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Middle Eocene (Bartonian) brachiopods from Turnu Roșu (Transylvanian Basin, Romania): oldest record of *Megerlia* and Kraussinidae

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Abstract – Nannoplankton studies of the Transylvanian Turnu Roșu section, based on the presence of *Reticulofenestra umbilicus, R. bisecta, R. lockeri, Helicosphaera compacta* and *Sphenolithus spiniger* refer to Bartonian (middle Eocene) age. The brachiopod assemblage of Turnu Roșu contains four species. The assemblage is dominated by *Gryphus kickxii*, one of the most common brachiopod species of the European Eocene. The other three taxa are very rare (1–1 specimen). *Terebratulina tenuistriata* is also widespread in the Tethyan Eocene, while the genus *Megerlia* everywhere belongs to the very rare elements in the Paleogene. The fourth taxon is an unidentifiable fragmentary terebratulide which is clearly different from the previously mentioned three taxa. The Bartonian *Megerlia* sp. specimen is the oldest known fossil record of the genus *Megerlia* and the family Kraussinidae. With 41 figures.

Key words – Brachiopoda, calcareous nannoplankton, NP17, *Gryphus*, *Megerlia*, middle Eocene, Transylvanian Basin, *Terebratulina*

INTRODUCTION

Brachiopods are not very common in the Eocene of the Transylvanian Basin, but some publications have mentioned their presence. Pávay (1871) found two species of *Terebratulina* [*T. tenuistriata* (Leymerie, 1846) and *T.* cf. *chrysalis* (von Schlotheim, 1813)] in the Priabonian Bryozoan strata near Cluj-Napoca (Kolozsvár), while Koch (1874) recorded an *Argiope* (=? *Argyrotheca* or *Megathiris*) species in addition to *T. tenuistriata* from the Papp stream valley in Cluj-Napoca. Koch (1874) mentioned another species of *Terebratulina* (*T. parisiensis* Deshayes, 1858) from the vicinity of Inucu (Inaktelke) and Aghires

(Egeres). Meznerics (1944) described in her small monograph a new species of *Terebratulina* (*T. plana* Meznerics, 1944) from Aghires as type locality (first incorrectly mentioned the locality as middle Miocene, later correctly as middle Eocene). This species is close to *T. parisiensis* from the Paris Basin, but smaller and flatter in appearance. The most detailed (albeit very brief, without any specific descriptions or illustrations) summary of the Eocene brachiopods of the Transylvanian Basin is given by Fuchs (1973). Summarizing his own data and literature, he listed a total of ten taxa from the surroundings of Cluj-Napoca. Unfortunately, the search for the collection of Herman Fuchs in Cluj-Napoca was unsuccessful, so we can only make a few revisionary remarks based on the published names. *Terebratulina tenuistriata* is common all over Europe, so its occurrence in the Transylvanian Basin is also likely. A number of species names have been included in its synonymy list (see e.g. Bitner 2000), so some of the *Terebratulina* names in Fuchs' article may also belong to this category. However, based on the MBFSZ (Magyar Bányászati és Földtani Szolgálat = Mining and Geological Survey of Hungary, Budapest) collection, *T. parisiensis* (or a very similar species) occurs in the material. Certainly, some species of Megathyrididae may be present, but even their genus level identification (*Megathiris*, *Argyrotheca*, *Joania*) would be possible only if the specimens were known (Fuchs mentioned both *Argyrotheca* and *Megathiris*). The presence of *Megerlia* (*Mühlfeldtia* in Fuchs' list) and *Lacazella* [probably *L. mediterranea* (Risso, 1826)] seems unambiguous.

It is also a problem that the type specimens of *Terebratulina plana* described by Meznerics (1944) from Aghires, are missing in the collection of the MBFSZ (Boda 1964), and the quality of the photographs in her publication does not allow a meaningful revision of the species. One of the authors (AD) had the opportunity to review the Transylvanian Eocene Brachiopoda material in the MBFSZ collection, consisting mainly of *Terebratulina* specimens, which were most probably also examined by Meznerics (1944). From Cluj-Napoca and Cluj-Mănăștur (Kolozsmonostor) there are several *T. tenuistriata* with characteristically elongated outline. The material from the latter site also contains a single, strongly ribbed specimen of *Argyrotheca*. In addition to four larger specimens from Aghires, smaller specimens of *T. tenuistriata* are stored in some boxes. At the same time, a rounded-edged, flat and densely ribbed *Terebratulina* can be isolated from Aghires and Inucu, which is recorded on the collection label (after A. Koch) as *T. parisiensis*, but probably from this material Meznerics (1944) described the species *T. plana*. It is not uncommon in this site, with a single lot in the MBFSZ collection containing about 100 specimens.

