BULLETIN T. LXXXVI de l'Académie Serbe des Sciences et des Arts
Classe des Sciences naturelles et mathématiques
Sciences naturelles No. 25 — 1984.

ON THE UPPER VALVE OF RUDISTS WITH REVISION AND AMENDATION OF SOME GENERA

Desanka Pejović

(Accepted at the 4th meeting, held on April 20, 1984, on the basis of review presented by Academicians P. Stevanović and N. Pantić).

A b s t r a c t. — By studying the upper valves of the genera *Radiolites, Praelapeirouseia, Lapeirouseia, Pseudopolyconites* and *Neoradiolites,* significant results, which require changes in the systematics of *Radiolitidae* and point to a need for revision of all known radiolitids genera and perhaps of some other families of rudists, were obtained. In the upper valve of the genera *Radiolites, Praelapeirouseia, Lapeirouseia* and *Pseudopolyconites,* radial canals were discovered. In the cross-section, a series of regularly arranged „oscules" as those of the genus *Kuehnia* M i l o v a n o v i ć, correponds to those canals. By comparison of the cross-section of *Kuehnia serbica* with the corresponding section of the upper valve of *Radiolites angeiodes,* it was established that *Kuehnia serbica* is in fact the upper valve of the species *Radiolites angeiodes. Kurtinia hemispherica* is a synonym of species *Radiolites angeiodes,* too. The upper valve of the genus *Neoradiolites* has a pseudocanal layer, most probably like the one in *Balabania.* Therefore, the justifiability of introducing the genus *Balabania* comes into question. Here are given also the amended diagnoses of the genera *Radiolites, Praelapeirouseia* and *Lapeirouseia.*

INTRODUCTION

During my study stay in Bari, 1978, among a very rich collection of rudists, collected by V. C a m p o b a s s o in the vicinity of Poggiardo (the province of Lecce in Apulia), the specimens of rudists on the upper valves of which, especially in one of the cross-sections, I

Dr Desanka Pejović, Simina 19, 11000 Beograd.

recognized almost the same characteristics that were decisive for the establishment of the genera *Kuehnia* Milovanović and *Pseudokuehnia* Slišković, attracted my special attention[1]. These characteristics, however, refer to the lower valve of these genera. Having in mind that the mentioned genera were described only on the basis of cross-sections in the rock, I suspected that the question really was of the lower valve.

For that reason I began a more detailed study of the upper valves of rudists, mainly of radiolitids, because I consider that, up to recent, in determining the genera and species, a special attention has not been paid to them. Certainly, this partly may have been caused by a more rarer finding of rudists with both valves (Only lower valves, i. e. attached valves, were preserved mostly). The external characteristics of the upper valve were mainly described, i. e. their ornamentation and form (flat, convex, concave, with an eccentric apex etc.). The internal structure was not examined, although the genera *Joufia, Colveraia* and others, established first of all on the basis of internal characteristics of the upper valve, pointed to this.

A study of the upper valve structure of the known *Radiolitidae* and other families of rudists was certainly indispensable in order to avoid, from the present viewpoint, unjustified introduction of some new genera.

MATERIAL

Study of the upper valve structure of rudists demands, first of all, a lot of well preserved material and enough work, too. It is known that very rarely are found not only the forms with both valves, but also the upper valve itself, which is, as a rule, badly preserved (at least in our territories). In addition, the upper valve is relatively of small thickness, what does not permit to make a series of cross-sections. In most cases ,a good section can hardly be obtained, too.

In the collection of rudists that I had, there were around thirty specimens with the upper valve differently preserved, and the studies were directed, for the present, only to this material and included the following genera: *Lapeirouseia, Pseudopolyconites, Neoradiolites, Sauvagesia* and *Gorjanovicia.*

An exceptionally rich collection of rudists, especially of radiolitids (among which the genus *Kuehnia* was found at the proper time) from the Cretaceous sediments not far from Leposavić (Kosovo) was a worthwile material for this study. From this locality the upper valves of the genera: *Praelapeirouseia, Lapeirouseia, Pseudopolyconites* and *Gorjanovicia* were studied. The upper valve of the genus *Radiolites* was studied on around ten specimens of one species only, i. e. *Radiolites angeiodes* (Lapeirouse), collected mainly in the sediments of the rudist reef of Vrbovac (eastern Serbia). Of the genus *Neoradiolites*

I had, to my regret, only two unsufficiently preserved specimens from the neighbourhood of Kosjerić (western Serbia), and of the genus *Sauvagesia* one specimen of *Sauvagesia sharpei* (B a y l e) with the upper valve rather eroded, from western Serbia, too.

SUMMARY OF THE OBTAINED RESULTS

This study has given a number of new elements about the upper valve structure of the genera *Radiolites, Praelapeirouseia, Lapeirouseia, Pseudopolyconites* and *Neoradiolites* that not only complete the formerly given descriptions of these genera, but impose changes in the systematics of *Radiolitidae,* which is especially significant. It turned out that in the upper valve of the genera *Radiolites, Praelapeirouseia, Lapeirouseia* and *Pseudopolyconites* there are radial canals, to which corresponds, in the cross-section of the valve, a row of circular or oval (dependending on the section), or almost rectangular (at *Lapeirouseia)* orifices — „oscules", as those in the genera *Kuehnia* and *Pseudokuehnia.*

In the upper valve of the genus *Neoradiolites,* a canal layer was established, too. Since the specimens of the mentioned *Neoradiolites* were badly preserved, it is only supposed that this canal layer corresponds to the pseudocanals of the upper valve of the genus *Balabania* K a r a c a b e y — O z t e m ü r.

In the upper valve of the genera *Gorjanovicia* and *Savagesia,* neither canals nor pseudocanals were found, but I suppose that they exist, especially in *Gorjanovicia,* because there are some indications about it.

It is also necessary to emphasize that in no one of the genera, studied on this occasion prismatic structure was noticed in the upper valve, but only a lamellar one.

The canals and pseudocanals in the upper valve of *Radiolitidae* and in the other families of *Hippuritacea* were found at first in the genera *Joufia, Colveraia* and *Chiapasella,* and recently in the genera *Miseia*[2], *Kurtinia, Balabania, Branislavia, Neoradiolites*[3] and *Hatayia.*

DISCUSSION ON SOME GENERA AND CHANGES IN THE SYSTEMATICS OF RADIOLITIDAE

In the course of this study of the upper valves the most significant results were obtained for a type species of the genus *Radiolites,* i. e. *Radiolites angeiodes.* Namely, it was established that there were radial canals in the upper valve of this species and also that the

cross-section of the valve, what is of particular significance, was almost identical with the section of the species *Kuehnia serbica* (Pl. I, Figs. 1, 2; Pl. III, Fig. 4).

In one specimen of the species *Radiolites angeiodes* from eastern Serbia the structure of the upper valve is clearly seen, i. e. the radial canals on a partly eroded surface of the valve (Pl. IV, Fig. 1) and orifices of these canals along its margin (Pl. II, Figs. 1—3).[4]. In the syphonal zone, which in the upper valve is marked with two mild folds, spreading from the apex to the margin, the canals are clearly seen, i. e. their orifices, and in each fold there are four of them (Pl. II, Figs. 1 and 3).

