

# Permian bryozoans from southern Spitsbergen and Bjørnøya. A review of bryozoans described by J. Malecki (1968, 1977)

HANS A. NAKREM



Nakrem, H. A. 1988: Permian bryozoans from southern Spitsbergen and Bjørnøya. A review of bryozoans described by J. Malecki (1968, 1977). *Polar Research* 6, 113–121.

Bryozoans previously described by Malecki (1968, 1977) are revised and a full redescription is given of the timanodictyine cryptostome *Gilmoropora heintzi* (Malecki 1977), which was previously regarded as a trepostome. *Ramipora hochstetteri* Toulou 1875, described as the fenestrate *Septopora phyllata* Malecki 1977, is a senior synonym of some subsequently described ramiporid cystoporates. A revised and updated stratigraphical distribution is given for all species, and a table of registered material is presented for each taxon.

Hans A. Nakrem, Continental Shelf and Petroleum Technology Research Institute Ltd., Håkon Magnussons gt. 1B, N-7001 Trondheim, Norway; September 1987 (revised January 1988).

Bryozoans rank among the most common fossil groups in the Permian deposits of Svalbard. Very little had been done to explore the biostratigraphical value of these fossils until a study was started by the author at the University of Oslo in 1985. The first step was to evaluate the relevant previous work, and the purpose of this paper is to review the bryozoans described by Malecki (1968, 1977) and to discuss some of the misinterpretations presented in these two papers.

Initially, Malecki's described material could not be found at Paleontologisk Museum, Oslo, but after requests to Dr. J. Malecki (Kraków, Poland) and to Prof. K. Birkenmajer (Warszawa, Poland), part of the material was returned to Paleontologisk Museum. Much of the material described and figured in the 1968 paper was originally numbered when collected, but the numbers were omitted in the paper. Some new acetate peels of the original material described in both papers have been prepared by the author. The remaining parts of the described and figured material have not been obtained, and are presumed lost.

The material was collected by Prof. S. Siedlecki in 1964 and 1965 in two areas of Svalbard: southernmost Spitsbergen and Bjørnøya (Malecki 1968, 1977; cf. Siedlecki 1964). As stated on the sample labels (e.g. A35214) some material was also collected by Prof. K. Birkenmajer in 1970.

Table 2 lists all A-numbers, original and revised identifications, localities, stratigraphy and related information of Paleontologisk Museum, Oslo. The stratigraphical divisions given by Cutbill & Challinor (1965) and Worsley & Edwards (1976) have been followed.

## Order Cystoporata

- Ramipora hochstetteri* Toulou 1875
- 1875 *Ramipora hochstetteri* Toulou 1875; p. 230, Pl. X, Figs. 1a, b.
- 1936 *Ramipora hochstetteri* Toulou; Nikiforova, p. 127, Pl. 2, Figs. 7–10, Text-figs. 1, 2.
- 1977 *Septopora phyllata* Malecki; pp. 85–86, Pl. VII, Fig. 2, Text-fig. 2.
- 1983 *Ramipora hochstetteri* Toulou; Utgaard in Boardman et al., p. 436, Figs. 215, 3a–c.
- 1986 *Ramipora phyllata* (Malecki); Morozova & Kruchinina, p. 41.
- 1986 *Ramipora fragilis* Morozova; Morozova in Morozova & Kruchinina, Pp. 42–43, Pl. 8, Figs. 2a–b, 3.

The large, well-preserved specimen is not a fenestrate as supposed by Malecki, but belongs to the cystoporate genus *Ramipora*, and was consequently referred to as *Ramipora phyllata* (Malecki) by Morozova & Kruchinina (1986). The specimen has been closely reexamined (thin sections have not been prepared), and numerical measurements are as follows:

	New data	Malecki's data
No. of branches per 10 mm:	2.5–3.5	3–4
No. fenestrules per 10 mm:	3.0–3.8	2–3
No. zooecia per 5 mm:	10	10
Width of branch (mm):	1.0–1.1	1.8–2.2
Width of lateral branches:	0.7–0.8	1.2–1.5
Fenestrule length (mm):	2.0–3.3	2.0–3.0
Fenestrule width:	2.0–3.0	3.0–4.0
Zooecial aperture diameter:	0.15	0.2

These dimensions indicate the close resemblance to *R. hochstetteri* Toula of *R. fragilis* Morozova 1986 described from Novaya Zemlya (Upper Permian Ufimian and Kazanian Stages). The variation within all parameters is large enough to group all species within *R. hochstetteri* Toula. Therefore, *R. phyllata* (Malecki) and *R. fragilis* Morozova are regarded junior synonyms for *R. hochstetteri* Toula. *R. lepida* Morozova, described from Spitsbergen (Kapp Starostin Fm.), has significantly thinner branches and is therefore regarded as a distinct species.

