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THE RADIOLARIAN ASSEMBLAGE FROM ČACHTICKÉ KARPATY MTS. LIMESTONES (THE LOCALITY ŠÍPKOVSKÝ HÁJ)

(Pls. 16)

Abstracts: Of the locality Šípkovský Háj in the Čachtické Karpaty Mts., a radiolarian assemblage has been evaluated from limestones the age of which can be by the analysis of the radiolarian assemblage and by the presence of *Remaniella cadischiana* (COLOM) ranked to the Beriasian. Five new species and a new combination are given in the paper.

Резюме: Сообщество радиолярий было оценено на известняках из местонахождения Шипковски Гай в Чахтицких Карпатах, возраст которых, по личному сообщению К. Борзу можно на основе тинтинидов включить в бериас. Результаты анализа радиоляриевого сообщества указывают на бериас, может быть и валанжин. Нельзя исключить наличие самого верхнего титона. В статье описывается пять новых видов.

Introduction

The microfossils which are the subject of this paper, were found at the study of the Čachtické Karpaty Mts. Mesosoic limestones in the locality Šípkovský Háj (Mišík — Sýkora, 1982). The Mesosoic of this region belongs to the Western Carpathians Mts. higher nappes — to the Choč or to the Strážov nappe. Occurrence of the barmstein limestones gives evidence of its partial facial relation to the Göller (Ötscher) nappe of the Eastern Alps. There's no evidence for its definitive tectonical ranking.

Review of recent results

The radiolarians have been separated from the sample No. 29b (see Fig. 1. c) representing wackestone (biomicrite) with the following microfossil assemblage: radiolarians, tintinnines (*Calpionella alpina* LORENZ, *Tintinnopsella carpathica* (MURGEANU, FILIPESCU), *Remaniella cadischiana* (COLOM), *Crassicollaria* sp., siliceous sponge spicules, tiny fragments of echinoderms, aptychi, fragments of pelecypods, rare foraminifers of the genus *Nodosaria*. The most abundant are the radiolarians, the sponge spicules and the tintinnines — the microfacies. The radiolarians and the sponge spicules are of the Chalcedony. They are partly suppressed on the surface by calcite of a microsparitic grain size. Degree of the suppression is in individual specimens different.

The sample 29b was originally ranked to the Upper Tithonian (Mišík —

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Sýkora, 1982). We rerank these limestones to the Lower Beriasian on the basis of the radiolarian assemblage indicating the Beriasian as well as on the basis of the presence of *Remaniella cadischiana* (COLOM) indicating the Lower Beriasian. After the whole tintinnines assemblage, it is the upper part of the Calpionella alpina zone according to Alleman (1970) or of the Calpionella zone bottom (Alleman — Catalano — Farés — Remane, 1971).

Evaluation of the radiolarian assemblage

The radiolarian assemblage studied of the locality Šípkovský Háj represents a varied, well preserved assemblage with the following genera and species determined:

Acaeniotyle diaphorogona FOREMAN, *Acaeniotyle umbilicata* (RÜST), *Acanthocircus dicranacanthos* (SQUINABOL), *Alievium* sp., *Angulobracchia biordinale* n. sp., *Angulobracchia* sp., *Archaeodictyomitra apiaria* (RÜST), *Archaeospongoprunum implayi* PESSAGNO, *Crucella?* contorta n. sp., *Crucella* sp. cf. C. cachensis PESSAGNO, *Emiluvia chica* FOREMAN, *Emiluvia sedecimporata* (RÜST), *Emiluvia ordinaria* n. sp., *Halesium* sp., *Higumastra coronaria* n. sp., *Homoeoparonaella argolidensis* BAUMGARTNER, *Mirifusus baileyi* PESSAGNO, *Obesacapsula morroensis* PESSAGNO, *Orbiculiforma* ? cf. *multifora* PESSAGNO et POISSON, *Pantanellium squinaboli* (TAN SIN HOK), *Paronaella* cf. *pristidentata* BAUMGARTNER, *Paronaella* ? sp., *Parvicingula* ? *altissima* (RÜST), *Parvicingula cosmoconica* (FOREMAN), *Patulibracchium* sp., *Podobursa tetracola* FOREMAN, *Podobursa triacantha* (FISCHLI), *Podobursa* sp., aff. P. *triacantha* (FISCHLI), *Podocapsa amphitreptera* FOREMAN, *Protunuma fusiformis* ICHIKAWA et YAO, *Pseudocrucella procera* n. sp., *Pseudoeucyrtis* sp., *Sethocapsa cetia* FOREMAN, *Sethocapsa leiostraca* FOREMAN, *Syringocapsa rotunda* (HINDE), *Tetraditryma* sp., *Triactoma* sp. cf. T. *echiodes* FOREMAN, *Triactoma jonesi* PESSAGNO, *Triactoma tithonianum* RÜST, *Tripocyclia trigonum* RÜST, *Tritrabs ewingi* (PESSAGNO), *Tritrabs* sp., *Xitus alievi* (FOREMAN).

Composition of the assemblage shows that together with the species ranging from the Upper Jurassic to the Lower Cretaceous, also specimens characteristical for the Lower Cretaceous appear in it. They are the following species: *Parvicingula cosmoconica* (FOREMAN), *Xitus alievi* (FOREMAN), and *Crucella* sp. cf. *cachensis* PESSAGNO. It shows that the asemblage studied can be ranked to the Lower Cretaceous — to the Beriasian. However, also species such as *Parvicingula* ? *altissima* (RÜST) ending in the Upper Tithonian and *Xitus alievi* (FOREMAN) having been recorded so far only in the Valanginian, occur in the assemblage. Solution of this problem would demand a larger amount of samples taken from a continuous profile.

Conclusions

The results of the radiolarian assemblage analysis as well of the tintinnines microscopic analysis rank the assemblage studied unanimously to the Lower Cretaceous, to the Beriasian. *Remaniella cadischiana* (COLOM) indicates the Lower Beriasian.

However, in the assemblage studied, also such species as *Parvicingula ? altissima* (RÜST) ending in the Upper Tithonian and *Xitus alievi* (FOREMAN) reported so far only from the Valanginian occur. Solution of this problem would be possible only by evaluation of a continuous lithological profile, which, however, was not to our disposal.

In conclusion we would like to thank RNDr. K. Borza, DrSc. for his kind help in determination of the tintinnines.

Systematic part

Genus *Acaeniotyle* FOREMAN, 1973
Acaeniotyle diaphorogona FOREMAN, 1973
Pl. 1, Figs. 1–3

1973 *Acaeniotyle diaphorogona* FOREMAN, new species – H. P. Foreman: Radiolaria from DSDP Leg. 20, p. 258, Pl. 2, Figs. 2–5.
1975 *Acaeniotyle diaphorogona FOREMAN* emend. – H. P. Foreman: Radiolaria from the North Pacific etc., p. 607, Pl. 2, Figs. 1–5; Pl. 3, Figs. 1, 2.
Note: Pores of all our specimens are of a subhexagonal shape.
Stratigraphic range: the Tithonian — the Albain

Acaeniotyle umbilicata (RÜST, 1898)
Pl. 1, Figs. 4–5

1898 *Xiphosphaera umbilicata*, n. sp. – D. RÜST: Neue Beiträge zur Kenntniss etc., p. 7, Pl. 1, Fig. 9.
1973 *Acaeniotyle umbilicata* (RÜST) – H. P. Foreman: Radiolaria from DSDP Leg 20, p. 258, Pl. 1, Figs. 12–14, 16.
Note: Sometimes a small lattice modullary shell can be observed (Pl. 1, Fig. 5). Pores of all our specimens are of a subhexagonal shape.
Stratigraphic range: the Tithonian to the Aptian – Albian

Genus *Acanthocircus* SQUINABOL, 1903
Acanthocircus dicranacanthos (SQUINABOL, 1914)
Pl. 1, Figs. 6–7

1914 *Saturnalis dicranacanthos* SQUINABOL – S. Squinabol: Contributo alla conoscenza etc., p. 286, Pl. 22, Figs. 4–7; Pl. 23, Figs. 8 (non vidi).
1977 *Acanthocircus dicranocanthos* (SQUINABOL) – E. A. Pessagno: Upper Jurassic Radiolaria etc., p. 73, Pl. 3, Fig. 5.
1978 *Acanthocircus dicranacanthos* (SQUINABOL) emend. – D. A. Donofrio und H. Mostler: Zur Verbreitung der Saturnalidae etc., p. 28, Pl. 2, Fig. 3; Pl. 4, Figs. 4, 7–9; Pl. 5, Figs. 10, 11 – cum syn.
Stratigraphic range: the Upper Kimmeridgian – the Hoterivian

Genus *Alievium* PESSAGNO, 1972
Alievium sp.
Pl. 1, Fig. 8

Description: The test is subspherical, with three stout threebladed spines slightly leave-like widening at their ends. The spines may be also slightly twis-

ted. The test meshwork consists of large triangular pore frames. The nodes of the meshwork are thickened, with small secondary spines circular in their transverse section arising from them. The specimens differ from A. helenae in their spines.

Genus *Angulobracchia* BAUMGARTNER, 1980
Angulobracchia biordinale OŽVOLDOVÁ, n. sp.
Pl. 2, Figs. 1–7; Pl. 16, Figs. 1, 2

Holotype: No. 3042, 5567; Pl. 2, Figs. 1, 3. Deposited in the Slovak National Museum in Bratislava (SNM/Z 18.250).
Type locality: the Šípkovský Háj, the Čachtické Karpaty Mts.
Stratotype: the Beriasian
Denomination: Lat. ordinalis — of a row; after the two-rowed pore meshwork on the rays.
Diagnosis: Three short rays bulbous at their ends arising from a small central area. The ray tips end in tubular bracchiopyte-like extensions with small spines on their sides. Lateral sides of the rays are concave, the edge of connection is sharp. The meshwork of the top and the bottom ray sides consists of two longitudinal rows of large pores. Three horizontal rows of pores are on their lateral sides.
Description: The test consists of three short rays arising from a small central area. The rays distinctly widen to a bulbous shape at their ends and end in tubular bracchiophyle-like extensions. On both sides of the extensions relics of thin, short lateral spines can be observed. The meshwork of the top and bottom side of the rays is composed by three equally prominent beams connected by transverse bars. This way, two longitudinal rows of large pores are formed on each ray. Meshwork nodes are distinctly prominent. The central area meshwork forms smaller, concentrically arranged pores, sometimes with a large pore in the centre. The meshwork on the ray widened ends and on the tubular bracchiopyle-like extensions forms linear rows of smaller pores of a subhexagonal shape. The ray bulbous endings are 2.5 times wider than the rays. The rays lateral sides are concave, with three horizontal rows of smaller circular pores (Pl. 2, Figs. 3, 6).

Measurements:	holotype	min.	max.
Length of rays	0.200	0.200	0.240
	0.200		
	0.220		
Width of rays	0.045	0.045	0.060
Width of ray ends	0.110	0.110	0.150
Width of extensions	0.055	0.050	0.065

Angulobracchia sp.
Pl. 3, Figs. 1–4

Description: The test consists of three short rays arising from a small central area. The rays bulbously widen at their ends and end in long, tubular,

bracchiopyle-like extension. The meshwork of the central area and of the rays is the same. It consists of triangular pore frames, nodes of which are distinctly prominent. The top as well as the bottom side of the rays is slightly convex, the lateral sides are concave. The edge of their connection is sharp. On the lateral sides, three horizontal rows of small circular pores can be observed.

Genus *Archaeodictyomitra* PESSAGNO, 1977 b
Archaeodictyomitra apiaria (RÜST, 1885)
Pl. 3, Fig. 6

1885 *Lithocampe apiarium* m. — D. RÜST: Beiträge zur Kenntniss etc., p. 314 (44), Pl. 39 (14), Fig. 8.
1975 *Dictyomitra apiarium* (RÜST) — H. P. Foreman: Radiolaria from the North Pacific etc., p. 613, Pl. 26, Figs. 7, 8.
1976 *Archaeodictyomitra apiara* (RÜST) — E. A. Pessagno: Lower Cretaceous Radiolarian etc., p. 41, Pl. 6, Figs. 6, 14.
Stratigraphic range: the Upper Oxfordian — the Baremian.

Genus *Archaeospongoprunum* PESSAGNO, 1973
Archaeospongoprunum implayi PESSAGNO, 1977
Pl. 1, Fig. 9

1977 *Archaeospongoprunum implayi* PESSAGNO, n. sp. — E. A. Pessagno: Upper Jurassic Radiolaria etc., p. 73, Pl. 3, Figs. 1–4.
Stratigraphic range: the Upper Kelloway — the Valanginian

Genus *Crucella* PESSAGNO, 1971; emend. Baumgartner, 1980
Crucella ? contorta OŽVOLDOVÁ, n. sp.
Pl. 6, Figs. 2–7; Pl. 7, Fig. 1;
Pl. 8, Fig. 4; Pl. 16, Fig. 6

Holotype: No. 7682; Pl. 6, Fig. 3. Deposited in the Slovak National Museum in Bratislava (SNM/Z 18.251).
Type locality: the Šípkovský Háj, the Čachtické Karpaty Mts.
Stratotype: the Beriasian
Denomination: Lat. contortus — twisted; after spirally twisted spines.
Diagnosis: A four-rayed test of a cross shape, with three rays ended in a stout spiral spine and with one ray with a slender smooth spine. Pore frames of the whole test meshwork are of quadrangle and triangle shapes without any arrangement. The test is strongly convex in its central part.
Description: The test consists of a large central area and four rays of the same length, arranged in a cross. The rays slightly widen in the central parts, becomming sometimes of a pear-like shape. The transversal section of the rays is oval. At the tips of the three rays, a stout, spiral spine occurs. The spine consists at the base of three stout ridges, halved by a shallow groove, slightly diverted to sides and separated from each other by deep grooves. The ridges conically narrow to about half the spine length and then they start to twist spirally to the right. After twisting to half the spiral, the ridges contact at the end of the spine. The spine of the fourth ray is smooth and slender. It is also formed at its base by three ridges halved by a shallow groove. However, they

connect in about half the spine length. The three stout spines are of about the same lengths as the rays, the slender smooth spine is shorter.