In the syphonal zone of the species *Kuehnia serbica,* where the inner margin of the layer with canals is bent in two places in the form of mild bulges, four orifices bordered with a very narrow lamellar zone are perceived, too (Pl. I, Fig. 2, marked with arrows). This zone represents probably the wall of the mentioned folds in the syphonal zone of *Radiolites angeiodes.* This would be another common characteristic of the species *Radiolites angeiodes* and *Kuehnia serbica.*

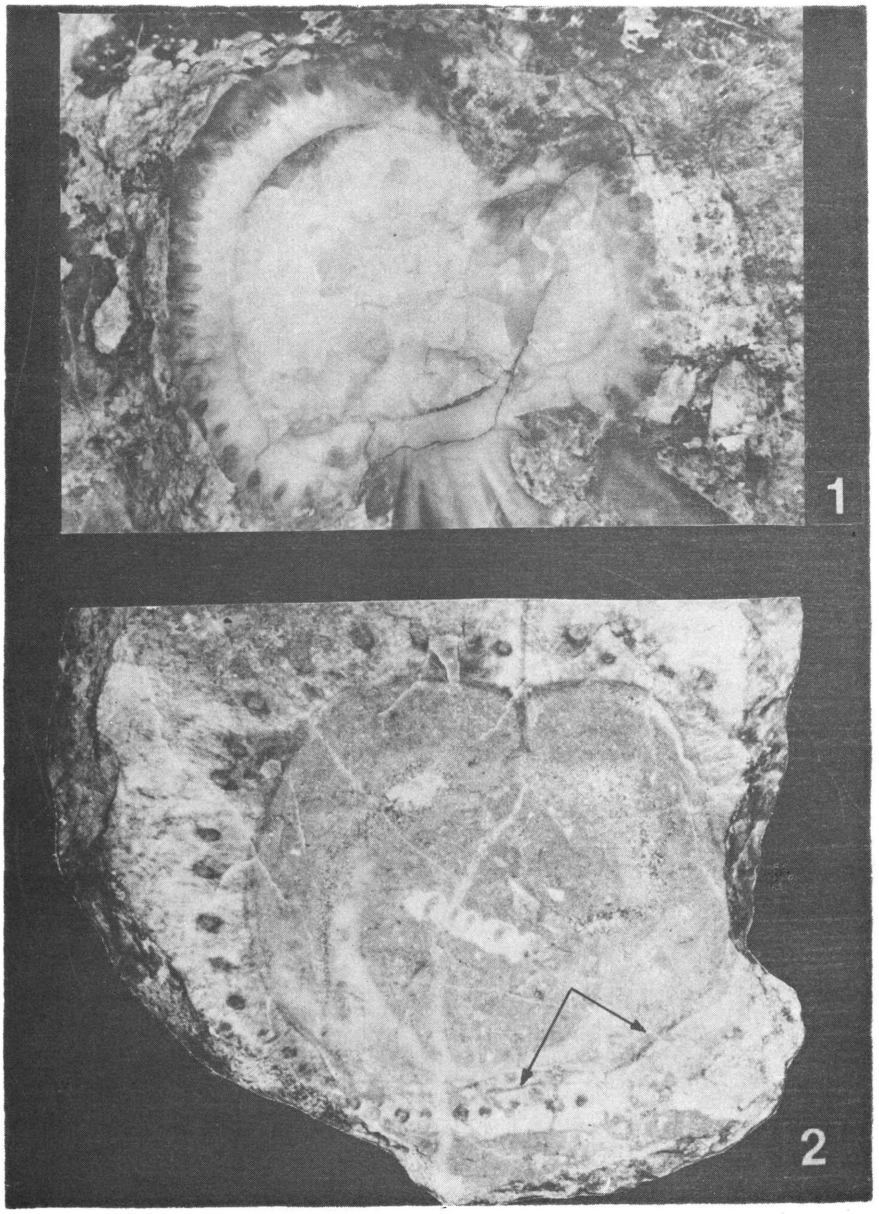
During studying the holotypes *Kuehnia serbica* and *Kuehnia braciana* I have also established that in the „outer layer" of these species there is no prismatic structure, though its presence was indicated by the authors. There is only a lamellar structure, which speaks in favour of the fact that these two species were described on the basis of the upper (not lower) valve structure.

In the description of the genus *Pseudokuehnia* and species *Pseudokuehnia milovanovici,* S l i š k o v i ć emphasized that the „outer layer" is, as a rule, lamellar, but in the paratype he mentioned a prismatic structure in one part of the shell and ligament. From the present knowledge of this matter, it seems that the paratype of the species *Pseudokuehnia milovanovici* is in fact a section which earlier included also a part of the lower valve. It happened rather often when polishing the upper valve, that I got into a part of the lower valve, because the upper valve is thin (It is clearly seen in the cross-sections of *Praelapeirouseia* and *Lapeirouseia* in Pl. VI, Fig. 1; Pl. VIII, Fig. 2). Such a section may give a wrong picture of the shell structure.

The results obtained by comparison of the species *Radiolites angeiodes* with *Kuehnia serbica* speak for themselves that *Kuehnia serbica is really the upper valve of the species Radiolites angeiodes.*

Having in mind the already known big variability of the species *Radiolites angeiodes,* a possibility cannot be excluded that the species *Kuehnia braciana* and *Pseudokuehnia milovanovici,* too (Pl. III, Figs. 2, 3, 5) are synonyms of the species *Radiolites angeiodes*[5]. One insuficiently preserved section of a specimen of small dimensions of *Radiolites angeiodes* from eastern Serbia leads to this assumption (Pl. III, Fig. 1).