An additional important paper on the Eocene brachiopods of the Transylvanian Basin was published by Popescu-Voitesti (1911) from the nummulitic limestone of Albesti. He studied the echinoid and brachiopod fauna and

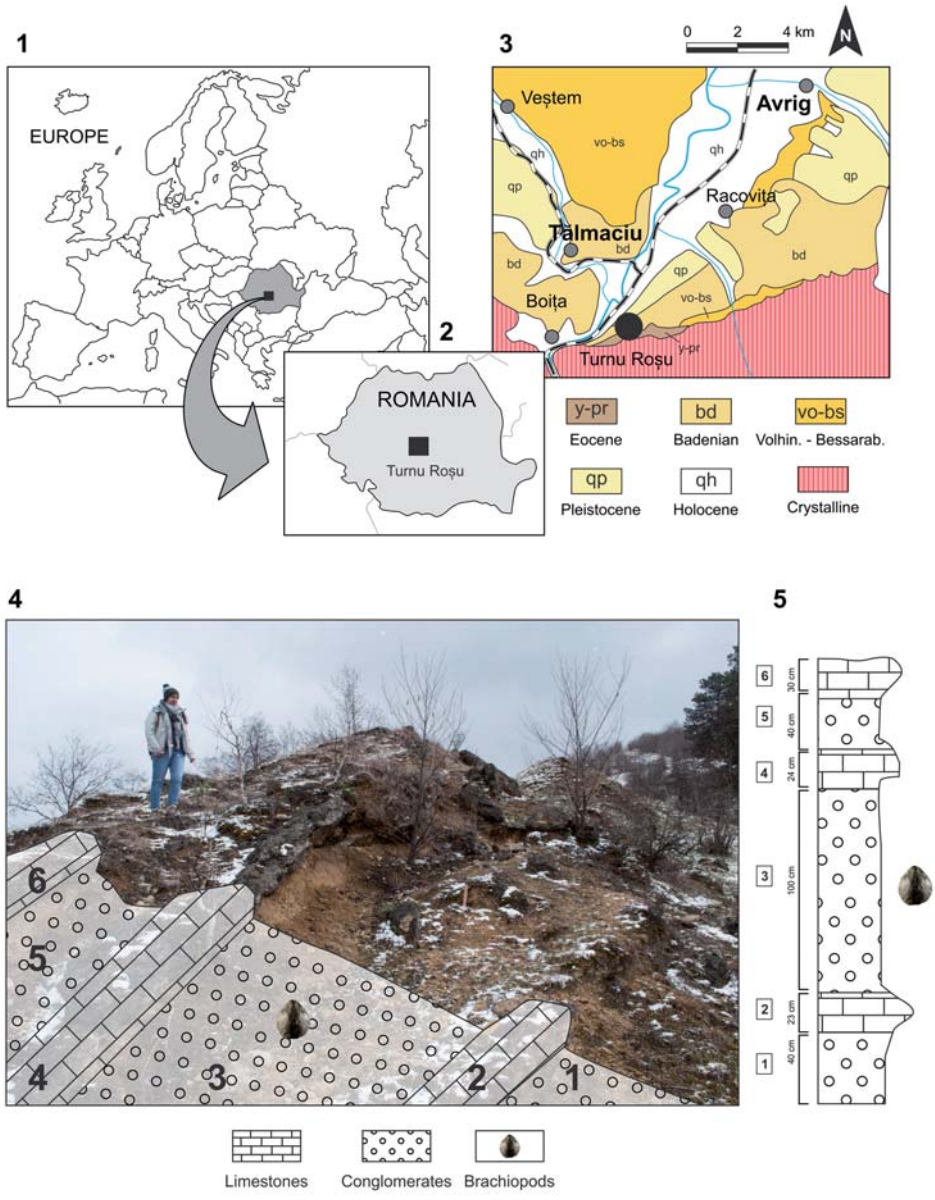
identified a relatively diverse brachiopod association with six species, which require a revision. He differentiated *Terebratula hilarionis* Meneghini with several different forms (*subrotundata*, *subpentagonalis*, *applanata*, *subtriangularis*, *truncata*, *elongata*) and *T. kickxii* Galeotti, which are representing the same species (*Gryphus kickxii*, see Bitner *et al*., 2011). The wide variability of *G. kickxii* was demonstrated e.g. by Dulai *et al*. (2010). Popescu-Voitesti (1911) mentioned *Terebratula fumanensis* Meneghini and *Terebratulina striatula* Sowerby without illustrations; therefore their validity cannot be checked. The most interesting members of this assemblage are the *Hemithyris* specimens, as rhynchonellides are generally rare in the Cenozoic brachiopod faunas. He recognized three species, namely *Hemityhris* (*Rhynchonella*) *polymorpha* Massalongo, *Hemityhris* (*Rhynchonella*) cfr. *eocomplanata* Sacco, and *Hemithyris* cfr. *plicatodentata* Costa var. *pseudobipartita* Sacco. However, on the basis of the illustrations they probably represent a single variable species, the anteriorly slightly ribbed *Erymnaria polymorpha* Massalongo. The names *plicatodentata* and *pseudobipartita* refer to another rhynchonellide genus, *Aphalesia* which occur only in the Mediterranean Neogene (e.g., Gaetani & Saccà 1985).

