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LOST AND FOUND: WILHELM FRIEDBERG'S MIOCENE BRACHIOPOD COLLECTION

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Abstract: The Middle Miocene (Badenian) brachiopod collection from western Ukraine, described by Wilhelm Friedberg, has been revised taxonomically. For many years, this collection was believed to be lost, but recently it was rediscovered at the State Museum of Natural History (formerly the Dzieduszycki Family Natural History Museum) in Lviv, Ukraine. In his paper, Friedberg described 13 brachiopod species and/or subspecies. Following the revision, eight species have been recognised as valid, i.e., *Lingula dregeri* Andreae, *Discinisca leopolitana* (Friedberg), *Terebratula styriaca* Dreger, *Gryphus miocenicus* (Michelotti), *Megathiris detruncata* (Gmelin), *Argyrotheca cuneata* (Risso), *Joania cordata* (Risso), and *Megerlia truncata* (Linnaeus). Among them, *T. styriaca* and *M. truncata* are the predominant species.

Key words: Brachiopoda, Badenian, Central Paratethys, Ukraine, revision.

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INTRODUCTION

Although not diverse, brachiopods are a common element of the Middle Miocene benthic communities in the Central Paratethys. They have been described from numerous localities throughout the entire Central Paratethys (e.g., Bitner, 1990, 1993; Popiel-Barczyk and Barczyk, 1990; Bitner and Pisera, 2000; Dulai, 2007, 2015, 2025; Bitner *et al*., 2013, 2014, 2023, 2024; Pavézková *et al*., 2013; Hladilová *et al*., 2014; Bitner and Motchurova-Dekova, 2016; Kopecká *et al*., 2018; Dulai and Szabó, 2025). However, the extent of knowledge about them in the Ukrainian part of the Central Paratethys remains limited. In his paper, describing Miocene brachiopods from the Vienna Basin, Dreger (1889) mentioned the presence of three species in western Ukraine, *Argiope decollata* Chemnitz, *Cistella squamata* Eichw., and *Platidia anomioides* Scacchi. Three species, *Terebratula ampulla* Brocc., *Argiope decollata* Chemn., and *Discina* sp. (*leopolitana*), were also mentioned by Łomnicki (1897), who merely listed them without any descriptions. The brachiopods were subsequently described and illustrated for the first time by Friedberg (1921), who recognised 13 species and/or subspecies. Kudrin (1961) described two species of *Terebratula*, *T. grandis* Blumenbach, 1803 and *T. makridini* Kudrin, 1961 from this region. However, the place of storage of Kudrin's collection remains unknown; only three specimens are on display in the Palaeontological Museum of the Ivan Franko National University of Lviv (personal communication with the Head of the Museum, Yaryna Tuzyak). More recently, Bitner and Dulai (2004) reported the species *Terebratula* sp. from the Horodenka locality, in southwestern Ukraine.

The aim of this paper is a revision of Wilhelm Friedberg's Miocene brachiopod collection, housed at the State Museum of Natural History of the National Academy of Sciences of Ukraine in Lviv. This brachiopod collection required taxonomic revision, as some specimens were described under invalid names, while others were incorrectly identified.

HISTORICAL BACKGROUND

Wilhelm Friedberg (1873–1941) was a prominent scientist, who during most of his career was associated with the Dzieduszycki Family Natural History Museum (now the State Museum of Natural History) in Lviv, Ukraine (Bakayeva

and Kaim, 2024). His scientific interests were mainly focused on the Miocene molluscan faunas, both of Poland and western Ukraine. Friedberg's most outstanding work was a two-volume monograph on Miocene gastropods and bivalves, published in two parts (Friedberg, 1911–1928, 1934–1936). Another fossil group, with which Friedberg essentially began his scientific career, was Cretaceous Foraminifera (Friedberg, 1901).

However, few people are aware that Friedberg also published a paper on Miocene brachiopods from western Ukraine (Friedberg, 1921). For many years, this collection was believed to be lost, but it was recently rediscovered at the State Museum of Natural History in Lviv.

LOCALITY AND GEOLOGICAL REMARKS

During the Middle Miocene, western Ukraine formed part of the Central Paratethys, an epicontinental sea that extended from Austria and southern Poland to Romania and northern Bulgaria, with intermittent connections to the Mediterranean and Indo-Pacific regions (Rögl, 1998). The shallow-water deposits of the Paratethys contain abundant and diverse invertebrate faunas, including brachiopods. In Ukraine, Middle Miocene deposits are typically composed of sandy-clayey sediments, rich in marine fauna (Andreyeva-Grigorovich *et al*., 1997; Jasionowski *et al*., 2012; Fig. 1), characterised by highly diverse gastropod and bivalve assemblages (Friedberg, 1911–1928, 1934–1936), while brachiopods are less common.

MATERIAL AND METHODS

The brachiopod collection, housed at the State Museum of Natural History in Lviv, was found to be divided into two parts. One portion of the specimens was placed in the section, designated for monographic collections, while the remainder was stored within the general Neogene fossil