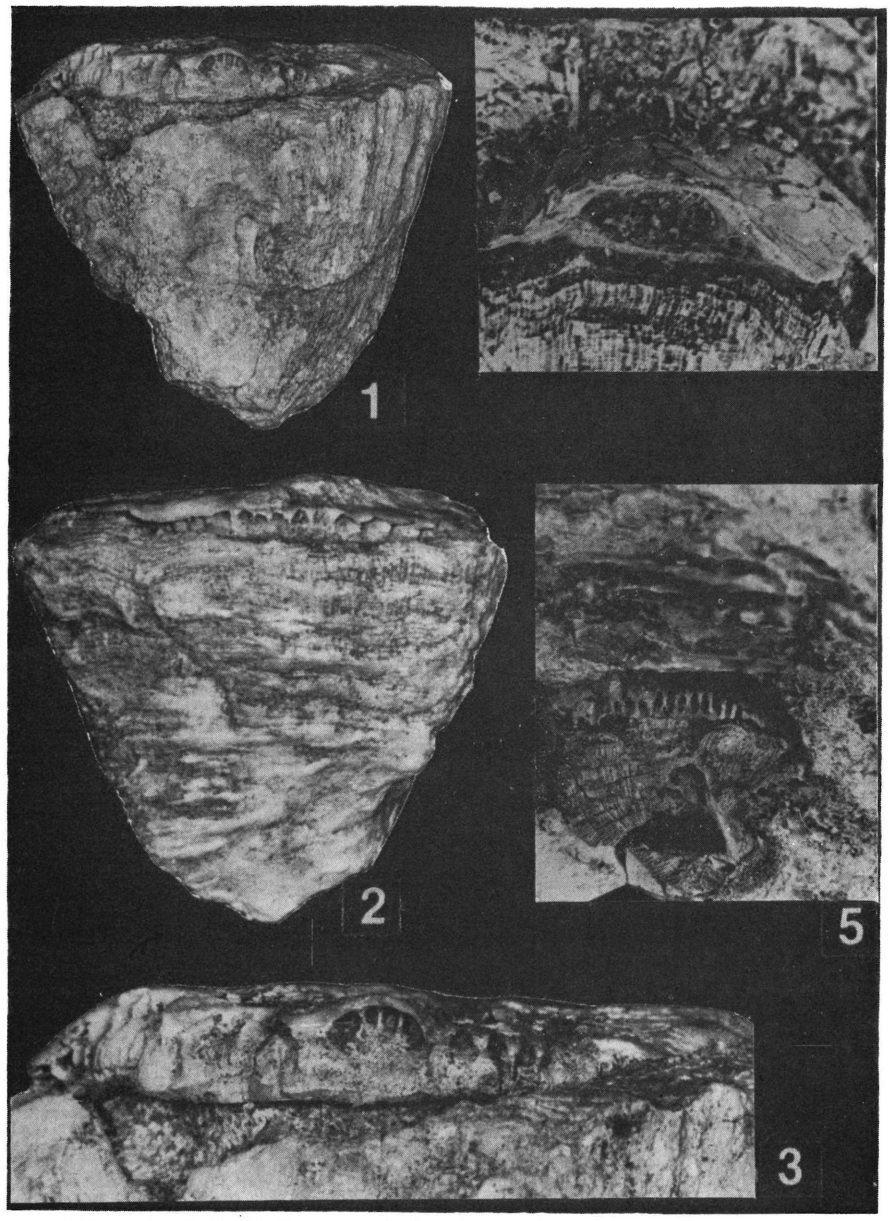
PLATE I



Figs. 1, 2. *Radiolites angeiodes* (Lapeirouse)

1. Transverse section of the upper valve about 1 cm under the apex, (x 3), Bačevica (eastern Serbia).
2. Transverse section of the upper valve *(Kuehnia serbica* after Milovanović, 1956, Pl. I, Fig. 1), slightly enlarged (0,25).

PLATE II



Figs. 1—5. *Radiolites angeiodes* (Lapeirouse)

1. Lower and upper valve, external view of the siphonal side. Jovanova kosa, eastern Serbia, (x 1,5).
2. Same specimen as in Fig. 1, opposite (cardinal) side, (x 1,75)
3. Enlarged detail from Fig. 1 (x 2,5)
4. Specimen from Poggiardo, siphonal zone (detail), half of the natural size.
5. The other specimen from Poggiardo, both valves, half of the natural size.

PLATE III

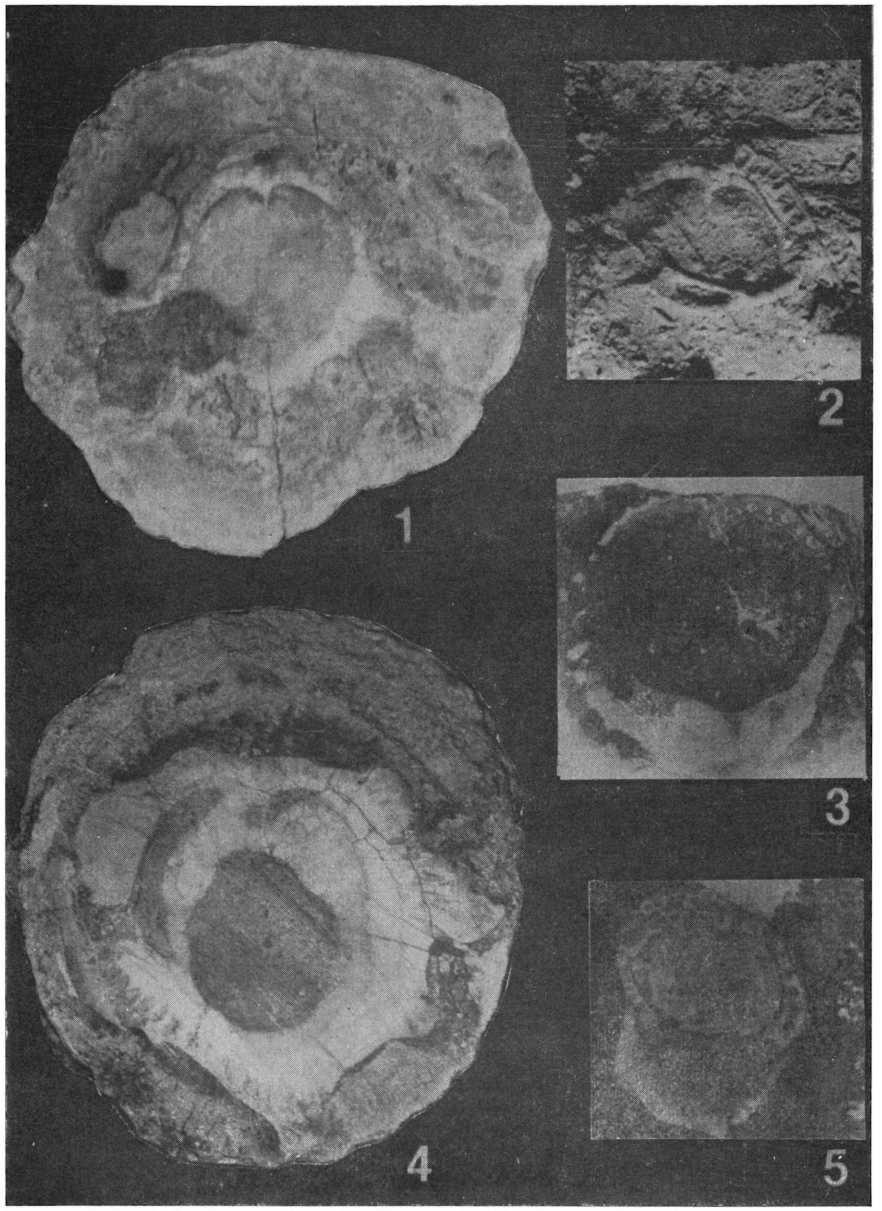


Fig. 1. *Radiolites angeiodes* (Lapeirouse), Jovanova kosa (eastern Serbia), transverse section of the upper valve (x 0,25).

Fig. 2. *Radiolites sp.* (gr. *angeiodes), (Kuehnia braciana*, after Pejović, 1970, Textfig. 1)

Figs. 3, 5. *Radiolites sp.* (gr. *angeiodes), Pseudokuehnia milovanovici* after Sliškvić, 1968, Pl. IX, Figs. 4 and 5).

Fig. 4. *Radiolites angeiodes (Lapeirouse),* Bačevica (eastern Serbia). transverse section of the upper valve, 2 cm under the apex, natural size.