Original PMO number: A32078, renumbered by Malecki A35219. Type locality: Oppgangsdalen, SW side of Miseryfjellet, Bjørnøya. Stratigraphical horizon: Upper Miseryfjellet Formation.

*Ramipora* cf. *hochstetteri* Toula 1875

- 1875 *Ramipora hochstetteri* Toula; p. 230, Pl. X, Figs. 1a, b.  
 1936 *Ramipora hochstetteri* Toula; Nikiforova p. 127, Pl. 2, Figs. 7–10, Text-figs. 1–2.  
 1968 *P.* sp. cf. *russiensis* Shul'ga-Nesterenko; Malecki p. 22, Pl. VII, Figs. 3, 4, 7, 8, 9.

Some specimens figured as *Polypora* sp. cf. *russiensis* are differently oriented sections of *Rami-*

*pora* cf. *hochstetteri* Toula 1875. Locality and stratigraphical horizon are not given.

Order Trepostomata

*Tabulipora siedleckii* Malecki 1968

- 1968 *Tabulipora siedleckii* Malecki; pp. 13–21, Pl. I–V, VI, Figs. 6, 9, 10, Text-figs. 4–6, 8–14.

There are no comments on the systematic description given by Malecki for his new species. The material was originally not numbered, but the figured holotype (Pl. I, Fig. 1) has now been numbered A42258. Paratype, for sectioning: A42259. Locality: Tokrossøya, Sørkappland, western Spitsbergen. Stratigraphical horizon: lower member of the Tokrossøya beds, Upper Bryozoan Horizon (= lower part of the Tokrossøya Formation, a regional equivalent to the Kapp Starostin Formation, ?Artinskian-Ufimian age).

Remarks: Colony growth is discussed in the section on astogeny, but in the section on 'regeneration' some errors are present. On Pl. II, Figs. 4, 7 and 9, the endozone is totally crushed. Malecki states: 'In the central part, the zooecial tubes have been pressed, the external zone was cracked, broken and damaged in parts . . . A flattened branch is illustrated in pl. II, fig. 9. This flat-

Table 1. Micrometric comparison between similar species of *Ramipora*. (*R. hochstetteri* Toula has been re-evaluated from the type specimen (not thin sections) for this purpose.)

	B/10	F/10	Z/10	W-1.br.	W-2.br.
<i>R. hochstetteri</i> Toula	2.3	2.2–2.4	8–10	1.0–1.1	0.9–1.1
<i>R. hochstetteri</i> Toula; sensu Nikiforova 1936	3	1.5–2.0	?		
<i>R. phyllata</i> (Malecki)	2.5–3.5	3.5–3.8	10	1.0–1.1	0.7–0.8
<i>R. lepida</i> Morozova	2–3	2–3	7–9	0.5–0.6	0.4–0.7
<i>R. fragilis</i> Morozova	2–4	2–3	9–11	0.9–1.0	0.5–0.7

B/10: Branches per 10 mm

F/10: Fenestrules per 10 mm

Z/5: Zooecia per 5 mm

W-1.br.: Width of main (1. order) branch

W-2.br.: Width of lateral (2. order) branch

tening was observed along 12 cm. and despite that free space was near the branch, it did not change in transverse section' (p. 28). The flattening is ascribed to fused growth of branches during life. However, the crushing of the endozone of these colonies more probably occurred after death, as a reaction to excessive overburden and deep burial in sediment. It should be considered as a post mortem phenomenon.

*Tabulipora greenlandensis* Ross & Ross 1962

1962 *Tabulipora greenlandensis* Ross & Ross; p. 36, Pl. 10, Fig. 5; Pl. 11, Figs. 1-5.

1977 *Tabulipora greenlandensis* Ross & Ross; Malecki, pp. 80-81, Pl. III, Figs. 1a-c.

1986 *Tabulipora greenlandensis* Ross & Ross; Morozova & Kruchinina, p. 45, Pl. 10, Figs. 1a-c.

The original material is missing. It seems possible that the described specimens are of *Tabulipora siedleckii* Malecki 1968. The dimensions (including diameter of colony) may differ slightly, but as Malecki (1968) states, those 'features are not characteristic for the species of the genus *Tabulipora*'. Locality/stratigraphy: as for *Stenopora jungersenensis*.

?*Tabulipora* cf. *gigantea* (Ross & Ross 1962)

1962 *Rhombotrypella* cf. *gigantea* Ross & Ross; p. 29, Pl. 5, Figs. 1, 3-5.

1977 *Rhombotrypella* cf. *gigantea* Ross & Ross; Malecki, pp. 81-82, Pl. IV, Figs. 1a-e.

