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Kamil Zágoršek:

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PART I: GEOLOGY OF THE STUDIED SECTIONS, SYSTEMATIC DESCRIPTION OF THE ORDERS CYCLOSTOMATA, CTENOSTOMATA AND "ANASCAN" CHEILOSTOMATA (SUBORDERS MALACOSTEGA LEVINSEN, 1902 AND FLUSTRINA SMITT, 1868)

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Cover photo: Part of the colony of *Hornera* cf. *frondiculata* from the section Přemyslovice.

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Abstract: A total of 158 species of Bryozoa have been found and indentified in sediments from 34 sections, all of Langhian (Early Badenian) age, from the Czech Republic. All the studied sections where bryozoans were found have been described. All identified species belonging to the orders Cyclostomata, Ctenostomata and "Anascan" Cheilostomata (Suborders Malacostega Levinsen, 1902 and Flustrina Smitt, 1868) are described and illustared in detail. Among them are four new species: *Frondipora parva* sp.n., *Copidozoum natalae* sp. n., *Cupuladria baluki* sp.n. and *Calpensia rebeshovensis* sp.n.

■ Bryozoa, Miocene, Langhian, taxonomy, systematic

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Preface

The work for this paper started in 2000, when I and Prof. Vávra (University of Vienna) saw Miocene bryozoans from Podbřežice for the first time. Due to the great similarity of these bryozoans with Austrian faunas we decided to study them in detail. Thanks to a project fund from FWF (Fonds zur Förderung der Wissenschaftlichen Forschung, Austria), M517-GEO, we were able to start collecting and rediscovering old, mostly forgotten localities and sections as well as museum material containing Bryozoan remains. We spent many weeks together in the field and collected altogether more than 500 samples. The samples were washed and bryozoans, foraminifers and other fossils studied in an attempt to answer the question as to why bryozoans are so common in some locailities, but sometimes almost absent. Thus we became interested in reconstructing the environmental conditions during the Miocene which resulted in the great biodiversity of Bryozoa in Moravia.

Our investigations yielded an exceptionally rich collection of Bryozoa, which seems to be one of the richest associations from the Miocene in the Alpine-Carpathian region. The preparation of samples, determination and description of species continued for almost ten years, and now it seems we have a much better understanding of bryozoan taxonomy from the Miocene of Moravian. Therefore, I would like to present the results of these studies now.

Due to the technical reasons, the publication will be split into two parts. This, the first part contains geology and stratigraphy of the studied sections and a systematic description of determined bryozoan species from the orders Cyclostomata, Ctenostomata and “Anascan” Cheilostomata (Suborders Malacostega Levinsen, 1902 and Flustrina Smitt, 1868). The second part, containing a detailed systematic description of Ascophorina bryozoan species belonging to the Suborder Ascophora Levinsen, 1909, paleoecology and conclusions, will follow in the next editon of the Journal.

Acknowledgements

This study of Bryozoa from the Miocene of Moravia was initiated by Prof. Norbert Vávra (Vienna) in 2000 and I am really grateful for his initiative, discusion and great help during all my work. Many other people and organizations supported my work, to whom I owe a great debt. Dr. Dennis Gordon (National Institute of Water and Atmosphere, Wellington, New Zealand) provided helpful comments on an earlier version of the paper and improved the English. Both he and Prof. Giampietro Braga (University of Padova, Italy) offered useful suggestions on taxonomy, mostly regarding Cheilostomata. Thorough reading and useful comments were also provided by Prof. Vávra, from the Department of Palaeontology (University of Vienna, Austria). Dr. Zdenek Pouzar from the mycological department of the National Museum Prague corrected the proposed new names. I express many thanks to all of them.

I am also grateful to colleagues from Masaryk University Brno (Doc. Nehyba, Doc. Hladilová, Dr. Doláková), from the Moravian Museum in Brno (Dr. Gregorová), from Prostějov museum (Dr. Jašková), from Olomouc university (Dr. Le-

hotský) as well as to colleagues from my institute who supported me greatly during field work and understanding the general situation in Moravia during the Miocene and who also introduced me to the beautiful hidden world of the last sea in Middle Europe.

My thanks go also to reviewers Prof. Vávra and Doc. Holcová, for their useful and helpful comments. I am thankful to Gill Horalek for correcting my English and make the text more readable.

The project FWF P19337-B17 covered the costs of SEM study, it enabled the taxonomical work to be completed and preparation of the first version of the manuscript. The field work and laboratory studies were mainly supported by project GAČR 205/09/0103 (Shallow water ecosystems from the Middle Miocene of the Central Paratethys: Succession and interactions between inorganic and organic elements of the ecosystems). The publishing costs were partly covered by project MK00002327201 from the Ministry of Culture ČR, who also supported revision of the museum material.

I would like to dedicate this research to my family, who have sufficient courage to help me wherever I need it and without their help, this work would never be finished ….

Introduction

Bryozoans are marine and fresh water colonial animals. Fresh water bryozoans do not precipitate calcite skeletons, resulting in a very problematic fossil record. Remains of bryozoans in marine sediments are very common.

Miocene marine sediments in the Czech Republic belong to the area of the former Central Paratethys, a large intracontinental sea consisting of a chain of basins frequently connected with the Mediterranean, the Indo-Pacific and the Atlantic, but periodically also isolated (Rögl and Steininger, 1983; Rögl, 1998; Popov et al., 2004, Piller et al., 2007). Different environmental changes (oscillations of salinity, oxygen content, sea-level and climate) were reported during development of the basins. (Rögl, 1998; Kováč, 2000; Popov et al., 2004, Harzhauser and Piller, 2007 etc.). Remains of two marine basins may be found in the Czech Republic: the Vienna Basin and the Carpathian Foredeep.

The Vienna Basin was formed as a pull-apart basin along the junction of the Eastern Alps and the Western Carpathians (Royden, 1985). The development of the Vienna Basin was studied by many authors (among others Kováč et al., 2004; Strauss et al., 2006; Piller et al. 2007).

The Carpathian Foredeep Basin was formed on the southern edge of the European Platform at the front of the overriding Carpathian accretionary wedge (Oszczypko, 1998; Slaczka and Oszczypko, 2002).

All the studied profiles were of Early Badenian (= Langhian) age (Holcová and Zágoršek, 2008). Tropical to subtropical water-masses invaded the Vienna basin and the Carpathian Foredeep in the Central Paratethys during the Langhian large marine transgression (Rögl, 1998). This large transgression caused rapid immigration of the marine fauna (Harzhauser and Piller, 2007) including bryozoans (Holcová and Zágoršek, 2008).

Generally shallow water and a warm climate has been suggested for these associations, while four different bryozoans clusters have been recognized (Holcová and Zágoršek, 2008). The *Reteporella-Hornera verrucosa* cluster occupies the high-energy environment with sandy bottom; *Buffonellodes-Rhynchozoon* lived together with seagrass on carbonate substrate, *Smittina-Metrarabdotos* can tolerate decrease of the oxygen content in the muddy bottom sediment and *S. tenella-S.tetragona* cluster may occupy high-energy environment with presence of seagrass meadows (Holcová and Zágoršek, 2008).

Material and methods

The bryozoans were studied from the washed residuum in fractions larger than 200 μm. A few samples from more lithified rock samples were "laboratory weathered" and/or treated with acetic acid as described by Zágoršek and Vávra (2000). Finally the samples were cleaned in an ultrasonic bath. The detailed determination and the study of preserved skeletal elements were carried out using a scanning electron microscope (SEM) JSM-6400 Jeol type in the Paleontological Department of Vienna University and Hitachi S3700N from the National Museum Prague.

Results

Altogether 158 species were identified (Table 1) from 34 sections. The preservation of bryozoans is usually excellent; the colonies are only slightly fractionated, which indicates only very short transport.

Sections with Bryozoa from the Vienna Basin

Only a small area (the northernmost part) of the Vienna Basin is situated within the Czech Republic. Bryozoans were found at six localities: Mikulov, Mušlov, Sedlec, Hlohovec, Nesyt and Podivín (Text-fig. 1). Only the section Mikulov yielded a profile in which the succession of bryozoans were studied. From the other localities only spot samples were taken. From the locality Podivín, museum material was also studied. Localities were described in detail (including biostratigraphy) in Zágoršek et al. (2004 and 2007a). A list of determined species with distrubution in the studied samples is given in Table 2.

For a more detailed discussion of the Middle Miocene interval in the Vienna Basin see Holcová and Zágoršek (2008).

Mikulov

The section of Mikulov is situated on the slope of a small hill called Kienberg (previous names were Kimberg or Kimberk) about 3, 6 km east of the city of Mikulov. The section may be divided into three localities: the slope – lowermost profile on greyish marl with very abundant celleporids, the quarry – yellowish marl to limestone with algae and molluscs, and the vineyard – sand to marl with very abundant molluscs (Text-fig. 2).

The profile in the slope (GPS position: 48° 48.321'N, 016° 41.094'E, the bottom of the profile is 228m above sea level) is about 4 meters high. Dominant fossils are celleporid bryozoans and in the upper part fragments of molluscs.

The quarry is situated above the slope of this section (GPS position: 48° 48.221'N, 016° 41.140' E, the bottom of the profile is 230m above sea level), so perhaps the uppermost samples Mik-9 and Mik-10 may be correlated with the samples from the quarry. The limestone contains mainly algae remains, marl intercalations are rich in echinoderms and molluscs, mainly oysters, being very often encrusted by bryozoans.

Table 1.

Bryozoan taxa/sections	Vienna basin	Podbřežice	Oslavany	Židlochovice		Holubice	Rebešovice	Přemyslovice	Terešov	Kroužek	Kralice nad Oslavou	Rousínov - pumpa	Slavkov sv. Urban	borehole VK-1 Vranovice	Pratecký vrch	Vranová Lhota	Blučina	Kleneč	Drnovice MZM	Hluchov	minor occurences
Samples (the samples not included in the table do not contain bryozoans remains)				**Z 1**	**Z 2**																
Adeonella polystomella	1	1		1	1	1	1	1	1	1	1	1	1	1	1		1		1		1
Adeonellopsis coscinophora		1	1		1	1				1	1		1	1					1		
Amphiblestrum appendiculatum	1	1		1		1	1				1		1								
Annectocyma subdivaricata	1	1			1	1					1										
Batopora rosula	1		1								1							1			
Biflustra savartii	1	1	1			1	1						1	1					1	1	
Biflustra sp.	1																	1			
Bobiesipora fasciculata		1		1							1							1			
Buffonellaria holubicensis sp.n.			1			1															
Buffonellaria kuklinskii sp.n.		1	1	1						1	1	1	1						1		
Calloporina decorata	1											1									
Calpensia gracilis	1	1	1		1	1	1					1			1				1	1	1
Calpensia rebeshovensis sp.n.	1						1														
Calpensia sedleci	1																				
Calpensia sp. (cf. *C. calpensis*)	1												1								
Cellaria cf. *fistulosa*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1
Cellaria cf. *salicornioides*		1	1	1	1	1	1			1	1	1	1	1		1			1		1
Celleporaria cornigera	1	1			1																
Celleporaria palmata	1	1							1					1			1	1			
Celleporaria polythele	1																				
Ceriopora tumulifera	1																				
Copidozoum natalae sp. n.										1	1										
Coronopora cf. *disticha*		1				1				1	1										
Crepidacantha odontostoma											1										
Cribellopora hluchovensis sp.n.																				1	
Cribellopora latigastra	1		1		1		1	1						1	1						
Cribellopora sp.	1													1	1						
Cribellopora trasoni sp.n.											1										
Crisia cf. *eburnea*		1		1	1	1				1	1	1	1	1							
Crisia elongata	1	1	1	1	1	1	1			1	1			1	1	1			1		1
Crisia haueri	1	1	1	1	1	1	1			1	1		1	1							
Crisia hoernesii	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1			1	1	1
Crisidmonea foraminosa	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				1	1	
Cupuladria baluki sp.n.	1		1											1		1			1		
Diplosolen obelium		1			1	1								1			1				
Disporella cf. *hispida*	1	1	1		1	1	1	1			1	1			1			1	1		1
Disporella cf. *radiata*	1	1		1	1	1	1	1		1	1	1									
Disporella goldfussi		1			1	1	1	1		1	1				1		1	1		1	1
Emballotheca seriata	1	1	1	1	1	1	1	1	1	1			1						1		
Eokotosokum? Bobiesi	1	1	1	1	1	1	1	1		1	1	1	1	1			1	1		1	
Escharella ovoidea	1	1		1																	
Escharella reussiana	1	1																			
Escharella tenera	1	1		1		1	1	1		1	1	1	1		1			1			1
Escharina otophora		1		1				1											1		
Escharoides coccinea	1	1		1	1	1	1	1			1							1			
Escharoides megalota	1	1		1	1	1	1	1		1	1		1				1				
Exidmonea atlantica	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				1
Exidmonea giebeli	1	1			1	1	1				1										
Exidmonea kuhni	1		1		1			1		1	1	1							1		
Exidmonea undata	1	1	1	1	1	1	1			1	1		1	1							
Exochoecia compressa		1	1	1		1		1		1	1	1	1	1							
Fenestrulina sp.											1										
Ferganula rousinovensis sp.n.		1										1	1							1	
Ferganula sp. 1								1													
Ferganula sp. 2				1																	
Flustrellaria fenestrata	1	1	1	1	1	1	1	1		1	1	1	1							1	
Flustrellaria sp.		1																			
Frondipora cf. *verrucosa*	1	1		1	1	1			1	1	1		1	1				1			
Frondipora parva sp.n.			1							1	1	1									
Gephyrotes cf. *fortunensis*		1																			

Bryozoan taxa/sections	Vienna basin	Podbřežice	Oslavany	Židlochovice		Holubice	Rebešovice	Přemyslovice	Terešov	Kroužek	Kralice nad Oslavou	Rousínov - pumpa	Slavkov sv. Urban	borehole VK-1 Vranovice	Pratecký vrch	Vranová Lhota	Blučina	Kleneč	Dmovice MZM	Hluchov	minor occurences
Samples (the samples not included in the table do not contain bryozoans remains)				**Z 1**	**Z 2**																
Hagiosynodos campanulata	1	1		1											1						
Hagiosynodos latus	1	1	1	1	1	1		1		1					1						1
Herentia hyndmanni	1	1			1	1	1				1										
Heteropora sp	1	1	1	1	1	1	1		1				1	1	1					1	1
Hippomenella cf. *ampla*								1													
Hippomenella mucronelliformis								1			1										
Hippopleurifera hypsostoma	1													1							
Hippopleurifera sedgwicki	1	1		1		1		1		1		1	1								
Hippopleurifera semicristata	1	1			1	1				1	1	1	1		1	1		1	1		
Hippoporella bicornis	1	1				1	1			1	1								1		
Hornera cf. *frondiculata*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Hornera striata	1	1		1	1	1		1	1	1	1	1	1	1	1						
Hornera subannulata		1			1	1		1		1	1		1	1	1				1		1
Hornera verrucosa	1	1	1	1	1	1	1				1			1	1	1			1		1
Idmidronea coronopus		1	1		1						1			1							
Idmidronea sp.											1										
Iodictyum rubeschii	1	1	1		1	1	1		1	1	1		1	1	1	1	1				
Kionidella moravicensis											1										
Laminopora cf. *dubia*	1	1	1			1				1					1						1
Lunulites androsaces												1									
Margaretta cereoides	1	1	1	1	1	1	1	1		1	1	1	1	1	1				1		1
Mecynoecia proboscidea	1	1		1		1	1				1			1							
Mecynoecia pulchella	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1
Mesenteripora flabellum	1	1	1			1				1			1								
Metrarabdotos maleckii	1	1	1	1	1	1	1	1		1	1	1	1	1	1		1		1		1
Micropora papyracea	1	1											1		1						
Micropora parvicella	1	1		1		1	1				1		1	1	1						
Microporella berningi sp.n.		1			1	1					1										
Microporella crenilabris aff. *ciliata*	1	1			1	1		1		1	1			1				1			
Mollia cf. *patellaria*			1				1	1			1										
Monoporella venusta														1							
Myriapora truncata	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1				1
Oncousoecia? biloba	1	1	1		1	1	1	1		1	1		1	1	1					1	1
Onychocella angulosa	1	1	1	1	1	1	1	1		1	1	1	1	1	1		1	1	1	1	
Parasmittina cf. *reticulata*			1			1															
Phoceana tubulifera	1	1	1			1	1	1	1		1	1	1		1						
Plagioecia rotula	1	1			1	1	1				1		1								
Platonea pluma	1	1	1		1	1		1		1	1										1
Pleuronea pertusa	1	1	1	1	1	1		1		1		1	1	1	1						1
Polyascosoecia cancellata	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1
Porella circumornata	1	1				1		1		1				1							
Porella nuda	1	1				1						1		1	1						
Porella regularis	1	1		1	1	1		1		1	1	1	1								
Pseudofrondipora davidi	1	1			1	1	1	1	1		1	1	1	1					1		1
Puellina (*Cribrilaria*) rarecostata		1																			
Puellina venusta	1	1		1		1	1	1			1	1								1	
Pyriporella cf. *loxopora*											1										
Reptadeonella cf. *violacea*			1											1							
Reteporella cf. *beaniana*		1			1			1						1		1	1		1		1
Reteporella hluchovensis sp.n.		1				1				1										1	
Reteporella kralicensis		1		1	1	1					1			1		1			1		
Reteporella ruzenkae sp.n	1					1					1										
Reteporella sp.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1
Reteporella vladkae sp.n.											1										
Reussia regularis	1		1			1				1	1	1									
Reussirella haidingeri	1	1	1	1			1			1	1	1		1		1			1		1
Rhynchozoon monoceros	1	1	1	1	1	1	1	1		1	1	1			1			1	1	1	1
Rhynchozoon oslavanensis sp.n.	1	1	1			1					1			1							
Rhynchozoon krouzkovensis sp.n.										1											
Rhynchozoon sp.		1					1														

Bryozoan taxa/sections	Vienna basin	Podbřežice	Oslavany	Židlochovice		Holubice	Rebešovice	Přemyslovice	Terešov	Kroužek	Kralice nad Oslavou	Rousínov - pumpa	Slavkov sv. Urban	borehole VK-1 Vranovice	Pratecký vrch	Vranová Lhota	Blučina	Kleneč	Drnovice MZM	Hluchov	minor occurences
Samples (the samples not included in the table do not contain bryozoans remains)				**Z 1**	**Z 2**																
Saevitella inermis	1																				
Scrupocellaria elliptica	1	1	1	1	1					1	1										1
Schedocleidochasma incisa	1	1		1					1	1	1	1			1			1			
Schizoporella? geminipora	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1					1
Schizobrachiella? granosoporosa														1							
Schizolepralia polyomma	1	1	1	1		1	1			1	1	1	1								
Schizomavella protuberans	1	1	1		1	1	1	1		1		1			1		1		1	1	1
Schizomavella tenella	1	1	1	1		1	1			1	1			1			1				1
Schizoporella dunkeri	1	1				1		1			1										
Schizoporella teragona	1	1			1	1	1	1		1	1	1	1		1	1		1	1		1
Schizostomella grinzingensis	1	1	1							1	1		1	1							1
Schizotheca cf. *fissa*	1	1		1		1		1		1	1				1		1				1
Smittina cervicornis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1		1	1	1
Smittipora platystoma		1					1														
Steginoporella cucullata	1	1		1	1	1	1	1	1	1	1	1	1	1	1		1				
Steginoporella tuberculata				1	1		1			1							1				
Stephanolona pauper	1	1		1			1	1	1		1				1						
Steraechmella buski							1				1										
Terebripora falunica	1																				
Tervia irregularis	1	1	1	1	1	1	1	1		1	1	1	1								1
Tetrocycloecia dichotoma	1	1		1	1	1	1	1		1			1		1				1		1
Thalamoporella neogenica	1																				
Tholopora neufferi	1						1														
Trochiliopora insignis		1			1	1	1	1			1										
Trypostega rugulosa	1	1				1	1	1		1											
Tubulipora dimidiata	1	1	1	1		1	1	1		1	1		1	1		1					
Tubulipora flabellaris	1	1	1			1							1								
Tubulipora foliacea		1									1										
Turbicellepora coronopus	1	1			1	1				1	1			1	1			1	1		1
Umbonula cf. *macrocheila*				1																	
Umbonula granulata sp.n.		1												1							
Umbonula macrocheila	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1
Umbonula spinosa											1										
undeterminable calloporids	1	1	1	1	1	1	1	1	1	1	1	1	1	1						1	
undeterminable celleporids	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1
Unifissurinella boulangeri				1																	
Vibracella trapezoidea	1	1	1		1	1	1			1	1				1						
Voigtopora sp.	1																				
Ybselosoecia typica	1	1	1	1	1	1	1	1	1	1	1	1	1	1					1	1	1
Number of species	**107**	**112**	**64**	**66**	**71**	**92**	**70**	**62**	**25**	**75**	**97**	**52**	**59**	**62**	**49**	**20**	**24**	**20**	**39**	**26**	**43**

The vineyard is situated at a GPS position of 48° 48.378'N, 016° 41.147'E, (the bottom of the profile is 241m above sea level). Fossils occur in yellowish, calcareous sandstone to marl, with intercalations of algal limestone.

The quarry and vineyard have been studied by many authors (among others Tejkal, 1956; Cicha et al., 1998) mainly due to the very rich association of molluscs and vertebrates. The section slope was discovered during recent field activity. The locality and bryozoan content was briefly described also by Zágoršek et al. (2004).

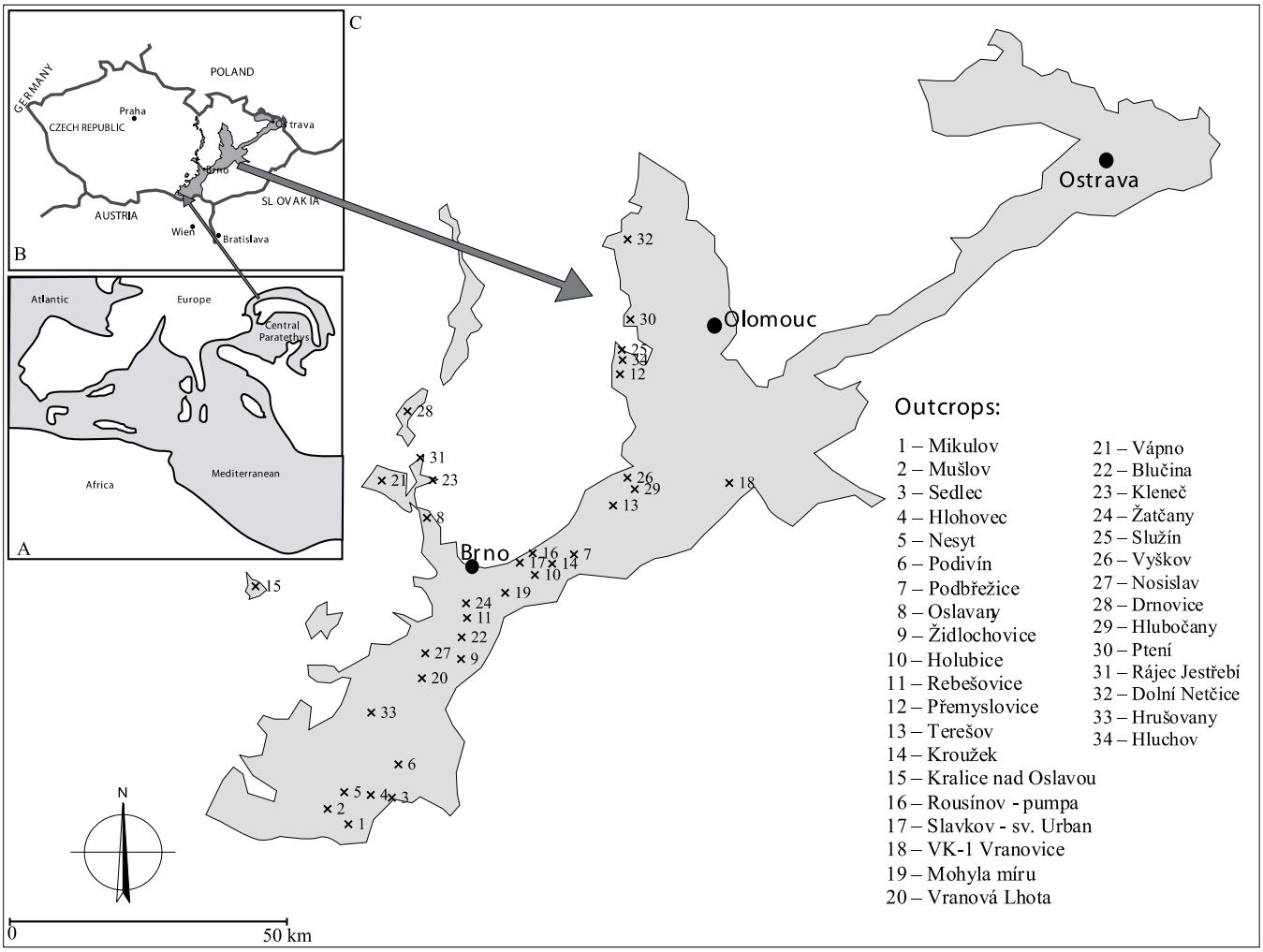
Ten samples from the profile "slope" were collected (Mik-1 to Mik-10); from the quarry and the vineyard only one sample has been collected from each. The samples Mik-4 to Mik-7 are characterized by a mass occurrence of Celleporids with abundant *Smittina cervicornis.* The most diverse bryozoans were found in the section quarry (35 species), where mostly encrusters dominated, but *Smittina, Reussirella* and *Schizoporella? geminipora* are also abundant. Molluscs dominate in the section vineyard, bryozoans are only additional fauna elements. Encrusting and opportunistic cyclostomatous (e.g. *Tubulipora dimidiata*, *Pleuronea pertusa*) species mainly occur in this association.

Mušlov

The locality Mušlov is represented by an abandoned quarry (GPS location 48°46.412′ N and 016°45.214′ E) of algal limestone. This section has been studied in detail by Zágoršek et al. (2004 and 2007a). Only a few species of bryozoans have been identified here (Table 2), mainly *Schizoporella tetragona* growing as a multilamellar, globular colony encrusting shells and rocks.

Sedlec

The locality represents an abandoned quarry (GPS location 48°46.513′ N and 016°40.427′ E) of algal limestone, intercalated with marls, situated on the northern margin of



Text-fig 1. Geographical sketch of the studied sections (modified from Doláková et al., 2008)

the village of Sedlec, about 1 km NE from the hill Skalky (257m above sea level). The second place, where bryozoans are found around Sedlec was an agricultural area (GPS position: 48°46.758'N, 016°40.132' E).

The locality, with old names Voitesbrunn, Voitelsbrunn or Voitlsbrunn, was mentioned for the first time by Reuss (1847), but then forgotten for a long time. Čtyroký et al. (1992) indicated the presence of Miocene sediments in a place called Skalky. The rediscovering of the studied section occured during field activity in spring 2004 (Zágoršek et al., 2004).

The quarry does not exist any more, it was buried under rubbish in 2008. The sample from this quarry contains mainly erect forms dominated by the new species *Calpensia* and *Biflustra*. The field samples were dominated by celleporid bryozoans which were very often encrusted by *Rhynchozoon* (Table 2).

A pond known as Nový rybník is situated near the section Skalky. Reuss (1847, 1874) described a locality called Porzteich on the bank of the pond as containing bryozoans. Čtyroký et al. (1992) also indicated the presence of bryozoa on a peninsula in this pond. We were however unable to find any bryozoans in this area during many fieldtrips between 2001 to 2009, so the locality probably disappeared during reconstruction of the surroundings of the pond. The old museum material stored under the name Porzteich is here referred to as from the Sedlec section.

Hlohovec

Bryozoans were collected in a field or in a vineyard situated on a hill between the village Hlohovec and Lake Nesyt (GPS location 48°46.412 N and 016°45.214 E). The main occurrence of bryozoans were on a slope 203m above see level.

The locality Hlohovec was known since Reuss' time, who described it as Bischofswart, or 'Bischofwart' resp. 'Bischofswarth' (Reuss, 1847, 1874). The locality was rediscovered in 2002 (Zágoršek et al. 2004). The probable outcrop was obviously a quarry, described as 'Bischofswart' by Reuss (1847, 1874) which is situated on the northern slope of the hill (GPS location 48° 46.530'N, 016° 44.815'E). The place is however now completely covered by rubbish. Čtyroký et al. (1992) published a geological map, where they indicated the presence of bryozoans in the same place, calling it Stará hora.

The dominant bryozoans are celleporids, which occur in high abundance (Text-fig. 2), but other species are also common (Table 2).

Nesyt

On the field north from the lake Nesyt (GPS location 48° 46.858'N, 016° 43.591'E) bryozoan fragments were found, similar to the assemblages from the locality Hlohovec. The locality was discovered during field activity in 2007.

Table 2.

Bryozoan taxa/sections	Mikulov											Mušlov	Sedlec		Hlohovec		Nesyt	Podivín
Samples (the samples not included in the table do not contain bryozoans remains)	MIK 1	MIK 2	MIK 3	MIK 4	MIK 5	MIK 6	MIK 7	MIK 9	MIK 10	quarry	vineyard		Sedlec qaurry	Sedlec field	quarry	field		
Adeonella polystomella									1	1				1	1	1	1	
Amphiblestrum appendiculatum									1					1				
Annectocyma subdivaricata													1	1	1	1		
Batopora rosula																1		
Biflustra savartii									1		1							
Biflustra sp.							1			1		1	1					
Calloporina decorata														1				
Calpensia gracilis									1	1		1	1	1	1	1		
Calpensia rebeshovensis sp.n.										1					1			
Calpensia sedleci													1					
Calpensia sp. (cf. *C. calpensis*)										1								
Cellaria cf. *fistulosa*				1	1	1	1	1	1	1	1			1	1	1	1	1
Celleporaria cornigera															1			
Celleporaria palmata															1			1
Celleporaria polythele														1	1	1	1	
Ceriopora tumulifera																1		
Cribellopora latigastra								1		1				1	1			
Cribellopora sp.													1		1			
Crisia elongata																		1
Crisia haueri																	1	
Crisia hoernesii							1							1			1	
Crisidmonea foraminosa														1	1	1	1	
Cupuladria baluki sp.n.								1										
Disporella cf. *hispida*													1	1		1		
Disporella cf. *radiata*																1		
Emballotheca seriata																1	1	1
Eokotosokum? bobiesi							1			1		1		1	1	1	1	
Escharella ovoidea																		1
Escharella reussiana													1	1				
Escharella tenera								1		1			1	1	1	1	1	1
Escharoides coccinea																1		
Escharoides megalota														1	1	1	1	
Exidmonea atlantica						1										1	1	1
Exidmonea giebeli										1					1	1		1
Exidmonea kuhni																		1
Exidmonea undata															1			
Flustrellaria fenestrata									1	1				1		1		
Frondipora cf. *verrucosa*																1	1	
Hagiosynodos campanulata														1			1	
Hagiosynodos latus																1		
Herentia hyndmanni																1		
Heteropora sp													1			1	1	
Hippopleurifera hypsostoma															1	1		
Hippopleurifera sedgwicki															1	1	1	
Hippopleurifera semicristata		1													1	1		
Hippoporella bicornis		1													1			
Hornera cf. *frondiculata*					1		1	1		1			1	1	1	1	1	1
Hornera striata													1		1	1		
Hornera verrucosa														1	1	1	1	
Iodictyum rubeschii																1		
Laminopora cf. *dubia*								1		1	1					1	1	
Margaretta cereoides						1				1	1				1	1	1	1
Mecynoecia proboscidea														1		1	1	1
Mecynoecia pulchella			1							1	1		1	1	1	1	1	1
Mesenteripora flabellum										1					1			
Metrarabdotos maleckii						1					1			1	1	1	1	
Micropora parvicella														1	1	1		
Microporella crenilabris															1	1	1	
Myriapora truncata																1	1	
Oncousoecia? biloba										1			1	1		1		1

Bryozoan taxa/sections	Mikulov											Mušlov	Sedlec		Hlohovec		Nesyt	Podivín
Samples (the samples not included in the table do not contain bryozoans remains)	MIK 1	MIK 2	MIK 3	MIK 4	MIK 5	MIK 6	MIK 7	MIK 9	MIK 10	quarry	vineyard		Sedlec qaurry	Sedlec field	quarry	field		
Onychocella angulosa									1	1			1	1	1	1	1	1
Phoceana tubulifera																	1	
Plagioecia rotula										1			1					
Platonea pluma															1	1		1
Pleuronea pertusa	1	1					1	1			1		1			1	1	1
Polyascosoecia cancellata														1	1	1	1	
Porella circumornata																	1	
Porella nuda										1					1	1	1	
Porella regularis														1	1	1		
Pseudofrondipora davidi															1	1		
Puellina venusta									1	1						1		
Reteporella ruzenkae sp.n															1			
Reteporella sp.									1		1				1	1	1	
Reussia regularis																1		
Reussirella haidingeri										1	1			1				
Rhynchozoon monoceros								1	1	1			1	1	1	1	1	1
Rhynchozoon oslavanensis sp.n.								1			1				1			
Saevitella inermis														1			1	
Scrupocellaria elliptica														1				
Schedocleidochasma incisa										1								
Schizoporella? geminipora				1						1			1			1		1
Schizolepralia polyomma																		1
Schizomavella protuberans						1				1	1		1		1	1		
Schizomavella tenella										1	1		1	1	1	1	1	1
Schizoporella dunkeri															1	1	1	
Schizoporella teragona			1							1		1	1	1	1	1	1	1
Schizostomella grinzingensis									1								1	1
Schizotheca cf. *fissa*																	1	
Smittina cervicornis		1	1		1		1	1		1	1		1			1	1	1
Steginoporella cucullata																1	1	
Stephanolona pauper				1						1							1	
Terebripora falunica										1								
Tervia irregularis													1			1	1	
Tetrocycloecia dichotoma													1			1		1
Thalamoporella neogenica													1					
Tholopora neufferi																1		
Trypostega rugulosa															1	1		
Tubulipora dimidiata	1									1	1		1		1	1		1
Tubulipora flabellaris																		1
Turbicellepora coronopus						1					1		1	1	1	1	1	1
Umbonula macrocheila	1	1								1		1	1	1	1	1	1	
undeterminable calloporids					1	1				1			1		1			
undeterminable celleporids			1	1	1	1	1	1		1	1		1		1	1		1
Vibracella trapezoidea																		1
Voigtopora sp.													1					
Ybselosoecia typica										1			1		1	1	1	1
Number of species	**3**	**5**	**4**	**4**	**5**	**8**	**8**	**11**	**11**	**36**	**16**	**5**	**32**	**35**	**50**	**65**	**45**	**31**

The dominant species are celleporids often encrusted by *Schizostomella grinzingensis* and *Schizoporella tetragona*. (Table 2)

Podivín

The original outcrop described by Reuss (1847) as Kostel has not been found, it probably disappeared during construction of the highway (Zágoršek et al., 2004). A new outcrop near the village of Podivín was discovered on the right side (western slope) of the old road leading from Podivín to Břeclav (GPS location 48°49,758′ N and 016°51,777′ E) and yielded more than 30 species of Bryozoa (Zágoršek et al., 2004).

The most common bryozoans in this association are *Schizoporella, Mecynoecia* and Celleporids. (Table 2)

Sections with Bryozoa from the Carpathian Foredeep Basin

The southernmost part of the Carpathian Foredeep Basin is situated within the Czech Republic. Altogether 47 sections from previously described localities (Hladilová and Zdražílková, 1989 and Doláková et. al., 2008) were checked and visited (Zágoršek and Holcová, 2005). Bryozoans were found at 23 localities and sections with profiles are: Podbřežice, Oslavany, Židlochovice, Holubice, Rebešovice, Přemyslovice, Terešov, Kroužek, Kralice nad Oslavou, Rousínov pumpa, Slavkov sv. Urban, Vranová Lhota, Vápno, Blučina, Kleneč, Žatčany, Služín, Vyškov, Nosislav, Hlubočany, Ptení, Rájec-Jestřebí, Dolní Netčice, Hrušovany and Hluchov. One borehole VK-1 Vranovice was also stud-

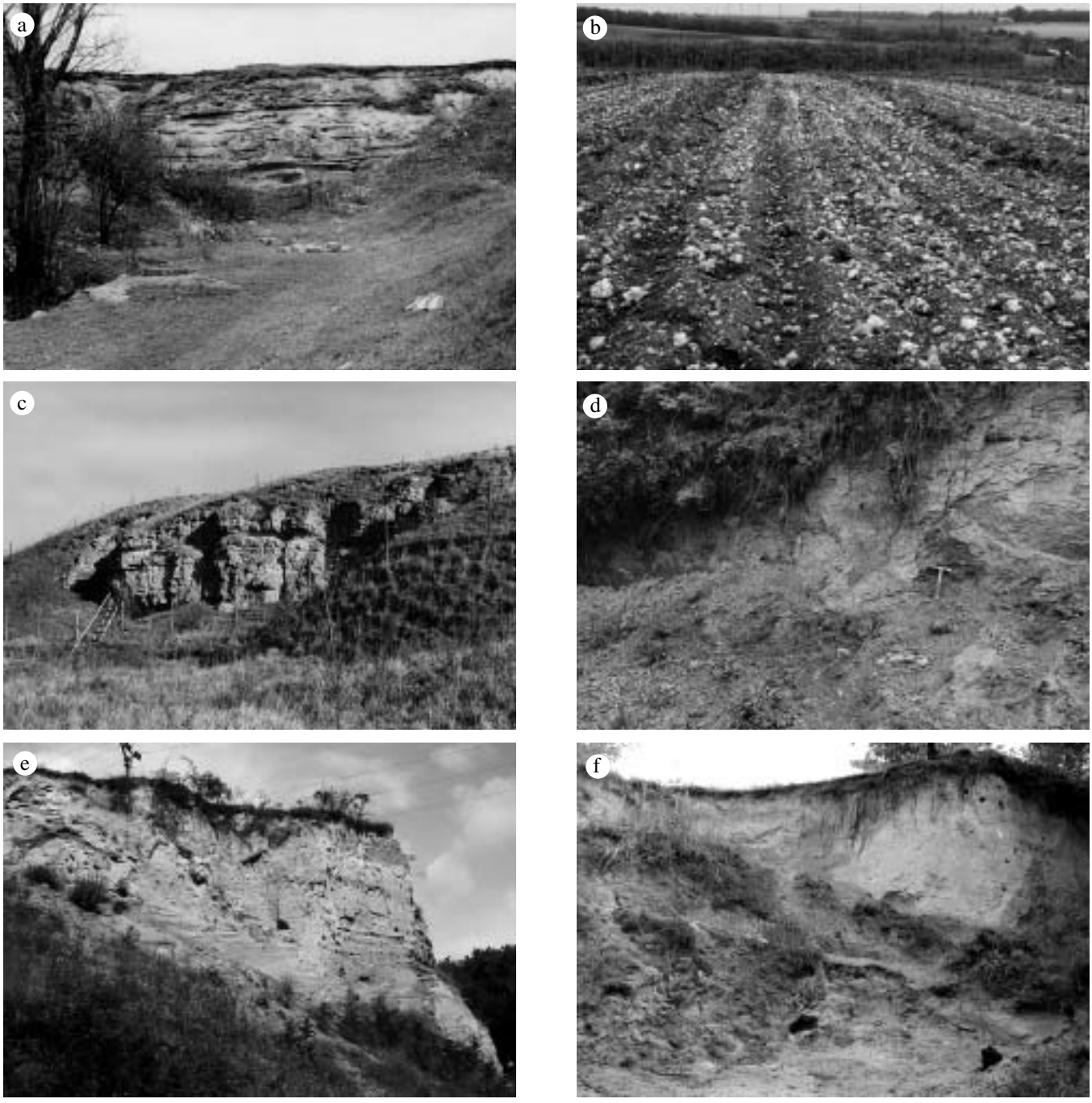
ied (Nehyba et al., 2008a). Museum material only was available from five additional localities: Olomoučany, Čižovec, Drnovice, Boskovice and Mohyla míru.

Podbřežice

The locality of Podbřežice is situated near the village with the same name, about 5 km south-east from the village of Rousínov (Brno district). The profile is represented by limestone build-ups with a bryozoan framework that occurs on the southern slope of a small hill about 2 km south of the village Podbřežice (GPS position 49° 11.909'N and 016° 55.579'E). The second part of the profile has been found inside the village (GPS position 49° 12.692'N and 016° 55.870'E).

The Podbřežice build-up was mentioned for the first time by Vlach (1974), who described 15 species of bryozoans. Subsequently, Novák (1975) determined 18 bryozoan species, but described none. Unfortunately both papers remained unpublished; published information about this locality is by Hladilová and Zdražílková (1989), who did not determine or describe any Bryozoa. Since 1992 the build-up is protected as a palaeontological locality. A new detailed description of the locality with a reconstruction of its environmental history is given in Zágoršek and Holcová (2005) based on 12 samples collected from each distinctive layer.

The recent study is based on more detailed sampling: 21 new samples (Pr-1 to Pr-21) were collected and studied



Text-fig. 2. Figures of sections: 2a: Destroyed quarry in the section Mohyla míru. 2b: Massive oocurrence of bryozoans in the section at Hlohovec, all white "balls" are colonies of celleporid bryozoans. 2c: Section Podbřežice in year 1974 with clearly visible middle layer (sample Pr-14), which yield the most diverse bryozoan fauna. 2d: Section Mikulov, the profile in slope with indication of celleporid layer (hammer) 2e: Section Oslavany, the profile in quarry with visible cross bedding indicating very shallow water. 2f: Section Terešov, the profile in quarry with visible bedding

Table 3.

Bryozoan taxa/sections	Podbřežice																					
Samples (the samples not included in the table do not contain bryozoans remains)	Pr-1	Pr-2	Pr-3	Pr-4	Pr-5	Pr-6	Pr-7	Pr-8	Pr-9	Pr-10	Pr-11	Pr-12	Pr-13	Pr-14	Pr-15	Pr-16	Pr-17	Pr-18	Pr-19	Pr-20	Pr-21	Pv
Adeonella polystomella		1										1		1							1	1
Adeonellopsis coscinophora																						1
Amphiblestrum appendiculatum			1				1	1					1	1								
Annectocyma subdivaricata							1	1		1		1		1		1	1					
Biflustra savartii								1														1
Bobiesipora fasciculata		1																				1
Buffonellaria kuklinskii sp.n.	1	1	1	1	1		1		1		1	1	1	1	1	1	1	1	1	1	1	1
Calpensia gracilis														1								
Cellaria cf. *fistulosa*	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1
Cellaria cf. *salicornioides*									1				1				1			1	1	
Celleporaria cornigera									1													
Celleporaria palmata									1													
Coronopora cf. *disticha*																						1
Crisia cf. *eburnea*			1	1				1									1					1
Crisia elongata		1		1	1							1	1		1	1				1	1	1
Crisia haueri								1				1		1								1
Crisia hoernesii			1					1	1		1	1	1	1	1		1			1	1	1
Crisidmonea foraminosa																						1
Diplosolen obelium						1	1				1	1										1
Disporella cf. *hispida*			1						1		1	1	1							1	1	1
Disporella cf. *radiata*									1		1	1										
Disporella goldfussi	1	1		1	1		1	1	1		1			1	1	1						1
Emballotheca seriata			1					1														
Eokotosokum? bobiesi	1	1	1	1	1			1		1		1		1		1				1	1	1
Escharella ovoidea															1							
Escharella reussiana														1		1	1					
Escharella tenera			1	1	1				1		1	1	1		1	1	1					1
Escharina otophora												1										
Escharoides coccinea				1					1			1										1
Escharoides megalota		1	1	1	1				1		1	1			1	1						1
Exidmonea atlantica			1		1	1																1
Exidmonea giebeli			1		1	1																
Exidmonea undata		1				1											1			1		1
Exochoecia compressa									1		1		1									
Ferganula rousinovensis sp.n.												1										1
Flustrellaria fenestrata		1	1				1	1	1		1	1	1	1								1
Flustrellaria sp.														1								
Frondipora cf. *verrucosa*																						1
Gephyrotes cf. *fortunensis*														1								
Hagiosynodos campanulata			1		1								1		1	1				1	1	
Hagiosynodos latus												1	1		1	1	1				1	
Herentia hyndmanni																						1
Heteropora sp	1	1	1		1	1			1		1			1			1					
Hippopleurifera sedgwicki	1	1	1		1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1
Hippopleurifera semicristata	1	1	1			1		1					1	1	1	1	1	1	1			
Hippoporella bicornis								1														
Hornera cf. *frondiculata*	1	1			1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1
Hornera striata									1				1				1			1		
Hornera subannulata													1									1
Hornera verrucosa								1									1					1
Idmidronea coronopus			1					1														1
Iodictyum rubeschii						1						1			1	1	1					1
Laminopora cf. *dubia*	1		1	1			1		1			1	1	1	1	1	1	1	1		1	1
Margaretta cereoides						1		1	1		1									1	1	1
Mecynoecia proboscidea		1	1					1						1			1			1	1	1
Mecynoecia pulchella	1	1	1		1	1		1					1	1	1	1				1	1	1
Mesenteripora flabellum					1	1																
Metrarabdotos maleckii	1	1			1	1	1		1		1	1	1	1	1	1		1	1	1	1	1
Micropora papyracea						1									1	1						1
Micropora parvicella			1			1		1			1	1		1	1	1						

Bryozoan taxa/sections	Podbřežice																				
Samples (the samples not included in the table do not contain bryozoans remains)	Pr-1	Pr-2	Pr-3	Pr-4	Pr-5	Pr-6	Pr-7	Pr-8	Pr-9	Pr-10	Pr-11	Pr-12	Pr-13	Pr-14	Pr-15	Pr-16	Pr-17	Pr-18	Pr-19	Pr-20	Pr-21	Pv
Microporella berningi sp.n.				1																		
Microporella crenilabris aff. *ciliata*	1	1				1	1		1			1				1	1			1	1	
Myriapora truncata		1	1	1		1	1		1		1	1			1	1	1				1	1
Oncousoecia? biloba		1		1				1				1		1	1	1						1
Onychocella angulosa	1	1		1	1	1	1	1						1								1
Phoceana tubulifera																						1
Plagioecia rotula		1										1		1								
Platonea pluma									1		1	1									1	1
Pleuronea pertusa	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Polyascosoecia cancellata			1		1	1		1	1		1		1	1			1					1
Porella circumornata																						1
Porella nuda		1																				1
Porella regularis			1																			1
Pseudofrondipora davidi																						1
Puellina (*Cribrilaria*) *rarecostata*												1										
Puellina venusta		1				1	1			1		1	1	1				1				
Reteporella cf. *beaniana*							1	1		1		1	1	1			1					
Reteporella hluchovensis sp.n.														1	1							
Reteporella kralicensis							1			1			1	1			1					1
Reteporella sp.	1	1	1		1	1	1	1	1			1	1	1	1	1	1			1	1	1
Reussirella haidingeri																						1
Rhynchozoon monoceros	1	1	1	1	1	1	1	1	1		1	1	1	1			1	1	1	1		
Rhynchozoon oslavanensis sp.n.		1					1		1			1										1
Rhynchozoon sp.									1								1					
Scrupocellaria elliptica			1					1	1				1	1								1
Schedocleidochasma incisa	1	1		1		1				1		1	1	1	1	1		1	1	1	1	
Schizoporella? geminipora		1	1	1	1							1										1
Schizolepralia polyomma																						1
Schizomavella protuberans		1	1				1	1	1	1		1	1				1			1		
Schizomavella tenella		1		1	1	1		1	1		1	1	1	1	1	1	1	1	1			
Schizoporella dunkeri		1										1	1	1								
Schizoporella teragona	1	1		1				1	1				1	1	1	1	1	1	1	1	1	1
Schizostomella grinzingensis																						1
Schizotheca cf. *fissa*		1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	
Smittina cervicornis	1	1		1	1	1		1	1	1	1	1	1	1	1	1		1	1			1
Smittipora platystoma								1														1
Steginoporella cucullata		1				1							1									1
Stephanolona pauper		1							1		1		1		1	1	1		1	1	1	
Tervia irregularis					1		1		1		1	1	1	1	1	1	1			1		1
Tetrocycloecia dichotoma																						1
Trochiliopora insignis								1														1
Trypostega rugulosa			1									1	1				1					
Tubulipora dimidiata														1								1
Tubulipora flabellaris								1				1		1								
Tubulipora foliacea								1														
Turbicellepora coronopus						1						1		1								1
Umbonula granulata sp.n.																						1
Umbonula macrocheila	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
undeterminable calloporids						1			1				1	1	1	1						
undeterminable celleporids	1	1	1	1		1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1
Vibracella trapezoidea				1																		
Ybselosoecia typica	1	1	1		1	1	1	1	1		1	1	1	1	1	1	1			1	1	1
Number of species	**22**	**41**	**36**	**25**	**28**	**34**	**27**	**40**	**42**	**11**	**30**	**50**	**43**	**49**	**35**	**36**	**38**	**17**	**17**	**29**	**29**	**69**

in detail. The bryozoan build-up in Podbřežice is more than 6m high and can be divided into three main horizons (Nehyba et al., 2008b). The lower one (Pr-1 to Pr-13) is represented by limestone layers rich in bryozoans, molluscs and echinoderms intercalated by thin marl layers. These pelitic intercalations are very rich in small bryozoan colonies such as *Mecynoecia, Pleuronea* and *Smittina*. The middle horizon is represented by sample Pr-14. It is a marl layer yielding only bryozoan remains and with the highest diversity dominated by the species *Pleuronea* and *Polyascosoecia*. The upper horizon (samples Pr-15 to Pr-21) is formed by a biotherm complex composed of celleporid colonies, mostly 3-7 cm in diameter growing close to each other. The space between these celleporids colonies is filled with calcareous sand, marl or limestone which contains many bryozoans and few other faunal elements. (Text-fig. 2)

Podbřežice village (sample Pv) was described for the first time by Sváček (1995) in his diploma thesis and re-described by Zágoršek and Holcová (2005). Dominant species in this section belong to the genera *Myriapora, Metrarabdotos* and *Smittina.* Distribution of identified species in the studied samples is given in Table 3.

Oslavany

Section Oslavany is situated in an abandoned quarry, about 1km south from the centre of the city (GPS position 49° 06.826' N, 016° 20.212' E). The profile was chosen as the holostratotype for the Lower Badenian - Moravian stage (Cicha, 1978a). He described in detail the sedimentology of the section and listed nannoplankton, foraminifers and mollusc species, but no bryozoans.

The profile is about 10 meters high and is characterized by alternating fine-grained and coarse-grained sand, often cross-bedded, and with mud balls.

During our recent investigation we took twelve samples Osl-1 to Osl-12. Differences may be observed between the lower part of the profile (Osl-1 to Osl-6) and its upper part (Osl-8 to Osl-12). More erect species (*Phoceana*, *Pleuronea*, *and Tervia*), more cyclostomatous species and more specimens of *Smittina* occur in the lower part, while more fragments of *Hornera*, *Cellaria* and *Crisia* and more encrusting (*Oncousoecia*) and free living (*Vibracella*) species were observed in the upper part of the profile. Distribution of identified species in the studied samples is given in Table 4.

The number of species is highly dependent on the size of the sand grains, which may indicate transport and sorting of the fossils according to their size. More species have been determined from the coarse-grained sand than from the fine-grained sand (Text-fig. 2).

Židlochovice

Section Židlochovice is situated in an abandoned quarry, about 1km north from the centre of the city (GPS position 49° 02.499'N, 016° 37.303' E). The profile was chosen as the Faciostratotype for the Lower Badenian - Moravian stage a part of the Upper Lagenid Zone (Cicha, 1978b). The sedimentology of the section with a list of all fossils found (nannoplankton, foraminifers, corals, echinoderms, ostracods, molluscs and fish species but no bryozoans) have been described in detail by Cicha (1978b).

Sváček (1995) described many bryozoan species from this locality, but he did not mention, if his samples were from the section, or only from the surrounding field. A revision of his collection is included in our recent research, within the sample Z-1.

The quarry has been recently buried however, so the old profile cannot be studied any more. Only a small profile (about 2m high) presenting a quaternary redeposition of Miocene sediments, situated at the northern margin of the quarry (GPS position 49° 02.499'N, 016° 37.303'E) yielded bryozoans (sample Z-1). Dominant bryozoan species belong to the genera *Reteporella, Hornera, Metrarabdotos* and *Smittina.* Beside bryozoans, remains of algae are most common.

At the foot of the hill, a garage was built during the year 2004 (GPS position 49° 02.483'N, 16° 37.224'E). The sample (Z-2) taken from the sediment from here contains a very rich association of bryozoa, with common fragments of *Reteporella* and *Platonea.* Distribution of identified species in the studied samples is given in Table 1.

Holubice

The locality Holubice is situated on a hill top, about 1 km south from the centre of the village of the same name. The outcrop is situated in an old quarry. (GPS position 49° 10.236' N and 016° 48.507' E) in the middle of an agricultural area.

The locality was briefly described by Hladilová and Zdražílková (1989), who did not determine or describe any Bryozoans. The studied section is about 3m high and consists of yellowish sand with clay intercalations at the bottom and algal limestone at the top. The sequence may represent a slightly reworked older bryozoan sediment, but the preservation of the colonies is excellent, so only short distance transport may be assumed.

Altogether 7 samples were taken (Hol-1 to Hol-7) from the profile (Holcová and Zágoršek, 2008); each one contained highly diverse bryozoan fragments. Among them, the most common are *Steginoporella manzonii, Adeonella, Reteporella, Cellaria* and *Schizoporella? geminipora*. Encrusters are also very abundant. Distribution of identified species in the studied samples is given in Table 5.

Rebešovice

The section is situated inside the village Rebešovice, on the slope of a hill close to a football pitch (GPS position: 49° 06.080' N, 016° 37.688' E). It represents a very small outcrop of Miocene sediment inside younger lacustrine sediments called Rebešovice sand (Novák and Pálenský, 2000). The museum material is stored at the Museum of Natural History Brno (MZM Brno) under the number 187 and in addition to very common species it also contains *Steraechmella buski*; this is the only one locality where this species in the Moravian Miocene is common.

The section was never studied before, and was discovered during extended field activity between the years 2004 to 2007.

The profile is about 1m high and altogether 6 samples were taken. The samples may be divided into two groups, but the differences are not highly significant. The lower part of the profile (samples Reb-1 to Reb-3) contains many Celleporids, and fragments of the genera *Adeonella, Steginoporella* and *Vibracella.* In the upper part of the profile (samples Reb-5 and Reb-6) species of *Calpensia* dominated with abundant remains of *Cribellopora* and *Schizolepralia.* Distribution of identified species in the studied samples is given in Table 6.

Přemyslovice

Common occurrence of Miocene fossils were earlier reported in the vicinity of Přemyslovice city by Schwarz (1946). The locality was rediscovered by Dr. Jašková (Prostějov muzeum) and Dr. Lehotský (University of Olomouc) in 2005.

A rich association of bryozoan fragments was found in an agricultural area (GPS location 49°34.169 N and 016°57.928 E) on the north-west margin of the village Přemyslovice. The sample is rich in celleporids and large erect bryozoans such as *Smittina* and *Myriapora*.

Four shallow boreholes were sunk here in the summer 2007. The boreholes (Py-1 to Py-4) were situated close to

Table 4.

Bryozoan taxa/sections	Oslavany										
Samples (the samples not included in the table do not contain bryozoans remains)	**OSL 1**	**OSL 2**	**OSL 3**	**OSL 4**	**OSL 5**	**OSL 6**	**OSL 8**	**OSL 9**	**OSL 10**	**OSL 11**	**OSL 12**
Adeonellopsis coscinophora		1					1				
Batopora rosula							1				
Biflustra savartii						1					
Buffonellaria holubicensis sp.n.		1									
Buffonellaria kuklinskii sp.n.	1										
Calpensia gracilis											1
Cellaria cf. *fistulosa*	1	1	1	1		1	1	1	1		1
Cellaria cf. *salicornioides*	1	1					1		1	1	
Cribellopora latigastra	1										
Crisia elongata		1					1		1		
Crisia haueri		1	1		1			1	1	1	
Crisia hoernesii	1	1	1	1	1	1		1	1	1	1
Crisidmonea foraminosa		1									
Cupuladria baluki sp.n.		1									
Disporella cf. *hispida*	1	1				1					
Emballotheca seriata		1									
Eokotosokum? bobiesi			1								
Exidmonea atlantica	1	1	1	1			1	1	1	1	
Exidmonea kuhni		1									
Exidmonea undata		1	1				1				
Exochoecia compressa		1									
Flustrellaria fenestrata		1									
Frondipora parva sp.n.		1									
Hagiosynodos latus	1	1					1		1		
Heteropora sp	1		1				1		1		
Hornera cf. *frondiculata*	1	1	1	1	1		1	1	1		1
Hornera verrucosa		1		1					1		1
Idmidronea coronopus		1		1	1	1		1	1	1	1
Iodictyum rubeschii							1				
Laminopora cf. *dubia*	1	1							1		
Margaretta cereoides			1				1				
Mecynoecia pulchella	1	1	1			1					1
Mesenteripora flabellum		1				1					
Metrarabdotos maleckii		1	1	1				1	1		
Mollia cf. *patellaria*										1	
Myriapora truncata		1									
Oncousoecia? biloba			1				1		1		
Onychocella angulosa		1					1		1		
Parasmittina cf. *reticulata*		1				1					
Phoceana tubulifera				1							
Platonea pluma									1		
Pleuronea pertusa		1				1					
Polyascosoecia cancellata	1	1	1			1	1		1	1	1
Reptadeonella cf. *violacea*		2									
Reteporella sp.	1	1	1	1		1	1		1		1
Reussia regularis									1		
Reussirella haidingeri	1	1	1			1	1		1		1
Rhynchozoon monoceros									1		1
Rhynchozoon oslavanensis sp.n.		1									
Scrupocellaria elliptica	1	1		1	1	1	1	1		1	1
Schizoporella? geminipora		1				1	1				1
Schizolepralia polyomma						1					
Schizomavella protuberans		1							1		
Schizomavella tenella							1				
Schizostomella grinzingensis		1	1		1						
Smittina cervicornis	1	1	1				1	1			
Tervia irregularis			1	1					1		
Tubulipora dimidiata									1		
Tubulipora flabellaris		1									
Umbonula macrocheila		1							1		
undeterminable calloporids		1							1		
undeterminable celleporids	1	1	1	1	1	1		1	1		1
Vibracella trapezoidea							1				1
Ybselosoecia typica		1	1				1				1
Number of species	**18**	**45**	**20**	**12**	**7**	**16**	**23**	**10**	**27**	**8**	**16**

Table 5.

Bryozoan taxa/sections	Holubice						
Samples (the samples not included in the table do not contain bryozoans remains)	HOL 1	HOL 2	HOL 3	HOL 4	HOL 5	HOL 6	HOL 7
Adeonella polystomella	1	1			1	1	
Adeonellopsis coscinophora		1				1	
Amphiblestrum appendiculatum						1	
Annectocyma subdivaricata		1					
Biflustra savartii		1					
Buffonellaria holubicensis sp.n.		1	1		1	1	
Calpensia gracilis		1			1	1	
Cellaria cf. *fistulosa*	1	1	1		1	1	
Cellaria cf. *salicornioides*	1	1	1			1	
Coronopora cf. *disticha*		1					
Crisia cf. *eburnea*	1						
Crisia elongata		1	1		1	1	
Crisia haueri						1	
Crisia hoernesii		1	1	1	1	1	
Crisidmonea foraminosa						1	
Diplosolen obelium		1					
Disporella cf. *hispida*	1	1				1	
Disporella cf. *radiata*			1		1	1	
Disporella goldfussi		1	1		1	1	
Emballotheca seriata					1	1	
Eokotosokum? bobiesi					1		
Escharella tenera		1				1	
Escharoides coccinea		1				1	
Escharoides megalota		1				1	
Exidmonea atlantica		1			1	1	
Exidmonea giebeli					1	1	
Exidmonea undata			1			1	
Exochoecia compressa			1		1	1	
Flustrellaria fenestrata					1		
Frondipora cf. *verrucosa*			1		1	1	
Hagiosynodos latus					1	1	
Herentia hyndmanni		1					
Heteropora sp		1	1		1	1	
Hippopleurifera sedgwicki		1			1	1	
Hippopleurifera semicristata		1				1	
Hippoporella bicornis			1				
Hornera cf. *frondiculata*	1	1	1	1	1	1	1
Hornera striata		1		1	1	1	
Hornera subannulata		1				1	
Hornera verrucosa		1	1		1	1	
Iodictyum rubeschii			1		1	1	
Laminopora cf. *dubia*			1			1	
Margaretta cereoides	1	1	1		1	1	
Mecynoecia proboscidea					1	1	
Mecynoecia pulchella	1	1			1	1	
Mesenteripora flabellum		1				1	
Metrarabdotos maleckii	1	1	1	1	1	1	
Micropora parvicella		1					
Microporella berningi sp.n.						1	
Microporella crenilabris aff. *ciliata*		1			1	1	
Myriapora truncata		1	1	1	1	1	1
Oncousoecia? biloba			1			1	
Onychocella angulosa					1	1	
Parasmittina cf. *reticulata*		1					
Phoceana tubulifera		1			1	1	
Plagioecia rotula						1	
Platonea pluma				1		1	
Pleuronea pertusa	1	1	1		1	1	
Polyascosoecia cancellata	1	1	1	1	1	1	1
Porella circumornata					1	1	
Porella nuda					1	1	
Porella regularis		1	1		1	1	
Pseudofrondipora davidi	1	1	1		1	1	
Puellina venusta					1		
Reteporella hluchovensis sp.n.		1				1	
Reteporella kralicensis		1	1		1	1	
Reteporella ruzenkae sp.n		1				1	
Reteporella sp.		1	1	1	1	1	
Reussia regularis			1				
Rhynchozoon monoceros		1	1		1	1	
Rhynchozoon oslavanensis sp.n.			1				
Schizoporella? geminipora	1	1	1		1	1	
Schizolepralia polyomma			1			1	
Schizomavella protuberans		1			1	1	
Schizomavella tenella					1		
Schizoporella dunkeri		1					
Schizoporella teragona			1		1		
Schizotheca cf. *fissa*		1				1	
Smittina cervicornis		1	1		1	1	
Steginoporella cucullata		1		1	1	1	
Tervia irregularis	1	1			1	1	
Tetrocycloecia dichotoma							1
Trochiliopora insignis		1				1	
Trypostega rugulosa					1	1	
Tubulipora dimidiata		1					
Tubulipora flabellaris		1				1	
Turbicellepora coronopus			1			1	
Umbonula macrocheila		1	1		1	1	
undeterminable calloporids		1				1	
undeterminable celleporids	1	1	1	1	1	1	1
Vibracella trapezoidea					1		
Ybselosoecia typica		1	1		1	1	
Number of species	**15**	**58**	**37**	**10**	**52**	**72**	**5**

each other. A detailed description of the boreholes is given in Holcová et al. (2007) and Zágoršek and Holcová (in print). Altogether 7 samples yielded bryozoans. In all samples dominant species were *Crisidmonea foraminosa, Pleuronea pertusa* and *Metrarabdotos maleckii.* Distribution of identified species in the studied samples is given in Table 7.

Terešov

An abandoned sand-pit is situated at the eastern margin of the village Terešov, near Vyškov (GPS location 49° 14.613' N and 017° 01.091'E). The locality is briefly described by Krystek (1974), who mentioned the occurrence of Bryozoa within the sedimentary sequence, but did not describe any of them. (Text-fig. 2)

From a wall of the sand-pit, about 8m high, nine samples have been studied in detail. Fossil remains were not very common, but bryozoans were the most dominant. The most common species determined include *Cellaria, Myriapora* and *Iodictyum rubeschii*. Distribution of identified species in the studied samples is given in Table 8.

Kroužek

The section Kroužek is situated less than 2 km southeast from the centre of the village Rousínov, above a football pitch in the district of Kroužek (GPS position 49° 11.512'N and 016° 54.187'E).

The locality is briefly described by Hladilová and Zdražílková (1989), who did not determine or described any Bryozoa.

Table 6.

Bryozoan taxa/sections	Rebešovice						
Samples (the samples not included in the table do not contain bryozoans remains)	MZM	REB 1	REB 2	REB 3	REB 4	REB 5	REB 6
Adeonella polystomella	1	1	1	1		1	
Amphiblestrum appendiculatum			1				
Biflustra savartii				1			
Calpensia gracilis				1			
Calpensia rebeshovensis sp.n.			1	1		1	
Cellaria cf. *fistulosa*			1	1	1	1	1
Cellaria cf. *salicornioides*				1			1
Cribellopora latigastra						1	
Crisia elongata				1			1
Crisia haueri						1	
Crisia hoernesii		1	1	1		1	1
Crisidmonea foraminosa				1		1	
Disporella cf. *hispida*		1	1	1		1	
Disporella cf. *radiata*			1	1		1	
Disporella goldfussi			1			1	
Emballotheca seriata						1	
Eokotosokum? bobiesi			1	1		1	
Escharella tenera			1	1			
Escharoides coccinea						1	
Escharoides megalota							1
Eximonea atlantica		1	1	1	1	1	1
Eximonea giebeli		1					
Eximonea undata			1	1			
Flustrellaria fenestrata		1	1		1		
Herentia hyndmanni				1			
Heteropora sp			1	1	1	1	
Hippoporella bicornis			1				
Hornera cf. *frondiculata*	1	1	1	1	1	1	1
Hornera verrucosa		1	1	1		1	1
Iodictyum rubeschii			1				
Margaretta cereoides			1	1		1	
Mecynoecia proboscidea						1	
Mecynoecia pulchella		1	1	1		1	1
Metrarabdotos maleckii	1	1	1	1		1	1
Micropora parvicella	1			1			
Mollia cf. *patellaria*	1						
Myriapora truncata	1			1		1	
Oncousoecia? biloba				1		1	
Onychocella angulosa				1		1	
Phoceana tubulifera					1		
Plagioecia rotula			1	1			
Polyascosoecia cancellata	1	1	1			1	1
Pseudofrondipora davidi			1				
Puellina venusta				1		1	
Reteporella sp.		1	1	1	1	1	1
Reussirella haidingeri	1						
Rhynchozoon monoceros		1		1			
Rhynchozoon sp.	1						
Schizoporella? geminipora		1		1	1	1	1
Schizolepralia polyomma						1	
Schizomavella protuberans						1	
Schizomavella tenella		1	1				
Schizoporella teragona				1			
Smittina cervicornis	1	1	1	1	1	1	
Smittipora platystoma				1			
Steginoporella cucullata			1	1			
Steginoporella tuberculata			1	1		1	1
Stephanolona pauper			1				
Steraechmella buski	1						
Tervia irregularis		1				1	
Tetrocycloecia dichotoma				1		1	
Tholopora neufferi						1	
Trochiliopora insignis			1				
Trypostega rugulosa			1				
Tubulipora dimidiata			1				
Umbonula macrocheila			1	1			
undeterminable calloporids			1			1	
undeterminable celleporids	1	1	1	1		1	
Vibracella trapezoidea				1	1		
Ybselosoecia typica			1	1		1	1
Number of species	**12**	**18**	**37**	**41**	**10**	**38**	**15**

The profile is about 4m high and formed by calcareous sandstone to limestone (Holcová and Zágoršek, 2008). Recently 24 samples were studied from the section (Krz-1 to Krz-24), but only 14 of them contained bryozoans. The samples may be separated into four groups: lower, middle, upper and terminal. Distribution of identified species in the studied samples is given in Table 9.

The lower part of the section (samples Krz-1 to Krz-7) contained a bryozoan association, in which cyclostomatous species, encrusting and flexible colonies were dominant (genera *Cellaria, Scrupocellaria, Reteporella* and *Crisia*). The middle part (samples Krz-10 to Krz-14) is characterized by the very common occurrence of *Smittina, Metrarabdotos* with *Myriapora*. The presence of *Crisidmonea, Polyascosoecia* and *Crisia* characterized the upper part of the profile (samples Krz-15 to Krz-16). From the terminal part of the profile only one sample contained very rare fragments of Bryozoa (Krz-20).

In addition to this profile, one sample from the field surrounding the section has been studied (sample Kr-II). This sample contained a different fauna, abundant in *Myriapora, Adeonella, Margaretta* and *Metrarabdotos* and probably represents the overlaying sediment (similarly as in Podbřežice, where sample from Podbřežice village also contain a different bryozoan association).

Kralice nad Oslavou

The recently studied section Kralice is situated on the left bank of the Jenešov creek, close to the city of Kralice nad Oslavou (GPS location 49° 11.584' N, 016° 12.538' E).

In Kralice nad Oslavou three outcrops could be located, which might correspond to the classic locality of Procházka (1893). The outcrop Kralice-I (49° 11.619' N, 016° 12.493' E) exposes greyish claystone and did not yield any fossils so far. The second outcrop, Kralice-II, (49° 11.591' N, 016° 12.516' E) contains mainly foraminifera in a yellowish sandstone. Only one sample (Kra-II) yielded bryozoans. The profile has been studied in detail by Zágoršek et. al (2008a). The third section, Kralice-S (49° 11.584' N, 016° 12.538' E), is rich in shallow water bryozoans as well as in molluscs and echinoids in a yellow marl to calcareous sandstone and is the subject of a paper by Zágoršek et al. (2009). Although it cannot be demonstrated without doubt, the section Kralice-S may be considered to be identical with the locality "Kralice" of Procházka (1893), Hamršmíd (1984) and Sváček (1995).

Table 7.

