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ON SOME RECENT AND FOSSIL SPECIES  
OF  
AUSTRALIAN SELENARIADÆ (POLYZOA).

By the REV. J. E. TENISON WOODS, F.G.S., F.L.S.,  
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Adelaide Phil. Soc., &c., &c.

(Read September 2, 1879.)

[Plates I—II.]

The Selenariadæ is a family of Polyzoa, proposed by Mr. G. Busk in 1853 in the British Museum Catalogue of that class (part 2, p. 97). It is comprised in the order Gymnolamata, suborder Cheilostomata, section Inarticulata, sub-section Rigidæ, group Liberæ, or with the zoarium unattached, usually discoid, conical, or irregular. The family includes orbicular, or irregular conical or depressed zoaria, which are convex on the upper side, and plane or concave on the other. They are composed of a single layer of cells, usually of two kinds, which open on the convex surface only. They were included among Foraminifera by Lamarek and Lamouroux; but the latter classed them amongst his Milleporidæ, and suggested the subgenera *Cupularia* and *Lunulites* (Exposit. Method., p. 44), which Busk subsequently adopted as genera. The true nature of the organisms was perceived first by De Blainville, who placed them at the head of his family Cellariæ, and close to *Flustra*. He characterises his genus *Lunulites* as consisting of cellules, with a superior opening disposed in concentric circles and radiating lines, so as to form a calcareous polypidom, somewhat regular orbicular, convex above, concave below, and marked with furrows radiating from the centre to the circumference. He cites as species *L. radiata*, Lamarck (Anim. s. vert., vol. 2, p. 191), copied into the Encyclop. Meth., pl. 479, fig. 6 a. b. (Atlas, pl. 75, fig. 5 a. b.), *L. urceolata*, Lam., l. c. and Lamouroux (Gen. Polyp., pl. 73, fig. 9 to 12). He then adds that this genus has been established by Lamarck for the above two small fossils, only differing from true *Flustras* in being free and having a determinate circumscribed form. He remarks, further, that the second species had appeared in



Lamouroux's estimation to possess features entitling it to generic distinction, for which he proposed the name of *Cupularia*; and he says that in effect the disposition of the cells is somewhat different, and the polypidom is not radiate.

*Lunulites* are described by Munster (Goldfuss, Petrefac, Germ., 1826, vol. i., p. 105; plate 37, fig. 7, *L. rhomboidalis*), by Michelin (Iconograp. Zool., 1841, p. 279, plate 63, fig. 12, *L. Vaudenbeckii*), and by A. E. Reuss (Naturwissenschaftliche, Abhandlungen, Vienna, vol. ii., p. 58, plate 7, fig. 26 and 27). The genus is also mentioned by Hagenow (Bryoz., Maestr. Kreid., plate 12, fig. 15 and 16), D'Archiac (Mem. Soc., Geol. de France, vol. ii., p. 196, plate 5, and vol. iii., p. 412), Leymerie (op. cit., vol. i., p. 358, plate 13), P. H. Nyst (Descrip. des Coquilles et Polypiers Fossiles de Belgique, p. 624, plate 48, fig. 6-8), DeFrance (Diction. des Sciences Naturelles, vol. 27, p. 360, Atlas plate 50, fig. 5), Deslongchamps (Encycl. Zooph., p. 501), Morren (Descrip. Coral Foss. in Belg. report, 1828, p. 44), Lea (Contrib. to Geol., plate 6, fig. 202), Galeotti (1837, Mem. Geog. du Brabant, p. 163), Scacchi (1834, Notizie inta alle Couch ed a Zoofite Foss., p. 16, plate 2, fig. 7, 8), Lonsdale (Jour. Geol. Soc., vol. i., p. 503), S. Wood (Ann. Nat. Hist., vol. xiii., p. 18), Conrad (Silliman's Jour., Oct., 1841, vol. xli.), Gray (Spicilegium Zool., part 1, plate 8, b. 3, fig. 15), Busk (Quart. Jour. Micros. Soc., vol. vii., p. 6);\* also British Museum Catalogue of Polyzoa; Palæontographical Soc., 1857, Foss. Polyz. of the Crag, p. 78.

