The stratigraphical position, taphonomy, analysis of faunal composition and the descriptions of particular representatives have been presented in several publications (PAVLOV 1914; GABUNIA 1959; LUNGU 2001).

In the outcrop, above the "Kagulsk" marine series of the Khersonian substage occur sandy-clay layers (thickness 40-45 m) of continental deposits, which represent lake, river and delta facies. The following fauna is known from this locality (cited by GABUNIA 1959):

REPTILIA: *Protestudo bessarabica* RIABININ, 1918;

MAMMALIA

Tubulidentata: *Orycteropus gaudryi* MAJOR, 1888;

Carnivora: *Mustela palaeattica* WEITHOFER, 1888, *Ictitherium viverinum* ROTH and WAGNER, 1854, *Adcrocuta eximia*, *Machairodus schlosseri* WEITHOFER, 1888, *M. cultridens* CUVIER, 1824, *Simocyon primigenius* (ROTH and WAGNER, 1854);

Perissodactyla: *Hipparion* cf. *verae*, *H.* cf. *moldavicum* GROMOVA, 1952, *Aceratherium incisivum*, *Dihoplus schleiermacheri* (KAUP, 1832);

Artiodactyla: *Cervus* sp., *Palaeotragus roueni* GAUDRY, 1861, *Palaeotragus* sp., *Helladotherium duvernoyi* GAUDRY and LARTET, 1856, *Tragoportax frolovi* PAVLOV 1913, *Palaeoryx stutzeli* SCHLOSSER, 1904, *Gazella deperdita*;

Proboscidea: *Choerolophodon pentelici*, *Mastodon* sp., *Deinotherium gigantisimum*.

According to GABUNIA (1959) the fauna of Chiobrūchiū is of Early Maeotian age while according to KOROTKEVICH (1988) it is of Late Khersonian. So far, however, there is insufficient data to confirm either of these suppositions. In 1989 and 1990, new material from small terrestrial vertebrates was collected from the locality of Chiobrūchiū (LUNGU 1990). The succession at the Chiobrūchiū exposure (Fig. 13) is described below (from bottom to top).

In the lower part of the outcrop, layer 1 (thickness 5.0 m) consists of green-yellow clay with sandy intercalations, containing shells of *Mactra caspia* (of Late Khersonian age). On top of it lies layer 2 (thickness 1.0 m), consisting of green clay with lumpy structure. Subsequent layer 3 (thickness 16.0 m) is built of yellow-grey medium- and coarse-grained sand, diagonally bedded, with lenses of sandstone. In the upper part of this layer gravel with fragments of bones and isolated teeth is present. Next, in the upward direction, layer 4 (thickness 5.0 m) is built of grey, fine-grained clayey-sand with lenses of sandstone, gravels, and clay. This layer contains fragments of bones and isolated teeth of terrestrial vertebrates. On the top of the outcrop is layer 5 (thickness 4.0 m) consisting of pebbles and gravel (containing fragments of Carpathian rocks). Yellow sand can be found in the upper part of this layer.

The remains of terrestrial vertebrates were collected from the clayey-sand layer which lies immediately under Quaternary deposits (layer 5) of the Dniester river. Bones were not concentrated, but scattered in the layer and they represent different degrees of abrasion and diagenesis (colour alteration and mineralization). GABUNIA (1959) suggested that bone remains were transported by river from distant areas as the result of swamp erosion of river banks (overgrown by sallows and alders), steppe or semi-desert environments. The lithology, sedimentary structures, and the composition of fossil asse

