



## Some species of *Schizomavella* (Bryozoa, Cheilostomatida) from the Atlanto-Mediterranean Region

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**Abstract:** We report a study of specimens of the genus *Schizomavella* collected in Galicia (northwest Spain), and a revision of material of this genus in a number of museum collections. We describe two new species (*Schizomavella teresae* sp. nov. and *S. hondti* sp. nov.), update the known geographical distributions of *Schizomavella auriculata*, *S. cuspidata*, *S. hastata* and *S. linearis*, and suggest that the genus *Schizomavella* can be usefully divided into two subgroups.

**Résumé :** Nous réunissons dans le présent travail les observations portant sur des spécimens du genre *Schizomavella* récoltés sur le littoral de la Galice (Espagne nord-occidentale) ainsi que sur des exemplaires de ce genre provenant de collections de différents musées. Deux espèces nouvelles, *Schizomavella teresae* sp. nov. et *S. hondti* sp. nov., sont décrites, la distribution géographique de *Schizomavella auriculata*, *S. cuspidata*, *S. hastata* et *S. linearis* est actualisée, et la division du genre *Schizomavella* en deux groupes est proposée.

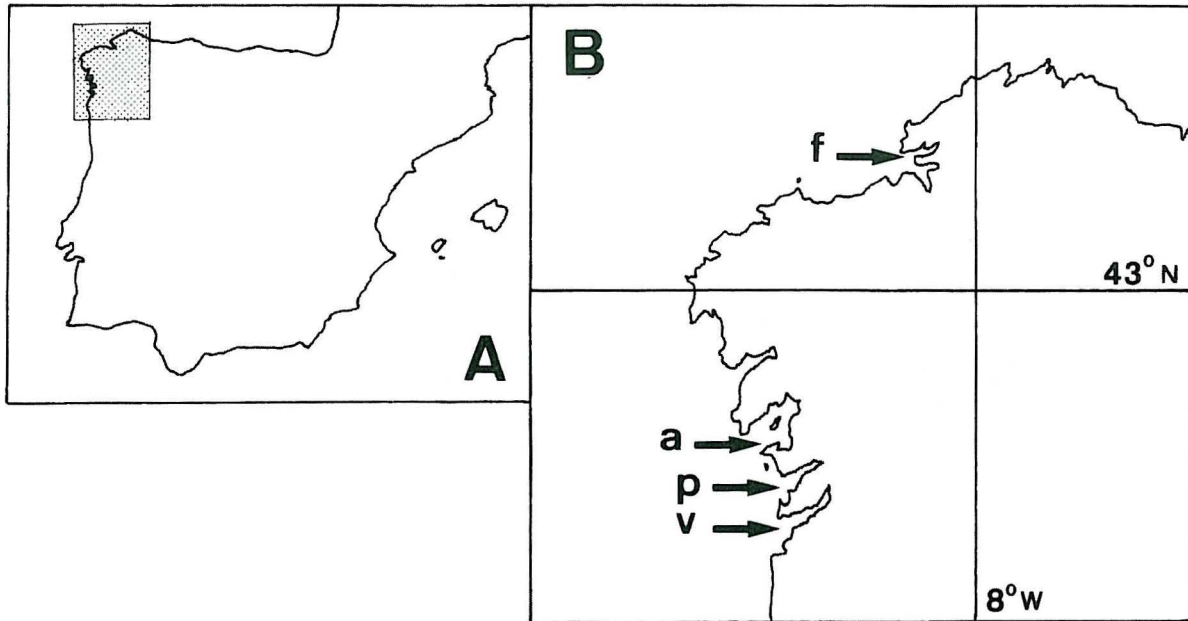
**Keywords:** Bryozoa, *Schizomavella*, New Species, Spain, Mediterranean, NE Atlantic.

### Introduction

Between 1989 and 1993 we carried out systematic sampling of Bryozoans from the Ría de Ferrol in northwest Spain. Material of the genus *Schizomavella* Canu & Bassler, 1917, was found at many of the sampling stations. Some of this material could not be assigned to any of the species recorded to date from this region, and we thus decided to re-examine material previously collected in Galicia and held in the collection of the Department of Animal Biology of the University of Santiago (see Fig. 1 and Appendix), in addition to specimens of this genus in the Institut Océanographique de Monaco (IOM), the Manchester Museum (MM), the Muséum National d'Histoire Naturelle

de Paris (MNHN-LBIMM-BRY), the Natural History Museum in London (NHM), the Station Biologique de Roscoff (BR) and the private collection of Dr. J.-L. d'Hondt (dredged material from Château du Taureau, Roscoff, Brittany).

Hayward & Thorpe (1995) have stressed the importance of orifice and suboral avicularium morphology for discriminating between species of the genus *Schizomavella*. These authors point out that there has been some confusion between *S. auriculata* (Hassall, 1842) and *S. cuspidata* (Hincks, 1880). Hincks' original (1880) description of these species — as *S. auriculata* and *S. auriculata* var. *cuspidata*, respectively — is quite clear; however, later authors seem to have considered the var. *cuspidata* to be very similar to the typical form, with the result that the original conception of *S. auriculata* appears to have been replaced by that of var. *cuspidata*. In our opinion, many authors have similarly



**Figure 1.** A: Location of Galicia in the Iberian Peninsula. B: Location of the Rías de Ferrol (f), Arosa (a), Pontevedra (p) and Vigo (v).

**Figure 1.** A : Emplacement de la Galice dans la Péninsule Ibérique. B : Emplacement des Rías de Ferrol (f), Arosa (a), Pontevedra (p) et Vigo (v).

misinterpreted the original description of *S. ochracea* (Hincks, 1862).

This problem appears to have arisen as a result of the inconsistent presence of spatulate avicularia on *S. cuspidata* (redescribed by Hayward & Thorpe, 1995). Gautier (1956, p. 207) remarked that spatulate avicularia were present in highly variable number on specimens which he considered to be *S. auriculata*: according to this author, there is a continuous variation between colonies which lack spatulate avicularia and colonies in which most avicularia are spatulate. On the basis of our review of the literature and examination of museum specimens, it seems clear that specimens of *S. cuspidata* have typically been identified as *S. auriculata* if they lack spatulate avicularia, as *S. auriculata* var. *ochracea* (or as var. *ornata* Canu & Bassler, 1930) if they bear spatulate avicularia parallel to the surface of the autozoid, or as *S. auriculata* var. *cuspidata* if they bear spatulate avicularia which rise above a suboral umbo. Hayward & Thorpe (1995) have recently resolved this confusion by redescribing various species of this genus, making clear that *S. auriculata*, *S. ochracea* and *S. cuspidata* are different species.

### Results

In their redescription of *S. ochracea*, Hayward & Thorpe (1995) include material from various locations in both the Atlantic and the Mediterranean. Orifice morphology was the same in all the specimens considered and was characterized by the presence of a broad V-shaped sinus which occupies

most of the proximal edge of the orifice and by the prominent, finely denticulate, oval condyles. Some years ago, we were able to re-examine some of the material considered by these authors, including two ovicellate specimens (the type specimen and NHM 1899.7.1.2342). In both specimens the ovicell has a porous central area surrounded by a more or less prominent crown of protuberances. However, the avicularium may be either oval (in the type specimen) or triangular (in NHM 1899.7.1.2342), though the two shapes never occur in the same colony. Furthermore, when the avicularium is oval (type specimen) it is situated about halfway along the frontal shield, while when the avicularium is triangular (in NHM 1899.7.1.2342) it is situated in the proximal area of the zoid. The fact that these two specimens have identical orifice shape and ovicells of the same type suggests that they belong to the same species; however, the differences in avicularium morphology and position may suggest that they represent two different taxa.

Two types of orifice occur in the genus *Schizomavella*. The first type has a straight proximal edge perpendicular to the sagittal plane and a sinus which is generally narrow and well defined with respect to the proximal edge of the orifice. The second type has a proximal edge oblique to the sagittal plane, while the sinus is broad and generally poorly defined. Likewise, two types of ovicell occur in this genus. The first type has a proximal semilunar or semi-elliptical porous area, while the second type has a circular porous area in its central part. Classification of species of *Schizomavella* on the basis



of orifice shape gives similar results to classification on the basis of ovicell type, suggesting that these characters define two natural groupings, (Fig.2) as follows.

Group 1: *S. auriculata*, *S. cuspidata*, *S. sarniensis* Hayward & Thorpe, *S. teresae* sp. nov., *S. hastata* (Hincks), *S. linearis* (Hassall) and *S. hondti* sp. nov.

Group 2: *S. ochracea*, *S. rudis* (Manzoni) and *S. monoecensis* (Calvet). The last species has an ovicell with a large proximal semilunar or subcircular porous area; however, we consider that it should be included in this group in view of the shape of its orifice and the fact that the very similar species *S. rudis* occasionally has an ovicell like that of *S. monoecensis*, rather than the typical ovicell with a circular central area.

*Schizomavella discoidea* (Busk) does not appear to fit into either of these two groups. Many of the characteristics of this species — the morphology of the orifice (which has a deep narrow sinus), the spherical and finely granular (as opposed to nodular) ovicell, the pronounced peristome and the orientation of the avicularia — do not appear to be typical of the genus *Schizomavella*.

#### Key to some species of the genus *Schizomavella*

- 1 - Proximal border of orifice straight. Sinus well defined. Ovicell with a porous proximal area (group 1)..... 2
  - Proximal border of orifice oblique. Sinus broad, poorly defined. Ovicell with a porous circular central area (group 2)..... 8
  - Orifice with a deep narrow sinus. Ovicell globose, finely granulate. Peristome extends laterally and proximally. Avicularia lateral and proximal to the orifice, sometimes elongated  
.....“*Schizomavella*” *discoidea*
- 2 - Orifice orbicular, large. Sinus wide and shallow  
..... *S. hastata*
  - Orifice morphology varied. Sinus narrow ..... 3
- 3 - Orifice with notch-like extensions in its proximolateral corners. Avicularia with Y-shaped foramen, sometimes spatulate..... *S. cuspidata*
  - Orifice without notch-like extensions in its proximolateral corners. Avicularian foramen not Y-shaped ..... 4
- 4 - Orifice drop-shaped. Condyles sharp-tipped. Porous area of ovicell frequently containing a large pore in each proximolateral corner..... *S. auriculata*
  - Orifice morphology varied. Condyles not sharp-tipped. Ovicell pores of variable size ..... 5
- 5 - In heavily calcified zooids, orifice and avicularium surrounded by a spiky peristome. Proximal border of the orifice with shoulders..... 6
  - Peristome absent. Proximal border of the orifice without shoulders..... 7
- 6 - Orifice large, quadrate, with a broad sinus and oval dentate condyles ..... *S. sarniensis*
  - Orifice small, orbicular, with a small sinus and smooth triangular condyles..... *S. teresae*
- 7 - Orifice drop-shaped, with rhomboid condyles. Avicularium semi-elliptical, proximomedial to the orifice..... *S. hondti*
  - Orifice orbicular. One or two (sometimes more) triangular suboral avicularia ..... *S. linearis*
- 8 - Condyles dentate. Avicularium elliptical or triangular  
..... *S. ochracea*
  - Condyles smooth. Avicularium always elliptical ..... 9
- 9 - Sinus broad. Avicularium frequently absent; when present, small and arising just below the orifice. Ovicell with a circular porous central area..... *S. rudis*
  - Sinus narrower. Avicularium larger, situated about the middle of the zooid. Ovicell with a large subcircular porous area ..... *S. monoecensis*

*Schizomavella auriculata* (Hassall, 1842)

(Fig. 2; Fig. 3 A, B, C)

*Lepralia auriculata* Hassall, 1842, p. 411.

