

*segmentis angustis, linearibus, marginatis. Stipite frond. steril. alibus dentatis vel lobatis marginatis, segment. lanceolatis, serratis, dentibus serratis vel aculeatis, long. 3" ad 6", lat. 6" ad 9". Alæ supradictæ lat. 6". Venis ut in A. repandum.*

*In vallis perumbrosis, Trinity Bay Range.*

Rhizome creeping, scaly, dark coloured, hard. Fronds of two kinds like a *Lomaria*, one to three feet high, lanceolate in outline, deeply pinnatifid, stipes in the fertile frond more than half its length, and bordered by a narrow wing, segments linear, joined by the narrow wing of rachis, but not decurrent, one and a-half to three inches long. Stipe of sterile frond half the length of frond, bordered by a toothed or lobed wing to the base, segments lanceolate coarsely serrated, teeth almost aculeate, and some again serrate, three to six inches long, half to three-quarter inches broad, joined at the base by the wing of rhachis which is about half an inch broad, veins as in *A. repandum*.

I met with this beautiful species in a close gully of the Trinity Bay Ranges, in May 1877. Dr. Prentice tells me that Mr. W. Hill brought the same species from the North of Queensland several years before, and that he saw while on a visit to England a specimen of the same labeled in J. Smith's herbarium as *A. repandum*, from which it differs widely, both according to the diagnosis given in Hooker's "*species Filicum*," with which our form of *A. repandum* perfectly agrees.

I forward typical specimens of the following:—*Schizæa Fosteri*, Spreng.; *Trichomanes yandinense*, (n.s.); *Polypodium aspidioides*, (n.s.) also var. *tropica*, (n.s.); and *Polypodium pallidum*.

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#### ON SOME POLYZOA FROM THE QUEENSLAND COAST.

BY WILLIAM A. HASWELL, M.A., B.Sc.

[Plates 1—3.]

Among a large series of *Polyzoa* which I obtained while at Port Denison last spring, are many rare and some new species, and of



these the present communication is an account. Nearly all the specimens were obtained with the dredge in a single spot close to Holborn Island, an islet situated about twenty miles to the north-east of Port Denison, and about forty to the westward of the Great Barrier Reef. Here the bottom at a depth of about twenty fathoms seemed to be covered with little else than numerous kinds of *Polyzoa*, intermixed with species of *Plumulariidae* and *Sertulariidae* and a few shells. Many of the *Polyzoa* are massive branching forms, which, judging from the contents of the dredge and hempen tangles, seem to grow here in great profusion, and are no doubt in the act of forming by their gradual growth and decay more or less extensive deposits analogous to the *Polyzoa*-beds characteristic of the tertiary formations of South Australia and Europe. It would be interesting to determine the extent of this remarkable bed: bad weather prevented us doing anything in this direction; it is unusual to dredge *Polyzoa* in abundance at so slight a depth, but no doubt the sheltering influence of the Great Barrier is a sufficient explanation,\* and it is not unlikely that a similar growth may occur commonly within the Barrier at like depths, in situations where the set of the current does not favour the deposition of coral mud from the reefs.

I regret having been unable to obtain in Sydney some of the the works bearing on the present subject; I have particularly to regret the want of D'Orbigny's "*Paléontologie Française*," Hagenow's "*Bryozoen der Maestrichten Kreidebild*," and the "*Natural History Review*," the volume of which for 1858 contains descriptions of various Australian *Polyzoa* by Prof. Sir Wyville Thomson.

Unless otherwise particularised the habitat of the species is Holborn Island, 20 fathoms.

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\* A similar abundance of *Bryozoa* has been recently noticed at a depth of 40 fathoms in the Mediterranean; *vide* "On the *Bryozoa* of the Bay of Naples," by A. W. Waters, F.G.S., *Ann. and Mag., Nat. Hist.* (5) III, p. 280.



## Sub-order CYCLOSTOMATA.

1. *Crisia terræ-reginæ*, *sp. nov.*, Plate I., fig. 1.

