

ABSTRACT

The author describes and figures for the first time the foraminiferal microfauna from the Lower Cretaceous (Albian) deposits in the Rumanian Plain. As many as 115 species of foraminifera from Giurgiu and Putineiu are described and figured, including the new species *Uvigerinammina moesiana* and three new subspecies, *Lenticulina* (*Lenticulina*) *exarata danubiana*, *Gavelinopsis infracretacea simionescui* and *Globorotalites brotzeni rumanus*.

Albian foraminifera of the Rumanian Plain

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INTRODUCTION

Micropaleontological study of the Lower Cretaceous deposits from the Carpathians and the basement of the Rumanian Plain has been less thoroughly carried out than that of the Upper Cretaceous deposits. The reason is that these deposits occur in the eastern Carpathians in a marl-sandstone facies either almost completely lacking in microfauna or containing Orbitolinidae and more rarely other genera of the Lituolidae, namely *Choffatella* and *Dictyoconus*, recognized only in thin sections. Similar deposits from the basement of the Rumanian Plain (Moesic Platform) are difficult of access, because they are only encountered in quite deep wells. The construction of the Giurgiu-Ruse bridge revealed Albian deposits situated under the bed of the Danube River. Deposits of the same age have also been encountered in the drillings made on the Danube shore between Giurgiu and Zimnicea.

STRATIGRAPHY

Detailed studies of the drilling and geophysical data from the Rumanian Plain, carried out in the last few years by Oncescu and Grigoraş (1957), Grigoraş (1961), Patrulius and Tocorjescu [MS.], Neagu (1959), Patrulius and Paucă (1960), and Pătrut, Popescu, Teodorescu and Molnar (1961) have considerably enlarged geological knowledge of this region and highly enriched the paleontological inventory of its deposits. Researches have shown that, under the blanket of Quaternary deposits covering the whole Plain, there have been encountered formations of Neozoic, Mesozoic, and Paleozoic age and a basement of crystalline schists often pierced by igneous rock bodies. In the light of the latest research (Pătrut, Popescu, Teodorescu and Molnar, 1961), Cretaceous deposits are characterized by major facies variations which lead to their division into two distinctive groups; the lower, which includes the Neocomian, and the upper which includes the Albian - Senonian.

The present paper is concerned mainly with the second group of sediments; consequently the Neocomian sediments are only briefly considered. The Neocomian is represented by fine, chalky limestones, marly at the base, followed by marl-limestones or marls in which *Crioceratites emerici* (d'Orbigny) has been definitely recognised, and is indicative of the Barremian. These deposits have facies variations that grade into öolitic, organogenic detrital limestone, which at Giurgiu has a fauna indicative of the presence of all Neocomian stages except the Berriasian.

The Albian - Senonian deposits rest transgressively upon the Neocomian, and from a lithofacies standpoint they may be grouped in two parts; the lower one, generally marly, corresponding to the Albian - Turonian, and the upper one, chalky-marly, corresponding to the Senonian. According to Pătrut, Popescu, Teodorescu and Molnar (1961), the Albian is developed on the Moesic Platform in a cephalopod-rich marly facies. A fauna from this series at Giurgiu has been described (Neagu, 1959; Patrulius and Păuca, 1960). The fauna contains *Inoceramus concentricus* Sowerby, *Ostrea papyracea* Sinzow, *Plicatula inflata* Sowerby, *P. gurgitis* Pictet and Roux, *Cymatoceras* sp. cf. *C. neckerianum* (Pictet), *Fusus colophorus* Cossman and Pissaro, *Anahoplites planus discoideus* Spath, *A. planus fittoni* (d'Archiac), *A. intermedius* Spath, *A. evolutus* Spath, *Dimorphoplites chloris* Spath, *Hoplites dentatus densicostatus* Spath, *Hamites tenuicostatus* Sowerby, *H. gibbosus* Sowerby, and *H. attenuatus* Sowerby.

This faunal association most assuredly indicates a mid-Albian age corresponding to the *Anahoplites intermedius* Zone, as defined by Spath, or, in other words, the middle portion of the middle Albian. Albian - Turonian beds have been encountered in the wells drilled at Putineiu (Valea Vedei) and Atîrnaţi. The presence of the Albian has been established by Patrulius (1960)

TABLE 1

DISTRIBUTION AND FREQUENCY OF FORAMINIFERA FROM THE MID-ALBIAN OF GIURGIU AND THE ALBIAN OF PUTINEIU WITHIN THE MACROFAUNAL LEVELS

Family, genus and species	Macrofaunal levels						
	Giurgiu						Putineiu
	<i>Hoplites dentatus</i>	<i>Anacholites planus discoides</i>	<i>A. planus fitoni</i>	<i>Neobulimina minima</i>	<i>Cymatoceras cf. neckerianum</i>	<i>Inoceramus concentricus</i>	<i>Oxytropidoceras aff. rosyannum</i>
1	2	3	4	5	6	7	8
Family SACCAMMINIDAE							
<i>Protonina</i> sp. cf. <i>P. ampulacea</i> (Brady)							x
Family SPIRILLINIDAE							
<i>Spirillina minima</i> Schacko	x			x			x
Family REOPHACIDAE							
<i>Reophax scorpiurus</i> Montfort		x	o		x		
<i>Reophax pilulifer</i> Brady					/		x
Family HAPLOPHRAGMIDAE							
<i>Haplophragmium aequale</i> (Roemer)			o		x		●
<i>Ammobaculites parvispira</i> ten Dam							o
<i>Ammobaculites subretaceus</i> Cushman and Alexander							o
<i>Haplophragmoides</i> sp. 1		x	x	x	x		
<i>Haplophragmoides</i> sp. 2			x	x	x		
Family TEXTULARIIDAE							
<i>Textularia chapmani</i> Lalicker			x			●	
Family TROCHAMMINIDAE							
<i>Trochammina</i> sp. cf. <i>T. limbata</i> (Chapman)							x
Family VERNEULINIDAE							
<i>Uvigerinammina moesiana</i> , n. sp.	o	x		x		●	
<i>Tritaxia plummerae</i> Cushman		/	o	/		●	
<i>Tritaxia pyramidata</i> (Reuss)	x	/	o	/	x	x	●
<i>Tritaxia tricarinata</i> (Reuss)	x	o	o	/	x	x	●
<i>Spiroplectinata annectens</i> (Jones and Parker)	x	o	o	●	x	x	/
<i>Gaudryina rugosa</i> d'Orbigny			x				x
<i>Marssonella oxycona</i> (Reuss)	x		x		x		
<i>Marssonella trochus</i> (d'Orbigny)					x	/	
<i>Dorothia gradata</i> (Berthelin)		x	o	x	x	/	●
<i>Dorothia filiformis</i> (Berthelin)		x	o		x		●
<i>Arenobulimina macfadyeni</i> Cushman		x	o		x		x
<i>Arenobulimina chapmani</i> Cushman							x
Family OPTHALMIDIDAE							
<i>Pseudonubeculina nodulosa</i> (Chapman)						●	
Family LAGENIDAE							
<i>Lenticulina</i> (<i>Lenticulina</i>) <i>subangulata</i> (Reuss)	x	o	x	o	x	●	
<i>Lenticulina</i> (<i>L.</i>) <i>gaultina</i> (Berthelin)	o	x	o	/	/		
<i>Lenticulina</i> (<i>L.</i>) <i>oligostegia</i> (Reuss)		/	/	/	/		
<i>Lenticulina</i> (<i>L.</i>) <i>saxoretacea</i> Bartenstein		x	/	x	x		x
<i>Lenticulina</i> (<i>L.</i>) <i>dubiensis</i> (Berthelin)	/	x		x		/	●
<i>Lenticulina</i> (<i>L.</i>) <i>secans</i> (Reuss)			o				x
<i>Lenticulina</i> (<i>L.</i>) <i>nuda</i> (Reuss)							o
<i>Lenticulina</i> (<i>L.</i>) <i>exarata danubiana</i> , n. subsp.		x	x		o	x	o
<i>Lenticulina</i> (<i>Robulus</i>) <i>pulchella</i> (Reuss)		/		x	x		
<i>Lenticulina</i> (<i>R.</i>) <i>macrodisca</i> (Reuss)		x		x	/		
<i>Lenticulina</i> (<i>Vaginulinopsis</i>) <i>cephalotes</i> (Reuss)			x				●
<i>Lenticulina</i> (<i>V.</i>) <i>bronni</i> (Roemer)							
<i>Lenticulina</i> (<i>V.</i>) <i>ensis</i> (Reuss)	x	/					
<i>Lenticulina</i> (<i>V.</i>) sp. cf. <i>L. (V.) lituola</i> (Cornuel)	/						
<i>Lenticulina</i> (<i>V.</i>) sp. cf. <i>L. (V.) prima</i> (d'Orbigny)	x			x			
<i>Lenticulina</i> (<i>Saracenaria</i>) <i>franki</i> (ten Dam)					/	/	
<i>Lenticulina</i> (<i>S.</i>) <i>bononiensis</i> (Berthelin)	x	/					
<i>Lenticulina</i> (<i>S.</i>) <i>saratogana</i> (Howe and Wallace)		x					
<i>Lenticulina</i> (<i>Astacolus</i>) <i>grata</i> (Reuss)							x
<i>Lenticulina</i> (<i>A.</i>) <i>sulcifera</i> (Reuss)	x			/			
<i>Lenticulina</i> (<i>Planularia</i>) <i>strombecki</i> (Reuss)				x	/		
<i>Marginulina inaequalis</i> Reuss		x					
<i>Marginulina aequivoca</i> Reuss	x	/				x	
<i>Marginulina jonesi</i> Reuss		/	x				
<i>Marginulina striatocostata</i> Reuss							
<i>Marginulina? elongata</i> d'Orbigny	x						x
Family POLYMORPHINIDAE							
<i>Eoguttulina anglica</i> Cushman and Ozawa							
<i>Globulina prisca</i> Reuss	/		x	x			x
<i>Globulina bucculenta</i> (Berthelin)			x	/			
<i>Vitricorbina laevis</i> (Sollas)	x	x	x	x	x		/
<i>Histopomphus cervicornis</i> (Chapman)	x	x	x	x	x		x
<i>Ramulina novaeulata</i> Bullard	x		x	x	x		/
<i>Ramulina arkadelphia</i> Cushman			x	x	x		x
Family ENANTIOMORPHINIDAE							
<i>Enantiomorphina communis</i> Marie							x
<i>Enantiomorphina</i> sp.							x
<i>Enantiomorphina? sp.</i>							x
Family BULMINIDAE							
<i>Bifarina calcarata</i> (Berthelin)	x						
<i>Siphogenerina asperula</i> (Chapman)							o
Family PLEUROMORPHINIDAE							
<i>Pleuromorpha obtusa</i> Berthelin	x	x	x	x			
<i>Pleuromorpha reussi</i> Berthelin	o	x		x			x
Family CHILOSTOMELLIDAE							
<i>Quadriformina allomorphinoides</i> (Reuss)			/				
Family DISCORBIDAE							
<i>Valvulineria gracillina</i> ten Dam		●	/				x
<i>Gavelinella rudis</i> (Reuss)	o	x	x	x			
<i>Gavelinella intermedia</i> (Berthelin)	o	o	o	o	x	o	●
Family ANOMALINIDAE							
<i>Planulina schloenbachii</i> (Reuss)	x	x	x	x	x		
<i>Gavelinopsis infractetacea simionescu</i> , n. subsp.		o	o	o	o	●	
Family EPISTOMINIDAE							
<i>Epistomina chapmani</i> ten Dam							o
<i>Epistomina carpenteri</i> (Reuss)							●
Family CERATOBULMINIDAE							
<i>Lamarckina lamplughii</i> (Sherlock)							●
Family GLOBIGERINIDAE							
<i>Globigerina infractetacea Glaessner</i>	x	x	x	x	x	x	x
Family SCHACKOINIDAE							
<i>Schackoia</i> sp.							x
Family ROTALIPORIDAE							
<i>Hedbergella planispira</i> (Tappan)	o	o	o		o	o	●
<i>Praeglobotruncana</i> sp. 1							/
<i>Praeglobotruncana</i> sp. 2							/
Family GLOBOROTALIDAE							
<i>Globorotalites brotzeni rumanus</i> , n. subsp.	o	x					●

/ single specimen

x rare (2-5 specimens)

o common (6-20 specimens)

● abundant (more than 20 specimens)

on the basis of his identification of the ammonite *Oxytropidoceras* sp. aff. *O. roissyanum* (d'Orbigny), discovered in the well at Putineiu. In the top part of the Albian, in the same well at a depth of 624 meters, the same author encountered *Neohibolites ultimus* (d'Orbigny), which also extends into the Vraconian – lower Cenomanian. On the basis of foraminiferal assemblages, Patrulius and Tocorjescu [MS.] have identified in the Atîrnați well the occurrence of Cenomanian, Turonian, and Senonian.

FORAMINIFERAL FAUNA

As one may observe, in all the studies as yet referred to, the main determinations are based on macrofauna, when present, and on geophysical and coring data. Microfauna is only listed, without any descriptions or figures being given. This is the case with the well at Atîrnați (Patrulius and Tocorjescu, MS.), and with the wells at Pietroșani, Arsache and Zimnicea (Litanu and Bandrabur, 1960).

Owing to the fact that quite rich and interesting material was obtained during the construction of the Giurgiu-Ruse bridge, we have tried to make a more detailed study of the foraminiferal content of these deposits. To complete the picture we have added the foraminiferal content of the core fragment from the Putineiu well which contained *Oxytropidoceras* sp.

Analyzing the content of the samples from the two localities from a micropaleontological standpoint, we have found the presence of very rich and at the same time distinct microfaunas. To produce a more detailed study, the distribution of the foraminiferal species has been charted according to the major macrofaunal levels, as shown in Table 1.

From this table one may observe a rather well-marked micropaleontological break between the mid-Albian deposits of Giurgiu and the Albian marls with *Oxytropidoceras* of Putineiu. A new microfaunal element is introduced at Putineiu and consists of *Ammobaculites parvispira* ten Dam, *A. subcretaceus* Cushman and Alexander, *Pseudonubeculina nodulosa* (Chapman), *Eoguttulina anglica* Cushman and Ozawa, *Enantiomorphinidae*, *Siphogenerina asperula* (Chapman), *Epistomina chapmani* ten Dam, *E. carpenteri* (Reuss), *Lamarckina lamplughii* (Sherlock), *Schackoina* sp., *Praeglobotruncana* sp. 1 and P. sp. 2. The Giurgiu microfauna has a uniform aspect characterized by the lack of the typical planktonic species of the marls with *Oxytropidoceras* in the different macrofaunal levels of the mid-Albian. The characteristic note of the mid-Albian assemblage is given by the Lagenidae, as well as *Arenobulimina macfadyeni* Cushman, *Bifarina calcarata* (Berthelin), *Pleurostomella obtusa* Berthelin, *P. reussi* Berthelin, and *Gavelinopsis infracretacea* Hofker.

It should be noted that there is a rather small representation of only 2.30 percent of planktonic foraminifera in the mid-Albian microfauna of Giurgiu. This percentage, however, increases in the Albian

microfauna of Putineiu to 8.33 percent, because of the occurrence of representatives of the families Schackoinidae and Rotaliporidae, which, starting in the Albian, become typical of the Upper Cretaceous deposits. We may also point out that in the mid-Albian microfauna of Giurgiu the greatest development is that of the family Lagenidae, which includes almost 60 percent of the species of foraminifera. Its importance diminishes in the Albian of Putineiu until it represents only slightly more than 35 percent of the total of species of foraminifera. One may note this change of character of the assemblage as one approaches the Upper Cretaceous, where the Lagenidae have a far smaller development than in the Lower Cretaceous. Among the agglutinated foraminifera, the family Verneulinidae is worth mentioning. It includes in the mid-Albian of Giurgiu 10.35 percent of the total forms, while in the Albian of Putineiu it rises to 14.63 percent, and in the Upper Cretaceous its representatives have a rather significant importance. The remaining agglutinated and calcareous foraminifera encountered have no particular importance.

The taxonomic study of these foraminifera from the Albian of Giurgiu and Putineiu is based on the classification given by Sigal (1952), with modifications from that of Pokorný (1958). All figures have been drawn with the aid of a camera lucida by the author himself. The material is deposited in the collections of the Laboratory of Paleontology, University of Bucharest (L.P.B.).

SYSTEMATIC DESCRIPTIONS

Order FORAMINIFERA

Family SACCAMMINIDAE

Genus PROTEONINA Williamson, 1858

Proteonina sp. cf. *P. ampullacea* (Brady)

Plate 1, figure 1

Remarks: The few specimens from the Albian of Putineiu generally correspond to the one described and figured by Bartenstein, Bettenstaedt and Bolli (1957), but differ from it, however, in having a globular-pyriform test instead of a flat test.

Dimensions: Length 0.78–0.85 mm.; thickness 0.50–0.54 mm.

Hypotype: L.P.B. 5099.

Family SPIRILLINIDAE

Genus SPIRILLINA Ehrenberg, 1843

Spirillina minima Schacko

Plate 2, figure 10

Spirillina minima Schacko. – FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 16, pl. 1, fig. 21. – TAPPAN, 1943, Jour. Pal., vol. 17, no. 5, p. 510, pl. 82, fig. 1. – TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 46, pl. 4, fig. 2. – FRIZZELL, 1954, Texas, Univ., Rept. Invest., no. 22, pp. 122, pl. 18, fig. 24.

Remarks: The rather well-preserved specimens encountered in the Albian of Giurgiu correspond with the figures and descriptions in the literature referred to under this designation.

Dimensions: Diameter 0.41–0.50 mm.

Hypotype: L.P.B. 5081.

Superfamily LITUOLIDEA
Family REOPHACIDAE
Genus REOPHAX Montfort, 1808

Reophax scorpiurus Montfort
Plate 2, figure 12

Reophax scorpiurus Montfort. — EGGER, 1893, K. Bayer. Akad. Wiss., Abh., vol. 18, pt. 2, p. 257, pl. 4, fig. 18; pl. 5, figs. 45–46. — FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 18, pl. 2, fig. 2. — TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 6. — BARTENSTEIN, BETTENSTAEDT and BOLLI, 1957, Eclogae Geol. Helv., vol. 50, no. 1, p. 15, pl. 1, figs. 2–3.

Remarks: This species differs from *Reophax dentaliniformis* Brady in its deeper sutures and less elongate, subglobular chambers. Specimens found in the Albian of Giurgiu have the characters of Montfort's species.

Dimensions: Length 0.80–1.00 mm.; thickness 0.37–0.40 mm.

Hypotype: L.P.B. 5011.

Reophax pilulifer Brady
Plate 2, figure 2

Reophax pilulifera Brady. — BARTENSTEIN, BETTENSTAEDT and BOLLI, 1957, Eclogae Geol. Helv., vol. 50, no. 1, p. 15, pl. 1, figs. 4–5, 9. — LISZKOWA, 1959, Poland, Inst. Geol., Biul. 131, Geol. Karpat., vol. 2, pl. 3, fig. 2.

Remarks: Specimens encountered in the Albian of Putineiu correspond with those figured and described by the authors mentioned in the synonymy.

Dimensions: Length 1.70 mm.; thickness 0.54 mm.

Hypotype: L.P.B. 5100.

Family HAPLOPHRAGMIDAE
Genus HAPLOPHRAGMIUM Reuss, 1860

Haplophragmium aequale (Roemer)
Plate 2, figure 1

Haplophragmium aequale (Roemer). — REUSS, 1863, K. Akad. Wiss. Wien, Sitzber., vol. 46, p. 29, pl. 1, figs. 1–7. — BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 22. — EGGER, 1900, K. Bayer. Akad. Wiss., Abh., vol. 21, pt. 1, p. 142, pl. 3, fig. 1. — FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 170, pl. 15, fig. 15. — BARTENSTEIN, 1952, Senckenbergiana, vol. 33, no. 4/6, p. 325, pl. 3, figs. 17–18.

Haplophragmium cf. *aequale* (Roemer). — BARTENSTEIN, BETTENSTAEDT and BOLLI, 1957, Eclogae Geol. Helv., vol. 50, no. 1, p. 18, pl. 2, figs. 22–23.

Remarks: This species, rather easily recognizable by its very distinct characters, has, however, been a matter of dispute concerning its generic affiliation, and the validity of the genus itself has been questioned. It seems that now the great majority of authors admit the existence of the genus *Haplophragmium* as a taxonomic entity. The type species of this genus remains *Spirolina aequalis* Roemer, designated by Cushman, 1920.

Dimensions: Length 1.78 mm.; thickness 0.75 mm.

Hypotype: L.P.B. 5014.

Genus HAPLOPHRAGMOIDES Cushman, 1910

Haplophragmoides sp. 1
Plate 2, figure 3

Description: Test wholly involute; last whorl formed of 4–5 chambers. Chambers not very high, with their surfaces slightly concave; sutures straight and depressed. Test periphery rounded owing to the ovate-acute shape of the chambers. Coarsely arenaceous, agglutinated test wall is rather thin. Aperture indistinct. As a rule, specimens found in the Albian of Giurgiu have some affinities with *Haplophragmoides concavus* (Chapman), from which they are, however, different in the smaller number of chambers in the last whorl, the straight sutures, and the somewhat lenticular aspect of the test.

Dimensions: Diameter 0.57 mm.; thickness 0.20 mm.

Hypotype: L.P.B. 5012.