*Schizoporella auriculata*: Hincks, 1880, p. 260, Pl. 29, figs. 3-5.

*Schizomavella auriculata*: Hayward & Thorpe, 1995, p. 663, Pl. 1.

#### Material examined

1.- Material from Galicia:

Ría de Ferrol: F-10 (1 colony), F-32 (1 colony). Ría de Pontevedra: P-3 (1 colony), P-4 (1 colony), P-10 (1 colony), P-12 (1 colony). Ría de Vigo: V-2 (1 colony), V-6 (1 colony).

2.- Muséum National d'Histoire Naturelle, Paris:

2379 (Etretat); 2399 (Le Havre); 6710 (W Spain); 13638 (part. Hastings). Canu Collection, deposited in the Laboratoire de Paléontologie (Etretat and Le Croisic, France).

3.- Natural History Museum, London:

1911.10.1.1533 (Bertraghboy Bay, Galway. Neotype).

4.- Station Biologique de Roscoff:

BR.21.1a (Part. Taureau).

5.- Dr. d'Hondt personal collection, from Roscoff.

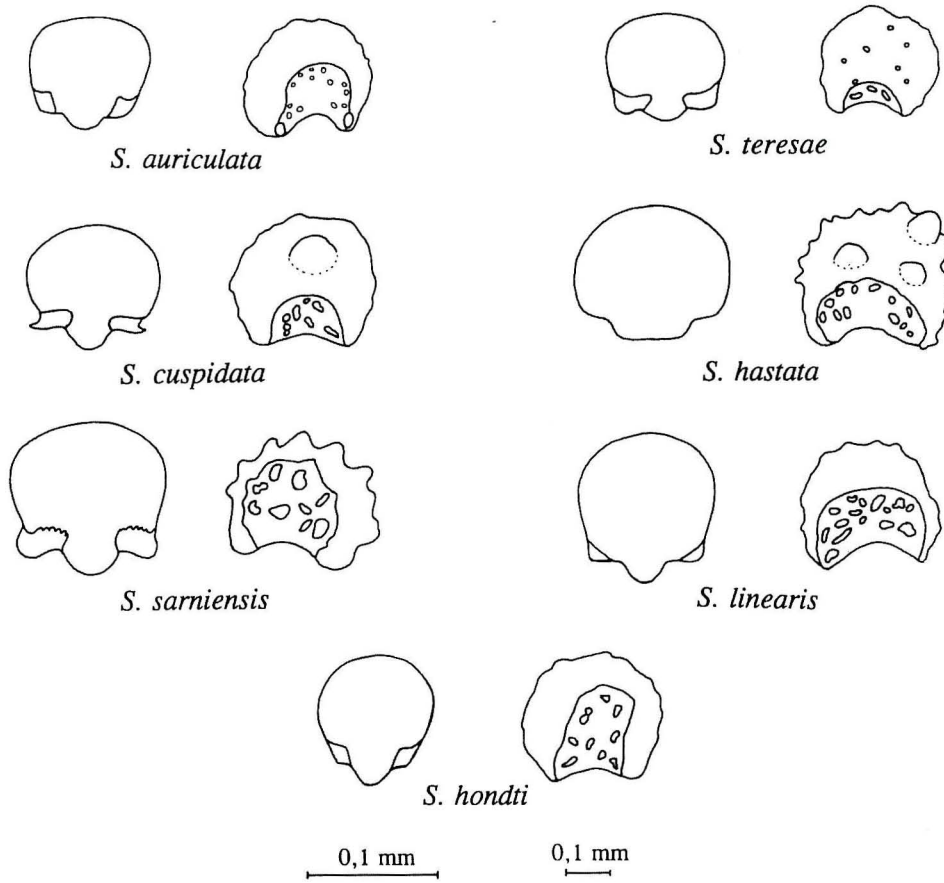
#### Reproduction

Ovicells present in material collected from the Ría de Pontevedra in April and May.

#### Description

Colony forming irregular, unilaminar to multilaminar sheets. Autozooids rectangular to polygonal, slightly convex, separated by distinct grooves, forming radiate series.

## GROUP 1



## GROUP 2

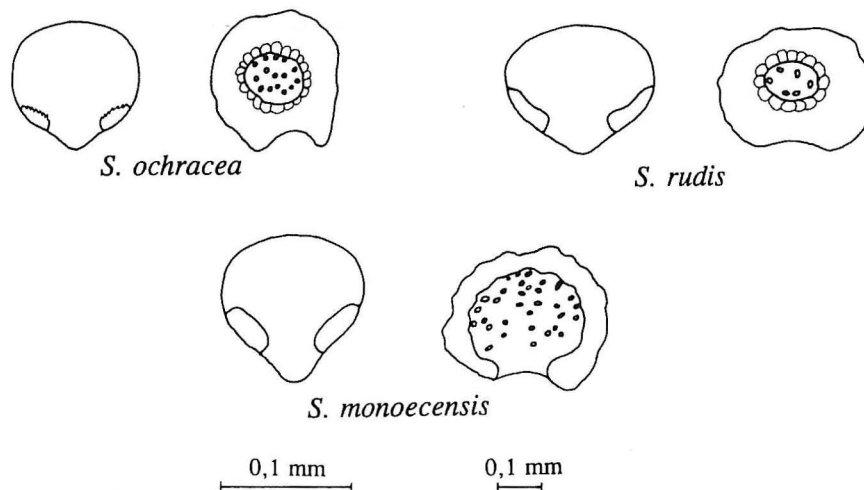


Figure 2. Primary orifices (left) and ovicells (right) of some species of the genus *Schizomavella*.

Figure 2. Orifices primaires (à gauche) et ovicelles (à droite) de quelques espèces du genre *Schizomavella*.



Frontal wall nodular, regularly perforated by small round pores, often with a low umbo proximal to the sinus. Avicularium monomorphic, small (0.05 mm long), immediately proximal to the sinus, normal or acute to the frontal plane and proximally directed.

Primary orifice drop-shaped, as wide as long, widest towards its distal end. Sinus U-shaped, occupying about half the width of the proximal border. Condyles longer than wide, not extending to the edges of sinus, their free distal edge appearing sharply cusped. Many autozooids bear one to three slender oral spines; there are generally lost in later ontogeny.

Ovicell wider than long, recumbent on the distally succeeding autozoid and with a proximal semicircular area, this perforated by irregular pores (the two proximo-lateral pores frequently being the largest); the ovicell develops a nodular oocial cover in later ontogeny.

#### Measurements

Laz:  $0.43 \pm 0.04$  (n=20). laz:  $0.31 \pm 0.07$  (n=20).

Lo:  $0.09 \pm 0.008$  (n=20). lo:  $0.09 \pm 0.006$  (n=20).

Lov:  $0.21 \pm 0.02$  (n=5). lov:  $0.27 \pm 0.03$  (n=5).

#### Remarks

The ovicell of *S. auriculata* s.s. frequently has two pores which are larger than the rest, these being situated in the proximolateral corners of the porous plate. This characteristic is not mentioned by Hayward & Thorpe (1995), though we have observed it in the neotype (NHM 1911.10.1.1533) and in material from Galicia, and it is present in material from the Straits of Gibraltar (López de la Cuadra, 1991, Pl. 26, Fig. B).

In addition, some specimens from Galicia (Ría de Pontevedra and Ría de Vigo) have condyles with very pronounced basal elongations (Fig. 3B). Under a stereomicroscope, these specimens appear to have a narrower sinus than is typical for the species; however, scanning electron microscopy reveals that the morphology of the orifice and of the sinus is the same as that of *S. auriculata* s.s.

#### Geographical distribution

All previous reports of *S. auriculata* from the Iberian coast appear to be of *S. cuspidata*, except that of López de la Cuadra (1991, Pl. 26, figs. A, B) from the Straits of Gibraltar, which corresponds to *S. auriculata* s.s.

Taking into account Hayward & Thorpe (1995) and our own observations, the distribution of *S. auriculata* s.s. extends from the Shetland Islands to the English Channel and northern France (Étretat, Le Havre, Roscoff and Le Croisic), and to the Iberian coast (Galicia and the Straits of Gibraltar). The presence of this species in the Mediterranean remains to be confirmed.

#### *Schizomavella cuspidata* (Hincks, 1880)

(Fig. 2; Fig. 4 A-G)

*Lepralia auriculata* var. *leontiniensis* Waters, 1878, p. 8, Pl. 1, fig. 5; Gautier, 1961, p. 137.

*Schizoporella auriculata* var. *cuspidata* Hincks, 1880, p. 261, Pl. 29, fig. 8; Gautier, 1961, p. 135.

*Schizoporella auriculata* var. *spatulata* Hincks, 1886, p. 270, Pl. 10, fig. 8b.

*Schizomavella auriculata*: Gautier, 1961, p. 132.

? *Schizoporella auriculata* var. *asymetrica* Calvet, 1927, p. 20, fig. 2; Gautier, 1961, p. 134.

*Schizoporella auriculata* var. *hirsuta* Calvet, 1927, p. 20; Gautier, 1961, p. 135.

*Schizomavella auriculata* var. *inordinata* Canu & Bassler, 1930, p. 35, Pl. 3, figs. 15, 16; Gautier, 1961, p. 136.

*Schizomavella auriculata* var. *ornata* Canu & Bassler, 1930, p. 35, Pl. 3, figs. 11-14.

*Schizomavella cuspidata*: Hayward & Thorpe, 1995, p. 665, Pl. 2.

#### Material examined

1.- Material from Galicia:

Ría de Ferrol: F-3a (2 colonies), F-4 (3 colonies), F-5b (1 colony), F-18 (1 colony), F-24 (6 colonies), F-30 (2 colonies).

2.- Institut Océanographique, Monaco:

42/1456 (Monaco); 42/1415 (Monaco); 42/1726 (P. St. Hospice, Beaulieu); 42/1601 (Cap d'Ail).

