NEW AND POORLY KNOWN GASTROPOD TAXA FROM THE VALANGINIAN DEPOSITS OF SOUTH DOBROGEA (POARTA ALBĂ – NĂVODARI SAILING CHANNEL)

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Abstract. In the Valanginian deposits, outcropping as tectonically isolated blocks at the intersection between the Capidava - Ovidiu Fault and the Poarta Alba - Năvodari sailing channel, a rich shelf fauna was found, allowing to describe 23 genera (among which 2 new for science) and 34 species (14 new) only within the order Murchisoniata. There are present 6 superfamilies (Tubiferacea, Neritacea, Neritellacea, Littoracea, Procerithiacea and Pseudomelancoides) and 12 families. These murchisoniata are reported for the first time from South Dobrogea, and in most cases they represent the first occurrences in Romania, too.

Keywords: South Dobrogea, Poarta Alba - Năvodari sailing channel, Valanginian, Murchisoniata.

The fossiliferous site that provided the material discussed in the present paper, recently declared a natural monument, lies along the Poarta Alba - Năvodari sailing channel, where it is intersected by the Capidava-Ovidiu Fault. The site is easily accessible from both Cernavoda and Constanta, on the road placed on the southern side of the channel; it is on the western extremity of an artificial canyon cut into Jurassic limestones.

During the excavation of the channel, the NW-SE trending fault system, known simply as the Capidava-Ovidiu Fault, was intersected. This fault system, interpreted as a crustal one marks the contact of two sub-units of the Moesian Platform, Central and South Dobrogea, respectively (Fig. 1). The Valanginian deposits, restricted to a small area (Fig. 1) appear as a tectonic block squeezed between upper Jurassic and upper Barremian limestones, both of them breccified.

Figure 1 - Location of the new fossiliferous site (Poarta Alba) (After Avram et al., in press). The sketch shows the sudic slope of the Poarta Alba - Năvodari sailing channel, exposing the following deposits: 1 - upper Jurassic; 2 - Valanginian (fossiliferous calcirudites and calcarenites); 3 - upper Barremian-lower Aptian; 4 - middle-upper Aptian; 5 - upper Maastrichtian; 6 - upper Eocene; 7 - Eocene. F6 marks the exact position of the fossiliferous site; A - protection wall.

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These limestone deposits were sub-aerially exposed and modelled, before being covered by middle-upper Aptian limestones and marls. On the superior part of the channel borders, some small patches of Eocene deposits were also identified.

The actual tectonic framework is the result of several different tectogenetic phases, including the Neo-chimeric, Mid-cretaceous and Laramide ones.

A protection wall was built to reduce the fall-out of the rock fragments and infilling of the channel (Fig. 1A); this wall prevents the destruction of the especially fossiliferous Valanginian deposits with corals, algae, bryozoans, worms, pecleypods, gastropods among other groups of organisms. These fossils are exceptionally preserved and thus susceptible of detailed paleontological scrutiny.

The Valanginian deposits are represented by calcilutitic and calcarenitic limestones and belong to the Cernavoda Formation (defined by Neagu & Dragstan, 1984, emended by Avram et al., 1988, finally settled by Dragstan et al., 1998), and more closely to the Alimanu Member of the above-named formation (Avram et al., 1988). The upper Berriasian –Valanginian age of the Alimanu Member of the Cernavoda Formation was established based on foraminiferal (Neagu, 1984), ammonite (Avram et al., 1988) and nannoplancton (Melinte, in Avram et al., 1993) assemblages.

The site can be placed relatively easily into the general biostratigraphic – sedimentologic and tectonic framework of South Dobrogea, based on figures no. 21 (p. 50), 26 (p. 60) and 29 (p. 83), respectively, from the monograph “Jurassic and Cretaceous of Central and South Dobrogea” by Dragstan et al. (1998). Moreover, the gastropod assemblages described previously (Avram et al., in press), together with the representatives of the Order Murchisoniata (to be described in the present paper; see fig. 2 for the morphological details cited in the text) bring new arguments for establishing the depositional settings of these deposits from the northern sector of South Dobrogea. The gastropod assemblages indicate a middle-late Valangian age for the studied deposits; there are no indications for supporting the presence of the Berriasian as well. The diversity recorded in the lumen shape among the two new genera, nine new species and the six genera reported for the first time from the Valanginian of Dobrogea is shown in Fig. 3. Reassignment of the previously known nerineid taxa to the newly erected genera (Coquandaelia n. g. and Roumaniella n. g.) is summarized in Figs. 4 and 5, respectively. The genus Adaptyxus of Kollmann & Peza (1997a) seems to represent an intermediate morphology between Roumaniella (Valanginian – Hauterivian) and Plesioplocus (with the oldest species, P. sinaticus (Avar) reported from the Lower Cenomanian), based on the overall shape of the lumen, as well as specific features of it such as the shape of the parietal fold, or occurrence of an incipient second columnar fold.

The depositional environment was represented by a peritidal – lagunar one, in which the banks build up of oostreids, algae, as well as pecleypod, gastropod and worm shells led to a restrictive water circulation. Nearby the protective banks lived the paleocommunity made up of solitary corals, bottom-dwelling or burrowing gastropods (harpagoesids, naticids), as well as nerineids, either vague (Eumerineae, Archimedeae, Dipyxys, Umbonea, Nerinella, Valanginella, Endiachellus) or sessile, fixed to the back-reflanks of the banks (Etallonlea, Roumaniella, Coquandaelia, Salinea, Sculpturea, Pterygmatis, Trochoptygmatis, Endiaplocus). Similar depositional environments are known from other areas of the Alimanu Member (Fig. 1).

The Poarta Alba fossiliferous site represents the northern-most extension of the Valanginian marine deposits known to date.

Ord. Murchisoniata Pochel. 1965
Fam. Ceriellidae Wenz emend. 1938
Fibula Piette 1959 (= Fibulea Wenz 1938)
Fibula subplanata Pchel. 1965
Pl. I, fig. 1-6

Fibula subplanata Pchelintsev 1965, p.10, pl. I, fig. 8

**Diagnosis:** Moderate sized, turriculate - conical shells, with apical angle (AA) = 120°. Flattened whorls, with height slightly less than half the width and flat sides. Oval aperture; short siphyo. Compact columella, no internal folds.

**Description:** The specimens from South Dobrogea have millimeter-sized shells (2-3 mm high), with apical angles slightly wider than in the holotype (20° - 25° versus 12°). The whorls (9-10) are flattened, with their height equaling half of their width. The sides are flat or slightly concave. The external ornamentation is reduced to the growth lines and occasionally visible growth folds. The walls of the shell are thick.

The aperture is obliquely highly oval, narrow and rounded posteriorly. Here it reaches the suture of the whorls, developing into a weak sutural rise, only visible in the profile of the whorl. Anteriorly, the aperture is widest and is continued by a short siphyo. There are no internal folds. The base of the shell is rounded. In axial section the lumen is highly oval, with the height representing ¼ of the width of the lumen and slightly widened in the anterior end. The walls of the shell are thick, more so than the compact and slightly undulated columella (fig. 3).

**Comparisons:** Our specimens are ten times smaller and with a twice as large apical angle, when compared to those described by Pchelintsev (1965) from the Valanginian of Crimea. Otherwise, their characters are similar to the Crimean *F. subplanata*. Further collecting might help decide whether this represents a phenomenon of dwarfism within this genus, frequently cited from the upper Jurassic or simply reflect a collecting bias.

It is worth mentioning that centimetric sized specimens of *Fibula* were described in the Carpathian realm (Persani Mts.) by Paulucci, Gradinariu & Popescu (1971). The axial section of these specimens is suggestive of the genus *Sequanea*, another member of the Ceritellidae, instead of *Fibula*. It remains thus unanswered why in the Dobrogean Valanginian the members of the Ceritellidae present such small dimensions.

**Locality:** Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

**Distribution:** Crimea

**Age:** Valanginian

**Collection:** IGG Col. Emil Avram, no. 19490 (3 specimens)

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Fibula grandis Pchel. 1965
Pl. I, fig. 7-8

**Fibula grandis** Pchelintsev 1965, p.11, pl. I, fig. 7

**Dimensions:** H = 12 mm; W = 3-4 mm

**Description:** The millimeter-sized shells have whorls with their sides slightly imitated below the sutures, giving a ladder-shaped contour. The sutural rise, placed below the suture, may show 2-12 weakly preserved tibericles per whorl; these are diminishing toward the more anterior (adult) whorls. The axial section shows a compact columella and a high, narrow lumen, which is rounded posteriorly and truncated anteriorly. The two specimens at hand are relatively poorly preserved, none of them preserving the syphonal canal.

**Comparisons:** Our specimens are, compared to those described by Pchelintsev (1965, p. 11, pl. I, fig. 4), of a much smaller size; their morphology allows, however the referral of these two specimens to the species *F. grandid*. The well-developed ornamentation excludes these shells as belonging to immature individuals. The same problem as in the case of *F. subplanata*, that of the presence of dwarf forms in Dobrogea, just several hundred kilometers from their centimetric-sized conspecifics from Crimea, described from Valanginian deposits as well, remains to be further investigated.

**Locality:** Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

**Distribution:** Crimea

**Age:** Valanginian

**Collection:** IGG Col. Emil Avram, no. 19495 (2 incomplete specimens)

*Sequanea* Cossmann 1895

*Sequanea depressa* n.sp.

Pl. I, fig. 9-12

**Derivatio nominis:** the shells are depressed at the suture of the whorls.

**Status typicus:** Valanginian

**Locus typicus:** Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

**Holotype:** IGG Col. Emil Avram, no. 19492, Pl. I, fig. 9-12

**Material:** 3 incomplete specimens

**Dimensions:** H = 11-13 mm, W = 3-4 mm, Hl = 2 mm, U1 = 1,5 mm.

**Diagnosis:** Small, turriculate shell, with 9-10 smooth whorls. The sutures are depressed, with the maximum concavity below the suture, posteriorly on the consecutive whorls. Oval, not very high aperture. Cross-section of the lumen highly oval, antero-posteriorly short, rounded posteriorly, widened and obliquely truncated anteriorly.

