IVAN GUŠIĆ

# NEW DASYCLADACEAE FROM THE MAESTRICHTIAN OF BEŠPELJ NEAR JAJCE (WESTERN BOSNIA)

*With 6 plates*

Two new species of *Dasycladaceae* from Maestrichtian deposits in the surroundings of Bešpelj, north-east of Jajce, have been described: *Cymopolia heraki* n. sp. and *Salopekiella inopinata* n. sp., and attention has been drawn to a new species of the genus *Gyroporella*. Their belonging to the Middle Maestrichtian has been documented on the basis of extensive lists of fossils in the already published papers from the area.

## INTRODUCTION AND STRATIGRAPHICAL POSITION

Working on his geological graduation paper, at the Faculty of Science, Zagreb, in the area of Bešpelj – Ranča-Mountain, north-east of Jajce, D. Puizina found in Maestrichtian calcarenites several samples with a rich association of fossil *Dasycladaceae,* and reffered them to me for elaboration, for which I thank him very much. I also thank to his graduation paper mentor D. Neděla-Devidé, who kindly permitted me to work on the material, as well as to the Professors, Dr. V. Kochansky-Devidé and Dr. M. Herak, for their frequent assistance during my work and their helpful criticism of the manuscript, and to my colleagues, B. Sokač, for the literature he placed to my disposal, and M. Milanović, for useful conversations and suggestions.

Deposits of the area had been analysed in detail, from paleontological and stratigraphical point of view, by D. Neděla-Devidé & A. Polšak (1961), as well as by A. Polšak (1965). On the occasions, a lot of fossils were found and determined (*Rudistids, Orbitoididae, Globotruncanidae*), which proved the belonging of the deposits to the Middle Maestrichtian. *Dasycladaceae* bearing samples derive from the same deposits.

Thin-slides with holotypes and other materials are stored at the Institute of Geology and Paleontology, Faculty of Science, Zagreb.

## TAXONOMIC DESCRIPTION

Family *Dasycladaceae*
Tribus *Neomereae* Pia, 1927
Subtribus *Cymopoliinae* Pia, 1927
Genus *Cymopolia* Lamouroux, 1816

Lamouroux established the genus *Cymopolia* as early as 1816, with two recent species: *C. barbata* and *C. rosarium*. The thallus of the algae is characterized by manyfold dichotomic ramification; it is composed of longer or shorter subcylindrical segments, with little or no calcification on their joints. Primary branches, grouped into whorls, carry at their end, inside the calcareous wall, one sporangium each, and four or more secondary branches with widened ends. – In 1825 Défrance described isolated segments of the first fossil *Cymopolia* from the Tertiary of the Paris Basin, under the name of *Polytripa*, and Munier-Chalmas, in 1877 and 1881, found out they were segments of *Cymopolia*, which was later confirmed and accepted by all authors (Morellet & Morellet 1913 and later, Pia 1927). Moreover Munier-Chalmas established a similar genus, *Karreria*, which some later authors (Morellet & Morellet, Elliott) considered only a »section« of the genus *Cymopolia*, in distinction to the »section« *Polytripa*, while Pia, on the contrary, considered that *Karreria*, because of the peculiar structure of its primary branches, should be treated as a separate, independent genus. Regardless of the more or less formal nature of the question, it has had to be pointed out here so as later, in the description of the new species *C. heraki*, to make quite clear that it is not the same species with *Cymopolia* respectively *Karreria tibetica* Morellet.

### *Cymopolia heraki* n. sp.

Plate I–III

Origin of the name: the species has been named after Professor Dr. M. Herak, the first Yugoslav researcher of fossil calcareous algae.

Type locality; southern slopes of Tokat-brdo (point 811), near the village Smionica, about 3 km. south-east of Bešpelj, i. e. about 15–20 km. north-east of Jajce. Other finding places: sparse remains of the species were afterwards also found in Maestrichtian deposits in NE part of Medvednica-Mountain (Zagrebačka gora), 1–2 km. NW of Rog (point 709).

Type stratum: Upper Cretaceous, Middle Maestrichtian; light biocalcarenites – insertions in flyschlike clastic deposits.

Holotype: the specimen in pl. I, fig. 1, thin-slide G-25.

Diagnosis: *Cymopolia* with regular tubular segments, with four secondary branches which are longer than the primary ones and sometimes issue from a globular sporangium, if the latter is developed at the end of primary branches.