The aim of this paper is to present the small brachiopod fauna from Turnu Roşu locality in the Transylvanian Basin (Romania), as well as the determination of the age of the brachiopod-bearing layer based on calcareous nannoplankton studies.

GEOLOGICAL SETTINGS

The Turnu Roşu locality is situated in the southern part of the Transylvanian Basin, in the central part of Romania (Figs 1–5). Here, small patches of Eocene deposits survived the erosion processes and crop out on the outskirts of this locality. The deposits consist of limestones, sandstones, conglomerates and of subsequent breccias.

Although the Turnu Roşu deposits are well known since the middle part of the 19th century and the Eocene age was established by the first authors who studied this area (Neugeboren 1850, 1851; Hauer & Stache 1863), a more precise dating and a correlation to the rest of the basin proved to be difficult. This was due to the facts that the deposits were affected by erosion and the vertical movements of the crystalline basement shifted the Eocene strata at various heights. However, Mészáros & Ianoliu (1971) indicated, based on mollusks, the presence of the entire Eocene sedimentary sequence starting with the late Ypresian up to the end of the Priabonian. Later, Mészáros (1996) tried to define a sedimentary group (the 'Turnu Roşu Group') composed of three formations, 'Valea Satului Formation', 'Strada Muntelui Formation', and 'Valea Nişului



Figs 1–5. Geological settings. – **Fig. 1.** Position of the studied locality in Europe. – **Fig. 2.** Position of the studied locality in Romania. – **Fig. 3.** Localization of the Eocene deposits at Turnu Roșu (according to the Geological Map of the Geological Institute of Romania, *folio* Sibiu, 1:200,000, simplified and modified). – **Fig. 4.** Field aspect of the outcrop (the numbers represent the calcareous nannoplankton samples). – **Fig. 5.** The lithostratigraphic log

Formation'. Unfortunately, as it was previously shown by Carrasco & Trif (2021), the publication of Mészáros (1996) failed to meet the minimum criteria for a Recognized Scientific Medium for a stratigraphic unit proposal as defined by Murphy & Salvador (1999) thus the sedimentary group and the formations are not valid. The deficiencies mentioned above but also the lack of further stratigraphic studies in the last 25 years prevent us from having a clear image of the stratigraphy of this locality. Moreover, correlations with the much better-known depositional area in the northwest part of the Transylvanian Basin are not yet possible. Considering all these, in order to make progress in the palaeontological study of the fossils discovered in this site, we have constrained the age of the deposits based on calcareous nannoplankton analysis.

The studied outcrop is situated on the northern slope of the Grohotişului Hill, at 45° 38' 11.53" N and 24° 18' 09.04" E. Here, we find a rhythmic succession composed of three layers of conglomerates intercalated with three limestone layers (Figs 1–5). The middle conglomerate layer contains the brachiopod fauna which is the subject of the current study. In this layer, in addition to the brachiopods, we found also other invertebrates (gastropods, bivalves, fragments of echinoids, corals) and vertebrates (teleostei, sharks, and sirenians) that will be the subject of future studies.

MATERIAL AND METHODS

The studied material is very limited; it contains only 9 specimens, as brachiopods are very rare in the Turnu Roşu locality. The author who collected the specimens (NT) has been active in the field at Turnu Roşu for more than 25 years, nonetheless could not collect more brachiopods. All the specimens are restricted to only one conglomerate level and are fossilized as internal moulds. All of the studied specimens were deposited in the Babeş-Bolyai University Palaeontology-Stratigraphy Museum in Cluj-Napoca (BBUPSM).

