

# On a collection of Bryozoa from the Tromsø area (Norway)

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Systematic studies of a collection of bryozoans originating from Tromsø (Norway) in 1991 are presented, with biogeographical and ecological remarks. The collection includes 14 species previously unknown from the Tromsø area, although all belong typically to the Arctic fauna and are already known from Norwegian coasts.

Etude systématique d'une collection de Bryozoaires provenant de Tromsø (Norvège), accompagnée de quelques remarques biogéographiques et écologiques. 14 des espèces récoltées, toutes typiques de la faune arctique et généralement déjà connues des côtes de Norvège, n'avaient pas encore été signalées dans la région de Tromsø.

*Key words* : Bryozoa, Arctic, Norway, Tromsø

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## INTRODUCTION

The marine bryozoans from the Norwegian coasts are known mainly from collections by Smitt (1865-1868) and Nordgaard (numerous papers: see in bibliography). Some interesting contributions to the knowledge of this fauna are due to Sars (1835, 1851, 1863 a, b), Dons (1939, 1940), Burdon-Jones and Tambs-Lynche (1960) and Ryland (1963), who revised the synonymy of the species. These studies concentrated particularly on the Bergen and Trondheim areas. The data on the Bryozoa of Tromsø and its vicinity are scattered in various papers by Sars (1851), Aurivillius (1896), Nordgaard (1894-1895, 1911, 1918) and Dons (1939, 1940).

More recently, Jakola and Gulliksen (1987), during studies on the urban pollution of Tromsø city, established a list of bryozoan species collected at a number of reference localities.

During a stay at the Marinbiologiska Stasjon of Tromsø in 1991 (latitude 69°40' N, longitude 18°56' W), I carried out numerous dredgings in the Balsfjorden, a fjord situated in the south of Tromsøya island, on the bottoms with *Chlamys islandica* (O. F. Müller) (Bivalvia) and *Hemithyris psittacea* (Gmelin) (Brachiopoda) two kilometers distant from the south of this island, and near the coast, approximatively between the Berg and Balsnes localities. Independently of the dredged material, I collected inter-

tidal Bryozoa on rocks, on Tromsøya island itself, facing the biological station.

Although they cover only a limited area in the vicinity of Tromsø, these collections produced about 26 species and varieties, 24 of which came from the dredgings. The inventory of the Tromsø fauna, compiled from previous data by Sars, Aurivillius, Nordgaard, Dons and Jakola and Gulliksen, comprises 53 taxa (52 species), of which 42 are appearing in Nordgaard's lists. Of the 26 taxa collected in the present study, only 12 were previously known from Tromsø ; the 14 others, though belonging typically to the Arctic fauna and for the most part known from off Norway, had not previously been indicated from the outskirts of Tromsø. All the species collected are classical elements of the boreal fauna.

In this work, I give a list of the species collected, with comments on the more interesting among them, along with a recapitulation of those previously recorded from this area under their current names. I also mention species abundance and distribution on the substrata. Observations were compared, whenever possible, with the data given by Lorenz (1886) for Jan Mayen, by Kluge (1962) for the North Seas of the USSR, and by Marcus (1940) for Denmark.

## MATERIAL AND METHODS

The study concerns bryozoans settled on 60 dead shells, collected by dredgings south of Tromsø, at the locality described above: 56 shells of *Chlamys islandica*, 3 of *Buccinum* sp. and 1 of *Modiolus modiolus* (Linnaeus). Of these, 37 (36 *Chlamys*, 1 *Buccinum*) were dredged at 35-50 meters depth (15 species of Bryozoa), and 23 others from a transect, perpendicular to the coast, swept from depths of about 40 to 60 m (9 bryozoan species). Only one, *Dendrobeatia pseudomurrayana* is common with the previous series of dredgings).

The 60 studied shells correspond to nearly 1 / 10 of the total number of dead shells dredged, and were often abraded. The main part of the unabraded shells (apparently recently dead) were devoid of Bryozoa. The dredged shells carried only cheilostomatous bryozoans.

Two species of Ctenostomatous bryozoans were collected in abundance from a rock situated on the intertidal strand in front of the biological station, where they were epibiotic on *Fucus serratus*. No Bryozoa were found on the other rocks at the same locality.

## LIST OF THE SPECIES OF BRYOZOA COLLECTED

Most of the collected species are classic elements of the Arctic fauna (Kluge 1962). I will therefore only remark in greater detail where necessary.

### Class EURYSTOMATODA Marcus, 1938

Subclass Ctenostomona Busk, 1852

Family ALCYONIDIIDAE Johnston, 1838

*Alcyonidium hirsutum* (Fleming, 1828)

*Alcyonidium polyoum* (Hassall, 1841) (= *A. gelatinosum* auct.)

