

## LOWER APTIAN AGGLUTINATED FORAMINIFERA FROM THE SOUTHERN DOBROGEA AND SE PART OF THE MOESIAN PLATFORM

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**Abstract.** The paper presents a rich agglutinated foraminiferal fauna from the Bedoulian (Lower Aptian) deposits – isochronous with the *Palorbitolina lenticularis* level. Lithological, these deposits are represented by gray-sandy, softy marls that preserved excellent the micropaleontological content. The foraminiferal assemblage is rich in both agglutinated and calcareous benthic foraminifera, (planctonic ones are complete absent).

The present paper represents the study of the agglutinated fauna represented by: *Ammodiscus siliceus*, *Miliammina rude*, *Haplophragmoides concavus*, *Ammobaculites cf. subcretaceus*, *Flabellamina macfadieni*, *Triplasia georgsdorfensis*, *Acruliammina dacica*, *Placopsilina neocomiana*, *Haplophragmium aequalis*, *Nezzazata (?) perexigua n.sp.*, *Charentia cuvillieri*, *Mesoendothyra dobrogiaca*, *Spiroplectamina subcretacea*, *S. ammovitrea*, *S. bernardi*, *Patellovalvulina patrulusi*, *Bykoviella moesiana n.sp.*, *Triatxia tricarinata*, *Triatxia plummerae*, *Verneuilinoides pumilionis*, *Falsogaudryinella praemoesiana*, *F. neagui*, *Triatxia gaultina jucunda*, *Beloroussiella textilaroides*, *Gaudryina dacica*, *G. vetustissima*, *Verneuilina dobrogiaca*, *Arenobulimina acervata*, *A. melitae*, *Sabaudia minuta*, *S. briacensis*, *S. capitata*, *Pfenderina ammonioidea*, *Pseudomoruleplecta moesiana n.sp.*, *Histeramina n.g.*, *H. fetestensis n.sp.*, *H. altispira n.sp.*, *H. nitida n.sp.*

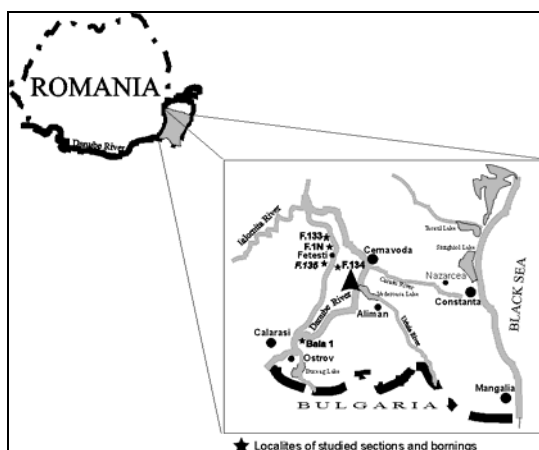
**Keywords:** Bedoulian, Lower Cretaceous, agglutinated foraminifera, Moesian Platform.

### INTRODUCTION

**Biostratigraphic consideration:** In the area delimited by the bank of the Danube River to the SW and by a line from Cernavoda Seimeni to Ion Corvin - Baneasa to the SW in Southern Dobrogea (Text-Fig.A) the Lower Aptian deposits at the *Palorbitolina lenticularis* level are represented by marine sediments.

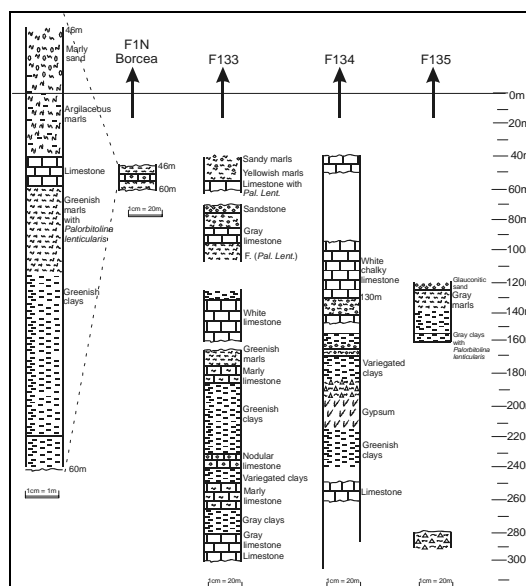
right bank of the Danube River (in the vicinity of the Dervent monastery). In all the above-mentioned outcrops *Palorbitolina lenticularis* is presented in an acme. Because of the limestone-facies the foraminiferal assemblages is near impossible to be separated, with few exceptions as Lipnitza outcrop. The assemblage of this outcrop is represented by: *Falsurgonina pileola* A. Arnaud-Vanneau, *Orbitolinopsis cuvillieri* Moullade, *O. kiliani*, *Cribellopsis neolongata*, together with *miliolids* (div.sp.), *Pfenderina ammonioidea*, *Barkerina*, *Cuneolina hensoni*, *Charentia cuvillieri*, *Patellina subcretacea*, *Neotrocholina acuta*.

Text Fig A



In this area, the dominant lithological facies is represented by white-limestones frequently with a lumachellic aspect, with: Sponges, Bivalves, Gastropods, Brachiopods, Bryozoa (outcrops from Baciului Creek, Adancata Creek, Lipnitza). A particular marly-limestones facies with a rich fossil fauna (brachiopods and bryozoa) –level with *Palorbitolina lenticularis*- outcrops at Canlia near the

Text-Fig.B



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In the Canlia outcrop *Palorbitolina lenticularis* is associated with a rich brachiopod population of *Gemarcula aurea* Elliot, *Tamarella tamarindus* (Sow), *Sellithyris* sp., cyclostomat-bryozoa, *Haplophragmium aequalis*, *Choffatella cruciense*.

In the outcrop from the Urluia Valley-Alimanu-brachiopods as *Sulcirhynchia romana* is associated with calcareous sponges, *Palorbitolina lenticularis* and a rich population of miliolids, *Pfenderina* and *Cuneolina*.

In the North extremity of this area at Seimeni, Lower Aptian is represented in the basal part by a series of sandstones or sandy-sandstones with *Palorbitolina lenticularis*, followed by a limestone-reefal-facies with pachyodonts and gastropods.