The central area is of a subquadrangle shape. The meshwork of the rays as well as of the central area is formed by quadrangle and triangle pore frames without any signs of arrangement. The top and the bottom side of the test central area is strongly convex. A cavity between them can be seen from the lateral side.

Measurements:	holotype	min.	max.
Length of rays	0.157	0.144	0.170
Max. width of rays	0.070	0.070	0.093
Length of 3 spines	0.185	0.133	0.185
Length of shorter spine		0.120	0.150
Max. thickness of test	0.150	0.110	0.150

Note: No lateral filling between the top and the bottom side of the test central part can be observed in any of our specimens. Its ranking to Crucella thus remains questionable.

Crucella sp. cf. C. *cachensis* PESSAGNO, 1971
Pl. 5, Figs. 5–7

1971 *Crucella cachensis* PESSAGNO, n. sp. — E. A. Pessagno: Jurassic and Cretaceous Hagiastridae etc., p. 53, Pl. 9, Figs. 1–3.

1981 *Crucella* sp. cf. C. *cachensis* PESSAGNO — A. Schaaf: Late Early Cretaceous etc., p. 433, Pl. 8, Fig. 3.

Stratigraphic range: A. Schaaf (1981) takes these Lower Cretaceous specimens for predcessors of the Upper Cretaceous C. cachensis Pessagno. He described them from the Upper Baremian.

Genus *Emiluvia* FOREMAN, 1973; emend. Pessagno, 1977a
Emiluvia chica FOREMAN, 1973
Pl. 4, Figs. 1–3

1973 *Emiluvia chica* FOREMAN, new species — H. P. Foreman: Radiolaria from DSDP Leg 20, p. 262, Pl. 8, Fig. 7.

Stratigraphic range: the Upper Kelloway — the Hoterivian.

Emiluvia sedecimporata (RÜST, 1885) nov. comb.
Pl. 3, Figs. 5, 7

1885 *Staurosphaera sedecimporata* m. — D. RÜST: Beiträge zur Kenntniss etc., p. 288, Pl. 28 (3), Fig. 1.

Note: The test composition is characteristical for the genus *Emiluvia* FOREMAN diagnosed by E. A. Pessagno (1977) in the emended defi-

nition. That is why the species has to be reranked to the genus *Emiluvia*. Stratigraphic range: The author of the species reports it from the Tithonian and the Neocomian.

Emiluvia ordinaria OŽVOLDOVÁ, n. sp.
Pl. 4, Figs. 6–8; Pl. 5, Figs. 1–4; Pl. 16, Fig. 4

Holotype: No 5574; Pl. 4, Figs. 7, 8; Pl. 5, Fig. 2. Deposited in the Slovak National Museum in Bratislava (SNM/Z 18.253).
Type locality: the Šípkovský Háj, the Čachtické Karpaty Mts.
Stratotype: the Beriasian
Denomination: Lat. ordinarius – regular; after the regular arrangement of pores.
Diagnosis: A quadrangle test with a convex top and bottom side and concave lateral sides and with four stout, long, three-ridged spines at each tip. The meshwork of the outer layer of the cortical shell is formed by regular rows of large pores paralel with the spines.
Description: The test is of a shape of a quadrangle of strongly concave sides. A long, stout, three-ridged spine arises from each tip. The top and the bottom side of the test is strongly convex, lateral sides are concave.

The meshwork of the outer layer of the cortical shell is formed by regular rows of large pores paralel with the spines. A triangle pore at the spine base, a quadrangle pore and two pairs of quadrangle pores occur in each line from the spine base to the test centre. Nodes of the meshwork are thickened and prominent. The inner layer of the cortical shell is of a polygonal meshwork. The spine ridges are separated by deep grooves. The spines are of about the same lengths.

Measurements:	holotype	min.	max.
Width of test (Distance between two opposite points in the centre btw. spines)	0.133	0.122	0.153
Max. thickness of test	0.130	0.125	0.160
Length of spines	0.222	0.200	0.233
Max. size of pores	0.022	0.015	0.025

Genus *Halesium* PESSAGNO, 1971
Halesium sp.
Pl. 9, Fig. 1

Description: The test is formed by three rays of different lengths extending out from a small central area. The primary ray has distinct bracchiopyles with two lateral spines on their sides. The secondary and the tertiary ray ends in a short, stout central spine and two lateral spines of about the same lengths as the central spine. The meshwork of the rays is formed by three distinctly

protruding longitudinal beams connected by transverse bars forming two longitudinal rows of quadrangle pores. The central area structure is indistinct. The cross section of the rays is of a quadrangle shape.

Genus *Higumastra* BAUMGARTNER, 1980
Higumastra coronaria OŽVOLDOVÁ, n. sp.
Pl. 7, Figs. 2–5; Pl. 8, Fig. 1; Pl. 16, Fig. 3

Holotype: No: No. 7717; Pl. 7, Fig. 2. Deposited in the Slovak National Museum in Bratislava (SNM/Z 18.252).
Type locality: the Šípkovský Háj, the Čachtické Karpaty Mts.
Stratotype: the Beriasian
Denomination: Lat. corona – the garland; after the patagium in the shape of a garland
Diagnosis: The test of four rays at the right angle and a stout patagium protruding like a garland over the flat rays. Smooth, slender spines of different lengths are at the tips of the rays. There are four large openings in the angles between the rays.
Description: Four rays arise from a small central area; they are arranged in a cross and connected by a thick patagium protruding like a garland over flat, axially compressed rays. The garland is of a subquadrangle shape and extends to about half the distance between the beginnings of the spines and the test centre. There are four large circular to oval openings in the angles between the rays. The meshwork of the rays is formed by five longitudinal rows of oval pores, the size of which increases towards the tips. The patagium meshwork is spongy, the size of its pores equals to the size of the pores at the ray tips. The patagium surface is ragged. The central area pores are small, arranged irregularly. In the test centre, two concentrical medullary shells are placed.

Measurements:	holotype	min.	max.
Max. width of test	0.625	0.562	0.625
Min. and max. length of spines	0.091		
	0.166	0.062	0.166
The greatest mean of openings	0.075	0.060	0.075
The greatest mean of pores	0.016	0.014	0.018

Genus *Homoeoparonaella* BAUMGARTNER, 1980
Homoeoparonaella argolidensis BAUMGARTNER, 1980
Pl. 9, Fig. 2

1980 *Homoeoparonaella argolidensis* BAUMGARTNER, n. sp. – P. O. Baumgartner: Late Jurassic Hagiastridae etc., p. 288, Pl. 2, Figs. 1, 8–12; Pl. 11, Fig. 4.
Stratigraphic range: the Upper Batian – the Valanginian

Genus *Mirifusus* PESSAGNO, 1977
Mirifusus baileyi PESSAGNO, 1977
Pl. 10, Figs. 3, 7

1977 *Mirifusus baileyi* PESSAGNO, n. sp. — E. A. Pessagno: Upper Jurassic Radiolaria etc., p. 83, Pl. 10, Figs. 6–8; Pl. 11, Figs. 9–11.
Stratigraphic range: the Lower Tithonian — the Upper Valanginian.

Genus *Obesacapsula* PESSAGNO, 1977a; emend. Pessagno, 1977 b
Obesacapsula morroensis PESSAGNO, 1977
Pl. 4, Figs. 4, 5

1977 *Obesacapsula morroensis* PESSAGNO, n. sp. — E. A. Pessagno; Upper Jurassic Radiolaria etc., p. 87, Pl. 11, Figs. 5–8.
Stratigraphic range: The species was described from the Upper Kimmeridgian — the Lower Tithonian to the Upper Valanginian.

Genus *Orbiculiforma* PESSAGNO, 1973
Orbiculiforma ? cf. *multifora* PESSAGNO et Poisson, 1981; emend. De Wever, 1981
Pl. 10, Fig. 1; Pl. 11, Fig. 1

1981 *Orbiculiforma multifora* PESSAGNO and POISSON, n. sp. — E. A. Pessagno and A. Poisson: Lower Jurassic Radiolaria etc., p. 52, Pl. 1. Figs. 5, 7, 9, 10.
1981 *Orbiculiforma* ? *multifora* PESSAGNO et POISSON, 1981 emend. — P. De Wever: Hagiastridae Patulibracchiidae etc., p. 42, Pl. 6, Figs. 6–9.
Note: Our specimens have in addition to longer, slender, smooth spines on the periphery of the garland lining the central depression also short, thin spines on the whole surface of the garland.

Genus Pantanellium PESSAGNO, 1977
Pantanellium sguinaboli (TAN SIN HOK, 1927)
Pl. 6, Fig. 1

1927 *Stylosphaera squinaboli* TAN SIN HOK — Tan Sin Hok: Over de samenstelling etc., p. 35, Pl. 6, Figs. 9a — d (non vidi).
1981 *Pantanellium squinaboli* (TAN SIN HOK) — K. Nakaseko, A. Nishimura: Upper Jurassic and Cretaceous Radiolaria etc., p. 156, Pl. 1, Figs. 1, 10.
Note: Our specimens can be due to the size and number of their pore frames taken rather for *P. squinaboli* Tan Sin Hok than for *P. riedeli* PESSAGNO.
Stratigraphic range: the Tithonian — the Valanginian

Genus *Paronaella* PESSAGNO, 1971
Paronaella cf. *pristidentata* BAUMGARTNER, 1980
Pl. 7, Figs. 6, 7

1980 *Paronaella pristidentata* BAUMGARTNER, n. sp. — P. O. Baumgartner: Late Jurassic Hagiastridae etc., p. 304, Pl. 9, Fig. 7; Pl. 12, Fig. 3.
Note: Our specimens differ in a larger width of their rays and in

a number of spines on each of them. The author in his diagnosis gives five to six, while there is one central spine and three to four lateral spines on each ray in our specimens.

Stratigraphic range: The species was described from the Tithonian.

Paronaella ? sp.
Pl. 8, Figs. 2, 3; Pl. 9, Fig. 7

Description: The test is formed by three rays of a pear-like shape and by a circular central area, with a small depression in its centre. The rays end in a long pore tubular extension. The meshwork of the rays is irregular, formed by longitudinal sublinear beams, connected by bars without any arrangement. The pore frames are of quadrangle, triangle to polygonal shapes. Tubular endings of the rays are of a regular meshwork formed by longitudinal rows of quadrangle pore frames. The central area is of an irregular polygonal meshwork. The top and the bottom side of the test central part is convex, the lateral sides are strongly concave.

Genus *Parvicingula* PESSAGNO, 1977
Parvicingula ? *altissima* (RÜST, 1885)
Pl. 11, Figs. 4, 7, 8; Pl. 15, Fig. 3

1885 *Lithocampe altissima* m. — D. RÜST: Beiträge zur Kenntniss etc., p. 315 (45), Pl. 40 (15), Fig. 2.
1977 *Parvicingula altissima* (RÜST), emend. PESSAGNO — E. A. Pessagno: Upper Jurassic Radiolaria etc., p. 85, Pl. 8, Figs. 9—10.
1980 *Parvicingula* (?) *altissima* (RÜST) — P. O. Baumgartner, P. De Wever, R. Kocher: Correlation of Tethyan etc., p. 58, Pl. 5, Figs. 4—7.

Stratigraphic range: the Kelloway — the Tithonian. In our region, it is reported from the radiolarians of the Pieniny series klippen belt of the locality Podbiel' (the Kelloway — the Oxfordian) (Ožvoldová, 1979).

Parvicingula cosmoconica (FOREMAN, 1973)
Pl. 9, Fig. 5

1973 *Dictyomitra cosmoconica* FOREMAN, new species — H. P. Foreman: Radiolaria from DSDP Leg 20, p. 263, Pl. 9, Fig. 11; Pl. 16, Fig. 3.
1980 *Parvicingula cosmoconica* (FOREMAN) — P. O. Baumgartner, P. de Wever, R. Kocher: Correlation of Tethyan Late Jurassic etc., p. 58, Pl. 5, Fig. 16; Pl. 6, Fig. 7.

Stratigraphic range: the Beriasian — the Hoterivian.

Genus *Patulibracchium* PESSAGNO, 1971
Patulibracchium sp.
Pl. 10, Fig. 2

Description: The test is formed by three short rays slightly widened at their ends, arising from a small central area. The primary ray has distinct

bracchiopyle with two lateral spines. The secondary and the tertiary ray end in one central and two lateral spines. The top and the bottom side of the rays is flat, the lateral sides are slightly concave, the edge of connection is sharp. The rays are of a quadrangle cross section. The thickness of the rays decreases towards their tips. The meshwork consists of quadrangle and triangle pore frames of an irregular arrangement.

Genus *Podobursa* WIŚNIOWSKI, 1889; emend. FOREMAN, 1973

Podobursa tetracola FOREMAN, 1973

Pl. 8, Fig. 5; Pl. 9, Figs. 3, 4

1973 *Podobursa tetracola* FOREMAN, new species — H. P. Foreman: Radiolaria from DSDP etc., p. 266, Pl. 13, Fig. 10; Pl. 16, Fig. 14.

1975 *Spinosicapsa ceblienica* n. sp. — L. OŽVOLDOVÁ: Upper Jurassic Radiolarians etc., p. 80, Pl. 101, Fig. 1.