Haplophragmoides sp. 2
Plate 2, figures 4–5

Description: Test coarsely arenaceous, agglutinated, with globulose aspect, formed of chambers, the sutures of which can hardly be distinguished except those between the last two or three chambers. Aperture very difficult to distinguish, situated at the base of the last chamber. In their general aspect these specimens are similar to *Haplophragmoides latidorsatus* (Bornemann), from which they differ in slightly asymmetrical coiling and indistinct sutures.

Dimensions: Diameter 0.60–0.62 mm.; thickness 0.30–0.37 mm.

Hypotype: L.P.B. 5013.

Genus AMMOBACULITES Cushman, 1910

Ammobaculites parvispira Ten Dam
Plate 1, figures 1–3

Ammobaculites parvispira TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 10, pl. 1, fig. 8.

Remarks: Size small; test finely arenaceous, agglutinated, with closely coiled young stage (quite obvious in clove oil or xylol) and uncoiled adult stage formed

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of 4-5 chambers with slightly depressed sutures. The foregoing constitute conclusive characteristics of specimens belonging to ten Dam's species from the Albian of Holland.

Dimensions: Length 0.39-0.57 mm.; thickness 0.15-0.23 mm.

Hypotype: L.B.P. 5105.

Ammobaculites subcretaceus Cushman and Alexander
Plate 1, figures 4-6

Ammobaculites subcretacea Cushman and Alexander. - TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 10, pl. 1, fig. 8.

Remarks: Unlike the preceding one, this species has a coarsely arenaceous agglutinated test and a young stage more distinctly visible and of greater size.

Dimensions: Length 0.57-0.78 mm.; thickness 0.20-0.23 mm.

Hypotype: L.P.B. 5104.

Family TEXTULARIIDAE
Genus TEXTULARIA DeFrance, 1824

Textularia chapmani Lalicker
Plate 1, figure 20

Textularia chapmani LALICKER, 1935, Cushman Lab. Foram. Res., Contr., vol. 11, pt. 1, p. 13, pl. 2, figs. 8-9. - TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 11, pl. 1, fig. 10.

Dimensions: Length 0.34-0.70 mm.; thickness 0.15-0.39 mm.

Hypotype: L.P.B. 5015.

Family TROCHAMMINIDAE
Subfamily TROCHAMMININAE
Genus TROCHAMMINA Jones and Parker, 1859

Trochammina sp. cf. *T. limbata* (Chapman)
Plate 2, figures 20-22

Remarks: Test almost flat with a somewhat angular, slightly lobulate edge, the ventral side the more convex, the dorsal side concave-convex. Last whorl formed by 5-6 chambers with very depressed, almost non-limbate sutures. This fact leads us to distinguish between the specimens encountered in the Albian of Putinieu and the typical ones.

Dimensions: Diameter 0.41 mm.

Hypotype: L.P.B. 5111.

Familie VERNEUILINIDAE
Subfamily VERNEUILININAE
Genus UVIGERINAMMINA Majzon, 1943

Uvigerinammina moesiana Neagu, new species
Plate 2, figures 11-18

Description: Test cone-shaped or elongated cone-shaped. Young stage very short, formed by a small number of chambers defined by obscure sutures. Adult stage formed by chambers with rapidly increasing dimensions and a globular-ovate, sometimes slightly elongate shape. Sutures depressed and slanting. Three chambers arranged in a high spiral are marked out on each whorl. Elliptical aperture is on a short neck. Test wall finely agglutinated, smooth and thin, liable to deformation through fossilization.

Remarks: Examining in the material from Giurgiu and Putinieu the numerous specimens of this species, I have come to the conclusion that the sole genus which these specimens might be assigned to on the basis of their characters is *Uvigerinammina*.

Dimensions: Length 0.26-0.37 mm.; thickness 0.17-0.25 mm.

Holotype: L.P.B. 5032; plate 2, figures 11-13.

Paratype: L.P.B. 5446; plate 2, figures 14-18.

Genus TRITAXIA Reuss, 1860

Tritaxia plummerae Cushman
Plate 1, figure 19

Tritaxia plummerae CUSHMAN, 1937, Cushman Lab. Foram. Res., Spec. Publ., no. 7, p. 24, pl. 3, figs. 12-15. - TAPPAN, 1943, Jour. Pal., vol. 17, no. 5, p. 485, pl. 78, figs. 17-21. - TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 12, pl. 1, fig. 12.

Remarks: This species is easily recognizable owing to the characters of its adult stage and especially to the 2 or 3 last chambers becoming biserial. When this character can not be observed, the species may be distinguished from *Tritaxia pyramidata* Reuss by the rounded edges of the test and less concave lateral faces. Specimens encountered in the Albian of Giurgiu correspond with the type specimens figured by Cushman.

Dimensions: Length 0.67-0.82 mm.; thickness 0.27-0.30 mm.

Hypotype: L.P.B. 5016.

Tritaxia pyramidata Reuss
Plate 1, figures 9-10

Tritaxia pyramidata REUSS, 1863, K. Akad. Wiss. Wien, Sitzber., vol. 46, p. 32, pl. 1, fig. 9. - BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 25, pl. 1, fig. 4. - FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 138, pl. 12, fig. 8. - CUSHMAN, 1937, Cushman Lab. Foram. Res., Spec. Publ., no. 7, p. 22, pl. 3, figs. 1-8. - TEN DAM, 1950, Soc. Géol. France, Mém., vol. 29,

pt. 4, no. 63, p. 12. — BARTENSTEIN, BETTENSTAEDT and BOLLI, 1957, *Eclogae Geol. Helv.*, vol. 50, no. 1, p. 19, pl. 2, fig. 37.

Dimensions: Length 0.57–1.52 mm.; thickness 0.36–1.14 mm.

Hypotype: L.P.B. 5017.

Tritaxia tricarinata (Reuss)

Plate 1, figures 7–8, 17–18

Tritaxia tricarinata (Reuss). — FRANKE, 1928, *Preuss. Geol. Landesanst., Abh.*, n. ser., no. 111, p. 137, pl. 12, fig. 17. — CUSHMAN, 1937, *Cushman Lab. Foram. Res., Spec. Publ.*, no. 7, p. 24, pl. 3, fig. 16.

Remarks: Due to its much more concave lateral faces and to the more acute edges of its test, this species may be easily separated from *Tritaxia pyramidata* Reuss, with which it has some similarities. Highly frequent specimens in the Albion of Giurgiu and Putineiu correspond to the characters of the type specimens.

Dimensions: Length 0.50–0.75 mm.; thickness 0.30–0.37 mm.

Hypotype: L.P.B. 5018.

Genus SPIROPLECTINATA Cushman, 1927

Spiroplectinata annectens (Jones and Parker)

Plate 2, figure 19

Spiroplectinata annectens (Jones and Parker). — CUSHMAN, 1937, *Cushman Lab. Foram. Res., Spec. Publ.*, no. 7, p. 101,

pl. 14, figs. 10–12. — TEN DAM, 1950, *Soc. Géol. France, Mém.*, vol. 29, pt. 4, no. 63, p. 13, pl. 1, figs. 13–14.

Remarks: Rather numerous specimens found in the Albion of Giurgiu and Putineiu correspond with the specimens described from the Dutch Albion by ten Dam.

Dimensions: Length 0.50–0.92 mm.; breadth 0.26–0.4 mm.; thickness 0.10–0.15 mm.

Hypotype: L.P.B. 5019.

Genus GAUDRYINA d'Orbigny, 1839

Gaudryina rugosa d'Orbigny

Plate 2, figure 6

Gaudryina rugosa D'ORBIGNY, 1840, *Soc. Géol. France, Mém.*, vol. 4, pt. 1, p. 44, pl. 4, figs. 20–21. — CUSHMAN, 1937, *Cushman Lab. Foram. Res., Spec. Publ.*, no. 7, p. 36, pl. 4, figs. 14–19.

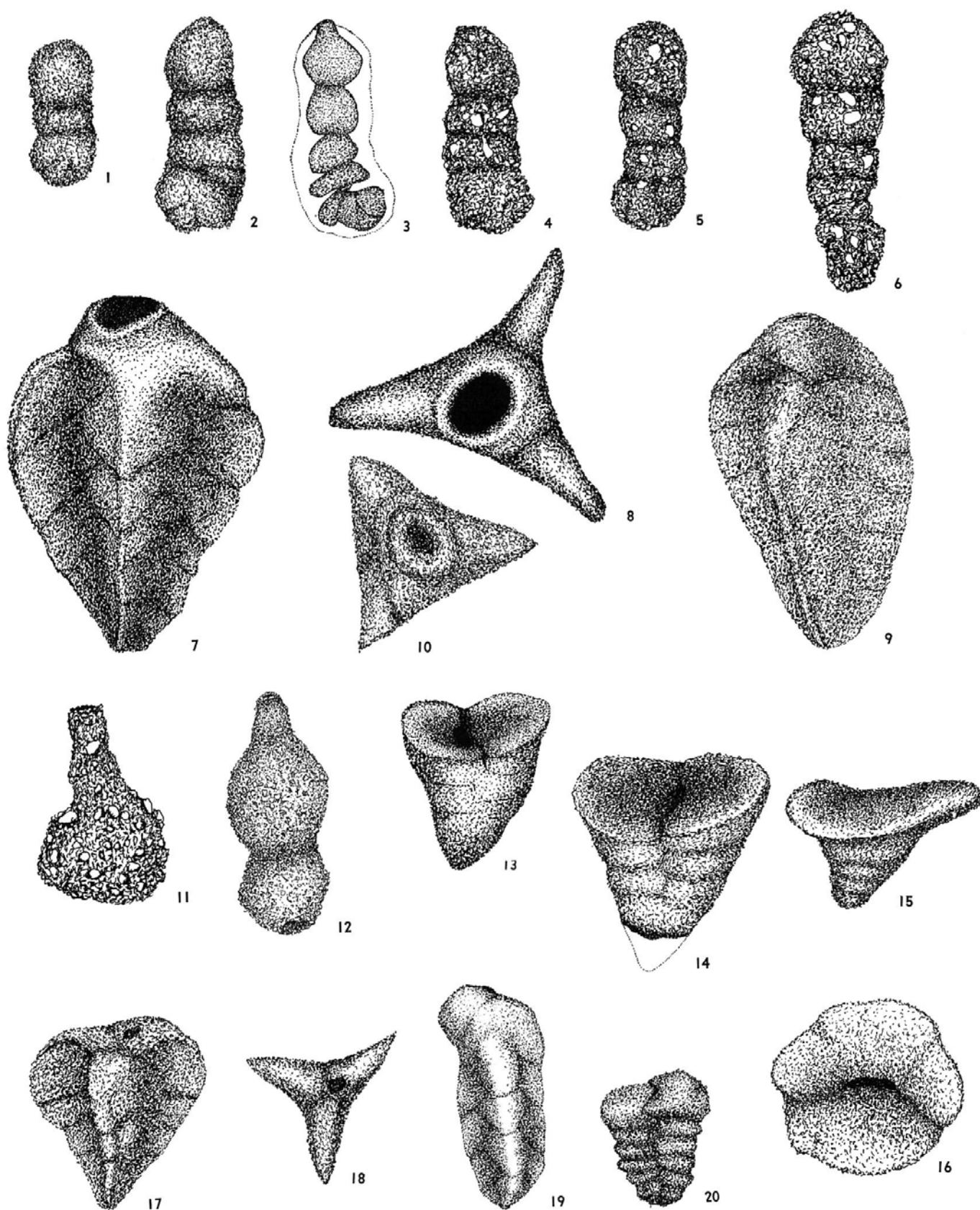
Remarks: The few specimens assigned to this species encountered in the Albion of Putineiu are somewhat smaller than the type specimen and the triserial portion is somewhat more reduced. In other characters they correspond with the type specimens figured by d'Orbigny.

Dimensions: Length 0.49 mm.; breadth 0.33 mm.; thickness 0.13 mm.

Hypotype: L.P.B. 5114.

PLATE 1

- | | |
|---|---|
| <p>1–3 <i>Ammobaculites parvispira</i> ten Dam
Putineiu, marls with <i>Oxytropidoceras</i>, L.P.B.
5105, × 67; 3, specimen in clove oil.</p> <p>4–6 <i>Ammobaculites subcretaceus</i> Cushman and
Alexander
Putineiu, marls with <i>Oxytropidoceras</i>, L.P.B.
5104, × 67.</p> <p>7–8 <i>Tritaxia tricarinata</i> Reuss
Putineiu, marls with <i>Oxytropidoceras</i>, L.P.B.
5018, × 67.</p> <p>9–10 <i>Tritaxia pyramidata</i> Reuss
Giurgiu, marls with <i>Hoplites dentatus</i>, L.P.B.
5017, × 67.</p> <p>11 <i>Proteonina</i> sp. cf. <i>P. ampullacea</i> (Brady)
Putineiu, marls with <i>Oxytropidoceras</i>, L.P.B.
5099, × 53.</p> | <p>12 <i>Reophax scorpiurus</i> Montfort
Giurgiu, marls with <i>Anahoplites planus fittoni</i>,
L.P.B. 5011, × 67.</p> <p>13 <i>Marssonella oxycona</i> (Reuss)
Putineiu, marls with <i>Oxytropidoceras</i>, L.P.B.
5108, × 67.</p> <p>14–16 <i>Marssonella trochus</i> (d'Orbigny)
Giurgiu, marls with <i>Hoplites dentatus</i>, L.P.B.
5020, × 67.</p> <p>17–18 <i>Tritaxia tricarinata</i> Reuss
Giurgiu, marls with <i>Anahoplites planus fittoni</i>,
L.P.B. 5008, × 67.</p> <p>19 <i>Tritaxia plummerae</i> Cushman
Giurgiu, marls with <i>Anahoplites planus fittoni</i>,
L.P.B. 5106, × 67.</p> <p>20 <i>Textularia chapmani</i> Lalicker
Giurgiu, marls with <i>Anahoplites planus fittoni</i>,
L.P.B. 5015, × 67.</p> |
|---|---|



Subfamily EGGERELLINAE
Genus MARSSONELLA Cushman, 1933

Marssonella oxycona (Reuss)

Plate 1, figure 13

Gaudryina oxycona REUSS, 1860, K. Akad. Wiss. Wien, Sitzber., vol. 40, p. 229, pl. 12, fig. 3. — FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 143, pl. 13, fig. 8.

Marssonella oxycona (Reuss). — CUSHMAN, 1937, Cushman Lab. Foram. Res., Spec. Publ., no. 7, p. 56, pl. 5, figs. 27–29; pl. 6, figs. 1–17. — CUSHMAN, 1946, U. S. Geol. Survey, Prof. Paper 206, p. 43, pl. 12, figs. 3–5. — SZTEJN, 1957, Poland, Inst. Geol., Proc., vol. 22, p. 32, pl. 3, fig. 14.

Remarks: Specimens correspond precisely with the type specimens described from the Upper Cretaceous of Germany.

Dimensions: Length 0.41 mm.; thickness 0.31 mm.

Hypotype: L.P.B. 5108.

Marssonella trochus (d'Orbigny)

Plate 1, figures 14–16

Textularia trochus D'ORBIGNY, 1840, Soc. Géol. France, Mém., vol. 4, pt. 1, p. 45, pl. 4, figs. 25–26. — EGGER, 1900, K. Bayer. Akad. Wiss., Abh., vol. 21, p. 28, pl. 14,

figs. 27–28. — FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. s., no. 111, p. 138, pl. 12, fig. 2.

Marssonella trochus (d'Orbigny). — BARTENSTEIN, BETTENSTADT and BOLLI, 1957, Eclogae Geol. Helv., vol. 50, no. 1, p. 20, pl. 3, figs. 44–45.

Remarks: The conical trochoid aspect of these specimens, with the last portion of the test patelliform, is indicative of their affiliation to this species, particularly as figured by Bartenstein, Bettenstaedt and Bolli (1957) from the Lower Cretaceous of Trinidad.

Dimensions: Length 0.7–1.0 mm.; breadth 0.77–1.7 mm.

Hypotype: L.P.B. 5020.

Genus DOROTHIA Plummer, 1931

Dorothia gradata (Berthelin)

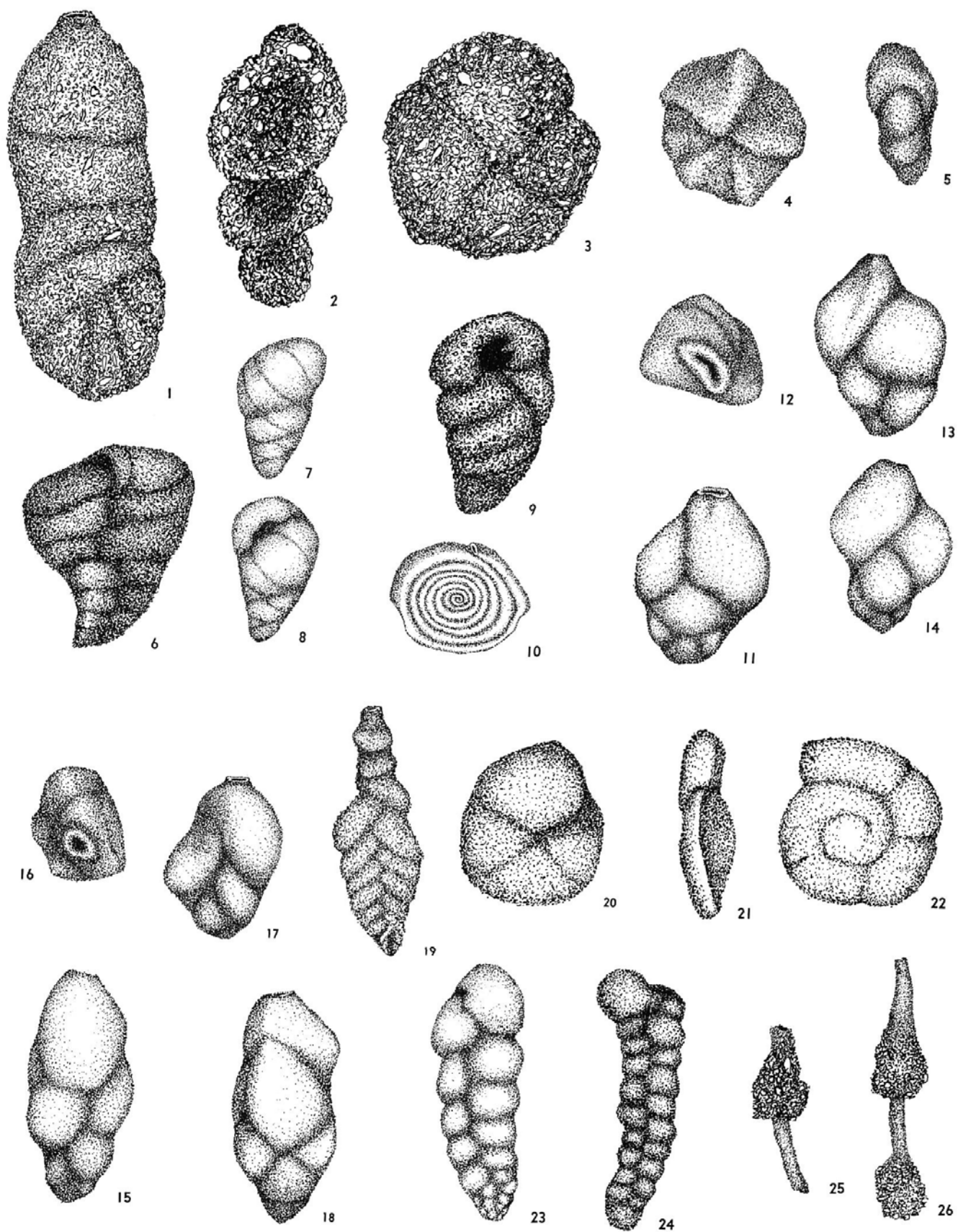
Plate 2, figure 23

Gaudryina gradata BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 24, pl. 1, fig. 6. — FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 142, pl. 13, fig. 4.

Dorothia gradata (Berthelin). — CUSHMAN, 1937, Cushman Lab. Foram. Res., Spec. Publ., no. 7, p. 74, pl. 8, figs. 3–5. — TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 16. — BARTENSTEIN, 1954, Senckenbergiana, vol. 35, no. 1/2, p. 39.

PLATE 2

- | | | | |
|-----|--|-------|--|
| 1 | <i>Haplophragmium aequale</i> (Roemer)
Giurgiu, marls with <i>Anahoplites planus fittoni</i> ,
L.P.B. 5014, × 47. | 10 | <i>Spirillina minima</i> Schacko
Giurgiu, marls with <i>Hoplites dentatus</i> , L.P.B.
5081, × 67. |
| 2 | <i>Reophax pilulifer</i> Brady
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B.
5100, × 67. | 11–18 | <i>Uvigerinamina moesiana</i> Neagu, n. sp.
Giurgiu, marls with <i>Hoplites dentatus</i> , L.P.B.
5032, × 133. |
| 3 | <i>Haplophragmoides</i> sp. 1
Giurgiu, marls with <i>Anahoplites planus fittoni</i> ,
L.P.B. 5012, × 67. | 19 | <i>Spiroplectinata annectens</i> (Jones and Parker)
Giurgiu, marls with <i>Neohibolites minimus</i> , L.P.B.
5021, × 53. |
| 4–5 | <i>Haplophragmoides</i> sp. 2
Giurgiu, marls with <i>Anahoplites planus fittoni</i> ,
L.P.B. 5013, × 53. | 20–22 | <i>Trochammina</i> sp. cf. <i>T. limbata</i> (Chapman)
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B.
5111, × 67. |
| 6 | <i>Gaudryina rugosa</i> d'Orbigny
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B.
5106, × 67. | 23 | <i>Dorothia gradata</i> (Berthelin)
Giurgiu, marls with <i>Neohibolites minimus</i> , L.P.B.
5014, × 67. |
| 7–8 | <i>Arenobulimina macfadyeni</i> Cushman
Giurgiu, marls with <i>Anahoplites planus fittoni</i> ,
L.P.B. 5023, × 67. | 24 | <i>Dorothia filiformis</i> (Berthelin)
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B.
5021, × 67. |
| 9 | <i>Arenobulimina chapmani</i> Cushman
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B.
5106, × 53. | 25–26 | <i>Pseudonubeculina nodulosa</i> (Chapman)
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B.
5115, × 67. |



Remarks: Rather frequent specimens belonging to this species correspond with the type specimens.

