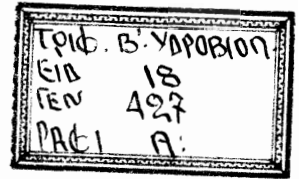


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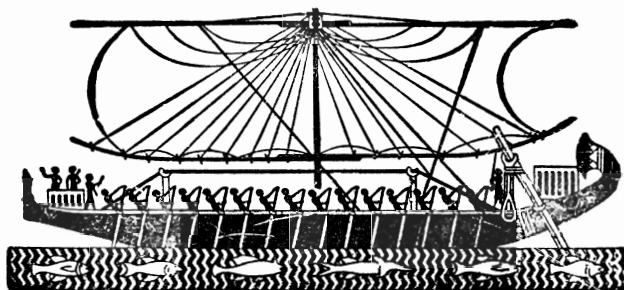
THE FISHERY GROUNDS NEAR ALEXANDRIA

XX - BRYOZOA (with 2 Figures & 10 Charts)

BY

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Al-Ettemad Press, Abdin Cairo, 1939.

The Fishery Grounds near Alexandria, Egypt.

No. XX — Bryozoa.

by

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The following report is based upon the material collected by Professor Adolf Steuer during the course of an investigation of the fishing area in the neighbourhood of Alexandria and we desire to express to him our thanks for the opportunity of examining the collection. The bulk of the specimens were obtained by dredging in depths varying from four to one hundred and twenty six fathoms and apparently little shore collecting was done. The list that follows therefore cannot be regarded as exhaustive for that region of the Mediterranean but on account of the quantity and variety is probably representative of that area save for the littoral forms. Every attempt has been made to identify the many specimens as definitely as possible, but this has not always been successful for different reasons that will be indicated in the appropriate places when dealing with the group or specimens concerned. A number of specimens were so heavily calcified or so worn and abraded as to render certain identification difficult if not impossible.

A report of this sort is not a suitable place to enter into vexed questions of the systematics or taxonomy of species or groups, so that older generally accepted identifications have been retained and a somewhat conservative attitude to nomenclature has been adopted. Certain notes, however, do seem to be required in order to correlate the terminology used by different authors and to allow of considering synonyms in working out the distribution of the species. It became abundantly clear during the course of the work that some groups of Mediterranean Bryozoa stand in need of considerable revision.

While a good deal of work has been done on the Mediterranean Bryozoa, much of it is quite old and the particular region now under consideration has received scant attention. The Cambridge Expedition

to the Suez Canal collected a few specimens at Port Said and they were reported upon by Hastings in 1927 (65). In many respects the most useful recent publication is the account of the Marine Bryozoa of Tunis by Canu et Bassler (42).

In all, 62 species and two extra varieties are represented in the present collection, of which two appear to be new and two have not been recorded previously from the Mediterranean. Under each species the original reference is cited followed by a list of the stations from which it was obtained and a list of the previous records from the Mediterranean. The latter it is hoped will help in estimating the relationship of this local fauna to that of the Mediterranean as a whole. The synonyms of the previous records are also given and also the exact references, since it has been found that a mere list of names of places often involves great labour if it is desired to refer to the original records. Many of the species have also been recorded from widely scattered parts of the world, but it would unduly lengthen the paper to include them. Thus the synonymies and distribution of a number of species are not complete for the world or for fossil forms, but are practically so for the Mediterranean. Even this has involved a fairly full bibliography but it is hoped that it will encourage other workers to take up this interesting group and assist them in becoming acquainted with a widely scattered literature.

On the whole the classification employed is that of Borg in Bryozoa Deutschlands (17).

We desire to thank the authorities of the British Museum and in particular Dr. A.B.Hastings, for the facilities granted us of examining material, some of it type specimens, and for generous help in other ways.

ORDER I. STENOLAEMATA.

Family Crisiidae.

1. *Crisia eburneo-denticulata* Busk, 1875. (Chart 1).
Busk. Cat. Cyclostomatous Poly., 1875 p. 6. (25).
Present specimens : Station 54, 55 fms.
Mediterranean records : Calvet, Gulf of Lyons (28), Monaco (31) ;
Waters, Naples (111).
This species was created by Busk for certain forms illustrated by
Smitt (104) p. 142, Pl. xvi, figs. 9, 10 & 11, but which were regarded by
Smitt as simply varieties of *C. eburnea*.
2. *Crisidia cornuta* (Linné, 1758). (Chart 1).
Linné. Systema naturae ed. 10. 1758, p. 810 as *Sertularia cornuta*.
Present specimens : Station 54, 55 fms.
Mediterranean Records: Calvet, Gulf of Lyons (28) ; Friedl, Adriatic
(56) ; Marion, large de Méjean (88) ; Pallas, Mediterranean (95) ; Richiardi,
Mare della Toscana (101) ; Risso, Nizza, as *Eucratea cornuta* (102) ;
Waters, Naples (111). as *Crisia cornuta*.

Family Tubuliporidae.

3. *Tubulipora flabellaris*, (Fabricius, 1780). (Chart 1).
Fabricius, Fauna Groenland. 1780, p. 430 (54) as *Tubipora flabellaris*.
Present specimens : Station 27, 70 fms.
Mediterranean Records : Barroso, Balearics (2) ; Calvet, Gulf of
Lyons (28) ; Corsica (29) ; as *Tubulipora phalangea*, Monaco (31) ; Edwards,
Bonifacio (48) ; Friedl, Adriatic (56) ; Grube, Lussin Adriatic (60) ; Heller,
Lissa Adriatic (67) ; Marcus, Venice (87) ; Meneghini, Adriatic (89) ;
Pergens, as *Diastopora plumula*, Nords-ouest Mediterranean (97) ;
Waters, Naples (111).
According to Harmer (61 p. 99) the *T. flabellaris* of Hincks (73 p.
446) is really *T. phalangea* Couch, and Borg (17 p. 45) agrees with this.
4. *Idmonea atlantica* Johnston 1847 ex Forbes Mss. (Chart 1).
Johnston, History of British Zoophytes 1847 p. 278 (79).
Present specimens : Station 54, 55 fms, Station 61, 50 fms,
Station 69, 48 fms.

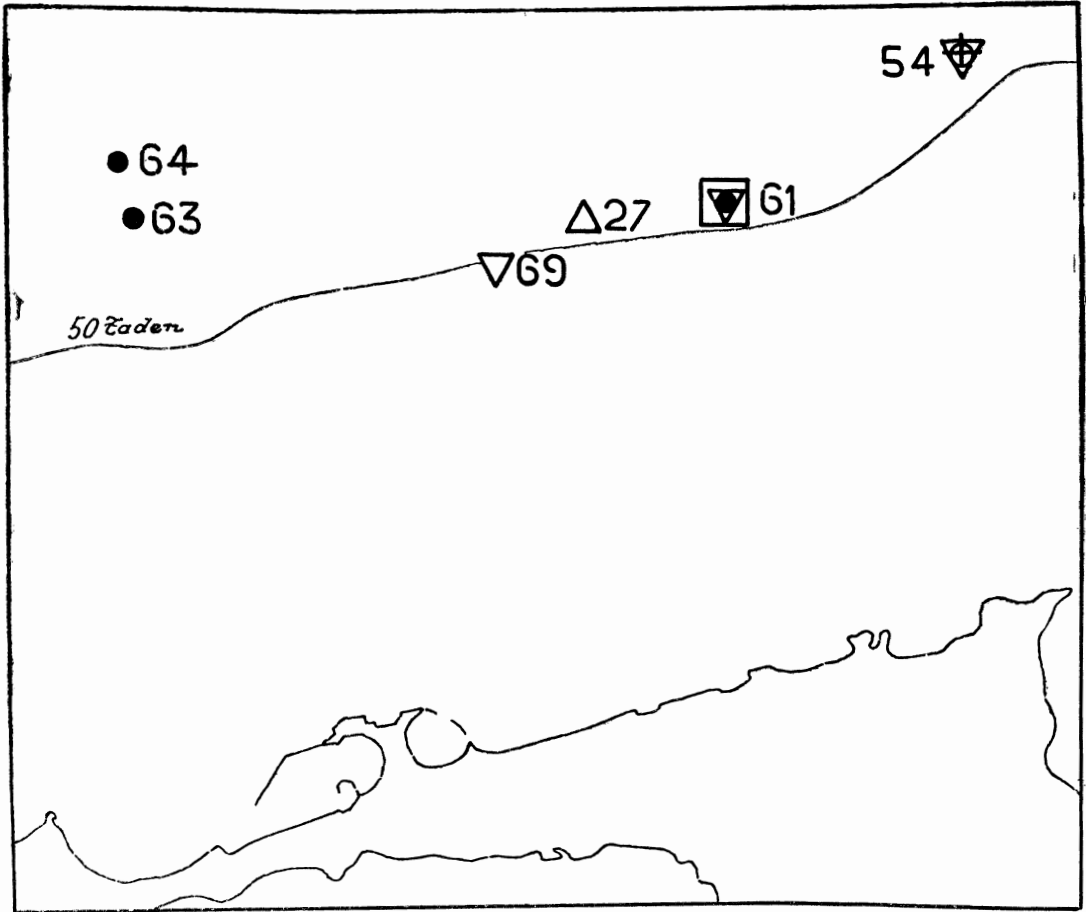


Chart 1.

- | | |
|---|-------------------------------------|
| ○ <i>Crisia eburneo-denticulata</i> Busk | ▽ <i>Idmonea atlantica</i> Johnsson |
| + <i>Crisia cornuta</i> (Linné) | ● <i>Idmonea notomale</i> Busk |
| △ <i>Tubulipora flabellaris</i> (Fabricius) | □ <i>Tennysonia contorta</i> (Busk) |

Mediterranean Records : Barroso, Castellon (9), Gulf of Valencia, (14) ; Calvet Banyuls-sur-Mer (33), Monaco (31) ; Julien et Calvet, Corsica (81) ; Pergens, Nord-ouest Mediterranean (97) ; Waters, Naples (111).

5. *Idmonea notomale* Busk 1875. (Chart 1).

Busk, Cat. Cyclostomatous Poly., 1875 p. 12 (25).

Present specimens : Station 61, 50 fms., Station 63, 74—85 fms.,
Station 64, 110 fms.

Mediterranean Records: Busk, Rasel Amoush, Algiers (25); Waters, Algiers (120).

This is the largest species of *Idmonea* found in the Mediterranean and the species was made for Mediterranean specimens.

Canu and Bassler (40, 41) also record it from the Atlantic Coast of Morocco.

6. *Tennysonia contorta* (Busk 1875). (Chart 1)

Busk, Cat. Cyclostomatous Poly. p. 12, (25) as *Idmonea contorta*.

Present specimens : Station 61, 50 fms.

Mediterranean Records : Calvet, Corsica (29).

This species usually referred to the genus *Idmonea* is transferred to the genus *Tennysonia* by Canu and Bassler (38, p. 52).

Family Terviidae.

7. *Tervia irregularis* (Meneghini 1844). (Chart 2)

Meneghini, Polipi Tubuliporani Adriatico, 1844, p. 12 (89) as *Tubulipora irregularis*.

Present specimens : Station 26, 126 fms., Station 54, 55 fms.,
Station 61, 50 fms.

Mediterranean Records: Calvet, Gulf of Gascony (27) as *Tervia folini*; Friedl, Adriatic (56) as *Filisparsa irregularis* ; Heller, Lesina, Adriatic (67) as *Idmonea irregularis* ; Meneghini, Coast of Dalmatia, Adriatic, (89) as *Tubulipora irregularis* ; Richiardi, Mare della Toscana (101) ; Waters, Naples (111) as *Idmonea irregularis*, Capri (120) as *Tervia irregularis*.

This species was founded on specimens from the Adriatic. Calvet (27) admits that his *T. folini* is simply a synonym. It has been recorded from the Atlantic off the Coast of Morocco by Canu and Bassler (40) and from the Azores by Busk. (26)

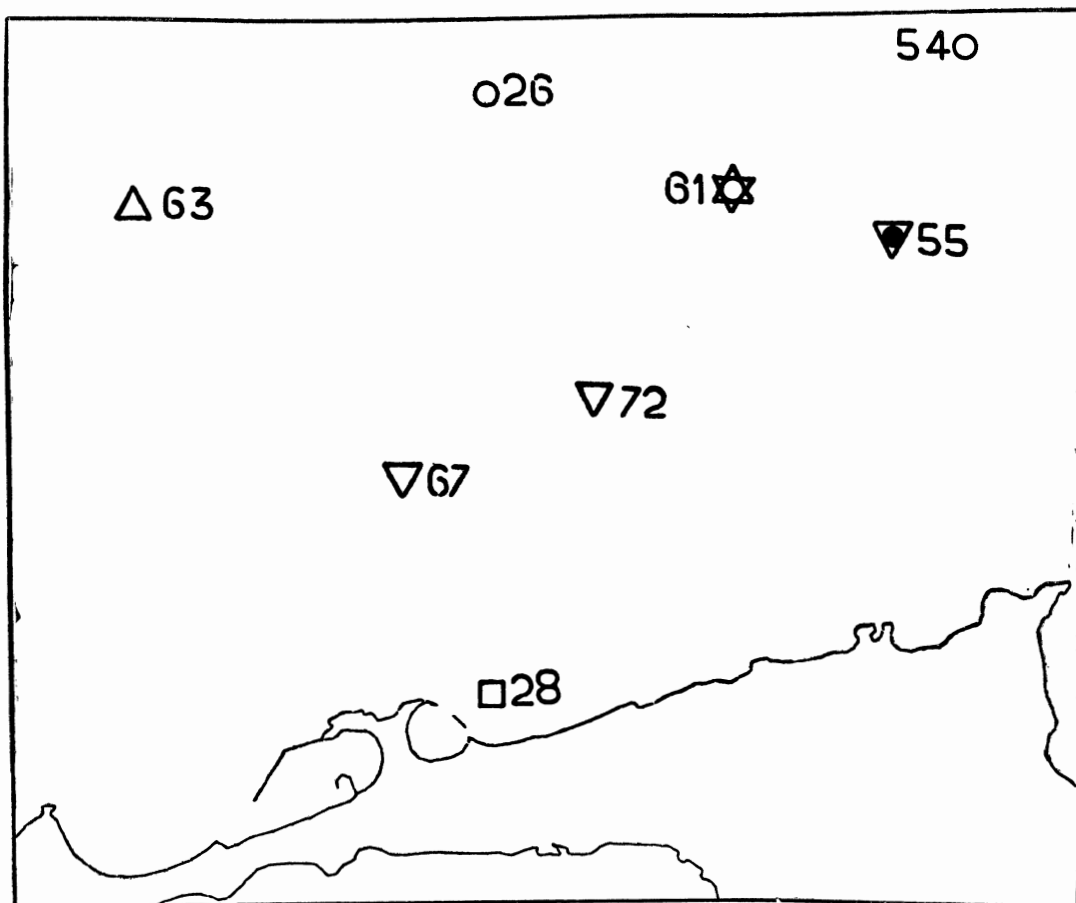


Chart 2.