PLATE IV

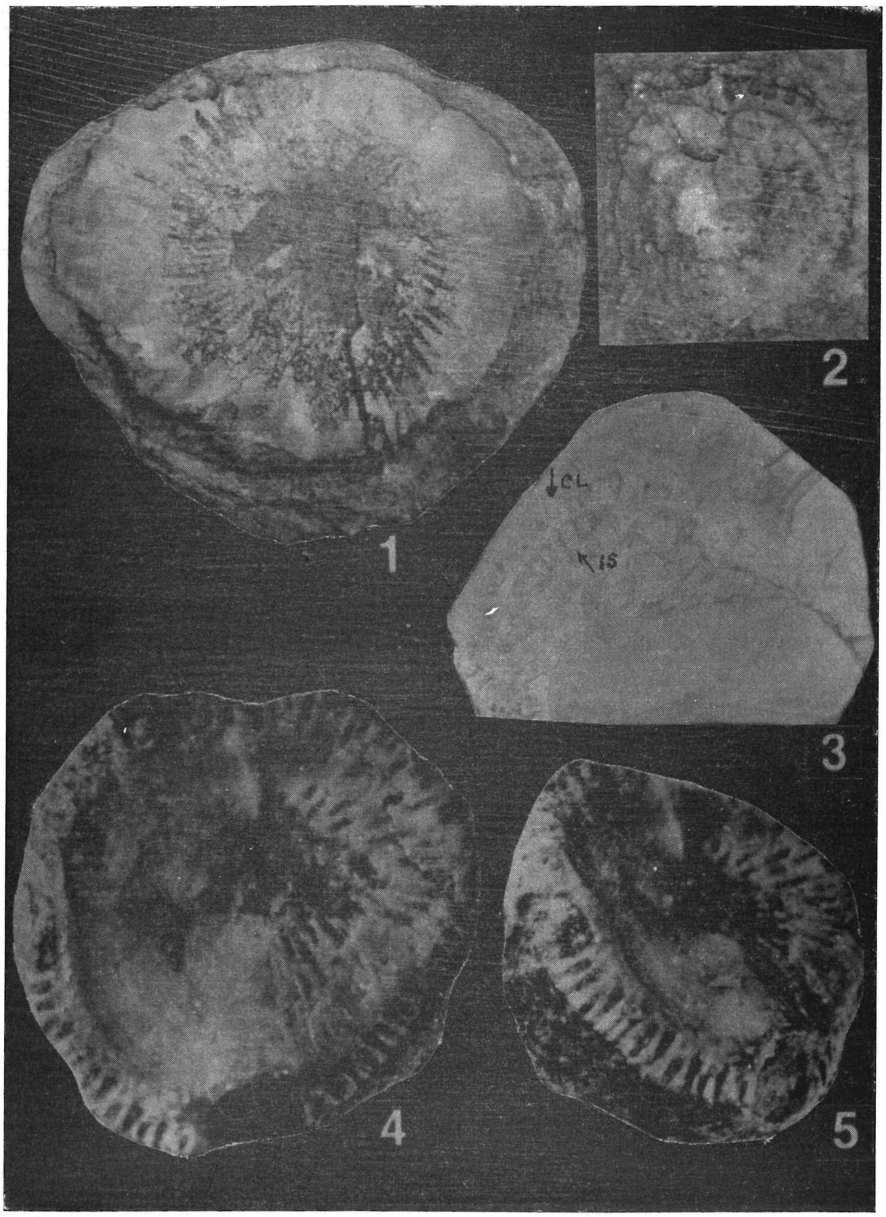


Fig. 1. *Radiolites angeiodes (Lapeirouse)*, Jovanova kosa. Traces of the radial canals on the eroded upper valve surface, (x 2.).

Fig. 2. *Radiolites sp.* (gr. *angeiodes)*, Likva (Brač Island) Transverse section of the upper valve, natural size.

Fig. 3. *Radiolites cf. angeiodes* (Lapeirouse), Srđ (near Dubrovnik, Transverse section of the upper valve (x 1), cl — canal layer, is — internal structure.

Figs. 4, 5. *Pseudopolyconites hirstutus* (Patrulius), Svračja stena near Leposavić)
Partly eroded surface of the upper valves showing the canal orifices, (x 2).

PLATE V

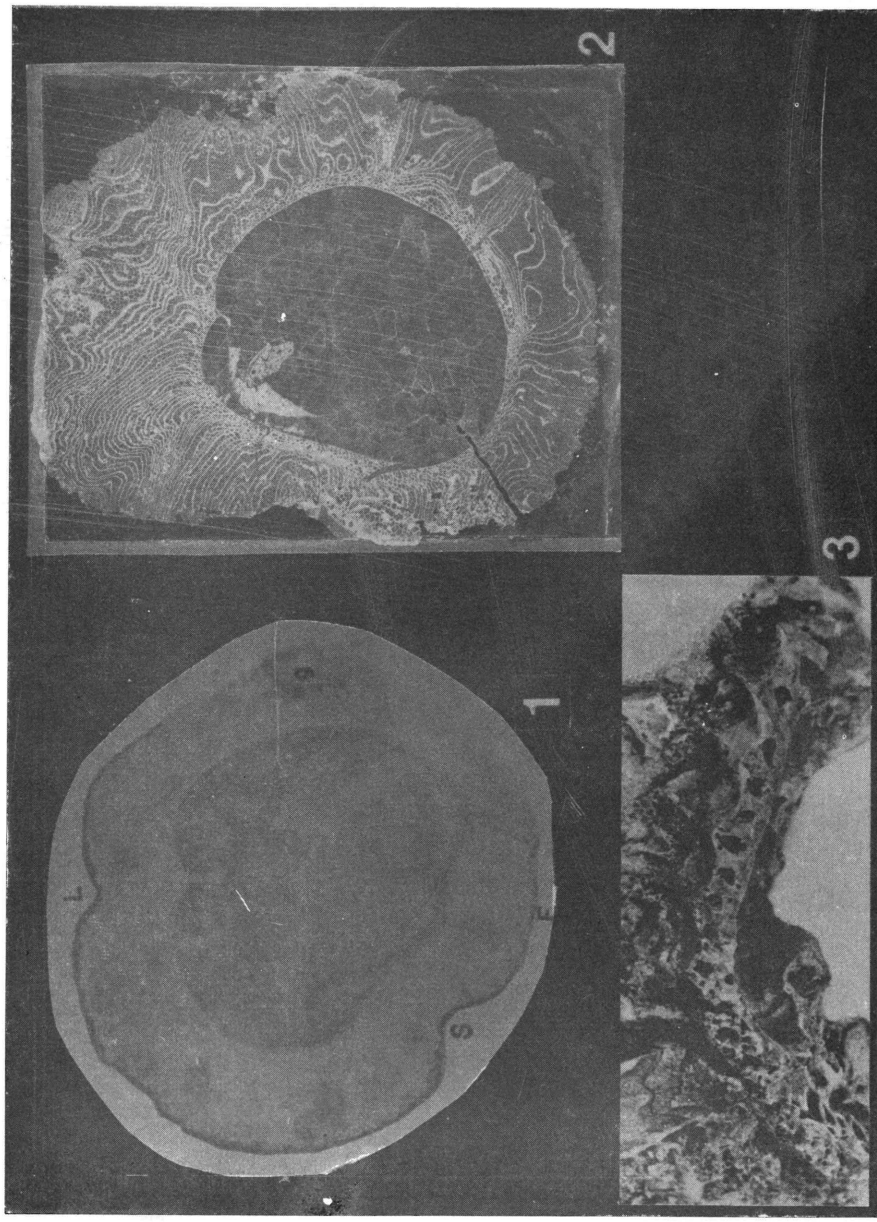


Fig. 1. *Radiolites angeiodes* (Lapeirouse), *(Kurtinia hemispherica* after Karacabey-Oztemür, 1981, transverse section of the upper valve, Pl. IV, Fig. 8).