Cells 16—22 in each internode, closely punctate, prominent, the free portion inclined forwards; mouth circular, entire; branches arising from the eighth to the thirteenth cell of the internode; joints black.

The free portion of the cell in this species is not so long as in *C. incurva*; the length of the internodes distinguishes it from the other described Australian species. From *C. elongata*, M.-Edw., as figured and described by Busk, is distinguished chiefly by the general habit, and the colour of the nodes; from *C. eburneo-denticulata*, Smitt, to which it is also allied, it is distinguished by the number of cells in each internode and the point of origin of the branches.

2. *Idmonea radians*, *Lamk.*3. *Idmonea milneana*, *D'Orbigny.*

A much more delicate variety than that met with in Port Jackson, and having the mouths of the cells relatively larger.

4. *Idmonea irregularis*, *Meneghini.*5. *Idmonea marionensis*, *Busk.*

Colour light purple.

6. *Pustulipora delicatula*, *Busk.*7. *Pustulipora proboscidea*, *E. Forbes.*8. *Pustulipora australis*, *Busk, var. ?*

Resembles *P. australis*, in habit and in the form of the cells; but the summits of the papillæ are not black.

9. *Pustulipora fragilis*, *sp. nov.*, Plate I., fig. 2.

Zoarium very slender, sub-cylindrical, cells elongate, exserted, curved outwards, separated by wide intervals; the general surface covered with numerous minute black-pointed spinules.



10. *Pustulipora clavaeformis*, *Busk*.11. *Retihornera foliacea* ? *MacGillivray*.

*Hab.* Port Denison ; a small fragment probably of this species.

## Sub-order CHEILOSTOMATA.

12. *Salicornaria tenuirostris*, *Busk*.

I can find no avicularia on my specimens, but the close correspondence in the form of the cells and the general habit leaves little doubt of the correctness of the determination.

13. *Nellia oculata*, *Busk*.14. *Onchopora ventricosa*, *sp. nov.*, Plate I., fig. 3.

Cells elongate, projecting a little at the oral end ; covered with irregular granulations ; mouth with a shallow, open sinus in the lower lip.

An ally of *O. mutica* of Busk, (*Q. Journ. Micro. Sc.*, vol. iii., p. 321, pl. iv., figs. 2, 3) but with the cells longer and less crowded.

15. *Onchopora immersa*, *sp. nov.*, Plate I., figs. 4, 5.

Zoarium dichotomously branched ; branches cylindrical ; cells immersed ; surface ornamented with large pores.

16. *Onchopora granulosa*, *sp. nov.*

Cells short, ventricose, cell-wall granulated, mouth not produced, with a shallow sinus in the lower lip.

Distinguished from *O. ventricosa*, by the greater shortness of the cells, and the closeness of the granulations on the surface.

17. *Cabarea rudis*, *Busk*.18. *Cabarea lata*, *Busk*.19. *Cellularia cuspidata*, *Busk*, var.

The spine on the upper and outer angle of the cell is extremely short and blunt.



20. *Scrupocellaria cervicornis*, *Busk*.

A small scrap, seemingly of this species, from Holborn Island.

21. *Scrupocellaria diadema*, *Busk*.22. *Scrupocellaria Macandrei*, *Busk*.23. *Scrupocellaria clypeata*, *sp. nov.*, Plate I., fig. 6.

Cells elongate, narrow, provided with a pedunculate operculum which is long and narrow, extending much further in front of the peduncle than behind, pointed in front, broader and truncate behind; aperture ovate, margin prominent, armed above with two small spines.

24. *Scrupocellaria obtecta*, *sp. nov.*

Cells provided with a large operculum covering the greater part of the front of the cell, and occupied by a system of branching canals of which the central one is much broader than the others. A sessile avicularium on the inner side of the summit of each cell; no marginal spines. Ovicells punctate.

Distinguished from *S. cervicornis* by the greater size of the operculum and its attachment by a broad base, and the absence of marginal spines.