- *Tervia irregularis* (Meneghini)
- *Diplosolen oblia* (Johnston)
- ▽ *Hornera frondiculata* Lamouroux
- △ *Hornera violacea* var. *proboscina* Busk
- *Lichenopora hispida* (Fleming)

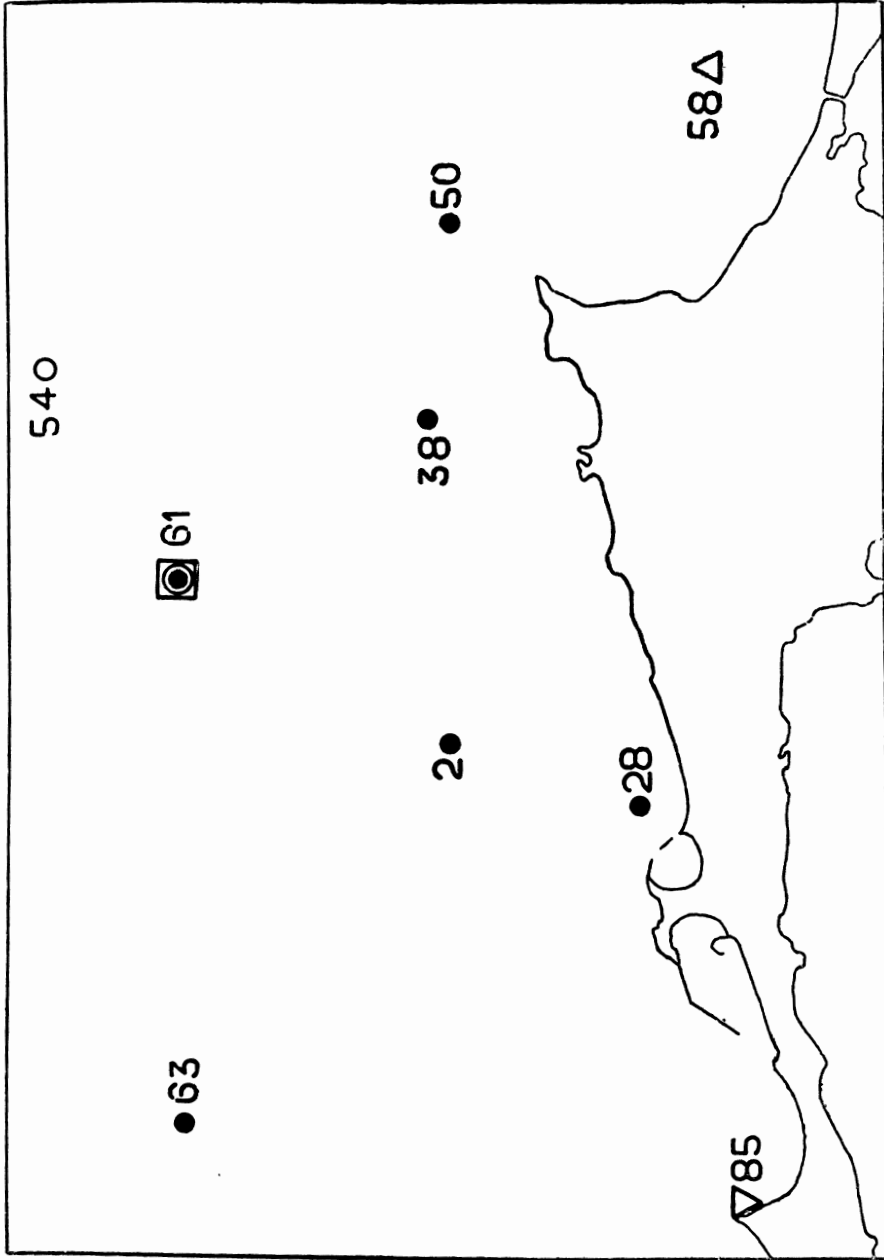


Chart 3.

- *Fron dipora gracilis*. Canu and Bassler
- *Mecynocia proboscidea* (Edwards)
- ◻ *Entalophora rugosa* d'Orbigny
- △ *Membranipora membranacea* (Linné)
- ▽ *Electra pilosa* (Linné)

Family Diastoporidae.

8. *Diplosolen obelia* (Johnston 1838). (Chart 2).

Johnston, Hist. British Zooph. 1838, p. 269 as *Tubulipora obelia* (79)

Present specimens : Station 55, 40 fms.

Mediterranean Records : Calvet, Corsica, (29), Gulf of Lyons (28), Monaco (31), Banyuls-sur-Mer (33) as *Diastopora obelia* ; Edwards, Bonifacio (48) ; Friedl, Adriatic (57) ; Heller, Adriatic (67) ; Marion, Marseille, Podesta (88) ; Waters, Naples (111).

This species is cosmopolitan in distribution and is recorded from the Atlantic off the Coast of Morocco by Canu and Bassler (40).

Family Horneridae.

9. *Hornera frondiculata* Lamouroux 1821. (Chart 2)

Lamouroux, Expos. méthod. ord Polipiers 1821, p. 41 (83).

Present specimens : Station 55, 40 fms., Station 61, 50 fms., Station 67, 22 fms., Station 72, 30 fms.

Mediterranean Records : Calvet, Corsica (29) ; Banyuls-sur-Mer (33) ; Canu and Bassler, Tunis (42) ; Edwards, Bonifacio (48) ; Friedl, Adriatic (56) ; Julien et Calvet, Corsica (81) ; Marcus, Messina, Zara, Sicily (87) ; Waters, Naples (111).

10. *Hornera violacea* var. *proboscina* Busk 1875. (Chart 2)

Busk, Catal. Mar. Polyzoa 1875, p. 18 (25).

Present specimens : Station 61, 50 fms., Station 63, 74 – 85 fms.

Mediterranean Records : Calvet, Corsica (29).

No specimens of the typical *H. violacea* have been found, all those in the present collection are of the var. *proboscina*. The dorsal surfaces of the present specimens are ribbed transversely and punctured. It has been recorded only once previously from the Mediterranean.

Family Lichenoporidae

11. *Lichenopora hispida* (Fleming 1828). (Chart 2).

Fleming, Hist. Brit. Anim. 1828 as *Discopora hispida* (55).

Present specimens: Station 28, 10-12 fms.

Mediterranean Records : Barroso, Valencia (7), Balearics (8) ; Calvet, Corsica (29), Gulf of Lyons (28), Monaco (31) ; Canu and Bassler, Tunis (42) ; Edwards, Bonifacio (48) ; Grube, Adriatic (60) as *Tubulipora*

*hispid*a ; Marion, Marseille, Podesta (88) ; Pergens, Nord-Ouest Mediterranean (97) ; Waters, Naples (111) :

This species is widely distributed and has been recorded *inter alia* by Canu and Bassler (40 & 41) from the Atlantic off Morocco and by Norman (91) from Madeira.

12. *Fron*dipora *gracilis*, Canu and Bassler 1930. (Chart 3).

Canu and Bassler, Bryozoa Mar. Tunis 1930, p. 8. (42).

Present specimens : Station 2, 25 fms., Station 28, 10-12 fms., Station 38, 17 fms., Station 50, 9 fms. Station 61, 50 fms., Station 63, 74-85 fms.

Mediterranean Records : Canu and Bassler, Tunis (42).

This species was founded for Mediterranean specimens. The fact that it occurs in the present collection from so many different points and is the only *Fron*dipora found, suggests that it is a wide spread species and moreover no other member of the genus was found. At first it was taken to be *Fron*dipora *verrucosa* which has been recorded from the Mediterranean by a number of authors and it seems quite probable that some of these records actually are of *F. gracilis*. It is much like *F. verrucosa* from which it differs in its smaller, straighter branches, its relatively larger fenestrae and in the transverse striations on its dorsal surface.

13. *Mecynoecia proboscidea* (Edwards 1838). (Chart 3).

Edwards, Ann. Sci. Nat., 1838, p. 219 (51) as *Pustulopora proboscidea*.

Present specimens : Station 54, 55 fms., Station 61, 50 fms.

Mediterranean Records : Barroso, Valencia (11) ; Calvet, Corsica (29), Gulf of Lyons (28), Monaco (31), Banyuls-sur-Mer (33) all, as *Entalophora raripora* ; Edwards, Villafranca (48) as *Pustulopora proboscidea* ; Friedl, Adriatic (57) as *Entalophora proboscidea* , Grube, Adriatic (60) ; Heller, Adriatic (67) as *Pustulopora proboscidea* ; Marion, Marseille, Large de Méjean (88) as *Pustulopora proboscidea* ; Meneghini Adriatic (89) ; Pergens, Nord-ouest Mediterranean (97) as *Entalophora proboscidea* ; Richiardi, Mare della Toscana (101) ; Waters, Naples (111).

This species has been recorded also from Madeira by Norman (91) and from the Atlantic off Morocco by Canu and Bassler (41) who place it in the genus *Mecynoecia* and in this they are followed by Barroso.

The species also presents several difficulties. Jelly (78) terms it *Entalophora raripora* as of d'Orbigny 1850 (94 p.267) and this practice has been followed by a number of subsequent writers. At the same time this writer gives as a synonym *Pustulopora proboscidea* as of Edwards 1838 (51 p.27). Obviously if the two names are synonymous, that employed must be the one given by Edwards. Further, while Jelly gives it of d'Orbigny (94) the name was actually proposed earlier in the same year by d'Orbigny (93 p. 114). Julien et Calvet (81 p.159) give the date of publication of d'Orbigny's Prodrôme (94) as 1847 whereas it was actually 1849-52 with the volume concerned appearing in 1850. Calvet *vide supra* evidently considers *Entalophora raripora* d'Orbigny as a distinct species, but in conjunction with Julien (81) gives it as a synonym of *Entalophora proboscidea* Edwards. There is a possibility that two distinct species are involved but this does not appear to be maintained by subsequent authorities and so the species should stand as *Entalophora proboscidea* Edwards 1838.

14. *Entalophora rugosa* d'Orbigny 1852. (Chart 3).
d'Orbigny, Paléont. Française 1852, p. 795 (94a).
Present specimens : Station 61, 50 fms.

Mediterranean Records : Calvet, Monaco (31) ; Waters, Naples (111).

This species was founded on fossil material by d'Orbigny and recorded also as a fossil by several authors including Waters. The latter author also recorded it living from Naples from a depth of 30-40 fms. It has apparently been recorded once subsequently by Calvet also from the Mediterranean. Unfortunately the present specimens lacked ovicells but in spite of that it has been compared with Water's material with which it is conspecific. Whether or not it is the same species as that of d'Orbigny is perhaps open to question, for the dimensions are different. Some such doubt was possibly in Water's mind for he says in a subsequent paper (111a p. 401) "This can very well be seen in what I call *Entalophora rugosa*, d'Orb. from Naples."

If it should prove to be new the name of *Entalophora watersi* is here suggested.

Canu and Bassler (37 p. 739) refer it to the genus *Diaperoecia* but curiously enough on p. 743 of the same work they create a new species *Diaperoecia rugosa* without reference to the previous use of this name. We follow Borg in retaining the generic name *Entalophora*.

ORDER II. GYMNOLOEMATA

SUB-ORDER CHEILOSTOMATA. SECTION ANASCA.

Family Membraniporidae

15. *Membranipora membranacea* (Linné 1768). (Chart 3).

Linné, Systema naturae ed. 12, p. 1301 as *Flustra membranacea*.

Present specimens : Station 58, 4fms.

Mediterranean Records : Calvet, Gulf of Lyons (28; Condorelli — Francaviglia, Adriatic (46) ; Friedl, Adriatic (56) ; Graffe, Trieste (59) ; Heller, Adriatic (67) ; Waters, Naples (109).

This species is of world wide distribution, very common in suitable habitats, and has been recorded *inter alia* from the Atlantic Coast of Morocco by Canu and Bassler (41) and from Madeira by Norman (91).

On the grounds that it was first well described and figured by Johnston (79) the former authors cite the species as of Johnston 1838 but there can be little doubt that it is the same species as that of Linné 1768 so there seems no justification for so doing. The *M. membranacea* of Linné was founded on material from the Baltic and Harmer (62 p.205) suggests that the British form generally called by that name is really the *Flustra telacea* of Lamarck (82). For this Canu (34 p.380) in 1900 erected the genus *Nichtina* but subsequently points out (41 p. 14 et al.) that this should really be *Nitscheina*. Borg (18) goes into the whole matter in considerable detail and maintains that the correct name is *Membranipora membranacea* and in this we have followed Borg.

Family Electrinidae

16. *Electra pilosa* (Linné 1768) var. *laxa* (Smitt 1865). (Chart 3)

Linné, Systema Naturae ed. 12, p. 1301 as *Flustra pilosa*.

Present specimens : Station 85, 4½ fms.

Mediterranean Records : This variety does not appear to have been recorded previously from the Mediterranean but the species has been recorded by the following under the name *Membranipora pilosa* except where otherwise stated.

Barroso, Balearics (2) as *Electra pilosa* ; Calvet, Corsica (29), Gulf of Lyons (28), Monaco (31) ; Friedl, Adriatic (56) as *Electra pilosa* ; Graffe, Adriatic (59) ; Heller, Adriatic (67) ; Richiardi, Mare della Toscana

(101) ; Risso, Nizza (102) as *Flustra pilosa* ; Waters, Naples (109).

Friedl (56 p.234) regards the *Membranipora monostachys* recorded by Manzoni from Venice (86) as *E. pilosa* var *trispinosa*.

This species is essentially cosmopolitan and exhibits several characteristic varieties. It is recorded *inter alia* by Canu et Bassler from the Atlantic coast of Morocco (41).

According to Hincks (73 p. 137) the lines of cells are in a single series but in the present specimens they are in lines of two or three. Like that described by Hincks, however, they do anastomose and form an irregular network. Since they also agree with Hinck's variety in other respects we prefer to place them under his name rather than erect a new variety.

Family Hincksinidae

17. *Vibracellina mediterraneae* sp. nov. (Chart 4, fig. 1)

The zoarium forms a dirty white encrustation closely adherent to the substratum—in the specimen a small piece of stone, resembling a clinker. In superficial appearance it resembles a typical membranacean. The zooecia tend to have an irregular radiating arrangement and are separated by narrow interzooecial sulci or by wider, irregularly shaped, flat, calcified areas. Unfortunately, the central region of the colony is damaged so that the ancestrula cannot be distinguished but apparently the zooecia reach their normal size almost immediately.

The zooecium is an irregular oval in shape with a slightly raised margin and a narrow, smooth ridge inside it. In a number of zooecia the margin is the wider in some places but this may occur at any point. The whole of the frontal is membranous and the operculum is semi-circular, and of a somewhat deeper yellowish, brown colour. Its free margin is slightly thickened and shuts against the distal margin of the zooecium. The vibracula are well developed and interzooecial in position ; they are irregularly distributed but never lie at the distal ends of the zooecia as in the genus *Setosellina*, Calvet. Most of the vibracular chambers, unless interfered with by a zooecium in front, are continued as a sort of raised, gutter-like rest as long as the chamber itself. Its opesium is provided with a tooth in the middle of each side, so that it presents a symmetrical figure of 8 appearance.