Bryozoan taxa/sections	Přemyslovice							
Samples (the samples not included in the table do not contain bryozoans remains)	Py-1/10 0 m	Py-1/15 0 m	Py-2/60 cm	Py-2/90 cm	Py-3/20 0 cm	Py-4/10 0 cm	Py-4/15 0 cm	field
Adeonella polystomella	1		1			1		
Cellaria cf. *fistulosa*	1			1				
Cribellopora latigastra		1						
Crisia hoernesii		1						
Crisidmonea foraminosa	1	1		1	1	1	1	1
Disporella cf. *hispida*						1		
Disporella cf. *radiata*		1				1		
Disporella goldfussi				1		1	1	
Emballotheca seriata	1					1		
Eokotosokum? bobiesi								1
Escharella tenera				1		1		1
Escharina otophora						1		
Escharoides coccinea								1
Escharoides megalota					1	1	1	
Exidmonea atlantica			1	1	1			1
Exidmonea kuhni								1
Exochoecia compressa								1
Ferganula sp. 1	1							
Flustrellaria fenestrata						1	1	
Hagiosynodos latus	1							
Hippomenella cf. *ampla*							1	
Hippomenella mucronelliformis							1	
Hippopleurifera sedgwicki		1						
Hornera cf. *frondiculata*	1	1	1			1		1
Hornera striata								1
Hornera subannulata								1
Margaretta cereoides					1		1	
Mecynoecia pulchella	1	1	1	1		1		
Metrarabdotos maleckii		1	1		1	1	1	
Microporella crenilabris aff. *ciliata*				1				
Mollia cf. *patellaria*	1							
Myriapora truncata		1				1		1
Oncousoecia? biloba					1			
Onychocella angulosa	1	1	1	1	1	1	1	1
Phoceana tubulifera			1			1	1	
Platonea pluma		1						
Pleuronea pertusa	1	1	1		1	1	1	1
Polyascosoecia cancellata	1	1	1	1	1	1	1	1
Porella circumornata						1		
Porella regularis						1		
Pseudofrondipora davidi								1
Puellina venusta						1	1	
Reteporella cf. *beaniana*				1				
Reteporella sp.	1	1	1	1	1	1	1	1
Rhynchozoon monoceros		1	1		1	1		
Schizoporella? geminipora	1	1	1	1	1	1	1	1
Schizomavella protuberans							1	
Schizoporella dunkeri	1							
Schizoporella teragona	1				1	1		1
Schizotheca cf.		1						
Smittina cervicornis	1	1	1		1	1	1	1
Steginoporella cucullata	1	1	1	1		1		
Stephanolona pauper							1	
Tervia irregularis	1				1			1
Tetrocycloecia dichotoma								1
Trochiliopora insignis		1				1		
Trypostega rugulosa						1		
Tubulipora dimidiata		1						
Umbonula macrocheila	1	1	1	1		1	1	
undeterminable calloporids		1				1		1
undeterminable celleporids	1				1	1	1	1
Ybselosoecia typica	1				1			
Number of species	**22**	**23**	**15**	**14**	**17**	**32**	**20**	**23**

Sváček (1995) also studied this section and collected samples. His collection was studied in detail and included in this recent research.

Table 8.

Bryozoan taxa/sections	Terešov							
Samples (the samples not included in the table do not contain bryozoans remains)	TER P1	TER P2	TER P3	TER P5	TER P6	TER P7	TER P8	TER P9
Adeonella polystomella					1			
Cellaria cf. *fistulosa*	1	1	1					1
Celleporaria palmata			1					
Crisidmonea foraminosa	1							
Emballotheca seriata							1	
Exidmonea atlantica	1			1	1			
Frondipora cf.	1							
Heteropora sp								1
Hornera cf. *frondiculata*	1	1			1			1
Hornera striata		1						
Iodictyum rubeschii					1			
Mecynoecia pulchella	1	1						1
Myriapora truncata						1		
Phoceana tubulifera					1			
Polyascosoecia cancellata	1	1		1			1	1
Pseudofrondipora davidi							1	
Reteporella sp.		1	1	1	1	1	1	1
Schedocleidochasma incisa					1			
Smittina cervicornis	1	1				1		1
Steginoporella cucullata	1	1						
Stephanolona pauper					1			
Umbonula macrocheila	1							
undeterminable calloporids					1			
undeterminable celleporids		1	1		1	1		1
Ybselosoecia typica		1						
Number of species	**10**	**10**	**4**	**3**	**10**	**4**	**4**	**8**

The section Kralice-S, was studied in detail by Zágoršek et al. (2009). Twelve samples (KRAS-1 to KRAS-12) were taken from the section, the fauna was dominated by *Schizoporella, Rhynchozoon* and *Umbonula*. Distribution of identified species in the studied samples is given in Table 10.

Rousínov pumpa

The locality is situated on a road-cut between the village Rousínov and a highway junction with a petrol station (GPS location 49° 11.549'N and 016° 52.769'E). The locality was discovered during field activity in the year 2004, and has not been so far described.

Altogether four samples (Rp1 to Rp4) have been studied in detail from this road-cut, but they may be regarded as one. They were taken from different place only along this road-cut. Dominant bryozoan species in all samples were Celleporids together with *Metrarabdotos* and *Exidmonea*. There are no distinguishable differences among the studied samples.

Recently, in the autumn 2009, a new section has been discovered during building activity nearby the petrol station. The observable part of the section was about 3m high and 5m long and contains four lithological layers (from lower to upper part): greyich calcareous siltstone, algal limestone, greyish siltstone to calcareoes sandstone and yellowish organodetritic marl. In addition to bryozoans, the sediment contained many fragments of echinoids, molluscs and serpulids. Detail study of four samples (each from one layer RoR1 to RoR4) yielded 52 bryozoan taxa, dominanting by small globular Celleporids and also by fragments of *Metrarabdotos, Exidmonea* and *Myriapora*. Among them were identified two new species *Ferganula rousinovensis* sp.n.and *Frondipora parva* sp.n.and two species not obser-

Table 9.

Bryozoan taxa/sections	Kroužek														
Samples (the samples not included in the table do not contain bryozoans remains)	Kr II	Krž 1	Krž 2	Krž 3	Krž 4	Krž 5	Krž 6	Krž 7	Krž 10	Krž 12	Krž 13	Krž 14	Krž 15	Krž 16	Krž 20
Adeonella polystomella	1						1	1		1	1	1			
Adeonellopsis coscinophora	1														
Buffonellaria kuklinskii sp.n.					1						1				
Cellaria cf. *fistulosa*	1	1	1	1	1	1	1	1	1	1	1	1		1	1
Cellaria cf. *salicornioides*					1	1	1	1	1	1	1	1			
Copidozoum natalae sp. n.			1												
Coronopora cf. *disticha*								1							
Crisia cf.			1			1		1							
Crisia elongata		1			1			1	1						
Crisia haueri	1	1	1	1											
Crisia hoernesii	1	1	1	1	1	1	1	1	1	1	1	1			
Crisidmonea foraminosa			1							1	1	1			
Disporella cf. *radiata*							1								
Disporella goldfussi									1		1				
Emballotheca seriata								1			1				
Eokotosokum? bobiesi	1							1		1	1				
Escharella tenera													1		
Escharoides megalota								1			1				
Exidmonea atlantica	1						1	1			1	1			
Exidmonea kuhni			1				1	1			1	1			
Exidmonea undata											1				
Exochoecia compressa									1	1				1	
Flustrellaria fenestrata								1							
Frondipora cf. *verrucosa*												1			
Frondipora parva sp.n.											1				
Herentia hyndmanni								1			1				
Hippopleurifera sedgwicki								1				1			
Hippopleurifera semicristata											1				
Hippoporella bicornis											1				
Hornera cf. *frondiculata*	1	1	1			1	1	1	1	1	1	1			
Hornera striata			1				1	1			1	1			
Hornera subannulata			1		1							1			
Iodictyum rubeschii			1								1	1			
Laminopora cf. *dubia*				1				1			1		1		
Margaretta cereoides	1				1			1			1				
Mecynoecia pulchella	1		1	1	1	1	1	1	1	1	1	1	1		
Mesenteripora flabellum										1					
Metrarabdotos maleckii	1		1	1	1	1	1	1	1	1	1	1			
Microporella crenilabris aff. *ciliata*											1				
Myriapora truncata	1				1		1	1			1	1	1		
Oncousoecia? biloba							1					1			
Onychocella angulosa	1			1				1			1	1			
Platonea pluma	1							1			1				
Pleuronea pertusa	1		1				1	1		1	1	1	1	1	
Polyascosoecia cancellata	1		1		1				1			1			
Porella circumornata											1				
Porella regularis	1										1	1			
Reteporella hluchovensis sp.n.											1				
Reteporella sp.	1	1	1		1		1	1	1	1	1	1	1		
Reussia regularis												1			
Reussirella haidingeri	1														
Rhynchozoon monoceros								1		1		1			
Rhynchozoon krouzkovensis sp.n.											1				
Scrupocellaria elliptica							1								
Schedocleidochasma incisa											1				
Schizoporella? geminipora								1			1	1			
Schizolepralia polyomma											1				
Schizomavella protuberans	1						1								
Schizomavella tenella							1	1			1				
Schizoporella teragona							1	1			1	1			
Schizostomella grinzingensis										1					
Schizotheca cf. *fissa*											1				
Smittina cervicornis	1	1	1	1	1	1	1	1	1	1	1	1			1
Steginoporella cucullata			1									1			
Steginoporella tuberculata											1				
Tervia irregularis			1									1			
Tetrocycloecia dichotoma			1				1								
Trypostega rugulosa	1														
Tubulipora dimidiata								1							
Turbicellepora coronopus							1	1			1				
Umbonula macrocheila	1		1	1			1	1		1	1				
undeterminable calloporids			1					1			1				
undeterminable celleporids	1		1	1		1	1	1	1	1	1	1	1		
Vibracella trapezoidea	1			1											
Ybselosoecia typica			1	1			1	1			1	1			
Number of species	**25**	**7**	**24**	**12**	**13**	**9**	**25**	**37**	**13**	**18**	**47**	**31**	**7**	**3**	**2**

Table 10.

Bryozoan taxa/sections	Kralice nad Oslavou												
Samples (the samples not included in the table do not contain bryozoans remains)	Kralice Svaček	Kra II	Kralice S-1	Kralice S-2	Kralice S-3	Kralice S-4	Kralice S-5	Kralice S-7	Kralice S-8	Kralice S-9	Kralice S-10	Kralice S-11	Kralice S-12
Adeonella polystomella	1			1	1			1	1	1	1	1	1
Adeonellopsis coscinophora								1					
Amphiblestrum appendiculatum												1	
Annectocyma subdivaricata	1												
Batopora rosula										1			
Bobiesipora fasciculata	1										1		
Buffonellaria kuklinskii sp.n.	1			1				1	1	1	1	1	
Cellaria cf. *fistulosa*	1		1	1	1			1				1	
Cellaria cf. *salicornioides*	1												
Copidozoum natalae sp. n.		1								1	1		1
Coronopora cf. *disticha*													1
Crepidacantha odontostoma					1								
Cribellopora trasoni sp.n.					1								
Crisia cf. *eburnea*								1					1
Crisia elongata	1									1			1
Crisia haueri													1
Crisia hoernesii	1		1	1							1	1	1
Crisidmonea foraminosa	1												
Disporella cf. *hispida*	1							1			1	1	
Disporella cf. *radiata*	1							1			1	1	
Disporella goldfussi	1		1	1									
Eokotosokum? bobiesi	1									1	1		1
Escharella tenera									1	1			
Escharoides coccinea	1												
Escharoides megalota	1												
Exidmonea atlantica	1		1	1				1		1		1	1
Exidmonea giebeli								1					
Exidmonea kuhni										1			
Exidmonea undata	1										1	1	1
Exochoecia compressa	1								1			1	
Fenestrulina sp.								1					
Flustrellaria fenestrata	1									1	1		
Frondipora cf. *verrucosa*	1							1				1	
Frondipora parva sp.n.	1								1			1	
Herentia hyndmanni								1					
Hippomenella mucronelliformis	1											1	
Hippopleurifera semicristata												1	1
Hippoporella bicornis	1												
Hornera cf. *frondiculata*		1	1					1			1	1	1
Hornera striata	1							1				1	
Hornera subannulata	1												
Hornera verrucosa												1	1
Idmidronea coronopus		1											
Idmidronea sp.		1											
Iodictyum rubeschii	1							1					
Kionidella moravicensis	1							1	1	1		1	
Margaretta cereoides	1												
Mecynoecia proboscidea											1		
Mecynoecia pulchella	1							1		1	1	1	
Metrarabdotos maleckii	1		1	1								1	
Micropora parvicella					1								
Microporella bemingi sp.n.	1												
Microporella crenilabris aff. *ciliata*	1							1					
Mollia cf. *patellaria*	1							1					
Myriapora truncata	1							1					
Oncousoecia? biloba	1										1	1	
Onychocella angulosa	1								1	1	1	1	
Phoceana tubulifera	1			1	1			1	1	1	1	1	
Plagioecia rotula			1										
Platonea pluma	1												

Bryozoan taxa/sections	Kralice nad Oslavou												
Samples (the samples not included in the table do not contain bryozoans remains)	Kralice Svaček	Kra II	Kralice S-1	Kralice S-2	Kralice S-3	Kralice S-4	Kralice S-5	Kralice S-7	Kralice S-8	Kralice S-9	Kralice S-10	Kralice S-11	Kralice S-12
Polyascosoecia cancellata	1										1	1	
Porella regularis	1										1		1
Pseudofrondipora davidi												1	
Puellina venusta	1											1	
Pyriporella cf. *loxopora*	1							1	1	1	1	1	
Reteporella kralicensis	1	1	1		1			1		1		1	
Reteporella ruzenkae sp.n													1
Reteporella sp.	1			1				1		1	1	1	1
Reteporella vladkae sp.n.	1		1	1	1			1		1	1		
Reussia regularis								1					
Reussirella haidingeri	1												
Rhynchozoon monoceros	1							1	1		1?		
Rhynchozoon oslavanensis sp.n.	1												
Scrupocellaria elliptica	1												1
Schedocleidochasma incisa	1												
Schizoporella? geminipora	1			1	1			1	1	1	1	1	1
Schizolepralia polyomma	1								1			1	
Schizomavella tenella									1				
Schizoporella dunkeri	1												
Schizoporella teragona	1												
Schizostomella grinzingensis										1			
Schizotheca cf. *fissa*	1							1					
Smittina cervicornis	1		1	1	1			1	1	1	1	1	1
Steginoporella cucullata	1							1		1	1	1	
Stephanolona pauper	1							1				1	
Steraechmella buski								1		1			
Tervia irregularis	1	1		1				1			1	1	
Trochiliopora insignis	1												
Tubulipora dimidiata	1												1
Tubulipora foliacea	1												
Turbicellepora coronopus										1			
Umbonula macrocheila	1			1				1	1		1	1	
Umbonula spinosa	1			1	1			1	1	1	1	1	
undeterminable calloporids	1							1			1		1
undeterminable celleporids	1				1	1	1			1	1	1	1
Vibracella trapezoidea	1							1	1	1	1	1	1
Ybselosoecia typica	1							1	1	1	1	1	
Number of species	**68**	**6**	**10**	**15**	**12**	**1**	**1**	**39**	**18**	**28**	**31**	**40**	**23**

ved in any other sections in the Moravian part of the Carpathian foredeep: *Calloporina decorata* and *Lunulites androsaces*. Distribution of identified species in the studied samples is given in Table 11.

Slavkov – sv. Urban

The locality is situated on the slope of a hill called sv. Urban, where a small chapel dedicated to Saint Urban was built. (GPS location 49° 10.370'N and 016° 53.039'E). The locality was described by Hladilová and Zdražílková (1989) as Rousínovec – sv. Urban, but no bryozoans were described.

Samples (altogether six) were collected at different places on the field and at the top of the hill close to Saint Urban chapel. There are no distinguishable differences between the studied samples; in all of them *Steginoporella, Myriapora* and *Adeonellopsis* are the dominant genera. The exception is the sample sv. Ur-1, collected near the chapel, in which only nine species could be found. Distribution of identified species in the studied samples is given in Table 12.

VK-1 Vranovice

The borehole is situated within the vicinity of the village Vranovice, close to the Early/Middle Miocene deposits known as a result of geological mapping. A depth of 60 m was reached by this borehole.

A detailed description of the whole borehole core is given by Nehyba et al. (2008a). Bryozoans occur in 19 samples from different depths, usually dominated by *Steginoporella, Reteporella* and *Adeonellopsis*. Details of bryozoan occurrences in samples from this borehole are given by Zágoršek et al. (2005 and 2007b). Distribution of identified species in the studied samples is given in Table 13.

Pratecký vrch – Mohyla míru

The section was located at the top of the hill Pratecký vrch (GPS location (49° 7.226' N, 016° 45.262' E), but recently it became inaccessible, due to the existence of a military area (Text-fig. 2). Only old samples from Dr. Doláková have been studied (Doláková et al., 2008). The samples represent algal limestone ("V" samples) with sand intercalations ("P" samples). The most common Bryozoa are *Steginoporella Myriapora* and *Crisia*. Distribution of identified species in the studied samples is given in Table 14.

Vranová Lhota

A very poor bryozoan association dominated by *Reteporella* and *Cellaria* has been found on a field south-east

Table 11. Rousínov pumpa

Bryozoan taxa/sections	Rp 1	Rp 2	Rp 3	Rp 4	RoR1	RoR2	RoR3	RoR4
Adeonella polystomella	1	1	1	1		1	1	1
Buffonellaria kuklinskii sp.n.	1	1		1				1
Calloporina decorata				1				1
Calpensia gracilis		1				1		
Cellaria cf. *fistulosa*	1	1	1			1	1	1
Cellaria cf. *salicornioides*	1	1	1				1	
Crisia cf. *eburnea*	1				1			
Crisia hoernesii	1	1	1	1		1	1	1
Crisidmonea foraminosa								1
Disporella cf. *hispida*		1		1		1		1
Disporella cf. *radiata*		1				1		
Eokotosokum? bobiesi								1
Escharella tenera		1		1		1		1
Exidmonea atlantica	1	1	1	1		1		1
Exidmonea kuhni			1				1	
Exochoecia compressa	1		1		1		1	
Ferganula rousinovensis sp.n.	1			1				1
Flustrellaria fenestrata				1				1
Frondipora parva sp.n.				1				1
Hippopleurifera sedgwicki	1			1				1
Hippopleurifera semicristata				1				1
Hornera cf. *frondiculata*	1	1	1	1	1	1	1	1
Hornera striata	1	1	1		1			1
Lunulites androsaces			1				1	
Margaretta cereoides			1	1				1
Mecynoecia pulchella	1	1	1	1	1	1	1	1
Metrarabdotos maleckii	1	1	1	1		1	1	1
Myriapora truncata		1				1		1
Onychocella angulosa	1	1	1	1		1		1
Phoceana tubulifera	1	1			1	1		
Pleuronea pertusa	1	1	1	1		1	1	1
Polyascosoecia cancellata	1	1	1	1		1	1	1
Porella nuda		1	1			1	1	
Porella regularis	1			1				1
Pseudofrondipora davidi		1		1		1		1
Puellina venusta				1				1
Reteporella sp.	1	1	1	1		1	1	1
Reussia regularis				1				1
Reussirella haidingeri							1	
Rhynchozoon monoceros		1				1		
Schedocleidochasma incisa	1				1			
Schizoporella? geminipora	1	1		1		1		1
Schizolepralia polyomma		1	1			1	1	
Schizomavella protuberans		1				1		
Schizoporella teragona		1	1			1	1	
Smittina cervicornis	1	1	1	1		1	1	1
Steginoporella cucullata	1	1	1	1		1	1	1
Tervia irregularis		1	1	1			1	1
Umbonula macrocheila	1	1	1	1		1		1
undeterminable calloporids		1	1	1		1	1	1
undeterminable celleporids	1	1	1		1	1	1	
Ybselosoecia typica	1	1		1	1			1
Number of species	**27**	**34**	**26**	**31**	**9**	**29**	**22**	**36**

from the village (GPS location 49° 43.096' N and 016° 48.747' E). The sample was briefly described by Holcová and Zágoršek (2008). Distribution of identified species in the studied samples is given in Table 1.

Vápno

Near the hill top of Vápno (GPS location 49° 24.361'N and 016° 36.962'E) an algal limestone with few Bryozoa remains was reported by Hladilová and Zdražílková (1989). Recent investigation yielded only 2 species of Bryozoa. Distribution of identified species in the studied samples is given in Table 15.

Blučina

The Miocene sediments around the village have been described by Doláková et al. (2008). Only one sample from Dr. Hladilová, collected during building activity in the village, has been studied. The washed residue yielded more than 20 bryozoan species, dominated by *Smittina, Steginoporella* and *Myriapora.* No new samples could be collected. Distribution of identified species in the studied samples is given in Table 15.

Kleneč

On the summit of the hill Kleneč (GPS location 49° 25.095'N and 016° 38.555'E) an algal limestone with few remains of Bryozoa has been reported by Hladilová and Zdražílková (1989). Recent investigation yielded more than 20 species of Bryozoa dominated mainly by celleporid genera *Turbicellepora*, *Reteporella,* and *Schizoporella tetragona* together with cyclostomatous genera, mainly *Exidmonea* and *Hornera*. Distribution of identified species in the studied samples is given in Table 1.

Žatčany

The Miocene sediments around this village have been described by Reuss (1847 and 1874) as Satchan. During building activity in the village only one sample was collected and studied by Dr. Hladilová. The washed residue yielded only 5 bryozoan species; most of the fragments belong to the genera *Smittina* and *Metrarabdotos.* Distribution of identified species in the studied samples is given in Table 15.

Služín

Kalabis (1937) described Miocene sediment around the hill Brus, near Služín, which was redescribed by Hladilová and Zdražílková (1989). Miocene limestone has been found in a field near an old pond (GPS location 49° 32.387'N and 017° 01.614'E) by Dr. Jašková. Only a few bryozoans have been determined from this sample, exceptional is the presence of *Reussirella*, a very rare genus in other sections. Distribution of identified species in the studied samples is given in Table 15.

Vyškov

During building activity a small outcrop with many molluscs and a few bryozoans was studied near the city of Vyškov (GPS location 49° 16.099'N and 017° 0.736'E). Only a few bryozoans, mainly cyclostomatous, such as *Mecynoecia, Pleuronea* and *Polyascosoecia* were found

Table 12.

Bryozoan taxa/sections	Slavkov sv. Urban					
Samples (the samples not included in the table do not contain bryozoans remains)	sv. Ur 1	sv. Ur 2	sv. Ur 3	sv. Ur 4	sv. Ur 5	sv. Ur 6
Adeonella polystomella		1	1	1		1
Adeonellopsis coscinophora		1				
Amphiblestrum appendiculatum		1				
Biflustra savartii				1		
Buffonellaria kuklinskii sp.n.		1		1		
Calpensia sp. (cf. *C. calpensis*)		1				
Cellaria cf. *fistulosa*	1	1	1	1	1	1
Cellaria cf. *salicornioides*		1	1			
Crisia cf. *eburnea*						1
Crisia haueri				1		
Crisia hoernesii				1	1	1
Crisidmonea foraminosa			1	1		1
Emballotheca seriata						1
Eokotosokum? bobiesi		1		1		1
Escharella tenera						1
Escharoides megalota			1			
Exidmonea atlantica	1	1	1	1	1	1
Exidmonea undata		1				
Exochoecia compressa		1				
Ferganula rousinovensis sp.n.				1		
Flustrellaria fenestrata				1		
Frondipora cf. *verrucosa*						1
Heteropora sp.	1	1				1
Hippopleurifera sedgwicki			1			
Hippopleurifera semicristata		1				
Homera cf. *frondiculata*	1	1	1	1	1	1
Homera striata	1	1	1			1
Homera subannulata		1		1		
Iodictyum rubeschii		1	1	1		1
Margaretta cereoides				1		1
Mecynoecia pulchella		1	1	1	1	1
Mesenteripora flabellum				1		1
Metrarabdotos maleckii	1	1	1	1		1
Micropora papyracea		1				
Micropora parvicella		1				
Myriapora truncata	1	1	1	1		
Oncousoecia? biloba		1				
Onychocella angulosa				1		1
Phoceana tubulifera						1
Plagioecia rotula		1			1	
Pleuronea pertusa		1	1	1	1	1
Polyascosoecia cancellata			1	1	1	1
Porella regularis				1		
Pseudofrondipora davidi			1			1
Reteporella sp.		1	1	1		1
Schizoporella? geminipora		1	1	1		
Schizolepralia polyomma		1		1		1
Schizoporella teragona			1	1		1
Schizostomella grinzingensis	1					
Smittina cervicornis		1	1	1	1	1
Steginoporella cucullata			1	1	1	1
Tervia irregularis		1				1
Tetrocycloecia dichotoma				1		
Tubulipora dimidiata						1
Tubulipora flabellaris		1				1
Umbonula macrocheila	1			1		
undeterminable calloporids				1		1
undeterminable celleporids		1	1	1		1
Ybselosoecia typica		1	1		1	1
Number of species	**9**	**33**	**23**	**33**	**11**	**34**

there. Distribution of identified species in the studied samples is given in Table 15.

Nosislav

The Miocene sediments around the village were described by Hladilová and Zdražílková (1989). Near the cemetery (GPS location 49° 00.769'N and 016° 39.853'E) a few Miocene rock have been found. This sample yielded only a few bryozoan remains, mainly *Smittina, Schizostomella* and *Metrarabdotos.* Distribution of identified species in the studied samples is given in Table 15.

Drnovice near Zbraslavec

Only museum material deposited in the MZM Brno has been studied. Field activity to locate the original outcrop with bryozoans was not successful, only algal limestone has been found near the village centre cemetery (GPS location 49° 28.221'N and 016° 32. 252'E). The dominant genus in the museum material is *Reteporella*, but very often free-living species of *Cupuladria* and *Reussirella* were found. Distribution of identified species in the studied samples is given in Table 1.

Hlubočany

Dr. Gregorová, from MZM Brno, found few Miocene rocks on a field near the village Hlubočany (GPS location 49° 14.729'N and 016° 59.646'E). The samples yielded only a very poor bryozoan association: Celleporids and *Polyascosoecia.* Distribution of identified species in the studied samples is given in Table 15.

Ptení

The Miocene sediments around the village were mentioned by Doláková et al. (2008). Near the cemetery at the margin of the village (GPS location 49° 30.581'N and 016° 58.201'E) in a field Miocene rock fragments and big globular celleporid colonies were found. Except for these colonies, bryozoans were very rare. Distribution of identified species in the studied samples is given in Table 15.

Rájec-Jestřebí

The Miocene sediments around the village were mentioned by Hladilová and Zdražílková (1989). and briefly described by Novák (1975). Both did not mention any bryozoans to occur here. In a field (GPS location 49° 24.642'N and 016° 37.869'E) however a few bryozoans were found; among them were only four species identified (Table 15).

Dolní Netčice

A fossiliferous limestone with few fragments of bryozoans was collected inside the village (GPS location 49° 28.771'N and 017° 40.664'E), but the samples did not contain any Bryozoa. Material from this locality deposited in the MZM Brno however yielded a few bryozoan fragments. Distribution of identified species in the studied samples is given in Table 15.

Hrušovany

In a field close to the sugar factory (GPS location 48° 48.653'N and 016° 24.651'E) Dr. Šmerda from the Museum of South Moravia at Znojmo found bryozoan colonies. Distribution of identified species in the studied samples is given in Table 15.

Table 13.

Bryozoan taxa/sections	borehole VK-1 Vranovice																	
Samples (the samples not included in the table do not contain bryozoans remains)	6,3 m	6,4 m	7,0 m	12,5 m	12,6 m	16,8 m	26,5 m	27,5 m	28,8 m	29,7 m	30,7 m	31,5 m	32,0 m	35,0 m	51,2 m	51,4 m	51,9 m	54,8 m	58,0 m
Adeonella polystomella	1	1	1	1	1	1	1	1		1		1	1	1	1	1			1
Adeonellopsis coscinophora	1			1	1	1													
Biflustra savartii				1															
Cellaria cf. *fistulosa*	1	1	1		1					1				1		1		1	1
Cellaria cf. *salicornioides*	1		1				1					1	1	1					
Celleporaria palmata	1					1													
Cribellopora latigastra														1					
Cribellopora sp.														1					
Crisia cf. *eburnea*	1	1	1	1															
Crisia elongata	1			1	1														
Crisia haueri	1	1																	
Crisia hoernesii	1	1		1	1		1	1							1	1	1	1	
Crisidmonea foraminosa		1	1	1		1		1		1			1	1					1
Cupuladria baluki sp.n.						1	1	1											
Diplosolen obelium					1									1					
Eokotosokum? bobiesi		1		1															
Exidmonea atlantica	1	1		1	1	1	1	1	1	1	1		1	1					1
Exidmonea undata					1		1												1
Exochoecia compressa			1								1			1				1	
Frondipora cf. *verrucosa*														1					1
Heteropora sp	1	1							1								1		
Hippopleurifera hypsostoma																			1
Hornera cf. *frondiculata*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Hornera striata	1	1	1	1	1	1	1	1				1	1	1			1		
Hornera subannulata				1										1					
Hornera verrucosa													1	1					
Idmidronea coronopus					1			1	1				1	1					
Iodictyum rubeschii					1							1							
Margaretta cereoides		1					1	1					1	1					
Mecynoecia proboscidea					1														
Mecynoecia pulchella		1	1	1	1	1	1	1		1	1	1	1	1	1		1	1	1
Metrarabdotos maleckii	1	1	1	1		1	1	1		1			1	1	1	1	1		
Micropora parvicella				1															
Microporella crenilabris aff. *ciliata*													1						
Monoporella venusta					1									1					
Myriapora truncata								1											
Oncousoecia? biloba								1									1		
Onychocella angulosa			1				1												
Pleuronea pertusa	1	1	1	1	1	1	1	1			1		1	1			1	1	1
Polyascosoecia cancellata	1	1	1	1		1	1	1		1	1	1	1	1	1	1	1	1	1
Porella circumornata													1	1					
Porella nuda	1																		
Pseudofrondipora davidi				1		1	1						1	1					
Reptadeonella cf. *violacea*		1					1		1	1				1		1			
Reteporella cf. *beaniana*										1									
Reteporella kralicensis					1									1				1	
Reteporella sp.	1	1	1	1	1	1		1		1			1	1	1		1	1	
Reussirella haidingeri										1	1		1	1					
Rhynchozoon oslavanensis sp.n.														1					
Schizoporella? geminipora	1						1	1											
Schizobrachiella? granosoporosa							1					1							
Schizomavella tenella				1		1													
Schizostomella grinzingensis	1			1	1									1					
Smittina cervicornis	1						1							1					
Steginoporella cucullata		1	1	1		1	1	1					1	1					
Tubulipora dimidiata	1							1					1	1	1				
Turbicellepora coronopus						1	1	1						1			1		
Umbonula granulata sp.n.	1																		
Umbonula macrocheila														1					
undeterminable calloporids		1											1	1					
undeterminable celleporids	1	1	1					1		1	1		1	1				1	1
Ybselosoecia typica	1	1	1					1			1	1	1					1	
Number of species	**25**	**22**	**17**	**22**	**19**	**17**	**21**	**22**	**5**	**13**	**9**	**9**	**23**	**36**	**8**	**7**	**11**	**11**	**12**

Table 14.

Bryozoan taxa/sections	Pratecký vrch - Mohyla míru																	
Samples (the samples not included in the table do not contain bryozoans remains)	V1	P1	V2	P2	V3?	V4	P4	V5	P5	V6	V8	V9	V10	V11	V12	V13	V14a	V14b
Adeonella polystomella		1					1											
Calpensia gracilis																		1
Cellaria cf. *fistulosa*		1							1				1					
Cribellopora latigastra	1																	
Cribellopora sp.																	1	1
Crisia elongata		1																
Crisia hoernesii		1																
Crisidmonea foraminosa		1		1								1					1	
Disporella cf. *hispida*																		1
Disporella goldfussi				1														
Escharella tenera																		1
Exidmonea atlantica									1					1				
Hagiosynodos campanulata																		1
Hagiosynodos latus														1				
Heteropora sp								1		1	1	1			1			1
Hippopleurifera semicristata																	1	
Hornera cf. *frondiculata*		1		1			1		1					1	1			1
Hornera striata				1											1			
Hornera subannulata				1										1				
Hornera verrucosa				1			1			1			1	1				
Iodictyum rubeschii															1			
Laminopora cf. *dubia*	1		1											1				
Margaretta cereoides		1													1			
Mecynoecia pulchella							1											
Metrarabdotos maleckii		1						1								1		
Micropora papyracea																		1
Micropora parvicella																		1
Myriapora truncata					1			1		1		1	1	1		1	1	1
Oncousoecia? biloba																		1
Onychocella angulosa			1							1	1		1					
Phoceana tubulifera											1							
Pleuronea pertusa				1														1
Polyascosoecia cancellata				1					1					1			1	
Porella nuda	1																	
Reteporella sp.				1					1				1					
Rhynchozoon monoceros											1			1				1
Schedocleidochasma incisa	1										1							
Schizoporella? geminipora															1			
Schizomavella protuberans								1										1
Schizoporella teragona								1										
Schizotheca cf. *fissa*																		1
Smittina cervicornis		1						1			1	1			1			1
Steginoporella cucullata		1		1														
Stephanolona pauper	1										1							1
Tetrocycloecia dichotoma								1		1							1	
Turbicellepora coronopus				1	1								1				1	
Umbonula macrocheila		1																1
undeterminable celleporids		1	1		1	1		1		1	1	1	1	1	1	1	1	1
Vibracella trapezoidea													1					
Number of species	**5**	**12**	**3**	**11**	**3**	**1**	**4**	**8**	**5**	**6**	**8**	**5**	**8**	**10**	**8**	**3**	**8**	**19**

Hluchov

During building activity in an agricultural area (GPS location 49° 32.322'N and 017° 00.504'E) sediments with very rich bryozoans remains were discovered by Dr. Jašková from the Museum of Prostějov (Jašková, 1998). Dominant bryozoans were *Reteporella* and Celleporids. Distribution of identified species in the studied samples is given in Table 15.

Only museum material, deposited in the MZM at Brno was studied for the following localities: Olomoučany, Čižovec and Boskovice. Field activity did not result in any discoveries of Miocene sediments around these villages. Distribution of identified species in the studied material is given in Table 15.

Systematic part

The systematic arrangement of described bryozoans follows mainly the bryozoan web page (www.bryozoa.net) edited by Phil Bock (last update 2010) based on Bassler (1953) and Hayward and Ryland (1985, 1998 and 1999).

Table 15.

Bryozoan taxa/sections	Vápno	Žatčany	Služín	Vyškov	Nosislav	Hlubočany	Ptení	Rájec-Jestřebí	Dolní Netčice	Hrušovany	Olomoučany MZM	Čížovec MZM	Boskovice MZM
Adeonella polystomella		1				1							
Calpensia gracilis							1						
Cellaria cf. *fistulosa*			1			1							
Cellaria cf. *salicornioides*			1										
Crisia elongata			1										
Crisia hoernesii			1	1									
Disporella cf. *hispida*				1		1							
Disporella goldfussi			1					1					
Escharella tenera						1	1	1					
Exidmonea atlantica													1
Hagiosynodos latus							1						
Heteropora sp			1			1							
Hornera cf. *frondiculata*		1		1	1	1		1					
Hornera subannulata												1	
Hornera verrucosa				1									
Laminopora cf. *dubia*					1								
Margaretta cereoides							1						
Mecynoecia pulchella				1	1	1							1
Metrarabdotos maleckii		1		1	1	1							
Myriapora truncata			1	1									
Oncousoecia? biloba			1				1						
Platonea pluma				1									
Pleuronea pertusa		1		1		1						1	
Polyascosoecia cancellata			1	1	1	1							
Pseudofrondipora davidi												1	
Reteporella cf. *beaniana*			1										
Reteporella sp.						1							
Reussirella haidingeri			1										
Rhynchozoon monoceros	1				1								
Scrupocellaria elliptica			1										
Schizoporella? geminipora							1						
Schizomavella protuberans					1								
Schizomavella tenella							1						
Schizoporella teragona					1	1							
Schizostomella grinzingensis					1								
Schizotheca cf. *fissa*					1								
Smittina cervicornis		1			1								
Tervia irregularis													1
Tetrocycloecia dichotoma											1		
Turbicellepora coronopus						1		1					
Umbonula macrocheila	1					1	1						
undeterminable celleporids			1	1	1	1	1		1	1	1		
Ybselosoecia typica										1		1	
Number of species	**2**	**5**	**13**	**11**	**12**	**15**	**9**	**4**	**1**	**2**	**2**	**4**	**3**

The systematic of Cyclostomata additionally takes into consideration also the papers of Taylor and McKinney (2006) and Vávra (1977). Cheilostomatous systematics also takes into account the data from Gordon (1984, 1986 and 1989) and my own investigations.

The description of the studied species is organized as follows:

T y p e : The details about types (number(s), storage institution, type locality) are given when the type material was studied.

M a t e r i a l : The total number of recently collected specimens from Moravian sections is given. Each of the listed specimens has been studied in detail by means of SEM, photographed and stored in National Museum Prague. According to these specimens, tables 1 to 15 were prepared which summarizes the details of the distribution of all determined species from the studied sections. Additional studied material from sections in Moravia stored in the original REUSS collection in the Natural History Museum Vienna is also included.

D i a g n o s i s : A short description of the studied species, of visible characteristics and details of observable morphological features are given.

R e m a r k s : Differences between studied material and similar species and specimens such as type material, illustrations in literature are given here. Also the variability of specimens, new generic attributions, or any other problems of taxonomy are discussed.

The date of publication of Reuss papers is unclear. The volume was published in 1848 (and 1866) but the paper itself is dated 1847 (and 1865 respectively). Usually the papers are referred to as Reuss (1847) and (1865), which is also followed here. The authors of the taxonomic names higher than species were not included in the reference list.

Phylum **Bryozoa EHRENBERG, 1831**

Class **Stenolaemata BORG, 1926**

Order **Cyclostomata Busk, 1852**

Suborder **Tubuliporina MILNE-EDWARDS, 1838**

Family **Stomatoporidae PERGENS et MEUNIER, 1887**

Genus ***Voigtopora*** BASSLER, 1952

Colony encrusting, uniserial. Tubes elongated with lateral budding. No gonozooecia observed.

According to the original diagnosis the important differences when compared with *Stomatopora* are: broader, elliptical zooecia, proximally narrowing, often showing transverse striation.

***Voigtopora* sp.**

Pl. 1, Fig. 5

M a t e r i a l : Altogether 1 colony was studied from section Sedlec (specimen P 01912).

D i a g n o s i s : Only four autozooecial tubes are preserved, but the lateral budding is clearly visible.

R e m a r k s : This is the first occurrence of *Voigtopora* in the Miocene; up to now it has been known only from the Cretaceous. The recent genus *Jullienipora* which shows lateral budding too was described by Reverter-Gil and Fernandez-Pulpeiro (2005). The relationship between *Jullienipora* and *Voigtopora* has still to be proved.

Family **Oncousoeciidae** CANU, 1918

Genus ***Annectocyma*** HAYWARD et RYLAND, 1985

Colony encrusting, sometimes developing erect portions. Autozooecia alternating with peristomes, sometimes forming transverse rows. Lateral adventitious branches develop from the side of the ancestrula or the first budded autozooecium. Gonozooecia elongated oval with short oeciopore.

Annectocyma subdivaricata (d'Orbigny, 1853)

Pl. 1, Fig. 1-4

v. 1974 *Stomatopora subdivaricata* d'Orbigny – Vávra p. 348, Pl. 1, Fig. 1, 2
1977 *Proboscina subdivaricata* d'Orbigny – Vávra p. 33 (cum syn.)

M a t e r i a l : Altogether 8 specimens were studied, none of which shows a gonozooecium.

D i a g n o s i s : Encrusting series of lobate colonies, the older part of the colony is often uniserial, the younger multiserial. Peristomes short, sometimes forming linear fascicles. The base of the erect portion is present. A gonozooecium has not yet been found.

R e m a r k s : *Proboscina* is an unrecognizable genus (Pitt and Taylor, 1990) and *Annectocyma* is a closely related taxon. The characteristic lateral budding of adventitious branches from the side of the ancestrula is observed in the studied specimens as well as in specimens described by Vávra (1974).

Genus ***Oncousoecia*** Canu, 1918

Colony encrusting or erect. Autozooecial tubes short but wide, with a short peristome, never in fascicles. Gonozooecium large, spread out between a few autozooecial tubes; the oeciopore is larger than the autozooecial aperture. The axis of the gonozooecium is parallel to that of the autozooecial tubes. The autozooecial tubes do not perforate the frontal wall of the gonozooecium.

Oncousoecia? *biloba* (Reuss, 1847)

Pl. 2, Fig. 1-4

v. 1847 *Hornera biloba* m. – Reuss p. 43, Pl. 6, Fig. 21
v. 1977 *Oncousoecia biloba* (Reuss) – Vávra p. 31 (cum syn.)
v. 2003 *Oncousoecia biloba* (Reuss) – Zágoršek p. 114, Pl. 5, Fig. 1 (cum syn.)

T y p e : The lectotypes are stored in the Natural History Museum Vienna under the number 1859.50.715 (Vávra, 1977).

M a t e r i a l : Very common species, altogether 43 specimens were studied, many of them with developed gonozooecium.

D i a g n o s i s : Colony unilaminar with 5 to 10 autozooecial rows obliquely parallel to each other. Originally the colony encrusted perhaps a soft substratum, such as algae. Autozooecial tubes short with circular apertures situated on a short but wide peristome. Gonozooecium large with frontal wall perforated only by pseudopores spreading between 3 to 10 autozooecial tubes. Oeciopore about two times smaller than the autozooecial apertures (Pl. 2, Fig. 3 and 4), situated on the middle or proximal margin of the gonozooecium, sometimes attached to the aperture, sometimes with a short peristome.

R e m a r k s : The traditional attribution of this species to the genus *Oncousoecia* Canu, 1918 is not possible any more, since Taylor and Zatoň (2008) revised the genus *Oncousoecia* and selected the type species and specimen. The type is from a recent collection from the British Isles and grows as an encrusting colony with a very small, elongated gonozooecium and terminal oeciopore. The frontal wall of the gonozooecium is not perforated by autozooecial tubes. These features do not match the characters typical for *Hornera biloba* Reuss, 1847 (large circular gonozooecia perforated by autozooecial tubes with oeciopore situated on the margin of the roof). Such gonozooecia are very similar to the genus *Plagioecia*, but this genus forms sheet-like colonies ("*Berenicea*" – type) and differs also by its regular arrangement of rows of autozooecia.

Up to now, there is no suitable genus in which this species could be included, and to established a new one would require a complete revision of these genera which is beyond the scope of this paper.

Family **Tubuliporidae** Johnston, 1838
Genus ***Tubulipora*** Lamarck, 1816

Colony lobate to broad, fan-shaped. Autozooecia arranged in radial, uniserial to biserial rows, the distal part of the peristomes is free. Gonozooecium extensive, situated between rows of autozooecia, oeciopore isolated.

Tubulipora dimidiata (Reuss, 1847)

Pl. 3, Fig. 1-5

v. 1847 *Defrancia dimidiata* m. – Reuss p. 39, Pl. 6, Fig. 6
1977 *Tubulipora dimidiata* (Reuss, 1847) – Vávra p. 22 (cum syn.)

T y p e : The lectotype is stored in the Natural History Museum Vienna under the number 1847.38.39 (Vávra, 1977).

M a t e r i a l : Altogether 15 specimens were studied from Moravia and one specimen from Steinebrunn (Austria) which was included because it shows a well preserved gonozooecium; moreover the section Steinebrunn is very close to the Moravian border. Additional specimens in the Reuss collection are stored in the Natural History Museum Vienna under the number 1867.40.108 from the section Podivín.

D i a g n o s i s : Colony lobate, small, erect or encrusting some soft substratum. Autozooecial fascicles typically uniserial in early stages of ontogeny, later, close to the edge of the colony, biserial or multiserial. Gonozooecium large extending between 3-4 autozooecial fascicles, oeciostome situated in the middle. Oeciopore close to a fascicle.

R e m a r k s : The large, extensive gonozooecium confirms the attribution to the genus *Tubulipora.* The type specimen encrusts a mollusc shell and does not show the gonozooecium. Due to the presence of uniserial fascicles close to the central part of the colony, the species attribution may be confirmed.

Tubulipora flabellaris (Fabricius, 1780)

Pl. 4, Fig. 1-4

1920 *Tubulipora flabellaris* (Fabricius) – Canu and Bassler p. 755, Fig. 244a - 244d, p. 757, Fig. 246c - 246e, p. 758, Fig. 247d

1974 *Tubulipora flabellaris* (FABRICIUS) – Vávra p. 349, Pl. 1, Fig. 5
1977 *Tubulipora flabellaris* (FABRICIUS) – Vávra p. 23 (cum syn.)
2001 *Tubulipora flabellaris* (FABRICIUS) – Zágoršek p. 24, Pl. 1, Fig. 6, 7

M a t e r i a l : Altogether 6 specimens were studied, none of them with a gonozooecium.

D i a g n o s i s : Colony lobate, small. Autozooecial peristomes long, fascicles formed by 10-14 autozooecia always uniserial during the whole ontogenesis. No gonozooecium observed.

R e m a r k s : Differs from *Tubulipora dimidiata* (REUSS, 1847) in having uniserial fascicles during its whole ontogenesis.

Tubulipora foliacea REUSS, 1847

Pl. 4, Fig. 5-6

v. 1847 *Tubulipora foliacea* m. – Reuss p. 49, Pl. 7, Fig. 5
1977 *Tubulipora foliacea* REUSS, 1847 – Vávra p. 23 (cum syn.)

T y p e : The lectotype is stored in the Natural History Museum Vienna under the number 1867.40.68 (Vávra, 1977).

M a t e r i a l : Only two specimens from section Kralice nad Oslavou were found.

D i a g n o s i s : Colony elongate, irregular, unilaminar. Autozooecia with very long peristomes not arranged in fascicles. Often two or three peristomes coalescing. Gonozooecium large spread between 6 to 8 peristomes with an oeciopore situated on the distal margin, close to one peristome.

R e m a r k s : Differs from other species of *Tubulipora* in having very short fascicles or no fascicles at all (often the autozooecia are arranged individually). With respect to these features, it is very similar to *Oncousoecia*? *biloba* (REUSS, 1847). *Tubulipora foliacea* however differs from *Oncousoecia*? *biloba* in sometimes having autozooecial peristomes arranged in fascicles and an oeciopore situated at the distal edge of the gonozooecium (while *Oncousoecia*? *biloba* has an oeciopore situated in the central part of the gonozooecium).

Genus *Exidmonea* DAVID, MONGEREAU et POUYET, 1972

Colony erect, rod-like, rarely bifurcating with oval to triangular transverse section. Autozooecial apertures arranged in fascicles, the fascicles are parallel to each other. Gonozooecia situated on the frontal side, globular with an oeciopore smaller than the autozooecial aperture. No kenozooecia on the dorsal side.

Exidmonea atlantica DAVID, MONGEREAU et POUYET, 1972

Pl. 5, Fig. 1-6

1920 *Idmonea atlantica* JOHNSTON – Canu and Bassler p. 778, Pl. 140, Fig. 1 - 13 (cum. syn)
1992 *Exidmonea atlantica* DAVID, MONGEREAU et POUYET – Taylor and Voigt p. 122
v. 2001 *Exidmonea atlantica* DAVID, MONGEREAU et POUYET – Zágoršek p. 24, Pl. 1, Fig. 8, 9 (cum syn.)

M a t e r i a l : Very common species, altogether 38 specimens were studied, many with well preserved gonozooecium.

D i a g n o s i s : Colony with oval to triangular transverse section, angle between frontal sides is acute , about 60 degrees. Usually 3 to 5 autozooecia are arranged in each fascicular row. The autozooecial fascicles are arranged alternating on each side of the frontal part of the colony, protruding beyond the colonial margin. Aperture rectangular to oval. The dorsal side of the colony is smooth or slightly ribbed and convex or flat. Gonozooecia large, convex, usually found in the median part of the colony, or near a bifurcation. The frontal wall of the gonozooecium is slightly porous.

R e m a r k s : The species may be misinterpreted as *Idmidronea coronopus* (Defrance, 1822), which has a very similar arrangement of autozooecial fascicles. The main difference is the presence of kenozooecia on the dorsal side of the branches in *Idmidronea coronopus*. The small tubes of the kenozooecia are however not always visible on the outer surface, usually they can be easily observed only in cross-section.

Exidmonea giebeli (STOLICZKA, 1862)

Pl. 6, Fig. 1-3

v. 1862 *Idmonea giebeli* sp.n. – Stoliczka p. 81, Pl. 1, Fig. 6
1969 *Exidmonea giebeli* (STOLICZKA, 1862) – Mongereau p. 232, Pl. 20, Fig. 1 - 3, 9, 11
v. 2001 *Exidmonea giebeli* (STOLICZKA, 1862) – Zágoršek p. 24, Pl. 1, Fig. 10, 11 (cum syn.)
v. 2003 *Exidmonea giebeli* (STOLICZKA, 1862) – Zágoršek p. 110, Pl. 2, Fig. 4-5 (cum syn.)

T y p e : The lectotype is deposited in the Natural History Museum Vienna under the number 1859. 26. 144.

M a t e r i a l : Altogether 7 specimens were studied, none of them with gonozooecium.

D i a g n o s i s : Colony with triangular transverse section; the angle between the frontal sides is about 100 degrees. Usually 3 to 4 autozooecia are arranged in each fascicular row. An additional aperture is present between the pairs of fascicles, situated close to the median area of the frontal side of the colony. Dorsal side of the colony flat or rarely slightly convex, perforated by pseudopores. Gonozooecia unknown.

R e m a r k s : The characteristic feature is the presence of additional apertures situated between the pairs of fascicles, in the middle of the frontal side of the colony. The species is up to now known only from the Eocene of the Alpine Carpathian region and from the Miocene of New Zealand (Zágoršek, 2003), but the presence of this characteristic feature justifies including the studied specimen in the species *Exidmonea giebeli* (Stoliczka, 1862).

The large colonies of *Tervia irregularis* (Meneghini, 1844) may also be similar to this species when not exhibiting gonozooecia. *Tervia* has however usually more delicate colonies and a characteristic “V” shaped arrangement of lateral walls of the dorsal autozooecia (Pl. 16, Fig. 7). Moreover, no additional aperture between the pairs of fascicles is developed in *Tervia.*

Exidmonea kuhni Mongereau, 1969

Pl. 6, Fig. 4-7

v. 1969 *Exidmonea kuhni* sp.n. – Mongereau p. 238, pl. 18, Fig. 10
1977 *Exidmonea kuhni* Mongereau, 1969 – Vávra p. 27

T y p e : The lectotype is deposited in the Natural History Museum Vienna under the number 1859.50.812 (or 8120, not clearly recognizable on the original label); it was established by Vávra (1977).

M a t e r i a l : Only 3 specimens have been found, all without gonozooecia.

D i a g n o s i s : Colony with elongated oval transverse section. Usually 4 to 6 autozooecia are arranged in each fascicular row. Dorsal side of the colony concave, perforated by pseudopores. Gonozooecia not known in the studied specimens.

R e m a r k s : *Exidmonea concava* (Reuss, 1869) from the Eocene of Italy also shows a concave dorsal side of the colony; it differs however in having less autozooecial tubes on each fascicle (only 2-3). The gonozooecium of the type material is large and not perforated by autozooecial tubes.

Exidmonea undata (Reuss, 1851)

Pl. 7, Fig. 1-4

1851 *Idmonea undata* m. – Reuss s. 172, Pl. 9, Fig. 20
1977 *Exidmonea undata* (Reuss, 1851) – Vávra p. 28 (cum syn.)

T y p e : The types were probably lost. It is not possible to identify the types in the Reuss collection stored in the Natural History Museum Vienna.

M a t e r i a l : Altogether 15 specimens were studied, none of them with gonozooecium.

D i a g n o s i s : Colony with oval transverse section. Usually 2 to 3 autozooecia are arranged in each fascicular row. The autozooecial fascicles are arranged alternately on each side of the frontal part of the colony, slightly protruding beyond the colonial margin. Aperture rectangular to oval. The dorsal side of the colony is smooth or slightly ribbed and convex or flat. Gonozooecia not known.

R e m a r k s : The main characteristic feature of this species is the low number of autozooecial tubes in the fascicles – it has never more than 3 apertures in each fascicle; the diameter of the branches is similar to that of *Exidmonea atlantica.*

Genus *Idmidronea* Canu et Bassler 1920

Colony erect, dichotomously branching. Autozooecia in transverse fascicles, alternating on the left and right side along the branch. Kenozooecia developed on the dorsal side of the branch. Gonozooecium frontal.

Idmidronea coronopus (Defrance, 1822)

Pl. 8, Fig. 1-3 and 7

1920 *Idmidronea coronopus* (Defrance, 1822) – Canu and Bassler p. 784, Fig. 253 A-L
v.1977 *Idmidronea coronopus* (Defrance, 1822) – Vávra p. 28
1988 *Idmidronea coronopus* (Defrance, 1822) – Moissette p. 47, Pl. 6, Fig. 4, 5 (cum syn.)

M a t e r i a l : Altogether 10 specimens were studied, all without gonozooecia.

D i a g n o s i s : Colony bifurcating, erect. Apertures rectangular, arranged in alternating fascicles. The fascicles usually consist of 4 autozooecia, rarely they may have 3 or 5 apertures. Kenozooecia narrow, parallel to colony axis, rarely opening on the dorsal side of the colony. Gonozooecium not observed.

R e m a r k s : The specimens illustrated by Canu and Bassler (1920) have more robust colonies, but the number of apertures on each fascicle is identical (usually 4).

Idmidronea sp.

Pl. 8, Fig. 4-6

2008a *Idmidronea* sp. – Zágoršek et al. p. 843, Fig. 6/1-2

M a t e r i a l : Altogether 2 specimens were studied from the section Kralice nad Oslavou.

D i a g n o s i s : Colony is bifurcating, very delicate. Apertures circular, 2-3 autozooecia in each fascicle. Kenozooecia narrow, parallel to colony axis. No gonozooecium developed.

R e m a r k s : Detailed description in Zágoršek et al. (2008a).

Genus *Platonea* Canu et Bassler, 1920

Colony encrusting, lobate. Autozooecia in fascicles arranged transversally to the direction of growth. Gonozooecium spread over several fascicles, oeciopore situated between fascicles. Polygonal kenozooecia developed on basal lamina.

Platonea pluma (Reuss, 1847)

Pl. 9, Fig. 1-3

v. 1847 *Defrancia pluma* m. – Reuss p. 39, Pl. 6, Fig. 7
v. 1974 *Platonea pluma* (Reuss, 1847) – Vávra p. 353, Pl. 2, Fig. 1, 2
1977 "*Tubulipora*" *pluma* (Reuss, 1847) – Vávra p. 24 (cum syn.)

T y p e : The lectotype from Eisenstadt is deposited in the Natural History Museum Vienna under the number 1867.40.75 (Vávra, 1977).

M a t e r i a l : Altogether 8 specimens were studied, one of them with a gonozooecium.

D i a g n o s i s : Colony lobate to elongate, encrusting. Fascicles are formed by two rows of autozooecial apertures, usually about 6-10 apertures in each fascicle. Fascicles alternating, but often arranged chaotically. Gonozooecium very shallow, recognizable only by the denser perforation of the frontal wall by pseudopores, spreading over the whole width of the colony. Oeciopore almost as large as the autozooecial aperture, situated on the distal margin of the fascicle. Keno-

zooecia circular, developed in two to three rows near the basal lamina.

R e m a r k s : As only one specimen shows a gonozooecium, the other specimens are attributed to this species due to the presence of encrusting colonies with kenozooecia on the basal lamina and more or less alternating fascicles formed by two rows of autozooecial apertures.

Platonea pluma (REUSS, 1847) is very similar to *Tubulipora dimidiata* (REUSS, 1847) with respect to the features on the frontal side of the colony, but it differs in having encrusting colonies and small kenozooecia near the basal lamina.

Genus ***Pleuronea*** CANU et BASSLER, 1920

Colony erect. Autozooecial apertures in alternating, uniserial fascicles open only on one side of the colonial branch. Dorsal side of the branch covered by kenozooecia. Gonozooecium frontal, spread between fascicles. Oeciopore situated on the distal margin of the gonozooecium.

Pleuronea pertusa **(REUSS, 1847)**

Pl. 10, Fig. 1-8

v. 1847 *Idmonea pertusa* m. – Reuss p. 45, Pl. 6, Fig. 28
1977 *Pleuronea pertusa* (REUSS, 1847) – Vávra p. 30 (cum syn.)

T y p e : The lectotype from Nussdorf is deposited in the Natural History Museum Vienna under the number 1867.40.94 (Vávra, 1977).

M a t e r i a l : Very common species in some sections, in others often absent. Altogether 51 specimens studied in detail, a few of them with gonozooecium. Three additional specimens from the REUSS collection stored in the Natural History Museum Vienna under the numbers 1859.19.147, 1859.45.677 and 1867.40.95 from section Podivín (listed under the old name Kostel).

D i a g n o s i s : Colony large, erect, often branching, rarely anastomosing. Fascicles alternating and consisting of 3-5 rectangular to slightly circular autozooecial apertures. Gonozooecium large always situated in the branching area, spread between 4-8 fascicles with convex frontal wall densely perforated by pseudopores. Oeciopore as large as the autozooecial aperture, situated close to the medial area of the branch, between fascicles. On the dorsal side densely covered with the openings of kenozooecia of different sizes, some closed by terminal, perforated diaphragms.

R e m a r k s : Oeciopore is not easily recognizable because it is of same size as the autozooecial aperture; the frontal wall of gonozooecia is often broken.

Family **Plagioeciidae** CANU, 1918
Genus ***Plagioecia*** CANU, 1918

Colony encrusting. Autozooecial tubes arranged in radial rows, apertures not forming fascicles. Gonozooecium transversely elongated with the frontal wall perforated by autozooecial tubes. Oeciopore placed centrally on the frontal wall of the gonozooecium.

Plagioecia rotula **(REUSS, 1847)**

Pl. 11, Fig. 1-5

v. 1847 *Diastopora rotula* m. – Reuss p. 51, Pl. 7, Fig. 8
1977 *Plagioecia rotula* (REUSS, 1847) – Vávra p.49 (cum syn.)

T y p e : The lectotype from Eisenstadt (without gonozooecia) is deposited in the Natural History Museum Vienna under the number 1867.40.60 (Vávra, 1977).

M a t e r i a l : Only 2 specimens with gonozooecia, 13 additional colonies can only be tentatively attributed to this species because they do not show any gonozooecia.

D i a g n o s i s : Colony semicircular to circular. Gonozooecium oval to slightly rounded triangular, two times wider than long, perforated by 3-4 autozooecial tubes. Oeciopore about half the diameter of an autozooecial tube, situated on the distal half of the gonozooecial frontal wall.

R e m a r k s : As shown by Taylor and Sequeiros (1982), without gonozooecia, the generic attribution of these "Berenicea type" colonies is impossible. Not all specimens studied show gonozooecia, but formally, all "Berenicea type" colonies from the studied material were assigned to *Plagioecia rotula* (REUSS, 1847), the only one well defined species within the studied sections.

Genus ***Mesenteripora*** DE BALAINVILLE, 1830

Erect bilaminar colonies with flat branches. Autozooecial tubes not arranged in fascicles. Gonozooecium transversally elongated and perforated by autozooecial tubes with oeciopore on the distal edge.

Mesenteripora flabellum **(REUSS, 1847)**

Pl. 12, Fig. 1-6

v. 1847 *Diastopora flabellum* m. – Reuss p. 51, pl. 7, Fig. 9
1977 *Diastopora flabellum* REUSS – Vávra p. 20 (cum syn.)
2003 *Diastopora flabellum* REUSS – Zágoršek p. 109, Pl. 1, Fig. 5, 6 (cum syn.)

T y p e : The lectotype is deposited in the Natural History Museum Vienna under the number 1867.40.85 (Vávra, 1977).

M a t e r i a l : Altogether 8 specimens were studied, one with gonozooecium.

D i a g n o s i s : Autozooecia short, arranged chaotically with long peristomes. Gonozooecium two times wider then long, perforated by about 10 autozooecial tubes, oeciopore not preserved.

R e m a r k s : The bilaminar colony and the type of gonozooecium clearly confirm the attribution of this species to the genus *Mesenteripora* as revised by Walter, 1970. It is typically Cretaceous genus, but also reported from recent seas (Taylor and Gordon 2001). The type species of *Diastopora,* as illustrated by Walter (1969), has distinctive erect, unilaminar colonies.

The main difference between this species and *M. meandrina* (WOOD, 1844) is the chaotic arrangement of the autozooecial tubes.

Mesenteripora meandrina (Wood, 1844)

Pl. 13, Fig. 1-5

v. 1977 *Mesenteripora meandrina* (Wood, 1844) – Vávra p. 42 (cum syn.)
1974 *Mesenteripora meandrina* (Wood, 1844) – Vávra p. 360, Pl. 2, Fig. 8

M a t e r i a l : 9 specimens, none of them with gonozooecia.

D i a g n o s i s : Autozooecial tubes arranged in regular oblique rows. Growing edge of the colony with visible median lamella. No gonozooecium observed.

R e m a r k s : Even without gonozooecium, due to the typical bilamelar colony and the arrangement of autozooecia in rows, the genus and species attribution is almost certain.

Genus ***Diplosolen*** Canu, 1918

Colony erect or encrusting. Autozooecia arranged in regular rows, sometimes also in fascicles. Between the autozooecial tubes, there are adventitious, narrow tubes, which usually open proximally from the autozooecial aperture – nanozooecia. Gonozooecium very large, frontal, unsymmetrical with porous frontal wall. Oeciopore smaller than the autozooecial aperture.

Diplosolen obelium (Johnston, 1838)

Pl. 14, Fig. 1-5

1977 *Diplosolen obelium* (Johnston, 1838) – Vávra p. 47 (cum. syn)
1997 *Diplosolen obelium* (Johnston, 1838) – Pouyet p. 24, Pl. 1, Fig. 5-7 (cum. syn)
2002 *Diplosolen obelium* (Johnston, 1838) – Hayward and McKinney p. 117, Fig. 56a – d (cum. syn)

M a t e r i a l : Altogether 12 specimens were studied, few of them show a gonozooecium.

D i a g n o s i s : Colony encrusting, usually fan shaped. Autozooecia arranged in more or less oblique regular rows, not in fascicles, peristomes short. Nanozooecia abundant, developed irregularly among autozooecial tubes with peristomes shorter than in autozooecia. Gonozooecia circular, rarely oval, large, perforated by more than 10 autozooecial tubes and few nanozooecia. Sometimes much smaller, perforated by 2-3 autozooecial tubes only. Oeciopore smaller that autozooecial apertures, but larger than nanozooecial apertures, without oeciostome.

R e m a r k s : Oeciopore not clearly recognizable, but highly probable in one specimen, visible in the middle of the gonozooecium. In one case (Pl. 14, Fig. 5) the gonozooecium is elongated and much smaller that in other specimens (Fig. 3), but as already described by Pouyet (1997), gonozooecia do not exhibit a constant shape in *Diplosolen*.

Recent specimens as illustrated most recently by Hayward and McKinney (2002) have the same shape of gonozooecia and an identical position of the oeciopore as the specimens described here (compare Pl. 14, Fig. 4 with Fig. 56B of Hayward and McKinney, 2002). Therefore I believe that these specimens are conspecific.

Genus ***Ybselosoecia*** Canu et Lecointre, 1933

Colony erect, rarely bifurcating with oval to semilunar cross section. Apertures open only on one side, the dorsal side is smooth, often concave. Apertures are arranged in many irregular rows, which do not form fascicles. Gonozooecium frontal, large, spreading among many autozooecia, with flat frontal wall. Oeciopore situated on the margin of the gonozooecium, small, sometimes with a short oeciostome.

R e m a r k : Due to the similar construction of the gonozooecium (frontal position, spreading among autozooecia and flat frontal wall), this genus is included in the family Plagioeciidae as understood by Taylor and McKinney (2006).

Ybselosoecia typica (Manzoni, 1878)

Pl. 15, Fig. 1-5

1878 *Filisparsa typica* sp.n. – Manzoni p. 10, Pl. 8, Fig. 30
v. 1977 *Ybselosoecia typica* (Manzoni) – Vávra p. 48 (cum syn.)
1997 *Ybselosoecia typica* (Manzoni) – Pouyet p. 26, Pl. 1, Fig. 1-4
2003 *Ybselosoecia typica* (Manzoni) – Zágoršek p. 119, Pl. 4, Fig. 5, 6 (cum syn.)

T y p e : The types were not found in the collections stored in the Natural History Museum Vienna, probably lost.

M a t e r i a l : Very common species, altogether 30 specimens were studied, but only a few with gonozooecium.

D i a g n o s i s : Colony is erect with semilunar cross section. Apertures in 5 to 10 irregular rows with long peristomes. Frontal wall slightly perforated by pseudopores. Dorsal side concave, smooth sometimes slightly concentrically ribbed. Gonozooecium large, irregularly oval, extended over 5 to 20 autozooecia with a very flat frontal wall. The oeciopore is small, about half the diameter of an autozooecial aperture with short oeciostome, slightly curved proximally.

Family **Terviidae** Canu et Bassler, 1920
Genus ***Tervia*** Jullien, 1882

Colony erect, dichotomously branching, unilaminar. Autozooecial apertures situated only on one side, sometimes arranged in loose fascicles. Fascicles never parallel to each other (unlike *Exidmonea*). Lateral walls of the autozooecia form structures similar to the nervi in Horneridae arranged between autozooecial apertures. Gonozooecia situated dorsally; the axis is parallel to the direction of growth. Oeciostome is terminal.

Tervia irregularis (Meneghini, 1844)

Pl. 16, Fig. 1-7

1920 *Tervia irregularis* Meneghini – Canu and Bassler p. 789, fig. 254a-f

1977 *Tervia irregularis* (Meneghini) – Vávra p. 35 (cum syn.)
1985 *Tervia irregularis* (Meneghini) – Hayward and Ryland p. 106, fig. 37
2008a *Tervia irregularis* (Meneghini) – Zágoršek et al. p. 839, Fig. 6/3-7

M a t e r i a l : Common species, altogether 33 specimens studied, but only two with gonozooecia.

D i a g n o s i s : Colony erect, often branching and delicate. Autozooecial apertures slightly oval, arranged in rows. Rows composed of pairs or triple fascicles of peristomes on each side of the colony axis and a median peristome, slightly irregularly placed from the fascicles. Peristomes curving laterally from the colony axis. Frontal wall with pseudopores, boundaries between autozooecial tubes marked by distinct grooves. Dorsal side of the colony with characteristic "V" shape distinct grooves separating each autozooecial tube. The gonozooecium is dorsal, developed in the area of bifurcation, sack-like, very large (length about 1,21 mm and maximum width 0,74 mm), with convex and strongly porous frontal wall. Oeciopore oval, situated very close to the surface of the branch, with prominent lip.

R e m a r k s : The arrangement of autozooecia is identical with specimens described by Hayward and Ryland (1985). The gonozooecium is in one specimen slightly wider, in another specimen identical with the gonozooecium as described by Hayward and Ryland (1985). The lip of the oeciopore is identical. Therefore, the fossil species may be attributed to the recent one.

The main difference between *Tervia* and *Ybselosoecia* (Plate 15) – if no gonozooecium is visible , is the development of the dorsal side of the colony. *Tervia* shows a characteristic "V" shaped arrangement of lateral walls of dorsal autozooecia (Pl. 16, Fig. 7), while *Ybselosoecia* has a smooth dorsal side of the colony.

A similar species is also *Exidmonea giebeli* (Stoliczka, 1862), which usually has larger colonies and an additional aperture developed between the pairs of fascicles, situated close to the median area of the frontal side of the colony (Pl. 6, Fig. 3).

Family **Entalophoridae** Reuss, 1869
Genus ***Mecynoecia*** Canu, 1918

Colony erect, multilaminar, bifurcate. Autozooecial tubes arranged around the colonial axis, the apertures open on all sides, not arranged in fascicles. Gonozooecium parallel with the autozooecial axis. No kenozooecia.

The problems of this family have been discused in detail by Walter (1969) and his conclusions are followed here.

Mecynoecia pulchella **(Reuss, 1847)**

Pl. 17, Fig. 1-8

v. 1847 *Cricopora pulchella* m. – Reuss p. 40, Pl. 6, Fig. 10
1977 *Mecynoecia pulchella* (Reuss, 1847) – Vávra p. 41 (cum syn.)
v. 2003 *Mecynoecia pulchella* (Reuss, 1847) – Zágoršek p. 116, Pl. 5, Fig. 2 (cum syn.)

T y p e : The lectotype was established by Vávra (1977), it is deposited in the Natural History Museum Vienna under the number 1870.13.53.

M a t e r i a l : Very common species, altogether 51 specimens were studied, a few of them with gonozooecia. An additional 6 specimens were available in the Reuss collection stored in the Natural History Museum Vienna under the numbers 1859.19.156, 1859.45.671, 1847.38.41, 1867.40.52 and 1867.40.57 (under the names *Postulopora sparsa* and *P. anomala*) from section Podivín.

D i a g n o s i s : Colony formed by 12 to 16 autozooecial tubes arranged around the colonial axis. The tubes are narrow, short with circular to oval aperture. Apertures are very densely arranged, situated on short peristomes. Frontal walls short, slightly convex, smooth slightly perforated by pseudopores. The gonozooecium is large, perforated by 4 to 10 autozooecial tubes, with slightly convex frontal wall. The oeciopore is circular, situated close to an autozooecial aperture, almost as large as the autozooecial aperture.

R e m a r k s : The main difference between *Mecynoecia pulchella* (Reuss, 1847) and *Mecynoecia proboscidea* (Milne-Edwards, 1838), when no gonozooecium is developed, is the number of autozooecial tubes around the colonial stem and the density of apertures.

One specimen (Pl. 17, Fig. 8) has the gonozooecium developed on the budding edge of the colony and the oeciopore is not attached to an autozooecial aperture. These differences may indicate a different species; however these observations were made only in one specimen until now – this is not sufficient for any detailed species attribution.

Mecynoecia proboscidea **(Milne-Edwards, 1838)**

Pl. 18, Fig. 1-5

1838 *Pustulopora proboscidea* sp.n. – Milne-Edwards p. 219, Pl. 12, Fig. 2
v.1977 *Mecynoecia proboscidea* (Milne-Edwards) – Vávra p. 41 (cum syn.)
v. 2003 *Mecynoecia proboscidea* (Milne-Edwards) – Zágoršek p. 115, Pl. 2, Fig. 7 (cum syn.)

M a t e r i a l : Altogether only 7 specimens were studied, one with a well-developed gonozooecium, one with a rather unusual gonozooecium.

D i a g n o s i s : Colony with 3 to 5 autozooecial tubes arranged around the colonial axis. The tubes are very long, with a circular to oval aperture situated on long peristomes. Frontal walls long, convex. Gonozooecium small, globular, not perforated by autozooecial tubes, with a very small oeciopore.