Stratigraphic range: The species was described from? the Upper Jurassic of the Lower Cretaceous. In our region, it occurs in the radiolarians of the Pieniny series klippen belt in the locality Podbiel' (the Kelloway — the Oxfordian) (Ožvoldová, 1979) and of the Kysuce series klippen belt (the hill Keblie near Púchov — the Kelloway — the Argovian) (Ožvoldová, 1975).

Podobursa triacantha (FISCHLI, 1916)

Pl. 3, Fig. 8

1916 *Theosyringium acanthophorum* RÜST var. triacanthus FISCHLI — H. Fischli: Beitrag zur Kenntniss der fossilen Radiolarien etc., p. 47, Fig. 38 (non vidi).

1973 *Podobursa triacautha* (FISCHLI) — H. P. Foreman: Radiolaria from DSDP Leg 20, p. 266, Pl. 13, Figs. 1 — 7 (cum syn.).

Stratigraphic range: the Kelloway — the Lower Cretaceous. In our region, it is reported from the radiolarians of the Pieniny series klippen belt of the locality Podbiel' (the Kelloway — the Oxfordian) (Ožvoldová, 1979).

Podobursa sp. aff. *P. triacantha* (FISCHLI, 1916)

Pl. 12, Figs. 1—3

Note: The specimen has all diagnostical signs of *P. triacantha* (FISCHLI) except the number of spines on the abdomen, which are nine instead of three to six given in the diagnosis of the species. H. P. Foreman (1973) gives illustration of a specimen with seven spines. *Podobursa* sp. aff. *P. triacantha* (FISCHU), pl. 16, Fig. 13.

Genus *Podocapsa* RÜST, 1885; emend. Foreman, 1973

Podocapsa amphitreptera FOREMAN, 1973

Pl. 11, Figs. 2, 3, 6

1973 *Podocapsa amphitreptera* FOREMAN, new species — H. P. Foreman: Radiolaria from DSDP etc., p. 267, Pl. 13, Fig. 11.

Note: All our specimens have the cephalis horn while the holotype has not. Other diagnostical signs agree in our specimens.

Stratigraphic range: the Upper Oxfordian — the Valanginian

Genus *Protonuma* ICHIKAWA et YAO, 1976
Protonuma fusiformis ICHIKAVA et YAO, 1976
Pl. 8, Figs. 6, 7

1976 Protunuma fusiformis ICHIKAWA and YAO, n. sp. — K. Ichikawa, A. Jao: Two new genera etc., p. 116, Pl. 2, Figs. 1—4.
Stratigraphic range: the Upper Jurassic

Genus *Pseudocrucella* BAUMGARTNER, 1980
Pseudocrucella procera OŽVOLDOVÁ, n. sp.
Pl. 12, Figs. 4, 8; Pl. 14, Fig. 2, Pl. 15, Figs. 6, 7; Pl. 16, Fig. 5

Holotype: No. 2291; Pl. 12, Fig. 8. Deposited in the Slovak National Museum in Bratislava (SNM/Z 18.254).
Type locality: the Šípkovský Háj, the Čachtické Karpaty Mts.
Stratotype: the Beriasian
Denomination: Lat. procerus — slender; after the slender shape of rays and spines.
Diagnosis: A four-rayed test of a cross shape. The rays are slender, of a rectangular cross section, ended by a long spine. The meshwork of the cortical shell — three longitudinal, more or less continuous rows of quadrangle pore frames. Large, round pores of the central area with an irregular arrangement.
Description: The test consists of four slender rays arising from a small central area. The rays are placed cross-like; they narrow conically at their ends. They end in one, slender threeridged spine. The cross section of the rays is rectangular. The meshwork of the rays is on the top and bottom side formed by four longitudinal beams connected by bars forming three longitudinal semilinear rows of quadrangle, in some places triangle pore frames. The nodes of the meshwork are slightly thickened. The pores of the central area are large, round, irregularly arranged. In some places, a finely pored medullary shell can be observed through them. The lateral sides are slightly concave, with two horizontal rows of large paired pores in the central part. The spines of about the same size are on average about half, max. two thirds longer than the rays. The ridges of the spines are suparated by deep grooves.

Measurements:	holotype	min.	max.
Length of rays	0.200	0.181	0.200
Length of spines	0.290	0.266	0.320
Width of rays	0.060	0.060	0.100

Genus *Pseudoeucyrtis* PESSAGNO, 1977
Pseudoeucyrtis sp.
Pl. 10, Figs. 5, 6, 8; Pl. 13, Fig. 2

Description: The test is of a spindly shape, without any signs of strictures between the segments. The cephalis is finelly pored, ended by a stout, short

horn consisting of twelve ridgegs slightly diverted to sides at their ends. In other cases, the horn is short, smooth. At the distal end of the test, the last segment ends in a stout horn with four ridges diverted to sides. From the cephalis to about 1/4 the heigth of the test the segments are finely pored. The meshwork is formed by hexagonal to polygonal pore frames without any apparent arrangement. In the rest of its part, the meshwork is formed by large hexagonal pore frames arranged in diagonal rows.

Genus *Sethocapsa* HAECKEL, 1881
Sethocapsa cetia FOREMAN, 1973
Pl. 5, Fig. 8

1973 *Sethocapsa cetia* FOREMAN, new species — H. P. Foreman: Radiolaria from DSDP Leg 20, p. 267, Pl. 12, Fig. 1; Pl. 16, Fig. 19.
Stratigraphic range: the Upper Oxfordian — the Upper Valanginian.

Sethocapsa leiostraca FOREMAN, 1973
Pl. 13, Fig. 4

1973 *Sethocapsa leiostraca* FOREMAN, new species — H. P. Foreman: Radiolaria from DSDP Leg 20, p. 268, Pl. 12, Figs. 5, 6.
Stratigraphic range: the Kelloway — the Lower Cretaceous

Genus *Syringocapsa* NEVIANI, 1900
Syringocapsa rotunda (HINDE, 1900)
Pl. 12, Fig. 7; Pl. 14, Figs. 4, 6

1900 *Stichocapsa rotunda* — G. J. HINDE: Description of fossil Radiolaria etc., p. 41, Pl. 3, Fig. 24 (non vidi).
1973 *Stichocapsa* (?) *rotunda* HINDE — H. P. FOREMAN: Radiolaria from DSDP Leg 20, p. 265, Pl. 11, Figs. 1, 2; Pl. 10, Fig. 20.
1978 *Syringocapsa rotunda* (HINDE) — H. P. Foreman: Mesozoic Radiolaria etc., p. 749, Pl. 2, Fig. 2.
1980 *Syringocapsa rotunda* (HINDE) — P. O. Baumgartner and al.: Correlation of Tethyan Late Jurassic etc., p. 62, Pl. 3, Fig. 12 (cum syn.).
Note: All our specimens were of the size 0.500—0.600 mm.
Stratigraphic range: the Upper Oxfordian — the Lower Cretaceous. Large sized specimens — the Tithonian — the Lower Cretaceous.

Genus *Tetraditryma* BAUMGARTNER, 1980
Tetraditryma sp.
Pl. 13, Fig. 1

Description: The test consists of a small central area and four rays of almost the same lengths, arranged in a cross. The rays widen at their ends to a bulbous shape and they end in one central and several thin lateral spines. The meshwork of the rays consists of two distinct lateral and one central beam, connected by thin transverse bars perpendicular to the beams. Two rows of quadrangle paired pores are formed this way. The lateral side of the rays

is concave. The cross section of the rays is of a quadrangle shape. The meshwork of the central area is indistinct.

Note: Our specimens resemble *T. pseudoplena* BAUMGARTNER. They differ from it in one stout central spine and several lateral spines at the ray ends instead of two stout lateral spines at the right angle to the ray axis.

Genus *Triactoma* RÜST, 1885

Triactoma sp. cf. T. *echiodes* FOREMAN, 1973

Pl. 13, Fig. 3

1973 *Triactoma echiodes* FOREMAN, new species — H. P. Foreman: Radiolaria from DSDP Leg 20, p. 260, Pl. 3, Fig. 1; Pl. 16, Fig. 21.

1973 *Triactoma* sp. cf. T. *echiodes* FOREMAN — H. P. Foreman: Radiolaria from DSDP Leg 20, p. 260, Pl. 3, Figs. 2, 3.

Note: Our specimens by all their signs resemble the specimen described by H. P. Foreman (1973) as *Triactoma* sp. cf. *T. echiodes*.

Stratigraphic range: the Upper Tithonian to the Lower Cretaceous.

Triactoma jonesi (PESSAGNO, 1977)

Pl. 10, Fig. 4; Pl. 11, Fig. 5

1977 *Tripocyclia jonesi* PESSAGNO, n. sp. — E. A. Pessagno: Upper Jurassic Radiolaria etc., p. 80, Pl. 7, Figs. 1–5.

1978 *Triactoma jonesi* (PESSAGNO) — H. P. Foreman: Mesozoic Radiolaria in the Atlantic Ocean etc., p. 743, Pl. 1, Figs. 13, 14.

Note: Length of spines is in our specimens smaller than the test diametre. They resemble the specimen illustrated by H. P. Foreman (1978; Pl. 1, Fig. 14). Here, similarly as in our specimens, the ridges of the spines divert to sides.

Stratigraphic range: the Upper Kelloway — the Valanginian.

Triactoma tithonianum RÜST, 1885

Pl. 12, Fig. 9; Pl. 14, Fig. 1

1885 *Triactoma tithonianum* m. — D. RÜST: Beiträge zur Kenntniss etc., p. 289, Pl. 28 (3), Fig. 5.

Stratigraphic range: the Upper Kimmeridgian — the Valanginian.

Genus *Tripocyclia* HAECKEL, 1882

Tripocyclia trigonum RÜST, 1885

Pl. 12, Figs. 5, 6, 10; Pl. 15, Fig. 2

1885 *Tripocyclia trigonum* m. — D. RÜST: Beiträge zur Kenntniss etc., p. 23, Pl. 30 (5), Fig. 3.

1977 *Tripocyclia trigonum* RÜST — E. A. Pessagno: Upper Jurassic Radiolaria etc., p. 80, Pl. 7, Figs. 6, 7.

Note: Character of spines is not detailly described in the holotype. Pessagno (1977) characterises this species by theree-ridged spines without any signs of splitting. In our specimens, each ridge is longitudi-

nally partly or completely devided into two ridges separated by a narrow groove. To the end of the spine, the ridges connect and then divert to sides.

Stratigraphic range: the Upper Kimmeridgian – the Lower Tithonian.

Genus *Tritrabs* BAUMGARTNER, 1980

Tritrabs ewingi (PESSAGNO, 1971)

Pl. 14, Fig. 5; Pl. 15, Fig. 5

1971 ? *Paronaella ewingi*, n. sp. – E. A. Pessagno: Jurassic and Cretaceous Hagiastridae etc., p. 47, Pl. 19, Figs. 2–5.

1980 *Tritrabs ewingi* (PESSAGNO) – P. O. Baumgartner: Late Jurassic Hagiastridae etc., p. 293, Pl. 4, Figs. 5, 7, 17, 18.

Stratigraphic range: the Batian – the Valanginian.

Tritrabs sp.

Pl. 14, Fig. 3; Pl. 15, Figs. 1, 4

Description: The relatively small specimen consists of three differently long rays arising from a small central area. The rays slightly widen at their ends and become bulbous. They end in one central and two lateral spines between which two small spines are placed. The ray structure is characteristical for the genus. In the small central area, the pores are arranged concentrically.

It differs from *T. rhododactylus* BAUMGARTNER in the structure of its central area and in absence of distinct depressions in the place of longitudinal rows of pore frames.

Genus *Xitus* PESSAGNO, 1977

Xitus alievi (FOREMAN, 1973)

Pl. 9, Fig. 6

1973 *Dictyomitra alievi* FOREMAN, new species – H. P. Foreman: Radiolaria from DSDP Leg 20, p. 263, Pl. 9, Fig. 10; Pl. 16, Fig. 4.

1981 *Xitus alievi* (FOREMAN, 1973) – A. Schaaf: Late early Cretaceous etc., p. 440, Pl. 5, Figs. 4a, b; Pl. 19, Figs. 1a, b; 8a, b.

Stratigraphic range: the Lower Cretaceous (the Valanginian).

