

ART. XVI.—*A Catalogue of the Marine Polyzoa of Victoria.*

BY P. H. MACGILLIVRAY, M.A., M.R.C.S., F.L.S.

[Read 11th November, 1836.]

AS Professor M'Coy's "Prodromus of the Zoology of Victoria," in which I am fully describing and illustrating our Polyzoa, is unavoidably slow of publication, and as there are many observers interested in this department of our Fauna, I propose giving a list of all the marine species with which I am acquainted. To make it more useful, the characters of the families and genera, with references to the most readily available descriptions of the species, are given, and a bibliography of the more important works and papers on the subject is added.

In preparing this catalogue the materials I have had at my disposal have been specimens collected by myself in Hobson's Bay and at Port Phillip Heads, a collection made by Mr. H. Watts at Warrnambool and purchased for the National Museum, and others contributed by friends either to the Museum or to myself. I am, above all, indebted to my friend Mr. J. Bracebridge Wilson, for the generous liberality with which he has placed at my disposal large series of new and rare forms dredged at Port Phillip Heads and at Western Port, accompanied by much valuable information concerning them. His contributions to this and, I may add, to other branches of marine zoology as well as botany, have been invaluable, and without his aid, so freely given, this record could not have been nearly so extensive. Mr. Maplestone, for some time residing at Portland, has materially assisted me by the contribution of specimens, some previously undescribed. Baron von Mueller has kindly given me numerous specimens sent with algæ from various localities, and I have to thank other friends for their assistance.

Besides my colonial friends, I am under great obligations to Mr. Hincks and Mr. Waters for the kindness with which they have sent me many specimens for comparison, and to Miss Jelly for large series of specimens from Europe and other parts, which have been of great service.

The list, long as it is (including about 350 species), will certainly be very much added to. The only locality which has really been systematically searched is the neighbourhood of Port Phillip Heads, which has been dredged by Mr. Wilson and myself. Mr. Wilson has also spent some time dredging in Western Port, principally at the entrance, and Mr. Maplestone has dredged at Portland. The specimens from other localities have been collected on the beach.

It is hoped that the arrangement followed here will be found, at least, convenient.

For the classification of the Polyzoa all naturalists are now agreed that the zoecial characters are of primary importance. At the same time, the zoarial, when constant, demand consideration, and in the Cyclostomata, owing to the little variety in the structure of the individual zoecia, we are obliged to depend to a great extent on them. Of the zoecial characters, among the Cheilostomata, the principal are the amount of calcification of the cell-wall, the presence or absence of special pores communicating with the body cavity, the form of the mouth (primary and secondary) with the structure of the operculum, the nature and situation of the oecia, and the avicularia or vibracula. The form and structure of the mouth, including the operculum, undoubtedly afford one of the most constant and easily used means of diagnosis. The structure of the operculum, to the value of which attention was first drawn, by Mr. Waters, has already proved of great assistance in the discrimination of the species of *Cellaria*, *Cellepora*, *Retepora* and other difficult genera, and there can be no doubt that much more use will be made of its characters than has hitherto been done. To the presence of special pores on the front of the zoecia much importance must be attached. By special pores I mean the true pores found in the *Microporellidae*, &c., opening directly into the body cavity. These are to be carefully distinguished from those which are formed by an outgrowth of the peristome on each side, overarching and meeting in the middle, leaving a pore opening into the peristomial cavity outside the true mouth, as in *Porina* and *Adeonella*. In old or highly calcified specimens of the latter genera it is often difficult or impossible to see the real structure, but in the growing edges the formation of this external or adventitious pore can be easily traced. It also occurs

occasionally in species belonging to other genera, as in *Smittia Landsborovii*, var. *porinoides*. Of course both kinds of pore are essentially different and easily distinguished from the fenestræ or irregular perforations or depressions, caused by a deficiency in the calcification of the ectocyst, which contribute so much to the ornamentation of many species, and which are frequently filled or even heaped over with calcareous matter.

The division of the zoecium into two cavities, as in *Steganoporella magnilabris*, *Chlidonia* and probably *Urceolipora*, is undoubtedly a difference of great importance, although we do not yet understand the real nature of this structure.

The oecia deserve more attention than has hitherto been bestowed on them. There can be no doubt that their being internal and opening by a special pore, or external and superposed on zoecia, or contained in or formed by modified zoecia, are characters which ought to be considered of considerable importance in a natural classification.

The arrangement adopted sufficiently explains itself, but there are some points on which a few remarks may be advisable.

In the *Farciminariidæ* I have included Busk's *Farciminaria dichotoma* as *Verrucularia dichotoma*, taking the generic name proposed by Von Suhr, when he supposed it to be an alga. Mr. Hincks has referred it to *Flustrella* and there is no doubt that the structure of the mouth very much approaches that of the Ctenostomatous genus, and in fact it evidently forms one of the transitionary species between the two sub-orders. *Farciminaria* proper shews a decided approximation to the same, the presence of oecia, however, and, in many species, of avicularia clearly placing it among the Cheilostomata; and I cannot but agree with Mr. Busk in considering that *Verrucularia* has more affinity with *Farciminaria* than with any other group. In any case, even if placed among the Ctenostomata, I do not see how it can be included in the genus *Flustrella*.

In the *Membraniporidæ* I have only included forms in which the operculum is incomplete, that is formed by a flap in the membranous front wall without a distinct articulation. The genus *Membranipora*, as defined in this paper, ought probably to be divided into two; those with the long, incurved spines and the zoecium frequently prolonged below the area, might be separated as Gray's proposed genus

Callopora. *Amphiblestrum*, although a convenient genus, is not satisfactory. There is a wide difference, for instance, between *A punctigerum*, with only a minute portion of the corners of the area filled by a membranous thickening, and *A. argenteum* or *permunitum*, where a large portion is occupied by a calcareous lamina. It would probably be better to refer the latter forms to a distinct genus. I am a little doubtful about the propriety of my genus *Bathypora*, but the species is not easily referable to any of the other divisions.

In the *Microporidae* I have included those Membraniporidan genera having the opercular valve complete and distinctly articulated. They are also all more or less calcareous in the front wall, beneath the generally thick epitheca with which they are covered.

To the *Microporellidae* I have referred all the crustaceous or foliaceous, calcareous forms with distinct zoecial pores. I cannot, however, agree with those authors who would place the *Adeona* group in the genus *Microporella* for the sole reason of the presence of one or more pores. The whole structure is evidently different, and, especially, the zoecia are not external but are modifications of ordinary zoecia. The small articular processes on the avicularian mandibles pointed out by Busk, although peculiar and strongly marked, are not altogether confined to the *Adeonae*, but are still important in this connection as they do not seem to occur in the true *Microporella*. I am very much inclined to the view that the *Adeonae* should take family rank. *Escharipora stellata* forms the transition between the two groups. In the *Microporellidae* I also place the species which I originally described as *Lepralia magnirostris*, having overlooked the tubular zoecial pore, and which has been referred to the genus *Porina* by Hincks. There has been much unnecessary confusion about this genus. It was proposed by D'Orbigny ("Paléontologie Française," V. 432) for erect bilaminar species with a special pore placed behind the mouth at the median or lateral part of the cell, and he took for his types, among living forms, *P. Africana* (D'Orb.), which he briefly defines, and *Eschara gracilis* of Milne Edwards. Now, the pore of *E. gracilis*, for which and its allies the generic name ought clearly to be retained, is external—i.e., it is formed by the overarched and junction of processes of the peristome, and consequently communicates with the peristomial tube outside the true mouth. Mr. Waters has already pointed this

out, and includes *E. gracilis* in *Porina*. The other species which Mr. Hincks refers to *Porina* ("British Marine Polyzoa," p. 229) certainly belong to the same genus as *E. gracilis*. The best known, *P. borealis*, was first described as an *Onchopora* by Busk, then made the type of a new genus—*Quadricellaria*—by Sars, and, that having been already used for a totally different set of species by D'Orbigny, was again referred to another new genus—*Tessaradoma*—by Norman. The last name is the one which, according to all the rules of nomenclature, ought to be adopted, notwithstanding that it is etymologically incorrect.

The large family of the *Escharidæ* I have arranged under three sub-families—*Schizoporellinæ*, equivalent to the *Myrizoidæ* of Hincks (whose name I do not adopt, as I am doubtful whether *Myrizozoum* ought to be referred to the group), characterised by the plain mouth, with a sinus in the lower lip, and without any special development of the peristome; *Lepraliinæ*, where there is a plain semicircular or subcircular mouth without sinus or special peristome; and *Mucronellinæ*, distinguished by the growth of a distinct peristome developed in various ways. I had intended proposing a new genus for my *Eschara obliqua*, when Mr. Wilson informed me that it was mentioned under the appropriate name of *Parmularia* in a letter from Mr. Busk, and I have, therefore, adopted his MS name, although I am not aware that it has ever been published. In the *Mucronellinæ*, Busk's genus *Adeonella* is difficult to differentiate from *Porina*, unless it be that the lower lip of the primary mouth has a sinus, and of that, except in *A. dispar*, I am doubtful. The whole appearance is different, and in *Adeonella* the mandibles have the small articular processes pointed out by Busk.

In the catalogue I have throughout referred to my descriptions in Professor M'Coy's "Prodomus of the Zoology of Victoria," to the late Mr. Busk's "British Museum Catalogue" and "Polyzoa of the 'Challenger' Expedition," and to the "British Marine Polyzoa" of Mr. Hincks. The reference to the "Transactions of the Royal Society of Victoria" are to my own papers. In a considerable number of the references the species will be found under other generic names, especially in those belonging to the divisions of the old genera *Membranipora*, *Lepralia* and *Eschara*. No confusion however, need arise from this.

The following abbreviations are used :—

A.M.N.H.—“Annals and Magazine of Natural History.”

B.M.C.—“British Museum Catalogue of Marine Polyzoa,”
by Mr. Busk.

B.M.P.—“British Marine Polyzoa,” by Mr. Hincks.

C.P.—“‘Challenger’ Polyzoa,” by Mr. Busk.

P.Z.V.—“Prodromus of Zoology of Victoria;” “Polyzoa,”
by P. H. MacGillivray. The numbers refer to plates.

Q.J.M.S.—“Quarterly Journal of Microscopical Science.”

T.R.S.V.—“Transactions of the Royal Society of Victoria.”

C.M.—C. Maplestone.

H.W.—Henry Watts.

J.B.W.—J. Bracebridge Wilson.

The reference to friends (as J.B.W. and C.M. &c.) indicate that they were the first discoveries of the species which in many cases have not been found by other observers. With the exception of *Lepralia bifrons*, every species included in this catalogue has been examined by myself.

TABLE OF CLASSIFICATION.

Class. POLYZOA.

Sub-Class I. HOLOBRANCHIA, *Ray Lankester*.

Group A. Ectoprocta, *Nitsche*.

Order I. GYMNOLÆMATA, *Allman*.

(= Infundibulata, *Gervais*).

Sub-Order I. CHEILOSTOMATA, *Busk*.

Family. AETEIDÆ.

Aetea, *Lamx*.