Subclass Cheilostomona Busk, 1852

Family CABEREIDAE Busk, 1852

*Scrupocellaria scabra* (Van Beneden, 1848)

Family BUGULIDAE Gray, 1848

*Dendrobeatia murrayana* (Bean in Johnston, 1847) (Pl. 1.3-4)

*Dendrobeatia pseudomurrayana* (Kluge, 1955) (Pl. 1.2)

*D. pseudomurrayana* var. *fessa* (Kluge, 1955) (Pl. 1.1)

Family CALLOPORIDAE Norman, 1903

*Amphiblestrum septentrionalis* (Kluge, 1906) (Pl. 2.2)

*Callopora craticula* (Alder, 1857) (Pl. 2.3)

*Doryporella spathulifera* (Smitt, 1868) (Pl. 2.4-6)

Family ESCHARELLIDAE Levinsen, 1909

*Escharella immersa* (Fleming, 1828)

*Escharella laqueata* (Norman, 1864) (Pl. 2.1)

*Escharella ventricosa* (Hassall, 1842) (Pl. 4.4)

Family SMITTINIDAE Levinsen, 1909

*Palmiskenea skenei* (Ellis & Solander, 1786) (Pl. 3.3)

*Porella concinna* (Busk, 1854) (Pl. 3.1)

*Smittina rigida* (Lorenz, 1886) (Pl. 1.5-6)

Family BITECTIPORIDAE MacGillivray, 1895

*Schizomavella porifera* (Smitt, 1868) (Pl. 3.2)

Family CHEILOPORINIDE Bassler, 1936

*Cheilopora inermis* (Busk, 1860) (Pl. 3.4)

Family HIPPOTHOIDAE Fischer, 1866

*Hippothoa divaricata* (Lamouroux, 1821)

Family CELLEPORIDAE Busk, 1852

*Celleporaria nodulosa* (Lorenz, 1886)

*Cellepora pumicosa* (Pallas, 1766)

Family STOMACHETOSELLIDAE Canu & Bassler, 1917

*Stomachetosella producta* (Packard, 1863) (Pl. 3.5-6)

Family PHIDOLOPORIDAE Gabb & Horn, 1862

*Lepraliella contigua* (Smitt, 1868) (Pl. 4.1-2)

### Class STENOLAEMATODA Borg, 1926

Order Cyclostomida Busk, 1852

Family DIASTOPORIDAE Gregory, 1899

*Plagioecia patina* (Lamarck, 1816)

Family ONCOUSOECIIDAE Canu, 1918

*Oncousoecia diastoporides* (Norman, 1869) (Pl. 4.3)

*Oncousoecia dilatans* (Johnston, 1847)

Family LICHENOPORIDAE Smitt, 1867

*Disporella hispida* (Fleming, 1828) (Pl. 4.5-6)

## REMARKS ON THE COLLECTED SPECIES

### *Alcyonidium polyoum*

Hayward, 1985: 52-53 (as *A. gelatinosum*); d'Hondt, 1983: 33-35; d'Hondt, 1996: 355-358 (discussion of a synonymy with *A. gelatinosum*); d'Hondt, 2001: 401-403 (further synonymic discussion); Kluge, 1962: 230-231 (as *A. mytili*, pars); Marcus, 1940: 302-303; Prenant & Bobin, 1956: 211-217; Smitt, 1865-1868: 499.

Up to now this species, known from other Norwegian localities, has not been recorded from the Tromsø fauna. It was observed on only one of the rocks, in front of the marine station, on thalli of *Fucus serratus*. The zoaria were rather numerous, but generally of small size. Considered to be a cosmopolitan species, but may have been confused with other incrusting *Alcyonidium* in many localities.

### *Alcyonidium hirsutum*

Hayward, 1985: 55-57; d'Hondt, 1983: 30; Kluge, 1962: 228-229; Marcus, 1940: 303-304; Prenant & Bobin, 1956: 196-198; Smitt, 1865-1868: 497.

Species mentioned from Tromsø by Nordgaard (1918). Found in this study with *A. polyoum* at the same locality and the same substratum. Distribution: North Atlantic, Arctic seas.

### *Scrupocellaria scabra*

Grischenko, 1997: 169-170; Hayward & Ryland, 1998: 292-293; Kluge, 1962: 457-458; Lorenz, 1886: 2; Marcus, 1940: 169; Prenant & Bobin, 1966: 406-408; Ryland, 1963: 14.

Boreal and circumarctic species recorded from Tromsø by Nordgaard (1911, 1918). Only found by me here on the internal face of shells. Uncommon.

***Dendrobeania pseudomurrayana* (Pl. 1.2)**

Grischenko, 1997: 166; Kluge, 1962: 394-396; Prenant & Bobin, 1966: 478; Smitt, 1865-1868: 291 (*pars*).

New species for the Tromsø fauna (very common in Tromsø area). Boreal and circumarctic species.

The colonies are found on the external surface of mollusc valves, mainly occupying the vicinity of the free edge of the shell. The autozoecia show two types of avicularia: 1) Those on the axial zoecia of the zoarial ramifications, more inflated at its base, measuring 0.32-0.42 mm in length, 0.14-0.16 mm in width. 2) The others, found only on the lateral zoecia, are more fusiform, 0.40-0.44 mm in length, 0.22-0.24 mm in width. They are inserted in the middle of the gymnocyst, or slightly distal of it. The zoarial branches generally comprise 3-4 longitudinal series of autozoecia. 3 to 5 lateral spines on the autozoecia of the axial series.