R e m a r k s : The temporal distribution of these two species of *Mecynoecia* is different and interesting: during the Eocene, the most common species is *M. proboscidea*, while during the Miocene the most common is *M. pulchella.*

One specimen (Pl. 18, Fig. 5) has a gonozooecium developed on the budding edge of the colony. This difference may indicate a different species; this has however been observed in only one specimen until now – not sufficient for any detailed species attribution.

Genus ***Exochoecia*** Canu et Bassler, 1920

Colony erect, bilaminar, with flat cross section. Apertures arranged in fascicles opening on both sides of the

colony and curved directly towards the frontal margin of the colony. The number of autozooecial tubes in fascicles ranges from 5 to 20. The gonozooecium is large, symmetrical and prominent, with a nonporous frontal wall, situated on the frontal side of the colony.

Exochoecia? *compressa* (Reuss, 1847)

Pl. 19, Fig. 1-6

v. 1847 *Idmonea compressa m.* – Reuss p. 46, Pl. 6,Fig. 32
1977 *Bicrisina*? *compressa* (Reuss) – Vávra p. 72 (cum. syn.)
v. 2001 *Exochoecia compressa* (Reuss) – Zágoršek p. 27, Pl. 3, Fig. 2
v. 2003 *Exochoecia compressa* (Reuss) – Zágoršek p. 117 (cum syn.)

T y p e : The lectotype is deposited in the Natural History Museum Vienna under the number 1867.40.99 (established by Vávra, 1977).

M a t e r i a l : Altogether 14 specimens were studied and one specimen from the Natural History Museum Vienna from the locality Sedlec.

D i a g n o s i s : Colony reticulate, narrow, bilaminar with distinct frontal and dorsal sides, rarely anastomosing. Median lamina clearly visible. Growing edge developed on frontal side. Autozooecial tubes arranged in curving lines directed towards the frontal margin of the colony. Circular apertures with small peristomes form radial rows (fascicles) oblique to perpendicular to the direction of growth. No gonozooecium observed.

R e m a r k s : The gonozooecia are extremely rare in this species. The lectotype, as well as its syntypes have no gonozooecia. The gonozooecia are known only in material described from Hungary (Zágoršek, 2001). Canu and Bassler (1920) established *Exochoecia*, which has to have large frontal gonozooecia. Although I did not find any gonozooecia in the Moravian material, according to other characteristic features, which are identical, I assume however that all these specimens are conspecific.

This species is generally attributed to the genus *Bicrisina* d'Orbigny, 1853. The genus is very similar in colony growth form (erect, reticuliporiform, comprising bilaminar branches ovoid in transverse section, with distinct frontal and reverse sides). The autozooecia however, as well as kenozooecia, in *Bicrisina* are free-walled (lacking calcified exterior walls); otherwise it is known only from the Cretaceous (Taylor, 2008). Therefore, the genus *Exochoecia* seems to be the most probable attribution.

Suborder **Fasciculina** d'Orbigny, 1853
Family **Frondiporidae** Busk, 1875
Genus ***Frondipora*** Link, 1807

Colony erect, branching. Apertures opening on one side only, grouped in bundles (circular fascicles). Gonozooecium shallow, pierced by few autozooecia. The oeciostome, attached to one zooid, has a large oeciopore.

The suborder have been revised by Walter (1969), his scheme is followed here.

Frondipora cf. *verrucosa* (Lamourox, 1821)

Pl. 20, Fig. 1-5

v. 1974 *Frondipora verrucosa* (Lamourox, 1821) – Vávra p. 364, Pl. 2, Fig. 12, 13
1977 *Frondipora verrucosa* (Lamourox, 1821) – Vávra p. 50 (cum syn.)
1996 *Frondipora verrucosa* (Lamourox, 1821) – Haddadi-Hamdane p. 55, Pl. 2, Fig. 10-12 (cum. syn)
cf. 2002 *Frondipora verrucosa* (Lamourox, 1821) – Hayward and McKinney p. 119, Fig. 56E – G (cum. syn)

M a t e r i a l : Altogether 15 specimens were studied, one with a partly preserved gonozooecium.

D i a g n o s i s : Autozooecial fascicles (bundles) consist of about 8 to 20 apertures. Usually fascicles are alternating on the frontal side of the colony, but sometimes neighbouring fascicles may join and grow as a one large fascicle. The gonozooecium is very shallow, not pronounced. The oeciopore is a little smaller than the autozooecial aperture, situated close to the proximal margin of the fascicle.

R e m a r k s : Characteristic are robust colonies with almost circular fascicles. The recent specimens have however always very large and extended fascicles (similar to those in my Pl. 20, Fig. 4). Because the development of the gonozooecium is very similar many palaeontologists (among others Vávra, 1977 and Haddadi-Hamdane, 1996) attributed the Miocene specimens to this species. A detailed comparison between recent and fossil material is needed however to confirm this attribution.

Frondipora parva sp.n.

Pl. 21, Fig. 1-7

D i a g n o s i s : Colonies small, branching. Frontal side with apertures and polygonal mesopores, almost of same size as autozooecial apertures. Autozooecial apertures always forming transversal fascicles on the lateral side of the colony, separated from the frontal part by mesopores. Gonozooecium frontal, elongate, no frontal wall preserved. Dorsal side smooth, perforated only by pseudopores.

H o l o t y p e : The specimen illustrated in Pl. 21, Fig. 1, from the locality Kralice nad Oslavou S-11, deposited in the National Museum Prague under number PM2 – P 01754

P a r a t y p e s : 2 specimens from the locality Kralice nad Oslavou S-11, deposited in the National Museum Prague under the numbers PM2 – P 01755 and P 01757.

D e r i v a t i o n o m i n i s : Due to the small fascicles developed on the narrow frontal side; "parva" (small, minute).

L o c u s t y p i c u s : Kralice nad Oslavou, sample S-11 (according to Zágoršek et al., 2009).

S t r a t u m t y p i c u m : Langhian – Lower Badenian.

M e a s u r e m e n t s : (in micro meters = µm; x = = average)

length of the colony: 2311 to 3300, x = 2806

width of the colony: 461 to 503, x = 482
length of autozooecia: 242 to 696, x = 465
width of autozooecia: 76 to 122, x = 101
diameter of autozooecial aperture: 95 to 179, x = 130
gonozooecium width x length: 426 x 872

D e s c r i p t i o n : Colonies small, branching. Frontal side with apertures and polygonal mesopores, of almost same size as autozooecial apertures. Always two autozooecial apertures in transversal fascicles on lateral side of the colony, separated from the frontal part by mesopores. Gonozooecium frontal, elongate, no frontal wall preserved. Dorsal side smooth, perforated only by pseudopores.

C o m p a r i s o n : There are always two autozooecial apertures in transversal fascicles on the lateral side of the colony branch, mesopores are of almost the same size as the autozooecia; the dorsal side is smooth, without nervi. The species belongs to *Frondipora* because of the smooth dorsal side, perforated only by pseudopores and because of the presence of a frontal elongated gonozooecium. *Exidmonea minima* (ROEMER, 1862) as described by Mongereau (1969) p. 240, Pl. 20, Fig. 4 and 8 shows very similar features, differing only in having the autozooecial apertures arranged on alternating fascicles.

O c c u r r e n c e : In addition to the section Kralice nad Oslavou, the species also occurs in the sections Rousínov pumpa, Oslavany and Kroužek.

Genus ***Pseudofrondipora*** MONGEREAU, 1970

Colony erect with apertures opening on one side only. Autozooecial apertures not in fascicles, but opening between large kenozooecia (cancelli – mesopores). Dorsal side with nervi and vacuoles. Gonozooecium frontal.

Pseudofrondipora davidi MONGEREAU, 1970

Pl. 22, Fig. 1-6

1970 *Pseudofrondipora davidi* sp.n. – Mongereau p. 38, Pl. 1, Fig. 4, 8, 9, Pl. 2, fig. 2, 3, 8, 9.
v. 1977 *Pseudofrondipora davidi* MONGEREAU, 1970 – Vávra p. 51 (cum syn.)

T y p e : Lectotype deposited in the collection of the University of Lyon under the number FSL 19 992 (Mongereau, 1970).

M a t e r i a l : Altogether 11 specimens from different sections.

D i a g n o s i s : Colonies large, robust, branching. The autozooecial apertures are large and polygonal, the mesopores are also polygonal, however smaller than the autozooecial apertures. Frontal side of the colony almost totally occupied by mesopores. Rarely autozooecial apertures may be arranged in large, coalescent fascicles. Gonozooecium not observed. Dorsal side with thick, anastomosing nervi and small vacuoles.

R e m a r k s : The characteristically developed frontal side (large irregular fascicles) and the dorsal side (as in *Hornera*, with sulci) clearly identify the genus and species although no gonozooecia have been observed.

Suborder **Articulata** BUSK, 1859
Family **Crisiidae** JOHNSTON, 1838
Genus ***Crisia*** LAMOUROX, 1812

Colony erect flexible and articulated. Internodes biserial; the number of autozooecia in each of them varies from 4 up to 10. Autozooecial apertures open on one side only. Dorsal side of the colony slightly porous or rarely nonporous. Gonozooecia present, large, their direction of growth is parallel to the colonial axis.

***Crisia* cf. *eburnea* (LINNAEUS, 1758)**

Pl. 23, Fig. 1-5

1958a *Crisia eburnea* (LINNAEUS) – Bobies p. 151, Pl. 12, Fig. 2, 3
v. 1974 *Crisia eburnea* (LINNAEUS) – Vávra p. 347
1977 *Crisia eburnea* (LINNAEUS) – Vávra p. 11 (cum. syn.)
?1985 *Crisia eburnea* (LINNAEUS) – Hayward and Ryland p. 49, Fig. 13
v. 2003 *Crisia eburnea* (LINNAEUS) – Zágoršek p. 109, Pl. 1, Fig. 3 (cum. syn.)

M a t e r i a l : Very common species, altogether 20 specimens studied, one with partly preserved gonozooecium.

D i a g n o s i s : The colony branches (internodes) are very narrow. The maximum width of the colony (about 0,287mm) corresponds to the width of two autozooecial tubes. A narrow furrow laterally separates the autozooecia. Autozooecial tubes are long (0.75 – 1mm) terminated by a rounded aperture. The autozooecial wall is slightly ribbed or smooth, nonporous and a little convex. The gonozooecium is large and globular, the frontal wall is not preserved.

R e m a r k s : *Crisia eburnea* was originally described from recent seas (LINNAEUS, 1758). Recent specimens develop gonozooecia, with a more elongated proximal part; they have a lower number of autozooecial tubes per branch (Hayward and Ryland, 1985). Fossil material is often attributed to this species (among others Vávra, 1977 or Pouyet, 1997), because the general morphology is very similar. The gonozooecia are however clearly distinguishable and therefore fossil specimens are probably not conspecific with recent ones. A greater number of better preserved fossil specimens, especially with developed gonozooecia are needed for a clear description and a correct attribution of this species.

A strikingly similar species, *Crisia haueri* REUSS, 1847 has even narrower colony branches, with most of the width of its colony formed by one autozooecial tube only.

A very similar species has recently been described as *Crisia romanica* ZÁGORŠEK et. al. 2008b, which has narrower gonozooecia and a more prominent oeciostome and autozooecial tubes less densely arranged.

One specimen from Vranovice (Pl. 23, Fig. 1) shows autozooecia with coalescent apertures. The other features however clearly identify this specimen as *Crisia* cf. *eburnea*.

***Crisia elongata* MILNE-EDWARDS, 1838**

Pl. 24, Fig. 1-6

1838 *Crisia elongata* sp.n. – Milne-Edwards p. 203, Pl. 7, Fig. 2

v. 1847 *Crisia Edwardsii* m. – Reuss p. 53, Pl. 7, Fig. 20
1920 *Crisia Edwardsii* Reuss – Canu and Bassler p. 705, Pl. 141, Fig. 5 - 7 (cum. syn.)
v. 1958a *Crisia elongata* Milne-Edwards – Bobies p. 158, Pl. 13, Fig. 4, Pl. 15, Fig. 22, 23 (cum. syn.)
v. 2001 *Crisia elongata* Milne-Edwards – Zágoršek p. 23, Pl. 1, Fig. 4, 5 (cum. syn)
v. 2003 *Crisia elongata* Milne-Edwards – Zágoršek p. 108, Pl. 1, Fig. 1 (cum. syn)

M a t e r i a l : Very abundant species, altogether 55 specimens were studied, but none of them with a gonozooecium.

D i a g n o s i s : The width of the colony branch (internode) is about 0.3 mm, which is the width of about 4 autozooecial tubes and this is approximately equal or a little smaller than the distance between the apertures (0.25 to 0,35mm). The apertures are circular with a very salient peristome. The peristome is slightly developed, usually curved laterally. The autozooecial frontal wall is smooth, slightly ribbed, but a little convex. The dorsal wall is smooth, porous and convex. Gonozooecia have not been observed.

R e m a r k s : Hardly distinguishable from *Crisia hoernesii* Reuss, 1847. The main differences are the colony width (in *C. hoernesii* it is approximately equal to the width of 5 to 7 autozooecial tubes), the number of apertures on one internode being greater (more than 15, sometimes up to 18-20) and the apertures protruding distinctly from the margin of the colony.

The specimens of *Crisia Edwardsii* m. described by Reuss (1847) and stored in the Museum of Natural History in Vienna have less porous dorsal walls, but the other features are identical.

Crisia hoernesi Reuss, 1847

Pl. 25, Fig. 1-5

v. 1847 *Crisia Hörnesii* m. – Reuss p. 54, Pl. 7, Fig. 21, Pl. 11. Fig. 28
1920 *Crisia hörnesi* Reuss – Canu and Bassler p. 704, Pl. 141, Fig. 1-4 (cum. syn.)
v. 1958a *Crisia hoernesii* Reuss – Bobies p. 155, Pl. 14, Fig. 9-13
v. 1977 *Crisia hoernesi* Reuss – Vávra p. 14 (cum syn.)
v. 2003 *Crisia hoernesii* Reuss – Zágoršek p. 108, Pl. 1, Fig. 2 (cum. syn.)

T y p e : Neotype deposited in the Natural History Museum Vienna under the number 230/1957 established by Bobies (1958a).

M a t e r i a l : Altogether 23 specimens were studied, none of them with a gonozooecium.

D i a g n o s i s : The colony width is approximately equal to the width of 5 to 7 autozooecial tubes. The width of the colony (0.25 to 0,35mm) is always larger than the distance between the apertures (0.20 to 0,30mm). The aperture is circular with a slight peristome. The autozooecial frontal wall is slightly porous and smooth. No furrows between the autozooecial tubes are visible. The dorsal side of the colony is nonporous. A gonozooecium has not yet been observed.

R e m a r k s : Most similar is the species *Crisia elongata* Milne-Edwards, 1838; it differs however in having a larger distance between autozooecial apertures than the width of the colony and generally by the narrower branches.

Crisia haueri Reuss, 1847

Pl. 26, Fig.1-2

v. 1847 *Crisia haueri* m. – Reuss p. 54, Pl. 7, Fig. 22-24
v. 1958a *Crisia haueri* Reuss. – Bobies p. 150, Pl. 15, Fig. 17-21
1977 *Crisia haueri* Reuss. – Vávra p. 13
v. 2001 *Crisia haueri* Reuss. – Zágoršek p. 23, Pl. 1, Fig. 2 (cum. syn.)

T y p e : Neotype deposited in the Natural History Museum Vienna under number 223a/1957 established by Bobies, (1958a).

M a t e r i a l : Rare species, altogether only 5 specimens were studied, usually not well preserved.

D i a g n o s i s : The colony is articulated, narrow and biserial. The width of the colony is usually only the width of one autozooecial tube (average 0.15 mm). The autozooecia are very long with a circular, terminal orifice. The peristome is slightly developed, often absent. The distal-most part of the autozooecium with the aperture projects from the colony margin. The autozooecial walls are smooth, slightly porous, a little convex. No furrows between neighbouring autozooecia. Gonozooecia unknown.

R e m a r k s : The type material is very badly preserved. The autozooecial tubes are a little shorter than those from the Moravian Miocene, but the arrangement of autozooecial tubes is identical. Neither type, nor studied material developed gonozooecia.

Suborder **Cancellata** Gregory, 1896
Family **Horneridae** Smitt, 1867
Genus ***Hornera*** Lamouroux, 1821

Colony erect, bifurcate, apertures on one side only. Frontal side formed by autozooecial tubes with apertures, with sulci and vacuoles between them. Dorsal side with sulci and nervi only, no autozooecial apertures. Gonozooecium large, always situated on the dorsal side.

Hornera cf. *frondiculata* Lamouroux, 1821

Pl. 26, Fig. 3-13

1972 *Hornera frondiculata* Auct., Mongereau p. 329, Pl. 5, Fig. 6, Pl. 6, Fig. 7, Pl. 7, Fig. 6 - 8 (cum. syn)
v. 1958b *Hornera frondiculata* Lamouroux – Bobies p. 122, Pl. 1, Fig. 3, 4
v. 1977 *Hornera frondiculata* Lamouroux – Vávra p. 53 (cum syn.)
?1988 *Hornera frondiculata* Lamouroux – Zabala and Maluquer p. 182, Fig. 625-629, Fig. 36A-B.
v. 2003 *Hornera frondiculata* Forbes in Johnson – Zágoršek p. 120 (cum syn.)

M a t e r i a l : Very common species, occurs in almost all sections. More than 140 specimens were studied, but only a few show gonozooecia.

D i a g n o s i s : Apertures circular, alternating, not arranged in any regular rows. Proximal vacuoles smaller

than distal, the number of proximal ones varies from 2 to 4, there are 1-3 distal vacuoles. Dorsal side of the colony with small irregularly scattered vacuoles and with anastomosing, transversally ribbed nervi. Gonozooecium large, dorsal with anastomosing narrow ridges and three wider ridges, which are joining in the oeciopore. Oeciopore circular, almost in the middle of the gonozooecium on a short peristome.

R e m a r k s : Recent specimens (for example Zabala and Maluquer, 1988) show almost identical structures on both sides of the branch and the gonozooecium is also very similar. The presence of small ridges on the gonozooecium and the position of the oeciopore are identical, in recent specimens however no wider ridges are visible and the oeciopore has a more pronounced oeciostome, which may be due to preservation. The similarities between recent and fossil gonozooecia are striking , so the specimens may be indeed conspecific. A greater number of better preserved gonozooecia in fossil material are needed to prove this statement.

Hornera striata Milne-Edwards, 1838

Pl. 27, Fig. 1-5

v. 1958b *Hornera striata* Milne-Edwards – Bobies p. 123, Pl. 2, Fig. 7, 11 and Pl. 3, Fig. 12 (cum syn.)
v. 1977 *Hornera striata* Milne-Edwards – Vávra p. 54 (cum syn.)

M a t e r i a l : Altogether 11 specimens were studied, none of them with gonozooecium.

D i a g n o s i s : Apertures circular, alternating, they are not arranged in any regular rows. Vacuoles of almost the same size, the number of proximal ones varies from 1-3, only one distal vacuole developed. Strongly pronounced nervi anastomosing between autozooecial apertures. Dorsal side of the colony with rare, scattered vacuoles and longitudinal (not anastomosing), very narrow, smooth nervi. Gonozooecium not found among the studied specimens.

R e m a r k s : Characteristic are the strong anastomosing nervi on the frontal side of the colony and the longitudinal smooth nervi on the dorsal side.

Hornera subannulata Philippi, 1844

Pl. 28, Fig. 1-5

v. 1958b *Hornera subannulata* Philippi – Bobies p. 131, Pl. 3, Fig. 15-17 (cum syn.)
v. 1977 *Hornera subannulata* Philippi, 1844 – Vávra p. 55 (cum syn.)

M a t e r i a l : Altogether 15 specimens were studied, none of them with gonozooecium.

D i a g n o s i s : Apertures circular, alternating, forming slightly protruding fascicles. Two parallel vacuoles proximally to the aperture, no distal vacuoles. Nervi on frontal side indistinct, but lateral walls of autozooecial tubes forming very prominent longitudinal structures. Autozooecial frontal walls immersed between these structures. Dorsal side of the colony with wide, longitudinal smooth nervi, vacuoles indistinct. Gonozooecium not found among the studied specimens.

R e m a r k s : Very characteristic are strongly protruding autozooecial lateral walls and immersed frontal wall (free wall organization of growth).

Hornera verrucosa Reuss, 1865

Pl.29, Fig. 1-5

v. 1865 *Hornera verrucosa* m. – Reuss p. 197, Pl. 9, Fig. 9
v. 1958b *Hornera verrucosa* Reuss – Bobies p. 125, Pl. 1, Fig. 5, Pl. 3, Fig. 18 (cum syn.)
v. 1977 *Hornera verrucosa* Reuss – Vávra p. 55 (cum syn.)
v. 2003 *Hornera verrucosa* Reuss – Zágoršek p. 120, Pl. 5, Fig. 5, Pl. 7, Fig. 5 (cum syn.)

T y p e : The neotype from Forchtenstein, deposited in the Natural History Museum Vienna under the number 255/1957, was established by Bobies (1958b).

M a t e r i a l : Altogether 17 specimens were studied, none of them with gonozooecium.

D i a g n o s i s : Apertures circular, alternating, forming more or less transversal rows. Vacuoles of almost the same size, one proximally and one distally from the aperture. Nervi on frontal side indistinct, anastomosing between apertures. Dorsal side of the colony with rare, scattered vacuoles and anastomosing, wide, smooth nervi. Gonozooecium not found among the studied specimens.

R e m a r k s : Characteristic is the presence of one proximal and one distal vacuole near each aperture.

Family **Crisinidae** d'Orbigny, 1853

Genus ***Crisidmonea*** Marsson, 1887

Colony fixed-walled, erect, with triangular to oval transverse section. Pairs of fascicles arranged on frontal side of the colony, the number of autozooecia in each fascicle varies from 6 to 10. Mesopores abundant, covering almost the whole frontal side of the colony. Dorsal side with large vacuoles. Gonozooecium large, elongated, situated on the frontal side of the colony with a strongly porous frontal wall.

R e m a r k s : The type species (*Retepora cancellata* Goldfuss, 1829) from the Maastrichtian of the Netherlands was etstablished by Bassler (1953). According to Voigt (1984), who illustrated the holotype of this species, the colony is anastomosing (reteporiform) and developes gonozooecia with its frontal wall perforated by large kenozooecia.

Crisidmonea foraminosa (Reuss, 1851)

Pl. 30, Fig. 1-6

v. 1851 *Idmonea foraminosa* m. – Reuss p. 171, Pl. 9, Fig. 19
v. 1862 *Idmonea (Crisina) foraminosa* Reuss, 1851 – Stoliczka p. 80
? 1859 *Idmonea punctata* sp.n. – Busk p. 104, Pl. 15, Fig. 5
v. 1865 *Crisina foraminosa* Reuss, 1851 – Reuss p. 199, Pl. 9, Fig. 6 ("partim")
1865 *Crisina canaliculata* m. – Reuss p. 199, Pl. 9, Fig. 8
1878 *Idmonea foraminosa* Reuss, 1851 – Manzoni p. 7, Pl. 4, Fig. 16
1922 *Polyascosoecia foraminosa* (Reuss, 1851) – Canu and Bassler p. 124
1922 *Polyascosoecia canaliculata* (Reuss, 1865) – Canu and Bassler p. 124

1996 *Polyascosoeciella foraminosa* (REUSS) – Taylor and McKinney p. 227

T y p e : Lectotype, established herewith: the specimen on Pl. 30, Fig. 1-2 deposited in the Natural History Museum Vienna under the number 1867.11.98, from the section Freibühl (Styria,Austria).

M a t e r i a l : Altogether 17 specimens were studied, none of them with gonozooecium.

D i a g n o s i s : Colony erect, rod-like with the diameter of the branch always exceeding 1mm. The frontal side of the colony flat, its dorsal side curved. About 6 to 8 autozooecial apertures forming fascicles. The fascicles are almost not alternating, usually developed in one line on both sides of the branch of the colony. Rarely autozooecial apertures also occur in chaotic fascicles. Kenozooecia of two types. Small ones very abundant, circular, spread around autozooecial apertures and on the dorsal and frontal side of the branch. The second type is about as large as the autozooecia and always developed only on the dorsal side of the colony near a bifurcation (Pl. 30, Fig. 5-6). Gonozooecium not developed on studied specimens.

R e m a r k s : In the original REUSS collection seven specimens named *Idmonea foraminosa* are stored (Zágoršek, 2003). The original illustration in Reuss (1851) does not perfectly match the selected lectotype, it seems that the original illustration, was by mistake, mirrored (turned over), which often happened in old lithographical illustrations. This being the case, the chosen lectotype is the only possible specimen from the type collection closely resembling the original illustration as given by Reuss (the size and also the position of branching are identical). It differs only in having shorter branches than those illustrated by Reuss (1851).

Idmonea punctata BUSK, 1859 was put into synonymy by Reuss (1851) and Manzoni (1878). The types of *Crisina canaliculata* REUSS, 1865 show, according to the picture, all features identical with *Crisidmonea foraminosa* REUSS, 1851. The original has not been found in the Natural History Museum Vienna collection.

Main differences between *Crisidmonea foraminosa* REUSS, 1851 and *Polyascosoecia cancellata* CANU, 1920 are the presence of a nonporous frontal wall on the gonozooecium, a flat dorsal side of the branch and the positon of the most lateral autozooecial aperture not jointed to the fascicles in *Polyascosoecia*. Moreover, *Polyascosoecia* has only one type of kenozooecia on the dorsal side, it never developed large kenozooecia on the dorsal side near a bifurcation. The problem is discussed by Zágoršek (2003) in detail.

According to a detailed study of the lectotype and the common understanding of the features characteristic for this species (for example Vávra, 1991) the colonies are large with fascicles consisting of 5-7 autozooecia. The gonozooecium of this species has not yet been described , only an uncertain example has been illustrated by Vávra (1991).

Idmonea foraminosa REUSS 1851 was selected as type species of *Polyascosoeciella* by Taylor and McKinney (1996). As one can see on Pl. 30, Fig. 1-2 the specimen selected here as lectotype does not show any gonozooecium and resembles *Crisidmonea* rather than *Polyascosoecia*. Therefore it is listed under the genus *Crisidmonea* and *Polyascosoeciella* is regarded here as a subjective junior synonym of *Crisidmonea.*

Genus ***Polyascosoecia*** CANU, 1920

Colony erect. Autozooecial apertures on alternating fascicles. A separate circular aperture occurring a little proximally, near each regular fascicle, is typical. The kenozooecia are of two types: small ones abundant covering almost the whole frontal side of the colony, large ones developed on the dorsal side. The gonozooecium is large, globular situated on the frontal side laterally perforated by kenozooecia.

R e m a r k s : The position of the genus *Polyascosoeciella* TAYLOR et MCKINNEY, 1996 is discussed in detail by Zágoršek (2003)

***Polyascosoecia cancellata* CANU, 1920**

Pl. 31, Fig. 1-8

v 1847 *Idmonea cancellata* GOLDFUSS – Reuss p. 46, Pl. 5, Fig. 25-27
1920 *Polyascosoecia coronopus* sp.n. – Canu and Bassler p. 837
1977 *Reteporidea coronopus* (CANU et BASSLER, 1920) – Vávra p. 59 (cum syn.)
v. 1991 *Polyascosoecia coronopus* CANU et BASSLER, 1920 – Vávra p. 499, Pl. 1, Fig. 5, Pl. 2, Fig. 1-3
v. 2003 *Polyascosoecia cancellata* CANU, 1920 – Zágoršek p. 123, Pl. 7, Fig. 7 (cum syn.)

T y p e : Specimen deposited in the USNM (Washington) under the number 68969 selected by Canu (1920).

M a t e r i a l : Altogether 42 specimens were studied, a few with well preserved gonozooecia.

D i a g n o s i s : Colony rod-like, rarely bifurcating with a triangular to transverse cross section. About 3 to 5 autozooecial tubes per fascicle. One aperture occurs outside of the regular fascicle, it is shifted a little proximally. Frontal kenozooecia (‘mesopores’) very abundant. Dorsal side of the colony flat with one type of kenozooecia (vacuoles?). Gonozooecium large, situated on the frontal side of the colony close to a bifurcation, perforated by a few autozooecial tubes. Oeciopore not observed. Lateral kenozooecia are rare.

R e m a r k s : For a detailed description and discussion concerning this species see Zágoršek (2003); remarks referring to the description of *Crisidmonea foraminosa* (REUSS, 1851): this publication (see above).

Suborder **Cerioporina** HAGENOW, 1851
Family **Cerioporidae** REUSS, 1865
Genus ***Ceriopora*** GOLDFUSS, 1827

Colonies spherical, massive. Autozooecial tubes hexagonal to oval, arranged in quincuncial pattern. Kenozooecia almost equal in size to autozooecia, numerous. Internal wall structure (so called ‘cerioporid’ structure) composed of frontally divergent laminae only, no central granular layer

developed. Gonozooecia large, spreading across several autozooecia and kenozooecia.

Ceriopora tumulifera Canu et Lecointre, 1934

Pl. 32, Fig. 1-3

1934 *Ceriopora tumulifera* nov. sp. – Canu and Lecointre, p. 203-204, pl. 43, fig.1-9, pl. 44, fig. 10-16.

v. 2004 ?*Ceriopora tumulifera* Canu et Lecointre. – Vávra, p.31-32, fig.1F, G.

v. 2007a *Ceriopora tumulifera* Canu et Lecointre, 1934 – Zágoršek et al. p. 207, Fig. 3A-C

M a t e r i a l : Altogether 5 specimens were studied from Hlohovec and Nesyt and one colony from the Natural History Museum Vienna (1859.45.659), also from Hlohovec (=Bischofswart).

D i a g n o s i s : The colonies are massive, spherical or hemispherical with a distinct regular pattern of 'protuberances' ('mamelons'). The autozooecia are cylindrical, polygonal. Gonozooecia have not been observed. A section through a colony showed different growth zones indicated by blackened layers and the characteristic cerioporid wall structures.

R e m a r k s : The detailed description is given in Zágoršek et al. (2007a).

Genus *Heteropora* Blainville, 1830

Colony globular or encrusting, with a smooth surface. Autozooecial tubes long, mostly cylindrical with perforated walls, arranged around the whole colony, never in fascicles. Between autozooecial tubes, there are many kenozooecia. Gonozooecia known only in Cretaceous species.

R e m a r k : *Heteropora* is here understood as a genus with encrusting or globular colonies with small differences of size between kenozooecia and autozooecia.

Heteropora sp.

Pl.33, Fig. 1-4

M a t e r i a l : Altogether 19 specimens were studied , none of them with gonozooecium.

D i a g n o s i s : Massive spherical or hemispherical colonies, with or without irregular pattern of 'protuberances' ('mamelons'). A thin section showed different growth phases indicated by blackened layers. Autozooecia are cylindrical, polygonal, with adjacent tubes separated by thick walls. Autozooecial orifices are of almost the same diameter around the whole colony surface, mesozooecial orifices have a distinctly smaller diameter, they are arranged chaotically. Brood chambers (gonozooecia) not observed.

R e m a r k s : Due to the presence of mesozooecia and the development of autozooecial orifices not forming any fascicles, these specimens belong to *Heteropora* as revised by Nye (1976). The poor preservation does not permit determination at species level.

Genus *Tetrocycloecia* Canu, 1917

Colony erect, columnar, dendroid. autozooecia free-walled, dimorphic. Autozooecial apertures not arranged in fascicles, kenozooecia abundant. Gonozooecia large, extending between many autozooecia (usually about 30), with densely perforated by pseudopores.

R e m a r k : According to Nye (1976) the emended spelling *Tretocycloecia* has been rejected.

The genus is generally very similar to *Heteropora* Blainville, 1830, but differs in having columnar dendroid colonies (*Heteropora* has usually globular colonies) and a well-developed dimorphism. As discussed by Taylor and McKinney (2006), the difference between these two genera needs a thorough revision.

Tetrocycloecia dichotoma Canu, 1919

Pl. 34, Fig. 1-4

v. 1847 *Heteropora dichotoma* Goldfuss, 1827 – Reuss p. 35, Pl. 5, Fig. 20

? 1925 *Tetrocycloecia dichotoma* (Reuss, 1847) – Kühn p. 33, Pl. 2, fig. 8, Text figs 10, 11.

1976 *Tetrocycloecia dichotoma* Canu, 1919 – Nye p. 148, Pl. 45 and Pl. 46 (cum syn.)

v. 1977 *Tretocycloecia dichotoma* (Reuss, 1847) – Vávra p. 65 (cum syn.)

T y p e : Nye (1976) selected as type material six specimens from the Natural History Museum Vienna with the numbers 1859.50.686 1, 2 and 3 and 1867.40.1, 2 and 3. Kühn (1925) established a lectotype for the species *Tretocycloecia dichotoma* (Reuss, 1847), the specimen is deposited in the Natural History Museum Vienna under the number 1859.50.686a.

M a t e r i a l : Altogether 7 specimens were studied, none of them with gonozooecium. Additional specimens from the Reuss collection stored in the Natural History Museum Vienna under the number 1859.19.145 from the section Sedlec (listed under the old name Porzteich) have been included in the investigation.

D i a g n o s i s : Colony thick (1-1,5 mm), often dichotomously branching. Kenozooecia very abundant, arranged around autozooecial apertures in an irregular quincuncial pattern. Gonozooecium not observed.

R e m a r k s : Type specimen does not show any gonozooecium either, the pattern of arrangement of kenozooecia is identical with the studied specimens.

As already stated by Nye (1976), according to the ICZN Article 70B, the author of the species is Canu (1919), because Reuss (1847) erroneously reported the Goldfuss species to occur only in the Vienna basin. For a detailed discussion see Nye (1976).

This species differs from *Tetrocycloecia dichotoma* Kühn, 1925 by developing a smaller number of autozooecial apertures. This feature may be however caused by different stages of ontogenesis (Kühn's material shows much larger diameters of the branches). No gonozooecia being available for study, the exact attribution of Kühn's material remains however uncertain.

Genus ***Tholopora*** GREGORY, 1909

Colony erect with subglobular subcolonies. Stems cylindrical, thick. Kenozooecia abundant, basal lamina present.

Although *Tholopora* is a typical Cretaceous genus (Pitt and Taylor, 1990), it may also occur in the Miocene (Zágoršek et al., 2007a).

Remarks: *Tholopora* is listed under the unassigned cyclostomatous genera, but due to the presence of kenozooecia and the general appearance of the colony it may be tentatively placed into the family Cerioporidae.

Tholopora neufferi **VÁVRA 1983**

Pl. 35, Fig. 1-3

v. 1983 *Tholopora neufferi* n.sp. – Vávra p. 83, pl. 3, fig. 8-11
2007a *Tholopora neufferi* VÁVRA – Zágoršek et al. p. 210, Fig. 4A-B

T y p e : Holotype (Vávra, 1983) from the sand-pit Gaul in Steigerberg (Mainz Basin), deposited in the 'Naturhistorisches Museum der Stadt Mainz' under the number NHM-Mz-PWL 1980/38.

M a t e r i a l : Two well-preserved colonies (PM2 – P 01256 and PM2 – P 01257) from the locality Hlohovec

D i a g n o s i s : Colonies columnar, bifurcating, developing characteristic subcolonies. Subcolonies are short, a little more than 1 mm thick, and consist of about 10-12 autozooecial tubes on top of each other. Autozooecial tubes circular, arranged chaotically, sometimes however in quincunx. Kenozooecia single, rare, sometimes occurring in fascicles. The kenozooecial fascicles occupy an area equal to about 5-7 autozooecial tubes. Basal lamina well developed, usually very wide and smooth. No gonozooecia developed.

R e m a r k s : A detailed discussion and description of this species was given in Zágoršek et al. (2007a).

Genus ***Bobiesipora*** Vávra, 1978

Colony erect with an encrusting base. Autozooecial apertures arranged in several rows forming elevated, multilaminar and robust fascicles. There are kenozooecia as large as the autozooecia between the fascicles. Dorsal side porous with small pores and large kenozooecia, arranged in longitudinal rows. Gonozooecium on the dorsal side.

R e m a r k s : *Bobiesipora* is listed under the unassigned cyclostomatous genera, but due to the presence of kenozooecia and the general appearance of the colony it may be tentatively placed into the family Cerioporidae.

Bobiesipora fasciculata **(REUSS, 1847)**

Pl. 36, Fig. 1

v. 1847 *Apsendesia fasciculata* sp.n. – Reuss p. 40, Pl. 6, Fig. 8
v. 1978 *Bobiesipora fasciculata* (REUSS) – Vávra p. 230, Pl. 1, Fig. 3-6, Pl. 2, Fig. 1-4
v. 1989 *Bobiesipora fasciculata* (REUSS) – Vávra p. 92, Pl. 1, Fig. 5 (cum syn.)
v. 2003 *Bobiesipora fasciculata* (REUSS) – Zágoršek p. 119, Pl. 5, Fig. 3 (cum syn.)

T y p e : Lectotypes deposited in the Natural History Museum Vienna under the number 1867.40.42; established by Vávra (1977).

M a t e r i a l : Altogether 7 specimens were studied mainly from Kralice nad Oslavou.

D i a g n o s i s : Colony erect, with circular basal part. The branches budded regularly around the base and developed three-dimensional conical fans. Autozooecial tubes alternating regularly, having large apertures separated by kenozooecia. The gonozooecium was not observed. Dorsal side of the colony with typically arranged pores surrounded by a low, narrow rim

R e m a r k s : One doubtful structure, which might be a gonozooecium with a broken frontal wall was preserved. The characteristic development of the colony and the pores on the branches are adequate to identify the species however.

Suborder **Rectangulata** WATERS, 1887
Family **Lichenoporidae** SMITT, 1867
Genus ***Disporella*** GRAY, 1847

Colony encrusting, non-pedunculate,discoidal to oval with a well-developed basal lamella. Autozooecia arranged in radial ridges – fascicles only on the apical side of the colony. Fascicles prominent, uniserial or multiserial, with large autozooecial apertures. Cancelli polygonal. Gonozooecium situated in the central area. Dorsal side of the colony is nonporous, usually with visible growth lines and/or slightly ribbed.

Disporella **cf. *hispida* (FLEMING, 1828)**

Pl. 36, Fig. 2-5

?v 1847 *Defrancia deformis* m. – Reuss p. 36, Pl. 5, Fig. 24
1964 *Lichenopora hispida* (FLEMING) – Udin p. 436
v. 1977 *Lichenopora hispida* (FLEMING) – Vávra p. 68 (cum. syn.)
? 1985 *Disporella hispida* (FLEMING) – Hayward and Ryland p. 128, Fig. 45, 46

M a t e r i a l : Altogether 21 specimens were studied, mainly from Kralice nad Oslavou.

D i a g n o s i s : Colony encrusting, oval to circular. Autozooecial tubes arranged in uniserial rows, however, sometimes close to the central part of the colony there are no fascicles and the autozooecial tubes are isolated. Close to the margin of the colony the fascicles disappear , the apertures are arranged more irregularly or in a quincuncial pattern. Gonozooecia prominent, very large, occupying almost the whole central part of the colony; they have a porous frontal wall. Oeciopore not clearly visible, perhaps situated between autozooecial apertures at the margin of the gonozooecium.

R e m a r k s : *Defrancia deformis* REUSS 1847 deposited in the Natural History Museum Vienna (especially number 1859.50.700) is very similar to the described specimens. Therefore Vávra (1974) synonymised this Reuss species with *Disporella hispida* (FLEMING, 1828). Because the Reuss material does not show any gonozooecia, the exact attribution to the species however remains uncertain.

The recent specimens (for example Hayward and Ryland, 1985) are very similar to the fossil ones, they mainly differ in having more extended basal laminae and an oeciopore with a peristome a little larger than the autozooecial apertures. The oeciopore has not been clearly identified in the fossil material, similar structures are visible on two specimens (Pl. 36, Fig. 3 and 4) however, but due to the preservation no peristome can be observed; it cannot be confirmed therefore if these openings are oeciopores. More fossil material with well-preserved gonozooecia is needed to decide if fossil and recent specimens are conspecific.

Disporella goldfussi (Reuss, 1864)

Pl. 37, Fig. 1-3

v. 1847 *Defrancia stellata* Goldfuss – Reuss p. 37, Pl. 6, Fig. 2.
v. 1864 *Radiopora goldfussi* m. – Reuss p. 676
1865 *Radiopora goldfussi* Reuss– Reuss p. 84, Pl. 10, Fig. 11, 12
1977 *Lichenopora goldfussi* (Reuss) – Vávra p. 67
1992 *Lichenopora goldfussi* (Reuss) – El Hajjaji p. 76, Pl. 3, Fig. 15.
v. 2003 *Disporella goldfussi* (Reuss) – Zágoršek p. 125, Pl. 8, Fig. 6-7 (cum. syn.)

T y p e : Lectotypes deposited in the Natural History Museum Vienna under the number 1865.3.87 (Vávra, 1977)

M a t e r i a l : Altogether 17 specimens were studied, a few of them with gonozooecia.

D i a g n o s i s : Colony globular to columnar, composed of superposed disks, sometimes very large. Autozooecial tubes arranged in triserial fascicles, 16 to 25 fascicles around the colonial stem. Kenozooecial tubes polygonal to oval. Gonozooecium very large, occupying almost the whole terminal part of the colony. Oeciopore not preserved.

R e m a r k s : When a gonozooecium is developed, the fascicles are very inconspicuous, sometimes not even visible. Although gonozooecia have not been found among the Reuss type material stored in the Museum of Natural History in Vienna, the other features are identical and allow exact determination.

Disporella cf. *radiata* (Savigny et Audouin, 1826)

Pl. 38, Fig. 1-3

?v. 1847 *Defrancia prolifera* m. – Reuss p. 37, Pl. 6, Fig. 1
v. 1977 *Lichenopora radiata* (Savigny et Audouin) – Vávra p. 69 (cum. syn.)
? 1985 *Lichenopora radiata* (Savigny et Audouin) – Hayward and Ryland p. 124, Fig. 43
1997 *Lichenopora prolifera* (Reuss) – Pouyet p. 30, Pl. 2, Fig. 5-6
v 2003 *Disporella radiata* (Savigny et Audouin) – Zágoršek p. 126, Pl. 8, Fig. 4 (cum syn.)

M a t e r i a l : Altogether 14 specimens were studied, one specimen shows a probable gonozooecium.

D i a g n o s i s : Colony encrusting with a thin basal lamella and with a small central area. Rarely, a composite colony may be formed. Autozooecial tubes arranged in uniserial, very long fascicles occupying almost the whole central area. Kenozooecia are large, polygonal and sometimes as large as autozooecia. A fragment of a gonozooecium is visible between the central part of the colony and the beginning of the formation of fascicles. The frontal roof of the gonozooecium is not preserved, therefore the oeciopore is not recognizable.

R e m a r k s : According to Vávra (1977) *Defrancia prolifera* Reuss, 1847 is a junior synonym of *Disporella radiata* (Savigny et Audouin, 1826). Recent specimens of *Lichenopora radiata* (Savigny et Audouin, 1826) as described for example by Hayward and Ryland (1985), show very similar features in respect to the development of the frontal side of the colony and also by forming composite colonies.

The gonozooecium in recent specimens of *Disporella radiata* is immersed in the central part of the colony, the oeciopore is much larger than the autozooecial aperture and has a very distinctive peristome. There are no gonozooecia developed in the syntypes deposited in the Museum of Natural History in Vienna among the Reuss material, therefore the attribution of this species to *Disporella* remains uncertain.

One studied specimen (Pl. 38, Fig. 3) shows a large opening in the place, where the oeciopore should be situated, but – perhaps due to the preservation – no peristome is observable. More fossil material with well-preserved gonozooecia is needed to decide if fossil and recent specimens are conspecific.

Genus *Trochiliopora* Gregory, 1909

Colony pedunculate, conical with porous outer surface and with autozooecial apertures opening on the apical, circular part of the colonial centre. Apertures polygonal, arranged in radial biserial to multiserial fascicles. Kenozooecia (cancelli) small and rare. Gonozooecium in depressed centre of the colony.

Trochiliopora insignis (Manzoni, 1878)

Pl. 39, Fig. 1-7

v. 1878 *Discotubigera insignis* sp.n. – Manzoni p. 17, Pl. 16, Fig. 64
1977 *Trochiliopora*? *insignis* (Manzoni, 1878) – Vávra p. 71 (cum syn.)

T y p e : Lectotypes deposited in the Natural History Museum Vienna under the number 1860.38.27 (Vávra, 1977).

M a t e r i a l : Altogether 7 specimens were studied, one with a small gonozooecium.

D i a g n o s i s : Colony large, circular to oval with a long peduncle. Autozooecia arranged in short but prominent, biserial to multiserial fascicles, usually exceeding the margin of the upper part of the cone. Kenozooecia small, oval. Gonozooecium small, situated at the margin of the central area, its roof is not preserved.

R e m a r k s : *Trochiliopora* is usually regarded as a Cretaceous genus, but it was already found in the Eocene of Austria and Hungary (Zágoršek, 2001, 2003). An occur-

rence in the Miocene has also been suggested by Vávra (1977).

Genus *Coronopora* Gray, 1847

Colony forming cylindrical or nodular shapes with encrusting base. Autozooecia in multiserial radial rows. Gonozooecium elongated, spread across 3-4 autozooecial rows. Oeciopore situated centrally on a short oeciostome.

Coronopora cf. *disticha* (Hagenow, 1851)

Pl. 40, Fig. 1-2

1851 *Defrancia disticha* sp.n. – Hagenow p. 142, Pl. 4, Fig. 1 part.
1972 *Theonoa disticha* (Hagenow, 1851) – Brood p. 327, Pl. 39, Fig. 1, 5, 9

M a t e r i a l : Altogether 4 specimens were studied, one of them with a well-developed gonozooecium.

D i a g n o s i s : Colony lobate, it may represent an encrusting base. Autozooecia in biserial to multiserial radial rows, raising significantly above the basal surface. Gonozooecium situated on the margin of the colony, extending transversally to the rows, spreading over 4-5 rows. Oeciopore oval situated on a short oeciostome (peristome)

R e m a r k s : Although *Coronopora* should form nodular colonies (Hayward and Ryland, 1985); the studied specimens perhaps represent the encrusting base however. *Theonoa* Lamouroux, 1821 as revised by Walter (1969) has triangular gonozooecia and is often forming subcolonies. *Coronopora* as described by Hayward and Ryland (1985) developed the same type of gonozooecium with the same position of the oeciopore; even the characters of the fascicles are identical with the specimens studied.

Theonoa disticha as described by Brood (1972) has been reported only from the Cretaceous to the Danian, but the similarities are very convincing. The position and the shape of the gonozooecium and the position of the oeciopore are identical. To confirm the identification, the type material of *Defrancia disticha* has still to be studied however.

Class **Gymnolaemata** Allman, 1896
Order **Ctenostomata** Busk, 1852
Suborder **Stoloniferina** Ehlers, 1876
Superfamily **Terebriporoidea** d'Orbigny, 1847
Family **Terebriporidae** d'Orbigny, 1847
Genus *Terebripora* d'Orbigny, 1847

Colonies boring, non-pedunculate. Autozooecia arranged horizontally along the stolon, distally jointed to the stolon, proximally not jointed. Apertures situated on left or right side of the stolon. Lateral stolons developed from the middle part of the length of the autozooecium.

Terebripora falunica Fischer, 1865

Pl. 41, Fig. 1-4

1865 *Terebripora falunica* sp.n. – Fischer p. 301-302
1978 *Terebripora falunica* Fischer – Pohowsky p. 114-116, pl. 19, fig. 5,6, pl. 20, fig. 1-4, pl. 21, fig. 1-6, text-fig. 1 (C-E)
v. 2007a *Terebripora falunica* Fischer – Zágoršek et. al. p. 210, Fig. 5A-D (cum syn.)

T y p e: The lectotype is stored in the Natural History Museum Paris under the number 79532-1 (Pohowsky, 1978).

M a t e r i a l : Altogether 3 specimens were studied; all are stored in the Natural History Museum Vienna under the numbers 2006z0216/001 and 2006z0216/002.

D i a g n o s i s : Boring traces of the colony show a rather fenestrate pattern, lateral stolons arise typically at mid-length – or slightly distal to mid-length – of the autozooecia. Autozooids arranged horizontally along the stolon, proximal part not adjacent to stolon. Total length of autozooecia varies from 0,25 to 0,38 mm. Apertures are located on right or left side of the stolon. Autozooecial and stolon tabulates absent. Heterozooecia not observed.

R e m a r k s : Studied specimens show a large variability of length similar to the type material as described by Pohowsky (1978). He gives the total length of autozooecia as 0,30 to 0,37 mm. No heterozooecia and ancestrula have been observed in the studied specimens, but the characteristic development of lateral stolons in a slightly distal position from mid-length of the autozooecia is clearly visible

Order **Cheilostomata** Busk, 1852
Suborder **Malacostegina** Levinsen, 1902
Superfamily **Membraniporoidea** Busk, 1852
Family **Membraniporidae** Busk, 1852
Genus *Biflustra* d'Orbigny 1852

Colony encrusting. Autozooecia with well-developed cryptocyst, no avicularia and no spines. Opesia usually very large. Gymnocyst not developed. Ovicell unknown.

Biflustra savartii (Savigny et Audouin, 1826)

Pl. 42, Fig. 1-5

1974 *Biflustra savartii* (Savigny et Audouin, 1826) – David and Pouyet p. 99
1988 *Biflustra savartii* (Savigny et Audouin, 1826) – Moissette pl. 11, fig. 6

M a t e r i a l : Altogether 8 specimens were studied, mainly from the Moravian part of the Vienna Basin.

D i a g n o s i s : Colony encrusting, autozooecia arranged in longitudinal rows, oval with well-developed cryptocyst. Opesia rectangular to oval, mural rim smooth and narrow.

R e m a r k s : Characteristic are the encrusting colonies, the rectangular shape of autozooecia and opesia.

Biflustra sp.

Pl. 43, Fig. 1-5

M a t e r i a l : Altogether 11 specimens were studied, only from the section Sedlec.

D i a g n o s i s : Colony bilaminar to multilaminar with a circular or slightly oval cross section. The autozooecia are arranged in 4 to 8 regular longitudinal autozooecial rows, rectangular to slightly oval, about three times longer than wide. Opesia characteristically oval. The cryptocyst is well developed, smooth, sometimes situated very deeply inside the autozooecium. The opesia are circular to oval, placed near the distal margin of the autozooecium. The mural rim is granular and narrow.

R e m a r k s : *Biflustra sp.* differs from *Biflustra savartii texturata* (Reuss, 1847) in having much longer autozooecia, oval opesia and massive colonies with a lower number of autozooecial rows. *Biflustra* d'Orbigny 1852 should grow only to form encrusting colonies, but due to different structures observed (oval opesia, no gymnocyst, and no ovicells) it seems to be closely related to the genus *Biflustra*. Tilbrook, 2006 revised this genus and also mentioned erect colonies .

Similar to *Crassimarginatella macrostoma* (Reuss, 1847), but differs in having no avicularia and no gymnocyst.

Due to the lack of additional features (avicularia, ovicells) it is impossible to establish a new species.

Family **Electridae** d'Orbigny, 1851

Genus ***Eokotosokum*** Taylor et Cuffey, 1992

Colony encrusting. Autozooecia with a membranous frontal wall and a narrow mural rim. Cryptocyst narrow, gymnocyst nonporous. Pair of large spine bases situated on the distolateral corners. No ovicells, no avicularia.

?Eokotosokum bobiesi (David et Pouyet, 1974)

Pl. 44, Fig. 1-5

?1974 *Membranipora bobiesi* nov. sp. – David and Pouyet p. 96, Pl. 2, Fig. 1

1977 *Membranipora bobiesi* David et Pouyet – Vávra p. 74 (cum syn.)

1988 *Aplousina bobiesi* (David et Pouyet) – Moissette p. 78, Pl. 12, Fig. 7 and 11

?2006 ?*Crassimarginatella bobiesi* David et Pouyet – Berning p. 22, Fig. 12, 13

T y p e : Holotype deposited in the Université de Lyon under the number FSL No. 260 540 (David and Pouyet, 1974).

M a t e r i a l : Altogether 25 specimens were studied, very widely distributed, occurs almost in all studied sections.

D i a g n o s i s : Colony encrusting, autozooecia rectangular to oval with a pair of large distolateral tubercles situated on a wide mural rim. Narrow cryptocyst and imperforate gymnocyst. Basal pore-chambers large. Kenozooecia rare, with smooth frontal walls. No ovicell identified, neither in studied specimens nor in the original illustration and description.

R e m a r k s : The species belongs to the primitive malacostegans (Taylor, 1987). The characteristic features are a pair of distolateral spine bases (tubercles) and the rectangular shape of the autozooecia at least on the distal margin. No kenozooecia have been previously reported to occur in this species.

Membranipora is very slightly calcified, so unable to fossilize. Another proposed genus *Aplousina* does not develop any tubercles, spines, nor avicularia; the mural rim is also very narrow (Canu and Bassler, 1927). Gordon (1986) however includes in this genus one species (*A. anxiosa*), which shows very similar features to ?*Eokotosokum bobiesi* (David et Pouyet, 1974) – tubercles and large basal pore chambers. *Aplousina anxiosa* Gordon, 1986 differs from ?*Eokotosokum bobiesi* (David et Pouyet, 1974) however in having a very narrow mural rim, moreover the position of tubercles is more chaotic.

Berning (2006) suggested to list this species with *Crassimarginatella,* which however has to possess vicarious avicularia. Moreover, his specimens also exhibit spine bases around the opesia as well as an ovicell – in total this does not correspond to the original description and illustration as given by David and Pouyet (1974). Therefore it remains uncertain, whether Berning's specimens also belong to this species.

Taylor and Cuffey (1992) introduced *Eokotosokum* to accommodate primitive malacostegans with a pair of tubercles (spine basis?), wide mural rim and without ovicells - which perfectly corresponds to the features of our species.

Because the type specimen of *Membranipora bobiesi* David et Pouyet, 1974 is not available at the Université de Lyon, the generic attribution of this species remains uncertain.

Genus ***Copidozoum*** Harmer, 1926

Colony unilaminar or encrusting. Autozooecia with reduced gymnocyst, cryptocyst lacking. Spines may be present. Avicularia interzooecial, small, rare. Ovicell hyperstomial. Pore chambers large, always in pairs situated at the distal margin of autozooecia.

Copidozoum natalae sp. n.

Pl. 45, Fig. 1-4

D i a g n o s i s : Autozooecia rectangular. Gymnocyst much reduced, narrow. Cryptocyst narrow, deeply sunken, smooth. Mural rim wide, smooth or slightly granular. Spines lacking. Avicularia rare, small, situated irregularly between autozooecial opesia, or on the gymnocyst. Pore chambers paired, large, well-developed. Ovicells large, no frontal wall preserved.

H o l o t y p e : The specimen illustrated in Pl. 45, Fig. 1, from the section Kralice nad Oslavou, deposited in the National Museum Prague PM2 – P 01499.

P a r a t y p e s : 2 specimens from the section Kralice nad Oslavou deposited in the National Museum Prague PM2 – P 01500 and P 01501.

A d d i t i o n a l m a t e r i a l : One specimen from section Židlochovice (specimen P 01502)

D e r i v a t i o n o m i n i s : Dedicated to Natalia Hudáčková from the University of Bratislava who works on Miocene sediments from the Slovak part of the Vienna Basin and also supports my field work.

Locus typicus: section Kralice nad Oslavou.
Stratum typicum: Langhian – Lower Badenian.
Measurements: (in micrometers = μm; x = average):
length of autozooecia: 541 – 587; x = 566
width of autozooecia: 420 – 491; x = 471
length of opesium: 401 – 454; x = 420
width of opesium: 204 – 283; x = 256
length of avicularium: 110 – 147; x = 137
width of avicularium: 55 – 73; x = 67
length of ovicell: 246 – 267; x = 257
width of ovicell: 231 – 254; x = 242

Description: Colony encrusting. Autozooecia oval, rectangular to hexagonal, sometimes square shaped, arranged in almost regular longitudinal rows. Gymnocyst very narrow, or not developed at all. Cryptocyst deeply sunken, narrow and smooth. Mural rim wide, smooth or slightly granular. No spines observed. Avicularia rare, small, situated irregularly between autozooecial opesia, or on gymnocyst, tapering laterally oblique distally. Pore chambers paired, large, well-developed. Ovicell large, globular, no frontal wall preserved.

Remark: Most similar in respect to shape and arrangement of autozooecia is *Membranipora nobilis* Reuss 1847. Its lectotype was established by David and Pouyet (1974, p. 98, Pl. 2, Fig. 6) and deposited in the Natural History Museum Vienna under the number 1859. 50. 794. There are no avicularia or ovicells in this specimen and the pore chambers are less pronounced than in the described material. Moreover, small tubercles are present on the mural rim of this type; therefore this species clearly does not belong to *Copidozoum natalae* sp. n.

The proposed genus *Copidozoum,* as described for example by Hayward and Ryland (1998), shows all the same features as in the studied material: reduced gymnocyst, large opesia, and smaller interzooecial avicularia and a hyperstomial ovicell with membranous ectoecium. The uncalcified ectoecium may also be the reason why it is not preserved on studied specimens.

Very similar is also *Copidozoum tenuirostre* (Hincks, 1880), but it differs in having much larger avicularia (180 to 400 μm) and an ovicell with a calcified, perforated frontal wall (see the description of this species as given by Moissette, 1988, p. 82, Pl. 13, Fig. 11)

Another similar genus: *Craspedopora* as understood by Taylor and McKinney (2006) accommodates Calloporide species which developed only small avicularia, a reduced gymnocyst and no ovicells. A well-developed pair of pore chambers is almost identical with the studied material, but the presence of an ovicell discriminates this genus.

Occurrence: Kralice nad Oslavou, Kroužek and Židlochovice

Suborder **Flustrina** Smitt, 1868
Superfamily **Calloporoidea** Norman, 1903
Family **Calloporidae** Norman, 1903
Genus ***Amphiblestrum*** Gray, 1847

Colony encrusting. Cryptocyst moderately developed, gymnocyst absent or very small. Oral spines absent or a few small ones. Adventitious avicularia present, usually situated on gymnocyst. Ovicell prominent.

Amphiblestrum appendiculatum (Reuss, 1847)

Pl. 46, Fig. 1-4

v. 1847 *Cellepora appendiculata* m. – Reuss p. 96, Pl. 11, fig.22
v. 1864 *Membraniporella appendiculata* var. *apora* m. – Reuss p. 631, Pl. 9, Fig. 4
v. 1874 *Membraniporella appendiculata* Reuss – Reuss p. 181, Pl. 9, Fig. 13 –16
1977 *Ramphonotus appendiculata* (Reuss*)* – Vávra p. 84 (cum syn.)
v. 2003 *Amphiblestrum appendiculatum* (Reuss) – Zágoršek p. 130, Pl. 10, Fig. 5, 6 (cum syn.)
2006 *Amphiblestrum appendiculata* (Reuss) – Berning p. 19, Fig. 7, 9 (cum syn.)

Type: Lectotype deposited in the Natural History Museum Vienna under the number 1847.38.83. (David and Pouyet, 1974)

Material: Altogether 6 specimens were studied from different sections in the Vienna Basin and also from the Carpathian Foredeep.

Diagnosis: Autozooecia oval to triangular, with a short cryptocyst, sometimes very reduced (Pl. 46, Fig. 1). A shallow, narrow furrow separates neighbouring autozooecia. Gymnocyst rarely developed, usually absent . Mural rim narrow and smooth, with rarely one or two pairs of small oral spines situated on the distal margin (Pl. 46, Fig. 4). Avicularia small, tube-like, with a circular orifice, situated usually on the gymnocyst (Pl. 46, Fig. 2). Ovicells prominent, small with a nonporous frontal wall and sometimes with a small keel on the proximal margin. The ovicells have a prominent median keel proximally rising to form a small umbo. The ovicell aperture is a slit-like, opening the entire proximal margin of the ovicell. Ovicelled autozooecia usually with paired avicularia.

Remarks: The type developed only one adventitious, tubular avicularium per autozooecium and no ovicells. The described specimens are almost identical with the syntypes of *Cellepora appendiculata* Reuss 1847 deposited in the Museum of Natural History in Vienna. The syntypes, however, usually show regular rows of autozooecia and have only rare avicularia. Nevertheless, Reuss (1874) described *Membraniporella appendiculata* with pairs of avicularia situated proximally to the opesia. This specimen may be synonymized with *Amphiblestrum appendiculata* (Reuss, 1847).

The studied specimen has many ovicelled autozooecia, which sometimes have paired adventitious avicularia and a small keel on the proximal margin. Ovicells have not been reported from Miocene material up to now, only a few Eocene specimens developed ovicells, which have a similar keel (Zágoršek, 2001).

The shape of the opesium in *Amphiblestrum* is similar to the number “8”, with prominent condyles in the middle and a wider proximal part than distal part. This difference however may be regarded as a feature characteristic of this species. The presence of oral spines, adventitious avicular-

ia on the gymnocyst and a prominent ovicell are characteristic for this genus as understood by Gordon (1984).

A very similar genus is *Antropora* as described by Tilbrook et al. (2001); it has the same shaped opesium and also almost identical adventitious avicularia. It differs mainly in having an endozooecial ovicell and vicarious avicularia, and in lacking oral spines. The ovicell may look like a cap at the distal margin of the autozooecia. This 'cap' looks like an ovicell on studied species, but is much smaller and has no frontal wall. Moreover, *Antropora* often has vicarious avicularia which were never found in this species and by the lack of oral spines, which are described in this species. These differences are more important than the shape of the opesia and therefore I believe that this species belongs to *Amphiblestrum.*

Genus ***Pyriporella*** Canu, 1911

Colony encrusting. Autozooecia oval with a short gymnocyst. Opesia oval, not surrounded by oral spines. Numerous small adventitious avicularia overgrowing the gymnocyst. Ovicell small, immersed and with a smooth frontal wall.

***Pyriporella* cf. *loxopora* (Reuss, 1847)**

Pl. 47, Fig. 1-4

?v. 1847 *Cellepora loxopora* m. – Reuss p. 97, Pl. 11, Fig. 24
?v. 1874 *Membranipora loxopora* (Reuss) – Reuss p.179, Pl. 9, Fig. 4-5
?1974 *Hincksina loxopora* (Reuss, 1847) – David and Pouyet p. 102, Pl. 3, Fig. 1
?1977 *Hincksina loxopora* (Reuss, 1847) – Vávra p. 79 (cum syn.)
v. 2009 *Pyriporella loxopora* (Reuss, 1847) – Zágoršek et al. p. 479, Pl. 10A-C (cum syn.)

T y p e : The holotype (or lectotype) probably does not exist, they have not been found among the Reuss collection in the Natural History Museum Vienna. David and Pouyet (1974) selected a 'Neolectotype' from Baden, which is deposited in the Natural History Museum Vienna under the number 1878.11.99 (David and Pouyet 1974, p. 102, Pl. 3, Fig. 1). This specimen can not be regarded as a valid lectotype however: Reuss (1847) mentioned this species from Eisenstadt and Satschan (= Žatčany) only; his pictured specimen was from Satschan – this should therefore be the type locality. Baden has been given erroneously as type locality also by Vávra (1977).

M a t e r i a l : Specimen 1878.11.98 (described by Reuss, 1874) and altogether 12 specimens were studied, mainly from the locality Kralice nad Oslavou

D i a g n o s i s : Autozooecia grow chaotically, rarely in almost regular rows. Gymnocyst very short, not clearly observable, cryptocyst absent (Pl. 47, Fig. 4). Adventitious avicularia situated between 3 to 5 autozooecia, small, oval with pivotal bar. Ovicell unknown.

R e m a r k s : *Hincksina* as described by Hayward and Ryland (1998) has many spines surrounding its opesium, and an endozooecial ovicell. *Pyriporella* as revised by Taylor and McKinney (2006) shows the same development of avicularia and has opesia without any spines. The spines are not clearly observable in the studied specimens, so the species more probably belongs to the genus *Pyriporella.*

The type material differs from studied specimens with respect to the growth pattern of autozooecia. The autozooecia in the type material are arranged more or less in regular longitudinal rows, not as chaotically as in the studied specimens. However, the specimens described by Vávra (1977) also grow in irregular rows and David and Pouyet (1974) indicated in their description an irregular arrangement of autozooecia.

The avicularia of the type material and of specimen 1878.11.98 are larger and more tapering distally than in the studied material, but it may be caused by preservation. Better preserved specimens allowing a more detailed study are needed to decide if the studied specimens really belong to this species or not.

Genus ***Flustrellaria*** d'Orbigny, 1853

Colony encrusting, frontal wall membranous (calloporid) with oral spines surrounding the opesia. Avicularia vicarious or interzooecial. Ovicell present.

R e m a r k s : According to a revision (Gordon and Taylor, 1999) this genus is known from the Cretaceous to Eocene, Miocene occurrences are known only from Moravia.

***Flustrellaria fenestrata* (Reuss, 1847)**

Pl. 48, Fig. 1-6

v. 1847 *Cellepora fenestrata* m. – Reuss p. 97, Pl. 11, Fig. 23
1974 *Callopora fenestrata* (Reuss, 1847) – David and Pouyet p. 105, Pl. 1, Fig. 5, 7 (cum syn.)
1977 *Callopora fenestrata* (Reuss, 1847) – Vávra p. 81 (cum syn.)
2006 *Hincksina* sp. – Berning p. 31, Fig. 25, 26

T y p e : Lectotype from Eisenstadt (established by David and Pouyet, 1974) is deposited in the Natural History Museum Vienna under the number 1867.40.260.

M a t e r i a l : A very common species in sections of the Carpathian Foredeep, 22 specimens were studied in detail.

D i a g n o s i s : Elongated autozooecia with numerous spine bases around opesia (Pl. 48, Fig. 4) with a short gymnocyst. Mural rim usually narrow, but occasionally also very wide (Pl. 48, Fig. 5). Avicularia large up to one third of the length of autozooecia, situated between autozooecia, tapering distally (orientated longitudinally – Pl. 48, Fig. 6) or oblique laterally (Pl. 48, Fig. 3). Ovicell with calcified frontal wall, deeply immersed into distal autozooecium.

R e m a r k s : The type specimen has the same size and shape of avicularia and differs from described specimens only in having slightly shorter autozooecia.

Callopora Gray, 1847 as understood by Hayward and Ryland 1998 has small avicularia situated on the gymnocyst always in the same position. A rather similar genus is *Flustrellaria* d'Orbigny, 1853 as revised by Gordon and Taylor (1999) in that it has vicarious avicularia in different positions. Another similar genus is *Marginaria* Römer, 1840, which does not develop oral spines but has numerous small

avicularia scattered between autozooecia (revised by Taylor and McKinney, 2006).

Berning (2006) described *Hincksina* sp., which shows identical features to *Flustrellaria fenestrata* (Reuss, 1847), but it differs in growing in more regular longitudinal rows. He also synonymised his specimens with *Cellepora fenestrata* Reuss, 1847

***Flustrellaria* sp.**

Pl. 49, Fig. 1

M a t e r i a l : one specimen

D i a g n o s i s : Rectangular elongated autozooecia with clearly visible gymnocyst. Avicularia very large (almost the size of autozooecia), rare. Ovicell not visible.

R e m a r k s : The specimen shows characters very similar to *Membranipora diadema* (Reuss, 1847) as described by David and Pouyet, 1974 (p. 97, pl. 2, Fig. 5). The Reuss specimens do not exhibit avicularia, a fact which may be explained however by the very rare development of avicularia in this species. Due to the lack of material, a more precise determination is not possible.

Wilbertopora Cheetham, 1954 (as understood among others by Taylor and McKinney, 2006) is also a very similar genus in having vicarious avicularia, it differs however with respect to the lack of oral spines surrounding the opesia; they are clearly visible on our studied specimen .

Undeterminable Calloporid

Pl. 49, Fig. 2-3

?v. 1847 *Membranipora nobilis* m. – Reuss p. 98, Pl. 11, Fig. 26
?v. 1864 *Membranipora subtilimargo* m. – Reuss p. 630, Pl. 9, Fig. 5
?1974 *Alderina subtilimargo* (Reuss) – David and Pouyet p. 106, Pl. 2, Fig. 4 (cum syn.)
?1974 *Membranipora nobilis* Reuss – David and Pouyet p. 98, Pl. 2, Fig. 6
?1977 *Alderina subtilimargo* (Reuss) – Vávra p. 82 (cum. syn.)
?v. 1977 *Membranipora nobilis* Reuss – Vávra p. 75 (cum syn.)

T y p e s : The holotype of *Membranipora subtilimargo* Reuss, 1864 was identified by David and Pouyet (1974) and is deposited in the Natural History Museum Vienna under the number 1852.1.1133. A neotype for *Membranipora nobilis* Reuss, 1847 (established by David and Pouyet, 1974) is kept in the same museum under the number 1859.50.794. This neotype can not be accepted as a valid type however: Reuss described this species in 1847 from Satschan (= Žatčany) only – therefore this locality must remain the type locality.

M a t e r i a l : Very common species in sections from the Carpathian Foredeep, more than 40 specimens were studied in detail.

D i a g n o s i s : Autozooecia oval, arranged mostly chaotically, sometimes in rows (Pl. 49, Fig. 2). Opesia large, subcircular, with a smooth mural rim; there may be slightly protruding tubercles on the distal margin. (Pl. 49, Fig. 3). Gymnocyst is very short, smooth. No ovicells, avicularia or kenozooecia observed.

R e m a r k s : The holotype of *Membranipora subtilimargo* Reuss, 1864 shows autozooecia with a regular hexagonal shape and a narrower mural rim than the studied specimens, but it also developed slightly protruding tubercles. The 'neotype' of *Membranipora nobilis* Reuss, 1847 is very similar to the studied specimens with respect to the less rectangular shape of the autozooecia, but did not form tubercles on its mural rim. Thus both types do not show enough features to clearly identify them and the differences between them remains indistinct.

All studied material and also both species used for comparison do not develop any avicularia, ovicells, spines; therefore – mainly due to the lack of any observable characters – it is impossible to determinate this species unequivocally . However, such colonies (without any characteristic features) are traditionally called "*Alderina subtilimargo*".

Family **Cupuladriidae** Lagaaij, 1952
Genus ***Cupuladria*** Canu et Bassler, 1919

Colony free. Autozooecia with asymmetrical vibracularia, vicarious vibracularia may be formed. Cryptocyst simple, no spinules developed. Dorsal side of the colony porous.