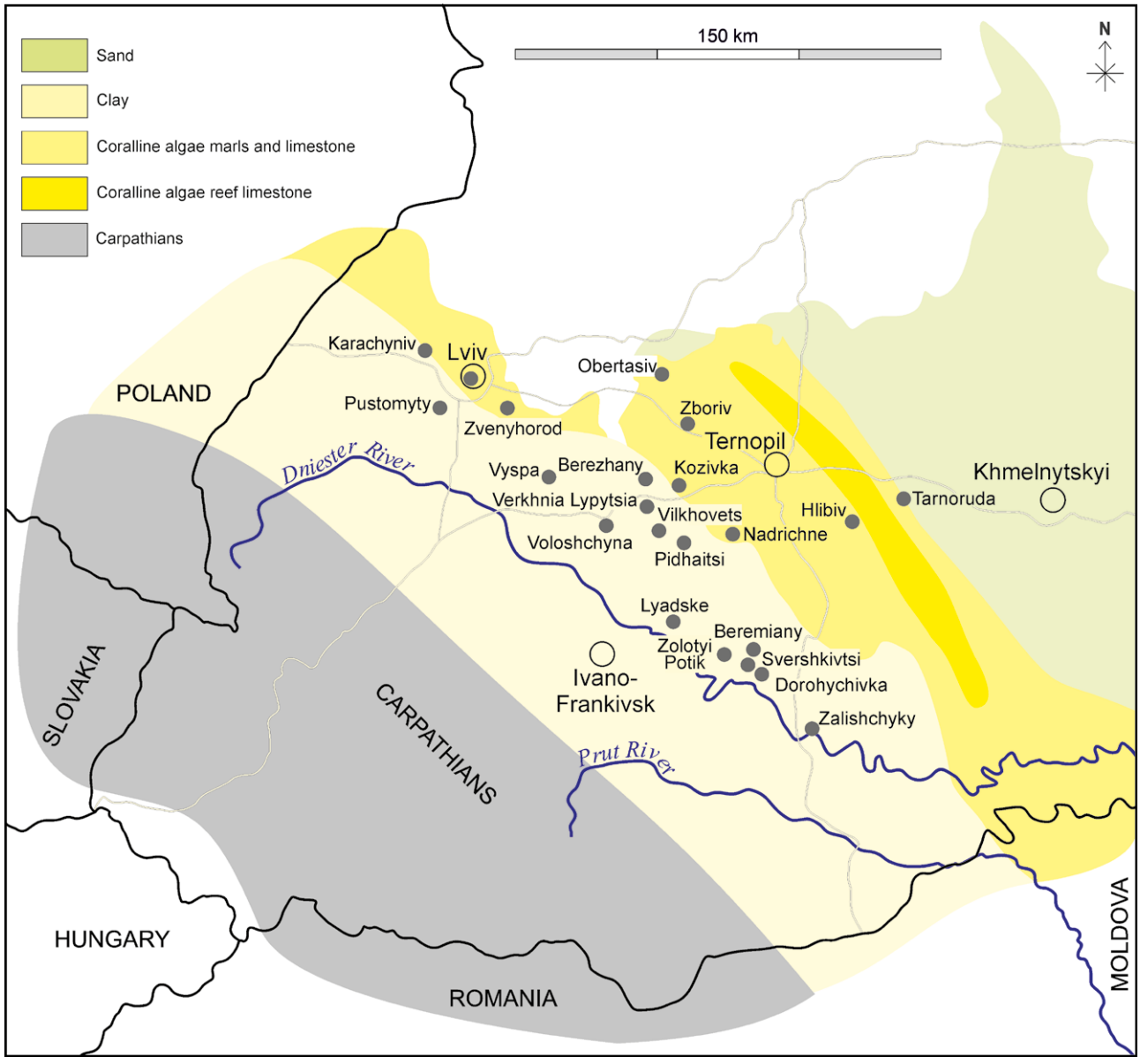


Fig. 1. Map showing location of collecting sites and the extent of the Middle Miocene (Badenian) deposits in western Ukraine.

collection. In total, 157 specimens from 21 localities were identified and examined (Fig. 1; see also Table 1). However, the original Friedberg collection comprised more than 300 specimens. Unfortunately, many of these currently are missing, though a small number was donated by Friedberg to the Adam Mickiewicz University in Poznań; however, the present authors were not able to locate those specimens.

The material is variably preserved, including both articulated shells and numerous damaged and fragmented specimens. Smaller specimens are stored in glass vials, sealed with cork stoppers, whereas larger specimens are kept in small boxes. All are accompanied by the original labels, some of which were written by Friedberg himself (Fig. 2).

Part of the material was photographed in the photographic laboratory of the Institute of Paleobiology (Warszawa), while several specimens were documented, using a Nikon D200 camera, mounted on a Kaiser RS 2 XA copy stand. The SEM micrographs were taken in the SEM laboratory of the same institute, using a Philips XL-20 scanning electron microscope.

TAXONOMIC REVISION OF THE FAUNA

In his paper, Friedberg (1921) described 13 brachiopod species and/or subspecies, including one new species. Following the revision, the authors have recognised eight valid species. All of them are well-known from the Miocene Paratethyan deposits and have been recorded from numerous localities. The original names, used by Friedberg, are given in bold print (see also Table 1).

***Lingula* aff. *dumortieri* Nyst, 1843.** The species *Lingula dumortieri*, wrongly spelled by Friedberg (1921) as *dumontieri*, was originally described from the Pliocene of the North Sea Basin (Nyst, 1843; Vincent, 1893; Dulai, 2013). Chuang (1964) assigned this species to the genus *Glottidia* Dall, 1870, based on the presence of the septa, characteristic for this genus.

The Miocene lingulide brachiopods from the Central Paratethys were formerly described under various names. However, after the re-examination of the material Emig and Bitner (2005) showed that they all represent a single species *Lingula dregeri* Andreae, 1893, just like the specimens in Friedberg's collection (Fig. 3A, B). Originally, *L. dregeri* was described by Dreger (1889) from the Vienna Basin (Austria) under the name *L. suessi*. As the latter name was preoccupied by another *Lingula* species, Andreae (1893) proposed a new species, named *dregeri*. Apart from Austria and Ukraine, in the Central Paratethys, this species was also reported from Poland, Romania, Slovakia and Hungary (Barczyk and Popiel-Barczyk, 1977; Bărbulescu and Rado, 1984; Popiel-Barczyk and Barczyk, 1990; Bitner *et al*., 2012; Dulai, 2015; Jamrich *et al*., 2024; Dulai and Szabó, 2025). It is worth mentioning that *L. dregeri* was also recognised in the Middle Miocene of the Aquitaine Basin, France (Emig *et al.*, 2007), while tentatively this species was described by Dreger (1911) from Sardinia, Italy.