Dimensions: Length 0.75–0.80 mm.; breadth 0.50–0.77 mm.; thickness 0.33 mm.

Hypotype: L.P.B. 5021.

Dorothia filiformis (Berthelin)
Plate 2, figure 24

Gaudryina filiformis BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 25, pl. 1, fig. 8. – SHERLOCK, 1914, Geol. Mag., n. ser., vol. 1, p. 222, pl. 18, fig. 4.

Dorothia filiformis (Berthelin). – CUSHMAN, 1937, Cushman Lab. Foram. Res., Spec. Publ., no. 7, p. 73, pl. 8, figs. 1–2.

Remarks: A rather great number of specimens belonging to this species were described by Berthelin from the Albian of Montcley (France). Both for this species and the preceding one there are conflicting opinions concerning their affiliation to the genus *Dorothia*. As our specimens are characterized by a young stage much closer to *Dorothia* than to *Gaudryina*, we felt that they could be maintained within this genus.

Dimensions: Length 0.57–0.59 mm.; thickness 0.10–0.15 mm.

Hypotype: L.P.B. 5107.

Genus ARENOBULIMINA Cushman, 1937

Arenobulimina macfadyeni Cushman
Plate 2, figures 7–8

Arenobulimina macfadyeni CUSHMAN, 1937, Cushman Lab. Foram. Res., Spec. Publ., no. 7, p. 35, pl. 4, figs. 13–14. – TEN DAM, 1950, Soc. Géol. France, Mém., vol. 29, pt. 4, no. 63, p. 14.

Dimensions: Length 0.40–0.50 mm.; thickness 0.25–0.30 mm.

Hypotype: L.P.B. 5023.

Arenobulimina chapmani Cushman
Plate 2, figure 9

Arenobulimina chapmani CUSHMAN, 1937, Cushman Lab. Foram. Res., Spec. Publ., no. 7, p. 36, pl. 3, figs. 27–28. – TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 14.

Remarks: In the elongate coiling of the chambers as well as in the more coarsely arenaceous character of the test, specimens found in the Albian of Putineiu correspond with the type specimens figured by Cushman.

Dimensions: Length 0.88 mm.; thickness 0.54 mm.

Hypotype: L.P.B. 5106.

Family OPTHALMIDIIDAE
Subfamily NUBECULARIINAE

Genus PSEUDONUBECULINA Bartenstein and Brand, 1949

Pseudonubeculina nodulosa (Chapman)
Plate 2, figures 25–26

Pseudonubeculina nodulosa (Chapman). – TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 18, pl. 1, fig. 20.

Remarks: These specimens, encountered rather frequently in the Albian of Putineiu, correspond very well with the figures and descriptions given by ten Dam from the Dutch Albian.

Dimensions: Length 0.96–1.40 mm.; thickness 0.31 mm.

Hypotype: L.P.B. 5115.

Superfamily LAGENIDEA

Family LAGENIDAE

Subfamily LENTICULININAE

Genus LENTICULINA Lamarck, 1804

Subgenus LENTICULINA Lamarck, 1804

Lenticulina (*Lenticulina*) *subangulata* (Reuss)
Plate 3, figures 21–22

Cristellaria subangulata REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 74, pl. 8, fig. 7.

Robulus subangulatus REUSS. – EICHENBERG, 1935, Niedersächs. Geol. Ver., Jahresber. 26, p. 157, pl. 16, fig. 4.

Remarks: This species is very well characterized by its involute symmetrical test with 9–11 chambers in the last whorl, by its slightly hyaline and curved sutures, and by its angular periphery. Specimens correspond with the type specimens from the Lower Cretaceous of northern Germany.

Dimensions: Diameter 0.67 mm.; thickness 0.32 mm.

Hypotype: L.P.B. 5087.

Lenticulina (*Lenticulina*) *gaultina* (Berthelin)
Plate 3, figures 1–2

Cristellaria gaultina BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 49, pl. 3, figs. 15–19. – EGGER, 1900, K. Bayer. Akad. Wiss., Abh., Math.-Phys. Cl., vol. 21, pt. 1, p. 121, pl. 23, figs. 4–9.

Lenticulina gaultina (Berthelin). – TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 20. – FRIZZELL, 1954, Texas, Univ., Rept. Invest., no. 22, p. 82, pl. 8, fig. 15. – BARTENSTEIN, 1954, Senckenbergiana, vol. 35, no. 1/2, p. 45.

Remarks: Test slightly involute with a tendency for uncoiling; great number of chambers (10–12) in the last whorl; umbilical zone covered by a calcareous callus of variable dimensions and rather flattened. These are clear and constant characters of this species, otherwise well defined by Berthelin.

Dimensions: Greatest diameter 0.90–1.02 mm.; smallest diameter 0.60–0.75 mm.; thickness 0.25–0.42 mm.

Hypotype: L.P.B. 5092.

ALBIAN FORAMINIFERA FROM RUMANIA

Lenticulina (Lenticulina) oligostegia (Reuss)

Plate 4, figures 1-2

Cristellaria oligostegia REUSS, 1860, K. Akad. Wiss. Wien, Math.-Naturw. Cl. Sitzber., vol. 40, p. 213, pl. 8, fig. 8. – REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 93, pl. 13, fig. 2. – FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 111, pl. 10, fig. 8.

Remarks: Specimens correspond with the type specimens described from the Cretaceous of northern Germany. As compared with *Robulus oligostegia* (Reuss) of Cushman and Jarvis, the specimens from Giurgiu are clearly different in the more involute and less globulose aspect of the test.

Dimensions: Greatest diameter 0.40 mm.; smallest diameter 0.34 mm.; thickness 0.20 mm.

Hypotype: L.P.B. 5027.

Lenticulina (Lenticulina) saxocretacea Bartenstein

Plate 3, figures 5-6

Cristellaria subalata REUSS. – REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 76, pl. 8, fig. 10; pl. 9, fig. 1 (non Reuss, 1854). – FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 110, pl. 10, fig. 5.

Cristellaria (Lenticulina) subalata (Reuss). – TEN DAM, 1950, Soc. Géol. France, Mém., n. ser. vol. 29, pt. 4, no. 63, p. 21, pl. 2, fig. 1.

non *Robulus subalatus* CUSHMAN, 1946, U. S. Geol. Survey, Prof. Paper 206, p. 55, pl. 18, fig. 7.

Lenticulina saxocretacea BARTENSTEIN, 1954, Senckenbergiana Lethaea, vol. 35, no. 1/2, p. 45.

Remarks: This species is easily recognizable by the presence of keeled and recurved sutures, as well as by the lack of a well-defined calcareous umbilical callus.

Dimensions: Greatest diameter 0.47–1.56 mm.; smallest diameter 0.42–1.42 mm.; thickness 0.22–0.75 mm.

Hypotype: L.P.B. 5031

Lenticulina (Lenticulina) dubiensis (Berthelin)

Plate 3, figures 9-10

Cristellaria dubiensis BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 52, pl. 3, fig. 24.

Lenticulina dubiensis (Berthelin). – BARTENSTEIN, 1954, Senckenbergiana, vol. 35, no. 1/2, p. 45.

Remarks: The keelless and rounded border of the test, the very distinct, almost nonlimbate sutures, and the umbilical zone without a calcareous callus are the characteristics facilitating the easy recognition of this species.

Dimensions: Greatest diameter 0.87 mm.; smallest diameter 0.70 mm.; thickness 0.10 mm.

Hypotype: L.P.B. 5028.

Lenticulina (Lenticulina) secans (Reuss)

Plate 3, figures 7-8

Cristellaria secans REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 214, pl. 9, fig. 7.

Lenticulina secans (Reuss). – EICHENBERG, 1935, Niedersächs. Geol. Ver., Jahresber. 26, p. 157, pl. 13, fig. 1.

Remarks: This species is very clearly defined by the great number of chambers (10–12) in the last whorl; the limbate, arcuate, hyaline sutures, and the well-developed, hyaline, marginal keel. Specimens differ from the type figures in the lower sutural keels and the less highly developed calcareous callus.

Dimensions: Greatest diameter 1.50–1.60 mm.; smallest diameter 1.32–1.40 mm.; thickness 0.60–0.75 mm.

Hypotypes: L.P.B. 5025, 5116.

Lenticulina (Lenticulina) nuda (Reuss)

Plate 3, figures 3-4; plate 4, figures 9-10

Cristellaria nuda REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 72, pl. 8, fig. 2. – EGGER, 1900, K. Bayer. Akad. Wiss., Abh., Math.-Phys. Cl., vol. 21, pt. 1, p. 117, pl. 12, figs. 25–26.

Lenticulina nuda (Reuss). – SZTEJN, 1957, Poland, Inst. Geol., Proc., vol. 22, p. 39, pl. 4, fig. 25.

Remarks: The tendency toward uncoiling, the smooth, faintly hyaline sutures, and the indistinct umbilical callus are characters defining this species.

Dimensions: Greatest diameter 0.59–0.65 mm.; smallest diameter 0.41–0.44 mm.; thickness 0.28 mm.

Hypotype: L.P.B. 5117.

Lenticulina (Lenticulina) exarata (Hagenow) subsp. danubiana Neagu, new subspecies

Plate 3, figures 11-20

Description: Test typically lenticular, having 8–12 chambers in the last whorl. Chambers gradually increasing in dimensions; the last ones, with a tendency toward elongation, have limbate, hyaline, arcuate sutures, especially marked in the umbilical zone by the occurrence of some not very well developed keels, completely disappearing toward the periphery. Umbilical zone is occupied by a small callus not elevated above the test surface. Test periphery is formed by a well-developed hyaline keel diminishing on the last chamber. Simple radial aperture lies on the outer peripheral angle.

Remarks: Specimens encountered in the Albian of Putineiu have as a rule the characters given by K. Pożaryska (1957) for *L. exarata* (Hagenow), from which they differ in possessing a small umbilical callus. By the development of this callus the examined specimens approach closely to *Lenticulina secans* (Reuss) and *Robulus navarroensis* Plummer. They differ, however, from Reuss's species in the lack of elevation of the umbilical callus and in less well developed sutural

keels. They differ from Plummer's species also in the poorly developed sutural keels. This subspecies seems to represent the passage from *L. exarata* to *L. secans* by the gradual appearance and development of umbilical callus.

Dimensions: Greatest diameter 0.67–0.98 mm.; smallest diameter 0.54–0.83 mm.; thickness 0.28–0.41 mm.

Types: Holotype, L.P.B. 5093, plate 3, figures 15–16; paratypes, L.P.B. 5191, plate 3, figures 11–14, 17–20.

Subgenus *ROBULUS* Montfort, 1808

Lenticulina (Robulus) pulchella (Reuss)
Plate 4, figures 3–6

Cristellaria pulchella REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 71, pl. 8, fig. 1.

Remarks: By the slight tendency toward uncoiling, the faintly limbate and depressed sutures, the blunt periphery of the test, the umbilical zone occupied by a small calcareous callus, and the triangular-ovate apertural face, specimens encountered in the Albian of Giurgiu fall within this species. The presence of an apertural slit indicates its affiliation to the subgenus *Robulus*.

Dimensions: Greatest diameter 0.70 mm.; smallest diameter 0.45 mm.

Hypotype: L.P.B. 5030.

Lenticulina (Robulus) macrodisca (Reuss)
Plate 4, figures 7–8

Cristellaria macrodisca REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 78, pl. 9, fig. 5.–BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 48, pl. 3, figs. 6–11.

Robulus macrodisca (Reuss). – POŻARYSKA, 1957, Polska Akad. Nauk, Pal. Polonica, no. 8, p. 132, pl. 15, fig. 7.

Lenticulina macrodisca (Reuss). – STANCHEWA, 1959, Acad. Sci. Bulg., Geol. Inst., Trav. Geol. Bulg., Sér. Pal., vol. 1, p. 136, pl. 1, fig. 4.

Remarks: The highly developed umbilical calcareous callus, occupying about one quarter of the test surface, and the distinct, nonlimbate, faintly hyaline and very slightly arcuate sutures are clear-cut characters defining this species.

Dimensions: Greatest diameter 0.92 mm.; smallest diameter 0.75 mm.; thickness 0.52 mm.

Hypotype: L.P.B. 5026.

Subgenus *VAGINULINOPSIS* Silvestri, 1904

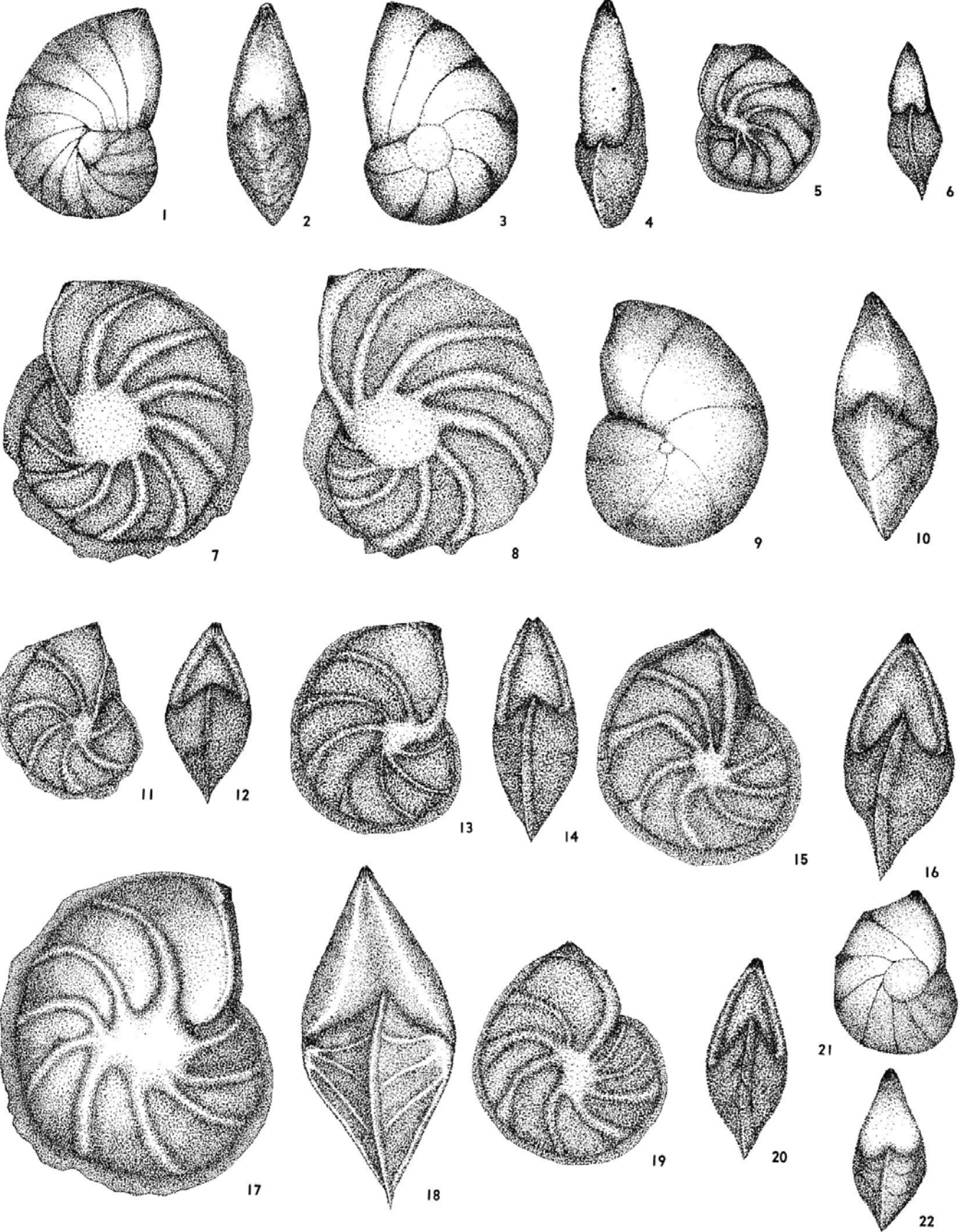
Lenticulina (Vaginulinopsis) cephalotes (Reuss)
Plate 4, figure 12

Cristellaria cephalotes REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 67, pl. 7, figs. 4–6.

Vaginulinopsis cephalotes (Reuss). – TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 39, pl. 3, fig. 9.

PLATE 3

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|-----|--|-------|--|
| 1–2 | <i>Lenticulina (Lenticulina) gaultina</i> (Berthelin)
Giurgiu, marls with <i>Anahoplites planus discoideus</i> ,
L.P.B. 5031, × 40. | 9–10 | <i>Lenticulina (Lenticulina) dubiensis</i> (Berthelin)
Giurgiu, marls with <i>Neohibolites minimus</i> , L.P.B.
5028, × 33. |
| 3–4 | <i>Lenticulina (Lenticulina) nuda</i> (Reuss)
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B.
5117, × 67. | 11–20 | <i>Lenticulina (Lenticulina) exarata danubiana</i> Neagu,
n. subsp.
Putineiu, marls with <i>Oxytropidoceras</i> (figs. 11–
16, 19–20); Giurgiu, marls with <i>Cymatoceras</i>
(figs. 17–18); holotype, figs. 15–16, L.P.B.
5093; paratypes, figs. 11–14, 17–20, L.P.B.
5191, × 67. |
| 5–6 | <i>Lenticulina (Lenticulina) saxoretacea</i> Bartenstein
Giurgiu, marls with <i>Anahoplites planus discoideus</i> ,
L.P.B. 5031, × 40. | 21–22 | <i>Lenticulina (Lenticulina) subangulata</i> (Reuss)
Giurgiu, marls with <i>Anahoplites planus discoideus</i> ,
L.P.B. 5087, × 40. |
| 7–8 | <i>Lenticulina (Lenticulina) secans</i> (Reuss)
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B.
5116, × 33. | | |



Remarks: Due to their test characters, specimens from the Albian of Giurgiu fit very well within this species with the exception that the young stage is not so much curved.

Dimensions: Length 0.50–0.67 mm.; thickness 0.20–0.25 mm.

Hypotype: L.P.B. 5035.

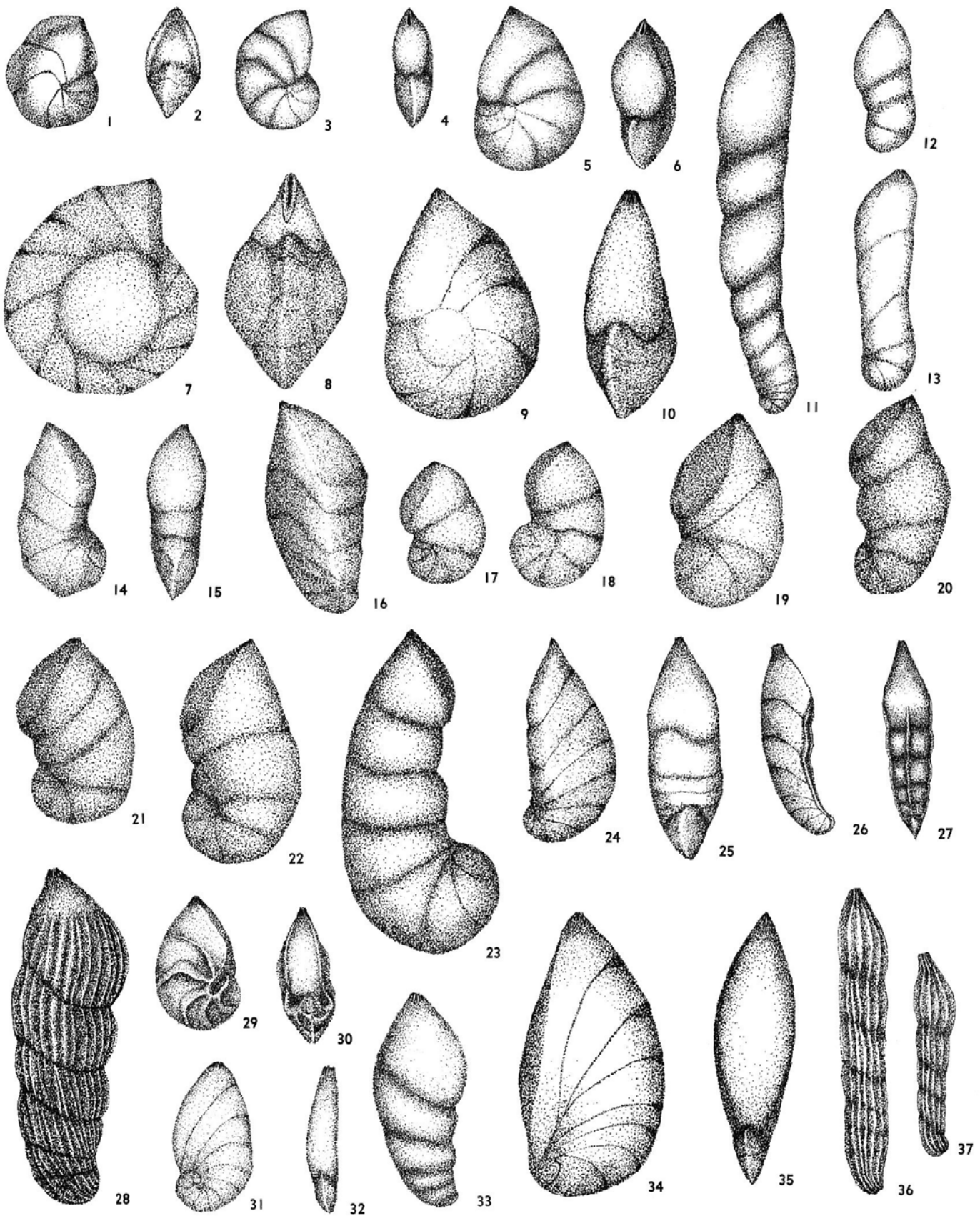
Lenticulina (Vaginulinopsis) bronni (Roemer)
Plate 4, figures 17–23

Cristellaria bronni Roemer. – REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 70, pl. 7, fig. 13.

