

On some Bryozoa collected during the northern cruises of the "Pourquoi-Pas ?" during the years 1921-1929 and description of a new species

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Abstract: A systematic list is given of the Bryozoa species collected near the Faroe and Jan Mayen islands during the historical northern oceanographic cruises of the "Pourquoi-Pas ?" during the years 1921-1929 (15 Cheilostomes, 3 Cyclostomes). Seven species are reported here for the first time from the Faroe Islands. General data are provided on the Bryozoa from the "Pourquoi-Pas ?" cruises in European and Antarctic Seas. A new species, *Smittoidea pourquoipasi* sp. nov., is described from Jan Mayen.

Keywords: Bryozoa, "Pourquoi-Pas ?", North Sea, Europe, Faroe, Jan Mayen, *Smittoidea pourquoipasi* sp. nov.

Introduction

The specimens of Bryozoa collected during the oceanographic cruises of the "Pourquoi-Pas ? ", under the scientific direction of Commander Dr. Jean-Baptiste Charcot (1867-1936), and now preserved in the collections of the National Museum of Natural History of Paris, come from four different geographic areas: 1: Antarctic (see below) ; 2: Arctic (see below); 3: Bay of Biscay, English Channel and around the British Islands (now under study by Prof. Eugenio Fernandez Pulpeiro, University of Santiago de Compostela, Spain); 4: Mediterranean Sea (partly lost). The

Bryozoa from the last oceanographic cruises of the "Pourquoi-Pas ?" (particularly 1931), given by Jean-Baptiste Charcot to Marcel Prenant for study, were not found in the collections of the latter after his death and are probably lost.

The oldest specimens originate from the French Antarctic missions, 1903-1905, and 1908-1910. The material dredged during the first of these was studied by Louis Calvet (1909). The colonies obtained during the second Antarctic expedition had never been identified up to now, partly because they were often insufficiently labelled, and partly due to conjunctural events.

It should be noted that, one century later and in the absence of precise published or labelled data, it is often impossible to reconstitute the geographic and bathymetric parameters of the second Antarctic collections and the dates

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of the dredgings, this limiting the scientific interest of the biological material. For example, the true locality of the subspecies *charcoti* of *Adelascopora secunda* Hayward and Thorpe, 1988, an Antarctic species described by d'Hondt and Redier (1970) and named by d'Hondt only in 1990, labelled in the collection as originating from the "Baie de Jameson, Jan Mayen" seems now doubtful. The collection of the second French Antarctic expedition includes, without localities, some species described later from other materials by other scientists, such as *Larvaporora mawsoni* (Livingstone, 1928) (Antarctic) and *Celleporella alia* Hayward, 1993 (Patagonia, Orkneys Islands, South Georgia), both redescribed recently by Hayward (1995). This collection also contains the following southern species, again without precise localities: *Nematoflustra flagellata* (Waters, 1904), *Cellarinella watersi* Calvet, 1909, *Inversiula nutrix* Jullien, 1888 and *Hippadenella inerma* (Calvet, 1909).

The Arctic Bryozoa from the cruises of the "Pourquoi-Pas ?" were collected during the years 1921-1929 at the Faroe and Jan Mayen Islands and deposited probably before the shipwrecking of the "Pourquoi-Pas ?" occurred in 1936. The Bryozoa of the Faroe Islands are essentially known through the works of Nordgaard (1907), Kramp (1934) and Hayward (1994). The bases of our knowledge of the Bryozoa from the northern seas are provided by the papers of Lorenz (1886) on Jan Mayen, the Nordgaard's numerous publications at the beginning of the 20th century, the monographs of Smitt (1867, 1868) and Kluge (1975), and the fine geographical studies of Bille-Hansen (1962), Dick and Ross (1988) and Grischenko (1997).

Systematic list and localities

In this collection, some specimens have been initially incompletely labelled, and unfortunately it is impossible, 80 years later, to reconstitute the missing informations (dates and precise locality). The main part of this material was dredged by the "Pourquoi-Pas ?" around the Faroe Islands (generally without greater precision), and a single specimen from Jan Mayen.

The systematic list is established according to the most recent general classification of the Bryozoa, published by d'Hondt (1997) and modified by d'Hondt (2001). The references for the previous records of these species in Faroe (F) and Jan Mayen (M) areas are also given. The synonymies follow the European faunas published by Prenant and Bobin (1966) and Hayward and Ryland (1998 and 1999).