Translated by K. Benkovičová

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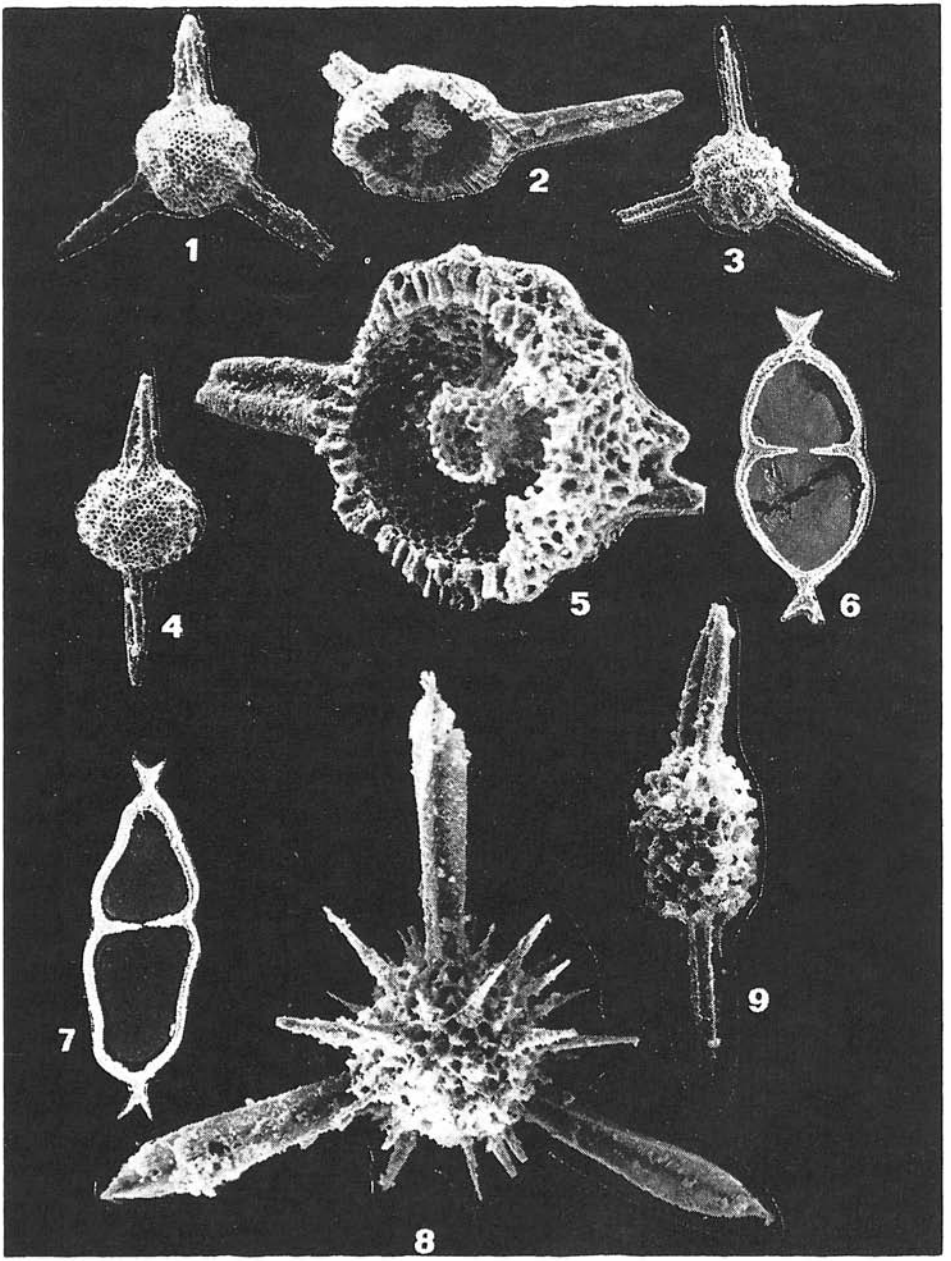


Plate 1

Fig. 1. *Acaeniotyle diaphorogona* FOREMAN; 80 ×
2. *Acaeniotyle diaphorogona* FOREMAN; 125 ×
3. *Acaeniotyle diaphorogona* FOREMAN; 60 ×
4. *Acaeniotyle umbilicata* (RÜST); 70 ×
5. *Acaeniotyle umbilicata* (RÜST); 210 ×
6. *Acanthocircus dicranacanthos* (SQUINABOL); 60 ×
7. *Acanthocircus dicranacanthos* (SQUINABOL); 60 ×
8. *Alievium* sp.; 120 ×
9. *Archaeospongoprunum implayi* PESSAGNO; 262 ×

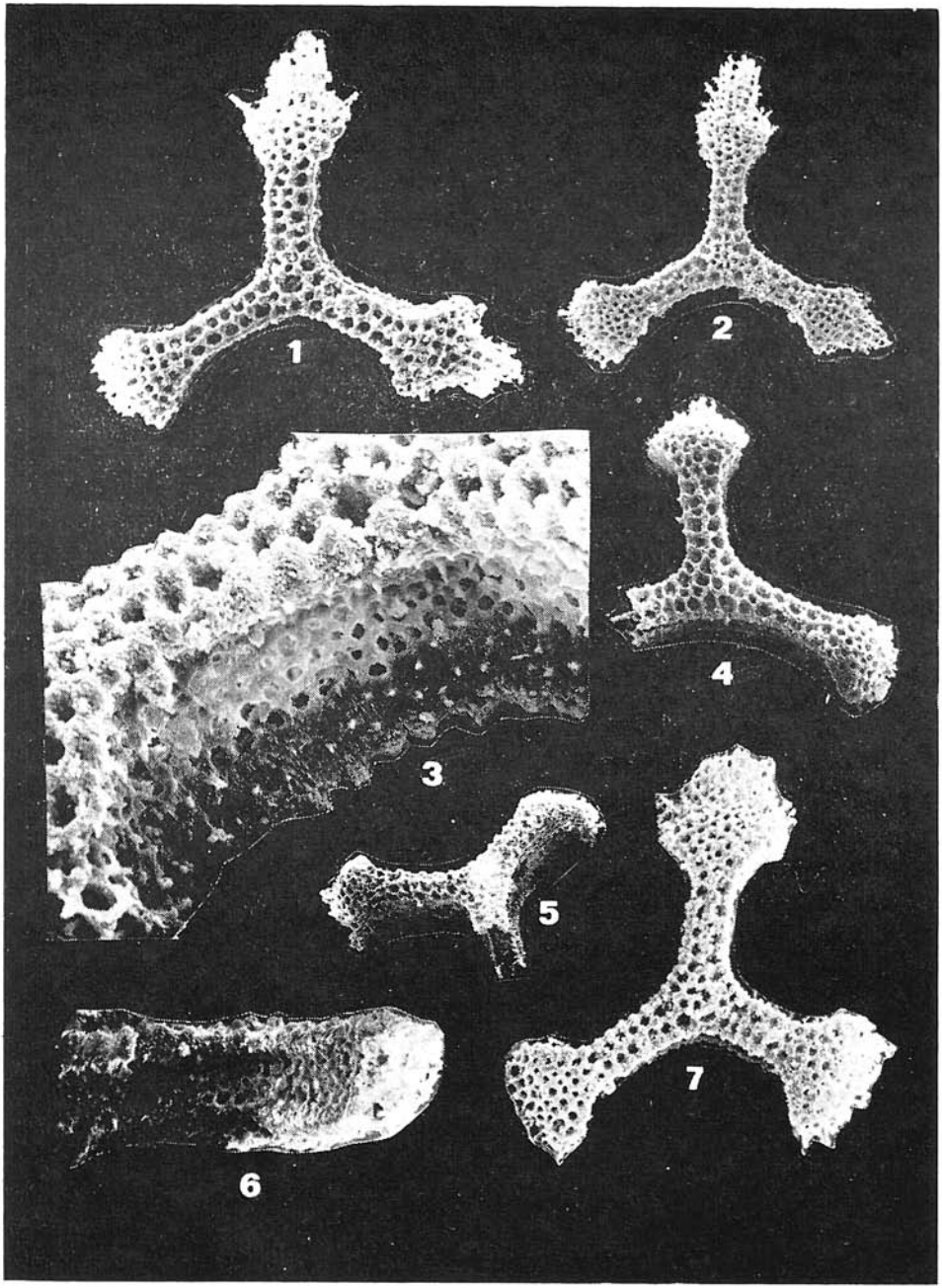


Plate 2

Fig. 1. *Angulobracchia biordinale* OŽVOLDOVÁ, n. sp.; holotype; 120 ×
2. *Angulobracchia biordinale* OŽVOLDOVÁ, n. sp.; paratype; 90 ×
3. *Angulobracchia biordinale* OŽVOLDOVÁ, n. sp.; holotype, 375 ×
4. *Angulobracchia biordinale* OŽVOLDOVÁ, n. sp.; paratype; 110 ×
5. *Angulobracchia biordinale* OŽVOLDOVÁ, n. sp.; side view from fig. 4; 90 ×
6. *Angulabracchia biordinale* OŽVOLDOVÁ, n. sp.; lateral side of ray; 187 ×
7. *Angulobracchia biordinale* OŽVOLDOVÁ, n. sp.; paratype; 120 ×

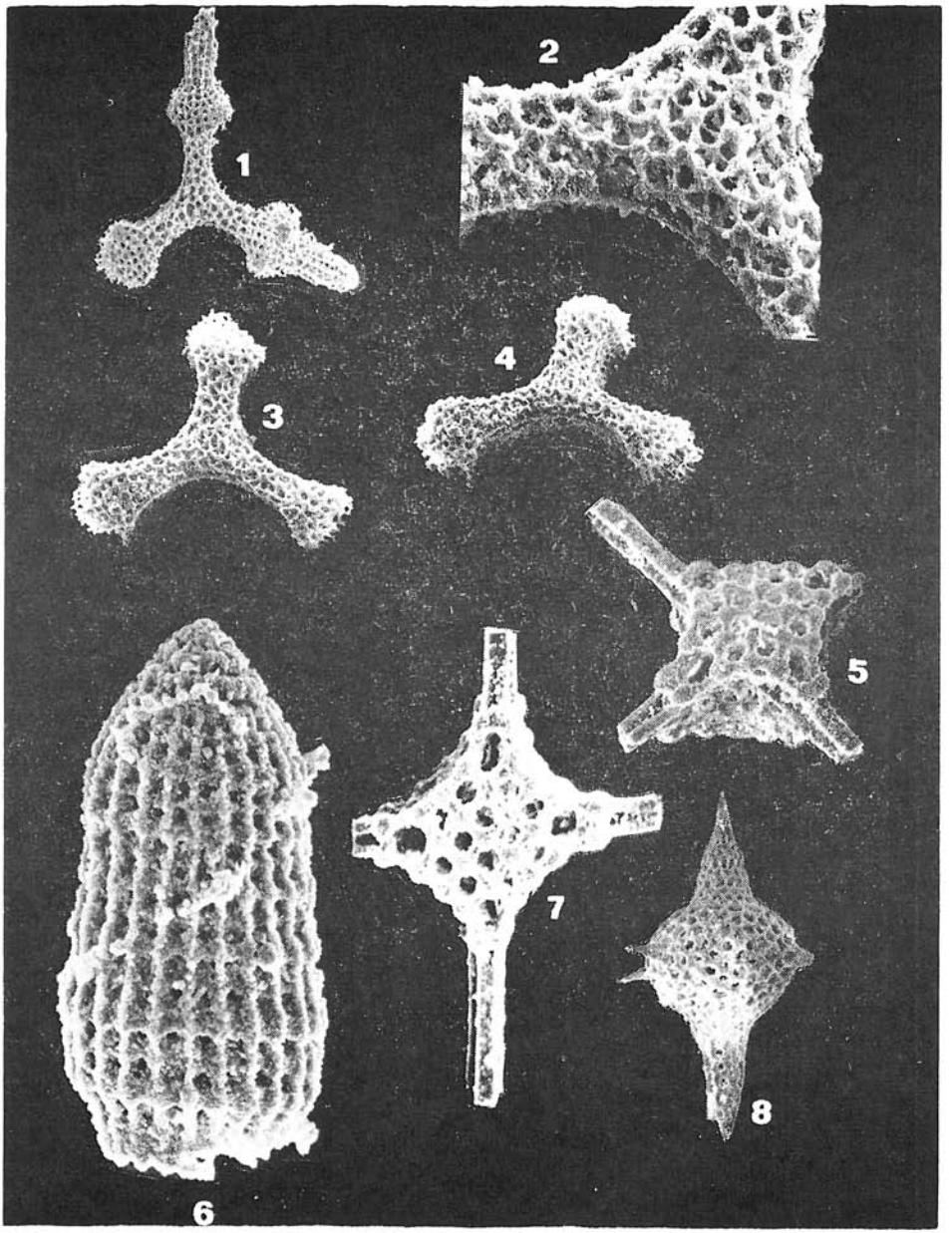


Plate 3

Fig. 1. *Angulobracchia* sp.; 75 ×
2. *Angulobracchia* sp.; detail of test meshwork; 300 ×
3. *Angulobracchia* sp.; 100 ×
4. *Angulobracchia* sp.; 100 ×
5. *Emiluvia sedecimporata* (RÜST); 140 ×
6. *Arachaeodictyomitra apiaria* (RÜST); 250 ×
7. *Emiluvia sedecimporata* (RÜST); 150 ×
8. *Podobursa triacantha* (FISCHLI); 110 ×