Remarks: Specimens encountered in the Albian of Putineiu correspond with the specimens figured by

PLATE 4

- | | | | |
|-------|---|-------|--|
| 1–2 | <i>Lenticulina (Lenticulina) oligostegia</i> (Reuss)
Giurgiu, marls with <i>Neohibolites minimus</i> , L.P.B. 5027, × 53. | 17–23 | <i>Lenticulina (Vaginulinopsis) bronni</i> (Roemer)
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B. 5121, × 90. |
| 3–6 | <i>Lenticulina (Robulus) pulchella</i> (Reuss)
Giurgiu, marls with <i>Anahoplites planus discoideus</i> , L.P.B. 5030, × 43. | 24–25 | <i>Lenticulina (Saracenaria) frankei</i> (ten Dam)
Giurgiu, marls with <i>Cymatoceras</i> , L.P.B. 5037, × 57. |
| 7–8 | <i>Lenticulina (Robulus) macrodisca</i> (Reuss)
Giurgiu, marls with <i>Anahoplites planus discoideus</i> , L.P.B. 5026, × 47. | 26–27 | <i>Lenticulina (Saracenaria) bononiensis</i> (Berthelin)
Giurgiu, marls with <i>Hoplites dentatus</i> , L.P.B. 5039, × 67. |
| 9–10 | <i>Lenticulina (Lenticulina) nuda</i> (Reuss)
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B. 5117, × 67. | 28 | <i>Marginulina striatocostata</i> Reuss
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B. 5126, × 40. |
| 11 | <i>Lenticulina (Vaginulinopsis) ensis</i> (Reuss)
Giurgiu, marls with <i>Hoplites dentatus</i> , L.P.B. 5036, × 87. | 29–30 | <i>Lenticulina (Astacolus) sulcifera</i> (Reuss)
Giurgiu, marls with <i>Hoplites dentatus</i> , L.P.B. 5032, × 67. |
| 12 | <i>Lenticulina (Vaginulinopsis) cephalotes</i> (Reuss)
Giurgiu, marls with <i>Anahoplites planus fittoni</i> , L.P.B. 5035, × 40. | 31–32 | <i>Lenticulina (Planularia) strombecki</i> (Reuss)
Giurgiu, marls with <i>Neohibolites minimus</i> , L.P.B. 5024, × 67. |
| 13 | <i>Lenticulina (Vaginulinopsis) sp. cf. L. (V.) prima</i> (d'Orbigny)
Giurgiu, marls with <i>Hoplites dentatus</i> , L.P.B. 5033, × 50. | 33 | <i>Marginulina inaequalis</i> Reuss
Giurgiu, marls with <i>Anahoplites planus discoideus</i> , L.P.B. 5042, × 53. |
| 14–15 | <i>Lenticulina (Vaginulinopsis) sp. cf. L. (V.) lituola</i> (Cornuel)
Giurgiu, marls with <i>Hoplites dentatus</i> , L.P.B. 5034, × 53. | 34–35 | <i>Lenticulina (Astacolus) grata</i> (Reuss)
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B. 5116, × 67. |
| 16 | <i>Lenticulina (Saracenaria) saratogana</i> (Howe and Wallace)
Giurgiu, marls with <i>Anahoplites planus discoideus</i> , L.P.B. 5038, × 53. | 36–37 | <i>Marginulina aequivoca</i> Reuss
Giurgiu, marls with <i>Neohibolites minimus</i> (fig. 36), L.P.B. 5040A; marls with <i>Hoplites dentatus</i> (fig. 37), L.P.B. 5040; × 53. |



Reuss. The lenticulinoid young stage is a clear proof of their affiliation to the genus *Lenticulina* and a justification for considering *Vaginulinopsis* as a subgenus of the genus *Lenticulina*.

Dimensions: Length 0.46–0.65 mm.; thickness 0.23–0.26 mm.

Hypotype: L.P.B. 5121.

Lenticulina (Vaginulinopsis) ensis (Reuss)
Plate 4, figure 11

Marginulina ensis REUSS, 1851, Haidinger's Naturwiss. Abh., vol. 4, pt. 1, p. 27, pl. 1, fig. 16.

Vaginulina ensis (Reuss). – EGGER, 1900, K. Bayer. Akad. Wiss., Abh., Math.-Phys. Cl., vol. 21, pt. 1, p. 98, pl. 9, fig. 7.

Remarks: In their general aspect, specimens encountered in the Albian of Giurgiu correspond with the specimens figured by Reuss, from which they differ, however, in the smaller number of chambers in the adult stage.

Dimensions: Length 0.55–0.77 mm.; thickness 0.17–0.22 mm.

Hypotype: L.P.B. 5036.

Lenticulina (Vaginulinopsis) sp. cf. lituola (Cornuel)
Plate 4, figures 14–15

Description: Test slightly flattened; young stage lenticulinoid, followed by an uncoiled, almost straight adult stage formed of chambers gradually increasing in size; sutures faintly limbate and arcuate; test periphery acutely angled but blunt. The last chamber, with the apertural face convex and oblique, contains the radial aperture lying in the outer peripheral angle. Specimens from the Albian of Giurgiu differ from the type specimen figured by Cornuel in the more angular periphery and the smaller number of chambers both in the young and adult stages.

Dimensions: Length 0.57 mm.; thickness 0.12 mm.; breadth 0.17 mm.

Hypotype: L.P.B. 5034.

Lenticulina (Vaginulinopsis) sp. cf.
L. (V.) prima (d'Orbigny)
Plate 4, figure 13

Description: Young stage planispiral, the adult uncoiled. Outer margin arcuate and with a fine hyaline keel, the inner one much more rounded and slightly concave; sutures hyaline, limbate toward the outer margin, almost straight or faintly arcuate. Specimens from the Albian of Giurgiu differ from the specimens figured by Bartenstein, Bettenstaedt and Bolli (1957) from the Lower Cretaceous of Trinidad in not having such broad chambers with oblique sutures in the adult stage, and the outer periphery is not so straight.

Dimensions: Length 0.80 mm.; thickness 0.25 mm.; breadth 0.22 mm.

Hypotype: L.P.B. 5033.

Subgenus SARACENARIA Defrance, 1824

Lenticulina (Saracenaria) frankei (ten Dam)
Plate 4, figures 24–25

Cristellaria italica Defrance. – FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 102, pl. 9, fig. 17.

Saracenaria italica Defrance. – EICHENBERG, 1935, Niedersächs. Geol. Ver., Jahresber. 26, p. 158, pl. 11, fig. 21.

Saracenaria frankei TEN DAM, 1946, Jour. Pal., vol. 20, no. 6, p. 573, pl. 88, fig. 1.

Lenticulina (Saracenaria) frankei Ten Dam. – BARTENSTEIN, BETTENSTAEDT and BOLLI, 1957, Eclogae Geol. Helv., vol. 50, no. 1, p. 33, pl. 3, fig. 60.

Remarks: The triangular section of the test, the poorly developed initial stage, the acute periphery and the fine keel are characters which cause the specimens encountered in the Albian of Giurgiu to fall well within the species.

Dimensions: Length 0.70 mm.; thickness 0.30 mm.; breadth 0.25 mm.

Hypotype: L.P.B. 5037.

Lenticulina (Saracenaria) bononiensis (Berthelin)
Plate 4, figures 26–27

Cristellaria bononiensis BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 55, pl. 3, fig. 23.

Saracenaria bononiensis (Berthelin). – TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 24.

Saracenaria bononiensis var. *bononiensis* (Berthelin). – FRIZZELL, 1954, Texas, Univ., Rept. Invest., no. 22, p. 83, pl. 8, fig. 24.

Saracenaria bononiensis bononiensis (Berthelin). – POŻARYSKA, 1957, Polska Akad. Nauk, Pal. Polonica, no. 8, p. 117, pl. 10, fig. 1.

Lenticulina (Saracenaria) bononiensis (Berthelin). – BARTENSTEIN, 1954, Senckenbergiana, vol. 35, no. 1/2, p. 46.

Remarks: The very slender test bordered by hyaline keels and the presence of an additional hyaline keel in the middle of the inner surface of the uncoiled portion are characters which correspond exactly with the type of this species.

Dimensions: Length 0.40–0.50 mm.; thickness 0.12 mm.; breadth 0.10 mm.

Hypotype: L.P.B. 5039.

Lenticulina (Saracenaria) saratogana (Howe and Wallace)
Plate 4, figure 16

Saracenaria navicula (d'Orbigny). – EICHENBERG, 1933, Niedersächs. Geol. Ver., Jahresber. 25, p. 17, pl. 2, fig. 15 (not *Cristellaria navicula* d'Orbigny, 1840).

ALBIAN FORAMINIFERA FROM RUMANIA

Saracenaria saratogana Howe and Wallace. – CUSHMAN, 1946, U. S. Geol. Survey, Prof. Paper 206, p. 58, pl. 28, figs. 4–5. – FRIZZELL, 1954, Texas, Univ., Rept. Invest., no. 22, p. 83, pl. 8, figs 20–21.

Dimensions: Length 0.75 mm.; thickness 0.34 mm.; breadth 0.32 mm.

Hypotype: L.P.B. 5038.

Subgenus *ASTACOLUS* Montfort, 1808

Lenticulina (Astacolus) grata (Reuss)

Plate 4, figure 34–35

Cristellaria grata REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 70, pl. 7, fig. 14. – FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 101, pl. 9, fig. 21.

Astacolus gratus (Reuss). – SZTEJN, 1957, Poland, Inst. Geol., Proc., vol. 22, p. 45, pl. 5, fig. 36.

Remarks: The flattened test, the chambers which in the young stage have a planispiral coiling, and the hyaline, limbate and highly oblique sutures are indicative of the affiliation of these specimens to the type specimen figured by Reuss.

Dimensions: Length 0.65 mm.; thickness 0.18 mm.; breadth 0.28 mm.

Hypotype: L.P.B. 5118.

Lenticulina (Astacolus) sulcifera (Reuss)

Plate 4, figures 29–30

Cristellaria sulcifera REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 74, pl. 8, fig. 9.

Remarks: The development along the sutures of several strong keels, the presence of a peripheral keel, and the flattened aspect of the test are reliable indications that these specimens belong to the species described by Reuss.

Dimensions: Length 0.35 mm.; thickness 0.15 mm.; breadth 0.22 mm.

Hypotype: L.P.B. 5032.

Subgenus *PLANULARIA* DeFrance, 1824

Lenticulina (Planularia) strombecki (Reuss)

Plate 4, figures 31–32

Cristellaria strombecki REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 68, pl. 7, fig. 7.

Dimensions: Length 0.32 mm.; thickness 0.07 mm.; breadth 0.20 mm.

Hypotype: L.P.B. 5024.

Genus *MARGINULINA* d'Orbigny, 1826

Marginulina inaequalis Reuss

Marginulina inaequalis REUSS, 1860, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 40, p. 207, pl. 5, fig. 3. – REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 59, pl. 5, fig. 13. – TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 22, pl. 2, fig. 3.

Dimensions: Length 0.75 mm.; thickness 0.32 mm.

Hypotype: L.P.B. 5042.

Marginulina aequivoca Reuss

Plate 4, figures 36–37

Marginulina aequivoca REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 60, pl. 5, fig. 17. – TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 23, pl. 2, fig. 6.

Remarks: Continuation of the ribs of the test surface on the last chamber and their junction around the aperture, as well as the general aspect of the test, in these specimens are indicative of their affiliation to the species described by Reuss (1863).

Dimensions: Length 0.87–1.05 mm.; thickness 0.17 mm.

Hypotype: L.P.B. 5040.

Marginulina jonesi Reuss

Plate 5, figures 11–12

Marginulina jonesi REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 61, pl. 5, fig. 19. – EGGER, 1900, K. Bayer. Akad. Wiss., Abh., Math.-Phys. Cl., vol. 21, pt. 1, p. 100, pl. 10, fig. 11. – TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 22, pl. 2, fig. 4.

Dimensions: Length 0.34–0.55 mm.; thickness 0.12–0.20 mm.

Hypotype: L.P.B. 5041.

Marginulina? elongata d'Orbigny

Plate 5, figure 13

Marginulita elongata d'Orbigny. – EICHENBERG, 1933, Niedersächs. Geol. Ver., Jahresber. 25, p. 9, pl. 2, fig. 19.

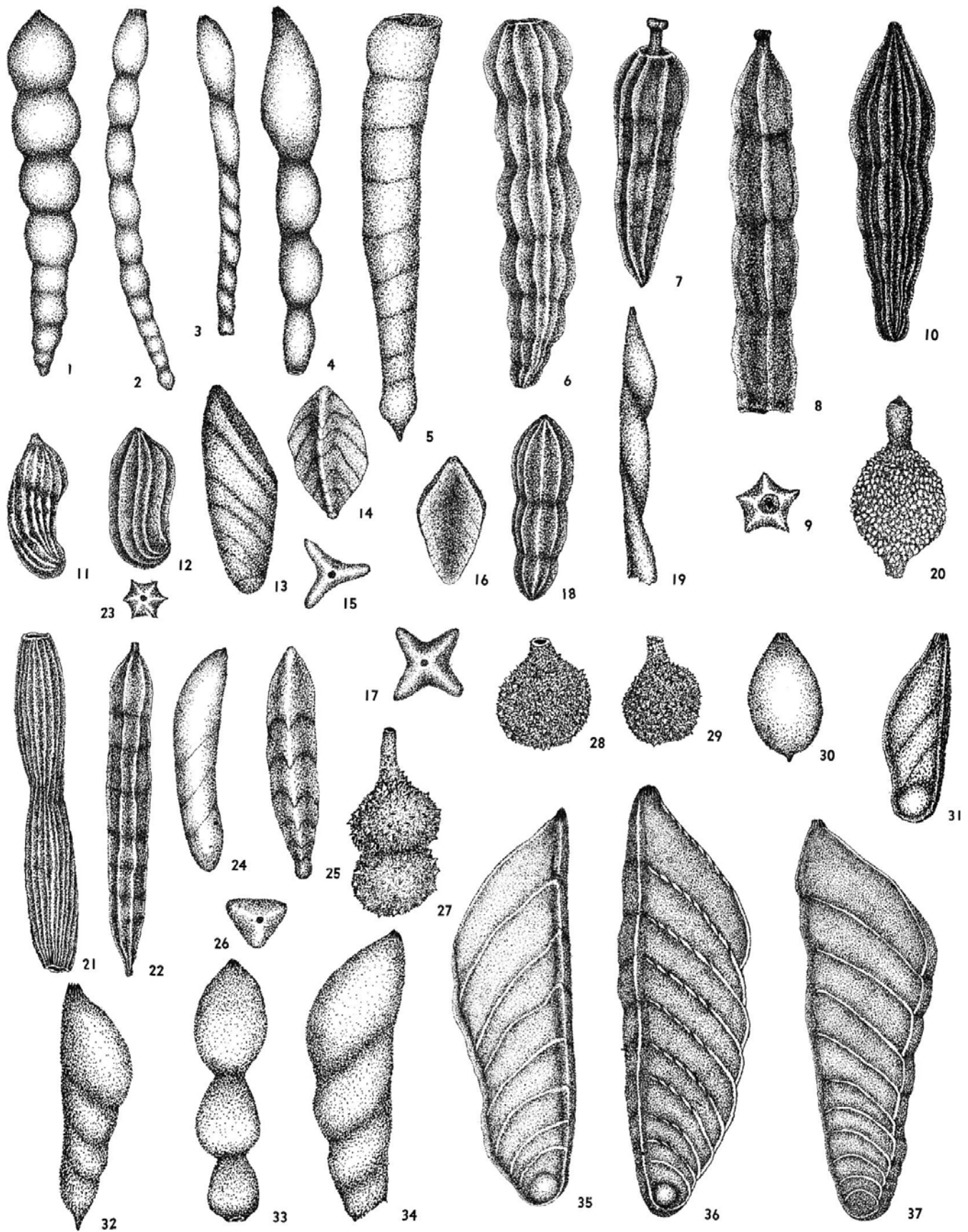
Remarks: As compared with the figure and description given by Eichenberg (1933), these specimens do not present essential differences. As against the type specimen figured by d'Orbigny (1840), however, the differences become striking, for the size is much more robust, the sutures straighter, and the apertural face less oblique than in our specimens.

Dimensions: Length 0.65 mm.; thickness 0.17 mm.

Hypotype: L.P.B. 5205.

PLATE 5

- | | |
|--|---|
| 1 <i>Dentalina linearis</i> (Roemer)
Giurgiu, marls with <i>Hoplites dentatus</i> , L.P.B.
5044, × 67. | 20 <i>Dentalina aculeata</i> d'Orbigny
Giurgiu, marls with <i>Hoplites dentatus</i> , L.P.B.
5050, × 43. |
| 2 <i>Dentalina monile</i> Cornuel
Giurgiu, marls with <i>Neohibolites minimus</i> , L.P.B.
5048, × 33. | 21 <i>Nodosaria bambusa</i> Chapman
Giurgiu, marls with <i>Cymatoceras</i> , L.P.B. 5055,
× 53. |
| 3 <i>Dentalina communis</i> d'Orbigny
Giurgiu, marls with <i>Neohibolites minimus</i> , L.P.B.
5045, × 67. | 22-23 <i>Nodosaria prismatica</i> Reuss
Giurgiu, marls with <i>Hoplites dentatus</i> , L.P.B.
5119, × 37. |
| 4 <i>Dentalina lilli</i> Reuss
Giurgiu, marls with <i>Anahoplites planus discoideus</i> ,
L.P.B. 5047, × 67. | 24 <i>Dentalina nana</i> Reuss
Giurgiu, marls with <i>Hoplites dentatus</i> , L.P.B.
5046, × 53. |
| 5 <i>Dentalina</i> sp. cf. <i>D. gracilis</i> (d'Orbigny)
Giurgiu, marls with <i>Cymatoceras</i> , L.P.B. 5124,
× 83. | 25-26 <i>Tristix articulata</i> (Reuss)
Giurgiu, marls with <i>Cymatoceras</i> , L.P.B. 5058,
× 57. |
| 6-7 <i>Nodosaria proboscidea</i> Reuss
Giurgiu, marls with <i>Anahoplites planus fittoni</i> ,
L.P.B. 5052, × 57. | 27 <i>Nodosaria rugosa</i> ten Dam
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B.
5120, × 100. |
| 8-9 <i>Nodosaria orthopleura</i> Reuss
Giurgiu, marls with <i>Anahoplites planus fittoni</i> ,
L.P.B. 5053, × 40. | 28-29 <i>Lagena oxystoma</i> Reuss
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B.
5131, × 67. |
| 10 <i>Nodosaria sceptrum</i> Reuss
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B.
5121, × 73. | 30 <i>Lagena globosa</i> (Montagu)
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B.
5130, × 67. |
| 11-12 <i>Marginulina jonesi</i> Reuss
Putineiu, marls with <i>Neohibolites minimus</i> (fig.
11); Giurgiu, marls with <i>Anahoplites planus</i>
<i>discoideus</i> (fig. 12), L.P.B. 5041, × 50. | 31 <i>Vaginulina recta</i> Reuss
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B.
5125, × 33. |
| 13 <i>Marginulina?</i> <i>elongata</i> d'Orbigny
Giurgiu, marls with <i>Hoplites dentatus</i> , L.P.B.
5205, × 67. | 32, 34 <i>Dentalina legumen</i> (Reuss)
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B.
5123, × 73. |
| 14-15 <i>Tristix excavata</i> (Reuss)
Giurgiu, marls with <i>Neohibolites minimus</i> , L.P.B.
5057, × 50. | 33 <i>Dentalina guttifera</i> d'Orbigny
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B.
5122, × 67. |
| 16-17 <i>Quadratina quadrata</i> (Vieaux)
Giurgiu, marls with <i>Neohibolites minimus</i> , L.P.B.
5056, × 67. | 35 <i>Vaginulina robusta</i> Chapman
Giurgiu, marls with <i>Cymatoceras</i> , L.P.B. 5064,
× 27. |
| 18 <i>Nodosaria paupercula</i> Reuss
Giurgiu, marls with <i>Hoplites dentatus</i> , L.P.B.
5054, × 50. | 36 <i>Vaginulina gaultina</i> Berthelin
Giurgiu, marls with <i>Inoceramus concentricus</i> ,
L.P.B. 5061, × 33. |
| 19 <i>Dentalina debilis</i> (Berthelin)
Giurgiu, marls with <i>Anahoplites planus fittoni</i> ,
L.P.B. 5049, × 67. | 37 <i>Vaginulina arguta</i> Reuss
Giurgiu, marls with <i>Cymatoceras</i> , L.P.B. 5063,
× 27. |