Fig. 2. *Radiolites angeiodes* (Lapeirouse), Bačevica (eastern Serbia), Transverse section of the lower valve, thin section (x 1,5).

Fig. 3. *Radiolites angeiodes* (Lapeirouse), Poggiardo (Italy). Transverse section of the upper valve — detail, nat. size.

PLATE VI

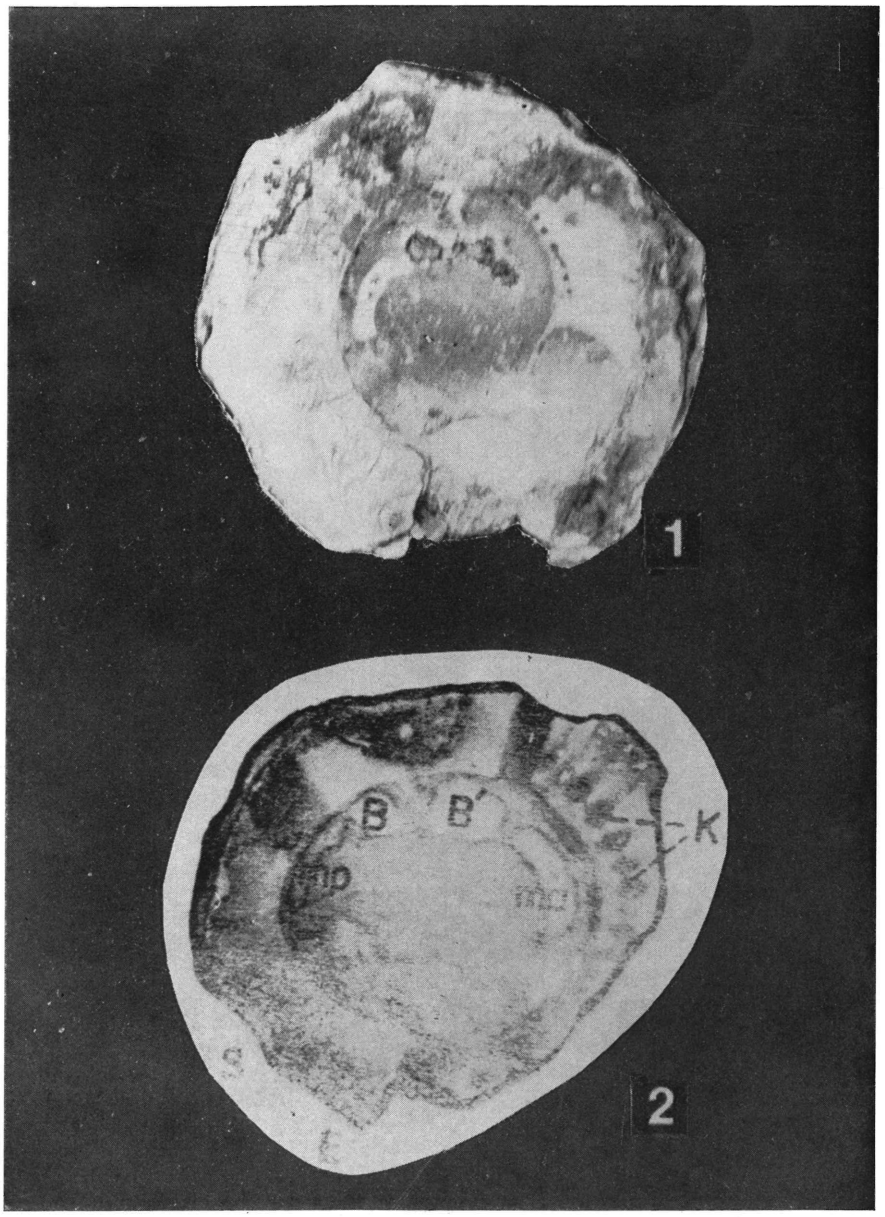
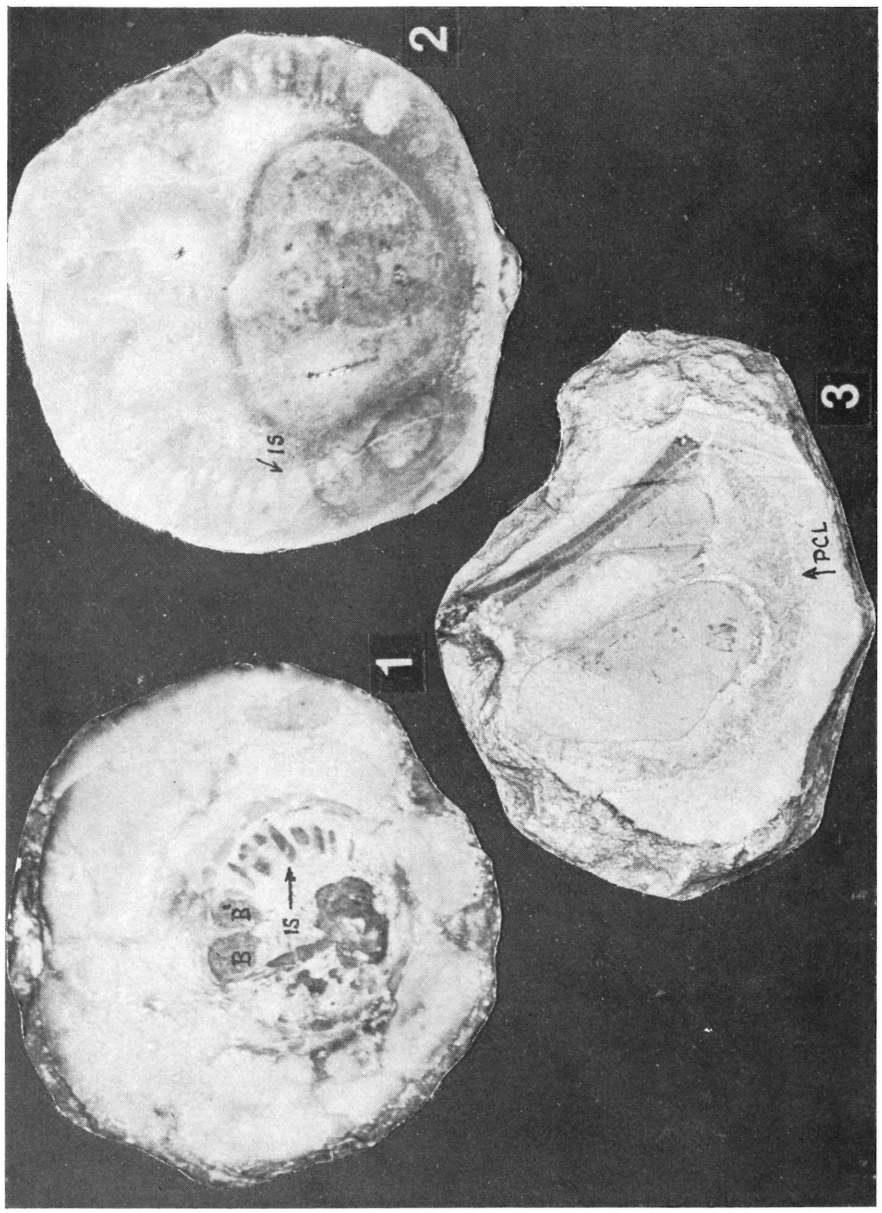


Fig. 1. *Praelapeirouseia wiontzeki* Sliškovič, Svračja stena. Transverse section of the upper valve (orifices of the canals in the lamellar layer), (x 1,5).