***Dendrobeania pseudomurrayana* var. *fessa* (Pl. 1.1)**

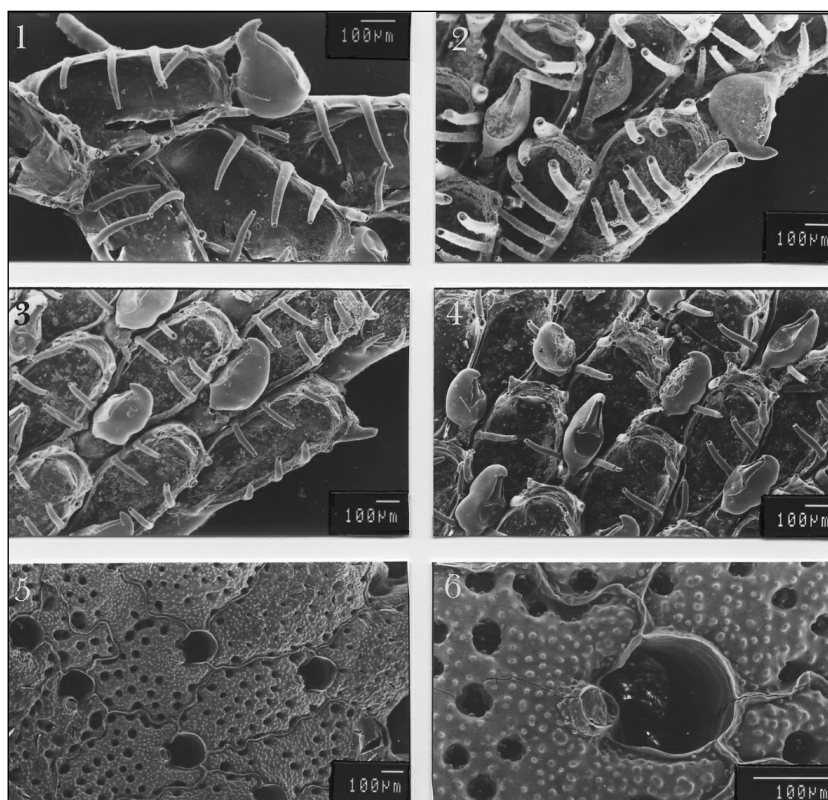
Grischenko, 1997: 155; Kluge, 1962: 397-398; Prenant & Bobin, 1966: 478-479.

The axial autozoecia carry 2 spines, the lateral autozoecia 3-4. When an avicularium exists, it is situated on the external edge of the marginal autozoecia. This variety, like the typical form, was previously unknown in the Tromsø area. Only one colony, found on a *Chlamys* shell. This boreal and arctic form extends as far as Great Britain, near Woods Hole (USA) and the Commander Islands.

***Dendrobeania murrayana* (Pl. 1.3-4)**

Grischenko, 1997: 166; Kluge, 1962: 393-394; Lorenz, 1886: 2; Marcus, 1940: 191 (*pars*); Prenant & Bobin, 1966: 473-476; Hayward & Ryland, 1998: 234-235.

Boreal and circum-arctic species, descending to the latitudes of Great Britain and the Commander Islands, mentioned from Tromsø by Nordgaard (1911, 1918) and by Jakola and Gulliksen (1987). The lateral autozoecia are devoid of avicularia, the latter being found only on the axial zoecia. The avicularium is less



**Pl. 1**

- 1 - *Dendrobeania pseudomurrayana* var. *fessa*. Some autozoecia.
- 2 - *Dendrobeania pseudomurrayana*. Some autozoecia.
- 3 - *Dendrobeania murrayana* (typical form). Some autozoecia.
- 4 - *Dendrobeania murrayana*. Ovicelled autozoecia.
- 5 - *Smittina rigida*. Some autozoecia.
- 6 - *Smittina rigida*. Autozoecium (magnified).

fusiform and more hooked as in *D. pseudomurrayana*. The marginal autozoecia carry 3-4 external and 2 internal spines, the axial autozoecia 2-3. Only one colony was found in this study.

#### *Amphiblestrum septentrionalis* (Pl. 2.2)

Hayward, 1994: 181-182; Kluge, 1962: 363-364; Smitt, 1865-1868: 367 (*pars*).

Up to now not found at Tromsø (only one colony collected in this study), this species is known from Jan Mayen, Greenland and Canadian coasts. According to the available records of this species, Tromsø seems to be its most southern locality.

#### *Callopora craticula* (Pl. 2.3)

Dick & Ross, 1988: 33-34; Grischenko, 1997: 160; Kluge, 1962: 344-345; Lorenz, 1886: 3; Prenant & Bobin, 1966: 226-228; Ryland, 1963: 8; Hayward & Ryland, 1998: 164-165.