- Class EURYSTOMATODA** Marcus, 1938
- Subclass Cheilostomona Busk, 1852
- Order Neocheilostomida d'Hondt, 1985
- Suborder Flustrina Smitt, 1867

Family Flustridae Fleming, 1828
Flustra carbacea (Ellis & Solander, 1786) (Faroe). Found by Kramp, 1934 (F) and Lorenz, 1886 (M).
Securiflustra securifrons (Pallas, 1766) (Faroe). Found by Nordgaard, 1907 (F) and Kramp, 1934 (F).
Terminoflustra membranaceotruncata (Smitt, 1868) (Faroe). Found by Nordgaard, 1907 (M)

Family Candidae d'Orbigny, 1851
Caberea ellisi (Fleming, 1814) (Faroe, 1923, 1924). Found by Kramp, 1934 (F).
Notoplites jeffreysi (Norman, 1868) (New for Faroe).

Family Bugulidae Gray, 1848
Dendrobeatia fruticosa (Packard, 1863) var. *quadridentata* (Lovén, 1834, ms., in Smitt, 1867) (New for Faroe).

Suborder Ascophorina Levinsen, 1909
Family Cribrilinidae Hincks, 1879
Cribrilaria watersi (Andersson, 1902) (New for Faroe). Found by Lorenz, 1886 (M)

Family Phidoloporidae Gabb & Horn, 1862
Reteporella beaniana (King, 1846) (Faroe, 1923). Found by Kramp, 1934 (F) and Lorenz, 1886 (M).
Reteporella grimaldii (Jullien in Jullien & Calvet, 1903) (Faroe, 1923). Found by Hayward & Ryland, 1999 (F).

Family Bitectiporidae MacGillivray, 1895
Schizomavella porifera Smitt, 1868 (New for Faroe)

Family Smittinidae Levinsen, 1909
Pseudoflustra hincksi Kluge, 1915 (New for Faroe)
Parasmittina jeffreysi (Norman, 1903) (New for Faroe)
Smittina mucronata (Smitt, 1868) (New for Faroe)
Smittoidea pourquoipasi sp. nov. (Jan Mayen)

Family Escharellidae Levinsen, 1909
Escharella labiata (Boeck, ms., in Smitt, 1868) (Faroe). Found by Hayward, 1994 (F).

- Class STENOLAEMATODA** Borg, 1926
- Order Cyclostomatida Busk, 1852
- Family Crisiidae Johnston, 1838

Crisia denticulata (Lamarck, 1816) (Faroe). Found by Kramp, 1934 (F).

Family Tubuliporidae Johnston, 1838

Idmidronea atlantica (Forbes in Johnston, 1847) (Faroe). Found by Kramp, 1934 (F) and Lorenz, 1886 (M).

Family Lichenoporidae Smitt, 1867

Disporella hispida (Fleming, 1828) (Jan Mayen, coast S.E, St. V, 80-130 m, R.P. Dollfus coll. and Baie du Bois Flotté, St. VI, 35 m, 12.VIII.1929; Faroe). Found by Kramp, 1934 (F) and Lorenz, 1886 (M).

Remarks on some species

1) *Terminoflustra membranaceotruncata* (Smitt, 1868)

Prenant and Bobin, 1966: 195; Kluge, 1975: 376-377; Dick and Ross, 1988: 33; Grischenko, 1997: 167.

Material: LBIMM-BRY-9987 (*pars*). Faroe Islands. One colony.

The specimen corresponds to Kluge's redescription (1975), but differs from that of Dick and Ross (1988). In the material of the "Pourquoi-Pas ?", the length of the avicularia varies from 0.36 to 0.39 mm and the width from 0.16 to 0.22 mm, thus agreeing with Kluge's data. According to Dick and Ross (1988), they are 0.25 mm long and 0.20 mm wide. They are typically inserted at the bifurcations of the zoecial series.

Geographical distribution: Arctico-boreal and circumpolar species.

2) *Cribrilaria watersi* (Kluge, 1975: 475-476).

Material: LBIMM-BRY-9987 (*pars*). Faroe Islands. One colony, encrusting a fragment of *Pseudoflustra hincksi*.

Encrusting zoarium. Convex autozoecia 0.62-0.75 mm in length, width 0.29-0.38 mm, depressed proximally. 7 to 8 ranks of costulae; 5-6 frontal pores in each transversal alignment on the distal half of the autozoecium, 3-4 on the proximal half; frontal pores regularly aligned transversally and longitudinally. First preapertural costula very salient and calcified. Quadrangular aperture, 0.90 mm high, 0.15 mm wide. A lateral avicularium at each side of the aperture, directed forwards, with triangular mandible, 0.95-1 mm in length. Ovicell hemispherical, moderately salient, smooth; on the younger of them, the proximal part include 5-6 oval elongated areas, poorly calcified, converging towards the aperture.