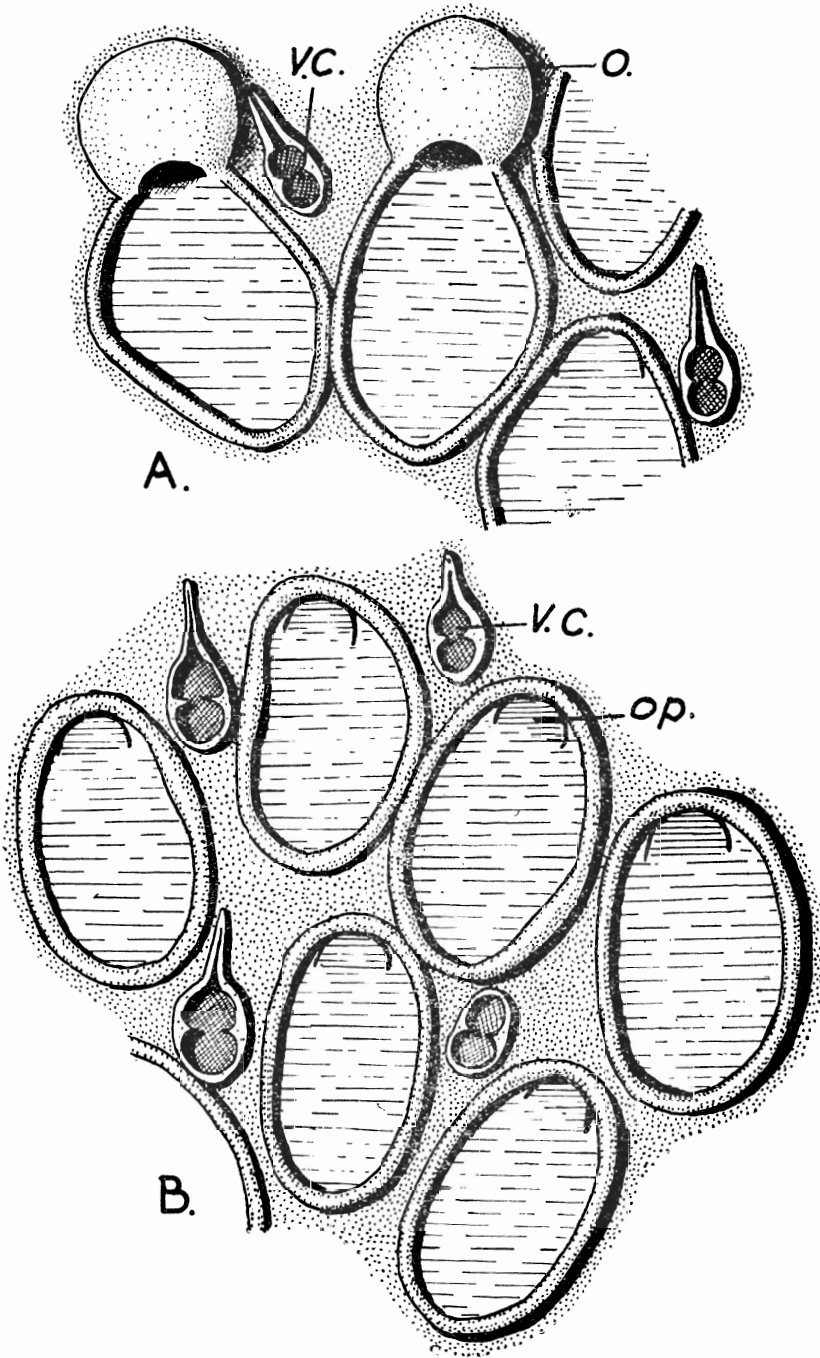


Fig. 1.

Vibracellina mediterranea. sp. nov.

Unfortunately the specimen was so worn that no vibraculum was present but from the shape of the spouted opesia it is obviously of considerable length. The ovicell appears in the form of a granular, hemispherical projection. It usually lies between the two zooecia in front and is of the separated endozooecial type.

This species appears to be closely allied to *Vibracellina capillaria*, Canu and Bassler (36 p. 14), which is an early Tertiary fossil from the Claibornian beds of Texas. It differs from this however in that the vibracular chamber has symmetrical opesium and is continued as a gutter-like projection and the ovicell is more obvious.

The present specimen came from Station 63, 74-85 fms.

Family Alderinidae

18. *Callopora tenuirostris* (Hincks 1880). (Chart 4)

Hincks, Ann. Mag. Nat. Hist. 1880, p. 70 (72) as *Membranipora tenuirostris*.

Present specimens : Station 59 a, 17 fms.

Mediterranean Records : Barroso, Las Aguillas (3) : Friedl, Adriatic (56) as *Oochilina tenuirostris* ; Hincks, Adriatic (75) ; Pieper, Adriatic (98) Waters, Naples (109) as *Membranipora flemingii*.

Friedl (56) and Heller (67) record *C. gregaria* from the Adriatic and this species is sometimes regarded as *C. tenuirostris* var. *gregaria*, but Friedl gives it as a separate species. Waters (119) records it from the Cape Verde Islands and Norman (91) from Madeira both as *Membranipora tenuirostris*.

Family Microporidae

19. *Onychocella angulosa* (Reuss 1848). (Chart 4)

Reuss, Polyp. Wiener Tertiar 1848, p.1 (100) as *Cellepora angulosa*.

Present specimens: Station 2, 25 fms. Station 3, 34 fms. Station 27, 70 fms. Station 38, 17 fms. Station 50, 9 fms. Station 51, 13 fms. Station 59a, 17 fms. Station 61, 50 fms. Mediterranean Records : Calvet, Corsica (29), Banyuls-sur-Mer (33), Monaco (31); Julien et Calvet, Bonifacio (81) ; Waters, Naples (109) as *Membranipora angulosa*.

This species is often cited as that of Reuss 1847 but while that is the date given in the separate, Haidinger's Naturwiss. Abhandl. Bd. II, in which the name first appears, was not published until 21st August 1848. It would appear therefore that the date given should be that of actual publication i. e. 1848. In some works, e.g. Jelly (78) and Harmer (62) *O. (Membranipora) antiqua* and *O. marioni* Julien are given as

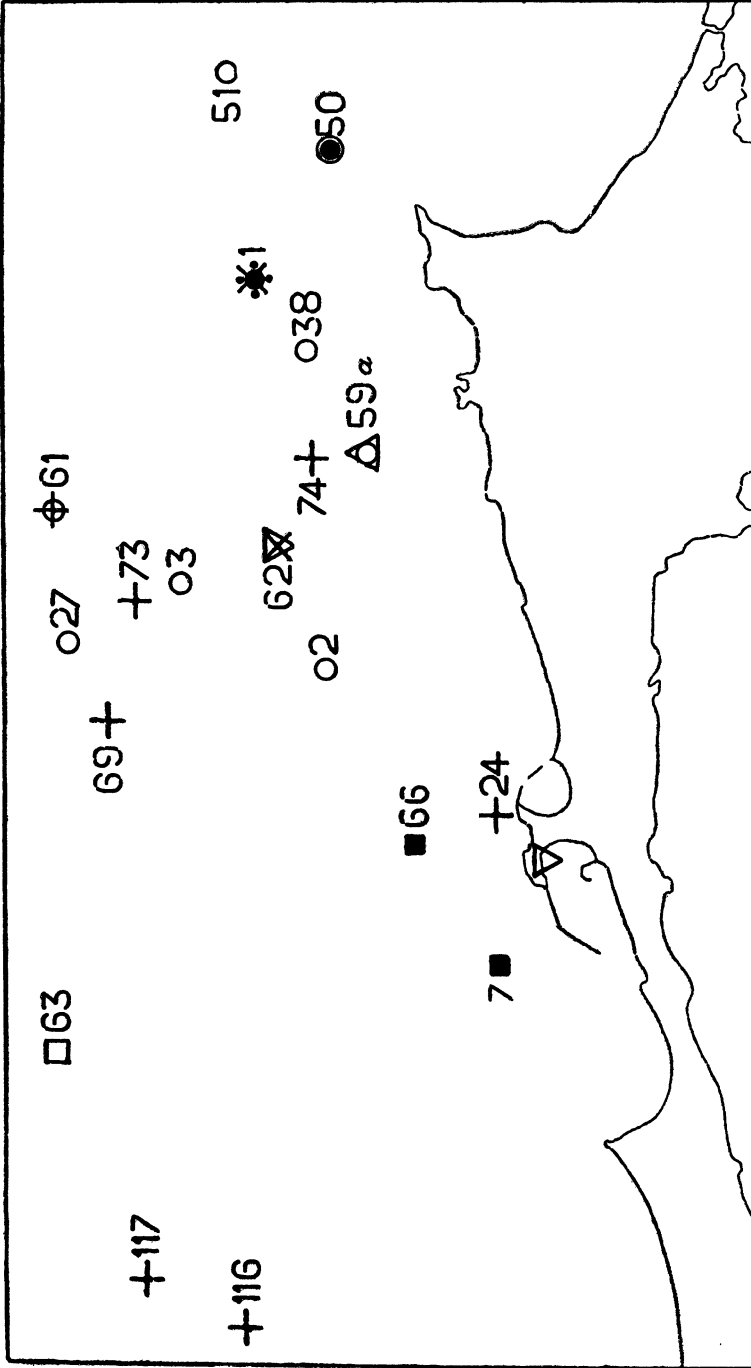


Chart 4.

- *Vibracellina mediterraneae* sp. nov.
- △ *Callopora tenuirostris* (Hinks).
- *Onychocella angulosa* (Reün)
- + *Calpensia impressa* (Moll)
- *Mollia patellaria* (Moll)
- ▽ *Scrupocellaria scruposa* (Linné)
- » *reptans* (Linné)
- × » *scrupea* Busk
- ∴ *Cabereu bory* (Audouin)

synonyms. If these be accepted then they will increase the Mediterranean Records. On the other hand, Canu and Bassler (42 p.22) state that both of them are recognisable as distinct species and so they have not been included in the distribution records given above.

Family Calpensiidae

20. *Calpensia impressa* (Moll 1803). (Chart 4)

Moll, Esch. Zooph., 1803 p.57 (90) as *Eschara impressa* Present specimens: Station 24, Fort Ada, 10 fms., Station 61, 50 fms., Station 69, 48 fms., Station 73, 33 fms., Station 74, 23 fms, Station 116, 35 fms Station 117, 55 fms.

Mediterranean Records: Barroso, Balearics (8). Busk, Bay of Gibraltar, Aegean (21) as *Membranipora calpensis* : Calvet, Corsica (29) as *Micropora impressa*; Canu and Bassler, Tunis (42); Carus (43) states that Lamouroux records this species from the Mediterranean as *Flustra depressa* Moll; Friedl, Adriatic (56); Heller ? Adriatic (67) as *Membranipora bifoveolata*; Manzoni, Mediterranean (86) as *Membranipora calpensis*; Waters, Naples (109).

Following Jelly (78), Friedl (57) states that *M. bifoveolata* Heller is to be regarded as a synonym of *C. impressa*. Canu and Bassler (37) maintain that it is a distinct species and indeed seeing that Heller figures it with an ovicell, it actually belongs to the genus *Thalamoporella*. The same authors (39 p.83) point out that several of the synonymies previously given are quite incorrect and are based on a confusion of several distinct species. Canu and Bassler (42 p.28) state that this species occurs with great frequency in the Mediterranean, especially along the shores of Africa.

Family Aspidosomatidae

21. *Mollia patellaria* (Moll 1803). (Chart 4)

Moll, Esch. Zooph. 1803 p.68 (90) as *Eschara patellaria*.

Present specimens : Station 1, 21 fms, Station 50, 9 fms.

Mediterranean Records : Calvet, Corsica (29), Majorca (33) as *Membranipora patellaria* : Friedl, Adriatic (56) as *Calescara patellaria* : Heller, Adriatic (67) as *Diachoris simplex* : Hincks, Adriatic (75) as *Membranipora patellaria*; Julien et Calvet, Bonifacio (81); Moll, Mediterranean (90) as *Eschara patellaria* Waters, Naples (109) as *Diachoris patellaria*.

This species was founded by Moll for Mediterranean specimens. Heller (67) described *Diachoris simplex* from the Adriatic but this is identical with the *Eschara patellaria* of Moll. According to Friedl (56 p. 235) *Diachoris armata* of Heller from the Adriatic, is also a synonym of *M. patellaria* and indeed he states that this species was actually founded for the dorsal aspect of a colony of *D. simplex* which had come free from the sponge which it was encrusting. Heller also describes a *D. simplex* var. *circumcincta* which Friedl states is the same as the *D. patellaria* var. *multijuncta* of Waters (109). If this be so then Heller's name has priority. Friedl places *M. patellaria* in the genus *Calleschara* Macgillivray 1879, but it is actually the type species of the genus *Mollia* Lamouroux 1816, so that if it is removed from *Eschara* or *Membranipora* it must be placed in *Mollia*.

Family Scrupocellariidae.

22. *Scrupocellaria scruposa* (Linné 1758). (Chart 4).

Linné, *Systema Naturae* ed. 10. 1758 p. 815 as *Sertularia scruposa*

Present specimens : Station Arsenal Basin, Western Harbour littoral ; Station 62, 28 fms.

Mediterranean Records : Barroso, Gulf of Valencia (7) ; Calvet, Corsica (29), Gulf of Lyons (28), Monaco (31), Banyuls-sur-Mer, Majorca (33) ; Friedl, Adriatic (57) ; Marcus, Naples, Pirano, Trieste (87) ; Marion, Large de Méjean, (88) ; Pergens, Nord-Ouest Mediterranean (97) ; Richiardi, Mare della Toscana (101) Stossich (fide 43) ; Waters, Naples (109) as *Cellularia scruposa*.

This is a widespread species both within the Mediterranean and elsewhere. It is recorded *inter alia* by Norman from Madeira (91).

The specimens here are fragmentary and most of the spines are missing.

23. *Scrupocellaria reptans* (Linné 1758). (Chart 4).

Linné, *Systema Naturae* ed. 10 1758, p. 815 as *Sertularia reptans*.

Present specimens ; Station 7, 17 fms., Station 66, 20 fms.

Mediterranean Records ; Barroso, Castellon, Valencia (7), Algeciras (11), Tangiers (12) ; Bertolini, Spezia (fide 43) ; Calvet, Corsica (29) :

Gulf of Lyons, (28), Majorca (33); Canu and Bassler, Tangiers (40), Tunis (42); Edwards, Bonifacio (48); Friedl, Adriatic (56); Gräffe, Adriatic (59); Heller (67); Julien et Calvet, Bonifacio (81); Marcus, Trieste (87); Olivi, Venice (92); Richiardi, Mare della Toscana (101); Risso, Nizza (102).

This again is a widespread species and has been recorded *inter alia* by Canu and Bassler (40 & 41) from the Atlantic coast of Morocco and by Norman (91) from Madeira.

24. *Scrupocellaria serupea* Busk, 1851. (Chart 4).

Busk, Ann. Mag. Nat. Hist. ser. ii, vol 7. 1857, p. 83 (19).

Present specimens : Station 1, 21 fms., Station 62, 28 fms.

Mediterranean Records : Barroso, Gulf of Valencia (7), Tangiers, and Algeciras (12); Calvet, Corsica (29), Gulf of Lyons (28), Monaco (31), Banyuls-sur-Mer, (33), Bonifacio (30); Edwards, Bonifacio (48); Friedl, Adriatic (56); Grube, Adriatic (60); Heller, Adriatic (67); MacAndrew, Mediterranean (fide 43); Marcus, Brioni (87); Richiardi, Mare della Toscana (101); Stossich, Adriatic (fide 43); Waters, Naples (109) as *Cellularia scrupea* Naples (119).

This is a species that is widespread in the Mediterranean but has not been recorded from so many places outside although it is reported from the British Isles, Singapore and Australia.

The present specimens are fragmentary and most of the spines are missing

25. *Caberea boryi* (Audouin 1826.) Chart 4.

Audouin, Sav. Zool. Egypt 1826 p. 241(1) as *Crisia boryi*.

Present specimens : Station 1, 21 fms.

Mediterranean Records : Audouin, Shores of Egypt (1); Barroso, Valencia (7), Algeciras (7); Calvet, Bonifacio (30); Corsica (29), Gulf of Lyons (28), Majorca (33); Canu and Bassler, Tunis (42); Edwards, Bonifacio (48); Friedl, Adriatic (56); Gräffe, Adriatic (59); Heller, Adriatic (67); MacAndrew, Mediterranean (fide 43); Pergens, Nord-Ouest Mediterranean (97); Richiardi, Mare della Toscana (101); Waters, Rapallo, Trieste (113), Naples (109).

This is also a widespread species both within the Mediterranean and elsewhere and recorded *inter alia* by Canu and Bassler (40 & 41)

from the Atlantic coast of Morocco, by Norman (91) from Madeira and by Julien et Calvet (81) from the Azores.

It was actually founded on material collected in Egypt by the French Scientific Expedition, drawn by Savigny in his Planches and named by Audouin.

26. *Bugula avicularia* (Linné 1758). (Chart 5).

Linné, Systema Naturae, ed. 10 1758 p.809 as *Sertularia avicularia*

Present specimens : Station Eastern and Western Harbour, littoral.

Mediterranean Records : Barroso, Valencia (7), Balearics (2 & 8), Algeciras (11); Calvet, Gulf of Lyons (28), Monaco (31), Majorca (33), Canu et Bassler, Tunis (42); Friedl, Adriatic (56); Gräffe, Adriatic (59); Heller, Adriatic (67); Marcus, Naples (87); Marion, Marseille (88); Olivi, Venice (92) as *Sertularia avicularia*; Richiardi, Mare della Toscana (101); Seeliger, Adriatic (103); Waters, Naples (109);

This is a widely distributed species and has been recorded *inter alia* by Canu and Bassler (40 & 41) from the Atlantic coast of Morocco and by Norman (91) from Madeira.