Malecki's specimen is probably allied to the species described by Ross & Ross (1962) from Greenland, but should probably be referred to as *Tabulipora* cf. *gigantea* (Ross & Ross) based on the very beaded exozonal walls and the large number of perforated and complete diaphragms. The problem of distinguishing between the genera *Tabulipora* and *Rhombotrypella* is being studied by L. Madsen (pers. comm. 1986). Locality: Sandhamna and Øyrlandet, southern Spitsbergen. Stratigraphical horizon: Tokrossøya Formation. Available material: one peel, A35211 (Pl. IV, Fig. 1d).

*Rhombotrypella alfredensis* Morozova 1986

non 1939 *Rhombotrypella composita* Nikiforova; pp. 80-81, 95, Pl. 2, Fig. 10-11; Pl. 3, Figs. 1-6.

non 1961 *Rhombotrypella composita* Nikiforova; Trizna & Klautsan, pp. 400-401, Pl. 5, Figs. 1-4.

1962 *Rhombotrypella* cf. *composita* Nikiforova; Ross & Ross, pp. 30-31, Pl. 3, Fig. 3; Pl. 4, Fig. 4; Pl. 5, Fig. 2.

1977 *Rhombotrypella* cf. *composita* Nikiforova; Malecki, p. 82, Pl. V, Figs. 1a-b.

1986 *Rhombotrypella alfredensis* Morozova in Morozova & Kruchinina, p. 49, Pl. 13, Figs. 1a-c.

The figured thin section is missing, but the host rock was found, and new acetate peels have been prepared. After close reexamination of these new peels, this species is considered to belong to *Rhombotrypella alfredensis* Morozova 1986. The important features in Malecki's material and the subsequently peeled colonies are the large and closely spaced zooecial apertures, the large acanthostyles and the colony width, all being more delicate in *R. composita* in comparison to *R. alfredensis*.

The locality on the rock sample (Herwigamna, Bjørnøya) does not fit in with the one given by Malecki (Øyrlandsodden, southern Spitsbergen). Recent sampling from Herwigamna from identical lithologies (sandy bioclastic limestone) has provided supplementary specimens, and the correct locality of Malecki's material is considered to be Herwigamna.

Original number: A32068, renumbered by Malecki 35212. *Rhombotrypella alfredensis* Morozova was originally described from Bjørnøya (Alfredfjellet), from the basal Miseryfjellet Formation.

*Stenopora dickinsi* Ross 1963

1963 *Stenopora dickinsi* Ross; pp. 73-75, Pl. 8, Figs. 1-3, 5-8; Pl. 1-5, 7-9.

non 1968 *Stenopora dickinsi* Ross; Malecki, p. 22, Pl. VII, Figs. 1, 2.

1977 *Stenopora dickinsi* Ross; Malecki, pp. 79-80, Pl. II, Figs. 1a, b.

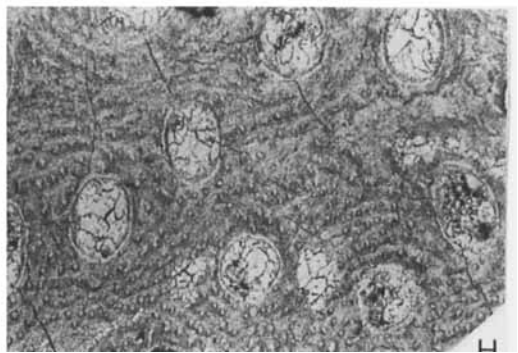
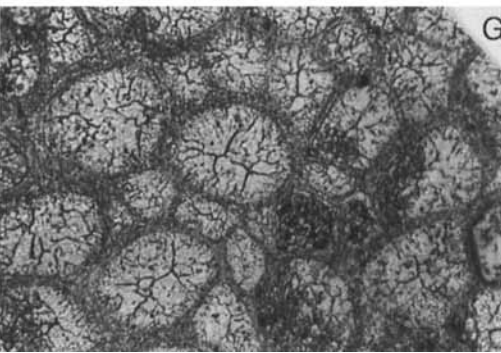
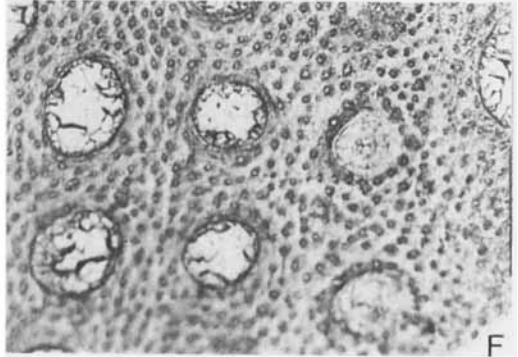
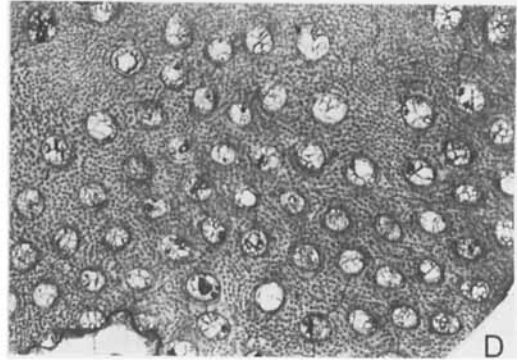
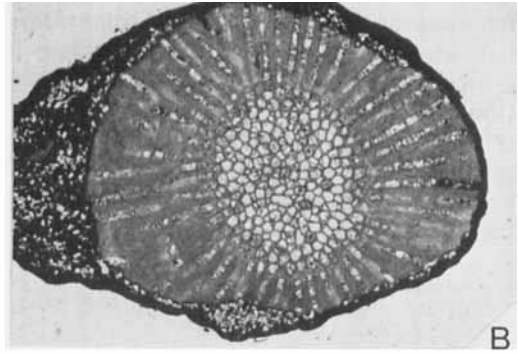
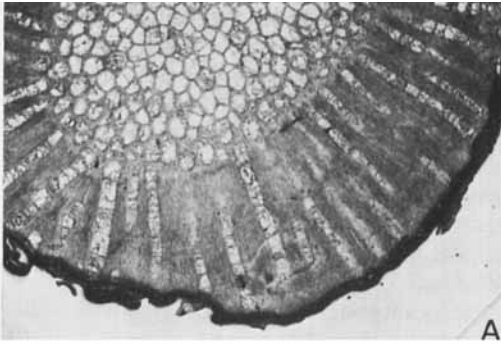
The described and figured material is missing, and no further information on the identification is available. Locality: Herwigamna, Bjørnøya. Stratigraphical horizon: Lower Miseryfjellet Formation.