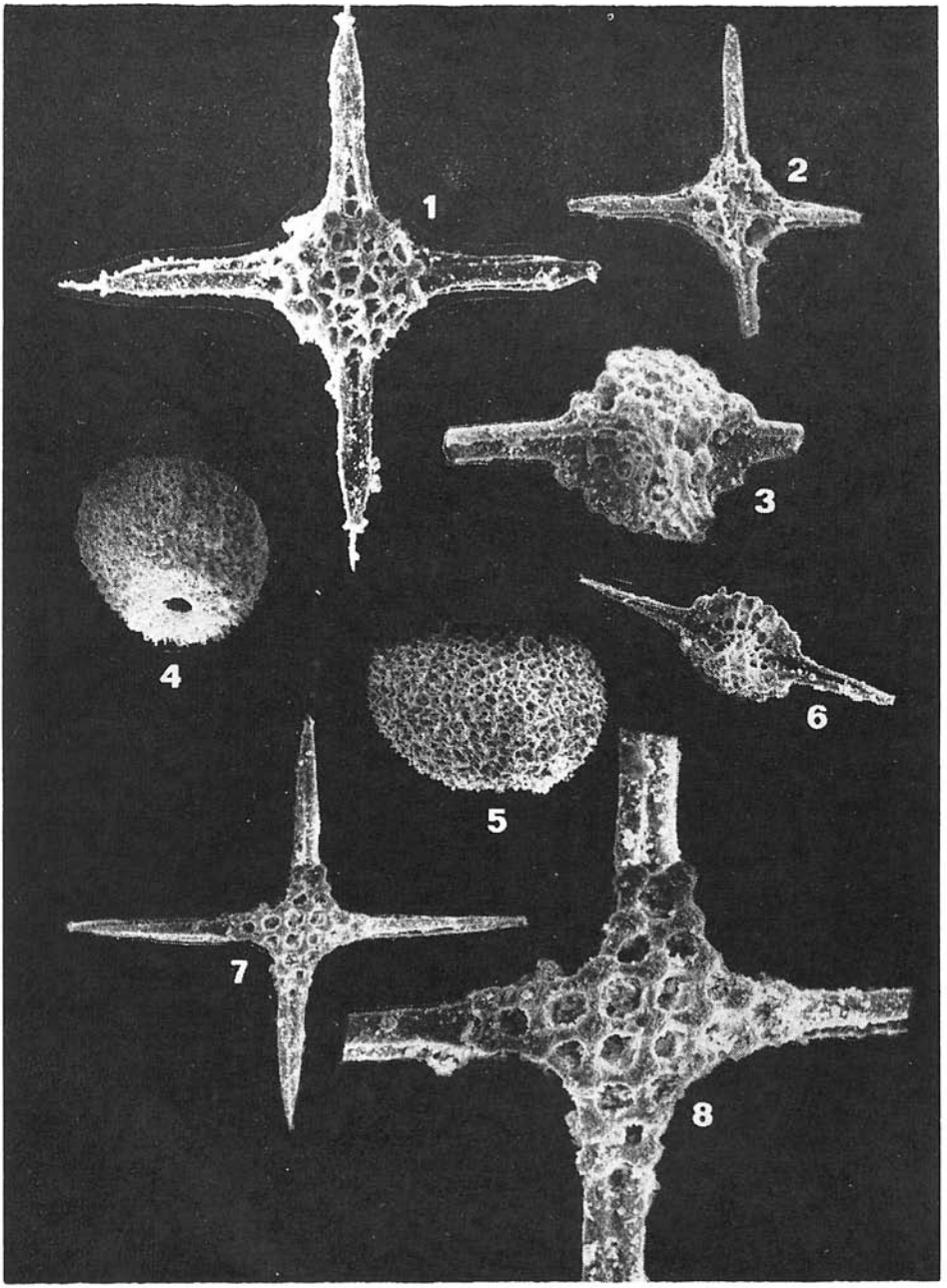


Plate 4

Fig. 1. *Emiluvia chica* FOREMAN; 105 ×
2. *Emiluvia chica* FOREMAN; view of medullary shell; 80 ×
3. *Emiluvia chica* FOREMAN; side view 120 ×
4. *Obesacapsula morroensis* PESSAGNO; 70 ×
5. *Obesacapsula morroensis* PESSAGNO; 85 ×
6. *Emiluvia ordinaria* OŽVOLDOVÁ, n. sp.; vertical section of test; 75 ×
7. *Emiluvia ordinaria* OŽVOLDOVÁ, n. sp.; holotype; 90 ×
8. *Emiluvia ordinaria* OŽVOLDOVÁ, n. sp.; holotype; 225 ×

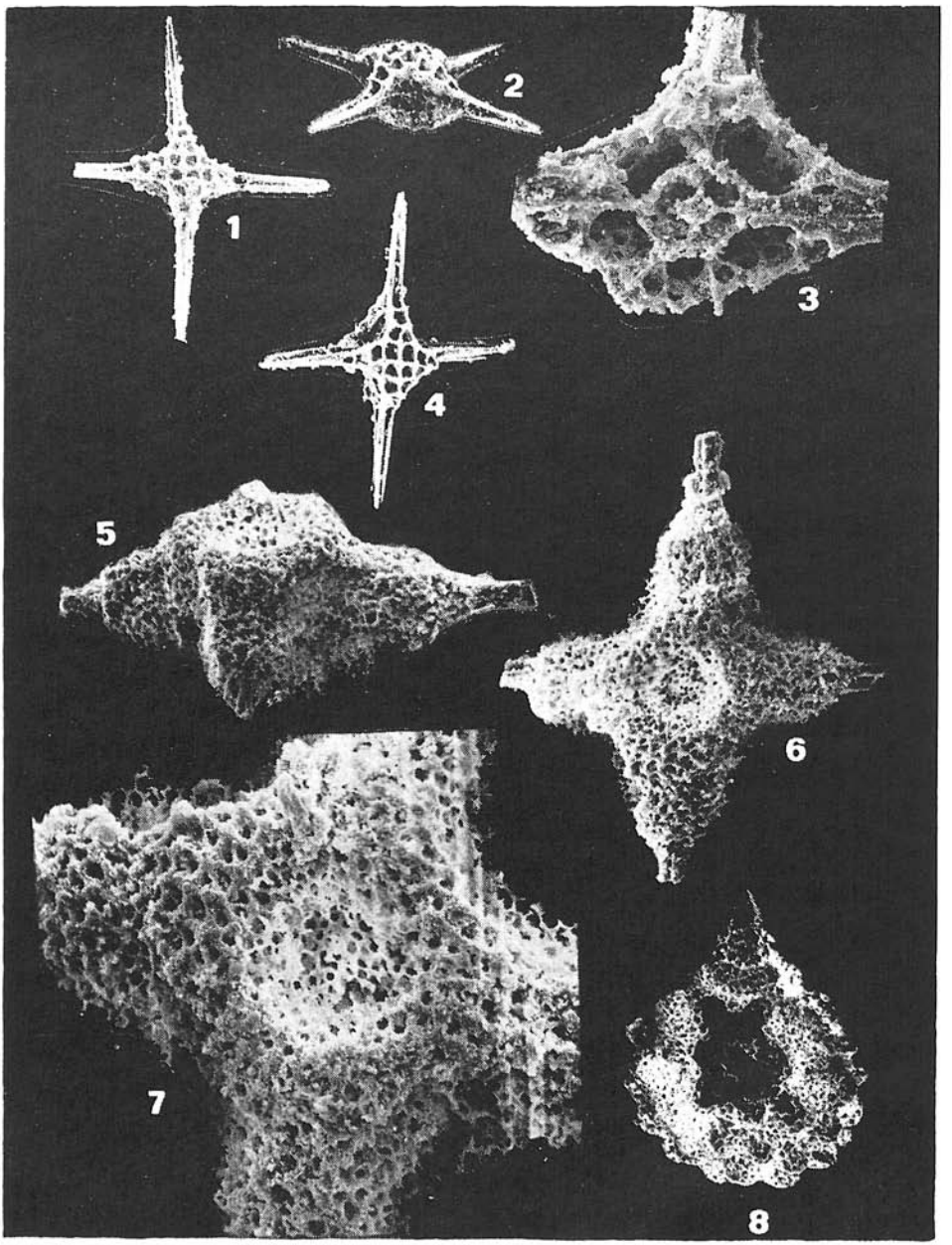


Plate 5

Fig. 1. *Emiluvia ordinaria* OŽVOLDOVÁ, n. sp.; paratype; 65 ×
2. *Emiluvia ordinaria* OŽVOLDOVÁ, n. sp.; holotype; side view; 65 ×
3. *Emiluvia ordinaria* OŽVOLDOVÁ, n. sp.; view of 2 medullary shells.; 225 ×
4. *Emiluvia ordinaria* OŽVOLDOVÁ, n. sp.; paratype; 65 ×
5. *Crucella* sp. cf. *C. cachensis*, PESSAGNO; 112 ×
6. *Crucella* sp. cf. *C. cachensis* PESSAGNO; 120 ×
7. *Crucella* sp. cf. *C. cachensis* PESSAGNO; 225 ×
8. *Sethocapsa cetia* FOREMAN; 80 ×

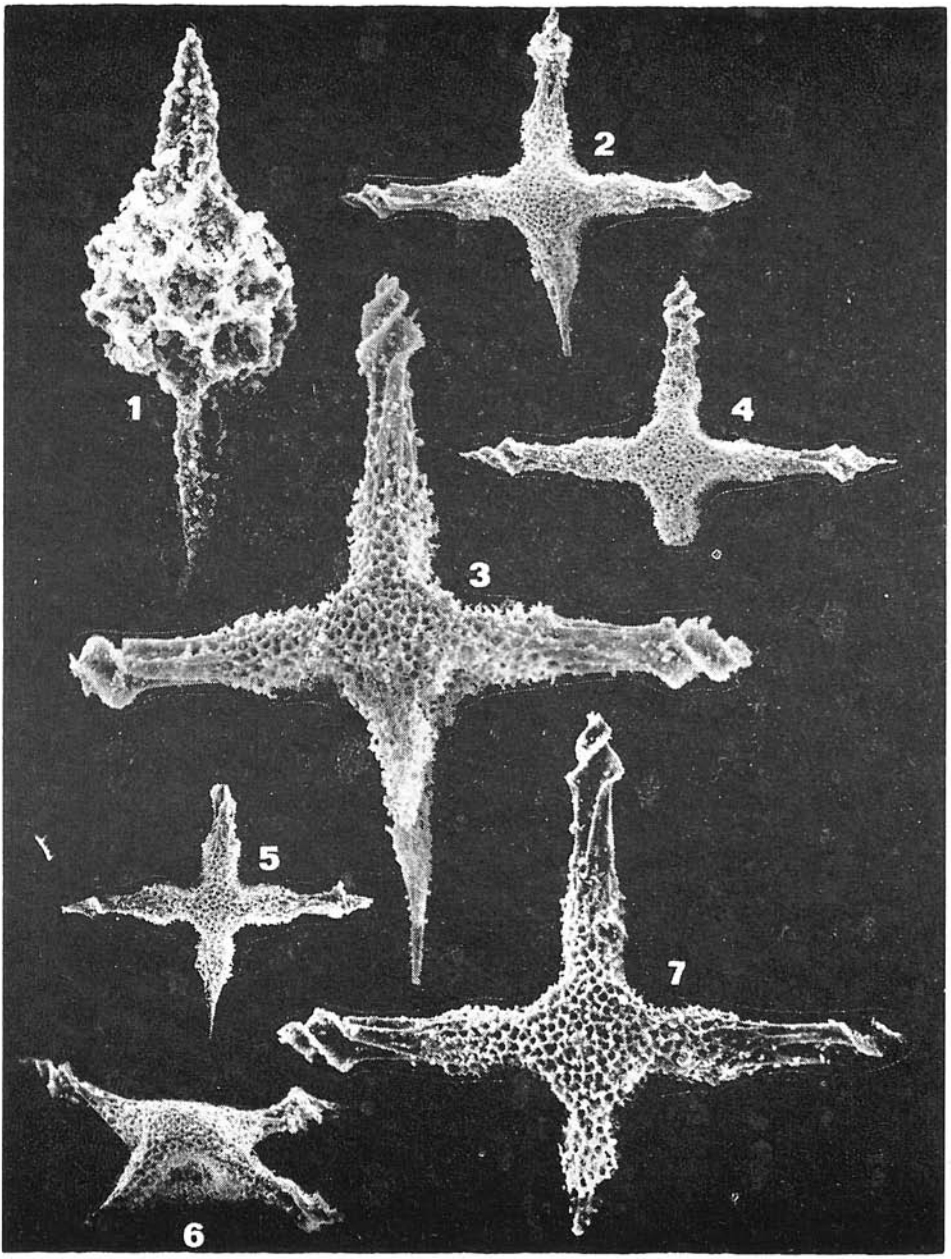


Plate 6

Fig. 1. *Pantanellium squinaboli* (TAN SIN HOK); 225 ×
2. *Crucella ? contorta* OŽVOLDOVÁ, n. ps.; paratype; 80 ×
3. *Crucella ? contorta* OŽVOLDOVÁ, n. sp.; holotype; 140 ×
4. *Crucella ? contorta* OŽVOLDOVÁ, n. sp.; paratype; 80 ×
5. *Crucella ? contorta* OŽVOLDOVÁ, n. sp.; paratype 65 ×
6. *Crucella ? contorta* OŽVOLDOVÁ, n. sp.; side view from fig. 2; 80 ×
7. *Crucella ? contorta* OŽVOLDOVÁ, n. sp.; paratype; 140 ×