**Description:** The genus Sequanea was erected by Cossmann in 1895, based on some specimens described by Lorili (1893) as Ceritium coteaux, apparently characteristic for the stratigraphic interval separated under the name "Sequanean stage" in the upper Jurassic. However, the genus continues, even diversifies, in the lower Cretaceous. Externally, the genus resembles Fibula, to which Sequanea seems to be related. During the ontogenetic evolution, in the younger stages the shell presents spiral ornamentation (striae, ribs) that remembers the genus Ceritella Morris and Lycett, 1851, that might represent an ancestor for Sequanea. The most important character of the genus is represented by the oval, relatively low aperture, so that the lumen has a low oval cross-section, with the longer side continued toward the columnella and obliquely truncated. The new species show a depressed area around the sutures of the whorls, the concavity of which is more marked on the newer whorls, so that the maximum convexity of the whorls is displaced anteriorly (fig. 3).

**Comparisons:** The discovery of the genus Sequanea in the Valanginian of Dobrogea substantiates the idea expressed by Pchelintsev (1965), that this genus originated in Western Europe and migrated to east through time. Previously, the genus was cited from Jurassic limestones from Capriori (Dusa, 1969), who described S. cf. lorili Cossmann 1893, of normal size. In Dobrogea, facing more hostile environmental conditions, the dimensions of the representatives of the genus remain microscopic, while they diversify and attain large sizes in the Valanginian of Crimea, where they seemingly found optimal life conditions. In the future, further studies of the microscopic gastropod...
faunas from Central and Western Europe might show
evidences of mixing of the typical Western and Eastern
European assemblages.

**Locality:** Poarta Alba – Navodari sailing channel;
intersection with the Capidava - Ovidiu Fault.

**Distribution:** Upper Jurassic of France, Switzerland,
Crimea, Kuban; upper Jurassic – Valanginian of
Romania.

**Age:** Valanginian

**Collection:** IGG Col. Emil Avram, no. 19492
(holotype, 2 paratypes).

II Superfam. Nerineacea
Fam. Nerineidae Zittel, emend. 1873
Eunerinea Cox, 1949 (=Nerinea Defrance 1825)

**Eunerinea sp.**
Pl. II, fig. 1-2

**Description:** Long, cylindrical-conical shells, with
numerous high and convex whorls. The suture of the
whorls is placed either on a sutural rise, or between two
such rises. The sutural rise is often tuberculate or shows
spiral striae. The base of the shell is truncated and
inclined. The shell has a short sypho and is devoid of an
umbilicus. The rhombic aperture shows three simple
internal spiral crests, which appear on the axial sections
as three folds known as columellar folds. A parietal fold
and a labral fold, together with the columellar folds,
divide the lumen in three distinct lobes: a posterior, a
median and an anterior lobe (fig. 3).

**Locality:** Poarta Alba – Navodari sailing channel,
intersection with the Capidava - Ovidiu Fault.

**Age:** Valanginian

**Collection:** IGG Col. Emil Avram, no. 19493
(1 specimen, represented by an internal mold).

Archimedea Pchel. 1965 (genotype Nerinea archimedi
d'Orbigny)

Archimedea archimedi d'Orbigny 1843

Pl. II, fig. 5-6

1843 Nerinea archimedi d'Orbigny, p. 90, pl. 158, fig. 3-4
1965 Archimedea archimedi Pchelintsev, p. 48-50, fig. 17

**Description:** Large sized (about 15 cm length),
quasi-cylindrical, turriculate shells, with short sypho.
High (25 mm), depressed whorls, sutured along a
sutural rise, at the maximum width of the whirs. Each
whorl shows a flat, tuberculate carina with 12 tubercles.
In axial section, the external wall is relatively thick, with
a robust, triangular internal crest (labral fold) placed
level with the strongest constriction of the whorl. A
second short and oblique fold (parietal fold) separates
the posterior lobe of the lumen from the arched, high
median lobe. This later is separated from the anterior
lobe by a columellar fold, placed in the anterior part of
the lumen; the anterior lobe is low and wide, twice as
wide as the posterior lobe. The lumen is thus separated
into three different lobes: a small, triangular, obliquely
truncated posterior lobe, a high and strongly curved
median lobe and a triangular anterior lobe, flattened.
Archimedeana neagu i.n.sp.
Pl. II, fig. 7-12

Derivatio nominis: dedicated to our colleague Theodor Neagu.

Stratus typicus: Valanginian

Locus typicus: Poarta Alba – Navodari sailing channel, intersection with the Capidava - Ovidiu Fault.

Holotype: IGG Col. Emil Avram, no. 19495, pl. II, fig. 7-8.

Material: 10 incomplete specimens
Dimensions: H = 5-10 cm, W = 1.7 – 2 cm, HL = 1-1.5 cm, LI = 0.6-0.8 cm.

Diagnosis: Medium sized (10 cm long), cylindrical shell, with whorls slowly increasing both in height (2 mm each whorl) and in width (1-2 mm per whorl). Shell strongly ornamented, each depressed whorl showing a row of large tubercles placed posteriorly and a row of smaller tubercles anteriorly. The sutureal rise is prominent, and slightly asymmetric, with a row of eight small tubercles on the older and a row of 8 large tubercles on the consecutive whorl. The depressed area between the sutureal rises show 4 spiral striae (fig. 7). In axial section the lumen presents the three lobes diagnostic for the Nerineidae. The small, triangular posterior lobe is strongly truncated, the median one is markedly elongated and arched, while the anterior, triangular one appears as a pedestal. All these characters are diagnostic for the genus Archimedeana Pchelintsev, 1965. The columella is narrower than the lumen. The walls of the shell are wide, and the labral fold is placed anteriorly in the depressed segment of the whorl, above the columellar fold.

Locality: Poarta Alba – Navodari sailing channel, intersection with the Capidava - Ovidiu Fault.

Age: Valanginian

Collection: IGG Col. Emil Avram, no. 19495 (holotype, 9 paratypes).

Etalionea Pchel. 1965 emend. Pana 1999

Genotype: Nerineea etaloni Pictet et Campiche, 1861 – 1864 (pl. 56, fig. 5-7) from the Valanginiana of Switzerland.

Age: Valanginian – Aptian.

Diagnosis: Medium-sized (5-10 cm long), conical – turriculate shells, with 8-10 whorls and apical angle of 30-45° (rarely over 50°). The whorls increase in width more rapidly than in height, so that the height is less than half the width of the whorls. The sides are plane, with a marked sutureal rise that is either rounded, truncated or tuberculated. The suture, placed below the sutureal rise, represents a diagnostic feature. The rounded triangular aperture is elongated toward the columella; siphon extremely short. In the axial section, the wide, triangular parietal fold is rounded or even truncated distally. The columellar fold is asymmetric, relatively high and sharply triangular, placed in the anterior third of the whorl. The labial fold is again asymmetric triangle-shaped, placed level with the columellar fold, so that the lumen is strongly constricted. The shapes and dimensions of the lobes are diagnostic; the smallest, triangular posterior lobe is strongly striated, obliquely truncated toward the columella; the median lobe is strongly excavated at the columella, depressed externally and strongly constricted anteriorly; finally, the triangular anterior lobe extends all over the width of the lumen, is sharply angular toward the external wall, below the labial crest and rounded toward the columella. The columella is compact.

Pchelintsev included in his newly erected Etalionea two other species besides the type species E. etaloni (Pictet & Campiche 1861 – 1864): E. aptiensis (P., et C.) and E. manedrensis Pchel. 1931 (pl. III, fig. 12, 13), yet without figuring the axial sections. Based on the section figured by Pictet & Campiche (1861 – 1864), the species E. eliniata (Pchel. pl. III, fig. 6) is referable as well to the genus Etalionea, this later having the same diagnostic lumen as E. etaloni (P. et C.). Among the “nerineids”, two other genera can further be separated: Roumaniella n.g. and Coquandiella n.g.; both of these are nearly different from Eunereina, but in the meantime markedly distinct from Etalionea as well (fig. 4).

Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Distribution: Switzerland, Crimea, Caucasus, Romania (Dobrogea).

Age: Valanginian-Barrémien

Etalionea etaloni (Pictet et Campiche, 1861–1864)

Genotype: Nerineea etaloni Pictet et Campiche from the Valangian of Sainte-Croix.

1843 Nerineea etaloni Pictet et Campiche, pl. 66, fig. 5-7
1927 Nerineea etaloni Pchelintsev, p. 228
1965 Etalionea etaloni Pchelintsev, p. 50, fig. 18

Description: Medium-sized (50-70 mm long), conical-turriculate shells. The whorls (8-10) show a rapid widening (first whorl – 3 mm wide, last whorl – 18-20 mm wide), so that the apical angle is relatively high (around 45°). The increase in height proceeds at a lower rate (the fourth whorl is 4 mm high, the eighth 6 mm high, while the tenth 10 mm high). Each whorl shows two well-defined parts: an anterior, tuberculate carina that is truncated-rounded posteriorly and a posterior flat area that is twice as high as the carina. The carina presents 10 rounded, closely spaced tubercles, separated by a linear, narrow groove; the suture is placed below the carina. In axial section the rounded triangular lumen widens toward the columella. It is divided into three unequally developed lobes. The
posterior lobe, bordered anteriorly by the conical, truncated parietal fold; it is the smallest one, widened and truncated posteriorly. The medial lobe is the largest one, strongly arched and deeply excavated near the columnella. The anterior lobe, the widest one, is expanded near the columnella and narrows toward the external wall where it becomes truncated. The anterior lobe is separated from the median one by the sharp columnellar fold and the labral fold that is displaced in the anterior third of the lumen; this boundary is the most constricted part of the lumen. In overall, the general aspect of the lumen is that of a trilobate fan (fig. 3).

Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Distribution: Switzerland (Alps), Pre-Caucasus, Romania (Dobrogea)

Age: Valanginian-Albian (The absence of the Berriasian from the studied outcrop does not allow any statement about the timing of the descent of *Etallonea* from the genus *Nerinea* De France)

Collection: IGG Col. Emil Avram, no. 19496 (1 specimen).

**Coquandiella** n.g.

*Coquandiella* n.g.