*Stenopora jungersenensis* Ross & Ross 1962

1962 *Stenopora jungersenensis* Ross & Ross; pp. 44-46, Pl. 12, Figs. 1, 2, 4; Pl. 13, Fig. 2; Pl. 17, Fig. 7.

1977 *Stenopora jungersenensis* Ross & Ross; Malecki, p. 80, Pl. II, Figs. 2a-d.

The original material is missing. According to Malecki's figures (e.g. Pl. II, Fig. 1d) which show the presence of numerous angular exilazooecia and the apparent absence of small acanthostyles (distinct microacanthostyles), the described species may belong to the genus *Dyscritella*, but further identification is impossible. For numerical measurements, see Malecki (1977). Localities: Herwigamna, Bjørnøya and Bellsund, Spitsbergen. Stratigraphical horizon: Lower



Miseryfjellet Formation and Kapp Starostin Formation.

*Dyscritella? lyndoni* (Ross 1963)

1963 *Stenopora lyndoni* Ross; pp. 76–77, Pl. 11, Figs. 1–3, 6–10.

1968 *Stenopora lyndoni* Ross; Malecki, p. 21, Pl. VI, Figs. 1–5, 7, 8, 11.

Malecki's thin sections/acetate peels have not been found. Of taxonomic importance, evident from Malecki's description and figures, is the absence of small acanthostyles and the presence of numerous exilazooecia (> 10 per zooecial aperture in the thick-walled exozone). Both features are lacking in *Stenopora* (Astrova 1978). Exilazooecia are angular and isolate the zooecial tubes. These factors indicate that the described specimens should be included in the genus *Dyscritella*. The species designation is, however, unclear.

Malecki interpreted as regenerations some well figured pressure dissolutions (Pl. II, Figs. 1, 2, 4, 7, 10; Pl. VI, Fig. 2). When carbonate fragments and skeletal parts make contact under stress (during burial and diagenesis) solution and removal of carbonate often occurs, and the fragments become significantly distorted and reduced in size. In these grain-to-grain contacts styloliths may develop (Bathurst 1971), like those which are seen in Malecki's figures. Locality: Tokrossøya, southern Spitsbergen. Stratigraphic horizon: Lower Tokrossøya Formation.

*Dyscritella dickinsi* (Ross 1963)

1963 *Stenopora dickinsi* Ross; pp. 73–75, Pl. 8, Figs. 1–3, 5–8; Pl. 9, Figs. 1–5, 7–9.

1968 *Stenopora dickinsi* Ross; Malecki, p. 22, Pl. VII, Figs. 1, 2.

?1970 *Dyscritella parallela* Morozova; p. 110, Pl. XVI, Fig. 2.

Based on the nature and width of the exozone, dimensions and ratio of exozone to branch width and the obvious lack of small acanthostyles, this

species should be referred to the genus *Dyscritella*. Apparently parallel endozonal zooecia indicate a close resemblance to *D. parallela* Morozova 1970, but Malecki's material has not been located, and the additional sections required to corroborate this assignment are unavailable. Locality: Tokrossøya. Stratigraphical horizon: Tokrossøya Formation.

