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TWO NEW DASYCLAD SPECIES OF THE SUBGENUS PIANELLA FROM THE LOWER CRETACEOUS OF ISTRIA

With 6 plates

Two new species of calcareous algae *(Dasycladaceae)* are described: *Macroporella (Pianella) istriana* n. sp. and *Macroporella (Pianella) adriatica* n. sp., both from the neighbourhood of Rovinj in the central part of western Istria. On the basis of the available data and the accompanying microfauna their stratigraphical position is considered as the Lowermost Cretaceous.

In 1962, Professor Dr. V. Kochansky-Devidé received from the »Naftaplin« enterprise, through the geologist Dr. K. Jenko, some samples for microanalysis from a profile east and north-east of Rovinj, which were gathered in the field by the »Naftaplin« geologist M. Turk. In some slides a rather rich microfossil association was found (small nerineids, foraminifers, calcareous algae), which was described in a report (Kochansky-Devidé, V., Gušić, I. & Polšak, A., 1965). At the same time it was mentioned that some slides contained new forms of calcareous algae *(Dasycladaceae)*, which needed further, more detailed investigation. Relating to that I wish to express my thanks to R. Filjak, the »Naftaplin« chief research engineer, for permission to use the material belonging to »Naftaplin« and to publish the results of the study in this paper. I thank as well to Professor Dr. V. Kochansky-Devidé for her invitation to me to collaborate in the determination of the mentioned samples, for the material given for further, more detailed investigations, and for her revision of the manuscript, and to Professor Dr. M. Herak for his advices and his own revision of the manuscript.

The profile starts a few kilometers east of Rovinj, on the north side of the road Rovinj – Kanfanar, and it ends in the direction of north-west, in the area where Jurassic sediments occur. It transverses the Cretaceous sediments consisting predominantly of dolomites with lenses of limestone, whose exact age was not known. The only samples which have given positive results and which contain the new species of *Dasycladaceae* derive from the limestone-lenses in the oldest part of the dolomite complexe, near the boundary of Tithonian limestones, about 2 kilometers north-east of Rovinj.

Family *Dasycladaceae*

Tribus *Diploporeae* P i a, 1927

Subtribus *Macroporellinae* P i a, 1927

Genus *Macroporella* P i a, 1912

Subgenus *Pianella* (R a d o i č i ć, 1962) N i k l e r & S o k a č, 1965

Describing a new species of *Dasycladaceae* from Upper Jurassic deposits of the neighbourhood of Titograd, R. R a d o i č i ć (1962) proposed the establishing of a new genus – *Pianella*. Beside the »genotype« *Pianella grudii* described on that occasion, this new genus should also include the species now comprised by the genus *Macroporella*, which show a clearly euspondyl arrangement of branches, retaining at the same time all others main characteristics of the genus *Macroporella* (predominantly cylindrical thallus, simple dense phloiophorous branches). Consequently, these are: *M. pygmaea* (G u e m b e l), *M. gigantea* C a r o z z i and *M. tosaensis* Y a b e & T o y a m a, that is, all the species of the genus *Macroporella* younger than the Triassic. It should be mentioned that already P i a anticipated such a possibility, when he included G u e m b e l's species *Gyroporella pygmaea* into the genus *Macroporella*. Later, R. R a d o i č i ć (1965) added the first Cretaceous representative – the Cenomanian species *Pianella turgida*.

N i k l e r & S o k a č (1965) proposed, howewer, »... die Einführung von zwei Subgenuse bei der Gattung *Macroporella*«. Although it is not a question of introducing two new subgenera into the range of a genus, but of reducing the taxon of a higher rank, in this case the genus *Pianella* R a d o i č i ć, to the level of a lower rank — subgenus – such an interpretation has, nevertheless, a series of advantages. Regardless of whether such an interpretation is phylogenetically justifiable, and probably it is – because it is hardly possible that the character of spondility alone should be a feature essential enough to be used as the only criterion for establishing new taxa of such a high rank as the genus, particularly if we keep in mind that there are specimens belonging to the same species which show both the aspondyl and the euspondyl arrangement of branches – the conception of the genus *Pianella* being the subgenus of the genus *Macroporella* has a lot of rather practical advantages. That is to say that sometimes we cannot assert for sure (because of the insufficient or badly preserved material, or the actual conditions of some specimens, especially those belonging to the genus *Macroporella*) whether we have to do with an aspondyl or an euspondyl type of the arrangement of branches, and, moreover, the lower taxa they are, the easier they are to be handled in an eventual later revision.

Macroporella (Pianella) istriana n. sp.

Plate I–III

Origin of the name: derived from the peninsula Istria where the alga is found.

Holotype: plate I, fig. 1, thin-slide G–1, deposited at the Institute of Geology and Paleontology, Faculty of Science, University of Zagreb.

Other material: numerous specimens in 22 thin-slides, the same collection.

Type locality: about 2 kilometers NE of Rovinj in the western part of central Istria.

Diagnosis: a small cylindrical not segmented *Dasycladacea* having numerous and dense simple phloiophorous branches of the alternating euspondyl type.