Fig. 2. *Praelapeirouseia osculta* (Karacabey-Oztemür), *(Miseia osculta* after Karacabey-Oztemür, 1981, Pl. II, Fig. 6).

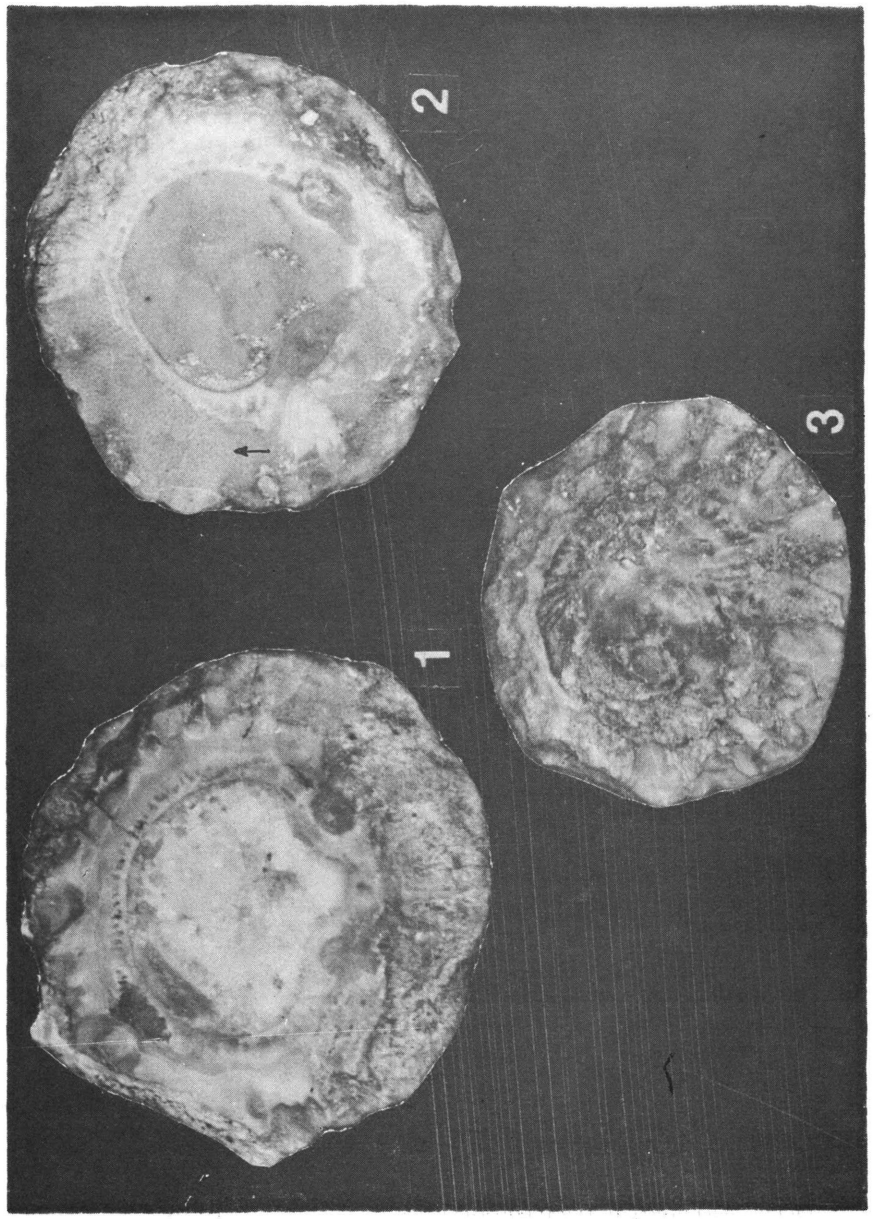
PLATE VII



Figs. 1, 2. *Praelapeirouseia wiontzeki* Slišković, Svračja stena.
1. Eroded surface of the upper valve, with uncovered internal structure, (x 2,5).
2. Transverse section of the upper valve of another specimen, canal layer eroded, is (internal structure).

Fig. 3. *Neoradiolites sp.*, neighbourhood of Kosjerić (Serbia) Transverse section of the upper valve, natural size, „pseudocanal layer" broken (pcl).

PLATE VIII



Figs. 1—3. *Lapeirouseia zitteli* (Douvillé), Svračja stena.

1. Transverse section of the upper valve (x 3,5).
2. Transverse section of the upper valve of another specimen (with a part of the lower valve-marked with arrow). (x 3,5)
3. Partly eroded surface of the upper valve, with traces of radial canals, third specimen, (x 3,5).

By comparison of the mentioned rudists from Poggiardo with the forms of the species *Radiolites angeiodes*, being now studied, it turned out that their characteristics, both external and internal, especially of the upper valve (the lower is very much eroded), are almost completely the same. Only in the cross-section of the upper valve of one of those specimens from Poggiardo, i. e. in the internal part of the valve, another „pseudocanal layer", as it was named by Karacabey — Oztemür[6], is noticed. This internal structure, however, was not preserved in our specimens of *Radiolites angeiodes* from eastern Serbia, but it was noticed in the cross-section of the specimen from Srdj (Pl. IV, Fig. 3). That structure is certainly analogous to the structure of the upper valve in the representatives of the family of *Chiapasellidae*. In addition, one gets an impression that in the syphonal zone of the upper valve of the specimens from Poggiardo there are only two big orifices, without canals in them (as in our specimens mentioned — Pl. II, Figs. 1 and 3), which evidently may have been caused by erosion (Pl. II, Fig. 4).

According to presented information, these rudists from Poggiardo unquestionably belong to the species *Radiolites angeiodes*.

By comparison of the cross-section of *Kurtinia hemispherica* with the cross-section of one specimen from Poggiardo, a noticeable resemblance, better to say an identity, in the structure of their valves was noticed (Textfig. 1). It is necessary to point out that the cross-sections of the lower valve of *Kurtinia hemispherica*, judging by the author's description and the figured section (Pl. V, Fig. 1), and *Radiolites angeiodes* from eastern Serbia (Pl. V, Fig. 2) are also identical, i. e. they have the completely same prismatic structure of their outer shell layer, and the same ligamental ridge.

Therefore, *Kurtinia hemispherica* is a synonym of the species *Radiolites angeiodes*.

It is also necessary to say that Karacabey — Oztemür (1980, p. 84) mentions".... a perforated structure with numerous pores smaller than 1 mm in diameter. At the eroded parts of the valve, the short thin and canal-like extensions of that pores can be observed in the lamellar layer. We accept that those are tubular excrescens." However, judging by this description and according to the presented figures of *Kurtinia hemispherica* (on which tubular excrescens are not seen at all), it cannot be accepted that they are really tubular excrescens.