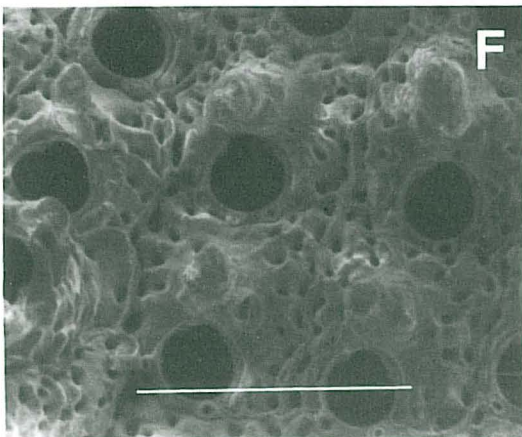
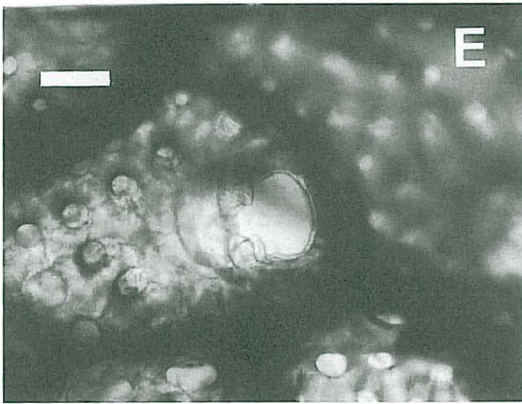
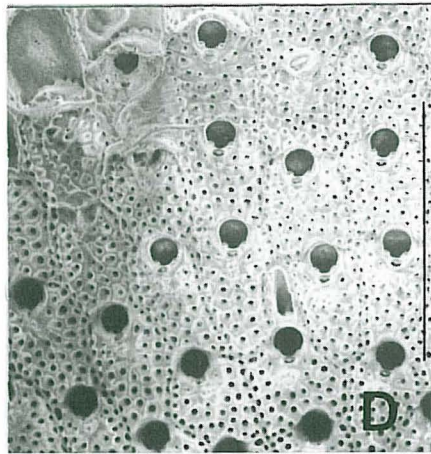
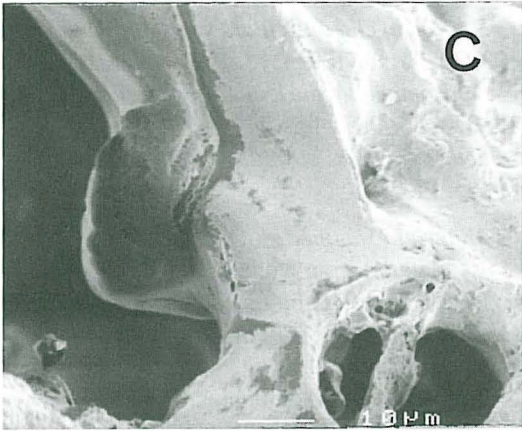
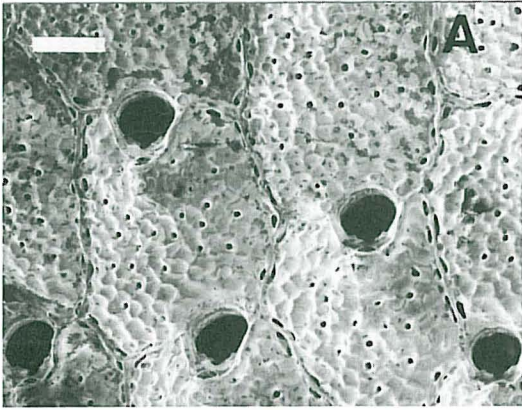
3.- The Manchester Museum:

2857/54 (Taranto Bay); 3024/55 (Taranto Bay).

4.- Muséum National d'Histoire Naturelle, Paris:

2380 (Villiers, Calvados); 3714 (Sète, Hérault); 4128 (Oran); 4142 (part. Oran); 4143: (Oran); 5936 (Monaco); 6271 (Vanneau, st. XLVII); 6411 (part. Monaco); 6586 (Roscoff); 7489 ("*J. Charcot*" *Biaçores*); 7744 (?); 7749 (part. S of Brittany); 8218 (Sète); 8233 (Sète); 8736 (part. Bonifacio); 10045 (part. Marseille); 10051bis (?); 11154 (Riou, Marseille); 11157 (part. Riou, Marseille); 11159 (Mont Rose, Marseille); 11160 (Planier, Marseille); 11161 (Portofino, Italy); 11162 (Riou, Marseille); 11163 (Riou, Marseille); 11164 (Carry, Marseille); 11166 (Castiglione, Algeria); 11167 (Marseille); 11168 (Cap Caveaux, Marseille); 11169 (Caveaux, Marseille); 11170 (Caveaux, Marseille); 11171 (Marseille); 11172 (Marseille); 11173 (Marseille); 11174 (Marseille); 11175 (Castiglione, Algeria); 11176 (Caveaux, Marseille); 11177 (Corsica); 11179 (Marseille); 11180 (Carry, Marseille); 11201 (Ajaccio); 11212 (Marseille); 11214 (Marseille); 11216 (part. Riou, Marseille); 11217 (Ajaccio); 11218 (Marseille); 12323 (Cap d'Abeille-Banyuls); 13331 (part. Hastings); 13638 (part. Hastings); 16774 (*Président Théodore Tissier*); 16775 (*Président Théodore Tissier*); Lutaud Collection (Roscoff). Canu Collection, deposited in the Laboratoire de







Paléontologie (Tetouan, Alussio, Verchia, Oran and Reggio - fossil-).

5.- Natural History Museum, London:

1899.5.1.894 (Guernsey. Lectotype); 1899.5.1.984 (Adriatic); 1899.5.1.985 (Adriatic); 1899.7.1.2303 (Mediterranean); 1899.7.1.2306 (Mediterranean); 1963.2.12.155 (Guernsey).

6.- Station Biologique de Roscoff:

BR.26.2a (part. Batz); BR.26.2c (part. Batz).

7.- Dr. d'Hondt personal collection, from Roscoff.

#### Reproduction

Ovicells present in September and October, in our own material.

#### Discussion

*Schizomavella cuspidata* is characterized by its orifice, which is generally wider than it is long, with notch-like extensions in its proximolateral corners and with condyles which are wider than they are long and which extend as far as the edges of the sinus, and by the frequent (though not invariable) presence of more or less spatulate avicularia (these having Y-shaped foramina).

Hayward & Thorpe (1995) have demonstrated that *S. cuspidata* is a different species from *S. auriculata*, despite the fact that it has traditionally been cited under this name. In our re-examination of material in museum collections, we have found that all specimens labelled *S. auriculata* are in fact *S. cuspidata*; likewise, most studies which cite '*S. auriculata*' and which include figures and/or descriptions (Canu & Bassler, 1925, 1928, 1930; Gautier, 1961; Zabala & Maluquer, 1988) are in fact referring to *S. cuspidata*. Numerous varieties of *S. auriculata sensu lato* have been described (particularly on the basis of the size of the suboral avicularium and the degree of calcification of the frontal wall of the zooid), in many cases apparently following Gautier (1961).

We have not been able to locate a single specimen labelled as *S. auriculata* var. *ornata* in the Canu Collection, and it seems that a type was never designated. We have, however, examined material from the Gautier Collection in the Muséum National d'Histoire Naturelle. Both Canu & Bassler (1930, p. 35) and Gautier (1961, p. 137) report characteristic differences in orifice morphology between this variety and the typical form; however, we have been unable to appreciate these differences in the MNHN material examined. The only distinctive characters of var. *ornata* appear to be the spatulate avicularia (present in variable number, and sometimes absent), each with a Y-shaped foramen (typical of *S. cuspidata*, according to Hayward & Thorpe, 1995) and the rugose frontal shield of the zooid. Both of these characters fall within the range of variation of *S. cuspidata*. The variation in number of spatulate avicularia could be related to the hydrodynamic characteristics of the habitat (Gautier, 1961, p. 133).

The variety *inordinata* Canu & Bassler is characterized by the large size of its colonies (which are multilaminar), by the disorderly arrangement of zooids in the upper layer, and by the slightly higher values of all morphometric characters (larger size of all parameters) respect to the typical form (Canu & Bassler, 1930, p. 26; Gautier, 1961, p. 136). We have examined two specimens labelled var. *inordinata* in the Canu Collection; in fact, these specimens are *S. cuspidata* and, although neither was labelled as a type, we consider that this variety is no more than a growth form of *S. cuspidata* with very rapid frontal budding (as was suggested by Gautier, 1961, p. 137). Furthermore, irregular orientation of the top layer of zooids in a multilayer colony is typical of the Ascophora.