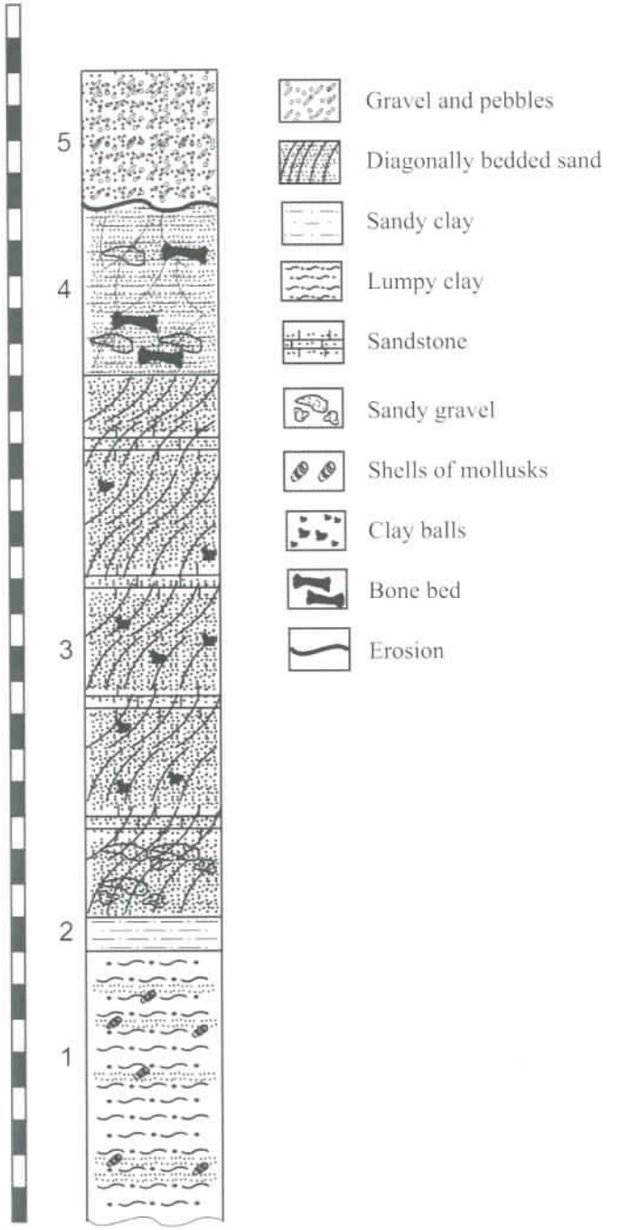

Fig. 13. Geological cross-section of the locality Chiobrūchiū (by NICOARA, description after GABUNIA 1959).

blages indicate that deposition took place in the delta of the Maeotian river. Layer 4 (Fig. 13) of the Chiobrūchiū outcrop yielded the following terrestrial vertebrates:

AMPHIBIA: *Mioproteus* cf. *caucasicus*, *Rana* sp.;
REPTILIA: *Chelydropsis* sp., *Melanochelys* sp., *Sakya* sp., *Protestudo* sp., *Lacerta* sp., *Ophisaurus* sp., *Natrix* sp., *Elaphe* sp., *Vipera* sp.;
AVES: *Struthio* sp., *Anas* sp.;
MAMMALIA
Soricomorpha: *Ruemkelia* sp., *?Miosorex* sp., *Petenyia* cf. *dubia*, "*Paenelimnoecus*" *repenningi* (BACHMAYER and WILSON, 1970);
Lagomorpha: *Proochotona eximia* KHOMENKO, 1914;
Rodentia: *Spermophilinus* cf. *bredai turolensis* DAXNER-HÖCK, 1975, *Myomimus dehmi*, *Vasseuromys* cf. *thenii* DAXNER-HÖCK and DE BRUIJN, 1981, *Occitanomys* (*Hansdebruijnia*) *neutrum* (DE BRUIJN, 1976), *Castromys* sp., *Neocricetodon* (*Kowalskia*) cf. *lavocati* (HUGUENEY and MEIN, 1965), *Epimeriones* sp.;
Carnivora: *Ictitherium* sp.;
Perissodactyla: *Hipparion* sp., *Aceratherium* sp.;
Artiodactyla: *Cervavitus* sp., *Tragoportax amaltheus* (GAUDRY, 1861).

The fauna of Chiobrūchiū represents various environments (biocoenoses). The occurrence of *Proochotona eximia*, *Vasseuromys* cf. *thenii*, *Occitanomys* (*Hansdebruijnia*) *neutrum*, *Castromys* sp., *Neocricetodon* (*K.*) cf. *lavocati*, *Epimeriones* sp., and *Hipparion moldavicum* supports the idea of GABUNIA (1959) that these deposits are of an Early Maeotian (Early Turolian, MN11) age (Fig. 2).