***Discina leopolitana* M. Łomnicki, 1897**. This species was first noted by Łomnicki (1897) under the name *Discina* sp. (*leopolitana m*.), although without any diagnosis, description or illustration. Friedberg (1921) was the first to provide an adequate description and illustrations. Thus, according to ICZN rules, he is regarded as author of the species. Its



Fig. 2. Examples of the original labels, accompanying the collection. **A, B.** SMNH-PZ-N-70. **C, D.** SMNH-PZ-N-637. The labels bear the old inventory numbers. Labels A and C are written in Wilhelm Friedberg's own hand.

Table 1

List of species in Wilhelm Friedberg's brachiopod collection.

Current inventory number*	Old number	Species name in the collection	Accepted species name	Locality (Polish spelling, following the collection records)
N-3712	11173	*Megathyris decollata*	*Megathiris detruncata*	Hlibiv (Chlebów)
N-3713	10932	*Terebratula* cf. *grandis*	*Terebratula styriaca*	Lviv, Vulka (Lwów, Wólka)
N-3714	16685	*Cistella dertomutinensis*	*Joania cordata*	Zboriv (Zborów)
N-3715	15878	*Megathyris decollata*	*Megathiris detruncata*	Zboriv (Zborów)
N-3716	16684	*Cistella zboroviensis*	*Argyrotheca cuneata*	Zboriv (Zborów)
N-3717	8832	*Mühlfeldtia truncata*	*Megerlia truncata*	Zalishchyky (Zaleszczyki)
N-3718	11167	*Mühlfeldtia truncata*	*Megerlia truncata*	Tarnoruda
N-3719	9150	*Megathyris decollata*	*Megathiris detruncata*	Pidhaitsi (Podhajce)
N-3720/1–3	10933	*Discina leopolitana*	*Discinisca leopolitana*	Lviv, Snopkiv (Lwów, Snopków)
N-3721	11181	*Lingula* aff. *Dumortieri*	*Lingula dregeri*	Obertasiv (Obertasów)
N-3722	9150a	*Megathyris decollata* var. *pertransversa*	*Megathiris detruncata*	Pidhaitsi (Podhajce)
N-3723	16687	*Cistella neapolitana*	?*Joania cordata*?	Kozivka (Kozówka) – missing
N-3724	8891	*Mühlfeldtia truncata* var. *oblita*	*Megerlia truncata*	Voloshchyna (Wołoszczyzna)
N-3725	13468	*Megathyris decollata*	*Megathiris detruncata*	Svershkivtsi (Swierzkowiec)
N-3726	9151a	*Liothyrina punctatissima*	*Gryphus miocenicus*	Pidhaitsi (Podhajce)
N-3727	10268	*Megathyris decollata*	*Megathiris detruncata*	Zboriv (Zborów)
N-3728	16683	*Terebratula* cf. *grandis*	*Terebratula styriaca*	Karachyniv (Karaczynów)
N-3729/1, 2	15883	*Cistella squamata*	*Megathiris detruncata* *Megerlia truncata* (young)	Zboriv (Zborów)
N-3730	9276	*Terebratula* cf. *grandis*	*Terebratula styriaca*	Lyadske (Ladzkie)
N-3731	9151	*Mühlfeldtia truncata*	*Megerlia truncata*	Pidhaitsi (Podhajce)
N-70	16686	*Terebratula grandis*	*Terebratula styriaca*	Nadrichne (Dryszczów)
N-310	9152	*Terebratula grandis*	*Terebratula styriaca*	Pidhaitsi (Podhajce)
N-501/1, 2	10932	*Terebratula grandis*	*Terebratula styriaca* *Gryphus miocenicus*	Lviv, Vulka (Lwów, Wólka)
N-529	10932a	*Terebratula grandis*	*Terebratula styriaca*	Zvenyhorod (Dźwinogród)
N-558	13466	*Terebratula grandis*	*Terebratula styriaca*	Zolotyi Potik (Zloty Potok)
N-583	16502	*Terebratula* cf. *grandis*	*Terebratula styriaca*	Vyspa (Wyspa)
N-594	9286	*Terebratula grandis*	*Terebratula styriaca*	Berezhany
N-633	13467	*Terebratula grandis*	*Terebratula styriaca*	Svershkivtsi (Świerzkowiec)
N-634	9753	*Terebratula grandis*	*Terebratula styriaca*	Dorohychivka (Drohiczówka)
N-637	1384	*Terebratula grandis*	*Terebratula styriaca*	Beremiany
N-638	9950	*Terebratula* cf. *grandis*	*Terebratula styriaca*	Beremiany
N-885	10405	*Terebratula grandis*	*Terebratula styriaca*	Vilkhovets (Olchowiec)
N-2087	16677	*Terebratula grandis*	*Terebratula styriaca*	Zalishchyky (Zaleszczyki)
N-2880	10411	*Terebratula grandis*	*Terebratula styriaca*	Verkhnia Lypytsia (Lipica)
N-2892	11118	*Terebratula grandis*	*Terebratula styriaca*	Pustomyty

* the current inventory numbers, except for those given in the table with the prefix N- meaning Neogene, have the museum's acronym SMNH and the prefix PZ, which places them in the Paleontological (Paleozoological) Collection.

correct name is *Discinisca leopolitana* (Friedberg, 1921) (see also discussion in Radwańska and Radwański, 1984; Fig. 3C, D). *Discina* is an extant monotypic genus that is endemic to West African waters (Williams *et al*., 1998).