In connection with the finding of pseudocanals in the upper valve of *Neoradiolites* it is necesary to point out that the author of the genus *Balabania* (Karacabey—Oztemür, 1980), comparing this genus with the genus *Neoradiolites*, has found that they differ from *Neoradiolites* by the absence of the „pseudocanal layer" in the upper valve — „Balabania n. gen. resembles Neoradiolites Milovanović with its eccentric beac which is located at the cardinal region and its shell structure of the lower valve. It differs from

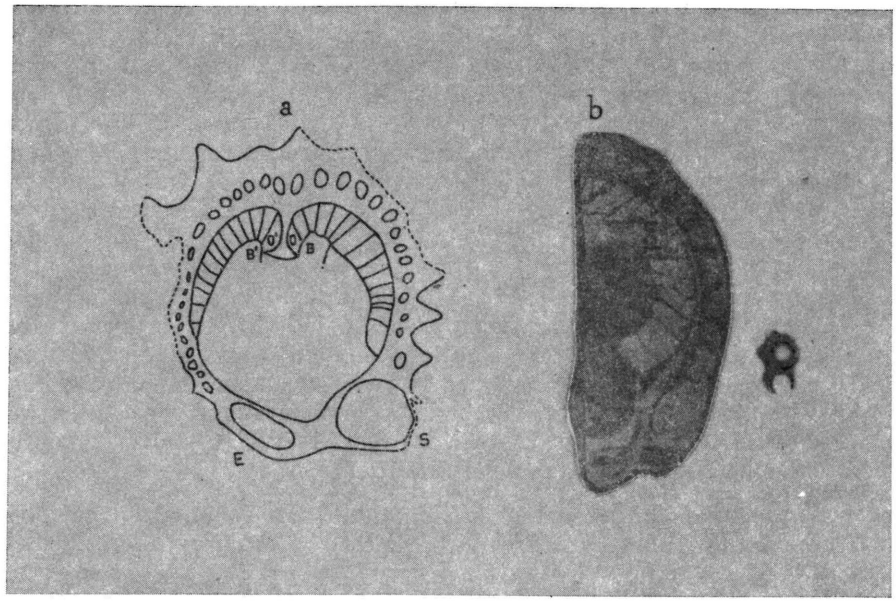


Fig. 1. *Radiolites angeiodes* (Lapeirouse)
(a) Drawing of the transverse section of the upper valve, Poggiardo (after Campobasso, manuscript), 6,5 mm corresponds to 1 cm.
(b) Transverse section of the upper valve *(Kurtinia hemispherica after* Karaçabey-Oztemür, 1981, Pl. 4, Fig. 8).

Neoradiolites by having the pseudocanal layer on the upper valve, after the middle layer in inward direction. This property has not been mentioned in the Neoradiolites description". (Karacabey — Oztemür, 1980, p. 80).

The present data, as it could be seen, point out that this one, maybe the only difference between these two genera probably does not exist, which naturally calls in question the justifiability of introducing the genus *Balabania.*[7] The establishment of this genus was obviously too early; it was necessary to examine previusly the upper valve of the genus *Neoradiolites.* An additional examination of the structure of the upper valve of *Neoradiolites,* the resutls of which should be the subject of a separate paper, will confirm or contest the present assumption.

ADDITION TO THE DESCRIPTION OF GENERA

Genus *Radiolites* Lamarck 1801

On the basis of new data on the upper valve structure of the type species of the genus *Radiolites* — *Radiolites angeiodes* (Lapeirouse), the former description of this genus is completed. Amended diagnosis:

Lower valve conical, elongated or short, with strong or thin ribs on the whole surface of the valve. Growth lamellae unequally developed, tiny or very thick. Syphonal bands shallow or deep, decorated with thin longitudinal ribs. Outer shell layer prismatic, prisms polygonal. Ligamental ridge present.

Upper valve small, conical, very convex or rarely flat, completely or partly covers the lower valve. Within it there is a layer with radial canals; in cross-section a row of circular orifices — „oscules" is noticed, which correspond to the canals. Inside the valve there is a „pseudocanal layer" — a single row of canals radially arranged, rectangular in shape in the cross-section. Myophore apophyses present.

Remarks: The genera *Kuehnia Milovanović* and *Kurtinia* Karacabey—Oztemür are synonyms of the genus *Radiolites*, because of the completely same characteristics. It is supposed that a synonym of this genus is *Pseudokuehnia* Slišković, too.

Genus *Lapeirouseia* Bayle 1878

Amended diagnosis on the basis of new elements for the upper valve structure:

Lower valve cylindrical to depressed-convex. Shell ribbed or with very prominent growth lamellae. Outer layer mainly thick, with prismatic structure; prisms polygonal. Pseudopillars well developed, with bulges toward the internal part of the shell. Externally, syphonal bands concave. Ligamental ridge absent.

Upper valve flat or concave, completely covers the lower valve. Two orifices in the syphonal zone. There is a layer with numerous radial canals; in the cross-section, the conals are rectangular in shape.

Genus *Praelapeirouseia* Wiontzek 1933

On the basis of a greater number of specimens from the Senonian sediments in the vicinity of Leposavić, which certainly belong to this genus, ne wdata on the upper valve structure of this genus were obtained, too. Since the mentioned specimens were well preserved, a supplementation of the external and internal characteristics of the lower valve, up to now given only on the basis of two specimens, was allowed, too. (Wiontzek, 1933, one specimen with both valves and Slišković, 1974, one specimen also i. e. only the lower valve.).

Amended diagnosis:

Lower valve conical and cylindrical-conical, ribbed, with very prominent longitudinal ribs in the syphonal zone. Growth la-

mellae also present. Syphonal grooves more or less concave, separated by a wider rib. Grooves between the ribs wider than the ribs. Outer layer prismatic, prisms polygonal. Pseudopillars clearly marked in the prismatic layer, with a slight or even very slight infolding of the inner rim of the outer shell layer on that part. Ligamental ridge short.

Upper valve slightly or very much convex, with eccentric apex; completely covers the lower valve; it is ornamented with thin ribs. Structure is lamellar. Below the upper lamellar layer there is a layer with numerous narrow canals. On the cross-section a row of small orifices of these canals is visible. In the inner part of the valve a „pseudocanal layer" is noticed, i. e. one row of radially arranged „canals", rectangular in shape.

Remarks: I suppose that the forms which were described under the generic name of *Miseia* Patrulius (Patrulius, 1974 and Karacabey—Oztemür, 1981) belong also to this genus, because their characteristics are identical.

CONCLUSION

From all presented information it can be concluded that this study of the upper valves of some rudists, especially of radiolitids, has contributed to their better knowledge. The contribution is in the following:

(1) In the upper valve of the genera *Radiolites, Praelapeirouseia, Lapeirouseia* and *Pseudopolyconites* radial conals were established for the first time. In the cross-section these canals show a row of regularly arranged orifices, like those in the genus *Kuehnia* Milovanović.

(2) The genera *Kuehnia Milovanović* and *Pseudokuehnia* Slišković were established on the basis of the upper valve (not lower valve) characteristics.

(3) *Kuehnia serbica* Milovanović has all cross-sectional characteristics of the upper valve of *Radiolites angeiodes* (Lapeirouse); therefore, it is a synonym of this species.

(4) *Kurtinia hemispherica* Karacabey — Oztemür is also a synonym of the species *Radiolites angeiodes.*

(5) The genus *Neoradiolites* Milovanović has in the upper valve a canal layer, most probably like that in the genus *Balabania* Karacabey — Oztemür, which raises a suspicion whether the genus *Balabania* has been justifiably introduced.