Locality: Tarakliya (Keushen region). This locality is situated in the northwestern part of Tarakliya village, 25 km south of the town of Bendery (south of Kishinëv, Fig. 1). It is one of the largest localities of the Maeotian (Turolian) *Hipparion* fauna in Eastern Europe.

According to KHOMENKO (1913, 1914) and GABUNIA (1959) the following strata (from top to bottom) are exposed at the outcrop (Fig. 14). Layer 1 (thickness 0.5 m) consists of soil. Grey-yellow clays (thickness 1.5 m) with numerous calcareous inclusions filling fissures build layer 2. Layer 3 (thickness 2.7 m) contains dense sticky clays, light brown in colour. Bedded sands with carbonate and sandy pebbles form layer 4 (thickness 0.55 m). Layer 5 (thickness 3.95 m) is built of clayey sands with limonit, grey-blue patches and numerous calcareous concretions. Bedded grey-white sands with brown patches compose layer 6 (thickness 1.4 m).

The lithological composition and character of sediments indicate alluvial-lacustrine sedimentation of the "Kagulsk series". They are situated above Khersonian beds (Late Sarmatian) which occur at a depth of 16-18 m in the outcrop mentioned above by KHOMENKO (1913). KHOMENKO (1913) described 7 bone lenses (I-VII), the width of which reaches about 2 m, thickness 0.3-0.5 m and thickness of separated layers ca 0.2-0.3 m.

In the first bone lense (I) fragments of skull, mandible and isolated bones of postcranial skeleton have been found. Bones are very well preserved and form nests of conglomerate shapes separated by empty rock. The main accumulation of bone material is concentrated in bone lenses II, III and IV. Bones are oriented from the east towards the west inside the

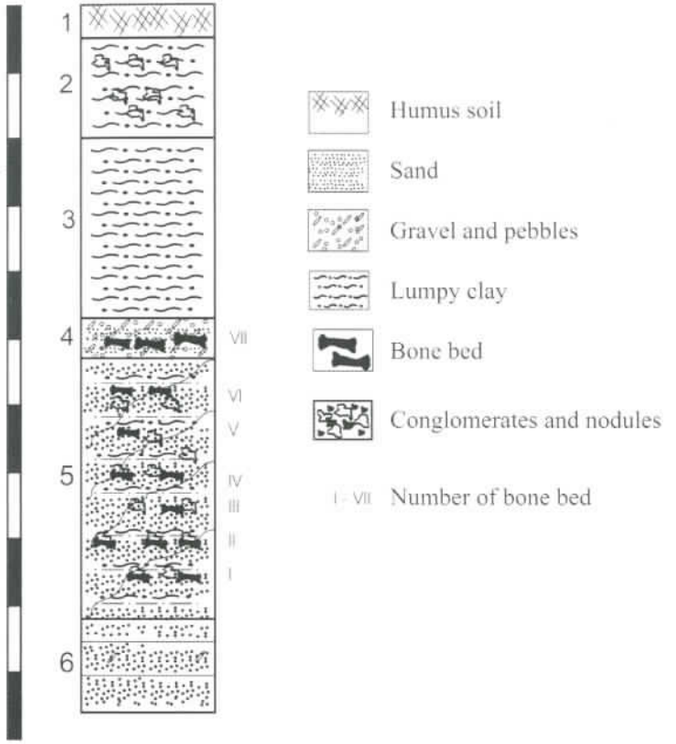

Fig. 14. Geological cross-section of the locality Tarakliya (by NICOARA, description after KHOMENKO 1914).

lenses. The bone remains of large animals predominate. They are well preserved, often with skulls and articulated mandibles and limbs. Bone fragments with traces of abrasion are rare. In bone lenses V and VI, isolated and strongly deformed bones and teeth of *Hipparion*, *Aceratherium*, *Gazella* and Cervidae as well as coprolites were found. Bone lense VII contains badly preserved and scattered bones of small animals.