Marginulina striatocostata Reuss

Plate 4, figure 28

Marginulina striatocostata REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 62, pl. 6, fig. 2.*Dimensions:* Length 1.30 mm.; thickness 0.47 mm.*Hypotype:* L.P.B. 5126.**Genus DENTALINA** d'Orbigny, 1840**Dentalina linearis** (Roemer)

Plate 5, figure 1

Dentalina linearis Roemer. - REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 42, pl. 2, fig. 15. - EICHENBERG, 1935, Niedersächs. Geol. Ver., Jahresber. 26, p. 164, pl. 10, fig. 13.*Dimensions:* Length 1.00 mm.; thickness 0.17 mm.*Hypotype:* L.P.B. 5044.**Dentalina communis** d'Orbigny

Plate 5, figure 3

Dentalina communis D'ORBIGNY, 1840, Soc. Géol. France, Mém., vol. 4, p. 13, pl. 1, fig. 4. - FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 65, pl. 7, fig. 4. - LOETTERLE, 1937, Nebraska, Geol. Survey, ser. 2, vol. 12, p. 25, pl. 3, fig. 1. - FRIZZELL, 1954, Texas, Univ., Rept. Invest., no. 22, p. 87, pl. 9, figs. 39-40. - BARTENSTEIN, BETTENSTAEDT and BOLLI, 1957, Eclogae Geol. Helv., vol. 50, no. 1, p. 34, pl. 7, figs. 144-145.*Dimensions:* Length 0.75-0.92 mm.; thickness 0.15-0.20 mm.*Hypotype:* L.P.B. 5045.**Dentalina monile** Cornuel

Plate 5, figure 2

Dentalina monile CORNUEL, 1848, Soc. Géol. France, Mém., ser. 2, vol. 3, p. 250, pl. 1, fig. 18.*Dimensions:* Length 1.85 mm.; thickness 0.17 mm.*Hypotype:* L.P.B. 5048.**Dentalina nana** Reuss

Plate 5, figure 24

Dentalina nana REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 39, pl. 2, figs. 10, 18. - FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 35, pl. 3, fig. 2. - BROTZEN, 1936, Sver. Geol. Unders., ser. C, no. 396, p. 74, pl. 2, fig. 8. - TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 28, pl. 2, fig. 16. - BARTENSTEIN, BETTENSTAEDT and BOLLI, 1957, Eclogae Geol. Helv., vol. 50, no. 1, p. 35, pl. 6, fig. 128.*Dimensions:* Length 0.75 mm.; thickness 0.15 mm.*Hypotype:* L.P.B. 5046.**Dentalina lilli** Reuss

Plate 5, figure 4

Dentalina lilli REUSS, 1851, Haidinger's Naturwiss. Abh., vol. 4, pt. 1, p. 25, pl. 1, fig. 11.*non Dentalina lilli* EICHENBERG, 1935, Niedersächs. Geol. Ver., Jahresber. 26, p. 166, pl. 12, fig. 2.*Dimensions:* Length 1.02 mm.; thickness 0.17 mm.*Hypotype:* L.P.B. 5047.**Dentalina legumen** Reuss*Dentalina legumen* REUSS, 1851, Haidinger's Naturw. Abh., vol. 4, pt. 1, p. 26, pl. 1, fig. 14. - REUSS, 1860, K. Wiss. Akad. Wien, Math.-Naturw. Cl., Sitzber., vol. 40, p. 187, pl. 3, fig. 5. - CUSHMAN, 1946, U. S. Geol. Survey, Prof. Paper 206, p. 65, pl. 23, figs. 1-2. - POŻARYSKA, 1957, Polska Akad. Nauk, Pal. Polonica, no. 8, p. 81, text-fig. 16.*Nodosaria (Dentalina) legumen* REUSS. - SHERLOCK, 1914, Geol. Mag., n. ser., vol. 1, p. 218, pl. 18, fig. 22.*Dimensions:* Length 0.56 mm.; thickness 0.10 mm.*Hypotype:* L.P.B. 5123.**Dentalina guttifera** d'Orbigny

Plate 5, figure 33

Dentalina guttifera d'Orbigny. - POŻARYSKA, 1957, Polska Akad. Nauk, Pal. Polonica, no. 8, p. 8, pl. 7, fig. 4.*Remarks:* Specimens found in the Albian of Putineiu correspond with the description and figure given by K. Pożaryska (1957) for this species. They differ little from the type specimen figured by d'Orbigny (1846) from the Tertiary of the Vienna Basin.*Dimensions:* Length 0.70 mm.; thickness 0.20 mm.*Hypotype:* L.P.B. 5122.**Dentalina** sp. cf. *D. gracilis* (d'Orbigny)

Plate 5, figure 5

Description: Test bacillar, arcuate, formed of a rather great number of chambers gradually growing larger in dimensions. The initial chamber large, globular and provided with a terminal spine; the remainder of the chambers almost cylindrical; sutures oblique, smooth, faintly hyaline.*Remarks:* Specimens from the Albian of Putineiu differ from the type figure given by d'Orbigny (1840) in not having depressed sutures and in possessing a more pointed initial end. As compared with the figures and descriptions given by Bartenstein, Bettenstaedt and Bolli (1957), the specimens studied differ in the greater number of chambers, this character bringing them near to *D. gracilis* as figured and described by Cushman (1946), from which they are, however, different in the aspect of the last chambers.*Dimensions:* Length 0.90 mm.; thickness 0.10 mm.*Hypotype:* L.P.B. 5124.

ALBIAN FORAMINIFERA FROM RUMANIA

Dentalina aculeata d'Orbigny

Plate 5, figure 20

Dentalina aculeata D'ORBIGNY, 1840, Soc. Géol. France, Mém., vol. 4, p. 13, pl. 1, figs. 2-3. - CUSHMAN, 1946, U. S. Geol. Survey, Prof. Paper 206, p. 67, pl. 26, fig. 17.

Remarks: This species is often considered to be synonymous with "*Ramulina aculeata* Wright," but it is a true *Dentalina*. By closely examining the fragmentary specimens encountered in the Albian of Giurgiu, some differences were found concerning the ornamentation and the general form of the chamber as compared with those of Wright's species. These characters in our specimens with those very clearly indicated by d'Orbigny for his species.

Dimensions: Length of fragment 0.75 mm.; greatest diameter 0.65 mm.

Hypotype: L.P.B. 5050.

Dentalina debilis (Berthelin)

Plate 5, figure 19

Marginulina debilis BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 31, pl. 3, fig. 28.

Vaginulina debilis (Berthelin). - TAPPAN, 1943, Jour. Pal., vol. 17, no. 5, p. 500, pl. 80, fig. 15. - TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 37, pl. 3, fig. 5.

Dentalina debilis (Berthelin). - FRIZZELL, 1954, Texas, Univ., Rept. Invest., no. 22, p. 88, pl. 19, fig. 5. - BARTENSTEIN, BETTENSTAEDT and BOLLI, 1957, Eclogae Geol. Helv., vol. 50, no. 1, p. 35, pl. 7, fig. 149.

Dimensions: Length 0.75-0.93 mm.; thickness 0.15-0.20 mm.

Hypotype: L.P.B. 5049.

Genus Nodosaria Lamarck, 1812

Nodosaria bambusa Chapman

Plate 5, figure 21

Nodosaria bambusa Chapman. - EGGER, 1900, K. Bayer. Akad. Wiss., Abh., Math.-Phys. Cl. vol. 121, pt. 1, p. 71, pl. 8, fig. 23.

Remarks: Due to their typical ornamentation, specimens encountered in the Albian of Giurgiu correspond with what Egger (1900) described and figured. They differ from *Dentalina multilineata* Reuss in the more elongate aspect of their chambers.

Dimensions: Length 1.17 mm.; diameter 0.17 mm.

Hypotype: L.P.B. 5055.

Nodosaria paupercula Reuss

Plate 5, figure 18

Nodosaria paupercula Reuss. - REUSS, 1874, Palaeontographica, vol. 20, pt. 2, p. 81, pl. 20, figs. 5-7. - FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 45,

pl. 8, fig. 37. - CUSHMAN, 1946, U. S. Geol. Survey, Prof. Paper 206, p. 75, pl. 27, figs. 10-12.

Dimensions: Length 0.65 mm.; diameter 0.20 mm.

Hypotype: L.P.B. 5054.

Nodosaria proboscidea Reuss

Plate 5, figures 6-7

Nodosaria proboscidea REUSS, 1851, Haidinger's Naturwiss. Abh., vol. 4, pt. 1, p. 23, pl. 1, fig. 6. - CUSHMAN, 1946, U. S. Geol. Survey, Prof. Paper 206, p. 72, pl. 26, fig. 12. - FRIZZELL, 1954, Texas, Univ., Rept. Invest., no. 22, p. 91, pl. 10, fig. 33.

Remarks: The very characteristic aspect of this species facilitates its easy recognition.

Dimensions: Length 0.75-1.17 mm.; diameter 0.20-0.27 mm.

Hypotype: L.P.B. 5052.

Nodosaria prismatica Reuss

Nodosaria prismatica REUSS, 1860, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 40, p. 180, pl. 2, fig. 2. - REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 36, pl. 2, fig. 7. - EGGER, 1900, K. Bayer. Akad. Wiss., Abh., Math.-Phys. Cl., vol. 21, pt. 1, p. 77, pl. 8, fig. 8. - FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 48, pl. 4, fig. 11.

Dimensions: Length 0.62-1.75 mm.; diameter 0.12-0.22 mm.

Hypotypes: L.P.B. 5051, 5119.

Nodosaria orthopleura Reuss

Plate 5, figures 8-9

Nodosaria orthopleura REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 89, pl. 12, fig. 5. - TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 26, pl. 2, fig. 13.

Nodosaria prismatica orthopleura Reuss. - FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 48, pl. 4, fig. 12.

non Nodosaria orthopleura EGGER, 1900, K. Bayer. Akad. Wiss., Abh., Math.-Phys. Cl., vol. 21, pt. 1, p. 77, pl. 24, fig. 19.

Dimensions: Length 1.12-2.52 mm.; diameter 0.17-0.32 mm.

Hypotype: L.P.B. 5053.

Nodosaria sceptrum Reuss

Plate 5, figure 10

Nodosaria sceptrum REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 37, pl. 2, fig. 3. - BARTENSTEIN, BETTENSTAEDT and BOLLI, 1957, Eclogae Geol. Helv., vol. 50, no. 1, p. 35, pl. 7, fig. 150. - SZTEJN, 1957, Poland, Inst. Geol., Proc., vol. 22, p. 52, pl. 6, fig. 47.

Remarks: The presence of fine intercalated ribs in the specimens found in the Albion of Putineiu is indicative of their affiliation to the type specimen described by Reuss from the Lower Cretaceous.

Dimensions: Length 0.75 mm.; diameter 0.20 mm.

Hypotype: L.P.B. 5121.

Nodosaria rugosa ten Dam
Plate 5, figure 27

Nodosaria rugosa TEN DAM, 1946, Jour. Pal., vol. 20, no. 5, p. 575, pl. 88, fig. 7.

Dimensions: Length 0.30 mm.; diameter 0.18 mm.

Hypotype: L.P.B. 5120.

Genus TRISTIX Macfadyen, 1941

Tristix articulata (Reuss)
Plate 5, figures 25–26

Rhabdogonium articulatum REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 55, pl. 5, fig. 1. – EGGER, 1900, K. Bayer. Akad. Wiss., Abh., Math.-Phys. Cl., vol. 21, pt. 1, p. 92, pl. 23, figs. 36–37.

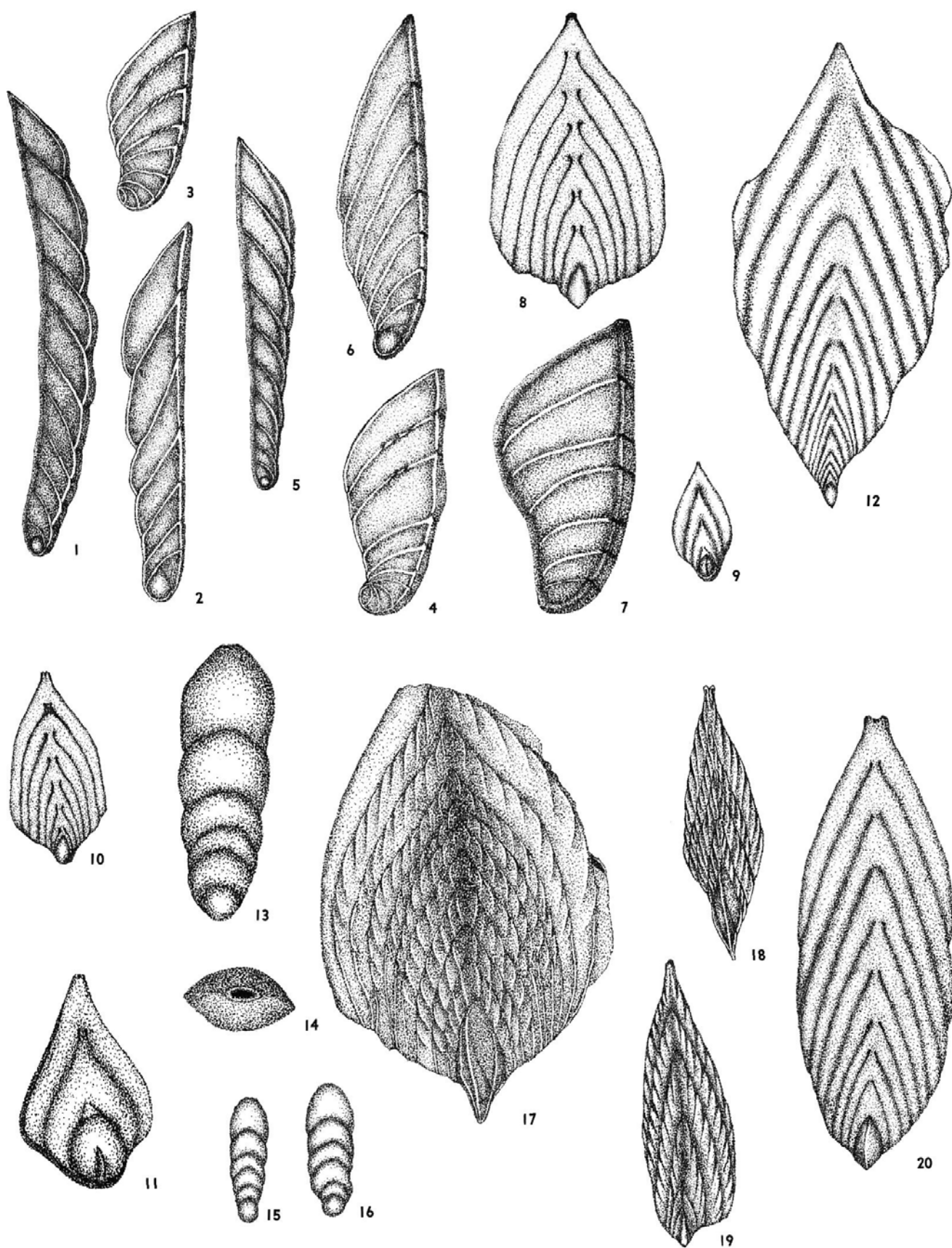
Remarks: By their clearly depressed sutures, smaller number of chambers, and rounded test borders, specimens found correspond with the type specimen.

Dimensions: Length 0.75 mm.; thickness 0.20 mm.

Hypotype: L.P.B. 5058.

PLATE 6

- | | |
|---|--|
| <p>1–2 <i>Vaginulina recta</i> Reuss
Giurgiu, marls with <i>Anahoplites planus fittoni</i>,
L.P.B. 5089, × 43.</p> <p>3–4 <i>Vaginulina comitina</i> Berthelin
Giurgiu, marls with <i>Anahoplites planus fittoni</i>,
L.P.B. 5062, × 47.</p> <p>5 <i>Vaginulina costulata</i> Roemer
Giurgiu, marls with <i>Cymatoceras</i>, L.P.B. 5060,
× 33.</p> <p>6 <i>Vaginulina geinitzi</i> Reuss
Giurgiu, marls with <i>Cymatoceras</i>, L.P.B. 5090,
× 33.</p> <p>7 <i>Vaginulina incompta</i> Reuss
Giurgiu, marls with <i>Anahoplites planus fittoni</i>,
L.P.B. 5059, × 47.</p> <p>8–11 <i>Fronicularia filocincta</i> Reuss
Giurgiu, marls with <i>Anahoplites planus fittoni</i>
(fig. 8); marls with <i>Cymatoceras</i> (figs. 9–10),
L.P.B. 5091; Putineiu, marls with <i>Oxytropido-</i>
<i>ceras</i> (fig. 11), L.P.B. 5128, × 40.</p> | <p>12 <i>Fronicularia planifolium</i> Chapman
Giurgiu, marls with <i>Anahoplites planus fittoni</i>,
L.P.B. 5068, × 47.</p> <p>13–16 <i>Fronicularia loryi</i> Berthelin
Putineiu, marls with <i>Oxytropidoceras</i> (figs. 13–
14), L.P.B. 5127, × 100; Giurgiu, marls with
<i>Hoplites dentatus</i> (figs. 15–16), L.P.B. 5069,
× 67.</p> <p>17 <i>Citharinella chapmani</i> Marie
Giurgiu, marls with <i>Cymatoceras</i>, L.P.B. 5065,
× 40.</p> <p>18–19 <i>Citharinella</i> sp. cf. <i>C. chapmani</i> Marie
Giurgiu, marls with <i>Anahoplites planus fittoni</i>
(fig. 18), marls with <i>Cymatoceras</i> (fig. 19),
L.P.B. 5066, × 27.</p> <p>20 <i>Fronicularia inversa</i> Reuss
Giurgiu, marls with <i>Anahoplites planus fittoni</i>,
L.P.B. 5067, × 53.</p> |
|---|--|



Tristix excavata (Reuss)
Plate 5, figures 14–15

Rhabdogonium excavatum REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 91, pl. 12, fig. 8. – BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 47. – EGGER, 1900, K. Bayer. Akad. Wiss., Abh., Math.-Phys. Cl., vol. 21, pt. 1, p. 92, pl. 17, figs. 23–24. – FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 73, pl. 6, fig. 22.
Tristix excavatum (Reuss). – FRIZZELL, 1954, Texas, Univ., Rept. Invest., no. 22, p. 119, pl. 17, fig. 42.

Dimensions: Length 0.50–0.57 mm.; thickness 0.22–0.27 mm.

Hypotype: L.P.B. 5057.

Genus QUADRATINA ten Dam, 1946

Quadratina quadrata (Vieaux)
Plate 5, figures 16–17

Dentalinopsis quadrata Vieaux. – TAPPAN, 1943, Jour. Pal., vol. 17, no. 5, p. 509, pl. 81, fig. 25.
Quadratina quadrata (Vieaux). – FRIZZELL, 1954, Texas, Univ., Rept. Invest., no. 22, p. 120, pl. 18, fig. 2.

Remarks: This small species, described and figured by Tappan (1943), differs from *Rhabdogonium mertensi* Reuss (1863) in that it has lateral faces conspicuously concave and not almost flat as is in the case of Reuss's species.

Dimensions: Length 0.34 mm.; thickness 0.17 mm.

Hypotype: L.P.B. 5056.

Genus VAGINULINA d'Orbigny, 1826

Vaginulina robusta Chapman
Plate 5, figure 35

Vaginulina truncata Reuss var. *robusta* Berthelin and Chapman. – EICHENBERG, 1933, Niedersächs. Geol. Ver., Jahresber. 25, p. 11, pl. 5, fig. 5.
Vaginulina robusta (Chapman). – TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 35, text-fig. 3.

Remarks: In their highly robust tests, specimens found in the Albion of Giurgiu correspond with the figure presented by ten Dam.

Dimensions: Length 1.20–2.80 mm.; breadth 0.42–0.60 mm.; thickness 0.15–0.22 mm.

Hypotype: L.P.B. 5064.

Vaginulina gaultina Berthelin
Plate 5, figure 36

Vaginulina gaultina BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 3, pl. 1, figs. 22–24. – FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 81, pl. 7, fig. 22. – BARTENSTEIN, 1954, Senckenbergiana, vol. 35, no. 1/2, p. 42.

Dimensions: Length 1.75–2.17 mm.; breadth 0.37–0.60 mm.; thickness 0.15–0.17 mm.

Hypotype: L.P.B. 5061.

Vaginulina comitina Berthelin
Plate 6, figures 3–4

Vaginulina comitina BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 38, pl. 1, fig. 20.

Remarks: According to Bartenstein (1954), this species is synonymous with *V. gaultina*. It may be stated that that this species represents the microspheric stage of *V. gaultina*, but then it would be necessary to consider critically all of the species of this genus, to look for the correspondents of species with a large initial chamber among those not possessing this chamber and having, moreover, the tendency for coiling. Although the synonymy as suggested by Bartenstein seems warranted, we continue to maintain the two as separate species, since the specimens found in the Albion of Giurgiu correspond exactly with the type figures given by Berthelin (1880), and as we have had no opportunity of checking Bartenstein's statement.

Dimensions: Length 0.65–0.97 mm.; breadth 0.27–0.37 mm.; thickness 0.10–0.12 mm.

Hypotype: L.P.B. 5062.

Vaginulina arguta Reuss
Plate 5, figure 37

Vaginulina arguta REUSS, 1860, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 40, p. 202, pl. 8, fig. 4. – REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 47, pl. 3, fig. 13. – FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 83, pl. 7, fig. 29. – TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 34. – BARTENSTEIN, BETTENSTAEDT and BOLLI, 1957, Eclogae Geol. Helv., vol. 50, no. 1, p. 38, pl. 6, fig. 136.

