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THREE NEW SPECIES OF NAUTILIDS (CEPHALOPODS) FROM THE CARBONIFEROUS OF THE DONETS BASIN (EASTERN UKRAINE)

Three new species of nautilids (Gzheloceras aisenvergi sp. nov., Knightoceras extorris sp. nov. and Planetoceras yefimenkoi sp. nov.) have been described from the Carboniferous of the Donets Basin (Ukraine). Gzheloceras aisenvergi sp. nov. is morphologically close to the "Gzheloceras" orthocostatum (Kruglov, 1939) and Gzheloceras memorandum Shimansky, 1967. Knightoceras oxylobatum Miller et Downs, 1948 and K. patulum (Unklesbay, 1962) are the most morphologically related species to the K. extorris sp. nov. The form of the conch and the surface ornamentation of Planetoceras yefimenkoi sp. nov. are most similar to the type of genus (Planetoceras retardum Hyatt, 1893). The new data are expanding the taxonomic composition of the genera Gzheloceras, Knightoceras, and Planetoceras and also clarify their geographical distribution.

Keywords: *Cephalopoda; Nautilida; Carboniferous; Donets Basin; Ukraine.*

Introduction

Sediments of the Carboniferous system are involved in the geological structure of a significant part of the territory of Ukraine. Unfortunately, the level of study of Carboniferous in different parts of Ukraine is not the same. Remains of nautiloids are found in the Carboniferous deposits of the Don-Dnieper Downwarp (Dernov, 2018; Librovitch, 1939) and the Lviv Paleozoic Downwarp (Shulga, Shimansky, 1994). At the moment, only the Carboniferous cephalopods of the Donets Basin have been studied in detail. Three new species of nautilids have been established from the Upper Mississippian and the Pennsylvanian of the Donets Basin (Eastern Ukraine) in result of studying the collection of cephalopod remains. These species are described below.

History of research

Mississippian cephalopods of the Donets Basin are very poorly studied. Brief history of the study of the Mississippian cephalopods in the Donets Basin is given below. The history of the study of Pennsylvanian cephalopods of the Donets Basin is shown in the works (Dernov, 2018; 2020).

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Цитування: Дернов В.С. Три нові види наутилід (головоногі молюски) із кам'яновугільних відкладів Донецького басейну (східна Україна). *Геологічний журнал.* 2021. № 2 (375). С. 58—66. https://doi.org/10.30836/igs.1025-6814.2021.2.227012

Leonid S. Librovitch (1939) notes that in the Tournaisian and Viséan of the Donets Basin there are remains of nautilids of poor preservation, which can be conditionally attributed to the genera *Domatoceras* and *Coloceras* (= *Liroceras*). The first finds of ammonoids in the Viséan part of the Mokra Volnovakha Group and in the Samara Formation (Lower Serpukhovian) were described by Tamara V. Astakhova and Andrian V. Popov (Aisenverg et al., 1979). A new species: *Goniatites aisenvergi* Astachova et A. Popov, close to *G. granosus* Portlock, has been described from the Viséan limestones of the Mokra Volnovakha Group. This finding allowed correlation of this stratigraphic interval with the ammonoid zone P2 of Western Europe. Three new species *Eumorphoceras* (E.) *donbassicum* Astachova et A. Popov, *E.* (*E.*) *acrense* Astachova et A. Popov, *Dombarites modestus* Astachova et A. Popov, and *Cravenoceras* sp. were described in the Samara Fm. This complex testifies that Samara Fm. is of the same age that subzone E1 of the Western European ammonoid scale (Aisenverg et al., 1979). Ammonoids *Cravenoceras beshevense* Librovich, *Richardsonites baccans* A. Popov, *Euroceras kalmiusense* A. Popov and *Nuculoceras donbassicum* were described from Kalmiuska Fm. (Popov, 1979).

Several new Viséan ammonoid species of the Don-Dnieper Downwarp (*Bollandites donetzensis* Kusina, *Bollandoceras stylense* Kusina, *Dimorphoceras dnieperense* Kusina, and *Glyphiolobus pulcher* (Phillips)) were described by Lidia F. Kuzina and Vladyslav I. Poletaev (Kuzina, Poletaev, 1991). One of the figures in this article had illustrated the image of the nautilid *Lispoceras* sp. from the Viséan of the Dnieper-Donets Depression (Kuzina, Poletaev, 1991: plate IV, fig. 18).