*Dyscritella bogatensis* Morozova 1970

1970 *Dyscritella bogatensis* Morozova; p. 108, Pl. XV, Fig. 1.

1977 *Dyscritella bogatensis* Morozova; Malecki, p. 83, Pl. VI, Figs. 1a–d.

1986 *Dyscritella bogatensis* Morozova; Gilmour & Walker, p. 200, Figs. 7d–e, g–h.

1986 *Dyscritella maleckii* Morozova; Morozova in Morozova & Kruchinina, p. 55, Pl. 16, Figs. 2a–c.

The specimen described by Malecki is placed in synonym by Morozova (in Morozova & Kruchinina 1986) with her new species *D. maleckii*. More specimens have been sectioned by the present author, and very close similarities between *D. bogatensis* and *D. maleckii* are obvious. Morozova distinguishes *D. maleckii* by the lack of parallel endozonal zooecia and absence of protruding acanthostyles. However, the protruding acanthostyles (Malecki p. 83) and parallel zooecia in the endozone (Malecki Pl. VI, Fig. 1d) are both present in *D. maleckii*. The new species *D. maleckii* should therefore be rejected, and *D. bogatensis* is regarded as the valid determination of the specimens described by Malecki. The localities given by Malecki (Stjernøya and Øyrylandet, southern Spitsbergen) do not fit in with those on the rock samples, which are marked Kapp Olsen, Bjørnøya. The lithology matches very well with that of the other Kapp Olsen samples, namely a spiculitic shale horizon from the lowermost Miseryfjellet Formation. The material was originally numbered A32111, renumbered by Malecki A35213.

Fig. 1. *Gilmoropora heintzi* (Malecki)

A: Transverse section, 10×. PMO A 32111t.

B: Transverse section, 7×. PMO A 32111v.

C: Longitudinal section, 10×. PMO A 32111t.

D: Tangential section, showing zooecial apertures, and maculum (upper left), 23×. PMO A 32111s.

E: Oblique longitudinal section, showing large autozooecial tubes (oval) and smaller fossazooecia (circular), 55×. PMO A 42257.

F: Tangential section, showing autozooecial apertures and capillaries, 51×. PMO A 32111s.

G: Deep tangential section, showing fossazooecia arranged around autozooecia, 56×. PMO A 42257.

H: Tangential section, showing light calcareous zooecial lining around zooecial apertures, and capillaries arranged in rows, 50×. PMO A 32111s.

All illustrations were made from acetate peels, using a Leitz Ortholux/Vario-Orthomat. Material deposited at Paleontologisk Museum, Oslo.

## Order Cryptostomata

- Streblascopora fasciculata* (Bassler 1929)  
 ?1894 *Fistulipora permiana* Nechaev; p. 103, Pl. 1, Figs. 43b-d.  
 1929 *Streblascopora fasciculata* Bassler; p. 66, Pl. 139, Figs. 4-5.  
 1965 *Streblascopora fasciculata* (Bassler); Shishova, p. 58, Pl. 6, Fig. 2.  
 1970 *Streblascopora fasciculata* (Bassler); Morozova, pp. 150-151, Pl. 27, Fig. 3.  
 1971 *Streblotrypa* (*Streblascopora*) *fasciculata* (Bassler); Termier & Termier, Pl. 9, Fig. 6.  
 1977 *Streblotrypa fasciculata* Bassler; Malecki, p. 84, Pl. 5, Figs. 2a-d.  
 1981 *Streblascopora fasciculata* (Bassler); Morozova, p. 44, Pl. 11, Fig. 2.  
 1983 *Streblascopora fasciculata* (Bassler); Yang & Lu, pp. 289-290, Pl. 7, Figs. 10-15.  
 1985 *Streblascopora fasciculata* (Bassler); Gorjunova, pp. 129-130, Pl. 16, Fig. 2.

Malecki used the generic name *Streblotrypa* in the text (pp. 83-84) and *Streblascopora* in the plate description. *Streblascopora* is distinguished from *Streblotrypa* in exhibiting a well-defined axial bundle of zooecia (see Blake 1983 who reduces *Streblascopora* to a subgenus of *Streblotrypa*). The figured material (Pl. V, Figs. 2a-d) displays the axial bundle, and should thus be assigned to *Streblascopora fasciculata* (Bassler). Morphological characters have been remeasured, and Malecki's specific designation is regarded as correct.