27. *Bugula neritina* (Linné 1758). (Chart 5)

Linné, Systema Naturae, ed. 10 1758 p. 815 as *Sertularia neritina*

Present specimens : Station Eastern and Western Harbour, littoral.

Mediterranean Records : Audouin, Egypt (21) as *Acamarchis* sp.; Barroso, Balearics, Valencia (2 & 7); Calvet, Gulf of Lyons (28), Monaco (31), Majorca (33); Delle Chiaje, Sicily (45) as *Sertularia neritina*; Costa, Naples (47) as *Acamarchis neritina*; Friedl, Adriatic (56); Gräffe, Adriatic (59); Hastings, Port-Said (65); Heller, Adriatic (67); Lorenz, Adriatic (85); Marcus, Naples, Cartagena, Trieste, Dalmatia, Smyrna (87); Marion, Marseille (88); Olivi, Adriatic (92) as *Sertularia neritina*; Richiardi, Mare della Toscana (101); Risso, Nizza (102); Seeliger, Adriatic (103); Waters, Naples (109).

This is a widespread species within and without the Mediterranean and has been recorded *inter alia* by Canu and Bassler from the Atlantic coast of Morocco and Mauritania (40 & 41) and by Norman from Madeira (91). The preserved specimens were of a deep red colour.

Family Puellinidae.

28. *Puellina radiata* (Moll 1803). (Chart 6)

Moll, Esch. Zooph., 1803 p.63 (90) as *Eschara radiata*.

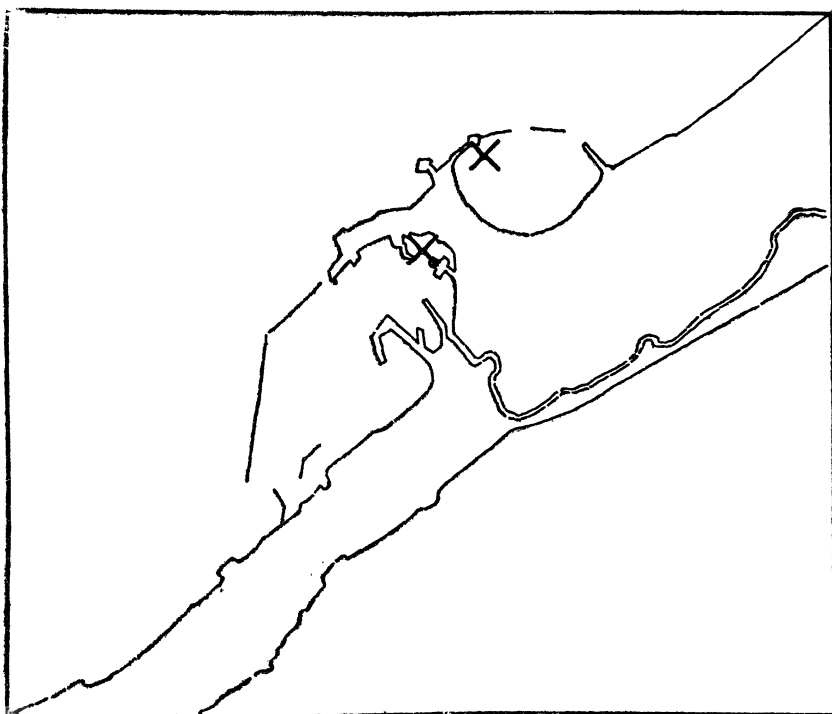


Chart 5.

X *Bugula avicularia* (Linné)

X *Bugula neritina* (Linné)

Present specimens : Station 27, 70 fms., Station 59a, 17 fms.

Mediterranean Records : Barroso, Gulf of Valencia (7), Las Aguilas (3) ; Calvet, Corsica (29), Gulf of Lyons (28), Banyuls-sur-Mer, Majorca (33); Monaco (31), Mediterranean, Morocco (30) all as *Cribrilina radiata* ; Canu et Bassler, Tunis (42) as *Cribrilaria radiata* ; Edwards, Marseille, Nizza, Villafranca, Bonifacio, Corsica (48) as *Lepralia radiata* ; Friedl, Adriatic (56) ; Gräffe, Adriatic (59) as *Cribrilina radiata* ; Heller, Adriatic (67) as *L. radiata* ; Manzoni, Mediterranean (86) as *Lepralia innominata*, *L. annulata*, and *L. scripta* ; Marcus, Naples (87) as *Cribrilina radiata* ; Moll, Mediterranean (90) as *Eschara radiata* ; Pergens Nord-Ouest Mediterranean (97) as *Cribrilina radiata* ; Risso, Nizza (102) as *Cellepora radiata* ; Waters, Naples (108) as *L. radiata* and Naples and Madeira (115) as *Cribrilina setosa*.

This species was founded upon Mediterranean material. It is widespread within and outside the Mediterranean and has been recorded *inter alia* by Canu and Bassler (40 & 41) from the Atlantic coast of Morocco and by Norman (91) Waters (115) and others from Madeira.

It presents difficulties in its nomenclature and distribution. It apparently has a wide range of variation and over and above this Hincks (73 p. 185) gives at any rate four distinct varieties. None of the more recently described forms exactly resemble Moll's quite good illustration and description and Canu and Bassler (42 p. 30) say "Nous craignons beaucoup que le *Cribrilina radiata* des auteurs récents ne soit pas du tout l'espèce de Moll". As will be seen above, it has been referred to quite a number of genera and we have adopted that of Julien here ; this has been quite commonly used by a number of recent writers. It is to be noted however that Harmer (62 p. 475) refers it to Julien's genus *Colletosia* and Canu et Bassler (42 p.29) refer it to their own *Cribrilaria* of which it is the genotype.

Jelly (78) gives a complex synonymy but Norman, Waters and Canu et Bassler suggest the possibility that *Lepralia innominata* Couch 1844 may be a separate species and not a synonym as it is regarded by a number of authorities. The authors however do not regard the question as settled. To one of the variants described by Hincks, Friedl (56 p. 236) has given the variatal name var. *hincksi*. Waters, later (121 p. 560) recognising a *radiata* and *innominata* group refers it to *Puellina innominata* var. *hincksii* and Canu et Bassler (42 p. 30 P) go a step further and make it an independent species *Cribrilaria hincksii*. The

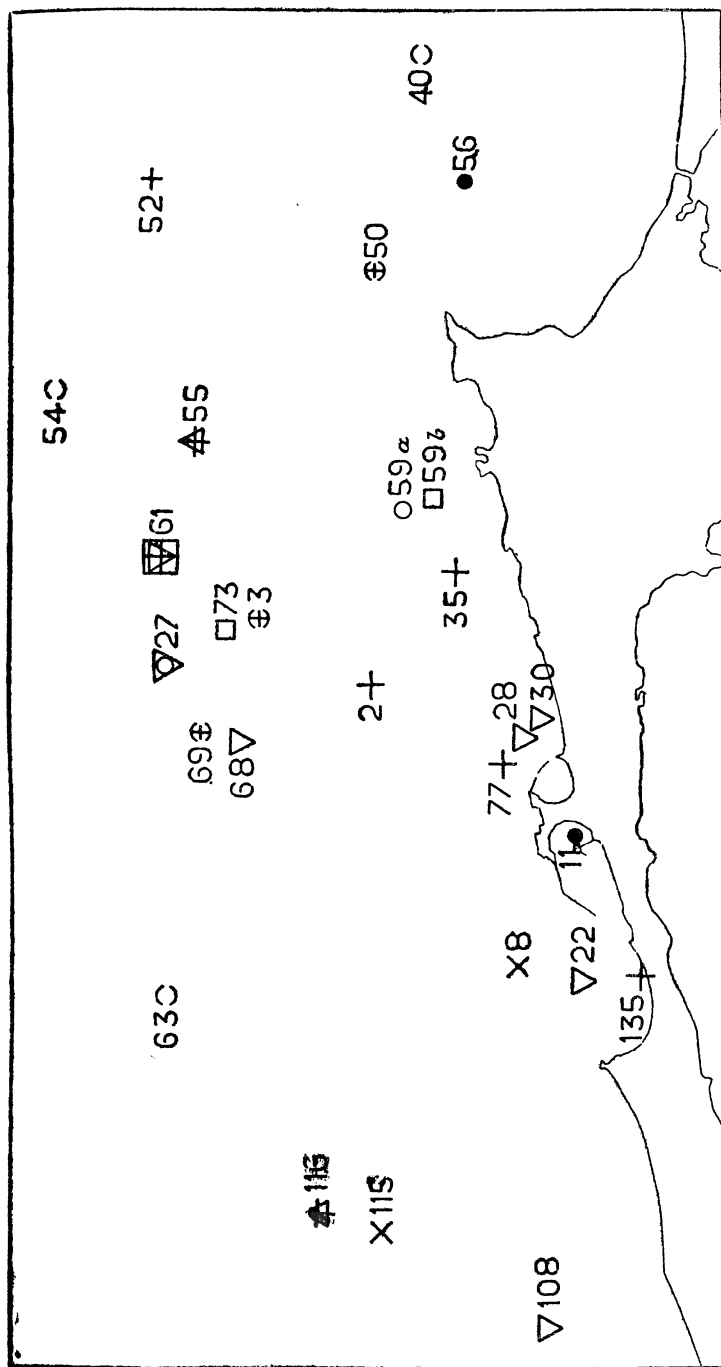


Chart 6.

- O *Puellina radista* (Moll).
- + *Tubucellaria opunsioides* (Pallas).
- X *Retepora imperati* (Busk).
- ∇ *Retepora couchii* (Hincks).
- \bigcirc *Retepora couchii* (Hincks) (var. *aperosa* (Waters)
- " *cellulosa* (Linné)
- " *complanata* (Waters).
- " *notopachys* (Busk).

clearing up of the synonymy and the checking of recorded indentifications is essential to get a true idea of the distribution of the one or more species involved.

Family Tubucellariidae

29. *Tubucellaria opuntioides* (Pallas 1766). (Chart 6)

Pallas, Elench. Zooph. 1766 p. 61 (95) as *Cellularia opuntioides*.

Present specimens : Station 2, 25 fms., Station 3, 34 fms.

Station 35, 7 fms., Station 50, 9 fms., Station 52, 22 fms.

Station 55, 40 fms., Station 61, 50 fms., Station 69, 48 fms.

Station 77, 7 fms., Station 116, 35 fms., Station 135, 4 fms.

Mediterranean Records : Barroso, Almeria (3), Gulf of Valencia. Balearics (7) as *T. cereoides* ; Calvet, Corsica (29), Gulf of Lyons (28), Monaco (31), Majorca (33), Villafranca, Bonifacio (30) ; Canu et Bassler, Tunis, French Coast of Mediterranean (42) as *T. cereoides* ; Chiaje, Naples (45) ; Forbes, Aegean, (fide 43) ; Edwards, Villafranca, Bonifacio (48) ; Friedl, Adriatic (56) as *T. opuntioides* var. *cereoides* ; Heller, Adriatic (67) ; Marcus, Naples, Adriatic (87) ; Pergens, Nord-Ouest, Mediterranean (97) ; Richiardi, Mare della Toscana (101) ; Risso, Naples (102) ; Waters, Naples (109) as *T. cereoides*.

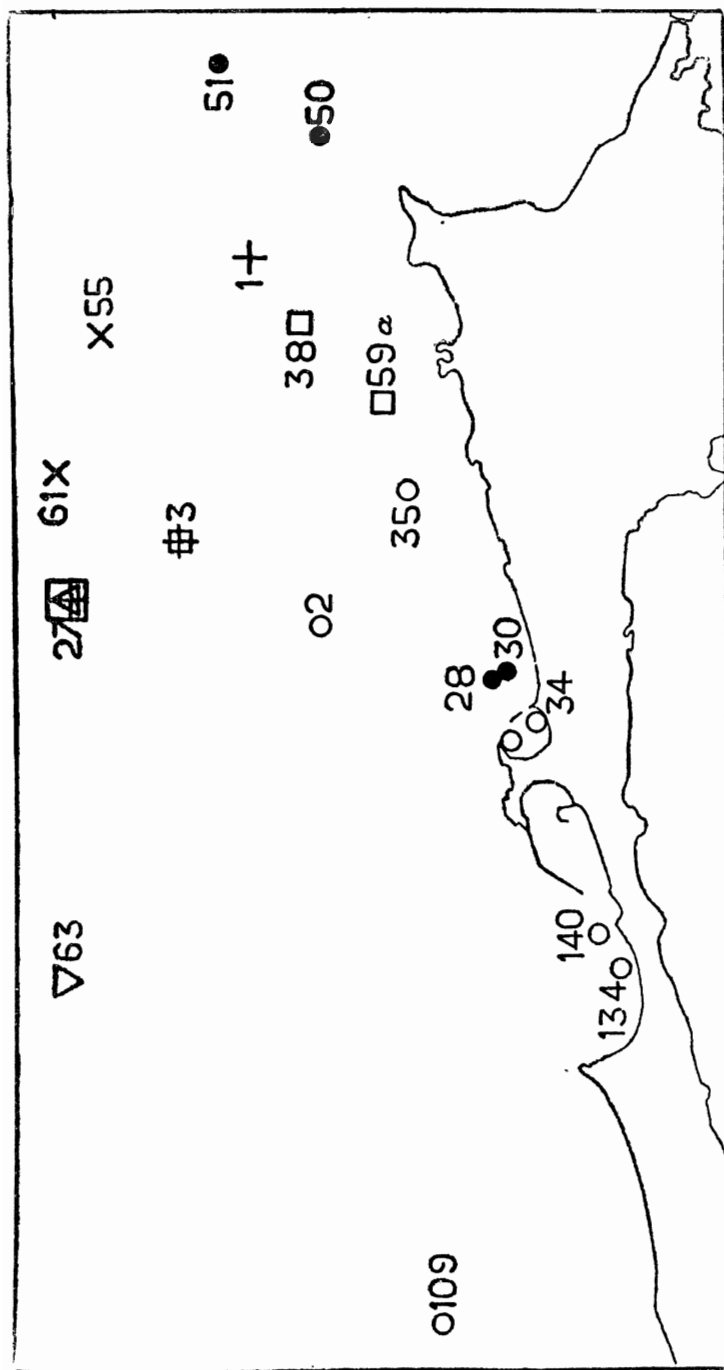
This is a widespread species in the Mediterranean and, as will be seen, is represented in the present collection by specimens from a number of stations with a range of depth from 4 to 50 fms.

T. opuntioides was founded by Pallas in 1766 and *T. cereoides* by Ellis and Solander in 1786. If the two are synonyms, the older name should be retained. Friedl (56 p. 268) lists his specimens as *T. opuntioides* (Dall) var. *cereoides* Ell. Sol. but Canu et Bassler (42 p. 63) state that there are two distinct species involved. We have here followed the more general practice of regarding them as one. If there are two, a good deal of sorting out of the above records will be necessary.

SUB-ORDER CHEILOSTOMATA. SECTION ASCOPHORA.

Family Reteporidae.

This is a family that presents considerable difficulty and, in general, stands in need of revision. An excellent beginning has been made by



Chast 7.

- *Rhynchozoon bispinosum* (Johnston).
- ▽ *Mucronella soulieri* (Calvet).
- △ *Schizoporella discoidea* (Busk).
- *Schizopodrella unicoloris* (Johnsson).
- *Schizolavella vulgaris* (Moll).
- + *Schizomavella auriculata* (Hassall).

X *Schizomavella alexandriae* sp. nov.