Description: Thallus elongated, cylindrical, not-segmented, resembling a regular relatively long tube (pl. I, fig. 1, 2, pl. III, fig. 1). In some specimens there can be seen not-well-defined gentle widenings or narrowings of the thallus, particularly on the outer side of the calcareous wall, but these deformations (after all of a minute intensity) are most likely of a later origin, as a result of fossilization (pl. III, fig. 1). The character of sediments in which the remains are found confirms such a possibility. They are found in the pseudoolitic calcarenite, a clastic material, in which the organic remains and the other particles of inorganic origin suffered an intense processus of rolling and rounding, and therefore they are so badly preserved that one can hardly notice the fine details on the outer surface of the thallus, and bigger fragments are scarcely found. That is why well-preserved longitudinal and tangential sections, in spite of the great number of remains on all slides, are rarely visible. Under such conditions, the mentioned deformations of the thallus could easily occur.

The axial cavity is comparatively broad, occupying at least 50% of the outer diameter of the thallus (pl. I, fig. 1, 5, 6, pl. II, fig. 2, 6, and others), and sometimes, but more rarely, up to 60–70% (pl. I, fig. 4, pl. II, fig. 1, 3). Or, in other words, the thickness of the calcareous wall equals at most one half of the diameter of the axial hollow, and sometimes it reaches only 1/3–1/4 of this diameter. But the thickness of the calcareous wall alone does not show especially remarkable variations, whereas the outer, respectively the inner diameter of the thallus can be in some specimens even 3 times bigger than in others (compare figures 1 and 4 in pl. I, and figs. 1 and 3 against others in pl. II).

Branches can be most probably considered of the phloiophorous type, although the funnel-like shape can be hardly observed in the majority of specimens. The reason, first of all, derives from the fact that in many specimens the shape of branches considerably differs from a typical phloiophorous (= funnel-like) shape and approaches the akrophorous

type: tubules with almost parallel walls, whose diameter increases towards the periphery so little that it is hardly noticeable (pl. I, fig. 1, pl. II, fig. 4, 5). In some other specimens the funnel-like shape is better marked (pl. I, fig. 4, pl. II, fig. 1, 3). Moreover, the unfavourable conditions of preservation, as already mentioned, could contribute to the wearing of the outer layer of the calcareous wall, which caused the funnel-like shape, indistinct by itself, to dissapear quite completely. And finally, branches themselves are very tiny, which makes still more difficult to get a clear idea of their shape.

The position of branches relating to the central cavity may vary: branches can be situated perpendicularly to the axis (pl. I, fig. 2, 6, pl. II, fig. 1, 3) or a little obliquely: up to an angle of 65^0–75^0 (for 15^0–25^0 inclined from the position perpendicular to the axis) (pl. I, fig. 1, pl. II, fig. 2, 5, pl. III, fig. 6, 7). Branches are tiny and dense, arranged in an euspondyl way, i. e., in dense regular whorls, but alternating in regards to those of the neighbouring whorl, namely so that their position in two consecutive whorls is diagonal, and in every other whorl identical. Pores on the surface of the calcareous wall do not mutually touch, and the distance between the pores of one and the same whorl is approximately equal to that between two consecutive whorls, which demonstrates the considerable density of whorls. At the same time, this distance is, moreover, approximately equal to the diameter of pores. On the surface pores are open and round. Only simple primary branches exist.

A relatively big number of branches (pores) in a whorl is also remarkable.

Reproductive organs are unknown, but reproduction probably endospore.

Calcification reaches the parent cell.

Dimensions (in mm.):*

L = 2.84 (maximum observed)
D = 0.25–0.74 (0.364)
s = 0.14–0.41 (0.226)
s = 0.06–0.10 (0.071)
l = 0.06–0.105 (0.078)
p = 0.012–0.05 (0.027)
h = 0.03–0.04 (0.035) (measured between the centres of pores)
w = 16–28

Between brackets are the medium values, which indicate approximately the greatest number of measurements.

* Explanation of symbols:

L = length of the thallus
D = outer diameter of the thallus
d = inner diameter of the thallus
s = thickness of calcareous wall
l = length of branches
p = diameter of pores
h = distance between two consecutive whorls
w = number of branches in a whorl

The above dimensions relate, naturally, to the calcified part of the plant, whereas the dimensions of the living plant were probably slightly bigger (particularly the »l«).

Similarities and differences: *Macroporella (Pianella) istriana* n. sp. does not show, in fact, a remarkable similarity with any species of the subgenus *Pianella* described up to now. As regards its size, it is most closely related to two Upper Jurassic species, *M. (P.) grudii* (Radoičić) and *M. (P.) pygmaea* (Guembel), from which it clearly differs by its wider central cavity, thinner calcareous walls and the less marked phloiophorous (= funnel-like) shape of branches. This last fact – difference in the shape of branches – caused, in addition, some other differences in appearance: tiny and dense branches of our species are arranged in their basal part, when leaving the parent cell, just as densely as in their distal part, on the outer side of the calcareous wall – as distinct from the two mentioned Upper Jurassic forms, whose abruptly widened branches leave a rather large interval between themselves in their basal part, while on the periphery they mutually touch, assuming, therefore, even a polygonal shape. – The differences from the other – Cretaceous – species of the subgenus *Pianella*, *M. (P.) turgida* (Radoičić) and *M. (P.) adriatica* n. sp., which will be described in this paper, are so clearly distinguishable and evident that there is no need to describe them. Howewer, by the very shape of branches, which are not clearly marked and, particularly in some specimens, closely approache the akrophorous type, such specimens of our species, observed isolately, may mislead to the conclusion that they have to be included in the recently established genus *Acroporella* Praturlon, 1964. Nevertheless, searching the abundant material one gets a clear idea about the phloiophorous shape of branches, although it is indistinctive. Moreover, our alga differs from the only species of the genus *Acroporella* described up to now — *A. radoicici* Praturlon – by its considerably smaller size and much more densely arranged branches, both within a whorl and the whorls mutually.