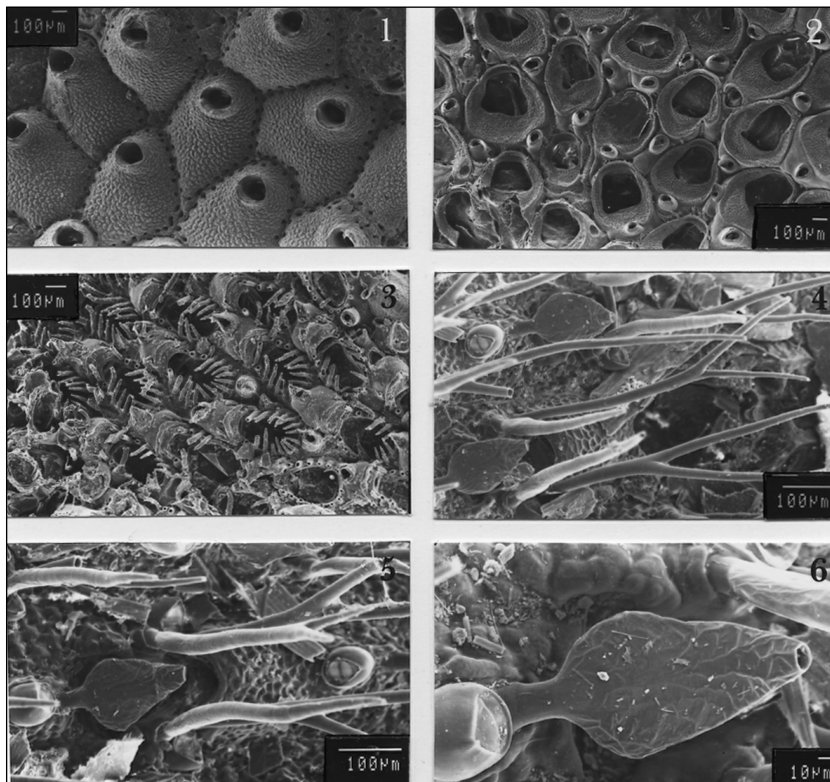
Boreal and circumarctic species, also known from the northern seas of temperate regions, but new for the fauna of Tromsø. It was observed here on the external wall of the shell valves, indifferently in the center or near the edges.

#### *Doryporella spathulifera* (Pl. 2.4-6)

Kluge, 1962: 368-369; Lorenz, 1886: 7 (as *Lepralia spathulifera*); Grischenko & *al.*, 2000: 248-251; Ryland, 1963: 9-10; Smitt, 1865-1868, 20: 124-127 (as *Lepralia spathulifera*).

Circumarctic species present in the northern Norway and in the Saint-Lawrence Gulf, already indicated (under *Lepralia*) from Tromsø by Nordgaard (1918). Rare and encrusting the inner face of bivalve shells. It is remarkable for its six, cylindrical and fine anterior spines, situated around the orifice, which until now had been insufficiently described in the literature. The four most distal of these spines are very long and forked; before the ramification, their bases measure 0.10 mm in length, and each ramification also 0.10 mm; the two proximal spines are almost 0.10 mm in length. The aperture is roundish and its distal edge is rectilinear proximally. The ovicell is globose and has 0.32 mm in diameter. The autozoecial length is 0.46-0.52 mm and the width: 0.34 mm.

A large rhomboid calcarous lamella, sometimes elongated into the shape of a leaf or blade trowel, is inserted below the proximal apertural edge and directed forward; the blade of the trowel mea-



#### Pl. 2

- 1 - *Escharella laqueata*. Some autozoecia.
- 2 - *Amphiblestrum septentrionalis*. Some autozoecia.
- 3 - *Callopora craticula*. Some autozoecia.
- 4 - *Doryporella spathulifera*. Autozoecium.
- 5 - *Doryporella spathulifera*. Ovicelled autozoecium.
- 6 - *Doryporella spathulifera*. Rhomboidal preapertural lamella.

tures 0.20-0.22 mm in length and about 0.11 mm in wide; the cylindrical "handle" is 0.08 mm in length. A small mucro exists proximally to the trowel.

***Escharella immersa***

Hayward & Ryland, 1999: 122-123; Kluge, 1962: 485-486; Smitt, 1865-1868: 170.

New species for the Tromsø fauna, rare at this locality, but up to 5 colonies found on one *Chlamys* valve. Present only on highly abraded shells. 6 apertural spines. Circumarctic and from temperate areas of the northern hemisphere.

***Escharella laqueata* (Pl. 2.1)**

Hayward & Ryland, 1999: 138-139; Kluge, 1962: 492-493; Smitt, 1865-1868: 174.

Boreal and from northern areas of the temperate Atlantic, new (and rare) for the region of Tromsø. Only on the internal surface of the valves.

***Smittina rigida* (Pl. 1.5-6)**

Kluge, 1962: 520-521; Hayward, 1994: 199-200; Lorenz, 1886: 9-10; Smitt, 1865-1868: 12, 63, 65 (as *Escharella landsborovii*).

Species previously unknown from Tromsø (1 colony), belonging to the faunas of the northern seas of Russia and the North Sea, previously observed on the Norwegian (Smitt, 1868) and Shetland coasts.