Description: Only single isolated segments – parts of the thallus – are preserved, as it is the case in all fossil *Cymopolia;* they manifest a considerable variation of length, and, to some extent, form too: they may be of a regular cylindrical form, tubularly elongated and only a little subcylindrically narrowed at their ends (pl. I, fig. 1, 2) up to short and slightly bulging, a little swollen, but always retaining the general appearance of a part of a regular tube (pl. II, fig. 1; pl. III, fig. 5). The thickness of the calcareous wall amounts to 1/2–2/3 of the diameter of the central cavity, or, the central cavity occupies 35–50% of the outer thallus diameter, so that D/d = ca. 1.7–2. It seems the relations are rather constant, regardless of the size of specimens. The greatest number of specimens does not manifest a great variability in regards to the dimensions. Expressively big specimens are very rare, expresivelly small (= top ones?) are encountered somewhat more often, but, approximately, do not exceed 1/4 of the total number of specimens. The wall is completely calcified; it consists of microcrystalline calcite; in the majority of the examined specimens a thin dark layer can be clearly noticed on each side of the calcareous wall.

Branches are mostly perpendicular to the central cavity, but they may also be oblique, forming an angle of about 60° with the axis, or more, i. e. nearer to the right angle, and secondary branches generally also retain the direction of the growth of primary branches. Primary branches ramify into secondary branches already in the first fourth to the first third of the thickness of the calcareous wall, and thus secondary branches are consideraby longer than the primary ones. The number of secondary branches amounts to four, judging by the available sections. This may be concluded from the fact that in both longitudinal and transversal sections there can be seen that primary branches ramify, in the form of letter Y, into two secondary branches, which are distally only slightly widened. Accordingly, each two secondary branches lie in a »longitudinal« plane and are visible in a longitudinal section, and the two which are visible in a transversal section, lie in a »transversal« plane. Both primary and secondary branches are almost of an equal diameter; it is mainly constant all along their length; hence in tangential sections all the pores show an equal diameter, contributing so to an apparent picture of *Macroporella* (pl. I, fig. 3, 5). Only quite at the periphery of the secondary branches, where they issue from the calcareous wall, a more or less expressed funnel shape is observed, but it is not equally expressed in all specimens either. Globular

distentions, which may be probably considered as sporangia, can be hardly ever noticed at the end of primary branches (pl. II, fig. 2, 5, 6, 9?). It seems that sporangia grew out of the ball-shaped expansions at the distal end of the primary branches and in that case served as starting point for secondary branches, but judging by the available sections, this feature occured very seldom. The position and the way of growth of secondary branches did not, howewer, suffer any change in that case, regardless of whether such a sporangium has been developed at the terminal end of a primary branch, or not. – By that manner of developing of sporangia *C. heraki* approaches to some extent to the genus *Dissocladella* Pia (Rao & Pia, 1936). Howewer, in the genus *Dissocladella* this feature (= globularly widened terminations of primary branches, or even primary branches completely transformed into such a spherical body – sporangium) is always present, without exceptions, representing thus an essential characteristic of the genus, whereas in our species only a small number of specimens displays that feature. Conformably to the Ott's statement, that the genera *Cymopolia* and *Neomeris* derived from *Dissocladella* (Ott, 1965), the existence of a form which shows transitional characteristics, is easily accountable. – The number of primary branches in a whorl amounts to about 20–35.

Dimensions in mm.:[1]

| | | | |
|---|---|---|---|
| $L_s$ | = 0,49–1,75 (0,93) | l | = 0,02 –0,095 (0,052) |
| D | = 0,29–0,94 (0,47) | $l_2$ | = 0,085–0,30 (0,15) |
| d | = 1,43–4,50 (3,40) | p | = 0,02 –0,08 (0,041) |
| s | = 0,09–0,40 (0,22) | $p_2$ | = 0,02 –0,095 (0,052) |
| h | = 0,10–0,17 (0,13) | $d_s$ | = 0,05 –0,085 |

Between parentheses are average values which indicate approximately the greatest number of the investigated specimens.

Similarities and differences: *Cymopolia heraki* n. sp. manifests more similarities with some Tertiary *Cymopolia* than with the Cretaceous ones. It clearly differs from the Maestrichtian species *C. anadyomenea* Elliott in the form of segments, which in our species are subcylindrical or even cylindrical, in any case, notwithstanding