Geographical distribution: European Arctic species, known from Jan Mayen (Lorenz, 1886) but never mentioned before from the Faroe Islands.

3) *Pseudoflustra hincksi* (Kluge, 1975: 536-538).

Material: LBIMM-BRY-9987(*pars*). Faroe Islands. Three entire colonies and some fragments.

The specimens studied here have a narrow and rather thick zoarium, not ramified, regularly and progressively enlarged towards the top of the colony, and fixed to the substratum by chitinous rhizoids. The autozoecial length varies from 0.88 to 0.99 mm, the width from 0.24 to 0.29 mm; the sides are parallel, with a shortly enlarged region in the middle. The frontal surface, covered with an epitheca, is smooth, vitreous, with about ten areolar pores at each side. Aperture semi-circular to quadrate with rounded corners, 0.13-0.15 mm in diameter, with a short U-shaped sinus. Frontal and oval avicularium, distant from the sinus, from which it is separated by a distance nearly equal to the sinusal length, oriented downwards, 0.80-1 mm in length. Ovicell enlarged and rounded distally, 0.28 mm long and 0.24 mm wide, ornamented with numerous and minute perforations, except at the aperture.

Geographical distribution: This rarely recorded Arctic and circumpolar species (see Kluge, 1975) was previously unknown from the Faroe Islands.

4) *Parasmittina jeffreysi* (Kluge, 1975: 531-532; Grischenko, 1997: 181).

Material: LBIMM-BRY-9987 (*pars*). Faroe Islands. Two zoaria.

Rigid, erect, thick and monostratified zoarium. Dorsal face, inflated distally, depressed proximally, presenting very numerous vibices, more or less irregularly V-shaped and open forwards. Autozoecia 0.80-1.30 mm long, 0.38-0.52 mm wide; frontal surface bearing numerous small verrucose granulations. About 10 areolar pores on each side. Aperture 0.16 mm in length and width, square in shape, but with rounded corners. Lyrula discrete, small, rectilinear distally, enlarged at the base 0.35 mm wide. Bases of two (exceptionally three) preapertural spines sometimes perceptible. A medio-lateral and proximo-oral avicularium, oval, generally oriented towards the aperture, measuring 0.18-0.19 mm; a very inconstant and variable medio-frontal or lateral triangular avicularium, 0.10-14 mm in length, oblique to the aperture or directed forwards. No completely developed ovicell observed, but only young stages, almost circular and 0.12- 0.19 mm wide and long.

Geographical distribution: Arctic and circumpolar species, formerly unknown from the Faroe Islands.

5) *Smittina mucronata* (Kluge, 1975: 521-522; Grischenko, 1997: 181).

Material: LBIMM-BRY-9987 (*pars*). Faroe Islands. One zoarium, encrusting a *Reteporella*.

Autozoecia 0.42-0.75 mm in length, 0.36-0.40 mm in wide (distally). Relatively inflated autozoecia. No observed

ovicell. Frontal surface rather densely and homogeneously punctuated. No areolar pores. Aperture wider (and more rounded) distally, narrower proximally, about 0.10 mm wide and 0.21 mm long. Rectilinear lyrula 0.80 mm wide. An axial and small round avicularium directed forwards, situated on the anterior side of a mucro.

Geographical distribution: Widespread Arctic species. New for the Faroe Islands.

6) *Smittoidea pourquoipasi* sp. nov. (Fig. 1, 1-3)

Type-material: LBIMM-BRY-4274. Jan Mayen, 3.8.1926, "P.-P. ?" stn. I-30 (71°06'N, 9°30'W). One zoarium.

Diagnosis: *Smittoidea* with an axial and oval avicularium, proximally enlarged, bearing a narrow distally and triangular mandible, 0.10-0.12 mm in length, 0.20 mm in width, delimited by the peristomium. Rectangular aperture. Large and rectilinear lyrula. Ovicell with small pores on the upper area, rugose and alveoled but non-perforate in the periphery.

Description: Encrusting zoarium. The autozoecial length varies from 0.70 to 1.2 mm, and the width from 0.50 to 0.60 mm (0.80 mm in an exceptionally large zoecia). The larger autozoecia are regularly hexagonal; the smaller ones tend to be rhomboidal, with a more oblong proximal part. About 12-15 large areolar pores in a single row on each side, sometimes two, just laterally and proximally to the aperture.