The lithological character of the deposit of bone lenses, the lack of coarse-grained material, and permanent orientation of bone axes inside of the layer show that the material was deposited in a slow running river, apparently in the delta of the Maeotian river.

The formation of bone lenses was also associated with the power of the current. The distribution of bone remains according to isohypse inside of the bone lenses attests to the variable power of the stream transporting animal remains. The presence of bones of the posteranial skeleton and a skull with an articulated mandible together with abraded fragments of bones show that remains were transported to the place of burial from various distances. Stream transportation could have crushed and broken bones. The presence of fragments of large bones is suggestive of the rapidity of the stream. The remains of smaller bone material were carried from a greater distance to the burial area. When the water rapidity

decreased, only small bones were deposited in the zone of burial (bone lenses V and VII). The remains of animals were transported in the form of dead bodies floating or dragged along the stream bottom to the area of deposition. The presence of bones with articulation, high level of fossilization and good preservation (bone lenses II, III, IV) indicate that they were transported immediately after death into the area of deposition. Bad preservation and poor fossilization (bone lenses V, VI, VII) suggest that animals remained at the surface for some period of time, exposed to weathering processes, and were afterwards deposited. The presence of seven bone lenses in the outcrop shows that the locality arose over a long time. Apparently, in a separate period, as a result of prolonged torrential rains, strong streams arose and carried and deposited remains of terrestrial vertebrates in the delta or flood plain of the Maeotian river. The origin of the Tarakliya locality may have been associated with irregular rainfall.

The fauna from Tarakliya was studied by KHOMENKO (1913, 1914) as well as by RIABININ (1929), GROMOVA (1952), TROFIMOV (1954) and GODINA (1979). The locality contains remains of:

REPTILIA: *Protestudo bessarabica*;

MAMMALIA

Lagomorpha: *Proochotona eximia*, *Alilepus lascarevi* (KHOMENKO, 1914);

Rodentia: *Castor* cf. *neglectus* SCHLOSSER, 1902, *Hystrix bessarabica* RIABININ, 1918;

Carnivora: *Martes leporinum* (KHOMENKO, 1914), *Hyaenictitherium venator* SEMENOV, 1989, *Ictitherium viverinum*, *Lycyaena chaeretis* (GAUDRY, 1861), *Thalassictis parvulus* (KHOMENKO, 1914), *Adcrocuta eximia*, *Felis attica* WAGNER, 1857, *Paramachairodus orientalis* (KITTL, 1887), *Metailurus parvulus* (HENSEL, 1862);

Perissodactyla: *Hipparion moldavicum*, *H. platygenis* GROMOVA, 1952, *Aceratherium incisivum*, *Diceros pachygnathus* (WAGNER, 1848), *Dihoplus orientalis* (SCHLOSSER, 1921);

Artiodactyla: *Microstonyx major*, *Cervavitus novorosiae* KHOMENKO, 1913, *Palaeotragus roueni*, *Samotherium boissiere* MAJOR, 1888, *Helladotherium duvernoyi*, *Camelopardalis* sp., *Tragoportax amaltheus*, *T. amaltheus* v. *parvidens* (SCHLOSSER, 1904), *T. rugosifrons* (SCHLOSSER, 1904), *T. validus* (KHOMENKO, 1913), *Palaeoryx majori* SCHLOSSER, 1904, *P. stutzeli* SCHLOSSER, 1904, *Tragoreas oryxoides* SCHLOSSER, 1904, *Protragelaphus skouzesi* DAMES, 1883, *Procapra rodleri* (PILGRIM and HOPWOOD, 1928), *Pseudotragus capricorns* SCHLOSSER, 1904, *Gazella deperdita*, *G. brevicornis* ROTH and WAGNER, 1854, *Criotherium argaloides* MAJOR, 1891, *Procobus brauneri* KHOMENKO, 1913, *P. melania* KHOMENKO, 1913;

Proboscidea: *Deinotherium gigantisimum*, *Tetralophodon longirostris*, *Zygolophodon turicensis*.