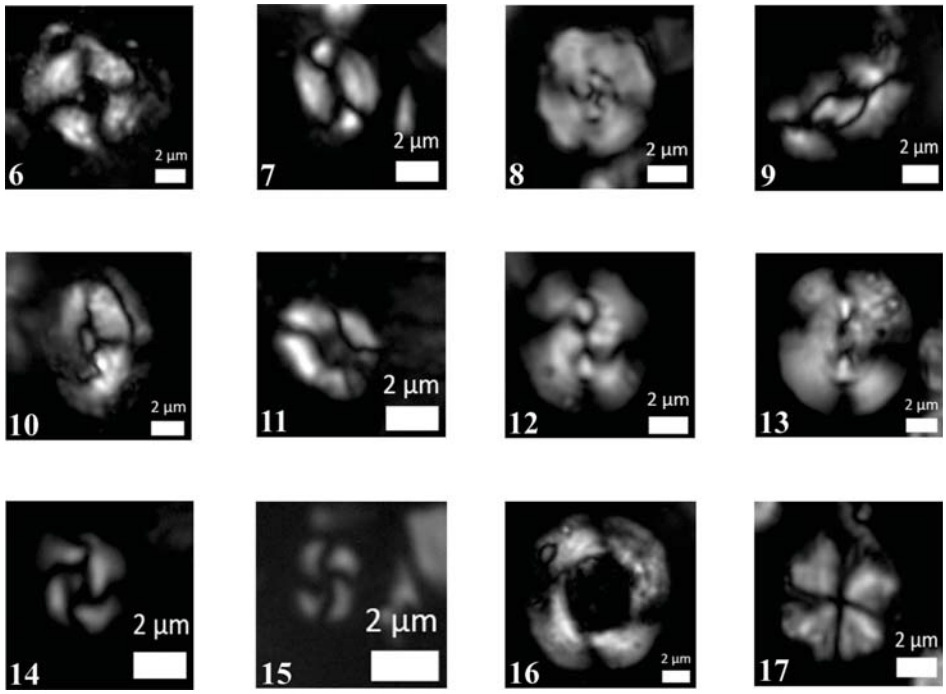
In order to constrain the age of the studied deposits, six samples were analysed for their calcareous nannoplankton content. The smear slides were prepared based on simple smear slide technique, mentioned by Bown & Young (1998), and then analysed using a light microscope (Axiolab A) at ×1000 magnification. The images were captured by a digital camera (AxioCam Erc5s).

Calcareous nannoplankton studies

The calcareous nannoplankton assemblage, containing 28 species, presents a poor to moderate preservation. Some of the individuals have been identified only at the genus level due to the absence of diagnostic features. The associa-

tion is clearly dominated by species belonging to the family Noelaerhabdaceae: *Reticulofenestra minuta* (Roth, 1970), *R. reticulata* [(Gartner et Smith, 1967) Roth et Thierstein, 1972], *R. bisecta* [(Hay, Mohler et Wade, 1966) Roth, 1970], *R. dictyoda* [(Deflandre in Deflandre et Fert, 1954) Stradner in Stradner et Edwards, 1968], *R. lockeri* (Müller, 1970), *R. umbilicus* [(Levin, 1965) Martini et Ritzkowski, 1968], *R. stavensis* [(Levin & Joerger, 1967) Varol, 1989], *R. hampdenensis* (Edwards, 1973), *R. hillae* (Bukry et Percival, 1971), *R. daviesii* [(Haq, 1968) Haq, 1971], *Cyclicargolithus floridanus* [(Roth et Hay in Hay *et al.*, 1967) Bukry, 1971*a*] (Figs 6–17).

Other species observed in the association are: *Coccolithus pelagicus* [Wallich, 1877 (Schiller, 1930)], *C. formosus* [(Kamptner, 1963) Wise 1973], *C. eopelagicus* [(Bramlette et Riedel, 1954) Hay, Mohler et Wade, 1966], *Helicosphaera compacta* (Bramlette et Wilcoxon, 1967), *H. bramlettei* [(Müller, 1970) Jafar et Martini, 1975], *Pontosphaera panarium* [(Deflandre in Deflandre et Fert, 1954) Aubry,



Figs 6–17. Calcareous nannofossils from the studied samples. – **Fig. 6.** *Coccolithus formosus* (sample 1). – **Fig. 7.** *Coccolithus pelagicus* (sample 2). – **Fig. 8.** *Cyclicargolithus floridanus* (sample 6). – **Fig. 9.** *Helicosphaera bramlettei* (sample 3). – **Fig. 10.** *Helicosphaera compacta* (sample 3). – **Fig. 11.** *Lanternithus minutus* (sample 5). – **Figs 12–13.** *Reticulofenestra bisecta* (sample 1). – **Fig. 14.** *Reticulofenestra lockeri* (sample 3). – **Fig. 15.** *Reticulofenestra minuta* (sample 6). – **Fig. 16.** *Reticulofenestra umbilicus* (sample 1). – **Fig. 17.** *Sphenolithus moriformis* (sample 1)

1986], *P. multipora* [(Kamptner, 1948 ex Deflandre in Deflandre et Fert, 1954) Roth, 1970], *P. exilis* [(Bramlette et Sullivan, 1961) Romein, 1979], *Lanternithus minutus* (Stradner, 1962), *Zygrablithus bijugatus* [(Deflandre in Deflandre et Fert, 1954) Deflandre, 1959], *Markalius inversus* [(Deflandre in Deflandre et Fert, 1954) Bramlette et Martini, 1964], *Sphenolithus spiniger* (Bukry, 1971), *S. moriformis* [(Brönnimann et Stradner, 1960) Bramlette et Wilcoxon, 1967], *Umbilicosphaera bramlettei* [(Hay et Towe, 1962) Bown *et al.*, 2007], *Blackites tenuis* [(Bramlette et Sullivan, 1961) Sherwood, 1974], *Discoaster saipanensis* (Bramlette et Riedel, 1954), and *D. barbadiensis* (Tan Sin Hok, 1927).