The ISPH drillings from Southern Dobrogea only the location from Oltina (near to Ostrov) near to the Bulgarian Boundary, on the right bank of the Danube River (Text-Fig.C) -**Bala I**- the Lower Aptian, lies on a lacustrine facies with *Atopochara trivolvus*, and is represented by marly-limestones or zoogenous limestones with white-marls intercalations extremely rich in foraminifera. The dominant population (acme) of the larger foraminifera is represented by *Palorbitolina lenticularis* in association with *Falsourgonina pileola*, *Orbitolinopsis cuvillieri*, *O. briacensis*, *O. kiliani*, *Cribelopsis neolongata* and an extremely rich assemblage with miliolids, *Pfenderina*, ataxophragmiids, *Trocholina*, *Neotrocholina* etc. (see Neagu, 1997). In the drillings of the ISPH settings in a straight line across the Ialomitza island from Cernavoda (on right bank to Fetesti; on the left bank of the Danube River) (Text-Fig.B) as location F.133, F.134, F.135, is possible to follow the lithofacial change from those of limestones with *Palorbitolina lenticularis* (typical from Southern Dobrogea, F.133, F.134) to those of soft marls or sandy-marls also with *Palorbitolina lenticularis* associated with a very well preserved and rich foraminiferal assemblages with agglutinated foraminifera and subordinated calcareous benthic ones.

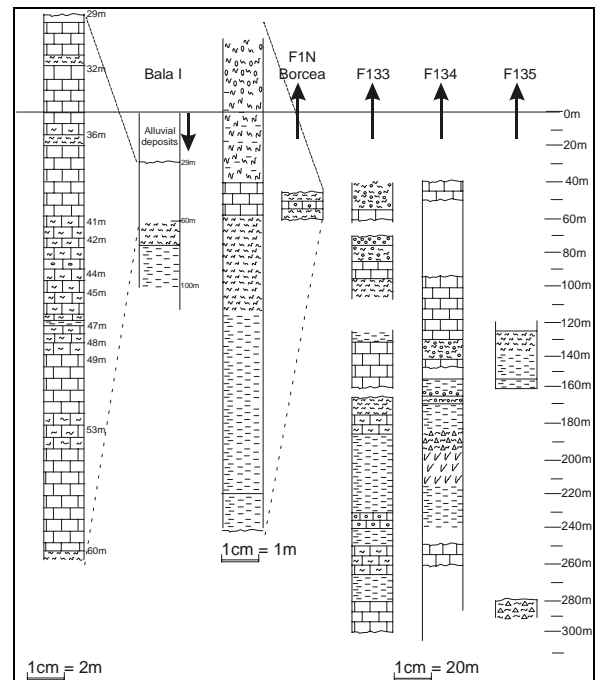
From F.135, the drilling pass between 127m and 169m deep through soft marls and sandy-soft marls rich in benthic agglutinated and calcareous foraminifera, dominated of course by *Palorbitolina lenticularis* associated with *Choffatella*. A few fragments of the core of this drilling offered us by Prof. Ion Bancila represents the material basis of the present paper.

More complete informations about the lithological aspect of the marly Lower Aptian deposits come from another drilling made by ICCCF, F.1 Borcea. Starting from 46m till the 60m deep the drilling goes through the Lower Aptian deposits.

The lithological succession starts in top, with fine sands followed by a complex series of marls, marly-sand or marly-sandstone, but unfortunately not so rich in foraminifera like those from F.135 Fetesti. And

here *Palorbitolina lenticularis* presents associated others agglutinated and calcareous species.

Text-Fig.C



From the paleontological point of view, the drilling F.135 Fetesti is the most important by its taxonomically variety and frequency of the agglutinated foraminifera.

From the biostratigraphical point of view the studied assemblages are located at the level of explosive development (acme) of the *Palorbitolina lenticularis* as macroforaminiferal marker. All the others larger foraminifera as *Falsourgonina*, *Orbitolinopsis*, *Cribelopsis* typical for the carbonatic facies are totally absent.

In the Southern Dobrogea area (as M. Chiriac demonstrated in 1961) the lower Bedoulian is missing. The marine deposits delivered very rare specimens of *Deshayesites* (*D. flexuosus*, *D. ramadanesis* M.Chiriac) together with *Palorbitolina lenticularis* (fide M. Chiriac 1981) which proves the middle Bedoulian age. This opinion is also confirmed by A. Arnaud-Vanneau et al (2000).

**Paleoecological consideration:** A parallel between the middle Bedoulian foraminiferal assemblage from the right side (right bank of the Danube River) and the left bank is very instructive from the paleoecological point of view. In the dominant carbonatic facies with marls or marly-limestones levels the foraminiferal assemblages presents two striking features:

- the large to very large sized specimens and
- the dominance of the agglutinated and porcelanous foraminifera and subordinated involutinids and nodosariids.

The assemblages in the same age, on the left

side of the Danube River, in a dominant marly or marly-sand facies the size of specimens is small to very small, the total absence of another larger foraminifera excepting *Palorbitolina lenticularis* and the increase of the frequency of nodosariids, the scarcity of involutinids till the absence.

The common feature of those two different assemblages is the total absence of the planctonic species. This is a conclusive evidence of the absence of the open sea influences.

With the same chronostratigraphical position (middle Bedoulian) the deposits from the Dambovicioara basin represent a typical marine open sea deposits (Neagu, 1975). The major feature of those deposits is the presence of agglutinated forams together with all kind of specimens from the calcareous benthic forams and the semisignificant presence of the common element of planctonic foraminifera. The typical character of those assemblages is however, the dominance of the nodosariid groups.

The common element of connection for all these three different lithofacies is the presence with an exceptional abundance of the *Palorbitolina lenticularis* population.

It is to be noted that *Palorbitolina lenticularis* is present also and in the flysch facies sediments of the Eastern Carpathian area. But in these deposits with a typical flysch structure (from the sedimentological point of view), *Palorbitolina lenticularis* appear in an allochthonous position (Comarnic beds, Teliu sandstone).

A paleogeographical distribution of *Palorbitolina lenticularis* occurrence shows conclusive. The extremely north limits of its presence, in the SE part of Europe is materialized by the Dambovicioara Basin (of course with an autochthonous populations associated with a very rich ammonites fauna). This observation connected to the references data take off the Mediterranean (southern) character of those populations of larger foraminifera. At the same stratigraphical level in the Boreal area this genus is totally absent. It becomes clear that the southern part of the present territory of Romania represent the extreme northern limit of the Mediterranean fauna. Of course there are and evident Boreal influences put in evidence by forams (Neagu 1975) and by nannoplankton (Melinte and Muttelrose (2001).

#### PALEONTOLOGICAL PART

Class FORAMINIFERA Lee, 1990

Ord. LITUOLIDA Lankaster, 1862

Superfamily AMMODISCACEA Reuss, 1862

Family AMMODISCIDAE Reuss, 1862

Genus ***Ammodiscus*** REUSS, 1862

*Ammodiscus siliceus* (TERQUEM), 1862 Pl.1, fig.1

*Involutina silicea* TERQUEM, 1862, p.450, pl.6, fig.11

*Ammodiscus siliceus* (TERQ.) Geroch, 1966, p.436, pl.8, fig.2, 3; Neagu, 1975, p.22, pl.1, fig.5-6, 14-24, 26-29, p.2, fig.15, 17-20, 22-29, pl.3, fig.1-5.