Dimensions: Length 1.87 mm.; breadth 0.57 mm.; thickness 0.20 mm.

Hypotype: L.P.B. 5063.

Vaginulina incompta Reuss
Plate 6, figure 7

Vaginulina incompta REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 45, pl. 3, fig. 5.

Dimensions: Length 1.15 mm.; breadth 0.47 mm.; thickness 0.17 mm.

Hypotype: L.P.B. 5059.

Vaginulina recta Reuss
Plate 5, figure 31; plate 6, figures 1–2

Vaginulina recta REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 48, pl. 3, figs. 14–15. –

ALBIAN FORAMINIFERA FROM RUMANIA

BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 41, pl. 2, figs. 5-6. — FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 83, pl. 7, figs. 23-28. — TAPPAN, 1943, Jour. Pal., vol. 17, no. 5, p. 501, pl. 80, fig. 22. — CUSHMAN, 1946, U. S. Geol. Survey, Prof. Paper 206, p. 77, pl. 28, fig. 23. — TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 36. — BARTENSTEIN, BETTENSTADT and BOLLI, 1957, Eclogae Geol. Helv., vol. 50, no. 1, p. 38, pl. 6, fig. 135.

Citharina recta (Reuss). — FRIZZELL, 1954, Texas, Univ., Rept. Invest., no. 22, p. 95, pl. 11, figs. 19-20.

Dimensions: Length 1.00-2.05 mm.; breadth 0.20-0.27 mm.; thickness 0.07-0.15 mm.

Hypotypes: L.P.B. 5089, 5125.

Vaginulina costulata Roemer Plate 6, figure 5

Vaginulina costulata Roemer. — REUSS, 1874, Palaeontographica, vol. 20, pt. 2, p. 90, pl. 20, fig. 24. — FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 83, pl. 7, fig. 26.

Remarks: By the presence of developed sutural keels, these specimens correspond with those described and figured by Reuss and Franke.

Dimensions: Length 1.75 mm.; breadth 0.25 mm.; thickness 0.13 mm.

Hypotype: L.P.B. 5060.

Vaginulina geinitzi Reuss Plate 6, figure 6

Vaginulina geinitzi REUSS, 1874, Palaeontographica, vol. 20, pt. 2, p. 91, pl. 21, fig. 1. — FRANKE, 1928, Preuss. Geol. Landesanst. Abh., n. ser., no. 111, p. 82, pl. 7, figs. 24-25.

Remarks: Exceedingly oblique sutures give a clearly distinct character to this species.

Dimensions: Length 1.20-1.87 mm.; breadth 0.42-0.50 mm.; thickness 0.15 mm.

Hypotype: L.P.B. 5090.

Genus CITHARINELLA Marie, 1938

Citharinella chapmani Marie Plate 6, figure 17

Citharinella chapmani MARIE, 1938, Soc. Géol. France, Bull., ser. 5, vol. 8, no. 1-2, p. 100, pl. 7, figs. 5-6.

Dimensions: Length 2.02 mm. (macrospheric form) or 1.40 mm. (microspheric form); breadth 1.50 mm. (macrospheric form) or 0.40 mm. (microspheric form).

Hypotype: L.P.B. 5065.

Citharinella sp. cf. *C. chapmani* Marie Plate 6, figures 18-19

Description: Test with a flattened elliptical shape; consisting of numerous inverted V-shaped chambers. Sutures are conspicuously hyaline, arcuate, and provided with sutural keels ornamented with oblique striae extending onto the chamber surface. Central portion of test depressed; young stage of microspheric specimens is composed of two oval, fusiform, oblique chambers, ornamented with 2-3 obvious keels, and ended by a hyaline calcareous spine.

Remarks: By their asymmetrical character, the microspheric specimens differ from *Citharinella chapmani* and resemble *C. laffitei* Marie. Owing to the small number of well-preserved specimens, we could not surely establish the specific affiliation.

Dimensions: Length 1.30-3.00 mm.; breadth 0.40-1.50 mm.

Hypotype: L.P.B. 5066.

Genus FRONDICULARIA DeFrance, 1826

Frondicularia filocincta Reuss Plate 6, figures 8-11

Frondicularia filocincta REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, pt. 1, p. 54, pl. 4, figs. 12.

Dimensions: Length 0.77-1.40 mm.; breadth 0.47-0.85 mm.

Hypotype: L.P.B. 5091, 5128.

Frondicularia inversa Reuss Plate 6, figure 20

Frondicularia inversa REUSS. — REUSS, 1874, Palaeontographica, vol. 20, pt. 2, p. 94, pl. 21, figs. 5-7, 11. — CUSHMAN, 1946, U. S. Geol. Survey, Prof. Paper 206, p. 86, pl. 34, figs. 11-12. — FRIZZELL, 1954, Texas, Univ., Rept. Invest., no. 22, p. 98, pl. 12, fig. 31.

Remarks: Specimens encountered in the Albian of Giurgiu correspond with those described and figured by Cushman (1946) and Frizzell (1954) under this denomination, but differ from Reuss's figures in lacking very fine striae.

Dimensions: Length 1.37-2.87 mm.; breadth 0.60-1.05 mm.

Hypotype: L.P.B. 5067.

Frondicularia planifolium Chapman Plate 6, figure 12

Frondicularia planifolium CHAPMAN. — TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 32, pl. 2, fig. 25.

Remarks: Specimens from the Albian of Giurgiu correspond with this species as figured by ten Dam (1950).

Dimensions: Length 1.55 mm.; breadth 0.75 mm.

Hypotype: L.P.B. 5068.

Fronicularia loryi Berthelin
Plate 6, figures 13-16

Fronicularia loryi BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 80, pl. 4, fig. 5. - EGGER, 1900, K. Bayer. Akad. Wiss., Abh., Math.-Phys. Cl., vol. 21, pt. 1, p. 88, pl. 13, figs. 8-9. - EICHENBERG, 1935, Niedersächs. Geol. Ver., pt. 1, p. 179, pl. 11, fig. 1.

Lingulina loryi (Berthelin). - TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 30, pl. 2, fig. 20.

Dimensions: Length 0.45-0.50 mm.; breadth 0.17 mm.

Hypotypes: L.P.B. 5069, 5127.

Subfamily LAGENINAE
Genus LAGENA Walker and Jacob, 1798

Lagena globosa (Montagu)
Plate 5, figure 30

Lagena globosa Walker. - REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 318, pl. 1, figs. 1-3. - EGGER, 1900, K. Bayer. Akad. Wiss., Math.-Phys. Cl., vol. 21, pt. 1, p. 101, pl. 5, fig. 3.

Lagena globosa Montagu. - FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 85, pl. 7, fig. 30. - BROTZEN, 1936, Sver. Geol. Unders., ser. C, no. 396, p. 109, pl. 7, fig. 3.

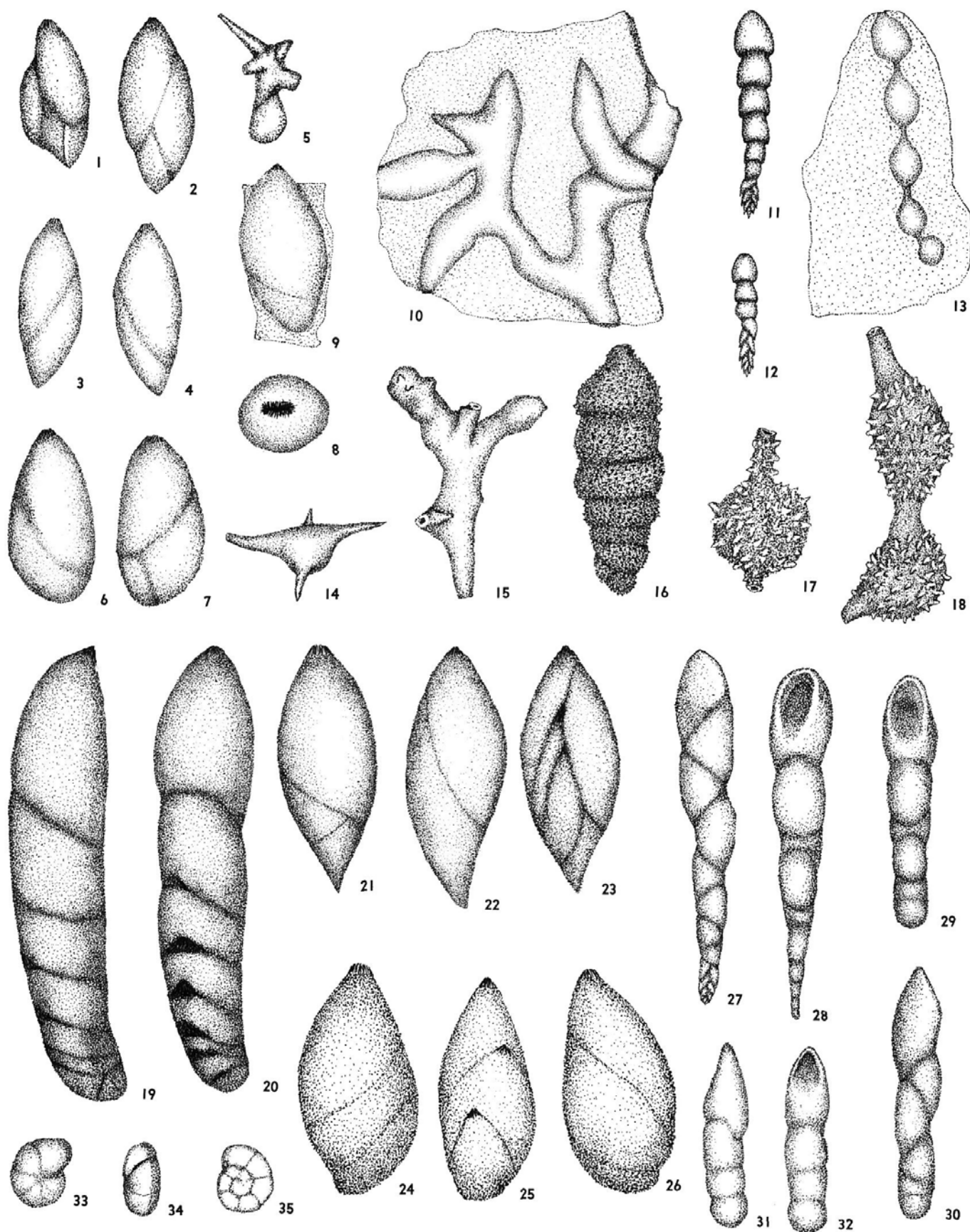
Lagena laevis (Montagu). - BARTENSTEIN, BETTENSTAEDET and BOLLI, 1957, Eclogae Geol. Helv., vol. 50, no. 1, p. 40, pl. 7, figs. 160-162.

Dimensions: Diameter 0.22 mm.

Hypotypes: L.P.B. 5070, 5130.

PLATE 7

- | | | | |
|-------|--|-------|--|
| 1-2 | <i>Eoguttulina anglica</i> Cushman and Ozawa
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B. 5132, $\times 100$. | 17-18 | <i>Ramulina novaculeata</i> Bullard
Giurgiu, marls with <i>Neohibolites minimus</i> (fig. 17); Putineiu, marls with <i>Oxytropidoceras</i> (fig. 18); L.P.B. 5134, $\times 47$. |
| 3-5 | <i>Globulina prisca</i> Reuss
Giurgiu, marls with <i>Anahoplites planus fittoni</i> , L.P.B. 5073, $\times 67$. | 19-20 | <i>Enantiodontalina communis</i> Marie
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B. 5133, $\times 73$. |
| 6-8 | <i>Globulina bucculenta</i> (Berthelin)
Giurgiu, marls with <i>Cymatoceras</i> , L.P.B. 5074, $\times 57$. | 21-23 | <i>Enantiomorphina</i> sp.
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B. 5192, $\times 87$. |
| 9-10 | <i>Histopomphus cervicornis</i> (Chapman)
Giurgiu, marls with <i>Cymatoceras</i> (fig. 9), marls with <i>Neohibolites minimus</i> (fig. 10), L.P.B. 5076, $\times 20$. | 24-26 | <i>Enantiomarginulina?</i> sp.
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B. 5193, $\times 73$. |
| 11-12 | <i>Bifarina calcarata</i> (Berthelin)
Giurgiu, marls with <i>Hoplites dentatus</i> , L.P.B. 5079, $\times 67$. | 27-28 | <i>Pleurostomella reussi</i> Berthelin
Giurgiu, marls with <i>Hoplites dentatus</i> , L.P.B. 5088, $\times 40$. |
| 13 | <i>Vitriwebbina laevis</i> (Sollas)
Giurgiu, marls with <i>Hoplites dentatus</i> , L.P.B. 5075, $\times 43$. | 29-32 | <i>Pleurostomella obtusa</i> Berthelin
Giurgiu, marls with <i>Anahoplites planus fittoni</i> (figs. 29-30), marls with <i>Hoplites dentatus</i> (figs. 31-32), L.P.B. 5080, $\times 53$. |
| 14-15 | <i>Ramulina arkadelphiana</i> Cushman
Giurgiu, marls with <i>Hoplites dentatus</i> , L.P.B. 5078, $\times 67$. | 33-35 | <i>Valvulineria gracillima</i> ten Dam
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B. 5136, $\times 67$. |
| 16 | <i>Siphogenerina asperula</i> (Chapman)
Putineiu, marls with <i>Oxytropidoceras</i> , L.P.B. 5135, $\times 67$. | | |



Lagena oxystoma Reuss

Plate 5, figures 28-29

Lagena oxystoma REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 334, pl. 5, fig. 16. – FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 88, pl. 7, fig. 5. – SZTEJN, 1957, Poland, Inst. Geol., Proc., vol. 22, p. 78, pl. 8, fig. 79.

Dimensions: Diameter 0.20 mm.

Hypotype: L.P.B. 5131.

Family POLYMORPHINIDAE

Subfamily POLYMORPHININAE

Genus EOGUTTULINA Cushman and Ozawa, 1930

Eoguttulina anglica Cushman and Ozawa

Plate 7, figures 1-2

Eoguttulina anglica CUSHMAN and OZAWA, 1930, U. S. Nat. Mus., Proc., vol. 77, art. 6, p. 16, pl. 1, fig. 3. – TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 42, pl. 3, fig. 14.

Remarks: In lacking such swollen elongated chambers, the specimens encountered in the Albion of Putineiu differ from the type specimen.

Dimensions: Length 0.28 mm.; breadth 0.15 mm.

Hypotype: L.P.B. 5132.

Genus GLOBULINA d'Orbigny, 1839

Globulina prisca Reuss

Plate 7, figures 3-5

Globulina prisca REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 79, pl. 9, fig. 8. – EGGER, 1900, K. Bayer. Akad. Wiss., Abh., Math.-Phys. Cl., vol. 21, pt. 1, p. 124, pl. 17, fig. 1. – BROTZEN, 1936, Sver. Geol. Unders., ser. C, no. 396, p. 114, pl. 7, fig. 11. – CUSHMAN, 1946, U. S. Geol. Survey, Prof. Paper 206, p. 97, pl. 40, figs. 15-17.

Polymorphina prisca (Reuss). – BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 57, pl. 4, figs. 20-21.

Dimensions: Length 0.55-0.60 mm.; thickness 0.25-0.35 mm.

Hypotype: L.P.B. 5073.

Globulina bucculenta (Berthelin)

Plate 7, figures 6-8

Polymorphina bucculenta BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 58, pl. 4, figs. 16-17.

Remarks: The radial aperture with a slit is one of the essential characters showing the affiliation of specimens from the Albion of Giurgiu to the type of the species.

Dimensions: Length 0.60 mm.; thickness 0.32 mm.

Hypotype: L.P.B. 5074.

Subfamily RAMULININAE

Genus VITRIWEBBINA Chapman, 1892

Vitriwebbina laevis (Sollas)

Plate 7, figure 13

Bullopore laevis (Sollas). – TAPPAN, 1943, Jour. Pal., vol. 15, no. 5, p. 507, pl. 81, figs. 11-12. – CUSHMAN, 1946, U. S. Geol. Survey, Prof. Paper 206, p. 98, pl. 42, figs. 1-4. – TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 43.

Globulina laevis (Sollas). – BULLARD, 1953, Jour. Pal., vol. 27, no. 3, p. 343, pl. 46, figs. 3-4.

Vitriwebbina laevis (Sollas). – FRIZZELL, 1954, Texas, Univ., Rept. Invest., no. 22, p. 107, pl. 15, fig. 6.

Dimensions: Length 1.17 mm.

Hypotype: L.P.B. 5075.

Genus HISTOPOMPHUS Tappan, 1949

Histopomphus cervicornis (Chapman)

Plate 7, figures 9-10

Vitriwebbina cervicornis (Chapman). – EICHENBERG, 1935, Niedersächs. Geol. Ver., Jahresber. 26, p. 184, pl. 16, fig. 2.

Bullopore cervicornis (Chapman). – TAPPAN, 1943, Jour. Pal., vol. 17, no. 5, p. 507, pl. 81, fig. 10.

Globulina cervicornis (Chapman). – BULLARD, 1953, Jour. Pal., vol. 27, no. 3, p. 342, pl. 45, figs. 23-27.

Histopomphus cervicornis (Chapman). – FRIZZELL, 1954, Texas, Univ., Rept. Invest., no. 22, p. 101, pl. 15, fig. 1.

Dimensions: Unlimited, due to the branched character of the test.

Hypotype: L.P.B. 5076.

Genus RAMULINA Rupert and Jones, 1875

Ramulina novaculeata Bullard

Plate 7, figures 17-18

Ramulina aculeata Wright. – EGGER, 1900, K. Bayer. Akad. Wiss., Abh., Math.-Phys. Cl., vol. 21, pt. 1, p. 135, pl. 2, fig. 3. – FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 121, pl. 11, figs. 16-17. – EICHENBERG, 1935, Niedersächs. Geol. Ver., Jahresber. 26, p. 18, pl. 6, fig. 6a. – CUSHMAN, 1946, U. S. Geol. Survey, Prof. Paper 206, p. 100, pl. 43, fig. 11.

Ramulina novaculeata BULLARD, 1953, Jour. Pal., vol. 27, no. 3, p. 346 (non pl. 46, fig. 26).

"*Ramulina aculeata* Wright". – FRIZZELL, 1954, Texas, Univ., Rept. Invest., no. 22, p. 105, pl. 14, fig. 39.

Remarks: As already mentioned, this species has been confused with *Dentalina aculeata* d'Orbigny, but the designation of a new specific name has resolved the nomenclatural problem.

Dimensions: Length 0.167-1.12 mm.; diameter 0.27-0.37 mm.

Hypotypes: L.P.B. 5077, 5134.

ALBIAN FORAMINIFERA FROM RUMANIA

Bulimina arkadelphiana Cushman

Plate 7, figures 14–15

Ramulina arkadelphiana Cushman. – CUSHMAN, 1946, U. S. Geol. Survey, Prof. Paper 206, p. 99, pl. 43, figs. 3–8. – FRIZZELL, 1954, Texas, Univ. Rept. Invest., no. 22, p. 105, pl. 14, figs. 40–43.

Dimensions: Length 0.76 mm.; diameter 0.12–0.15 mm.

Hypotype: L.P.B. 5078.

Family ENANTIOMORPHINIDAE

Genus ENANTIODENTALINA Marie, 1941

Enantiodentalina communis Marie

Plate 7, figures 19–20

Enantiodentalina communis MARIE, 1941, Mus. Nat. Hist. Nat., Mém., n. ser., vol. 12, no. 1, p. 150, pl. 19, fig. 2. – TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 41, pl. 3, fig. 12.

Remarks: Although the general appearance of this species is very similar to that of the species *Dentalina communis* d'Orbigny, the alternate positions of the chambers in the uniserial stage make a clear-cut difference between the two. Specimens from the Albian of Putineiu correspond with the species created by Marie (1941).

Dimensions: Length 1.14 mm.; diameter 0.23 mm.

Hypotype: L.P.B. 5133.

Genus ENANTIOMORPHINA Marie, 1941

Enantiomorphina sp.

Plate 7, figures 21–23

Description: Test glanduloid, slightly elongate, with young stage tapered and slightly arcuate, formed of chambers with an irregular alternating arrangement. Chambers partly covering each other, so that they may be very hard to observe, the last being much the greatest, sutures weakly depressed and highly oblique. Most of the chambers, the alternating irregular arrangement of which is clear, may be distinguished on the outer portion of the test. Aperture radial and eccentric, situated at the end of the last chamber. On the whole, specimens from the Albian of Putineiu are similar to *E. lemoinei* Marie, from which they differ, however, in the slightly arcuate young stage.

Dimensions: Length 0.54 mm.; diameter 0.23 mm.

Hypotype: L.P.B. 5192.

Genus ENANTIOMARGINULINA Marie, 1941

Enantiomarginulina? sp.

Plate 7, figures 24–26

Description: Test with rounded young stage and inflated adult stage, with a tendency for partial inclusion of the young one by the adult. Chambers of the well-

developed adult stage have an irregular alternating arrangement, and sutures are very oblique and slightly depressed. Planispiral coiling of the young stage in the specimens from the Albian of Putineiu can not be too clearly observed, rendering difficult the accurate identification of their generic affiliation.

Dimensions: Length 0.57 mm.; thickness 0.26 mm.

Hypotype: L.P.B. 5193.