25. *Halophila Johnstoniae*, *Gray*.26. *Carbasea episcopalis*, *Busk*.27. *Carbasea cribriformis*? *Busk*.

If the present species is identical with that described by Busk, he can only have had under examination a small fragment, as he makes no allusion to the very remarkable habit of the species, beyond noticing the cribriform structure of the fronds. The frond is wound spirally around an imaginary axis, the breadth decreasing in successive whorls; the size of the whole structure is sometimes very considerable.



28. *Membranipora Rosselii*, Audouin.

*Hab.* Holborn Island, 20 fathoms ; Port Denison, 5 fathoms.

29. *Membranipora Lacroixii*, Savigny, (*sp.*)

Worn specimens, apparently referable to this species, from both Holborn Island and Port Denison.

30. *Membranipora magnilabris*, Busk.31. *Membranipora cervicornis*, *sp. nov.*

Cells oval, margin but little raised, aperture protected by three to five closely approximated, branching, antler-like process, which arise from one side of the cell and almost entirely hide the mouth ; a strong vibraculum placed as in *M. pilosa* on the front wall of the cell below the mouth.

*Hab.* ?

32. *Biflustra armata*, *sp. nov.*, Plate I., fig. 7.

Zoarium rigid, free, folded on itself. Cells very large, their walls thick, defined by a narrow ridge which is most prominent above. Usually a small, pointed avicularium on the upper part of the cell-margin at the side of the mouth.

This species is distinguished from *B. delicatula*, Busk (*Crag. Polyzoa*, p. 72. pl. i., figs. 1, 2, and 4), chiefly by the presence of the avicularium and the absence of the serrate denticle.

33. *Biflustra crassa*, *sp. nov.*, Plate I., fig. 8.

The cells are somewhat irregular in size, oblong, surrounded by a narrow rim, free from any trace of avicularia ; the membrane punctate.

34. *Lepralia malusii*, Audouin, (*sp.*)

*Hab.* Port Denison, Holborn Island, etc., commonly distributed on the Australian coast from low-water mark to a considerable depth.



35. *Lepralia pertusa*, *Esper.* (*sp.*)36. *Lepralia* (*Schizoporella*) *sp.* ?

Cells sub-ventricose, separated by narrow, raised lines; mouth sub-quadrate, surrounded by an inconspicuous rim, a small sinus in the lower lip, and an avicularium on one side above the mouth; anterior surface covered uniformly with round pores. Colour brown.

A species so common on the Australian coast that, though I am unable to identify it with any of the described species known to me, I hesitate about giving it a specific name.

37. *Lepralia spinifera*, *Johnston*, *var.* ?

Cells immersed, slightly ventricose, uniformly ornamented with large punctations, a small avicularium on either side of the mouth; no spines.

38. *Lepralia irregularis*, *sp. nov.*, Plate II., fig. 1.

Cells immersed, not defined; surface ornamented with very irregular, wide fenestrae. Mouth of irregular shape. Colour light purple.

39. *Lepralia* (*Schizoporella*) *Quadlingi*, *sp. nov.*, Plate II., fig. 2.

Cells immersed, not distinctly separated, cell-wall covered with small, somewhat irregular, pentagonal reticulations. Mouth with an open sinus below; ovicell indistinctly reticulated.

40. *Lepralia* (*Schizoporella*) *assimilis*, *sp. nov.*

Cells ovate, ventricose, surface granular; a raised avicularium on each side at the top of the cell close to the mouth; mouth with a narrow sinus in the lower lip. Ovicells globose, uniformly granular.

Allied to *L. spinifera*, Johnston, but distinguished by the absence of the characteristic sculpture on the ovicell.



41. *Lepralia Mortoni*, *sp. nov.*

Cells ovate, ventricose, cell-wall uniformly punctate, a single, vertically placed avicularium (with the apex downwards) a little below the mouth. Mouth sub-circular with a slight raised margin. Ovicells uniformly ornamented with ocelliform markings. On a shell.