Although Radwańska and Radwański (1984) first pointed out that according to the ICZN rules, Friedberg should be regarded as an author of this species, they could not designate a lectotype, as the collection was believed to be lost. In the present situation, it is possible. Thus, the present authors propose as the lectotype the specimen, adhering to an oyster shell (no. SMNH-PZ-N-3720/1), illustrated in Figure 3C.

Discinisca leopolitana is very rare in the Miocene deposits of the Central Paratethys and was long considered endemic to the Lviv area. Additional records of this species are from the Vienna Basin, Austria (Schmid *et al*., 2001) and the Holy Cross Mountains, Poland (Radwański and Wysocka, 2004; Dulai, 2015). Fragments of discinids, tentatively assigned to *Discinisca leopolitana*, recently were recorded from the Mescek Hills, Hungary, by Dulai and Szabó (2025).

***Terebratula* cf. *grandis* Blumenbach, 1803**. This species is the only known short-looped terebratulide from the Oligocene of the North Sea Basin (Dulai and von der Hocht, 2020; Bitner and Müller, 2022). The presence of inner hinge plates has been identified as the primary character for its transfer to the genus *Pliothyrina*, created by van Roy (1980).

The absence of inner hinge plates in the specimens under study indicates their assignment to the genus *Terebratula* Müller, 1776. All the characters point to the Miocene species *Terebratula styriaca* Dreger, 1889 (Fig. 4E–J), reported from many localities in the Central Paratethys (Dreger, 1889; Barczyk and Popiel-Barczyk, 1977; Popiel-Barczyk and Barczyk, 1990; Bitner and Pisera, 2000; Bitner and Dulai, 2004; Bitner *et al*., 2024, and this study).

***Liothyrina punctatissima* M. Łomnicki (in coll.)**. This species has never been formally established (see Friedberg, 1921). Łomnicki separated some specimens, kept in the museum collection, and gave them the name *Terebratula punctatissima* n. sp. This species name was used by Friedberg (1921) with the genus *Liothyrina* Oehlert, 1887. However, the latter genus is not valid any longer, being a synonym of *Gryphus* Megerle von Mühlfeld, 1811. In size, shell outline and beak characters, the studied specimens correspond well to the Miocene species, originally described from Italy, *Gryphus miocenicus* (Michelotti, 1847) (Fig. 4A–D). Also, Friedberg (1921, p. 10) observed the similarity of his specimens to *G. miocenicus* (see also discussion in Dulai, 2015). This species is relatively rare in the Miocene of the Central Paratethys; so far, it has been reported from Hungary (Bitner and Dulai, 2004; Dulai, 2025), Slovakia (Bitner *et al*., 2014), and Poland (Dulai, 2015).

***Megathyris decollata* (Chemnitz, 1785), *Megathyris decollata* var. *austriaca* Dreger, 1889, and *Megathyris decollata* var. *pertransversa* Sacco, 1902**. The first binominal name, given to this species, is *Megathiris detruncata* (Gmelin, 1791), and this name is regarded as valid (Dall, 1920, p. 331). The species *M. detruncata* is characterised by its transversely elongate shell, ornamented by single, broad ribs and internally by the presence of three septa on the dorsal valve (Fig. 5E–I). This species is known to have occurred since the Eocene, and in the Middle Miocene of the Central Paratethys