***Cupuladria baluki* sp.n.**

Pl. 50, Fig. 1-7

v. 1977 *Cupuladria canariensis* (Busk, 1859) – Vávra p. 77 (cum syn.)
1984a *Cupuladria vindobonensis* sp.n. – Bałuk and Radwanski p. 22, Pl. 2,3 and Pl. 9, Fig. 1-2
non. 1994 *Cupuladria canariensis* (Busk, 1859) – Cook and Chimonides p. 259, Figs 3, 7, 13 (cum syn.)

D i a g n o s i s : Autozooecia rhomboidal, arranged in longitudinal rows. Cryptocyst granular, simple, no spinules. Vibracularia oval, triagonal, turned alternatively to left or right from direction of growth. Dorsal side of the colony perforated by very large pores, arranged in more or less radial rows.

H o l o t y p e : The specimen illustrated in Pl. 50, Fig. 1, from the locality Drnovice, deposited in the National Museum Prague PM2 – P 01533.

P a r a t y p e s : 4 specimens from the locality Drnovice and borehole Vranovice VK-1, deposited in the National Museum Prague PM2 – P 01534 to P 01537.

A d d i t i o n a l m a t e r i a l : 4 more specimens from Drnovice, Vranová Lhota and borehole Vranovice VK-1.

D e r i v a t i o n o m i n i s : Dedicated to Dr. Bałuk, who first discovered that the Miocene material belongs to a new species.

L o c u s t y p i c u s : Drnovice.

S t r a t u m t y p i c u m : Langhian – lower Badenian.

M e a s u r e m e n t s : (in micro meters = µm; x = = average):

length of autozooecia: 346 – 534; x = 462
width of autozooecia: 262 – 499; x = 363
length of opesium: 243 – 357; x = 293
width of opesium: 146 – 224; x = 179

length of vibraculum: 178 – 264; x = 216
width of vibraculum: 106 – 179; x = 147
diameters of dorsal pores: 55 – 66; x = 62

D e s c r i p t i o n : Only fragments of the colonies are preserved. Autozooecia rhomboidal, arranged in longitudinal rows. Cryptocyst granular, simple, no spinules. Asymmetrical vibracularia oval, turned alternatively to left or right with respect to the direction of growth. No vicarious vibracularia present. Autozooecia not covered by calcareous lamina. Dorsal side of the colony perforated by very large pores in radial rows. Pore chambers present, larger on the margin of the autozooecia, smaller on the dorsal side of autozooecia.

R e m a r k : This is the species from the Miocene of the Vienna Basin, as described by Bałuk and Radwanski (1984a). They used the name *Cupuladria vindobonensis*, and choose as a type the specimen described and figured by Busk (1859) from the Pliocene of England, which is apparently lost (Bishop and Hayward, 1989). Moreover they include *Cupuladria cavernosa* Cadée, 1979 into synonymy, which makes *Cupuladria vindobonensis* a junior synonym of *Cupuladria cavernosa* Cadée, 1979 (Cook and Chimonides, 1994).

Lagaaij (1952) described in detail *Cupuladria canariensis* (Busk, 1859) from the Coralline Crag. All these specimens were recently referred to *Cupuladria canariensis cavernosa* Cadée, 1979 (Bishop and Hayward, 1989) and are not conspecific with *Cupuladria vindobonensis* Bałuk et Radwanski, 1984a. For detailed discussions see also Cook and Chimonides (1994). Thus the whole *Cupuladria canariensis-complex* (as understood also by Cook and Chimonides, 1994) from the Pliocene may be referred to *Cupuladria cavernosa* Cadée, 1979 and all the Miocene specimens may belong to the *Cupuladria baluki* sp.n.

Cupuladria canariensis (Busk, 1859) as described for example by Cook and Chimonides (1994) shows narrower autozooecia and larger pores on its dorsal side than *Cupuladria baluki* sp.n.

Due to the free-living growth form and its general appearance this species belongs to *Cupuladria*.

O c c u r r e n c e : In Moravia it occurs only at the localities Drnovice and Vranovice VK-1, but according to Bałuk and Radwanski (1984a) it is widely distributed in Poland.

Genus ***Reussirella*** Bałuk et Radwanski 1984a

Colony free. Autozooecia with vestibular arch and asymmetrical avicularia, no vicarious avicularia formed. Cryptocyst with spinules. Central region of autozooecia closed by lamina. Dorsal side of the colony formed by radial ridges (radial calcification of cuticular sector boundaries according to Cook and Chimonides, 1994)

***Reussirella haidingeri* (Reuss, 1847)**

Pl. 51, Fig. 1-5

v. 1847 *Lunulites haidingeri* m. – Reuss p. 58, Pl. 7, Fig. 26-27
v. 1977 *Cupuladria haidingeri* (Reuss, 1847) – Vávra p. 78 (cum syn.)
1984a *Reussirella haidingeri* (Reuss, 1847) – Bałuk and Radwanski p. 25, Pl. 4-6 and 10 (cum syn.)
1994 *Reussirella haidingeri* (Reuss, 1847) – Cook and Chimonides p. 258

T y p e : Lectotypes deposited in the Natural History Museum Vienna under the number 1867.40.315 (Vávra, 1977).

M a t e r i a l : Altogether 11 fragments of such colonies from different localities were studied. No complete colony was found.

D i a g n o s i s : Only fragments of colonies found. Autozooecia rhomboidal, arranged in longitudinal rows. Cryptocyst granular with spinules. Asymmetrical vibracularia oval, triangular, turning alternatively to left or right with respect to the direction of growth. Autozooecia covered by calcareous lamina, which occur only in the central part of the colony, lamina perforated by 8 to 10 pores arranged in two rows. Dorsal side of the colony nonporous, granular with clearly visible longitudinal rows of autozooecia.

R e m a r k s : Autozooecia covered by calcareous lamina perforated by pores in two rows: this is very similar to the morphology of the autozooecia of *Discoporella* d'Orbigny, 1852. Also the development of the dorsal side is almost identical with the situation in *Discoporella* (illustrated by Herrera-Cubilla et. al. 2008), thus these genera may be very closely related. The main difference remains however that autozooecial calcareous lamina in *Reussirella* are developed rather late in its ontogeny, while in *Discoporella* they occur also in the early stages of ontogeny.

According to Cook and Chimonides (1994), this is a tropical species, which lived in water not below 14°C. Therefore the presence of this species may be used as an indicator of tropical waters in the Carpathian Foredeep during the Langhian.

Superfamily **Buguloidea** Gray, 1847
Family **Candidae** d'Orbigny, 1851
Genus ***Scrupocellaria*** van Beneden, 1845

Colonies erect flexible, unilaminar. Autozooecia in two alternating rows, facing to one side. Opesia large, gymnocyst well-developed. Spines and scuta may be present. Distal marginal avicularia always present, frontal avicularia may be present . Ovicell immersed into the distal part of the autozooecium. Dorsal side of the colony with vibracularia chambers.

***Scrupocellaria elliptica* (Reuss, 1847)**

Pl. 52, Fig. 1-6

v.1847 *Bactridium ellipticum* m. – Reuss p. 56, Pl. 9, Fig. 8
1989 *Scrupocellaria elliptica* (Reuss, 1847) – Schmid p. 23, Pl. 5, Fig. 1-7 (cum syn.)
?non2006 *Scrupocellaria* sp. – Berning p. 32, Fig. 27-29

T y p e : A lectotype from Nussdorf is deposited in the Natural History Museum Vienna under the number 1859. 38.84 (David and Pouyet, 1974)

M a t e r i a l : Altogether 13 specimens from different sections were studied.

D i a g n o s i s : Opesia large occupying almost 2/3 of autozooecial length. Cryptocyst rarely observable (Pl. 52, Fig. 5). Gymnocyst short, smooth. No frontal avicularia. Spines often arranged in 4-5 pairs situated on distal half of the mural rim. Ovicell deeply immersed with frontal fissure and a small avicularium situated on the distal corner of the ovicell. Vibracularia chambers are paired, small and triangular, situated on the margin of the dorsal side. Pore chambers usually in pairs, present on the distal edge of the autozooecia (Pl. 52, Fig. 6).

R e m a r k s : As discussed by Schmid (1989) the establishment of the type is not clear, because of doubts in respect to the locus typicus. After studying the type material and discussing this topic with Prof. Vávra, we conclude however, that Reuss just made a mistake and wrote 'Neudorf' instead of 'Nussdorf', therefore the type material may be identified as the specimen kept at the Natural History Museum Vienna (number 1859.38.84). The name for this species is very widely used and the general features are commonly accepted as described here. Material described by Berning (2006) shows frontal avicularia, but all other characteristic features are identical. A revision of the genus *Scrupocellaria* from the Miocene is needed to resolve taxonomic problems; therefore it is not certain , if the specimens described by Berning (2006) also belong to *Scrupocellaria elliptica* (Reuss, 1847) or not.

Superfamily **Microporoidea** Gray, 1847
Family **Microporidae** Gray, 1847
Genus ***Micropora*** Gray, 1847

Colony encrusting. Autozooecia with a prominent mural rim surrounding a well-developed cryptocyst occupying almost the whole frontal area. Opesia semilunar with a straight proximal margin and with two opesiules situated proximo-laterally. Oral spines rare, mostly absent. Ovicell immersed, with smooth frontal wall. Avicularia adventitious, interzooecial, or absent.

***Micropora papyracea* (Reuss, 1847)**

Pl. 53, Fig. 1-4

v. 1847 *Cellepora papyracea* m. – Reuss p. 94, Pl. 11, Fig. 15
v. 1977 *Micropora papyracea* (Reuss, 1847) – Vávra p. 88 (cum syn.)

T y p e : Lectotype from Eisenstadt deposited in the Natural History Museum Vienna under the number 1867. 40. 76 (or 1867.40.176 – not clear etiquette) (David and Pouyet, 1974).

M a t e r i a l : Altogether 5 specimens from different sections in the Carpathian Foredeep were studied.

D i a g n o s i s : Autozooecia hexagonal, opesiules large, oval to circular, situated proximally from the opesia. Cryptocyst perforated, rarely granular. No oral spines, avicularia, or ovicell observed.

R e m a r k s : The position of the opesiules is more proximal, than in the *Micropora parvicella* Canu et Lecointre, 1927 and the shape of the autozooecia is more hexagonal.

***Micropora parvicella* Canu et Lecointre, 1927**

Pl.54, Fig. 1-5

1927 *Micropora parvicella*. – Canu and Lecointre p. 34, Pl. 5, Fig. 6-8.
v. 1977 *Micropora parvicella* Canu et Lecointre, 1927 – Vávra p. 89 (cum syn.)
1989 *Micropora parvicella* Canu et Lecointre, 1927 – Schmid p. 16, Pl. 2, Fig. 1-3 (cum syn.)

M a t e r i a l : Altogether 13 specimens from different sections were studied.

D i a g n o s i s : Autozooecia oval, slightly elongated, opesiules small, slit-like, situated very close to the proximolateral margin of the opesia. No oral spines or avicularia observed. Ovicell globular, immersed into the distal part of the autozooecium, with smooth frontal wall.

Genus ***Calpensia*** Jullien, 1888

Colony encrusting. Cryptocyst well-developed, porous, surrounded by a mural rim and perforated by two opesiules. Orifice semilunar without spines. Avicularia and ovicells unknown.

***Calpensia gracilis* (Münster, 1826)**

Pl. 55, Fig. 1-4

v. 1847 *Membranipora gracilis* Münster – Reuss p. 93, Pl. 11, Fig. 12
1974 *Calpensia gracilis* (Münster) – David and Pouyet p. 121, Pl. 3, Fig. 7
v. 1977 *Calpensia gracilis* (Münster) – Vávra p. 92
?non v. 1989 *Calpensia gracilis* (Münster) – Schmid p.17, Pl. 2, Fig. 4-7
v. 2003 *Calpensia gracilis* (Münster) – Zágoršek p. 135, Pl. 13, Fig. 1 (cum syn.)

M a t e r i a l : A very common species, 20 specimens from different sections were studied in detail. Additional specimens from the Reuss collection are stored in the Natural History Museum Vienna under the number 1878.11. 107 (section Podivín).

D i a g n o s i s : Encrusting colony with 6 to 8 autozooecial rows. The rows may be regular (Pl. 55, Fig. 1) or irregular, curved (Pl. 55, Fig. 2 and 3). The autozooecia are elongate rectangular, the cryptocyst is flat, the lateral walls are thin, slightly prominent, and smooth. Opesium is semilunar to oval, large with an almost straight proximal margin. One pair of small opesiules is situated close to the opesia.

R e m a r k s : Schmid's specimens (1989) developed opesiules approximately in the middle of the cryptocyst, usually they are situated very close to the opesium however (David and Pouyet, 1974 or Zágoršek, 2003). We are unable to decide, whether Schmid's (1989) specimens belong to this species or not.

***Calpensia* sp. (cf. *C. calpensis* Busk, 1854)**

Pl. 56, Fig. 1-4

?1992 *Calpensia calpensis* Busk – El Hajjaji p. 123, Pl. 5, Fig. 13

M a t e r i a l : Altogether 4 specimens were studied from the section sv. Urban.

D i a g n o s i s : Colony bilaminar, very narrow and flat. Autozooecia usually rectangular, with large pores on the cryptocyst. Opesiules large and situated almost in the middle of the cryptocyst.

R e m a r k s : *Calpensia* sp. differs from the common *Calpensia gracilis* MÜNSTER, 1826 in having larger opesiules situated at almost mid length of the autozooecium. Due to these features it is very similar to *C. calpensis* BUSK, 1854, but preservation did not allow any precise determination at species level.

***Calpensia rebeshovensis* sp. n.**

Pl. 57, Fig. 1-3

D i a g n o s i s : Colony flat. Autozooecia rectangular to oval. Cryptocyst granular, perforated. Opesiules small and centrally situated. Lateral walls granulated. A pair of prominent tubercles is developed on the proximal margin of each autozooecium, directly on the mural rim between distal and lateral walls.

H o l o t y p e : The specimen illustrated in Pl. 57, Fig. 1 and 2, from the locality Rebešovice, deposited in the in the National Museum Prague PM2 – P 01476.

P a r a t y p e s : The specimen illustrated in Pl. 57, Fig. 3, from the locality Rebešovice, deposited in the National Museum Prague PM2 – P 01477.

D e r i v a t i o n o m i n i s : Due to the presence in the section Rebešovice.

L o c u s t y p i c u s : Rebešovice, sample Reb-2A.

S t r a t u m t y p i c u m : Langhian – lower Badenian.

M e a s u r e m e n t : (in micro meters = µm; x = average):
length of autozooecia: 450 – 580; x = 490
width of autozooecia: 293 – 350; x = 313
length of opesium: 63 – 90; x = 75
width of opesium: 93 – 126; x = 111
diameter of tubercles: 68 – 108; x = 87

D e s c r i p t i o n : Colony very flat, erect unilaminar. Autozooecia usually growing in rows, rectangular to oval. Cryptocyst granular, perforated by small pores. Opesia semilunar. Opesiules small and situated almost at mid length of the autozooecia. Lateral walls slightly granulated, thick. Tubercles always in pairs, prominent, situated on the proximal margin of each autozooecium, directly on the corners of the lateral wall on the distal margin of the autozooecia.

C o m p a r i s o n : None of the known species belonging to *Calpensia* show paired tubercles on the proximal margin.

R e m a r k : Due to the encrusting growth form and general morphology, this species obviously belongs to *Calpensia*.

O c c u r r e n c e : Only at the locality Rebešovice.

***Calpensia sedleci* ZÁGORŠEK, VÁVRA et HOLCOVÁ 2007a**

Pl. 58, Fig. 1-4

v. 2007a *Calpensia sedleci* sp.n. – Zágoršek et al. p. 210, Fig. 6a-c

T y p e : Holotype PM2 – P 01246 deposited in the National Museum Prague (Zágoršek et al., 2007a).

M a t e r i a l : Altogether 11 specimens were studied, all from the section Sedlec.

D i a g n o s i s : Colony erect with longitudinal, parallel autozooecial rows and elongate, oval or circular cross section. Autozooecia elongate with porous cryptocyst and smooth lateral walls. Opesia semilunar with a rounded proximal margin. Opesiules circular, large, close to the opesia.

R e m a r k : New specimens found at Sedlec do not show any different features when compared with the type material. For detailed discussion concerning this species see Zágoršek et al. (2007a)

Genus ***Mollia*** LAMOUROUX, 1821

Colony encrusting. Autozooecia easily detachable, connected by means of short tubes; no avicularia, nor spines. Gymnocyst absent. Cryptocyst well developed, granular or porous. Opesia with rounded corners for parietal muscles. Ovicell globular, prominent or immersed.

***Mollia* cf. *patellaria* (MOLL, 1803)**

Pl. 59, Fig. 1-4

?1988 *Mollia patellaria* (MOLL) – Zabala and Maluquer p. 92, Fig. 129

v. 1989 *Mollia patellaria* (MOLL) – Schmid p. 18, Pl. 3, Fig. 1-7 (cum syn.)

v. 2003 *Mollia patellaria* (MOLL) – Zágoršek p. 134, Pl. 12, Fig. 6 (cum syn.)

M a t e r i a l : Altogether 3 specimens were studied in detail.

D i a g n o s i s : Autozooecia oval, cryptocyst extended and granular, occupying almost the whole frontal area. Mural rim clearly visible in the distal part of autozooecia, proximally almost absent. Opesia circular with rounded corners for parietal muscles. Ovicell subglobular, large, partly immersed in the distal part of the autozooecium.

R e m a r k s : Recent specimens (as described by Zabala and Maluquer, 1988) have 6 to 8 long connecting tubes, which are however usually very short in fossil specimens. Therefore, the fossil specimens may perhaps represent a different species, but a detailed revision of the genus would be needed to solve this problem.

Genus ***Steraechmella*** LAGAAIJ, 1952

Colony encrusting. Autozooecia without gymnocyst, cryptocyst very extensive. Opesia elliptical. Ovicells partly immersed. No spines or avicularia.

***Steraechmella buski* LAGAAIJ, 1952**

Pl. 60, Fig. 1-3

v. 1977 *Steraechmella buski* LAGAAIJ, 1952 – Vávra p. 90 (cum syn.)

1998 *Steraechmella buski* LAGAAIJ, 1952 – Hayward and Ryland p. 296, Fig. 99A, 102

M a t e r i a l : Altogether 3 specimens were studied, one with preserved ancestrula.

D i a g n o s i s : Colony small. Autozooecia trapezoidal, separated by grooves. Opesia triangular, proximal edge convex with well pronounced proximolateral corners for parietal muscles. Cryptocyst convex, distinctly granular. No ovicells observed. Ancestrula same size as autozooecium, no frontal wall preserved.

R e m a r k s : The triangular shape of the opesia, the absence of a gymnocyst, the oral spines and the avicularia clearly permit identification of this species even though no ovicells have been observed. This species was originally described from the Pliocene and it is often also reported from recent seas , the similarity among them is so striking, that is seems highly probable, that it may also be found in the Miocene (Vávra, 1977).

Family **Lunulitidae** LAGAAIJ, 1952
Genus ***Lunulites*** LAMARCK, 1816

Colony free, discoidal. Autozooecia with large cryptocyst, and very short gymnocyst. Opesia with well-defined condyles. Vibracularia in rows, avicularia vicarious. No ovicell known. Dorsal side with large pores.

***Lunulites androsaces* MANZONI, 1877**

Pl. 61, Fig. 1-3

v. 1966 *Lunulites conica* DEFRANCE – Ghiurca and Dusa p. 1064, Fig. 12-13
v. 1977 *Lunulites androsaces* MICHELOTTI, 1838 – Vávra p. 92 (cum syn.)
1984b *Lunulites androsaces* MANZONI, 1877 – Bałuk and Radwanski p. 247, Pl. 7, Fig. 1-4
1992 *Lunulites androsaces* MICHELOTTI, 1838 – El Hajjaji p. 114, Pl.- 5, Fig. 7-8 (cum syn.)

T y p e : As recognized already by Bałuk and Radwanski (1984b), the type material in not available due to the absence of any information about its storage; the material was not found in the Manzoni collection in NHM Vienna.

M a t e r i a l : Only one specimen from the section Rousínov pumpa has been found.

D i a g n o s i s : Autozooecia rectangular growing in regular rows with very well-defined condyles and circular opesia. Cryptocyst granular. Vibracularia in rows situated between autozooecial rows with condyles. One large, elongate avicularium situated at the margin of the colony.

R e m a r k s : *Lunulites conica* DEFRANCE as illustrated by Ghiurca and Dusa (1966) shows all the characteristic features of our species. However they did not provide any description and the illustration is not sufficient for an exact determination.

The species has often been regarded as established by Michelotti (1838), but Bałuk and Radwanski (1984b) showed that Manzoni's specimens (1877) are the types and that he is also the author of the species' name.

Family **Onychocellidae** JULLIEN, 1882
Genus ***Onychocella*** JULLIEN, 1882

Colony erect or encrusting. Autozooecia lacking any gymnocyst, but having a well-developed cryptocyst. A mural rim is present. Orifice with typically enlarged proximolateral corners for parietal muscles. Avicularia vicarious, asymmetrical, typically curved on one side. No ovicell.

***Onychocella angulosa* (REUSS, 1847)**

Pl. 62, Fig. 1-6

v. 1847 *Cellepora angulosa* m. – Reuss p. 93, Pl. 11, Fig. 10
1977 *Onychocella angulosa* (REUSS, 1847) – Vávra p. 86 (cum syn.)
1989 *Onychocella angulosa* (REUSS, 1847) – Schmid p. 13, Pl. 1, Fig. 4, 5 (cum syn.)

T y p e : Lectotype established by David and Pouyet (1974), stored in the Natural History Museum Vienna under the number 1867.40.203.

M a t e r i a l : Altogether 42 specimens were studied from various sections. It is a very widely distributed taxon. Three more specimens from the Reuss collection stored in the Natural History Museum Vienna under the number 1859.45.655 (labelled as *Eschara excavata*) from the sections Hlohovec and Mikulov were also studied .

D i a g n o s i s : Colony encrusting. Autozooecia hexagonal to oval, slightly longer than wide with large semilunar opesia. Cryptocyst extensive, shallow, flat and smooth. Mural rim prominent, narrow and smooth. Vicarious avicularia slightly shorter and about half the width of the autozooecia. Orifice of the avicularium small and oval. Rostrum very long, tapering distally and usually curved laterally.

Genus ***Smittipora*** JULLIEN, 1881

Colony encrusting. Autozooecia with well-developed cryptocyst and no gymnocyst. Oral spines absent. Orifice semicircular with straight proximal margin. Avicularia vicarious with straight palate. Ovicell is endozooecial.

***Smittipora platystoma* (REUSS,1847)**

Pl. 63, Fig. 1-2

v. 1847 *Cellepora platystoma* m. – Reuss p. 91, Pl. 11, fig. 3
1974 *Smittipora platystoma* (REUSS,1847) – David and Pouyet p. 114, Pl. 3, Fig. 5
1977 *Smittipora platystoma* (REUSS,1847) – Vávra p. 87

T y p e : The holotype from the section Žatčany (Moravia) is deposited in the Natural History Museum Vienna under the number 1867.40.190. (David and Pouyet, 1974).

M a t e r i a l : Altogether 3 specimens were studied from Podbřežice and Rebešovice.

D i a g n o s i s : Encrusting, multilaminar colonies. Autozooecia in regular rows. Cryptocyst well developed, occupying almost two third of the autozooecial frontal area. Orifice semicircular to semi oval with straight proximal

margin. Lateral wall well developed. Avicularium oval to drop-like tapering distally, usually smaller that the autozooecia. Ovicell not observed.

R e m a r k : The species is very similar to *Dacryonella octonaria* CANU et BASSLER, 1917 in Canu and Bassler (1920, Pl. 36, Fig. 9-20). According to Bock (2010) *Dacryonella* is a junior synonym of *Antropora,* which has to have however interzooecial avicularia (Gordon, 1986). The Moravian specimens develop only vicarious avicularia, of the same type as described by David and Pouyet (1974). Therefore they most probably belong to the genus *Smittipora.*

Family **Steginoporellidae** HINCKS, 1884
Genus ***Steginoporella*** SMITT, 1873

Colony erect or encrusting. autozooecia often dimorphic (A and B autozooecia), always with a well-developed, porous cryptocyst and no gymnocyst. Opesiules may be present, when absent the orifice has enlarged proximo-lateral corners for parietal muscles. Mural rim developed. Vicarious avicularia (B-zooecia) occur within the autozooecial rows, they are larger than autozooecia (A-zooecia), and have extended, concave, smooth distal parts – the palate.

Steginoporella cucullata **(REUSS, 1848)**

Pl. 64, Fig. 1-5

v. 1847 *Cellaria cucullata* m. – Reuss p. 60, Pl. 7, Fig. 31
1977 *Steginoporella cucullata* (REUSS, 1848) – Vávra p. 94 (cum. syn.)
1979 *Steginoporella cucullata* (REUSS, 1848) – Pouyet and David p. 774, Fig. 3, Pl. 3, Fig. 10 (cum syn.)
2003 *Steginoporella cucullata* (REUSS, 1848) – Zágoršek p. 141 (cum syn.)

T y p e : Lectotypes established by David and Pouyet (1974) stored in the Natural History Museum Vienna under the number 1848.38.53.

M a t e r i a l : Altogether 24 specimens were studied from different sections. Additional specimens from section Sedlec were available from the Reuss collection stored in the Natural History Museum Vienna under the number 1859.50.974 .

D i a g n o s i s : Colony erect and bilaminar. Autozooecia elongated, oval to sub-hexagonal, with wide, smooth, thick and non-granular mural rim, arranged in 4 to 6 regular axial rows. Autozooecial rows separated by a thin furrow. Orifice semilunar with a straight proximal margin, sometime with an enlarged distal margin. Opesiules large, paired, situated proximally from the orifice. B-zooecia a little longer and wider than A-zooecia, the palate is small, narrow, but wide and flat. Orifice of B-zooecia have enlarged proximo-lateral corners, thus it lacks opesiules.

R e m a r k s : The B-zooecia are extremely rare in this species. David and Pouyet (1974) mentioned that this species do not developed B-zooecia. Reuss (1847) do not mentioned any dimorphism in the description of this species or in *Eschara costata* REUSS 1847, which is according to Vávra (1977), a synonym of *Steginoporella cucullata*. Similarly Manzoni (1877) also did not mention dimorphism in the species *Steginoporella binotata* (erroneously also *'binatata'*) – a synonym of *Steginoporella cucullata* (Vávra, 1977). Other authors also did not illustrate and/or describe the B-zooecia (among others Moissette, 1988; Berning, 2006), but they may however be present. Pouyet and David (1979) illustrated B-zooecia, but without description, (their pl.3, Fig. 10), which are identical with the studied sample illustrated here on Pl.64, Fig. 3. Characteristic features of this species are thick mural rim, oval opesia and presence of small opesiules, very close to the distal margin of the opesia.

Steginoporella tuberculata **DAVID et POUYET, 1974**

Pl. 65, Fig. 1-4

1974 *Steginoporella tuberculata* sp.n. – David and Pouyet p. 127, Pl. 4, Fig. 1-4
v. 1977 *Steginoporella tuberculata* DAVID et POUYET, 1974 – Vávra p. 96 (cum syn.)
1979 *Steginoporella tuberculata* DAVID et POUYET, 1974 – Pouyet and David p. 791, Pl. 4, Fig. 4 (cum syn.)

T y p e : Holotype from Eisenstadt defined by David and Pouyet (1974) deposited in the collections of the Département des sciences de la Terre, Université Claude Bernard de Lyon under the number FSL 260632.

M a t e r i a l : Altogether 14 specimens were studied, mainly from the section Rebešovice.

D i a g n o s i s : Colony erect and bilaminar. Autozooecia elongate, oval to sub-hexagonal, with a wide, smooth, thin mural rim arranged in 4 to 6 regular axial rows. At the corners of the mural rim many small tubercles are situated. Autozooecial rows are separated by a thin furrow. Orifice oval with enlarged proximo lateral corners (no opesiules). B-zooecia two times longer and little wider than A-zooecia, the palate is large, wide, and flat. Orifices of B-zooecia have enlarged proximo-lateral corners.

R e m a r k s : Characteristic features are the mural rim with its tubercles, the large B-zooecia and the absence of opesiules.

Family **Thalamoporellidae** LEVINSEN, 1902
Genus ***Thalamoporella*** HINCKS, 1887

Colony encrusting or erect. Autozooecia with an extensive cryptocyst perforated by two opesiules, no gymnocyst, opesia almost same size as apertures. Avicularia vicarious, usually larger than autozooecia, without pivotal bar. Ovicell large.

Thalamoporella neogenica **BUGE, 1950**

Pl. 66, Fig. 1-5

1950 *Thalamoporella neogenica* sp.n. – Buge p. 463
1988 *Thalamoporella neogenica* BUGE – Moissette p. 101, Pl. 15, fig. 2-3 (cum syn.)
1996 *Thalamoporella neogenica* BUGE – Haddadi-Hamdane p. 69, Pl. 5, Fig. 9 (cum syn.)
1997 *Thalamoporella neogenica* BUGE – Pouyet p. 43 (cum syn.)

M a t e r i a l : Altogether 3 specimens were studied, one from the section Sedlec, two from Židlochovice.

D i a g n o s i s : Colony encrusting. Autozooecia rectangular, short (length less than twice the width). Opesiules situated at mid length of the cryptocyst. Opesia small with straight proximal margin. Avicularia about twice larger than autozooecia, sometimes shorter. Rostrum wide, U-shaped. No ovicell observed.

R e m a r k s : Not yet reported from the Vienna basin. From the Carpathian Foredeep known only from Olimpow (Pouyet, 1997).

Family **Monoporellidae** Hincks, 1882
Genus ***Monoporella*** Hincks, 1881

Colony encrusting. Cryptocyst granular, perforated, with median nonporous rib. Opesium with straight proximal margin. Oral spines present, no avicularia. Ovicell large, porous.

***Monoporella venusta* (Eichwald, 1853)**

Pl. 67, Fig. 1-3

v. 1977 *Monoporella venusta* (Eichwald, 1853) – Vávra p. 96 (cum syn.)

M a t e r i a l : Altogether 2 specimens were studied from borehole Vranovice. An additional specimen was studied from the Reuss collection is stored in the Natural History Museum Vienna under the number 1878.11.66 from a section at Sedlec (listed under the old name Porzteich).

D i a g n o s i s : Autozooecia regularly hexagonal, with distinctive grooves. Opesiules very small, same size as the pores which perforated the cryptocyst and therefore almost indistinct. Opesia small, semilunar with 5-6 oral spines. Median rib indistinct. No ovicell known.

R e m a r k s : Although no ovicell is known from this species, due to the presence of a median rib on the porous cryptocyst, the attribution to this genus is verified.

Superfamily **Cellarioidea** Fleming, 1828
Family **Cellariidae** Fleming, 1828
Genus ***Cellaria*** Ellis et Solander, 1786

Colony erect flexible, articulated, with cylindrical segments (internodes). Autozooecia rhomboidal to drop-like, growing in regular rows around the whole branch. Mural rim narrow, cryptocyst nonporous and gymnocyst very short. Orifice semilunar with a raised proximal margin and condyles. Avicularia generally present, vicarious or interzooidal. Ovicell endotoichal.

***Cellaria* cf. *fistulosa* (Linnaeus, 1758)**

Pl. 68, Fig. 1-7

v. 1989 *Cellaria fistulosa* (Linnaeus, 1758) – Schmid p. 20, Pl. 4, Fig. 1-2 (cum. syn.)

?1998 *Cellaria fistulosa* (Linnaeus, 1758) – Hayward and Ryland p. 306, Fig. 104B, 106B,C and 107

?2002 *Cellaria fistulosa* (Linnaeus, 1758) – Hayward and McKinney p. 34, Fig. 15A - E

M a t e r i a l : Altogether 71 specimens were studied from almost all studied sections. Additionally 3 specimens from the Reuss collection stored in the Natural History Museum Vienna under the numbers 1859.50.969 and 1878.11.4 (designated as *Salicornaria farciminoides*) from a section at Sedlec (listed unde the old name Porzteich) were studied.

D i a g n o s i s : Autozooecia elongated rhomboidal to diamond-shaped, with a narrow smooth mural rim. Cryptocyst concave, large and granulated. Opesia semilunar with large corners developed for the parietal muscles and two prominent condyles. Avicularia small, rounded quadrangular, with small opesia always situated distally from the autozooecia. Aperture of ovicell situated very close to the distal margin of the opesia, with closure, which caused the opening to have a semilunar shape. Due to a broken closure, the orifice is often preserved as a circular hole.

R e m a r k s : As already discussed in details by Schmid (1989) the characteristic features of the recent species *Cellaria fistulosa* (Linnaeus, 1758) and those of *Cellaria salicornioides* Lamouroux, 1816 are not applicable to fossil material. The studied material is very similar to the recent species with respect to the position of condyles and ovicells. However without further information about intraspecific variability, no exact determination of the fossil material is possible.

***Cellaria* cf. *salicornioides* Lamouroux, 1816**

Pl. 69, Fig. 1-3

v. 1989 *Cellaria salicornioides* Lamouroux, 1816 – Schmid p. 19, Pl. 4, Fig. 3-6 (cum. syn.)

?1998 *Cellaria salicornioides* Lamouroux, 1816 – Hayward and Ryland p. 308, Fig. 104A, 105D and 108

?2002 *Cellaria salicornioides* Lamouroux, 1816 – Hayward and McKinney p. 36, Fig. 15F-K

M a t e r i a l : Altogether 14 specimens were studied from different sections

D i a g n o s i s : Autozooecia with elongated to drop-like shape, with a wide smooth mural rim. Cryptocyst concave, large and granulated. Opesia semilunar with large corners developed for the parietal muscles and two condyles. Avicularia vicarious, large, substituting autozooecia, and show large, circular opesia. Aperture of ovicell originally circular, situated very close to the distal margin of the opesia.

R e m a r k s : The main feature distinguishing this species from *Cellaria fistulosa* (Linnaeus, 1758) is the development of a large, vicarious avicularium. However, avicularia are rare in the fossil record and the most reliable distinguishing feature then becomes the shape of the autozooecia. Fossil specimens of *Cellaria* cf. *fistulosa* (Linnaeus, 1758) have almost diamond-shaped autozooecia, while *Cellaria* cf. *salicornioides* Lamouroux, 1816 (fossil material) shows drop-like shaped autozooecia.

Unassigned Anascan genera

Genus *Vibracella* Waters, 1891

Colony free, encrusting or orbicular. Autozooecia with well-developed cryptocyst and large, triangular opesia with enlarged proximo-lateral corners. Avicularia adventitious. Ovicell endozooecial, as large as the autozooecium, with a calcified porous convex frontal wall.

Vibracella trapezoidea (Reuss, 1847)

Pl. 70, Fig. 1-3

1847 *Cellepora trapezoidea* m. – Reuss p. 96, Pl. 11, Fig. 21
v. 1977 *Vibracella trapezoidea* (Reuss) – Vávra p. 91 (cum syn.)
2003 *Vibracella trapezoidea* (Reuss) – Zágoršek p. 138, Pl. 14, Fig. 3 (cum syn.)
2009 *Vibracella trapezoidea* (Reuss) – Zágoršek et al. p. 479, Fig. 10D, E

T y p e : No types were found in the Reuss type collection in the NHM Vienna, they are probably lost.

M a t e r i a l : Altogether 16 specimens were studied, mainly from the section Kralice nad Oslavou.

D i a g n o s i s : Autozooecia rhomboidal to oval, separated by narrow grooves. Mural rim prominent, cryptocyst flat and slightly granular. Opesia large, triangular with typical enlarged proximo-lateral corners for parietal muscles. Adventitious avicularia elongated without pivotal bar, but with raised lateral lips. Ovicell frontal wall strongly porous and convex.

R e m a r k s : The species is known mainly from Early Tertiary sediments (Eocene to Oligocene – Zágoršek, 2003). Even the locus typicus is an Oligocene locality – Val di Lonte (Italy), but it also occurs rarely in the Miocene of the Vienna Basin (Vávra, 1977).

The characteristic features as understood by Vávra (1977) are triangular opesia, avicularia with lateral lips and a slightly convex frontal wall of the ovicell. All these features are visible on the studied material.

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Explanation of the plates

PLATE 1

***Annectocyma subdivaricata* d'Orbigny, 1853**

Fig. 1: Colony encrusting *Adeonella* from the section at Židlochovice, specimen P 01451.

Fig. 2: Colony encrusting *Cellaria* showing a lateral adventitious branch budding from the centre. Section Podbřežice, specimen P 01450.

Fig. 3: Colony showing a lateral adventitious branch budding directly from the ancestrula. Section Sedlec, specimen P 01449.

Fig. 4: Detail of Fig. 2 showing a lateral adventitious branch of the colony. Section Podbřežice, specimen P 01450. Scale bar 100 μm

***Voigtopora* sp.**

Fig. 5: Part of the colony on *Umbonula* from the section at Sedlec, specimen P 01912. Scale bar 100 μm

Scale bars 1 mm, unless indicated otherwise.

PLATE 2

***Oncousoecia biloba* (Reuss, 1847)**

Fig. 1: Colony with visible oeciopore on the proximal margin of the colony. Section Sedlec, specimen P 01708.

Fig. 2: Part of the colony showing a large gonozooecium perforated by pseudopores; the section at Rebešovice, specimen P 01709.

Fig. 3: Colony showing an oeciopore situated on the middle of the gonozooecium and jointed to the autozooecial aperture. Section Sedlec, specimen P 01710.

Fig. 4: Colony with an oeciopore situated on the proximal margin of the gonozooecium on a short peristome. Section Podbřežice, specimen P 01711.

Scale bars: 100 μm

PLATE 3

***Tubulipora dimidiata* (Reuss, 1847)**

Fig. 1: Colony with fascicles formed by two rows of autrozooecia. Borehole Vranovice VK-1, specimen P 01893.

Fig. 2: Lobate colony with uniserial to biserial fascicles. Section Mikulov, specimen P 01894.

Fig. 3-5: Colony with a gonozooecium from the section at Steinabrunn, specimen P 01895. This specimen is not from Moravia, but it is included here to illustrate the size of the gonozooecium and the position of the oeciopore. The Steinabrunn section is very close to the Moravian border and Moravian specimens do not show any gonozooecia.

Fig. 4: Detail of colony from Fig. 3 showing the position of the oeciopore.

Fig. 5: Detail of colony from Fig. 3 showing size and shape of the oeciopore.

Scale bars: 100 μm

PLATE 4

***Tubulipora flabellaris* (Fabricius, 1780)**

Fig. 1: Colony showing uniserial fascicles from the section at Oslavany, specimen P 01896.

Fig. 2: Colony which did not develop fascicles; section Podívín, specimen P 01897

Fig. 3: Colony with uniserial fascicles from section Oslavany, specimen P 01899.

Fig. 4: Colony with uniserial fascicles from section Holubice, specimen P 01898.

***Tubulipora foliacea* Reuss, 1847**

Fig. 5: Colony with an oeciopore situated between two autozooecial tubes (top left part of colony). Section Kralice nad Oslavou, specimen P 01900.

Fig. 6: Colony with partly broken frontal wall of the gonozooecium. Section Kralice nad Oslavou, specimen P 01901.

Scale bars: 100 μm

PLATE 5

***Eximonea atlantica* David, Mongereau et Pouyet,** 1972

Fig. 1: The best preserved colony from section Židlochovice, specimen P 01575. Scale bar 1 mm.

Fig. 2: Detail of Fig. 1 showing gonozooecium and a possible oeciopore.

Fig. 3: Frontal view of another colony from section Židlochovice, specimen P 01576. Scale bar 1 mm.

Fig. 4: Detail of Fig. 3 showing the gonozooecium from a different angle and a possible oeciopore situated between the fascicles. Scale bar 1 mm.

Fig. 5: Detail of Fig. 3 showing the gonozooecium from a different angle.

Fig. 6: Colony without gonozooecium showing very regularly developed fascicles, section Židlochovice, specimen P 01577.

Scale bars 100 μm unless indicated otherwise.

PLATE 6

***Eximonea giebeli* (Stoliczka, 1862)**

Fig. 1: Colony with fascicles formed by 4-5 autozooecia from the section at Židlochovice, specimen P 01578.

Fig. 2: Colony with clearly visible cross section showing "Eximonea type" of budding from section Kralice nad Oslavou, specimen P 01579.

Fig. 3: Colony with a slightly distally shifted additional aperture situated in the centre of the frontal side of the colony. Section Hlohovec, specimen P 01580.

***Eximonea kuhni* (Mongereau, 1969)**

Fig. 4: The best preserved colony showing the concave dorsal side with growth lines, perforated by pseudopores. Borehole Přemyslovice (Py-4), specimen P 01581.

Fig. 5-7: One fragment of the colony illustrated from different angles showing development of fascicles (Fig. 5), absence of kenozooecia (Fig. 6), and the concave dorsal side (Fig. 7). Section Rousínov pumpa, specimen P 01582. Scale bars 100 μm

Scale bars 1 mm unless indicated otherwise.

PLATE 7

***Eximonea undata* (Reuss, 1851)**

Fig. 1: Frontal view of the colony showing the large frontal space without fascicles. Section Kralice nad Oslavou, specimen P 01583.

Fig. 2: Oblique view of the colony showing the development of fascicles. Section Kralice nad Oslavou, specimen P 01584.

Fig. 3: Oblique view of the colony showing the development of fascicles composed of 2-3 autozooecial tubes. Section Kralice nad Oslavou, specimen P 01585.

Fig. 4: Lateral view of the colony showing triserial fascicles. Section Kralice nad Oslavou, specimen P 01586.

Scale bars 1 mm.

PLATE 8

***Idmidronea coronopus* (Defrance, 1822)**

Fig. 1-3: Colony illustrated from different angles showing the development of fascicles (Fig. 1), and kenozooecia on the dorsal side of the colony (Fig. 2 and 3). Section Podbřežice, specimen P 01656.

Fig. 7: Dorsal side of the colony showing kenozooecia; borehole Vranovice, specimen P 01657.

***Idmidronea* sp.**

Fig. 4: Poorly preserved colony from the section Kralice nad Oslavou, specimen P 01305.

Fig. 5-6: Detail of Fig. 4 showing one row of small kenozooecia situated on the dorsal side of the colony.

Scale bars 100 μm

PLATE 9

***Platonea pluma* (Reuss, 1847)**

Fig. 1: Frontal view of the colony with a shallow gonozooecium. Oeciopore probably situated on the left distal part of the colony between the fascicles. Section Podbřežice, specimen P 01725.

Fig. 2: Frontal view of the colony showing alternating biserial fascicles. Section Podbřežice, specimen P 01726.

Fig. 3: Detail of the connection between biserial fascicle with the dorsal kenozooecia (left margin of the figure). Section Podbřežice, specimen P 01727.

Scale bars 100 μm

PLATE 10

***Pleuronea pertusa* (Reuss, 1847)**

Fig. 1: Well preserved colony with a large gonozooecium situated close to a bifurcation. Section Podbřežice, specimen P 01728. Scale bar 1 mm

Fig. 2-3: Well preserved colony with a large gonozooecium situated close to a bifurcation. Oeciopore not clearly recognizable, perhaps illustrated in Fig. 2. Section Podbřežice, specimen P 01728.

Fig. 4: Large bifurcated colony showing parallel uniserial fascicles. Section Kroužek, specimen P 01729.

Fig. 5: Lateral view showing the transition between frontal side of the colony with autozooecia and dorsal side of the colony with kenozooecia. Section Židlochovice, specimen P 01730.

Fig. 6: Characteristic growth of the colony, the younger part of the branch has the frontal side turned to the opposite direction. The result is that from one point of view both sides of the branch are visible: the frontal side with aotuzooecial facsicles (lower part of the branch) and dorsal side with the kenozooecia in upper part of the branch. Section Podbřežice, specimen P 01731. Scale bar 1 mm.

Fig. 7-8: Colony with broken frontal wall of gonozooecium, no oeciopore observed. Section Židlochovice, specimen P 01732.

Scale bars 100 μm unless indicated otherwise.

PLATE 11

***Plagioecia rotula* (Reuss, 1847)**

Fig. 1: Irregular, encrusting colony with a shallow gonozooecium and an oeciopore situated at the top of the figure. Section Podbřežice, specimen P 01721.

Fig. 2: Colony of uncertain affiliation to this species showing the characteristic "Berenicea" type of a lobate colony. Section Židlochovice, specimen P 01722.

Fig. 3-5: Large circular colony showing poorly preserved gonozooecia. Oeciopore (Fig. 5) not clearly recognizable, perhaps situated on the left margin of the gonozooecium. Section sv. Urban, specimen P 01724. Fig. 3 scale bar 1 mm.

Fig. 4: Colony of uncertain affiliation to this species showing the characteristic "Berenicea" type of a lobate colony. Section Mikulov, specimen P 01723

Scale bars 100 μm unless indicated otherwise.

PLATE 12

***Mesenteripora flabellum* (Reuss, 1847)**

Fig. 1-2: Lobate colony with a gonozooecium situated in the centre of the colony. Oeciopore not clearly recognizable (Fig. 2), probably situated on the left margin of the gonozooecium. Section sv. Urban, specimen P 01676.

Fig. 3: General view of another colony showing regular growth of the autozooecial tubes. Section Oslavany, specimen P 01677.

Fig. 4: Erect lobate colony with more chaotic growth of autozooecia. Section Oslavany, specimen P 01678.

Fig. 5-6: Erect colony with a possible gonozooecium and detail of an oeciopore (Fig. 6). Section sv. Urban, specimen P 01679. Fig. 5 scale bar 1 mm.

Scale bars 100 μm unless indicated otherwise.

PLATE 13

***Mesenteripora meandrina* (Wood, 1844)**

Fig. 1: Frontal view showing the regular arrangement of rows of autozooecial apertures. Section Holubice, specimen P 01936.

Fig. 2: Frontal view of fragment showing marginal part of the colony with well visible median lamella. Section Holubice, specimen P 01934. Scale bar 100 μm

Fig. 3: Part of the colony showing irregular arrangement of rows of autozooecial apertures. Section Holubice, specimen P 01935.

Fig. 4: Part of the colony showing regular arrangement of rows of autozooecial apertures and median lamella on growing edge. Section Hlohovec, specimen P 01937.

Fig. 5: Frontal view showing the regular arrangement of rows of autozooecial apertures and possible remain of gonozooecium in the bottom. Section Hlohovec, specimen P 01938.

Scale bars 1 mm, unless indicated otherwise.

PLATE 14

***Diplosolen obelium* (Johnston, 1838)**

Fig. 1-2: Lobate colony with a large gonozooecium. Nanozooecia clearly observable, the oeciopore not visible. Section Podbřežice, specimen P 01538.

Fig. 3-4: Encrusting colony with a large gonozooecium. A probable oeciopore is situated on the left margin of figure 4. Section Podbřežice, specimen P 01539. Fig. 3 scale bar 1 mm.

Fig. 5: Encrusting lobate colony with a smaller gonozooecium. The oeciopore is perhaps visible in the middle of

the gonozooecium's frontal wall. Section Podbřežice, specimen P 01540.

Scale bars 100 μm unless indicated otherwise.

PLATE 15

***Ybselosoecia typica* (MANZONI, 1878)**

Fig. 1: General view of the colony. Section Vranovice, specimen P 01914.

Fig. 2: Characteristic chaotic growth of the autozooecia in a colony from the section Podbřežice, specimen P 01915.

Fig. 3: Colony with shallow gonozooecium. The oeciopore is situated on the proximal margin of the gonozooecium. Section Podbřežice, specimen P 01916. Scale bar 100 μm.

Fig. 4: Colony with a partly broken gonozooecium, no oeciopore visible. Section Podbřežice, specimen P 01917.

Fig. 5: Detail of a gonozooecium with two oeciopores: one situated on the left margin and the second on the proximal margin of the gonozooecium. Section Sedlec, specimen P 01918. Scale bar 100 μm.

Scale bars 1 mm unless indicated otherwise.

PLATE 16

***Tervia irregularis* (MENEGHINI, 1844)**

Fig. 1-2: Large bifurcated colony with a gonozooecium, with a partly broken frontal wall. Section Kralice nad Oslavou, specimen P 01877.

Fig. 3: Characteristic chaotic growth of autozooecia. Section Rousínov pumpa, specimen P 01878.

Fig. 4: Colony with autozooecia arranged in uniserial fascicles. Section Židlochovice, specimen P 01879.

Fig. 5: Part of the colony with autozooecia arranged in uniserial fascicles. Section Kralice nad Oslavou, specimen P 01298. Scale bar 100 μm.

Fig. 6: Long colony with autozooecia partly arranged in uniserial fascicles, partly chaotic. Section Kralice nad Oslavou, specimen P 01302.

Fig. 7: Detail of the dorsal side of the colony with partly preserved gonozooecium and characteristic "V"-shape arrangement of lateral walls on the dorsal autozooecia. Section Židlochovice, specimen P 01880. Scale bar 100 μm.

Scale bars 1 mm unless indicated otherwise.

PLATE 17

***Mecynoecia pulchella* (REUSS, 1847)**

Fig. 1: Characteristic columnar growth form of the colony with chaotic arrangement of autozooecia. Section Podbřežice, specimen P 01671. Scale bar 1 mm.

Fig. 2: Colony with visible cross-section of the branch showing the autozooecial budding pattern. Section Mikulov, specimen P 01672. Scale bar 1 mm.

Fig. 3-4: Colony with a well developed gonozooecium and an oeciopore jointed to the autozooecial aperture (Fig. 4). Borehole Přemyslovice Py4, specimen P 01673.

Fig. 5-7: Colony with a smaller gonozooecium from a different angle showing the position of gonozooecium and oeciopore (Fig. 7). Section Kralice nad Oslavou, specimen P 01674.

Fig. 8: *Mecynoecia* cf. *pulchella* – showing a gonozooecium situated on the budding edge of the colony and an oeciopore not jointed to the autozooecial aperture. Section Kralice nad Oslavou, specimen P 01675.

Scale bars 100 μm unless indicated otherwise.

PLATE 18

***Mecynoecia proboscidea* (MILNE-EDWARDS, 1838)**

Fig. 1-2: Colony with clearly observable gonozooecium and details of the oeciopore (Fig. 2) jointed to an autozooecial aperture. Section Židlochovice, specimen P 01667.

Fig. 3: Characteristic sporadic growth of the autozooecial tubes separated by a large space. Borehole Vranovice VK-1, specimen P 01668.

Fig. 4: Colony with visible cross-section of the branch showing the autozooecial budding pattern. Section Podivín, specimen P 01669.

Fig. 5: *Mecynoecia* cf. *proboscidea* – colony with gonozooecium situated on the budding edge. Section Židlochovice, specimen P 01670.

Scale bars 100 μm

PLATE 19

***Exochoecia compressa* (REUSS, 1847)**

Fig. 1: Lateral view of a colony showing the arrangement of autozooecia (note the difference compared to *Mesenteripora meandrina* (Wood, 1844) on Plate 13) and the median lamina. Borehole Vranovice VK-1, specimen P 01587.

Fig. 2: Characteristic growth of the colony. Section Kralice nad Oslavou, specimen P 01588. Scale bar 1 mm.

Fig. 3: Oblique view showing the margin of the colony. Section Podbřežice, specimen P 01681. Scale bar 1 mm.

Fig. 4: Colony from section Židlochovice showing the median lamina of the colony from a different angle. Specimen P 01682.

Fig. 5: Frontal view of a flat colony showing long regular uniserial fascicles. Section Podbřežice, specimen P 01680.

Fig. 6: Lateral view of the colony showing the median lamella. Borehole Vranovice VK-1, specimen P 01589. Scale bar 1 mm.

Scale bars 100 μm unless indicated otherwise.

PLATE 20

***Frondipora* cf. *verrucosa* (LAMOUROX, 1821)**

Fig. 1: General view of the colony with a partly preserved gonozooecium. Section Kralice nad Oslavou, specimen P 01602.

Fig. 2: Part of the colony showing regularly arranged multiserial fascicles. Section Židlochovice, specimen P 01603.

Fig. 3-4: Colony with prominent long, oval multiserial fascicles illustrated from different angles. Section Holubice, specimen P 01604.
Fig. 5: Colony with almost circular multiserial fascicles from section Kralice nad Oslavou, specimen P 01605.
Scale bars 1 mm.

PLATE 21

***Frondipora parva* sp.n.**

Fig. 1: Holotype (specimen P 01754) from the section Kralice nad Oslavou showing the arrangement of autozooecia on the frontal side of the colony.
Fig. 2: Paratype (specimen P 01755) from section Kralice nad Oslavou.
Fig. 3: Colony with a partly preserved gonozooecium. Section Kroužek, specimen P 01756.
Fig. 4: Oblique view of the paratype (specimen P 01757) showing an additional aperture not jointed to a fascicle. Section Kralice nad Oslavou.
Fig. 5-7: Colony illustrated from different angless showing the frontal, lateral and dorsal side of the colony. Section Rousínov pumpa, specimen P 01758.
Scale bars 100 μm

PLATE 22

***Pseudofrondipora davidi* Mongereau, 1970**

Fig. 1: Large colony with visible arrangement of fascicles and kenozooecia. Section Holubice, specimen P 01749.
Fig. 2-5: Colony with long multiserial fascicles. Section Hlohovec, specimen P 01750.
Fig. 3: Long colony with circular multiserial fascicles. Section Holubice, specimen P 01751.
Fig. 4: Detail of the dorsal wall showing kenozooecia. Borehole Vranovice VK-1, specimen P 01752.
Fig. 6: Colony with almost the whole frontal side covered by merging autozooecial multiserial fascicles. Section Rousínov pumpa, specimen P 01753.
Scale bars 1 mm

PLATE 23

***Crisia* cf. *eburnea* (Linne, 1758)**

Fig. 1: Colony with jointed apertures, which is not usual for the genus *Crisia*. Borehole Vranovice VK-1, specimen P 01515.
Fig. 2-3: Fragment of a colony with a partly preserved gonozooecium illustrated in different modes (Fig. 2 in high vacuum SE detector, Fig. 3 low vacuum, BSE detector). Section Podbřežice, specimen P 01516.
Fig. 4: Characteristic arrangement of autozooecia. Section Kralice nad Oslavou, specimen P 01517.
Fig. 5: Usual preservation of the colonies. Section Kralice nad Oslavou, specimen P 01518.
Scale bars 100 μm.

PLATE 24

***Crisia elongata* Milne-Edwards, 1838**

Fig. 1-2: Whole internode of a colony illustrated in different modes (Fig. 1 low vacuum, BSE detector, Fig. 2 in high vacuum SE detector) showing different visibility of pseudopores. Section Podbřežice, specimen P 01519. Scale bars 1 mm.
Fig. 3: Internode with a preserved node (middle right) from the section at Oslavany, specimen P 01520.
Fig. 4-5: Internode with prominent node (middle left on Fig. 4) showing the frontal (Fig. 4) and the dorsal (Fig. 5) side of the colony. Section Židlochovice, specimen P 01521.
Fig. 6: Part of the internode from the borehole Vranovice VK-1, specimen P 01522. Scale bar 1 mm.
Scale bars 100 μm unless indicated otherwise.

PLATE 25

***Crisia hoernesi* (Reuss, 1847)**

Fig. 1: Well preserved internode with a visible node on left middle part. Section Rousínov pumpa, specimen P 01523. Scale bar 1 mm.
Fig. 2: Internode with the characteristic arrangement of autozooecia. Borehole Vranovice VK-1, specimen P 01524.
Fig. 3: Internode showing the shape of pseudopores. Borehole Vranovice VK-1, specimen P 01525.
Fig. 4: Short internode showing the same distribution of the autozooecial apertures and the same shape of the pseudopores. Borehole Vranovice VK-1, specimen P 01526. Scale bar 1 mm.
Fig. 5: Internode with elongated pseudopores. Section Podbřežice, specimen P 01527. Scale bar 1 mm.
Scale bars 100 μm unless indicated otherwise.

PLATE 26

***Crisia haueri* Reuss, 1847**

Fig. 1: Fragment of a colony from section Kralice nad Oslavou, specimen P 01544.
Fig. 2: Well preserved internode from the section Podbřežice, specimen P 01545.

***Hornera* cf. *frondiculata* Lamouroux, 1821**

Fig. 3: Dorsal side of the colony showing nervi and kenozooecia. Borehole Vranovice VK1, specimen P 01636. Scale bar 1 mm.
Fig. 4: Part of a large colony showing the anastomosing growth form. Section Terešov, specimen P 01635. Scale bar 1 mm.
Fig. 5: Frontal view of a branch showing the arrangement of autozooecia and kenozooecia. Section Židlochovice, specimen P 01637. Scale bar 1 mm.
Fig. 6-8: Detail of a gonozooecium from different angles. Section Židlochovice, specimen P 01640. Note narrow ridges on the frontal wall and three wider ridges merging near the oeciopore.
Fig. 9: Frontal view of a bifurcating branch. Section Oslavany, specimen P 01641. Scale bar 1 mm.
Fig. 10: Part of a branch from the section Podbřežice, specimen P 01639. Scale bar 1 mm.

Fig. 11: Dorsal side of the branch with a partly preserved gonozooecium. Section Rousínov pumpa, specimen P 01642. Scale bar 1 mm.
Fig. 12: Detail of the frontal side of the colony showing the arrangement of autozooecia and kenozooecia. Section Podbřežice, specimen P 01639.
Fig. 13: Detail of the dorsal side of the colony showing slightly transversal ribs on the nervi and elongated kenozooecia. Borehole Vranovice VK1, specimen P 01638.
Scale bars 100 µm unless indicated otherwise.

PLATE 27

***Hornera striata* MILNE-EDWARDS, 1838**

Fig. 1: Large fragment of a colony showing the enlarged basel part. Borehole Vranovice VK1, specimen P 01643. Scale bar 1 mm.
Fig. 2: Detail of the frontal side of the branch showing the prominent narrow nervi. Section Židlochovice, specimen P 01644.
Fig. 3: Dorsal side of the branch showing long nervi and very few kenozooecia. Borehole Vranovice VK1, specimen P 01645.
Fig. 4: Part of a bifurcating colony from section Rousínov pumpa, specimen P 01646.
Fig. 5: Part of a branch with clearly visible characteristic narrow nervi. Section Židlochovice, specimen P 01644. Scale bar 1 mm.
Scale bars 100 µm unless indicated otherwise.

PLATE 28

***Hornera subannulata* PHILIPPI, 1844**

Fig. 1: Frontal view of the colony with clearly visible characteristic development of autozooecia and kenozooecia. Section sv. Urban, specimen P 01647.
Fig. 2: Dorsal side of a branch showing wide nervi (note the difference compared to *Hornera striata* MILNE-EDWARDS, 1838 – Plate 27). Section Kralice nad Oslavou, specimen P 01648.
Fig. 3: Bifurcating colony from section Kralice nad Oslavou, specimen P 01649.
Fig. 4: Fragment of a branch from section Kralice nad Oslavou, specimen P 01650.
Fig. 5: Part of a bifurcating branch from section Kroužek, specimen P 01651.
Scale bars 1 mm

PLATE 29

***Hornera verrucosa* REUSS, 1865**

Fig. 1: Frontal view of the whole branch. Section Židlochovice, specimen P 01652.
Fig. 2 and 5: Whole colony and details of the frontal side of the branch showing the characteristic presence of one proximal and one distal vacuole near each aperture. Section Podbřežice, specimen P 01653. Scale bars 100 µm.
Fig. 3: Frontal side of a branch from section Židlochovice, specimen P 01654.
Fig. 4: Bifurcating branch from section Sedlec, specimen P 01655.
Scale bars 1 mm unless indicated otherwise.

PLATE 30

***Crisidmonea foraminosa* (REUSS, 1847)**

Fig. 1-2: Lectotypus from the section at Freibühl showing not very prominent fascicles. Fig. 2 detail of the fascicle and kenozooecia. Specimen deposited in the NHM Vienna under the number 1867. 11. 98. Fig. 2: scale bars 100 µm.
Fig. 3-4: Fragment of a colony and detail of fascicle (Fig. 4) from section Rebešovice, specimen P 01530. Fig. 4: scale bars 100 µm.
Fig. 5: Dorsal view of a branch showing large kenozooecia in the zone of bifurcation. Section Židlochovice, specimen P 01531.
Fig. 6: Dorsal view showing characteristic large kenozooecia distributed among the regular small kenozooecia. Borehole Přemyslovice Py-4, specimen P 01532.
Scale bars 1 mm unless indicated otherwise.

PLATE 31

***Polyascosoecia cancellata* CANU, 1920**

Fig. 1: Frontal view of a bifurcating colony showing short fascicles. Section Holubice, specimen P 01733.
Fig. 2: Lateral view of a colony showing lateral kenozooecia. Section Holubice, specimen P 01734.
Fig. 3: Part of a branch showing fascicles composed of 3 autozooecial tubes. Borehole Vranovice VK-1, specimen P 01735.
Fig. 4: Oblique view of a branch showing the flat frontal side of the colony. Borehole Vranovice VK-1, specimen P 01736.
Fig. 5: Lateral view of a branch with a gonozooecium with partly preserved frontal wall. Borehole Vranovice VK-1, specimen P 01737.
Fig. 6-8: Part of a branch with a well preserved gonozooecium, from different angles. Frontal wall of the gonozooecium perforated only by pseudopores. Oeciopore not clearly visble, perhaps illustrated on Fig. 8, close to the fascicle in the centre. Section Podbřežice, specimen P 01738. Scale bar 100 µm.
Scale bars 1 mm unless indicated otherwise.

PLATE 32

***Ceriopora tumulifera* CANU et LECOINTRE, 1934**

Fig. 1: Whole colony with characteristic 'protuberances' ('mamelons'). Section Hlohovec, specimen NHM 1859.XLV.659 (Vienna). Scale bar 1 mm.
Fig. 2: Detail of the protuberances from the same specimen. Section Hlohovec, specimen NHM 1859.XLV.659 (Vienna).
Fig. 3: Thinection of specimen NHM 2006z0213/001 (Vienna), the section is stored in NM Prague P 01448.
Scale bars 100 µm unless indicated otherwise.

PLATE 33

***Heteropora* sp.**

Fig. 1: Globular colony with small autozooecia from section Hluchov, specimen P 01614. Scale bar 1 mm.

Fig. 2: Detail of the surface of the colony from Fig. 1 showing almost no difference in size between autozooecia and mesopores. Section Hluchov, specimen P 01614.
Fig. 3: Discoidal colony with larger autozooecia from the section Sedlec quarry, specimen P 01615.
Fig. 4: Detail of the surface of the colony from Fig. 3 showing distinct mesopores. Section Sedlec quarry, specimen P 01615.
Scale bars 100 µm unless indicated otherwise.

PLATE 34

***Tetrocycloecia dichotoma* (Reuss, 1847)**

Fig. 1: Columnar colony with well developed quincuncial arrangement of kenozooecia. Section Sedlec quarry, specimen P 01881.
Fig. 2: Bifurcating, large colony from section Hlohovec, specimen P 01882. Scale bar 1 mm.
Fig. 3: Detail of the surface of the colony from Fig. 2 with visible kenozooecia arranged in quincuncial pattern. Section Hlohovec, specimen P 01882.
Fig. 4: Part of a colonial branch with visible quincuncial arrangement of kenozooecia. Section Prátecký vrch, specimen P 01883.
Scale bars 100 µm unless indicated otherwise.

PLATE 35

***Tholopora neufferi* Vávra 1983**

Fig. 1: Large, bifurcating colony from section Hlohovec, showing well developed basal lamina. Specimen P 01256. Scale bar 1 mm.
Fig. 2-3: Columnar colony with details of basal lamina from section Hlohovec, specimen P 01257. Fig. 2 scale bar 100 µm, fig. 3 scale bar 1 mm

PLATE 36

***Bobiesipora fasciculata* (Reuss, 1847)**

Fig. 1: Part of the central disc of a colony from section Kralice nad Oslavou, specimen P 01546. Scale bar 1 mm.

***Disporella* cf. *hispida* (Fleming, 1828)**

Fig. 2-3: Colony with gonozooecium from section Kralice nad Oslavou, specimen P 01547. Fig. 2: Whole colony with gonozooecium in the central part. Fig. 3: Detail with a possible oeciopore situated on the margin of the gonozooecium.
Fig. 4: Detail of another gonozooecium with a possible oeciopore. Section Sedlec, specimen P 01928. Scale bar 1 mm
Fig. 5: Whole colony without gonozooecium showing the arrangement of autozooecial tubes. Section Kralice nad Oslavou, specimen P 01548. Scale bar 1 mm.
Scale bars 100 µm unless indicated otherwise.

PLATE 37

***Disporella goldfussi* (Reuss, 1864)**

Fig. 1: Oblique view on a columnar colony with radial uniserial fascicles. Section Podbřežice, specimen P 01541.
Fig. 2: Dorsal view showing basal lamina from section Holubice, specimen P 01542.
Fig. 3: Gonozooecium with broken frontal wall from section Podbřežice, specimen P 01543.
Scale bars 1 mm.

PLATE 38

***Disporella* cf. *radiata* (Savigny et Audouin, 1826)**

Fig. 1: Composite (multidiscoidal) colony with visible central part with cancelli from section Rebešovice, specimen P 01549.
Fig. 2: Characteristic colony with uniserial fascicles. Section Židlochovice, specimen P 01550.
Fig. 3: Detail of specimen P 01550 from section Židlochovice showing a possible oeciopore (arrow). Scale bar 100 µm.
Scale bars 1 mm unless indicated otherwise.

PLATE 39

***Trochiliopora insignis* (Manzoni, 1878)**

Fig. 1: Small colony with characteristic long peduncle and circular central area from section Holubice, specimen P 01887.
Fig. 2-4: Large colony with a short peduncle, but wide and elongated central area from different angles. Detail (Fig. 4) shows the distribution of kenozooecia on the margin of the colony. Borehole Přemyslovice Py4, specimen P 01888.
Fig. 5-7: Frontal (Fig. 5) and marginal (Fig. 7) view of the colony showing autozooecial fascicles and the position of the gonozooecium. Details of the gonozooecial roof (Fig. 6) showing its size, but not allowing identification of the oeciopore. Borehole Přemyslovice Py1, specimen P 01889
Scale bars 100 µm.

PLATE 40

***Coronopora* cf. *disticha* (Hagenow, 1851)**

Fig. 1: Fragment of a colony with clearly visible gonozooecium and a small oeciopore at the top. Section Kralice nad Oslavou, specimen P 01497
Fig. 2: Fragment of the colony showing multiserial radial rows of autozooecia. Section Podbřežice, specimen P 01498.
Scale bar 1 mm.

PLATE 41

***Terebripora falunica* Fischer, 1865**

Fig. 1-4: Well preserved part of a colony (general view in Fig. 1, details in the other figures) showing the arrangement of autozooecia, shape of autozooecia (Fig. 4) and the budding of stolons (Fig. 2 and 3). Section Mikulov, specimen stored in NHM Vienna under the number 2006z0216/001.
Scale bars 100 µm.

PLATE 42

***Biflustra savartii* (Savigny et Audouin, 1826)**

Fig. 1-2: Nicely preserved encrusting colony (General view in Fig. 1, details in Fig. 2) showing the arrangement

of autozooecial rows and the well developed cryptocyst. Section Drnovice from the MZM Brno collection, specimen P 01452.

Fig. 3: Colony with its free base (encrusting a soft substratum, perhaps algae) showing a very regular arrangement of autozooecia. Section Mikulov, specimen P 01453.

Fig. 4-5: Colony encrustiong another bryozoan showing the development of kenozooecia (fig. 4 in the middle, in the place of bifurcation of the host bryozoa, Fig. 5 left margin). Section Podbřežice, specimen P 01454.

Scale bar 1 mm.

PLATE 43

***Biflustra* sp.**

Fig. 1: Fragment of a colony with zone of bifurcation. Note the short cryptocyst and the lack of any gymnocyst. Section Sedlec, specimen P 01455.

Fig. 2: Fragment of the colony from section Sedlec, specimen P 01459.

Fig. 3: Fragment of the colony from section Sedlec, specimen P 01458.

Fig. 4: Fragment of a bifurcating colony showing autozooecia with a more circular shape . Section Sedlec, specimen P 01456.

Fig. 5: Fragment of a colony showing the zone of bifurcation. Section Sedlec, specimen P 01457.

Scale bar 1 mm.

PLATE 44

***Eokotosokum bobiesi* (David et Pouyet, 1974)**

Fig. 1-3: Encrusting colony with visible tubercles, which may represent distolateral spine bases. Note, that the shape of the autozooecia is not constant. Section Podbřežice, specimen P 01555. Fig. 1 scale bar 1 mm. Fig. 3: note the size of the basal pore-chambers.

Fig. 2-4: Colony encrusting a shell fragment showing kenozooecia. Section Židlochovice, specimen P 01556. Fig. 4 scale bar 1 mm.

Fig. 5: Colony with irregularly situated distolateral spine bases. Section Rousínov pumpa, specimen P 01557.

Scale bars 100 μm unless indicated otherwise.

PLATE 45

***Copidozoum natalae* sp. n.**

Fig. 1: General view of the holotype showing paired pore chambers and small avicularia (right margin). Section Kralice nad Oslavou, specimen P 01499. Scale bar 1 mm.

Fig. 2: Paratype showing arrangement of autozooecial rows. Section Kralice nad Oslavou, specimen P 01500. Scale bar 1 mm.

Fig. 3: Detail showing the position of the ovicell with broken frontal wall. Section Kralice nad Oslavou, specimen P 01501.

Fig. 4: Small fragment with characteristic paired pore chambers and avicularia. Section Židlochovice, specimen P 01502.

Scale bars 100 μm unless indicated otherwise.

PLATE 46

***Amphiblestrum appendiculatum* (Reuss, 1847)**

Fig. 1: Detail of the encrusting colony showing distribution of avicularia and the presence of a keel on the ovicell frontal wall. Note, that autozooecia have a very reduced cryptocyst. Section Mikulov, specimen P 01444.

Fig. 2: Colony encrusting another bryozoan showing a wider cryptocyst and avicularia situated on the gymnocyst. Section Židlochovice, specimen P 01445. Scale bar 1 mm.

Fig. 3: Colony with smaller ovicells which, due to the poor preservation, do not have any prominent keel. Section Kralice nad Oslavou, specimen P 01446. Scale bar 1 mm.