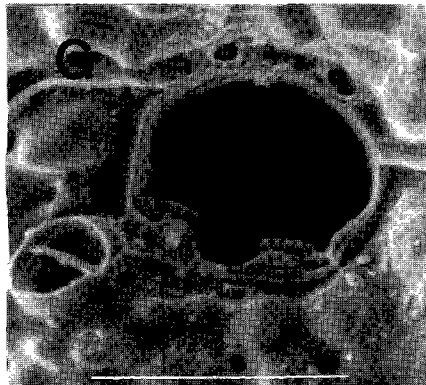
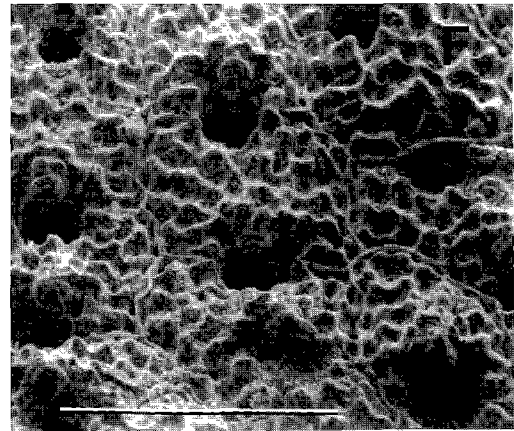
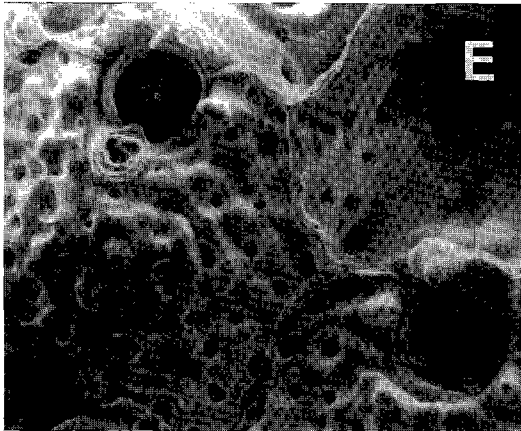
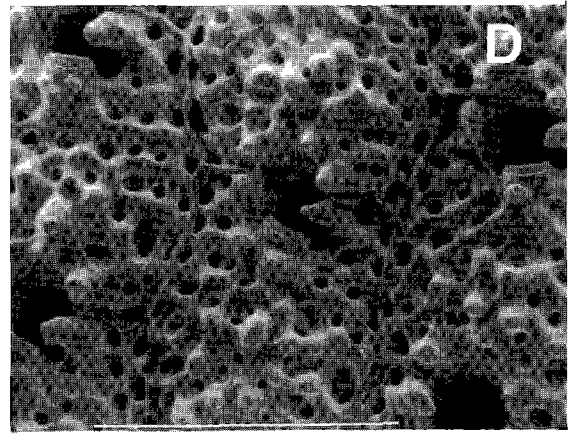
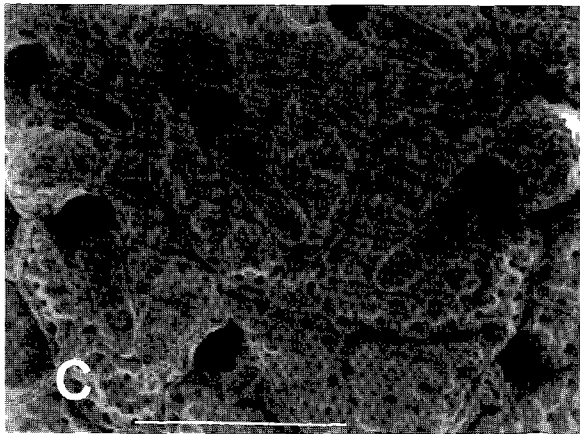
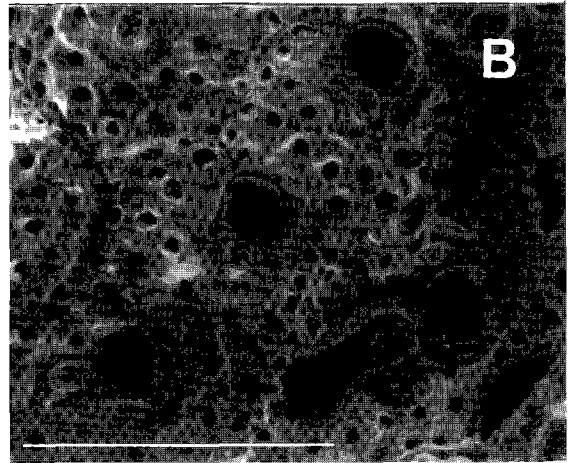
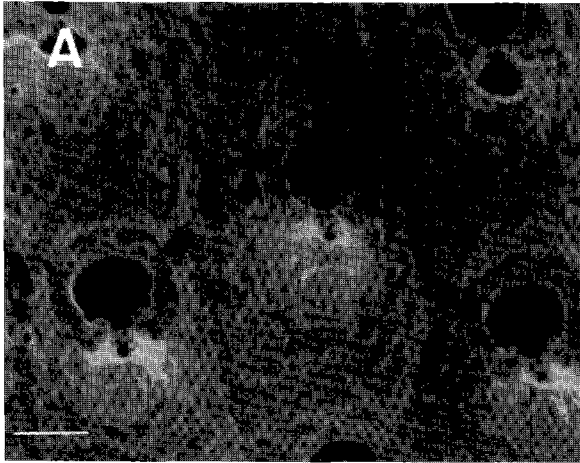
We have also examined specimens labelled var. *asymetrica* Calvet in the Calvet Collection of the Institut Océanographique de Monaco and in the Gautier Collection

#### Figure 3

- A: *Schizomavella auriculata* s.s. (Ría de Ferrol: F-32): autozooids in frontal view (scale bar 0.1 mm).  
 B: *S. auriculata* s.s. (Ría de Pontevedra): an orifice showing the development of the condyles (scale bar 0.1 mm).  
 C: *S. auriculata* s.s. (Ría de Arosa): basal development of the condyle, and a suboral avicularium.  
 D: *Schizomavella sarniensis* (Ría de Ferrol: F-26): part of the colony (scale bar 1 mm).  
 E: *S. sarniensis* (LBIMM-BRY-17042, as *Schizoporella auriculata*?): detail of the orifice (scale bar 0.1 mm).  
 F: *Schizomavella hastata* (Ría de Ferrol: F-21): part of the colony (scale bar 0.5 mm).  
 G: *Schizomavella linearis* (Ría de Ferrol: F-3a): ovicellate and no ovicellate autozooids, with large avicularia linked to the ovicells (scale bar 0.1 mm).

#### Figure 3

- A : *Schizomavella auriculata* s.s. (Ría de Ferrol : F-32) : autozoïdes en vue frontale (échelle : 0,1 mm).  
 B : *S. auriculata* s.s. (Ría de Pontevedra) : un orifice montrant le développement des condyles (échelle : 0,1 mm).  
 C : *S. auriculata* s.s. (Ría de Arosa) : développement basal du condyle, et un aviculaire suboral.  
 D : *Schizomavella sarniensis* (Ría de Ferrol : F-26) : une partie de la colonie (échelle : 1 mm).  
 E : *S. sarniensis* (LBIMM-BRY-17042, comme *Schizoporella auriculata*?) : détail de l'orifice (échelle : 0,1 mm).  
 F : *Schizomavella hastata* (Ría de Ferrol : F-21) : une partie de la colonie (échelle : 0,5 mm).  
 G : *Schizomavella linearis* (Ría de Ferrol : F-3a) : autozoïdes ovicellés et non ovicellés avec de grands aviculaires liés aux ovicelles (échelle : 0,1 mm).





of the Muséum National d'Histoire Naturelle de Paris. In all these specimens orifice morphology was identical to that of the typical form, as noted by Gautier (1961, p. 134). This variety is characterized by the lateral displacement of the suboral avicularia, which are always small (Calvet, 1927, p. 20; Gautier, 1961, p. 134). We have observed that the degree of displacement of avicularia varies considerably among colonies, and we have even observed laterally displaced avicularia in colonies of the typical form, perhaps suggesting that *asymetrica* represents an infraspecific variation; it should be pointed out that Gautier (1961) found both forms next to each other on the same substrate.

We have examined the type specimen and other material of *S. auriculata* var. *leontiniensis*, and can confirm the presence of an orifice identical to that of *S. cuspidata* and the frequent (though not invariable) presence of spatulate avicularia with Y-shaped *foramina*, again as in *S. cuspidata*. We thus consider that this variety should not be maintained.

The orifice of the variety *hirsuta* Calvet is similar to that of *S. cuspidata*. The only difference is that the frontal wall of the zooid and of the ovicell is more heavily calcified, so that prominent denticles may occur around the orifice. However, the degree of calcification is highly variable, and is perhaps linked to environmental conditions; thus, like Gautier (1961, p. 136), we do not consider this character sufficient to justify variety status.

The variety *spathulata* Hincks (the type specimen of which we examined some years ago) is clearly *S. cuspidata*, since it bears spatulate avicularia with Y-shaped *foramina*. The type specimen has recently been re-labelled as *S. cuspidata* by Dr. Hayward.

Finally, all specimens labelled *S. auriculata* var. *cuspidata* examined by us are in fact *S. cuspidata*.

#### Geographical distribution

Taking into account Hayward & Thorpe (1995), unpublished data from Dr. Hayward and our own re-examination of specimens and the literature, we conclude that *S. cuspidata* has a wide distribution in the northeast Atlantic, from the Shetland Islands to Morocco, Madeira and the Canary Islands. It is a common species in the western Mediterranean, extending as far as the Aegean.

This species has been reported from all along the Iberian coast, always as *S. auriculata*; those records with descriptions or figures which confirm identification as *S. cuspidata* are from the Portuguese coast (Saldanha, 1980), Algeciras (Andalusia) (Barroso, 1920), the coast of Catalonia (Zabala, 1986) and the Balearic Islands (Barroso, 1948; Gautier, 1957, 1961). A number of other records from the Iberian coast seem to be of *S. cuspidata*, but re-examination of original material would be necessary.

*S. cuspidata* is the rarest species of *Schizomavella* in Galicia, by contrast with its abundance in other areas, such as the British Isles and the Mediterranean.

*Schizomavella sarniensis* Hayward & Thorpe, 1995  
(Fig. 2; Fig. 3 D, E)

*Schizomavella sarniensis* Hayward & Thorpe, 1995,  
p. 675, Pl. 5 figs d-f.

#### Material examined

1.- Material from Galicia:

Ría de Ferrol: F-5c (1 colony), F-8 (1 colony), F-16 (1 colony), F-19 (4 colonies), F-21 (1 colony), F-22 (8 colonies), F-26 (1 colony).

2.- Muséum National d'Histoire Naturelle, Paris:

1621 (Rade de Cherbourg); 6583 (Roscoff); 14724 (North of St. Malo); 17042 (Algeria or Tunisia); 17101 (Algeria); 17102 (Algeria); Lutaud Collection (Roscoff).

#### Figure 4

A: *Schizomavella cuspidata* (Ría de Ferrol: F-18): autozooids in frontal view (scale bar 0.1 mm).

B: *S. cuspidata* (LBIMM-BRY-11166, as *Schizomavella auriculata*): a colony showing a spatulate avicularium (scale bar 0.5 mm).

C: *S. cuspidata* (LBIMM-BRY-11170, as *S. auriculata* var. *ornata*): ovicellate autozooids, with spatulate avicularia (scale bar 0.5 mm).

D: *S. cuspidata* (LBIMM-BRY-11179, as *S. auriculata* var. *hirsuta*): ovicellate autozooids showing heavy calcification (scale bar 0.5 mm).

E: *S. cuspidata* (LBIMM-BRY-11179, as *S. auriculata* var. *hirsuta*): autozooids from the growing edge of the colony (scale bar 0.1 mm).

F: *S. cuspidata* (LBIMM-BRY-11217, as *S. auriculata* var. *cuspidata*): part of the colony (scale bar 0.5 mm).

G: *S. cuspidata* (LBIMM-BRY-11173, as *S. auriculata* var. *asymetrica*): primary orifice and suboral avicularium (scale bar 0.1 mm).

#### Figure 4

A : *Schizomavella cuspidata* (Ría de Ferrol : F-18) : autozoïdes en vue frontale (échelle : 0,1 mm).

B : *S. cuspidata* (LBIMM-BRY-11166, comme *Schizomavella auriculata*) : colonie montrant un aviculaire spatulé (échelle : 0,5 mm).