Harmer (63) whose careful work shows how badly critical redefinition is required, but unfortunately this work does not extend to the Mediterranean forms. The first difficulty arises from the material itself. The secondary alterations that make their appearance as the result of extensive calcification during growth are so marked as to alter entirely the appearance of the colony. It is thus difficult to refer an old colony to its corresponding young stage unless it retains its juvenile characteristics in the youngest zoecia, which however are not always present. The opercula are not of much assistance and although avicularia are, they are easily lost after rough usage. Waters (112) suggested the use of the size and proportional dimensions of the fenestrae and their relation to the separating branches. Our experience has been that this affords but little help in the determination of species since, unless the differences are so marked that the colonies are separable by the naked eye, the range of variation between one part and another part of the same colony is so great that the measurements furnish no useful criteria. It would appear from the condition of some of the present material that large, strong colonies may be readily washed about on the sea bottom and consequently become much worn. This is more applicable to the old colonies that seem to have been dead for some time than to those that were alive when collected. A number of the specimens were so heavily calcified and worn that, beyond recognising that they were parts of Reteporan colonies, it was not possible to assign them to genera and species.

The second difficulty arises from the fact that the descriptions and figures of the older writers do not emphasize the points which are now relied upon for specific determination. They were also unaware of the changes mentioned above and consequently it is possible that of the numerous species described from the Mediterranean some are different growth stages and others identical species with different points in their structure stressed.

The identifications here given are subject to the limitations arising from the considerations given above but every attempt has been made to see that the specimens correspond with the species as described by the authors naming them.

30. *Retepora imperati* Busk 1884. (Chart. 6)

Busk, Challenger p. 110 (26)

Present Specimens : Station 8, 15 fms. Station 115, 30 fms.

Mediterranean Records : Barroso, Algeciras (16) ; Busk, Mediterranean (26) ; Waters, Oran, Algiers (122) as *Schizellozoon imperati*.

This species has not been recorded from many localities although it is listed by Canu et Bassler from the Atlantic coast of Morocco as *S. imperati* (41). It was originally described by Imperato (77) from Mediterranean material but as this writer is pre-linnean, it was redescribed by Busk. The latter author however gives as a synonym *Millepora foraminosa* Ellis and Soland. If this identity be established, the name of Ellis and Solander 1786 must have priority over that of Busk 1884. Busk (26) does not describe any spines in this species but Waters (122) states that some of his specimens from Oran possess a stout spine at each side of the aperture which, however, is lacking in others.

31. *Retepora couchii* Hincks 1878. (Chart 6)

Hincks, on the genus *Retepora* 1878, p. 375 (70).

Present Records : Station 55, 40 fms. Station 116, 35 fms.

Mediterranean Records ; Calvet, Bonifacio (29), Gulf of Lyons (28), Monaco (31); Canu et Bassler, Tunis (42); Friedl, Adriatic (57) as *Sertella couchii*; Mac Andrews, Mediterranean (fide 43); Marcus, Brioni (87) Waters, Naples (110), Rapallo (112).

This species has not been widely recorded but is listed from England by Hincks (73) from Madeira by Norman (91) and from the Atlantic coast of Morocco by Canu et Bassler (40 & 41). According to Friedl (57) specimens of this species were included by Heller in his material named *R. cellulosa*.

a. *Retepora couchii* Hincks var. *aporosa* Waters 1895. (Chart 6)

Waters, *Medit. and New Zealand Reteporidae* 1895 p. 262 (112)

Present specimens : Station 3, 34 fms. Station 40, 8 fms. Station 50, 9 fms. Station 54, 55 fms : Station 63, 74-83 fms. Station 69, 48 fms.

Mediterranean Records : Calvet, Monaco (31); Waters, Rapallo (112)

While this is not even so plentifully recorded as the typical form, most of our specimens are referable to it. It has been recorded from the Atlantic coast of Morocco by Canu et Bassler (41). Waters also records a *Retepora couchii* var. *biaviculata* from Naples and Capri (112) and Norman records it from Madeira (91). This variety does not appear in our material.

32. *Retepora cellulosa* (Linée 1758). (Chart 6)

Linné, *Systema Naturae*, ed. 10, 1758 p. 790 as *Millepora cellulosa*

Present specimens: Station 22, 7 fms. Station 27, 70 fms. Station 28, 10-12 fms. Station 30, 7 fms. Station 61, 50 fms. Station 68, 37 fms. Station 108, 14 fms.

Mediterranean Records: Barroso, Almeria (3); Bertolini, Spezia (fide 43); Calvet, Bonifacio (30), Corsica (29), Gulf of Lyons (28), Monaco (31), Banyuls-sur-Mer, Majorca (33); Cavolini, Naples (44) as *Millepora cellulosa*: Chiaje, Naples (45); Edwards, Bonifacio (48); Friedl, Adriatic (57); Gräffe, Adriatic (59); Grube, Adriatic (60); Heller, Adriatic (67); Marcus, Rovigno, Zara, Aegina (87); Marion, Marseille, Podesta (88); Pergens, Nord-Ouest Mediterranean (97); Pieper, Adriatic (98); Richiardi, Mare della Toscana (101); Risso, Nizza (102) as *Millepora cellulosa*; Waters, Naples (110).

This species is a widely recorded one and has been listed *inter alia* by Julien et Calvet (81) from the Azores, some specimens from a depth of 1300 m. It has a lengthy and complex synonymy much of which is given by Jelly (78 pp. 213—216). Mediterranean material was recorded by Imperato (77) as *Eschara marina* and it is also stated to have been dealt with by a number of the old pre-Linnean naturalists although of course they may not have differentiated between the various species of the genus and their records may be regarded as referring to a *Retepora*-like form. Calvet (31) also recognises in his material from Monaco a varietal form which he names *Retepora cellulosa* var. *aquilina*.

33. *Retepora complanata* Waters 1895. (Chart 6)

Waters, *Medit. and New Zealand Reteporidae* p. 263 (112).

Present specimens: Station 11, 6 fms. Station 56, 4 fms. Mediterranean Records: Waters, Naples, Capri (112), Naples (110).

So far this species has only been recorded by Waters who founded it upon material from the Mediterranean. Our collection contains specimens referable to it from two localities.

34. *Retepora notopachys* Busk 1859. (Chart 6).

Busk, *Crag Polyzoa* 1859 p. 76 (22).

Present specimens: Station 59b, 15 fms. Station 61, 50 fms. Station 73, 38 fms.

Mediterranean Records: Smitt, Mediterranean (106) in Hedenborg's collection.

It is with a certain amount of hesitation that we refer the specimens to this species since it was founded upon fossil material. It has been recorded, however, once previously from the Mediterranean and, while somewhat worn, it possesses the extraordinarily thick dorsal region that characterises Busk's species and from which it receives its name.

35. *Rhynchozoon bispinosum* (Johnston 1847). (Chart 7).

Johnston, Hist. Brit. Zooph. ed. II 1847 p. 326 (79) as *Lepralia bispinosa*.

Present specimens : Station 28, 10-12 fms. Station 30, 7 fms. Stn. 50, 9 fms. Station 51, 13 fms.

Mediterranean Records : Barroso, Balearics (2) as *Rhynchopora bispinosa*; Calvet, Corsica (29) as *Rhynchopora bispinosa*; Friedl, Adriatic (56) Hincks, Adriatic (75) as *Rhynchopora bispinosa*; Pieper, Adriatic (98).

This species is sometimes cited as of Hincks 1877 but while it is true that Johnston's figure and description leave much to be desired, Hincks was quite clear that he was dealing with the same species.

Family Escharellidae.

36. *Mucronella soulieri* Calvet 1902 (Chart 7).

Calvet, Bryoz. de Cete, 1902 p. 61 (28).

Present specimens : Station 63, 74—85 fms.

Mediterranean Records : Barroso, Oran (13) as *Petralia soulieri* ; Calvet, Gulf of Lyons (28), Corsica (29), Monaco (31), Bonifacio (30) ; Waters, Oran, Cete, Corsica, Villefranche (122) as *Lepralia soulieri*.

This species which was founded on Mediterranean specimens has apparently been recorded only from that sea.

37. *Schizoporella discoidea* (Busk 1859). (Chart 7).

Busk, Zoophytology, 1859 p. 66 (23) as *Lepralia discoidea*.

Present specimens : Station 27, 70 fms.

Mediterranean Records : Hincks, Adriatic (75), Algiers (73) ; Pieper, Adriatic (98).

This species is mentioned by Friedl (57) but apparently he had no material in his own collection. It is also recorded by Hincks (75) and Norman (91) from Madeira.

38. *Schizopodrella unicornis* (Johnston 1847). (Chart 7)

Johnston, Hist. Brit. Zooph. ed. 2 1847 p. 320 (24) as *Lepralia unicornis*

Present specimens: Eastern Harbour littoral. Station 2, 25 fms. Station 34, surface. Station 35, 7 fms. Station 109, 20 fms. Station 134, 6 fms. Station 140, 4-8 fms.

Mediterranean Records : Barroso, Cadiz (3), Gulf of Valencia (7), Balearic Is. (8 & 11). Pontevedra (9), Tangiers (12); Calvet, Corsica (29), Gulf of Lyons (28), Villafranca, Bonifacio (30); Monaco (31), Oran (32) as *Schizoporella unicornis*; Edwards, Bonifacio (48); Friedl, Adriatic (57) as *Schizoporella unicornis* Gräffe, Adriatic (59) as *Schizoporella unicornis*; Hastings, Suez (65) as *Schizoporella unicornis*; Heller, Adriatic (67) as *Lepralia spinifera* var. *unicornis* et var. *serialis*; Hincks, Adriatic (75) as *Schizoporella unicornis*; Landsborough, Bay of Gibraltar (84) as *Lepralia unicornis*; Lorenz, Adriatic (85) as *Lepralia tetragona*; Marcus, Rovigno, Trieste (87); Pieper, Adriatic (98); Stossich, Adriatic (fide 43); Waters, Naples (108) as *Lepralia ansata* var. *porosa*.

This is a widespread species both within and outside the Mediterranean and it has been recorded *inter alia* by Norman (91) from Madeira and by Canu et Bassler (40) from the Atlantic Coast of Morocco. The latter authorities (42 p. 36) direct attention to the fact that the *Lepralia ansata* Johnston is a different species and that Hincks by considering this as a variety of *L. unicornis*, has caused confusion in subsequent writings. The figure given by Hincks does not represent the *L. ansata* of Johnston but must be considered as representing a variety of *L. unicornis*. By many of the older writers this species is referred to the genus *Schizoporella* but Canu and Bassler (36 p. 40) create a new genus *Schizopodrella* of which it is the type species. Hincks (73 p. 238) describes the species as having a pointed mucro of varying length and says that in some it is strongly marked and the frontal also studded with umbonate processes. In the various specimens here examined a wide range of variation is shown from practically no process, through a distinct mucro up to what might be described as a well marked umbo.

39. *Schizolavella vulgaris* (Moll 1803). (Chart 7)

Moll, Eschara Zooph. 1803 p.55 (90) as *Eschara vulgaris*.

Present specimens : Station 3, 34 fms. Station 27, 70 fms. Station 38, 17 fms. Station 59a, 17 fms.

Mediterranean Records: Calvet, Corsica (29), Gulf of Lyons, (28), Bonifacio (30), Monaco (31); Canu et Bassler, Tunis (42), Tangiers (40); Edwards, Nizza, Villafranca, Bonifacio (48); Hincks, Adriatic (75); Moll, Mediterranean (90) as *Eschara vulgaris*, Pieper, Adriatic (98); Waters, Naples (108).

This species was founded on Mediterranean material. Most authorities refer to it as *Schizoporella vulgaris* but Canu and Bassler (42 p. 358) transfer it to a new genus *Schizolavella* of which it is the type. It has been recorded *inter alia* by Norman (91) from Madeira and by Canu et Bassler (40) from the Atlantic coast of Morocco.

40. *Schizomavella auriculata* (Hassall) 1842 (Chart 7).

Hassall on the Genus *Lepralia* 1842; p.411 (64) as *Lepralia auriculata*.

Present specimens: Station 1, 21 fms. Station 3, 34 fms. Station 27, 70 fms.

Mediterranean Records: Barroso, Balearics (2) as *Schizoporella auriculata*; Calvet, Corsica (29), Gulf of Lyons (28), Villafranca, Bonifacio (30), Monaco (31), Gulf of Oran (32), Banyuls-sur-Mer, Majorca, Cape Bagur à Blamès (33) as *Schizoporella auriculata*, Canu et Bassler Tunis (42), Edwards, Villafranca, Bonifacio (48) as *Lepralia auriculata*, Forbes, Aegean (Fide 43) as *Schizoporella auriculata*, Hincks, Algiers (73), Adriatic (76); Marcus, Isole Grosse, Zara (87); Manzoni, Mediterranean (86) Pieper, Adriatic (98) as *Lepralia auriculata*; Waters, Naples (108).

This is a cosmopolitan species and has been recorded *inter alia* by Canu et Bassler from the Atlantic coast of Morocco (40), by Norman (91) and Waters (115) from Madeira. It is subject to considerable variation and even within the Mediterranean the following varieties of it have been recorded: var. *cuspidata*, var. *ochracea* var. *hirsuta*, nov. and var. *asymmetrica* nov. all by Calvet (31) and var. *cuspidata*, var. *ornata* nov. and var. *inordinata* nov. by Canu et Bassler (42). Those listed as new varieties are founded on Mediterranean specimens.

The species is commonly referred to as *Schizoporella auriculata* but Canu and Bassler (36 p. 40) transfer it to a new genus *Schizomavella* of which it is the type species.

41. *Schizomavella alexandriae* sp. nov. (Chart 7 & Fig. 2).

The specimens of this species were obtained from Station 55, 40 fms. and Station 61, 50 fms.

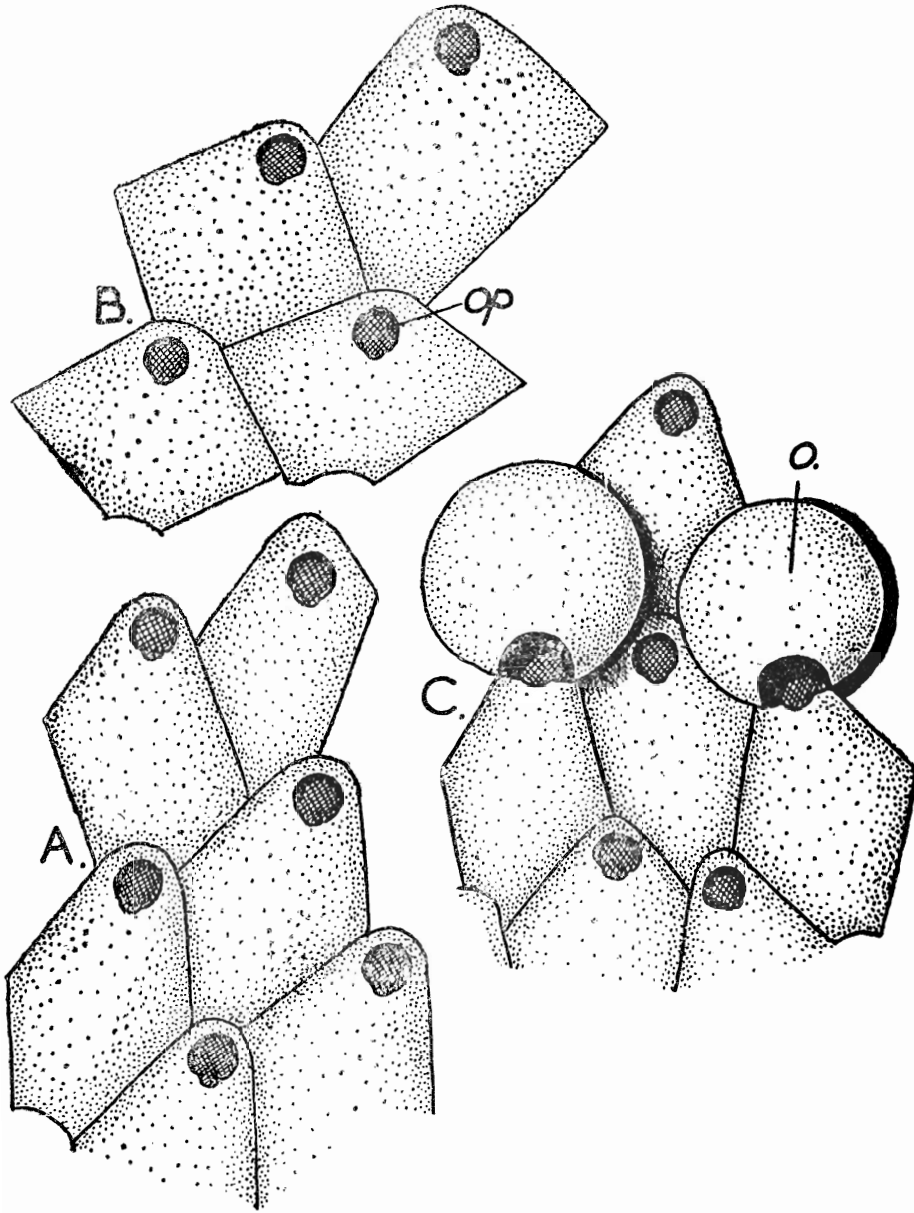


Fig. 2. *Schizomavella alexandriae* sp. nov.