The marker species are absent from the studied material but based on the presence or absence of some other species, together with their total range we assigned an age for the studied deposits. The presence of *Reticulofenestra umbilicus, R. bisecta, R. lockeri, Helicosphaera compacta*, and *Sphenolithus spiniger* argues for a Bartonian age for the studied section. Thus, the calcareous nannoplankton assemblage can be attributed to the *Discoaster saipanensis* Zone (NP17) of Perch-Nielsen (1985), which is defined as the interval from the last occurrence of *Chiasmolithus solitus* to the first occurrence of *Chiasmolithus oamaruensis*, both species being absent from the studied deposits.

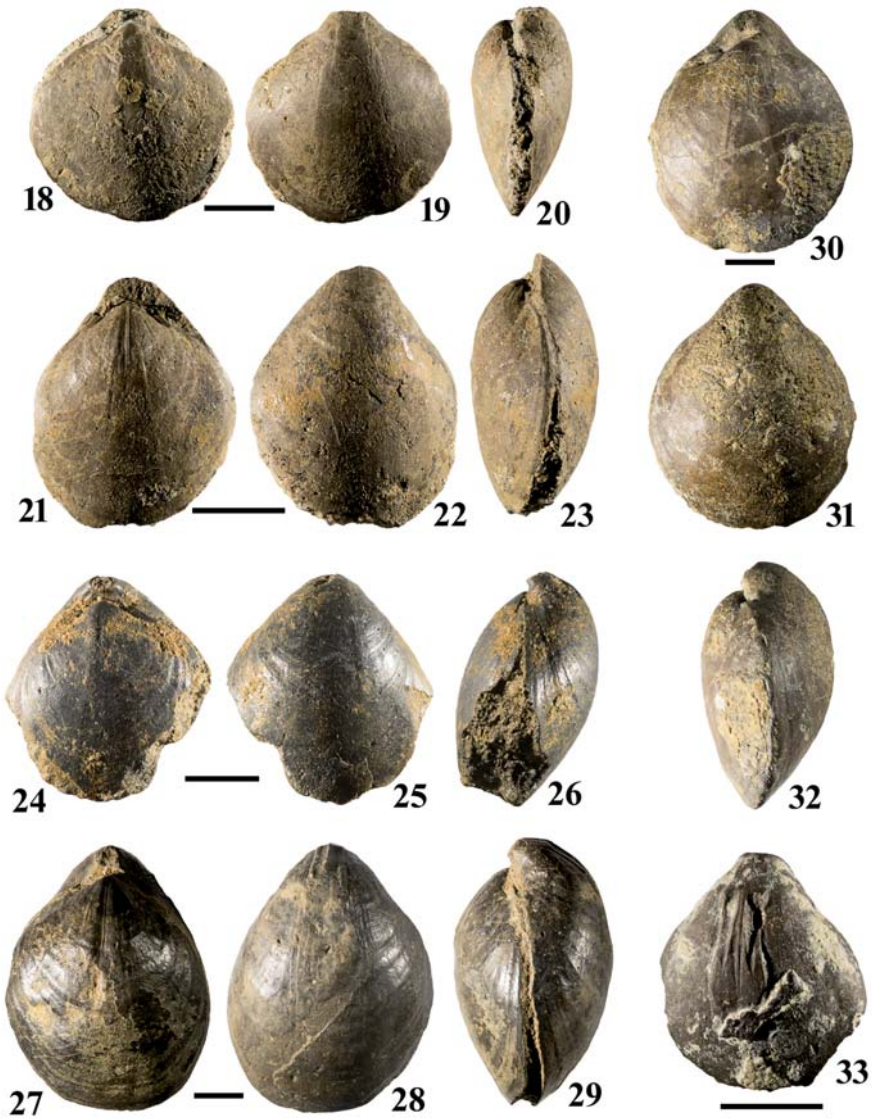
SYSTEMATIC PALAEONTOLOGY

Phylum Brachiopoda Duméril, 1806
Subphylum Rhynchonelliformea Williams, Carlson, Brunton, Holmer et Popov, 1996
Class Rhynchonellata, Williams, Carlson, Brunton, Holmer et Popov, 1996
Order Terebratulida Waagen, 1883
Superfamily Terebratuloidea Gray, 1840
Family Terebratulidae Gray, 1840
Subfamily Gryphinae Sahni, 1929
Genus *Gryphus* Megerle von Mühlfeld, 1811

Gryphus kickxii (Galeotti, 1837)
(Figs 18–33)

2010 *Gryphus kickxii* (Galeotti, 1837) – Dulai *et al.*, pp. 184–185, pl. 1, figs 1–11.
? 2010 *Carneithyris subregularis* (Quenstedt) – Sulser *et al.*, pp. 261–264, Text-Figs 3, 4, 5.
2011 *Gryphus kickxii* (Galeotti, 1837) – Bitner *et al.*, pp. 117–120, figs 3D–I, 4, 5A, B (cum syn.).