C : *S. cuspidata* (LBIMM-BRY-11170, comme *S. auriculata* var. *ornata*) : autozoïdes ovicellés, avec des aviculaires spatulés (échelle : 0,5 mm).

D : *S. cuspidata* (LBIMM-BRY-11179, comme *S. auriculata* var. *hirsuta*) : autozoïdes ovicellés montrant une forte calcification (échelle : 0,5 mm).

E : *S. cuspidata* (LBIMM-BRY-11179, comme *S. auriculata* var. *hirsuta*) : autozoïdes du bord de croissance de la colonie (échelle : 0,1 mm).

F : *S. cuspidata* (LBIMM-BRY-11217, comme *S. auriculata* var. *cuspidata*) : une partie de la colonie (échelle : 0,5 mm).

G : *S. cuspidata* (LBIMM-BRY-11173, comme *S. auriculata* var. *asymetrica*) : orifice primaire et aviculaire suboral (échelle : 0,1 mm).



- 3.- Natural History Museum, London:  
1911.10.1.1543 (Salcombe, Holotype and paratype).  
4.- Dr. d'Hondt personal collection, from Roscoff.

#### Reproduction

Ovicells and young colonies present in July, in our own material.

#### Remarks

*S. sarniensis* is characterized by its large and more or less quadrate orifice, with large, finely dentate, oval condyles, by its short U-shaped sinus, and by the presence of a peristome bearing short spiky projections.

All the character-states and measurements of our specimens coincide with those reported by Hayward & Thorpe (1995), although these authors report the occasional presence of large oval avicularia which occupy almost the entire frontal shield of the zooid; we did not observe such avicularia in our material.

#### Geographical distribution

According to the original description of Hayward & Thorpe (1995), *S. sarniensis* is only known from the English Channel, Laredo Beach in northern Spain and the western coast of Spain (no specific location cited).

In addition, we have examined specimens of *S. sarniensis*, in the Muséum National d'Histoire Naturelle, Paris, from different areas of the northern coast of France (Cherbourg, North of Saint Malo and Roscoff) and Algeria; thus its geographical distribution extends to the Mediterranean.

#### *Schizomavella teresae* sp. nov.

(Fig. 2; Fig. 5 A-F)

*Schizomavella auriculata*: Lanza & Fernández Pulpeiro, 1984, p. 274 (part); Lorenzo *et al.*, 1987, p. 111 (part); Reverter Gil *et al.*, 1992, p. 105, Pl. 3; Barcia *et al.*, 1993, p. 253 (part).

Part or whole *Schizomavella linearis*: d'Hondt, 1979b, p. 2.

HOLOTYPE: Muséum National d'Histoire Naturelle, Paris: LBIMM-BRY-19938: Ría de Ferrol (F-29); one colony encrusting the internal face of a shell.

PARATYPES: MNHN-LBIMM-BRY-19937: Ría de Ferrol (F-26); one colony encrusting a shell of *Turritella communis* Risso, 1826. MNHN-LBIMM-BRY-19936: Ría de Ferrol (F-24); one colony encrusting a shell of *Turritella communis* Risso, 1826.

#### Other material

##### 1.- Material from Galicia:

Ría de Ferrol: F-1 (4 colonies), F-3a (25 colonies), F-3b (1 colony), F-5a (4 colonies), F-5b (1 colony), F-5c (2 colonies), F-6 (8 colonies), F-12 (4 colonies), F-18 (3 colonies), F-19 (30 colonies), F-20 (14 colonies), F-24a (96 colonies), F-24b (3 colonies), F-26 (91 colonies), F-27 (2 colonies), F-28b (4 colonies), F-29 (180 colonies), F-30 (3 colonies), F-32 (3 colonies). Ría de Arosa: A-1 (1 colony). Ría de Pontevedra: P-1 (15 colonies), P-2 (34 colonies), P-4 (22 colonies), P-5 (7 colonies), P-6 (3 colonies), P-7 (19 colonies), P-8 (20 colonies), P-10 (5 colonies), P-11 (3 colonies), P-12 (2 colonies). Ría de Vigo: V-1 (2 colonies), V-2 (6 colonies), V-3 (10 colonies), V-4 (2 colonies), V-5 (1 colony), V-8 (2 colonies).

##### 2.- Muséum National d'Histoire Naturelle, Paris:

7941 (English Channel); 7969 (English Channel); 7997 (near Brest); 8000 (English Channel); 8025 (Bay of Biscay); 8029 (Bay of Biscay); 9847 (part. Bay of Biscay); 10051 (Bay of Biscay); 13638 (part. Hastings).

##### 3.- Dr. d'Hondt personal collection, from Roscoff.

#### Diagnosis

*Schizomavella* with small orbicular orifice and small sinus; small suboral avicularium; orifice and avicularium surrounded by a prominent spiky peristome, which may even extend onto the ovicell.

*Etymology. teresae*: This species is dedicated to Miss Teresa Alonso, a friend of one of the authors (O.R.-G.).

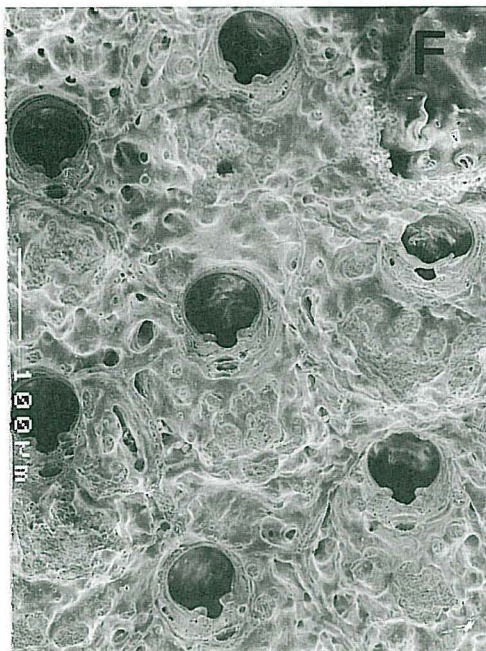
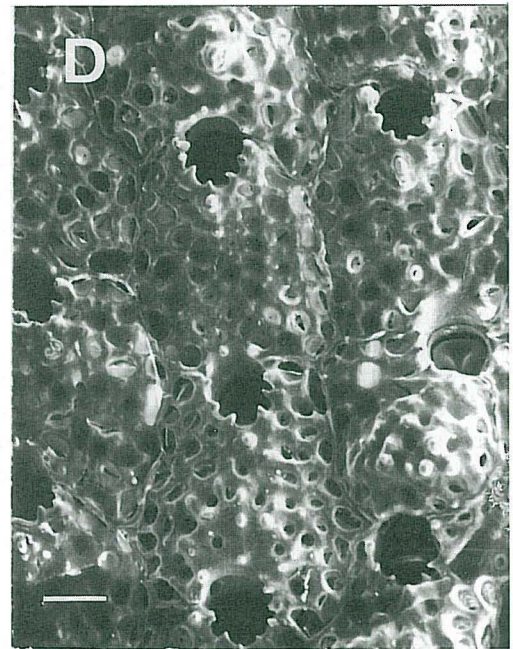
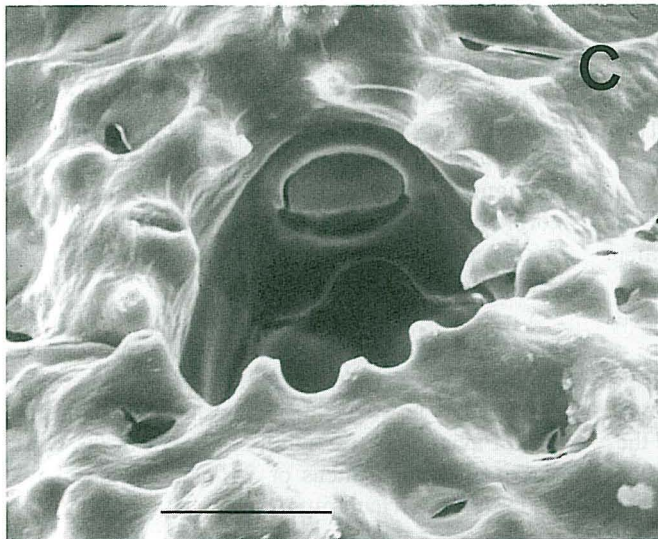
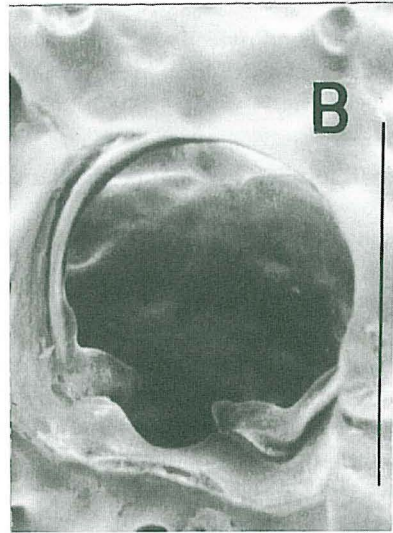
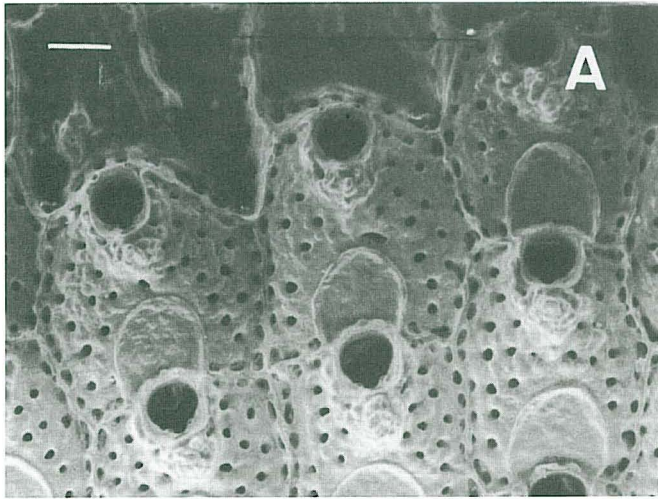
#### Figure 5

- A: *Schizomavella teresae* sp. nov. (Ría de Ferrol: F-29. Holotype): autozooids at the growing edge of the colony (scale bar 0.1 mm).  
B: *S. teresae* sp. nov. (Ría de Ferrol: F-29. Holotype): primary orifice (scale bar 0.1 mm).  
C: *S. teresae* sp. nov. (Ría de Ferrol: F-24a. Paratype): suboral avicularium surrounded by the peristome (scale bar 0.1 mm).  
D: *S. teresae* sp. nov. (Ría de Ferrol: F-24a. Paratype): ovicellate autozooids showing the spiky peristome (scale bar 0.1 mm).  
E: *S. teresae* sp. nov. (Ría de Ferrol: F-29): ancestrula and periancestrular autozooids (scale bar 0.1 mm).  
F: *S. teresae* sp. nov. (Ría de Ferrol: F-26. Paratype): group of autozooids showing the small suboral avicularium.