The actinocerid *Rayonnoceras* sp. was identified from the B_8^1 limestone (Mezha Fm., Upper Viséan) (Dernov, 2019). This is the first find of this group of cephalopods in the Carboniferous of Ukraine.

Geological setting

The studied material comes from the Serpukhovian (Samara Formation) and Bashkirian (Mospinka Formation) of the Donets Basin (Fig. 1*D*). The exact location of the holotype of the species *Knightoceras extorris* sp. nov. is not known. I can say with confidence that this is the Lower or Middle Pennsylvanian of the southern part of Luhansk Region (Eastern Ukraine).

The Samara Formation (C_1^3 or C) is represented by a sequence of interbedded mudstones, siltstones, and sandstones with frequent (35-70) coal and limestone (10) layers (Poletaev, Vdovenko, 2013). The age of this stratigraphic unit is Early Serpukhovian (Late Mississippian). The absolute ages of the base and top of this formation are about 329.0 and 327.5 Ma (Davydov et al., 2010). The thickness of the formation is 390-530 m. The Samara Formation corresponds to the Samarian Horizon and the lower part of the Prokhorivkian Horizon of the Don-Dnieper Downwarp. These horizons are correlated with the Tarusian, Steshovian, and lower part of the Prokhorivkian Horizons of the East European Platform (Poletaev, Vdovenko, 2013).

The Mospinka Formation (C_2^2 or G) is represented by a sequence of cyclicaly interbedded mudstones, siltstones, sandstones with subordinate limestones (8 interlayers) and coals (10-12 interlayers) (Nemyrovska, Yefimenko, 2013). The age of this stratigraphic unit is the Late Bashkirian (Early Pennsylvanian). The absolute age of the base and top of the formation is about 318.5 and 317.0 Ma, respectively (Davydov et al., 2010). The thickness of the formation is 315-730 m (Nemyrovska, Yefimenko, 2013). The Mospinka Formation corresponds to the lower half of the Zuevkian Horizon of the Don-Dnieper Downwarp, which corresponds to the Cheremshanian Horizon of the East European Platform (Nemyrovska, Yefimenko, 2013).

Material and methods

This study is based on the cephalopod remains collected by David Ye. Aisenverg (holotype of *Gzheloceras aisenvergi* sp. nov.), Oleg P. Fisunenko (holotype of *Knightoceras extorris* sp. nov.) and the author (holotype and two paratypes of *Planetoceras yefimenkoi* sp. nov.). Studied collection (no. IGSU-2) is stored in the Department of Stratigraphy and Palaeontology of the Paleozoic sediments (DSPP) of the Institute of Geological Sciences of the NAS of Ukraine (IGS NASU).

I used the methodology and terminology of Victor N. Shimansky (1967) and Shuji Niko and Royal H. Mapes (Niko, Mapes, 2016; 2017) in the study and description of nautilids. The abbreviations used in the description of the morphology are: Dc — diameter of the conch, Wh — height of