**Type species:** *Nerinea coquandianna* d'Orb. from the Urgonian of France.

**Derivatio nominis:** from the species name of the type species.

**Status typicus:** Valanginian

**Locus typicus:** Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Included into the new genus are: *C. valdensis* (P. et C.), *C. meriana* (P. et C.), *C. marcausiana* (d'Orb.), *C. coquandianna* (d'Orb.), *C. renauxiana* (d'Orb.), *C. transversalis* (P. et C.). In the following section only, those species of *Coquandiella* found in Dobrogea will be presented.
Diagnosis: Conical-turriculate shells of variable sizes, with the spire wider than high (height equals one-third of the width), with depressed sides and sutures placed below the sutural rise. The sutural rise is usually smooth or provided with small tubercles. In axial section, the colurella is very wide, with large columellar canal that develops under the form of successive funnels with very characteristic alar prongs. Trapezoidal-triangular lumen is widest at its anterior part. The three folds are relatively deep, dividing the lumen into three unequal, rounded lobes. The parietal fold is cylindrical – conical, obliquely oriented and borders the small, rounded posterior lobe that is obliquely truncated toward the colurella. The colurella fold is asymmetric triangle-shaped, anteriorly displaced, and forms the anterior margin of the large, arched median lobe. The labral fold is short, but massive, placed at the middle of the median lobe, so that the constriction of the lumen is rather oblique. The anterior lobe dips toward the colurella and forms the widest part of the lumen. Either rounded or truncated, it extends and widens toward the colurella, cutting into this and forming the diagnostic alar prongs. A general character of the genus is represented by the rounded lobes and by their step-by-step increase toward the anterior part of the shell (fig. 4).

Comparisons: By developing a fourth fold level with the median lobe, the lumen attains a quadrilobate pattern with triangular lobes, a diagnostic feature of the genus *Plesiopygmatis* Pchel. 1953. The origin of this genus was traced by Pchelintsev (1953, p. 119, fig. 11) to the genus *Dizicopyxis*; however, the overall shape of the *Plesiopygmatis* lumen recalls that of the lumen of *Coquandiella* (fig. 5).

Distribution: Switzerland, France (Valanginian-Albian), Crimea, Caucasus, Romania (Valanginian)

Age: Valanginian-Albian

Collection: IGG Col. Emil Avram, no. 19497, 19498

*Coquandiella valdensis* (Pict. et Camp., 1861-1864)

Pl. II, fig. 13-14

1861 – 1864 *Nerinea valdensis* Pictet et Campiche, p. 227, pl. 65, fig. 8-10

Description: The only specimen referred to this species is represented by a fragmentary shell preserving two and a half whors as internal mold. Their height (11, 12, and 13 mm) is slightly more than half their width (17, 18, and 20 mm, respectively). The apical angle is about 25°. The sides are strongly concave in the anterior half of the whors, with the anterior sector of the depression shorter and less inclined, while the posterior sector is taller, more markedly dipping and truncated. The sutures are placed on an asymmetric sutural rise, below a small flange of the anterior sector. It shows the diagnostic axial section of the genus *Coquandiella*. The posterior lobe is small, rounded triangle-shaped and obliquely truncated toward the colurella; it is bordered anteriorly by the deep, conical parietal fold. The median lobe is strongly arched, relatively high and widest in its posterior part; the asymmetric triangle-shaped, oblique colurella fold deeply indent the lumen and separates the median and anterior lobes. The anterior lobe is oblique, represents the widest portion of the lumen and has a general triangular shape, pointed toward the external wall and enlarged – rounded toward the colurella. The excavated external wall continues with a deep, triangular labral fold, widely open and slightly reflected to border the posterior lobe (fig. 4).

Comparisons and comments: Despite the fragmentary nature of the material at hand, it preserves all the diagnostic features of the genus *Coquandiella*: suture placed below the sutural rise, sutural rise angular, projecting outward as a flange, wide colurella with short alar prongs and colurella canal shaped as superposed funnels; trapezoidal lumen, wider anteriorly; rounded lobes increasing in size anteriorly.

Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava-Ovidiu Fault.

Distribution: Switzerland (Sainte-Croix), Valang.

Age: Valanginian

Collection: IGG Col. Emil Avram, no. 19497 (1 almost complete specimen, a fragment and two axial sections).

*Coquandiella marausiana* (d’Orb., 1842-1843)

Pl. II, fig. 15-16

1861 – 1864 *Nerinea marausiana* Pictet et Campiche, p. 226, pl. 64, fig. 1-2

Description: Large (15-20 cm long) shells, with rapid widening of the whors, so that the apical angle is relatively high (35-40°); this widening is correlated with a significant widening of the colurella that shows a large colurella canal shaped as superposed funnels. The lumen is triangular-trapezoidal with the typical coquandiellian trilobate pattern. The anterior lobe is small, obliquely truncated toward the colurella; it is bordered anteriorly by the short, oblique parietal fold. The median lobe is strongly arched toward the colurella, and separated by the asymmetric triangle-shaped, oblique colurella fold deeply from the anterior lobe. The anterior lobe is oblique, represents the widest portion of the lumen and is flattened anteriorly; it is pointed toward the external wall and enlarged – rounded toward the colurella. The large, triangular labral fold is placed at the center of the medial lobe, the constriction of the lumen being oblique.

Comparisons and comments: Our specimens differ from those figured by Pictet et Campiche (pl. 64, fig. 1-2) by a narrower colurella, with a barely visible colurella void.

Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava-Ovidiu Fault.

Distribution: France, Switzerland (Sainte-Croix), Valang.

Age: Valanginian

Collection: IGG Col. Emil Avram, no. 19498 (2 fragmentary shells with 3 preserved whors each, plus 3 isolated whors).

*Roumaniiella* n.g.

Pl. IV, fig. 2-4

Type species: *Roumaniiella roumane* Pana n. sp. (pl. IV, fig. 2–4) IGG Col. Emil Avram, no. 19500.

Derivatio nominis: The genus was erected based on a Romanian material.

Stratus typicus: Valanginian

Locus typicus: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava-Ovidiu Fault.

Included into the new genus are: *R. blancheti* (P. et C.), *R. gigantea* (d’Orb.), *R. roumana* n. sp., *R. gaitiana* (P. et C.).

Diagnosis: Large (12-25 cm long), turriculate shells, with up to 14-17 depressed whors. The whors widen more rapidly than heighten, so that the apical angle is relatively large (30-45°). The sutures are placed in the median line of the rounded (rarely acute) and usually
Figure 5 - Ancestor – descendant relationships of the upper Cretaceous genera *Plesioplocus* and *Plesiopygmatis*, from the lower Cretaceous *Romaniella* and *Coquandiella*, respectively.

tuberculate sutural rise. Short, sometimes recurved sypho. In axial section, the lumen is rounded square-shaped (fig. 4). The most diagnostic character of the genus is the presence of a cylindrical, large, truncated and terminally bifurcated parietal fold; the shape of this fold has a significant influence on the shapes of the posterior and median lobes. The posterior lobe is small, obliquely truncated as in *Etallonea*, but largely rounded toward the columnella and pointed toward the external wall. The large parietal fold strongly indents the medial lobe so that this latter shows a vertical and cylindrical posterior part near the columnella, then widens anteriorly and externally above the columnellar fold. The columnellar fold is very long and narrow. The anterior lobe is horizontal, slightly dipping toward the columnella and pointed toward the external wall. The labral fold, only weakly marked (in *R. blancheti* (P. et C.) or robust, triangular (as in *R. roumana* n. sp.), coincides with the maximum concavity of the external wall and is placed above the columnellar fold, so that the constriction of the lumen is rather oblique. In some cases, a weakly sketched second labral fold is visible above the principal one, at the base of the posterior lobe. The columnellel void is narrow and shows constrictions (fig. 3, 4).

Comparisons: The presence of a new, second labral fold placed at the level of the median lobe shows transition toward another genus with quadripartite lumen, the two small external lobes being delimited only in the terminal part of the median lobe. Pelletine (1952, p. 111-112, fig. 10) suggested that, based on the shape of the lumen, his new genus *Plesioplocus* Pellet. might have had derived from the genus *Etallonea*. However, a short overlook of the details of the lumen shape demonstrates that the parietal fold of *Plesioplocus* is indeed cylindrical, terminally truncated and bifurcated (as in *Romaniella* n.g.) instead of being conical and oblique as in *Etallonea* (fig. 4).

**Distribution**: Switzerland (Valanginian to Albian), France (Valanginian), Crimea, Caucasus, Romania (Valanginian)

**Age**: Valanginian-Albian

**Collection**: IGG Col. Emil Avram, no. 19499, 19500

*Romaniella blancheti* (Pict. et Camp., 1861-1864) Pl. III, fig. 3-5 1861 – 1864 *Nealia blancheti* Pictet et Campiche, p. 230, pl. 66, fig. 1-4

**Description**: Large (12-15 cm long), turriculate shells, with 14-15 depressed whorls. The whorls increase in height at a slower pace than in width, so that the apical angle is relatively large (30-35°). The sutures are placed in the midline of the sutural rise; the trace of the suture is masked by well-defined tubercles (6 per half-whorl), which continue in the depressed part of the
whorl as axial ribs. When the shell was destroyed (pl. III, fig. 4), the whorl consists of two unequal segments: a posterior one that is inclined at about 70° and an anterior one inclined at an angle of about 55°. In axial section, the columella is very wide (approx. one-fourth of the whorl width); the columellar folds are columnar - triangular, pointed and slightly recurved distally. The lumen is trilobate. The posterior lobe is rounded; it is bordered anteriorly by the cylindrical, oblique parietal fold that shows a marked distal external extension. The median lobe elongated, with an anterior, oblique and a posterior vertical sector. The columnar fold separates the medial lobe from the anterior, horizontal lobe; this later lobe is pointed toward the external wall and enlarged - rounded toward the columella. The large labral fold has a slightly more posterior position than that of the columnar fold, so that the constriction of the lumen is somewhat oblique (Fig. 4).

Comparisons and comments: In their study, Pictet et Campiche did not have at their disposal any specimen to preserve the shell; consequently, their diagnosis lacks the mention of the external characters (tubercles, ribs), as well as details of the lumen structure. In the better preserved material from Dobrogea these details are clear, allowing us to refer "N. blancheti (P.-et C.)" to the newly erected genus Roumaniella. The stratigraphic and phylogenetic importance of this genus is further strengthened by this referral.

Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Distribution: Switzerland (Valanginian), Romania.

Age: Valanginian

Collection: IGG Col. Emil Avram, no. 19499 (1 complete specimen, several fragments).

Roumaniella roumana n.sp.

Pl. IV, fig. 2-4

Derivatio nominis: after the name of the country (Romania) from where it was described.