[1] Explanation of symbols used in this paper:

| | | | |
|---|---|---|---|
| L | = length of thallus | l | = length of primary branches |
| $L_s$ | = length of segments | $l_2$ | = length of secondary branches |
| D | = outer thallus diameter | p | = diameter of primary branches |
| d | = inner thallus diameter | $p_2$ | = diameter of secondary branches |
| s | = thickness of calcareous wall | $d_s$ | = diameter of sporangia |
| h | = distance between two consecutive whorls, measured between primary branches, at the inner side of the calcareous wall | | |

the length, they are similar to a regular tube, longer or shorter, of a constant diameter and parallel walls in a longitudinal section, and they show no thickenings, widenings or narrowings as it is the case in *C. anadyomenea*. Moreover, branches in our species are larger and arranged more apart from one another, so that they are more clearly emphasized. It differs from the species *C. tibetica* Morellet (respectively *Karreria tibetica*), also Maestrichtian, in the basic structure of primary branches. Simple tubules in our species do not display any widenings, and thus the formation of a hollow ring inside the calcareous wall, which comes about by the merging of such widenings of primary branches in a whorl, is excluded. This characteristic – a hollow ring which connects branches of one and the same whorl inside the calcareous wall – also defines the other *Cymopolias* which belong to the »section« *Karreria*, or, according to Pia (1927), the genus *Karreria* itself, and hence the difference mentioned above is also valid in relation to the Tertiary representatives of this type of form, respectively genus. Howewer, rather great a similarity in all the main characteristics of structure (the shape of segments, the arrangement and form of branches) exists with Tertiary species *C. elongata* (Défrance) and *C. kurdistanensis* Elliott. Yet, *C. elongata* is much bigger (up to 2,5 ×), and branches are comparatively finer and smaller. In this species, Morellet & Morellet (1913) discovered up to six secondary branches in some specimens which has not been found out in our species. Moreover, there is an essential difference in the position and the way of development of sporangia. As already mentioned in the description, in *C. heraki*, sporangia, if developed at all, constitute the terminal part of primary branches in a form of a globular distention, and thus showing some similarity with the genus *Dissocladella*. In *C. elongata*, on the contrary, sporangia are situated among the secondary branches, more or less centred in relation to the axis of the primary branch, i. e. either in the very middle of the cluster of secondary branches, or pushed a little aside, as Morellet & Morellet showed it (1913, p. 11, fig. 1). As to the species *C. kurdistanensis*, it manifests averagly somewhat smaller dimensions than our species, and the main difference between the two species exists in the form and position of branches. Primary branches in *C. kurdistanensis* are directed steeply upwards, in a sharp angle to the main stem, and only secondary branches somewhat alleviate the inclination, bending towards a more horizontal position, but still retaining the general impression of obliquely situated branches. Primary branches ramify into secondary ones nearer to the end, in a peripheral part of the calcareous wall, so that primary branches are much longer than the secondary ones, while in our species the case is quite the reverse. Moreover, branches in *C. kurdistanensis* show a greater variability in their diameter, as well as more expressed globular or ovular distentions at the end of secondary branches, which has not been noticed in our species.

## SUPPLEMENT

When this paper was already in the course of printing, I had the opportunity to see the paper:

Johnson, J. H. & Kaska, H. V. (1965): Fossil Algae from Guatemala. Profess. Contr. Colorado Sch. Mines 1, XII + 152, 47 plates, 44 tables, 1 annexe-map.

In this paper a new species, *Cymopolia mayaense* (»probably lower Eocene«), is shortly described (p. 83) and figured (pl. 18, fig. 1–4). It is possible that we have to do with the identical form as *C. heraki*. In that case, *C. heraki* would fall within the synonymy of *C. mayaense* Johnson & Kaska 1965.

## Tribus *Diploporeae?* Pia, 1927

## Genus *Salopekiella* Milanović, 1965

Milanović (1965) established the genus *Salopekiella* on the basis of the species *S. velebitana* from the Permian of the Velebit-Mountain, and characterized it as an annulated *Dasycladacea*, whose thallus consists of a number of conical segments with two or more whorls of branches in each segment. On the basis of these main characteristics, the new species, which will be described here, has been included into the genus *Salopekiella*.

### *Salopekiella inopinata* n. sp.

Plate III, fig. 7; plate IV–V

Origin of the name: inopinatus = lat. unexpected. The appearance of a hitherto Palaeozoic form in the Maestrichtian surprised.

Type locality: the same as in *Cymopolia heraki*.

Type stratum: Upper Cretaceous, Middle Maestrichtian; the same as in *C. heraki*.

Holotype: specimen in pl. IV, fig. 1, thin-slide G-30.

Diagnosis: *Salopekiella* with wide and shallow segments, and with two whorls of branches in each segment.

Description: The structure basically corresponds with the structure of the hitherto only species *S. velebitana*, Milanović (1965). The thallus consists of a number of segments, which are mutually connected rather loosely. For this reason, single isolated segments have been mostly encountered, the maximum having been four segments in a row (pl. IV, fig. 7). Each segment has the shape of a very low truncated cone with the hollow central part, or, in other words, of a broad and relatively shallow bowl without the bottom and with thickened walls. Segments are turned upwards by their broader part (= the base of the cone), which is mildly funnel-shaped, and the truncated part of the following segment is thrust into this concave part. Such structure comes best to expression in approximately longitudinal sections (pl. IV, fig.