Material – 6 specimens (inventory numbers: BBUPSM 24348, 24350, 24351, 24352, 24353, 24355).



Figs 18–33. *Gryphus kickxii* (Galeotti, 1837). – **Figs 18–20.** Internal mould, BBUPSM 24350. – **Fig. 18.** Dorsal view. – **Fig. 19.** Ventral view. – **Fig. 20.** Lateral view. – **Figs 21–23.** Internal mould, BBUPSM 24351. – **Fig. 21.** Dorsal view. – **Fig. 22.** Ventral view. – **Fig. 23.** Lateral view. – **Figs 24–26.** Internal mould, BBUPSM 24352. – **Fig. 24.** Dorsal view. – **Fig. 25.** Ventral view. – **Fig. 26.** Lateral view; **Figs 27–29.** Internal mould, BBUPSM 24353. – **Fig. 27.** Dorsal view. – **Fig. 28.** Ventral view. – **Fig. 29.** Lateral view. **Figs 30–32.** Internal mould, BBUPSM 24355. – **Fig. 30.** Dorsal view. – **Fig. 31.** Ventral view. – **Fig. 32.** Lateral view. – **Fig. 33.** Internal mould, BBUPSM 24348, ventral view. Scale bars = 5 mm

Remarks – *G. kickxii* is one of the most frequent brachiopods of the Tethyan Eocene. Although it shows relatively simple outer morphology, it has a very complex taxonomic history, as it was discussed in detail by Bitner *et al.* (2011). It was assigned to different genera (e.g., *Waldheimia*, *Magellania*, *Carneithyris*), however, the study of internal morphological characters by serial sections as well as the investigation of shell ultrastructure of Hungarian (Bakony Mts) specimens refer to the short-looped terebratulide genus, *Gryphus* (Bitner *et al.* 2011). The species level identification was even more variable. Most commonly it was mentioned as *T. kickxii* Galeotti described from Belgium or *T. hilarionis* Meneghini described from Italy. Some other names were used in the Austrian and Swiss Alpine area (e.g., *aequivalvis* Schafhäutl, *picta* Schafhäutl, *subregularis* Quenstedt) which also seem to be synonymous with *G. kickxii*, but their revision has only partly been made (see e.g. Dulai *et al.* 2010 and Sulser *et al.* 2010). Several new species were introduced from Turkey (d' Archiac 1866: *dinerensis*, *phrygia*), Kazakhstan (Aliev & Nechrikova 1970: *kinderlensis*) or Ukraine (Zelinskaya 1975: *poculoformis*, *akkajensis*, *globosus*) which are within the intraspecific variability of *G. kickxii* (Bitner *et al.* 2011). Recently *Gryphus* cf. *minor* Philippi was identified from the Italian Paleogene (lower Oligocene) which had been known only from the Neogene (Bitner *et al.* 2020). The studied assemblage represents the second record of this species from Romania, as Popescu-Voitesti (1911) published this species from Albesti under different names including also *T. kickxii*. All the studied specimens are double valved internal moulds, but can be identified as *G. kickxii* on the basis of outline and beak characteristics as well as the impressions of muscle scars on the moulds.

Distribution – This is a well-known and widely distributed species in the Eocene of Europe: Belgium (Davidson 1874; Vincent 1893, 1923), Italy (Davidson 1870; Oppenheim 1896, 1901; Fabiani 1913; Dainelli 1915; Altichieri 1992), Switzerland (Sulser *et al.*, 2010), Austria (Dulai *et al.*, 2010), Hungary (Meznerics 1944; Bitner *et al.*, 2011), Poland (Popiel-Barczyk 1996), Romania (Popescu-Voitesti 1911; this paper), Bulgaria (Bonchev 1927; Gochev 1933) and Ukraine (Zelinskaya 1975), and also in Turkey (D'Archiac 1866), the Caucasus region, and the Mangyshlak Peninsula, Kazakhstan (Aliev & Nechrikova 1970).