It is in the latter publication that Mr. Busk gives a lengthened notice of the whole family of Selenariadæ, and reviews the relations of the existing species to those known as fossil. He figures and describes two species of *Cupularia*, which are found as fossils in the Crag (Pliocene) of Suffolk, England; but one only found alive at Madiera,† the Canary Isles, and the coast of Africa. Also, two species of *Lunulites* which have no living representatives.

In spite of the divisions proposed by Mr. Busk, which are clear and convenient if not quite natural, there is some confusion still as to the limits of the family and the names of some of the genera. *Cupularia* is used by D'Orbigny as a genus of the family of FLUSTRINOIDEA, tribe FLUSTRELLARIA, which includes ESCHARIDÆ, which are entirely without pores, avicularian or vibracular pores, I suppose. This tribe includes *Trochopora*, *Discoflustrellaria*, *Cupularia*, and *Lateroflustrellaria*, all of which have the zooecia growing on a convex discoidal free zoarium. In *Trochopora* there are radiating lines like costæ

\* I have not included Cuvier, Brongniart, or Brown, as their species are doubtful.

† See Jour. Micros. Soc., Oct., 1878.

on the under surface corresponding with the lines of cells. These lines are porous. In *Discoflustrellaria* there are no pores. In *Cupularia* there are neither pores nor lines. They are secondary fossils described by D'Orbigny in his Paleontologie Francaise, vol. 5, p. 506, 513, pl. 601 and 722; DeFrance, Dict. Sciences Nat.; Michelin, Icon. Zooph., pl. 77, figs. 9 and 10. It is necessary to bear these distinctions in mind, as it will be seen they apply to some of our Australian fossil species. It seems that while Busk has employed the genus of Lamouroux in one way, D'Orbigny has done so in another, the latter having priority.

There is also some difference of definition for the genus *Lunulites*, for while Busk states that it is never attached at any stage of its growth the *Lunulites* of D'Orbigny, D'Archiac, Leymerie, and Michelin are attached during their young stage; and Hagenow (Die Bryoz., d. Maestricht. Kreidebild., p. 100, pl. 12, fig. 15, 16) states that he has seen *Lunulites semilunaris* and *L. Goldfussi* attached by the entire surface upon Belemnites. Busk thinks the attachment must have been accidental, but my own opinion is that too much importance is given to the character, as free polyzoa are sometimes found encrusting corals, &c.

Mr. Busk points out that in all the members of this family there are, in addition to the ordinary cells, others which differ in size, and whose office was variously interpreted until the discovery by Mr. McGillivray of living examples enabled Busk to determine that they were vibracular cells. The purpose served by the *vibraculum* is not well understood. The organ consists of a cup containing a muscular apparatus, and of a moveable seta articulated to the cup. The *seta* is in most cases simple and fine-pointed, but in some of the Selenariadæ it is bifid or trifid at the extremity. In *Selenaria maculata* it is spirally contorted and minutely annulated, so very closely as to resemble the proboscis of a butterfly. It may serve the purposes of defence and even locomotion, but observations on the subject are needed.

Whatever purpose they may serve, they have been made in the hands of the naturalist useful organs for classification, as will appear from the following division proposed by Mr. Busk in the British Museum Catalogue:—

#### FAMILY SELENARIADÆ.\*

Zoarium free orbicular or irregular conical or depressed, convex above flat or concave below, upper surface only celluliferous. Zooecia of two kinds disposed in series or quincuncially.

\*The orthography in the Crag Polyzoa is *Selenariidæ*.



The genera of the family are five in number, which are thus distinguished—

CUPULARIA, Lamouroux.—Each cell with a vibracular chamber at its apex or distal extremity.

LUNULITES.—The cells and vibracular chambers disposed in separate, usually alternate, rows radiating from the centre.

SELENARIA, Busk.—Some of the cells only of a different form from the rest and furnished with a vibraculum.

STICHOPORA, Hagenow.—No apparent vibracular cells.

CONESCHARELLINA, D'Orbigny.—No vibracula; mouth of cell circular. Avicularia present.

Hitherto only from Australia species have been described—one *Cupularia* and three *Lunulites*. The latter, according to Busk, are representatives of fossils found in the Cretaceous period—another interesting link between Australia and Mesozoic forms. There are five species recorded from the Pliocene formation, eight from the Miocene, seven from the Eocene, and eighteen from the Cretaceous. Of the latter species only one is a *Cupularia* and two *Stichopora*, and the rest, fifteen in number, are *Lunulites*.