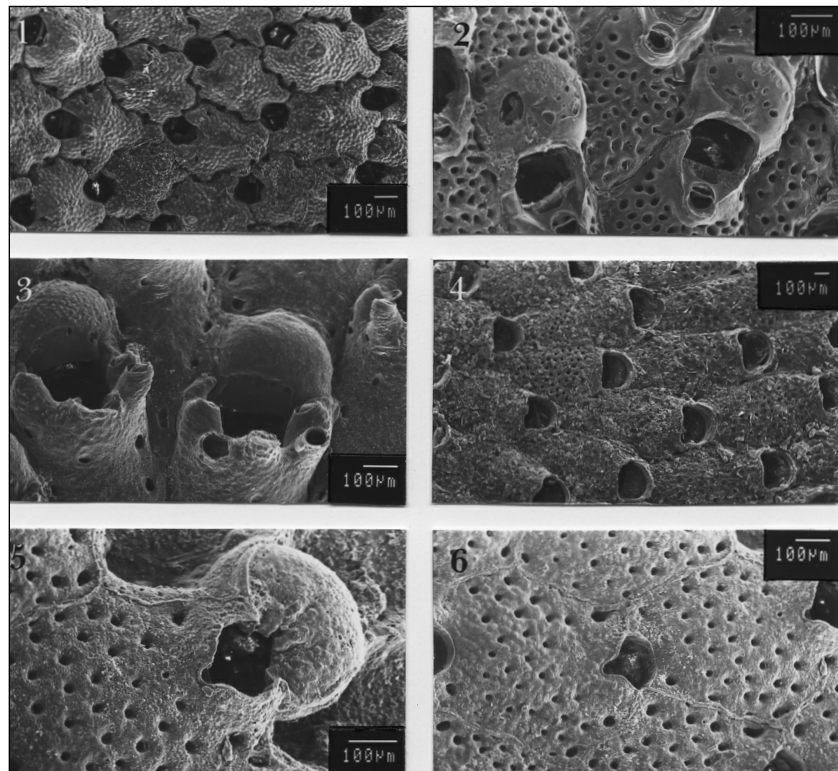
***Porella concinna* (Pl. 3.1)**

Dick & Ross, 1988: 65-66; Grischenko, 1997: 179; Hayward & Ryland, 1999: 160-163; Kluge, 1962: 522-523 (as *Smittina concinna*); Lorenz, 1886: 7-8; Smitt, 1865-1868: 21.

Boreal species, also present in the temperate seas of the northern hemisphere, first mentioned from Tromsø (where it is rare) by Nordgaard (1918).

***Escharella ventricosa* (Pl. 4.4)**

Hayward & Ryland, 1999: 128-129; Kluge, 1962: 487-488; Lorenz, 1886: 10.



**Pl. 3**

- 1 - *Porella concinna* . Some autozoecia.
- 2 - *Schizomavella porifera* . Ovicelled autozoecia.
- 3 - *Palmiskenea skenei* . Two ovicelled autozoecia.
- 4 - *Cheiloporina inermis* . Part of zoarium.
- 5 - *Stomachetosella producta* . Ovicelled autozoecia.
- 6 - *Stomachetosella producta* . Some autozoecia.

Species present in Arctic, North Atlantic and Mediterranean Seas, found for the first time in Tromsø, where it is uncommon. When the colony incrusts a mussel shell, it is distributed indifferently on the inner or outer sides of the valves (2-3 colonies per face). On *Pecten* shells, *E. ventricosa* has only been found on the outer part of the valves. This species, which is rare on the pebbles, strongly prefers *Buccinum* shells.

***Palmiskenea skenei* (Pl. 3.3)**

Hayward & Ryland, 1999: 178-179; Kluge, 1962: 566-567; Lorenz, 1886: 11.

Species of the Northern Atlantic and the boreal European seas, new (and rare) for the Tromsø area.

***Schizomavella porifera* (Pl. 3.2)**

Dick & Ross, 1988: 68; Grischenko, 1997: 183; Kluge, 1962: 588-589 (as *Schizoporella porifera*); Lorenz, 1886, 10; Smitt, 1865-1868: 70.

This boreal and circumarctic species, which was rare in my dredgings, was recorded from Tromsø by Nordgaard (1918). The pores of the frontal surface are isodiametric and homogenous in density, except on the periphery where they are larger (in this case, the apertural sinus is sometimes narrower and more parallel).