At the first sight the general appearance of the species *M. (P.) istriana* n. sp. also resembles to *Salpingoporella*, mostly to the species *S. dinarica* Radoičić, particularly those specimens with perpendicular branches. But here, in spite of some mutual characteristics – among which the similar size, the cylindrical not-segmented thallus with the rather large axial cavity and comparatively thin calcareous walls, and the identical manner of the arrangement of branches in whorls are the most evident ones, which causes the superficial similarity – I have followed some features characterizing the genus *Salpingoporella* that already Pia (1920) considered of a generic rank and that, a little widened, all the later researchers have accepted. The most conspicuous among the differences between the *S. dinarica* and our species is that branches of *S. dinarica*, although arranged in an identical vay, are much more removed from each other (both within a whorl, and the whorls mutually) so that pores on the surface of the calcareous wall are much more apart, thinly

arranged, leaving among themselves a rather large part of the calcareous wall. This is still more evident in the species *S. mühlbergi* (Lorenz), and in the species *S. annulata* Carozzi, where, besides the mentioned differences, there is an annulation of the thallus. Moreover, all the representatives of the genus *Salpingoporella* present, in general. a better marked funnel-shape of the branches.

Finally, I should mention that in my opinion, in spite of the above mentioned differences, the genus *Salpingoporella* still lacks an adequate description and clear definition, especially relating to the genus *Macroporella,* regardless of some later, more widened modifications added to Pia's original diagnosis. As a matter of fact, a really striking similarity exists between the two genera, with differences based upon some morphogenetic features which show only gradual differences. This becomes still more obvious if we take into consideration Praturlon's statement that in *S. dinarica* pores could be sometimes in mutual contact on the surface of the calcareous wall: »I had the opportunity of observing some isolated specimens of this species, found in the »*Orbitolina* clayey horizon«, and I ascertained the extreme widenings of the pores at the periphery, where they give rise, in some cases, to a polygonal pattern« (Praturlon, 1964, 177). It seems to me that Pia (1927) had good reasons to consider the genus *Salpingoporella* doubtful and insufficiently known, after having established it in 1918. Therefore, I prefer to add a new species to a better-known genus – *Macroporella,* respectively to the subgenus *Pianella* because of the euspondyl arrangement of branches, although this new species may show some unessential aberrations in regard to the majority of more typical representatives of the genus (pores being not in mutual contact on the surface).

Stratigraphical position: Up to now *M. (P.) istriana* n. sp. has been found in only one locality (= type locality), in a lense of limestone-calcarenite inside dolomites which overlie in conformity the light well-bedded limestones of the Biancone-type. On the basis of a rather rich microfossil association and comparing them with the analogous deposits in the Apennines, Polšak (1965) considers these limestones Tithonian. Consequently, the sediments in which *M. (P.) istriana* is found, and which overlie in conformity the Tithonian beds, are defined as an alternation of dolomites and limestones belonging to the Tithonian-Bérriasian, and contain, according to Polšak (1965), a poor microfossil association characterizing the transitional Jurassic-Cretaceous levels. As tested Lower Cretaceous sediments Polšak considers only the ones occuring not earlier than above the alternation of dolomites and limestones, and in which a rich microfossil association reappears, making possible the division of those sediments in two parts. The lower one, which »belongs to the Valanginian and most probably the Hauterivian« (Polšak, 1965) is distinguished by the appearance of the genus *Cuneolina*, which had not been found in the older beds. This was the main reason why no older sediments than these were considered the proved Lower Cretaceous. In our thin-slides, howewer,

beside the species *M. (P.) istriana,* we have found rather numerous small and »primitive« Cuneolinas, some of them being determined as *C. camposaurii* Sartoni & Crescenti. Specifically undeterminable forms also show characteristics of initial stages of the phylogenetic development (general primitiveness and simplicity, minute forms, complete lack of secondary septa, etc.). According to the available data, the genus *Cuneolina* appeared at the beginning of the Cretaceous. Beside the *Cuneolina,* there are also *Haplophragmoides* sp. and a series of other persistent forms without any stratigraphical value, as *Favreina salevensis* (Paréjas), *Coscinoconus-Trocholina?* spp., miliolids, textulariids, verneuilinids (*Eggerelinae*), etc. As to algae, fragments of a *Dasycladacea* were also found, belonging probably to the genus *Actinoporella,* as well as *Macroporella* (*Pianella*) *adriatica* n. sp., which is going to be described here, and rare fragments of *Salpingoporella annulata* Carozzi, which does not contradict the Valanginian or Infravalanginian age of these sediments, based upon the findings of *Cuneolina.*

On the basis of all that has been mentioned above, *Macroporella (Pianella) istriana* n. sp. occurs in the sediments belonging to the Lowermost Cretaceous, overlying directly the Tithonian deposits. According to the Italian authors and their division in cenozonas (Sartoni & Crescenti, 1962), it corresponds to the basal part of *Cuneolina camposaurii* cenozone, or, stratigraphically said, to the Valanginian stage, including the Infravalanginian (= Bérriasian).