*Cupularia* is now our largest genus, but the existing species of *Lunulites* are very much larger in size than the fossil forms, if we except the giant species, *L. magna*.

I have now to introduce to science twelve new species and a variety in this interesting and very beautiful family of organisms, namely, two species of *Cupularia*, five of *Lunulites* and five of *Selenaria*. Of these four are living and eight fossil. The recent forms are all from the east coast of Australia. The fossils are chiefly from the Muddy Creek Miocene beds of Western Victoria, but the following South Australian localities have contributed to the list:—Mount Gambier, polyzoal limestone; Upper Murravian beds at Morgan, and the inferior beds at Blanche Point, Aldinga Bay. Australia has been already celebrated for being the only surviving home of the almost extinct genus of *Lunulites*; and it is interesting to observe that there is a new living form of that peculiar solid type, which has been figured and described by Busk. Our four fossil forms are different from those already known.

Both the living and extinct *Cupularias* are new forms of much interest, but the relations of the fossil species are remote to any living or extinct form.

There has hitherto been only one known species of *Selenaria*, occurring on the south coast of Australia. To this I am enabled to add two others, very distinct from their congener, and three fossil forms, all of extreme interest and beauty, and of a distinct type. One of them has a peculiarity in common with one of the new living species here described, that is in

the margined ribs of the under surface, but in all other respects they differ completely. As far as we know, none of the fossil species have living representatives, but comparatively so little is known of the living polyzoal fauna of our coasts that it would be quite premature to assert that any of them are extinct. It is, however, a remarkable fact that so far as we know there are very few living representatives of the rich polyzoal fauna of our tertiary beds. But I think it may safely be affirmed that any one seeing the present collection of fossil *Selenariadæ* would not hesitate to pronounce them Australian in character, and we may therefore *assume* that in Miocene times the polyzoa had already acquired an Australian facies. I have observed elsewhere that we could never expect to find in a fossil state such genera as *Catenicella*, *Menipea*, &c., as their horny joints could not resist decay, or would not fossilise. If, therefore, the Australian Miocene fauna was more like the present, much of the evidence of this must necessarily have perished.\*

Inasmuch as there can be no definite line drawn between *Lunulites* and *Cupularia*, and because the latter generic name has been already employed in another way by D'Orbigny, I think it better to suppress the genus of *Cupularia* of Busk and regard them all as *Lunulites*. I do not think *Cupularia* can be maintained even as a sub-genus, because—as will appear when I come to deal with the genus *Lunulites* of Busk—the same individual may sometimes have the features of *Cupularia* in one part and those of *Lunulites* in another. In order, however, to correlate this part of my work with the labours of Busk I will keep the species separate according as they present the *Cupularian* or *Lunulitic* type.

Genus LUNULITES, Lamx. (*Cupularia* of Busk.)

Avicularia accompanying every cell, but not disposed in lines.

*Recent Species.*

LUNULITES (CUPULARIA) CRASSA, *Spec. nov.*

Pl. I., fig 1a—1c.

Zoarium rather large orbicular, somewhat depressed, roundly conical, solid, thick, dull yellow, margins thick elevated. Zooecia pyriform rounded, but very little elevated. Mouth pyriform with a raised margin, outside which there are irregular pores. Vibracular pore round, conspicuous, above narrow end of mouth. Under surface of zoarium, with an oblique margin of cells, the rest of the concave surface a

\*Since the above was written a most interesting discovery of fossil species of *Catenicella* has been made in the Geelong Miocene beds.



spongy texture of large rounded granules, with pores (one or two) between them. Diameter, about 10 millimetres; height, about 4.

Dredged in April, 1857, by W. S. MacLeay, at 70 to 80 fathoms, off Cape Three Points, and Port Stephens, N.S.W. About a dozen specimens are in the Macleayan Museum.

The size, thickness, and the peculiar spongy surface of this form would distinguish it without a knowledge of the cells, which are also different from any of the species described.

*Fossil Species.*

LUNULITES (CUPULARIA) RUTELLA, *Spec. nov.*

Pl. I., fig. 2a—2d.