#### Figure 5

- A: *Schizomavella teresae* sp. nov. (Ría de Ferrol: F-29. Holotype): autozoïdes du bord de croissance de la colonie (échelle : 0,1 mm).  
B: *S. teresae* sp. nov. (Ría de Ferrol : F-29. Holotype) : orifice primaire (échelle : 0,1 mm).  
C: *S. teresae* sp. nov. (Ría de Ferrol : F-24a. Paratype) : aviculaire suboral entouré par le péristome (échelle : 0,1 mm).  
D: *S. teresae* sp. nov. (Ría de Ferrol : F-24a. Paratype) : autozoïdes ovicellés montrant le péristome épineux (échelle : 0,1 mm).  
E: *S. teresae* sp. nov. (Ría de Ferrol : F-29) : Ancestrula et autozoïdes périancestrulaires (échelle : 0,1 mm).  
F: *S. teresae* sp. nov. (Ría de Ferrol : F-26. Paratype): Groupe de autozoïdes montrant le petit aviculaire suboral.







### Reproduction

In Galicia, we have found ovicells in April, May, July, August and September, embryos (pink) in April, and young colonies in September.

### Description

Colony unilaminar, forming irregular or circular whitish sheets.

Autozooids rectangular to polygonal, in radiating series, separated by distinct grooves, these very pronounced in heavily calcified autozooids.

Frontal wall rugose, slightly convex, often with a suboral umbo, perforated by a few round pores, these more evident at the periphery of the autozooid, especially in heavily calcified zooids. In heavily calcified specimens, frontal wall highly rugose and a spiky peristome develops; this surrounds the orifice and the suboral avicularium.

Primary orifice as wide as long, orbicular, with a short sinus occupying less than half the width of the proximal border and with rim developed as shoulders on each side. Condyles conspicuous, triangular, with smooth distal border, extending beyond the edges of the sinus. Two rudimentary oral spines, present in early ontogeny only.

Avicularium monomorphic, 0.05 mm long by 0.04 mm wide, immediately proximal to the sinus, with a semielliptical proximally directed mandible, slender crossbar and foramen coextensive with the rostrum. Primary orifice and avicularium surrounded by a poorly developed narrow peristome.

Ovicell hyperstomial, spherical, wider than long, frequently obscured due to calcification. Narrow proximal semilunar area perforated by a few rounded pores; the porous area is hidden by the spiky proximal border of the rugose oocel cover, which is linked to the peristome that surrounds the orifice and avicularium.

Ancestrula oval, with 9 spines surrounding the opesia, which has a sinus in its proximal border.

### Measurements

Holotype MNHN/LBIMM-BRY -19938	Laz: 0.43±0.07 (n=20). laz: 0.31±0.03 (n=20). Lo: 0.07±0.006 (n=20). lo: 0.09±0.007 (n=20). Lov: 0.18±0.015 (n=20). lov: 0.24±0.02 (n=20).
Paratype MNHN/LBIMM-BRY -19937	Laz: 0.40±0.04 (n=20). laz: 0.28±0.06 (n=20). Lo: 0.06±0.006 (n=20). lo: 0.09±0.006 (n=20). Lov: 0.18±0.02 (n=14). lov: 0.26±0.03 (n=14).
Paratype MNHN/LBIMM-BRY -19936	Laz: 0.40±0.07 (n=20). laz: 0.28±0.04 (n=20). Lo: 0.065±0.006 (n=8). lo: 0.09±0.007 (n=10). Lov: 0.17±0.02 (n=10). lov: 0.24±0.02 (n=10).
MNHN/LBIMM-BRY -8029	Laz: 0.42±0.06 (n=20). laz: 0.28±0.05 (n=20). Lo: 0.06±0.006 (n=20). lo: 0.08±0.002 (n=20). Lov: 0.17±0.02 (n=20). lov: 0.23±0.03 (n=20).

### Remarks

This species may be confused with *S. sarniensis*, owing to the well-developed spiky peristome and to the heavy calcification which obscures the ovicell. However, *S. teresae* has a small orbicular orifice with a small sinus and smooth condyles, whereas the orifice of *S. sarniensis* is large and quadrate with a large sinus and dentate condyles. Furthermore, the porous area of the ovicell of *S. teresae* is hidden by the peristome, whereas the porous area in *S. sarniensis* is visible even when the ovicell is obscured by the distal zooid. Finally, whereas the pores of the frontal shield of *S. sarniensis* zooids are large and deeply immersed as a result of calcification, those of *S. teresae* are more conspicuous in the margin of the frontal shield.

*S. teresae* is also very similar to *S. cuspidata*. However, *S. teresae* has a smaller orifice which lacks the pronounced notch-like proximolateral extensions characteristic of *S. cuspidata*, and a consistently small avicularium whose foramen is coextensive with the rostrum (the foramina of *S. cuspidata* avicularia are typically Y-shaped). There is a form of *S. cuspidata* (f. *hirsuta*, Fig. 4 D, E) which, like *S. teresae*, has a spiky peristome; however, this form can be distinguished from *S. teresae* not only by orifice morphology but also by the peristome, which is not continuous but has a proximal gap within which the avicularium arises.

*S. teresae* has been cited by d'Hondt (1979a) as *Schizomavella linearis* (Hassall), perhaps because of the orbicular orifice. Quite apart from the differences in orifice morphology, however, the size, shape and position of the suboral avicularia are entirely different in the two species, even in those specimens of *S. linearis* which have only a single suboral avicularium.

### Geographical distribution

*S. teresae* is known from Hastings (SE England), several stations in the English Channel, Brittany (Roscoff and near Quiberon), Bay of Biscay and Galicia (Ría de Ferrol, Ría de Arosa, Ría de Pontevedra and Ría de Vigo).

### *Schizomavella hastata* (Hincks, 1862)

(Fig. 2; Fig. 3 F)

*Lepralia hastata* Hincks, 1862, p. 206, Pl. 12, fig. 4.

*Schizoporella linearis* var. *hastata*: Hincks, 1880, p. 248, Pl. 33, fig. 10.

*Schizomavella linearis* var. *hastata*: Hayward & Ryland, 1979, p. 180, fig. 4.

*Schizomavella hastata*: Gautier, 1961, p. 139; Hayward & Thorpe, 1995, p. 668, Pl. 3.

### Material examined

1.- Material from Galicia:

Ría de Ferrol: F-7 (2 colonies), F-11 (2 colonies), F-17 (2 colonies), F-21 (2 colonies), F-28b (4 colonies). Ría de Vigo: V-10 (1 colony).



2.- Muséum National d'Histoire Naturelle, Paris:  
4146 (Sète, France); 11222 (Balearic Islands); 11239 (Castiglione, Algeria); 12286 (Tunisia); 17093 (Algeria); 17096 (Algeria); Lutaud Collection (Roscoff).

3.- Station Biologique de Roscoff:

BR.26.4b (Estellen); BR.26.4c (part. Duons).

4.- Dr. d'Hondt personal Collection from Roscoff.

#### Reproduction

Ovicells present in January, March, July and December, and embryos in March, in our own material.

#### Remarks

The morphological characteristics and taxonomic identity of this species have been the subject of some controversy. Hayward & Thorpe (1995) have recently defined a lectotype; previous reports should be treated with caution, since in many cases specimens of *S. linearis* (Hassall) with large elongated avicularia on a spiny umbo have been incorrectly cited as *S. hastata*.

It should also be stressed that the most useful characters for distinguishing *S. hastata* from *S. linearis* are not the position and size of the suboral avicularium (as a number of authors have suggested) but rather the shape of the orifice and the width of the sinus.

#### Geographical distribution

Hayward & Thorpe (1995) have cited *S. hastata* from the Shetland Islands down to Guernsey, and have pointed out that it is necessary to establish its distribution beyond these limits.

In the course of our re-examination of specimens held in museum collections, we have found *S. hastata* from Roscoff, Galicia, the Balearic Islands, southern France, Algeria and Tunisia; its geographical distribution thus extends to the western Mediterranean.

There are a number of unequivocal records of this species from the Iberian coast: specifically, from Galicia (Fernández Pulpeiro *et al.*, 1990; Reverter Gil *et al.*, 1992), Catalonia (Zabala, 1986) and the Balearic Islands (Gautier, 1961). There are other records of *S. hastata*, but re-examination of original material will be necessary to confirm the identifications.

*Schizomavella linearis* (Hassall, 1841)

(Fig. 2; Fig. 3 G)

*Lepralia linearis* Hassall, 1841, p. 368, Pl. 9, fig. 8.

*Schizoporella linearis*: Hincks, 1880, p. 247, Pl. 38, figs. 5-9.

*Schizomavella linearis*: Canu & Bassler, 1928, p. 30, Pl. 3, figs. 1-6; Gautier, 1961, p. 140; Hayward & Ryland, 1979, p. 178, figs. 10 A, 73; Hayward & Thorpe, 1995, p. 671, Pl. 4.

#### Material examined

1.- Material from Galicia:

Ría de Ferrol: F-3a (8 colonies), F-3b (11 colonies), F-13 (5 colonies), F-14 (9 colonies), F-15 (2 colonies), F-17 (2 colonies), F-19 (4 colonies), F-22 (1 colony), F-23 (7 colonies), F-24a (1 colony), F-24c (1 colony), F-28a (2 colonies), F-28b (1 colony), F-29 (1 colony), F-31 (1 colony), F-32 (4 colonies).

2.- Muséum National d'Histoire Naturelle, Paris:

2364 (Marseille); 2400 (Cape Verde Islands); 2624 (?); 4140 (Oran); 4154 (Bay of Biscay); 4155 (Monaco); 4443 (Northumberland); 5898 (*Vanneau*, st. XI); 5937 (Bonifacio); 5938 (Corsica); 6288 (*Vanneau*, st. XCII); 6324 (part. *Vanneau*, st. XXXIX); 6581 (Roscoff); 6780 (Bay of Biscay); 7070 (Bay of Biscay); 7071 (?); 7182 (W Spain); 8057 (*Vanneau*, st. XXXI); 10028 (Marseille); 10032 (E Spain); 10045 (part. Marseille); 11181 (Portofino, Italy); 11223 (Marseille); 11224 (Marseille); 11231 (Riou, Marseille); 12864 (Corfu); 12865 (Corfu); 12881 (part. Near Brittany); 13046 (G. of Guinee); 13221 (Morbihan, Brittany); 13245 (Morbihan, Brittany); 13246 (Morbihan, Brittany); 13695 (*Vanneau*, st. XCIII); 13731 (part. *Vanneau*, st. XXVIII); 13739 (*Vanneau*, st. CXXX); 13843 (part. *Vanneau*, st. XXXI); 13948 (*Vanneau*, st. XLIV); 13971 (*Vanneau*, st. XXXVII); 14178 (*Vanneau*, st. LV); 14325 (part. *Vanneau*, st. XLIII); 14376 (*Vanneau*, st. LXII); 14388 (part. *Vanneau*, st. LXXXIII); 14464 (*Vanneau*, st. XXVIII); 15385 (part. Fuenterrabía, Spain); 15387 (Fuenterrabía, Spain); 17091 (Algeria); 17092 (Algeria); 17094 (Algeria). Canu Collection, deposited in the Laboratoire de Paléontologie (Ile d'Yeu (France) and Tetouan).