**Dimensions:** (figured specimens) large diameter: 0,27mm-0,35mm; small diameter 0,25mm-0,29mm.

**Remarks:** Siebold & Siebold, 1955 restudying the Gumbel's originals of the paper published in 1862, made the demonstration that *Spirillina tenuissima* Gumbel is a true *Spirillina* species. So, what was conferred to *Ammodiscus tenuissimus* Gumbel (including Neagu's 1975) must be reconsidered.

**Type specimens:** L.P.B.IV. 11514

**Occurrence:** ISPH Drilling F. 135 Fetesti -128m.

**Stratigraphical distribution:** Bedoulian

Genus ***Miliammina*** HERON ALLEN & EARLAND, 1930

*Miliammina rude* (NEAGU), 1986

Pl.1, figs.29-31, text-fig.1a-e

*Pseudomassilina* (?) *rude* NEAGU, 1986, p.335, pl.11, figs.1-26

**Dimensions:** figured specimens: length 0,44mm-0,32mm; thickness 0,30mm-0,19mm.

**Remarks:** In 1986 Neagu described from the Lower Aptian (Bedoulian) deposits from the drilling Bala I-Oltina, *Pseudomassilina*(?) *rude*. From the start the generic affiliation of this species was doubtful. Doing now the transversal sections on those specimens become evident that it does not belong to the miliolids (after the chambers disposition). There are only 5 chambers coiled on five plans without any miliolids structure. Wall is fine agglutinated with calcareous cement; circular aperture presents a short and simple tooth (distinctive characters of this species).

**Type specimens:** L.P.B.IV. 11515

**Occurrence:** ISPH drilling F.135 Fetesti - 127mm.

**Stratigraphical distribution:** Bedoulian.

Superfamily LITUOLACEA de Blainville, 1827

Family HAPLOPHRAGMOIDIIDAE Maync, 1952

Genus ***Haplophragmoides*** CUSHMAN, 1911

*Haplophragmoides concavus*

(CHAPMANN), 1892

Pl. 2, figs.19-22; pl.6, figs.5-6

*Trochammina concava* CHAPMAN, 1892, p.327, pl.6, fig.14

*Haplophragmoides concavus* (CHAPMANN) TAPPAN, H., 1943, p.481, pl.77, fig.7; BARTENSTEIN & BRAND, 1951, p.262, pl.1, fig.24-25; NEAGU, 1972, p.192, pl.2, fig.5-6; 1975, p.24, pl.12, fig.3-15.

**Dimensions:** small diameter 0,36mm-0,63mm; large diameter 0,41mm-0,77mm.

**Remarks:** In the major part of the studied specimens has a white color and dominant lateral flattened test. The wall presents an evidently spongy aspect (structure) and has siliceous cement. (It is

possible that these species belongs to a new species).

**Type specimens:** L.P.B.IV. 11516

**Occurrence:** ISPH drilling F.135 Fetesti -17mm, -138mm,

**Stratigraphical distribution:** Bedoulian

Subfamily AMMOMARGINULININAE  
Podobina, 1978

Genus **Ammobaculites** CUSHMAN, 1910

*Ammobaculites* cf. *A. subcretaceous*  
CUSHMAN & ALEXANDER, 1930  
Pl.1, fig. 39

**Dimensions:** length 0,96mm-1,20mm

**Remarks:** The specimens from the F. 135 Fetesti drilling correspond with those figured and described by Magnez, (1973) as *A. subcretaceous*, differing only by the indistinct planispiral early stage.

**Type specimens:** L.P.B.IV.11563

**Occurrence:** ISPH drilling F.135 Fetesti -138m.

**Stratigraphical distribution:** Bedoulian.

Genus **Sculptobaculites**  
LOEBLICH & TAPPAN, 1984  
*Sculptobaculites goodlandensis*  
(CUSHMAN & ALEXANDER), 1930  
Pl.1, figs.35-38; pl.6, figs.2-4

*Ammobaculites goodlandensis* CUSHMAN & ALEXANDER  
- BARTENSTEIN & BRAND, 1951, p.271, pl.3, fig.49

*Sculptobaculites goodlandensis* (CUSH. & ALEX.)  
LOEBLICH & TAPPAN, 1988, p.76, pl.60, fig.12-16

**Dimensions:** (figured specimens) length 1,10mm, coiled stage small diameter 0,46mm-0,75mm; large diameter 0,59mm-0,75mm.

**Type specimens:** L.P.B.IV. 11517

**Occurrence:** ISPH drilling F.135 Fetesti -138m.

**Stratigraphical distribution:** Bedoulian.

Subfamily FLABELLAMMININAE Podobina, 1978

Genus **Flabellamina** CUSHMAN, 1928

*Flabellamina macfadyeni*  
SAID & BASRAKAT, 1957  
Pl.4, fig.28

*Flabellamina macfadyeni* SAID & BARAKAT, 1957, p.41,  
pl.1, fig.3 a-b

*Flabellamina* cf. *macfadyeni* SAID & BARAKAT; A.  
ARNAUD-VANNEAU, 1980, p.485, pl.42, fig.8-10.

**Dimensions:** length 0,59mm, breadth 0,20mm

**Type specimens:** L.P.B.IV. 11518

**Occurrence:** F.1 Borcea -49- -54 m.

**Stratigraphical distribution:** Bedoulian.

Genus **Triplasia** REUSS, 1854  
*Triplasia georgsdorfensis*  
(BART. & BRAND), 1951  
Pl. 1, fig.33-34

*Tetraplasia georgsdorfensis* BART. & BRAND, 1949,

p.672, fig.9; 1951, p.275, pl.3, fig.70-71

*Triplasia georgsdorfensis* (BART. & BRAND), DIENI &  
MASSARI, 1966, p.97, pl.2, fig.1-7, pl.9, fig.13-16;  
NEAGU, 1975, p.25, pl.9, fig.21-14, 28-32, pl.110,  
fig.18.

**Dimensions:** (figured specimens) length 0,72mm; breadth 0,39mm

**Type specimens:** L.P.B.IV.11519

**Occurrence:** ISPH drilling F.135 Fetesti -138m

**Stratigraphical distribution:** Bedoulian

Subfamily LITUOLINAE de Blainville, 1927.