Zoarium irregularly orbicular, thin, much depressed. Zooecia squamosely radiating, oval, somewhat depressed above, but elongating below into a projecting overlapping somewhat narrow rounded edge. Lamina immersed with two large pyriform pores at each side below, and two or three small rounded ones above. Margins thickened and raised. Avicular pores numerous, much smaller than the cells, elongately triangular, rounded at the apex, and a distinct raised margin. The whole surface finely granular and shining. Under surface with broad very irregular undulating uneven radiating sometimes bifurcating faintly granular ribs.

*Locality and Horizon.*—Muddy Creek Miocene beds, near Hamilton. Upper Murravian beds; and lower Aldinga marls (Prof. Tate).

This is one of the most elegant of our fossil species. The openings are so large and defined that without the assistance of a lens they can be discovered. The avicular pores are sometimes in a line for a series of three or four, but they are always interrupted and never in a regular line like *Lunulites*. The cells are not quincuncially arranged, so that the generic position of this species would be very doubtful. The under surface is similar to *Lunulites aperta*, and quite different from the usual kind of ornament at this part of the zoarium among *Selenariadæ*.

Genus LUNULITES, *Lamouroux*.

Cells arranged in more or less regular series radiating from the centre. Vibracula in linear series, alternating more or less regularly with those of the cells.

This definition, which is that of Busk, shows how very difficult it would be to draw a line between *Lunulites* and *Cupularia*. It seems to me that if the cells are quincuncially arranged the vibracular pores will not be in a line; but if not

quincuncially arranged the pores must be in a linear series. Such a distinction is very arbitrary, and may vary in the same species, or even in the same individual. I do not think the genus *Cupularia* can be maintained.

*Recent Species.*

LUNULITES ANGULOPORA, *Spec. nov.*

Plate I., fig. 3a—3c.

Zoarium small conical white, rather smooth. Zooecia very minute, irregular, with an oblique mouth divided into two portions; one half triangular, constricted in the middle; the other semicircular—both with a raised margin, as well as the vibracular pores, which are long and narrow, and in a depressed area. The cells are obliquely placed; sometimes in contrary directions alternately. Base flat, with a margin of cell, and a centre of irregular porous or spongy structure; but the pores well defined, occasionally with a calcareous plate perforated with a ring of five or six pores, and a larger central one. Diameter and altitude about equal, from three to six millimetres.

Port Stephens, New South Wales.

Both the specimens in the Macleay Museum are worn, and the details of the structure of cells very difficult to make out. It is remotely like Busk's *L. Philippinensis*, but that seems to have been described and drawn from a much worn specimen.

*Fossil Species.*

LUNULITES APERTA, *Spec. nov.*

Plate I., fig. 4a—4c.

Zoarium large, orbicular (?), cup-shaped (?), depressed, thin. Zooecia quadrangular, rather narrower below, perfectly open. Lamina, if any, worn away. Walls rather thick, regular, raised equally thick all round, with a cellular structure. Avicular pores oval, constricted in the middle, infundibuliform, margin pyriform. Under surface with broad flat irregular undulating costæ.

The cells, pores, and under surface of this fossil are quite distinct from the living and fossil forms already known. The specimen is very much worn, and is the only one seen by me.

*Locality and Horizon.*—Muddy Creek Miocene beds near Hamilton.

LUNULITES MAGNA, *Spec. nov.*

Pl. I., fig. 6a—6d.

Zoarium large conical thin, quite hollow beneath or encrusting; in the younger specimens (which are ten millimetres



high and broad), irregularly pentagonal; in older specimens (twice the above dimensions) irregularly lobed or sinuated. Zooecia small round projecting and irregularly pitted, or porous. Mouth circular with a raised margin. Vibracular pore oblique, pyriform with a raised margin, and a conspicuous bar across the centre. Under surface finely radiately ridged, with a long narrow slit-like pore at the margin.

*Locality and Horizon.*—Glaucinitic limestone, Aldinga (Prof. Tate). I have also found the same species in the lower limestone beds at Mount Gambier. It is decidedly the largest species known, and is easily distinguished by its peculiar vibracular orifice.

LUNULITES EXIGUA, *Spec. nov.*

Pl. II., fig. 7a—7c.