Macroporella (Pianella) adriatica n. sp.

Plate IV–VI

In the same material with the described species *M. (P.) istriana,* sections of an other *Dasycladacea* occur, considerably bigger in size, but remarkably rarer. Although the available material is scarce and mostly badly preserved, even insufficient for a full illumination of the new species, it is abundant enough to enable the establishment of a specific diagnosis, based upon some features, and, thus, to distinguish this form from the similar and related ones. Moreover, the stratigraphical impotance of the *Dasycladaceae* in our Mesozoic becomes from day to day greater, so that in my opinion a usable description of a new species given as soon as possible is surely preferable than to wait for better material enabling a more detailed and complete study.

Origin of the name: derived from the Adriatic sea, the type locality being situated near its coast.

Holotype: plate IV, fig. 1, thin-slide G–2, deposited at the Institute of Geology and Paleontology, Faculty of Science, University of Zagreb.

Other material: 9 thin-slides, the same collection.

Type locality: about 2 kilometers NE of Rovinj; the same locality as for the species *M. (P.) istriana* n. sp.

Diagnosis: a rather big cylindrical not-segmented *Dasycladacea* having a thick calcareous wall and big, simple, very dense phloiophorus branches of the euspondyl type.

Description: Thallus cylindrical, not-segmented, probably elongated, but because of the character of the sediment, already mentioned in the description of the species *M. (P.) istriana*, we can never observe bigger (= longer) fragments, and consequently – well preserved longitudinal sections are not available. As we have to do with a rather big alga, we should need comparatively long fragments, of half a centimeter and more, and so the »negative« character of the sediment – the rolling and crumbling of bigger fragments – has caused here still more difficulties and inconveniences. Howewer, in some slides one can get an idea about the cylindrical shape of the thallus (pl. V, fig. 1 and 2).

The central cavity is comparatively narrow, compared to the remarkable thickness of the calcareous wall, its diameter reaching only 1/5 up to 1/4 (20–25%) of the outer diameter of the thallus. Or, the diameter of the axial cavity is about a half of the thickness of the calcareous wall.

Branches can be characterized as slightly phloiophorous: tubes widening abruptly at the beginning, when leaving the parent cell, and afterwards widening slightly and uniformly along their way towards the periphery. The ratio of the width (= diameter) of the distal end of branches and their length is about 1 : 3. The tendency of a better marked and more abrupt funnel-shaped widening at the periphery was not noticed, although it is otherwise a frequent feature of the phloiphorous type.

Judging by the majority of the available oblique and transversal sections, branches are perpendicular to the axial hollow, but a longitudinal-tangential section in pl. V, fig. 2, and maybe some others, shows somewhat oblique position. Branches are big and very densely arranged, all along their length in mutual contact. Hence the pores on the surface of the calcareous wall also touch each other, not leaving between themselves any free surface at all. Nevertheless, in spite of their close mutual contact, the pores have mainly retained a more or less round or somewhat oval shape on the surface of the calcareous wall, as far as it can be seen in various oblique section, and no polygonal pores are formed owing to mutual pressure, except in rare cases. The arrangement in whorls (= euspondyl) is well marked; but the relation of whorls to each other is difficult to define with certainty, because of the lack of well preserved longitudinal-tangential sections. Howewer, as far as it can be judged from some oblique sections (pl. IV, fig. 1, 2, pl. V, fig. 1), it seems that the distribution of pores in whorls is still nearer to an alternating, respectively diagonal, position than to an identical one. But the oblique section on pl. V, fig. 4 does not display any visible regularity or constancy as regards this feature: in regard to its neighbouring whorls a

whorl can be situated in both an alternating way and an identical one. Here we miss again the lack of longer fragments, due to the unfavourable conditions of preservation.

Whorls are also very densely arranged in relation to one another, some of them being even so near that the pores of one whorl enter partially between the pores of the neighbouring whorl (both figures in pl. IV) – which demonstrates the alternating (diagonal) position of branches in whorls. However, some whorls can be clearly divided from one another by a straight line, respectively a plane (pl. V, fig. 1 and 4), but even in such cases they are very close, so that, practically, a free interspace of the calcareous wall does not exist. But such a position of whorls makes possible an identical distribution of branches in two consecutive whorls. Howewer, as this is not a question of essential importance it is not surprising that most specimens show both features.

The number of branches (pores) in a whorl is about 20 and seems to be rather constant.