Family. SCRUPARIIDÆ.

Scruparia, *Oken*.

|

Dimetopia, *Busk*.

Family. RHABDOZOIDÆ.

Rhabdozoum, *Hincks*.

Family. CHLIDONIIDÆ.

Chlidonia, *Sav*.

Family. CATENICELLIDÆ.

Catenicella, <i>Blainv.</i>		Catenicellopsis, <i>J.B.W.</i>
Claviporella, <i>M'G.</i>		Calpidium, <i>Busk.</i>

Family. CALWELLIIDÆ.

Calwellia, *Wyv. Thomson.*

Family. BIFAXARIIDÆ.

Urceolipora, *M'G.*

Family. CELLULARIIDÆ.

Cellularia, <i>Pallas.</i>		Amastigia, <i>Busk.</i>
Maplestonia, <i>M'G.</i>		Menipea, <i>Lamx.</i>
Scrupocellaria, <i>V. Beneden.</i>		Didymia, <i>Busk.</i>
Canda, <i>Lamx.</i>		Nellia, <i>Gray.</i>
Caberea, <i>Lamx.</i>		Farcimia, <i>Pourtales.</i>

Family. SALICORNARIIDÆ.

Cellaria, *Lamx.*

Family. TUBUCELLARIIDÆ.

Tubucellaria, *D'Orb.*

Family. BICELLARIIDÆ.

Bicellaria, <i>Blainv.</i>		Bugula, <i>Oken.</i>
Stirparia, <i>Goldstein.</i>		Beania, <i>Johnston.</i>

Family. FLUSTRIDÆ.

Flustra, <i>Linn.</i>		Spiralaria, <i>Busk.</i>
Carbasea, <i>Gray.</i>		Craspedozoum, <i>M'G.</i>
Euthyris, <i>Hincks.</i>		

Family. FARCIMINARIIDÆ.

Farciminaria, <i>Busk.</i>		Verrucularia, <i>Von Suhr.</i>
----------------------------	--	--------------------------------

Family. MEMBRANIPORIDÆ.

Pyripora, <i>D'Orb.</i>		Amphiblestrum, <i>Gray.</i>
Electra, <i>Lamx.</i>		Biflustra, <i>D'Orb.</i>
Bathypora, <i>M'G.</i>		Caleschara, <i>M'G.</i>
Membranipora, <i>Blainv.</i>		

Family. MICROPORIDÆ.

Thairopora, <i>M'G.</i>		Micropora, <i>Hincks.</i>
Diploporella, <i>M'G.</i>		

Family. STEGANOPORELLIDÆ.

Steganoporella, *Smitt.*

Family. CRIBRILINIDÆ.

Membraniporella, <i>Smitt.</i>		Hiantopora, <i>M'G.</i>
Cribrilina, <i>Gray.</i>		

Family. MICROPORELLIDÆ.

Microporella, <i>Gray.</i>		Adeona, <i>Lamx.</i>
Escharipora, <i>Smitt.</i>		Adeonellopsis, <i>M'G.</i>
Tessaradoma, <i>Norman.</i>		

Family. ESCHARIDÆ.

Sub-Family. Schizoporellinæ.

Schizoporella, <i>Hincks.</i>		Hippothoa, <i>Lamx.</i>
Parmularia, <i>Busk.</i>		Gemellipora, <i>Smitt.</i>

Sub-Family. Lepraliinæ.

Lepralia, <i>Johnston.</i>		Petralia, <i>M'G.</i>
Chorizopora, <i>Hincks.</i>		Cyclicopora, <i>Hincks.</i>

Sub-Family. Mucronellinæ.

Porella, <i>Gray.</i>		Mucronella, <i>Hincks.</i>
Smittia, <i>Hincks.</i>		Bracebridgia, <i>M'G.</i>
Adeonella, <i>Busk.</i>		Rhynchopora, <i>Hincks.</i>
Porina, <i>D'Orb.</i>		

Family. CELLEPORIDÆ.

Lagenipora, <i>Hincks.</i>		Pœcilopora, <i>M'G.</i>
Lekythopora, <i>M'G.</i>		Cellepora, <i>Fabricius.</i>

Family. RETEPORIDÆ.

Retepora, *Imperato.*

Family. SELENARIIDÆ.

Selenaria, *Busk.*

Sub-Order II. CYCLOSTOMATA, *Busk.*

Family. CRISIIDÆ.

Crisia, *Lamx.*

Family. IDMONEIDÆ.

Idmonea, <i>Lamx.</i>		Hornera, <i>Lamx.</i>
-----------------------	--	-----------------------

Family. TUBULIPORIDÆ.

Tubulipora, <i>Lamx.</i>		Liripora, <i>M'G.</i>
Stomatopora, <i>Bronn.</i>		Entalophora, <i>Lamx.</i>
Diastopora, <i>Johnston.</i>		

Family. DISCOPELLIDÆ.

Lichenopora, *Defranc.*

Densipora, *M'G.*

Favosipora, *M'G.*

Flosculipora, *M'G.*

Family. FRONDIPORIDÆ.

Fasciculipora, *D'Orb.*

Sub-Order III. CTENOSTOMATA, *Busk.*

Family. FLUSTRELLIDÆ.

Flustrella, *Gray.*

Family. VESICULARIIDÆ.

Amathia, *Lamx.*

Group B. Entoprocta, *Nitsche.*

Order II. PEDICELLINEA, *Gervais.*

Family. PEDICELLINIDÆ.

Pedicellina, *Sav.*

| Pedicellinopsis, *Hincks.*

Class. POLYZOA, *J. V. Thompson.*

(= Bryozoa, *Ehrenberg.*)

Sub-Class I. HOLOBRANCHIA, *Ray Lankester.*

Group A. Ectoprocta, *Nitsche.*

Order I. GYMNOLÆMATA, *Allman.*

(= Infundibulata, *Gervais.*)

Sub-Order I. CHEILOSTOMATA, *Busk.*

Family. AETIDÆ.

‡ Zoecia arising from a creeping or free stolon, which is dilated at intervals, tubular, with a subterminal membranous area. No avicularia or oecia.

Aetea, *Lamouroux.*

The only genus.

A. anguina, *Linna. sp.* B.M.C., Part I., p. 31; B.M.P., p. 4;
C.P., p. 2.

A. recta, *Hincks.* B.M.P., p. 6.

A. dilatata, *Busk.* B.M.C., p. 31.

Family. EUCRATEIDÆ.

Zoarium erect, free, phytoid. Zoecia uni- or biserial, enlarged upwards, and with an oblique, subterminal, membranous area. No avicularia.

Scruparia, Oken.

Zoarium composed of tufts springing from a creeping, adherent base; branches originating from the front of a zoecium below the area. Each zoecium arising from that below by an articulated tube at the upper and posterior part.

S. chelata, *Linn. sp.* B.M.C., Part I., p. 29; B.M.P., p. 14; C.P., p. 3.

Dimetopia, Busk.

Zoecia arranged in pairs united back to back, each pair looking at right angles to that below; at a bifurcation the zoecia of a pair disjunct, and each giving rise to the first pair of a branch.

D. spicata, *Busk.* B.M.C., Part I., p. 35; P.Z.V., 46.

D. cornuta, *Busk.* B.M.C., Part I., p. 35; P.Z.V., 46; C.P., p. 47.

D. hirsuta, *M'G.* T.R.S.V., Nov., 1885.
Port Phillip Heads, J.B.W.

Family. RHABDOZOIDÆ.

Zoarium phytoid, erect; branches consisting of zoecia arranged around an imaginary axis, the base of each branch terminating in a chitinous rod (modified radical fibre), the various rods uniting to form a stem. Zoecia in linear series, each arising from the upper and back part of the one below; an oblique, membranous area above. Avicularia sessile or subcapitate, below the area, or replaced by articulated spines. Zoecia superior, galeate.

Rhabdozoum, Hincks.

The only genus.

R. Wilsoni, *Hincks.* A.M.N.H., Aug., 1882.
Port Phillip Heads, J.B.W.

Family. CHLIDONIIDÆ.

Zoarium consisting of phytoid, erect tufts, arising from a creeping stolon; each tuft formed of chain-like series of zoecia, rising from the lateral branches of an erect segmented stem. Zoecia two-chambered, all facing the same way. Zoecia inflations of ordinary zoecia.

Chlidonia, Savigny.

The only genus.

C. Cordieri, *Audouin sp.* C.P., p. 8; P.Z.V., 108.

(= *Cothurnicella dædala*, *W.T.*, = *Chlidonia dædala*, *M'G.*)

Family. CATENICELLIDÆ.

Zoarium phytoid, erect, branched, segmented, each internode consisting of a single zoecium or of two or three united laterally (except rarely in ovicelligerous cells). Zoecia all facing the same way, front entirely calcareous or membrano-calcareous; mouth situated at the upper part.

Catenicella, Blainville.

Branches originating from the summits of each of a geminate pair, or rarely from the sides of ordinary zoecia. Zoecia in single series, but at a bifurcation geminate, or each internode consisting of a geminate pair; mouth with simple margins, straight or hollowed and entire below, or with a small rounded notch.

a. Fenestratæ.

- C. lorica**, *Busk*. B.M.C., Part I., p. 6; P.Z.V., 24; C.P., p. 10.
C. ventricosa, *Busk*. B.M.C., Part I., p. 7; P.Z.V., 24; C.P., p. 10.
C. urnula, *M'G.* T.R.S.V., March, 1886.
 Port Phillip Heads, J.B.W.
C. hastata, *Busk*. B.M.C., Part I., p. 7; P.Z.V., 24; C.P., p. 10.
C. alata, *Wyv. Thomson*. P.Z.V., 24.
C. gemella, *M'G.* T.R.S.V., July, 1886.
 Port Phillip Heads, J.B.W.
C. amphora, *Busk*. B.M.C., Part I., p. 8; P.Z.V., 89; J.B.W.
C. plagiostoma, *Busk*. B.M.C., Part I., p. 8; P.Z.V., 24; C.P., p. 11.
 Var. *setosa*.
C. intermedia, *M'G.* P.Z.V., 24.
C. cribraria, *Busk*. B.M.C., Part I., p. 9; P.Z.V., 24; C.P., p. 11.
C. rufa, *M'G.* P.Z.V., 24.
C. margaritacea, *Busk*. B.M.C., Part I., p. 9; P.Z.V., 24.
C. Wilsoni, *M'G.* P.Z.V., 89; J.B.W.
C. pulchella, *Maplestone*. P.Z.V., 89; C.P., p. 13; C.M.
b. Vittatæ.
C. formosa, *Busk*. B.M.C., Part I., p. 9; P.Z.V., 24.
C. Hannafordi, *M'G.* P.Z.V., 24.
C. perforata, *Busk*. B.M.C., Part I., p. 10; P.Z.V., 24.
C. gracilentæ, *M'G.* T.R.S.V., Nov., 1884.
 Port Phillip Heads, J.B.W.
C. cornuta, *Busk*. B.M.C., Part I., p. 11; P.Z.V., 24 and 90.
C. ringens, *Busk*. B.M.C., Part I., p. 10.
 Port Phillip Heads.
C. elegans, *Busk*. B.M.C., Part I., p. 10; P.Z.V., 24; C.P., p. 12.
C. Dawsoni, *Wyv. Thomson*. Dub. Nat. Hist. Rev., 1858.
C. Buskii, *Wyv. Thomson*. Dub. Nat. Hist. Rev., 1858; P.Z.V., 24.
C. venusta, *M'G.* T.R.S.V., March, 1886.
 Port Phillip Heads, J.B.W.
C. fusca, *M'G.* P.Z.V., 90.