Zoarium very small, thin scale-like, slightly convex, but depressed. Zooecia minute in regular radiating, sometimes bifurcating, raised rounded lines. Mouth circular, large. Avicular cells in grooves between the lines of cells, lanceolate. Base quite concave, with lines of projections exactly corresponding with the zooecia and avicular cells.

This species somewhat resembles the following *L. cupola* in the disposal of its cells and the avicularia, but it has a concave base, and the shape of both zoarium and zooecia are different.

*Locality and Horizon.*—White polyzoal limestones at Mount Gambier (Prof. Tate).

LUNULITES CUPOLA, *Spec. nov.*

Pl. I., fig. 5a—5c.

Zoarium small, nearly circular, roundly conical. Zooecia oval, flat round the margin, and regularly convex in the centre. Mouth in the lower part neatly defined, horseshoe shaped, with two small shifting oval protuberances on each side; whole surface finely granular, edges overlapping the avicular grooves. Avicular pores parallel with the base of the cells, smaller than the apertures, elongately oval with a basal groove and two small processes projecting from the sides, so as to constrict the centre of the orifice. Base of zoarium quite flat, granular irregularly marked with grooves, which bifurcate at the edges, on which there are conical shaped hollows corresponding to half a cell area.

*Locality and Horizon.*—Muddy Creek Miocene beds, near Hamilton, Victoria.

Genus SELENARIA, *Busk.*

Only a certain number of cells, dispersed throughout the polyzoary, 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.

This definition applies almost exclusively to the only species known to Mr. Busk. The cribriform calcareous expansion is not present in the species described here, and the generic character is confined to the fewness and irregularity of the pores.

*Recent Species.*

SELENARIA PUNCTATA, *Spec. nov.*

Pl. II., fig. 8a—8c.

Zoarium small orbicular or conical or roundly convex, somewhat thick, margins rounded thick, and almost flat, with open cells in worn specimens, of a dull greyish colour. Upper surface rough and spongy in appearance. Zooecia ovate, angular at the sides, arched above, flat or curved below; but the form varies. Surface flat, with a raised margin; mouth rather large at base of cell, flat above, curved below, with two, rarely three, round pores above. Ooecium rather larger than cells, ovate, rounded, adnate, punctured, opening above the mouth of underlying cell. Vibracular areas rather larger than mouth of cells, somewhat angular, with a raised margin. Under surface of zoarium forming rounded, raised costæ, with linear grooves between, with a single or double row of punctures. Some of these costæ continuous to the concave summit; others intercalated between, which terminate at various lengths in fine or obtuse points. These costæ do not bifurcate, though they have the appearance of doing so.

Diameter of zoarium from six to seven millimetres; altitude, three to four.

Dredged off Cape Three Points at 71 fathoms.

The small cells and the double pores above the mouth are sufficiently distinctive of the species, which is somewhat like the fossil *S. parvicella*.

SELENARIA MARGINATA, *Spec. nov.*

Pl. II., fig. 9a—9d.

Zoarium small, irregularly orbicular, depressed, rather thin, margins flattened for a long way, only concave near the centre; colour white, shining, upper surface rough and pitted. Zooecia hexagonal or sometimes rounded below, often appearing as seen from above as if they overlapped like rounded scales. Depressed concave, with distinct, raised margins, covered with fine wart-like projections. Mouth large, quadrangular, with the angles rounded sometimes above and some-



times below; with elevated granular margins, and a large conspicuous pore in the centre. Vibracular cells few, irregular, sometimes with an avicular opening beneath, with well-defined raised margin. Under surface of zoarium with undulating, broad, flat, punctate costæ, bifurcating, with short blunt ribs intercalated, and all circumscribed by a distinct narrow raised margin. These costæ seem to correspond with the width of the cells, and on the edge they often correspond with the limits of a marginal cell.

Diameter, three and a half to six millimetres; altitude, one to two.

Dredged at 71 fathoms off Cape Three Points.

This species is distinct from *S. punctata* in many respects, but particularly in the one pore at the mouth of the deep cell, and in the margins round the flattened ribs at the side.

#### *Fossil Species.*

##### SELENARIA PARVICELLA, *Spec. nov.*

Pl. II., fig. 10a—10c.