Statum typicum: Valanginian

Locus typicus: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Holotype: IGG Col. Emil Avram, no. 19500, pl. IV, fig. 2-4

Material: 1 complete, well-preserved specimen and several fragments

Diagnosis: Large (20-22 cm long), cylindrical, turritulate shell, with 15-17 strongly depressed whorls and an apical angle of 50°. The sutures are placed in the posterior third of the sutural rise, which is very prominent, tuberculate (8 tubercles per half whorl). The slopes of the sutural rise are flat, asymmetric, with a posterior slope dipping with 75° and an anterior slope of about 55°. The surface of the whorls preserves the growth lines as well as attenuated axial ribs representing the continuation of the tubercles from the sutural rise; 3-4 longitudinal striae are also visible in these depressed areas. The height of the sutural rise is approximately equal to that of the depressed areas, the contour of the shell being almost symmetrically undulated. The height of the whorls equals one-third of their width. In axial section, the rounded - quadrangular lumen is bounded internally by a wide columella (approx. one-fifth of the shell width), with a large and constricted columnar fold. The triangular posterior lobe is obliquely truncated toward the columella and separated from the median one by a large, cylindrical parietal fold that is distally truncated and presents a recurved, latero-external process. This process makes the internal part of the posterior lobe rounded, while the external margin of the same lobe is angular. The medial lobe is cylindrical, elongated, with a vertical and a horizontal sector and is separated from the anterior lobe by a narrow, deep and terminally recurved columnar fold. The anterior lobe is the widest from the lumen, almost horizontal, rounded toward the columella and pointed toward the external wall. The strong labral fold, together with the columnar one, produces a marked constriction of the lumen.

Comparisons: The depressed nature of the whorls, together with the shape and dimensions of the sutural rise compares closely to the characters described by d’Orbigny for the Cenomanian *N. pailletiana* from France. The axial section, however, is clearly different in the Cenomanian taxon in shape and position of the folds and that of the lobs.

Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Age: Valanginian

Collection: IGG Col. Emil Avram, no. 19500 (holotype), several other fragments.

*Roumaniella gigantea* (d’Hombre – Firmas)

Pl. III, fig. 6-7

1842 – 1843 *Nerinea gigantea* d’Orbigny, p. 158, fig. 1-2

Description: Large (over 20 cm long), cylindrical – conical, turritulate shells, with over 15 depressed whorls. The suture is placed in the midline of the tuberculate sutural rise (12 tubercles per half whorl; pl. III, fig. 7). The slopes of the sutural rise are symmetrical and preserve the growth lines. The maximal concavity is in the middle of the whorls. Short, but well-marked siphon. The axial section shows a trilobate lumen. The posterior lobe is very small, rounded toward the cylindrical, truncated and terminally bifurcated parietal fold. The median lobe shows a vertical segment, along the parietal fold and an oblique one separated from the anterior lobe by a conical, narrow and deep columnar fold. The anterior lobe is horizontal or very slightly dipping toward the columella; it is rounded in the same direction, while it is pointed externally. The external wall is largely rounded, with a rounded triangle-shaped labral fold; sometimes, this fold is reduced to a marked thickening of the external wall. The wide columella shows a columnar fold.

Comparisons and comments: Our specimens differ from those figured by d’Orbigny (pl. 158, fig. 1-2) by its smaller size.

Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Distribution: France (Valanginian)

Age: Valanginian

Collection: IGG Col. Emil Avram, no. 19501 (almost complete specimen, several other fragments).

*Sculpturea* Pchelintsev, 1965

*Sculpturea cf. kurnusensis* Pchelintsev, 1965

Pl. III, fig. 8-11

1965 *Sculpturea kurnusensis* Pchelintsev, p. 39, pl. 6, fig. 2-4

Description: Although Pchelintsev (1965, p. 39) described only large sized specimens under the name *Sculpturea kurnusensis*, all the specimens recovered from Dobrogea has small (2-3 mm long) dimensions. The triangular, largely helical shells are composed of 6
slightly concave whorls and richly ornamented. The sutures are placed on the sutural rise; this is covered by two rows of tubercles: a posterior one with small nodules and an anterior one with fewer, but larger tubercles so that each whorl begins with the large tubercle row and ends with the smaller nodule row. Between the two rows, there is a depressed area covered with 4-5 fine riblets bearing minute tubercles. The base of the shell is flattened and covered with finely tuberculated spiral striae. It was this rich ornamentation pattern, unusual for the nerineids, that suggested Pchelintsev the idea of a different genus. The aperture is high rhomboïdal, with a very short siphon. The axial section shows the three characteristic, well-developed folds. The apertural fold is wide triangular, deep and almost vertical; consequently, the posterior lobe is high, weakly expanded and obliquely truncated toward the columella. The labarum fold is the strongest of the three folds; it is deeply triangular, and corresponds to the greatest concavity of the external wall. The median lobe is narrow and markedly curved. The anterior lobe is oblique, rounded toward the external wall and pointed toward the columella.

Comparisons and comments: The millimetric sizes of our specimen (five others were cut to obtain a correct axial section) is a problem to be studied in the future. The shape of the axial section of the lumen is reconstructed from the fragments resulted.

Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Distribution: Crimea, Valanginian

Collection: IGG Col. Emil Avram, no. 19502 (1 complete specimen, several millimetric fragments).

**Sculpturea cf. pravoslavlevi** (Pchelintsev, 1965)

1924 Nerinea pravoslavlevi Pchelintsev, p. 206, pl. 1, fig. 5-7
1931 Nerinea pravoslavlevi Pchelintsev, p. 10-11
1965 *Sculpturea pravoslavlevi* Pchelintsev, p. 33-34, pl. 6, fig. 6

Description: As in the case of the other *Sculpturea* from Dobrogea, the only specimen referred to the species *pravoslavlevi* differs from the specimens described by Pchelintsev (1965) in its millimetric size (shell only 3 mm high); the apical angle is, however, wider (35°) in our specimen. The shell is turriculate, with 6-7 flattened whorls. Each whorl shows 8 transversal ribs descending from the two closely spaced tubercle rows, intersected by 5-6 fine longitudinal striae. The aperture is rhomboïdal, with well-defined siphon. The axial section shows the typically tripartite, but narrow lumen, divided by a short, triangular apertural fold, an anteriorly displaced, conical deep labral fold, which is the strongest of all. The medial lobe is strongly arched, while the anterior lobe is oblique, rounded toward the external wall and pointed toward the columella.

Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Distribution: Crimea, Rauracian

Collection: IGG Col. Emil Avram, no. 19503 (1 specimen).

**Salinea corpulensis** Pchelintsev, 1965

1965 *Salinea corpulensis* Pchelintsev, p. 42, pl. 14, fig. 1

Description: The two specimens from our collection show all the characteristic features of the genus and those of the species *corpulensis*. Short, conical shell with an apical angle of 30°, and slightly concave, short whorls whose height equals only one-third of the width. Robust sutural rise covered by a posterior row of large tubercles and an anterior one of smaller, but wide tubercles. The surface of the whorls is covered with fine, spiral striae with minute tubercles. The base of each whorl is flattened, making an angular contact with the sides. Short oesophageal canal, with narrow umbilicus. The axial section of the lumen is quadrangular, widened anteriorly. The wide and deep, triangular apertural fold borders a narrow, almost tubular posterior lobe, obliquely truncated toward the columella. The labral fold is horizontal triangular and very deep, so that the median lobe is strongly arched and narrowed. The columellar fold is strong, widely open and triangular, roofing a narrow, almost horizontal anterior lobe, rounded toward the external wall and narrowing toward the columella.

Comparisons: The spiral ribs seen in our specimen outnumber those described by Pchelintsev (6 versus 3). However, with only one good specimen at hand, we adopted a conservative taxonomic treatment, referring it to the species *S. corpulensis* Pchelintsev, to which it compares more closely.

Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Distribution: Crimea, Valanginian

Collection: IGG Col. Emil Avram, no. 19504 (1 good specimen, three fragments).

**Cossmannea Pchelintsev, 1931**

Genotype: Nerinea desvoidyi d'Orbigny, 1850, pl. 261, fig. 13.

1931 *Cossmannea* Pchelintsev, p. 29-30

Description: Among the sectioned specimens, there was an isolated fragment showing a quadrangular lumen strongly constricted by the external wall presenting a well-developed labral fold. The apertural wall is obliquely truncated toward the columella. A rudimentary columellar fold is displaced below the intersection of the lumen with the columella. The constriction of the lumen is placed in the posterior part (fig. 3).

Comparisons: The state of preservation of the specimen does not allow any other morphological observations. However, the shape of the lumen clearly shows that the genus *Cossmannea*, described from the upper Jurassic, survives into the lower Cretaceous as well, although with smaller dimensions.

Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Age: Valanginian

Collection: IGG Col. Emil Avram, no. 19505 (one fragmentary specimen).

Fam. Ptygmatidae (Pchelintsev, 1965)

**Ptygmatis Sharpe 1849**

**Ptygmatis valanginiensis** n. sp.

1965 *Ptygmatis valanginiensis* n. sp.

Derivatio nominis: species described from Valanginian deposits

Stratus typicus: Valanginian

Locus typicus: Poarta Alba – Navodari sailing channel
channel, intersection with the Capidava - Ovidiu Fault.

**Holotype**: IGG Col. Emil Avram, no. 19506, pl. VI, fig. 6-7.

**Material**: 4 relatively well-preserved specimens.

**Dimensions**: H = 2-3 mm; W = 1-1,2 mm; Hs = 0,8-1 mm; Ws = 0,5-0,7 mm; AA = 30°

**Diagnosis**: Very small (2-3 mm long), conical-pupaiform shell, narrow and rounded anteriorly. The whorls are flattened; the suture without a sutural rise. The base of the shell is again rounded and narrowed. In axial section, the oval lumen is divided by five folds: one parietal, 2 unequally developed columnellar and two, rounded and shallow lateral ones. The distribution, shape and dimension of the folds give the lumen a diagnostic shape: the posterior lobe is rounded, strangled by the deep parietal and the weakly developed posterior lateral fold. The median lobe extends markedly toward the columnella, bifurcated, owing to the new, oblique posterior columnellar fold and bordered anteriorly by the narrow, deep and horizontal anterior columnellar fold. The anterior lobe is bordered posteriorly by the anterior columnellar fold and by the weakly sketched anterior labral fold. Due to the slightly marked labral folds, the external margin of the lumen seems rounded. Short syphon (fig. 3).

The features of the shell point to a relatively vague habit of the new species, in the outer slope of the coral reefs. In smaller specimens, the widened base of the shells suggests a more sessile habit of the youngsters.