Superfamily Cancellothyridoidea Thomson, 1926
Family Cancellothyrididae Thomson, 1926
Subfamily Cancellothyridinae Thomson, 1926
Genus *Terebratulina* d'Orbigny, 1847

Terebratulina tenuistriata (Leymerie, 1846)
(Figs 34–36)

? 1911 *Terebratulina striatula* Sow. – Popescu-Voitesti, pp. 16–17.
2000 *Terebratulina tenuistriata* (Leymerie) – Bitner, p. 118, figs 2, 3, 4A–F, 5A–G (cum syn.).
2020 *Terebratulina tenuistriata* (Leymerie, 1846) – Astibia *et al*., p. 10, Fig. 3a–d.
2020 *Terebratulina tenuistriata* (Leymerie, 1846) – Bitner *et al*., p. 171, Fig. 4B–G (cum syn.).

Material – 1 specimen (inventory number: BBUPSM 24347).

Remarks – Although only one specimen was found in the Transylvanian material studied, *T. tenuistriata* is one of the most common Brachiopoda species in the European Eocene formations (see e.g. Bitner 2000; Bitner *et al*. 2011, 2020). It was mainly recorded from the Eocene but some recent data from Germany suggest that the stratigraphic distribution of the species continued from the Eocene to the Oligocene (Bitner & Müller 2015). The only internal mould of the studied material can be identified on the basis of the elongated outline and the imprints of the several ribs. Popescu-Voitesti (1911) mentioned *Terebratulina* from the Romanian Eocene under the name *Terebratulina striatula* Sowerby without any illustrations. As previously *T. striatula* was synonymized with *T. tenuistriata* by Bitner (2000), this record is indicated with a question mark in the synonymy list. *T. tenuistriata* was also mentioned from the Eocene of the Transylvanian Basin without any illustrations by Pávay (1871), Koch (1874), and Fuchs (1973).

Distribution – Widely distributed in the Eocene of Europe and the Mediterranean region: England (Elliott 1938), Belgium (Davidson 1874), Spain (Abrard 1926; Bitner 2000; Bitner *et al*. 2016; Astibia *et al*. 2020), France (Doncieux 1905, 1926), Italy (Davidson 1870; Bitner & Dieni 2005; Bitner *et al*. 2020), Germany (Bitner & Müller 2015), Austria (Dulai *et al*. 2010; Dulai 2011) Poland (Barczyk 1973; Popiel-Barczyk & Barczyk 1987), Ukraine (Bitner & Müller 2017), Hungary (Bitner & Dulai 2008; Bitner *et al*. 2011), Bulgaria (Gochev 1933), Romania (Pávay 1871; Koch 1874; Popescu-Voitesti 1911; Fuchs 1973; this paper), Egypt (Bitner & Boukhary 2009), the United Arab Emirates (Bitner & Boukhary 2012)

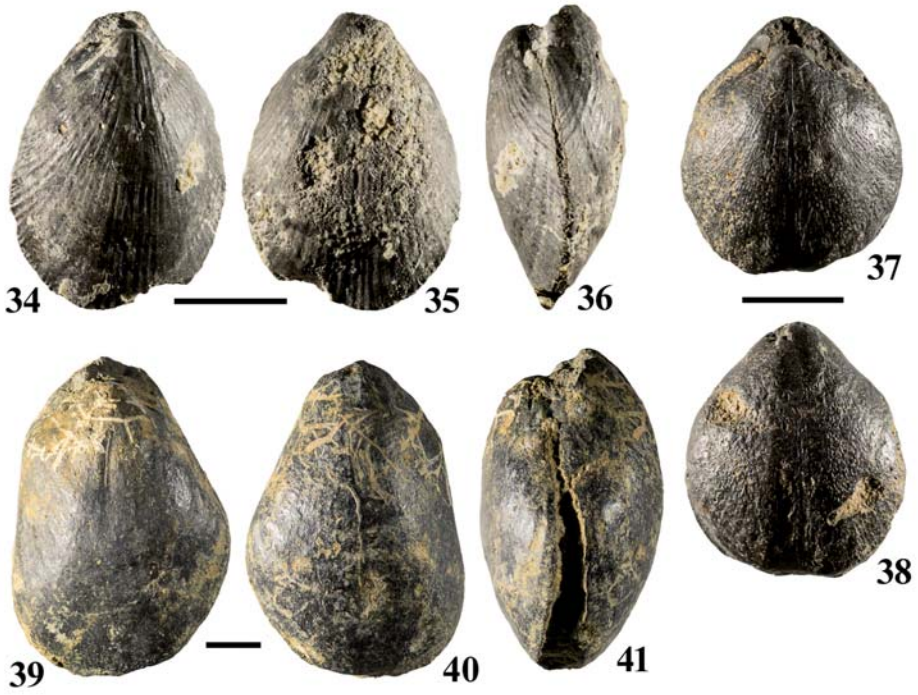
Superfamily Kraussinoidea Dall, 1870
Family Kraussinidae Dall, 1870
Genus *Megerlia* King, 1850

Megerlia sp.
(Figs 37–38)

Material – 1 specimen (inventory number: BBUPSM 24349)