Zoarium large, irregularly orbicular (?), very thin, depressed. Zooecia small, horseshoe shaped, the round end below; walls thick, margins raised, lamina not visible. Avicular cells elongately pyriform; the apex above, narrow, immersed, with broad inner margin, very long, nearly equalling two cells. Under surface with numerous radiating depressed ribs, not bifurcating, but with undulating margins; and in the centre a single row of large pores, irregular in shape, size, and distance from one another.

The cells in this species vary much in size, and the peculiar vibracular cells are different in size and shape from any other species.

*Locality and Horizon.*—Muddy Creek Miocene beds, near Hamilton.

##### SELENARIA CONCINNA, *Spec. nov.*

Pl. II., fig. 11a—11e.

Zoarium small, thin, orbicular, very slightly convex, sometimes almost flat. Zooecia quite concave, semicircular, the upper angles often circumscribed by the neighbouring cells. Surface finely granular, waxy, shining. Aperture elongately semicircular, the rounded basal edge encroaching on the low margin of the cell. Avicular cells about the size of the aperture, very narrow, oblong, or triangular, with the base above, the edges studded with very fine teeth. Under surface with radiating, flat, granular ribs, thickly beset with irregular

pores; between these ribs there are always fine raised lines, which branch two or three times towards the margin.

Diameter, four millimetres; altitude, one millimetre.

A peculiar and very neat form, very granular, and the granules projecting on the edges of the zoarium, like asperities. The avicular cells are edged with fine, sharp, spiny-like teeth, which almost close the aperture of the cells. This structure is quite unique in the genus. The zooecia are all depressed, and do not project in any way, or overlap one another; but the surface is pitted, and appears without a lens somewhat like the top of a thimble.

*Locality and Horizon.*—Muddy Creek Miocene beds, near Hamilton.

##### SELENARIA ALATA, *Spec. nov.*

Pl. II., fig. 12a—12c.

Zoarium rather large, orbicular, moderately convex, solid; edges thick, spongy. Zooecia elongately semicircular, overlapping squamosely; margins distinct, raised; area depressed; aperture large, narrowed above by triangular alæ at each side. Avicular areas larger than zooecia, very few in number, with a large ear-shaped pore in the midst of the area. Under surface very finely punctuate, with a few radiating fine grooves, forking two or three times towards margin, between which there are many large pores in a double or single line of irregular sizes and intervals.

Diameter, rather more than  $6\frac{1}{2}$  millimetres; altitude, exceeding  $2\frac{1}{2}$ .

The cells are a little more constricted than they are represented in the drawing, and this I believe to be the distinction between this species and var. a, which I distinguish as var. *lata*.

##### SELENARIA ALATA, var. LATA, *nov.*

Zoarium small, orbicular, solid, moderately conical, the younger specimens most so, base flat. Zooecia rhomboidal; margins raised; centre depressed with a very large oblong square opening with the angles rounded; the summit curved and the sides slightly constricted by the projection of the margin. Far back in the opening there is a large semicircular pore. The whole surface granular. Avicular pores very few in number, something like the cells in shape but smaller. Under surface with deep irregular grooves and pores of large sizes forming a pattern very like rustic work in architecture.

Diameter of zoarium, about four millimetres.

The shape of the aperture in this variety is very like *S. alata*



but more open. The flatness and peculiar ornamentation of the base distinguish it.

*Locality and Horizon* of the species and variety.—Muddy Creek Miocene beds, near Hamilton, Victoria.