- C. crystallina**, *Wyv. Thomson*. P.Z.V., 24.
C. utriculus, *M'G.* P.Z.V., 89; H.W.
C. umbonata, *Busk*. B.M.C., Part I., p. 11; P.Z.V., 90; C.P., p. 13.
C. delicatula, *J.B.W. sp.* P.Z.V., 107; J.B.W.
 (= *Catenicellopsis delicatula*).

c. Carinatae.

- C. carinata**, *Busk*. B.M.C., Part I., p. 12; P.Z.V., 24.

Claviporella, M'G.

Branches springing usually from the summits of the zoecia of a geminate pair, but occasionally from the sides of single zoecia. Zoecia single or geminate; usually a large lateral process on each side above, supporting a large, gaping avicularium, occasionally small, altered, or aborted; mouth narrow, arched above, contracted below, and extending downwards as a deep notch, giving the whole a key-hole appearance; usually several blunt, hollow processes above and to the sides of the mouth.

- C. aurita**, *Busk sp.* B.M.C., Part I., p. 8; P.Z.V., 24.

- C. imperforata**, *M'G.* T.R.S.V., July, 1886.

- C. pulchra**, *M'G.* T.R.S.V., July, 1886.

Port Phillip Heads, J.B.W.

- C. geminata**, *Wyv. Thomson sp.* P.Z.V., 24.

Catenicellopsis, J. B. Wilson.

Zoarium forming (usually) dichotomously divided, uniserial branches. Zoecia arising from the upper and back part or from the sides of other zoecia; those at a bifurcation geminate and giving rise to two other branches, or a single zoecium giving rise to the first of a series from its side; mouth straight and entire below, arched above, having a stout lateral process on each side, with a small avicularium at the base externally and one or more hollow, blunt processes superiorly. Oecium immersed in the uppermost zoecium of a triplet.

- C. pusilla**, *J.B.W.* P.Z.V., 107.

Calpidium, Busk.

Each internode consisting of a single zoecium, or of a median primary zoecium and a lateral zoecium, on one or both sides, united side to side with it; mouth contracted about the junction of the middle with the lower third, its upper margin very prominent and forming a hooded projection. An avicularium on each upper angle of an internode.

- C. ponderosum**, *Goldstein, sp.* P.Z.V., 107.

- C. ornatum**, *Busk*. B.M.C., Part I., p. 15; P.Z.V., 108.

Family. CALWELLIIDÆ.

Zoarium phytoid, erect, continuous. Zoecia in pairs joined back to back, those of each pair connected by tubes with those of the

next pair but one below; mouth terminal, opening upwards; at a bifurcation each zoecium giving rise to a pair and a new series intercalated into the branches, starting by a pair of zoecia. Oecia superior.

Calwellia, *Wyv. Thomson.*

Zoecial pairs arranged at right angles to those above and below.

C. bicornis, *Wyv. Thomson.* P.Z.V., 46.

C. gracilis, *Maplestone.* T.R.S.V., Nov., 1885.

Portland, C.M.; Port Phillip Heads, J.B.W.

Family. BIFAXARIIDÆ.

Zoarium phytyoid, erect, continuous, or articulated. Zoecia alternate, in two series united back to back and facing opposite ways; mouth terminal, opening directly or obliquely upwards.

Urceolipora, *M'G.*

(= *Calymmophora*, *Busk.*)

Zoarium continuous, irregularly branched. Zoecia springing from the upper and posterior part of those immediately below; a slight ridge on each side, probably indicating a shallow, anterior chamber. Oecium superior, embedded in the front of the zoecium above.

U. nana, *M'G.* P.Z.V., 105.

U. dentata, *M'G.* P.Z.V., 105.

(= *C. lucida*, C.P., p. 83.)

Family. CELLULARIIDÆ.

Zoarium erect, branched, continuous, or articulated. Zoecia all facing the same way, in single or multiple series, or in pairs, or arranged around an imaginary axis; partly or wholly open, and membranous in front. Avicularia, when present, sessile.

Cellularia, *Pallas.*

Zoarium articulated. Zoecia biserial, oblong or rhomboidal, contiguous, usually perforated behind. Avicularia usually absent.

C. cuspidata, *Busk.* B.M.C., Part I., p. 19; P.Z.V., 58; C.P., p. 17.

Maplestonia, *M'G.*

Zoarium articulated, dichotomously or irregularly branched, joints annulated. Zoecia uniserial or geminate, imperforate behind. No avicularia or vibracula.

M. cirrata, *M'G.* P.Z.V., 106. C.M. and J.B.W.

M. simplex, *M'G.* T.R.S.V., Nov., 1884.

Port Phillip Heads, J.B.W.

Scrupocellaria, *Van Beneden.*

Zoarium articulated, dichotomously branched. Zoecia biserial, quadrate, furnished with oral spines; a sessile avicularium at the

upper and outer angle, and a vibraculum in a sinus on the outer and lower part behind.

S. cyclostoma, *Busk*. B.M.C., Part I., p. 24; P.Z.V., 126.

S. oblecta, *Haswell*. P.Z.V., 126; J.B.W.

S. scrupea, *Busk*. B.M.C., Part I., p. 24; P.Z.V., 126.

S. cervicornis, *Busk*. B.M.C., Part I., p. 24; P.Z.V., 126.

S. ornithorhynchus, *Wyv. Thomson*. P.Z.V., 126; C.P., p. 24.

S. reptans, *Linn. sp.* B.M.C., Part I., p. 27; B.M.P., p. 52.
Port Phillip Heads, J.B.W.

Canda, *Lamouroux*.

Zoarium dichotomously branched; branches articulated, biserial, connected by transverse chitinous tubes attached at either end to a vibraculum. Avicularia large, situated on a special tract, on the front of the branches, between the rows of zoecia. Each zoecium with a vibraculum posteriorly.

C. arachnoides, *Lamx.* B.M.C., Part I., p. 26; C.P., p. 25.

C. tenuis, *M'G.* T.R.S.V., Nov., 1884.

Caberea, *Lamouroux*.

Zoarium continuous or imperfectly jointed, dichotomously branched. Zoecia bi-multiserial, quadrate. Avicularia, when present, sessile on the outer side or front of the zoecia. Vibracula large, on the back of the branches, biserial, each common to several zoecia.

C. rudis, *Busk*. B.M.C., Part I., p. 37.

(= *Menipea marginata*, *Hincks*. A.M.N.H., Oct., 1884.)

C. grandis, *Hincks*. A.M.N.H., July, 1881.

C. Darwinii, *Busk*. C.P., p. 29; T.R.S.V., Nov., 1885.

C. glabra, *M'G.* T.R.S.V., Nov., 1885.

Amastigia, *Busk*.

Zoarium continuous, dichotomously branched. Zoecia bi-multiserial. Sessile avicularia on the sides of the lateral zoecia and in front. No vibracula, but avicularia on the back of the zoarium, one to several zoecia, the mandible pointing downwards and inwards.

A. nuda, *Busk*. B.M.C., Part I., p. 40.

Port Phillip Heads, J.B.W.

Menipea, *Lamouroux*.

(Including *Emma*, *Gray*, and *Busk*.)

Zoarium articulated or (in one species) continuous. Zoecia bi-multiserial, oblong, imperforate behind. A sessile, lateral avicularium (frequently absent), and one or two sessile avicularia (also frequently absent) on the front of the zoecia. No vibracula.

M. cyathus, *W. Thomson*. P.Z.V., 58.

M. Buskii, *Wyv. Thomson*. P.Z.V., 58.

M. crystallina, *Busk sp.* B.M.C., Part I., p. 28; P.Z.V., 58; C.P., p. 23.

M. cervicornis, *M'G.* P.Z.V., 58.

M. tricellata, *Busk sp.* B.M.C., p. 28; P.Z.V., 58.

M. funiculata, *M'G.* T.R.S.V., Nov., 1885.

Didymia, Busk.

Zoarium articulated, each internode consisting of a pair of zoecia united side to side. Zoecia all facing the same way; aperture large, occupying the whole anterior surface; at a bifurcation the zoecia not disjunct, and each giving origin to a pair.

D. simplex, *Busk.* B.M.C., Part I., p. 35; P.Z.V., 46.

Nellia, Gray.

Zoarium erect, articulated, branched. Zoecia quadriserial, front flat or convex at the bottom, with raised margins and large aperture, filled in by a membrane.

N. oculata, *Busk.* B.M.C., Part I., page 18; P.Z.V., 49.

N. simplex, *Busk.* B.M.C., Part I., p. 19.

Port Phillip Heads.

Farcimia, Pourtales.

Zoarium calcareous, erect, branching; stems and branches composed of segments united by corneous joints. Zoecia arranged in series round an imaginary axis, with elevated margins and depressed area, which is more or less covered in with membrane.

F. appendiculata, *Hincks.* A.M.N.H., March, 1883.

Port Phillip Heads, J.B.W.

Family. SALICORNARIIDÆ.

Zoarium erect, simple, branched, cylindrical, with the zoecia arranged around an imaginary axis, or lobed and bilaminated. Zoecia separated by raised margins, with a depressed surface. Oecia immersed.

Cellaria, Lamæ.

(= *Salicornaria, Cuv., Busk, &c.*)

Zoarium simple or branched, cylindrical, with the zoecia arranged around an imaginary axis.

C. Australis, *M'G.* P.Z.V., 49; T.R.S.V., 1884.

(= *Salicornaria clavata, Busk.* C.P., p. 83.)

C. rigida, *M'G.* P.Z.V., 105.

(= *S. simplex, Busk.* C.P., p. 88.)

C. hirsuta, *M'G.* P.Z.V., 49.

C. gracilis, *Busk.* B.M.C., Part I., p. 17; P.Z.V., 49; C.P., p. 93.

C. tenuirostris, *Busk.* B.M.C., Part I., p. 17; P.Z.V., 49?; C.P., p. 92.

C. divaricata, *Busk.* C.P., p. 90.

C. bicornis, *Busk.* C.P., p. 90.

Port Phillip Heads, J.B.W.

Family. TUBUCELLARIIDÆ.

Zoarium erect, branched; branches cylindrical. Zoœcia arranged around an imaginary axis, convex, distinct; mouth produced into a tubular peristome. No avicularia. Oœcia?

Tubucellaria, *D'Orbigny*.

Zoarium consisting of cylindrical internodes, connected by corneous tubes. Zoœcia ventricose above and attenuated downwards; usually a simple, circular, median pore; surface punctate or reticuloscrobiculate.