Remarks – Genus *Megerlia* is a common member of Neogene and Recent brachiopod assemblages (e.g., Logan 1979, Bitner 1990), however, it is rare in the Paleogene (see Discussion). The only available specimen is an internal mould, however, the characters of the genus *Megerlia* are well visible (medium-sized, slightly unisulcate shell; large submesothyrid foramen; valve interiors radially tuberculate; short dorsal median septum and base of the septal pillar). *Megerlia* has two common species in the Neogene, namely *M. truncata* and *M. eusticta*. *M. tuncata* is generally wider than long and has mostly very irregular shape and outline, while *M. eusticta* shows more regular outline and shape. On the basis of these characters, the Romanian Bartonian specimen is more similar to the species *eusticta*, but the paucity and the preservation of the material prevent the species level identification.

Distribution – Middle Eocene (Bartonian) in the Transylvanian Basin (this paper).



Figs 34–36. *Terebratulina tenuistriata* (Leymerie, 1846), internal mould, BBUPSM 24347. – **Fig. 34.** Dorsal view. – **Fig. 35.** Ventral view. – **Fig. 36.** Lateral view. – **Figs 37–38.** *Megerlia* sp, internal mould, BBUPSM 24349. – **Fig. 37.** Dorsal view. – **Fig. 38.** Ventral view. – **Figs 39–41.** Terebratulida gen. et sp. indet., internal mould, BBUPSM 24354. – **Fig. 39.** Dorsal view. – **Fig. 40.** Ventral view. – **Fig. 41.** Lateral view. Scale bars = 5 mm

Terebratulida gen. et sp. indet
(Figs 39–41)

Material – 1 specimen (inventory number: BBUPSM 24354)

Remarks – Only a single specimen is available, but it can be differentiated from the other three taxa of the Turnu Roșu locality. The lack of radial ribs and radial tuberculation on the internal surface of the shells clearly distinguish it from the genera *Terebratulina* and *Megerlia*. It also differs from the more common *Gryphus* specimens by the more elongated and less regular subpentagonal outline and especially by the possible presence of a short dorsal median septum (Fig. 39). However, the paucity and the preservation of the material prevent identification at the species or even genus level.

Distribution – Middle Eocene (Bartonian) in the Transylvanian Basin (this paper).

DISCUSSION

Turnu Roșu is a well-known fossiliferous locality, but brachiopods are rather rare. All the known nine specimens are restricted to only one conglomerate level at the middle of the section and are fossilized as internal moulds. As the precise age of the brachiopod-bearing layer was uncertain, calcareous nannoplankton remains of six samples from the section were investigated. The calcareous nannoplankton assemblage, containing 28 species, presents a poor to moderate preservation. The presence of *Reticulofenestra umbilicus, R. bisecta, R. lockeri, Helicosphaera compacta*, and *Sphenolithus spiniger* suggests a Bartonian age of the studied section.

The middle Eocene Turnu Roșu brachiopod assemblage is dominated by the widely distributed, short-looped terebratulide species, *Gryphus kickxii*, and complemented by three very rare taxa. *Terebratulina tenuistriata* also belongs to the common and wide-spread Eocene species. *Megerlia* sp. cannot be identified at the species level, but yielded important new data on the stratigraphic distribution of this genus, as well as the family Kraussinidae. The revised Treatise indicated both the family Kraussinidae and the genus *Megerlia* from the Neogene (Miocene) – Holocene interval (Lee & MacKinnon 2006). However, shortly after this publication, some Paleogene records became available. *Megerlia truncata* was identified from the Chattian (late Oligocene) in France (Bitner *et al*. 2013), while *Megerlia* sp. was mentioned also from the Chattian in Hungary (Dulai 2010). Currently the oldest known record is *Megerlia* sp. from the late Eocene (Priabonian) of Ukraine (Bitner & Müller 2017). Fuchs (1973) mentioned also *Mühlfeldtia* (*Megerlia*) *oblita* from late Eocene limestone in the environs of

Cluj-Napoca, however, without any illustration or description. Therefore, the Bartonian *Megerlia* sp. from Turnu Roşu could be the oldest known record for the genus *Megerlia* as well as for the family Kraussinidae.

The genus *Gryphus* is living today in oceans at depths of 50 to 3,700 m (Logan 2007). Most of the recent assemblages are known from deeper water habitats. Mediterranean *Gryphus vitreus* was recorded from bathyal environments (e.g., Emig & Arnaud 1988; Emig 1989). However, Eocene *G. kickxii* was rather frequent in shallow water environments [e.g., Szőc Limestone in the Bakony Mts, Hungary (Bitner *et al.* 2011) or nummulitic limestones and conglomerates in Romania (Popescu-Voitesti 1911 and present paper)]. The evolutionary history of the genus *Gryphus* should be investigated more thoroughly in the future.

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