Fig. 4: Detail of the colony showing a pair of oral spines. Section Podbřežice, specimen P 01447.

Scale bars 100 μm if not otherwise stated.

PLATE 47

***Pyriporella* cf. *loxopora* (Reuss, 1847)**

Fig. 1 and 4: General view of an encrusting colony showing the chaotic budding pattern which results in a chaotic distribution of autozooecia. Scale bar 1 mm. Fig. 4: Detail showing the absence of cryptocyst and the distribution of small avicularia between the autozooecia. Section Kralice nad Oslavou, specimen P 01328.

Fig. 2: Detail showing small avicularia between autozooecia. Section Kralice nad Oslavou, specimen P 01334.

Fig. 3: General view of a colony with almost regularly arranged autozooecial rows. Section Kralice nad Oslavou, specimen P 01329. Scale bar 1 mm.

Scale bars 100 μm unless indicated otherwise.

PLATE 48

***Flustrellaria fenestrata* (Reuss, 1847)**

Fig. 1 and 2: General view of an encrusting colony showing the distribution of autozooecia.

Fig. 2: Detail showing position of avicularia. Section Podbřežice, specimen P 01597.

Fig. 3 and 4: Detail of elongated autozooecia showing a partly preserved ovicell and the arrangement of avicularia tapering obliquely laterally.

Fig. 4: General view showing numerous spine bases around opesia. Section Podbřežice, specimen P 01598.

Fig. 5: Colony with a wider mural rim. Borehole Přemyslovice Py4, specimen P 01599.

Fig. 6: Colony with a well developed gymnocyst showing the longitudinal arrangement of avicularia and ovicells. Section Podbřežice, specimen P 01600.

All scale bars 100 μm

PLATE 49

***Flustrellaria* sp.**

Fig. 1: One colony with clearly observable large avicularia. Section Podbřežice, specimen P 01601. Scale bar 1 mm.

Undeterminable Calloporid traditionally called "*Alderina subtilimargo*"

Fig. 2: Autozooecia with well developed gymnocyst and slightly prominent tubercles on the distal margin of autozooecia. Section Podbřežice, specimen P 01922.

Fig. 3: Autozooecia with almost no gymnocyst. Section Podbřežice, specimen P 01923.
Scale bars 100 μm unless indicated otherwise.

PLATE 50

***Cupuladria bałuki* sp.n.**

Fig. 1: Holotype. Old material from Drnovice (MZM Brno), specimen P 01533.
Fig. 2 and 4: Part of the colony showing internal communication pores. Fig. 4: Detail of a vibraculum showing its irregular shape. Old material from Drnovice (MZM Brno), specimen P 01534.
Fig. 3: Fragment of a colony showing the regular distribution of vibracula. Old material from Drnovice (MZM Brno), specimen P 01535.
Fig. 5: Dorsal side of a colony showing the arrangement of pores. Borehole Vranovice VK-1, specimen P 01536.
Fig. 6: Detail of the margin of a colony. Old material from Vranová Lhota (MZM Brno), specimen P 01537.
Fig. 7: Part of a colony with visible marginal pore chambers. Old material from Drnovice (MZM Brno), specimen P 01534.
All scale bars 100 μm.

PLATE 51

***Reussirella haidingeri* (Reuss, 1847)**

Fig. 1: Largest fragment of the colony showing also the middle part with autozooecia covered by a calcareous lamina perforated by two rows of pores. Section Rebešovice, specimen P 01796.
Fig. 2: Dorsal side of the colony showing the absence of pores. Section Podbřežice, specimen P 01797.
Fig. 3: Margin of the colony from section Podbřežice, specimen P 01798.
Fig. 4: Detail of the margin of a colony showing granular cryptocyst with spinules. Section Mikulov, specimen P 01799.
Fig. 5: Part of the colony showing the irregular growth of the autozooecia on its right margin. Section Kralice nad Oslavou, specimen P 01800.
All scale bars 100 μm.

PLATE 52

***Scrupocellaria elliptica* (Reuss, 1847)**

Fig. 1: Part of a colony showing oral spine bases and pore chambers on the distal margin. Section Podbřežice, specimen P 01811.
Fig. 2: Detail of a few autozooecia showing the smooth gymnocyst. Section Podbřežice, specimen P 01812.
Fig. 3: Ovicelled colony. Section Služín, specimen P 01813.
Fig. 4: Dorsal side of a colony showing the arrangement of the autozooecial dorsal walls. Section Židlochovice, specimen P 01814.
Fig. 5: Colony with autozooecia showing a well-developed cryptocyst. Section Kralice nad Oslavou, specimen P 01815.
Fig. 6: Detail of a few autozooecia showing spine bases and pairs of pore chambers. Section Židlochovice, specimen P 01816.
All scale bars 100 μm.

PLATE 53

***Micropora papyracea* (Reuss, 1847)**

Fig. 1 and 2: General view of a colony showing the arrangement of autozooecia. Scale bar 1 mm.
Fig. 2: Detail showing opesiules and perforated cryptocyst. Section Podbřežice, specimen P 01688.
Fig. 3: Part of a colony showing large opesiules and the strongly porous cryptocyst. Section Židlochovice, specimen P 01689.
Fig. 4: Detail showing large opesiules and granular cryptocyst. Section Podbřežice, specimen P 01690.
Scale bars 100 μm unless indicated otherwise.

PLATE 54

***Micropora parvicella* Canu et Lecointre, 1927**

Fig. 1: Encrusting colony with small opesiules and oval autozooecia. Section Podbřežice, specimen P 01691.
Fig. 2: Detail of the fusion of two colonies: the upper one belongs to *Micropora papyracea* (Reuss, 1847), the lower one to *Micropora parvicella* Canu et Lecointre, 1927. Note oval autozooecia and smaller opesiules in *Micropora parvicella* Canu et Lecointre, 1927. Section Podbřežice, specimen P 01692.
Fig. 3: Colony with characteristic oval autozooecia. Section Kralice nad Oslavou, specimen P 01693.
Fig. 4: Detail of oval autozooecia and small opesiules. Section Podbřežice, specimen P 01691.
Fig. 5: Two autozooecia with preserved ovicells. Section Podbřežice, specimen P 01694.
All scale bars 100 μm.

PLATE 55

***Calpensia gracilis* (Münster, 1826)**

Fig. 1: Fragment of a colony showing regular, straight rows of autozooecia and their regular shape. Section Sedlec, specimen P 01472. Scale bar 1 mm.
Fig. 2: Detail of a colony with curved rows of autozooecia. Section Mikulov, specimen P01473. Scale bar 100 μm.
Fig. 3: Irregularly growing rows of irregularly shaped autozooecia. Section Sedlec, specimen P 01474. Scale bar 1 mm.
Fig. 4: Detail showing opesiules and shape of the aperture. Section Mikulov, specimen P01475. Scale bar 100 μm.

PLATE 56

***Calpensia* sp. (cf. *C. calpensis* Busk,1854)**

Fig. 1: Fragment of a colon showing irregular arrangement of autozooecia. Section sv. Urban, specimen P 01478. Scale bar 1 mm.
Fig. 2: Fragment of a colony showing regular arrangement of autozooecia. Section sv. Urban, specimen P 01479. Scale bar 1 mm.
Fig. 3-4: Details of the autozooecia showing poor preservation, almost circular opesia, and the granular, perforated cryptocyst. Section sv. Urban, specimen P 01480. Scale bar 100 μm.

PLATE 57

***Calpensia rebesovensis* sp.n.**

Fig. 1-2: Holotype showing regular arrangement of autozooecia, small opesia, oval shape of autozooecia and prominent tubercles. Section Rebešovice, specimen P 01476. Fig. 1 scale bar 1 mm, Fig. 2 scale bar 100 μm.

Fig. 3: Paratype showing large tubercles and autozooecia with wider mural rim. Section Rebešovice, specimen P 01477. Scale bar 1 mm.

PLATE 58

***Calpensia sedleci* Zágoršek, Vávra et Holcová, 2007**

Fig. 1: Holotype showing regularly growing autozooecia, the arrangement of opesiules and the perforated cryptocyst. Section Sedlec, specimen P 01246.

Fig. 2: Colony showing irregular rows of autozooecia, perhaps due to a growth defect. Section Sedlec, specimen P 01251.

Fig. 3: Erect colony with curved autozooecial rows and bifurcation. Section Sedlec, specimen P 01247.

Fig. 4: Detail of autozooecia showing position of opesiules and wide mural rim. Section Sedlec, specimen P 01247. Scale bar 100 μm.

Scale bars 1 mm unless indicated otherwise.

PLATE 59

***Mollia* cf. *patellaria* (Moll, 1803)**

Fig. 1 and 2: Encrusting colony showing irregular arrangement of autozooecia. Scale bar 1 mm. Fig. 2: detail of autozooecia showing the characteristic shape of the apertures and the connection between neighbouring autozooecia. Borehole Přemyslovice Py1, specimen P 01701.

Fig. 3 and 4: General and detailed view (Fig.4) showing a large, semilunar ovicell. Section Kralice nad Oslavou, specimen P 01702.

Scale bars 100 μm unless indicated otherwise.

PLATE 60

***Steraechmella buski* Lagaaij, 1952**

Fig. 1: General view of the encrusting colony showing the ancestrula in the middle. Scale bar 1 mm. Section Kralice nad Oslavou, specimen P 01874.

Fig. 2: Detail of another colony showing prominent proximo-lateral corners. Scale bar 1 mm. Section Kralice nad Oslavou, specimen P 01875.

Fig. 3: Detail of a few autozooecia showing the granular surface of the cryptocyst. Scale bar 100 μm. Section Rebešovice, specimen P 01876.

PLATE 61

***Lunulites androsaces* Manzoni, 1869.**

Section Rousínov pumpa, specimen P 01662.

Fig. 1: General view of the margin of the colony showing the regular arrangement of autozooecia and vibracularia and irregularly placed avicularia.

Fig. 2: Detail of an autozooecium showing condyles.

Fig. 3: Detail of a large avicularium between regular vibracularia and autozooecia.

All scale bars 100 μm.

PLATE 62

***Onychocella angulosa* (Reuss, 1847)**

Fig. 1-3: Colony from borehole Přemyslovice Py4, specimen P 01712. Fig. 1: general view, scale bar 1 mm, fig. 2: detail of avicularium, fig. 3: detail of autozooecia showing enlarged proximo-lateral corners of opesia.

Fig. 4: Detail of a colony showing an abraded, poorly preserved specimen, but with clearly identifiable avicularia and autozooecia. Section Drnovice, specimen P 01713.

Fig. 5: Fragment of a colony with a well preserved avicularium. Section Holubice, specimen P 01714.

Fig. 6: Detail of a colony with well preserved avicularium and autozooecia of a more oval shape. Borehole Přemyslovice Py4, specimen P 01715.

Scale bars 100 μm unless indicated otherwise.

PLATE 63

***Smittipora platystoma* (Reuss,1847)**

Fig. 1: Part of a colony showing a small avicularium (in the middle). Section Podbřežice, specimen P 01860.

Fig. 2: Another fragment of a colony showing a regular growth pattern of the autozooecia. Section Podbřežice, specimen P 01861.

Scale bars 1 mm.

PLATE 64

***Steginoporella cucullata* (Reuss, 1848)**

Fig. 1: Young colony with square shaped cross section and without B-zooecia. Borehole Vranovice VK-1, specimen P 01862. Scale bar 1 mm.

Fig. 2: Part of a colony with well preserved A-zooecia showing small opesiules. Borehole Přemyslovice Py1, specimen P 01863. Scale bar 1 mm.

Fig. 3: Detail of a small colony with B-zooecium. Section Podbřežice, specimen P 01864.

Fig. 4: Colony with well preserved A-zooecia and enlarged distal margin of the orifice. Section Kralice nad Oslavou, specimen P 01345. Scale bar 1 mm.

Fig. 5: Detail of an A-zooecium with small, circular opesiules. Section Židlochovice, specimen P 01865.

Scale bars 100 μm unless indicated otherwise.

PLATE 65

***Steginoporella tuberculata* David et Pouyet, 1974**

Fig. 1-2: Colony from section Rebešovice, specimen P 01865. Fig. 1: general view of the colony. Scale bar 1 mm. Fig. 2: Detail of a B-zooecium showing also a pair of tubercles on A-zooecia. Scale bar 100 μm.

Fig. 3: Part of the colony with preserved characteristic tubercles and enlarged proximo-lateral corners of the opesium. Section Kroužek, specimen P 01867.

Fig. 4: Detail of the B-zooecium. Section Rebešovice, specimen P 01868.
Scale bars 100 µm unless indicated otherwise.

PLATE 66

***Thalamoporella neogenica* BUGE, 1950**

Fig. 1 and 3: Colony from section Židlochovice, specimen P 01884. Fig. 1: General view. Scale bar 1 mm. Fig. 3: Detail showing large avicularia.
Fig. 2: Detail of another colony showing avicularia and position of opesiules in the middle of the cryptocyst. Section Židlochovice, specimen P 01885.
Fig. 4 and 5: Colony from section Sedlec, specimen P 01886. Fig. 4: General view. Scale bar 1 mm. Fig. 5: Detail of the avicularium.
Scale bars 100 µm unless indicated otherwise.

PLATE 67

***Monoporella venusta* (EICHWALD, 1853)**

Fig. 1 and 3: Borehole Vranovice VK-1, specimen P 01703. Fig. 3: Detail of the autozooecia showing the median ridge.
Fig. 2: One well preserved autozooecium from borehole Vranovice VK-1, specimen P 01704.
All scale bars 100 µm.

PLATE 68

***Cellaria* cf. *fistulosa* (LINNAEUS, 1758)**

Fig. 1 and 2: Colony from section Holubice, specimen P 01481. Fig. 2: Detail of avicularia and well pronounced condyles.
Fig. 3: Detail of autozooecia with ovicell. Section Holubice, specimen P 01482.
Fig. 4: Detail of the distal margin of a segment (internode) showing the radial growth pattern of autozooecia. Section Podbřežice, specimen P 01483.
Fig. 5: Detail of autozooecium showing condyles and ovicell with a calcitic closure. Borehole Přemyslovice Py1, specimen P 01484.
Fig. 6: Complete colony segment showing the regular growth of autozooecia. Section Podbřežice, specimen P 01485.
Fig. 7: Detail of autozooecium with two avicularia. Section Podbřežice, specimen P 01486.
All scale bars 100 µm.

PLATE 69

***Cellaria* cf. *salicornioidea* LAMOUROUX, 1816**

Fig. 1: Complete colony segment (internode) showing the shape of the autozooecia and a large avicularium in the zone of bifurcation. Section Rousínov pumpa, specimen P 01487.
Fig. 2: Complete colony segment (internode) from section Rebešovice, specimen P 01488.
Fig. 3: Part of a colony showing the oval shape of the autozooecia and the large opening to the ovicell. Section Holubice, specimen P 01489.
All scale bars 100 µm.

PLATE 70

***Vibracella trapezoidea* (REUSS, 1847)**

Fig. 1: Part of a colony showing growth pattern and the endozooecial ovicell in the middle. Section Kralice nad Oslavou, specimen P 01337.
Fig. 2: Detail of a colony fragment showing adventitious avicularia. Section Kralice nad Oslavou, specimen P 01911.
Fig. 3: Detail of two endozooecial ovicells and two adventitious avicularia. Sectrion Kralice nad Oslavou, specimen P 01343.
All scale bars 100 µm.

PLATE 1

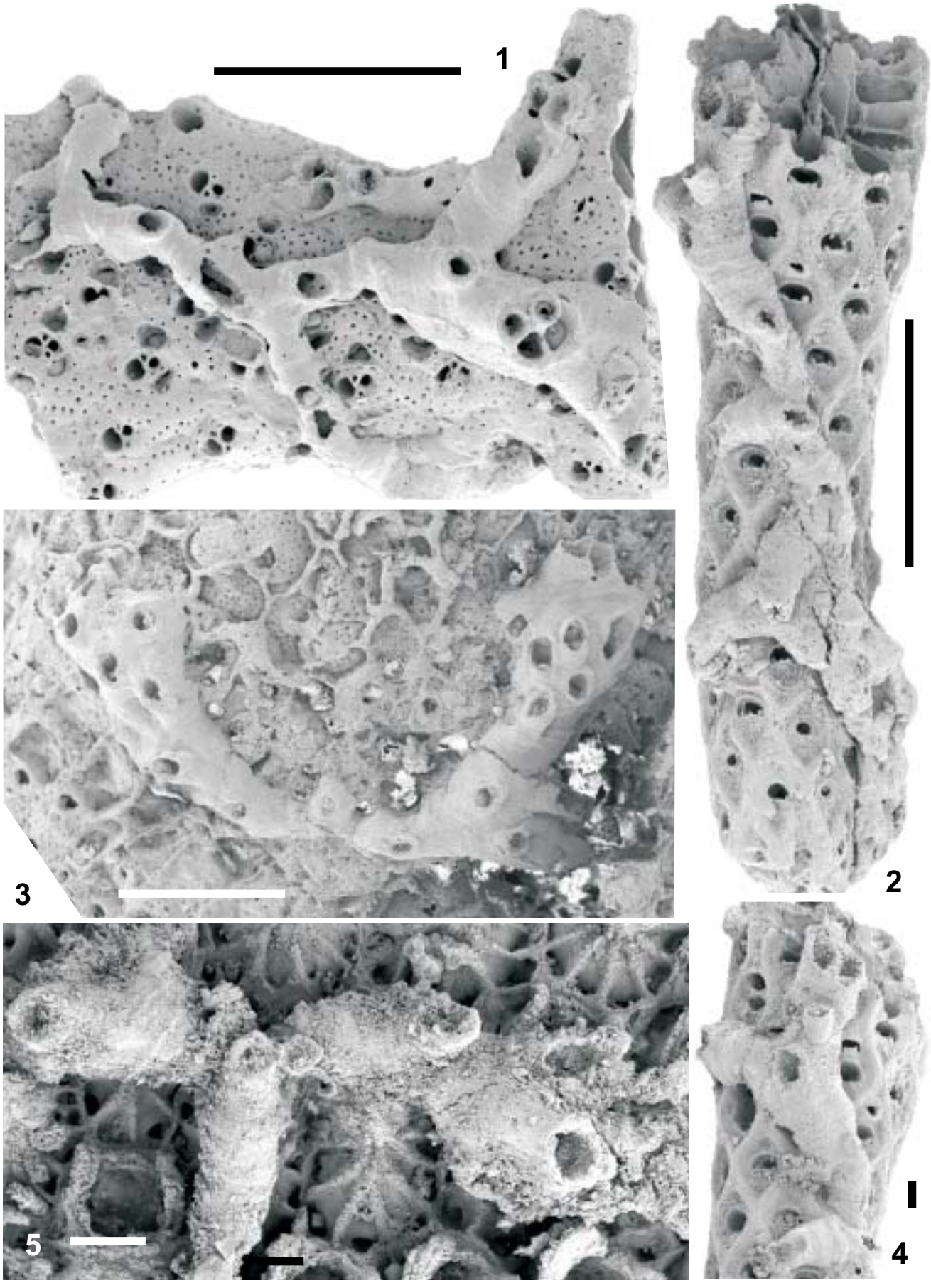


PLATE 2

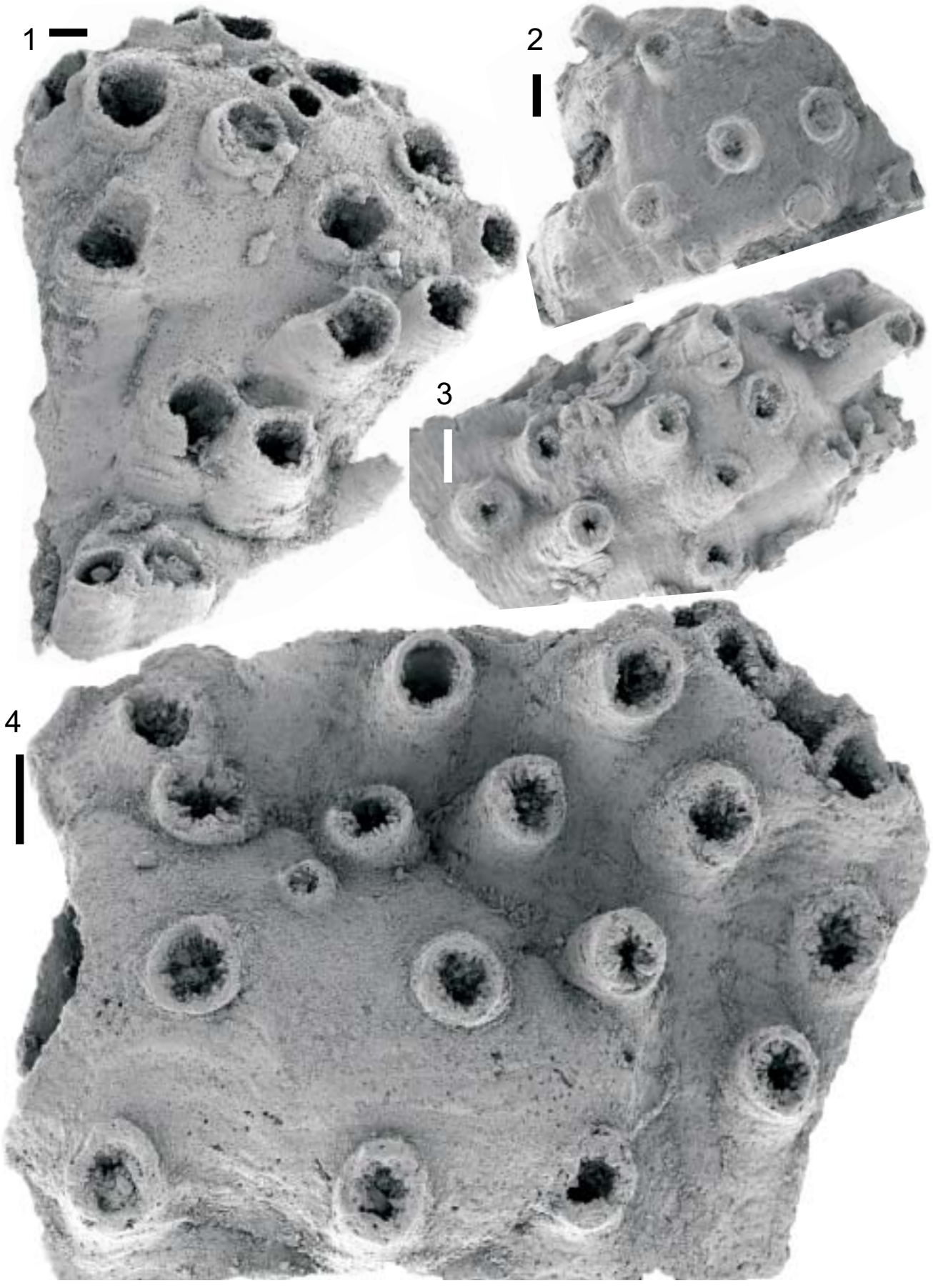


PLATE 3

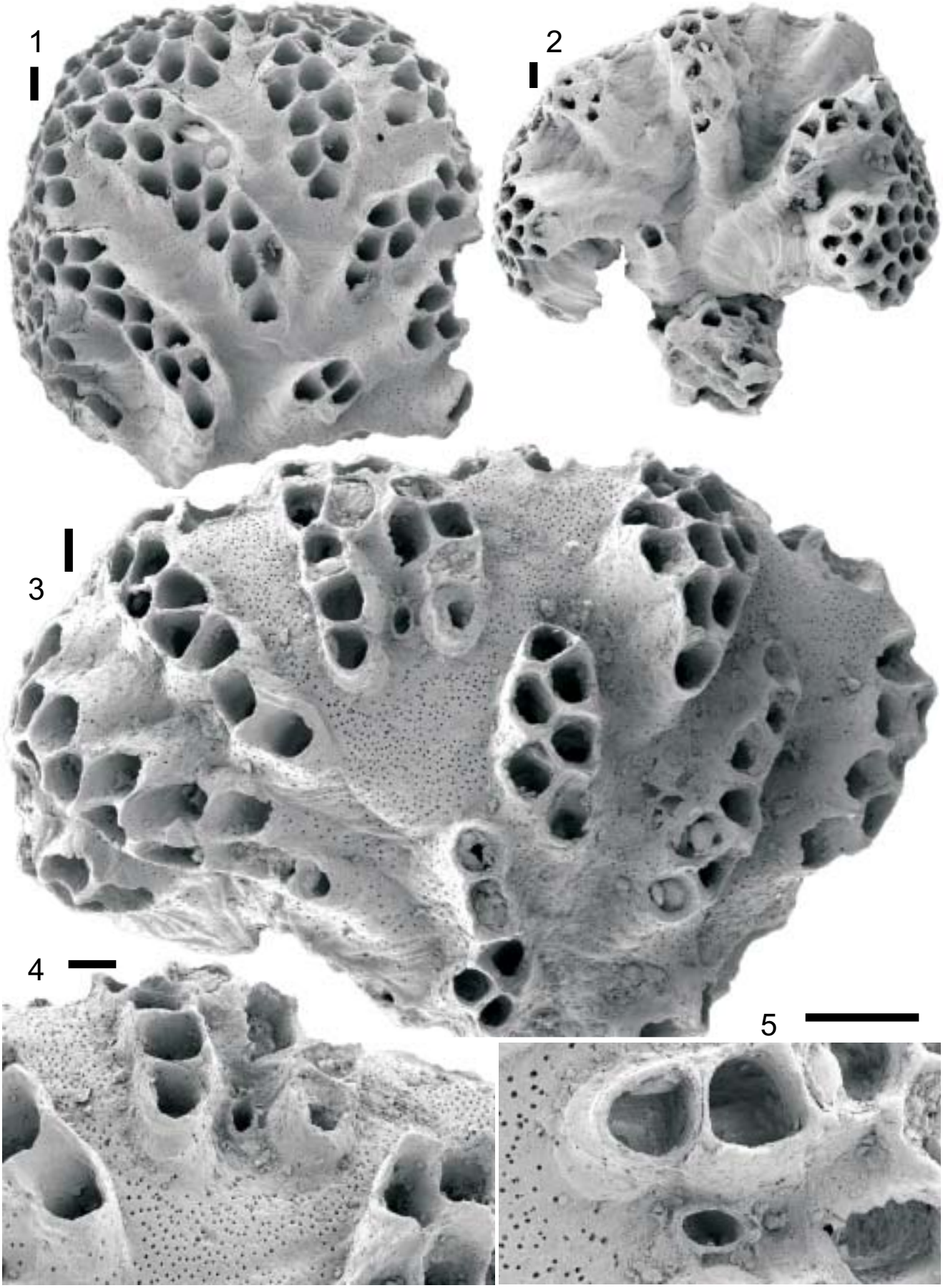


PLATE 4

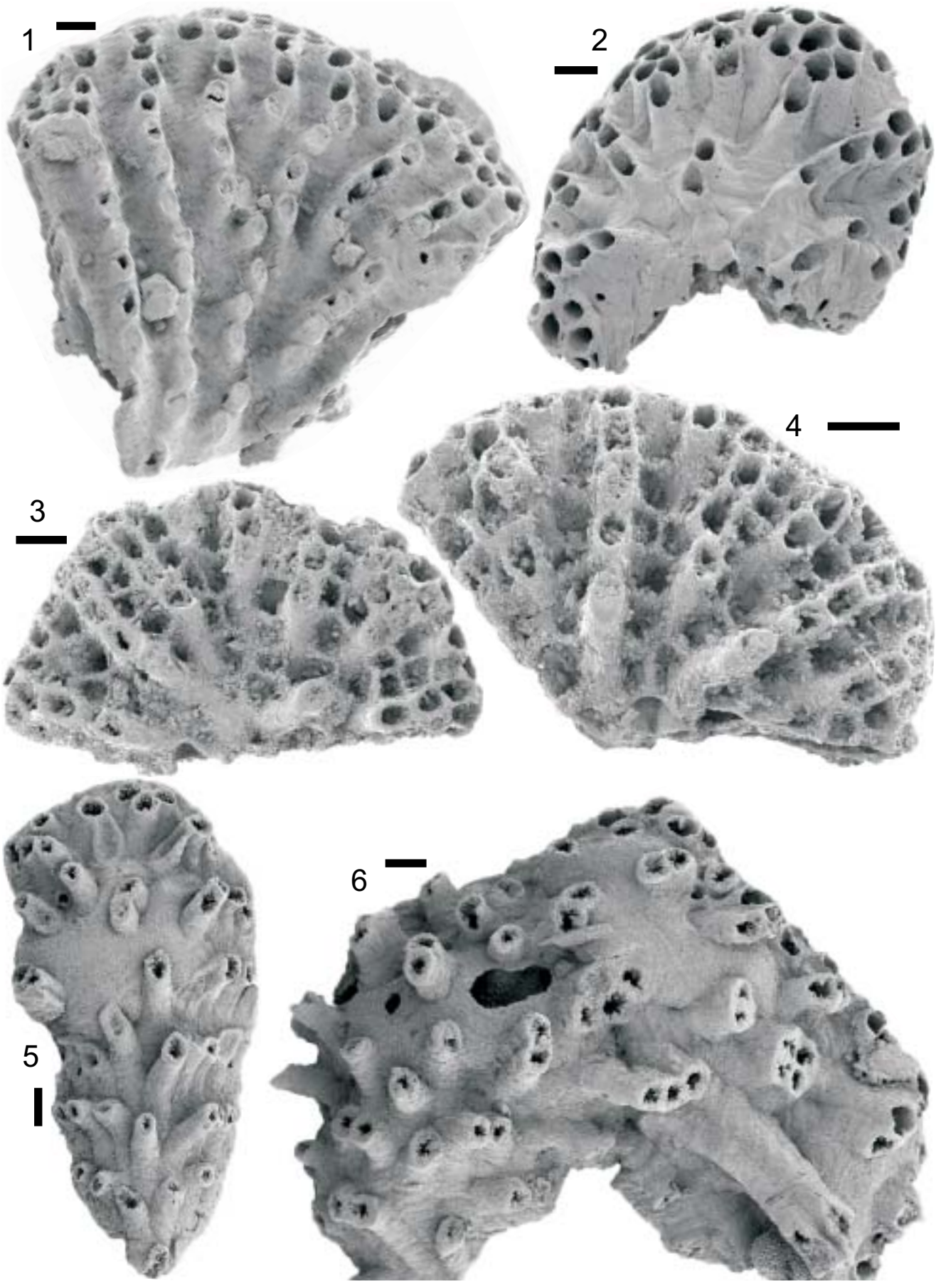


PLATE 5

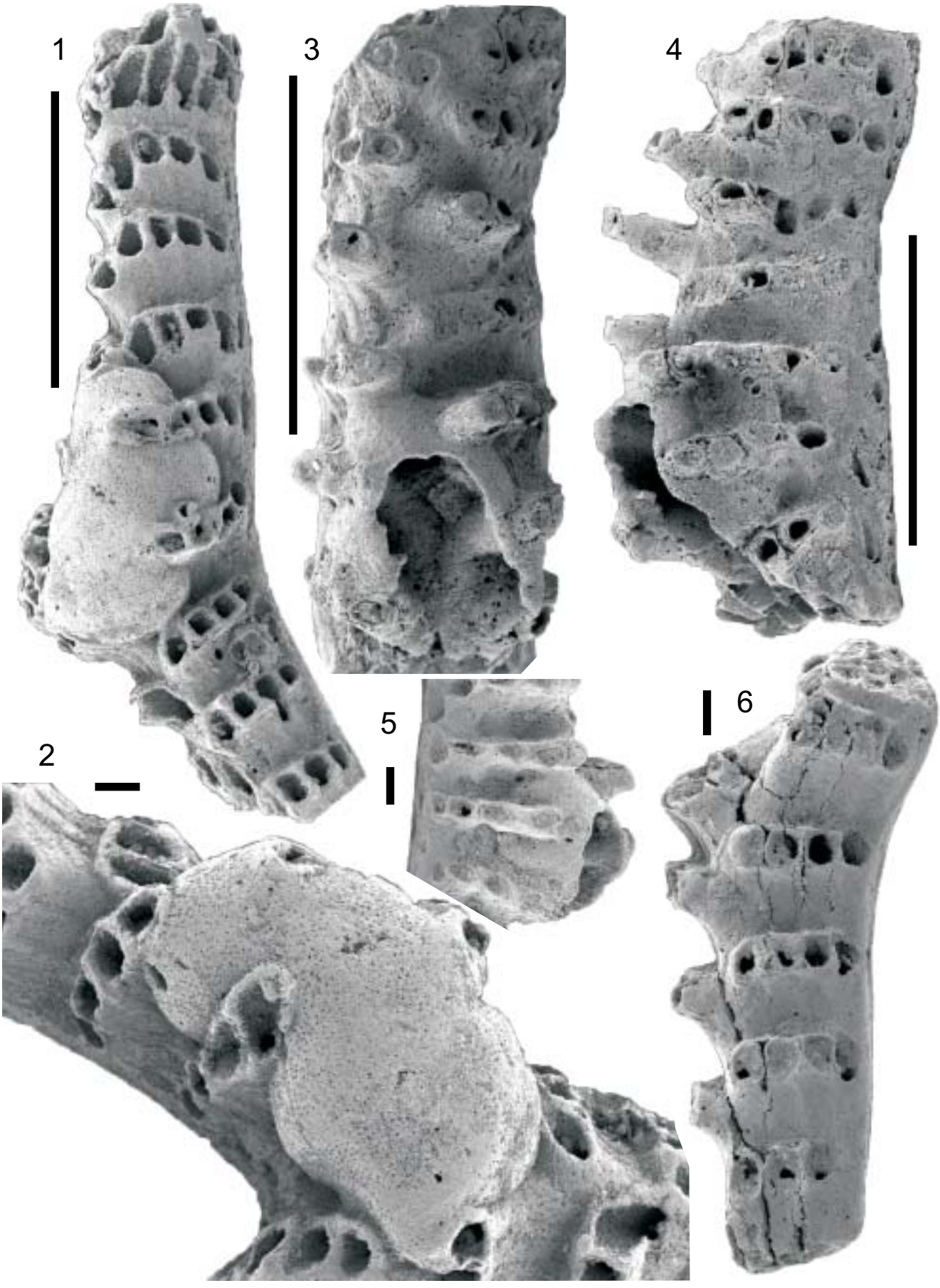
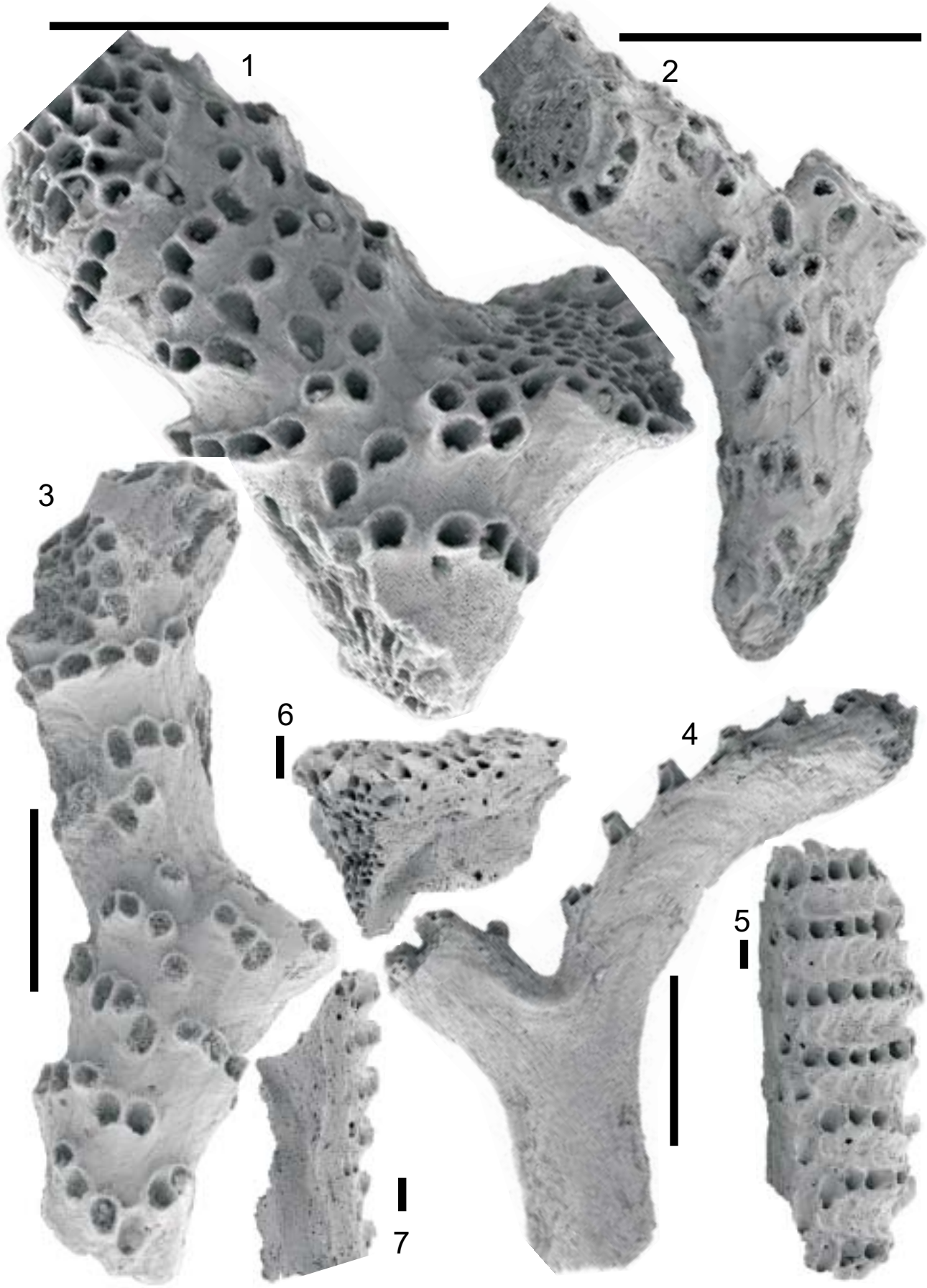


PLATE 6



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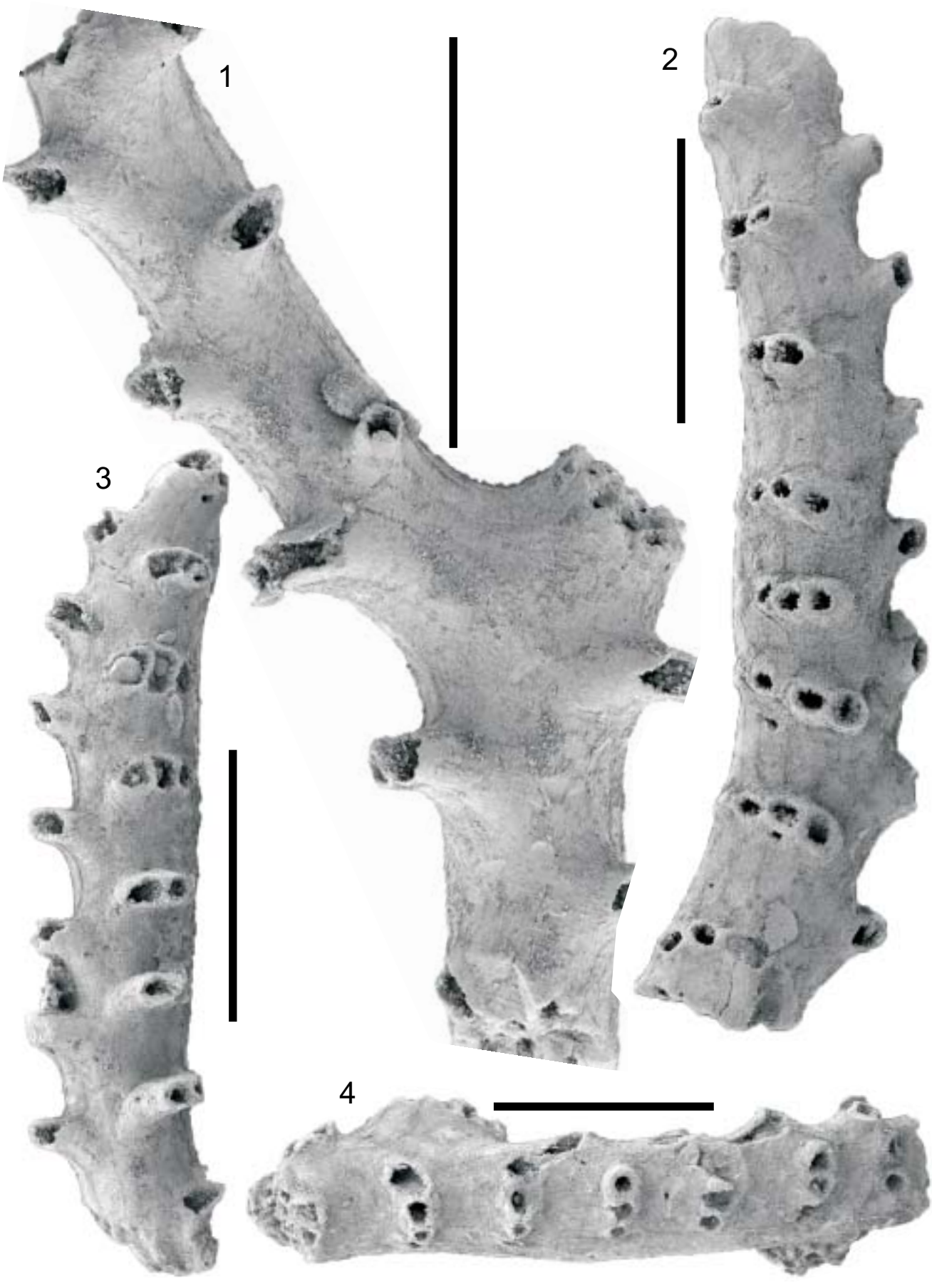
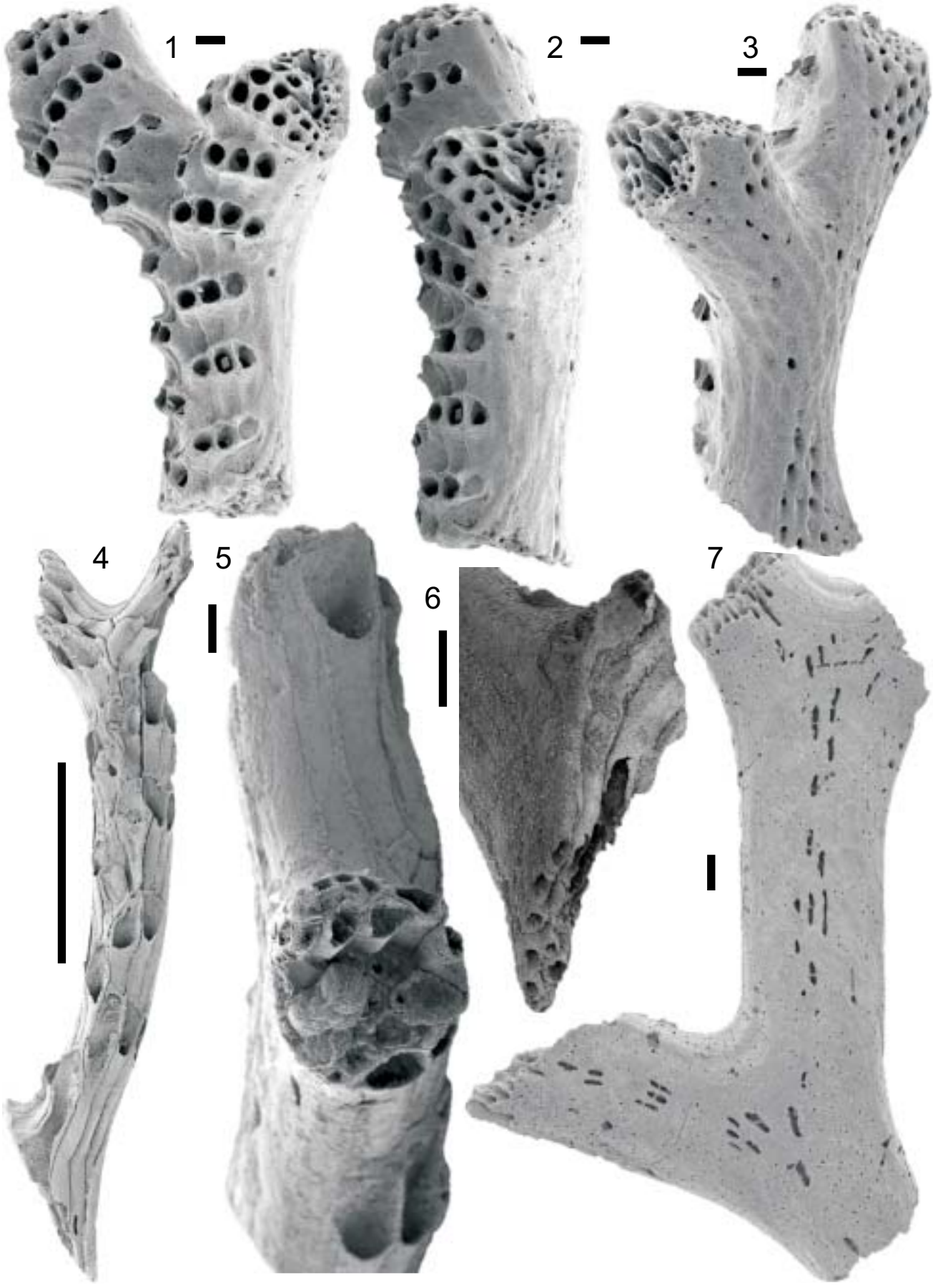


PLATE 8



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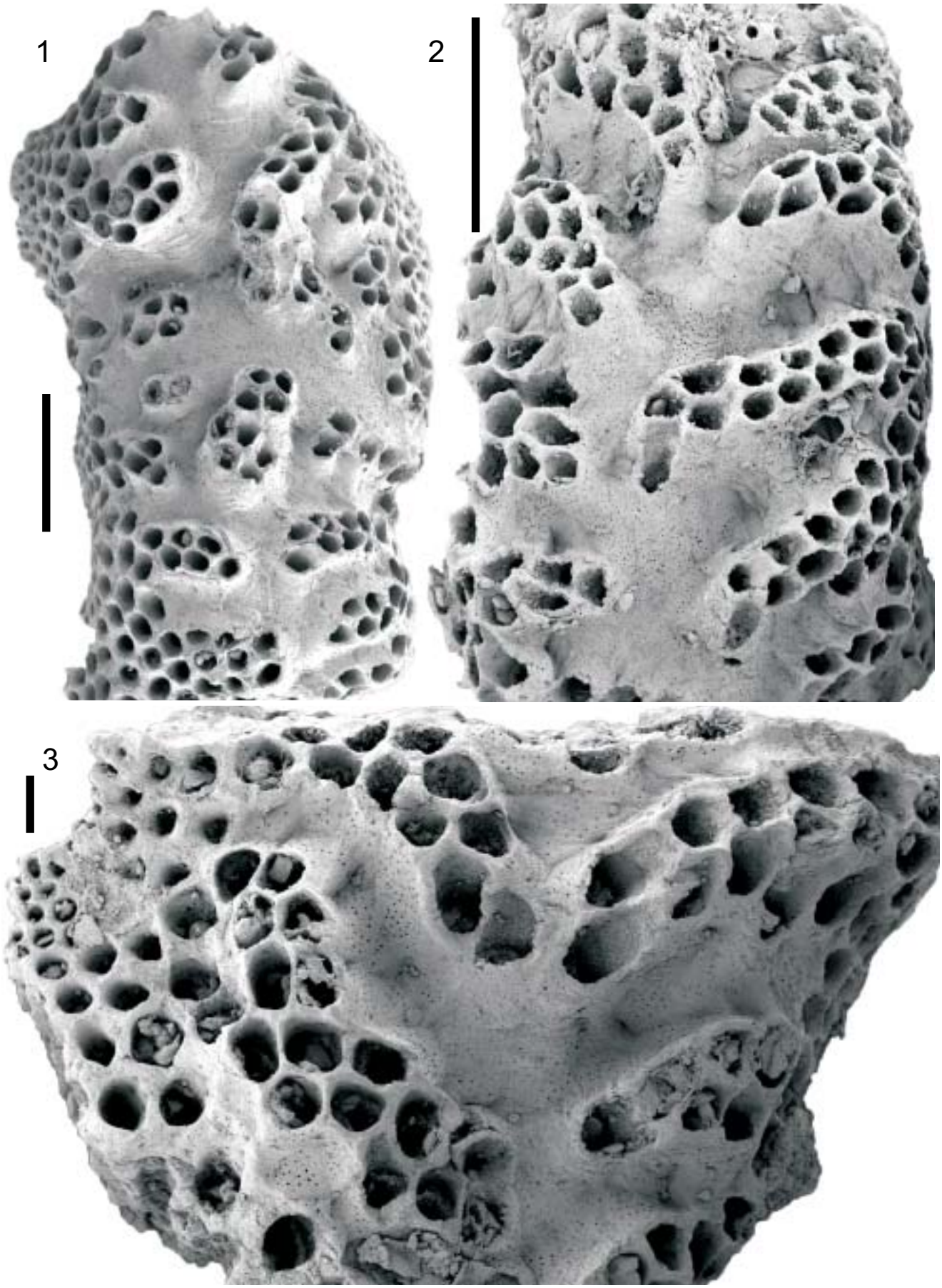
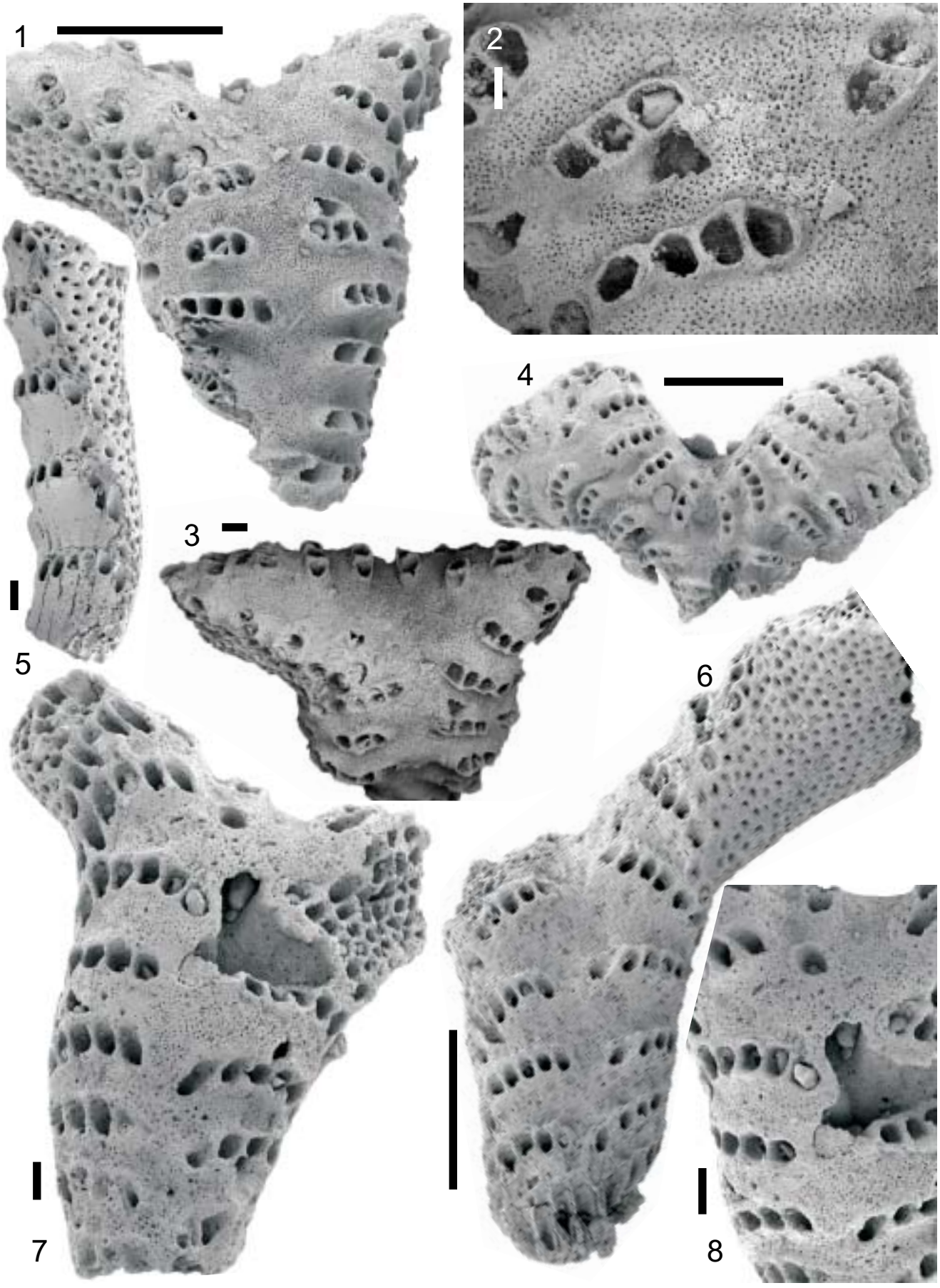


PLATE 10



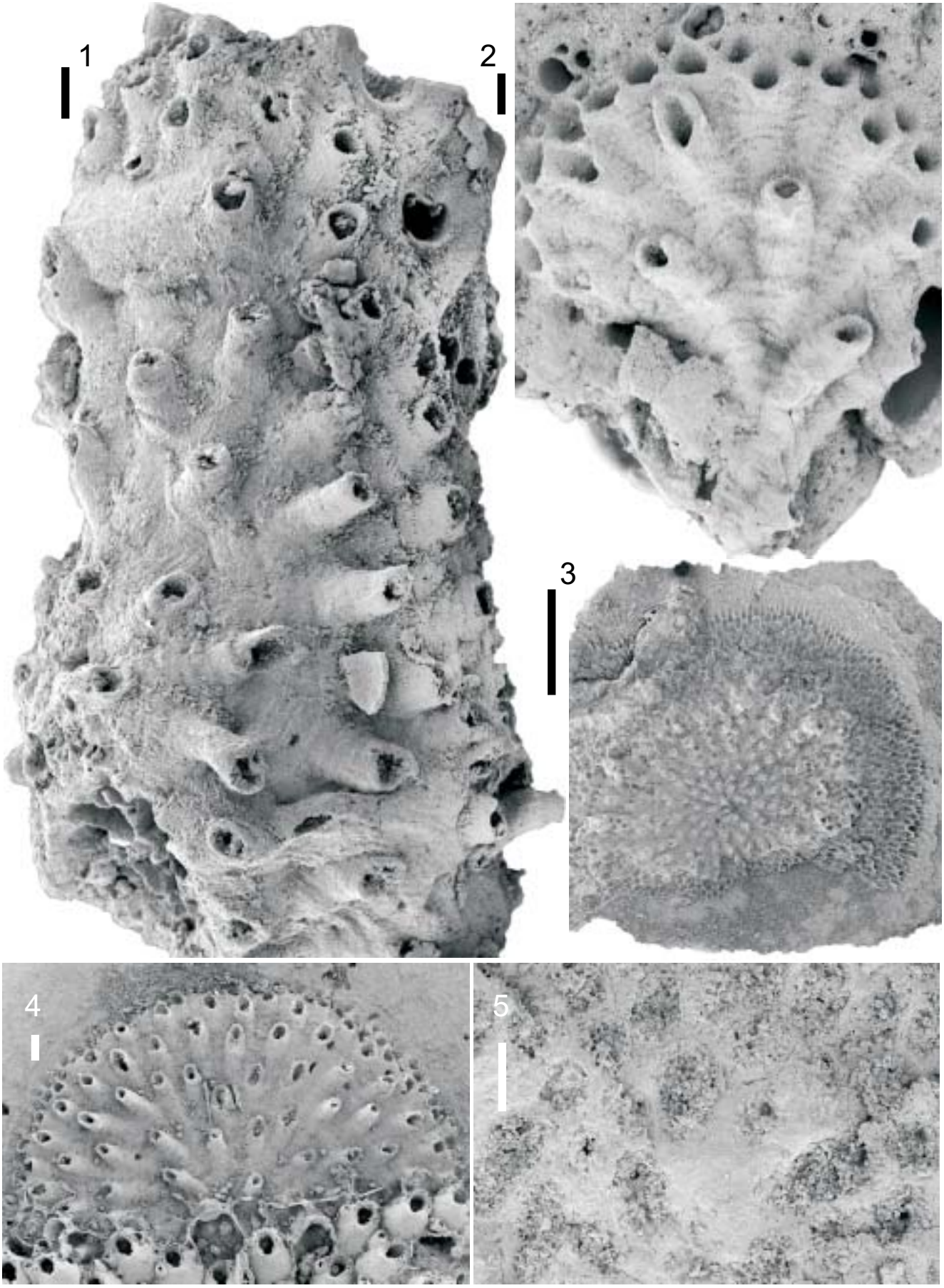

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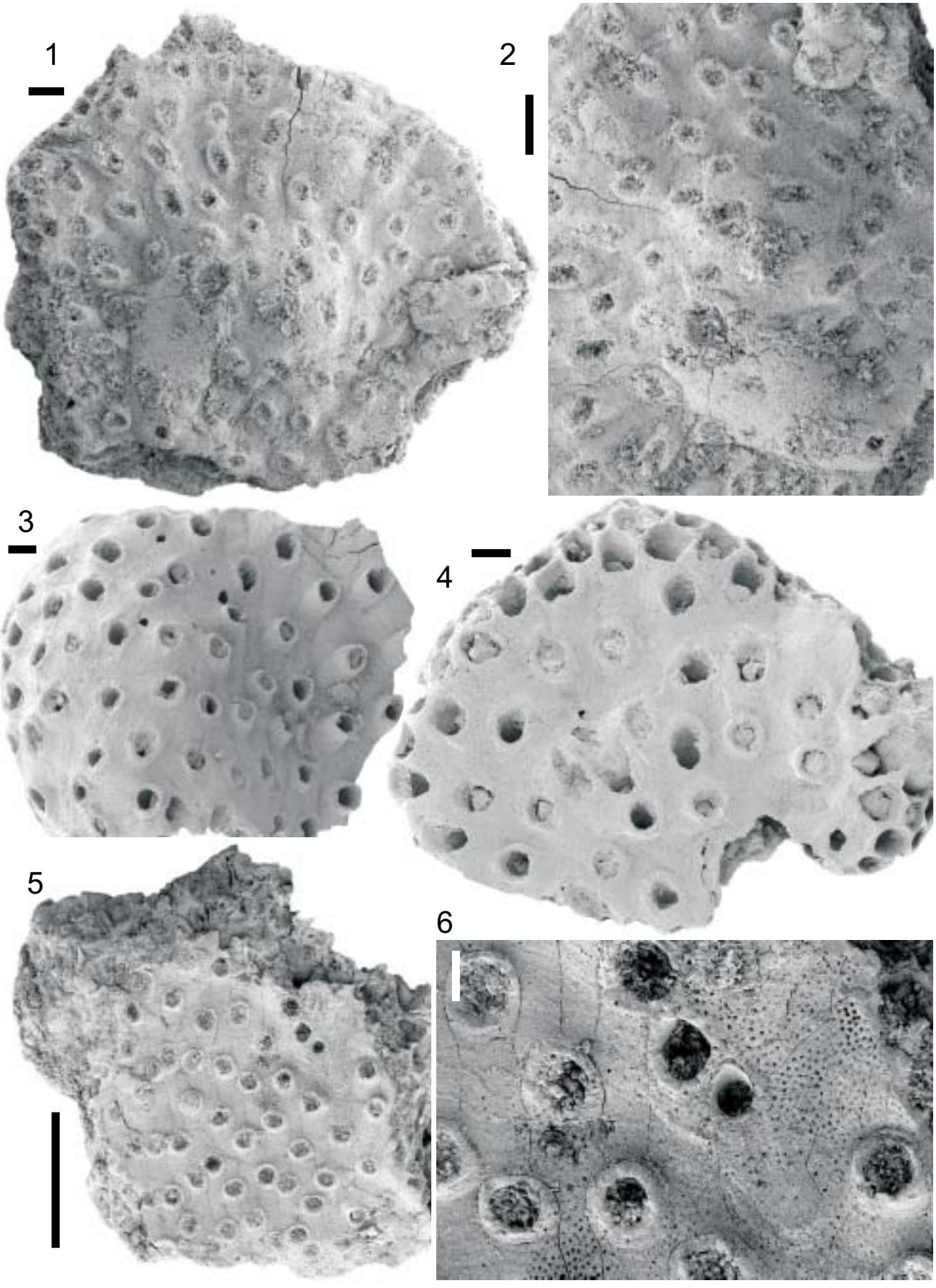
PLATE 12



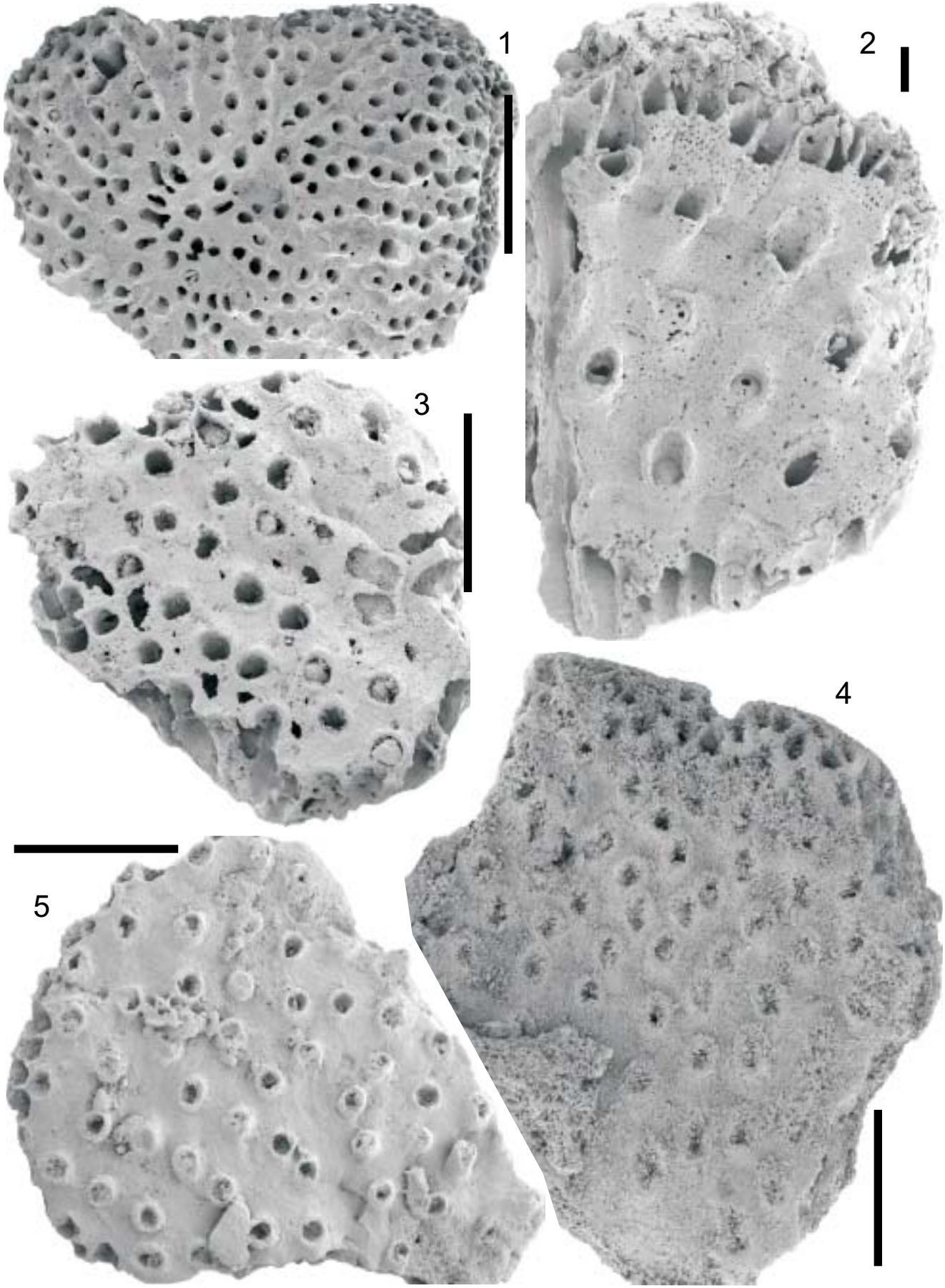

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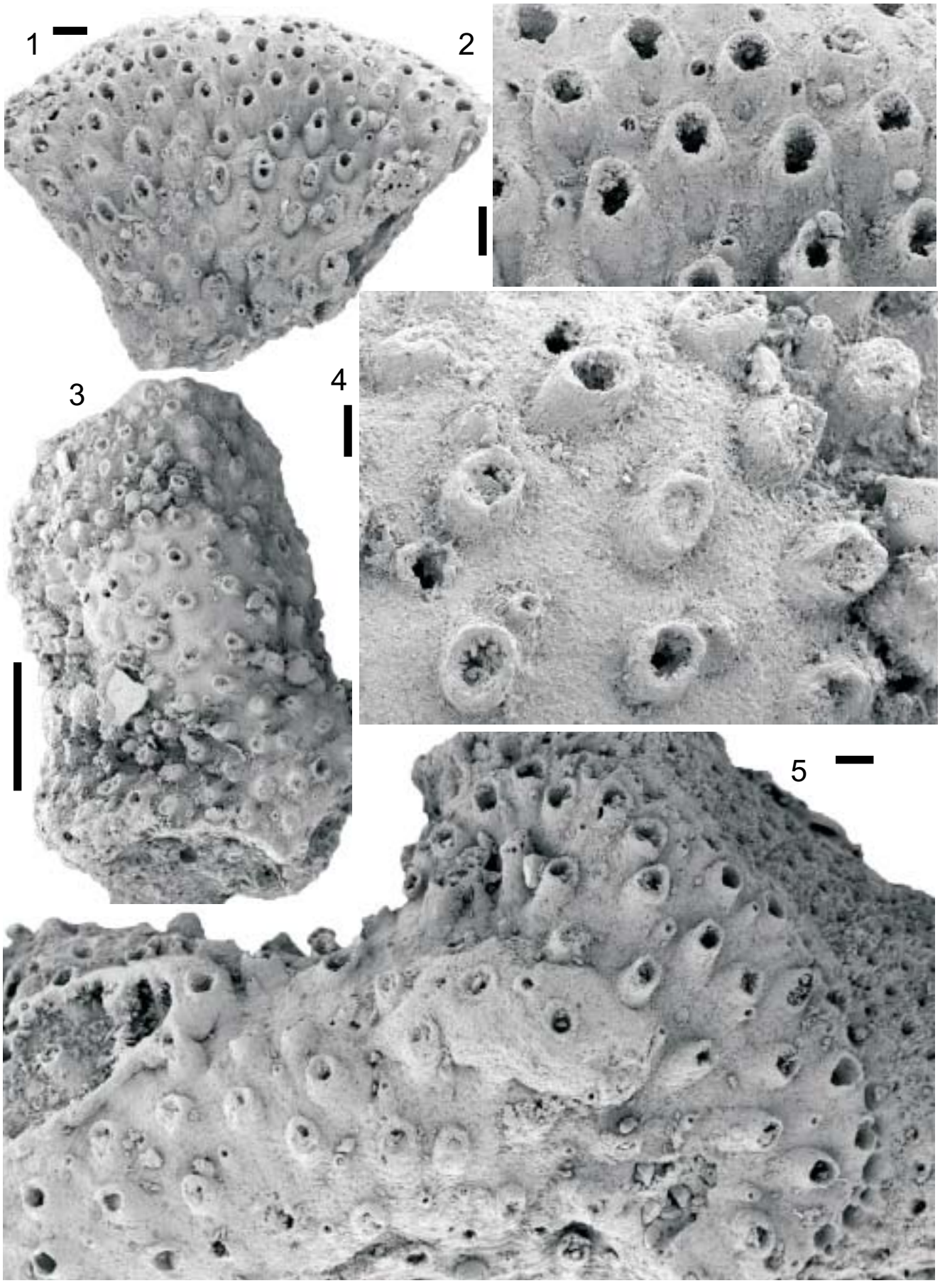
PLATE 14