Superfamily BULIMINIDAE

Family BULIMINIDAE

Subfamily BOLIVININAE

Genus BIFARINA Parker and Jones, 1872

Bifarina calcarata (Berthelin)

Plate 7, figures 11–12

Bigenerina calcarata BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 27, pl. 1, figs. 14–15.

Bifarina calcarata (Berthelin). – BARTENSTEIN, 1954, Senckenbergiana, vol. 35, no. 1/2, p. 40.

Dimensions: Length 0.45–0.72 mm.; thickness 0.10–0.15 mm.

Hypotype: L.P.B. 5079.

Subfamily UVIGERININAE

Genus SIPHOGENERINA Schlumberger, 1882

Siphogenerina asperula (Chapman)

Plate 7, figure 16

Uvigerina asperula (Chapman). – EICHENBERG, 1933, Niedersächs. Geol. Ver., Jahresber. 25, p. 18, pl. 1, fig. 3.

Siphogenerina asperula (Chapman). – TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 45.

Dimensions: Length 0.49–0.78 mm.; diameter 0.18–0.23 mm.

Hypotype: L.P.B. 5135.

Family PLEUROSOMELLIDAE

Genus PLEUROSOMELLA Reuss, 1860

Pleurostomella obtusa Berthelin

Plate 7, figures 29–32

Pleurostomella obtusa BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 29, pl. 1, fig. 9. – EGGER, 1900, K. Bayer. Akad. Wiss., Abh., Math.-Phys. Cl., vol. 21, pt. 1, p. 48, pl. 16, fig. 29. – BARTENSTEIN, 1954, Senckenbergiana, vol. 35, no. 1/2, p. 41.

Remarks: Due to their great globular initial chamber, specimens from the Albian of Giurgiu belong to this species. According to Bartenstein (1954), this form is the macrospheric stage of the species *P. reussi* Berthelin.

Dimensions: Length 0.82–1.12 mm.; thickness 0.17 mm.

Hypotype: L.P.B. 5080.

Pleurostomella reussi Berthelin

Plate 7, figures 27-28

Pleurostomella reussi BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 28, pl. 1, figs. 10-12. - TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 44, pl. 2, fig. 15.

Dimensions: Length 0.187-1.65 mm.; thickness 0.17-0.27 mm.

Hypotype: L.P.B. 5088.

Family CHILOSTOMELLIDAE

Genus QUADRIMORPHINA Finlay, 1939

Quadriformina allomorphinoides (Reuss)

Plate 8, figure 9

Valvulina allomorphinoides REUSS, 1860, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 40, p. 223, pl. 11, fig. 6.

Discorbina allomorphinoides (Reuss). - FRANKE, 1928, Preuss. Geol. Landesanst., Abh., n. ser., no. 111, p. 189, pl. 10, fig. 7.

Quadriformina allomorphinoides (Reuss). - FINLAY, 1939, Roy. Soc. New Zealand, Trans., vol. 69, pt. 3, p. 325.

Gyromorphina allomorphinoides (Reuss). - MARIE, 1941, Mus. Nat. Hist. Nat., Mém., n. ser., vol. 12, no. 1, pp. 230, 256.

Dimensions: Diameter 0.40 mm.; thickness 0.20 mm.

Hypotype: L.P.B. 5082.

Superfamily ROTALIIDEA

Family DISCORBIDAE

Subfamily DISCORBINAE

Genus VALVULINERIA Cushman, 1926

Valvulineria gracillima ten Dam

Plate 7, figures 33-35

Placentalia nitida (Reuss). - BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 69, pl. 4, fig. 11 (non *Rotalina nitida* Reuss, 1844).

Valvulineria gracillima ten Dam. - TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 47.

Remarks: Specimens encountered in the Albian of Giurgiu and Putineiu correspond very well with the species described and figured by Berthelin (1880) under the name *Placentalia nitida*, considered by Bartenstein (1954) synonymous with *V. parva* Khan, 1950. As early as 1947 and again in 1950 ten Dam considered this form described by Berthelin as belonging to a new species named by ten Dam (1947) *Valvulineria gracillima*. Taking into consideration the principle of priority, we feel that the name given by ten Dam must be maintained.

Dimensions: Diameter 0.27-0.30 mm.; thickness 0.17 mm.

Hypotypes: L.P.B. 5083, 5136.

PLATE 8

1-2 *Gavelinella intermedia* (Berthelin)

Giurgiu, marls with *Neohibolites minimus* (fig. 1a-c), marls with *Cymatoceras* (fig. 2a-c), L.P.B. 5095, $\times 67$.

3 *Planulina schloenbachii* (Reuss)

Giurgiu, marls with *Anahoplites planus fittoni*, L.P.B. 5086, $\times 67$.

4-7 *Gavelinopsis infracretacea simionescui* Neagu, n. subsp.

Giurgiu, marls with *Anahoplites planus dis-*

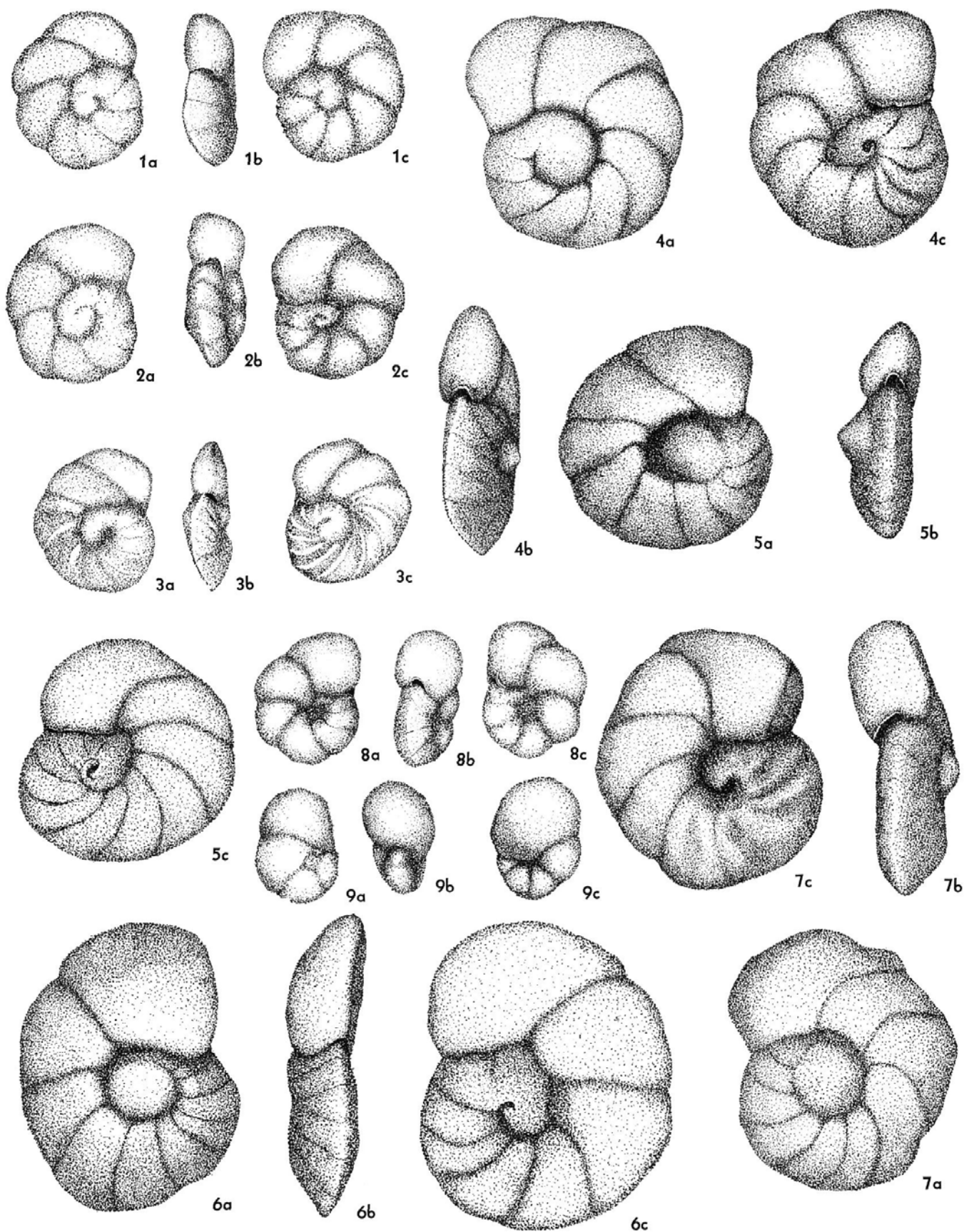
coideus (figs. 4-6), marls with *Anahoplites planus fittoni* (fig. 7); holotype, fig. 4a-c, L.P.B. 5086; paratypes, figs. 5-7, L.P.B. 5194; $\times 87$.

8 *Gavelinella rudis* (Reuss)

Giurgiu, marls with *Hoplites dentatus*, L.P.B. 5085, $\times 67$.

9 *Quadriformina allomorphinoides* (Reuss)

Giurgiu, marls with *Anahoplites planus fittoni*, L.P.B. 5082, $\times 67$.



Genus GAVELINELLA Brotzen, 1942

Gavelinella rudis (Reuss)

Plate 8, figure 8

Rosalina rudis REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 87, pl. 11, fig. 7.*Anomalina rudis* (Reuss). — BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, p. 68, pl. 4, fig. 15. — TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 56, pl. 4, fig. 8. — VASILENKO, 1954, Vses. Neft. Nauchno-Issled. Geol.-Razved. Inst., Trudy, n. ser., vypusk 80, p. 55, pl. 1, fig. 7.*Gavelinella rudis* (Reuss). — BARTENSTEIN, 1954, Senckenbergiana, vol. 35, no. 1/2, p. 49.*Dimensions*: Greatest diameter 0.35–0.42 mm.; smallest diameter 0.32–0.37 mm.; thickness 0.17–0.20 mm.*Hypotypes*: L.P.B. 5085, 5097.*Gavelinella intermedia* (Berthelin)

Plate 8, figures 1–2

Anomalina intermedia BERTHELIN, 1880, Soc. Géol. France, Mém., ser. 3, vol. 1 no. 5, p. 67, pl. 4, fig. 14.*Gavelinella intermedia* (Berthelin). — BARTENSTEIN, 1954, Senckenbergiana, vol. 35, no. 1/2, p. 49, pl. 1, figs. 21–28. — HOFKER, 1957, Geol. Jahrb., Beihefte, no. 27, p. 287, text-figs. 336–337.*Dimensions*: Greatest diameter 0.31–0.50 mm.; smallest diameter 0.25–0.42 mm.; thickness 0.15–0.17 mm.*Hypotype*: L.P.B. 5095.Subfamily ANOMALININAE
Genus PLANULINA d'Orbigny, 1826*Planulina schloenbachi* (Reuss)

Plate 8, figure 3

Rotalia schloenbachi REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 84, pl. 10, fig. 5.*Planulina schloenbachi* (Reuss). — TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 55, pl. 4, fig. 17.*Dimensions*: Diameter 0.25–0.55 mm.; thickness 0.10–0.17 mm.*Hypotype*: L.P.B. 5086.

Genus GAVELINOPSIS Hofker, 1956

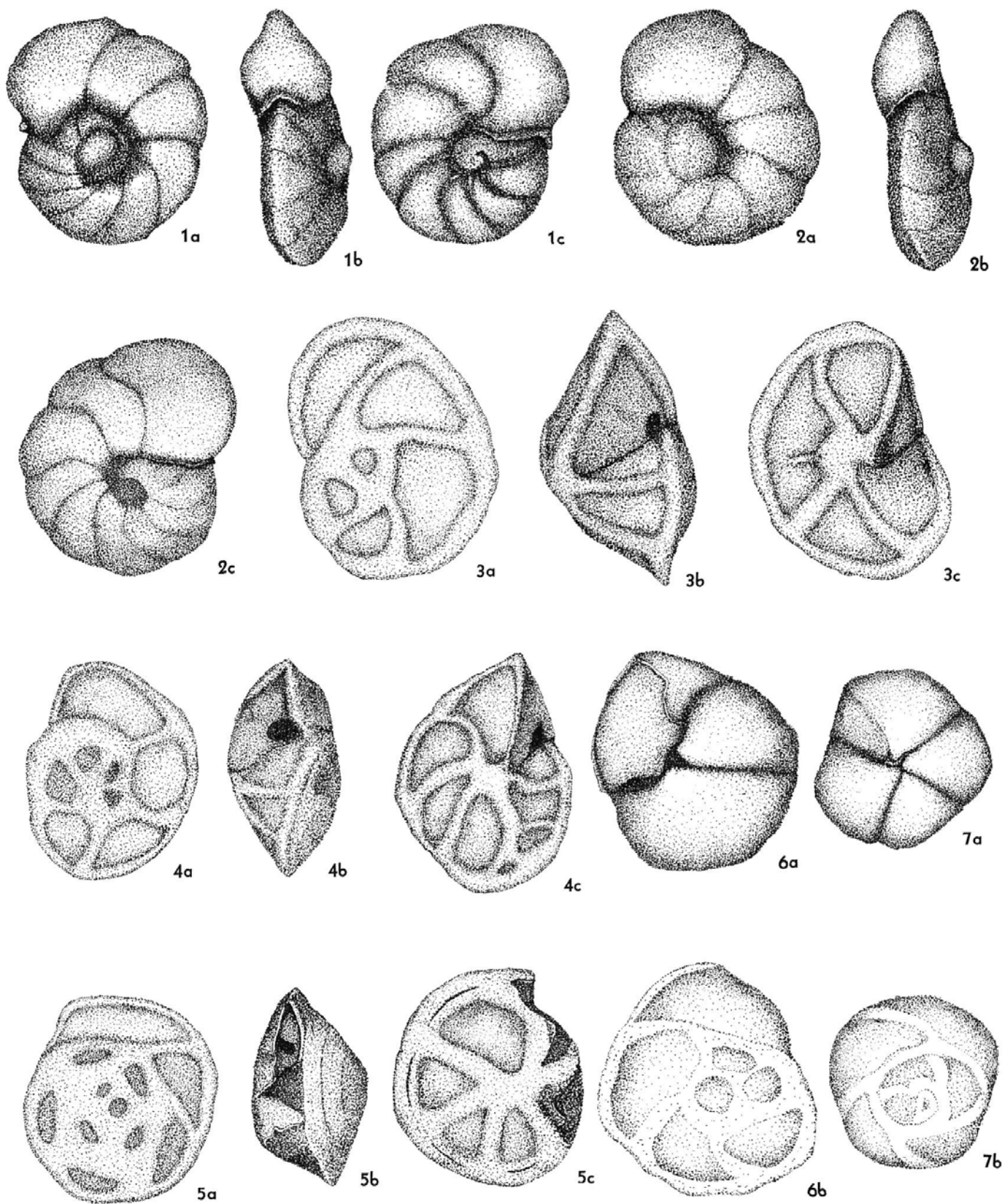
Gavelinopsis infracretacea Hofker subsp.
simionescui Neagu, new subspecies

Plate 8, figures 4–7; plate 9, figures 1–2

Description: Test semi-involute, trochospiral, with 9–10 chambers in the last whorl; sutures simply arcuate, fairly distinct in the young stage and slightly keeled, becoming depressed in the later chambers, which have a scythe-shaped aspect, being much longer than wide. Last two or three chambers develop more rapidly in dimensions, have a somewhat more inflated aspect, and become obviously wider than the others. Dorsal portion distinctly convex, exhibiting a well-developed, conical, calcareous callus. Umbilical zone wide, slightly depressed, free. Interiomarginal aperture extends along the base of the last chamber or of the last two chambers on the ventral side and is often provided with a small lip.

PLATE 9

1–2 *Gavelinopsis infracretacea simionescui* Neagu, n. subsp.
Giurgiu, marls with *Anahoplites planus fittoni*, paratypes, L.P.B. 5194, × 87.3–4 *Epistomina carpenteri* (Reuss)
Putineiu, marls with *Oxytropidoceras*, L.P.B. 5140, × 67.5 *Epistomina chapmani* ten Dam
Putineiu, marls with *Oxytropidoceras*, L.P.B. 5139, × 67.6–7 *Lamarckina lamplughii* (Sherlock)
Putineiu, marls with *Oxytropidoceras*, L.P.B. 5138, × 100.



Remarks: Specimens from the Albian of Giurgiu differ from the typical subspecies figured by Hofker (1957) in having a smaller number of chambers in the last whorl, the last two or three chambers much more developed than the others, and the calcareous callus more conspicuous. Our specimens are similar to *Anomalina berthelini* Keller only because of the presence of a dorsal calcareous callus and they differ in almost all other characters.

The name of this subspecies has been given to honor the memory of Professor I. Simionescu, prominent personality in Rumanian paleontology.

Dimensions: Diameter 0.33–0.54 mm.; thickness 0.10–0.15 mm.

Holotype: L.P.B. 5086, plate 8, figure 4a–c.

Paratypes: L.P.B. 5141, 5194; plate 8, figures 5–7; plate 9, figures 1–2.

Family EPISTOMINIDAE
Genus EPISTOMINA Terquem, 1883

Epistomina chapmani ten Dam
Plate 9, figure 5

Epistomina chapmani TEN DAM, 1948, Rev. Inst. Franç. Pétrol., no. 6, p. 166, pl. 1, fig. 5. – TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 53, pl. 4, fig. 6.

Dimensions: Diameter 0.28–0.36 mm.; thickness 0.15–0.18 mm.

Hypotype: L.P.B. 5139.

Epistomina carpenteri (Reuss)

Plate 9, figures 3–4

Rotalia carpenteri REUSS, 1863, K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46, p. 94, pl. 13, fig. 6.

Epistomina carpenteri (Reuss). – TEN DAM, 1948, Rev. Inst. Franç. Pétrol., vol. 3, no. 6, p. 165, pl. 1, fig. 4. – TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 50, pl. 4, fig. 3.

Dimensions: Diameter 0.65–1.06 mm.; thickness 0.31–0.39 mm.

Hypotype: L.P.B. 5140.

Family CERATOBULIMINIDAE
Genus LAMARCKINA Berthelin, 1881

Lamarckina lamplughii (Sherlock)
Plate 9, figures 6–7

Discorbis turbo d'Orbigny. – EICHENBERG, 1933, Niedersächs. Geol. Ver., Jahresber. 25, p. 20, pl. 1, fig. 11 (*non Rotalia turbo* d'Orbigny, 1826).

Lamarckina lamplughii (Sherlock). – TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 49, text-fig. 5.

Remarks: Specimens from the Albian of Putineiu correspond with those figured and described by ten Dam (1950) from the Albian of the Netherlands.

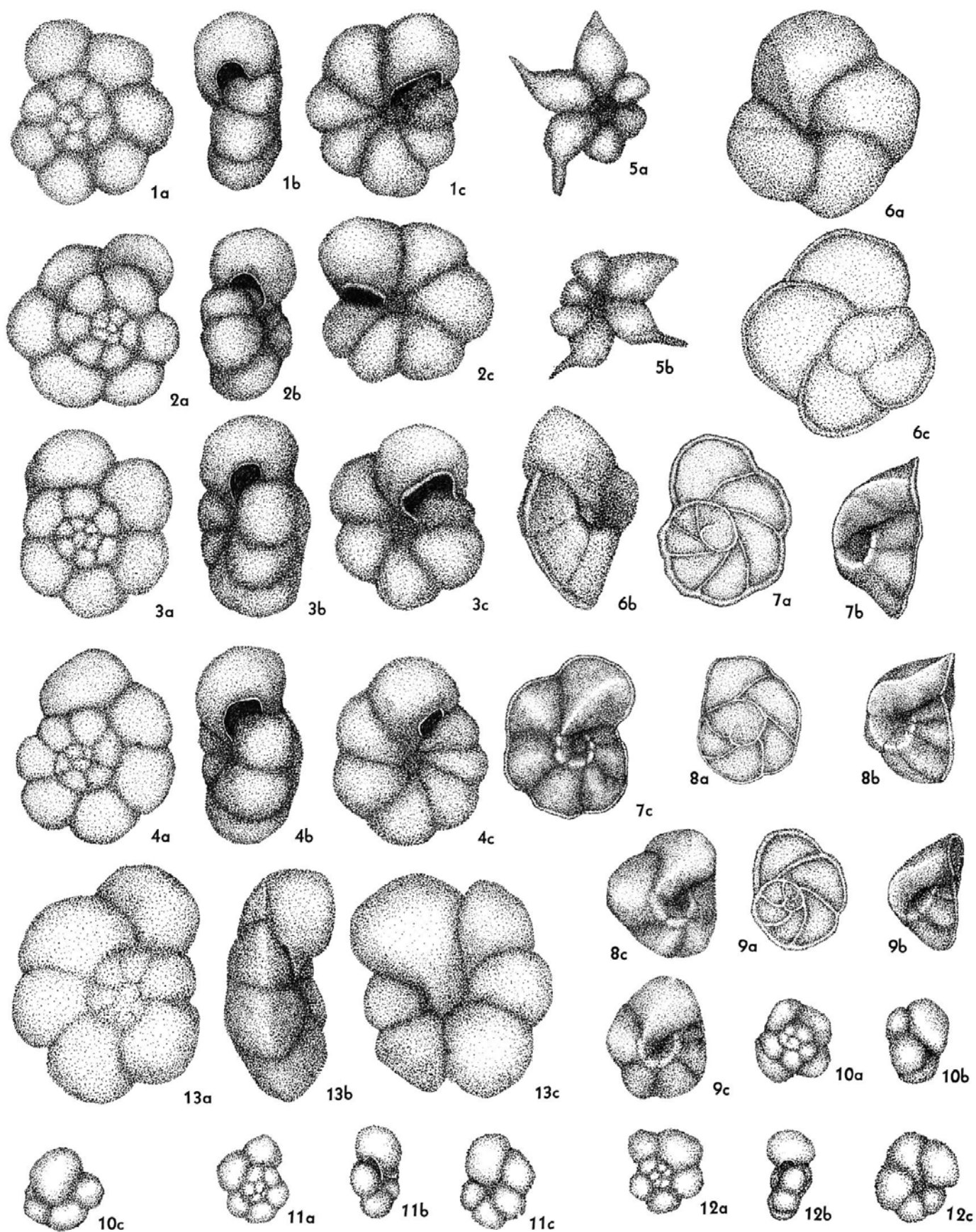
Dimensions: Diameter 0.39 mm.; thickness 0.18–0.20 mm.