T. hirsuta, *Busk sp.* P.Z.V., 49; C.P., p. 100.

T. cereoides, *Ellis and Solander.* P.Z.V., 105.

Port Phillip, S. Channel, J.B.W.

Family. BICELLARIIDÆ.

Zoarium phytoid, erect and continuous, or adnate. Zoœcia continuous, loosely united or disjunct, and connected by corneous tubes, obconic or boat-shaped, wholly or partly open in front. Avicularia, when present, pedunculate, capitate, altered in form or aborted.

Bicellaria, *Blainville*.

Zoarium phytoid, erect, branches continuously celluliferous. Zoœcia biserial, obconic or turbinate, more or less free above and attenuated below; aperture directed upwards and forwards, with several articulated marginal or sub-marginal spines.

B. tuba, *Busk.* B.M.C., Part I., p. 42; P.Z.V., 59.

B. grandis, *Busk.* B.M.C., Part I., p. 42; P.Z.V., 59.

B. ciliata, *Linn. sp.* B.M.C., Part I., p. 42; B.M.P., p. 68; P.Z.V., 59.

Hobson's Bay.

B. gracilis, *Busk.* B.M.C., Part I., p. 42.

Port Phillip Heads, J.B.W.

B. turbinata, *M'G.* P.Z.V., 59.

Stirparia, *Goldstein*.

Zoarium consisting of tufts of celluliferous branches attached to bare annulated or segmented stems. Zoœcia biserial, turbinate; aperture looking upwards and forwards, and with marginal spines.

S. annulata, *Maplestone sp.* P.Z.V., 59.

S. glabra, *Hincks.* A.M.N.H., March, 1883; C.P., p. 35.

Lorne, *Mr. Wooster.*

Bugula, *Oken*.

Zoœcia bi-multiserial, closely contiguous, aperture very large, directed forwards, the margin not at all or very slightly thickened. Avicularia capitate, pedunculated, and articulated.

B. cucullata, *Busk.* P.Z.V., 78.

B. dentata, *Lamæ.* B.M.C., Part I., p. 46; P.Z.V., 78.

B. neritina, *Linn. sp.* B.M.C., Part I., p. 44; P.Z.V., 59; C.P., p. 42.

B. robusta, *M'G.* P.Z.V., 78.

B. avicularia, *Pallas.* B.M.C., Part I., p. 45; P.Z.V., 78; B.M.P., p. 75.

Beania, *Johnston.*

(including *Diachoris*, *Busk.*)

Zoarium creeping or loosely adnate. Zoecia disjunct, connected by (usually) corneous tubes, erect or decumbent, ovate or boat-shaped, entirely open in front and filled in by a thin membrane. Usually a capitate, pedunculate avicularium, perfect, aborted, or altered in form, on one or both sides towards the upper extremity (in some species absent).

B. mirabilis, *Johnston.* B.M.C., Part I., p. 32; B.M.P., p. 96; P.Z.V., 116.

Port Phillip Heads, J.B.W.

B. decumbens, *M'G.* P.Z.V., 117.

Port Phillip Heads, J.B.W.

B. Magellanica, *Busk.* B.M.C., Part I., p. 54; P.Z.V., 46; C.P., 59.

B. crotali, *Busk.* B.M.C., Part I., p. 54; P.Z.V., 46; C.P., p. 59.

B. Wilsoni, *M'G.* T.R.S.V., Nov., 1884.

Port Phillip Heads, J.B.W.

B. spinigera, *M'G.* P.Z.V., 46.

B. costata, *Busk.* P.Z.V., 117; C.P. 60.

B. conferta, *M'G.* T.R.S.V., Nov., 1885.

Port Phillip Heads, J.B.W. Portland, C.M.

B. intermedia, *Hincks sp.* A.M.N.H., Aug., 1881.

Port Phillip Heads, J.B.W.

B. radicifera, *Hincks sp.* P.Z.V., 117.

Family. FLUSTRIDÆ.

Zoarium expanded, flexible, calcareo-membranous, erect, foliaceous, ligulate, or spirally twisted round an imaginary axis. Zoecia elongated, separated by raised margins; front entirely membranous or partially filled in by a thickened membrane.

Flustra, *Linn.*

Zoarium erect, foliaceous or ligulate. Zoecia quadrate, entirely membranous in front, disposed in two layers facing opposite ways; operculum incomplete. Oecia immersed.

F. denticulata, *Busk.* B.M.C., Part I., p. 49; P.Z.V., 45; C.P., p. 55.

Carbasa, *Gray.*

Zoarium erect, expanded, foliaceous or ligulate. Zoecia entirely membranous in front, disposed in a single layer; operculum incomplete. Oecia external, prominent.

- C. dissimilis**, *Busk*. B.M.C., Part I., p. 51; P.Z.V., 45; C.P., p. 56.
C. pisciformis, *Busk*. B.M.C., Part I., p. 50; P.Z.V., 45; C.P., 57.
C. indivisa, *Busk*. B.M.C., Part I., p. 53; P.Z.V., 45.
 Var. **cyathiformis**, *M'G.* P.Z.V., 45.
C. elegans, *Busk*. B.M.C., Part I., p. 53; P.Z.V., 45; C.P., p. 56.
C. (Flustra) reticulum, *Hincks*. A.M.N.H., Aug., 1882;
 T.R.S.V., Nov., 1884.
 Port Phillip Heads, J.B.W.

Euthyris, *Hincks*.

(= *Carbasea*, part.)

Zoarium expanded, lobulate, erect. Zoecia in a single layer; operculum complete, distinctly articulated. Oecia external.

- E. episcopalis**, *Busk sp.* B.M.C., Part I., p. 52; P.Z.V., 45.

Spiralaria, *Busk*.

Zoarium a narrow, ribbon-shaped lamina, spirally twisted round an imaginary axis. Zoecia entirely membranous in front, in a single layer, opening on the inner surface of the lamina.

- S. florea**, *Busk*. P.Z.V., 46.

Craspedozoum, *M'G.*

Zoarium erect, in ligulate divisions, uni- or bilaminate, each branch bordered throughout its whole extent by a bundle of radical fibres springing from the bases of the lateral zoecia. Zoecia quadrate, aperture partly filled in by a thickened lamina. Oecia external.

- C. roboratum**, *Hincks sp.* A.M.N.H., Aug., 1881.

(= *Membranipora roborata*, *Hincks*.)

- C. ligulatum**, *M'G.* T.R.S.V., Nov., 1885.

- C. spicatum**, *M'G.* T.R.S.V., Nov., 1885.

Port Phillip Heads, J.B.W.

Family. *FARCIMINARIIDÆ*.

Zoarium erect, branched, membranaceous or corneous; branches cylindrical or prismatic. Zoecia distinct, arranged around an imaginary axis, almost entirely membranous in front; mouth incomplete, projecting.

Farciminaria, *Busk*.

Zoecia oblong, elongated, closely contiguous, depressed in front, with raised margins; mouth close to the summit. Avicularia, when present, sessile or sub-immersed at the bottom or on the front of the zoecia. Oecia prominent, superior.

- F. aculeata**, *Busk*. B.M.C., Part I., p. 33.

- F. uncinata**, *Hincks*. A.M.N.H., Oct., 1884.

- F. simplex**, *M'G.* T.R.S.V., Nov., 1885.

Verrucularia, von Suhr.

Zoecia elliptical or rounded, convex, bordered by a narrow, chitinous line, alternate in longitudinal series, separated laterally by an intercellular substance. Mouth a little below the summit. No avicularia. Oœcia?

V. dichotoma, Busk sp. Q.J.M.S., N. Ser. I., 155.

(= *Frustrella dichotoma*, Hincks. A.M.N.H., May, 1884.)

Family. MEMBRANIPORIDÆ.

Zoarium encrusting, expanded, and continuous, or in branched single series, or erect in a single or double layer, membrano-calcareous. Zoecia usually (not always) separated by raised margins; front entirely or partly occupied by a large area, which is wholly membranous or partially filled in by a thickened lamina. Operculum incomplete. Avicularia sessile or immersed.

Pyripora, D'Orbigny.

Zoarium adherent. Zoecia distinct, thick, calcareous, convex, not separated by raised lines, narrowed below, in branched single series, or forming continuous expansions; a large oblique area in front, filled by a thin membrane.

P. catenularia, Jameson sp. B.M.C., Part I., p. 29; B.M.P., p. 134; P.Z.V., 106.

P. crassa, M'G. P.Z.V., 106.

P. polita, Hincks. P.Z.V., 106.

Electra, Lamouroux.

Zoarium encrusting, or filiform and erect, or foliaceous. Zoecia elongated, narrow below, closely adherent together, lower part convex, covered with small discs or foraminate; area oval or rounded, occupying the whole width of the zoecium above, deep, with thickened margins; one or more large whip-like spines (occasionally replaced by an avicularium) below the margin of the area, and a variable number of short, sharp spines on its circumference.

E. pilosa, Linn. sp. B.M.C., Part II., p. 56; B.M.P., p. 137; P.Z.V., 106.

(= *Membranipora pilosa*, Auctt.)

E. flagellum, M'G. P.Z.V., 106.

Port Phillip Heads, J.B.W.

Bathypora, M'G.

Zoarium encrusting. Zoecia in longitudinal series, quadrate, separated by raised lines; lower part calcareous, convex, much projecting, smooth, and imperforate; area occupying the whole width of the upper part, deep, membranous, with a narrow, smooth lamina below.

B. nitens, Hincks sp. A.M.N.H., July, 1880.

(= **B. porcellana**, M'G. P.Z.V., 106. = *Membranipora nitens*, Hincks.)

Portland, C.M.

Membranipora, *Blainville*.

Zoarium encrusting. Zoecia with the area occupying the whole front, or with part of the zoecium produced below; area entirely membranous.

a. Front entirely occupied by the membranous area.

M. membranacea, *Linnaeus* sp. B.M.C., Part II., p. 56; P.Z.V., 25; B.M.P., p. 140.

M. serrata, *M'G.* P.Z.V., 127.

Var. **acifera**, *M'G.* P.Z.V., 127.

b. Zoecium produced below the area; margin of area with a series of incurved spines.

(= *Callopora*, *Gray*.)

M. inarmata, *Hincks* P.Z.V., 127.

M. pecten, *M'G.* P.Z.V., 127.

M. pyrula, *Hincks*. P.Z.V., 127.

(= *M. lineata*, *M'G.* P.Z.V., 26.)

M. corbula, *Hincks*. P.Z.V., 127.

M. amplectens, *Hincks*. A.M.N.H., Aug., 1881.

Port Phillip Heads, J.B.W.

Amphiblestrum, *Gray*.

Zoarium encrusting. Zoecia with the area occupying the whole front, or with part of the zoecium produced below; area partly filled in below by an additional membranous or calcareous lamina.

a. Lamina membranous.