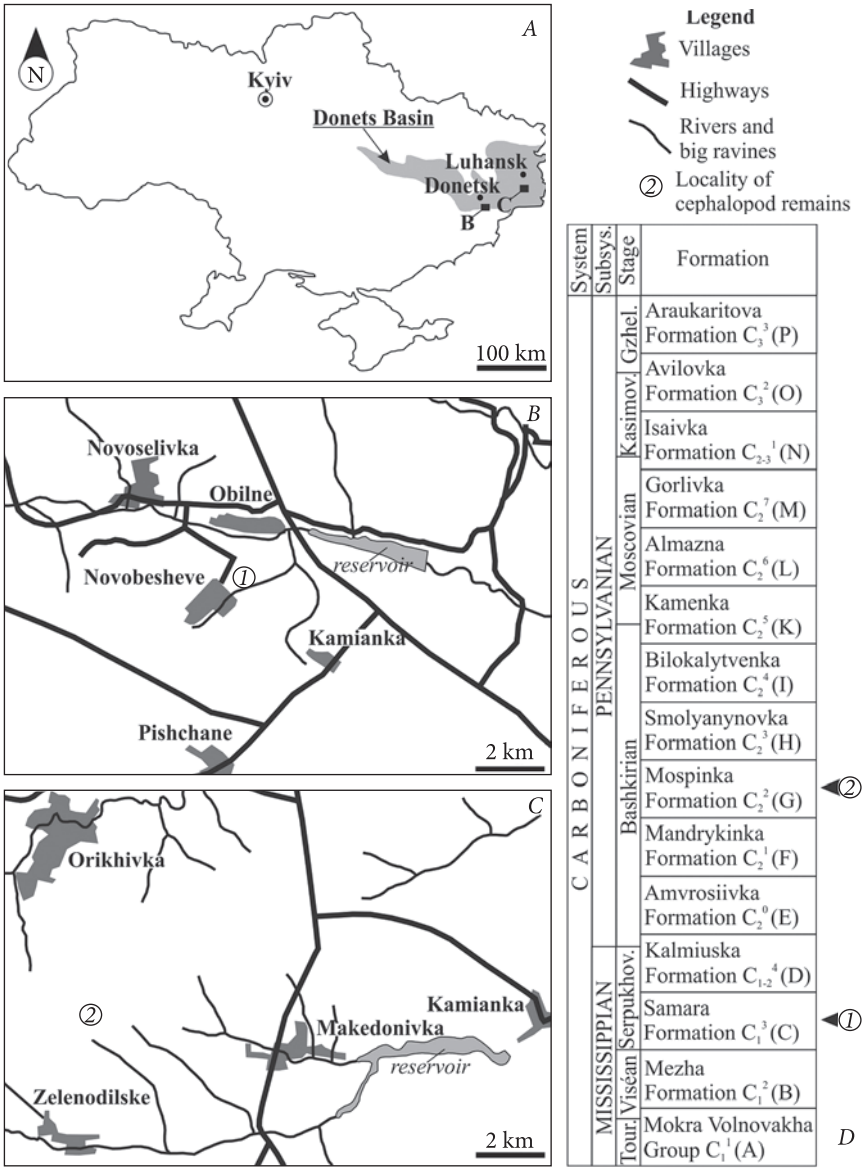

Fig. 1. Geographical (A-C) and stratigraphic (D) situation of the localities of the new nautilids: *1* — locality of the holotype of the *Gzheloceras aisenvergi* sp. nov.; *2* — locality of holotype of the *Planetoceras efimenkoi* sp. nov. Abbreviations: Subsys. — Subsystem, Tour. — Tournaisian, Serpukhov. — Serpukhovian, Kasimov. — Kasimovian, Gzhel. — Gzhelian. The stratigraphic column is based on the data in the work (Nemyrovska, Yefimenko, 2013)

the whorl, Ww — width of the whorl, Du — diameter of the umbilicus, Wh/Dc, Ww/Dc, Du/Dc, Ww/Wh — the ratio of the values.

Systematic palaeontology

The new species of nautilids were described below. I used the taxonomy presented in (King, 1993).

Class Cephalopoda Cuvier, 1797
Subclass Nautiloidea Agassiz, 1847
Order Nautilida Agassiz, 1847
Superfamily Tainoceratoidea Hyatt, 1883
Family Tainoceratidae Hyatt, 1883
Genus *Gzheloceras* Ruzhencev et Shimansky, 1954

Type species. *Gzheloceras uralense* Ruzhencev et Shimansky, 1954; Cisuralian, Artinskian (Kazakhstan).

Diagnosis. The conch is evolute, discoidal. The whorls are slowly growth in height and width. The cross section of young whorls is biangular; the cross-section of adult whorls varies from transverse elliptical to hexagonal. The transverse ribs are situated on the flanks. The longitudinal ribs are rarely also present. The siphuncle is subcentral. The conch bears a wide umbilical perforation. The suture has small ventral, lateral and dorsal lobes.

Distribution. The area of the distribution includes Carnic Alps (Austria), Donets Basin (Ukraine), Southern Urals (Russia), Kazakhstan, Uz-

bekistan, Thailand, China, and maybe Bolivia (Fujikawa et al., 1999; Ishibashi, Fujikawa, 1999; Kullman, 2005; Librovitch, 1939; Shchedukhin, Leonova, 2020; Shimansky, 1967; Zhang et al., 1994). The genus is known from the Mississippian to the Cisuralian (Shimansky, 1967).

Gzheloceras aisenvergi sp. nov.
Figs. 2*C*, 3*D*, 3*E*

Etymology. The species is named in memory of the palaeontologist David Yefremovich Aisenverg (1908-1994).