1, 5, 7, 8). The main stem is cylindrical, ressembling a regular tube, regardless of the narrowings and widenings of segments on the outer side of the thallus. Axial cavity is comparatively wide: at least equal, and often wider than the calcareous wall of the segments at the thickest place. If we indicate with »D« the diameter of segments at their upper, widest part, than the relation is D/d = ca. 2–3, but more often nearer to 2, which means that the diameter of the central cavity most often approaches or even reaches the double thickness of the calcareous wall in the top part of a segment. The length (= height) of a segment mostly comes up to one half of its outer diameter at the widest part (»D«), so that the relation is $L_s/D$ = 2–2.3. Because of the shape of segment, and in part because of a variable degree of calcification, it is evident that the thickness of the calcareous wall considerably varies, depending on where it is measured, but it never exceeds the value »d«. In the table with dimensions, the »s« has been measured at the thickest part of the calcareous wall.

In each segment two whorls of branches are placed. Branches rise steeply upwards, forming an angle of about 45° to the main stem, i. e., approximately parallelly with the outer side of the segment. It seems that both whorls of branches surge at the upper, bowl-shaped part of segments (pl. IV, fig. 6). Branches have the shape of relatively broad tubules, whose diameter does not change along their entire length. As it is the case also in the species *S. velebitana* (Milanović, 1965, p. 376), because of the comparatively large cavities – pores – in the skeleton, the calcareous skeleton is insufficiently compact, for which reason, as well as because of the already mentioned variable degree of calcification , the skeleton wears out, so that both rows of branches are seldom clearly preserved. That is also the reason why, as Milanović (1965, p. 375–376, fig. 2) also stated in the description of his species, transversal and oblique sections with »torn« edges are often encountered (pl. V, fig. 5, 6).

The number of branches in a whorl amounts to 22–30.

Sporangia have not been noticed.

Dimensions in mm.:

| | | | |
|---|---|---|---|
| L | = 3,06 (maximum observed) | s | = 0,175–0,36 (0,30) |
| $L_s$ | = 0,36–0,60 (0,49) | l | = 0,30 –0,54 (0,41) |
| D | = 0,63–1,27 (1,06) | p | = 0,06 –0,15 (0,088) |
| d | = 0,31–0,75 (0,55) | | |

Between parentheses are average values.

Similarities and differences: Although in the basis of its structure *S. inopinata* possesses all the common characteristics with the hitherto only described species of the genus (Milanović,

1965), a number of differences of a specific character exist, sufficiently evident and enough to exclude mistakes. The main difference lies in the shape of segments. In our species, segments are averagely shorter (= lower) in relation to their diameter, so that they look like a more strongly truncated cone, and in this respect they approach the extreme cases of the species *S. velebitana* (Milanović, 1965, pl. III, fig. 4). This is also apparent from the relation L/D, which in our species amounts to 2–2.3, and in the species *S. velebitana* 1.2–2.2 (mostly 1.5). The comparison of the values yields another characteristical fact: the relation L/D in our species displays a considerably smaller range of variation than in Milanović's species, which means that segments in our species are approximately of the same form in all the investigated specimens. Moreover, the axial cavity in *S. inopinata* is considerably broader in relation to other dimensions: it occupies about or nearly one half of the outer thallus diameter at the widest place (»D«). And although Milanović did not offer the numerically expressed relation D/d, by the comparison of the specimens and the photographs the difference is clearly perceived. And finally, it seems that in our species both whorls of branches issue on the upper, bowl-shaped part of the segment (= on the base of the truncated cone), while in *S. velebitana* the lower whorl of branches has pores on the upper part of the curved lateral surface of the segment's side, i. e. on the mantle and not on the basis of the truncated cone.

## Tribus *Diploporeae* Pia, 1927

## Genus *Gyroporella* Gümbel, 1872

### *Gyroporella* sp.

PLATE VI

Besides the described new species, in all thin-slides rather copiously represented, a large number of unknown or undeterminable *Dasycladaceae* have been noticed, which, howewer, are either so badly preserved or so sparse by the number of specimens that they do not allow a more thorough acquaintance. The most remarkable among them is one species of the genus *Gyroporella* (pl. VI).

Dimensions in mm. of the specimen on fig. 1:

| | |
|---|---|
| D = 3,28 | l = 0,33 |
| d = 2,61 | p = 0,18 |
| s = 0,38 | w = ca. 40 (supposed after fig. 1 on pl. VI) |

»l« and »p« refer to the vesicleous part of branches.