Genus **Acruliammina** LOEBLICH & TAPPAN, 1946

*Acruliammina dacica* NEAGU, 1975  
Pl.1, fig.31-31, pl.5, fig.33

*Acruliammina dacica* NEAGU, 1975, p.27, pl.7, fig.1-22,  
pl.109, fig.20

**Dimensions:** length 0,74mm

**Type specimens:** L.P.B.IV 11520,11521

**Occurrence:** ISPH drilling F.135 Fetesti -138m;  
F1. Borcea -49m

**Stratigraphical distribution:** Bedoulian

Genus **Placopsilina** d'ORBIGNY, 1850

*Placopsilina neocomiana*  
BART & BRAND, 1951  
Pl.1, fig.2; pl.6, fig.1

*Placopsilina neocomiana* BART & BRAND, 1951, p.280,  
pl.4, fig.100; NEAGU, 1975, p.27, pl.8, fig.10-27

**Dimensions:** small diameter 0,29mm-0,46mm;  
large diameter 0,31mm-0,62mm

**Type specimens:** L.P.B.IV. 11521

**Occurrence:** ISPH drilling F.135 Fetesti -138m

**Stratigraphical distribution:** Bedoulian.

Family AMMOBACULINIDAE Saidova, 1981

Subfamily AMMOBACULININAE Saidova, 1981

Genus **Haplophragmium** REUSS, 1860

*Haplophragmium aequalis* ROEMER, 1841  
Pl.5, fig.32

*Spirolina aequalis* ROEMER, 1841, p.98, pl.15, fig.27

*Haplophragmium* cf. *aequale* (?) ROEMER, A. AENAUD-  
VANNEAU, 1980, p.327, pl.40, fig.4

*Haplophragmium aequale* (E.A.ROEMER) LOBLICH &  
TAPPAN, 1988, p.84, pl.70, fig.7-13.

**Dimensions:** length 1m84mm, thickness 1,08  
(figured specimen)

**Remarks:** E. A. Roemer, 1841, p.98 described  
"Spirolina aequalis as: Walzenformige Theil des Gehauser mit nur wenigen aufsen gewobien und punctirten Kammern; der altere Theil des Gehause kaun etwas als jener. Hilsthon am Hilse" (imperfect planispiral coiled shell with few chambers and with slight dotted aspect; last chambers become progresively larger". Roemer's species is evidently different from those described by Reuss, 1860 under *Haplophragmium aequale* in the Chalk upper Cretaceous (Senonian) facies. In ours

opinion the specimens described by Roemer from Lower Cretaceous is clear different from those described by Reuss, 1860 which is a homonymous with Roemer's species and need a new name.

**Type specimens:** L.P.B.IV.11522,

**Occurrence:** drilling F. 1, Borcea

**Stratigraphical distribution:** Bedoulian

Family NEZZAZZATIDAE Hamaoui  
& Sant-Marc, 1970

Subfamily NEZZAZZATINAE Hamaoui &  
Sant-Marc, 1970

Genus **Nezzazzata** OMARA, 1956

*Nezzazzata (?) perexigua* n.sp.

Pl.4, fig.38-49; pl.7, fig.36

**Derivation of name:** latin *perexiguus-a-um* (= *exiguus-a-um*, small, reduced, per – (prefix) –how is possible, till); because of its reduced size and frequency.

**Type level:** Bedoulian (Lower Aptian, *Palorbitolina lenticularis* levels)

**Type locality:** Fetesti, drilling F 1-Borcea.

**Type species:** L.P.B.IV. holotype 11523, pl.4, fig.44-46); paratypes 11524 (pl.4, fig.38-43, 47-49).

Gracile test with a very small size, low trochospiral, round-lobated periphery with a low convex spiral side with 3-4 whorls; umbilical side pronounced convex (homonimous in morphology with *Gyroidinoides gracillima*), with 8-10 weekly globulous chambers and poor depressionary and arcuated sutures; aperture as a low simple slit at the base of the apertural face of the last chamber; thin and fine agglutinated wall with calcareous cement.

**Dimensions:** holotype diameter 0,17mm, thickness 0,10mm; paratypes (figured specimens) diameter 0,19mm-0,17mm; thickness 0,10mm-0,14mm.

**Remarks:** The test so small and gracil and also the impossibility to observe the structure of the aperture are the motives why we consider doubtful the generic affiliation to the specimens from the drilling F. 1 Borcea.

**Occurrence:** drilling F.1 Borcea-Fetesti

**Stratigraphical distribution:** Bedoulian (Lower Aptian)

Superfamily BIOKOVINACEA Gusik, 1977

Family CHARENTIIDAE Loeblich & Tappan, 1985

Genus **Charentia** NEUMANN, 1965

*Charentia cuvillieri* NEUMANN, 1965

Pl.2, fig.15-18; pl.6, figs.13-14

*Charentia cuvillieri* NEUMANN, A. ARNAUD-VANNEAU, 1980, p.353, pl.50, fig.5-7, 10-11

**Dimensions:** diameter 0,53mm, thickness 0,19mm (figured specimen)

**Type species:** L.P.B.IV.11525

**Occurrence:** ISPH drilling F.135 Fetesti –127, -138m, -159m.

**Stratigraphical distribution:** Bedoulian.

Superfamily LOFTUSIACEA Brady, 1884

Family MESOENDOTRHYRIDAE Voloshinova, 1958

Subfamily MESOENDOTHYRINAE Nanner, 1966

Genus **Mesoendothya** Dain, 1958

*Mesoendothya dobrogiaca* NEAGU, 1999

Pl.4, fig.24-27

*Mesoendothya dobrogiaca* NEAGU, 1999, p.292, pl.7, fig.48-56, pl.8, fig.1-54, pl.9, fig.5-7, text-fig.3a

**Dimensions:** diameter 0,19mm-0,21mm; thickness 0,10mm-0,12mm (figured specimens)

**Remarks:** Comparing with the type species original the material from the Bedoulian of Fetesti drilling F. 135 differs only by the very small size.

**Type species:** L.P.B.IV.11526

**Occurrence:** ISPH drilling F.135 (-127m, -138m); drilling F. 1 Borcea –51 -52 m.

**Stratigraphical distribution:** Bedoulian

Superfamily SPIROPLECTAMMINACEA

Cushman, 1927

Family SPIROPLECTAMMINIDAE

Cushman, 1927

Subfamily SPIROPLECTAMMININAE

Cushman, 1927

Genus **Spiroplectamina** CUSHMAN, 1927

*Spiroplectamina subcretacea*

(TAPPAN), 1943

Pl.1, fig.26-27; pl.6, figs.15-16

*Siphotextularia subcretacea* TAPPAN, 1943, p.486, pl.78, fig.11

*Spiroplectamina subcretacea* (TAPPAN), NEAGU, 1975, p.29, pl.11, fig.29-30, pl.109, fig.6-9.