Holotype. Specimen IGSU-2/4108; housed in the DSPP (IGS NASU).

Type locality. Ukraine, Donetsk Region, Kalmius District, Berestova River near the Novobesheve Village.

Type horizon. Lower Serpukhovian, Samara Formation (ammonoid genozone Uralopronorites-Cravenoceras, foraminifer zone Neoarchaediscus postrugosus, conodont zone Cavusgnathus naviculus-Lochriea ziegleri (lower part), macrofloristic zone Archaeocalamites scrobiculatus-Neuralethopteris schlehanii). The specimen was found by David Ye. Aisenverg (1951).

Material. One fragment of the internal mold (holotype).

Diagnosis. The conch is evolute and discoidal. The conch surface bears a transverse ribs on flanks and longitudinal ridge on the ventrolateral shoulders.

Form. The conch is evolute and discoidal. The whorls of the conch are slowly increasing in height and width. The venter is medium in width and strongly convex and gradually turning into wide convex flanks. The flanks diverge from the ventrolateral shoulders to about the middle of the height of the whorl, and then converge again. The flanks are approximately 1.5 times wider than the venter. The umbilical shoulder is gradual. The umbilical area is apparently narrow and slightly convex.

The umbilicus is about 1/3 of the diameter of the conch. The cross section of the whorl is longitudinally oval. Its greatest width is observed in the middle of the height of the whorl. (Fig. 2, Table 1).

Surface ornamentation. The conch surface bears a long, thin and slightly oblique transverse ribs on the flanks. About four ribs are fit on 11 mm. The ribs become less noticeable as the conch grows. The interribs spaces are approximately 2-2.5 times wider than the ribs.

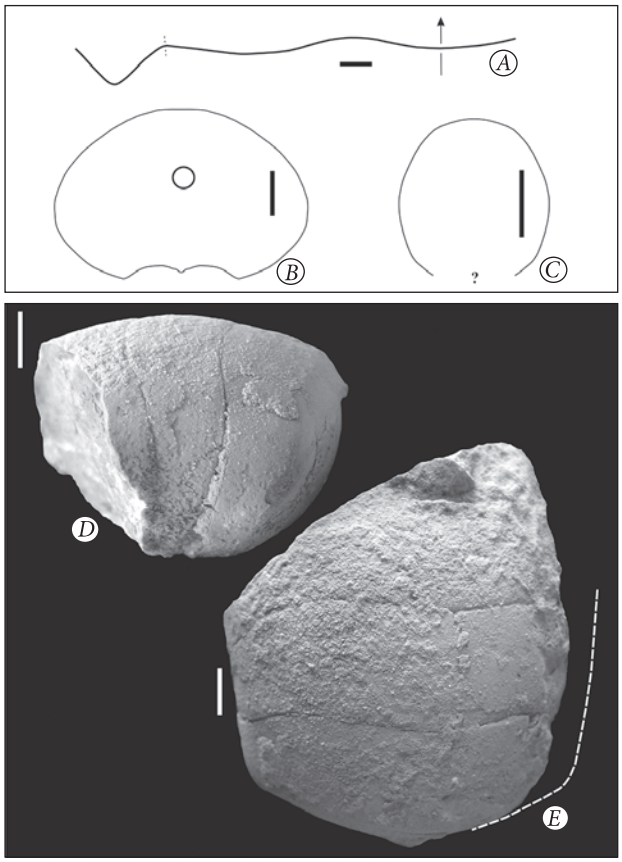

Fig. 2. New species of the nautilids from the Carboniferous of the Donets Basin (Ukraine): *A* — the suture of the *Knightoceras extorris* sp. nov. (holotype); *B* — the whorl cross section of the *Knightoceras extorris* sp. nov. (holotype); *C* — the whorl cross section of the *Gzheloceras aisenvergi* sp. nov. (holotype); *D*, *E* — *Knightoceras extorris* sp. nov. (holotype): *D* — lateral view, *E* — ventral view. Scale bars: 7 mm (*A* and *C*), 10 mm (*D* and *E*), and 12 mm (*B*)

A longitudinal ridge is located along the ventrolateral shoulder. It thick is slightly less than 1 mm. A barely noticeable wide groove runs along the ventrolateral longitudinal rib. A longitudinal very thin ridge is visible on the median part of the venter of the conch mold. Transverse gentle growth lines are noticeable on a fragment of the shell on the umbilical area. But their configuration cannot be studied.