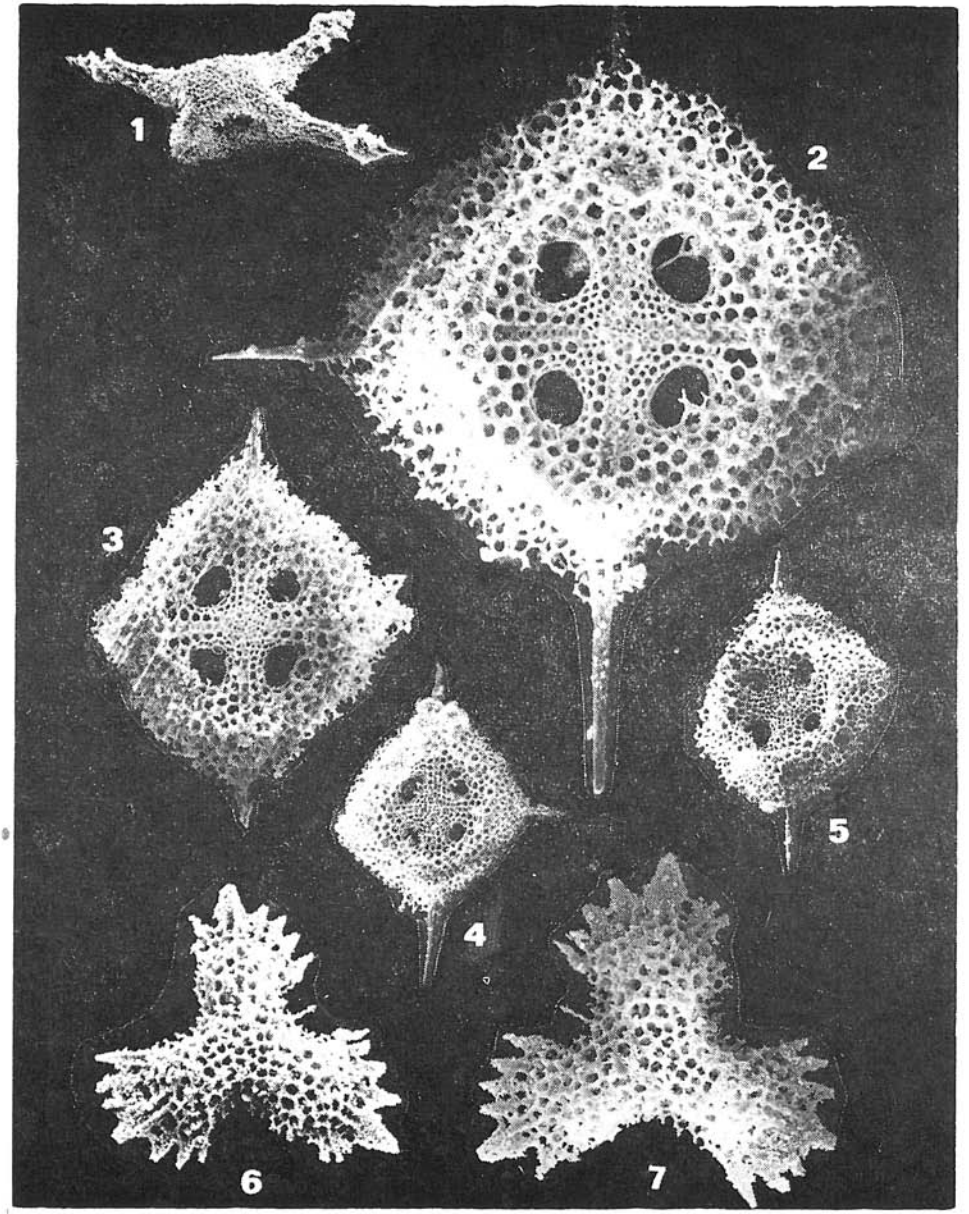


Plate 7

Fig. 1. *Crucella ? contorta* OŽVOLDOVÁ, n. sp.; paratype; 80 ×
2. *Higumastra coronaria* OŽVOLDOVÁ, n. sp.; holotype; 120 ×
3. *Higumastra coronaria* OŽVOLDOVÁ, n. sp.; paratype; 80 ×
4. *Higumastra coronaria* OŽVOLDOVÁ, n. sp.; paratype; 50 ×
5. *Higumastra coronaria* OŽVOLDOVÁ, n. sp.; paratype; 50 ×
6. *Paronaella* cf. *pristidentata* BAUMGARTNER; 110 ×
7. *Paronaella* cf. *pristidentata* BAUMGARTNER; 130 ×

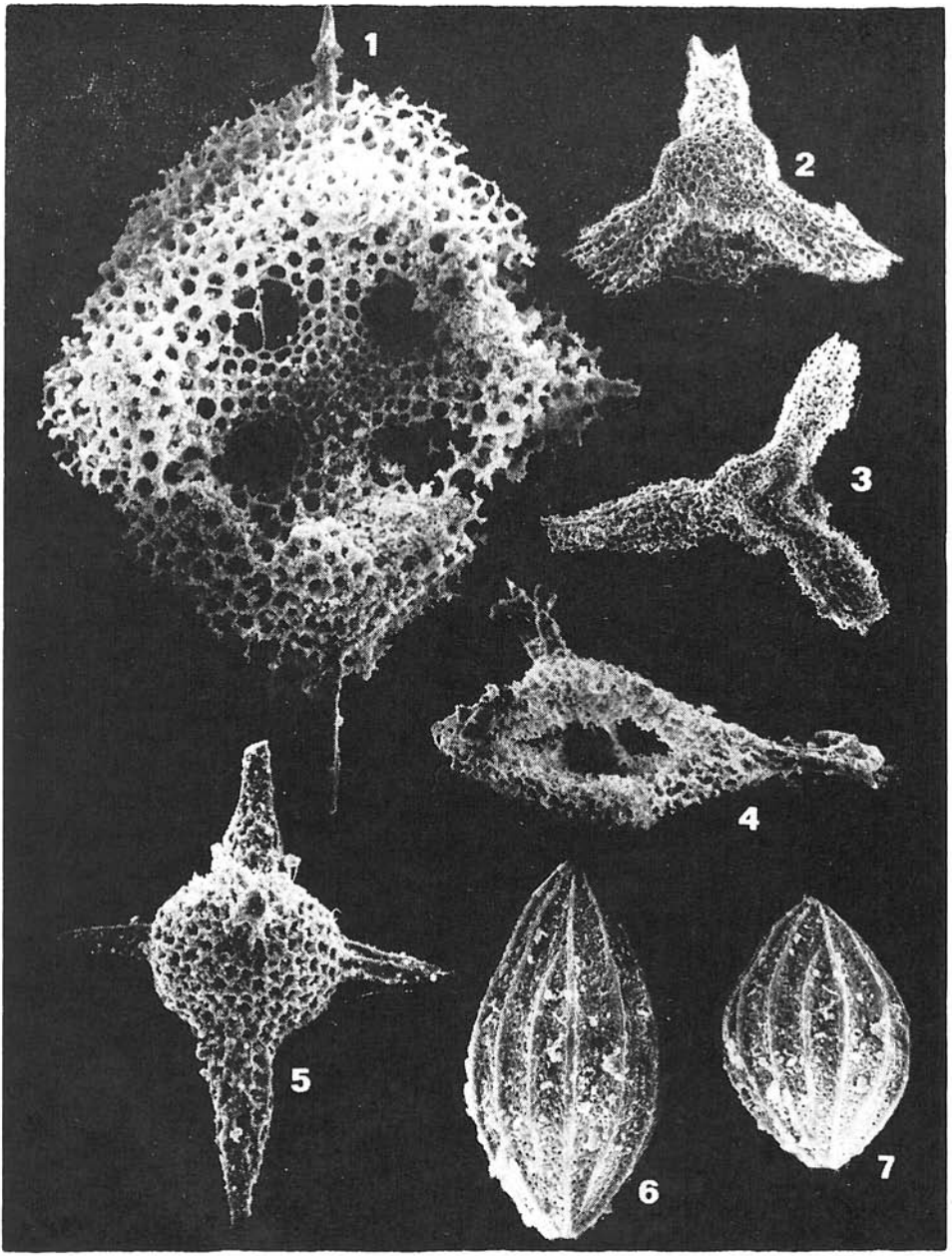


Plate 8

Fig. 1. *Higumastra coronaria* OŽVOLDOVÁ, n. sp.; paratype; 140 ×
2. *Paronaella* ? sp.; 100 ×
3. *Paronaella* ? sp.; 80 ×
4. *Crucella* ? *contorta* OŽVOLDOVÁ, n. sp.; vertical section of test.; 150 ×
5. *Podobursa tetracola* FOREMAN, 120 ×
6. *Protunuma fusiformis* ICHIKAWA et YAO; 250 ×
7. *Protunuma fusiformis* ICHIKAWA et YAO; 200 ×

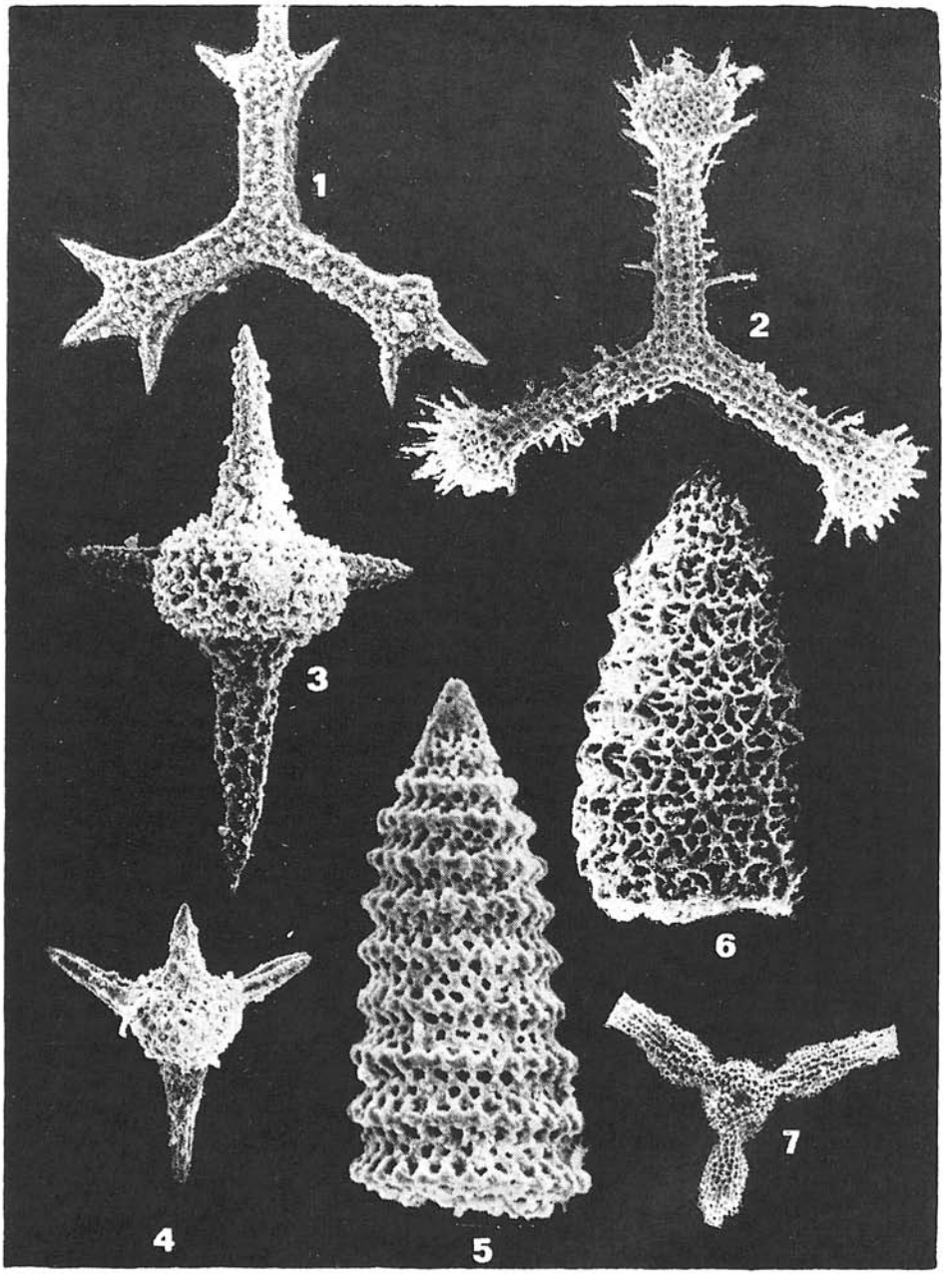


Plate 9

Fig. 1. *Halesium* sp.; 120 ×
2. *Homoeoparonaella argolidensis* BAUMGARTNER; 75 ×
3. *Podobursa tetracola* FOREMAN; 120 ×
4. *Podobursa tetracola* FOREMAN; 100 ×
5. *Parvicingula cosmoconica* (FOREMAN); 170 ×
6. *Xitus alievi* (FOREMAN); 195 ×
7. *Paronaella* ? sp.; 70 ×

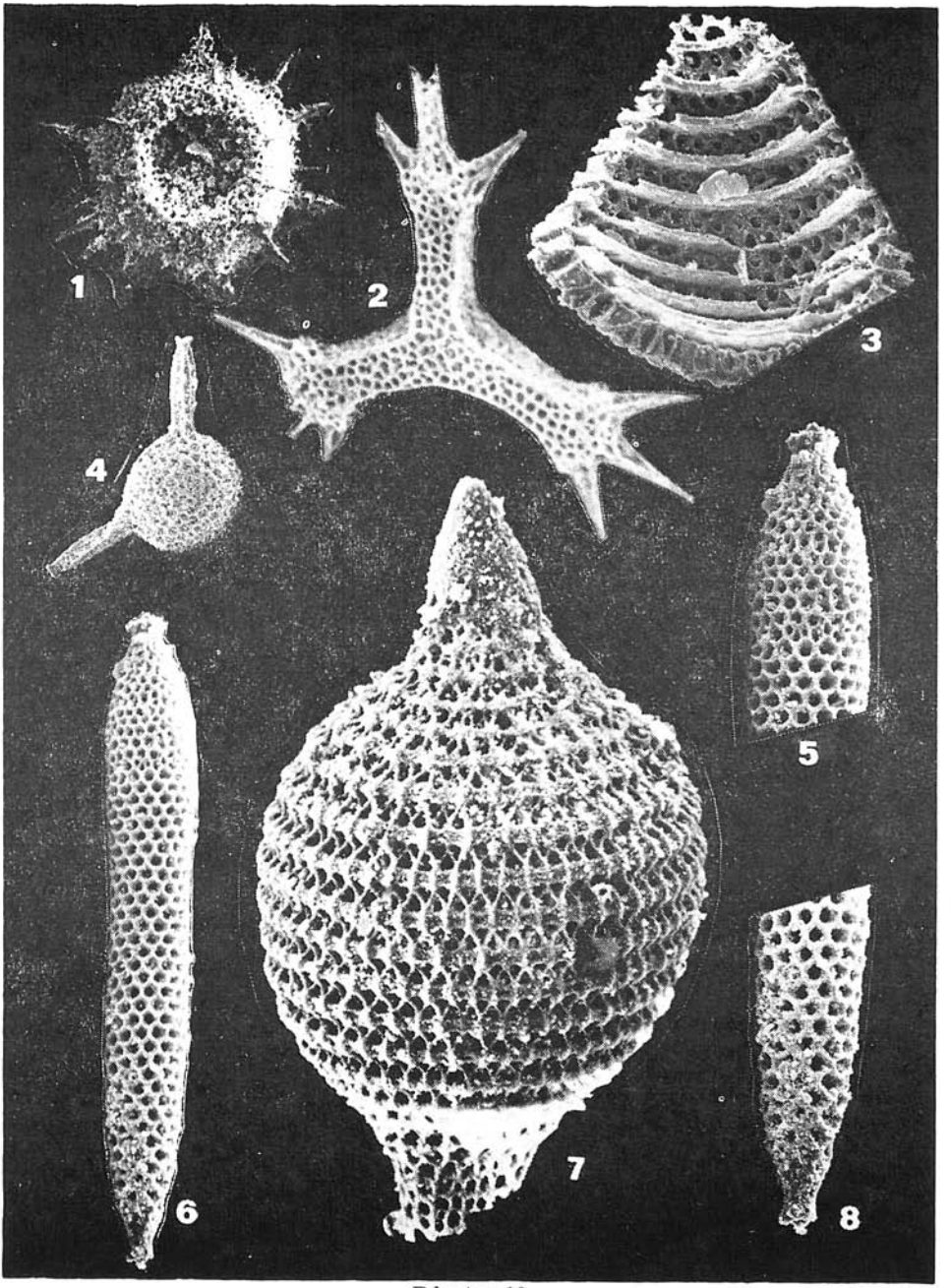


Plate 10

Fig. 1. *Orbiculiforma* ? cf. *multifora* PESSAGNO et POISSON; 90 X
2. *Patulibracchium* sp.; 112 X
3. *Mirifusus baileyi* PESSAGNO; view of inner layer of wall of test; 150 X
4. *Triactoma jonesi* PESSAGNO; 60 X
5. *Pseudoeucyrtis* sp.; appical part of test; 150 X
6. *Pseudoeucyrtis* sp.; 120 X
7. *Mirifusus baileyi* PESSAGNO; 160 X
8. *Pseudoeucyrtis* sp.; distal part of test; 150 X