**Locality**: Poarta Alba - Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

**Age**: Valanginian

**Collection**: IGG Col. Emil Avram, no. 19506 (holotype, pl. VI, fig. 6-7; 3 paratypes, pl. VI, fig. 8-10).

**Trochoptygmatis Pchelintsev, 1965**

**Trochoptygmatis trochoidea n. sp.**

PI. V, fig. 1-5

**Derivatio nominis**: species with trochoidea shell

**Stratus typicus**: Valanginian

**Locus typicus**: Poarta Alba - Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

**Holotype**: IGG Col. Emil Avram, no. 19507, pl. V, fig. 1-2

**Material**: 5 relatively well-preserved specimens

**Dimensions**: H = 7 mm; W = 5 mm; Hs = 4 mm; Ws = 2 mm; AA = 55-55°

**Diagnosis**: Small, fragile, conical shell, with very wide base, large apical angle. The turriculate shell is composed of 7-8 whorls showing an angular carina; this forms an almost vertical anterior slope and a posterior slope dipping at about 45°. Short and thick syphon, columnella with a well-developed columnellar void. In axial section, the trapezoidal lumen is divided by two columnellar folds, a parietal fold and two labral folds: one deep anterior and one small posterior. The tripartite lumen is complicated by the narrowing and division of the medial lobe, as well as by the modifications of the posterior lobe; this latter is lengthened, recurved and has a cylindrical, terminally spherical shape. The anterior lobe is shaped as an oblique platform, shortened toward the external wall, elongated and recurved toward the columnella. The columnella shows thin walls and a large columnellar void; this void is constricted at each suture, making the shell very fragile.

This taxon is the only one that shows the large, circular umbilicus without axial section as well.

**Comparisons**: No other previously reported or figured specimen shows the degree of anterior widening or sharp carinae seen in this taxon.

**Locality**: Poarta Alba - Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

**Age**: Valanginian

**Collection**: IGG Col. Emil Avram, no. 19507 (holotype, pl. V, fig. 1-2; 4 paratypes).

**Trochoptygmatis scalaris Pchelintsev, 1965**

PI. V, fig. 6-11

1965 *Trochoptygmatis scalaris* Pchelintsev, p. 66, pl. 19, fig. 5

**Dimensions**: H = 5 mm; W = 3 mm; Hs = 3 mm; Ws = 2 mm; AA = 25°

**Description**: Elongated, conical shell with an apical angle of 25°, turriculate with 8-10 slightly concave, low whorls (the height of the whorls equals only two-fifth of the width). The sutural rise is placed entirely on the anterior whorl, the suture being below the sutural rise. The posterior (initial) whorls are relatively more depressed, making the sutural rise more prominent. The base of the shell is slightly convex, neatly separated from the lateral sides. The columnellar funnel is large (one-third of the shell width). Trapezoidal aperture, with five internal spiral folds; the folds divide the lumen into four narrow lobes with rounded ends, in the typical *Trochoptygmatis* pattern (fig. 3).

**Comparisons**: Compared to *T. conideus*, the shell is taller and more gracile, with a marked and regular ladder-shaped contour.

**Locality**: Poarta Alba - Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

**Distribution**: Crimea, Valanginian

**Age**: Valanginian

**Collection**: IGG Col. Emil Avram, no. 19508 (3 specimens).

**Trochoptygmatis longa** (Pchelintsev, 1965)

PI. VI, fig. 1-5

1931 *Ptygmatis longa* Pchelintsev, p. 99, pl. V, fig. 1-2

1965 *Trochoptygmatis longa* Pchelintsev, p. 99, pl. 19, fig. 1, 4

**Description**: Highly conical, turriculate shell with 10-15 low whorls (the height of the whorls equals one-third of the width). The whorls are flat or slightly concave. The sutural rise narrow, slightly marked and is placed entirely on the anterior whorl, the suture being below the sutural rise. The base of the shell is rounded; short syphon. In axial section the lumen is rounded oval and the columnella is wide (one-third of the shell width); there are three shallow columnellar folds. The posterior lobe is rounded; the median lobe is divided into two subequal arms. The anterior lobe extends toward the columnella, representing the widest segment of the lumen. The external wall presents two small folds, that externally clearly separates the three lobes. The rounded outline of the lobes is the most characteristic feature of the species.

**Comparisons**: The species differs from *T. cylindrica* by a wider apical angle and a lower sutural rise, and from *T. scalaris* Pchel. by the absence of the ladder-shaped contour of the shell.

**Locality**: Poarta Alba - Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

**Distribution**: Crimea, Valanginian

**Age**: Valanginian

**Collection**: IGG Col. Emil Avram, no. 19509 (2 specimens).
Fam. Cryptoplocusidae Pchel. 1965
Cryptoplocus P. et C. 1861
Cryptoplocus sp
Pl. V, fig. 14

Description: Between the specimens sectioned for the axial sections, there were two specimens that shows features diagnostic for the genus Cryptoplocus. The millimetric sized, conical turritulate shell is made up of 10-11 flattened whorls; the sutures are very slightly marked, without sutural rise. The height of the whorls equals one-third of their width. Columella wide with narrow coluimellar void that opens into the enlarged and flattened base of the shell; this feature point to a relatively sessile habit of this animal adapted to shallow marine, littoral environments. In axial section, the rounded quadrangular lumen shows but one spiral fold in parietal position; the lumen, intersected by this single fold, has a coffee - seed shape. In the embryonic whorls there seem to be coluimellar and labral folds as well, but these disappear in adult whorls due to the animal's habit (frequent and deep retraction into the shell). The low rate of vertical growing of the shell represents another adaptation for the littoral environment, offering a greater mechanical stability (fig. 3).

Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Distribution: Crimea, Valanginian

Age: Valanginian

Collection: IGG Col. Emil Avram, no. 19510 (2 sectioned fragmentary specimens).

Endioplocus Cossman 1896
Endioplocus pauliucii n. sp.
Pl. V, fig. 12-13

Derivatio nominis: dedicated to our colleague, Simon Pauliuc.

Status typicus: Valanginian

Locus typicus: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.


Material: 2 sectioned specimens and several fragments

Dimensions: H = 7-11 mm; W = 3-4 mm; Hs = 5-7 mm; Ws = 2,5-3 mm; AA = 30°

Diagnosis: Conical - turritulate shell, with 10-12 depressed whorls; the whorls are low, with height less than one-third of the width. The sutural rise is strongly expressed, formed by both the adjacent whorls; the newer whorl covers one-third of the anterior one. The maximum concavity of the whorl occurs in the middle of the whorl, and presents two fine spiral ribs; the sutural rise show 10 flattened tubercles per whorl. Short sphyro with two external spiral ribs. In axial section the lumen is rounded quadrangular, concave posteriorly, and without any dividing rib. In the first whorls, the three ribs (coluimellar, parietal and labral) are present in rudimentary form, but they disappear completely as the shell grows; consequently the lumen has no lobes. The coluimella is wide and robust (one-fourth of the whorl width), with a very narrow coluimellar canal (fig. 3).

The shape of the shell - conical, with widened base, low whorls lacking ornamentation, thickened sutural rise, and lack of internal folds - are usually considered adaptations for littoral, high energy environments, allowing the retraction of the animal into the shell.

Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Distribution: the genus is widely distributed in Crimea

Age: Valanginian

Collection: IGG Col. Emil Avram, no. 19511 (holotype, pl. V, fig. 12-13; 2 paratypes).

Fam. Diptyxidae Pchel. 1965
Diptyx Oppenheim 1886
Diptyx conicus n. sp.
Pl. VI, fig. 11-23

Derivatio nominis: suggesting the conical shape of the shell

Status typicus: Valanginian

Locus typicus: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Holotype: IGG Col. Emil Avram, no. 19512, pl. VI, fig. 11-15.

Material: 11 sectioned specimens

Dimensions: H = 1,5-7 mm; W = 1-4 mm; AA = 20-40°

Diagnosis: Millimetric-sized, turritulate shell, with 7-10 whors with marked and gradual increase in width; the whors has height equal half the width, so that the shell is highly conical. Sutures slightly prominent, with the weakly tuberculat sutural rise formed on the newer whorl; this covers partially of the anterior one. The sides of the whors are weakly concave, ladder - shaped and not ornamented. The apical angle varies between 35-40° in the larger specimens (3-7 mm; fig. 11-15) and decreases in the smaller ones (2-3 mm length; fig. 1-22) to about 20-25°; there are also specimens showing intermediate values of the apical angle (30°; fig. 16-17). The variation observed in the value of the apical angle might represent an example of the sexually dimorphic characters of the taxon. The narrow conical shell of the younger specimens point to a vase-like habit, while the widened base of the adult shell indicates habit change to a more sessile mode of life.

The axial section shows a quadrangular lumen and a narrow compact coluimella. A single narrow, but deep fold originates from the coluimella; another deep, fragile and narrow fold descends from the thin parietal wall. The two folds divide the lumen into three lobes, from which the median one is the widest and the largest. The general aspect of the lumen is a trilobate fan (fig. 3).

Comparisons: The presence of the specimens with either wider or narrower apical angle, all the other features of the shell being similar, points to the presence of two different ecophenotypes within the species: a more active and a more sessile one. This habit partition might be age related, as the variation of the apical angle seems to be correlated with the size of the shell.

Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Age: Valanginian

Collection: IGG Col. Emil Avram, no. 19512 (holotype, pl. VI, fig. 13-14; paratypes: 6 specimens with wide apical angle, fig. 11, 12, 15 and 4 specimens with narrow apical angle, fig. 16-23).

Diptyx avrami n. sp.
Pl. VII, fig. 1-20

Derivatio nominis: dedicated to our colleague dr. Emil Avram.
Stratus typicus: Valanginian
Locus typicus: Poarta Alba - Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.
Material: 46 specimens, plus 75 specimens with attenuated ornamentation
Diagnosis: Small (35-45 mm length, 9-10 mm maximum width), turriculate (12-14 whorls), pointed conical shell, with an apical angle of 18-20°. The whorls are depressed, and anteriorly show a rounded carina-shaped sutureal rise. The sutureal rise is covered by two spiral tuberculate rows, each tubercle being continued by a fine axial rib; these ribs are interrupted in the area of maximum concavity of the whorls by a weak spiral rib. The aperture is square-shaped, with a short siphuncle.

The axial section shows a narrow columella. The parietal and columellar folds are both thin, but deep and recurved; these border two lobes (the posterior and median ones) that are sub-equant, enlarged and rounded toward the columella, constricted toward the external wall. The anterior lobe is elongated, inclined and pointed toward the columella, being the widest of the three. The external wall shows a low labral fold placed anteriorly, near the suture. This pattern of general outline of the lumen, remembering a trilobate fan, was found in 18 sectioned specimens, among these in 11 specimens with reduced ornamentation (fig. 3).
Comparisons: The shape of the lumen is similar to that seen in Diptyxis distincta (Pechelintsev, 1931, pl. 111, pl. 6, fig. 17-18); however, our specimens differ from those described by Pechelintsev by a much smaller size (35-45 mm vs. 100-110 mm) and by the presence of a rich external ornamentation. Diptyxis anomalis (Pechelintsev, 1931, pl. 235, pl. 6, fig. 8-9) has similar sizes, but the only element of the ornamentation mentioned by the author is a spiral cord. While the description of the lumen section (the base of the specific assignment) is confused. It may well be that Pechelintsev had only fragmentary specimens in his material, in a bad state of conservation.