A. umbonatum, *Busk*. B.M.C., Part II., p. 57; P.Z.V., 26; C.P., p. 66.

A. cervicorne, *Busk*. B.M.C., Part II., p. 57; P.Z.V., 25; C.P., p. 66.

A. punctigerum, *Hincks* sp. P.Z.V., 106.

A. Flemingii, *Busk*. B.M.C., Part II., p. 58; B.M.P., p. 162; P.Z.V., 106.

A. spinosum, *Quoy and Gaimard?* P.Z.V., 127.

A. ciliatum, *M'G.* P.Z.V., 25 and 127.

A. albispinum, *M'G.* P.Z.V., 127.

A. bursarium, *M'G.* T.R.S.V., July, 1886.

(= *A. Rosellii*, *M'G.* P.Z.V., 26; T.R.S.V., Dec., 1881.)

b. Lamina Calcareous.

A. patellarium, *Moll.* sp.? P.Z.V., 117.

A. argenteum, *M'G.* T.R.S.V., Nov., 1886.

(= *Lepralia trifolium*, *M'G.* P.Z.V., 27)

A. permunitum, *Hincks*. P.Z.V., 106.

Biflustra, *D'Orbigny*.

Zoarium encrusting, or erect, foliaceous, and uni- or bilaminar. Zoecia depressed, elongated, more or less quadrate, separated by much raised, highly calcified, usually crenulated margins; area par-

tially filled in below and occasionally on the sides, by a calcareous, usually granulated, lamina, which generally slopes downwards from the margins.

B. delicatula, *Busk.* P.Z.V., 57.

B. perfragilis, *M'G.* P.Z.V., 57.

? **B. Lacroixii**, *Aud. sp.* B.M.C., Part II., p. 60; B.M.C., p. 129; P.Z.V., 26.

B. papulifera, *M'G.* P.Z.V., 106.

Port Phillip Heads, J.B.W.

B. bimamillata, *M'G.* P.Z.V., 106.

Portland, C.M.

Caleschara, *M'G.*

Zoarium encrusting, or erect, and uni- or bilaminar. Zoecia separated by distinct, raised, calcareous margins; front covered by a thick epitheca, beneath which the calcareous front wall is bevelled to the depressed centre; on each side of the calcareous front is a longitudinal fissure, and across the upper part a thickened bar, leaving a membranous portion above containing the mouth, the operculum of which is incomplete. Oecia altered and expanded zoecia.

C. denticulata, *M'G.* P.Z.V., 48; C.P., p. 76.

Family. MICROPORIDÆ.

Zoarium encrusting or free and unilaminar. Zoecia quadrate, separated by distinct, thick, raised margins; front depressed, calcareous, beneath a thick epitheca; operculum complete.

Thairopora, *M'G.*

(= Membranipora in part.)

Zoecia quadrate, in transverse and linear series; surface uniform, but the sub-epithecal, calcareous lamina sometimes with a transverse fissure; chamber single; mouth straight; a stout, erect, unarticulated process on each side above. Avicularia replacing zoecia.

T. dispar, *M'G.* P.Z.V., 26.

T. Woodsii, *M'G.* P.Z.V., 26.

T. mamillaris, *Lamk.* P.Z.V., 26.

T. armata, *M'G.* T.R.S.V., 1881.

T. Jervisii, *Hincks sp.* T.R.S.V., July, 1886.

Sorrento, Rev. Dr. Porter.

Diploporella, *M'G.*

Zoecia quadrate, divided into two parts, the anterior depressed, the posterior forming a box-like elevation; surface beneath the epitheca calcareous, perforated, and in the anterior portion with a transverse fissure; a stout, hollow, unarticulated, calcareous process on each side of the mouth. Avicularia replacing zoecia.

D. cincta, *Hutton sp.* T.R.S.V., April, 1880.

Micropora, *Hincks*.

Zoecia with the lower edge of the mouth thickened by a calcareous band; oral spines, when present, slender and articulated. Avicularia at the base of the zoecia. Oecia external, prominent.

M. perforata, *M'G.* P.Z.V., 25, 36.

M. coriacea, *Esper sp.* B.M.C.; Part II., p. 57; B.M.P., p. 174.

Var. *angusta*, *M'G.* T.R.S.V.; July, 1886.

Family. STEGANOPORELLIDÆ.

Zoarium encrusting or free and uni- or bilaminar. Zoecia quadrate, arched above, separated by thick calcareous margins; divided into two chambers, an upper closed by the thick epitheca, and a lower separated by a perforated calcareous lamina and opening anteriorly by a tubular orifice. Oecia altered zoecia.

Steganoporella, *Smitt*.

The only genus.

S. magnilabris, *Busk sp.* B.M.C., Part II., p. 62; P.Z.V., 60; C.P., p. 75.

Family. CRIBRILINIDÆ.

Zoarium encrusting or erect, foliaceous, and unilaminar. Zoecia contiguous or disjunct; front occupied by a series of ribs converging to a median line, and separated by grooves, which are either closed or perforated; or with variously arranged large, rounded, smooth-edged foramina.

Membraniporella, *Smitt*.

Zoarium adnate or foliaceous. Zoecia contiguous or disjunct; front closed by a series of flattened, more or less consolidated, calcareous ribs.

M. distans, *M'G.* T.R.S.V., July, 1882.

Cribrilina, *Gray*.

Zoarium encrusting, or adnate or erect. Front of zoecia with radiating furrows occupied by regular series of perforations, or irregularly pierced by large, more or less rounded, foramina; mouth semicircular or suborbicular, entire below.

C. radiata, *Moll. sp.* B.M.P., p. 185; C.P., p. 131.

C. setirostris, *M'G.* T.R.S.V., Oct., 1882.

Port Phillip Heads.

C. monoceros, *Busk.* B.M.C., Part II., p. 72; P.Z.V., 35.

C. acanthoceros, *M'G.* T.R.S.V., July, 1886.

Hiantopora, *M'G.*

Zoarium loosely adnate, attached by radical fibres. Zoecia with the anterior surface occupied by irregular, rounded foramina; mouth sub-triangular, one or more sharp, calcareous denticles on one side, and on the lower edge of the peristome a large sessile avicularium, with the mandible opening upwards.

H. ferox, *M.G.* P.Z.V., 38.

Family. MICROPORELLIDÆ.

Zoarium encrusting or erect, and uni- or bilaminar. Zoecia with the mouth entire below; front pierced by a single special pore or perforated plate, or by several pores, opening into the perivisceral cavity. Oecia prominent and external, or modified zoecia.

Microporella, *Gray*.

Mouth of zoecium rounded, arched above, straight below; a single zoecial pore or a perforated plate below the mouth. Oecia external.

M. ciliata, *Linn. sp.* B.M.C., Part II., p. 72; P.Z.V., 37; B.M.P., p. 206; C.P., p. 138.

Var. **personata**, *Busk.* B.M.C., Part II., p. 74; C.P., p. 137; B.M.P., p. 207.

Var. **umbonata**, *M.G.* MSS.

M. diadema, *M.G.* P.Z.V., 37.

Var. **lunipuncta**, *M.G.* T.R.S.V., Nov., 1884.

Var. **lata**, *M.G.* T.R.S.V. Nov., 1884.

Var. **longispina**, *M.G.* T.R.S.V., Nov., 1884.

Var. **canaliculata**, *M.G.* T.R.S.V., Nov., 1884.

(= *Lepralia canaliculata*, *M.G.* P.Z.V.)

M. renipuncta, *M.G.* T.R.S.V., July, 1882.

M. Malusii, *Andouin sp.* B.M.C., Part II., p. 83; P.Z.V., 36; B.M.P., p. 211; C.P., p. 137.

Var. **thyreophora**, *Busk sp.* Q.J.M.Sc. V. 172.

Var. **umbonata**, *M.G.* MSS.

M. scandens, *M.G.* T.R.S.V., Nov., 1884.

Escharipora, *Smitt*.

Zoarium encrusting, mouth arched above, straight below; several stellate, zoecial pores on the front of the zoecia. Avicularian mandibles without projecting articular points.

E. stellata, *Smitt.* T.R.S.V., July, 1882.

Port Phillip Heads, J.B.W.

Tessaradoma, *Norman*.

(= *Porina*, *Hincks*.)

Zoarium encrusting or foliaceous and unilaminar, or erect and ramose. Zoecium with the peristome produced and turned forward in a tubular or subtubular manner; a median tubular zoecial pore.

T. magnirostris, *M.G.* T.R.S.V., July, 1882.

Adeona, *Lamx*.

Zoarium usually erect and bilaminar, continuous or fenestrate; attached by a slightly flexible stem, composed of radical tubes more

or less calcified. Zoecia with the mouth subcircular, and one or several clustered zoecial pores. Oecia modified zoecia. Avicularian mandibles with projecting articular processes at the basal angles.

a. Continuous.

b. Fenestrate.

(= Dictyopora, *M'G.*)

A. cellulosa, *M'G.* P.Z.V., 47.

A. Wilsoni, *M'G.* P.Z.V., 66.

Port Phillip Heads, J.B.W.

A. albida, *Kirchenpauer.*

Var. **avicularis**, *M'G.* P.Z.V., 66; J.B.W.

A. grisea, *Lamx.* P.Z.V., 66; J.B.W.

Adeonellopsis, *M'G.*

Zoarium usually erect and bilaminate, continuous, attached by a rigid base. Zoecia with the mouth subcircular. Oecia—altered zoecia. Avicularian mandibles with projecting articular processes at the basal angles.

A. mucronata, *M'G.* P.Z.V., 48.

A. foliacea, *M'G.* T.R.S.V., Nov., 1885.

Western Port, J.B.W.

A. Australis, *M'G.* T.R.S.V., Nov., 1885.

A. parvipuncta, *M'G.* T.R.S.V., Nov., 1885.

A. latipuncta, *M'G.* T.R.S.V., Nov., 1885.

Family. *ESCHARIDÆ.*

Zoarium crustaceous, erect, and uni- or bilaminate or dendroid. Zoecia entirely calcareous, horizontal, entire, or variously punctured, but without special pores opening into the perivisceral cavity. Oecia external.

Sub-family. *SCHIZOPORELLINÆ.*

Lower lip with a distinct notch or sinus. No true peristome.

Schizoporella, *Hincks.*

Zoarium encrusting, or erect and foliaceous. Zoecia closely adherent to each other.

S. Cecilii, *Audouin sp.* P.Z.V., 35; B.M.P., p. 269; C.P., p. 161.

S. schizostoma, *M'G.* P.Z.V., 38.

(= ? *L. Kirchenpaueri*, *Heller.*)

S. circinata, *M'G.* P.Z.V., 35.

S. Maplestoni, *M'G.* P.Z.V., 35; C.M.

S. vitrea, *M'G.* P.Z.V., 38.

(= also probably *L. botryoides*, *M'G.* P.Z.V., 38.)