3.- Dr. d'Hondt personal collection, from Roscoff.

#### Reproduction

In Galicia, ovicells present in April, August, September, October and December, and young colonies in March, July, September and December.

#### Remarks

Hincks (1880) and Hayward & Thorpe (1995) report that *S. linearis* shows high variability in the number and position of adventitious avicularia. In our material we have observed colonies of this species without avicularia, or with a single large central avicularium.

Some colonies from the Ría de Ferrol (sampling stations F-3a, F-3b, F-24c and F-32), and some specimens in the Muséum National d'Histoire Naturelle (LBIMM-BRY-4154, LBIMM-BRY-4443 and LBIMM-BRY-13046) and in material from Roscoff, have one or two large supernumerary avicularia associated with the ovicell and with a transversely directed mandible (see Fig. 3G). The presence of avicularia of this type on *S. linearis* was reported by Hincks (1880, p. 249). Canu & Bassler (1928, p. 31, Pl. 3, Fig. 1) reported similar observations, although they pointed out that (in their material at least) the avicularia



associated with the ovicell were in fact the two frontal avicularia in an abnormally low position. However, in *S. linearis* material from the *Vanneau* expedition examined by us, zooids with avicularia of this type also bore the two suboral avicularia which are typical of the species.

The dimensions of the zoecial orifice of *S. linearis* material collected in Galicia coincide with those reported by Hayward & Thorpe (1995), whereas the Mediterranean specimens examined by us appear to have a slightly larger and narrower orifice than the Atlantic specimens (length 0.12 - 0.13 mm and width 0.11 - 0.12 mm, Hayward & Thorpe, 1995; versus length 0.12 - 0.14 mm and width 0.10 - 0.11 mm for Mediterranean specimens).

#### *Geographical distribution*

Recently, Hayward & Thorpe (1995) have chosen a neotype for this species; they consider *S. linearis* to be one of the commonest species of the genus in British waters. It occurs as far north as the Faroe Islands. These authors have also pointed out that it appears to be present in the Mediterranean, although they state that this requires confirmation.

On the basis of our re-examination of specimens held in museum collections, we can confirm that *S. linearis* is widely distributed in the eastern Atlantic, from western Norway to the Gulf of Guinea, as well as in the western Mediterranean as far east as Corfu.

Some previous reports of this species from the Iberian Peninsula have not included descriptions or figures allowing confirmation of the identification. However, there can be little doubt that *S. linearis* occurs along the Iberian coast, in view of the geographical scatter of those reports which include descriptions or figures. Such reports exist for the coasts of Asturias (Haya & Anadón, 1989), Galicia (Fernández Pulpeiro *et al.*, 1990; Barcia *et al.*, 1993), Portugal (Saldanha, 1980), for the Straits of Gibraltar (López de la Cuadra & García-Gómez, 1988; López de la Cuadra, 1991), for the Columbretes Islands (d'Hondt,

1979a), Catalonia (Zabala, 1986) and the Balearic Islands (Gautier, 1957).

#### *Schizomavella hondti* sp. nov.

(Fig. 2; Fig. 6 A-E)

**HOLOTYPE:** Muséum National d'Histoire Naturelle, LBIMM-BRY-19935: Ría de Ferrol (F-1); one ovicellate colony (material partially gold-coated) encrusting the internal face of a shell (*Mytilus galloprovincialis* Lamarck).

#### *Other material*

##### 1.- Material from Galicia:

Ría de Ferrol: F-1 (2 colonies), F-2 (1 colony), F-9 (1 colony), F-24a (2 colonies), F-25 (1 colony), F-32 (1 colony). Ría de Arosa: A-2 (1 colony), A-3 (1 colony). Ría de Pontevedra: P-9 (8 colonies), P-10 (3 colonies). Ría de Vigo: V-1 (2 colonies), V-5 (1 colony), V-7 (1 colony), V-9 (2 colonies).

##### 2.- Muséum National d'Histoire Naturelle, Paris:

12881 (part. Near Brittany); 13365 (part. Hastings).

3.- Dr. d'Hondt personal collection, from Roscoff.

#### *Diagnosis*

*Schizomavella* with drop-shaped orifice, with rhomboid condyles reaching the edges of the small sinus; small suboral avicularium; ovicell with a proximal semi-elliptical porous area.

*Etymology.* *hondti*: Dedicated to the bryozoologist Dr. Jean-Loup d'Hondt, of the Muséum National d'Histoire Naturelle, Paris.

#### *Reproduction*

In Galicia, ovicells are present in January, February, March, May, June, July, August and September.

#### *Description*

Colony forming circular, unilaminar sheets. Autozooids rectangular to polygonal, in radiating series, separated by distinct grooves.

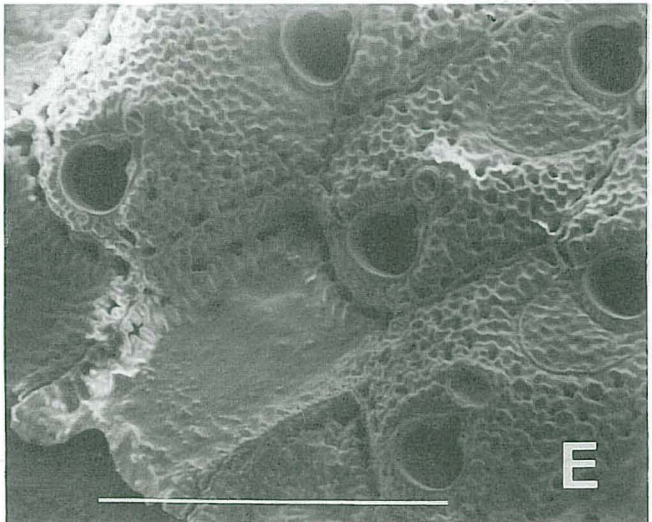
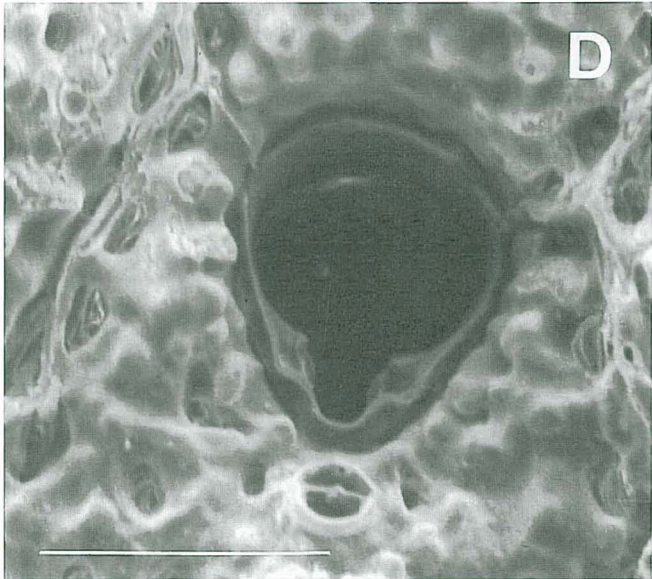
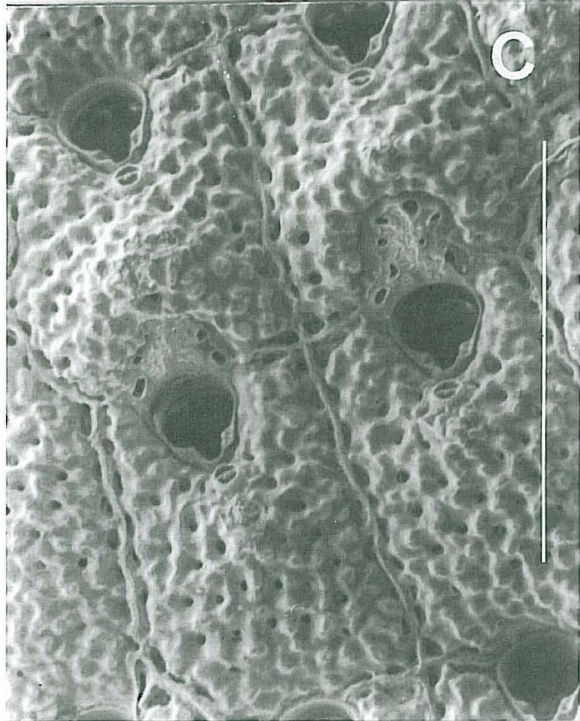
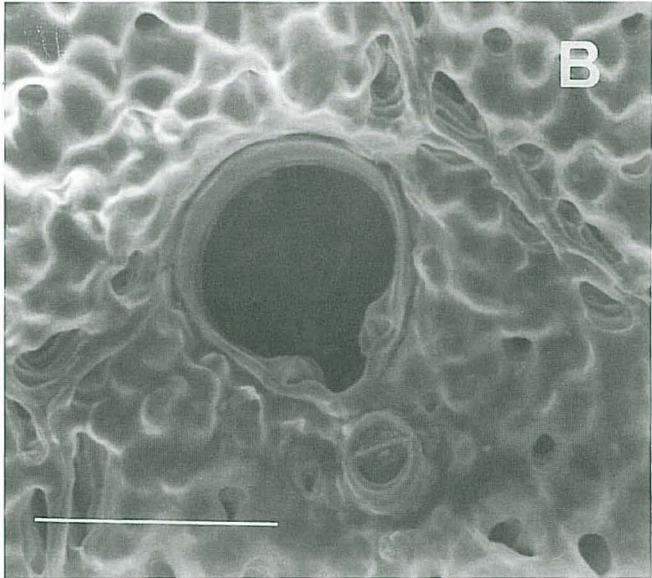
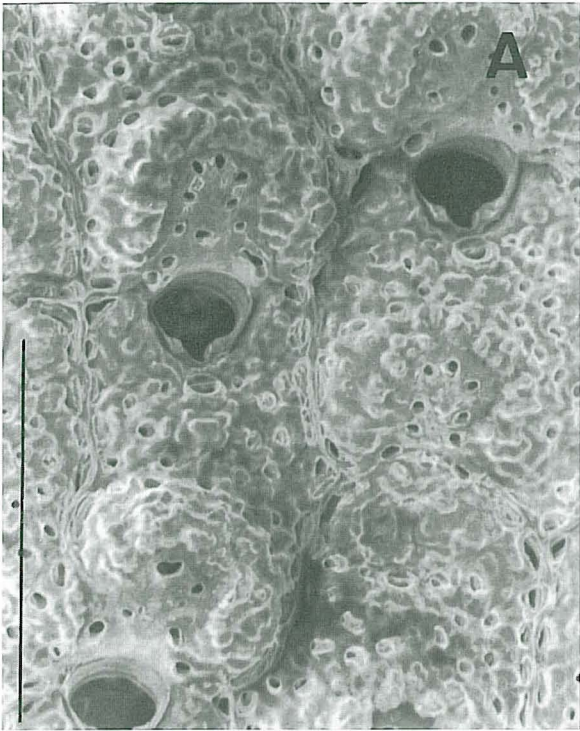
### Figure 6