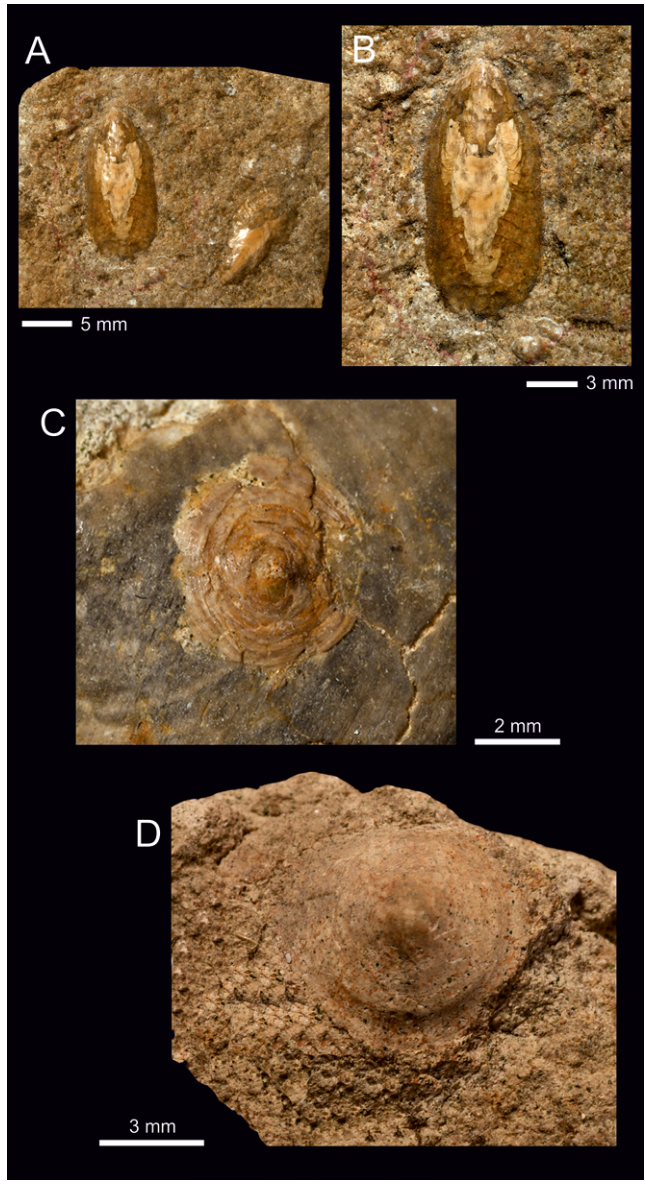


Fig. 3. Brachiopods from the Middle Miocene (Badenian), western Ukraine. **A, B.** *Lingula dregeri* Andreae, 1893, external views of shells and enlargement (B), Obertasiv, SMNH-PZ-N-3721. **C, D.** *Discinisca leopolitana* (Friedberg, 1921), external views of dorsal valves, Lviv, Snopkiv; C – lectotype SMNH-PZ-N-3720/1 (designated herein); D – SMNH-PZ-N-3720/2.

it belongs to one of the most common species (e.g., Bitner, 1990; Popiel-Barczyk and Barczyk, 1990; Bitner and Dulai, 2004; Dulai, 2007; Bitner and Schneider, 2009; Bitner *et al*., 2013, 2023; Pavézková *et al*., 2013; Bitner and Motchurova-Dekova, 2016). Today, *M. detruncata* is found in the Mediterranean Sea and the north-eastern Atlantic, at a depth range of 5 to 896 m (Logan, 2007; Emig, 2018).

***Cistella squamata* (Eichwald, 1830)**. The validity of this species is highly questionable. Eichwald (1830) neither described nor illustrated the internal structures of his species, and its external characters are consistent with those of *Megathiris detruncata* (see also discussion in Popiel-Barczyk and Barczyk, 1990 and Bitner *et al*., 2024). The specimens in the collection that were described as *Cistella squamata* are undoubtedly *M. detruncata* (Fig. 5E).

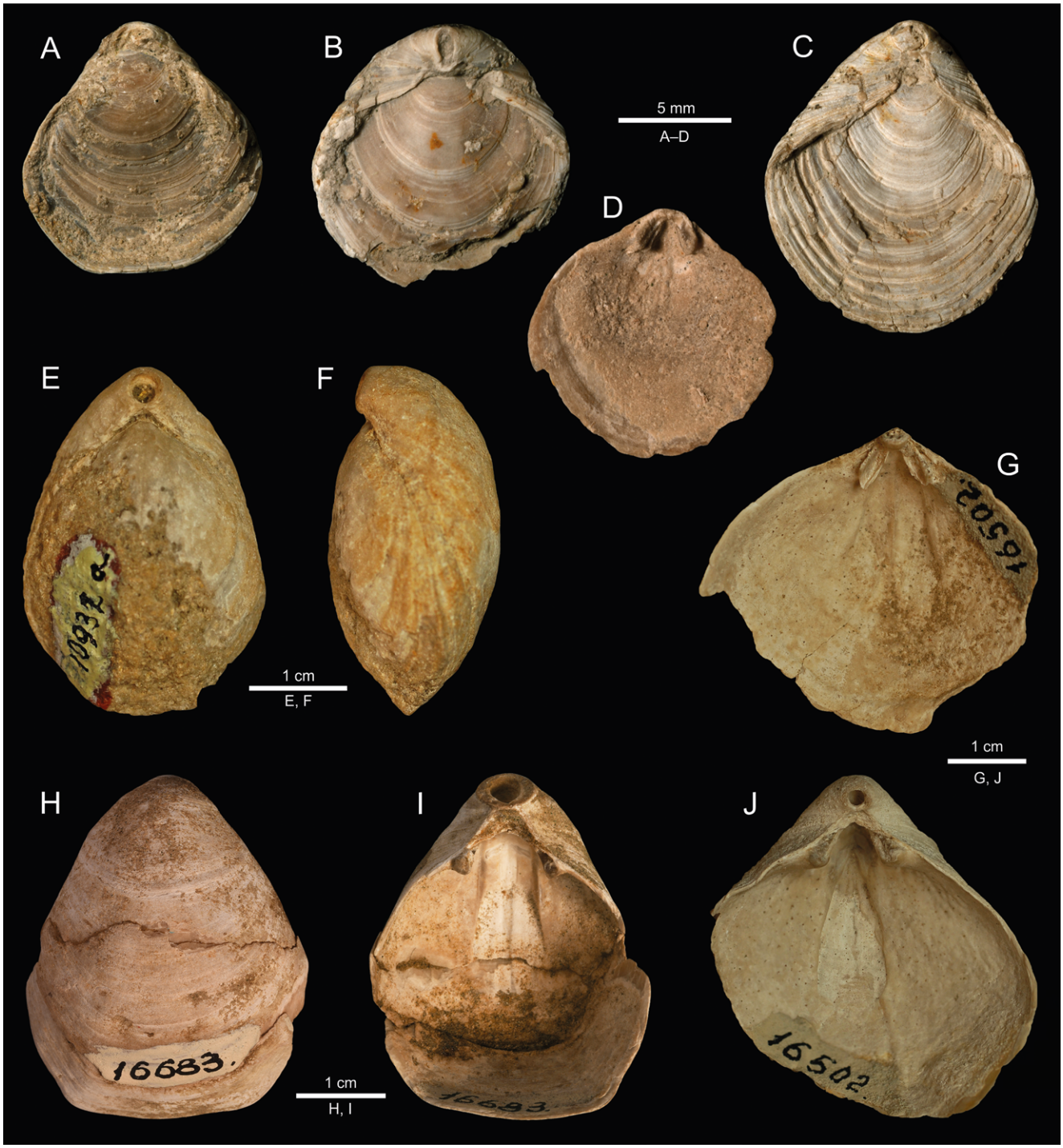


Fig. 4. Brachiopods from the Middle Miocene (Badenian), western Ukraine. **A–D.** *Gryphus miocenicus* (Michelotti, 1847), Pidhaitsi, SMNH-PZ-N-3726; A–C – dorsal views of articulated specimens; D – inner view of dorsal valve. **E–J.** *Terebratula styriaca* Dreger, 1889; E, F – dorsal and lateral views of articulated specimen, Zvenyhorod, SMNH-PZ-N-529; G – inner view of dorsal valve, Vyspa, SMNH-PZ-N-583; H, I – outer and inner views of ventral valve, Karachyniv, SMNH-PZ-N-3728; J – inner view of ventral valve, Vyspa, SMNH-PZ-N-583.