42. *Lepralia lunifera*, *sp. nov.*

Cells ovate, slightly ventricose, uniformly covered with minute granules. A semilunar aperture in the middle of the cell-wall behind the mouth; mouth semicircular, an avicularium at each angle. On a shell.

43. *Lepralia* (*Schizoporella*) *Gandyi*, *sp. nov.*

Cells hexagonal in outline, ventricose, separated by depressed lines. Cell-wall hyaline, ornamented, except in its central portion, with small ocelliform markings. Mouth semi-circular, a deep sinus with a contracted orifice, in the lower lip. Ovicells globose, sub-granular.

44. *Cellepora pumicosa*, *Linn.*45. *Cellepora fusca*, *Busk.*46. *Cellepora laevis*, *sp. nov.*, Plate II., figs. 3 and 4.

Zoarium consisting of thick sub-cylindrical, sometimes anastomosing branches. Cells smooth, porcellanous, some prominent, ventricose, others immersed, the mouth devoid of rostrum or projecting rim; no avicularia; ovicells galeate, reticulate, with a large aperture; two small circular marks on each of the opercula and the lid of the ovicells.

47. *Cellepora granulosa*, *sp. nov.*

Zoarium branched, the branches sub-cylindrical. Cells irregularly aggregated, ventricose, coarsely granular. Cell-aperture circular, margin thick, produced on one side into a blunt



rostrum. An ovate avicularium on the inner aspect of the rostrum and others of various sizes and shapes scattered over the zoarium.

48. *Eschara hexagonalis*, *sp. nov.*, Plate III., figs. 1 and 2.

Branches narrow, strap-shaped. Cells hexagonal, separated by a distinct depressed line, punctate or smooth. Mouth nearly circular, a round aperture below it; cell-wall bulging below, the prominence armed with a narrow pointed avicularium.

49. *Eschara umbonata*, *sp. nov.*, Plate II., figs. 5 and 6.

Cells not defined; mouth varying in form, the lower lip sometimes straight, sometimes with a small sinus, sometimes with a rounded central lobe. Surface ornamented with numerous rounded knobs of various sizes, and small scattered avicularia. [Small pieces only].

50. *Hemeschara australis*, *sp. nov.*, Plate II., figs. 7 and 8.

Zoarium branching, arborescent. Cells oblong, defined anteriorly by narrow raised lines, scarcely separated laterally; surface uniformly punctate. Mouth surrounded by an obscure raised rim which is beaded below; an open sinus in the lower lip.

51. *Retepora cellulosa*, *Jameson*, (*sp.*)

*Hab.* Port Denison; Holborn Island.

52. *Vincularia novæ-hollandiæ*, *sp. nov.*, Plate III., fig. 3.

Zoarium dichotomous, branches sub-compressed. Cell oblong, surrounded by a finely-beaded raised rim; mouth circular; anterior surface of cell, granular, much depressed near the mouth and perforated in that situation by two large ovate apertures which are sometimes closed by a thin membrane.

53. *Conescharella? depressa*, *sp. nov.*, Plate III., fig. 4.

Zoarium depressed-conical, with toothed edges formed by the projecting outer row of cells. Cell-aperture ovate—the long axis



radial—surrounded by a prominent margin—especially prominent in the outermost row of cells. Large, sessile, sub-triangular avicularia situated between the rows of cells, and at irregular intervals shallow circular depressions, (vibracular pits) at the bottom of each of which is a narrow semilunar slit, with the concavity directed outwards. Under surface of the zoarium flat, perforated by close-set circular pores, each occupied, either at the surface or at a varying depth, by a thin, translucent covering, perforated by several minute porules, usually with a rather larger one in the centre.

*Hab.* Port Denison.

54. *Conescharellina conica*, *sp. nov.*, Plate III., figs. 7 and 8.

Zoarium conical, much elevated. Cell-apertures and avicularia in alternate, radiating rows; cell-apertures circular or oval, with a projecting lip on either side. Avicularia raised, triangular; upper (movable) mandible with the apex usually more or less produced.