- A: *Schizomavella hondti* sp. nov. (Ría de Ferrol. F-1. Holotype): ovicellate autozooids (scale bar 0.5 mm).  
 B: *S. hondti* sp. nov. (Ría de Ferrol. F-1. Holotype): primary orifice and suboral avicularium (scale bar 0.1 mm).  
 C: *S. hondti* sp. nov. (Ría de Vigo): ovicellate autozooids (scale bar 0.5 mm).  
 D: *S. hondti* sp. nov. (Ría de Vigo): primary orifice and suboral avicularium (scale bar 0.1 mm).  
 E: *S. hondti* sp. nov. (Ría de Ferrol. F-1. Holotype): autozooids from the growing edge of the colony (scale bar 0.5 mm).

### Figure 6

- A : *Schizomavella hondti* sp. nov. (Ría de Ferrol. F-1. Holotype): autozoïdes ovicellés (échelle : 0,5 mm).  
 B : *S. hondti* sp. nov. (Ría de Ferrol. F-1. Holotype) : orifice primaire et aviculaire suboral (échelle : 0,1 mm).  
 C : *S. hondti* sp. nov. (Ría de Vigo) : autozoïdes ovicellés (échelle : 0,5 mm).  
 D : *S. hondti* sp. nov. (Ría de Vigo) : orifice primaire et aviculaire suboral (échelle : 0,1 mm).  
 E : *S. hondti* sp. nov. (Ría de Ferrol. F-1. Holotype) : autozoïdes du bord de croissance de la colonie (échelle : 0,5 mm).







Frontal wall granular, slightly convex, perforated by many small pores, with a suboral umbo, this generally poorly developed.

Primary orifice drop-shaped, with a small sinus occupying about half the width of the proximal border. Condyles distinctive, rhomboid, reaching the edges of the sinus. A pair of poorly developed spines present in early ontogeny.

Suboral avicularium monomorphic, small (0.04 mm long by 0.03 mm wide), normal to acute to the frontal plane and separated from the sinus, with an elliptical proximally directed mandible and a slender crossbar with inconspicuous columella.

Ovicell hyperstomial, spherical, partially immersed in the distally succeeding autozoid. Oecial cover nodular. Proximal semi-elliptical area perforated by scarce rounded pores.

#### Measurements

Holotype	Laz: 0.46±0.05 (n=20). laz: 0.31±0.04 (n=20).
LBIMM-BRY 19935	Lo: 0.075±0.003 (n=20). lo: 0.095±0.004 (n=20). Lov: 0.21±0.02 (n=20). lov: 0.26±0.02 (n=20).
Ría de Arosa	Laz: 0.48±0.03 (n=20). laz: 0.30±0.04 (n=20). Lo: 0.072±0.005 (n=20). lo: 0.09±0.005 (n=20). Lov: 0.21±0.02 (n=7). lov: 0.27±0.02 (n=7).
Ría de Vigo	Laz: 0.47±0.04 (n=20). laz: 0.31±0.03 (n=20). Lo: 0.074±0.004 (n=20). lo: 0.09±0.006 (n=20). Lov: 0.23±0.03 (n=12). lov: 0.29±0.02 (n=12).

#### Geographical distribution

This species is known from Hastings (SE England), Roscoff (Brittany), Bay of Biscay and Galicia (Ría de Ferrol, Ría de Arosa, Ría de Pontevedra and Ría de Vigo).

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### Appendix

#### Sampling stations in the Ría de Ferrol:

##### Stations d'échantillonnage dans la Ría de Ferrol :

- F-1: 43°28'57"N, 08°15'30"W (19-IX-76), 11 m, *Laminaria* sp.
- F-2: 43°28'19"N, 08°15'06"W (30-I-78), 16 m, sand.
- F-3: 43°28'15"N, 08°15'30"W (a: 13-IX-89; b: 22-X-90), 15 m, shells and pebbles.
- F-4: 43°28'04"N, 08°16'24"W (13-IX-89), 11 m, coarse sand and shells.
- F-5: 43°28'03"N, 08°18'36"W (a: 13-IX-89; b: 22-X-90; c: 20-IV-93), 16 m, coarse sand and pebbles.
- F-6: 43°28'03"N, 08°19'08"W (13-IX-89), 16 m, sand and shells.
- F-7: 43°27'58"N, 08°18'10"W (23-XII-91), Intertidal.
- F-8: 43°27'57"N, 08°19'36"W (22-I-92), Intertidal.
- F-9: 43°27'54"N, 08°16'30"W (6-III-83), 14 m, sand of *Amphioxus*.
- F-10: 43°27'52"N, 08°11'47"W (3-I-91), Intertidal.
- F-11: 43°27'52"N, 08°19'57"W (24-XII-91), Intertidal.
- F-12: 43°27'51"N, 08°18'57"W (28-II-82), 15 m, sand of *Amphioxus*.
- F-13: 43°27'51"N, 08°16'08"W (4-XII-90), Intertidal.
- F-14: 43°27'50"N, 08°17'58"W (20-VII-93), 12 m, stones.
- F-15: 43°27'49"N, 08°15'54"W (15-VII-93), 10 m, gravel and stones.
- F-16: 43°27'48"N, 08°19'54"W (20-VII-93), 12 m, stones.
- F-17: 43°27'46"N, 08°20'12"W (18-III-92), Intertidal.
- F-18: 43°27'45"N, 08°16'42"W (13-IX-89), 19 m, coarse sand and shells.
- F-19: 43°27'45"N, 08°18'30"W (13-IX-89), 18 m, fine sand.
- F-20: 43°27'45"N, 08°19'30"W (20-IV-93), 17 m, sand and shells.
- F-21: 43°27'44"N, 08°17'47"W (17-III-91), Intertidal.
- F-22: 43°27'38"N, 08°17'06"W (21-VII-93), 9 m, stones.
- F-23: 43°27'36"N, 08°15'48"W (1-III-91), Intertidal.
- F-24: 43°27'36"N, 08°17'30"W (a: 13-IX-89; b: 22-X-90; c: 20-IV-93), 20 m, coarse sand and shells.

- F-25: 43°27'29"N, 08°18'17"W (13-I-79), 15 m, gravel.
- F-26: 43°27'24"N, 08°17'53"W (13-IX-89), 9 m, coarse sand and shells.
- F-27: 43°27'20"N, 08°17'54"W (6-IX-76), 11 m, stones.
- F-28: 43°27'16"N, 08°18'44"W (a: 13-VII-91; b: 21-VII-93), 15 m, stones.
- F-29: 43°27'09"N, 08°18'51"W (13-IX-89), 12 m, fine sand and shells.
- F-30: 43°26'56"N, 08°18'45"W (13-IX-89), 15 m, fine sand and shells.
- F-31: 43°26'45"N, 08°19'30"W (13-IX-89), 24 m, fine sand and pebbles.
- F-32: 43°26'16"N, 08°19'34"W (15-VIII-91), 45 m, stones.

#### Sampling stations in the Ría de Arosa:

##### Stations d'échantillonnage dans la Ría de Arosa :

- A-1: 42°32'12"N, 08°53'36"W (4-VI-82), 8 m, *Maërl* beds.
- A-2: 42°31'47"N, 08°53'40"W (4-VI-82), 13 m, gravel and *Maërl* beds.
- A-3: 42°31'10"N, 08°54'13"W (10-II-82), 28 m, gravel.

#### Sampling stations in the Ría de Pontevedra:

##### Stations d'échantillonnage dans la Ría de Pontevedra :

- P-1: 42°25'06"N, 8°42'20"W (24-V-85), 4 m.
- P-2: 42°24'42"N, 8°43'48"W (24-V-85), 12 m.
- P-3: 42°24'40"N, 8°41'39"W (24-V-85), 6 m, mud.
- P-4: 42°24'16"N, 8°43'25"W (24-V-85), 18 m, mud.
- P-5: 42°23'48"N, 8°42'58"W (24-V-85), 12 m.
- P-6: 42°22'30"N, 8°45'23"W (12-IV-85), 22 m.
- P-7: 42°22'15"N, 8°45'18"W (24-V-85), 40 m.
- P-8: 42°21'30"N, 8°50'23"W (24-V-85), 40 m.
- P-9: 42°20'47"N, 8°50'06"W (24-V-85), 25 m, sand of *Amphioxus*.
- P-10: 42°20'36"N, 8°45'00"W (12-IV-85), 15 m, gravel.
- P-11: 42°19'11"N, 8°51'25"W (10-V-85), 30 m.
- P-12: 42°18'18"N, 8°50'44"W (10-V-85), 18 m, sand and shells.

#### Sampling stations in the Ría de Vigo:

##### Stations d'échantillonnage dans la Ría de Vigo :

- V-1: 42°14'42"N, 8°48'47"W (2-VIII-85), 24 m, gravel.
- V-2: 42°14'38"N, 8°49'38"W (2-VIII-85), 12 m, *Maërl* beds.
- V-3: 42°14'10"N, 8°46'47"W (16-VII-86), 30 m, mud.
- V-4: 42°13'53"N, 8°45'50"W (16-IX-86), 9 m.
- V-5: 42°13'33"N, 8°50'47"W (16-VII-86), 37 m, gravel.
- V-6: 42°12'55"N, 8°49'47"W (2-VIII-85), 38 m, gravel.
- V-7: 42°12'38"N, 8°48'47"W (16-VII-86), 27 m, sand and shells.
- V-8: 42°12'18"N, 8°53'15"W (6-VII-81), 3 m, mud.
- V-9: 42°10'52"N, 8°53'08"W (16-VII-86), 36 m, gravel.
- V-10: 42°09'10"N, 8°49'55"W (29-I-79), Intertidal.