**Dimensions:** length 0,7mm; breadth 0,58mm; thickness 0,17mm (figured specimen)

**Type species:** L.P.B.IV.11527.

**Occurrence:** ISPH drilling F.135 Fetesti –138m.

**Stratigraphical distribution:** Bedoulian.

*Spiroplectamina ammovitrea* TAPPAN, 1940

Pl.2, fig.1-2; pl.6, fig.27

*Spiroplectamina ammovitrea* TAPPAN, 1940, p.97, pl.14, fig.13; 1943, p.484, pl.27, fig.23 a-c; NEAGU, 1975, p.29, pl.11, fig.2-9.

**Dimensions:** length 0,40 mm -0,48mm; thickness 0,12mm-0,21mm (figured specimens)

**Type species:** L.P.B.IV.11528

**Occurrence:** ISPH drilling F.135 Fetesti –159m

**Stratigraphical distribution:** Bedoulian

*Spiroplectamina bernardi*

(CHEVALIER), 1961

Pl.2, fig.3-4

*Bolivinopsis bernardi* (CHEVALIER), A. ARNAUD-

VANNEAU, 1980, p.387, pl.5, fig.1-6

*Spiroplectamina marginotruncata* NEAGU, 1975, p.30, pl.11, fig.10-28.

**Dimensions:** length 0,48mm; breadth 0,19mm; thickness 0,12mm (figured specimen)

**Type species:** L.P.B.IV.11529

**Occurrence:** ISPH drilling F.135 Fetesti, -159m.

**Stratigraphical distribution:** Bedoulian.

Superfamily TROCHAMMINACEA Schwager, 1877

Family TROCHAMMINIDAE Schwager, 1877

Subfamily TROCHAMMININAE Schwager, 1877

Genus *Patellovalvulina* NEAGU, 1975

*Patellovalvulina patrulei* NEAGU, 1975

Pl.3, fig.24-29

*Patellovalvulina patrulei* NEAGU, 1975, p.44, pl.16, fig.1-14, pl.17, fig.1-13, pl.26, fig.1-2, text-fig.10, A. ARNAUD-VANNEAU, 1980, p.452, pl.54, fig.6, text-fig.168.

**Dimensions:** (figured specimens); diameter 0,26mm-0,36mm; height 0,07mm-0,21mm.

**Remarks:** The compact wall structure of the test represents the distinctive character of this genus and species. Morphologically this genus is homeomorphic with *Histerammia* (n.g.) but the last one have a canaliculated wall structure.

**Type species:** L.P.B.IV.11530, 11531

**Occurrence:** ISPH drilling F.135 Fetesti (-127m, -138m) F.1 Borcea -49, -49,70m.

**Stratigraphical distribution:** Bedoulian.

Family ADERCOTRYNIDAE

Bronimann & Whittaker, 1988

Genus *Bykoviella* Korcheagin, 1964

*Bykoviella moesiana* n.sp.

Pl.4, fig. 30 -37; pl.6, figs.7-8; pl.7, fig.39

**Derivation of name:** from Moesian Platform, structural name of the area in which is located the drillings F.135 Fetesti and F.1 Borcea.

**Type level:** Bedoulian - *Palorbitolina lenticularis* level (acme zone);

**Type locality:** ISPH drilling F.135, Fetesti -138m.

**Type specimens:** L.P.B.IV. holotype 11532 (pl.4, fig.34-35); paratypes 11533 (pl.4, fig.30-33, 36-37)

**Description:** Free moderate agglutinated test with very low trochospiral coiling; with 4-5 chambers in the last whorl, depressionary feeble arcuated sutures; last chamber with a tendency to become uncoiled; areal aperture is poor delimited with an oval or lobated aspect; wall of the test thin and compact is made by large till moderate quartzum fragments and a reduce cement amount.

**Dimensions:** holotype: small diameter 0,29mm, large diameter 0,39mm; thickness 0,21mm; paratypes: small diameter 0,29mm-0,39mm; large diameter 0,34mm-0,40mm; thickness 0,24mm-0,29mm.

**Remarks:** Comparing with the type species *B. chinaria* Korchagin, 1964 (fide Loeblich & Tappan, 1988), *B. moesiana* differs by the aspect of the test, globulous aspect of the chambers and the absence of an apertural neck.

**Occurrence:** ISPH drilling F.135, Fetesti -138m.

**Stratigraphical distribution:** Bedoulian.

Superfamily VERNEULINACEA Cushman, 1911

Family TRITAXIIDAE Plotnikova, 1979

Genus *Tritaxia* REUSS, 1860

*Tritaxia tricaninata* (REUSS), 1845

Pl.1, fig.16-17

*Textularia tricaninata* REUSS, 1845, p.39, pl.8, fig.6.

*Tritaxia tricaninata* (REUSS), REUSS, 1860, p.228, pl.12, fig.2; CUSHMAN, 1937, p.25, pl.3, fig.16-25; NEAGU, 1965, p.6, pl.1, fig.7-8, 17-18; 1975, p.35, pl.15, fig.19, 21-24, pl.26, fig.3-6.

**Dimensions:** (figured specimen) length 0,48mm; thickness 0,34mm

**Type specimens:** L.P.B.IV.11535

**Occurrence:** ISPH drilling F.135 Fetesti -138m

**Stratigraphical distribution:** Bedoulian.

*Tritaxia plummerae* CUSHMAN, 1937

Pl.1, fig.14-15

*Tritaxia plummerae* CUSHMAN, 1937, p.24, pl.3, fig.12-15; NEAGU, 1964, p.5, pl.1, fig.19; 1972, p.200, pl.2, fig.28.

**Dimensions:** (figured specimen) length 0,55mm; breadth 0,31mm.

**Type species:** L.P.B.IV.11534

**Occurrence:** ISPH drilling F.135 Fetesti -138m.

**Stratigraphical distribution:** Bedoulian

*Tritaxia gaultina jucunda*

(A. ARNAUD-VANNEAU), 1980

Pl.1, fig.12, pl.5, fig.28-31

*Martinotiella jucunda* A. ARNAUD-VANNEAU, 1980, p.433, pl.55, fig.4-6, text-fig.162-163.

**Dimensions:** (figured specimens) length 0,48mm-0,60mm

**Remarks:** After Loeblich & Tappan, 1988, genus *Martinotiella* have a canaliculated wall structure. The homeomorphic Lower Cretaceous species *Tritaxia gaultina* (Morozova) from Albian - Cenomanian have a compact wall structure. To A. Arnaud-Vanneau's species is easy to observe from the thin sections (pl.84, fig.1-4) the wall is compact. Its mean that this species belongs to *Tritaxia*. All the morphological characters correspond excepting the structure of the aperture, to the *Tritaxia gaultina*. The aspect of the aperture is the only one distinctive character for this subspecies.