Accordingly, the obtained results point out a necessity for further re-examination of the upper valve of the known *Radiolitidae,* and of some other families of *Hippuritacea.* It will certainly give an

answer to the question whether several genera have the same or similar characteristics of the upper valve, which the present results indicate. In connection with this, it is necessary to answer also the question whether it is justified or not to introduce some new genera, using the upper valve structure as a primary criterion.

---

[1]) V. Campobasso has found that these rudist forms are similar to the genus *Joufia* and intended to describe a new species under the name of *Joufia cesareae,* but he changed his mind after a discussion with me. We had agreed to describe these rudists together, assigning them to the genus *Kuehnia,* and to establish, if possible, a new species with indispensable changes in the description of the genus *Kuehnia.* Unfortunately, our colloboration was soon interrupted by the death of Prof. Campobasso. My newer studies have shown, however, that these forms do not belong to the genus *Kuehnia,* which will be seen from further presentation in this paper.

[2]) According to its own characteristics, especially according to the structure of the outer shell layer of the lower valve and pseudopillars, the genus *Miseia* Patrulius is not different from a little known genus *Praelapeirouseia* Wiontzek. A great number of individuals identical to the rudists assigned by Patrulius to the genus *Miseia,* I found among a rich rudist fauna in the vicinity of Leposavić (Kosovo). I assigned them to the genus *Praelapeirouseia,* because I did not find that they in essence differed from it.

[3]) G. Camoin (1983) figured the cross-sections of a neoradiolites from Sicily with the canals in the upper valve (Pl. 6, Figs. 6, 7).

[4]) In the specimen of *Radiolites* cf. *angeiodes,* figured by P. Celet (1962, Pl. VI, Fig. 1a), the canal orifices are also perceived along the margin of the upper valve.

[5]) *Pseudokuehnia milovanovici* and *Kuehnia braciana* have completely the same characteristics. I think that they represent the same rudist form. Slišković, however, has introduced a new genus of *Pseudokuehnia,* because of the presence of pseudopillars, which are absent, according to Milovanović, in the genus *Kuehnia* (although there were some indications!), and also because *Kuehnia* has a prismatic structure, while the Slišković specimens have, as a rule, a lamellar one, although he himself mentioned the prismatic structure in the paratype. At the same time (1970) I described the same kind of radiolitid as a new species of the genus *Kuehnia* — — *Kuehnia braciana,* but I did not find that they essentially differ from this genus.

[6]) In the cross-section of the species *Kurtinia hemispherica,* N. Caraçabey-Oztemür has established the same structure in the inner part of the upper valve as that noticed in the specimen from Poggiardo, and named it a „pseudocanal layer". The corresponding structure is noticed in one-cross section of the upper valve, as well as in the eroded upper valve of the species *Praelapeirouseia wiontzeki* from the vicinity of Leposavić (Pl. VII, Figs. 1, 2). Such a structure is perceived also in the cross-section of the specimen from Srđ (Pl. IV, Fig. 3).

[7]) M. Sladić-Trifunović (1980) pointed out a need for studying the upper valve of neoradiolites, because this genus is closely similar, as far the upper and lower valve are concerned, to the genus *Balabania.*

REFERENCES

Alencaster, G., (1971), *Rudistes del Cretacico superior de Chiapas*, Parte I, Paleontologia mexicana, no. 34, 1—91, Mexico.

Camoin, G., (1983), *Plates-formes carbonatées et récif à rudistes du Cretacé de Sicile*, Traveaux du Laboratoire de Géologie historique et de Paléontologie, 1—244, Marseille.

Celet, P., (1962), *Contribution à l'étude géologique du Parnasse-Kiona et d'une partie des regions méridionales de la Grèce continentale*, Annales géologiques des pays Helléniques, I ser., Tom. XIII, Athene.

Karacabey,Oztemür, N., (1980), *Two new genera of Radiolitidae (Balabania n. gen., Kurtinia n. gen.) from Turkey*, Bull. of the Geol. Soc. of Turkey, 23, 1, 79—86, Ankara.

Karacabey-Oztemür, N., (1981), *Three new species of the genus Miseia and proposal of a new subfamily of Radiolitidae*, Bull. of Min. research and explor. Inst. of Turkey, no. 92, 40—46, Ankara.

Karacabey-Oztemür, N., Selcuk, H., (1983), *A new genus and two new species of rudists from Hatay, Turkey*, Bull. of the Min. research and explor. Inst. of Turkey, no. 95/96, 97—104, Ankara.

Milovanović, B., (1957), *Sifonalna zona rudista*, Vesnik Zavoda za geol. i geof. istr., knj. XIII, 115—147, Beograd.

Milovanović, B., (1956), *Kuehnia nov. gen. i aberantni rodovi*, Vesnik Zavoda za geol. i geof. istr. knj. XII, 131—143, Beograd.

Patrulius, D., (1974), *Duranddelgaia et Miseia, deux nouveaux genres de rudistes du Sénonien de Padurea Craiului (Monts Apuseni)*, Dari de seama ale sedintelor, Vol. LX (1972—1973), B. Paleontologie, 169—180, Bucuresti.

Pejović, D., (1970), *Two new Species of Rudists from the Maastricht Sediments of the Island of Brač*, Bull. scientifique, Section A, Tome 15, no. 7—8, 244—345, Zagreb.

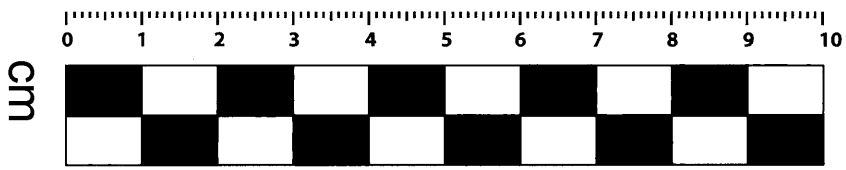
Pejović, D., Radoičić, R., (1980), *Locality: Svračja stena (the hamlet of Kamen)*, Point no. 5—3, 26th International Geol. Congr., Paris, Yugoslavia, An Outline of geology of Yugoslavia, Excursion 201A — 202C, 63—64, Paris.

Sladić-Trifunović, M., (1981), *Branislavia, novi rudistni rod iz mastrihta Bačevice (istočna Srbija), (Branislavia, a New Rudist Genus from Maastrichtian of Bačevica in east Serbia)*, Geološki anali Balkanskog poluostrva, knj. XLV, 207—216, Beograd.

Slišković, T., (1968), *Novi rudisti Hercegovine*, Glasnik Zemaljskog muzeja Bosne i Hercegovine, sv. VII, Prirodne nauke, 69—95, Sarajevo.

Slišković, T., (1974), *Praelapeirouseia Wiontzek I Milovanovicia Polšak iz gornjokrednih naslaga okolice Višegrada u istočnoj Bosni*, Glasnik Zemaljskog muzeja, sv. XIII, 23—51, Prirodne nauke, Sarajevo.

Wiontzek, H., (1933), *Rudisten aus der Oberen Kreide des mittleren Isonzogebietes, Palaeontographica*, Bd. LXXX, Abt. A, 2—40, Stuttgart.


0 1 2 3 4 5 6 7 8 9 10
cm