The ***siphuncle*** and the ***suture*** have not been studied.

Discussion. The described species close to the "*Gzheloceras*" *orthocostatum* (Kruglov in Librovitch, 1939) from the Upper Bashkirian of the Donets Basin by the presence of a rib along the ventrolateral shoulder. However, new species is different from "*Gzheloceras*" *orthocostatum* in an-

other form of the whorl cross section. The presence of two barely noticeable grooves on the venter brings the described species closer to *Gzheloceras memorandum* Shimansky, 1967 (Serpukhovian of Kazakhstan). However, other morphological features of both species are differing significantly.

Paleoecology. The conch's shape and coarse transverse ornamentation indicate the nektobenthic lifestyle of the described nautilid (Barskov et al., 2008).

Locality. Ukraine, Donetsk Region, Kalmius District, Berestova River near the Novobesheve Village: Lower Serpukhovian, Samara Formation.

Distribution. Donets Basin (Ukraine); Mississippian, Serpukhovian, Samara Formation.

Family Koninckioceratidae Hyatt in Zittel, 1900
Genus *Knightoceras* Miller et Owen, 1934

Type species. *Knightoceras missouriense* Miller et Owen, 1934; Pennsylvanian (USA).

Table 1. **The conch dimensions (in millimeters) of the** *Gzheloceras aisenvergi sp. nov***.**

Specimen no. IGSU-2/4108		Specimen no. IGSU-2/4108	
Dc	≈32.0	Wh/Dc	≈0.50
Wh	16.0	Ww/Dc	≈0.34
Ww	11.0	Du/Dc	0.34
Du	11.0	Ww/Wh	0.69

Table 2. **The conch dimensions (in millimeters) of the** *Knightoceras extorris sp. nov***.**

Specimen no. IGSU-2/561		Specimen no. IGSU-2/561	
Dc	—	Wh/Dc	—
Wh	38.0	Ww/Dc	—
Ww	60.0	Du/Dc	—
Du	—	Ww/Wh	1.60

Table 3. **The conch dimensions (in millimeters) of the** *Planetoceras yefimenkoi sp. nov.*

Dimensions	Specimens		
	IGSU-2/379*	IGSU-2/379a	IGSU-2/4369
Dc	12.0	—	~13.0
Wh	5.0	9.0	~6.0
Ww	8.0	~16.0	—
Du	4.0	—	4.5
Wh/Dc	0.42	—	~0.46
Ww/Dc	0.66	—	~0.62
Du/Dc	0.38	—	~0.35
Ww/Wh	1.60	~1.78	—

*Holotype.

Diagnosis. The conch is evolute. The shape of the conch is similar to a biconcave lens. The whorls are rapidly increasing in width. The suture has a shallow wide ventral and dorsal lobes. The siphuncle is located between the centre and the venter.

Distribution. The range of this genus includes North America, Western and Eastern Europe, China, as well as the Southern Urals (Mississippian-Cisuralian) (Gordon**,** 1964**;** Liang, Wang, 1988; Miller, Owen, 1934; Miller et al., 1947; Miller et al., 1948; Shimansky, 1967). In addition, there are indications of the findings of ?*Knightoceras* sp. in the Upper Viséan of Poland (Zakowa, 1974) and *Knightoceras* sp. in the Mississippian of Australia (Brown et al., 1965). The nautilid from Australia may belong to the genus *Subvestinautilus* Turner, 1954 (Shimansky, 1967).

Remarks. The genus *Amosiceras* Sabbatini, Riccardi et Pagani, 2006 is known from the Cisuralian of Argentina (Sabbatini et al., 2006). This genus is very similar to *Knightoceras*, but differs from it by the wide-round flanks, a mesh sculpture and the absence of ventral and lateral lobes of the suture (Sabbatini et al., 2006).

Knightoceras extorris sp. nov.
Figs. 2*A*, 2*B*, 2*D*, 2*E*

Etymology. The name of the species comes from *extorris* (Latin) — *homeless*.

Holotype. Specimen IGSU-2/561; stored in the DSPP (IGS NASU).

Type locality. The exact geographical situation of type locality is not known (southern part of the Luhansk Region, Ukraine).

Type horizon. Lower or Middle Pennsylvanian. The specimen was found by Oleg P. Fisunenko (1974).