## EXPLANATION OF PLATES.

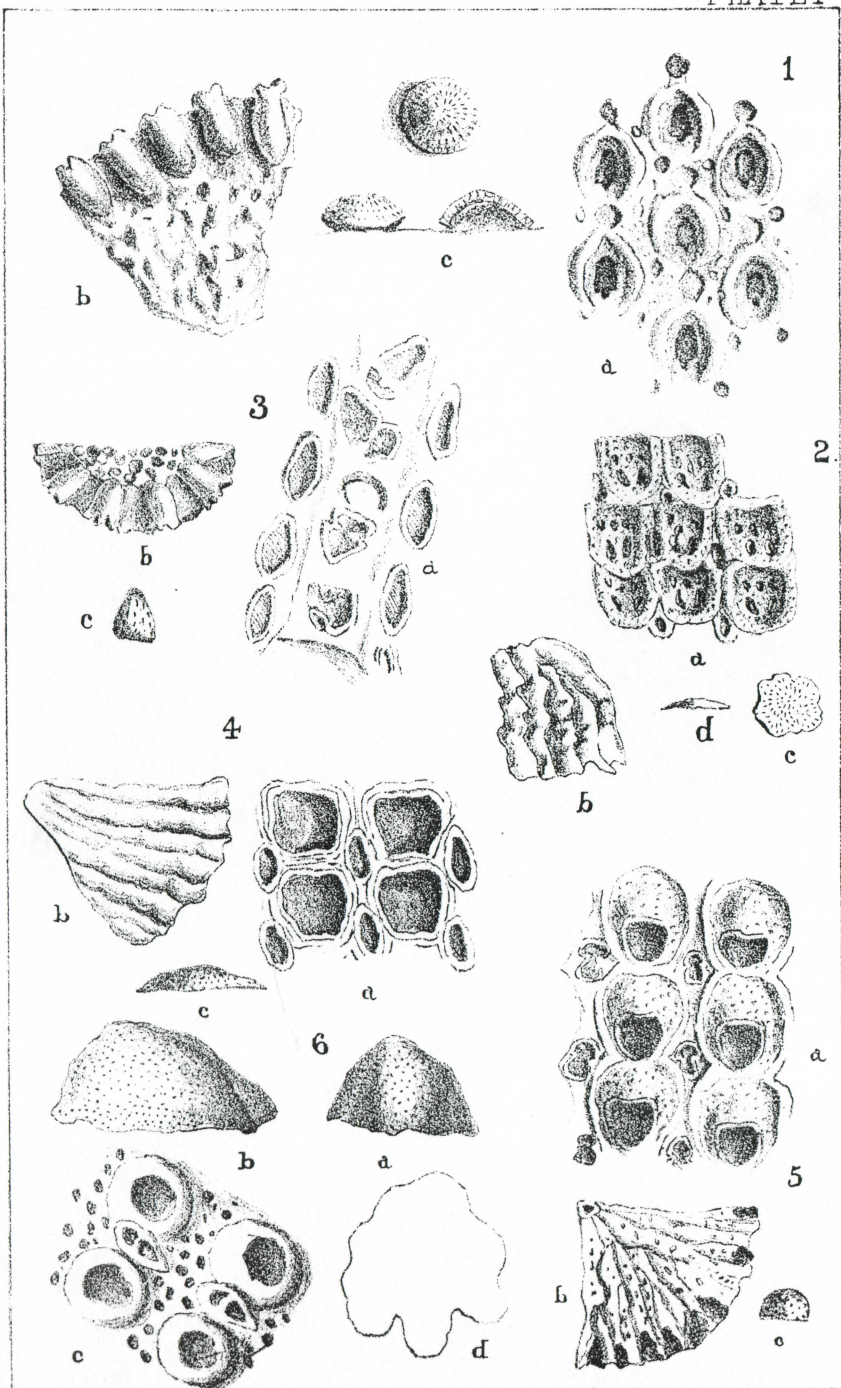
### PLATE I.

- Fig. 1. *Lunulites (Cupularia) crassa*: *a*, zooëcia, magnified; *b*, portion of base, magnified; *c*, zoarium, natural size.  
 Fig. 2. *Lunulites (Cupularia) rutella*: letters as above.  
 Fig. 3. *Lunulites angulopora*: letters as above.  
 Fig. 4. *Lunulites aperta*: letters as above.  
 Fig. 5. *Lunulites cupola*: letters as above.  
 Fig. 6. *Lunulites magna*: *a*, *b*, zoarium, natural size; *c*, zooëcia, highly magnified; *d*, outline of base, natural size.