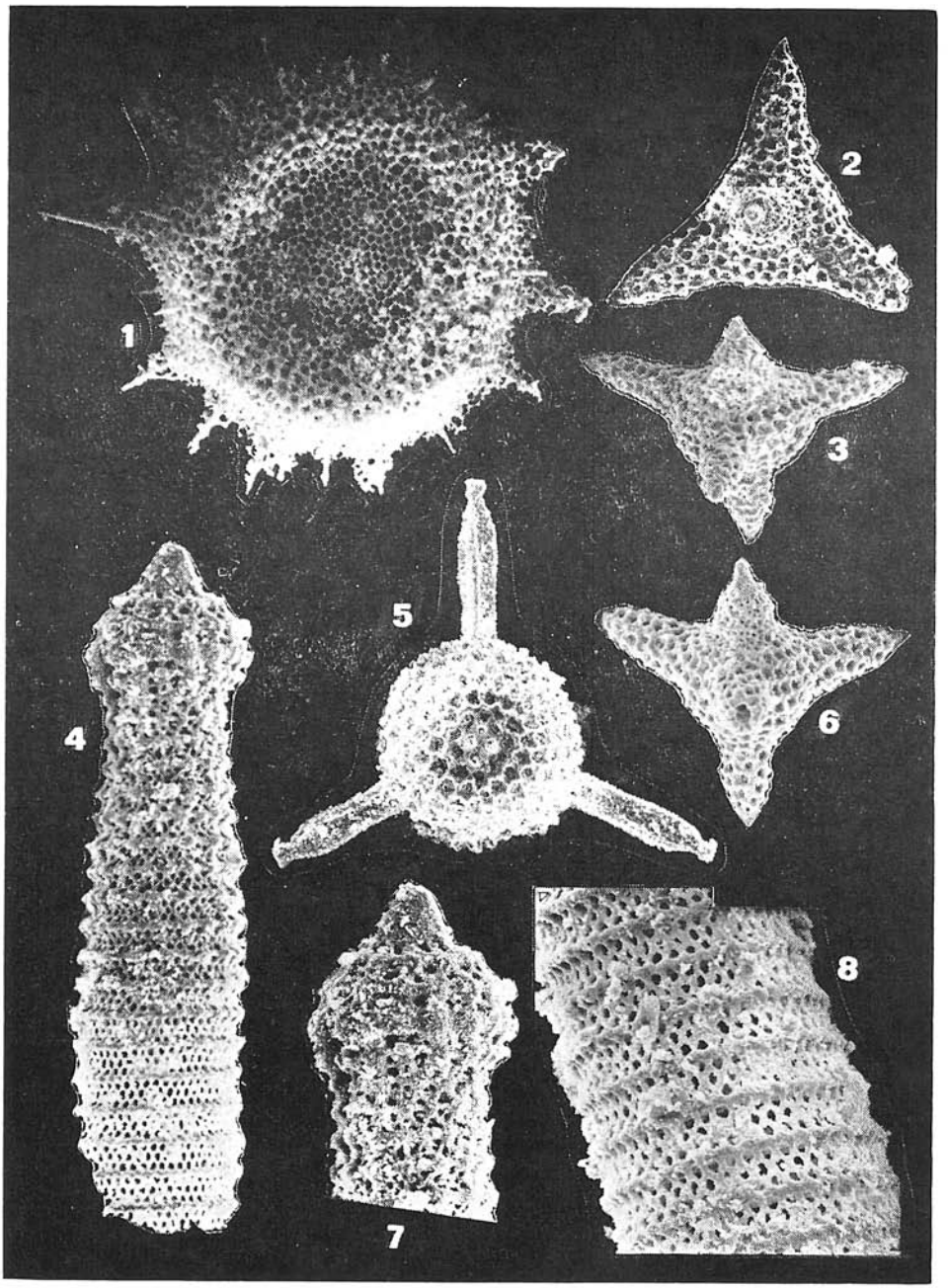


Plate 11

Fig. 1. *Orbiculiforma* ? cf. *multifora* PESSAGNO et POISSON; 140 ×
2. *Podocapsa amphitreptera* FOREMAN; 100 ×
3. *Podocapsa amphitreptera* FOREMAN; 90 ×
4. *Parvicingula* ? *altissima* (RÜST); 120 ×
5. *Triactoma jonesi* PESSAGNO; 90 ×
6. *Podocapsa amphitreptera* FOREMAN; 100 ×
7. *Parvicingula* ? *altissima* (RÜST); 160 ×
8. *Parvicingula* ? *altissima* (RÜST); cylindrical part of test; 200 ×

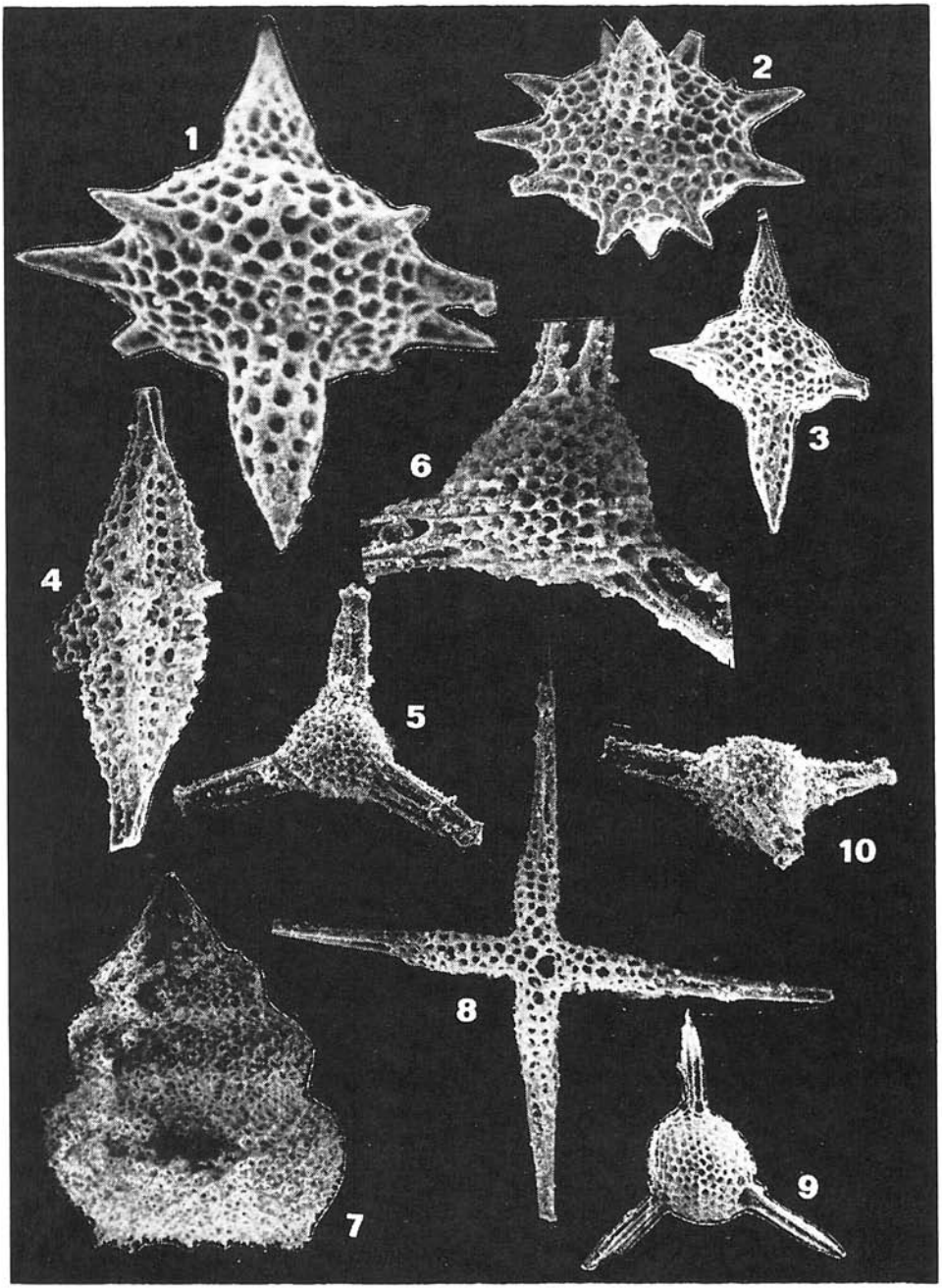


Plate 12

Fig. 1. *Podobursa* sp. aff. *P. triacantha* (FISCHLI); 210 ×
2. *Podobursa* sp. aff. *P. triacantha* (FISCHLI); 140 ×
3. *Podobursa* sp. aff. *P. triacantha* (FISCHLI); 100 ×
4. *Pseudocrucella procera* OŽVOLDOVÁ, n. sp.; lateral side of rays; 150 ×
5. *Tripocyclia trigonum* RÜST; 80 ×
6. *Tripocyclia trigonum* RÜST; 190 ×
7. *Syringocapsa rotunda* (HINDE); 105 ×
8. *Pseudocrucella procera* OŽVOLDOVÁ, n. sp.; holotype; 100 ×
9. *Triactoma tithonianum* RÜST; 60 ×
10. *Tripocyclia trigonum* RÜST; 80 ×

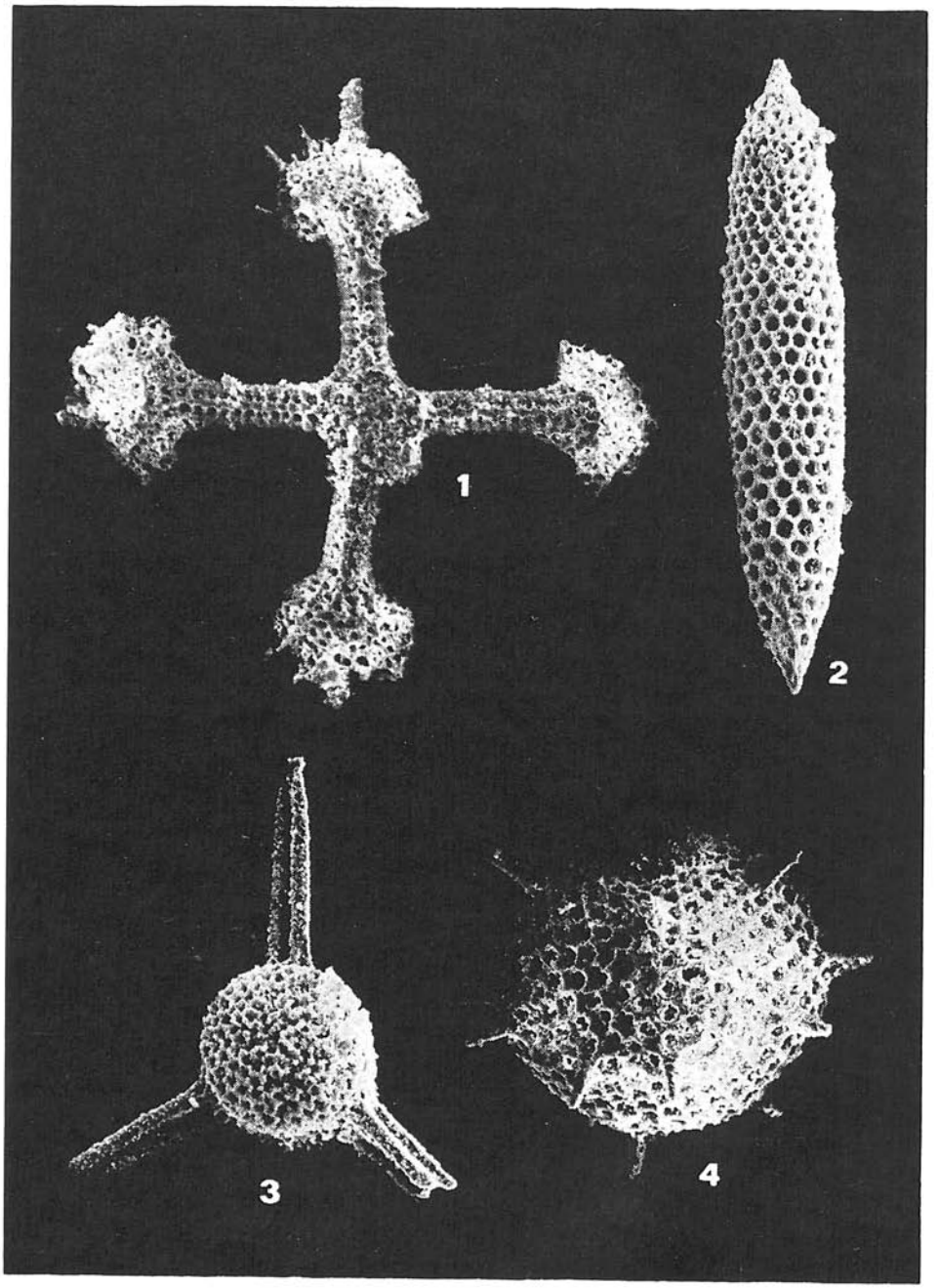


Plate 13

Fig. 1. *Tetraditryma* sp.; 100 ×
2. *Pseudoeucyrtis* sp.; 180 ×
3. *Triactoma* sp. cf. *echiodes* FOREMAN; 135 ×
4. *Sethocapsa leiostraca* FOREMAN; 135 ×