A small median and axial oval avicularium, enlarged proximally, 0.08-0.12 mm in length, immediately proximal to the aperture, delimited by a very discrete peristome running on the proximal part of the frontal surface; triangular and proximally round mandible, narrow proximally, 0.12 mm long and 0.10 mm wide, directed downwards, surrounded by 6 pores. Aperture completely distal, rectangular, 0.20-0.22 mm wide and 0.10-0.12 mm long, with lateral sides convergent to the proximal side, and with a narrow U-shaped sinus, 0.020-0.025 mm deep; the avicularium is surrounded and delimited by a circonvolution of the orifice. Thin condyles directed downwards, delimiting a circular notch on each side of the lyrula. Lyrula large (0.10-0.12 mm) and very short, generally rectilinear (very rarely slightly convex), representing the half of the proximal apertural edge. Ovicell circular, 0.32-0.40 mm in diameter, more salient than the frontal surface, sparsely and uniformly punctuated on the upper area, in periphery regularly rugose, alveolar, without perforations; no peripheral cushion. Interzoecial furrow strongly salient. Spines not observed. Frontal surface rugose as the periphery of the ovicell, flat or moderately bulging.

This species presents some affinities with an endemic species from the Faroe Islands, *S. exilis* Hayward, 1994, where the autozoecia are separated by thickened sutures, the aperture is round, almost wider than long, the avicularium not included in a diverticule (enlarged proximally) of the peristomium. The shape of the mandible (oval, narrow distally, broad proximally in the Jan Mayen material) differs from Hayward's original description of *S. exilis*, where the ovicell is uniformly perforated. The other characters of *S. pourquoipasi* sp. nov. agree with

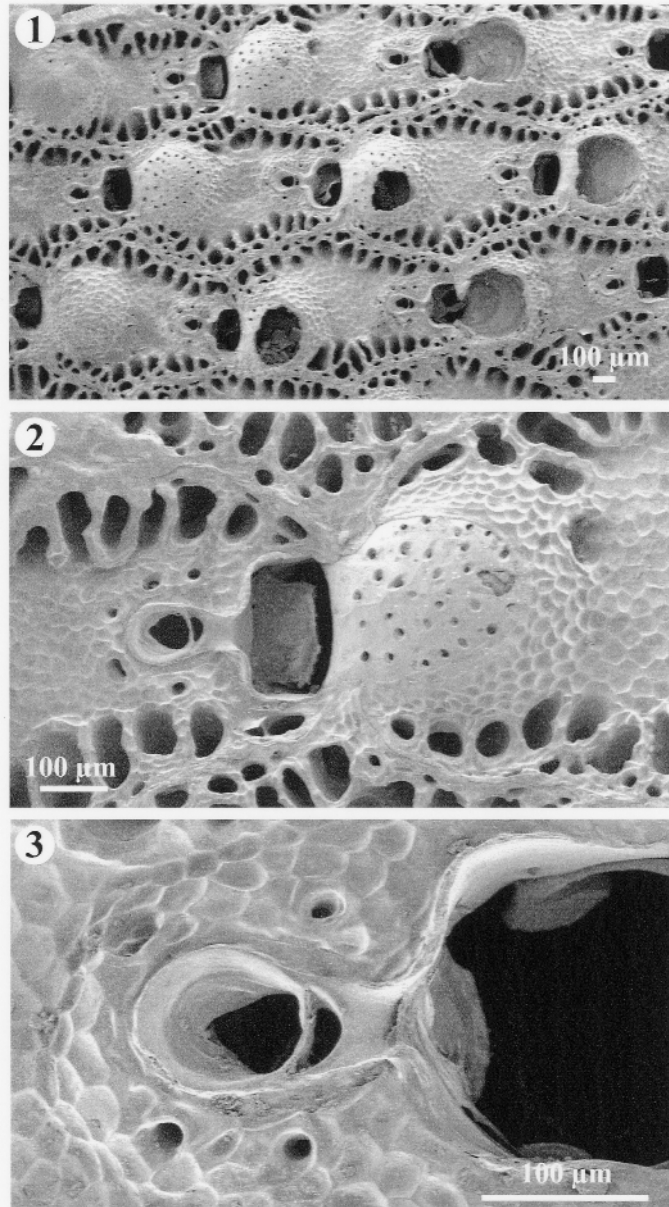


Figure 1. *Smittoidea pourquoipasi* sp. nov. 1. Part of zoarium; 2. Aperture and ovicell; 3. Avicularium and lyrula.

Figure 1. *Smittoidea pourquoipasi* sp. nov. 1. Partie du zoarium ; 2. Orifice et ovicelle ; 3. Aviculaire et lyrule.

the *S. exilis* ones. No possible confusion with the other Arctic and Sub-arctic species of *Smittoidea* recapitulated by Kluge (1975), having a round (and never rectangular) aperture.

Geographical distribution: In the state of our knowledge, this species is endemic to Jan Mayen. It is interesting to note that the most affine species is endemic from the Faroe Islands.

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