Material. One fragment of internal mold (holotype).

Diagnosis. The conch is lenticular and biconcave with a wide but not deep ventral lobe and a shallow wide lateral lobe.

Form. The conch is evolute and biconcave (Table 2). The whorls relatively quickly increase in height and more slowly in width. The width of the whorl is more than 1.5 times its height. The cross section of the adult whorl is lenticular. The venter is very wide, strongly convex. The ventrolateral shoulders are broadly rounded. The flanks are converging noticeably as they approach the umbilical shoulder. The flanks and the umbilical area

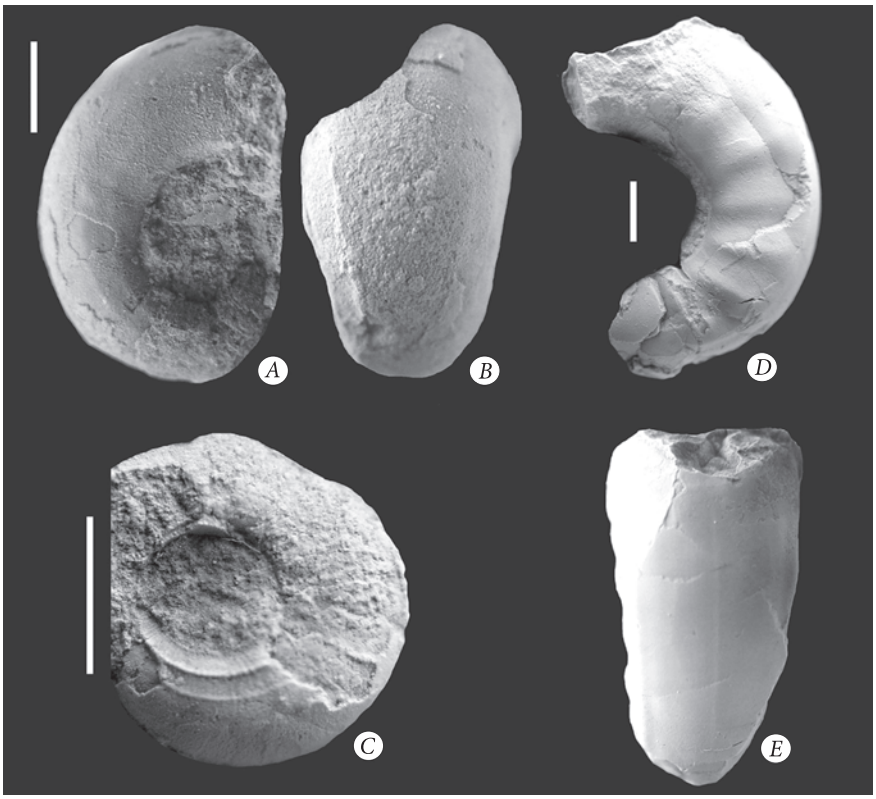

Fig. 3. New species of the nautilids from the Carboniferous of the Donets Basin (Ukraine): *A—C — Planetoceras yefimenkoi* sp. nov. (holotype): *A* — lateral view, *B* — ventral view, *C* — specimen no. IGSU-2/4369 (lateral view; the conch is squeezed in the ventral-dorsal direction); *D*, *E* — *Gzheloceras aisenvergi* sp. nov. (holotype): *D* — lateral view, *E* — ventral view. Scale bars: 3.5 mm (*A* and *B*), 6.5 mm (*C*), and 7 mm (*D* and *E*)

are forming a single narrow and slightly convex surface. The dorsum is strongly concave, approximately three times narrower than the venter. The width of the umbilicus is not known.

The number of camerae in whorl and the body chamber are not known. The camerae are quite short (there are about 5.5 camerae per whorl width). The aperture has not been preserved.

Surface ornamentation is not preserved.

Suture. The suture has a wide but not deep ventral lobe and very shallow wide lateral lobe. The relatively high wide saddle is located between the lobes. A narrow deep lobe is observed on the dorsum of the conch. An annular outgrowth is present.

The ***siphuncle*** is almost central (slightly offset to the venter).

Discussion. The new species is distinguished from the *K. oxylobatum* Miller et Downs, 1948 (Miller et al., 1948) from Pennsylvanian of North America by the presence of a lateral lobe and a slightly deeper ventral lobe. *Knightoceras extorris* sp. nov. is differ from the *K. patulum* (Unklesbay, 1962) from Pennsylvanian of North America by a less concavity of the dorsum.