In our material, there are 50 specimens that display the described ornamentation; besides them, 75 other specimens show an identical section of the lumen, but the ornamentation is reduced to a rounded sutureal rise. This represents either a case of different conservation stages of the same type of shell (although they all were recovered from the same site), or a case of sexual dimorphism, otherwise frequently seen in the gastropod world.
Locality: Poarta Alba - Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.
Age: Valanginian
Collection: IGG Col. Emil Avram, no. 19513 (holotype, pl. VII, fig. 1-2, 5; 123 paratypes).

Diptyxis marisi n. sp
Pl. VII, fig. 21-29

Derivatio nominis: dedicated to my colleague Mărius Stoica

Dimensions: H = 40-50 mm; W = 12-14 mm; AA = 18-20°
Diagnosis: Small (4-5 cm), turriculate shell, with 9-10 low whorls (the height equals less than one-third of the width). Sutures placed on the axis of the sutureal rise: the sutureal rise is as wide as the depressed area of the whorl and is covered by 10 tubercles per whorl. In case of the molds of the shell, the external face of the whorl shows three equally well-developed sectors: one posterior and one anterior, both inclined at about 50° and a median, flat one. The apical angle of the shell varies between 18-20°.
The axial section shows a narrow compact columella. The trapezoidal lumen is divided by two spiral folds: the slightly inclined, narrow columnellar fold, recurved and expanded distally, and the very narrow, inclined parietal fold, recurved terminally toward the external wall. The external wall shows the rudiments of two labral folds. These folds form a rounded posterior lobe and a small anterior lobe, pointed toward the external wall, inclined and pointed toward the columella. The most characteristic is, however, the median lobe, that shows three distinct sectors: a rounded one toward the external wall, a strongly constricted one mediadally and a spoon-shaped one toward the columella (fig. 3).
Comparisons: It differs from D. avrami by its lower whors, by its wider sutural whorl with fewer (10) tubercles, but, most important, by the trapezoidal lumen with a spoon-shaped median lobe.
Locality: Poarta Alba - Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.
Age: Valanginian
Collection: IGG Col. Emil Avram, no. 19514 (holotype, pl. VII, fig. 21-22, 3 paratypes).

Fam. Umboniidae Lysenko et Alei 1987
Umbonea Pechel. 1965

Umbonea sp.
Pl. VIII, fig. 1-4

Dimensions: L = 4-6 mm; W = 2-2.5 mm; Hs = 3-4 mm; Ws = 1.5 - 2 mm; AA = 20°
Description: Three millimeter-sized specimens represent the material currently at hand, with axial sections not well executed; four other specimens were destroyed during sectioning. Conical shell with high spire formed of 12-13 whors; these show a slow rate of widening in the first 5-6 whors (0.1 mm per whor), but a more rapid widening in the whors 6-10 (0.2 mm per whor), than the fastest one in the last three whors (0.3 - 0.4 mm per each whor). The height of the whors equals half of their height. The suture is marked by a low sutural rise, dissected by a midline groove that corresponds to the suture. The sides of the whors are slightly concave; the anterior part of the last whor shows a calyptra; this gives the base of the shell a truncated shape. The aperture is trapezoidal, oblique. Without having a good quality axial section showing the shape of the columella and lumen, the specific affinity of the specimens rests unknown.

Discussion: The external characters of the shell are similar to that described by d'Orbigny (1851 - 1860, pl. 13, fig. 1-2) from the middle Oxfordian of Saint-Michel, and re-figured by Fischer and Weber (1997) as Umbonea dilatata d'Orb. It is also closely comparable to Nerinea ausinensis Roemer from the Senonian of Texas.
It is worth mentioning that all the species referred by Pechelintsev to the genus Umbonea are late Jurassic in
age: U. mosee d’Orb. from the French Sequanian, U. fontanensis (Herb.) from the Tithonian of Austria, while for some species (“U. suessi Pchel., “U. wosenskiana”), the author himself is uncertain about whether they should belong to the genus Umbonea or to the genus Polipyxys. Consequently, only a generic determination is attempted here, pending on further collecting at the site and obtaining a conclusive axial section.

Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Age: Valanginian

Collection: IGG Col. Emil Avram, no. 19515 (3 well-preserved specimens).

Superfam. Narinellacea Pchel. 1965

Fam. Neronellidae Zittel, 1873 emend. Pchel. 1965

Neronella Sharp 1849 (= Neronoides Wenz 1938)

Nerinella infracretacea Pchel. 1931

Pic. VIII, fig. 5-7

1931 Neronella infracretacea Pchelintsev, p. 225, pl. IV, fig. 23

Dimensions: H = 4-5 mm; W = 1-1,2 mm

Description: Strongly elongated, sub-centimetric, cylindrical-conical shell with small apical angle (12-15°), made up by a large number of concave whorls. The height of the whorls equal or even exceeds their width. External surface covered by two spiral, nodose ribs (fig. 5), only barely visible. The sutures are placed above the spiral rise, giving the shell a wider – slender contour.

In axial section, the deep, triangular columnellar fold is displaced toward the anterior part of the lumen; the strong, thickened labral fold is placed at the middle of the external wall, given the lumen a markedly constricted, arched, undulated shape. The widely open, triangular parietal fold separates the posterior lobe (which is obliquely truncated toward the columnella) from the median lobe. The anterior lobe is rounded toward the external wall and pointed toward the columnella, almost horizontal and “supports” the other two, almost vertical lobes.

Discussion: Our specimens fit exactly the description given by Pchelintsev (1931, p. 69), even the figures of his author are most clear. However, the smaller size of the specimens from Dobrogea is noteworthy.

Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Distribution: Crimea, Valanginian

Age: Valanginian

Collection: IGG Col. Emil Avram, no. 19516 (3 incomplete specimens).

Fam. Eleganteellidae Pchel. 1965

Valanginella Pchel. 1965

Valanginella infravalanginensis (Choffat) 1886

Pic. VIII, fig. 9-15

1886 Aptocyelia valanginensis Choffat p. 41, pl. III, fig. 1-12

1965 Valanginella infravalanginensis Pchelintsev, p. 105, pl. XXVI, fig. 5, 7

Dimensions: H = 2,5-5 mm; W = 0,8-2 mm

Description: Pointed conical (apical angle 14-15°) shell made up by 9 whorls with flattened sides; only the last whorl might be slightly concave. The sutures are marked by a small sutural rise placed on the posterior part of the whorls, giving a ladder-shaped contour. The last whorl represents one-third of the shell height. It allows to recognize the presence of an anteriorly placed, rounded carena, covered by the subsequent whorl. Aperture rhomboidal, without internal spiral crests; short, recurred sypho (fig. 3).

Discussion: The slightly damaged-shaped contour remembers the species V. scalaris Pchel., but the smaller number of the whorls (9 vs. 13) and the rhomboidal aperture differentiates these specimens from V. scalaris, with an anteriorly rounded aperture.

Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Distribution: Portugal, Tithonic - Valanginian

Age: Valanginian

Collection: IGG Col. Emil Avram, no. 19517 (3 specimens).

Valanginella fibulaeformis Pchel. 1965

Pic. VIII, fig. 16-19

1965 Valanginella fibulaeformis Pchelintsev, p. 105, pl. XXVI, fig. 3, 4

Dimensions: H = 2-4 mm; W = 1-2 mm, AA = 12°

Description: Small, narrow conical (apical angle 15°) shell made up by 9 slightly convex whorls, separated by oblique sutural grooves; the obliquity is about 10°. Maximum of convexity placed in the middle of the whorls. The last whorl represents two-fifth of the shell height. Pyriform, rounded aperture continued by a very short sypho; the aperture is slightly truncated along the sypho.

Discussion: When compared to the specimens described by Pchelintsev (1965, pl. XXVI, fig. 3, 4) with a slightly scalariform contour, our specimens show a more rounded outline and have smoother external surface.

Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Distribution: Crimea, Valanginian

Age: Valanginian

Collection: IGG Col. Emil Avram, no. 19518 (3 specimens).

Valanginella planata Pchel. 1965

Pic. VIII, fig. 20

1965 Valanginella planata Pchelintsev, p. 107, pl. XXVI, fig. 6

Dimensions: H = 6 mm; W = 2 mm, AA = 11°

Description: A single specimen shows characters and was referred to Valanginella planata Pchel. These features include a low apical angle (only 11°) and 9 flattened whorls, separated by straight, somewhat depressed sutures. The whors are relatively high, representing more than half their width. The last whorl represents one-eighth of the shell height and shows an anterior carena. The suture occurs immediately above this carena, so that the sutural lines seem doubled. Pyriform aperture, truncated toward the columnella and vertical along the short sypho.

Discussion: The specimens match the description given by Pchelintsev (1965, p. 107) for Valanginella planata; however, there is a marked size difference, the Crimean specimens being centimetric-sized.

Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Distribution: Crimea, Valanginian

Age: Valanginian

Collection: IGG Col. Emil Avram, no. 19519 (1 specimen).

Fam. Aurorellidae Pchel. 1965

Endiatrachelus Cossmann 1899

Endiatrachelus sp.

Pic. VIII, fig. 8 (x 15)
Description: Only an anterior segment (represented by two and a half whorls) of a shell was recovered; it suggests a cylindrical shell with high whorls (height representing four-fifths of the width). The sutures are very slightly depressed, but steeply dipping (35-40°), masked by the three wide, low ribs. These are separated by straight grooves and intersected by oblique axial striae. The aperture is strongly elongated, roughly triangular, with the internal lip reflected and thickened, showing a spiral rib anteriorly. The sharp external lip moulds the ornamentation. No axial section was obtained (fig. 3).

Discussion: Even based on an incomplete specimen, without the important axial section, the presence of the genus *Endiatrachelus* in the Valanginian, as unique lower Cretaceous representatives of the fam. Aurorellidae, is considered to have been a distribution restricted to the upper Jurassic. Referral of the genus to *Nerinella* (as a distinct subgenus), as proposed by Fischer and Weber (1997, pl. 8, fig. 8) in their "Revision critique de la Paleontologie francaise d’Aleide d’Orbigny" seems unwarranted, the two taxa differing both in general shape (cylindrical vs. highly conical in *Nerinella*) and in the lumen section *Endiatrachelus* having a large, triangular lumen, with its widest part toward the anterior part and with a single columellar crest, while the lumen is an undulated slit in *Nerinella*. It seems obvious that their figure 8 represents a *Nerinella* rather than an *Endiatrachelus*.

Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava-Ovidiu Fault.

Age: Valanginian

Collection: IGG Col. Emil Avram, no. 19521 (1 incomplete specimen).

Superfam. Icriaeidae Pchel. 1965
Fam. Icriaeidae Cossmann, 1896

**Vernedia** Mazeron 1912 (= *Antraivia* Stoliczka 1867 = *Transilvania* Athanasiu 1929)

**Vernedia antiga** n. sp.

PL. IX, fig. 1-3

**Derivatio nominis:** the oldest species of the genus *Vernedia*

**Stratus typicus:** Valanginian

**Locutus typicus:** Poarta Alba – Navodari sailing channel, at the intersection with the Capidava-Ovidiu Fault.

**Holotype:** IGG Col. Emil Avram, no. 19521, pl. IX, fig. 1-2.

**Material:** 4 specimens (holotype and three paratypes).

**Dimensions:** H = 1-3 mm; W = 0.6-2 mm; Hs = 1.2; Ha = 1.5 mm; Wa = 0.7 mm; AA = 50°

**Diagnosis:** Small (1-3 mm), conical-spherical shell. The spire represents one-third of the shell height and consists of 6 whorls separated by deep sutures. Each whorl shows a carina placed below the suture, giving the shell a ladder-shaped contour. The last whorl is large, strongly inflated and ends in a short and recurved sypho. The aperture is narrow, obliquely triangular with a pointed posterior end and a widened anterior end. The aperture is divided into two lobes by a columellar fold. The conical columella opens into the curving of the sypho.

**Comparisons:** The features of the four specimens from Dobrogea match those described by Pchelintsev (1953, p. 170-175) or by Akopian (1976, p. 111-112), most remarkably in the spherical shape of the shell. The most diagnostic character seems to be the ratio between the spire and the last whorl. Carinae placed below the suture are known in several taxa: *Itrovia subcarnate* Pchel., *I. armenica* Pchel., *I. subcanaliculata* Pchel. *I. angusta* Pchel.; our specimens differ from these taxa by a higher spire and different grade of convexity.

**Locality:** Poarta Alba – Navodari sailing channel, at the intersection with the Capidava-Ovidiu Fault.

**Age:** Valanginian

**Collection:** IGG Col. Emil Avram, no. 19521 (holotype, pl. VII, fig. 21-22; 3 paratypes).

**Superfam. Procerithiaeco**

**Fam. Procerithiaeo**

**Procerithium** Cossmann 1902 (= *Protocerithium* Bistram, 1903)

**Procerithium (Cosmoerithium) infractetaceus** n. sp.

PI. IX, fig. 6-13

**Derivatio nominis:** after the stratigraphic position of the species, in the Valanginian deposits

**Stratus typicus:** Valanginian

**Locutus typicus:** Poarta Alba – Navodari sailing channel, at the intersection with the Capidava-Ovidiu Fault.

**Holotype:** IGG Col. Emil Avram, no. 19525, pl. IX, fig. 6-13.

**Material:** 1 well-preserved specimen, two specimens lacking the aperture and sypho, one specimen showing the last two whorls

**Dimensions:** H = 31 mm; W = 11 mm; Hs = 20 mm; Ha = 13 mm; Wa = 5 mm; AA = 50°

**Diagnosis:** Small, turriticate shell with 8 whorls increasing gradually both in width and in height. The first two whorls are ornamented with 8 flattened nodes placed in vertical rows and forming 8 vertical ribs. The following four whorls present three rows of 12 tubercles each, forming 12 vertical ribs. The last whorl (10 mm height) is continued by a short (1.5 mm) sypho. Anteriorly, below the three tubercles rows, there are five ribs diminishing in size toward the tip of the sypho. The peristome is enlarged posteriorly, detached from the shell. The exhalant sypho is longer than the inhalant one. The aperture is rounded oval.

**Comparisons:** The general shape of the shell resembles that figured by Fischer (1969, pl. XVII, fig. 14) and referred to as *P. (C.) dorvali* (Cossmann). It differs, however, in the size of the shell, the apical angle, the ornamentation and, most important, the features of the last whorl, which in the cited specimen has a reduced ornamentation (represented only by simple riblets), a relatively longer inhalant sypho and a less important expansion of the posterior margin of the peristome.

The new taxon might represent a descendant of the genus and subgenus, known primarily from the Bathonian of Saint-Gaultier (Indre - Ardennes), being the second one from the Valanginian of Romania. Another species was reported (based on five millimetric-sized specimens) from the lower Valanginian deposits of Alimanu, from the Alimanu Member of the Cernavoda Formation.

**Locality:** Poarta Alba – Navodari sailing channel, at the intersection with the Capidava-Ovidiu Fault.

**Age:** Valanginian

**Collection:** IGG Col. Emil Avram, no. 19525 (holotype, pl. IX, fig. 6-7, 3 paratypes).

**Fam. Metacerithiidae** Cossmann 1906

**Metacerithium** Cossmann 1906
Metacerithium latibasis n. sp.
Pl. IX, fig. 4-5

Derivatio nominis: referring to the very wide base of the shell (three-fifth of the shell height)

Stratus typicus: Valanginian

Locus typicus: Poarta Alba – Novodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Holotype: IGG Col. Emil Avram, no. 19526, pl. IX, fig. 4-5.

Material: 1 well-preserved specimen (the holotype), two incomplete specimens

Dimensions: H = 1,5 mm; W = 1,2 mm; AA = 30°

Diagnosis: Small shell made up of 6 richly ornamented, low whorls (the height of the whorls equals one-fourth of the width). The ornamentation consists of two spiral ribs per whorl, bearing 9 large, widely spaced tubercles each; the tubercles are placed one below the other in the successive whorls so that they form 4 (respectively 5) axial ribs per half the whorl. These axial ribs form a network with the spiral ribs. The anterior row of tubercles is the larger one, bulging outward and giving the shell a pagoda-like shape. The base of the shell is very wide (three-fifth of the shell height). The inhalant siphon is short and strongly recurved. The narrow exhalant siphon is as long as the inhalant one. The aperture is quadrangular, wider than high.

Locality: Poarta Alba – Novodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Age: Valanginian

Collection: IGG Col. Emil Avram, no. 19526 (holotype, pl. IX, fig. 4-5, 2 paratypes).

Superfam. Pseudomelanoidae Fischer, 1885
Fam. Pseudomelanidae Fischer, 1885
Pseudomelanidae Pictet et Campiche 1862
subgen Pseudomelanina Pictet et Campiche 1862
Pseudomelanina (Pseudomelanina) bicarinata Pchel.
Pl. IX, fig. 22-25

1953 Pseudomelanina bicarinata Pchelintsev, p. 99, pl. XI, fig. 1-6, pl. XII, fig. 1-5

Dimensions: H = 26 mm; W = 13 mm; Ha = 9 mm; Wa = 0,6 mm; AA = 26-28°

Description: Small, turritulate shell with small apical angle (12-15°), and 6 whorls separated by depressed sutures. The spire represents two-thirds of the shell height. Each whorl shows two distinct carinae; a longitudinal riblet is visible in the space between the carinae, as well as in the spaces between the carinae and the edges of the whorl (three riblets per whorl). On the last whorl, below the anterior carina, there are 3 spiral ribs. The well-preserved parts of the shell show growth lines with inflection at the level of the inter-carinal space. Low tubercles are formed at the intersection between the carinae and the growth lines. Oval-rounded, holostome aperture.

Discussion: Although the oldest members of the genus are reported from upper Albian deposits, two of the specimens from Dobrogea are clearly referable to the genus Pseudomelanina, based on the inflexion shown by the growth lines in the midline of the shell. Consequently, he referral of some specimens to the genus Bicarinella by Akopian (1976, p. 166, pl. 38, fig. 1-3) is considered erroneous, as seemingly the author did not noticed the typical inflexion of the growth lines.

Locality: Poarta Alba – Novodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Distribution: Caucasus and ? Asia, upper Cretaceous

Age: Valanginian

Collection: IGG Col. Emil Avram, no. 19522 (2 well-preserved specimens).

Pseudomelanina (Pseudomelanina) acuta n. sp.
Pl. IX, fig. 14-21

Derivatio nominis: the acute nature of both the shell (low apical angle) and that of the primary spiral rib above the suture.

Stratus typicus: Valanginian

Locus typicus: Poarta Alba – Novodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Holotype: IGG Col. Emil Avram, no. 19523, pl. IX, fig. 14-17.

Material: 1 specimen

Dimensions: H = 25 mm; W = 10 mm; Ha = 18 mm; Wa = 5 mm; Wa = 7 mm; AA = 23-24°

Diagnosis: Small, turritulate shell. The whorls (7) show a slow increase in width; the depressed sutures are placed below a primary carina, that renders the shell a pagoda-like shape. Above the primary crest there are two riblets, followed by a rounded spiral carina and another riblet; each whorl shows thus three spiral riblets and two uneven spiral ribs: an anterior, acute one and a posterior rounded one. The ornamentation is slightly expressed on the first three whorls. The last whorl shows three additional ribs that diminish anteriorly. Oval aperture, holostome peristome.

Comparisons: In the phylogenetic schema proposed by Pchelintsev (1953, p. 93) for the family Glaucopidae, representatives of the genus Pseudomelanina are known beginning with the lower part of the lower Cretaceous (Valanginian) up to the final part of the upper Cretaceous.

Locality: Poarta Alba – Novodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Age: Valanginian

Collection: IGG Col. Emil Avram, no. 19523 (holotype, pl. IX, fig. 14-21).

Pseudomelanina Pictet et Camp. 1862
subgen Oonia Gemmellaro 1878
Pseudomelanina (Oonia) rumana n. sp.
Pl. IX, fig. 26-29

Derivatio nominis: the new species was found in Romania

Stratus typicus: Valanginian

Locus typicus: Poarta Alba – Novodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Holotype: IGG Col. Emil Avram, no. 19524, pl. IX, fig. 26-27.