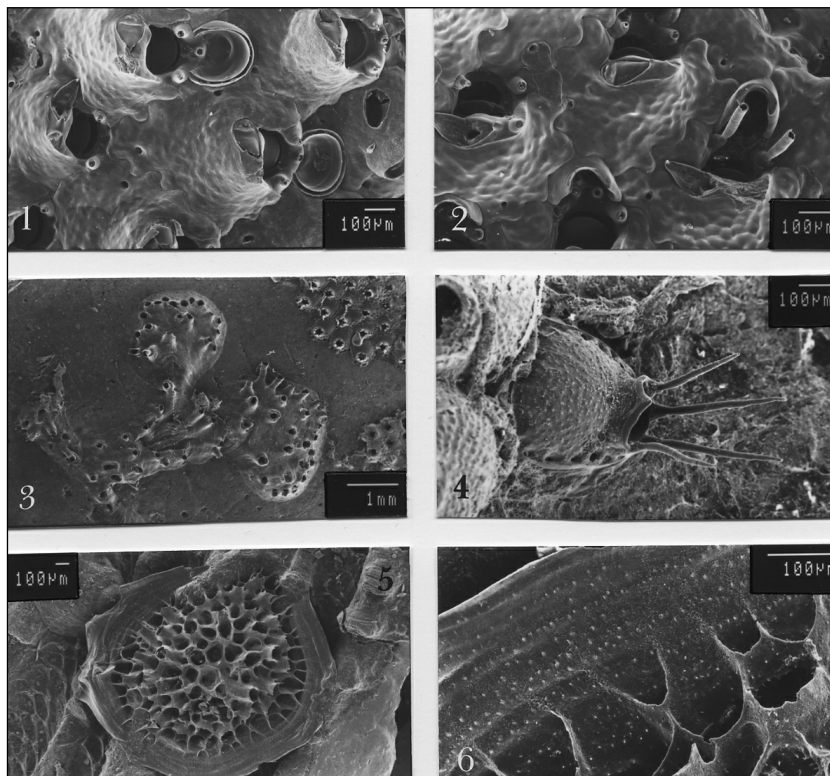
***Cheilopora inermis* (Pl. 3.4)**

Kluge, 1962: 588-589; Lorenz, 1886: 6 (as *Lepralia sincera*); Smitt, 1865-1868: 177 (*pars*) (as *Discopora sincera*).

This Arctic and circumpolar species, known from Northern Norway (Finmark: Smitt, 1868), was unknown from the region of Tromsø, where it is rare. The colonies, which are ovicelled, have been observed on the inner face of *Chlamys* shells.

***Hippothoa divaricata***

Hayward & Ryland, 1999: 86-87; Kluge, 1962: 623-624; Marcus, 1940: 210; Smitt, 1865-1868: 17 (as *Mollia hyalina forma divaricata*).



**Pl. 4**

- 1 - *Lepraliella contigua* . Ovicelled autozoecium.
- 2 - *Lepraliella contigua* . Ovicelled autozoecia.
- 3 - *Oncousoecia diastoporoides* . Zoarium in toto .
- 4 - *Escharella ventricosa* . Autozoecium.
- 5 - *Disporella hispida* . Zoarium.
- 6 - *Disporella hispida* . Lateral region of a zoarium.

Widely scattered in the northern hemisphere (North Sea, and North Pacific and North Atlantic Oceans, Mediterranean Sea), present on the Norwegian coasts (Smitt, 1867) but not mentioned from extreme high latitudes, this discrete species was previously unknown from Tromsø (where it is in fact common). It spreads on the inner faces of bivalve shells, and within the cavity of gastropods shells.

***Celleporaria nodulosa***

Grischenko, 1997: 191; Kluge, 1962: 678-679; Lorenz, 1886: 14-15.

Species from northern seas (including those of Russia ones) recorded from Tromsø by Nordgaard (1918). Found here (one zoarium only) on the inner face of a *Mytilus* shell.

***Cellepora pumicosa***

Hayward & Ryland, 1999: 320-321; Kluge, 1962: 679-680.

Typical species of temperate and boreal seas of Europe, already known from Norwegian coasts (Nordgaard, 1918), but not from Tromsø. One zoarium on the inner side of a *Chlamys* valve.

***Stomachetosella producta* (Pl. 3.5-6)**

Grischenko, 1997: 178; Kluge, 1962: 612-613.

Circumarctic and boreal species, not already known from the Northern Norway - from which an other and affine species, *S. cruenta* (Busk, 1854), was mentioned, peculiarly from Tromsø (Nordgaard, 1911, 1918), probably by mistake. Common at Tromsø, this species lives on the outer side of the valves of *Chlamys*, rarely (and only when the shell is abraded) on the inner side. The surface of the colony is brilliant, as though metallized for scanning electron microscopy. The frontal pores are large (sometimes with some larger pores in periphery) and uniformly scattered; the ovicellian hole is inconstant. The primary and secondary sinuses have nearly the same dimensions and are both U-shaped.

***Lepraliella contigua* (Pl. 4.1-2)**

Grischenko, 1997: 176; Kluge, 1962: 648-650; Lorenz, 1886: 89; Smitt, 1865-1868: 189.

Arctic species already mentioned from Tromsø by Nordgaard (1911, 1918), where it is very abundant (up to 7 zoaria on a single face of a shell). The colonies occur on the central area of the external face of *Chlamys* shells. The number of the autozoecial spines varies from 3 to 5, but in some colonies all the zoecia carry always 3 or 4 spines, whereas in other they are 4 or 5 (genetic character?). A colony can extend widely, up to growth intensively on another still living zoarium.

***Plagioecia patina***

Hayward & Ryland, 1985: 97-99; Kluge, 1962: 145-146 (as *Berenicea patina*); Marcus, 1940: 73-75 (as *Berenicea patina*); Smitt, 1865-1868: 317.

Very typical species of temperate Atlantic waters, recorded from Norway, but never from high latitudes, and consequently unknown previously from Tromsø (where it is rare). Encrusting the outer surface of *Chlamys* valves.

***Oncousoecia diastoporoides* (Pl. 4.3)**

Hayward & Ryland, 1985: 66-70; Kluge, 1962: 96-97; Marcus, 1940, 53-55 (as *Stomatopora diastoporoides*); Smitt, 1868: 1116.

This species, boreal and circumpolar, already mentioned from Tromsø by Nordgaard (1918), extends south to the latitude of Liverpool. Rather common in my dredgings, it tends to occupy the whole external face of the *Chlamys* shell rather than the inner one. Shells of *Modiolus* carry 5-6 colonies of *O. diastoporoides* on each face.