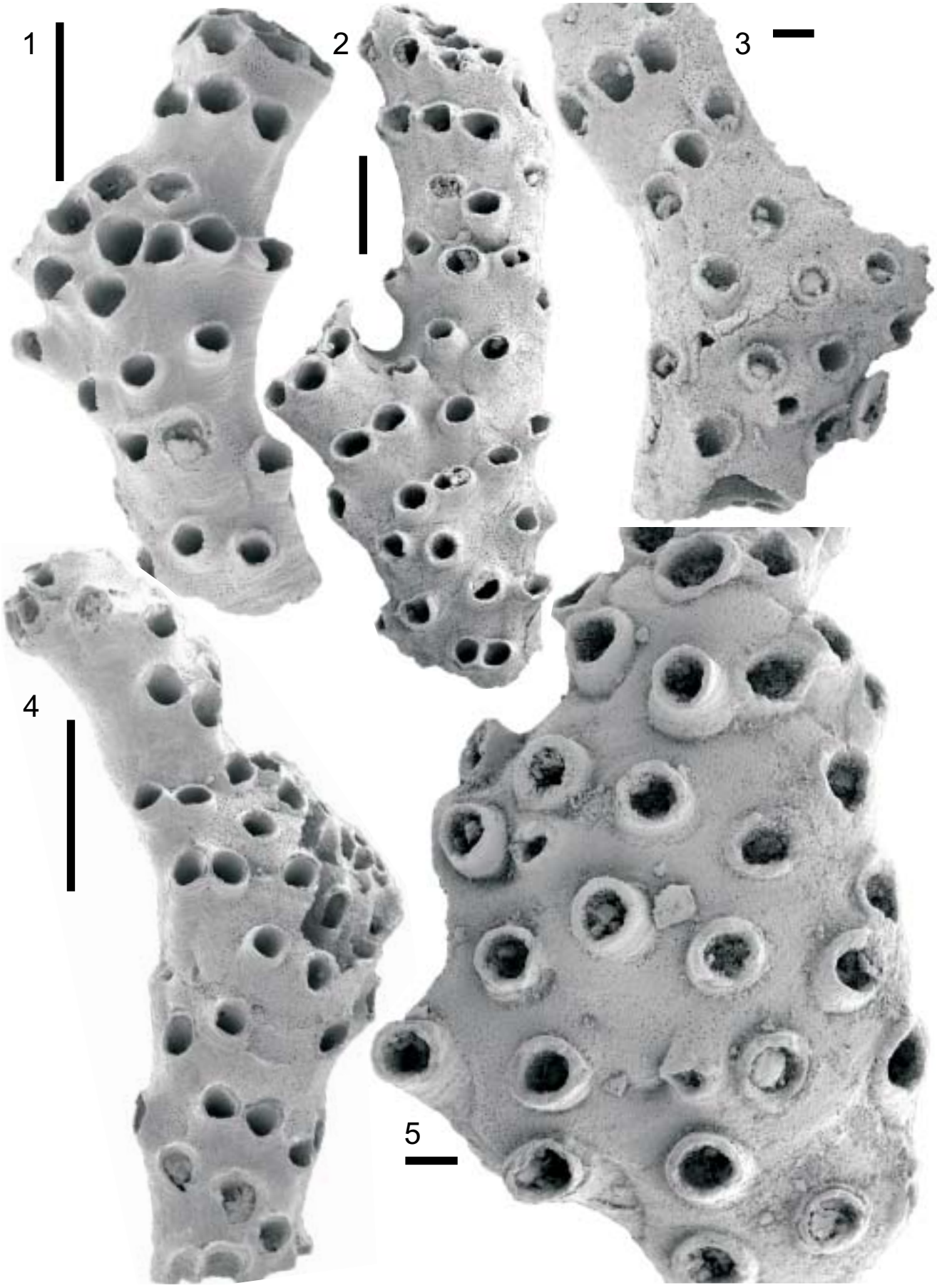

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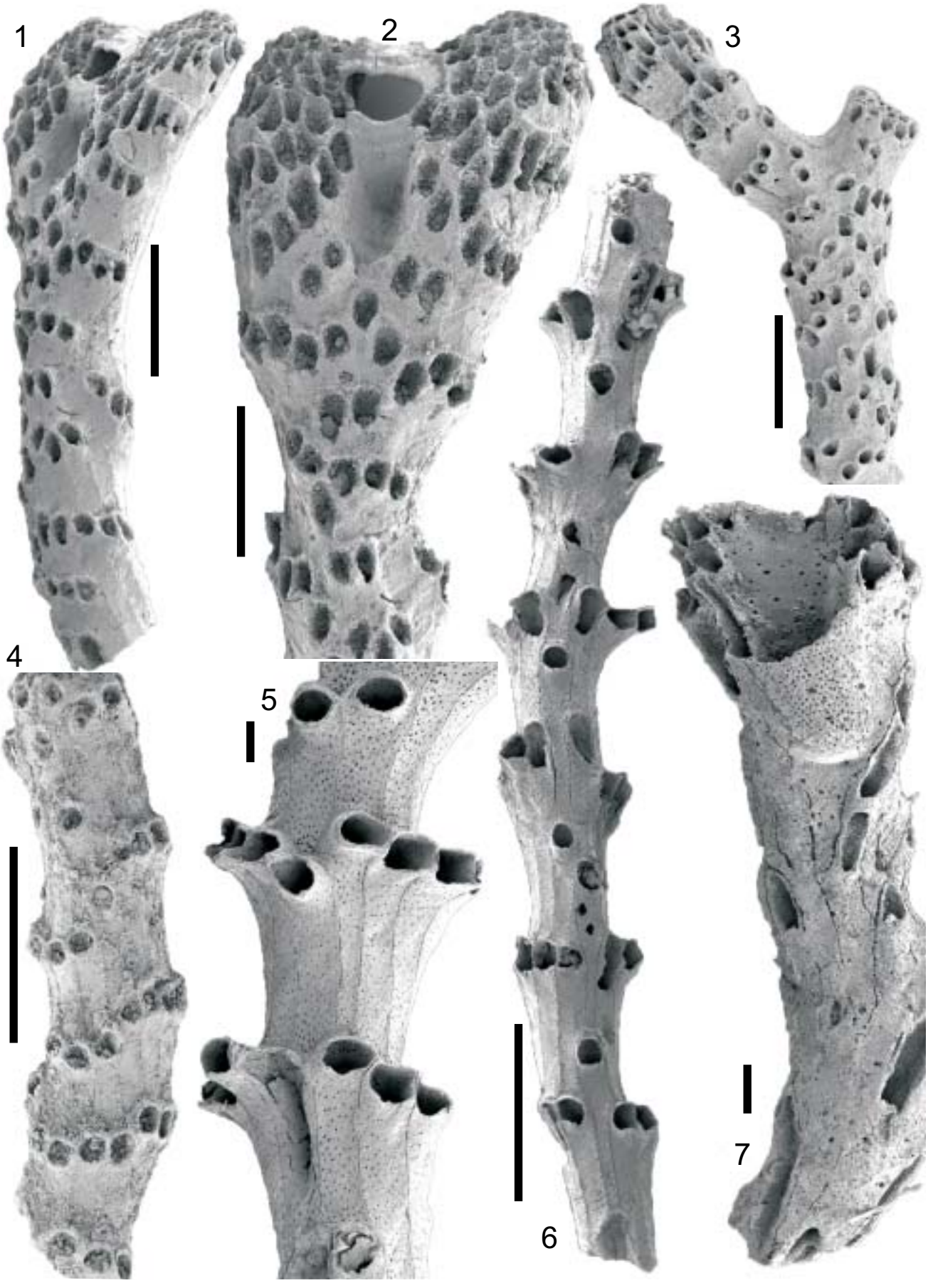
PLATE 16



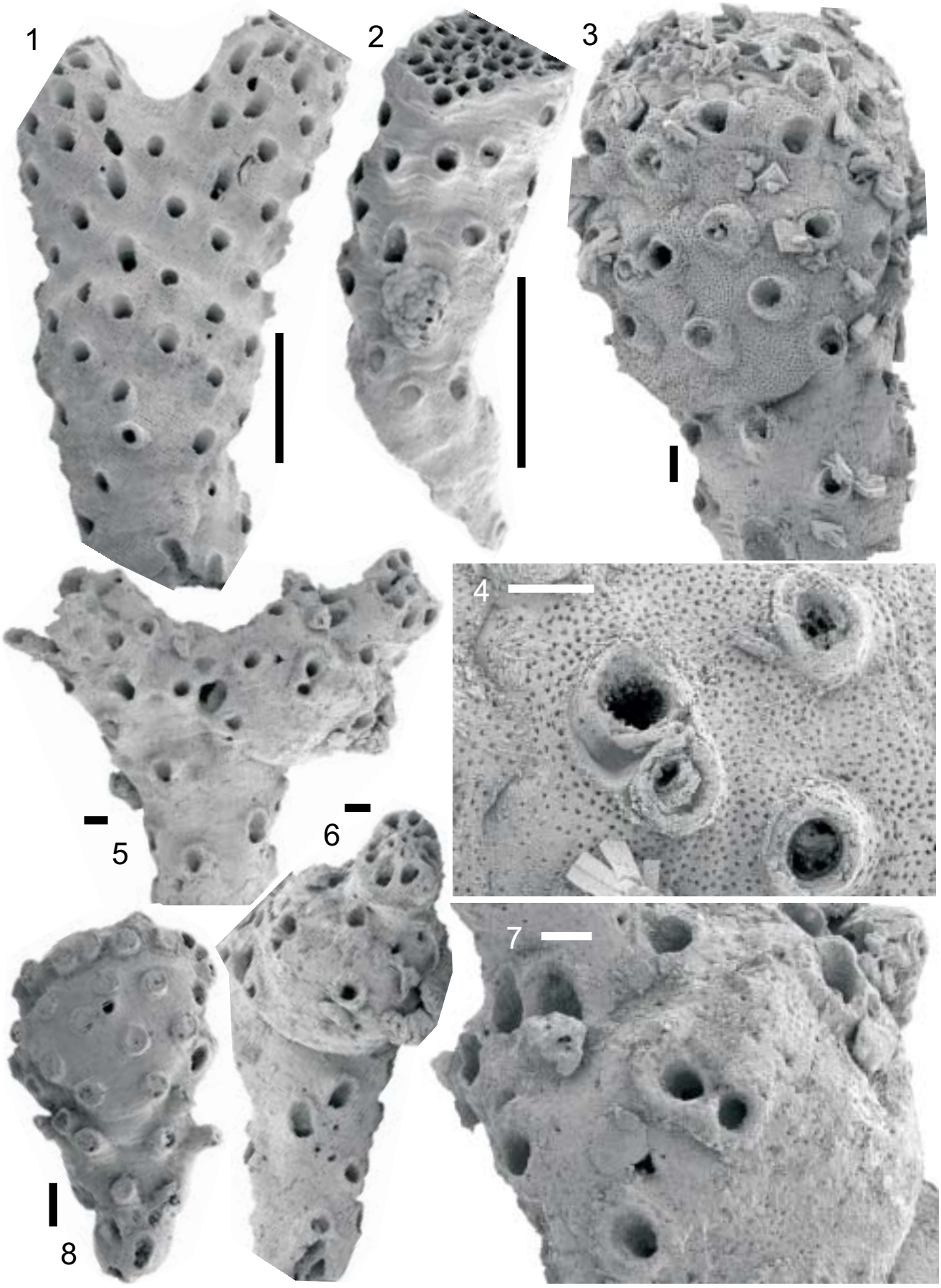

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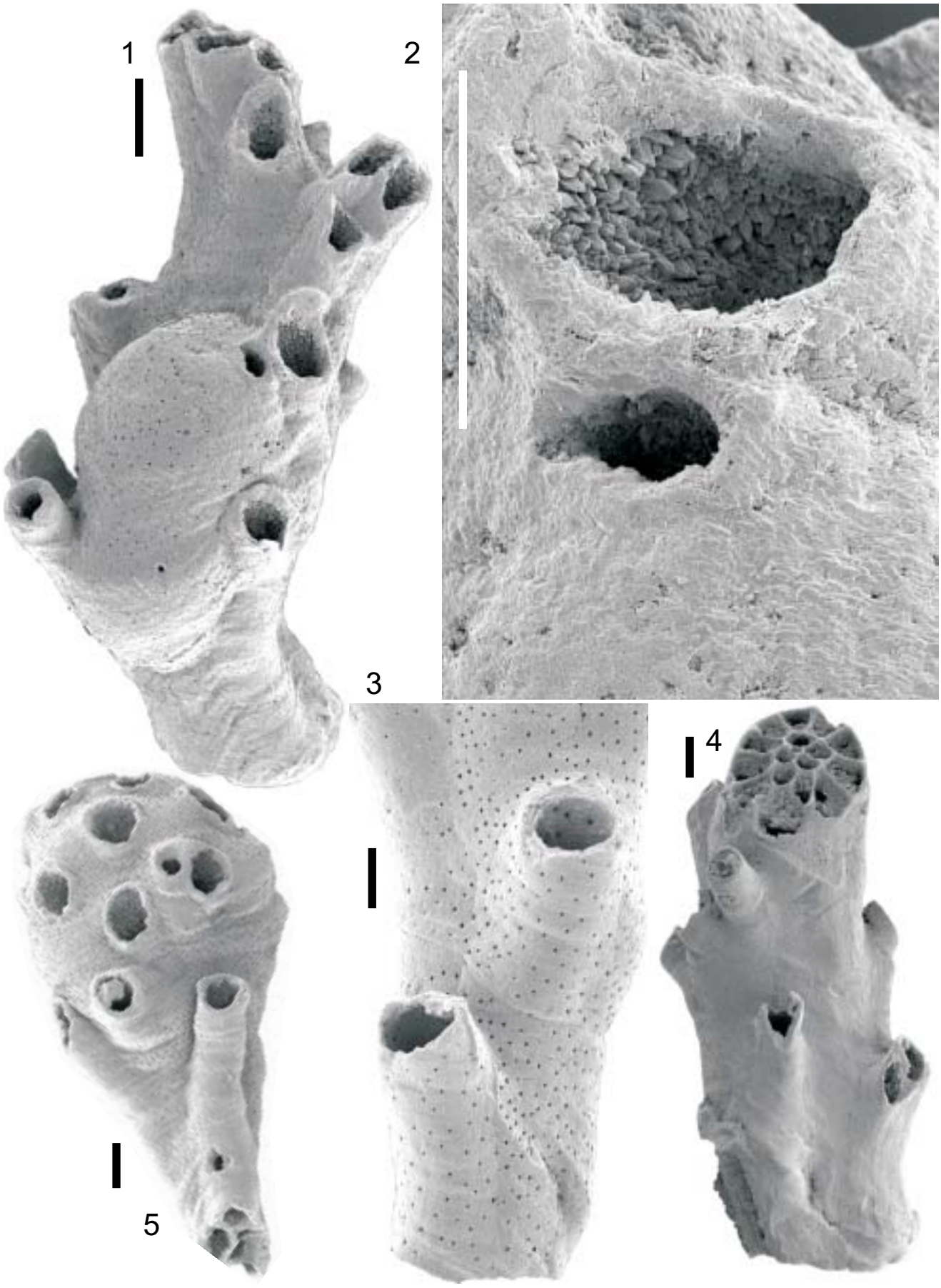
PLATE 18



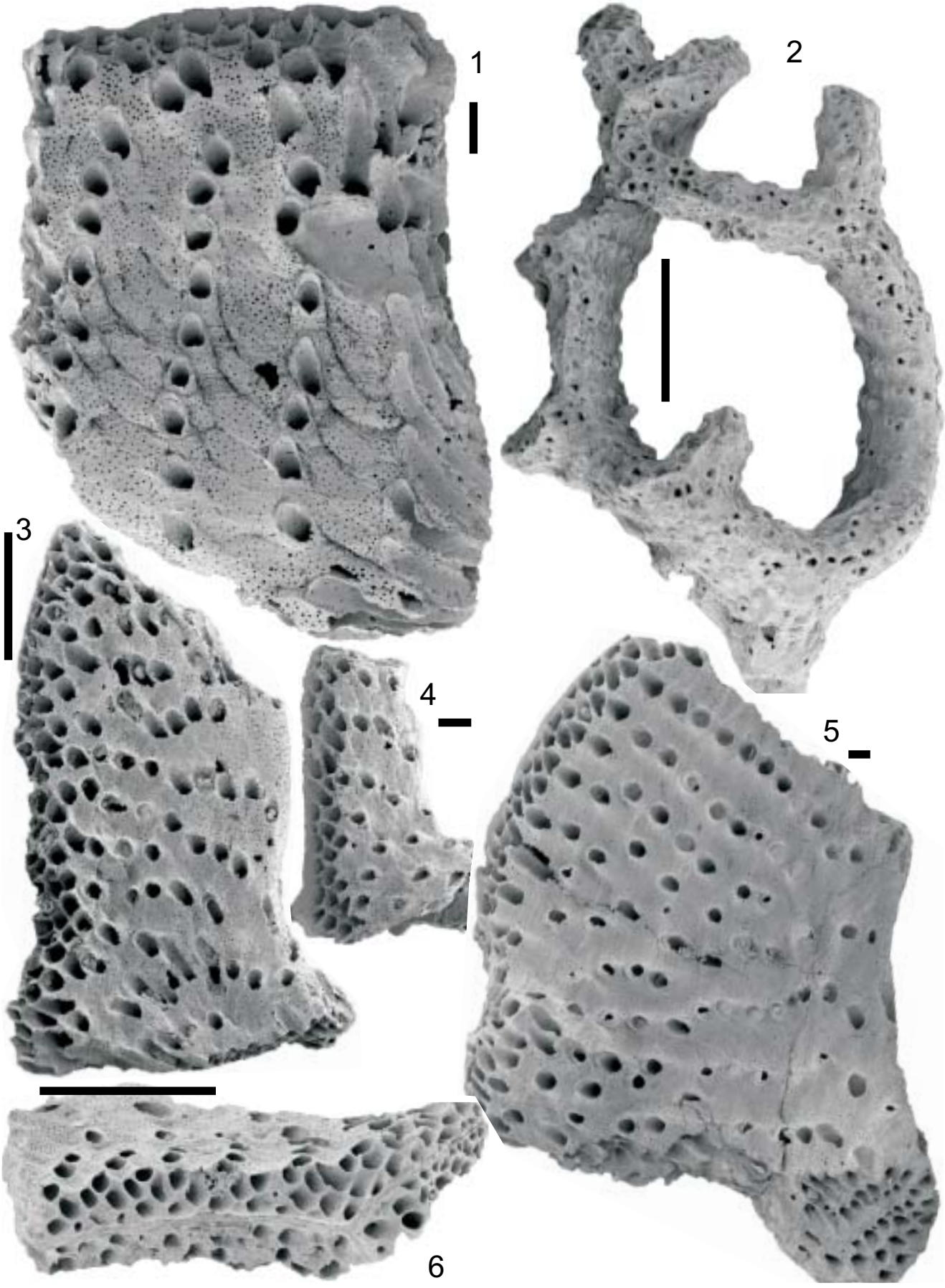

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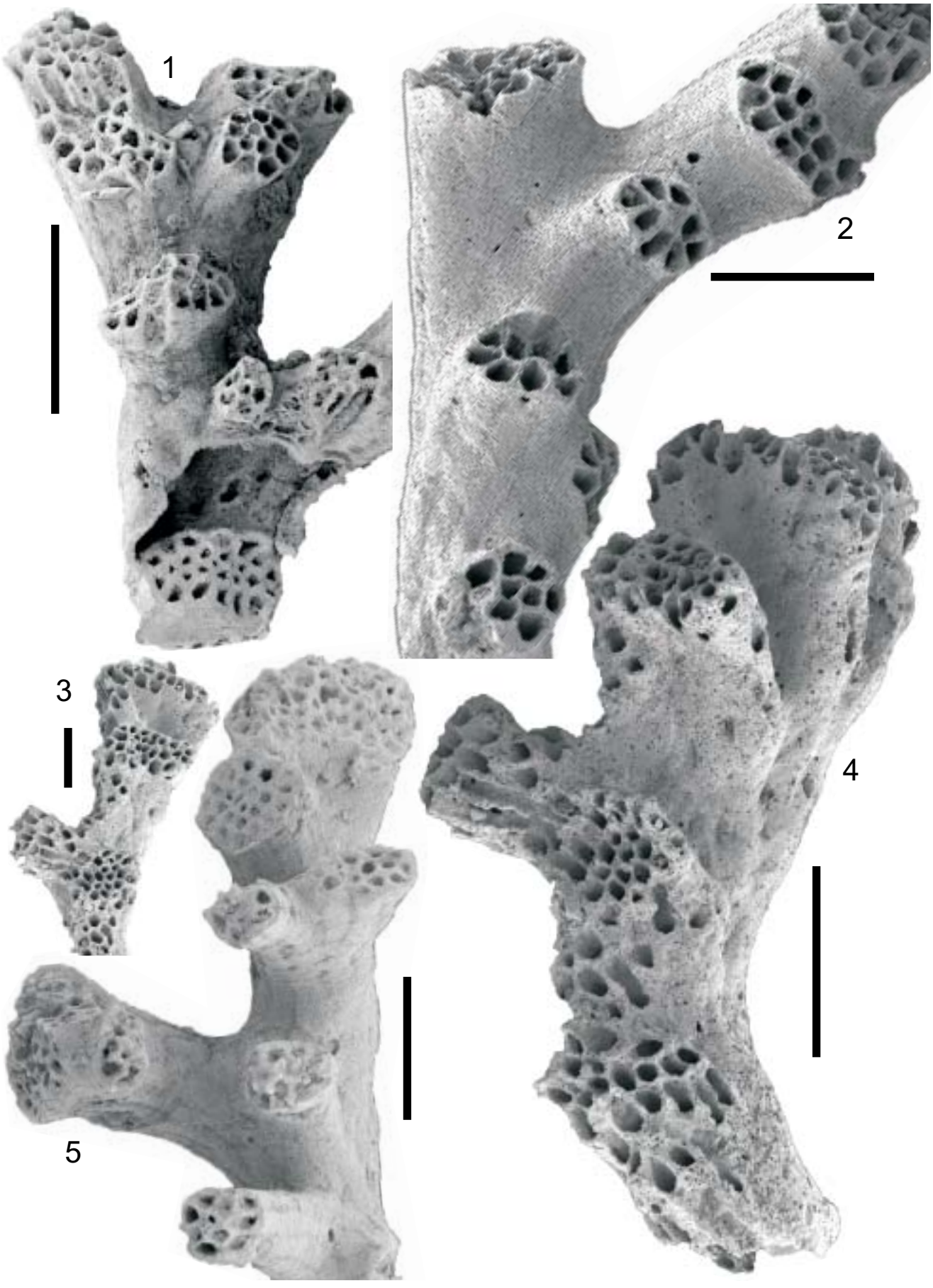
PLATE 20



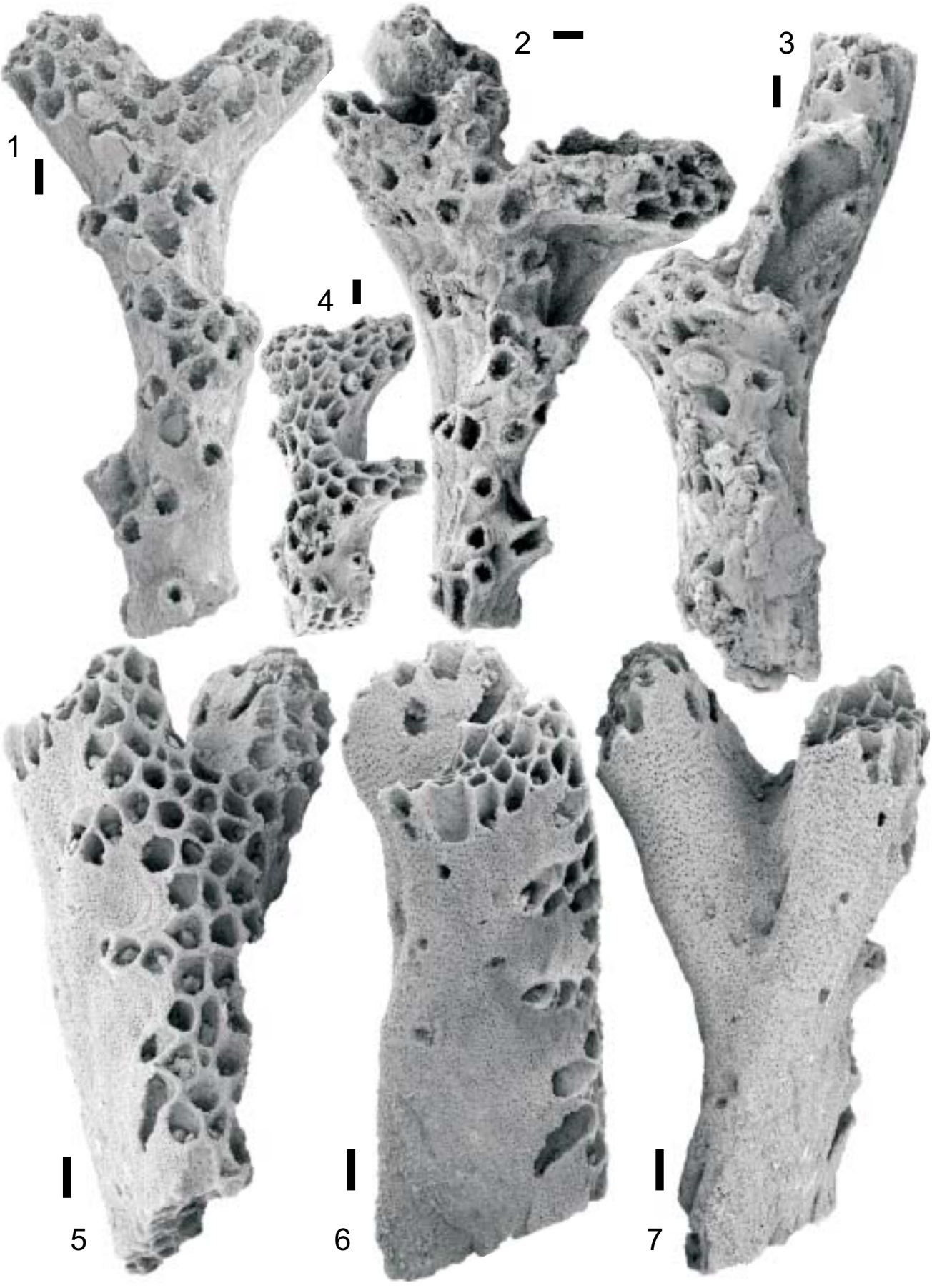

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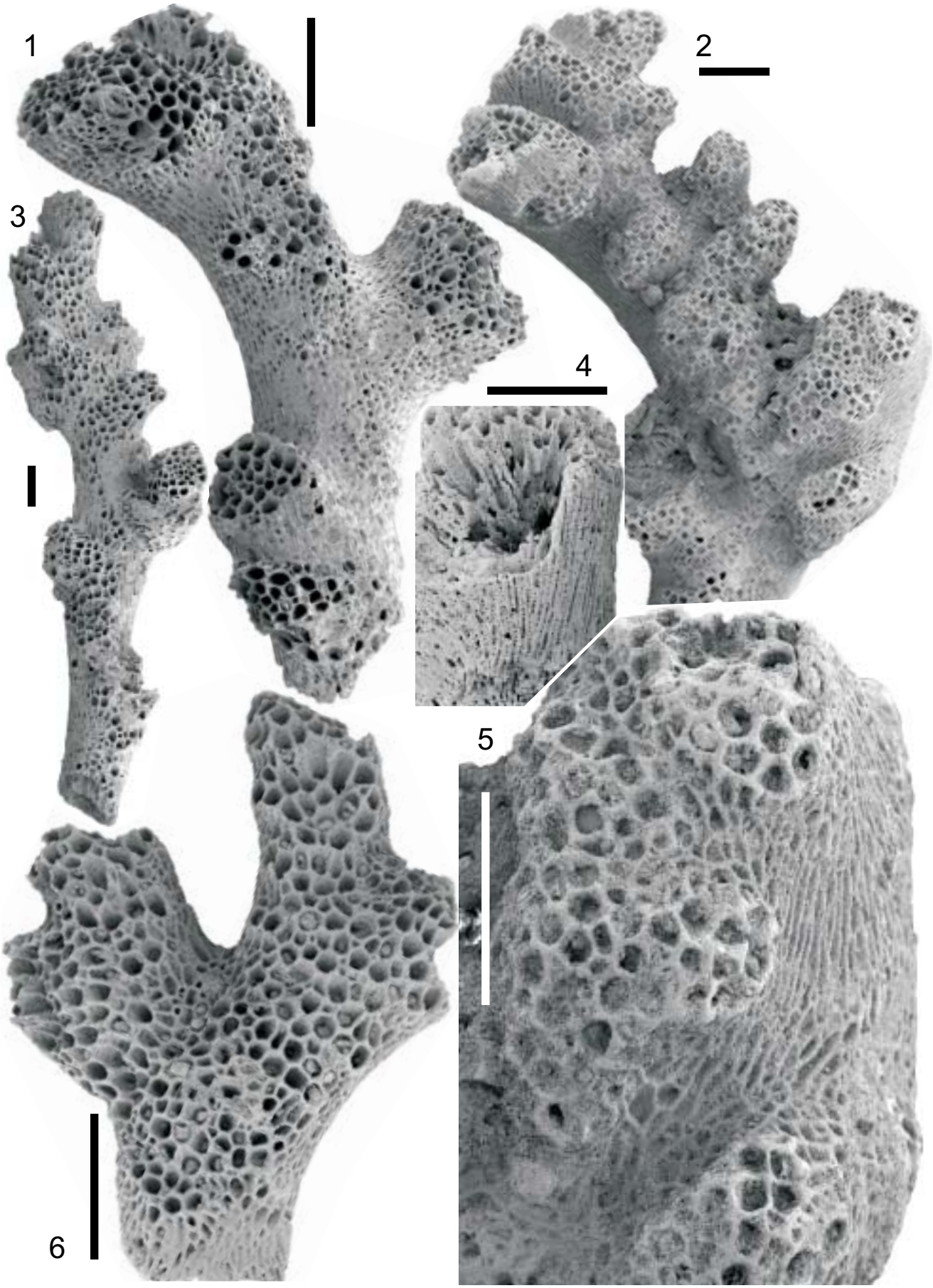
PLATE 22



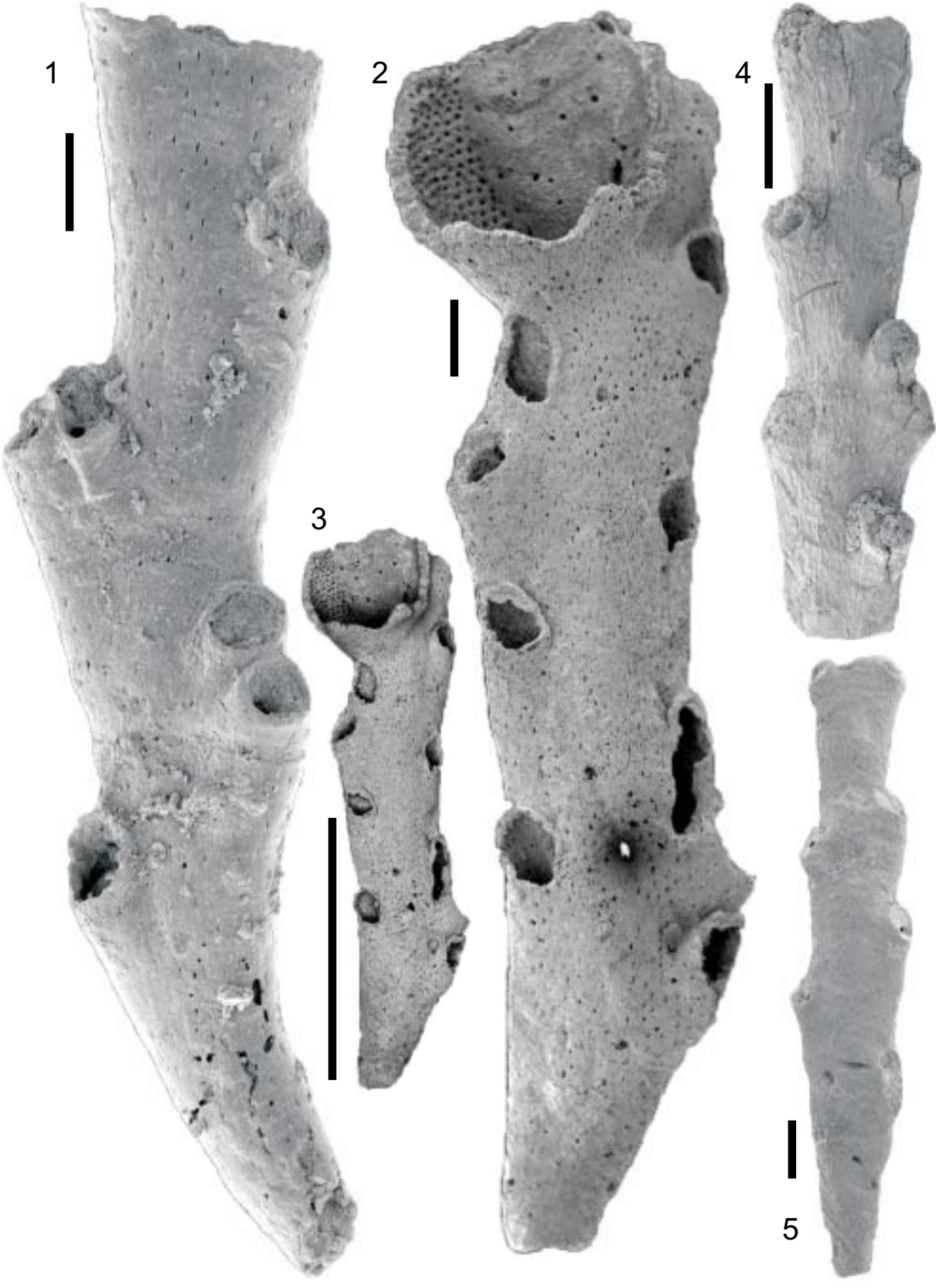

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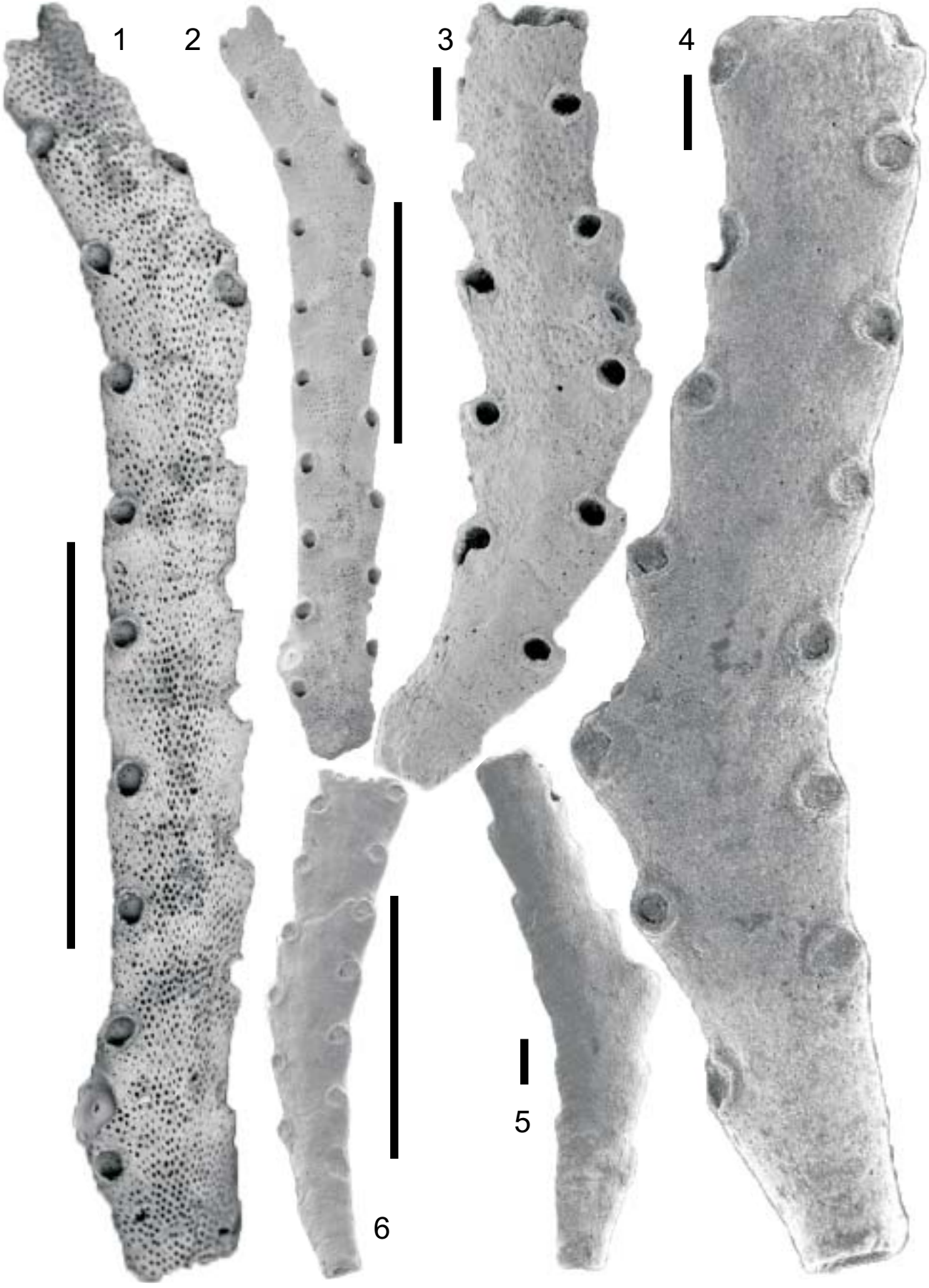
PLATE 24



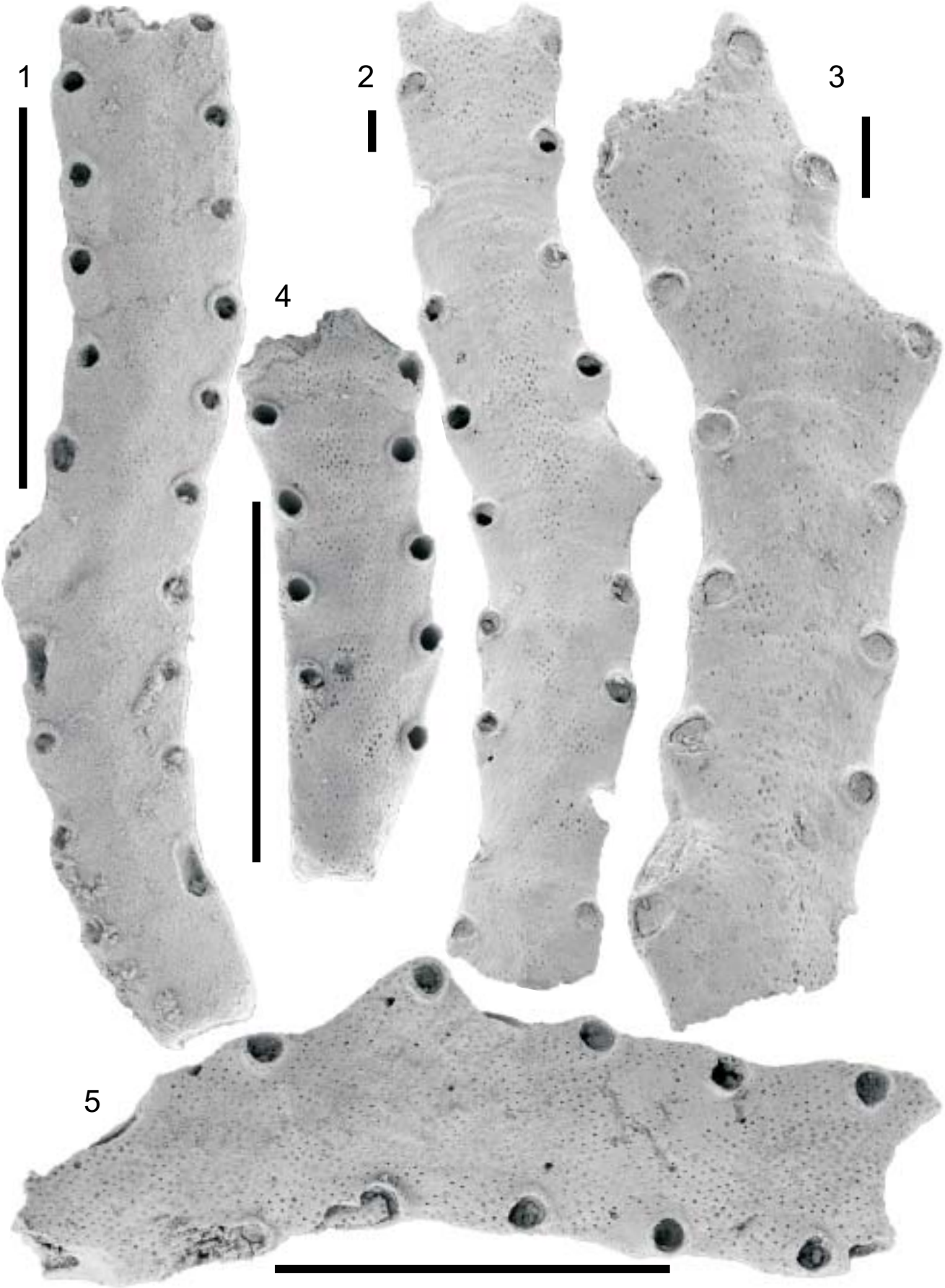

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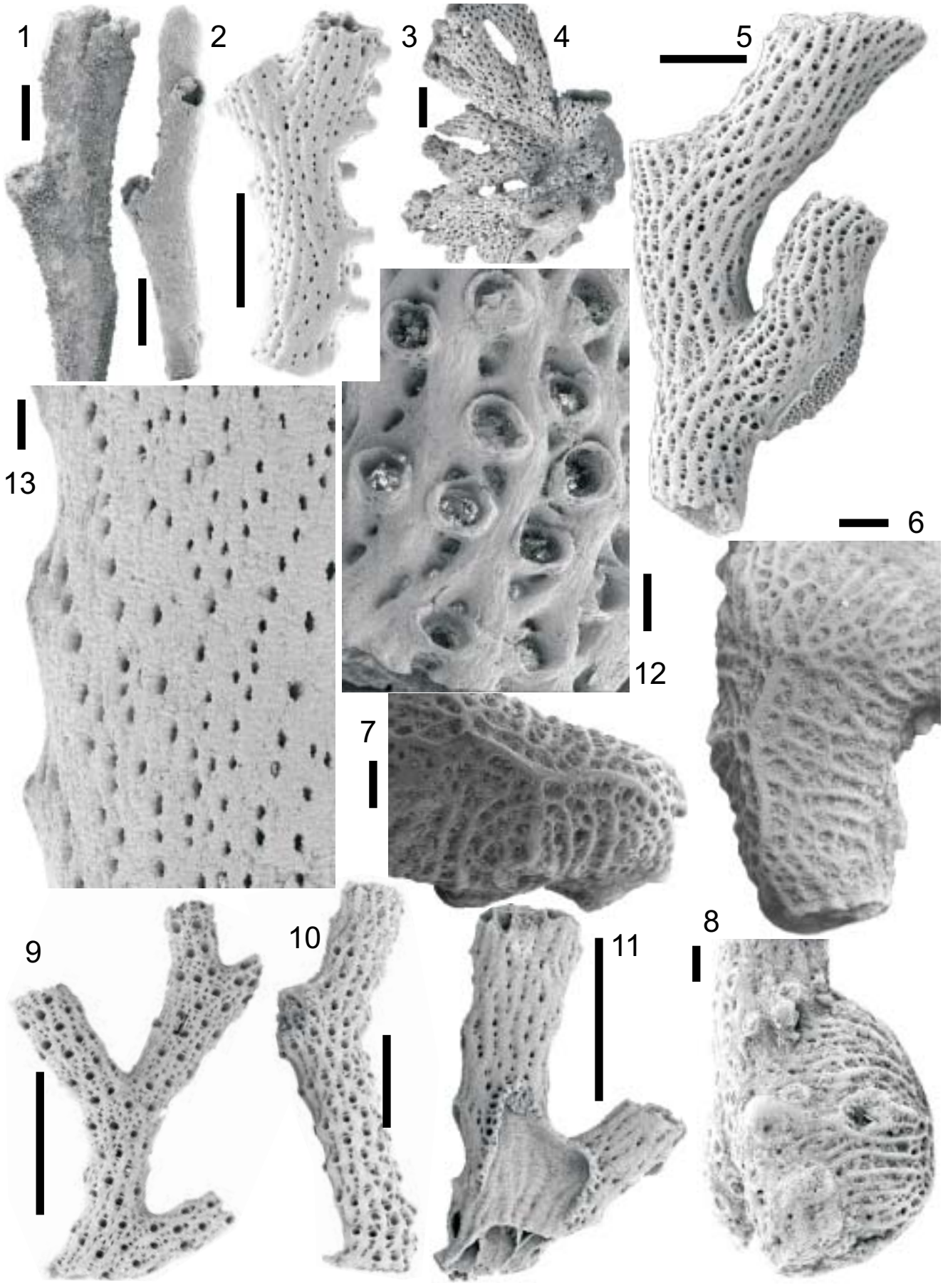
PLATE 26



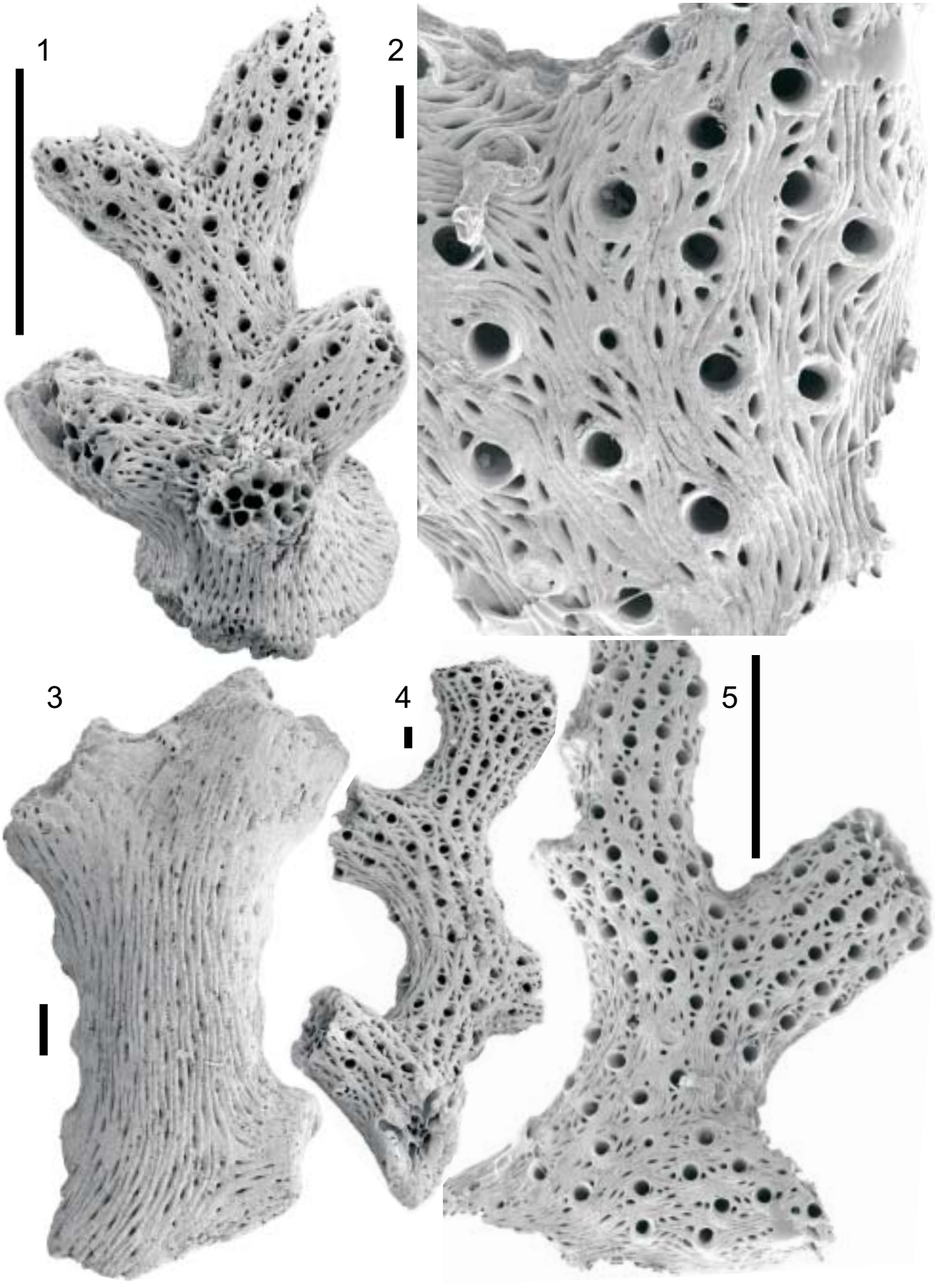

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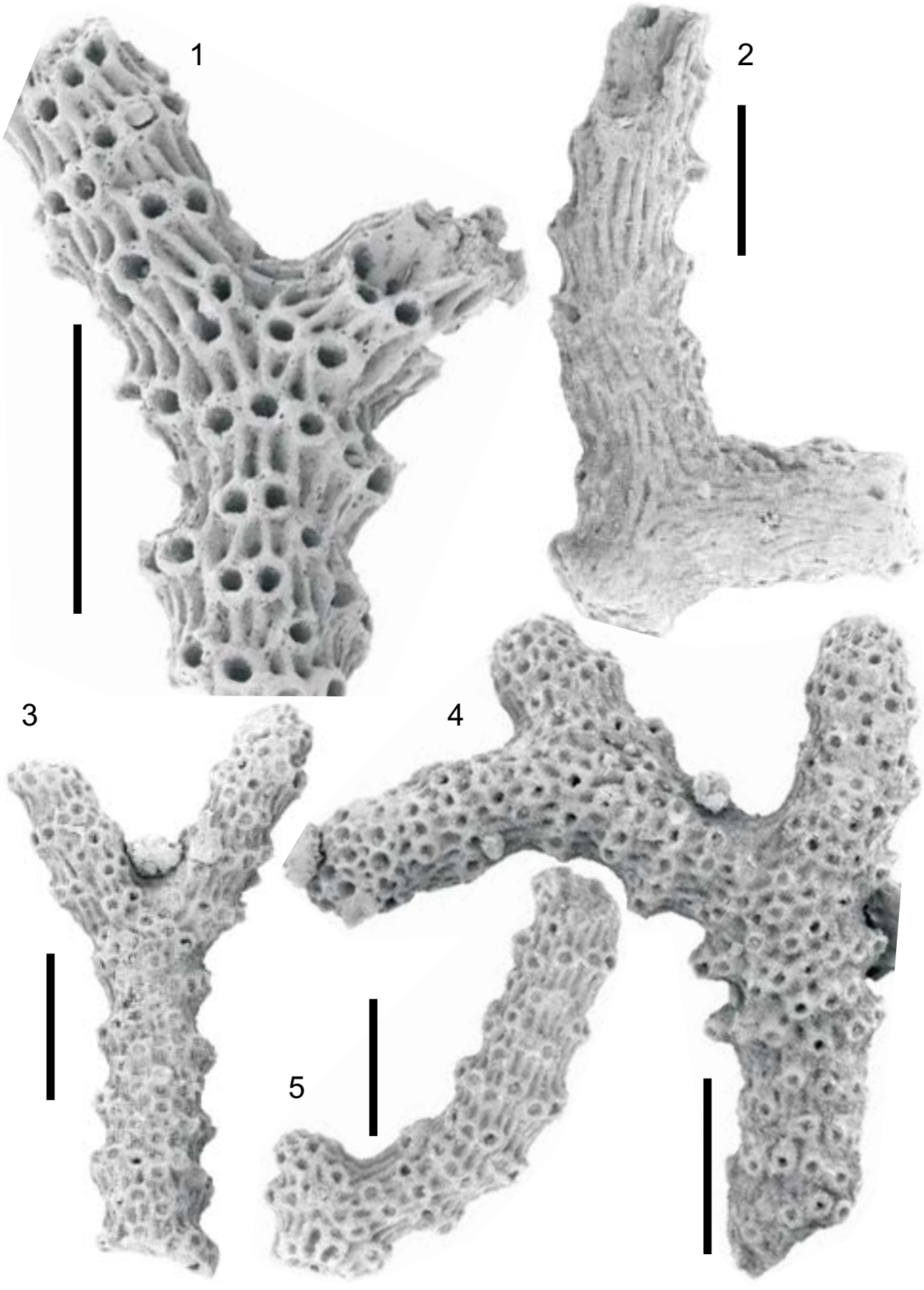
PLATE 28



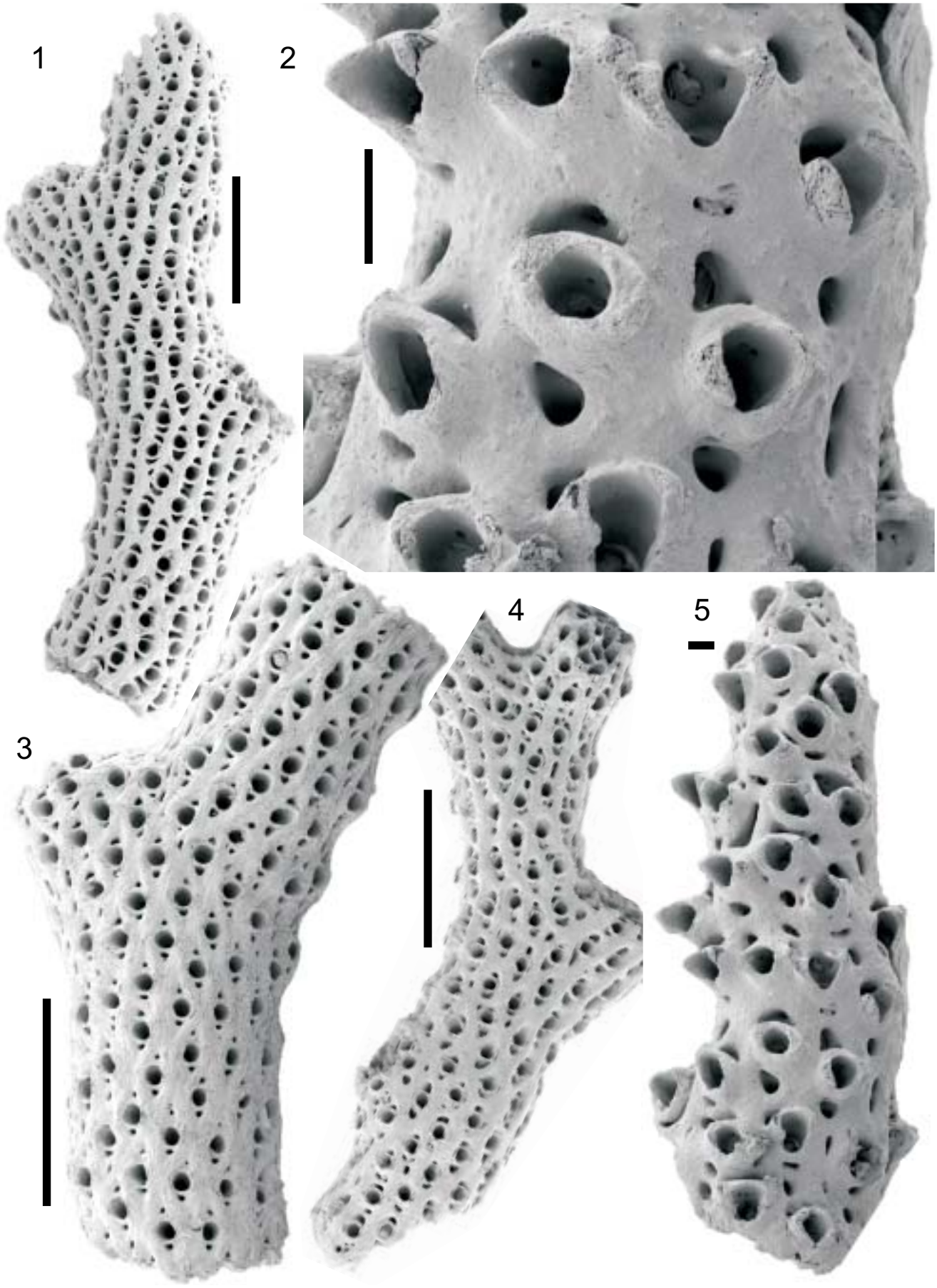

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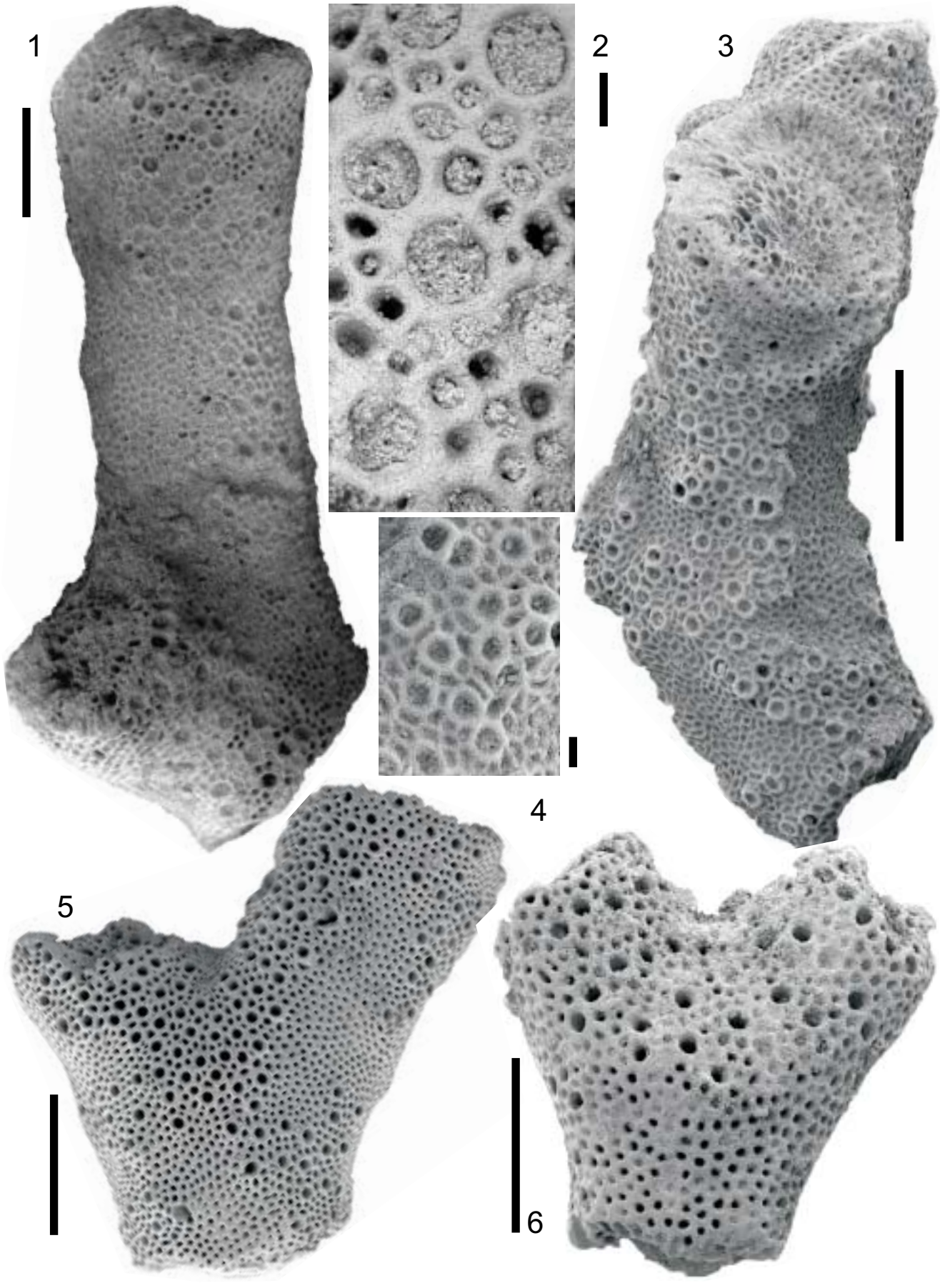
PLATE 30



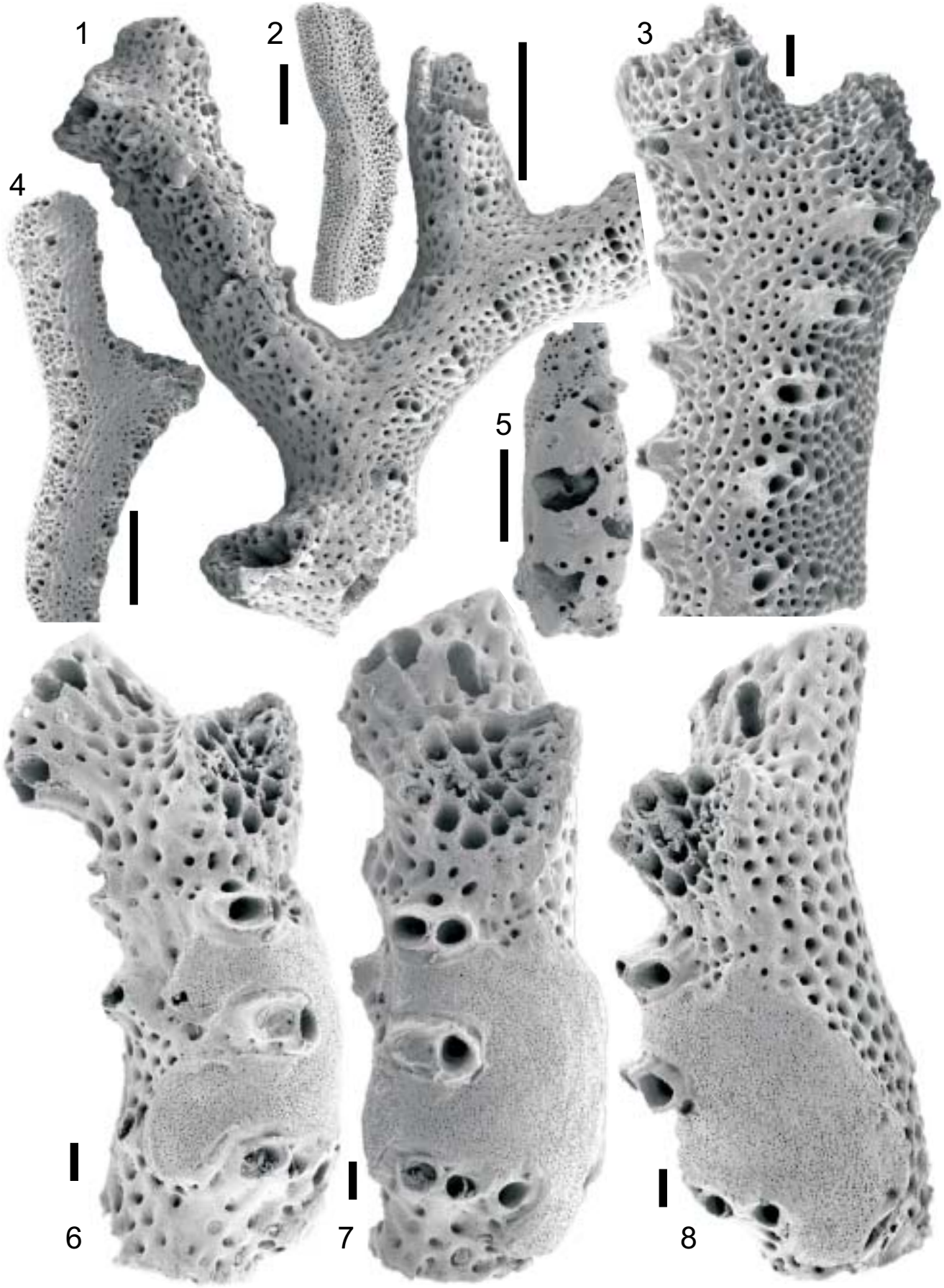

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PLATE 32

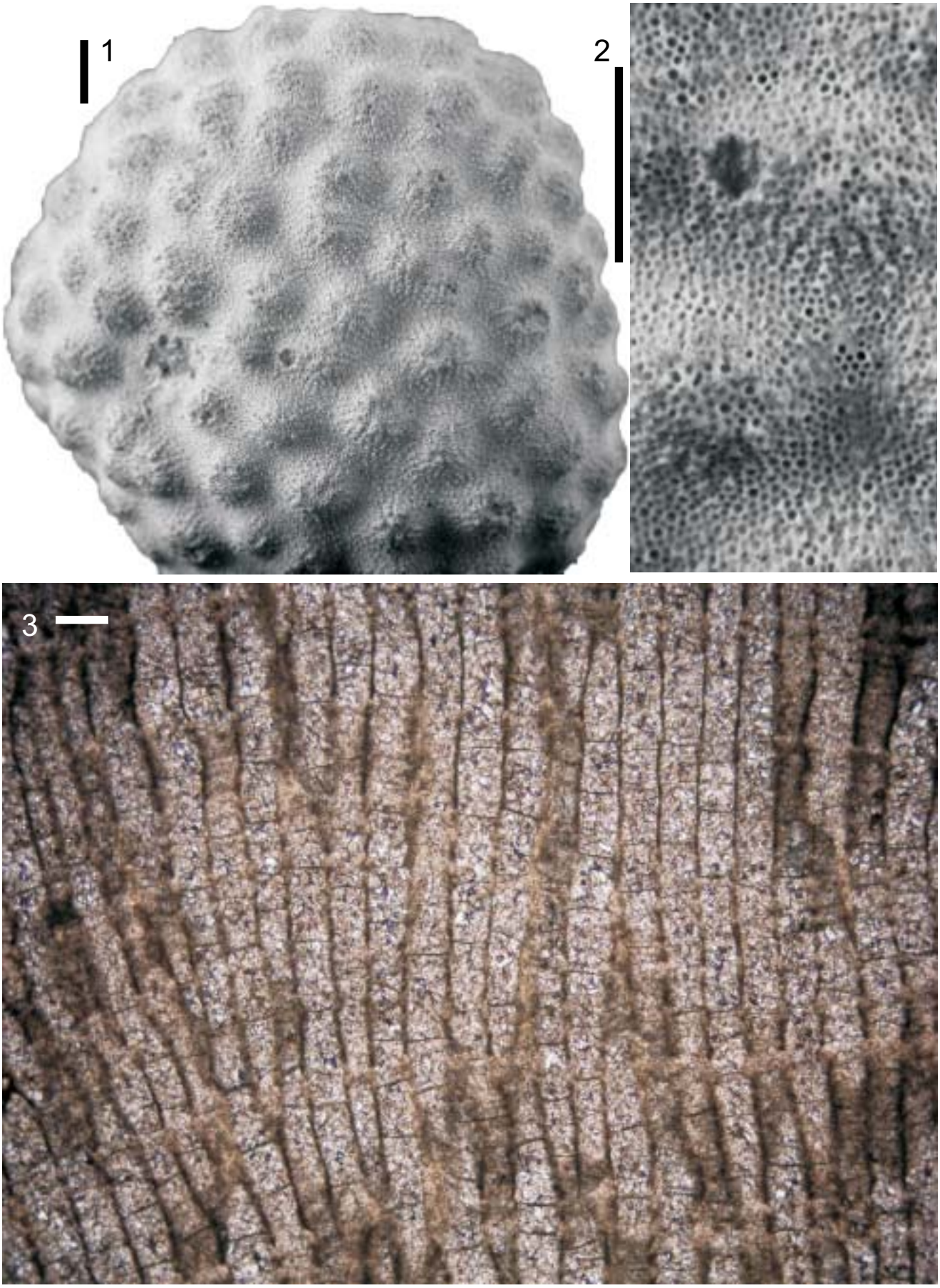


PLATE 33

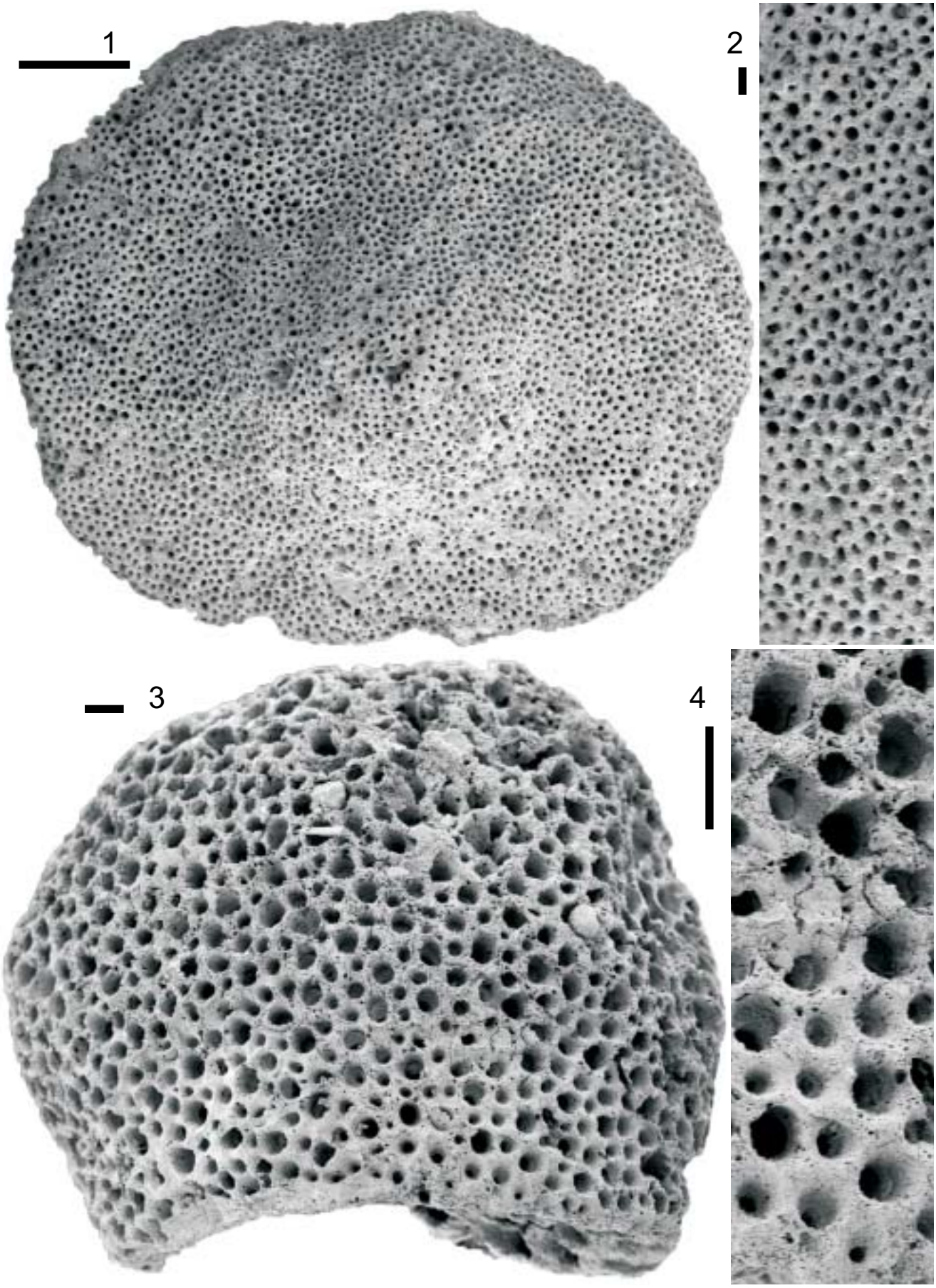
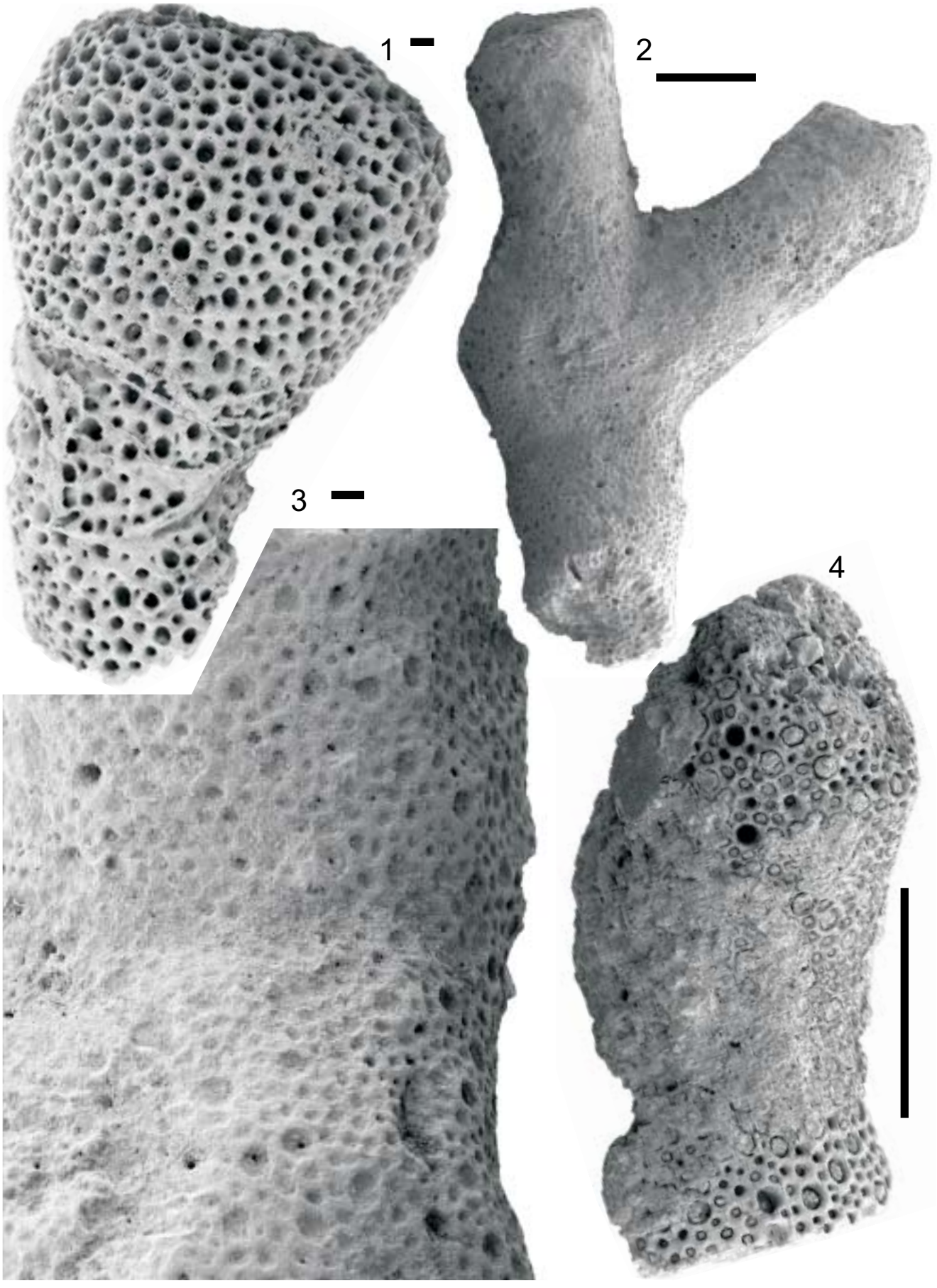
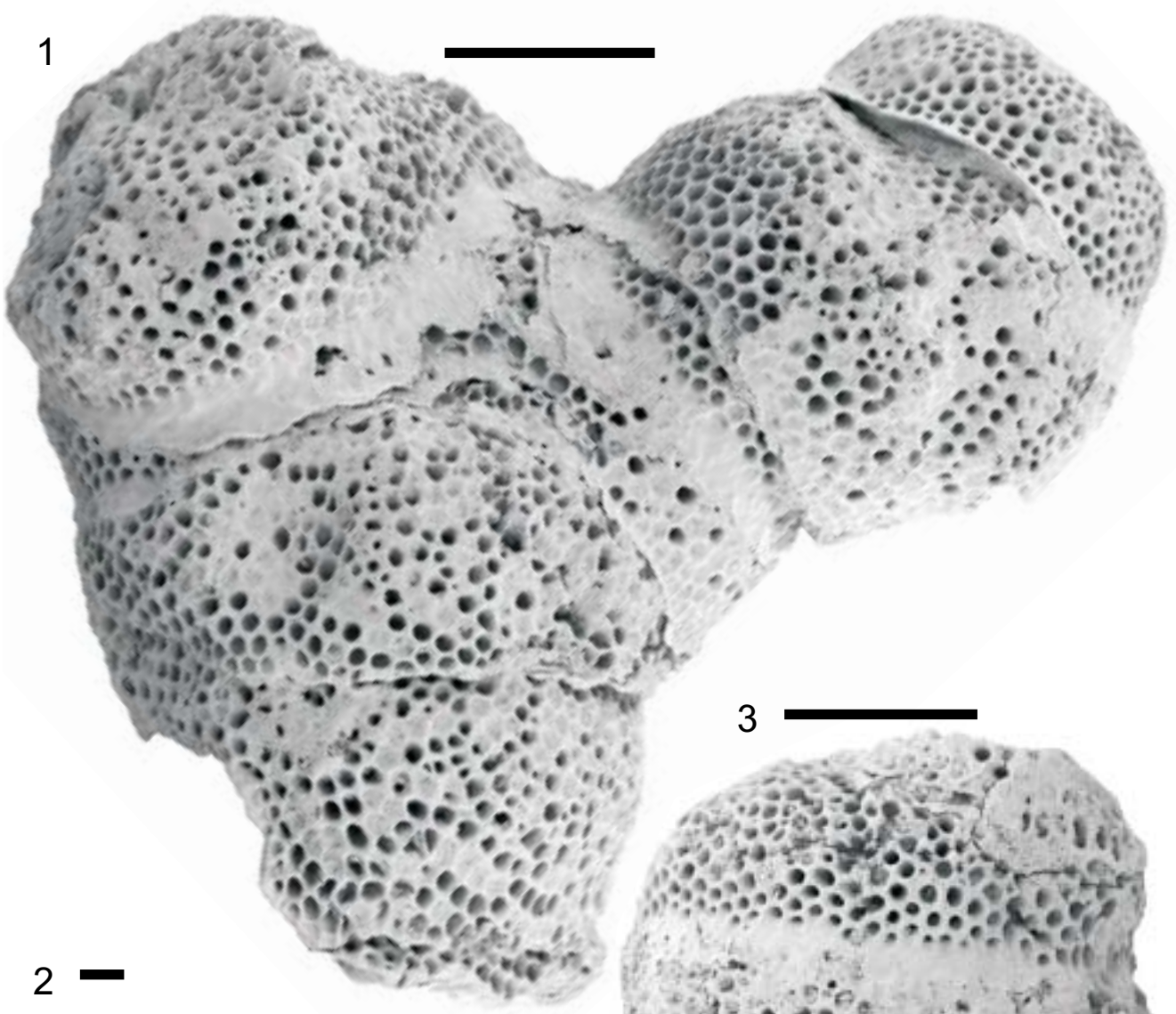