In the description the material is labelled Kapp Olsen, Bjørnøya. Stratigraphical horizon: spirifer Limestone (Artinskian-Upper Permian). The label on the specimen gives the locality as Polakkfjellet (southern Spitsbergen, collected by K. Birkenmajer, 1970), whereas in Paleontologisk Museum's file the material is labelled Bellsund, Diabasodden (?Diabasbukta), 'Cancrinella Limestone'. The latter fits very well with the light grey dolomitic matrix and contrasts with the spiculitic nature of the Kapp Olsen strata. The 'Cancrinella Limestone' is correlated (e.g. Birkenmajer & Logan 1967) with 'Cora Limestone' (Hambergfjellet Formation) on Bjørnøya, and upper 'Cyathophyllum Limestone' and upper 'Wordiekammen Limestone' on Spitsbergen. In modern stratigraphical usage (Cutbill & Challenor 1965) the 'Cancrinella Limestone' is within the Reinodden/Treskelodden Fm. correlative to the Tyrrellfjellet Mb. of the Nordenskiöldbreen Formation (?Asselian-Sakmarian age) on northern Spitsbergen. This makes it considerably older than the Upper Permian age implied by Malecki.

It also represents a significantly older record of *Streblascopora fasciculata* than has previously been reported. The material was originally numbered A32083, renumbered by Malecki as A35214.

## Suborder Timanodictyina Morozova 1966

## Family GIRTYPOROIDEA Morozova 1966

- Gilmoropora heintzi* (Malecki 1977). Figs. 1A-H.  
 1977 *Hinganella heintzi* Malecki; pp. 78-79, Pl. 1, Figs. 1a-c.  
 1986 *Gilmoropora unica* Morozova in Morozova & Kruchinina, pp. 123-124, Pl. 48, Figs. 2a-c.

*Description.* Colony ramose and dichotomously branched, branches circular or slightly oval in the transverse section (Fig. 1A, B). Circular branch diameter up to 10.3 mm, oval branches  $8.50 \times 5.60$  mm. Broken fragments indicate the existence of even thicker branched colonies. Zoarial surface slightly tuberculated, with angular ridges between zooecial apertures. Exozone maximum width 2.4 mm, endozone maximum 5.5 mm. The ratio of exozone radius to zoarium diameter is fairly constant at 1:3.5 (7 zooaria from 3 localities taken into consideration). Zooecia tubular, rounded in exozone, polygonal in endozone. Zooecial tubes are arranged almost parallel in endozone, and bend sharply outwards when approaching the exozone (Fig. 1C). In the outer part of the endozone and through the exozone there are continuous diaphragms, irregularly distributed, usually 6-8 per zooecial tube (average 5 per mm, Fig. 1C). Zooecial walls in the endozone display a granular microstructure, thickness 0.02-0.03, up to 0.05 in budding centres. Exozonal walls are pierced by numerous stenostyles ('capillaries' of Soviet workers), diameter 0.01-0.02 mm, arranged parallel with zooecial tubes, irregularly distributed around zooecial apertures (Fig. 1F, H). Thickness of exozonal wall (= distance between adjacent zooecial apertures on the tangential section) 0.15-0.16 mm. Maculae of varying size irregularly distributed, devoid of zooecial apertures (Fig. 1D). Zooecial apertures arranged in oblique rows; their shape is circular or slightly oval with a clear zooecial lining visible in the tangential section. Diameter of circular aperture 0.17-0.22 mm, oval dimension  $0.16 \times 0.19-0.18 \times 0.23$ . Number of zooecia per 2 mm is 5-6, some areas with higher density of zooecial apertures. Fossazooecia

Table 2. Registered material of Paleontologisk Museum, Oslo.