***Oncousoecia dilatans***

Hayward & Ryland, 1985: 66-68; Kluge, 1962: 105-106 (as *Tubulipora dilatans*); Lorenz, 1886: 15; Marcus, 1940: 58-59; Smitt, 1867: 395-396 (*pars*).

Species of the northern seas of Russia and from the northern and temperate seas of Europa reaching the latitude of the Iberian peninsula (Reverter Gil, Fernandez Pulpeiro & Estévez Ojea, 1995; Reverter Gil & Fernandez Pulpeiro, 2001), but doubtful in the Mediterranean; new for the Tromsø fauna. Encrusting both inner and outer faces of *Chlamys* shells and rather common.

***Disporella hispida* (Pl. 4.5-6)**

Alvarez, 1992: 204-209; Hayward and Ryland, 1985: 128-131; Kluge, 1962: 203-204 (as *Lichenopora hispida*); Lorenz, 1886: 16-17; Marcus, 1940: 83-84; Smitt, 1867: 406.

Circumboreal, Arctic and temperate seas, also present in the Mediterranean, this species was observed by Nordgaard (1911) at Tromsø.

**REVISED LIST OF BRYOZOA KNOWN FROM TROMSØ**

The species are here classified according to d'Hondt's recent general systematic revision (1997). Those marked with an asterisk are new to Tromsø.

**CLASS STENOLAEMATODA (Order CYCLOSTOMIDA)**

Family DIASTOPORIDAE Gregory, 1899

\**Plagioecia patina* (Lamarck, 1816)

Family ONCOUSOECIIDAE Canu, 1918

*Oncousoecia diastoporoides* Norman, 1869 (Nordgaard, 1918; present study)

\**Oncousoecia dilatans* (Johnston, 1847)

Family LICHENOPORIDAE Smitt, 1867

- Disporella hispida* Fleming, 1828 (Sars, 1851; Nordgaard, 1918; present study)
- Family TUBULIPORIDAE Johnston, 1838
- Idmidronea atlantica* (Forbes in Johnston, 1847) (Aurivillius, 1896; Nordgaard, 1918; Jakola & Gulliksen, 1987; anonymous, "Au large de Tromsø, 350 m": LBIMM-BRY-8322 in the collections of the National Museum of Natural History, Paris)
- Tubulipora flabellaris* (Fabricius, 1780) (Nordgaard, 1918)
- Tubulipora liliacea* (Pallas, 1766) (Sars, 1851 and Nordgaard, 1911, as *T. serpens*)
- Family CRISIIDAE Johnston, 1838
- Crisia denticulata* (Lamarck, 1816) Sars, 1851; Nordgaard, 1911, 1918)
- Crisia eburnea* (Linnaeus, 1758) (Nordgaard, 1918; Jakola & Gulliksen, 1987)
- Filicrisia geniculata* (Milne-Edwards, 1838) (Nordgaard, 1918; Jakola & Gulliksen, 1987)
- Family CORYMBOPORIDAE Smitt, 1867
- Defrancia lucernaria* Sars, 1851 (Aurivillius, 1896)
- Family HORNERIDAE Smitt, 1867
- Hornera lichenoides* (Linnaeus, 1758) (Aurivillius, 1896)
- Stegohornera violacea* (Sars, 1863) (Nordgaard, 1911, 1918)
- CLASS EURYSTOMATODA Marcus, 1938**
- Sub-CLASS CTENOSTOMONA Busk, 1852
- Family FLUSTRELLIDRIDAE Bassler, 1953
- Flustrellidra hispida* (Fabricius, 1780) (Nordgaard, 1911, 1918)
- Family ALCYONIDIIDAE Hincks, 1880
- Alcyonidium hirsutum* (Fleming, 1828) (Nordgaard, 1918; Dons, 1939; present study)
- \**Alcyonidium polyoum* (Hassall, 1841)
- Family VESICULARIIDAE Hincks, 1880
- Bowerbankia imbricata* (Adams, 1798) (Nordgaard, 1918; Dons, 1939)
- Sub-CLASS CHEILOSTOMONA Busk, 1852)
- Order EUCHEILOSTOMATIDA d'Hondt, 1985
- Sub-Order NEOCHEILOSTOMINA d'Hondt, 1985
- Family CALLOPORIDAE Norman, 1903
- \**Amphiblestrum septentrionalis* (Kluge, 1906)
- ? *Callopora aurita* (Hincks, 1877) (Dons, 1940)
- \**Callopora craticula* (Alder, 1857)
- Callopora whiteavesi* Norman, 1903 (Nordgaard, 1918)
- Cauloramphus spiniferum* (Johnston, 1832) (Nordgaard, 1911, as *Callopora heterospinosa*)
- Doryporella spathulifera* (Smitt, 1868) (Nordgaard, 1918; present study)
- Tegella arctica* (d'Orbigny, 1851) (Nordgaard, 1911, 1918)
- Tegella unicornis* (Fleming, 1828) (Nordgaard, 1918)
- Family CABEREIDAE Busk, 1852
- Caberea ellisi* (Fleming, 1828) (Aurivillius, 1896; Nordgaard, 1918)
- Dendrobeania murrayana* (Bean in Johnston, 1847) (Nordgaard, 1911; Jakola & Gulliksen, 1987; present study)
- \**Dendrobeania pseudomurrayana* (Kluge, 1955)
- \**D. pseudomurrayan* var. *fessa* (Kluge, 1955)
- Scrupocellaria scabra* (Van Beneden, 1848) (Nordgaard, 1911, 1918; present study)
- Tricellaria ternata* (Ellis & Solander, 1786) (Sars, 1851; Aurivillius, 1896; Nordgaard, 1911; Jakola & Gulliksen, 1987)
- Family FLUSTRIDAE Smitt, 1868
- Carbasa carbasa* (Ellis & Solander, 1786) (Nordgaard, 1914-1915)
- Flustra membranaceotruncata* (Smitt, 1868) (Nordgaard, 1911)
- Securiflustra securifrons* (Pallas, 1766) (Nordgaard, 1914-1915)
- Sub-Order ASCOPHORINA Levinsen, 1909
- Family UMBONULIDAE Canu, 1904
- Umbonula arctica* (Sars, 1851) (Sars, 1851, as *Lepralia arctica*; Nordgaard, 1911, 1918, as *Disporella arctica*)
- Family ESCHARELLIDAE Levinsen, 1909
- Escharella abyssicola* (Norman, 1869) (Nordgaard, 1918)
- \**Escharella immersa* (Fleming, 1828)
- \**Escharella laqueata* (Norman, 1864)
- Escharella variolosa* (Johnston, 1838) (Sars, 1851)
- \**Escharella ventricosa* (Hassall, 1842)
- Family SMITTINIDAE Levinsen, 1909
- Smittina minuscula* (Smitt, 1868) (Nordgaard, 1918, as *Smittia porifera*)
- Smittina majuscula* (Smitt, 1868) (Nordgaard, 1918)
- \**Smittina rigida* (Lorenz, 1886)
- \**Palmiskenea skenei* (Ellis & Solander, 1786)
- Porella concinna* (Busk, 1854) (Nordgaard, 1918; present study)
- P. concinna* var. *belli* (Dawson, 1859) (Nordgaard, 1918)
- Porella minuta* (Norman, 1868) (Nordgaard, 1918)
- Porella princeps* Norman, 1903 (Nordgaard, 1918)
- Family BITECTIPORIDAE MacGillivray, 1895
- Schizomavella* sp. ("*auriculata*" group) (Nordgaard, 1918)
- Schizomavella porifera* (Smitt, 1868) (Nordgaard, 1918; present study)
- Family PHIDOLOPORIDAE Gabb & Horn, 1862
- Lepraliella contigua* (Smitt, 1868) (Nordgaard, 1911 as