55. *Selenaria maculata*, *Busk.*

56. *Selenaria fenestrata*, *sp. nov.*

Differs from the preceding in the presence of two small fenestræ on the wall of each cell.

57. *Sphaeropora fossa*, *gen. et sp. nov.*, Plate III., figs. 5 and 6.

Zoarium sub-spherical, slightly depressed, with a circular pit at the upper pole; whole surface occupied by cells. Cells and vibracular pits very irregularly arranged; cells ventricose, granular; mouth semicircular; a secondary aperture, larger than the mouth and of similar form, occupied by membrane.

The most remarkable point about this curious species is the pit at its upper pole. This is always present and in the same position; it is large enough to admit the point of an ordinary stout sewing needle, (being about .75 mm. in diameter at the mouth), and



penetrates about half the thickness of the zoarium, gradually narrowing as it descends.

58. *Myrizoöum australiense*, *sp. nov.*, Plate III., figs. 9—11.

The extra-opercular portion of the cell in this species is very prominent, and displays a little below the mouth a rounded aperture. The margin of the mouth is crenulated, and there is a rather prominent, bifid lower lip. The operculum is situated deeper than the level of the general external surface of the polyzoary. The cells are separated from one another by delicate radiating partitions, and the breadth of each is circumscribed in the older and thicker branches of the polyzoary by delicate semi-transparent lamellæ, which extend from the outer wall, just below the operculum of the cell downwards and inwards so as to cut off an internal and an external chamber, the former dilating upwards and occupied by the polypide, the latter empty. In the younger portions of the polyzoary the radiating septa sometimes meet in the centre; in the older portions in which the number of cells in each whorl is greater, there is a central axial canal within the walls of which the septa do not extend; towards the upper end of each internode in the neighbourhood of the thick nodal transverse septum, this central canal becomes divided into a series of minute canaliculi. The number of cells in each whorl varies from six to ten.

#### Sub-order CTENOSTOMATA.

59. *Amathia convoluta*, *Lamx.*

*Hab.* Port Denison and Holborn Island.

#### EXPLANATION OF PLATES.

##### Plate I.

Fig. 1.—*Crisia terræ-reginæ*, magnified 20 diameters.

„ 2.—*Pustulipora fragilis*, magnified 20 diameters.

„ 3.—*Onchopora ventricosa*, magnified 44 diameters.



- Fig. 4.—*Onchopora immersa*, magnified 44 diameters.  
 „ 5.—The same, natural size.  
 „ 6.—*Scrupocellaria clypeata*, magnified 44 diameters.  
 „ 7.—*Biflustra armata*, magnified 20 diameters.  
 „ 8.—*Biflustra crassa*, magnified 20 diameters.

## Plate II.

- Fig. 1.—*Lepralia irregularis*.  
 „ 2.—*Lepralia Quadlingi*, magnified 44 diameters.  
 „ 3.—*Cellepora lævis*, natural size.  
 „ 4.—The same, magnified 44 diameters.  
 „ 5.—*Eschara umbonata*, magnified 44 diameters.  
 „ 6.—The same, natural.  
 „ 7.—*Hemeschara australis*, natural size.  
 „ 8.—The same, magnified 44 diameters.

## Plate III.

- Fig. 1.—*Eschara hexagonalis*, magnified 44 diameters.  
 „ 2.—The same, natural size.  
 „ 3.—*Vincularia novæ-hollandiæ*, magnified 44 diameters.  
 „ 4.—*Conescharellina* (?) *depressa*, magnified 44 diameters.  
 „ 5.—*Sphæropora fossa*, natural size.  
 „ 6.—The same, magnified 44 diameters.  
 „ 7.—*Conescharellina conica*, natural size.  
 „ 8.—The same, magnified 44 diameters.  
 „ 9.—*Myrizoum australiense*, natural size.  
 „ 10.—Transverse section of the same just below an internode,  
       shewing on one side the oblique internal dissep-  
       ments; magnified 44 diameters.  
 „ 11.—External portion of a cell of the same, magnified 44  
       diameters.
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