- S. triangula**, *Hincks*. A.M.N.H., July, 1881; C.P., p. 167.
S. lata, *M'G.* T.R.S.V., July, 1882.
S. punctigera, *M'G.* T.R.S.V., July, 1883.
S. dædala, *M'G.* T.R.S.V., July, 1882, and Oct., 1886.
 (= *S. insignis* *M'G.* non *Hincks* = *S. controversa* *Hincks*, ? *Waters*.)
S. arachnoides, *M'G.* T.R.S.V., Oct., 1882.
S.^s Ridleyi, *M'G.* T.R.S.V., Oct., 1862.
S. anceps, *M'G.* P.Z.V., 35.
S. latisinuata, *Hincks*. A.M.N.H., Aug., 1882.
 Port Phillip Heads, J.B.W.
S. subsinuata, *Hincks*. A.M.N.H., Oct., 1884.
 Port Phillip Heads, J.B.W.
S. pulcherrima, *M'G.* T.R.S.V., Nov., 1884.
S. biturrita, *Hincks*. A.M.N.H., Oct., 1884.
S. cryptostoma, *M'G.* T.R.S.V.
 Port Phillip Heads. J.B.W.
S. Woosteri, *M'G.* T.R.S.V., July, 1886.
 Queenscliff, Mr. Wooster.
S. hyalina, *Linn. sp.* B.M.C., Part II., p. 84; B.M.P., p. 271;
 C.P., p. 148.
S. pellucida, *M'G.* P.Z.V., 38.
 (probably var. of preceding.)
S. rostrata, *M'G.* T.R.S.V., Nov., 1886.
 Port Phillip Heads, J.B.W.
S. pachnoides, *M'G.* T.R.S.V., Nov., 1886.

Parmularia, *Busk*, *MSS.*

Zoarium foliaceous, bilaminate, attached by a large, flexible radical tube. Zoecia oblique.

- P. obliqua**, *M'G. sp.* P.Z.V., 48.

Hippothoa, *Lamouroux*.

Zoarium adnate. Zoecia distant, connected by creeping tubes so as to form linear series, or partly clustered in small patches.

- H. distans**, *M'G.* T.R.S.V., 1868.
 (= *H. flagellum*, *Manzoni*. B.M.P., p. 293; C.P., p. 4.)
H. divaricata, *Busk*. B.M.C., Part I., p. 30; C.P., p. 4.

Gemellipora, *Smitt*.

Zoarium crustaceous, or erect and ramose. Mouth horse-shoe shaped or pyriform, with a prominent denticle on each side for the articulation of the operculum; lower lip with a deep sinus.

- G. striatula**, *Sm.* T.R.S.V., July, 1882.

Sub-family. LEPRALINÆ.

Lower lip of mouth entire; no special development of the peristome.

Lepralia, Johnston.

Zoarium encrusting or erect, and uni- or bilaminar. Zoecia closely adherent to each other; mouth horse-shoe shaped, usually slightly contracted at the sides; lower lip straight or slightly hollowed.

L. Pallasiana, *Moll.* B.M.C., Part II., p. 81; B.M.P., p. 297.

(= *pertusa*, P.Z.V., 36.)

L. pertusa, *Espar sp.* B.M.C., Part II., p. 80; B.M.P., p. 305.

L. elegans, *M'G.* P.Z.V., 36.

L. subimmersa, *M'G.* P.Z.V., 35.

L. quadrata, *M'G. sp.* P.Z.V., 48.

L. bifrons, *Hincks.* A.M.N.H., Oct., 1884. J.B.W.

Not seen by me.

L. setigera, *Smitt sp.* T.R.S.V., July, 1882.

Chorizopora, Hincks.

Zoarium encrusting. Zoecia elongated, more or less distant, and connected by a tubular network; mouth arched above, straight or hollowed below; each zoecium surmounted by an avicularium with the mandible directed upwards. Oecia pyriform, with a small avicularium on the summit.

C. Brogniartii, *Audouin sp.* B.M.C., Part II., p. 65; B.M.P., p. 224; P.Z.V., 36; C.P., p. 148.

C. vittata, *M'G.* P.Z.V., 37.

Petralia, M'G.

Zoarium erect, foliaceous, stony, unilaminar, fenestrate. Zoecia horizontal, distinct throughout the entire thickness of the zoarium, and sharply defined behind; mouth nearly circular, with a sharp denticle on each side below.

P. undata, *M'G.* P.Z.V., 63.

Cyclicopora, Hincks.

Zoarium encrusting or loosely adnate. Zoecia elongated; mouth subcircular, turned forwards, with slightly thickened margin. Oecia prominent.

C. longipora, *M'G. sp.* P.Z.V., 116.

Sub-family. MUCRONELLINÆ.

Zoecia with the primary mouth entire or (Rhynchopora), with a sinus below; secondary mouth differing from the primary by the special development of the peristome.

Porella, Gray.

Primary mouth semi-circular; secondary mouth with a projection of the peristome below, within or on the edge of which is a small avicularium with a rounded mandible.

- P. marsupium**, *M'G. sp.* P.Z.V., 35; T.R.S.V., Oct., 1882; C.P., p. 147.
P. formosa, *M'G.* T.R.S.V., July, 1886.
P. concinna, *Busk sp.* B.M.C., Part II., p. 67; B.M.P., p. 323.
P. papulifera, *M'G.* P.Z.V.
 (= ? *P. rostrata*, *Hincks* = *Mucronella Serratiostris*, *M'G.*)

Smittia, *Hincks.*

Primary mouth semicircular, with a square denticle on the lower margin; secondary mouth elongated, the peristome raised on the sides, and leaving a spout-like channel below, in which is usually lodged an avicularium.

- S. Landsborovii**, *Busk.* B.M.C., Part II., p. 66; B.M.P., p. 341.
 Var. *porinoides*, *M'G.* MSS.
S. oculata, *M'G.* T.R.S.V., July, 1882; J.B.W.
S. marionensis, *Busk.* B.M.C., Part II., p. 67; C.P., p. 152.
S. trispinosa, *Johnston sp.* B.M.C., Part II., p. 70; B.M.P. p. 353.
 Var. *bimucronata*, *Hincks.* A.M.N.H., May, 1884.
S. spathulata, *M'G.* T.R.S.V., July, 1882.
S. calceolus, *M'G.* T.R.S.V., July, 1886.
S. cribraria, *M'G.* T.R.S.V., Nov., 1885.

Adeonella, *Busk.*

Zoarium usually erect and bilaminate. Zoecia distinct; primary mouth hollowed or sinuated below; peristome developing a process from each side below, the two meeting in the middle to leave a round, suboral foramen opening into the throat in front of the operculum. Oecia modified zoecia.

- A. dispar**, *M'G.* P.Z.V., 48.
A. platalea, *Busk.* B.M.C., Part II., p. 90; P.Z.V., 48; C.P., p. 184.

Porina, *D'Orbigny.*

Zoarium encrusting or erect and bilaminate. Zoecia indistinct, primary mouth subcircular, peristome produced from each side and meeting in the front, leaving one or more suboral pores opening into the throat in front of the operculum.

- P. gracilis**, *M. Edwards sp.* B.M.C., Part II., p. 91; P.Z.V., 48; C.P., 141.
P. larvalis, *M'G.* P.Z.V., 37.

Mucronella, *Hincks.*

Primary mouth semicircular or suborbicular, secondary mouth with the peristome of the lower lip much elevated into a projecting muero.

- M. tricuspis**, *Hincks.* P.Z.V., 116; C.P., p. 159.
 Var. *munita*, *M'G.* P.Z.V., 116; J.B.W.

- M. excavata*, *M'G.* P.Z.V., 38; (probably var. *M. coccinea*).
M. vultur, *Hincks.* P.Z.V., 116.
M. Ellerii, *M'G.* P.Z.V., 37.
M. lævis, *M'G.* P.Z.V., 116; J.B.W.
M. diaphana, *M'G.* P.Z.V., 35.
M. papillifera, *M'G.* P.Z.V., 37.
M. avicularis, *M'G.* T.R.S.V., March, 1886; J.B.W.
M. spinosissima, *Hincks.* A.M.N.H., Aug., 1881.

Bracebridgia, *M'G.*

Zoarium encrusting, or erect and bilaminate. Mouth subcircular, with an internal denticle; peristome raised, thick, vicarious avicularia on the free margin of the branches, the triangular mandibles with a projecting articular process at each lower angle.

- B. pyriformis*, *Busk sp.* C.P., p 155; T.R.S.V., Nov., 1885.

Rhynchopora, *Hincks.*

Zoarium encrusting. Zoecia closely adherent to each other. Primary mouth transversely elongated, with a sinus in the lower lip; secondary mouth with a prominent mucro on the lower margin, and an uncinatè process immediately above it within the mouth. -}

- R. bispinosa*, *Johnston.* B.M.C., Part II., p. 77; B.M.P., p. 385.
R. longirostris, *Hincks.* A.M.N.H., Aug., 1881.
R. profunda, *M'G.* T.R.S.V., Oct., 1881; J.B.W.
 (Probably a deeply calcified form of preceding.)

Family. CELLEPORIDÆ.

Zoarium encrusting or more or less free and uni- or bilaminate, or dendroid, or forming clustered masses. Zoecia (adult) urceolate, irregularly heaped together, the upper parts being free; mouth terminal, sub-circular, or with a straight or hollowed lower lip, with or without a sinus.

Lagenipora, *Hincks.*

Zoarium encrusting. Zoecia flask-shaped, mouth subcircular without a sinus.

- L. tuberculata*, *M'G.* T.R.S.V., July, 1882.
L. nitens, *M'G.* T.R.S.V., Oct., 1886.
 Port Phillip Heads, J.B.W.

Lekythopora, *M'G.*

Zoecia flask-shaped or elongated, oblique or erect and crowded; primary mouth with a deep notch in the lower lip, and a small avicularium at one side; secondary mouth with the peristome produced into a long, tubular orifice, on one side of the margin of which is the avicularium, connected with its original position by a minute semi-

spiral tube. Oœcia projecting from the front of the zoœcia below the mouth, covered by a chitinous or subcalcareous plate.

L. hystrix, *M'G.* T.R.S.V., Oct., 1882, and Nov., 1884.

Pœcilopora, *M'G.*

Zoarium erect, bilaminar, branched. Zoœcia indistinct; primary mouth with a sinus; peristome commencing on an elevated point with a small avicularium on the summit, finally becoming a tumid, subcircular ring. Oœcia immersed, covered by a perforated plate.

P. anomala, *M'G.* T.R.S.V., Nov., 1885.

Port Phillip Heads, J.B.W.

Cellepora, *Fabricius*.*

Zoarium crustaceous, adnate, or glomerulous, or foliaceous and partly free, or ramose. Zoœcia, in the crustaceous and foliaceous forms, erect and confused in the central parts, decumbent at the growing edges; one or more rostral processes, usually bearing avicularia, in the neighbourhood of the mouth (but sometimes absent), usually numerous other scattered avicularia of various forms, frequently raised on calcareous elevations.