The zoarium forms a rather smooth, opaque white layer and in both the specimens examined, coming from different stations, it is encrusting old specimens of *Adeonella pallasii*. The zooecia are approximately rhomboidal with the upper angle rounded. In some places the frontal is longer than wide but in other parts of the same colony it is wider than long and the change occurs within a row or two. The zooecia tend to be quincuncially arranged but owing to the exigencies of the substratum they frequently become irregular and jumbled. The frontal of the zooecium is only slightly raised, fairly smooth but not shiny and adjacent zooecia are marked off by a narrow, shallow linear groove. The boundaries of the zooecia are more or less straight except at the anterior end, where they are rounded above the aperture. The aperture itself is not large and is almost circular in outline with a shallow, rounded sinus on its lower margin. It is situated near but not right at one end of the zooecium and, as noted above, the frontal passes round its upper margin as a curved narrow band. The zooecium is large, almost circular in outline and raised a little more than the frontal of the zooecium, but it is by no means prominent. The presence of the zooecium entirely alters the shape of the aperture, which becomes wider and almost semi-circular in shape and with a shallow, rounded sinus on its otherwise practically straight posterior margin.

No spines or avicularia are present, but its affinities are clearly with the Schizomavella group in spite of the absence of a median avicularium. This genus is well represented in the Mediterranean by *S. auriculata*, *S. arrogata*, *S. ambita* and *S. grandiporosa* and *inter alia* the present species is distinguished by the small size of its zooecia and their plain unornamented character. It appears to be undescribed and the name *S. alexandriae* is suggested.

42. *Adeonella polystomella* (Reuss 1847). (Chart 8).

Reuss, Polyp. Wiener Tertiär 1848 p. 70 (100) as *Eschara polystomella*.

Present specimens: Station 2, 25 fms. Station 3, littoral. Station 38, 17 fms. Station 52, 22 fms. Station 55, 40 fms. Station 59 b 15 fms. Station 61, 50 fms. Station 67, 22 fms. Station 69, 48 fms. Station 73, 38 fms.

Mediterranean Records ; Calvet, Corsica, Bonifacio (30) ; Canu (fide 30) Oran ; Friedl, Adriatic (56) as *Adeonella pallasii* ; Heller, Adriatic (67) as *Eschara pallasii* ; Hincks, Adriatic (75) as

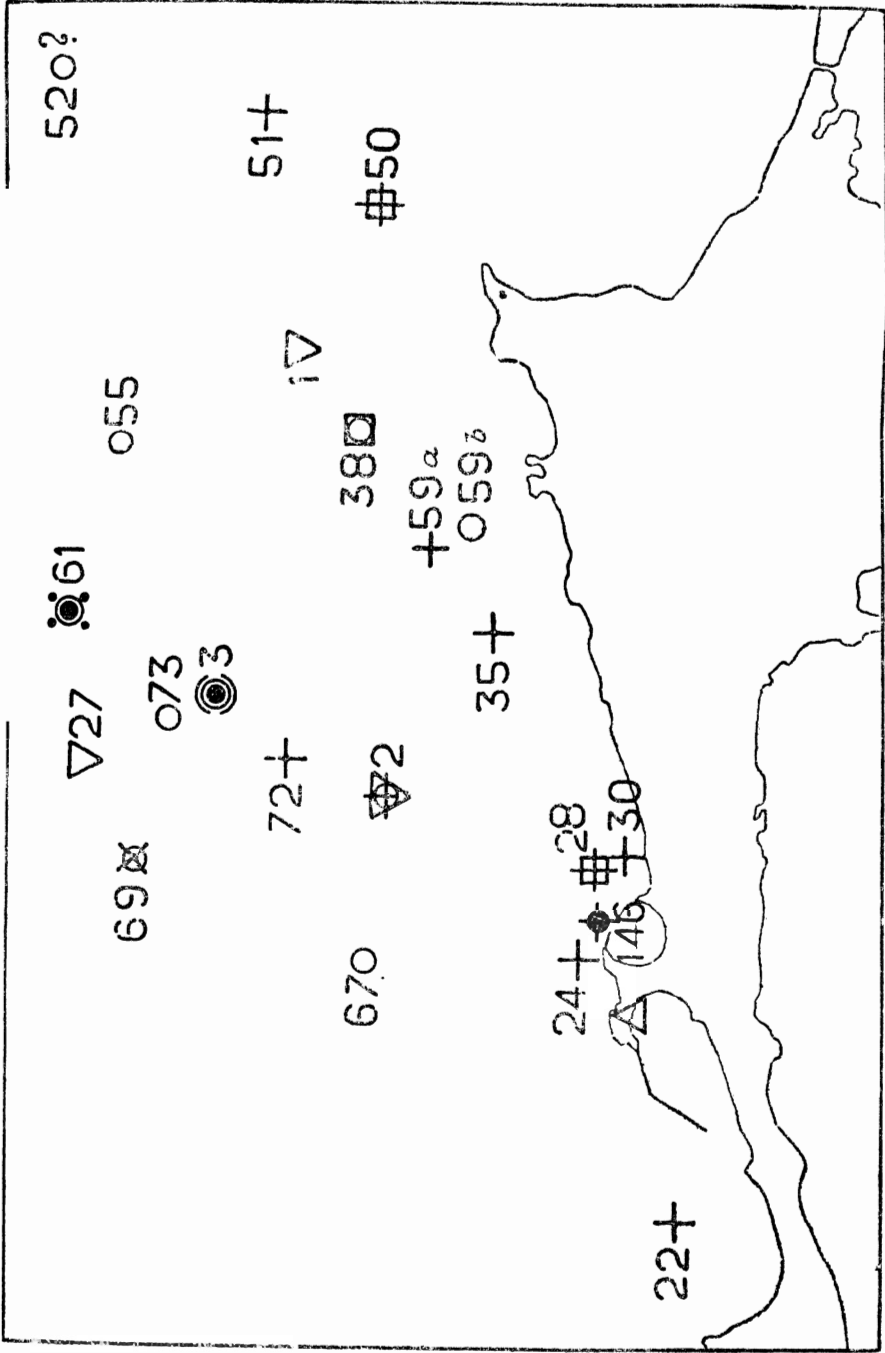


Chart 8.

- *Adeonella polystomella* (Reuss)
- *Adeona violacea* (Johnston)
- ▽ *Monoporella nodulifera* (Hincks)
- + *Lepralia deprersa* (Busk)
- △ *Cryptosula pallasiana* (Moll)
- *Hippoporina porcellana* (Busk)
- X? *Smittina landsborovii* (Johnston)
- :: *Smittina concinna* (Busk)
- *Smittina rouvillei* (Calvet)

Schizoporella Pallasii : Pergens, Nord-ouest Mediterranean (97) as *Microporella polystomella* : Richiardi, Mare della Toscana (101) : Waters, Naples and Capri (108).

This is a widely distributed species in the Mediterranean and has been recorded *inter alia* by Canu et Bassler from the Atlantic coast of Morocco (41). *Eschara polystomella*, a tertiary fossil, is usually quoted as of Reuss 1847 but this is the date of the issue of the separate of Reuss's paper and the journal in which it appeared was not published until the following year. In 1867 Heller described *E. pallasii* from Adriatic material and later, Waters stated that Heller's species was identical with that of Reuss and if this is so, then the name stands as above. It should be noted however that Friedl (56 p.239) states that in his opinion the two species are distinct and if so *A. pallasii* is the name of the living species.

43. *Adeona violacea* (Johnston 1847). (Chart 8)

Johnston, Hist. Brit. Zooph. ed. 2, p. 325 *Lepralia violacea*
Present specimens : Station 3, 34 fms. Station 61, 50 fms. Station 146, 10—11fms.

Mediterranean Records : Barroso, Gulf of Valencia (2) as *Microporella Heckeli* : Calvet, Corsica (29), Gulf of Lyons (28), Corsica (30), Monaco (31), Gulf of Oran (32), Banyuls-sur-Mer (33) as *Adeona heckeli* : Canu et Bassler, Tunis (42) as *A. heckeli* : Edwards, Bonifacio (48) : Friedl, Adriatic (56) : Graffe, Adriatic (59) as *Lepralia violacea* ; Heller, Adriatic (67) as *L. violacea* : Hincks, Algiers (73) as *Microporella violacea* : Landsborough, Bay of Gibraltar (84) as *L. violacea* : Lorenze, Adriatic (85) as *Lepralia heckeli* ; Pergens, Nord-ouest Mediterranean (97) as *Microporella violacea* : Stossich, Adriatic (fide 43) as *M. violacea* Waters Naples (108) as *L. violacea*.

This species is distributed widely in the Mediterranean and recorded *inter alia* from the Atlantic coast of Morocco by Canu et Bassler (40) as *Adeona heckeli*. Its synonymy is in some muddle for Jelly (78 p. 184) gives, under *Microporella Heckeli*, *Lepralia violacea* of Johnston as a synonym of *Cellepora Heckeli* Reuss and in the reference to Johnston's History of British Zoophytes ed. 2, gives the date of publication as 1849. How this mistake can have arisen is not clear since in Jelly's bibliography the correct date 1847, appears. The date 1849 is also given for this work in the bibliography in Hincks (73) and in Canu et Bassler's

synonymy for this species (42. p. 66). Now apart from the fact that the actual date of publication of the journal in which Reuss's paper appears is 1848 which, as noted previously, should be taken as the date of publication, Reuss's separate appeared on 29th May 1847, whereas Johnston's book was published on 6th April 1847. There can be no question therefore as to the priority of Johnston's name, which should stand in spite of a number of authors using *L. heckeli*. A similar question of priority arises in respect to *Schizopodrella unicornis*. Johnston named it *Lepralia unicornis* and Reuss *Cellepora tetragona*, but in this instance Jelly adopted the correct procedure and gave Johnston's name priority.

44. *Monoporella nodulifera* (Hincks 1881). (Chart 8)

Hincks, Cont. Hist. Mar. Polyzoa p. 10 (74) as *Haploporella nodulifera*.

Present specimens : Station 1, 21 fms. Station 2, 25 fms. Station 27, 70 fms.

Hincks named this *Haploporella nodulifera* but found that the generic name was preoccupied and in the same year (74 p. 135) changed it to *Monoporella* and subsequently *M. nodulifera* was designated the genotype.

It has not been recorded previously from the Mediterranean, nor indeed from Europe, but its few previous records indicate wide distribution. Hinck's specimens came from Bass's Straits and Harmer (62) has reported it from Torres Strait and the China Sea.

45. *Lepralia depressa* Busk 1854. (Chart 8)

Busk, Cat. Mar. Polyzoa 1854 p. 75 (21)

Present sepecimens : Station 2, 25 fms. Station 22, 7 fms. Station 24, 10 fms. Station 28, 10–12 fms. Station 30, 7 fms. Station 35, 7fms. Station 50, 9 fms. Station 51, 13 fms. Station 59a,¹ 17 fms. Station 72, 30 fms. Station 146, 10–11 fms.

Mediterranean Records : Busk, Aegean (21) : Calvet, Corsica (29).

This species was founded upon material brought from the Aegean by Forbes and it is remarkable that this Mediterranean species has only been recorded once since. As will be seen, it is by no means uncommon in the present collection, specimens having been obtained from eleven different stations. It is to be borne in mind however that there is a

certain amount of confusion in this group termed *Lepralia* by the older authorities and the species of it recorded from the Mediterranean are certainly in need of revision.

46. *Cryptosula pallasiana* (Moll 1803). (Chart 8)

Moll, *Eschara Zooph.* 1803 p. 57 (90) as *Eschara pallasiana*.

Present specimens : Western Harbour, littoral.

Mediterranean Records : Barroso, Almeria, Cadiz (3), Valencia, Denia (7) ; as *Hippodiplosella Pallasiana* ; Calvet, Corsica (29), Gulf of Lyons (28), Monaco (31), Gulf of Oran (32) as *Lepralia pallasiana* ; Grube, Adriatic (60) as *L.pallasiana* ; Heller, Adriatic (67) ; Lamouroux, Mediterranean (83) as *Cellepora pallasiana* ; Marcus, Naples (87) as *Lepralia pallasiana* var. *projecta* ; Manzoni, Venezia, Lido (86) as *Lepralia pallasiana* ; Pergens, Nord-ouest Mediterranean (97) ; Richiardi, Mare della Toscana (101) Waters, Naples (108) as *Lepralia pallasiana* var. *armata* and var. *projecta*.

This is a widespread species and has been recorded *inter alia* by Canu et Bassler from the Atlantic coast of Morocco (40,41) and by Norman from Madeira (91) as *Lepralia pallasiana*. According to Jelly (78) et al *Eschara Otto Mulleriana* Moll is synonymous with *Lepralia pallasiana* var. *projecta* ; if this is so, then it is also recorded from the Mediterranean by Risso (102). On the other hand Calvet (31 p. 30) regards it as a distinct species and further regards *Hippodiplosella spinosissima* Barroso as synonymous with it.

In 1916 Canu (35 p. 326) created a new genus *Hippodiplosia* for a group of forms in the old genus *Lepralia*. In 1917 Barroso (3 p. 496) referred *Eschara pallasiana* to this genus, the name of which however he mis-spelt *Hippodiplosella* Canu et Bassler (37) subsequently redefined the genus *Hippodiplosia* and designated as the genotype *H. pallasiana*. However, as Hastings (66 p.724) pointed out, it is not permissible to do this since *E.pallasiana* was not included in the original list of species belonging to the genus nor does it fall within the limits of the genus as defined. The muddle apparently arises from the fact that the *Lepralia pallasiana* of Hincks (73) is not the *Eschara pallasiana* of Moll. The matter has been cleared up by Canu et Bassler (40 p.32) creating a new genus *Cryptosula* of which *Eschara pallasiana* Moll is designated the genotype.

47. *Hipporina porcellana* (Busk 1860). (Chart 8)

Busk, *Zoophytology* 1860 p. 283 (24) as *Lepralia porcellana*.

Present specimens: Station 28, 10-12 fms. Station 38, 17 fms. Station 50, 9 fms.

This species has apparently not been previously recorded from the Mediterranean, but the present specimens have been compared with the type in the British Museum with which they appear to agree.

It was originally described by Busk from material from Madeira and it is the type species of the genus; Norman (91) also records it from the same locality. Waters (115) described a *Lepralia cleidostoma* Smitt from Madeira and it is possibly the present species. Smitt's *L. cleidostoma* came from Florida and according to Norman (91 p. 305) it is synonymous with Busk's *L. porcellana*. Canu and Bassler (37 p. 374) however regard the two species as distinct.

48. *Smittina landsborovii* (Johnston 1847). (Chart 8)

Johnston, Hist. Brit. Zooph. ed. 2 1847 p. 310 as *Lepralia landsborovii*.

Present specimens: Station 69, 48 fms.

Mediterranean Records: Calvet, Monaco (31) as *Smittia landsborovii*; Waters, Naples (109).