Paleoecology. The conch's shape is indicative of the benthopelagic lifestyle of the nautilid *Knightoceras extorris* sp. nov. (Barskov et al., 2008).

Locality. Ukraine, southern part of the Luhansk Region: Lower or Middle Pennsylvanian.

Distribution. Donets Basin (Ukraine); Lower or Middle Pennsylvanian.

Genus *Planetoceras* Hyatt, 1893

Type species. *Planetoceras retardum* Hyatt, 1893; Viséan (Belgium).

Diagnosis. The conch is evolute and discoidal. The body chamber is weakly touched to the previous whorl. The siphuncle is subcentral. The suture is straight or with a shallow ventral, lateral and dorsal lobes.

Distribution. The genus is known from the Carboniferous of Western Europe, the Urals and North America (Miller et al., 1933; Kummel, 1963; Shimansky, 1967).

Planetoceras yefimenkoi sp. nov.
Figs. 3*A-C*

Etymology. The species is named in honor of the paleontologist Valentyna Ivanivna Yefimenko.

Holotype. Specimen IGSU-2/379; housed in the DSPP (IGS NASU).

Type locality. Ukraine, Luhansk Region, Luhansk District, the ravine 4 km north-east of the Zelenodilske Village.

Type horizon. Lower Pennsylvanian, Bashkirian, Mospinka Formation, sandstone 40 m below the G_1^2 limestone (ammonoid genozone Branneroceras-Gastrioceras, foraminifer zone Profusulinella primitiva, Novella sp., Eoschubertella sp., conodont zone Streptognathodes expansus, macrofloristic zone Neuralethopteris spp.-Lyginopteris hoeninghausii). The material was collected by the author (2010).

Material. Three internal molds of the conchs (specimens no. IGSU-2/379, IGSU-2/379a, and IGSU-2/4369).

Diagnosis. The conch is evolute and discoidal. The body chamber is only slightly in contact with the previous whorl. Two longitudinal ridges are developed on the flanks. The suture is straight.

Form. The conch is discoidal and evolute (Table 3). The body chamber is barely touching the previous whorl. The whorls are quickly growing in height and width. The venter is convex and medium width. The ventrolateral shoulder is not pronounced (the venter passes into the flanks completely imperceptibly). The flanks are narrow and slightly convex. They are slowly diverging towards the umbilical shoulder. The umbilical shoulder is apparently sharp and angular. The umbilicus is wide (it is about 1/3 of the diameter of the conch). The whorl cross section is low and semicircular in shape. The camerae are short. There are 8 camerae per whorl width. The body chamber takes about 1/3 of a whorl. The aperture has a shallow wide ventral sinus.

Surface ornamentation. Two sharp longitudinal ribs are situated on the flanks. These ribs are clearly visible on the conch, but practically not displayed on the internal mold. They intersect with very thin transverse slightly curved lines that are not observed on other parts of the conch.

Suture is straight.

Siphuncle is not studied.

Discussion. The new species is most similar to the type of the genus (*Planetoceras retardum* Hyatt, 1893; Viséan of Belgium) according to the shape of the conch and the kind of the ornamentation. The differences are in another arrangement of the longitudinal ribs on the flanks. In *P. retardum* they are less noticeable and one of them passes directly along the umbilical shoulder. In addition, the suture of the new species is straight, while the *P. retardum* has very shallow ventral and lateral lobes. The new species differs from *P. globatum* (Sowerby, 1824) from Carboniferous of England in the presence of two longitudinal ribs in the region of the umbilical angle, while the second one has one. The new species is distinguished by a different ornamentation and conch shape from all other representatives of the genus *Planetoceras*.

The surface ornamentation and other elements of morphology indicate that the described species seems to be closer to the European representatives of the genus (*Planetoceras retardum* Hyatt and *P. globatum* (Sowerby) (Hyatt, 1893) than to the Uralian (*P. schartimiense* (Janischevsky), *P. janischevskyi* Shimansky and *P. invenustum* Shimansky) (Janischevsky, 1900; Shimansky, 1967).