C. hastigera, *Busk.* C.P., p. 192.

C. diadema, *M'G.* MSS.; J.B.W.

C. albirostris, *Smitt sp.* C.P., p. 193.

C. lirata, *M'G.* MSS.

C. fusca, *Busk.* B.M.C., Part II., p. 88.

C. prolifera, *M'G.* MSS.

C. foliata, *M'G.* MSS.

C. verrucosa, *M'G.* MSS.

C. spicata, *M'G.* MSS.

C. muscosa, *M'G.* MSS.

C. denticulata, *M'G.* MSS.

C. simplex, *M'G.* MSS.

C. intermedia, *M'G.* T.R.S.V., 1868.

C. hispinata, *Busk.* B.M.C., Part II., p. 87.

C. speciosa, *M'G.* P.Z.V., 128.

C. mamillata, *Busk.* B.M.C., Part II., p. 87.

C. cellulosa, *M'G.* MSS.

C. tridenticulata, *Busk.* P.Z.V., 128.

C. longirostris, *M'G.* T.R.S.V., Nov., 1884.

C. munita, *M'G.* T.R.S.V., Nov., 1884.

C. megasoma, *M'G.* T.R.S.V., Nov., 1884.

C. serratirostris, *M'G.* P.Z.V., 128.

C. costata, *M'G.* T.R.S.V., 1868.

C. rota, *M'G.* T.R.S.V., Nov., 1884.

*The species of *Cellepora* which are distinguished only by MSS. names will be described in my next communication to the Society.

- C. Costazii**, *Audoium*. T.R.S.V., Nov., 1884.
C. platalea, *M'G.* T.R.S.V., Nov., 1884.
C. glomerulata, *M'G.* MSS.
C. vitrea, *M'G.* MSS.; J.B.W.
C. tiara, *M'G.* MSS.; J.B.W.
C. benemunita, *M'G.* MSS.

Family. RETEPORIDÆ.

Zoarium calcareous, erect, foliaceous, reticulate or ramose, originating from a contracted base. Zoecia oblique, closely united or immersed, indistinct posteriorly.

Retepora, *Imperato*.

Zoarium usually fenestrate or reticulate, rarely simply branched; posterior surface vibicate.

- R. monilifera**, *M'G.* P.Z.V., 94, 95, 96.
 Form *sinuata*, *M'G.* 94, 96.
 Form *munita*, *Hincks*.
 Var. *lunata*, *M'G.* P.Z.V., 94, 96.
 Var. *acutirostris*, *M'G.* P.Z.V., 94, 96.
 Form *umbonata*, *M'G.* P.Z.V., 94, 97.
R. formosa, *M'G.* P.Z.V., 94, 97.
R. carinata, *M'G.* P.Z.V., 94, 96.
R. aurantiaca, *M'G.* P.Z.V., 94, 98.
R. tessellata, *Hincks*. P.Z.V., 94, 99.
R. serrata, *M'G.* P.Z.V., 94, 99.
R. granulata, *M'G.* P.Z.V., 94, 99.
R. porcellana, *M'G.* P.Z.V., 94, 95.
 Var. *laxa*, *M'G.* P.Z.V., 94, 95.
R. phœnicea, *Busk*. B.M.C., Part II., p. 94; P.Z.V., 94, 98.
R. fissa, *M'G.* P.Z.V., 94, 95.
 (= *R. marsupiata*, *Smitt.*)
R. avicularis, *M'G.* P.Z.V., 94, 95.

Family. SELENARIIDÆ.

Zoarium more or less regularly orbicular, convex on one side, plane or concave on the other, probably free. Furnished with large and powerful vibracula.

Selenaria, *Busk*.

Only a certain number of zoecia dispersed throughout the zoarium furnished with vibracula. The front of each cell so furnished, covered by a cribriform, calcareous expansion; others arched above, contracted below; under surface of zoarium marked with grooves.

- S. maculata**, *Busk*. B.M.C., Part II., p. 101.

Port Phillip Heads, J.B.W.

Sub-Order II. CYCLOSTOMATA, *Busk.*

1. Articulata s. radicata.

Zoarium free, branched, divided into distinct internodes by flexible joints, attached by radical tubes. Zoecia tubular, calcareous, in one or two series.

Family. CRISIIDÆ.

The only family.

Crisia, Lamouroux.

Two or more zoecia in each internode, in two alternate series.

- C. Edwardsiana**, *D'Orb.* B.M.C., Part III., p. 5; P.Z.V., 39.
C. biciliata, *M'G.* P.Z.V., 39.
C. setosa, *M'G.* P.Z.V., 39.
C. tenuis, *M'G.* P.Z.V., 39.
C. acropora, *Busk.* B.M.C., Part III., p. 6; P.Z.V., 39.
C. margaritacea, *Busk.* B.M.C., Part III., p. 6.

II. Inarticulata.

Zoarium continuous, not divided into internodes, erect, adnate or encrusting; radical tubes, when present, multilocular and calcareous.

Family. IDMONEIDÆ.

Zoarium erect, branched, branches distinct or anastomosing. Zoecia distinct, opening on one surface only.

Idmonea, Lamouroux.

Zoecia arranged in parallel or subparallel rows, diverging from the mesial line.

- I. radians**, *M. Edwards.* B.M.C., Part III., p. 11; P.Z.V., 68.
I. Australis, *M'G.* P.Z.V., 68.
I. Atlantica, *E. Forbes.* B.M.C., Part III., p. 11; B.M.P., p. 451.
 Port Phillip Heads, J.B.W.
 Var. **tenuis**, *Busk.* B.M.C., Part III., p. 11.
 Port Phillip Heads, J.B.W.
I. Milneana, *D'Orb.* B.M.C., Part III., p. 12.; P.Z.V., 68.
I. interjuncta, *M'G.* T.R.S.V., Nov., 1885.
 Port Phillip Heads, J.B.W.

Hornera, Lamouroux.

Zoarium branched, branches distinct, anastomosing, or connected by transverse bars. Zoecia distinct, opening irregularly on one surface.

- H. ramosa**, *M'G.* T.R.S.V., Nov., 1886.

- H. robusta**, *M'G.* P.Z.V., 118.
H. foliacea, *M'G.* B.M.C., Part III., p. 19; P.Z.V., 118.

Family. TUBULIPORIDÆ.

Zoarium encrusting or adnate, or partially or wholly erect; when erect, bilaminar or cylindrical. Zoecia tubular, when zoarium erect, opening on both sides. No intercellular cancelli. Oecium an inflation of part of the zoarium.

Tubulipora, *Lamouroux.*

Zoarium adnate, irregularly shaped, frequently lobed or flabellate. Zoecia elongated, tubular, distinct, partially free, arranged in more or less diverging series.

- T. clavata**, *M'G.* T.R.S.V., 1884.
T. serpens, *Linn. sp.* B.M.C., Part III., p. 25; B.M.P., p. 453.
T. connata, *M'G.* T.R.S.V., 1884.
T. pulchra, *M'G.* T.R.S.V., 1884.
T. lucida, *M'G.* T.R.S.V., Dec., 1884.
T. concinna, *M'G.* T.R.S.V., 1884.
T. corrugata, *M'G.* MSS.

Stomatopora, *Bronn.*

Zoarium adnate, simple or irregularly branched; branches linear or ligulate. Zoecia in simple series or in more or less regular transverse rows.

(= *Alecto.*)

- S. geminata**, *M'G.* T.R.S.V., March, 1886.
 Port Phillip Heads, J.B.W.

Diastopora, *Johnston.*

Zoarium adnate, discoid or flabelliform, or wholly or partly raised and bilaminar. Zoecia tubular, with an elliptical or sub-circular orifice, crowded and immersed towards the centre, more distinct and partially free towards the margins.

- D. patina**, *Lamarck.* B.M.C., Part III., p. 28; B.M.P., p. 458.
D. Sarniensis, *Norman.* B.M.P., p. 463.
D. bicolor, *M'G.* T.R.S.V., Dec., 1884.
 Port Phillip Heads, J.B.W.
D. cristata, *M'G.* T.R.S.V., May, 1886.
 Port Phillip Heads, J.B.W.
D. capitata, *M'G.* T.R.S.V., May, 1886.
 Port Phillip Heads, J.B.W.

Liripora, *M'G.*

Zoarium crustaceous, growing on a basal lamina. Zoecia not projecting, arranged in single or multiple series, forming raised ridges radiating more or less regularly from a central part, opening

along the summits of the ridges or towards their extremities, intervening grooves occupied by a punctate calcareous membrane.

L. lineata, *M'G. sp.* T.R.S.V., 1884.

L. fasciculata, *M'G. sp.* T.R.S.V., 1884.

Port Phillip Heads, J.B.W.

Entalophora, *Lamouroux.*

(= Pustulopora, Bl., &c.)

Zoarium erect, branched; branches cylindrical or clavate, with the tubular zoecia opening all round.

E. Australis, *Busk.* B.M.C., Part III., p. 21.

E. delicatula, *Busk.* B.M.C., Part III., p. 20.

Port Phillip Heads, J.B.W.

E. regularis, *M'G. sp.* T.R.S.V., Dec., 1882.

Family. DISCOPORELLIDÆ.

Zoarium irregularly shaped, discoid, cupped and partially free, or stalked, usually with a thin calcareous border. Zoecia distinct, disposed irregularly or in radiating lines, with the intermediate surface cancellate or porous; or prismatic, of different sizes, and closely packed.

Lichenopora, *Defranc.*

Zoarium adnate or partially free, frequently discoid or cupped, usually growing on a basal lamina, with a thin external margin. Zoecia partially free, disposed irregularly or in radiating series, with the intermediate surface cancellated; peristome usually lacerated or pointed to one side.

L. reticulata, *M'G.* T.R.S.V., Dec., 1883.

L. fimbriata, *Busk.* B.M.C., Part III., p. 32.

(? = *L. hispida*, *Fleming sp.*)

L. echinata, *M'G.* T.R.S.V., Dec., 1883.

L. pristis, *M'G.* T.R.S.V., Dec., 1883.

L. magnifica, *M'G.* T.R.S.V., July, 1886.

Port Phillip Heads, J.B.W.

L. bullata, *M'G.* T.R.S.V., July, 1886.

Port Phillip Heads, J.B.W.

L. radiata, *Audouin sp.* B.M.C., Part III., p. 32; B.M.P., p. 476.

L. Holdsworthi, *Busk.* B.M.C., Part III., p. 33.

Port Phillip Heads.

L. Wilsoni, *M'G.* T.R.S.V., Nov., 1886.

Port Phillip Heads, J.B.W.

Densipora, *M'G.*

Zoarium encrusting, discoid when young, when older thrown into ridges, the summits of which are fringed by smooth tubercles.

Zoecia tubular or prismatic, closely packed, of varying size, with the mouth not projecting. No proper cancelli.

D. corrugata, *M'G.* T.R.S.V., April, 1880.

Favosipora, *M'G.*

Zoarium encrusting, flat or elevated into irregular ridges, the whole surface of which is occupied by zoecia. Zoecia prismatic, closely packed, of various sizes, usually not projecting, but occasionally with the mouth produced towards the edges of the zoarium or the summits of the ridges.

F. rugosa, *M'G.* T.R.S.V., 1884.

Flosculipora, *M'G.*

Zoarium small, pedunculate, the peduncle consisting of smooth tubes or ridges, with intervening cancelli towards the upper part. Zoecia opening on the expanded summit, the peristome produced, dimidiate or lacerated, with numerous intermediate cancelli.

F. pygmæa, *M'G.* T.R.S.V., July, 1886.

Port Phillip Heads, J.B.W.