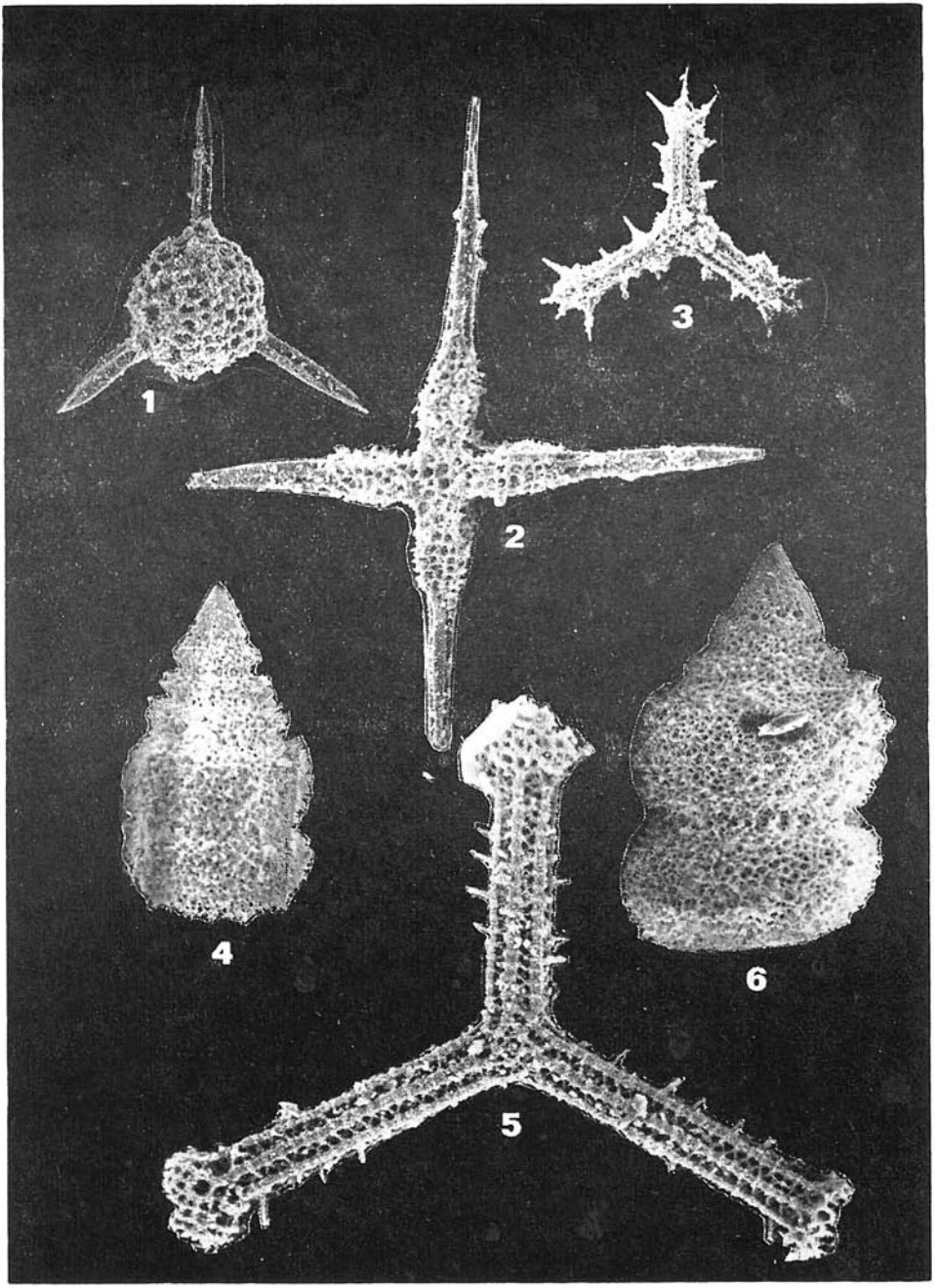


Plate 14

Fig. 1. *Triactoma tithonianum* RÜST; 90 ×
2. *Pseudocrucella procera* OŽVOLDOVÁ, n. sp.; paratype; 100 ×
3. *Tritrabs* sp.; 80 ×
4. *Syringocapsa rotunda* (HINDE); 70 ×
5. *Tritrabs ewingi* (PESSAGNO); 120 ×
6. *Syringocapsa rotunda* (HINDE); 90 ×

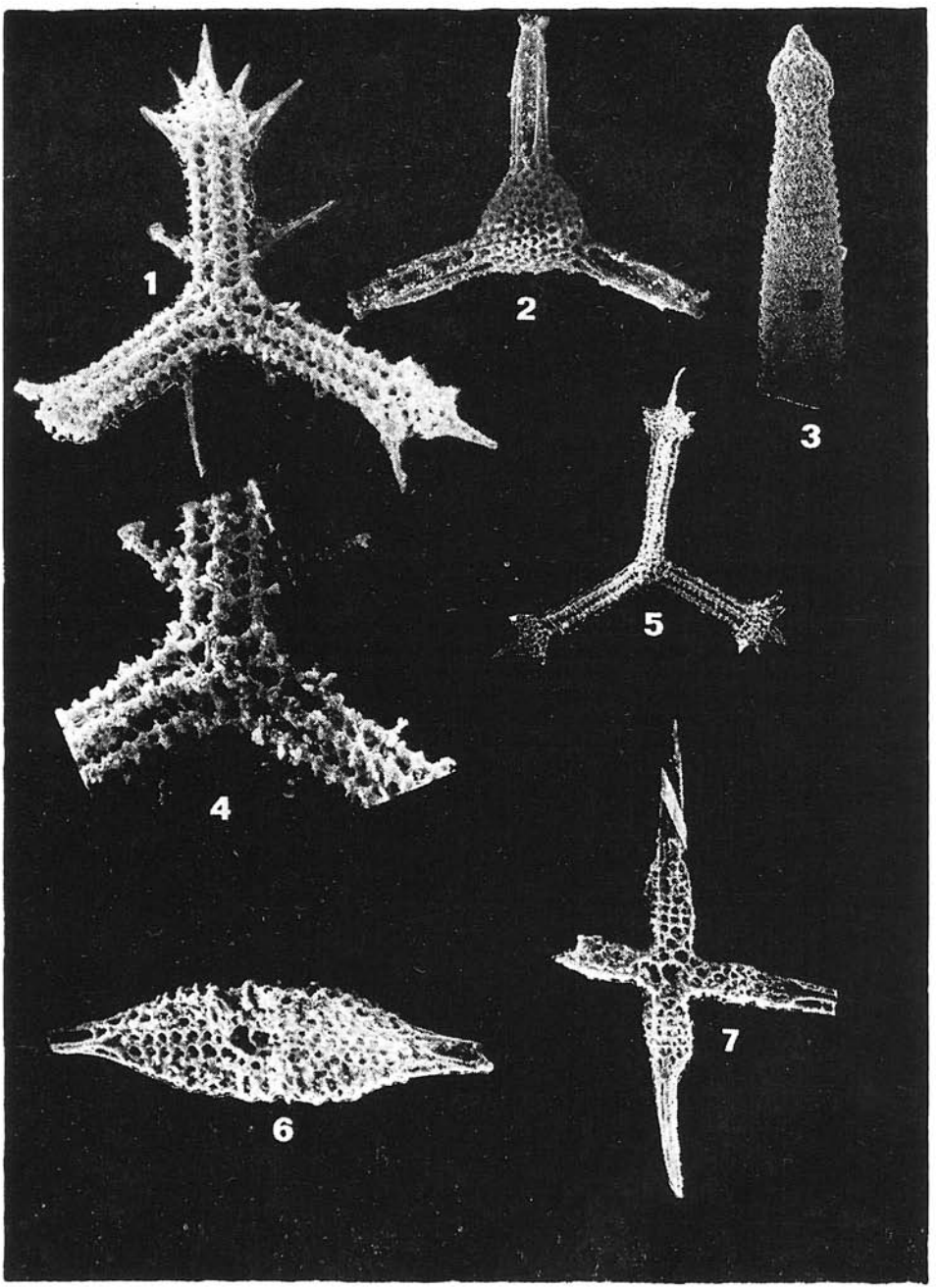
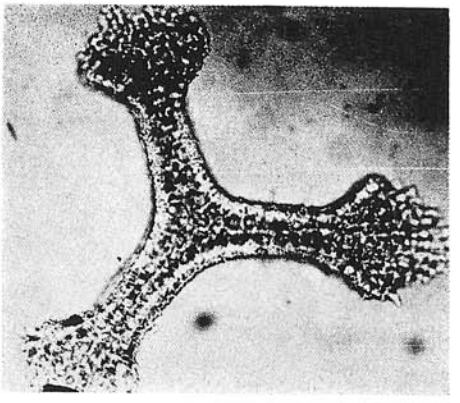


Plate 15

Fig. 1. *Tritrabs* sp.; 120 ×
2. *Tripocyclia trigonum* RÜST; 100 ×
3. *Parvicingula ? altissima* (RÜST); 50 ×
4. *Tritrabs* sp.; 180 ×
5. *Tritrabs ewingi* (PESSAGNO); 60 ×
6. *Pseudocrucella procera* OŽVOLDOVÁ, n. sp.; vertical section of test; 150 ×
7. *Pseudocrucella procera* OŽVOLDOVÁ, n. sp.; paratype; 90 ×



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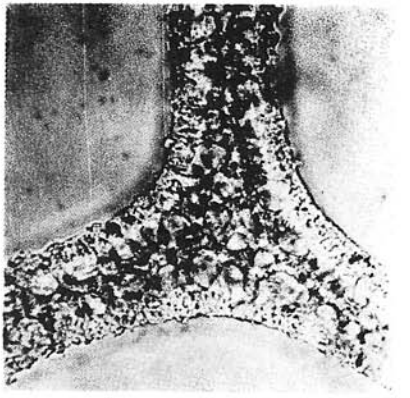

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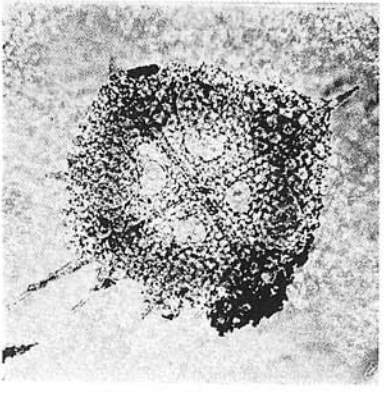

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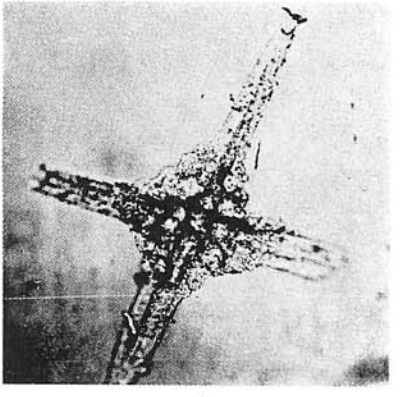

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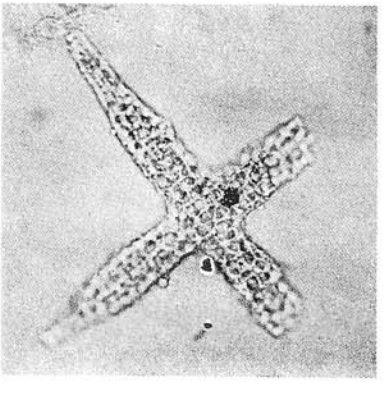

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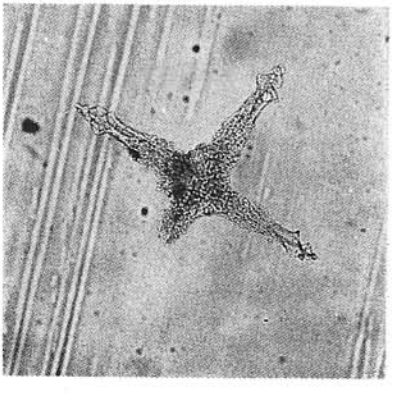

6

Plate 16

Fig. 1. *Angulobracchia biordinale* OŽVOLDOVÁ, n. sp.; 130 ×
2. *Angulobracchia biordinale* OŽVOLDOVÁ, n. sp.; 260 ×
3. *Higumastra coronaria* OŽVOLDOVÁ, n. sp.; 65 ×
4. *Emiluvia ordinaria* OŽVOLDOVÁ, n. sp.; 130 ×
5. *Pseudocrucella procera* OŽVOLDOVÁ, n. sp.; 65 ×
6. *Crucella ? contorta* OŽVOLDOVÁ, n. sp.; 65 ×