**Type specimens:** L.P.B.IV.11534

**Occurrence:** ISPH drilling F.135 Fetesti -138m

**Stratigraphical distribution:** Bedoulian.

Family VERNEULINIDAE Cushman, 1911

Subfamily VERNEULININAE Suleymanov, 1973

Genus *Falsogaudryinella* BARTENSTEIN, 1977

*Falsogaudryinella praemoesiana*

KAMINSKI, NEAGU, PLATON, 1995

Pl.4, fig.29

*Falsogaudryinella praemoesiana* KAMINSKI, NEAGU,  
PLATON, 1995, p.148, pl.1, fig.12-17, 24-29, pl.5, fig.8.

**Dimensions:** (figured specimen) length 0,34mm;  
thickness 0,19mm

**Type species:** L.P.B.IV.11538.

**Occurrence:** ISPH drilling F.135 Fetesti –138m.

**Stratigraphical distribution:** Bedoulian.

*Falsogaudryinella neagui*

BARTENSTEIN, 1981

Pl.1, fig.13

*Uvigerinammia hannoverans tealbyensis* BARTENSTEIN,  
NEAGU, 1975, p.36, pl.18, fig.1-23

*Uvigerinammia hanoverana hanoverana* BARTENSTEIN,  
NEAGU, 1975, p.36, pl.18, fig.32-41

*Falsogaudryinella neagu* BARTENSTEIN, 1981, p.319,  
fig.3.8, 3.11; KAMINSKI, NEAGU, PLATON, 1995,  
p.148, pl.1, fig.18-23, pl.4, fig.4-5.

**Dimensions:** (figured specimen) length 0,31mm;  
thickness 0,17mm.

**Type specimens:** L.P.B.IV.11539

**Occurrence:** ISPH drilling F.135 Fetesti –138m

**Stratigraphical distribution:** Bedoulian

Genus *Verneulinoides*

LOEBLICH & TAPPAN, 1949

*Verneulinoides pumilionis* NEAGU, 1997

Pl.1, fig.3

*Verneulinoides pumilionis* NEAGU, 1997, p.313, fig.5. (19-  
20)

**Dimensions:** (figured specimen) length 0,24mm;  
thickness 0,17mm

**Type specimens:** L.P.B.IV.11540,

**Occurrence:** ISPH drilling F.135 Fetesti, -127m, -  
138m,.

**Stratigraphical distribution:** Bedoulian.

Subfamily SPIROPLECTINATININAE

Cushman, 1928.

Genus *Belorusiella* AKINETS, 1958

*Belorusiella textilaroides* (REUSS), 1862

Pl.1, fig.18-25, text-fig.4; pl.6, fig.9

*Bolivina textilaroidea* REUSS, 1862, p.81, pl.10, fig.1

*Paleogaudryina textilaroides* (REUSS), NEAGU, 1972,  
p.196, pl.1, fig.40; 1975, p.36, pl.15, fig.10-18, pl.109,  
fig.16-19

*Belorusiella textilaroides* (REUSS), A. ARNAUD-  
VANNEAU, 1980, p.421, pl.6, fig.12-14, text-fig.155-  
156.

**Dimensions:** (figured specimens) length  
0,34mm-0,46mm; breadth 0,17mm-0,17mm;

thickness 0,10mm-0,12mm.

**Remarks:** The basal aperture of this species  
presents an apertural lip and also a typical infold as  
a semi-fanel (text-fig.1/4) which is a distinctive  
character of the genus.

**Type species:** L.P.B.IV. 11541,

**Occurrence:** ISPH drilling F.135 Fetesti –127m, -  
138m, -159m.

**Stratigraphical distribution:** Bedoulian.

Subfamily VERNEULININAE Cushman, 1911

Genus *Gaudryina* d'ORBIGNY, 1839

*Gaudryina dacica* NEAGU, 1975

Pl.1, fig.9; pl.6, figs.25-26

*Gaudryina dacica* NEAGU, 1975, p.33, pl.26, fig.21-28,  
pl.27, fig.1-9, pl.28, fig.1-15, pl.29, fig.1-2; 1997, p.314,  
fig.1 (42-53)

**Dimensions:** (figured specimen) length 0,39mm,  
breadth 0,24mm; thickness 0,17mm.

**Type specimens:** L.P.B.IV.11542

**Occurrence:** ISPH drilling F.135 Fetesti –127m, -  
138m, -159m; F 1 Borcea –54 -54,20m

**Stratigraphical distribution:** Bedoulian.

*Gaudryina vetustissima*

BARTENSTEIN & BRAND, 1951

Pl.2, fig.5-14; pl.6, figs.10-11, 23-24

*Gaudryina vetustissima* BART. & BRAND, 1951, p.485,  
pl.12A, fig.335

**Dimensions:** length 0,24mm-0,69mm; thickness  
0,17mm-0,17mm (figured specimens)

**Remarks:** By the aspect of the apertural face and  
the aperture, ours specimens differs from  
Bartenstein & Brand's species; instead of a typical  
textularoid aperture, ours materials presents an  
elongated aspect of the aperture (a virgular outline).  
The early triserial stage followed by a biserial one  
proof the generic appartenance.

**Type specimens:** L.P.B.IV. 11544

**Occurrence:** ISPH drilling F.135 Fetesti –127m, -  
138m,

**Stratigraphical distribution:** Bedoulian.

Genus *Verneulina* d'ORBIGNY, 1831

*Verneulina dobrogiaca* NEAGU, 1997

Pl.1, fig. 8, 11; pl.6, figs.21-22; pl.7, figs.28-29

*Verneulina dobrogiaca* NEAGU, 1997, p.314, pl.3, fig.26-  
42, pl.5, fig.1-8.

**Dimensions:** length 0,31mm; thickness 0,10mm-  
0,12mm (figured specimens),

**Type specimens:** L.P.B.IV.11545

**Occurrence:** ISPH drilling F.135, -127m, -138m

**Stratigraphical distribution:** Bedoulian

Superfamily ATAXOPHRAGMIACEA,

Schwager 1877

Family ATAXOPHRAGMIIDAE Schwager, 1877  
 Subfamily ATAXOPHRAGMIINAE Schwager, 1877  
 Genus *Arenobulimina* CUSHMAN, 1927  
*Arenobulimina acervata* NEAGU, 1997  
 Pl.1, fig.4-6

*Arenobulimina acervata* NEAGU, 1997, p.319, fig 2, (27-34), fig.7 (1-17).