### PLATE II.

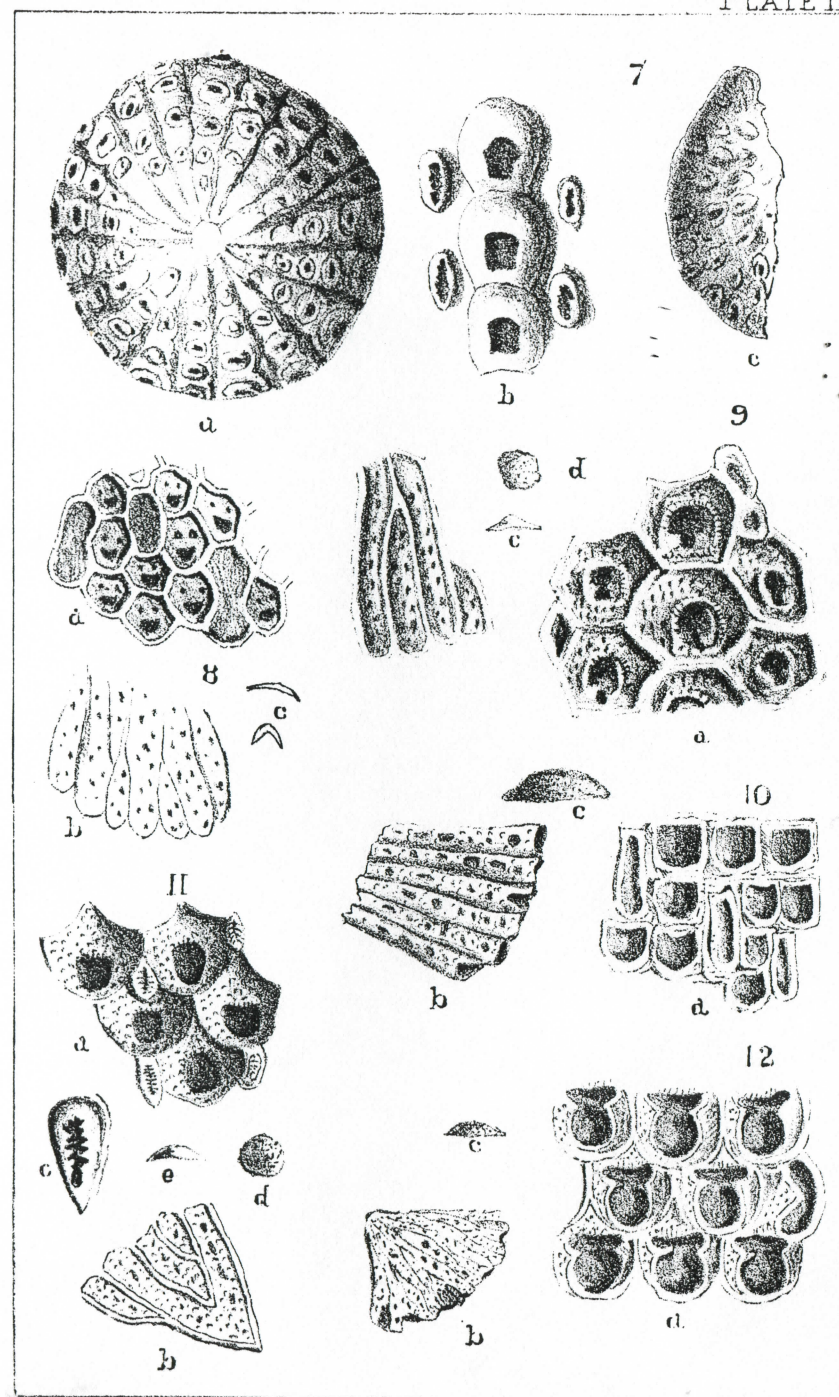
- Fig. 7. *Lunulites exigua*: *a*, zoarium, much magnified; *b*, zooëcia, highly magnified; *c*, part of base, magnified.  
 Fig. 8. *Selenaria punctata*: *a*, zooëcia, and *b*, portion of under surface, much magnified; *c*, sections of two zoaria, natural sizes.  
 Fig. 9. *Selenaria marginata*: *a*, zooëcia, and *b*, portion of under surface much magnified; *c* and *d*, section and outline of zoarium, natural sizes.  
 Fig. 10. *Selenaria parvicella*: *a*, zooëcia, and *b*, portion of base, magnified; *c*, zoarium, natural size.  
 Fig. 11. *Selenaria concinna*: *a*, zooëcia, and *b*, portion of under surface, both magnified; *c*, a vibracular cell showing the peculiar teeth-like projections, much magnified; *d* and *e*, outline and sections of zoarium, natural sizes.  
 Fig. 12. *Selenaria alata*: *a*, zooëcia, highly magnified; *b*, part of base, magnified; *c*, zoarium, natural size.





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