Only simple primary branches exist,
Reproductive organs are unknown.
Calcification reaches the main stem.
Dimensions (in mm.):[2]
Between brackets are the medium values.

L = could not be observed
D = 1.36–2.62 (2.10)
d = 0.26–0.50 (0.39)
s = 0.50–1.10 (0.84)
l = s, judging by the available sections
p = 0.20–0.40 (0.31) (measured at the distal end)
h = 0.30–0.35 (0.33) (measured between the centres of pores)
w = 20–22

Here should be also mentioned that the above dimensions relate to the calcified part of the plant. In the living plant some values (»l«, »p«) were probably somewhat bigger.

Similarities and differences: *M. (P.) adriatica* n. sp. is very distinguished among all other species of the subgenus *Pianella.* Relating to the type-species, *M. (P.) grudii* and other Upper Jurassic forms – *M. (P.) pygmaea, M. (P.) gigantea, ?M. (?P.) sellii* Crescenti, and to the species described here – *M. (P.) istriana* – the differences are, beginning with the size and proceeding to the relation of features, more than evident. A somewhat greater similarity appears between our species and the only Cretaceous representative described up to now – the Cenomanian species *M. (P.) turgida* (Radoičić). However, it refers first of all to a general impression got by superficially examined transversal and oblique sections, a a result of approximately equal »bulkiness« of both species, though *M. (P.) turgida* does

[2] For the explanation of symbols see the description of *M. (P.) istriana.*

not reach the size of our species. Nevertheless, the differences between the two species are clear, even without paying attention to the dimensions:

The thallus in *M. (P.) turgida* is, as the name indicates, turgid, dumpy (Is it not maybe a characteristic of a generic, or even over-generic, value?); in *M. (P.) adriatica* – cylindrical, probably elongated. The axial cavity in *M. (P.) turgida* is comparatively broad, reaching 1/3 of the outer diameter of the thallus; in *M. (P.) adriatica* the axial cavity is narrow, reaching only 1/5 of the outer thallus diameter; finally branches in *M. (P.) turgida* are almost tubular, assuming a funnel-like shape in their distal part only, arranged in clear alternating, but sparse, whorls, leaving between themselves rather large free parts of the calcareous wall; in *M. (P.) adriatica,* on the contrary, the branches widen slightly and uniformly towards the periphery, they are bigger in comparison to the size of the whole plant, and so densely arranged that all along their length they are in mutual contact. Thus, a free interstice in the calcareous wall practically does not exist.

But the closest similarity exists between *M. (P.) adriatica* and *Neomacroporella cretacica* Crescenti 1964, a species recently described in the Upper Aptian deposits of southern Italy (»Orizzonte ad *Orbitolina*«), and proposed as the »genotype« of the new genus. Leaving aside the question whether it was indispensably to create a new genus only on the basis of the differences mentioned by Crescenti, there is the fact that *Neomacroporella cretacica* shows a much closer similarity and relationship with our species than any other known species of the genus *Macroporella,* respectively subgenus *Pianella.* I think that this fact imposes a conclusion that it will be necessary to change something to clear up the situation, that is, either to transpose our species into the genus *Neomacroporella,* if further investigations find out that the establishment of the genus *Neomacroporella* is necessary and justifiable, or to reject and abandon the genus *Neomacroporella,* and add *N. cretacica* to the genus *Macroporella,* subgenus *Pianella.* – So, although the two forms are set for a while into different genera, both of them show a series of identical or similar features: an almost equal size, a cylindrical not-segmented thallus, perpendicular or slightly oblique bulky branches, sticking mutually in whorls, and whorls which are also very close to one another. However, branches differ in shape: in *Neomacroporella cretacica* they are almost tubular or slightly club-shaped (»claviformi«). A whorl can contain a bigger number of branches, almost twice as much (up to 40) as can be observed in our species, and the number of branches shows considerably wider variations. In our species there could not be observed thin transversal fissures between whorls; the arrangement of branches in whorls in *N. cretacica* cannot be defined at all, for it shows even less regularity than in our species: the alternating arrangement cannot be observed at all, nor is the identical arrangement in neighbouring whorls clearly noticeable. Finally, the most obvious difference at first sight: the axial cavity in *N. cretacica* is considerably wider, occupying more than 1/3 of the outer thallus diameter, i. e. it exceeds

the thickness of the calcareous wall. It should be still mentioned that in our species a thin dark calcareous layer around the whole plant could not be observed, as mentioned by Crescenti and as it is clearly visible in his pictures, although this could not be considered a feature of importance, but most likely a result of fossilization.

The stratigraphical position is the same as in the species *M. (P.) istriana* n. sp.

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I. GUŠIĆ

DVIJE NOVE VRSTE DASIKLADACEJA PODRODA PIANELLA IZ DONJE KREDE ISTRE

Prilikom determinacije uzoraka za poduzeće »Naftaplin« sa profila I i SI od Rovinja u centralnom dijelu zapadne Istre, u pojedinim izbruscima ustanovljena je dosta bogata mikrofosilna zajednica, između ostalog i neki novi oblici vapnenačkih algi (dasikladaceja). Opisane su 2 nove vrste roda *Macroporella* odnosno podroda *Pianella* (prema Nikler & Sokač, 1965).