*Cellepora contigua*, 1918; present study)

*Sertella elongata* (Smitt, 1867) (Nordgaard, 1918, as  
*Retepora wellichiana* )

Family CLEIDOCHASMATIDAE Cheetham & Sandberg, 1964  
*Hippoporella hippopus* (Busk, 1856) (Nordgaard, 1918, as  
*Lepraliella hippopus* )

Family MICROPORELLIDAE Hincks, 1880  
*Microporella ciliata* (Pallas, 1766) (Nordgaard, 1918)

Family STOMACHETOSSELLIDAE Canu & Bassler, 1917  
*Ragionula rosacea* (Busk, 1856) (Nordgaard, 1918)  
*Stomachetosella cruenta* (Busk, 1854) (Nordgaard, 1918)  
\**Stomachetosella producta* (Packard, 1863)

*Stomachetosella sinuosa* (Busk, 1860) (Nordgaard, 1911,  
1918)

Family EXOCHELLIDAE Bassler, 1935  
*Escharelloides spinulifera* (Hincks, 1879) (Nordgaard, 1918,  
as *Monoporella spinulifera*)

Family CHEILOPORINIDAE Bassler, 1936  
\**Cheilopora inermis* (Busk, 1860)

Family HIPPOTHOIDAE Levinsen, 1909  
\**Hippothoa divaricata* Lamouroux, 1821

Family RAMPHOSTOMELLIDAE Kluge, 1962  
*Escharopsis sarsi* (Smitt, 1868) (Nordgaard, 1911, 1918, as  
*Discopora sarsi*)  
*Ramphostomella scabra* (Fabricius, 1780) (Nordgaard, 1918,  
as *Discopora scabra*)

Family CELLEPORIDAE Busk, 1852  
*Cellepora pumicosa* (Pallas, 1766) (Sars, 1851; Nordgaard,  
1911; present study)  
*Celleporaria nodulosa* (Lorenz, 1886) (Nordgaard, 1918, as  
*Cellepora nodulosa*; present study)  
*Celleporina surcularis* (Packard, 1863) (? Sars, 1851, as  
*Cellepora cervicornis*; Nordgaard, 1918, as *Cellepora incras-  
sata* )  
*Celleporina ventricosa* (Lorenz, 1886) (Nordgaard, 1911)

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## SAMMENDRAG

### Bryozoa fra Tromsø-området

Her presenteres en systematisk studie, med biogeografiske og økologiske merknader, angående bryozoaer innsamlet i Tromsø i 1991. Materialet inneholdt 14 arter som alle er typiske for den arktiske faunaen og tidligere kjent fra kysten av Norge, men som ikke tidligere har vært påvist i Tromsø-området. Disse er merket med \* i den reviderte listen over Bryozoa fra Tromsø.

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