Hypotype: L.P.B. 5138.

PLATE 10

- 1–4 *Hedbergella planispira* (Tappan)
Putineiu, marls with *Oxytropidoceras*, L.P.B. 5137, $\times 100$.
- 5 *Schackoina* sp.
Putineiu, marls with *Oxytropidoceras*, L.P.B. 5142, $\times 127$.
- 6 *Praeglobotruncana* sp. 1
Putineiu, marls with *Oxytropidoceras*, L.P.B. 5195, $\times 127$.
- 7–9 *Globorotalites brotzeni rumanus* Neagu, n. subsp.
Giurgiu, marls with *Hoplites dentatus* (fig. 7),

- marls with *Anahoplites planus discoideus* (fig. 9); Putineiu, marls with *Oxytropidoceras*, (fig. 8); holotype, fig. 7a–c, L.P.B. 5144; paratypes, figs. 8–9, L.P.B. 5197; $\times 67$.
- 10–12 *Globigerina infracretacea* Glaessner
Giurgiu, marls with *Anahoplites planus fittoni* (figs. 10–11), marls with *Neohoplites minimus* (fig. 12), L.P.B. 5084, $\times 67$.
- 13 *Praeglobotruncana* sp. 2
Putineiu, marls with *Oxytropidoceras*, L.P.B. 5196, $\times 127$.



Family GLOBIGERINIDAE
Genus GLOBIGERINA d'Orbigny, 1826

Globigerina infracretacea Glaessner
Plate 10, figures 10–12

Globigerina infracretacea Glaessner. – TEN DAM, 1950, Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, p. 54. – SUBBOTINA, 1953, Vses. Neft. Nauchno-Issled. Geol.-Razved. Inst., Trudy, n. ser., vypusk 76, p. 51, pl. 1, figs. 5–10. – BARTENSTEIN, 1954, Senckenbergiana, vol. 35, no. 1/2, p. 49.

Dimensions: Greatest diameter 0.27–0.32 mm.; smallest diameter 0.25–0.27 mm.; thickness 0.15 mm.

Hypotypes: L.P.B. 5084, 5144.

Family SCHACKOINIDAE
Genus SCHACKOINA Thalmann, 1932

Schackoina sp.
Plate 10, figure 5

Description: Test formed of ovoid, elongate chambers with a slightly trochospiral coiling. Each chamber is provided with a more or less developed calcareous spine; sutures depressed and straight, test periphery strongly lobate. The dorsal side allows the observation of all the whorls (up to two), and the ventral one is composed of six chambers to a whorl.

Remarks: Specimens from the Albion of Putineiu differ from *S. primitiva* Tappan in that all of their whorls may be observed. They are different from *S. cenomana* (Schacko) in the greater number of chambers in a whorl and the more involute test.

Dimensions: Diameter 0.28 mm.; thickness 0.05 mm.

Hypotype: L.P.B. 5142.

Family ROTALIPORIDAE
Genus HEDBERGELLA Bronnimann and Brown, 1958

Hedbergella planispira (Tappan)
Plate 10, figures 1–4

Globigerina planispira TAPPAN, 1943, Jour. Pal., vol. 17, no. 5, p. 513, pl. 83, fig. 3. – FRIZZELL, 1954, Texas, Univ. Rept. Invest., no. 22, p. 127, pl. 20, fig. 2.

Globigerina globigerinelloides SUBBOTINA, 1953, Vses. Neft. Nauchno-Issled. Geol.-Razved. Inst., Trudy, n. ser., vypusk 76, p. 51, pl. 1, figs. 11–12.

Praeglobotruncana planispira (Tappan). – BOLLI, LOEBLICH and TAPPAN, 1957, U. S. Nat. Mus., Bull. 215, p. 40, pl. 9, fig. 3.

Hedbergella planispira (Tappan). – LOEBLICH and TAPPAN, 1961, Micropaleontology, vol. 7, no. 3, p. 276, pl. 5, figs. 4–11.

Dimensions: Diameter 0.26–0.33 mm.; thickness 0.10–0.20 mm.

Hypotype: L.P.B. 5137.

Genus PRAEGLBOTRUNCANA Bermúdez, 1952

Praeglobotruncana sp. 1
Plate 10, figure 6

Description: Test with the dorsal side almost flat, and the ventral side convex. Sutures depressed on the ventral side; on the dorsal side, oblique and slightly elevated. Test periphery lobate, bordered by a keel. Umbilical zone lacks sutural accessory apertures. In the last whorl five chambers can be recognized.

Dimensions: Diameter 0.36 mm.; thickness 0.12 mm.

Hypotype: L.P.B. 5195.

Praeglobotruncana sp. 2
Plate 10, figure 3

Description: Test formed of somewhat more globular chambers with very depressed sutures on the ventral side and less depressed sutures on the dorsal side having a gently curved aspect. Last whorl is formed of six chambers. Strongly lobate periphery of test is provided with a faint keel. Umbilical zone is well developed, lacks additional apertures.

Remarks: Both species 1 and species 2 occur in the Albion of Putineiu as a very small number of specimens, so it is difficult to establish their specific affiliation.

Dimensions: Diameter 0.29 mm.; thickness 0.14 mm.

Hypotype: L.P.B. 5196.

Family GLOBOROTALIDAE
Genus GLOBOROTALITES Brotzen, 1942

Globorotalites brotzeni Hofker subsp. *rumanus* Neagu,
new subspecies
Plate 10, figures 7–9

Description: Test truncate conical with the dorsal side flat to very slightly convex, formed of two whorls, the last having 4–6 chambers. On the dorsal side sutures are very finely keeled, and on the ventral side depressed and slightly arcuate on the umbilical keel. Umbilicus deep, crateriform, circular and narrow, the result of the development of high chambers. Test periphery lobate, bordered by a narrow keel. Umbilical aperture lies at the base of the flat to slightly arcuate apertural face, which forms a distinct edge with the ventral-outer portion of the last chamber.

Remarks: Specimens from the Albion of Giurgiu and Putineiu differ from the typical subspecies figured by Hofker (1957) in the smaller number of chambers in the last whorl, in the much more conical test, in the finely keeled sutures on the dorsal side, and in the narrow peripheral keel.

Dimensions: Greatest diameter 0.30–0.55 mm.; smallest diameter 0.25–0.50 mm.; thickness 0.10–0.37 mm.; thickness of the peripheral keel 0.022–0.025 mm.

Holotype: L.P.B. 5144, plate 10, figure 7a–c.

Paratypes: L.P.B. 5197, plate 10, figures 8–9.

ALBIAN FORAMINIFERA FROM RUMANIA

REFERENCES

- BARTENSTEIN, H.
1952 - *Taxonomische Bemerkungen zu den Ammobaculites, Haplophragmium, Lituola und verwandten Gattungen (For.)*. Senckenbergiana, vol. 33, no. 4/6, pp. 313-342, pls. 1-7.
1954 - *Revision von Berthelin's Mémoire 1880 über die Alb-Foraminiferen von Montcley*. Senckenbergiana, vol. 35, no. 1/2, pp. 37-50, pl. 1.
- BARTENSTEIN, H., BETTENSTAEDT, F., and BOLLI, H. M.
1957 - *Die Foraminiferen der Unterkreide von Trinidad, B. W. I.* Eclogae Geol. Helv., vol. 50, no. 1, pp. 5-67, pls. 1-8.
- BERTHELIN, G.
1880 - *Mémoire sur les foraminifères fossiles de l'Etage Albien de Montcley (Doubs)*. Soc. Géol. France, Mém., ser. 3, vol. 1, no. 5, pp. 1-84, pls. 1-4.
- BOLLI, H. M., LOEBLICH, A. R., and TAPPAN, HELEN
1957 - *Planktonic foraminiferal families Hantkeninidae, Orbulinidae, Globorotaliidae and Globotruncanidae*. U.S. Nat. Mus., Bull. 215, pp. 3-50, pls. 1-11.
- BROTZEN, F.
1936 - *Foraminiferen aus dem schwedischen untersten Senon von Eriksdal in Schonen*. Sver. Geol. Unders., ser. C, no. 396, Årsbok 30, no. 3, pp. 1-206, pls. 1-14.
1942 - *Die Foraminiferengattung Gavelinella nov. gen. und die Systematik der Rotaliiformes*. Sver. Geol. Unders., ser. C, no. 451, Årsbok 36, no. 8, pp. 1-60, pl. 1.
- BULLARD, FREDDA J.
1953 - *Polymorphinidae of the Cretaceous (Cenomanian) Del Rio Shale*. Jour. Pal., vol. 27, no. 3, pp. 338-346, pls. 45-46.
- CHAPMAN, F.
1892 - *Some new forms of hyaline foraminifera from the Gault*. Geol. Mag., n. ser., dec. 3, vol. 9, pp. 52-54, pl. 2.
1894 - *The Bargate Beds of Surrey and their microscopic contents*. Geol. Soc. London, Quart. Jour., vol. 50, pt. 4, pp. 677-730, pls. 33-34.
1899 - *Foraminifera from the "Cambridge Greensand"*. Part 1. Ann. Mag. Nat. Hist., ser. 7, vol. 3, no. 15, pp. 48-66, text-figs. 1-5.
1917 - *Monograph of the Foraminifera and Ostracoda of the Gingin Chalk*. W. Australia, Geol. Survey, Bull. no. 72, pp. 9-94, pls. 1-14.
- CORNUEL, J.
1848 - *Description de nouveaux fossiles microscopiques du terrain crétacé inférieur du département de la Haute-Marne*. Soc. Géol. France, Mém., ser. 2, vol. 3, pt. 1, pp. 241-263, pls. 3-4.
- CUSHMAN, J. A.
1937a - *A monograph of the foraminiferal family Verneulinidae*. Cushman Lab. Foram. Res., Spec. Publ., no. 7, pp. 1-157, pls. 1-20.
1937b - *A monograph of the foraminiferal family Valvulinidae*. Cushman Lab. Foram. Res., Spec. Publ., no. 8, pp. 1-210, pls. 1-24.
1964 - *Upper Cretaceous foraminifera of the Gulf Coastal Region of the United States and adjacent areas*. U. S. Geol. Survey, Prof. Paper 206, pp. 1-241, pls. 1-66.
- CUSHMAN, J. A., and OZAWA, Y.
1930 - *A monograph of the foraminiferal family Polymorphinidae, recent and fossil*. U. S. Nat. Mus., Proc., vol. 77, art. 6, pp. 1-185, pls. 1-40.
- DAM, A. TEN
1946 - *Arenaceous foraminifera and Lagenidae from the Neocomian (Lower Cretaceous) of the Netherlands*. Jour. Pal., vol. 20, no. 6, pp. 570-577, pl. 87-88.
1948 - *Les espèces du genre Epistomina Terquem, 1883*. Rev. Inst. France Pétrol., vol. 3, no. 6, pp. 161-170, pls. 1-2.
1950 - *Les foraminifères de l'Albien des Pays Bas*. Soc. Géol. France, Mém., n. ser., vol. 29, pt. 4, no. 63, pp. 1-66, pls. 1-4.
- EGGER, J. G.
1893 - *Foraminiferen aus Meeresgrundproben, gelothet von 1874 bis 1876 von S. M. Sch. Gazelle*. K. Bayer. Akad. Wiss., Abh., Math.-Phys. Cl., vol. 18, pt. 2, pp. 195-458, pls. 1-21.
1900 - *Foraminiferen und Ostrakoden aus den Kreidemergeln der oberbayerischen Alpen*. K. Bayer. Akad. Wiss., Abh., Math.-Phys. Cl., vol. 21, pt. 1(1899), pp. 1-230, pls. 1-27.
- EICHENBERG, W.
1933a - *Die Foraminiferen der Unterkreide. 1. Folge. Foraminiferen aus dem Albien von Wenden am Mittellandkanal*. Niedersächs. Geol. Ver., Jahresber. 25, pp. 1-32, pls. 1-8.
1933b - *2. Folge. Foraminiferen aus dem Barrême von Wenden am Mittellandkanal*. Niedersächs. Geol. Ver., Jahresber. 25, pp. 167-200, pls. 17-23.
1935a - *3. Folge. Foraminiferen aus dem Hauterive von Wenden am Mittellandkanal*. Niedersächs. Geol. Ver., Jahresber., 26, pp. 150-196, pls. 10-17.
1935b - *4. Folge. Foraminiferen aus dem Apt von Wenden am Mittellandkanal*. Niedersächs. Geol. Ver., Jahresber. 27, pp. 1-40, pls. 1-7.
- FRANKE, A.
1928 - *Die Foraminiferen der oberen Kreide Nord- und Mitteldeutschlands*. Preuss. Geol. Landesanst., Abh., n. ser., no. 111, pp. 1-207, pls. 1-18.
- FRIZZELL, D. L.
1954 - *Handbook of Cretaceous foraminifera of Texas*. Texas, Univ., Bur. Econ. Geol., Rept. Invest., no. 22, pp. 1-232, pls. 1-21.
- GRIGORAS, N.
1961 - *Geologia zacamintelor de petrol si gaze din Rep. Pop. Romine*, Ed. tehnica, pp. 1-235.
- HOFKER, J.
1957 - *Foraminiferen der Oberkreide von Nordwestdeutschland und Holland*. Geol. Jahrb., Beihefte, no. 27, pp. 1-464, text-figs. 1-495.
- LALICKER, C. G.
1935 - *New Cretaceous Textulariidae*. Cushman Lab. Foram. Res., Contr., vol. 11, pt. 1, pp. 1-13, pls. 1-2.
- LISZKOWA, J.
1959 - *Microfauna from beds with exotics at Bachowice*. Poland, Inst. Geol., Biul. 131, Geol. Karpat., vol. 2, pp. 39-110, pls. 3-9.

- LITEANU, E., and BANDRABUR, T.
1960 - *Recherches géologiques dans la région danubienne entre la Rivière de l'Arges et la Vallée de la Mostiştea*. Acad. Rep. Pop. Romîne, Studii şi Cercet. Geol., vol. 5, no. 4, pp. 655-682.
- LOEBLICH, A. R., and TAPPAN, HELEN
1950 - *Foraminifera from the type Kiowa Shale, Lower Cretaceous of Kansas*. Kansas, Univ., Pal. Contr., Protozoa, art. 3, pp. 1-15, pls. 1-2.
1961 - *Cretaceous planktonic foraminifera: Part 1 - Cenomanian*. Micropaleontology, vol. 7, no. 3, pp. 257-304, pls. 1-8.
- MARIE, P.
1938 - *Sur quelques foraminifères nouveaux ou peu connus du Crétacé du Bassin de Paris*. Soc. Géol. France, Bull., ser. 5, vol. 8, no. 1-2, pp. 91-104, pls. 7-8.
1941 - *Les foraminifères de la Craie à Belemnite mucronata du Bassin de Paris*. Mus. Nat. Hist. Nat., Mém., n. ser., vol. 12, no. 1, pp. 1-296, pls. 1-37.
- NEAGU, T.
1959 - *Étude paléontologique du Crétacé inférieur de Giurgiu. (Note préliminaire)*. Univ. Bucuresti, Anal., Ser. St. Natur., no. 22, pp. 195-205.
- ONCESCU, N., and GRIGORAS, N.
1957 - *Avant-pays de Carpathes dans la lumière des résultats des forages d'exploration soviétiques et roumaines*. Natura, vol. 9, no. 6, pp. 12-20.
- ORBIGNY, A. D'
1840 - *Mémoire sur les foraminifères de la craie blanche du Bassin de Paris*. Soc. Géol. France, Mém., vol. 4, pt. 1, pp. 1-51, pls. 1-4.
1846 - *Foraminifères fossiles du bassin tertiaire de Vienne (Autriche)*. Paris: Gide et Comp.; pp. i-xxxvii, 1-312, pls. 1-21.
- PATRULIUS, D.
1960 - *Le Mésozoïque du Massif Moesien dans le cadre de la Plaine Roumaine et de la Dobrogea centrale et méridionale*. Ann. Inst. Publ. Hung., vol. 49, no. 1, pp. 187-200.
- PATRULIUS, D., and PAUCA, M.
1960 - *Contribution à l'étude paléontologique des dépôts albiens de Giurgiu (Vallée de Danube)*. Acad. Rep. Pop. Romîne, Studii şi Cercet. Geol., vol. 5, no. 1, pp. 85-100.
- PATRULIUS, D., and TOCORJESCU, M.
[MS.] *Étude géologique et paléontologique du forage d'Atîrmati (Plaine Roumaine)*. To appear in Studii economice şi Tehnice, Comitet Geologic.
- PATRUT, O., POPESCU, M., TEODORESCU, C., and MOLNAR, M.
1961 - *A contribution to the knowledge of the Moesian platform geology - the stratigraphy*. Petrol şi Gaze, no. 11, pp. 481-493.
- POKORNÝ, V.
1958 - *Grundzüge der zoologischen mikropaläontologie*. Berlin: VEB Deutscher Verlag der Wissenschaften; vol. 1, pp. 1-582, text-figs. 1-549.
- POŻARYSKA, KRYSZYNA
1957 - *Lagenidae du Crétacé supérieur de Pologne*. Polska Akad. Nauk, Pal. Polonica, no. 8, pp. 1-190, pls. 1-27.
- REUSS, A. E.
1851 - *Die Foraminiferen und Entomostraceen des Kreidemergels von Lemberg*. Haidinger's Naturwiss. Abh., vol. 4 (1850), pt. 1, pp. 17-52, pls. 1-5.
1860 - *Die Foraminiferen der westphälischen Kreideformation*. K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 40, pp. 147-238, pls. 1-13.
1863a *Die Foraminiferen des norddeutschen Hils und Gault*. K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46 (1862), pt. 1, pp. 5-100, pls. 1-13.
1863b *Die Foraminiferen-Familie der Lagenideen*. K. Akad. Wiss. Wien, Math.-Naturw. Cl., Sitzber., vol. 46 (1862), pt. 1, pp. 308-342, pls. 1-7.
1874 - *Die Foraminiferen, Bryozoen und Ostracoden des Pläners*. Palaeontographica, vol. 20, pt. 2, pp. 73-157, pls. 20-28.
- SHERBORN, D.
1893 - *An index to the genera and species of the Foraminifera*. Smithsonian Inst., Misc. Coll., vol. 132 (1955 reprint), pp. 1-485.
- SHERLOCK, R. L.
1914 - *The foraminifera of the Speeton Clay of Yorkshire*. Geol. Mag., n. ser., dec. 6, vol. 1, pp. 216-222, 255-265, 289-296, pls. 18-19.
- SIGAL, J.
1952a *Les Foraminifères*. In PIVETEAU, J., *Traité de Paléontologie*, vol. 1, pp. 133-301.
1952b *Aperçu stratigraphique sur la micropaléontologie du Crétacé*. XIX Congr. Géol. Internat., Algérie, Monogr. Région., ser. 1, no. 26, pp. 1-47, text-figs. 1-46.
1956 - *Notes micropaléontologiques malgaches. 2. Microfaunes albiennes et cénomaniennes*. Soc. Géol. France, C. R., no. 12, pp. 210-214, text-figs. 1-3.
- STANCHEVA, M.
1959 - *Lenticulina and Robulus of the Cretaceous and Tertiary in northeastern Bulgaria*. Acad. Sci. Bulg., Geol. Inst., Trav. Géol. Bulg., Sér. Pal., vol. 1, pp. 115-227, pls. 1-16.
- SUBBOTINA, N. N.
1953 - *Fossil foraminifera of the U. S. S. R.; Globigerinidae, Hantkeninidae and Globorotaliidae*. Vses. Neft. Nauchno-Issled. Geol.-Razved. Inst. (VNIGRI), Trudy, n. ser., vypusk 76, pp. 1-294, pls. 1-15, 1, and 1-25.
- SZTEJN, JANINA
1957 - *Micropaleontological stratigraphy of the Lower Cretaceous in Central Poland*. Poland, Inst. Geol., Pr., vol. 22, pp. 1-263, pls. 1-16.
- TAPPAN, HELEN
1943 - *Foraminifera from the Duck Creek Formation of Oklahoma and Texas*. Jour. Pal., vol. 17, no. 5, pp. 476-517, pls. 77-83.
- VASILENKO, V. S.
1954 - *Fossil foraminifera of the U. S. S. R.; Anomaliniidae*. Vses. Neft. Nauchno-Issled. Geol.-Razved. Inst. (VNIGRI), Trudy, n. ser., vypusk 80, pp. 1-283, pls. 1-36.
- VOLOSHINOVA, N. A., and DAIN, L. G.
1952 - *Fossil foraminifera of the U. S. S. R.; Nonionidae, Cassidulinidae and Chilostomellidae*. Vses. Neft. Nauchno-Issled. Geol.-Razved. Inst. (VNIGRI), Trudy, n. ser., vypusk 63, pp. 1-150, pls. 1-9, 1-4, and 1-4.