Macroporella (Pianella) istriana n. sp. je mala dasikladaceja obilno zastupana u svim preparatima sa tipičnog nalazišta. Talus je izdužen, cilindričan, nesegmentiran; stijenke su relativno tanke. Ogranci su sitni i gusti, poredani u gustim naizmjeničnim pršljenovima (= euspondilno), okomiti ili blago nagnuti prema širokoj centralnoj šupljini. Floiofornog su tipa, iako ljevkasti oblik nije na svim primjercima jasno izražen. Ogranci se ne dodiruju, iako su blizu; na površini stijenke pore su otvorene i okrugle. Broj ogranaka (pora) u jednom pršljenu iznosi 16–28.

Macroporella (Pianella) adriatica n. sp. je, naprotiv, dosta krupna dasikladaceja, ali zastupana znatno rjeđe, tako da je raspoloživi materijal oskudan. Naročito se osjeća nedostatak većih (= dužih) fragmenata i, na taj način, uzdužnih i tangencijalnih presjeka. – Talus je cilindričan, nesegmentiran; centralna šupljina je uska nasuprot znatnoj debljini stijenke. Ogranci su krupni, blago floioforni i vrlo gusto stiješnjeni jedan uz drugoga unutar jednog pršljena tako da se dodiruju cijelom dužinom. Pršljenovi su također vrlo blizu jedan drugome, tako da slobodni međuprostor stijenke praktički ne postoji. Ipak pore su na površini uglavnom zadržale okrugli ili malo ovalni oblik. Nije se moglo jednoznačno utvrditi da li je međusobni odnos (raspored) ogranaka u susjednim pršljenovima identičan ili dijagonalan odnosno naizmjeničan. Broj ogranaka u jednom pršljenu iznosi oko 20 i dosta je stalan.

Dimenzije za obje nove vrste date su u engleskom tekstu.

Obje vrste dosta se ističu, svaka na svoj način, od svih dosada opisanih vrsta podroda *Pianella*. No s druge strane, postoji znatna sličnost s nekim predstavnicima drugih rodova (*Salpingoporella*, odnosno *Neomacroporella*). Smatrajući međutim rod *Salpingoporella* nedovoljno opisanim i definiranim, naročito s obzirom na neka novija zapažanja o tom rodu (P r a t u r l o n, 1964), a ostavljajući mogućnost da vrsta *Macroporella (Pianella) adriatica* n. sp. bude uključena u rod *Neomacroporella*, ukoliko daljnja istraživanja opravdaju postojanje tog roda, pribrojao sam obje vrste u rod *Macroporella*, podrod *Pianella*.

Uz opisane oblike zapaženi su i fragmenti jedne također nove dasikladaceje koja vjerojatno pripada rodu *Actinoporella*, no raspoloživi materijal suviše je oskudan, kao i *Salpingoporella annulata* C a r o z z i.

Šire područje srednje Istre predmet je detaljne i iscrpne stratigrafske studije A. P o l š a k a (1965). Po njemu, slojevi iz kojih potiču ispitivani uzorci označeni su kao alternacija dolomita i vapnenaca, a u stratigrafskom pogledu kao prelazni horizonti jura-kreda (tithon–bérrias). Međutim u našim izbruscima, uz navedene vrste dasikladaceja, nađene su i male i primitivne kuneoline (tipa *C. camposaurii* S a r t o n i & C r e s c e n t i, i slični oblici), koje prema svim dosadašnjim podacima označavaju sigurnu donjokrednu starost. Prema tome, alternaciju dolomita i vapnenaca možemo smatrati bazalnim nivoima krede, čime je i stratigrafski položaj novih vrsti dasikladaceja na tipičnom nalazištu određen unutar valendijskog kata (uklj. infravalendis). To je u skladu i sa superpozicijskim položajem tih naslaga, koje leže neposredno na svjetlim dobro uslojenim vapnencima gornjeg titona (P o l š a k, 1965).

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PLATE – TABLA I

1–6. *Macroporella (Pianella) istriana* n. sp.

Figures 1–4 are enlarged (Slike 1–4 povećane su) 60 ×, fig. 5 – 75 ×, and fig. 6 – 100 ×.

1. Holotype (holotip). Slightly oblique longitudinal section. Malo kosi uzdužni presjek. Slide (izbrusak) G-1.
2. Longitudinal section. Uzdužni presjek. Slide (izbrusak) G-15.
3. Longitudinal-tangential section. Uzdužno-tangencijalni presjek. Slide (izbrusak) G-3.
4. Oblique section. Kosi presjek. Slide (izbrusak) G-15.
5. Transversal section. Poprečni presjek. Slide (izbrusak) G-2.
6. Oblique section. Kosi presjek. Slide (izbrusak) G-9.

Locality (nalazište): Istria, NE of Rovinj (Istra, SI od Rovinja).