**Dimensions:** length 0,24mm-0,34mm; thickness 0,17mm-0,21mm

Type specimens:L.P.B.IV. 11546

**Occurrence:** ISPH drilling F.135 Fetesti –138m

**Stratigraphical distribution:** Bedoulian.

*Arenobulimina melitae* KOVARCHEVA, 1964  
 Pl.1, fig.7

*Arenobulimina melitae* KOVATCHEVA, 1969, p.37, pl.1, fig.1-3; BARTENSTEIN, BETTENSTAEDT, KOVATCHEVA, 1971, p.133, pl.1, fig.9-11; NEAGU, 1997, p.314, fig.2 (52-55)

*Eggerellina melitae* (KOVATCHEVA), NEAGU, 1975, p.41, pl.23, fig.1-24, pl.24, fig.1-37.

**Dimensions:** height 0,17mm; thickness 0,24mm (figured specimen)

**Type specimen:** L.P.B.IV.11547

**Occurrence:** drilling F.1 Borcea –49m.

**Stratigraphical distribution:** Bedoulian

Family CUNEOLINIDAE Saidova, 1988  
 Subfamily SABAUDIINAE Bronnimann,  
 Decrouez, Zaninetti, 1993

Genus *Sabaudia*

CHAROLAIS- BRONNIMANN, 1965

*Sabaudia minuta* (HOFKER jr.), 1965

Pl.3, fig.1-6, 9-11, 18-19; pl.7, figs.30-35, 37

**Dimensions:** (figured specimens) height 0,12mm- 0,21mm; diameter 0,21mm-0,24 mm (F.135 Fetesti); height 0,14mm-0,24mm; diameter 0,21mm –0,31mm (F.1 Borcea)

**Remarks:** In the sandy-marls sediments of the cores of F.135 Fetesti this species have a good frequency, with very well preserved specimens but with a small size. The embryonic 2-3 chambers are well preserved. By its conical aspect and the size this species differs from *S. briacensis* A. Arnaud Vanneau.

**Type specimens:** L.P.B.IV. 11548

**Occurrence:** ISPH drilling F.135, -127m, -138m, -159m; F.133 Balta –44m; F.1 Borcea – 49 –49,90m.

**Stratigraphical distribution:** Bedoulian (*Palorbitolina lenticularis* acme zone)

*Sabaudia briacensis*  
 A. ARNAUD-VANNEAU, 1980  
 Pl.3, fig.7-8, 12-17; pl.7, figs.40-43

*Sabaudia briacensis* A. ARNAUD-VANNEAU, 1980, p.527, pl.8, fig.17-18, text-fig.192, 193, 194.

**Dimensions:** (figured specimens) height

0,12mm-0,26mm; diameter 0,31mm-0,36mm.

**Remarks:** This species differs from *S. minuta*, as A. Arnaud-Vanneau demonstrated by its evasive-conical aspect of the last part of the test. The major aperture is typical textularoid and interio-marginal; the inner of the biserial chambers divided by major less complete radial septula.

**Type specimens:** L.P.B.IV.11548

**Occurrence:** ISPH drilling F.135 Fetesti –127m, -138m, -159m. F.133 Balta –44m; F.1 Borcea –49 -49,90m.

**Stratigraphical distribution:** Bedoulian (*Palorbitolina lenticularis* acme zone)

*Sabaudia capitata*  
 A. ARNAUD-VANNEAU, 1980  
 Pl.3, fig.20-23

*Sabaudia capitata* A. ARNAUD-VANNEAU, 1980, p.532, pl.51, fig.8-10, text-fig.192, 194, 195, 196.

**Dimensions:** (figured specimens) height 0,19mm-0,39mm; small diameter 0,26mm-0,29mm; large diameter 0,31mm-0,36mm.

**Remarks:** By its typical textularoid aspect of the test; perpendicular feeble flattened on the plan of biseriality-acquired an oval aspect of the apertural face, this species differs by the others mentioned species.

**Type specimens:** L.P.B.IV.11552

**Occurrence:** ISPH drilling F.135 Fetesti –127m, -138m, -159m.

**Stratigraphical distribution:** Bedoulian (*Palorbitolina lenticularis* acme zone)

Family PFENDERINIDAE Smouth & Sugden, 1962  
 Subfamily PFENDERININAE  
 Smouth & Sagden, 1962

Genus *Pfenderina* HENSON, 1948

*Pfenderina ammonoidea* NEAGU, 1979

Pl.2, fig.23-28

*Pfenderina ammonoidea* NEAGU, 1979, p.484, pl.2, fig.1-3, pl.4, fig.8-9, text-fig.1 (1-9)

**Dimensions:** (figured specimens) diameter 0,29mm-0,39mm; thickness 0,10mm-0,12mm.

**Remarks:** The only difference of those specimens from the type species is the so small size.

**Type specimens:** L.P.B.IV 11553

**Occurrence:** ISPH drilling F.135 Fetesti –138m, -159m

*Pfenderina globosa* FOURY, 1966

*Pfenderina globosa* FOURY, NEAGU, 1979, p.483, pl.1, fig.12-14, pl.4, fig.1-2.

**Dimensions:** height 0,24mm; thickness 0,17mm; diameter 0,26mm-0,48mm.

**Type specimens:** L.P.B.IV.11562

**Occurrence:** ISPH drilling F.135 Fetesti –138m

**Stratigraphical distribution:** Bedoulian



Ord. TEXTULARIIDA Lanlaster, 1885  
 Superfamily TEXTULARIACEA Ehrenberg, 1838  
 Family EGGERELLIDAE Cushman, 1937  
 Subfamily DOROTHIINAE Balakhmatova, 1972  
 Genus *Pseudomorulepecta*  
 NEAGU & NEAGU, 1995  
*Pseudomorulepecta moesiana* n.sp.  
 Pl.2, fig.29-39, text-fig.2-a-f; pl.6, figs.17-20

**Derivation of name:** geographic name – Moesia.

**Type level:** Bedoulian (*Palorbitolina lenticularis* acme zone)

**Type locality:** ISPH drilling F.135 Fetesti, -127m, -138m, F.133 Balta –44m

**Type specimens:** holotype L.P.B.IV.11554 (pl.2, fig.29-29-a); paratypes: L.P.B.IV.1155-11556 (pl.2, fig.30-39)

**Description:** Small test with a typical stick aspect (bacilar aspect); early stage clear trochospiral with a high trochospiral whorl is going gradually to the biserial disposition of the chambers feebly globulous in aspect and depressionary sutures; wall very thin and fine agglutinated; aperture interiomarginal at the base of the last chamber with a low textularoid aspect.

**Dimensions:** holotype length 0,39mm; thickness 0,10mm; paratypes (figured) length 0,21mm-0,34mm; thickness 0,10mm

**Remarks:** By the general aspect of the test and its reduced dimensions having a large development of the early trochospiral stage (till 1/3 part of the total length of the test) this species is very well delimited.

**Occurrence:** ISPH drilling F 135, -127m, -138m, F.133 Balta –44m.

**Stratigraphical distribution:** Bedoulian (*Palorbitolina lenticularis* acme zone),

Family VALVULAMMINIDAE  
 Loeblich & Tappan, 1986  
 Genus *Histeramma* n.g.