The transversal section, although incomplete, enables to discern some remarkable characteristics, among which the vesiculiferous shape of branches and a very thin calcareous wall compared to the wide central cavity, are the most evident ones. The relation D/d = 1.25 means that the central cavity occupies about 80% of the outer thallus diameter, while only 20% belongs to the double thickness of the calcareous wall. All these features point to the genus *Gyroporella*, but they are not sufficient enough to enable the establishment of a specific diagnosis. Nevertheless, I consider that this species, even incompletely, deserves to be represented.

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*Institute of Geology and Paleontology,*
*Faculty of Science, Zagreb,*
*Socijalističke revolucije 8*

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I. GUŠIĆ

## NOVE DASIKLADACEJE IZ MASTRIHTA BEŠPELJA KOD JAJCA

Klastične naslage gornje krede u području Bešpelja SI od Jajca sadrže uloške kalkarenitičnih vapnenaca u kojima je na jednom mjestu nađena bogata zajednica fosilnih dasikladaceja. Opisane su dvije nove vrste, a jedna je zbog oskudnosti materijala samo ukratko prikazana.

*Cymopolia heraki* n. sp. (tab. I–III) predstavljena je pojedinačnim člancima, koji su uglavnom pravilnog subcilindričnog oblika različite dužine. Primarni ogranci granaju se u četiri sekundarna ogranka (sudeći bar prema raspoloživim presjecima), koji su znatno duži od primarnih. Po tim i drugim karakteristikama *C. heraki* pokazuje najviše sličnosti s tercijarnom vrstom *C. elongata* (D é f r a n c e), od koje se razlikuje po položaju sporangija, te manjim dimenzijama (do 2,5 ×), razmjerno krupnijim ograncima i brojem od četiri zapažena sekundarna ogranka, prema maksimalno šest kod *C. elongata*. Od mastrihtskih vrsta *C. anadyomenea* E l l i o t t i *C. (Karreria) tibetica* M o r e l l e t postoje vrlo očite razlike u obliku članaka odnosno obliku primarnih ogranaka (s tim u vezi vidi karakteristike »sekcije« odnosno roda *Karreria:* P i a, 1927).

*Salopekiella inopinata* n. sp. (tabl. IV–V) pokazuje osnovni tip građe, karakterističan za rod, a od jedine dosada opisane vrste *S. velebitana* M i l a n o v i ć pokazuje niz specifičkih razlika. Glavna razlika je u obliku pojedinih segmenata, koji su kod *S. inopinata* niži u odnosu prema svom promjeru, a centralna šupljina znatno je šira.

*Gyroporella* sp. (tab. VI) vrlo je markantna zbog svoje veličine, i premda je pripadnost rodu *Gyroporella* nesumnjiva po nizu karakteristika (vezikuliferni oblik ogranaka, relativno tanka stijenka nasuprot vrlo širokoj centralnoj šupljini), ipak je raspoloživi materijal nedovoljan za potpunije upoznavanje te vrste.

Uzorci sa ispitivanim dasikladacejama potiču sa južnih padina Tokat-brda (kota 811), kod sela Smionica, oko 3 km JI od Bešpelja, odnosno oko 15–20 km SI od Jaica (locus typicus). Te naslage detaljno su paleontološki i stratigrafski analizirali D. N e đ e l a - D e v i d é & P o l š a k (1961), te A. P o l š a k (1965). Tom su prilikom nađeni i određeni brojni fosili (rudisti, orbitoididi, globotrunkanide), na osnovu kojih je dokazana pripadnost tih naslaga srednjem mastrihtu. Prema tome stratum typicum za nove vrste dasikladaceja je srednji mastriht.

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*Prirodoslovno-matematički fakultet,*
*Geološko-paleontološki zavod*
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## DODATAK

Kad je ovaj rad već bio u štampi imao sam prilike vidjeti rad: J o h n s o n, J. H. & K a s k a, H. V. (1965): Fossil Algae from Guatemala. Profess. Contr. Colorado Sch. Mines 1. XII + 158, 47 tabli, 44 tabele, 1 karta u prilogu.

U tom radu ukratko je opisana (str. 83) i prikazana s 4 slike (tab. 19. sl. 1–4) *Cymopolia mayaense* n. sp. (»vierojatno donji eocen«). Moguće je da se radi o istom obliku kao što je *C. heraki*. U tom slučaju, *C. heraki* ulazi u sinonimiju vrste *C. mayaense* J o h n s o n & K a s k a, 1965.