The identification is confirmed by the two lateral dorsal septa, observed by Friedberg (1921, p. 15) on one specimen.

***Cistella neapolitana* (Scacchi, 1833)**. Friedberg (1921) attributed 15 specimens, collected at the locality Kozivka, to this species. Unfortunately, these specimens are missing from the collection, making re-investigation impossible. *Cistella neapolitana* is now considered a synonym of *Joania cordata* (Risso, 1826), as Risso's designation has priority over Scacchi's name (see Logan, 1979, p. 51). The specimens from Kozivka are probably young representatives of *Joania cordata* due to their very small size. However, based on description and illustrations given by Friedberg (1921), it is difficult to confirm their attribution.

***Cistella zboroviensis* Friedberg, 1921.** This species was established by Friedberg (1921) on the basis of a single ventral valve. It displays typical characters, such as a subsquare

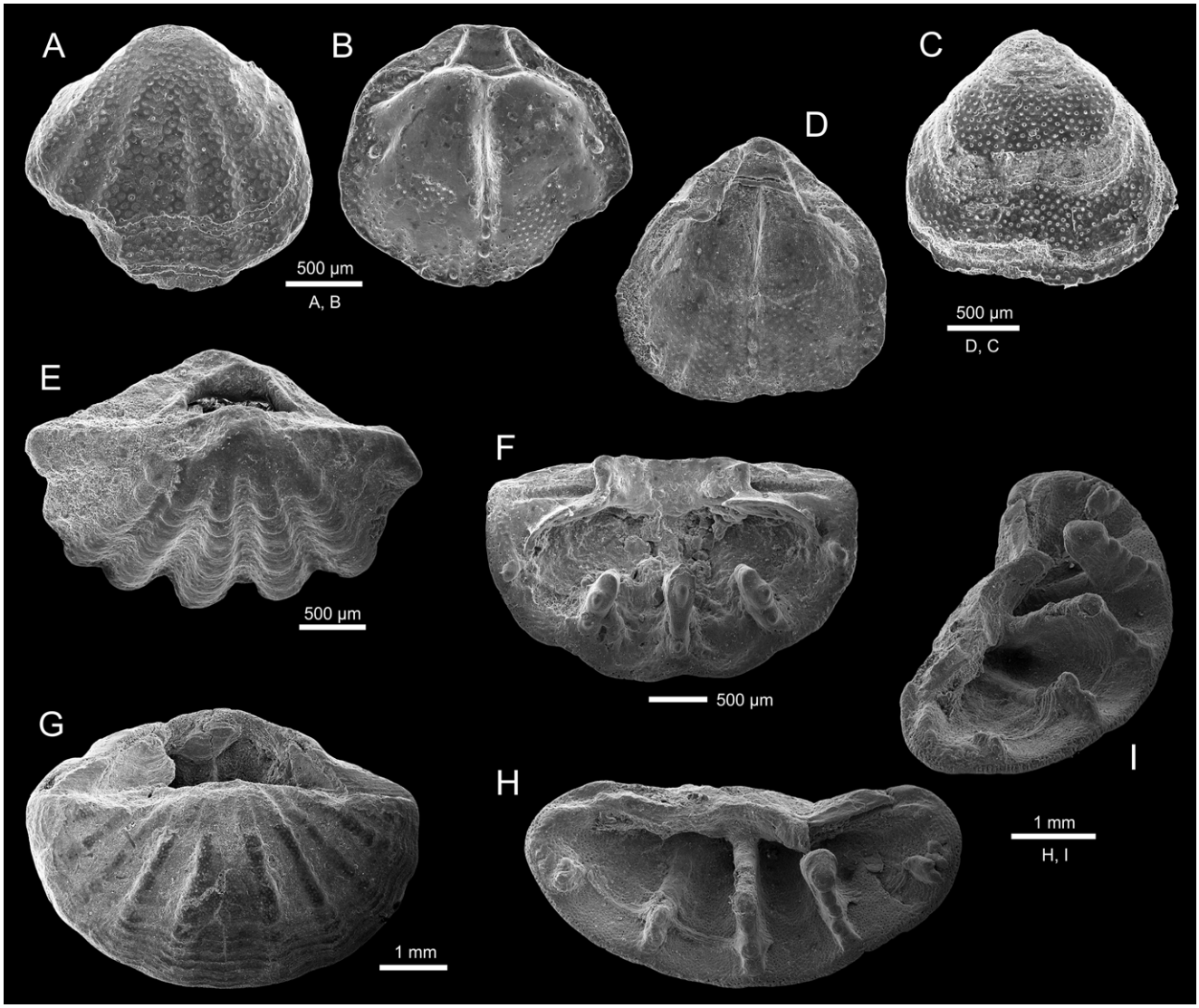


Fig. 5. Brachiopods from the Middle Miocene (Badenian), western Ukraine. **A, B.** *Argyrotheca cuneata* (Risso, 1826), outer and inner views of ventral valve, Zboriv, SMNH-PZ-N-3716. **C, D.** *Joania cordata* (Risso, 1826), outer and inner views of ventral valve, Zboriv, SMNH-PZ-N-3714. **E–I.** *Megathiris detruncata* (Gmelin, 1791); E – dorsal view of articulated specimen, Zboriv, SMNH-PZ-N-3729; F – inner view of dorsal valve, Hlibiv, SMNH-PZ-N-3712; G – dorsal view of articulated specimen, Pidhaitsi, SMNH-PZ-N-3719; H, I – inner and oblique views of dorsal valve, Pidhaitsi, SMNH-PZ-N-3722. All are SEM images.