Original number	Revised number	Malecki's identification	Revised identification	Locality	Stratigraphy	Comments
A3211e		<i>Hinganella heintzi</i>	<i>Gilmoropora heintzi</i>	Kapp Olsen, Bjørnøya	Miseryfjellet Fm.	Holotype, 1977: Pl. 1/1a
A3207a		<i>Hinganella heintzi</i>	<i>Gilmoropora heintzi</i>	Kapp Olsen	Miseryfjellet Fm.	Paratype, 1977: Pl. 1/1b
A3207b		<i>Hinganella heintzi</i>	<i>Gilmoropora heintzi</i>	Kapp Olsen	Miseryfjellet Fm.	1968: Pl. VI/1-5, 7, 8, 11
*		<i>Stenopora lyndoni</i>	<i>Dyscritella? lyndoni</i>	Tokrossøya	Tokrossøya Fm.	1968: Pl. VII/1, 2 1968: Pl. VII/5
*		<i>Stenopora dickinsi</i>	<i>Dyscritella dickinsi</i>	Tokrossøya	Tokrossøya Fm.	1968: Pl. VII/3, 4, 7-9
*		<i>Polypora</i> sp. cf. <i>russiensis</i>	<i>Ramipora</i> cf. <i>hochstetteri</i>	?	?	
*		<i>Polypora</i> sp. cf. <i>russiensis</i>	<i>Ramipora</i> cf. <i>hochstetteri</i>	?	?	
*		<i>Fenestella</i> sp.	<i>Septopora</i> sp.			1968: Pl. VII/11
*		<i>Fenestella</i> sp.	<i>Septopora</i> sp.			1968: Pl. VII/12
A35208*		<i>Stenopora dickinsi</i>	<i>Septopora</i> sp.	Herwithamna, Bjørnøya	Miseryfjellet Fm.	1977: Pl. VII/1, 2
A35209*		<i>Stenopora jungersenensis</i>		Herwithamna + Bellsund, Spitsbergen	Miseryfjellet Fm., Kapp Starostin Fm.	1977: Pl. II/2a-d
A35210*		<i>Tabulipora greenlandensis</i>		Herwithamna + Bellsund	Miseryfjellet Fm., K. Starostin Fm.	1977: Pl. III/1a-e
A35211		<i>Rhombotrypella</i> cf. <i>gigantea</i>	? <i>Tabulipora</i> cf. <i>gigantea</i>	Sandhamna + Øyrlandet, Spitsbergen	Tokrossøya Fm.	1977: Pl. IV/1a-e
A35212=	A32068	<i>Rhombotrypella</i> cf. <i>composita</i>	<i>Rhombotrypella alfredensis</i>	Herwithamna	Miseryfjellet Fm.	1977: Pl. V/1a
A35213=	A32111	<i>Dyscritella bogatensis</i>		Kapp Olsen	Miseryfjellet Fm.	1977: Pl. VI/1a-d
A35214=	A32083	<i>Streblotrypa fasciculata</i>	<i>Streblotrypa fasciculata</i>	? Polakfj.; ? Diabasbukta, Spitsbergen	Reinoddan/Treskelodden Fm., Tyrrellfjellet Member	
A35215*		<i>Fenestella retiformis</i>	<i>Rectifenestella retiformis</i>	Oppgangsdalen, Bjørnøya	Miseryfjellet Fm.	
A35216*		<i>F. pseudoretiformis</i>	<i>R. pseudoretiformis</i>	Oppgangsdalen	Miseryfjellet Fm.	
A35217*		<i>F. superretiformis</i>	<i>R. superretiformis</i>	Oppgangsdalen	Miseryfjellet Fm.	
A35218*		<i>F. paratuberculifera</i>		Oppgangsdalen	Miseryfjellet Fm.	
A35219=	A32078	<i>Septopora phyllata</i>	<i>Ramipora hochstetteri</i>	Oppgangsdalen	Miseryfjellet Fm.	1977: Pl. VII/2
A35220*		<i>Polypora</i> cf. <i>russiensis</i>		Oppgangsdalen	Miseryfjellet Fm.	
A35221*		<i>P. cf. ovaticella</i>		Oppgangsdalen	Miseryfjellet Fm.	
A42256		<i>Timanodicya nikforovae</i>		Herwithamna	Miseryfjellet Fm.	Not figured rock specimen
A42257		<i>Hinganella heintzi</i>	<i>Gilmoropora heintzi</i>	Herwithamna	Miseryfjellet Fm.	New pecl/rock specimen
A42258		<i>Tabulipora siedleckii</i>		Sørkappland	Tokrossøya Fm.	Holotype
A42259		<i>Tabulipora siedleckii</i>		Sørkappland	Tokrossøya Fm.	Paratype

\*: missing

('mesopores' sensu Malecki) are visible in both the longitudinal and tangential section, their diameter being 0.10–0.14 mm (Fig. 1E, G). The zooecial tubes are wrinkled, and appear in different diameters in the oblique longitudinal section (Fig. 1E).

*Remarks.* – Malecki assigned his new species to the trepostome genus *Hinganella* of the family Eridotrypellaidae Morozova 1960. In the generic description of *Hinganella*, Malecki refers to Romanchuk (1967) and accepts that acanthostyles (acanthopores sensu Malecki) should not be present (p. 78). In the species description of *Hinganella heintzi* Malecki states that 'the wide spaces among the apertures are pierced by numerous mesopores and acanthopores, protruding on the zoarium surface' (p. 79). Also 'the acanthopores of *H. heintzi* are poorly outlined . . .' (p. 79). Thus, in his opinion acanthostyles are present, and his specimens cannot be included in the genus *Hinganella*.

New acetate peels have been prepared from Malecki's material and from recently collected material from Bjørnøya. Close reexamination of many zooaria has revealed features that enable a major taxonomic reassignment of the species from the Trepostomata to the cryptostome suborder Timanodictyina Morozova 1966 and family Girtyporidae Morozova 1966.