## PLATE – TABLA I

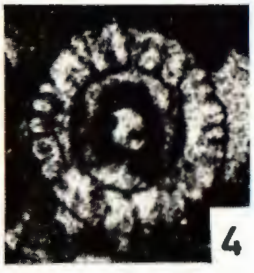
*Cymopolia heraki* n. sp. × 32

1. Holotype (holotip). Longitudinal section (uzdužni presjek). Slide (izbrusak) G-25.
2. Longitudinal section (uzdužni presjek). Slide (izbrusak) G-42.
3. Tangential section (tangencijalni presjek). Slide (izbrusak) G-23.
4. Transversal section (poprečni presjek). Slide (izbrusak) G-26.
5. Tangential section (tangencijalni presjek). Slide (izbrusak) G-23.
6. Slightly oblique longitudinal section (malo kosi uzdužni presjek). Slide (izbrusak) G-37.

1

2

3



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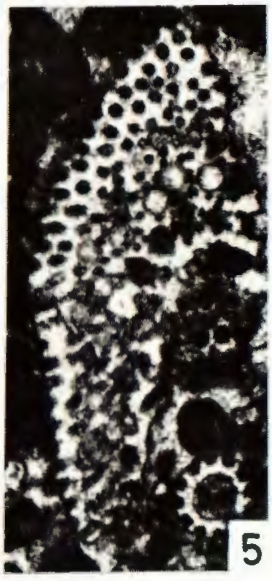

5

6

## PLATE – TABLA II

*Cymopolia heraki* n. sp.

All figures are enlarged (sve slike povećane su) × 32, except fig. 4 (osim sl. 4) – × 50, and fig. 9 (i sl. 9) – × 70.

1. Longitudinal section (uzdužni presjek). Slide (izbrusak) G-45.
2. Slightly oblique section (malo kosi presjek). Slide (izbrusak) G-33.

3, 4. Slightly oblique nearly transversal sections (malo kosi skoro poprečni presjeci). Slides (izbrusci) G-47, G-26.

5, 6. Transversal sections (poprečni presjeci). Slides (izbrusci) G-42, G-45.

7, 8. Slightly oblique nearly transversal sections (malo kosi skoro poprečni presjeci). Slides (izbrusci) G-25, G-39.

9, 10. Transversal sections (poprečni presjeci). Slides (izbrusci) G-38, G-33.


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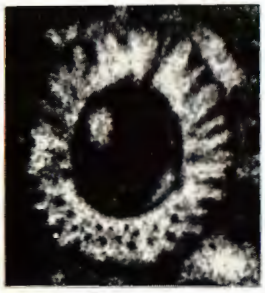
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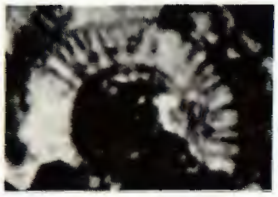
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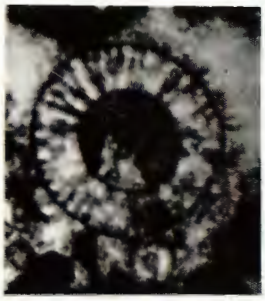
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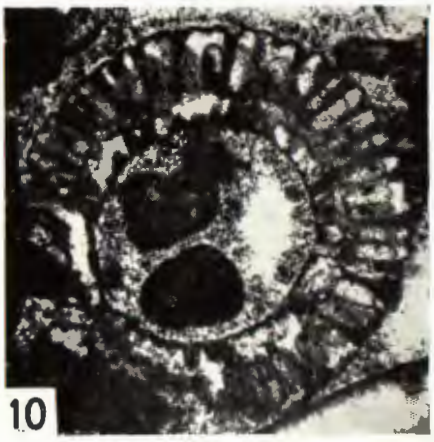
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## PLATE – TABLA III

1–6: *Cymopolia heraki* n. sp. × 32

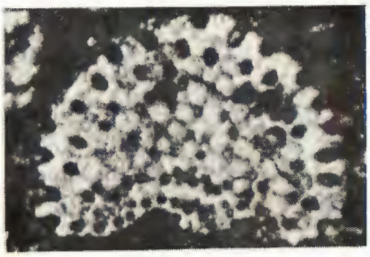
1. Oblique section (kosi presjek). Slide (izbrusak) G-37.
2. Tangential section (tangencijalni presjek). Slide (izbrusak) G-39.

3, 4, 6. Oblique tangential sections (kosi tangencijalni presjeci). Slides (izbrusci) G-41, G-46.

5. Longitudinal section (uzdužni presjek). Slide (izbrusak) G-31.

7. *Cymopolia heraki* n. sp. and *Salopekiella inopinata* n. sp. × 32
Oblique section of *C. heraki* (kosi presjek *C. heraki*) and slightly oblique, nearly transversal section of *S. inopinata*, in lower left corner (malo kosi skoro poprečni presjek *S. inopinata* u donjem lijevom uglu). Slide (izbrusak) G-32.