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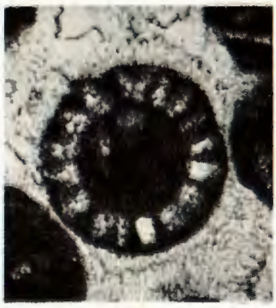
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6

PLATE – TABLA II

1–6. *Macroporella (Pianella) istriana* n. sp. (× 60)

Various oblique sections. Različiti kosi presjeci. Slides (izbrusci) G-3, G-8, G-11, G-13, G-17 and G-19.

Locality (nalazište): Istria, NE of Rovinj (Istria, SI od Rovinja).


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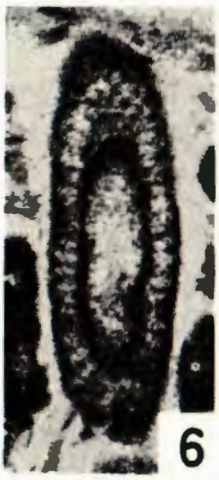
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PLATE – TABLA III

1–7. *Macroporella (Pianella) istriana* n. sp. (× 60)

1. Longitudinal section. Uzdužni presjek. Slide (izbrusak) G-11.

2, 3, 6, 7. Various oblique sections. Različiti kosi presjeci. Slides (izbrusci) G-3, G-8, G-13.

4, 5. Transversal sections. Poprečni presjeci. Slides (izbrusci) G-19 and G-17. Locality (nalazište): Istria, NE of Rovinj (Istra, SI od Rovinja).


1

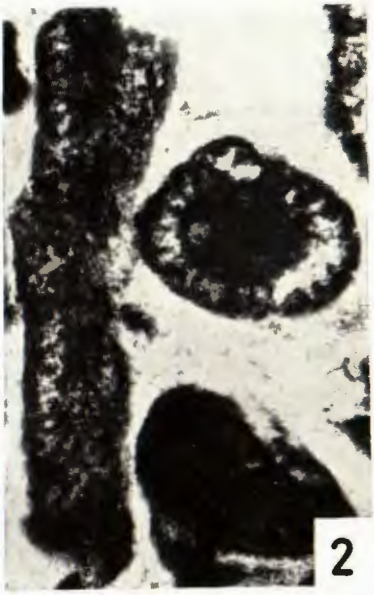
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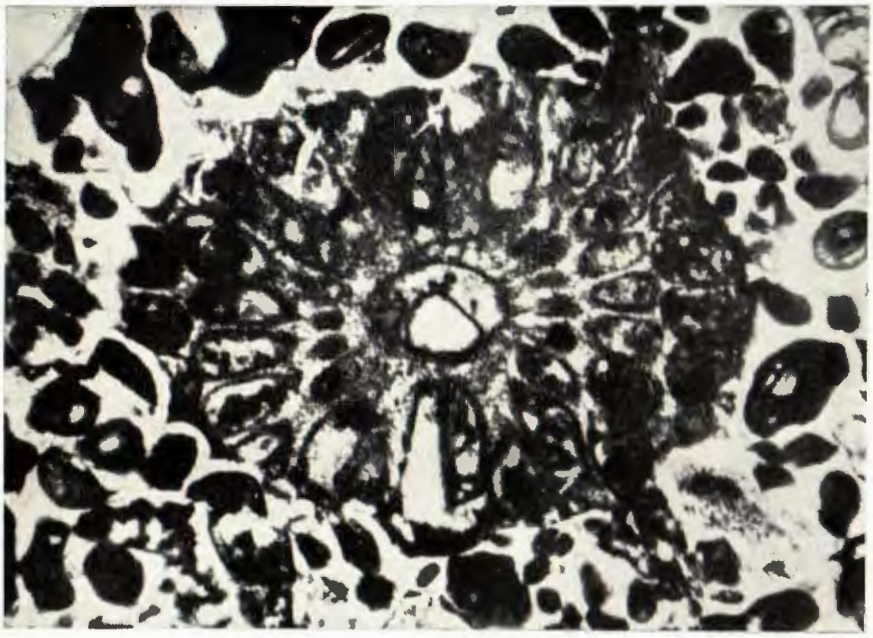
PLATE – TABLA IV

1, 2. *Macroporella (Pianella) adriatica* n. sp. (× 25)

Oblique sections. Kosi presjeci. Slides (izbrusci) G-2 and G-3. 1 (slide G-2) = Holotype (holotip).

Locality (nalazište): Istria, NE of Rovinj (Istra, SI od Rovinja).