PLATE 34

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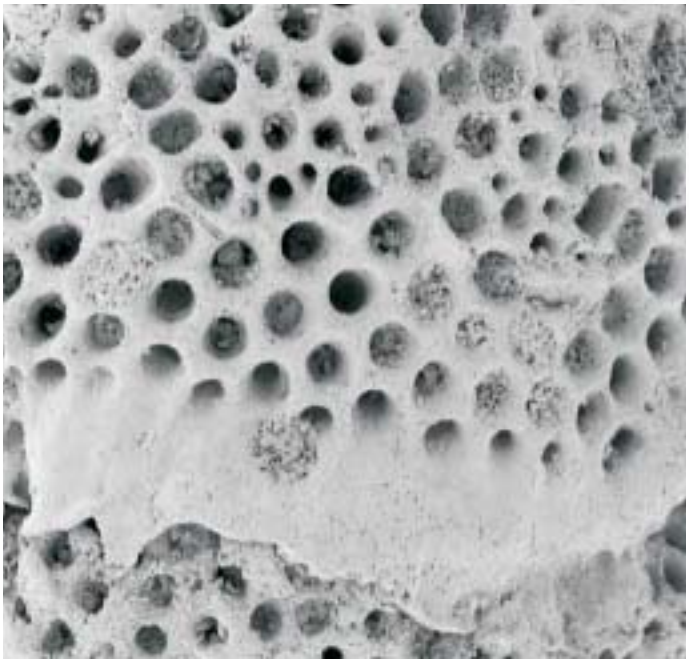
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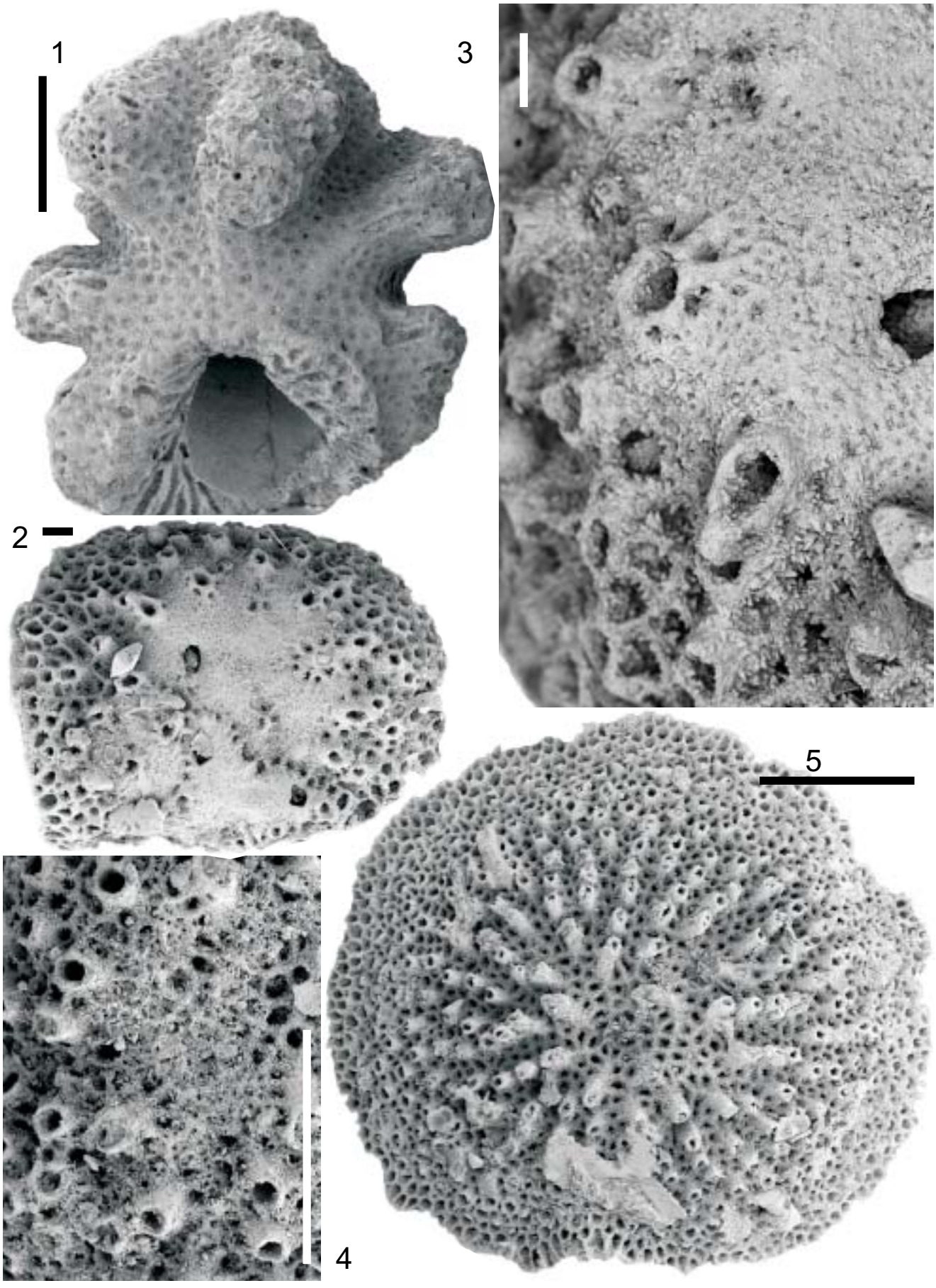
PLATE 36



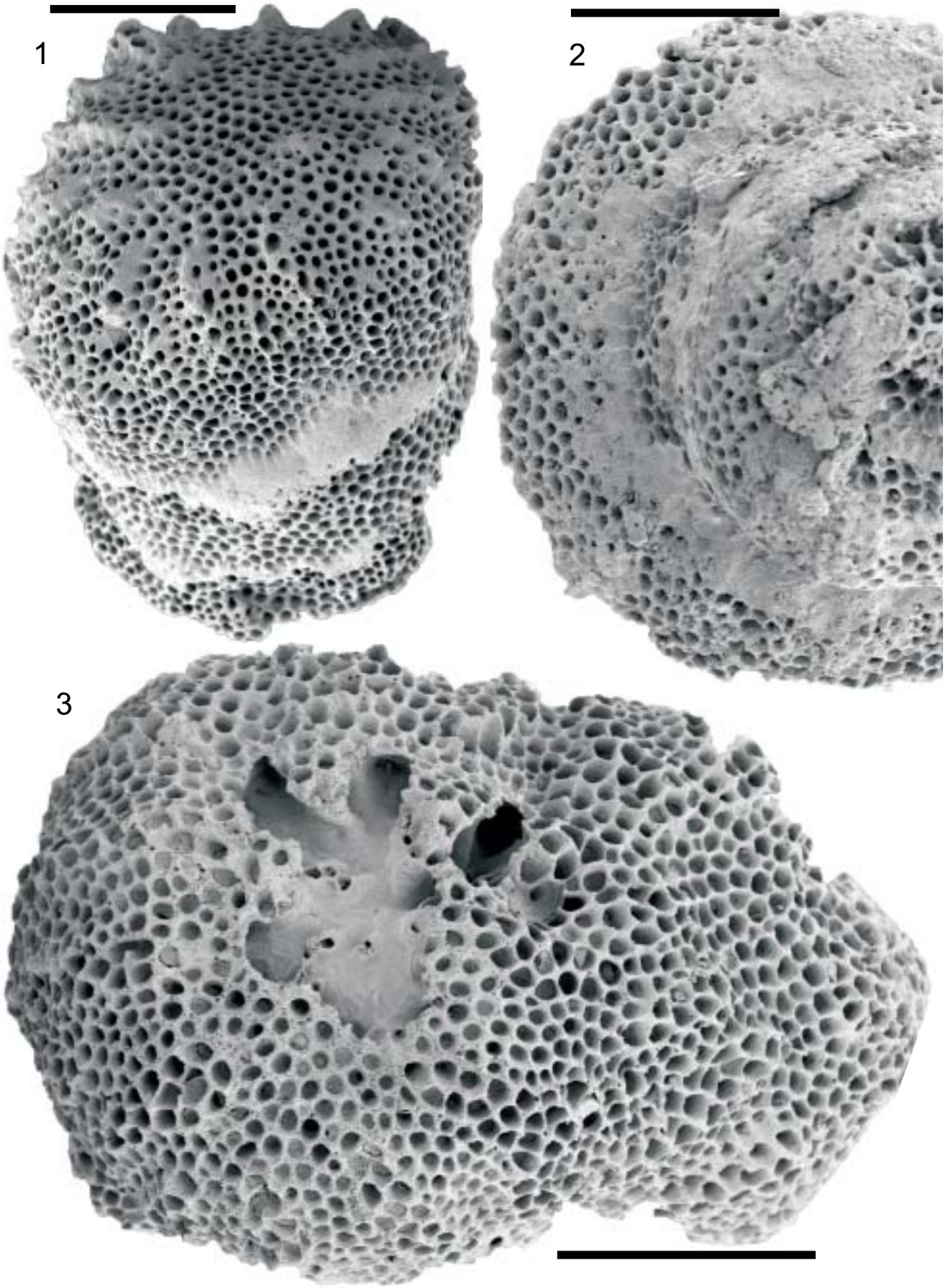

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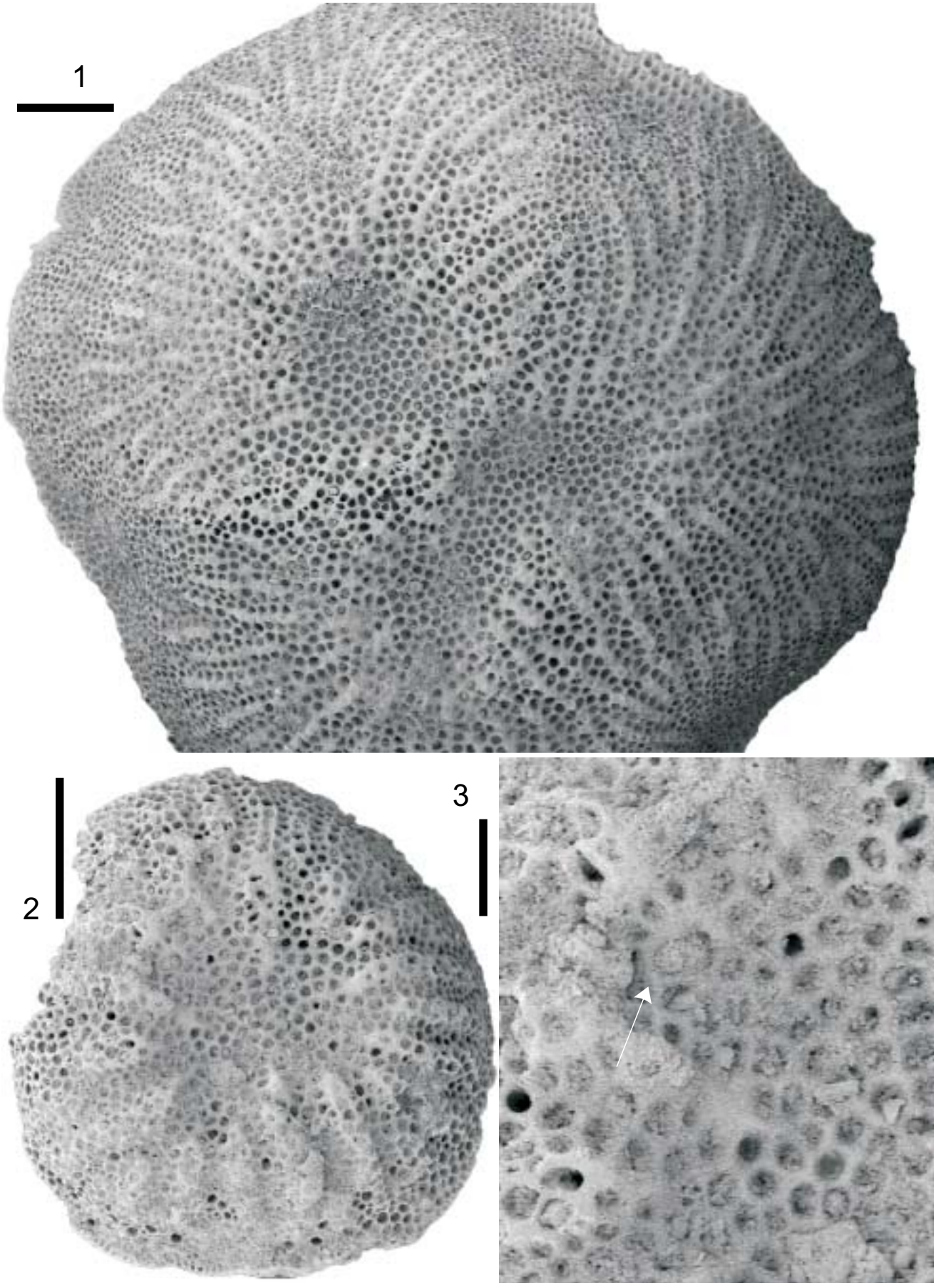
PLATE 38



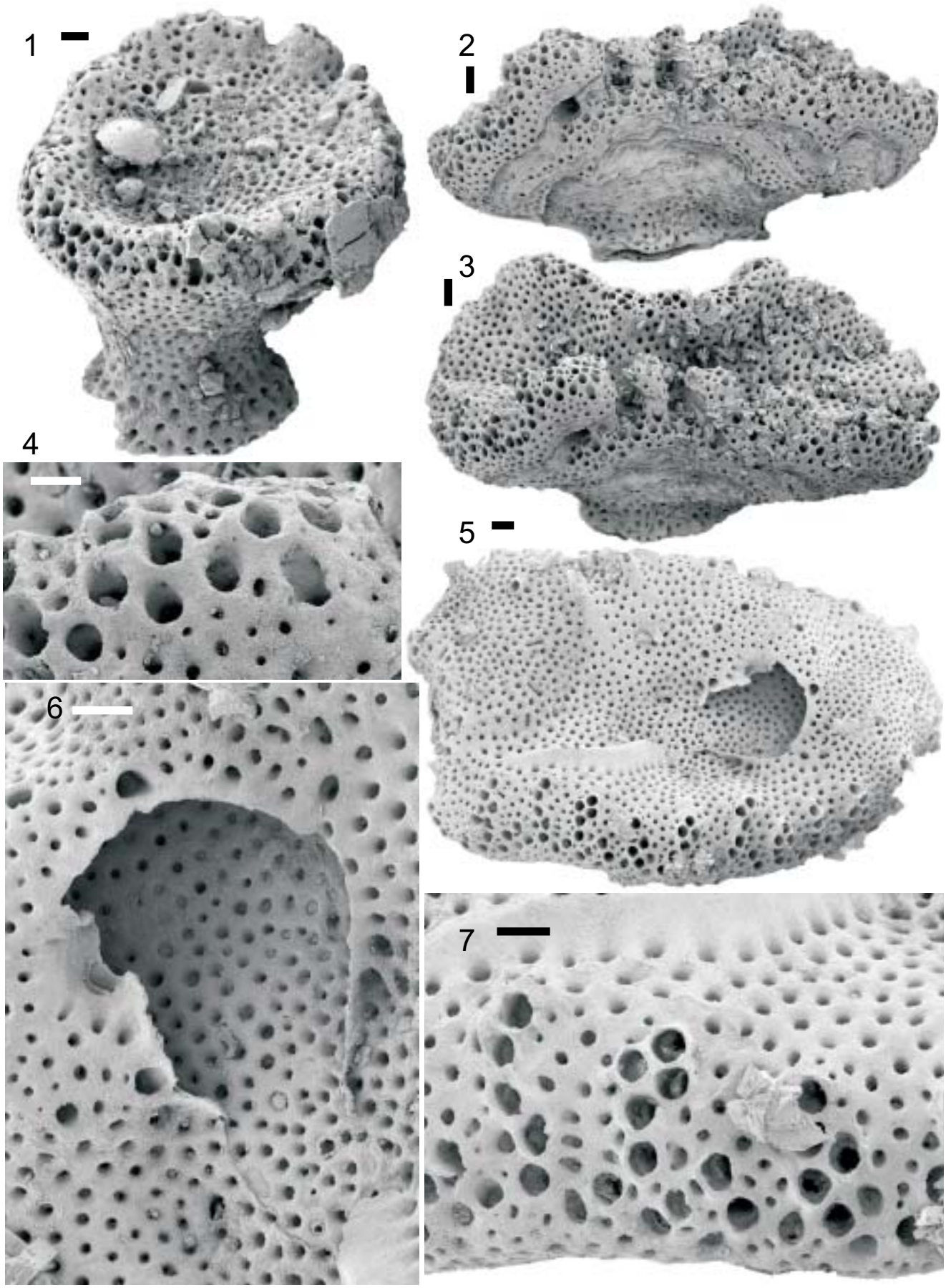

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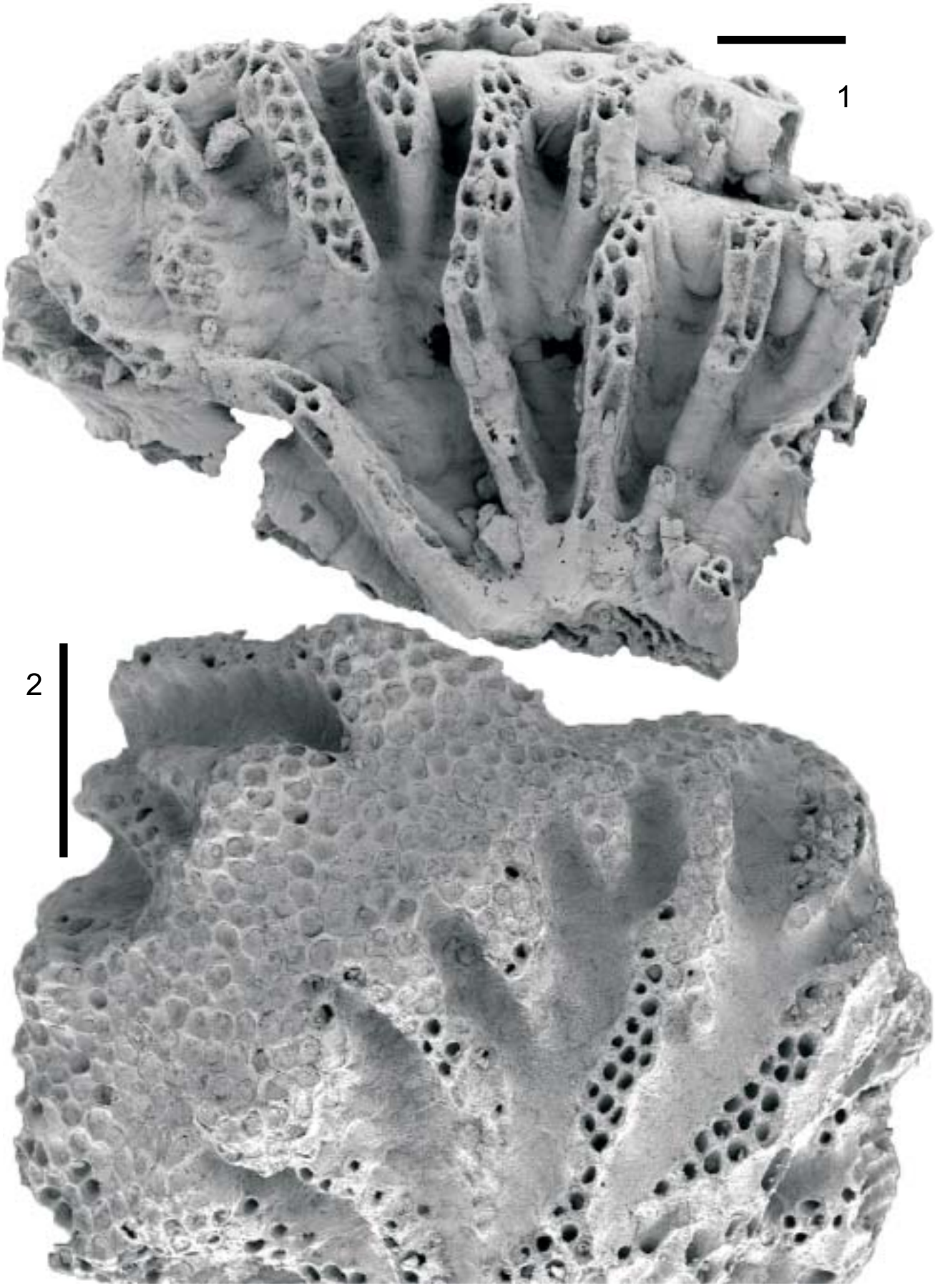
PLATE 40



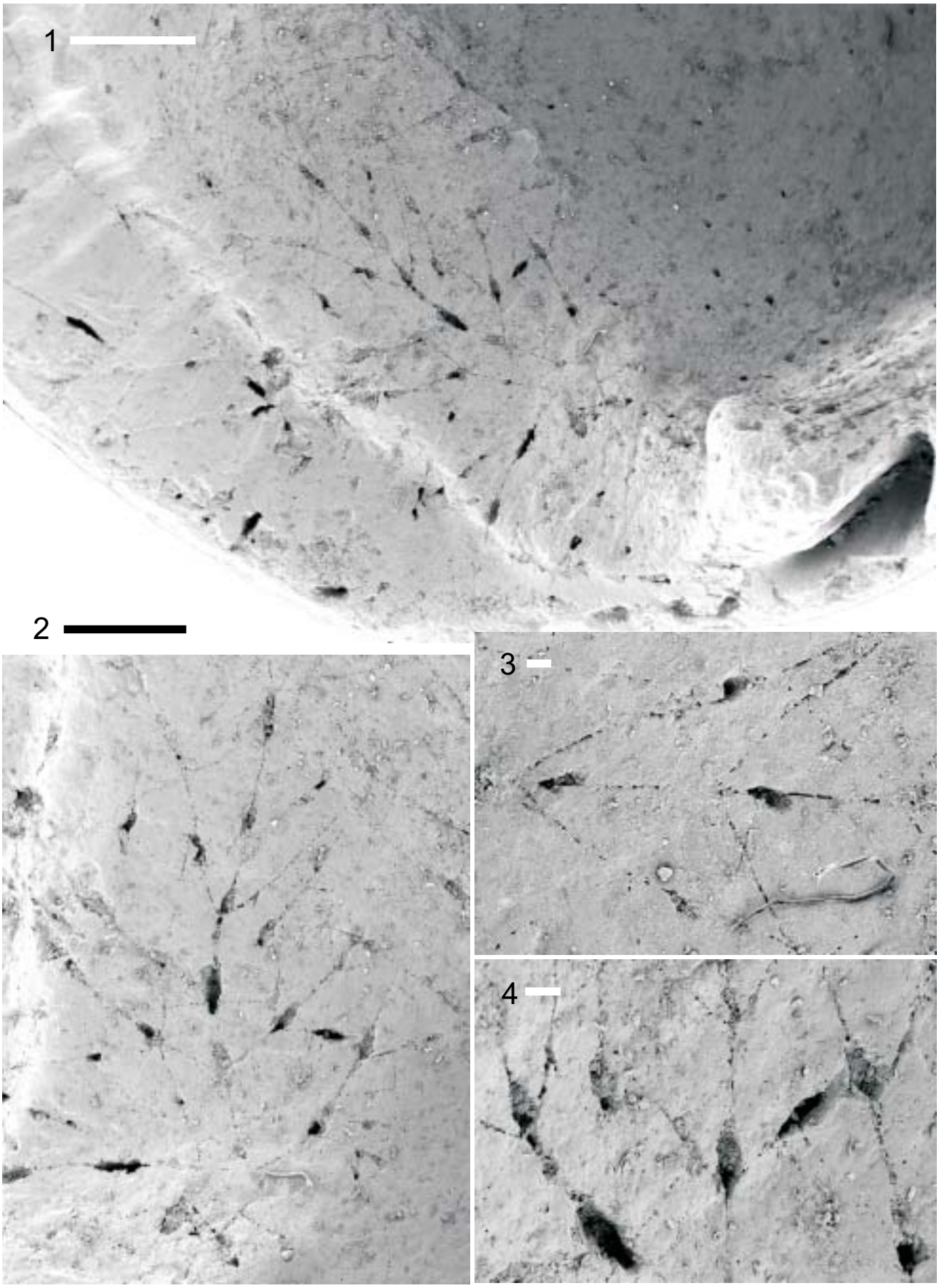

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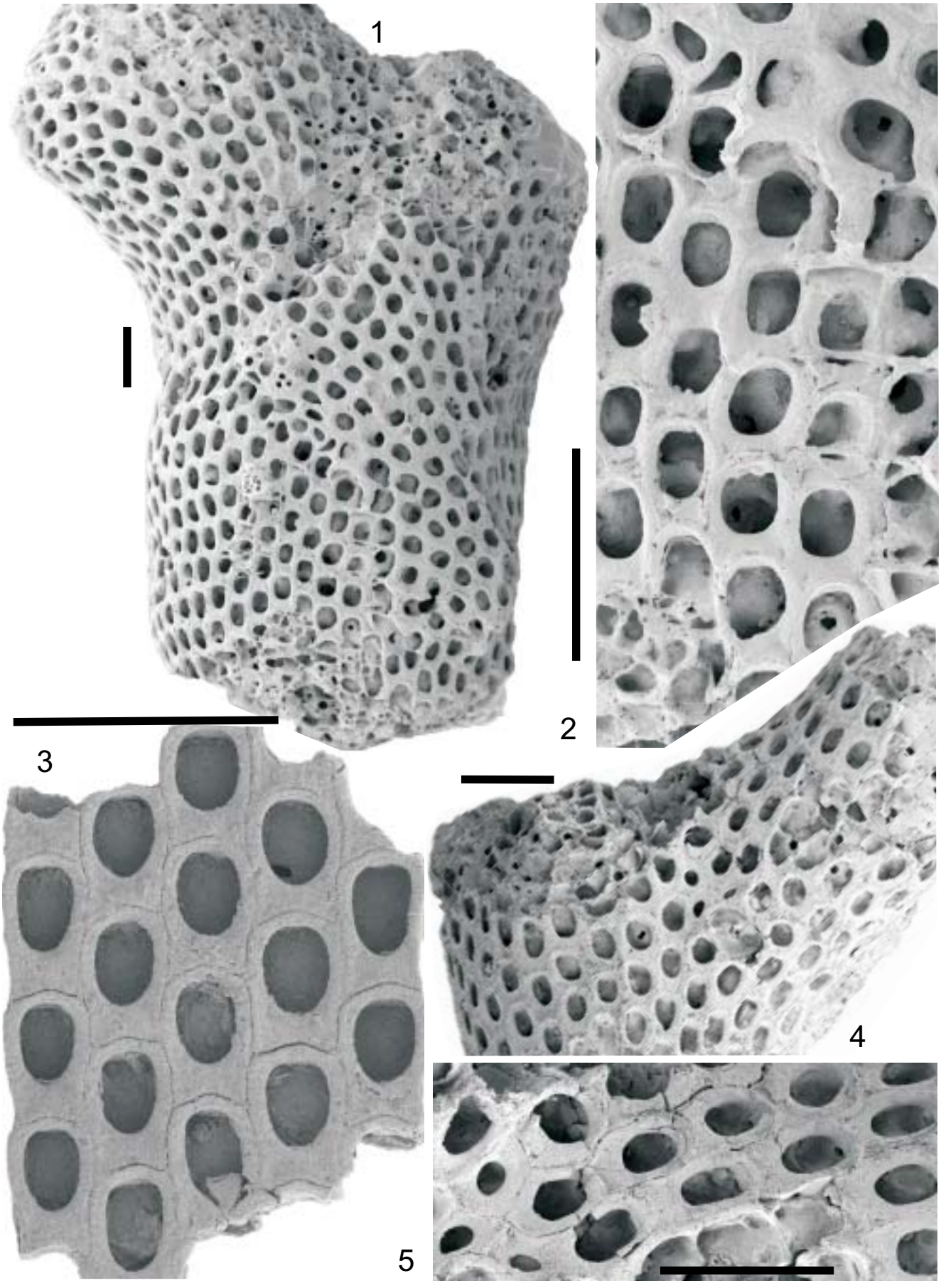
PLATE 42



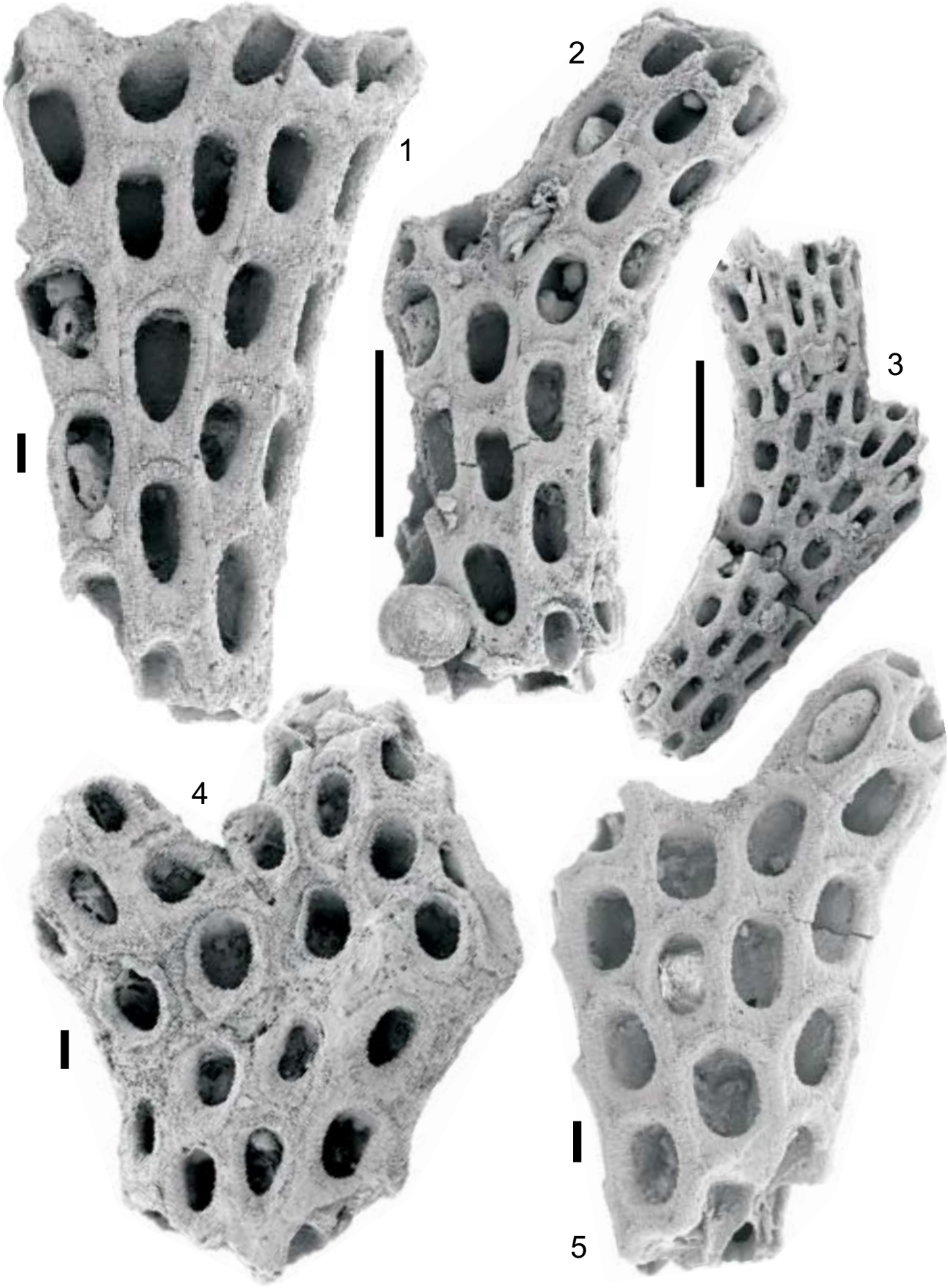

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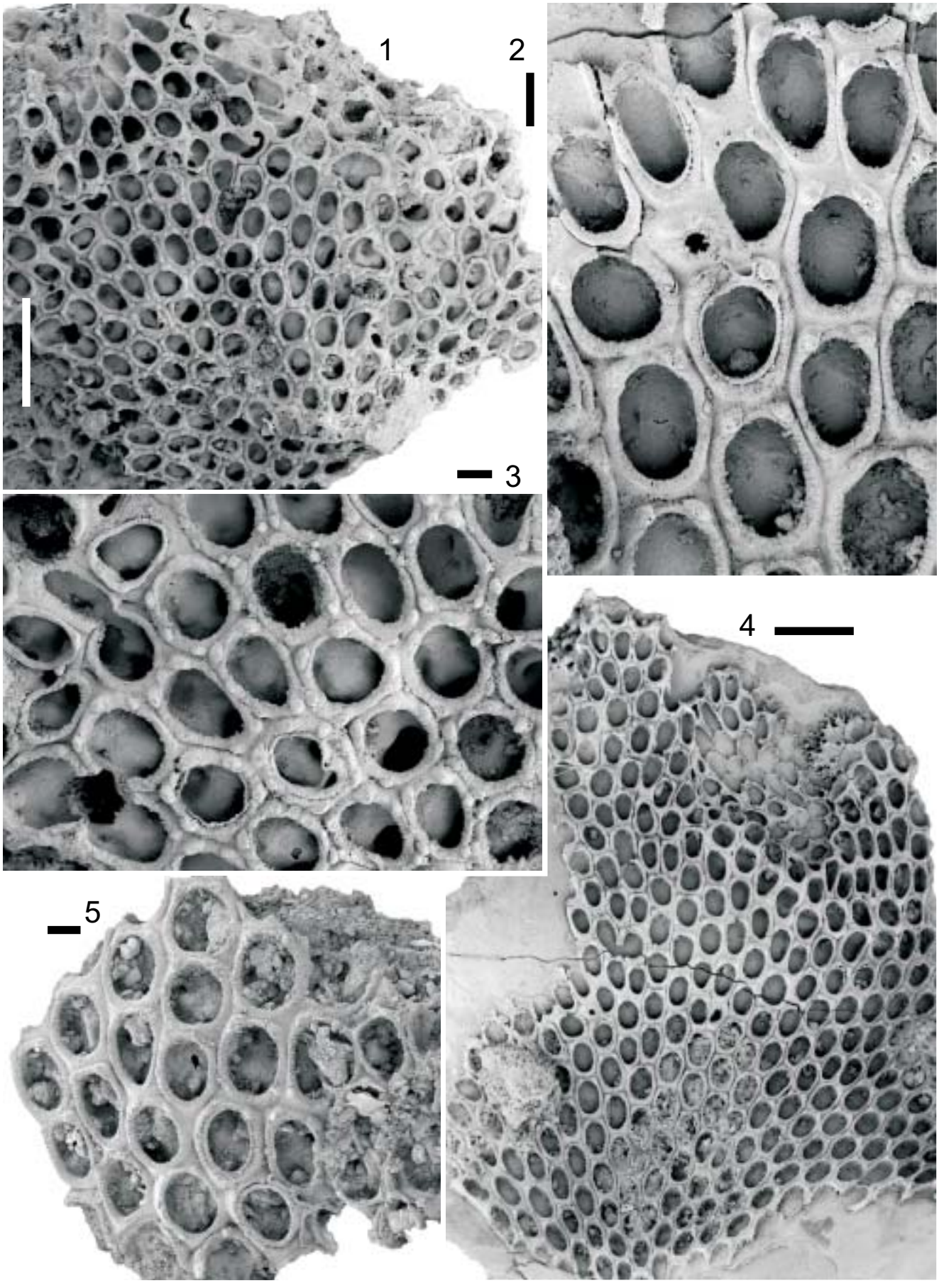
PLATE 44



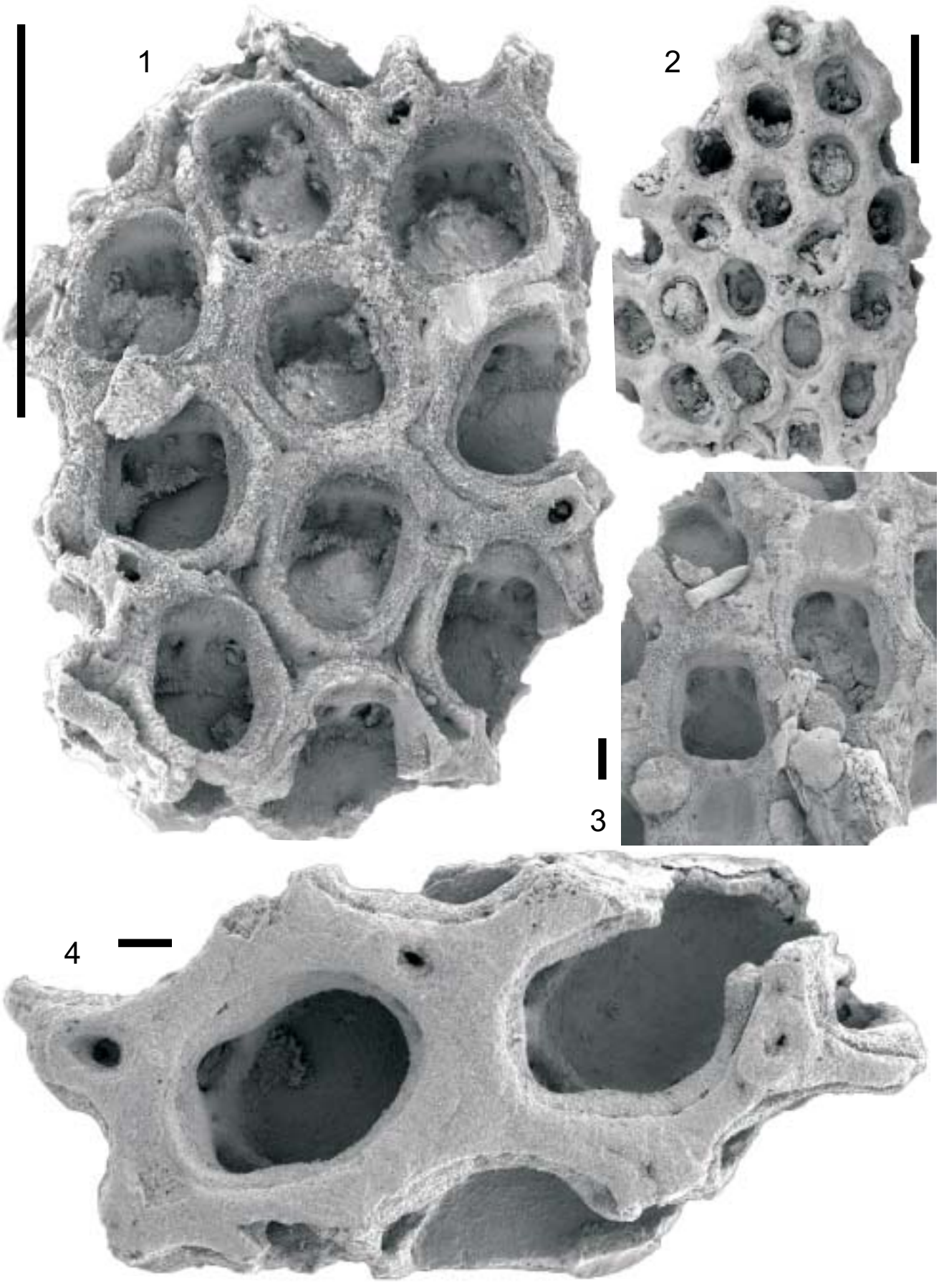

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PLATE 46

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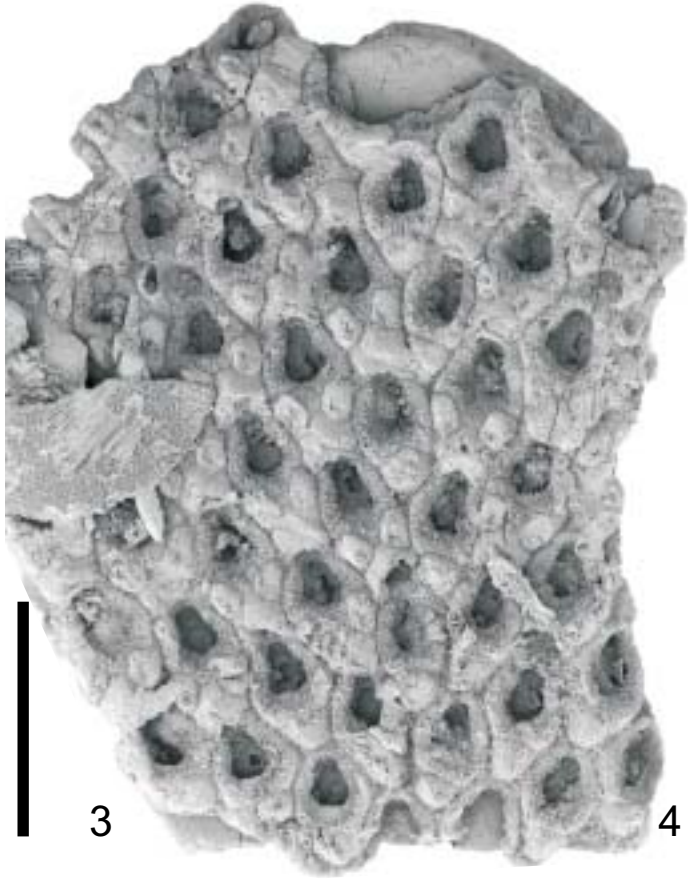

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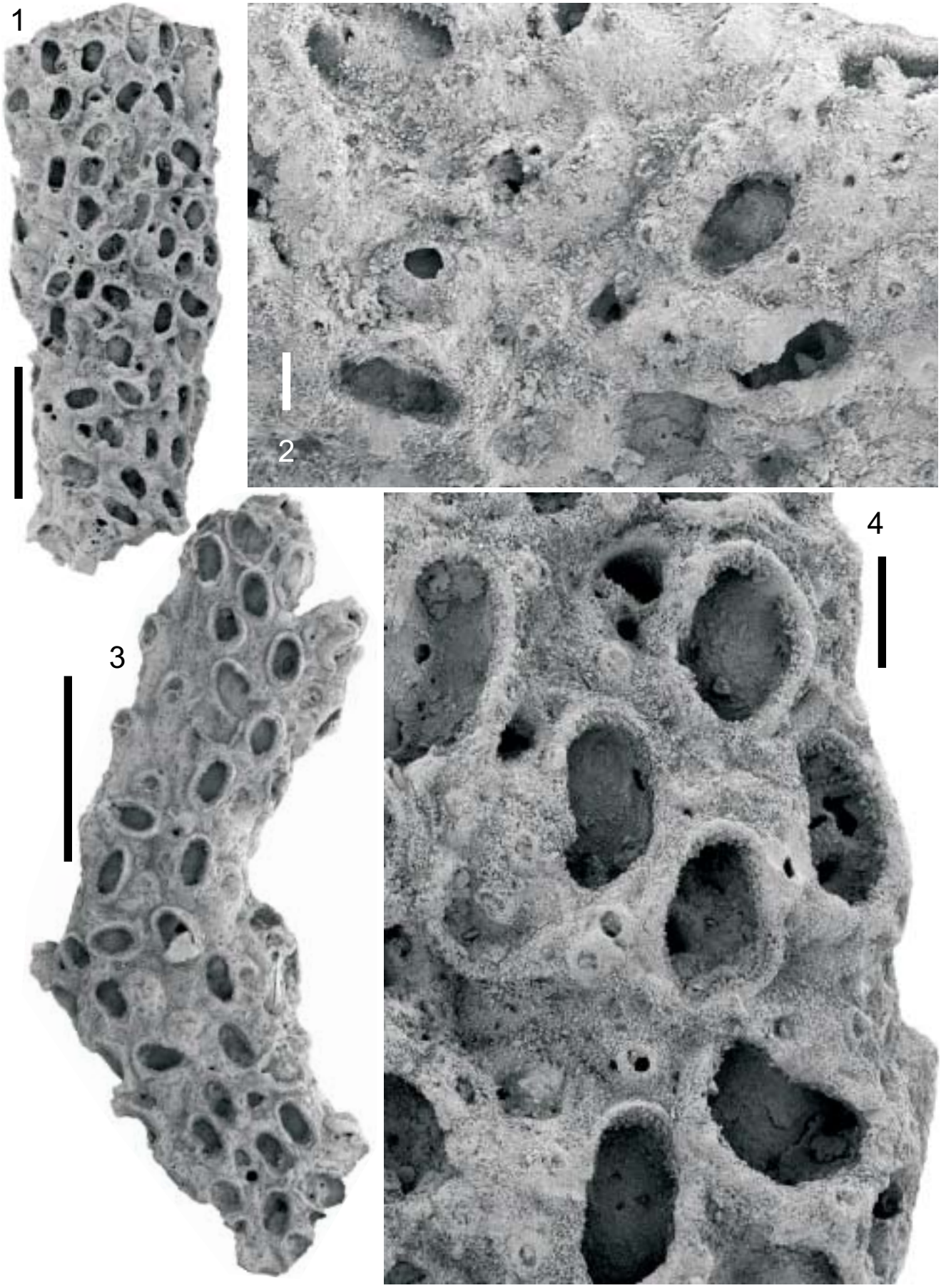
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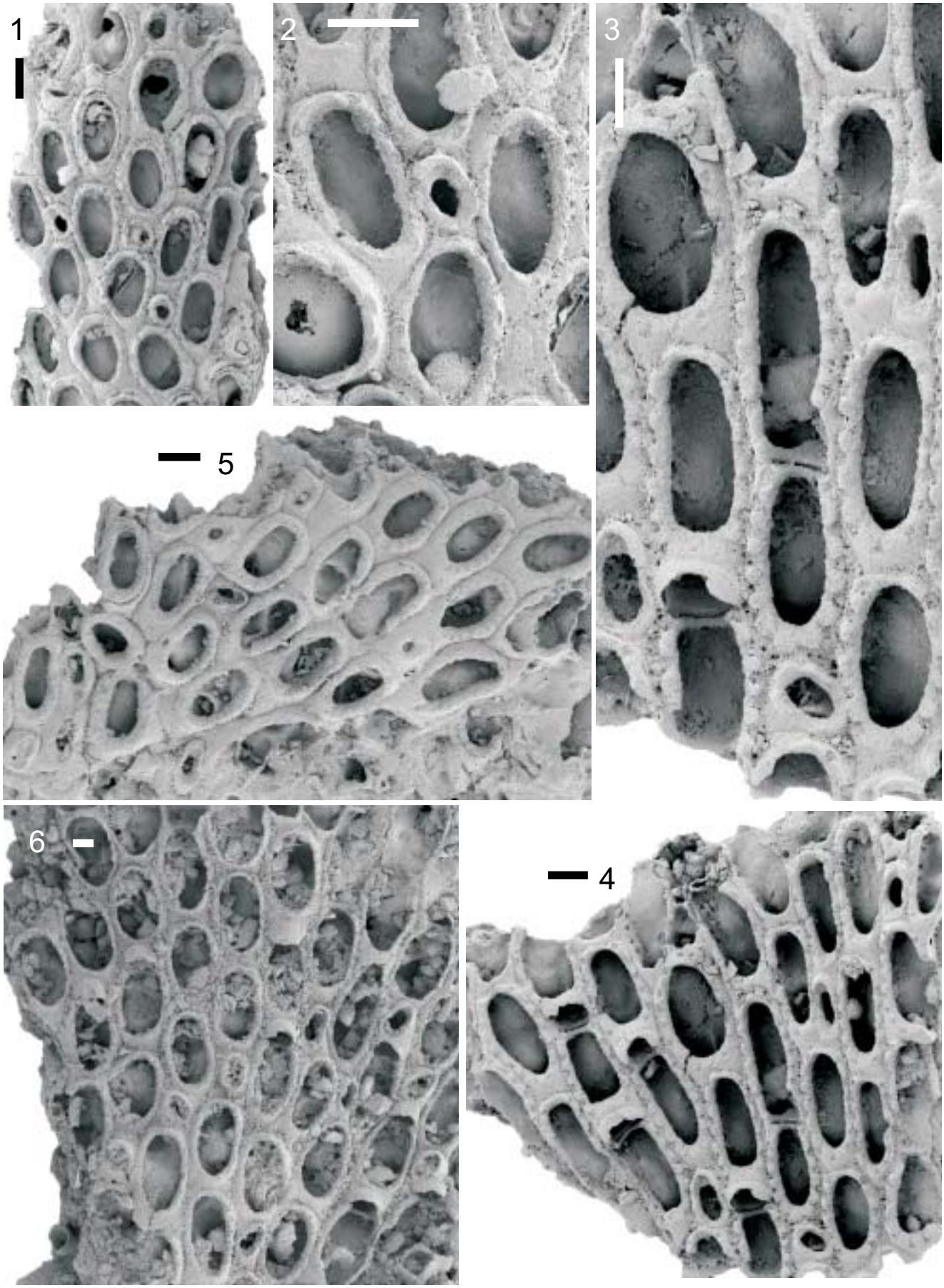
PLATE 48



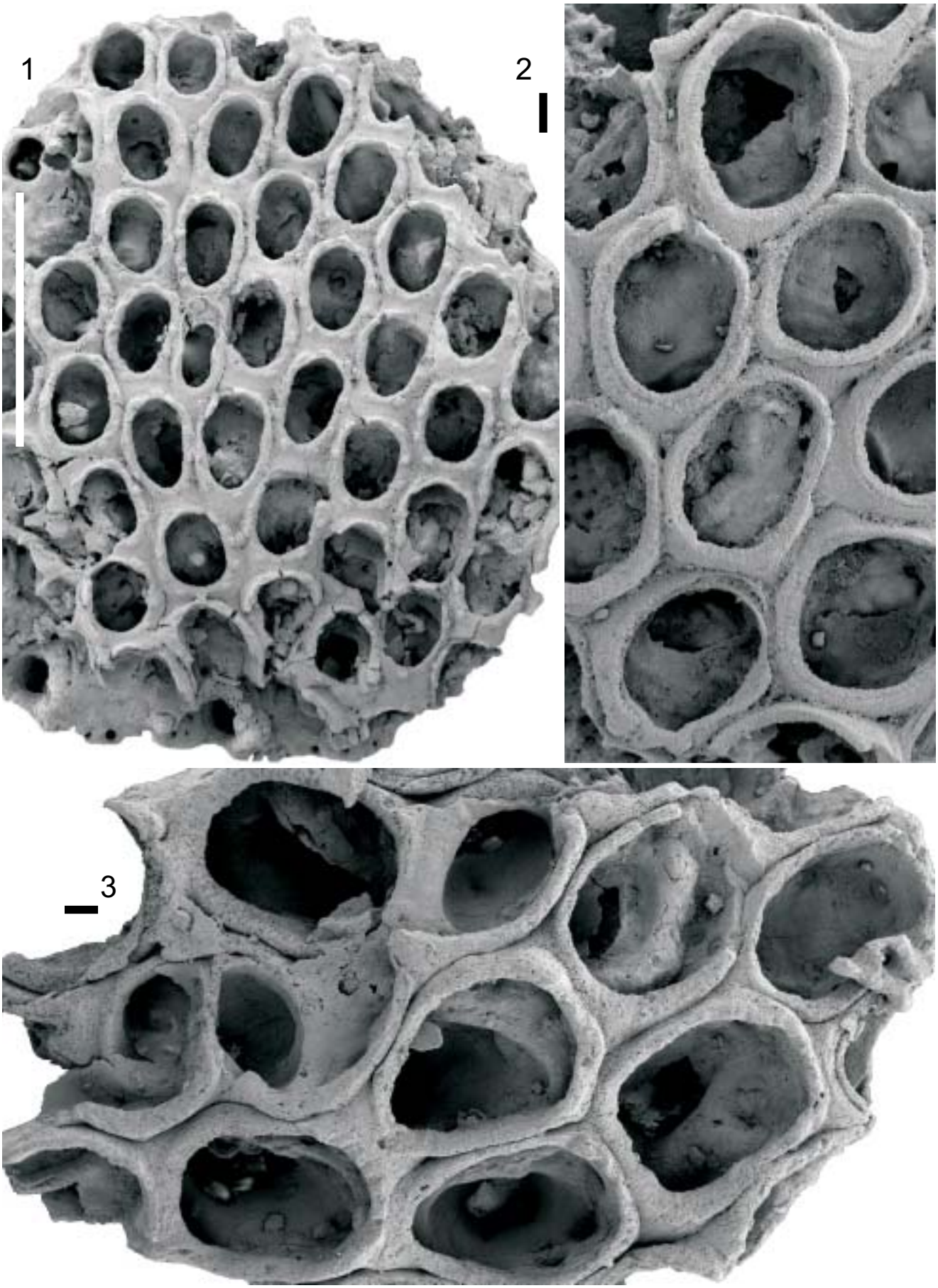

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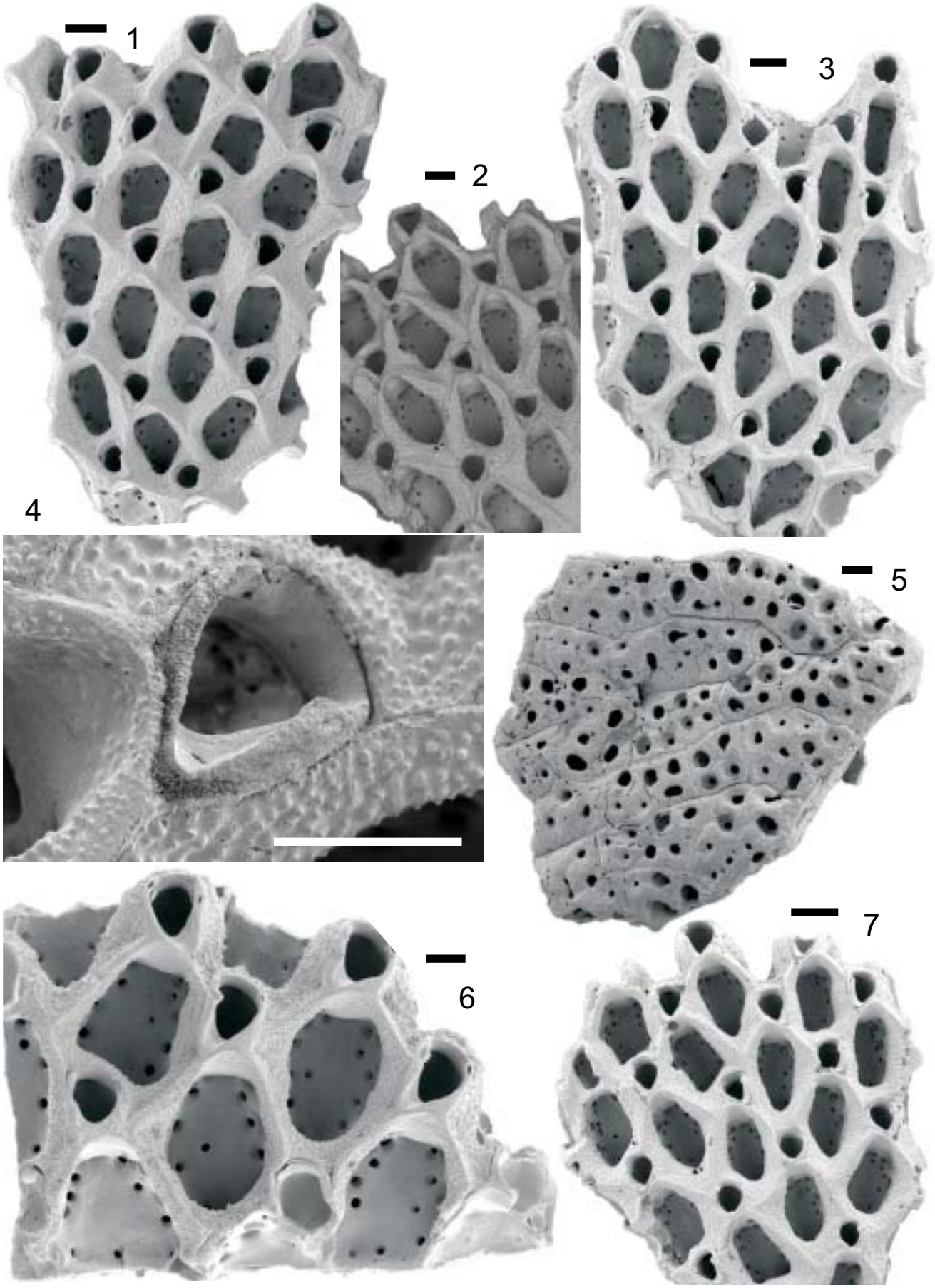
PLATE 50



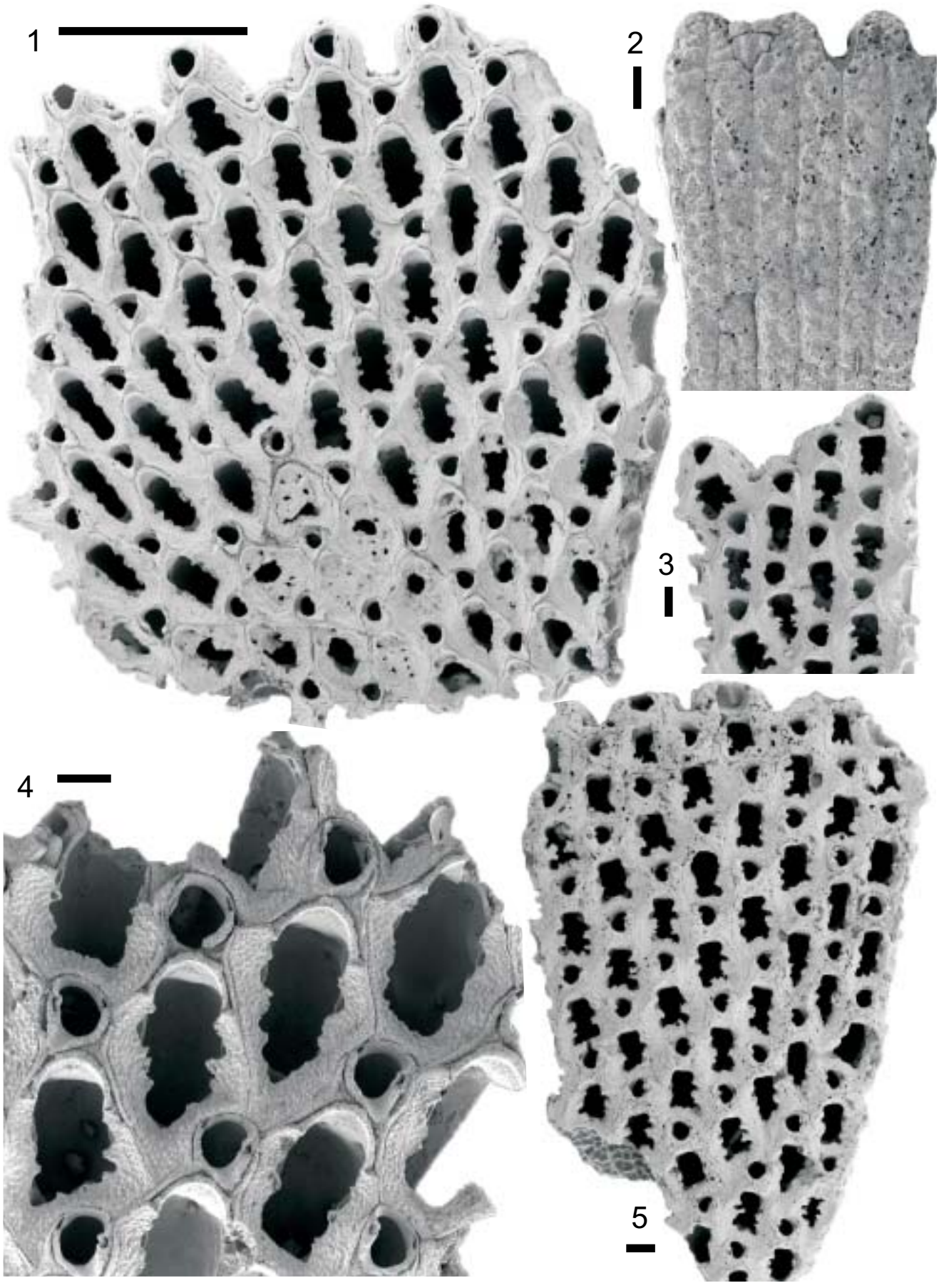

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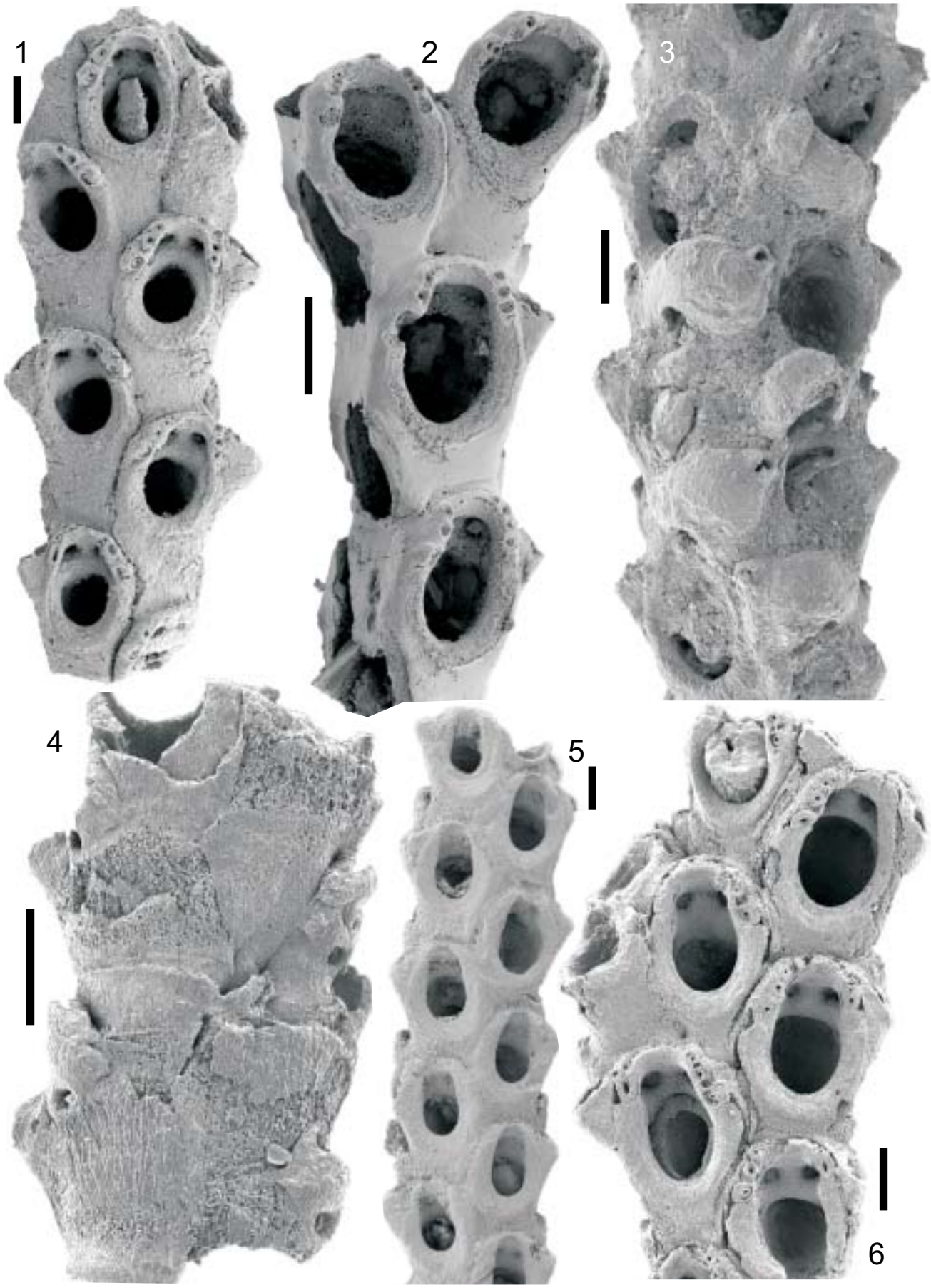
PLATE 52