1



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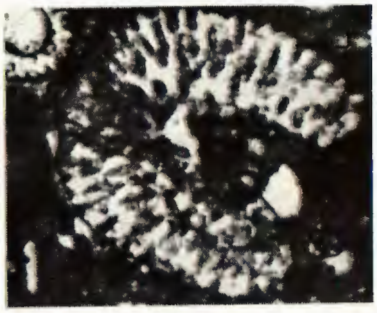

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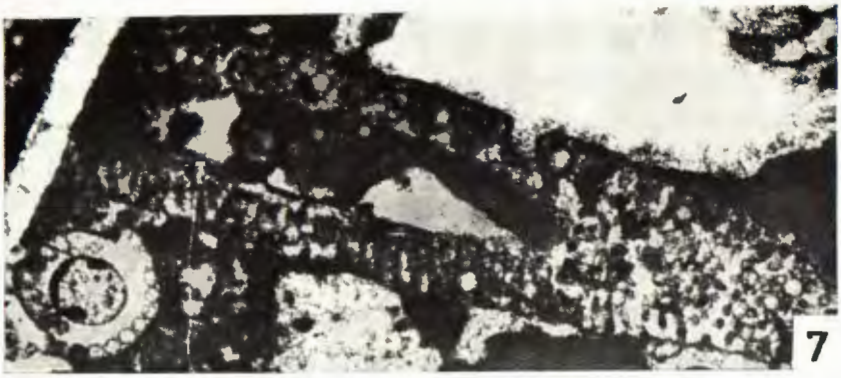

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## PLATE – TABLA IV

*Salopekiella inopinata* n. sp. × 32

1. Holotype (holotip). Slightly oblique longitudinal section (malo kosi uzdužni presjek). Slide (izbrusak) G-30.
2, 3, 4. Oblique sections (kosi presjeci). Slides (izbrusci) G-36, G-37, G-26.
5. Longitudinal section (uzdužni presjek). Slide (izbrusak) G-44.
6, 7, 8. Oblique sections (kosi presjeci). Slides (izbrusci) G-23, G-39, G-46.
9, 10. Tangential sections (tangencijalni presjeci). Slides (izbrusci) G-49, G-43.


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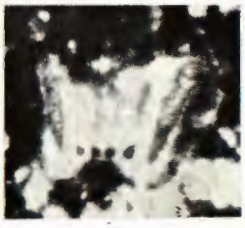
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## PLATE – TABLA V

*Salopekiella inopinata* n. sp.

All figures are enlarged (sve slike povećane su) × 32, except fig. 7 (osim sl. 7) – × 50.

1, 2, 3. Oblique sections (kosi presjeci). Slides (izbrusci) G-44, G-30, G-23.

