

\* This species had been described as new, under another name, but the description by Mr. Smith was received while correcting the proof. Although there seems to be no question as to the identity of the species, my specimens differ slightly from those described by Mr. Smith. Therefore I have allowed the description to remain, without change.

In the article referred to Mr. Smith also describes the following species from Kerguelen Island; *Asterias meridionalis*, Perrier; *A. Perrieri*, S.; *Pedicellaster scaber*, S.; *Othilia spinulifera*, S.; *Pteraster affinis*, S.; *Porania antarctica*, S.; *Astrogonium meridionale*, S.; *Leptychaster kerguelenensis*, S.; *Ophiacantha vivipara*,? Ljung.; *Ophioglypha brevispina*, S.

unequal, and rather small convex scales, among which the primary ones may be distinguished by their somewhat larger size; radial shields small, wide apart, more or less encroached upon on all sides by the surrounding scales, the exposed portion being rounded or oval; there is a group of a few small scales in the notch at the base of the arms, but neither the notches nor the arm-plates are bordered with papillæ. Lower surface of the disk covered with irregular, flattened scales. Genital slits, with a series of very numerous small, grain-like papillæ along the outer edge, and extending around the upper end and a short distance down the inner margin; on the middle of the outer margin they are crowded in three or four rows, but around the outer end they form a single row. Arms six, about twice as long as the diameter of the disk, convex above, rapidly tapering from the base to the tip. Upper arm-plates, near base of the arms, short, more or less concealed laterally by a group of three or four small, irregular, imbricated scales, on each side, which usually do not extend across the arm, and toward the middle of the arm these are reduced to a single small, triangular scale, and this also soon disappears; toward the middle of the arm the upper plates are nearly as long as broad, the outer and inner edges being nearly parallel and slightly curved; farther out they become longer than broad, and irregularly hexagonal, the proximal end narrowest. Arm-spines three, rather short, subfusiform, tapering to a blunt point, the upper one a little the largest, the length about equal to that of the upper arm-plate toward the base of the arms, but shorter toward the end. Under arm-plates transversely elliptical, with a distinct angle in the middle of the proximal edge, where the lateral plates do not quite unite, leaving slight pits toward the base of the arms. Tentacle-scales, beyond the middle of the arms, single, short, flattened; from about the eighth to sixteenth joints there are two tentacle-scales, the inner one becoming quite small before disappearing; on the second to seventh joints there are mostly three tentacle-scales, the inner one quite small; on the first, and sometimes on the second joint, there are four tentacle-scales, and also a similar group of three or four scales on the opposite border of the tentacle-pores. The outer oral tentacle-pore is very large, in the form of a broad, oblique fissure, occupying more than half the length of the jaw, bordered externally by a row of about five flattened, squarish scales, of which the distal one is largest, and an inner row of four or five smaller ones, of which the proximal ones are situated within

and below the border of the mouth-slits. The mouth-papillæ consist of two small, conical, pointed ones at the angle of the jaw, below the teeth, and of an irregular row of two to four smaller ones on each side, running outward and downward below the proximal papillæ of the upper oral tentacle. Teeth, seven to nine on each jaw, stout, obtuse, the series often double in the middle. Mouth-shields broad, spade-shaped, the broad proximal portion terminating in an obtuse point, the somewhat narrowed distal portion extending outward in the interradial spaces about half the total length and broadly rounded at the end. Side mouth-shields long and narrow, somewhat enlarged at the ends, narrower in the middle. The oral tentacles are very large in the alcoholic specimens, projecting inward beyond the ends of the mouth-slits, and nearly filling them up; they are divided into a series of lobes by transverse constrictions.

Color of alcoholic specimens very dark slate-brown above; yellowish brown beneath.

One of the larger specimens measures, across the disk, 18<sup>mm</sup>; length of arms from dorsal notch, about 35<sup>mm</sup> (tips broken off); diameter at base, without spines, 2.25<sup>mm</sup>; length of spines, 1<sup>mm</sup>.

Kerguelen Island, five fathoms; Dr. J. H. Kidder.

This species differs widely from all the previously described species of *Ophioglypha*, in having six arms, in the shallow notches at the bases of the arms, and in the characters of the mouth-papillæ and mouth-shields, but in size and general appearance it somewhat resembles some varieties of *O. sarsii* of the North Atlantic. In several respects it is related to *Ophiocten*, but though the surface of the disk is covered with a thin, rough skin, it is not distinctly granulated. Although it would not properly go into either of these two genera, as they are ordinarily defined, it seems most natural to refer it to *Ophioglypha*, which may easily be emended in respect to some of the characters that may now be regarded as merely specific.

#### ASTROPHYTON AUSTRALE, Verrill, s. n.

Disk unevenly granulous, with ten prominent radiating ribs, starting near the center and extending to the lateral bases of the arms; they are broadest and highest near the outer end, which is gently sloped and evenly rounded. The ribs bear four to ten or more unequal,

large, stout, blunt spines, with rugose tips, arranged irregularly in one or two rows, or scattered unevenly, while there is usually a group of from three to six smaller spines on the spaces between the ribs at the bases of the arms, and often one or two on the interbrachial spaces, near the edge of the disk. Similar small, blunt spines, or tubercles, extend along the dorsal surface of the arms, either in single or double rows. The grains covering the disk and upper and lateral surfaces of the arms are quite uneven in size and prominence, with more or less numerous small, flattened plates or scales scattered among them, and in many parts these scales are more regular, with the grains arranged around their borders, this condition being most apparent on the arms; the prominent tubercles and spines are developed from the center of similar scales or plates. The under side of the disk is more regularly granulous. The arms are rather slender and well rounded dorsally, dividing first at about their own diameter from the ends of the radial ribs; the distance from the first to the second division of the arms is about equal to the larger radius of the disk; and from the second to the third usually somewhat greater. The terminal divisions are numerous and very slender. The arm-spines, toward the base of the arms, are small, stout, fusiform, terminated by two acute spinules, and form transverse rows, usually from five to seven, but farther out they became shorter and stouter in rows of two to four; still farther out the two or three terminal spinules become curved, and near the ends of the arms they have the form of minute hooks.