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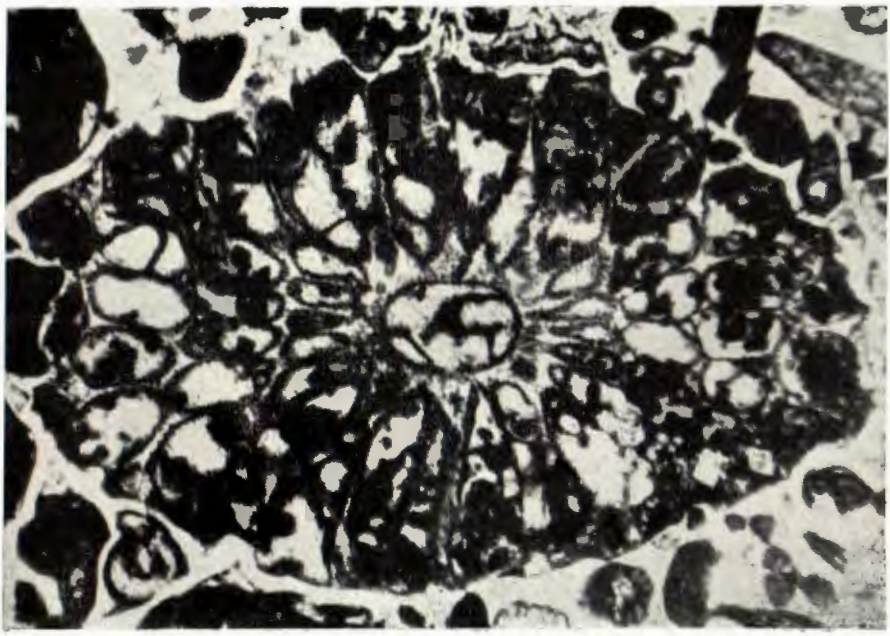


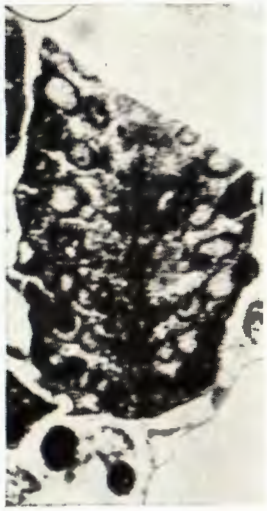
2

PLATE – TABLA V

1–4. *Macroporella (Pianella) adriatica* n. sp.
Fig. 1–50 ×, fig. 2–4 – 25 ×.

1. Oblique section of a fragment in a broken slide. Kosi presjek fragmenta u slomljenom izbrusku. Slide (izbrusak) G-12.
2. Longitudinal-tangential section. Uzdužno-tangencijalni presjek. Slide (izbrusak) G-17.
3. Transversal section. Poprečni presjek. Slide (izbrusak) G-18.
4. Oblique section. Kosi presjek. Slide (izbrusak) G-14.
Locality (nalazište): Istria, NE of Rovinj (Istra, SI od Rovinja).

1



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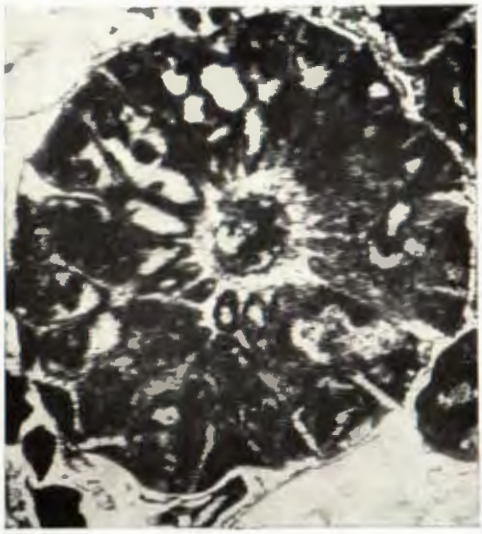

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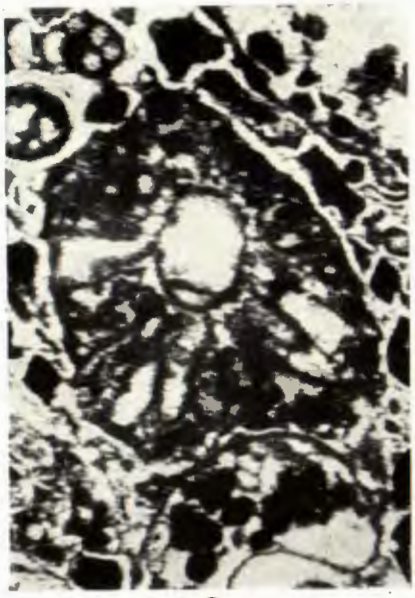
4

PLATE – TABLA VI

1–4. *Macroporella (Pianella) adriatica* n. sp. (× 25).

Transversal sections. Poprečni presjeci. Slides (izbrusci) G-4, G-11, G-16 and G-17. Locality (nalazište): Istria, NE of Rovinj (Istra, SI od Rovinja).

1



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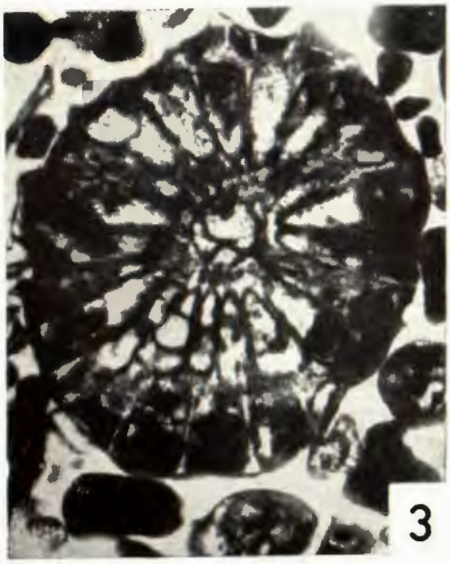

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