The present species, subject to the qualifications below, is widely distributed and has been recorded *inter alia* by Canu et Bassler from the Atlantic coast of Morocco (40) and by Norman from Madeira (91).

This species is in need of clarification. It was described and figured by Johnston in 1847 from specimens from Ayrshire and redescribed and figured by Busk (21 p. 66) from the type specimen which unfortunately no longer exists. Subsequently Smitt referred to it a number of Arctic forms, some of which did not quite agree with the original description and again some of them had a smooth instead of a punctured ovicell, although this of course may be within the limits of variation of the species. Jullien called attention to this discrepancy, but made confusion worse confounded by his misunderstanding of the synonymy in Hinck's (73 p. 341).

Canu et Bassler (40 p. 28) say "Le *Lepralia Landsborovi* Johnston 1848 (sic) est une espèce fantôme". This is quite an unfair statement since, whatever muddle has arisen since, Johnston was undoubtedly dealing with actual specimens which he regarded as undescribed and

until they can be proved to be something already described — when the name will become a synonym — the species has a real existence. It is particularly unfortunate that this confusion has arisen, since *L. landsborovii* Johnston was chosen as the type of Hinck's genus *Smittia* (71 p. 161). This generic name was preoccupied by *Smittia* Holmgren 1847 and the name *Smittina* was proposed by Norman 1903 to replace it and *L. landsborovii* became the Type of that genus. Canu et Bassler constantly employ the generic name *Smittina* and yet according to them it is based on a phantom species.

In view of all this it is with some diffidence that we refer the present specimens to *Smittina landsborovii* but certainly it does seem to agree quite closely with the description of that species, although the ovicells are not obviously perforated.

49. *Smittina concinna* (Busk 1854). (Chart 8)

Busk, Cat. Mar. Polyzoa 1854, p. 47 (21) as *Lepralia concinna*.
Present specimens : Station 61, 50 fms.

Mediterranean Records : Calvet, Corsica (29), Gulf of Lyons (28), Monaco (31) all as *Porella concinna*; Edwards, Bonifacio (48); Friedl, Adriatic (57) as *P. Concinna*; Heller, Adriatic (67) as *Lepralia concinna*.

This species is widely distributed but not common and has been recorded *inter alia* by Norman from Madeira (91).

50. *Smittina rouvillei* (Calvet 1902). (Chart 8)

Calvet, Bryoz. de Cete 1902 p. 27 (28) as *Smittia Rouvillei*.
Present specimens : Station 3, 34 fms.

Mediterranean Records : Calvet, Gulf of Lyons (28), Monaco (31) as *Smittia Rouvillei*; Canu et Bassler, Tunis (42).

This species was founded upon Mediterranean specimens.

51. *Porella cervicornis* (Pallas 1766). (Chart 9)

Pallas, Elenchus 1766 p. 252 (95) as *Millepora cervicornis*.

Present specimens : Station 2, 25 fms. Station 3, 34 fms. Station 55, 40 fms. Station 61, 50 fms. Station 68, 37 fms. Station 69, 48 fms. Station 72, 30 fms.

Mediterranean Records : Barroso, Balearics (2) as *Smittia cervicornis*, Balearics (8) as *Porella cervicornis*; Calvet, Corsica (29), Gulf of Oran (32), Banyuls-sur-Mer, Majorca (33) all as *Smittia cervicornis*;

Canu et Bassler, Tunis (42) as *Porella cervicornis* : Della Chiaje, Napoli (45), as *Eschara cervicornis* : Edwards, Villafranca, Bonifacio (48) ; Friedl, Adriatic (57) as *Smittina cervicornis* : Forbes, Aegean (fide 43) as *Eschara cervicornis* : Gräffe, Adriatic (59) ; Grube, Adriatic (60) ; Heller, Adriatic (67) ; Lorenz, Adriatic (85) ; Marcus, Sardinia, Zara, Rovigno (87) as *Lepralia cervicornis* ; Marion, Marseille, Ratonau (88) ; Olivi, Adriatic (92) as *Millepora cervicornis* ; Pergens, Nord-ouest Mediterranean (97) as *Smittis cervicornis* ; Risso, Nizza (102) as *Eschara cervicornis* ; Waters, Naples (109).

The most commonly used name by older authorities for this species is *Eschara cervicornis* and, as will be seen, it is widely distributed and abundant in the Mediterranean : it was founded upon material from that sea. It is also one of the oldest known species in that region, being the *Porus cervinus* of Imperato (77) 1599. Canu et Bassler have recorded it from the Atlantic coast of Morocco (40). It should not be confused with *Cellepora cervicornis* of Fleming which is the *Millepora compressa* of Sowerby, i. e. *Porella compressa*. See also the note under var. *tubulifera*, *Porella cervicornis* (Pallas) var. *tubulifera* (Heller 1867). (Chart 9).

Heller, Bryozoa Adriat. Meeres. 1867, p. 166 (67) as *Eschara tubulifera*.

Present specimens : Station 55, 40 fms. Station 59^b, 15 fms.

Mediterranean Records : Friedl, Adriatic (57) as *Smittia cervicornis* var. *tubulifera* : Heller, Adriatic (67) ; Canu et Bassler, Tunis, (42).

This species was founded by Heller on material that he got from the same localities as *P. cervicornis* and Canu et Bassler (42 p.54) point out that it has not been recorded since that time, save by Friedl, until they report it in their paper from Tunis, once again it is to be noted from exactly the same locality as their *P. cervicornis* ; Friedl (57 p. 273) who not only collected in the Adriatic, but also had the advantage of examining Heller's material, says that he found intermediate stages and that therefore *E. tubulifera* is only to be regarded as a variety. Canu et Bassler (l.c.) do not agree with Heller and regard it as a distinct species. However, their material was fragmentary, lacked ovicells and, judging from their photograph of it, was obviously old and worn material. We agree with Friedl in regarding it simply as a variety and while two localities are given above, it should be noted that ordinary *P. cervicornis* was

found at both of them and they are chosen because some of the material was more distinctly of the *tubulifera* type than elsewhere. At most of the other stations it was difficult to decide to which type some of the specimens should be referred. The matter can only be settled definitely by a more critical examination of the type material, but meanwhile we prefer to regard Heller's *E. tubulifera* as a variety of Pallas's *M. cervicornis*.

52. *Watersipora cucullata* (Busk 1854). (Chart 9).

Busk, Cat. Mar. Polyzoa 1854 p. 81 (21) as *Lepralia cucullata*.

Present specimens : Station 34a, b Eastern Harbour.

Mediterranean Records : Barroso, Gibraltar (3), Valencia, Denia (7) Procidencia, Palma de Mallorca (11) . Calvet, Corsica (29), Gulf of Lyons (28), Monaco (31), all as *Lepralia cucullata* : Forbes, Aegean (fide 43) ; Heller, Adriatic (67) ; Waters, Naples (109).

This species was founded on material collected from the Aegean by Forbes. Heller (67) records it from the Adriatic, but according to Friedl (57 p. 27) who re-examined Heller's material, it is actually *W. atrofusca* and not *W. cucullata*. It has been recorded *inter alia* by Canu et Bassler from the Atlantic coast of Tangiers.

53. *Diporula verrucosa* (Peach 1868). (Chart 9)

Peach, on *Eschara verrucosa* 1868 p. 116 (96) as *Eschara verrucosa*.

Present specimens : Station 63, 74-85 fms. Station 69, 48 fms.

Mediterranean Records : Calvet, Monaco (31), Gulf of Oran (33) : Edwards, Marseille, Villafranca, Nizza (48) : Pergens, Nord-ouest Mediterranean (97) : Waters, Nables (109) as *Eschara verrucosa*.

This is apparently not a common species in the Mediterranean but it has been recorded by Norman from Madeira (91) as *Microporella verrucosa*.

54. *Cellepora pumicosa* Linné 1768. (Chart 9)

Linné, Systema naturae ed. 12, 1768. p. 1286 as *Cellepora pumicosa*.

Present specimens : Station 8, 15 fms.

Mediterranean Records : Barroso, Algeciras (5), Balearics (8) as *Schismopora pumicosa* : Calvet, Corsica (30) & (29), Golfe de Bône (32) ; Della Chiaje, Naples (45) : Edwards, Bonifacio (48) ; Friedl, Adriatic (57) ; Gräffe, Adriatic (59) : Grube, Adriatic (60) ; Heller, Adriatic (67) ; Marcus, Naples, Cartagena, Alexandria (87) : Marion,

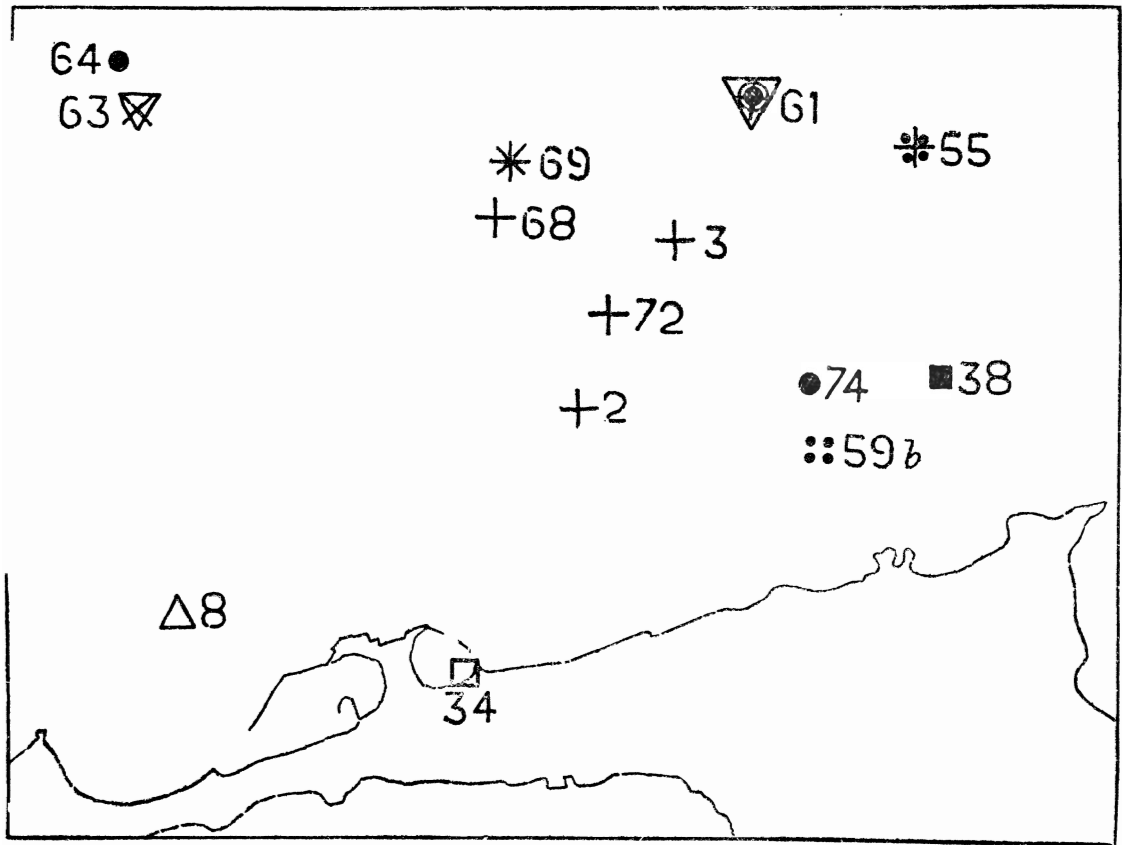


Chart 9.

- | | |
|--|--------------------------------------|
| + <i>Porella cervicornis</i> (Pallas) | △ <i>Cellepora pumicosa</i> (Linné) |
| :: " " var. <i>tubulifera</i> (Heller) | ▽ " <i>avicularis</i> (Hincks) |
| □ <i>Watersipora cucullata</i> (Busk) | ● " <i>eatonensis</i> (Busk) |
| X <i>Diporula verrucosa</i> (Peach) | ○ <i>Costazia costazii</i> (Audouin) |
| ■ <i>Costazia caminata</i> (Waters) | |

Marseille (88) ; Olivi, Adriatic (92) as *Cellepora verrucosa*; Pallas, Mediterranean (95) as *Millepora pumicosa* ; Richiardi, Mare della Toscana (101) ; Risso, Nizza (102) ; Waters, Naples (110), Oran (122).

This species is a common widespread one both within and outside the Mediterranean, and has been recorded from Alexandria itself. Heller records a *Cellepora corticata* from the Adriatic but Friedl (57 p. 274) who has re-examined the material, has come to the conclusion that it can only be regarded as a variety of *C. pumicosa*. Most authorities call it *Cellepora pumicosa* but Canu and Bassler have transferred it to the genus *Schismopora*. It has been recorded from the Atlantic coast of Morocco by Canu et Bassler (40) as *Schismopora pumicosa*.

55. *Cellepora avicularis* Hincks 1860. (Chart 9)

Hincks, New Polyzoa, Ireland 1860 p. 278 (69) as *Cellepora avicularis*.

Present specimens : Station 61, 50 fms. Station 63, 74-85 fms.

Mediterranean Records : Barroso, Las Aguilas, Almeria (3), Tangier (12), as *Schismopora avicularis* ; Calvet, Bonifacio (30), Corsica (29), Gulf of Lyons (28), Monaco (31), Gulf of Oran (32); Edwards, Nizza (48); Friedl, Adriatic (57); Hincks, Adriatic (75); Pieper, Adriatic (98); Waters, Naples (110), Oran (122).

Friedl (57) has also described a variety of this species from the Adriatic which he calls *Cellepora avicularis* var. *armatiformis*, stating that it is reminiscent of the *C. armata* of Hincks. In his account of this species, Hincks (72) says that it comes from moderate to great depths.

56. *Cellepora eatonensis* Busk 1884. (Chart 9)

Busk, Challenger 1884 p. 201 (26) as *Cellepora eatonensis*.

Present specimens : Station 61, 50 fms. Station 64, 110 fms. Station 74, 23 fms.

Mediterranean Records : Calvet, Cap Blanc 235 m. (30).

As will be seen, the present species has been recorded only once from the Mediterranean but there seems little doubt of the identity of this characteristic species.

Canu and Bassler (37 p. 601) refer this species to the genus *Osthimosia* of which they select it as the type, although the genus was founded by Jullien 1888 who used *O. evexa* sp. nov. as the genotype.

57. *Costazia costazii* (Audouin 1826). (Chart 9)

Audouin, Savigny's Egypt 1826 p. 64 (1) as *Cellepora costazu*

Present specimens : Station 51, 50 fms.

Mediterranean Records : Barroso, Balearics (8) as *Cellepora costazii* Calvet, Corsica (29), Bonifacio (30), Gulf of Lyons (28), Monaco (31) all as *Cellepora costazii* ; Edwards, Villafranca (48) ; Friedl, Adriatic (57) as *Siniopelta costazii* ; Marcus, Trieste, Rovigno, Brioni, Sardinia (87) ; Waters, Naples (119) as *Cellepora Hassalli*.

Calvet (31) has also described from Monaco a variety of this species, *C. costazii* var. *tubulosa*. *C. costazii* is the type of Neviani's genus *Costazia* 1895 and it is a pity that it has not been satisfactorily re-described since a knowledge of its characters is essential for an understanding of the genus. According to Canu and Bassler (42 p. 82) the synonymy given by Jelly (78 pp 49—50) is entirely wrong. These authorities state that one synonym there given, *Cellepora Boryi* Audouin, is actually a member of the genus *Lekytopora*. As they point out also another synonym, *C. (Lepralia) Hassallii* Johnston, is an Atlantic species which may or may not be identical with *C. costazii* which came from the gulf of Suez. The descriptions and figures of *C. hassallii* are so much better than those previously given that most subsequent identifications have been based upon them. Against this however we have to bear in mind that with this have been identified species from various parts of the world including Tasmania, Australia, Pacific Coast of North America, the Arctic Seas and, by Waters, (116) as *Lagenipora costazii* from the Sudanese Red Sea. While absolute confirmation will have to await the rediscovery of the original specimens or further material from the Gulf of Suez, it seems not improbable that *C. hassallii* is a synonym.