Material: 4 specimens, several fragments

Dimensions: H = 2,3-2,7 mm; W = 0,6-11 mm; Ha = 0,7-1 mm; Ha = 1-1,3 mm; Wa = 0,4-0,6 mm; AA = 45-50°

Diagnosis: Millimetric-sized, globose shell with a spire that represents one-third of the shell height. Apical angle has a moderate value (45-50°). The last whorl shows a rapid increase in both height (0,8 – 1,1 mm) and width (0,6 – 1 mm) and becomes inflated, globalar. Sutures slightly depressed and not ornamented. Aperture high and moderately wide, holostome peristome.
Locality: Poarta Alba – Navodari sailing channel, at the intersection with the Capidava - Ovidiu Fault.

Age: Valanginian

Collection: IGG Col. Emil Avram, no. 19524 (holotype, pl. IX, fig. 26-29.)

RELATIONSHIPS BETWEEN THE INTERNAL FOLDS AND THE HABITS OF NERINEACEAN GAMETOPHYES

The question of what is the role of internal folds, so typical for the nerineaceans, was addressed by several authors, since the first discovery of these folds.

Usually, the answer has been that these folds represented a defense mechanism, reinforcing the shell against the attack of durophagous or shell-piercing predators. However, there are some inadvertisences in this answer, such as:

- the first representatives of the Chelicerata that might have attacked these gastropods (Callipodidae) are reported from the Hauterivian, while the first internal folds are found in Middle Jurassic nerineaceans;

- the appearance in the fossil record of the pycnodontid or hybodont fishes postdates that of the nerineaceans as well. Moreover, the ossiferous deposits yielding nerineaceans does not have teeth typical for these predator groups;

- the typical breaks in the nerineacean shell occur at the sutures, and no regenerated lateral walls of these shells were reported until the Late Cretaceous (Barker, 1990, p. 254), the last stage of nerineacean evolution.

Consequently, the problem of internal folds is not yet settled in a satisfactory manner.

However, important data in clearing this problem were presented by Barker (1990, p. 254-259) in his contribution to the internal anatomy of Nerineacea. He noticed the presence of some peculiar aspects of the ultrastructure of the lumen: inside the internal lobes, he noted frequently the presence of either some spots or some small, straight or arched fragments, both of darker color than the infilling material of the shell.

These spots were found in our material as well, in the following taxa: Archimica archimedii (d’Orb.), Coquandia marquassiana (d’Orb.), Roumaniella blancheti (P. et C.), R. gigantea (d’Orb.), R. roumanii n. sp. (together with straight or arched fragments), Diptychus avrani n. sp., and D. marieus n. sp.

The explanation Barker (1990) gave for these details of the ultrastructure was that these spots represent in fact fine tubes (visible in serial cross-sections) with a wall formed by a layer of microcrystalline calcite and filled with largely crystallized calcite. The tubes made up the network of coiled tubes that existed inside the shell, with no contact with the external wall. After the demise of the animal, during the infilling of the shell (usually with a simple, trilobate lumen pattern) parts of this system were filled with calcite. These parts may appear in axial section either as darker spots or straight/arched lines (corresponding to transversal and longitudinal sections through them, respectively).

The material Barker worked on included nerineaceans with a more complicated lumen pattern (5-6 folds in the Bactroptyxidae); the process of inflilling progressing more slowly in those contorted internal lobes, a larger number of dark spots, and even linear fragments of the tubes were preserved. In the material from Dobrogea, mostly spots were noticed. Neither Barker, nor us were able to identify these structures in nerineaceans lacking internal folds; either the faster infilling of the shell did not allow the preservation of such delicate structures, or they had never existed.

Biochemical studies (Barker, 1990) conducted on Recent gastropods with highly turriculated shells demonstrated that, as Barker (1990) stated: “following the first one and a half whorl counted from the aperture in some Recent taxa (Turritella, Buccinum) the presence of a system of digestive glands and gonads can be noticed. The structure of this system remembers the coiled tube network, these tubes opening into larger ducts. There is, moreover, an arterial and venal system in the Recent gastropods.” By analogy, he admitted that the spots and linear fragments observable in nerineacean shells represent the remnants of the major digestive and gonade system of these gastropods, together with parts of the circulatory system. In the same studies, it was shown that the external face of this tube complex is covered by a thin tegmen of the mantle in Recent taxa, and was probably present in Mesozoic taxa as well. The metabolism of the calcium in the gastropods, including the secretion of the shell and that of the internal folds, occurs in the calciferous cells of the epithelium (these cells contain granules and spherules that have positive reaction to the histo-chemical tests for calcium). The same calciferous cells can be found in the epithelium that covers the digestive – gonade system as well as the circulatory system. The calcium is fixed as calcium – phosphate and is limited to a protein base (Barker, 1990, p. 257). The early mineralization of the ducts and the infilling of the shell after the decomposition of the organic parts concurred to the preservation of this delicate system. During the process of rooting, the activity of the reducing bacteria even accelerated the deposition of calcium carbonate. Occupying the largest part of the interior of the shell, the digestive – gonade system represented the only region where the animal could safely deposit the excreted calcium carbonate, without menacing the vital functions of the animal. Seemingly, the reduction of the soft part of the animal (as a result of the internal folds) did not menace these vital activities (food absorption, gamet production, storing the products of digestion) either. Moreover, the development of the folds might have increased the storage volume for digested food.

For their survival and for keeping relatively high population densities, the nerineaceans were forced to have a continuous food supply. This food supply might have come from either suspension filtering, feeding on the organic-rich calcareous mud or even predation. Some nerineaceans lived completely or partially buried in the substrate; their shells show no traces of epifaunal organisms once fixed upon them. Others were epifaunal forms, either highly mobile (with rounded bases of the shells and narrow to closed umbilicus – Fibuloptyxidae) or more sessile (conical forms with short sphylo and wide umbilicus – Pygmatiididae).

Finally, considering all these structural and morphological adaptations to the environment, the ontogenetical dimorphism present in some taxa, is understandable that, after a century and a half of study, the group of the “nerineids” represents a subject of interest.

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REFERENCES


PLATES

**Plate I**
Fig. 1 – 6. *Fibula subplana* Pchelintsev. Fig. 1 – 2 x 10, fig. 3 – 6 x 25. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 7 – 8. *Fibula grandis* Pchelintsev x 25. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 9 – 12. *Sequana depressa* n. sp. x 25. Valanginian, Poarta Alba – Navodari channel (figs. 11-12 are casts).

**Plate II**
Fig. 1 – 2. *Eunereina sp.* Fig. 1 x 1, fig. 2 x 2,5. Upper Jurassic.
Fig. 3 – 4. *Pygmatites (?)* sp. x 2. Upper Jurassic.
Fig. 5 – 6. *Archimeda archimedi* (d’Orb.) x 1. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 7 – 12. *Archimedeana neagui* n. sp. x 1. Valangian, Poarta Alba – Navodari sailing channel.
Fig. 13 – 14. *Coquandiella n.g. Coquandiella valdensis* (P. et C.) x 1. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 15 – 16. *Coquandiella marciaiana* (d’Orb.) x 1. Valanginian, Poarta Alba – Navodari sailing channel.

**Plate III**
Fig. 1 – 2. *Ettallonea etallonii* (P. et C.) x 1. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 3 – 5. *Roumaniella n. g. Roumaniella blancheti* (P. et C.) x 1. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 6 – 7. *Roumaniella gigantea* (d’Orb.) x 1. Valangian, Poarta Alba – Navodari sailing channel.
Fig. 8 – 11. *Sculpturea kuruusensis* Pchel. x 2. Valanginian, Poarta Alba – Navodari sailing channel.

**Plate IV**
Fig. 1. *Coquandiella valdensis* (P. et C.) x 1. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 2 – 4. *Roumaniella roumania* n. sp. x 2. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 5 – 6. *Salinea corpulenta* Pchel. x 25. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 7 – 8. *Sculpturea cf. pravoslavlevi* Pchel. x 25. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 9. *Cossmanneia sp.* x 25. Valanginian, Poarta Alba – Navodari sailing channel.

**Plate V**
Fig. 1 – 5. *Trochoptygmatis trochoidalis* n. sp. x 15. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 6 – 11. *Trochoptygmatis scalaris* Pchel. x 15. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 12 – 13. *Endioplusus paulii* n. sp. x 15. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 14. *Cryptocclus* sp. x 1. Valanginian, Poarta Alba – Navodari sailing channel.

**Plate VI**
Fig. 1 – 5. *Trochoptygmatis longa* Pchel. x 15. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 6 – 10. *Pygmatis valanginiensis* n. sp. x 20. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 11 – 23. *Diptyxis conicus* n. sp. Valanginian, Poarta Alba – Navodari sailing channel.

**Plate VII**
Fig. 1 – 20. *Diptyxis avrami* n. sp. Holotype fig. 1 – 4 (fig. 1 – 2 x 2,5; fig. 3 – 4 x 0,5); paratypes: fig. 5 – 20; fig. 5 – 9: specimens with reduced ornamentation (5,6, 8, 9 x 0,5; 7 x 2); fig. 10 – 20: specimens with prominent ornamentation (10, 12, 16 – 20 x 2; 13 – 15 x0,5). Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 21 – 29. *Diptyxis marius* n. sp. Holotype fig. 21-22; paratypes fig. 23 – 29 (fig. 23, 25 – 27 x1; fi. 24, 28, 29 x2). Valanginian, Poarta Alba – Navodari sailing channel.

**Plate VIII**
Fig. 1 – 4. *Umbonea sp.* x 15. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 5 – 7. *Neritella infracretacea* Pchel., x 15. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 8. *Endiatriachelles* sp. x 15. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 9 – 15. *Valanginella infracretacea* Pchel. x 15. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 16 – 19. *Valanginella fibulaformis* Pchel. x 15. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 20. *Valanginella planata* Pchel. x 15. Valanginian, Poarta Alba – Navodari sailing channel.

**Plate IX**
Fig. 1 – 3. *Vernedia antiqua* n. sp. x25. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 4 – 5. *Metacerithium latibasis* n. sp. x25. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 6 – 13. *Procerithium (Cosmocerithium) infracretacensis* n. sp. Fig. 6 –9 x2; fig. 10 – 13 x1. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 14 – 21. *Pseudomelanina (Pseudomelanina) acuta* n. sp. Fig. 14 – 17 x1; fig. 18 – 21 x2. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 22 – 25. *Pseudomelanina (Pseudomelanina) bicarinata* Pchel. Fig. 22 – 23 x1; fig. 24 – 25 x2. Valanginian, Poarta Alba – Navodari sailing channel.
Fig. 26 – 29. *Pseudomelanina (Oonia) rumana* n. sp. Fig. 26 – 27 x25; fig. 28 – 29 x20. Valanginian, Poarta Alba – Navodari sailing channel.