4. A little oblique transversal section (malo kosi poprečni presjek). Slide (izbrusak) G-42.

5. Transversal section (poprečni presjek). Slide (izbrusak) G-32.

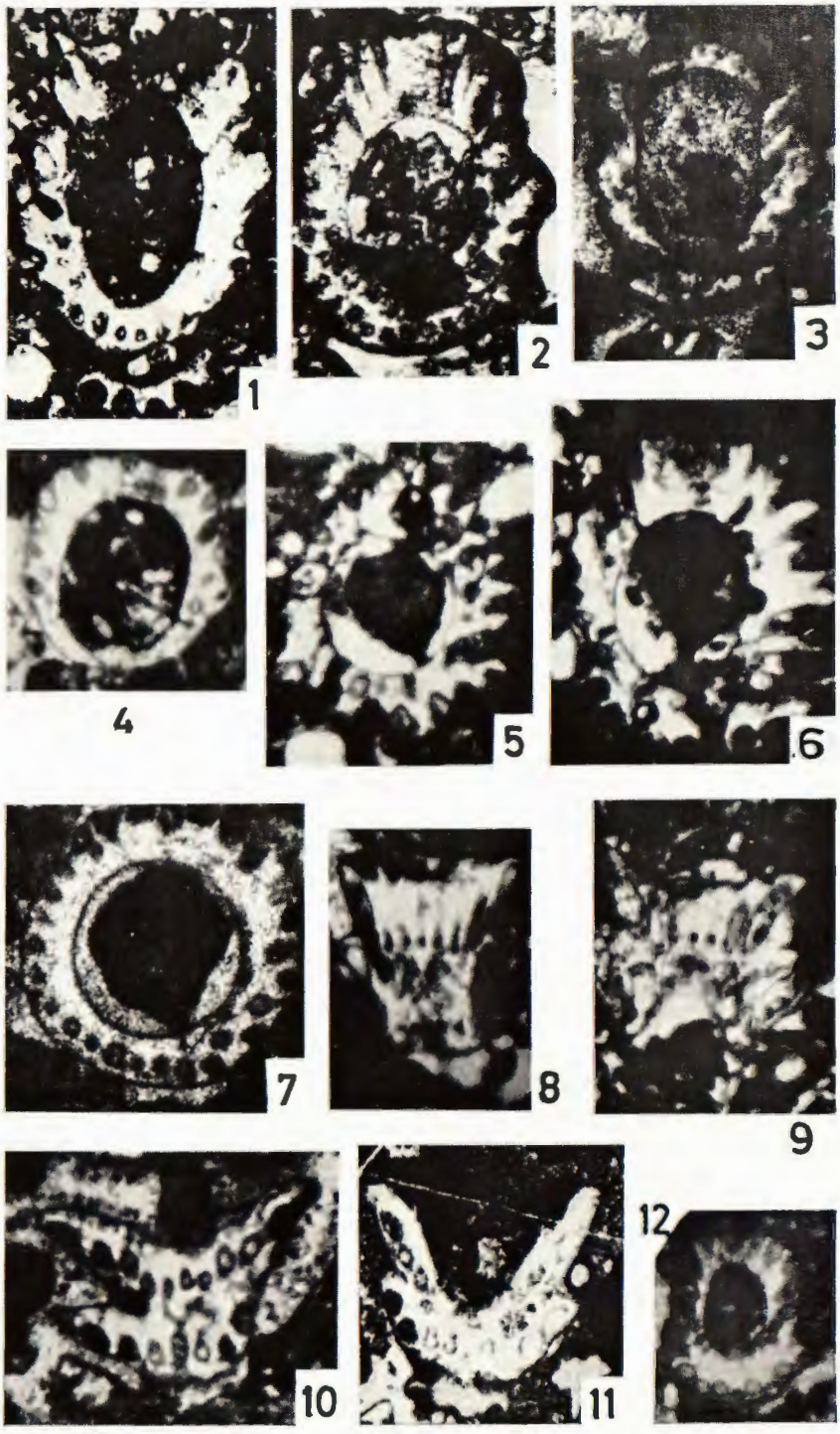
6. Oblique section (kosi presjek). Slide (izbrusak) G-41.

7. Nearly transversal section (skoro poprečni presjek). Slide (izbrusak) G-23.

8, 9. Deep tangential sections (dublji tangencijalni presjeci). Slides (izbrusci) G-33, G-31.

10, 11. Shallow tangential section (plići tangencijalni presjeci). Slides (izbrusci) G-27, G-34.

12. A little oblique transversal section (malo kosi poprečni presjek). Slide (izbrusak) G-49.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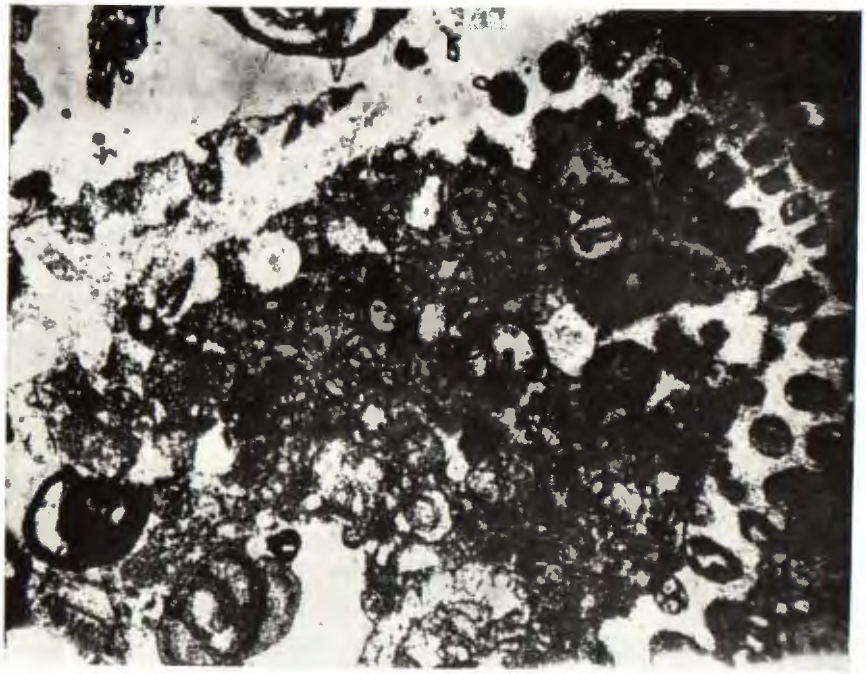
## PLATE – TABLA VI

*Gyroporella* sp. × 34

1. Part of a transversal section (dio poprečnog presjeka). Slide (izbrusak) G-24
2. Part of an oblique section (dio kosog presjeka). Slide (izbrusak) G-29.

1



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