Recently Morozova & Kruchinina (1986) described a rich bryozoan fauna from Svalbard ('Spitsbergen Archipelago'), including a new genus *Gilmoropora*, with one species *Gilmoropora unica*, which shows the same morphological characters as *Hinganella heintzi* Malecki. The type locality of these two species is also identical. It is therefore proposed that *Hinganella heintzi* Malecki and the species described by Morozova & Kruchinina should correctly be named *Gilmoropora heintzi* (Malecki 1977). Morozova & Kruchinina (1986) refer to Malecki's work, renaming his species *Neoeridotrypella heintzi* (Malecki), even though *Hinganella heintzi* Malecki is listed in their Table 3 under its original name.

*Distribution:* Upper Permian, Ufimian, Miseryfjellet Formation ('Starostinsk Group' used by Morozova & Kruchinina 1986), common within the lowermost 15 m, less frequent in the uppermost part of the formation. Type locality: Nordkapp, Bjørnøya. More than 20 zooaria collected on Bjørnøya (Nordkapp, Kapp Olsen,

Herwighamna, Hambergfjellet and Miseryfjellet).

Malecki's material was originally numbered A32111a–e, renumbered by Malecki as A35207a–c. Holotype: A35207a (rock specimen, Pl. I, Fig. 1a). Paratypes: A35207b (acetate peel) and A32111e (rock specimen).

#### Family TIMANODICTYOIDEA Morozova 1966

##### *Timanodictya nikiforovae* Morozova

- 1966 *Timanodictya nikiforovae* Morozova; p. 35, Pl. V, Fig. 1.  
1970 *Timanodictya nikiforovae* Morozova; Morozova, p. 244, Pl. LIX, Fig. 1.  
1977 *Timanodictya nikiforovae* Morozova; Malecki, p. 86, Pl. VII, Figs. 1a–c.  
1986 *Timanodictya nikiforovae* Morozova; Morozova & Kruchinina, p. 121, Pl. XLVII, Fig. 1.

No further comments can be given on the description and the identification. Malecki's original thin sections are missing, but several fragments have been observed in the rock samples from Herwighamna and Kapp Olsen, Bjørnøya. The stratigraphical horizon is the lowermost Miseryfjellet Formation. A previously unnumbered piece from Malecki's collection which is typical of *Timanodictya nikiforovae* is A42256.

#### Order Fenestrata

##### *Fenestella* sp.

- 1968 *Fenestella* sp. Malecki; Pl. VII, Fig. 11.

Not mentioned by Malecki in his text. The specimen is missing, and no further information is available.

##### *Septopora* sp.

- 1968 *Fenestella* sp. Malecki; Pl. VII, Fig. 12.

Not mentioned by Malecki in his text. The specimen is missing, but from the illustration it is possible to identify it as *Septopora* sp., which has two rows of zooecia, both on the main branches and on the anastomosing side branches.

##### *Polypora* sp. cf. *russiensis* Shul'ga-Nesterenko 1941

- 1941 *Polypora russiensis* Shul'ga-Nesterenko; p. 158, 159, 239, 240, Pl. 42, Fig. 4, Text-fig. 120.  
1962 *Polypora* cf. *russiensis* Ross & Ross; p. 53, Pl. 15, Fig. 6; Pl. 17, Fig. 1.  
1968 *Polypora* sp. cf. *russiensis* Malecki; p. 22, Pl. VII, Fig. 5., non Figs. 3, 4, 7–9.

This species was compared with and found to resemble a species described by Ross & Ross (1963) as *Polypora* cf. *russienis*. As the figured specimens are not numbered and the original slide has not been found, a re-evaluation is impossible.



<i>Rectifenestella retiformis</i> (Schlotheim 1816)	A35215
<i>R. pseudoretiformis</i> (Morozova 1970)	A35216
<i>R. superretiformis</i> Romanchuk 1970	A35217
<i>Fenestella paratuberculifera</i> Yang & Lu 1962	A35218
<i>Polypora</i> cf. <i>russiensis</i> Shul'ga-Nesterenko 1941	A35220
<i>Polypora</i> cf. <i>ovaticella</i> Shul'ga-Nesterenko 1941	A35221

None of these species (Malecki 1977) are figured, and the material is missing. No further comments can thus be made. Locality: Oppgangsdalen, SW side of Miseryfjellet. Stratigraphic horizon: Miseryfjellet Formation.

*Acknowledgements.* – The present work is part of a doctorate study carried out at the University of Oslo, financed by Institutt for Kontinentalsokkelundersøkelser (IKU), Trondheim. I wish to thank Dr. P. D. Taylor, British Museum (Natural History), London, for giving valuable scientific comments and making grammatical improvements, Prof. K. Birkenmajer, Warszawa, for helping me to trace Dr. Malecki's bryozoan material and Prof. N. Spjeldnæs, University of Oslo, for arranging a loan of the type specimen of *Ramipora hochstetteri* Toula from Naturhistorisches Museum, Vienna. Thanks are also due to Atle Mørk, IKU, Trondheim, for introducing me to the geology of Svalbard.

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