Family. **FRONDIPORIDÆ.**

Zoarium massive, stipitate, simple or ramose. Zoecia tubular, connate, continuous from the base, aggregated into fasciculi, opening only at the extremities or in regular series at the sides of the branches. No cancelli.

Fasciculipora, *D'Orb.*

Zoarium erect, simple or branched or lobate. Zoecia opening only at the extremities of the branches or (in *F. bellis*) in one or more regular series below the extremity.

F. gracilis, *M'G.* T.R.S.V., Dec., 1882.

F. bellis, *M'G.* T.R.S.V., Dec., 1883.

F. fruticosa, *M'G.* T.R.S.V., Dec., 1883.

F. ramosa, *D'Orb.* B.M.C., Part III., p. 37.

Portland, C.M.

Sub-Order III. **CTENOSTOMATA**, *Busk.*

Family. **FLUSTRELLIDÆ.**

§ Zoarium adherent or erect, gelatinous. Zoecia with a bilabiate orifice.

Frustrella, *Gray.*

The only genus.

F. cylindrica, *Hincks.*

(= *F. hispida*, var. *cylindrica*, *Hincks.* A.M.N.H., May, 1884).

Family. VESICULARIIDÆ.

"Zoecia contracted below, not closely united to the stem at the base, deciduous, destitute of a membranous area."

Amathia, *Lamouroux*.

Zoarium consisting of a creeping tubular stem and erect filiform shoots, dichotomously branched. Zoecia subtubular, in two parallel rows, continuous or in distinct groups, which are placed on one or both sides of the stem, or wind spirally round it.

A. Australis, *Tenison Woods*. P.R.S., N.S.W., 1877.

A. spiralis, *Lamx.* T.R.S.V., 1880.

A. tortuosa, *Tenison Woods*. T.R.S.V., 1880.

A. bicornis, *Tenison Woods*. T.R.S.V., 1880.

A. inarmata, *M.G.* T.R.S.V., Nov., 1886.

Group B. Entoprocta, *Nitsche*.Order II. PEDICELLINEA, *Gervais*.

Family. PEDICELLINIDÆ.

Polypides borne on a retractile peduncle, united in colonies by a creeping stolon.

Pedicellina, *Sars*.

Polypides pedunculate, distributed along a creeping, ramified stolon, the body separated by a diaphragm from the stem and deciduous; tentacular crown terminal.

P. ————— *sp.*

Queenscliff.

Pedicellinopsis, *Hincks*.

"Polypides cup-shaped, supported on chitinous tubes with a much enlarged base (consisting of an opaque white core, probably muscular, enveloped in a chitinous covering) by which they are attached to an erect tubular stem. Zoarium adherent by means of tubular root fibres."

P. fruticosa, *Hincks*. A.M.N.H., May, 1884.

Port Phillip Heads, J.B.W.

BIBLIOGRAPHY.

Only the more important works, and those especially relating to Australian species, are here included. There are many other valuable papers scattered through various periodicals and transactions of societies, and the Polyzoa are also treated of in numerous works on Paleontology.

- Allman, J. G., *Monograph of the British Fresh-water Polyzoa*, 1856.
 „ *On Rhabdopleura*, Q.J.M.S., 1869.
 „ *On Cyphonautes*, Q.J.M.S., 1872.
 Barrois, *Recherches sur l'Embryologie des Bryozoaires*, 1877.
 „ *Embryogeny of the Bryozoa; an Attempt at a General Theory of the Development, founded upon the study of their Metamorphoses*, A.M.N.H., 1874.
 Blainville, de, *Manuel d'Actinologie*, 1834.
 Busk, G., *Catalogue of the Marine Polyzoa in the British Museum, Cheilostomata 1852 to 1854, Cyclostomata 1875*.
 „ *Monograph of the Crag Polyzoa*, 1859.
 „ *Challenger Polyzoa, Cheilostomata*, 1884.
 „ *Numerous papers in Q.J.M.S.*
 D'Orbigny, *Voyage dans l'Amerique Meridionale*, 1839.
 „ *Paleontologie Française, tom. V.*, 1850—1852.
 Ellis and Solander, *Natural History of Zoophytes*, 1786.
 Etheridge, R., jun., *A Synopsis of the Known Species of Australian Tertiary Polyzoa*, Tr. Roy. Soc. N. S. Wales, 1877.
 Goldstein, J. R., *On some New Species of Bryozoa from the Marion Islands*, T.R.S.V., 1882.
 „ *A New Species of Polyzoa*, Jour. Mic. Soc. Vict., May, 1880.
 Gray, *Catalogue of Radiata in British Museum*, 1884.
 Hagenow, *Die Bryozoen der Maastrichter Kreidebildung*, 1851.
 Heller, *Die Bryozoen des Adriatischen Meers*, 1867.
 Haswell, *On some Polyzoa from the Queensland Coast*, Pro. Linn. Soc. N. S. Wales, 1881.
 „ *On the Cyclostomatous Polyzoa of Port Jackson*, do., 1880.
 „ *On the Occurrence on the Coast of New South Wales of the Genus Mesenteripora*, do., 1883.
 Hutton, *On some South Australian Polyzoa*, Proc. Roy. Soc. Tasmania, 1877.
 „ *Manual of the New Zealand Mollusca*, 1880.
 Hincks, *History of the British Marine Polyzoa*, 1880.
 „ *Numerous papers in the A.M.N.H. and Q.J.M.S.*
 Johnston, *History of British Zoophytes*, 2nd edition, 1849.
 Jullien, J., *Remarques sur quelques especes de Bryozoaires Cheilostomiens*, Bull. de la Societe Zoologique de France, 1881.

- Jullien, J., Bryozoaires du Travailleur, do., 1883.
 „ Liste des Bryozoaires recueillis à Etretat (Seine Inférieure) par le Dr. Fischer, do., 1881.
 „ Note sur une Nouvelle Division des Bryozoaires Cheilostomiens, do., 1881.
 „ Des Bryozoaires d'Eau Douce, do., 1885.
 Joliet, Bryozoaire des Côtes de la France, Arch. de Zool. exper. et gen. VI., 1877.
 Kirchenpauer, Neue Bryozoen, Cat. IV., Museum Godeffroy, 1869.
 „ Ueber die Bryozoen-Gattung Adeona, 1879.
 Lamarck, Systeme d'Animaux sans Vertebres, 2nd Ed., 1835—38.
 Lamouroux, Hist. Naturelle des Polypiers Coralligènes flexibles, &c., 1816.
 „ Exposition Methodique des Genres de l'Ordre des Polypes, 1821.
 Lankester, On Rhabdopleura, Q.J.M.Sc., 1874.
 „ Polyzoa, in Encyclopædia Britannica, Ed. 9.
 MacGillivray, P. H., Descriptions of Polyzoa in McCoy's Prodromus of the Zoology of Victoria, Decades III.—XIII.
 „ Numerous Papers in Trans. R. Soc. Victoria.
 McIntosh, On Cephalodiscus, A.M.N.H., 1882.
 Manzoni, Bryozoi Plioceni Italiani, 1869-70.
 „ Bryozoi del Pliocene Antico di Castrocaro, 1875.
 „ Supplemento alla Fauna dei Bryozoi Mediterranei, 1871.
 Maplestone, New Species of Polyzoa, J. Mic. Soc. Vict., Aug., 1879.
 Milne-Edwards, Recherches Anatomique, Physiologique et Zoologique sur le Polypes, 1838.
 Quelch, On the Oecium of *Spiralaria florea*, A.M.N.H., 1883.
 „ On *Schizoporella Ridleyi*, A.M.N.H., 1884.
 Ridley, Stuart O., "Alert" Polyzoa from the Straits of Magellan, Proc. Zool. Soc. Lond., 1881.
 „ Polyzoa, Coelenterata and Sponges of Franz Joseph Land, A.M.N.H., 1881.
 Reuss, Die Fossilen Polyparien des Wiener Tertianbeckens, 1847.
 „ Die Fossilen Bryozoen des Osterreichisch-Ungarischen Miocens, 1874.
 Sarz, On Rhabdopleura mirabilis, Q.J.M.S., 1874.
 Savigny, "Iconographie des Zoophytes de l'Egypte," descriptions by Audouin. Not seen by me.
 Smitt, "Kritisk förtreckning öfver Skandinavien's Hafs-Bryozoen," Öfersigt af Kongl. Vetenskaps-Akademiens Förhandlingar, 1865-71.
 „ Bryozoa marina in regionibus arcticis et borealibus viventia, do., 1867.
 „ Floridan Bryozoa, 1872 and 1873.
 Stolizka, Fossile Bryozoen aus des tertiären Grünsandstein der Orakei Bay, in Voyage of Novara.

- Tenison Woods, On some Tertiary Australian Polyzoa, T.R.S. N.S.W., 1876.
- „ Neozoic Corals and Bryozoa in New Zealand, in Palæontology of New Zealand, 1880.
- „ On some new Australian Polyzoa, T.R.S.N.S.W., 1877.
- „ On a new Genus of Polyzoa (Euktimenaria), Proc. L.S.N.S.W., 1879.
- „ On the Genus *Amathia*, with description of a new species, T.R.S.V., 1880.
- „ On some Recent and Fossil Species of Australian Selenariadæ, Tr. Phil. Soc. Adelaide, 1880.
- Van Beneden, Recherches sur l'Anatomie, la Physiologie et Embryogène des Bryozoaires qui habent lacôte D'Ostend, 1845.
- „ Recherches sur les Polypes Bryozoaires de la Mer du Nord.
- Vine, G. R., Report on recent Polyzoa, Rep. of Brit. Association for 1885.
- Waters, A. W., On the Use of the Opercula in the Determination of the Cheilostomatous Bryozoa, Pr. Manchi Lit. and Phil. Soc., 1879.
- „ On the Bryozoa of the Bay of Naples, A.M.N.H., 1879.
- „ On the Occurrence of Recent Heteropora, Jour. Roy. Mic. Soc., 1879.
- „ Closure of the Cyclostomatous Bryozoa, Jour. Linn. Soc., 1884.
- „ Note on the Genus Heteropora, A.M.N.H., Aug., 1880.
- „ On the Use of the Avicularian Mandibles in the Determination of the Chilostomatous Bryozoa, Jour. Roy. Mic. Soc., 1885.
- „ On Fossil Chilostomata from South West Victoria, Q.J. Geol. Soc., 1881.
- „ On Fossil Chilostomatous Bryozoa from Mt. Gambier, South Australia, do., 1882.
- „ On Chilostomatous Bryozoa from Gippsland, do., 1882.
- „ Fossil Bryozoa from Muddy Creek, Victoria, from Gippsland Geol. Soc., 1883.
- „ Chilostomatous Bryozoa from Aldinga and the River Murray Cliffs, do., Aug., 1885.
- „ On Fossil Cyclostomatous Bryozoa from Australia, do., 1884.
- Wilson, J. B., New Genus of Polyzoa, Jour. Mic. Soc. Vict., 1880.
- Wyville-Thomson, New Genera and Species of Polyzoa in the collections of Professor Harvey, Dub. Nat. Hist. Rev., 1858.