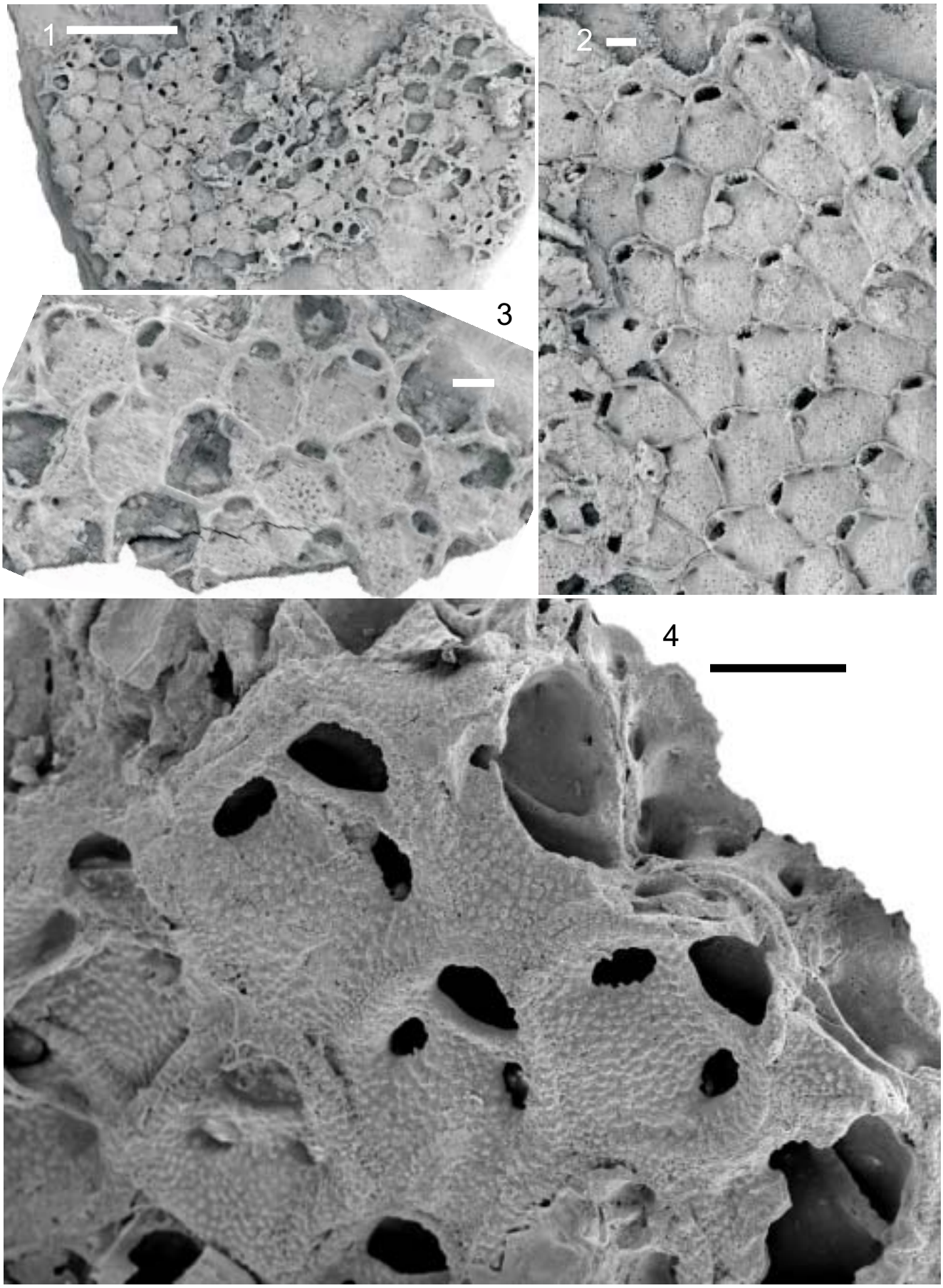

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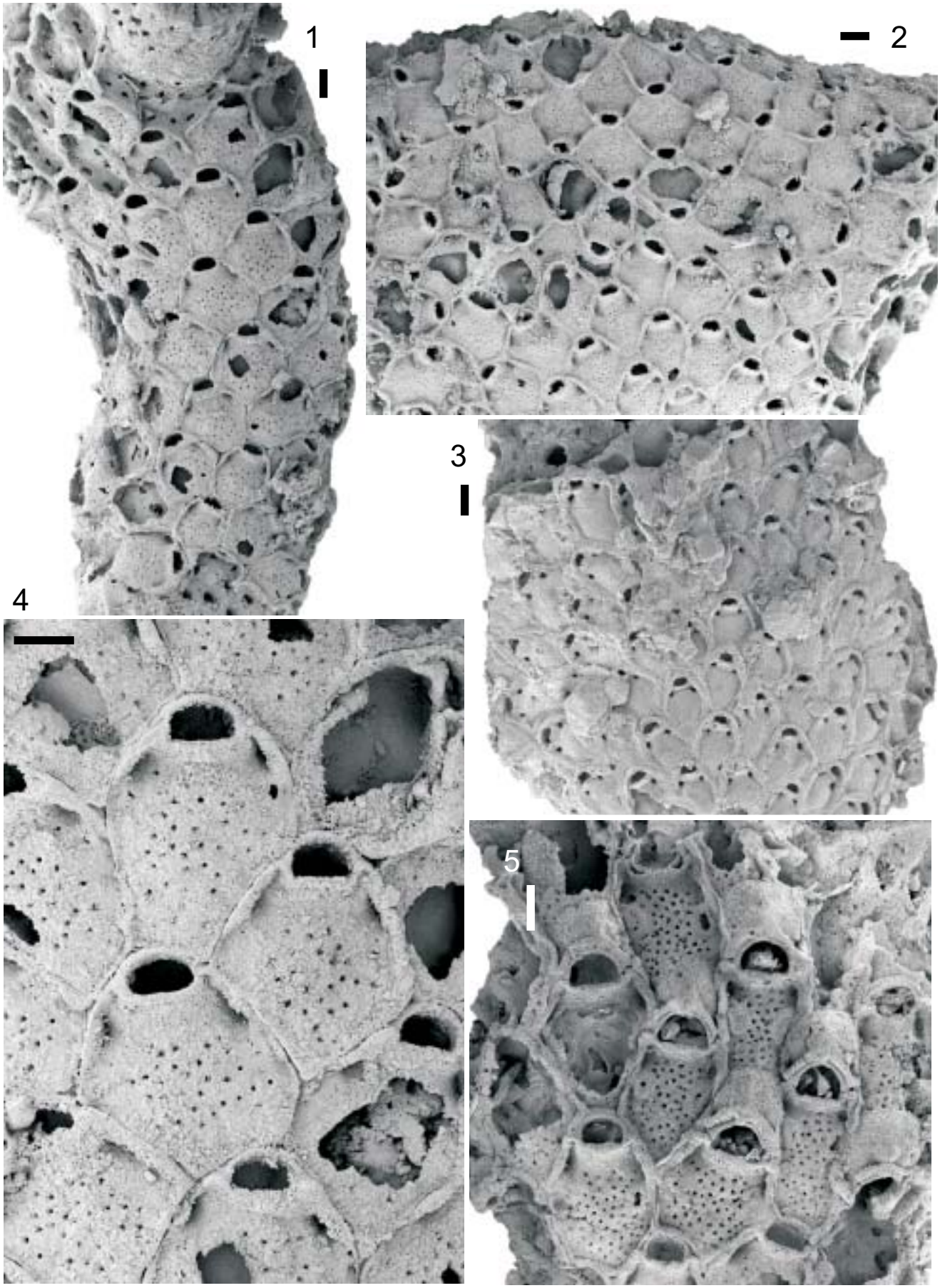
PLATE 54



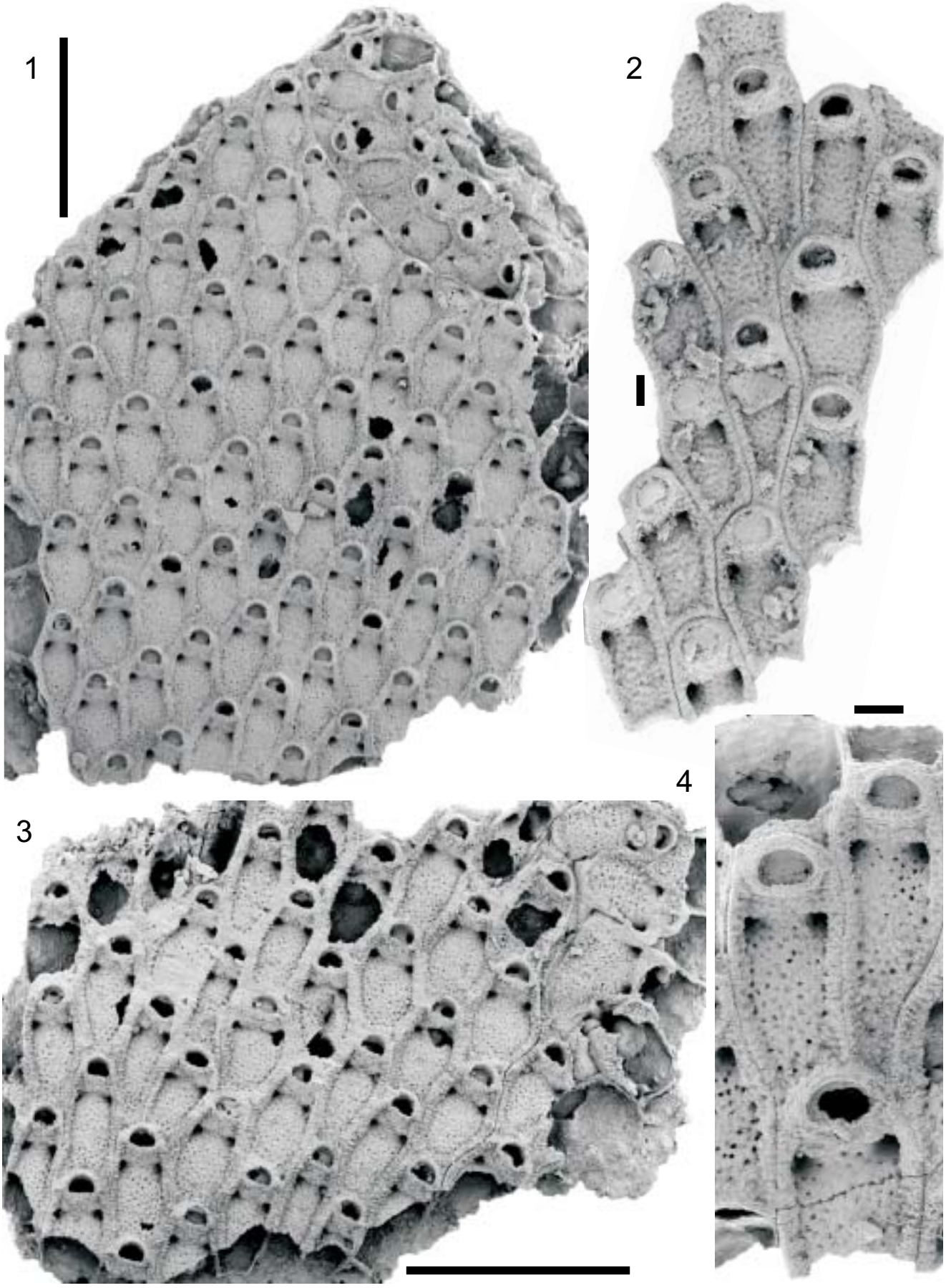

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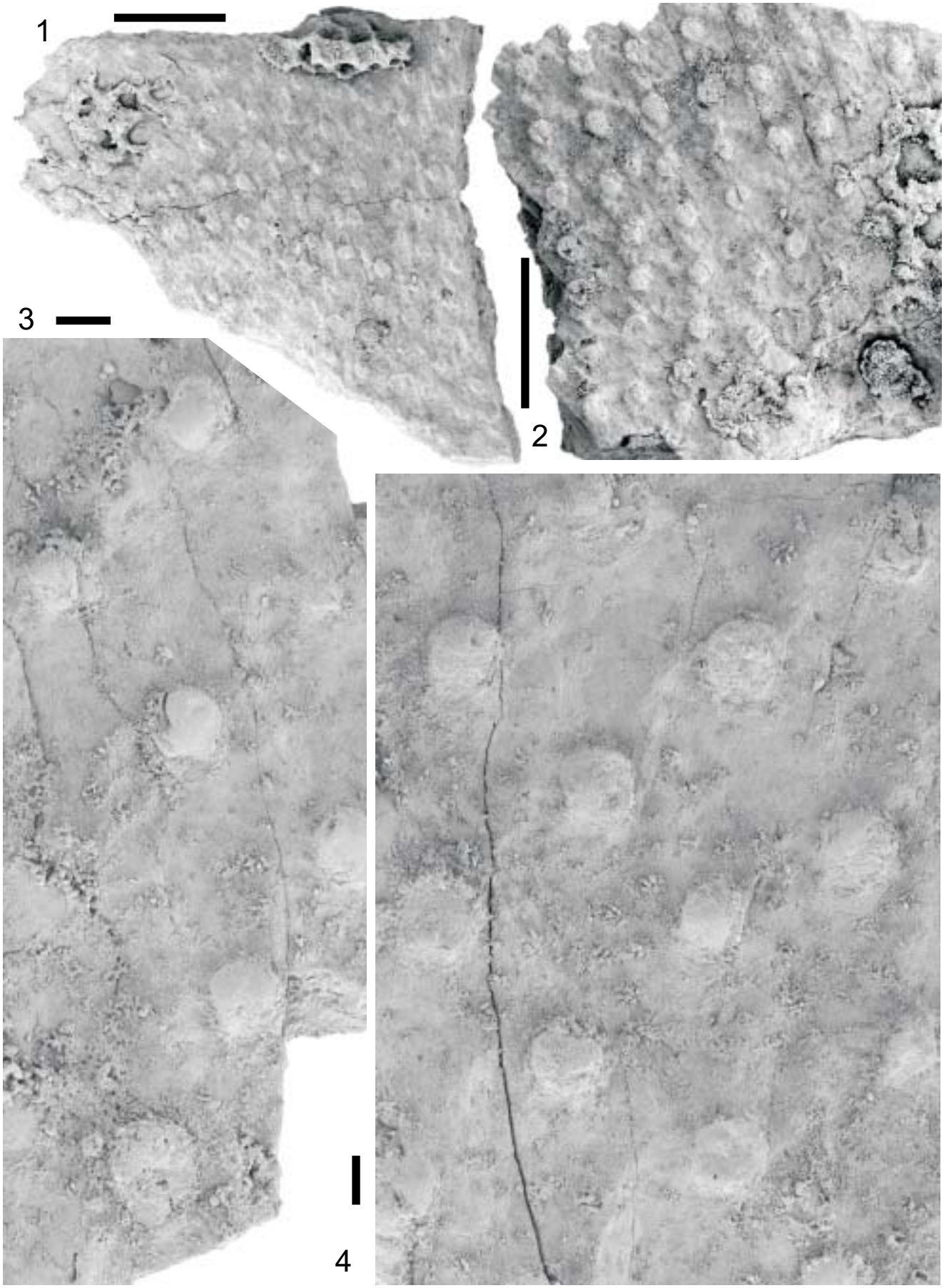
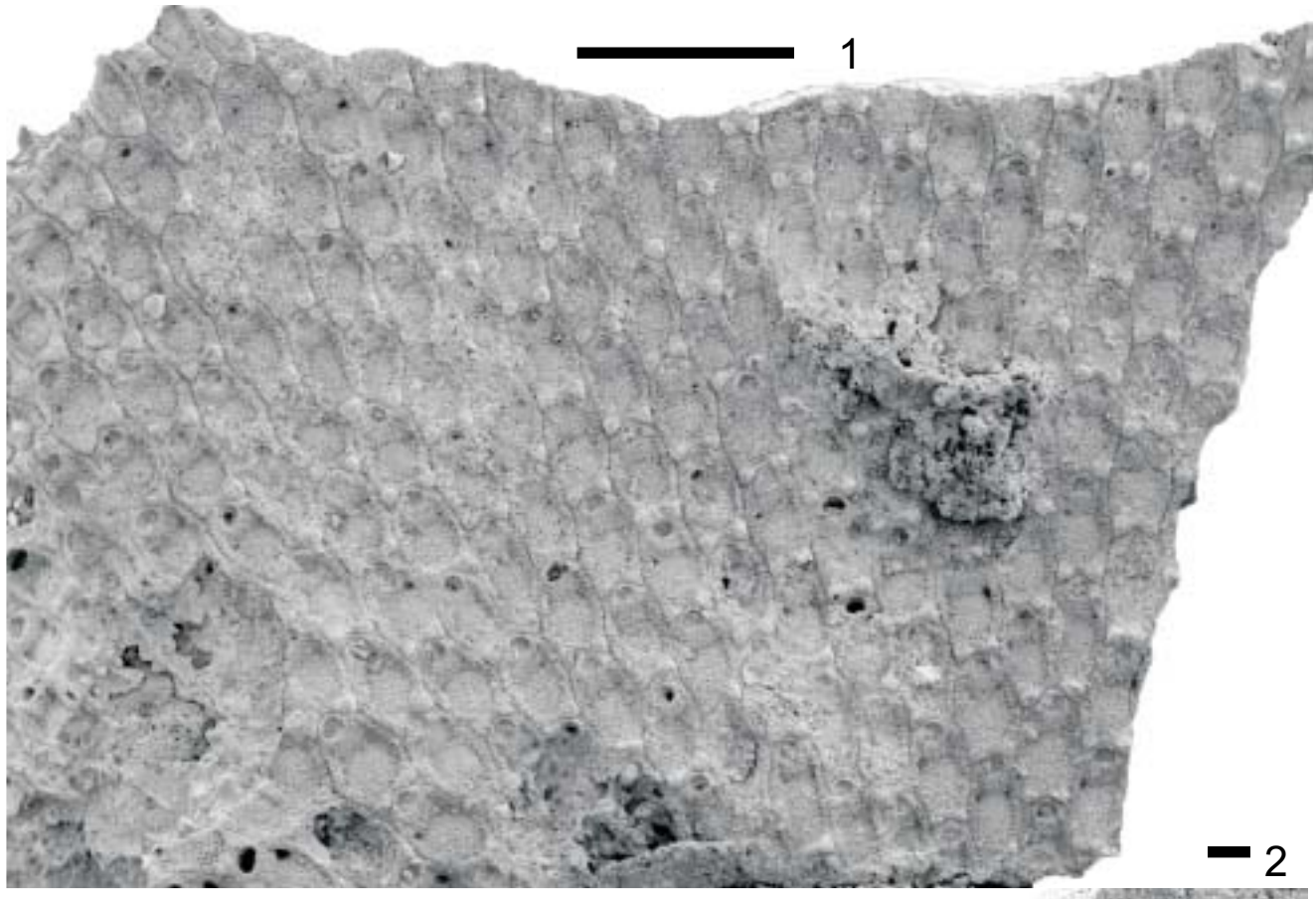
PLATE 56

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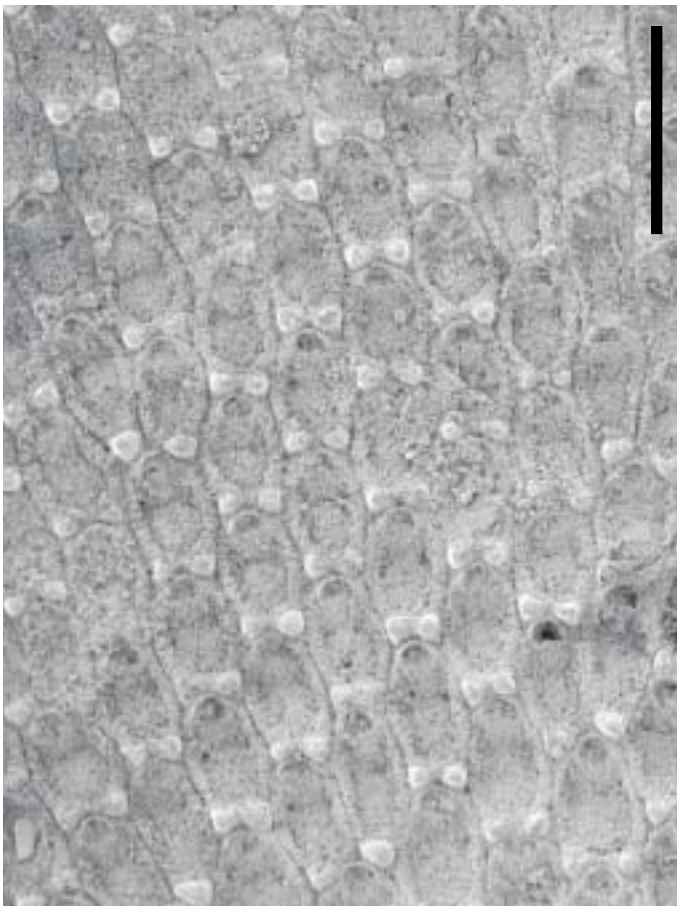
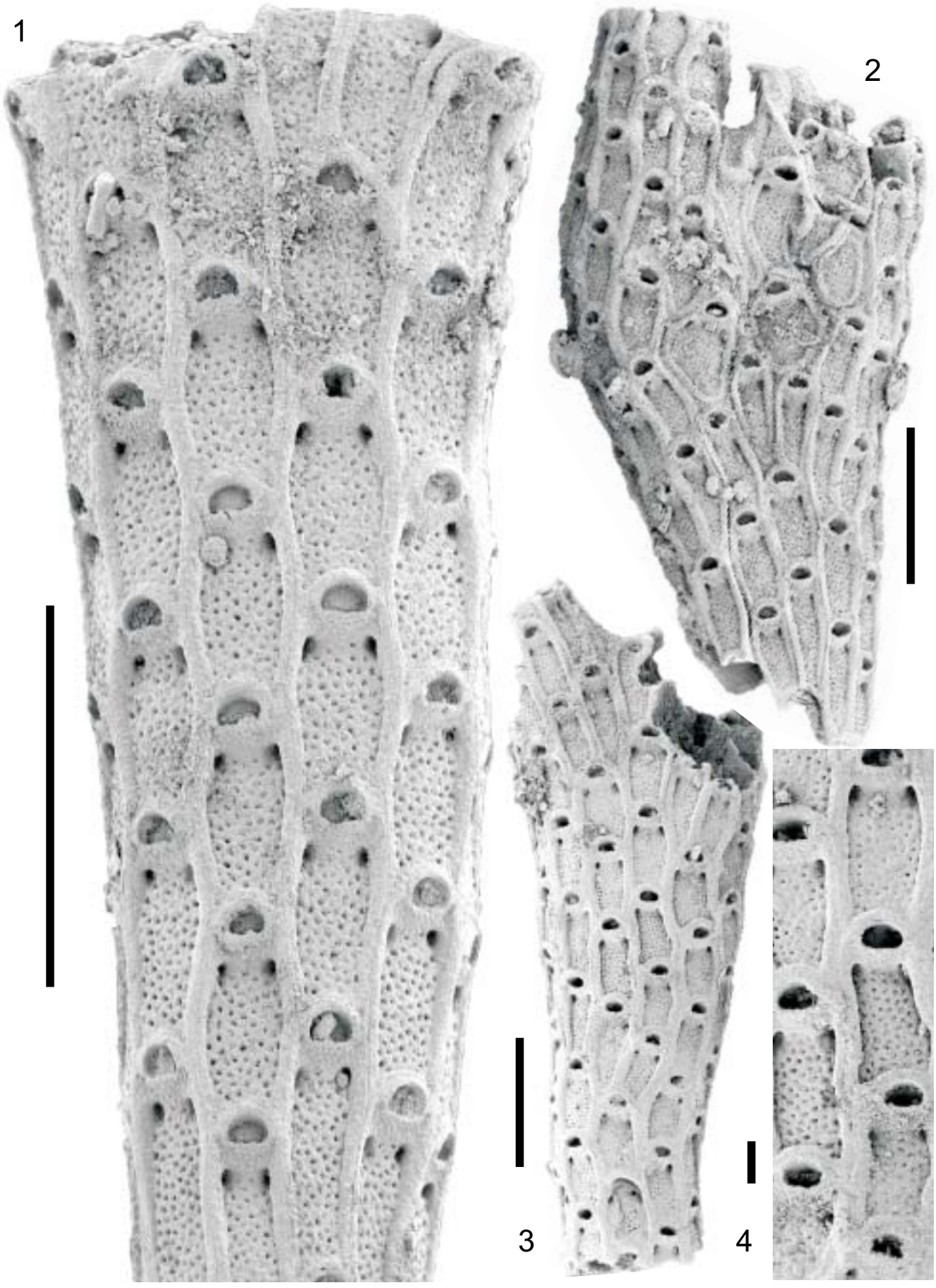

3

PLATE 58



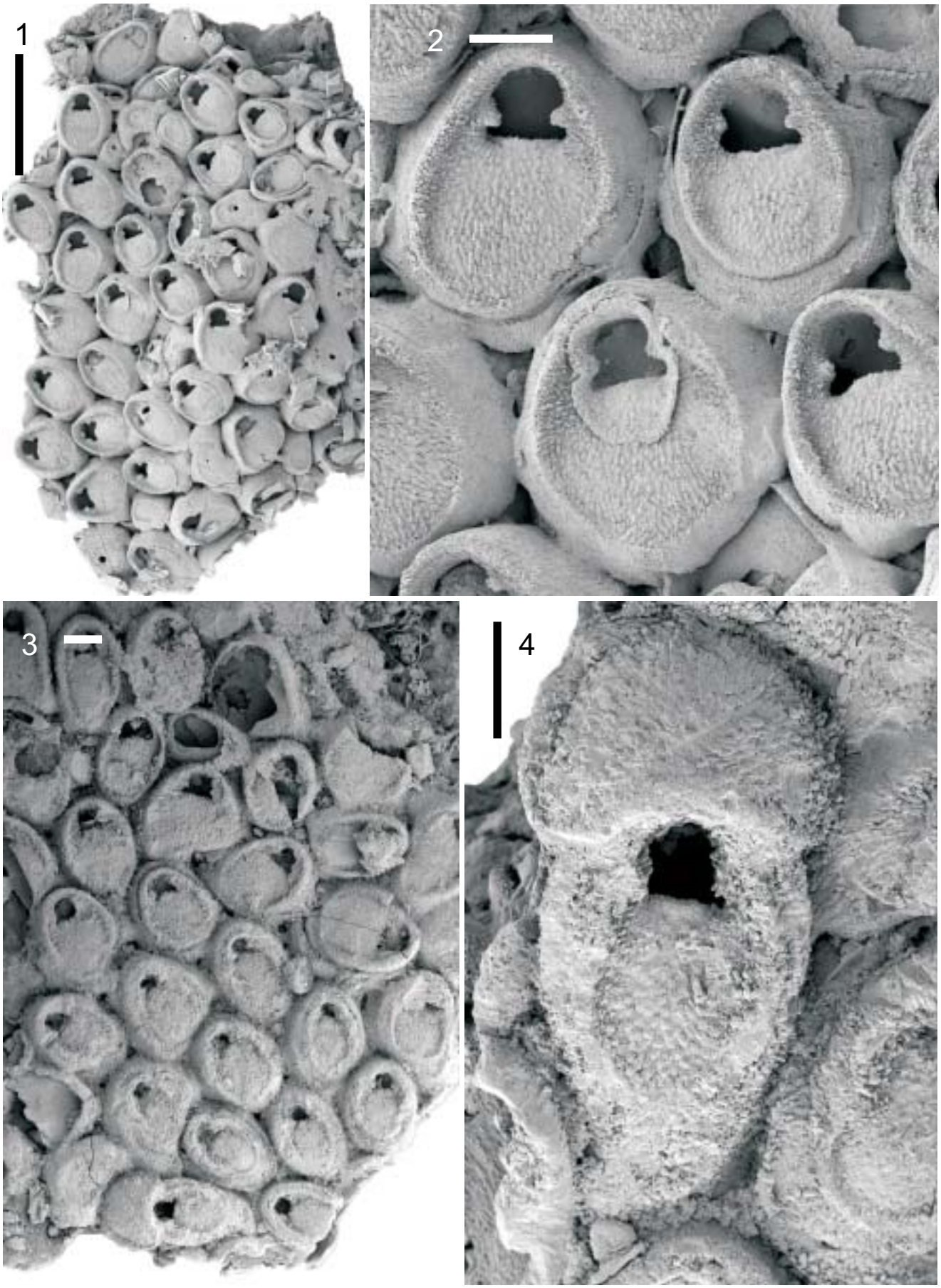
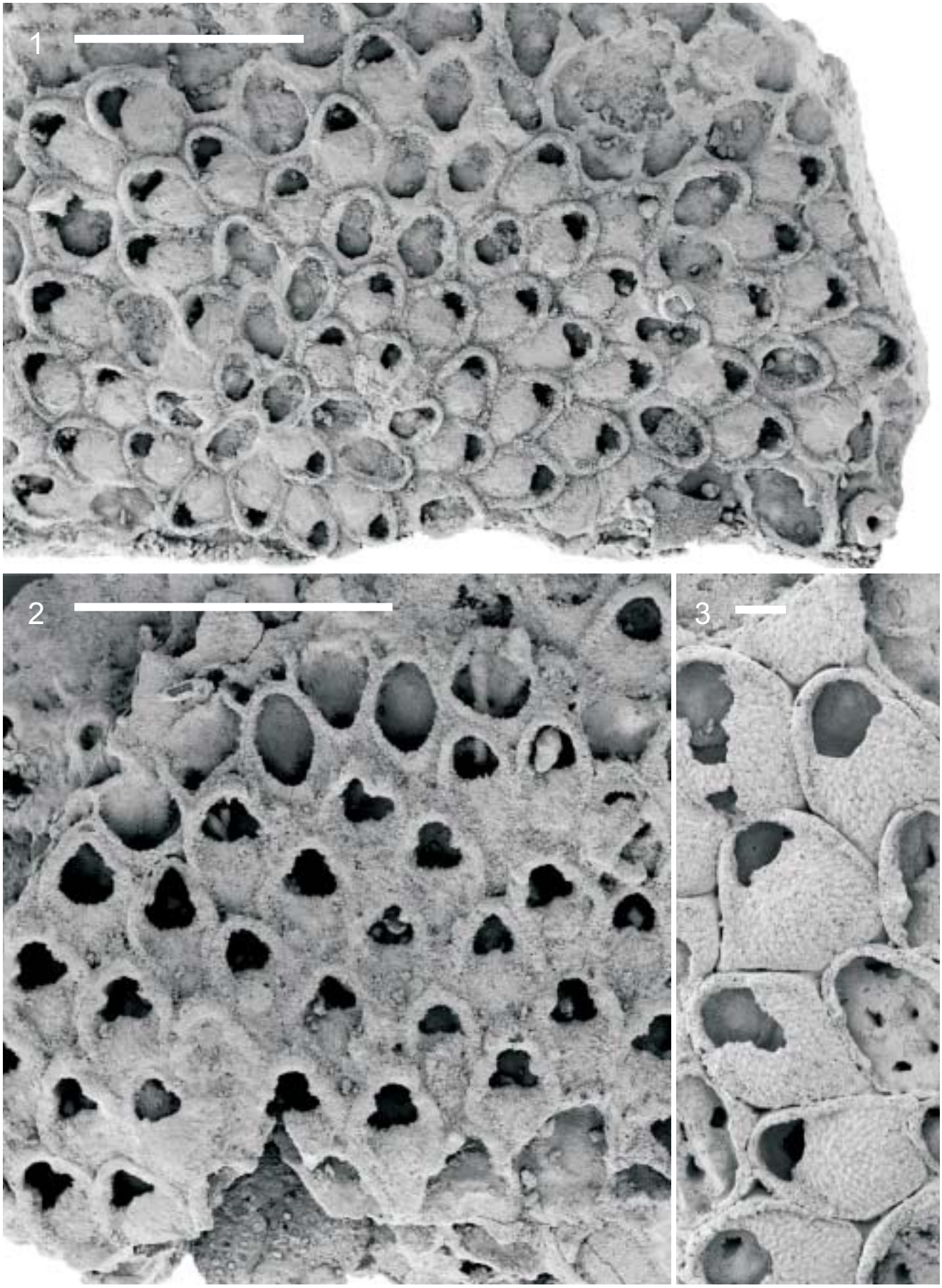

1
2
3
4

PLATE 60



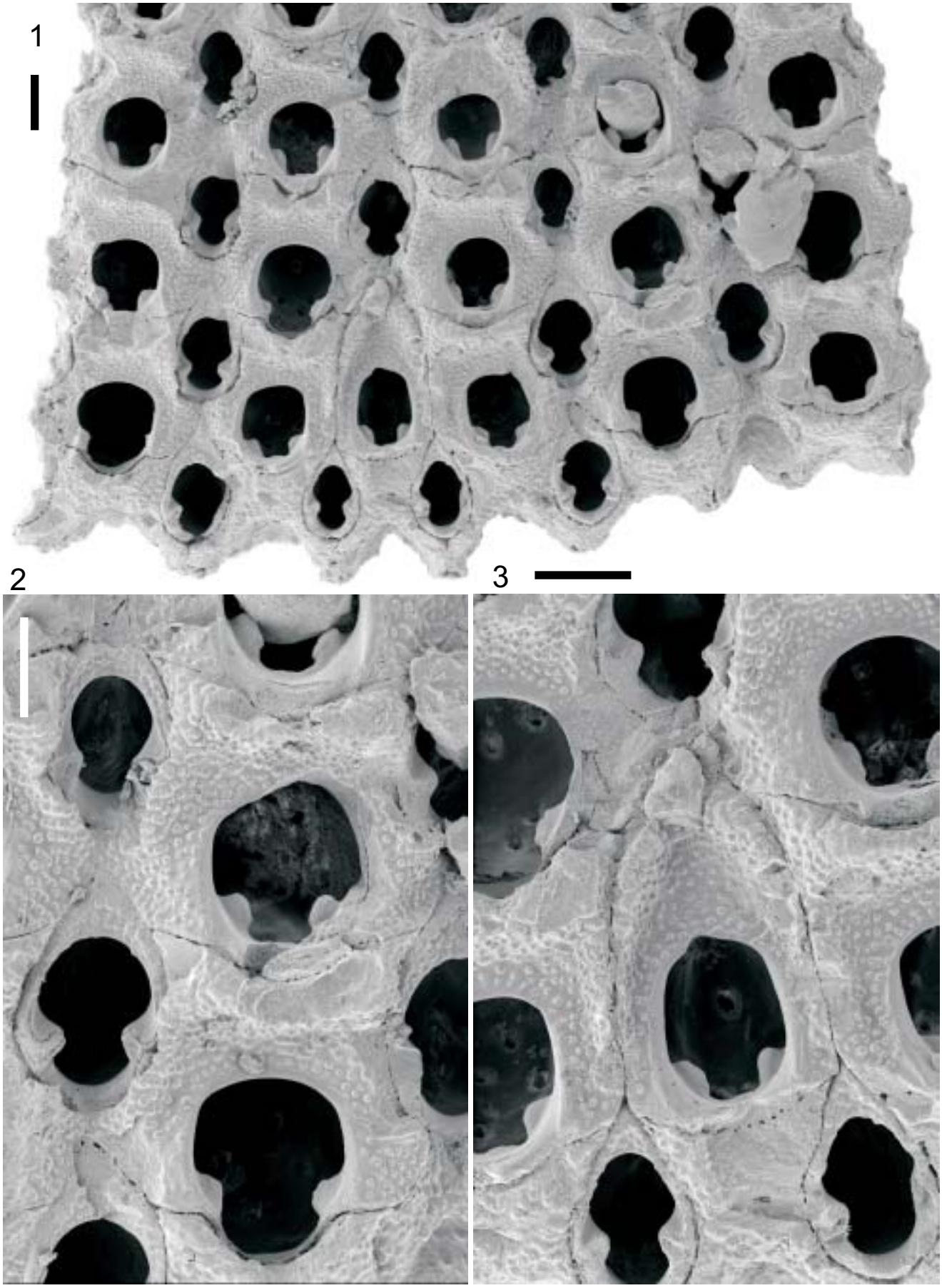
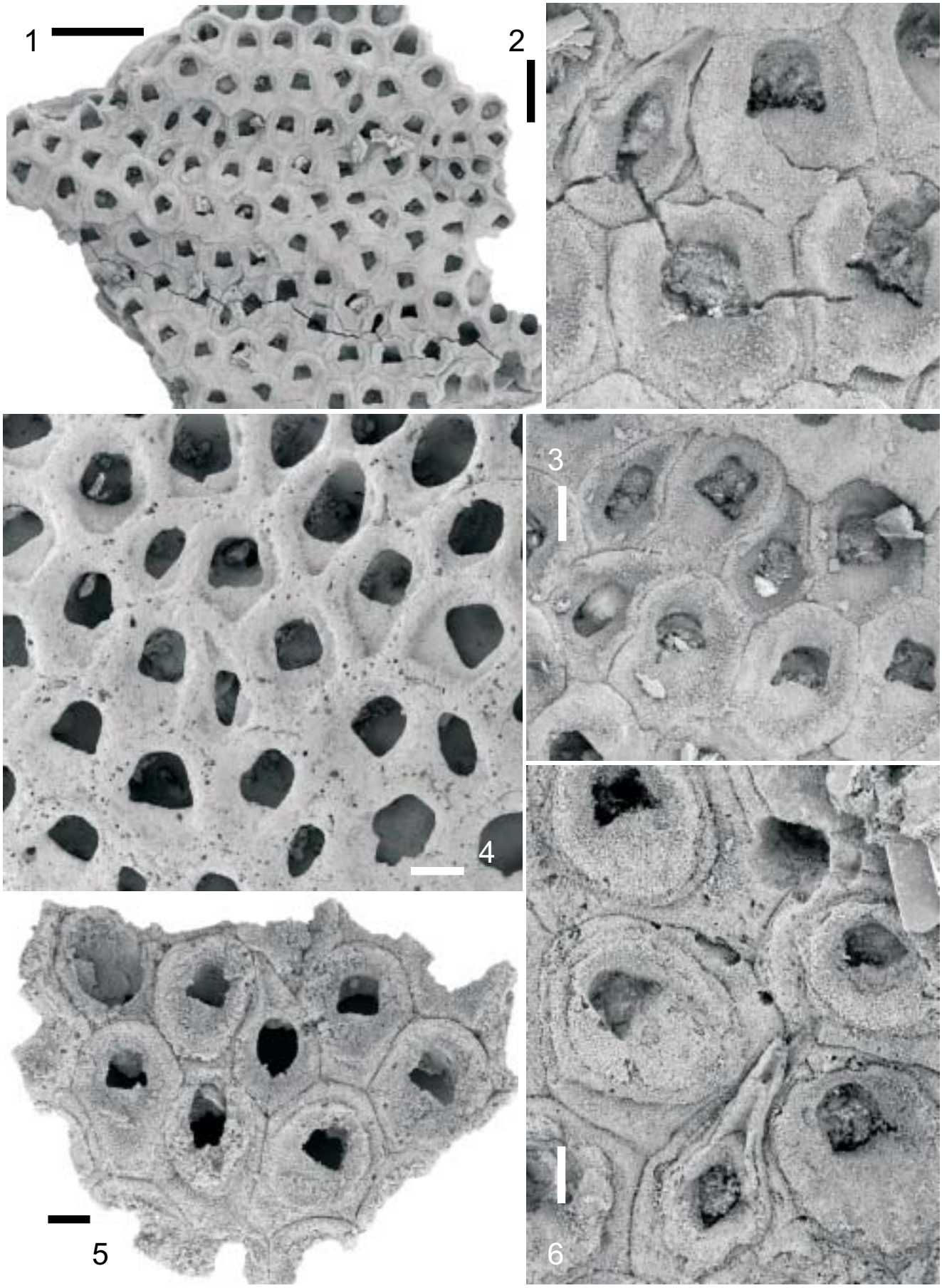
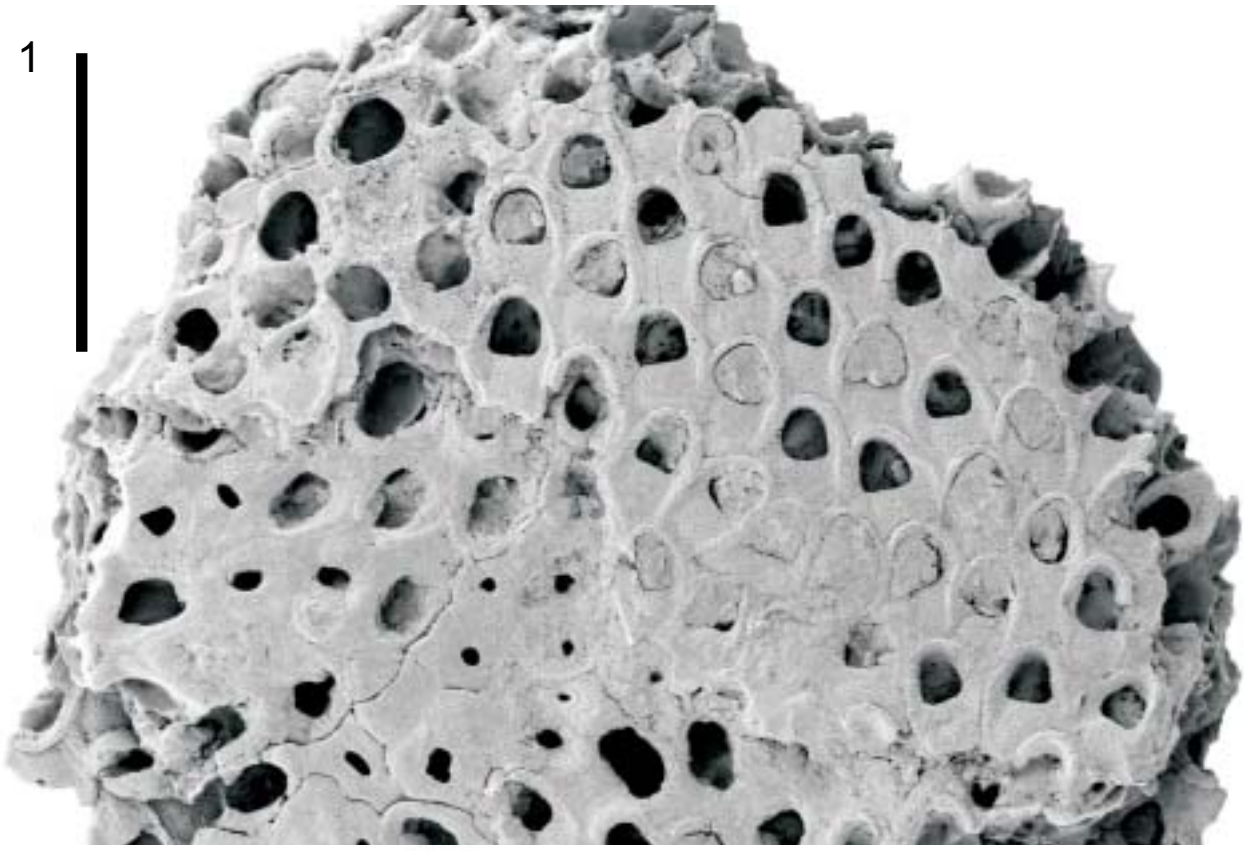

1
2
3

PLATE 62




1

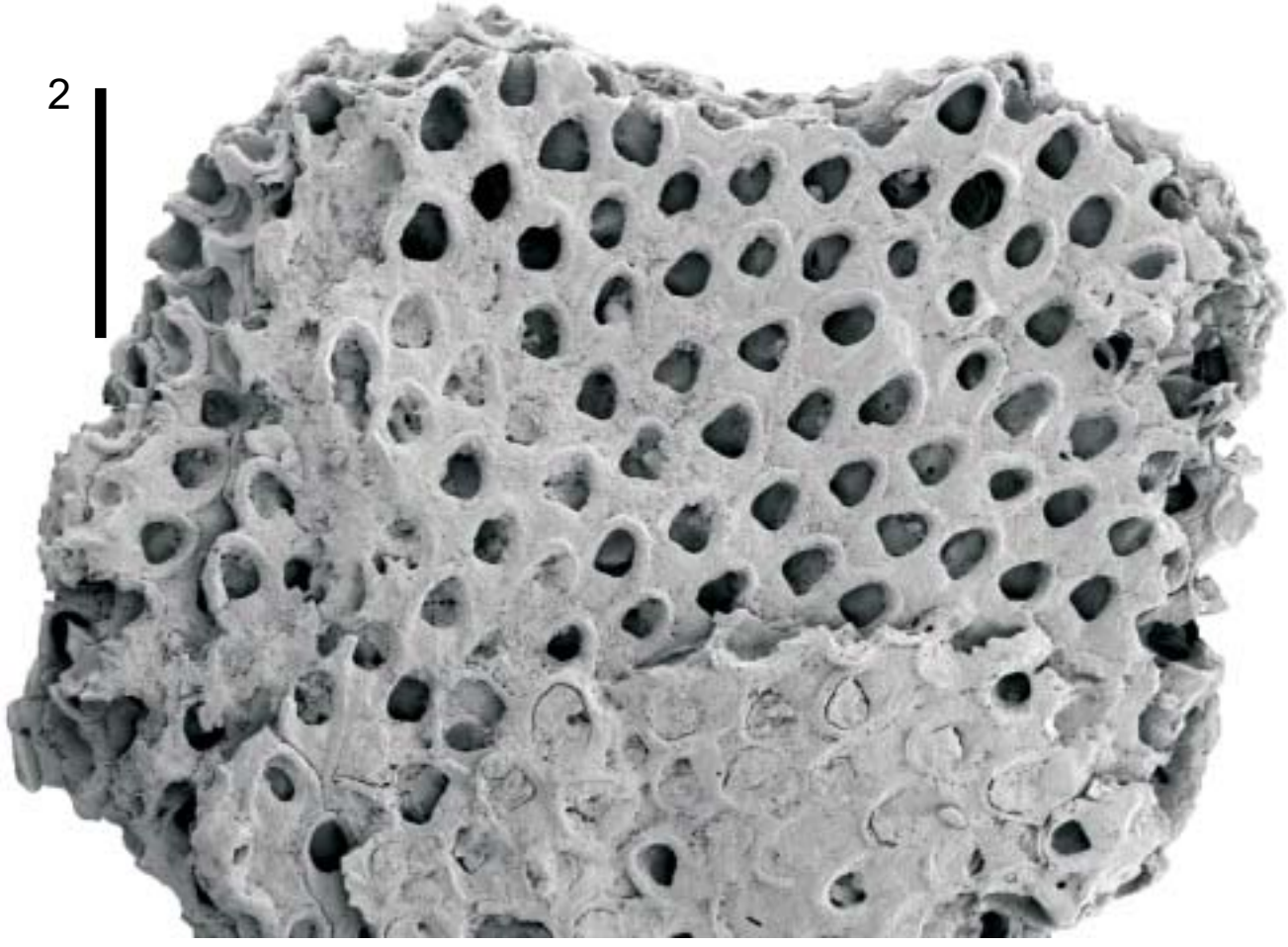
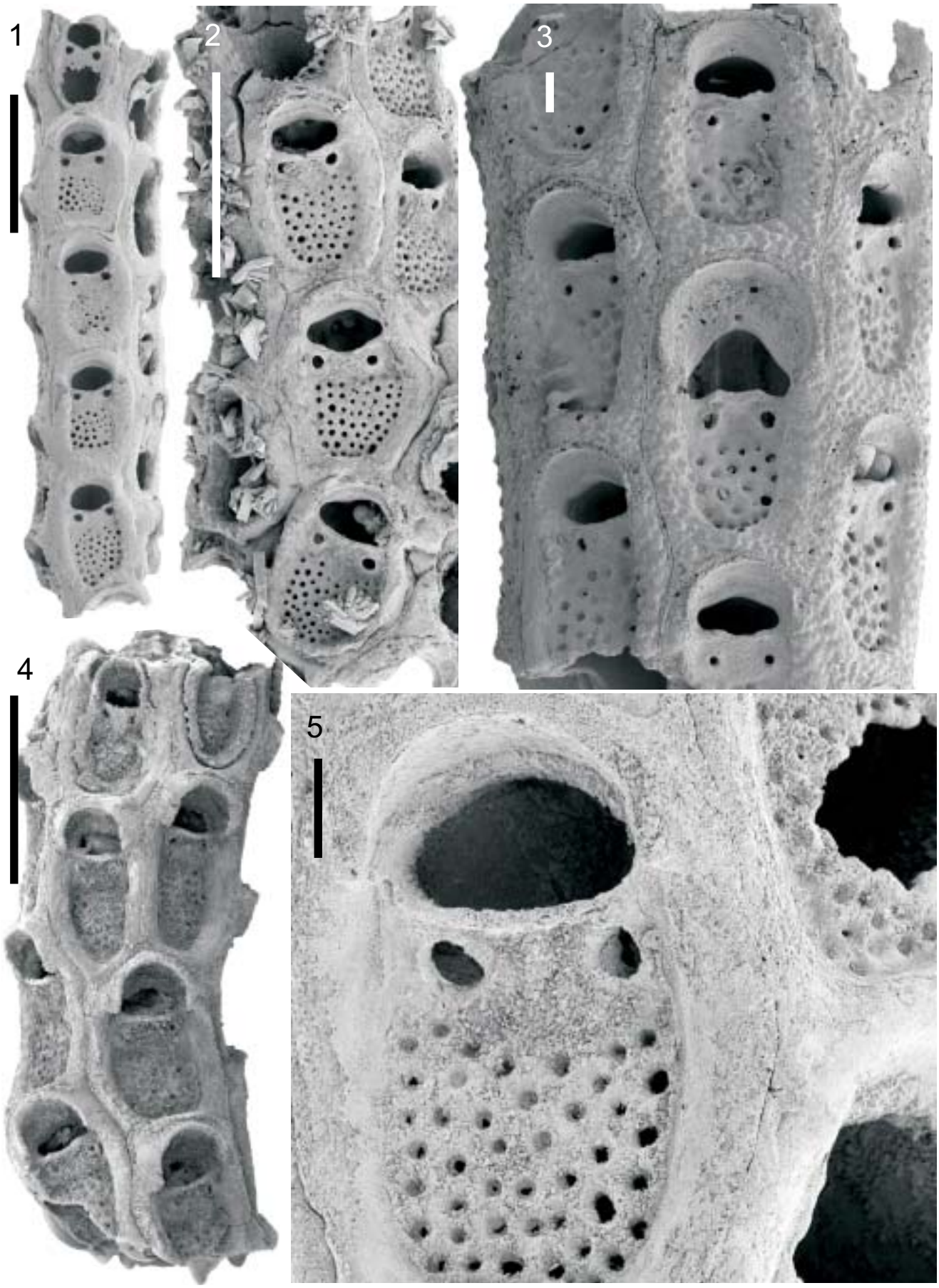

2

PLATE 64



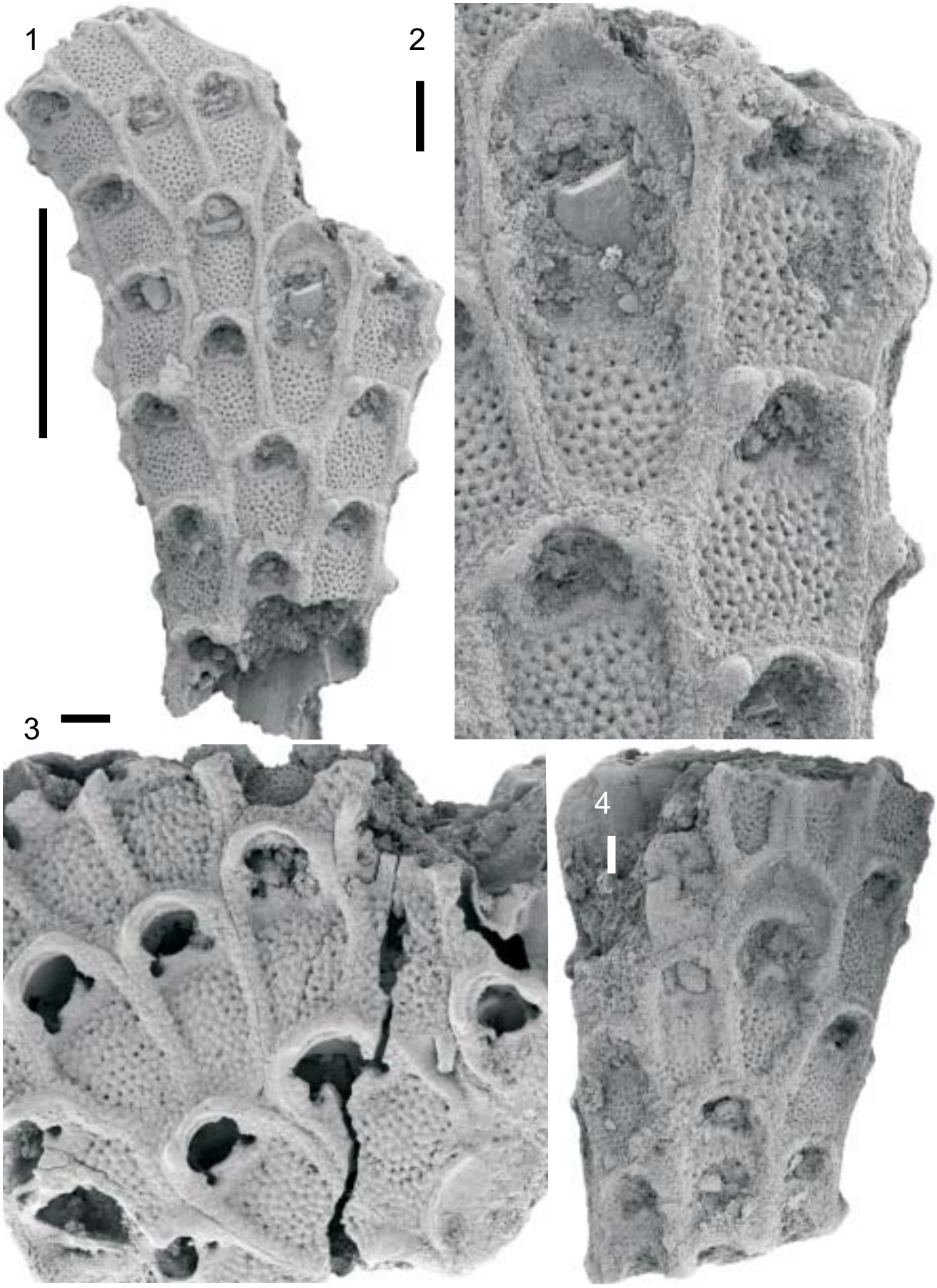
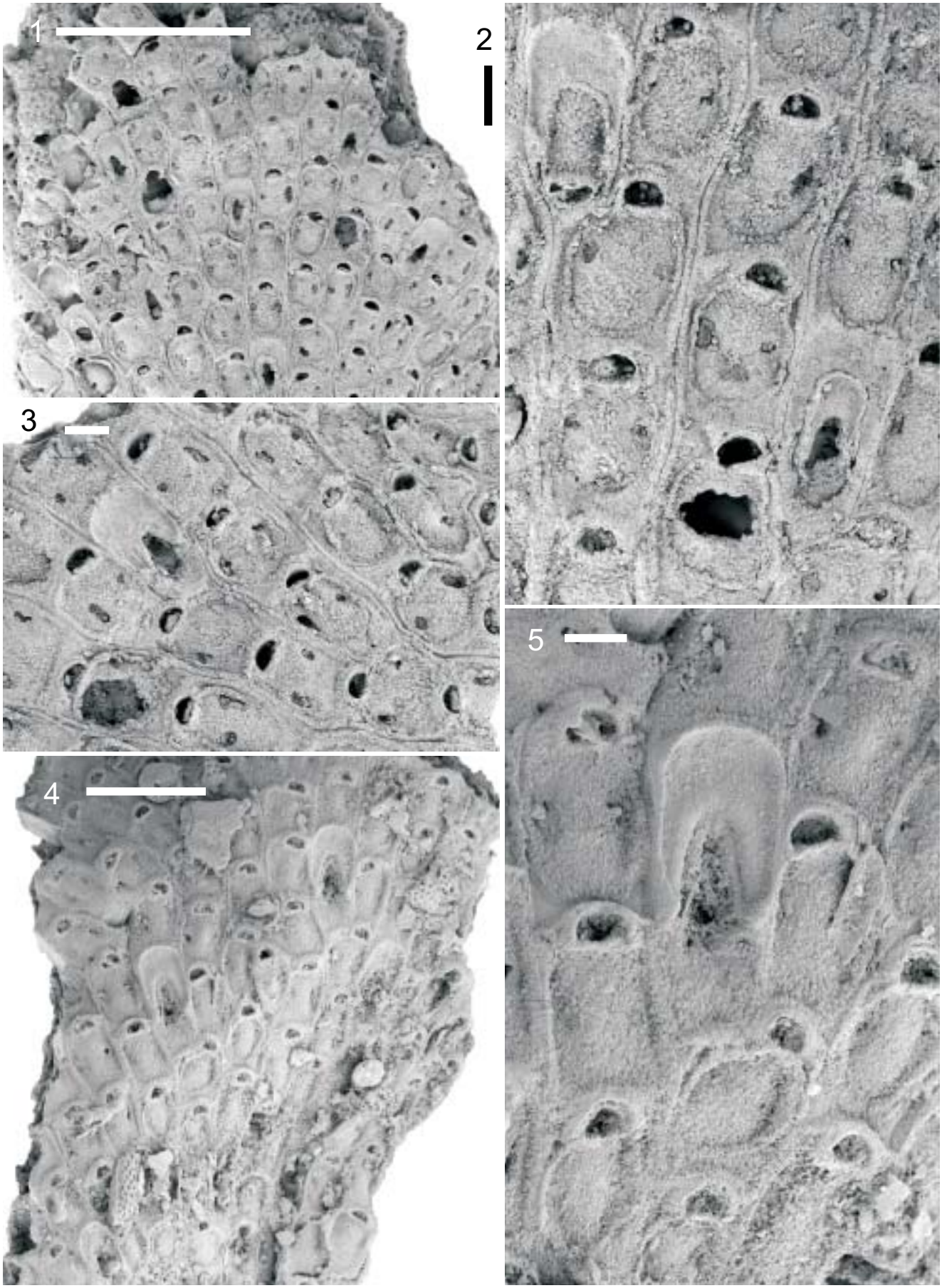

1
2
3
4

PLATE 66



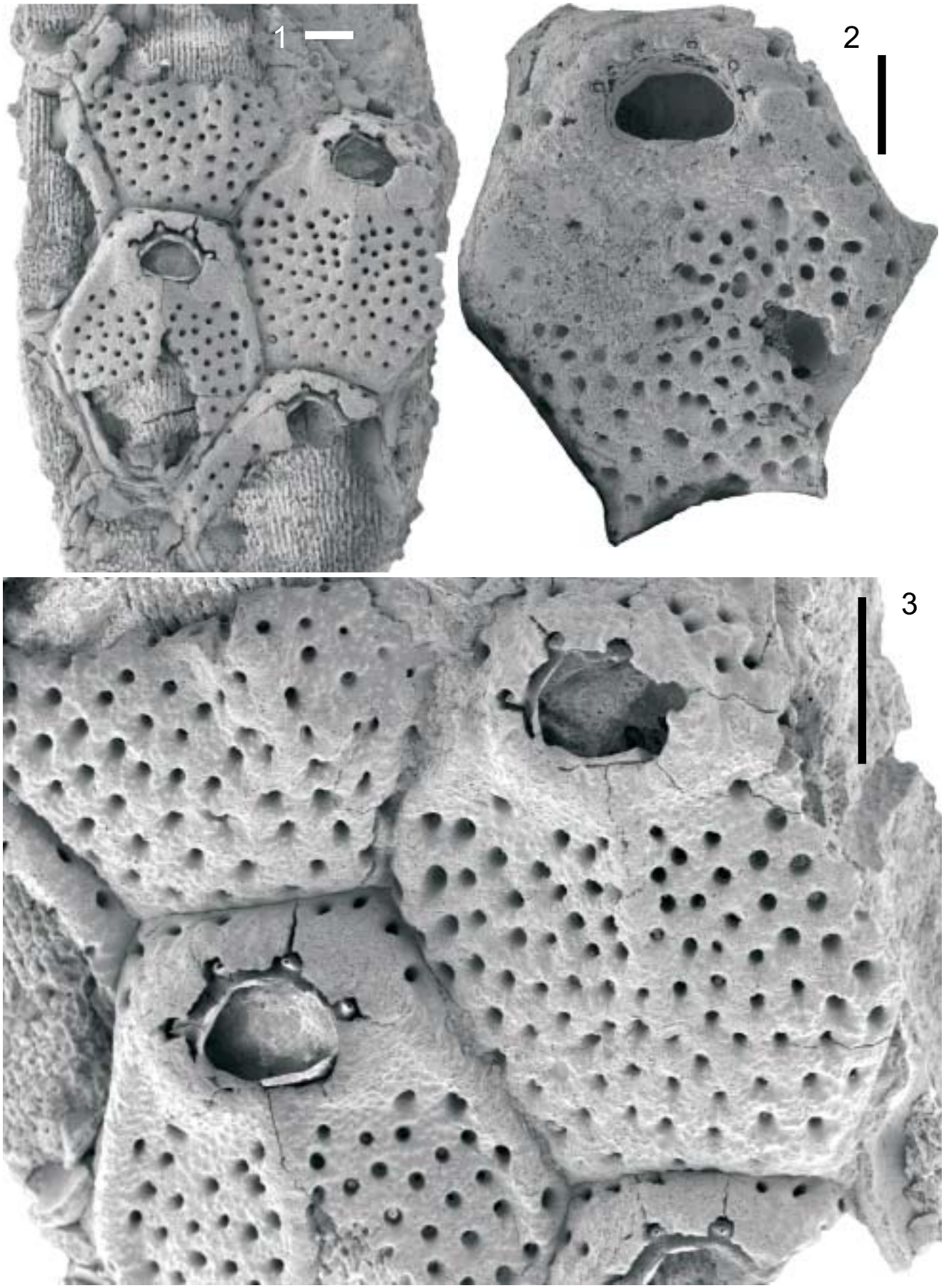
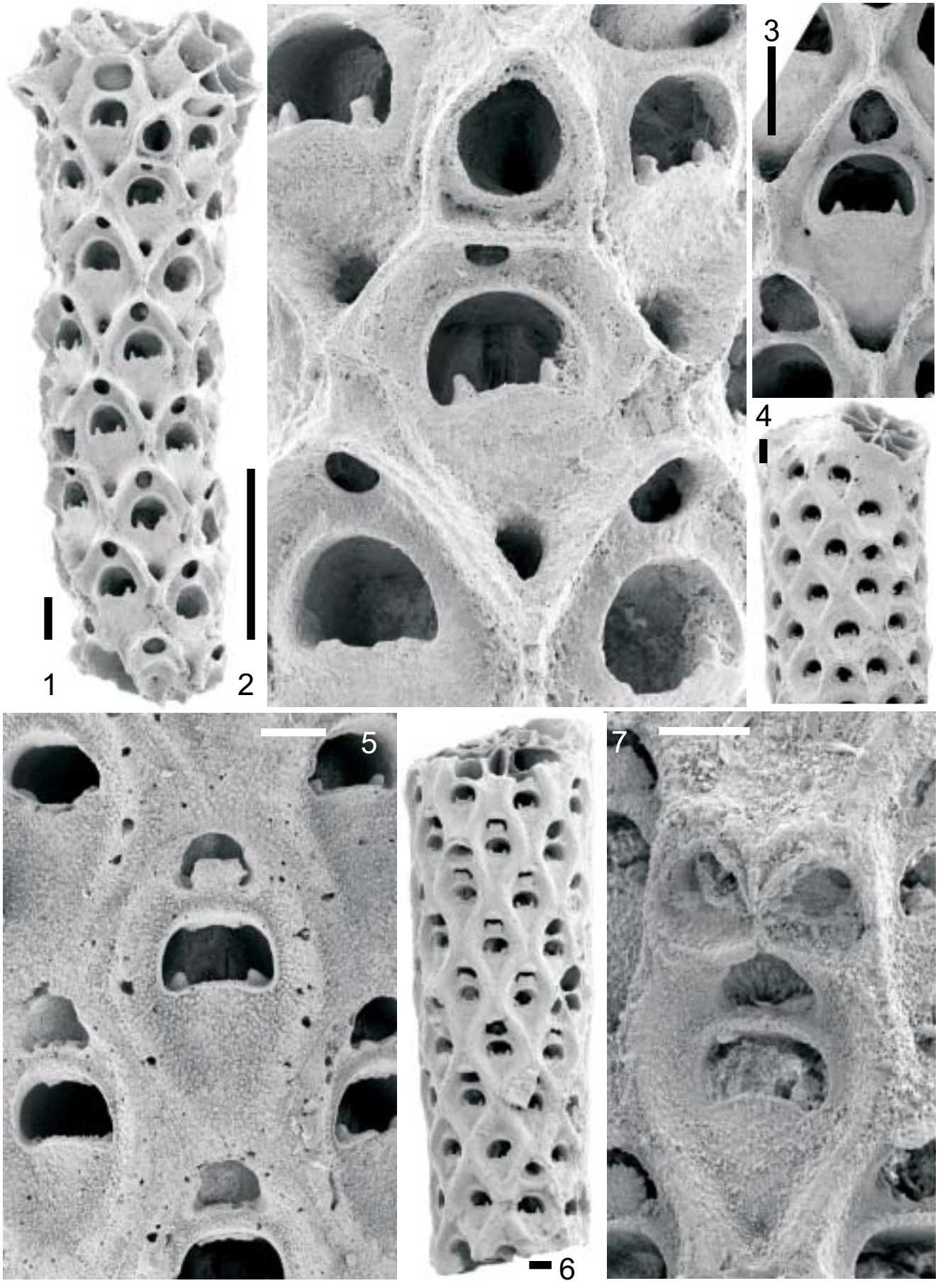

1
2
3

PLATE 68



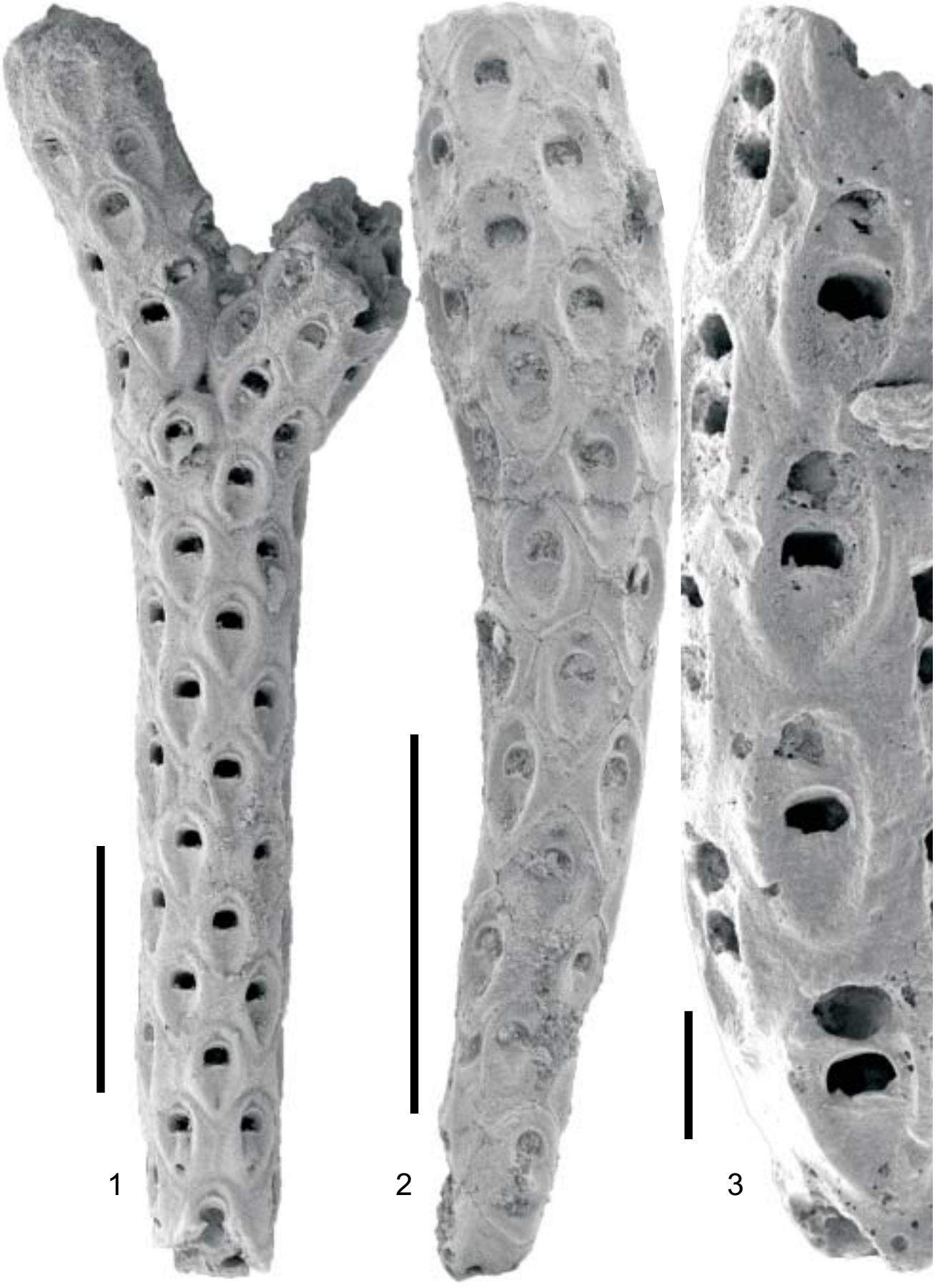

1
2
3

PLATE 70