**Type species:** *Histeramma fetestensis* n.sp.

**Derivation of name:** from Hister-Histri name of the Danube River in the Ovidiu's writings.

**Type level:** Bedoulian (Lower Aptian)

**Type locality:** ISPH drilling F.135 Fetesti.

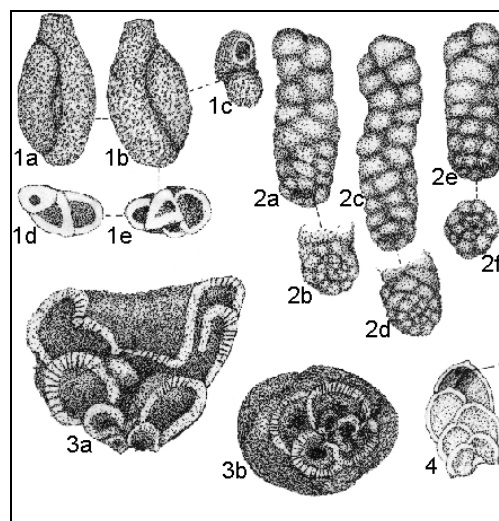
**Description:** Free trochospiral test with a variability of the whorls from a low (near to planispiral) one to a high to acute high one; 3-4 chambers in the last whorl; umbilical face concave feeble to accentuated depressionary and smooth; spiral side with 2-4 whorls and sooth to moderate rough agglutinated aspect; arcuate and depressionary sutures; interiomarginal aperture with an almost central umbilical position and with valvular lip (variable in dimensions); wall structure is typical large canaliculated.

**Remarks:** The wall canaliculated structure and the interiomarginal-umbilical aperture represent the distinctive characters of the genus in rapport with its homeomorph *Valvulammina*.

*Histeramma fetestensis* n.sp.

Pl.3, fig.30-43; pl.4, fig.1-23; pl.5, fig.6-8; text-figure 3a; pl.7, figs.44-50

**Text-Figs.1-4**



**Derivation of name:** geographic (locality Fetesti) where is located the drilling F.135.

**Type level:** Bedoulian (Lower Aptian) (*Palorbitolina lenticularis* acme zone)

**Type locality:** ISPH. Drilling F.135 Fetesti

**Type specimens:** holotype L.P.B.IV 11557 (pl.3, fig.38-41); paratypes: L.P.B.IV.11558 (pl.3, fig.30-37, pl.4, fig.1-23, pl.5, fig.6-8).

**Description:** Test free typical large trochospiral with 3-4 chambers in the last whorl; spiral side rough-agglutinated; umbilical side concave-depressionary and smooth; arcuate sutures and feebly depressionary; umbilical basal aperture as a high slit, presents an upper lip similar to a valvular tooth; wall of the test thick and large canaliculated.

**Dimensions:** holotype height 0,29mm; small diameter 0,39mm, large diameter 0,46mm; paratypes (figured specimens) height 0,12mm-0,26mm; 0,36mm; small diameter 0,19mm, 0,29mm, 0,48mm, 0,58mm; large diameter 0,26mm-0,36mm-0,55mm, 0,65mm.

**Remarks:** From *H. altispira*, this species differs by the aspect of the test and a low trochospiral whorl; from *H. nitida* differs by its rough aspect of the spiral side.

**Occurrence:** ISPH drilling F.135 Fetesti –127m, -138m.

**Stratigraphical distribution:** Bedoulian (*Palorbitolina lenticularis* level).

*Histeramma altispira* n.sp.

Pl.2, fig.40-50; pl.5, figs.1-5; text-fig. 3b; pl.7, figs.38, 53-54

**Derivation of name:** latin *altus-a-um*=high and *spira-ae* whorl (from the aspect of the test)

**Type level:** Bedoulian (Lower Aptian), *Palorbitolina lenticularis* level.

**Type locality:** ISPH. drilling F.135 Fetesti – 127m, -138m

**Type specimens:** holotype L.P.B.IV. 11559 (pl.2,fig.46-48); paratypes L.P.B.IV.11560 (pl.2, fig.40-45, 49-50,pl.5, fig.1-5)

**Description:** Free high-trochospiral test with 3-4 globulous chambers per whorl on the spiral side; depressionary arcuated sutures; apertural face of the last chamber concave-depressionary with the umbilical–basal aperture as a slit protected by a valvular large lip; wall of the test moderate agglutinated and with a large canaliculated structure.

**Dimensions:** holotype height 0,26mm; small diameter 0,24mm; large diameter 0,24mm; paratypes: height 0,26mm- 0,40mm; small diameter 0,24mm-0,31mm; large diameter 0, 24mm-0,31mm

**Remarks:** By its typical canaliculated wall structure this species differs clear from its homeomorph *Arenobulimina*.

**Occurrence:** ISPH drilling F.135 Fetesti –127m, -138m

**Stratigraphical distribution:** Bedoulian

*Histerammia nitida* n.sp.

Pl.4, fig.1-7, pl.5, fig.9-27

**Derivation of name:** latin *nitidus-a-um* = smooth (from the aspect of the spiral side of the test)

**Type level:** Bedoulian (Lower Aptian), *Palorbitolina lenticularis* level

**Type locality:** ISPH drilling F.135 Fetesti –138m, -159m, -165m

**Type specimens:** holotype L.P.B.IV. 11561 (pl.5, fig.11-13); paratypes: 11562 (pl.4, fig.1-7, pl.5, fig.9-10, 14-27)

**Description:** Free trochospiral test, typical with a conic aspect; spiral side with 3-4 whorls and smooth aspect; chambers with large arcuated almost smooth sutures; umbilical side concave with last 3-4 smooth chambers; umbilical aperture with an arcuate-virgulate aspect and a short umbilical valvular lip; wall with a large typical canaliculate structure.

**Dimensions:** holotype height 0,29mm; small diameter 0,36mm; large diameter 0,40mm; paratypes: height 0,19mm-0,31mm; small diameter 0,26mm- 0,31mm; large diameter 0,29mm-040mm.

**Remarks:** from *H. fetestensi* this species differs by its typical conical aspect and smooth aspect of the spiral side also and by the umbilical aspect of the last chambers.

**Occurrence:** ISPH drilling F.135 Fetesti –38m, -159m, -165m

**Stratigraphical distribution:** Bedoulian.

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\* All figures are camera lucida drawings by Theodor NEAGU.

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\* All figures are camera lucida drawings by Theodor NEAGU.

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\* All figures are camera lucida drawings by Theodor NEAGU.

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\* All figures are camera lucida drawings by Theodor NEAGU.

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