Paleoecology. The remains of the *Planetoceras yefimenkoi* sp. nov. were found in fine-grained carbonate sandstones together with a varies marine fauna: brachiopods, pelecypods (*Sanguinolites, Paleoneilo, Phestia*, etc.), gastropods, orthocerids, nautilids (*Ephippioceras* sp. (Dernov, 2018)), ammonoids, trilobites (*Ditomopyge* (*Carniphillipsia*) *kumpani* (Weber); defined by Eduard V. Mychko), fishes, and numerous trace fossils (*Zoophycos, Planolites, Selenichnites*, etc.). The sandstone was accumulated, apparently, in shallow areas of the warm-water normal marine paleobasin, which were characterized by high activity of the water column and a normal gas regime. The conch shape is indicative of the planktonic lifestyle of the described nautilid (Barskov et al., 2008).

Locality. Ukraine, Luhansk Region, Luhansk District, the ravine 4 km north-east of the Zelenodilske Village: Lower Pennsylvanian, Bashkirian, Mospinka Formation, sandstone 40 m below the G_1^2 limestone.

Distribution. Donets Basin (Ukraine); Lower Pennsylvanian, Bashkirian, Mospinka Formation.

Conclusions

Three new species of the nautilids (*Gzheloceras aisenvergi* sp. nov., *Knightoceras extorris* sp. nov., and *Planetoceras yefimenkoi* sp. nov.) were described from the Carboniferous of the Donets Basin. The new data are expanding the taxonomic composition of the genera *Gzheloceras*, *Knightoceras,* and *Planetoceras* and also clarify their geographical distribution. The research results are improving the paleontological characteristic of the Serpukhovian and Bashkirian sediments of the Donets Basin.

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ТРИ НОВІ ВИДИ НАУТИЛІД (ГОЛОВОНОГІ МОЛЮСКИ)
ІЗ КАМ'ЯНОВУГІЛЬНИХ ВІДКЛАДІВ ДОНЕЦЬКОГО БАСЕЙНУ (СХІДНА УКРАЇНА)

Із кам'яновугільних відкладів Донбасу описано три нові види наутилід (*Gzheloceras aisenvergi* sp. nov., *Knightoceras extorris* sp. nov. та *Planetoceras yefimenkoi* sp. nov.). *Gzheloceras aisenvergi* sp. nov. має еволютну, дисковидну черепашку з поперечними латеральними ребрами та поздовжнім валиком вздовж вентрального краю. Цей вид морфологічно близький до «*Gzheloceras*» *orthocostatum* (Kruglov, 1939) із верхнього башкиру Донбасу, відрізняючись від нього іншою формою поперечного перетину завитку. Наявність двох ледь помітних жолобків на вентральній стороні наближує *Gzheloceras aisenvergi* sp. nov. до *G. memorandum Shimansky,* 1967. Тим не менш, інші особливості морфології обох видів суттєво розрізняються. *Knightoceras extorris* sp. nov. має еволютну, лінзовидно-двоякоувігнуту черепашку з широкою, але не глибокою вентральною лопаттю і дуже неглибокою широкою боковою лопаттю. Найбільш морфологічно близькими до *Knightoceras extorris* sp. nov. видами є *K. oxylobatum* Miller et Downs, 1948 і *K. patulum* (Unklesbay, 1962). Від першого донбаський вид відрізняється присутністю латеральної лопаті і дещо більш глибокою вентральною лопаттю, а від другого — меншою увігнутістю дорсальної сторони черепашки. Planetoceras *yefimenkoi* sp. nov. має еволютну, дисковидну черепашку, жила камера котрої лише злегка торкається попереднього завитку; на бокових сторонах розташовані два поздовжніх реберця. Лопатева лінія пряма. За формою черепашки і характером скульптури вид *Planetoceras yefimenkoi* sp. nov. найбільш схожий на типовий вид роду — *Planetoceras retardum* Hyatt, 1893. Відмінності полягають в іншому розташуванні поздовжніх реберець на латеральних сторонах черепашки — у *P. retardum* вони менш помітні і одне з них проходить безпосередньо умбілікальним краєм. Характер скульптури та інші елементи морфології свідчать про те, що описаний вид ближче до європейських представників роду (*Planetoceras retardum* Hyatt, *P. globatum* (Sowerby), ніж до уральських (*P. schartimiense* (Janischevsky), *P. janischevskyi* Shimansky та *P. invenustum* Shimansky).

Ключові слова: *головоногі молюски; наутиліди; кам'яновугільна система; Донецький басейн; Україна.*