outline, ornamentation of broad, rounded ribs with a wider median groove, a hypothyrid foramen with a wide pedicle collar (Fig. 5A, B), of *Argyrotheca cuneata* (Risso, 1826). It is one of the most common species in the Central Paratethys (e.g., Bitner, 1990; Bitner and Pisera, 2000; Bitner and Dulai 2004; Bitner and Kaim, 2004; Dulai, 2007, 2015; Bitner *et al*., 2013, 2014, 2023; Pavézková *et al*., 2013; Bitner and Motchurova-Dekova, 2016; Kopecká *et al*., 2018). Today, *A. cuneata* is reported from the Mediterranean Sea and the eastern North Atlantic, living at depths ranging from 5 to 645 m (Logan, 2007).

***Cistella dertomutinensis* Sacco, 1902.** This species is a synonym of *Joania cordata* (Risso, 1826), which already was indicated by Bitner (1990). The Ukrainian material is very limited, represented by a single ventral valve. The shell is subtriangular in outline, smooth with almost imperceptible ribs in the anterior part, having a large, triangular foramen of hypothyrid type and internal margin covered with tubercles (Fig. 5C, D). The species *J. cordata* is very common in the Middle Miocene deposits of the Central Paratethys (e.g., Bărbulescu and Rado, 1984; Bitner, 1990; Bitner and Pisera, 2000; Bitner and Dulai, 2004; Bitner and Kaim, 2004; Dulai, 2007, 2025; Bitner *et al*., 2013, 2014, 2023; Hladilová *et al*., 2014; Bitner and Motchurova-Dekova, 2016; Kopecká *et al*., 2018). Its Recent representatives occur in the eastern North Atlantic, Mediterranean Sea and Red Sea, with a depth range from 3 to 600 m (Logan, 2007; Logan *et al*., 2008).

***Mühlfeldtia truncata* (Linnaeus, 1767) and *Mühlfeldtia truncata* Linnaeus var. *oblita* (Michelotti, 1839)**. The genus name *Megerlia* King, 1850 has priority over the name *Mühlfeldtia* Bayle, 1880, so the correct name of this species is *Megerlia truncata*. It is easily distinguishable. Its shell is transversely oval in outline, characterised by ornamentation