Color of one dried specimen uniform brownish yellow; of the other light grayish brown, with many narrow transverse bands of darker brown across the arms and radial ribs, changing into irregular streaks and spots of the same color on the interradial spaces.

The larger specimen measures, from center to end of radial ribs, 16<sup>mm</sup>; center to edge of interbrachial spaces, 13<sup>mm</sup>; center to first division of arms, 21<sup>mm</sup>; diameter of arms near base, 5<sup>mm</sup> to 6<sup>mm</sup>; beyond first division, 4<sup>mm</sup>; beyond second division, about 3<sup>mm</sup>; diameter of larger spines on radial ribs, 2<sup>mm</sup>; height, 2<sup>mm</sup>.

Pearson's Point, D'entriesteaux Channel, Tasmania, seven fathoms, clinging to *Primnoella australasiæ*; Capt. Ralph Chandler, (Poughkeepsie Soc. Nat. Science.)

## ANTHOZOA.

## ALCYONARIA.

## ANTHOPODIUM AUSTRALE, Verrill, s. n.

Polyp-cells cylindrical or somewhat clavate, with eight distinct sulcations at summit, in contraction; the surface covered with small, rough spicula; the height variable up to a quarter of an inch or more. They arise from a thin encrusting or stolon-like cœnenchyma, which is coriaceous and roughened with spicula, like the polyp-cells. The polyps are irregularly scattered along the cœnenchyma, which creeps over the upright axis of *Primnoella*. Color, light orange-red. Height of polyp-cells, mostly 2<sup>mm</sup> to 6<sup>mm</sup>; diameter, about 1.5<sup>mm</sup>.

The spicula are small, but exceedingly variable in form, and most of them are covered with rough or even lacerate warts, which interlock and thus strengthen the tissues; many of them are flattened. The largest spicula, and perhaps the most abundant, are oblong, two to four times as long as broad, obtuse at the ends, and thickly covered with rough spinulose warts; others are enlarged and irregularly flattened at one end, which is covered with rough laciniate spinules and warts; others, equally rough, are shorter and sometimes irregularly rounded, about as broad as long; irregular rough laciniate crosses are not uncommon; and there are numerous slender fusiform spicula, acute at the ends, about as long as the largest ones, but not half as thick, and less roughly warted; various other more or less intermediate forms also occur.

Bluff Harbor, New Zealand, on *Primnoella australasiæ*; Dr. E. Kershner.

This species is more nearly allied to *A. rubens*, V., from North Carolina, than to any other species known to me.

## PRIMNOELLA AUSTRALASIÆ, Gray.

*Primnoa Australasiæ*, Gray, Proc. Zoölog. Society of London, 1849, 146, pl. 2, figs. 8, 9; Annals and Magazine of Nat. History, 1850, 510.

*Primnoella Australasiæ*, Gray, Proc. Zoölog. Society of London, 1857, 286; 1859, 483; Catalogue of Lithophytes or stony corals in the collection of the British Museum, 50, 1870.

The specimens are simple, cylindrical stems, some of them more than three feet in length, with the base attached to shells. The polyp-cells are elongated, cylindrical, arranged in close whorls, and closely appressed

to the surface of the stem, with the summit incurved and mostly concealed. There are sixteen to twenty-four or more cells in a single whorl, and the successive whorls are so crowded as to leave only a narrow line between them, except toward the base, where the polyp-cells become shorter and imperfect, leaving spaces often equal to their length between the whorls; in these places the cœnenchyma is covered with small imbricated scales, similar to those of the cells. On the outer or exposed surface of the cells there are two alternating rows of imbricated scale-like spicula, ten to twelve in each row.

The axis is slender, round, tapering from the base to the tip, where it becomes very slender and translucent yellowish horn-color, while toward the base it is dull grayish brown, opaque, rigid, and stony; the middle portion is grayish or ash-color, and sometimes whitish; its surface is sulcated with numerous slightly impressed grooves. Color of the cells and cœnenchyma, yellowish white.

One of the larger specimens, imperfect at the tip, is about 36 inches (915<sup>mm</sup>) long; greatest diameter, 4<sup>mm</sup> to 5<sup>mm</sup>; diameter of axis near base, 2.5<sup>mm</sup>; length of cells, 2<sup>mm</sup>.

Bluff Harbor, New Zealand; Dr. E. Kershner; several specimens.

One specimen, from seven fathoms, near Pearson's Point, Tasmania, was sent to me from the Poughkeepsie Society of Natural Science, as received from Capt. Ralph Chandler, U. S. N.

According to the label of the last-named specimen, the native name is "Urialus."

[*Actiniæ* were numerous along the rocky shores of Kerguelen Island. Specimens have been preserved in alcohol, but not in a condition to admit of specific determination, the tentacles being, of course, retracted. All of those seen by me were of small size and sober colors, mostly of a dark brown; with the exception of one rather rare species, expanding to about the size of a silver half-dollar, the tentacles of which were of a brilliant vermilion. J. H. K.]

MINUTES

Faint, illegible text, likely a list of minutes or a table of contents, with some numbers visible on the right side.