58. *Costazia caminata* (Waters 1879). (Chart 9)

Waters, Bryozoa, Bay of Naples 1879 p. 194 (110) as *Cellepora retusa* v. *caminata*.

Present specimens : Station 38, 17 fms.

Mediterranean Records : Barroso, Algeciras (4) as *Cellepora Boryi* ; Canu et Bassler, Tetouan (40) as *C. Boryi*. Tunis, Tripoli (42) as *Costazia caminata* ; Friedl, Adriatic (57 by implication) as *Siniopelta caminata* ; Waters, Naples (110) as *Cellepora retusa* var. *caminata*.

So far this species does not appear to have been recorded outside

the Mediterranean. Although originally recorded by Waters from Naples as a variety of *Cellepora retusa* he afterwards came to the conclusion that it was worthy of specific rank. Jelly (78) regards *C. retusa* as a synonym of *C. costata*. Friedl (57 p. 274) records *Siniopelta costata* from the Adriatic and states that the material Hincks recorded as *C. retusa* var. *caminata* Waters is really referable to this species. He further states that in the Adriatic material he has found specimens referable to Water's species and that he is not satisfied that it is identical with *C. costata*. This is here taken as a record of the presence of *C. caminata* in the Adriatic. Canu et Bassler (39 p. 83) state that the material recorded by them from Tetouan and that by Barroso from Algeciras as *C. Boryi* is actually *C. caminata*.

59. *Palmicellaria skenei* (Ellis and Solander 1786). (Chart 10).

Ellis and Solander, Nat. Hist. Zoophytes 1786 p. 135 (53) as *Millepora Skenei*.

Present specimens : Station 61, 50 fms. Station 105, 6 fms.

Mediterranean Records : Calvet, Bonifacio (30); Edwards, Nizza (48); Waters, Naples, Capri (117)

The material from Station 105 given above consists of two fair sized pieces that might have been broken from a colony similar to that illustrated by Hincks (73 P. 1. 52, fig. 1). It is doubtfully referred to this species which it resembles more closely than any other, because it is so worn as to preclude certain identification. The present species has not been recorded many times from the Mediterranean but has been found at a number of stations on the Atlantic coast of Morocco by Canu et Bassler (41) who say that in Morocco, "*Palmicellaria skenei* est frequent au Maroc mais jamais abondant".

60. *Holoporella turrata* (Smitt 1873). (Chart 10)

Smitt, Floridan Bryozoa 1873 p. 65 (107) as *Lepralia turrata*.

Present specimens : Station 1, 21 fms. Station 2, 25 fms. Station 24, 10 fms. Station 28, 10—12 fms. Station 35, 7 fms. Station 40, 8 fms.

Mediterranean Records : Canu et Bassler, Tunis (42).

So far as can be ascertained it has only been recorded once previously from the Mediterranean, but it is well represented in the present collection and has been found in such widely separated

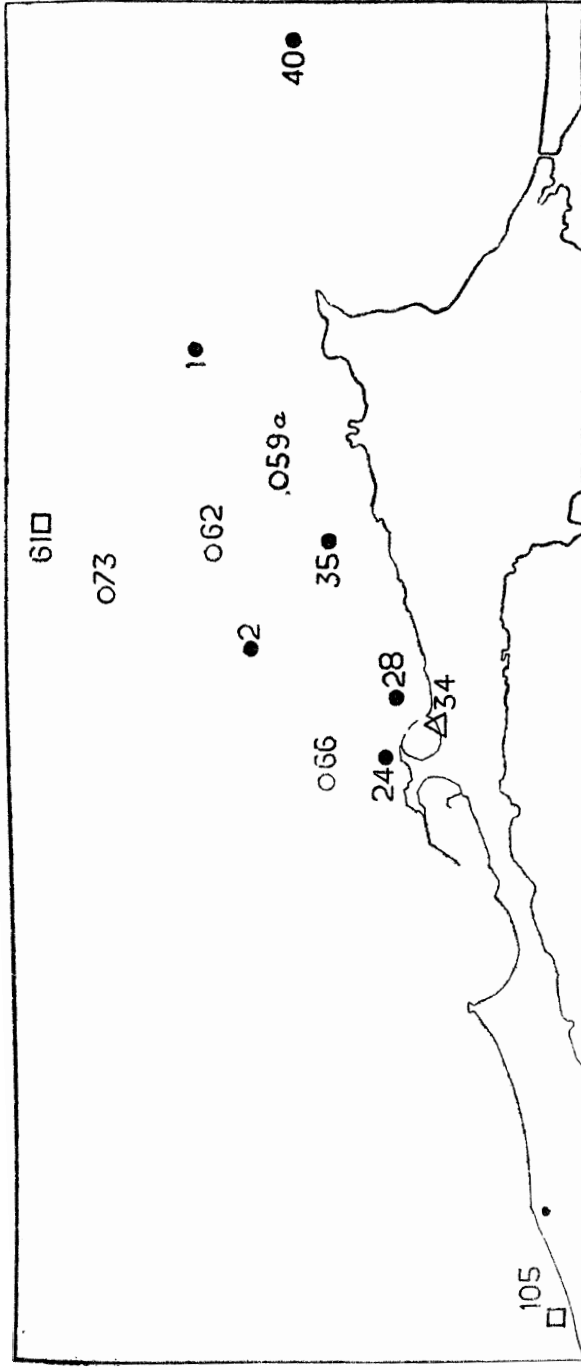


Chart 10.

- *Palmicellaria skenei* (Ellis and Solander)
- *Holoporella turrita* (Smitt)
- △ *Zoobotryon pellucidus* (Ehrenberg)
- *Mimosella gracilis* (Hincks)

localities as Cuba, Yucatan, Florida, Phillipines, China, Ceylon and Zanzibar.

Order III Ctenostomata.

61. *Zoobotryon pellucidus*, Ehrenberg 1831. (Chart 10)

Ehrenberg, *Symbolae physicae* 1831 Pl. iii (52) as *Zoobotryon pellucidus*.

Present specimens : Station 34 b, Eastern Harbour.

Mediterranean Records : Barroso, Balearics (2 & 8); Calvet, Majorca (33); Condorelli-Francaviglia, Adriatic (46); Della Chiaje, Naples (45); Ehrenberg, Alexandria (52); Friedl, Adriatic : Gräffe, Adriatic (59); Giglioli, Livorno (58); Marcus, Naples, Trieste (87); Martens, Venice (fide 43); Reichert, Naples, Trieste (99).

As will be seen this species and genus was founded on material not only from the Mediterranean but actually from Alexandria itself and the above records show it to be quite widely distributed in that sea. It would not appear to be common or such a striking and distinctive form would have been more frequently recorded.

62. *Mimosella gracilis* Hincks 1857. (Chart 10)

Hincks, *Notes British Zoophytes* 1857, p. 359 (68) as *Mimosella gracilis*.

Present specimens : Station 59 a, 17 fms. Station 62, 28 fms.

Station 66, 20 fms. Station 73, 38 fms.

Mediterranean Records : Calvet, Gulf of Lyons (28); Majorca (33); Friedl, Adriatic (57); Gräffe, Adriatic (59); Heller, Adriatic (67); Marcus, Rovigno, Trieste, Adriatic (87); Reichert, Spezia (99); Richiardi, Mare della Toscana (101); Vidovich, Adriatic (fide 43); Waters, Naples (109).

This distinctive species has also not been recorded many times but is represented by specimens from a number of different stations in the present collection.

**List of Stations from which material was obtained
with the species from each.**

- Station . Eastern Harbour littoral. *Schizopodrella unicornis*.
- Station 1. 21 fms. *Mollia patellaria*, *Scrupocellaria scrupea*, *Caberea boryi*, *Schizomavella auriculata*, *Monoporella nodulifera*, *Holoporella turrita*.
- Station 2. 25 fms. *Fron dipora gracilis*, *Onychocella angulosa*, *Tubucellaria opuntioides*, *Schizopodella unicornis*, *Adeonella polystomella*, *Monoporella nodulifera*, *Lepralia depressa*, *Porella cervicornis*, *Holoporella turrita*.
- Station 3. 34 fms. *Onychocella angulosa*, *Tubucellaria opuntioides*, *Retepora couchii* var. *aporosa*, *Schizomavella auriculata*, *Schizolavella vulgaris*, *Adeonella polystomella*, *Adeona violacea*, *Smittina rouvillei*, *Porella cervicornis*.
- Station . Eastern Harbour littoral. *Bugula avicularia*, *Bugula neritina*.
- Station 7. 17 fms. *Scrupocellaria reptans*.
- Station 8. 15 fms. *Retepora imperati*, *Cellepora pumicosa*.
- Station . Arsenal Bassin, Western Harbour littoral. *Scrupocellaria scruposa*, *Bugula avicularia*, *Bugula neritina*, *Cryptosula pallasiana*.
- Station 11. 6 fms. *Retepora complanata*.
- Station 22. 7 fms. *Retepora cellulosa*, *Lepralia depressa*.
- Station 24. 10 fms. *Calpensia impressa*, *Lepralia depressa*, *Holoporella turrita*.
- Station 26. 126 fms. *Tervia irregularis*.
- Station 27. 70 fms. *Tubulipora flabellaris*, *Onychocella angulosa*, *Puellina radiata*, *Retepora cellulosa*, *Schizomavella auriculata*, *Schizoporella discoidea*, *Schizolavella vulgaris*, *Monoporella nodulifera*.
- Station 28. 10-12 fms. *Licheapora hispida*, *Fron dipora gracilis*, *Retepora cellulosa*, *Rhynchozoon bispinosum*, *Lepralia depressa*, *Hippoporina porcellana*, *Holoporella turrita*.
- Station 30. 7 fms. *Retepora cellulosa*, *Rhynchozoon bispinosum*, *Lepralia depressa*.
- Station 34. a. Eastern Harbour. *Watersipora cucullata*.
- Station 34. b. Eastern Harbour. *Schizopodrella unicornis*, *Watersipora cucullata*, *Zoobotryon pellucidus*.
- Station 35. 7 fms. *Tubucellaria opuntioides*, *Retepora* sp. too worn for determination, *Schizopodrella unicornis*, *Lepralia depressa*, *Holoporella turrita*.

- Station 38. 17 fms. *Fron dipora gracilis*, *Onychocella angulosa*, *Schizolavella vulgaris*, *Aeonella polystomella*, *Hippoporina porcellana*, *Costazia caminata*.
- Station 40. 8 fms. *Retepora couchii* var. *aporosa*, *Holoporella turrita*.
- Station 50. 9 fms. *Fron dipora gracilis*, *Onychocella angulosa*, *Mollia patellaria*, *Tubucellaria opuntioides*, *Retepora couchii* var. *aporosa*, *Rhynchozoon bispinosum*, *Lepralia depressa*, *Hippoporina porcellana*.
- Station 51. 13 fms. *Onychocella angulosa*, *Rhynchozoon bispinosum*, *Lepralia depressa*.
- Station 52. 22 fms. *Tubucellaria opuntioides*, *Aeonella* probably *polystomella* but too worn for determination.
- Station 54. 55 fms. *Crisia-eburneo-denticulata*, *Crisia cornuta*, *Idmonea atlantica*, *Tervia irregularis*, *Mecynoecia proboscidea*, *Retepora couchii* var. *aporosa*.
- Station 55. 40 fms. *Diplosolen obelia*, *Hornera frondiculata*, *Tubucellaria opuntioides*, *Retepora couchii*, *Schizomavella alexandriae* sp. nov. *Aeonella polystomella*, *Porella cervicornis*. *P. cervicornis* var. *tubulifera*.
- Station 56. 4 fms. *Retepora complanata*.
- Station 58. 4 fms. *Membranipora membranacea*.
- Station 59. a. 17 fms. *Onychocella angulosa*, *Callopora tenuirostris*, *Puellina radiata*, *Schizolavella vulgaris*, *Lepralia depressa*, *Mimosella gracilis*.
- Station 59. b. 15 fms. *Retepora notopachys*, *Aeonella polystomella*. *Porella cervicornis* var. *tubulifera*.
- Station 61. 50 fms. *Idmonea atlantica*, *Idmonea notomale*, *Tennysonia contorta*, *Tervia irregularis*, *Hornera frondiculata*, *Hornera violacea* var. *proboscina*, *Fron dipora gracilis*, *Mecynoecia proboscidea*, *Entalophora rugosa*, *Onychocella angulosa*, *Calpensia impressa*, *Tubucellaria opuntioides*, *Retepora cellulosa*, *Retepora notopachys*, *Schizomavella alexandriae* sp. nov. *Aeonella polystomella*, *Porella cervicornis*, *Aeona violacea*, *Palmicellaria skenei*, *Smittina concinna*, *Cellepora avicularis*, *Cellepora eatonensis*, *Costazia costazii*.
- Station 62. 28 fms. *Scrupocellaria scruposa*, *Scrupocellaria scruposa*, both somewhat fragmentary and worn, *Mimosella gracilis*.
- Station 63. 74-85 fms. *Idmonea notomale*, *Hornera violacea* var. *proboscina*, *Fron dipora gracilis*, *Vibracellina mediterraneae* sp. nov., *Retepora couchii* var. *aporosa*, *Mucronella soulieri*, *Diporula verrucosa*, *Cellepora avicularis*.

- Station 64. 110 fms. *Idmonea notomale*, *Cellepora eatonensis*.
- Station 66. 20 fms. *Scrupocellaria reptans*, *Mimosella gracilis*.
- Station 67. 22 fms. *Hornera frondiculata*, *Adeonella polystomella*.
- Station 68. 37 fms. *Retepora cellulosa*, *Porella cervicornis*.
- Station 69. 48 fms. *Idmonea atlantica*, *Calpensia impressa*, *Tubucellaria opuntioides*, *Retepora couchii* var. *aporosa*, *Adeonella polystomella*, *Smittina landsnorovii*, *Diporula verrucosa*, *Porella cervicornis*.
- Station 72. 30 fms. *Hornera frondiculata*, *Porella cervicornis*, *Lepralia depressa*.
- Station 73. 38 fms. *Calpensia impressa*, *Retepora notopachys*, much worn. *Adeonella polystomella*, *Mimosella gracilis*.
- Station 74. 23 fms. *Calpensia impressa*, *Cellepora eatonensis*.
- Station 77. 7 fms. *Tubucellaria opuntioides*.
- Station 85. 4½ fms. *Electra pilosa* var. *laxa*.
- Station 105. 6 fms. *Palmicellaria skenei*, much worn.
- Station 108. 14 fms. *Retepora cellulosa*.
- Station 109. 30 fms. *Schizopodrella unicornis*.
- Station 115. 30 fms. *Retepora imperati*.
- Station 116. 36 fms. *Calpensia impressa*, *Tubucellaria opuntioides*, *Retepora couchii*, much worn.
- Station 117. 55 fms. *Calpensia impressa*.
- Station 125. 6 fms. *Schizopodrella unicornis*.
- Station 134. 6 fms. *Schizopodrella unicornis*.
- Station 135. 4 fms. *Tubucellaria opuntioides*.
- Station 140. 4–8 fms. *Schizopodrella unicornis*.
- Station 149. 10–11 fms. *Adeona violacea*, *Lepralia depressa*.

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EXPLANATION OF FIGURES.

Figure 1. *Vibracellina mediterraneae* sp. nov. × 43.

A. Portion of zoarium with two ovicells. B. Portion of zoarium showing one vibracular chamber without gutter-like projection. O. Ovicell. Op. Operculum. V.C. Vibracular chamber.

Figure 2. *Schizomavella alexandriae* sp. nov. × 57.

A. Portion of zoarium with zooecia of more usual shape, longer than wide. B. Portion of zoarium with zooecia of less common shape, wider than long. C. Portion of zoarium with two ovicells. O. Ovicell. Op. Operculum.