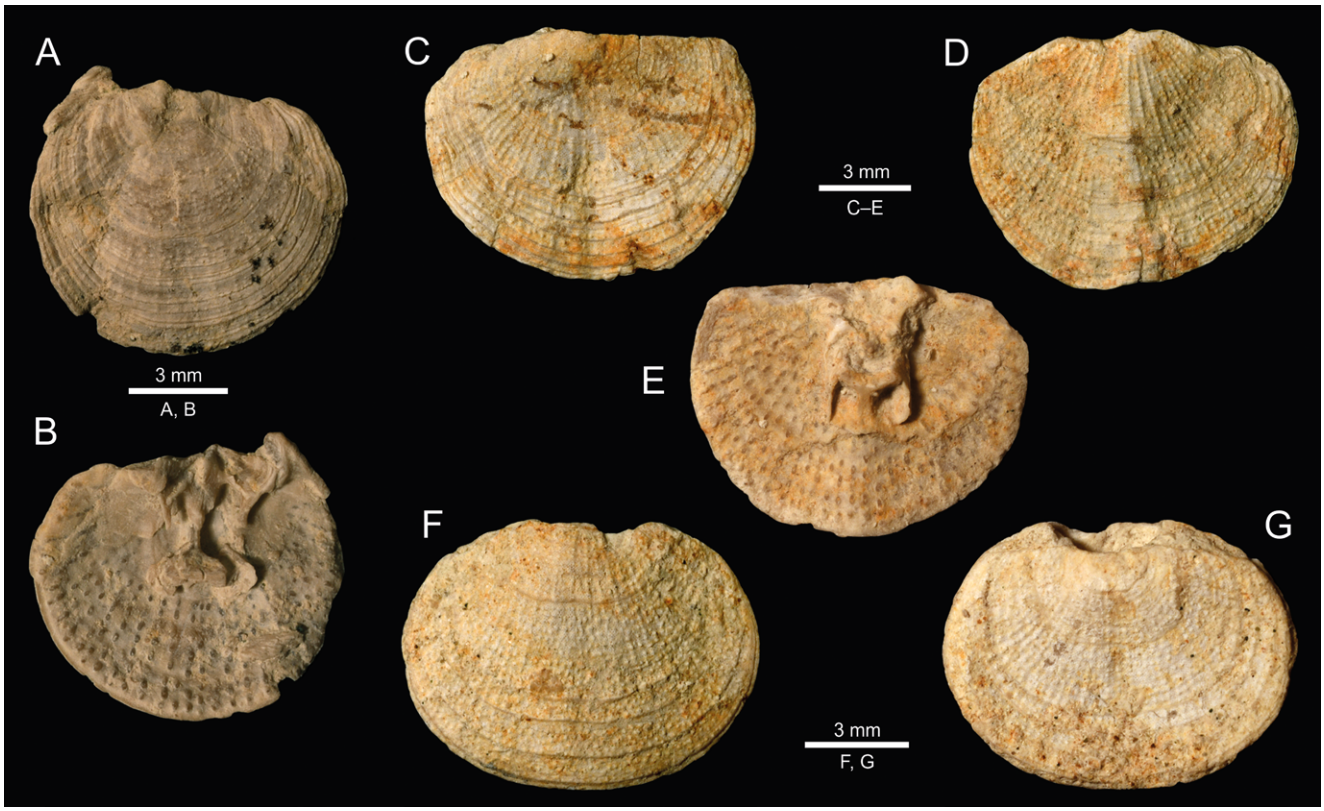


Fig. 6. *Megerlia truncata* (Linnaeus, 1767), Middle Miocene, Pidhaitsi, western Ukraine, SMNH-PZ-N-3731. **A, B.** Outer and inner views of dorsal valve. **C, D.** Ventral views of articulated specimens. **E.** Dorsal view of articulated specimen. **F, G.** Ventral and dorsal views of articulated specimen.

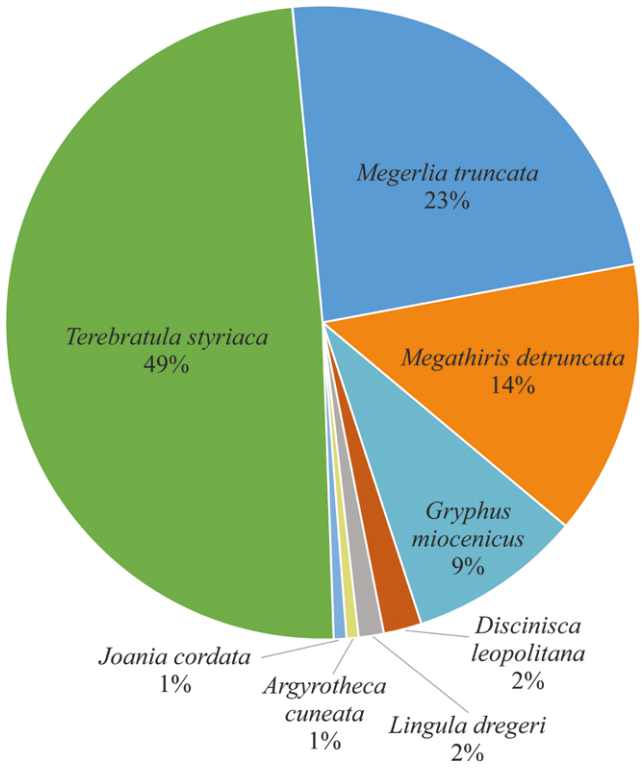


Fig. 7. Relative proportions of species in the brachiopod collection of the State Museum of Natural History in Lviv.

of numerous, fine, slightly nodulose ribs (Fig. 6A–G). In the Central Paratethys *M. truncata* can be locally abundant (e.g., Bărbulescu and Rado, 1984; Bitner, 1990; Popiel-Barczyk and Barczyk, 1990; Bitner and Dulai, 2004; Bitner *et al*., 2013, 2024). In modern waters, *M. truncata* is well known from the Mediterranean Sea and the eastern North Atlantic (Logan, 2007), being also recorded from the western Indian Ocean (Bitner and Logan, 2016). Its depth range extends from 8 to 1970 m (Logan, 2007; Emig, 2018).

SUMMARY

Neogene brachiopods from western Ukraine, described by Wilhelm Friedberg, remain exceptionally important today, as they constitute the only preserved collection from this region and significantly enhance our understanding of the composition of benthic assemblages in the Ukrainian part of the Central Paratethys.

A total of eight species have been recognised as valid among the 13 species and/or subspecies of the Miocene brachiopods from the Wilhelm Friedberg's collection, housed at the State Museum of Natural History (formerly the Dzieduszycki Family Natural History Museum) in Lviv, Ukraine. Two species of inarticulate brachiopods, *Lingula dregeri* and *Discinisca leopolitana* are very rare in the examined material. The remaining six species belong to the order Terebratulida. The short-looped terebratulides have two representatives, *Terebratula styriaca* and *Gryphus miocenicus*, while the long-looped terebratulides are represented by

Table 2

Brachiopod species, recognised in the Friedberg collection, with the number of specimens and their locality.

Species	Locality	Number of specimens
Lingula dregeri	Obertasiv	2
Discinisca leopolitana	Lviv	3
Terebratula styriaca	Beremiany, Berezhany, Dorohychivka, Karachyniv, Lviv, Lyadske, Nadrichne, Pidhaitsi, Pustomyty, Svershkivtsi, Verkhnia Lypytsia, Vilkhovets, Vyspa, Zalishchyky, Zolotyi Potik, Zvenyhorod	77
Gryphus miocenicus	Lviv, Pidhaitsi	14
Megathiris detruncata	Hlibiv, Pidhaitsi, Svershkivtsi, Zboriv	22
Argyrotheca cuneata	Zboriv	1
Joania cordata	Zboriv	1
Megerlia truncata	Pidhaitsi, Tarnoruda, Voloshchyna, Zalishchyky, Zboriv	37

four species, *Megathiris detruncata*, *Argyrotheca cuneata*, *Joania cordata* and *Megerlia truncata*. The species *T. styriaca* is predominant in the revised collection, constituting nearly 50% of the material (Fig. 7; Tab. 2). The second most common species is *M. truncata*. The rarity of micromorphic megathyrid brachiopods, usually common in the Miocene Paratethyan assemblages, may have resulted from collecting bias. All these species are well-known from the Middle Miocene deposits of the Central Paratethys.

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