One of the peculiarities of the faunal assemblage from Tarakliya is the presence of a great number of antelopes which had a very large range in the eastern part of the Mediterranean area during the Turolian. According to GABUNIA (1959) the geological age of this locality is the Middle Maeotian. The fauna of Tarakliya is similar to fauna of Middle Turolian (MN12) age (Fig. 2).

Locality: Chimishliya (Rypa Rechea). The outcrop is situated on the western slope of the Kogylnik river valley, in the vicinity of the town of Chimishliya (south of Kishinëv, Fig. 1). On an area of ca 100 ha the slope of the valley is carved by a network of gorges. At an altitude of 90 m a.s.l., in alluvial-lake deposits of the "Kagulsk series", 11 sites with bone remains of terrestrial vertebrates were found. According to MOROSHAN (1934) the following layers are present in the "Rypa Rechea" (Fig. 15, from bottom to top).

In the lower part of the exposure grey-green lumpy clays of Khersonian age (layer 1, thickness more than 6.0 m) are situated. The top of this layer is eroded (discordance). Above this discordance grey, diagonally bedded coarse- and medium-grained sand (layer 2, thickness 8.0 m) can be seen. Further up, fine-grained white sand, ferruginous in places (layer 3, thickness 2.5 m), with lenses of sandstone is present. The sand is covered by laminated sandy-clay (layer 4, thickness 0.5 m). Layer 5 (thickness 1.0 m) consists of grey-green lumpy clay (partly ferruginous), with lenses of sand and marls. These contain bones of terrestrial vertebrates. The bone carrying layers are covered by weathered grey lumpy clay (layer 6, thickness 0.9 m). Layer 7 is the humus-soil cover (thickness 0.8 m).

The bone remains of terrestrial vertebrates are situated in the sands and clays of layers 3, 4, and 5. The layers show river and flood plain facies. A bone breccia can be found in the same layers (thickness 1.0-1.5 m) with fragments of limbs, vertebrae, and skulls with articulated mandibles. The orderless distribution of bones indicates rapid burial. Evidently, the animals were transported by temporary, rapid streams. Non-decomposed cadavers and body parts were buried during flooding of the Maeotian river.

According to BARBU (1959), BELIAJEVA (1948), LUNGU and TARABUKIN (1966) and LUNGU and DELINSCHI (2008), the following remains of terrestrial vertebrates are known from the locality of Chimishliya:

REPTILIA: *Protestudo bessarabica*;

AVES: *Struthio* sp.;

MAMMALIA

Erinaceomorpha: ?*Erinaceus* sp.;

Lagomorpha: *Alilepus lascarevi*;

Rodentia: *Castor praefiber* LINNAEUS, 1758, *Hystrix* sp.;

Carnivora: *Mustela palaeattica*, *Eomellivora rumana* (SIMIONESCU, 1938), *Miohyaenotherium bessarabicum* SEMENOV, 1989, *Thalassictis parvulus*, *Adcrocuta eximia*, *Machairodus giganteus*, *M. schlosseri*, *M. parvulus* (HENSEL 1862), *M. cultridens*, *Acionys* sp., *Felis* sp.;

Perissodactyla: *Hipparion praegiganteum* TARABUKIN, 1968, *H. moldavicum*, *H. matthewi* ABEL, 1926, *Aceratherium incisivum*, ?*Diceros pachygnathus*, *Acerorhinus* sp., ?*Chilotherium schlosseri* (WEBER, 1905);

Artiodactyla: *Microstonyx major*, *Cervavitus variabilis* ALEXEJEW, 1913, *Palaeotragus roueni*, *Helladotherium suchovi* (GODINA, 1977), *Gazella deperdita*, *Tragoportax frolovi*, *T.* cf. *spectabilis* SCHLOSSER, 1921, *Palaeoryx pallasi* WAGNER, 1857, *P. lindermayeri* WAGNER, 1848.

Proboscidea: *Tetralophodon longirostris*, *Zygolophodon turicensis*, *Mammut borsoni* (HAYS, 1834), *Deinotherium gigantisimum*.

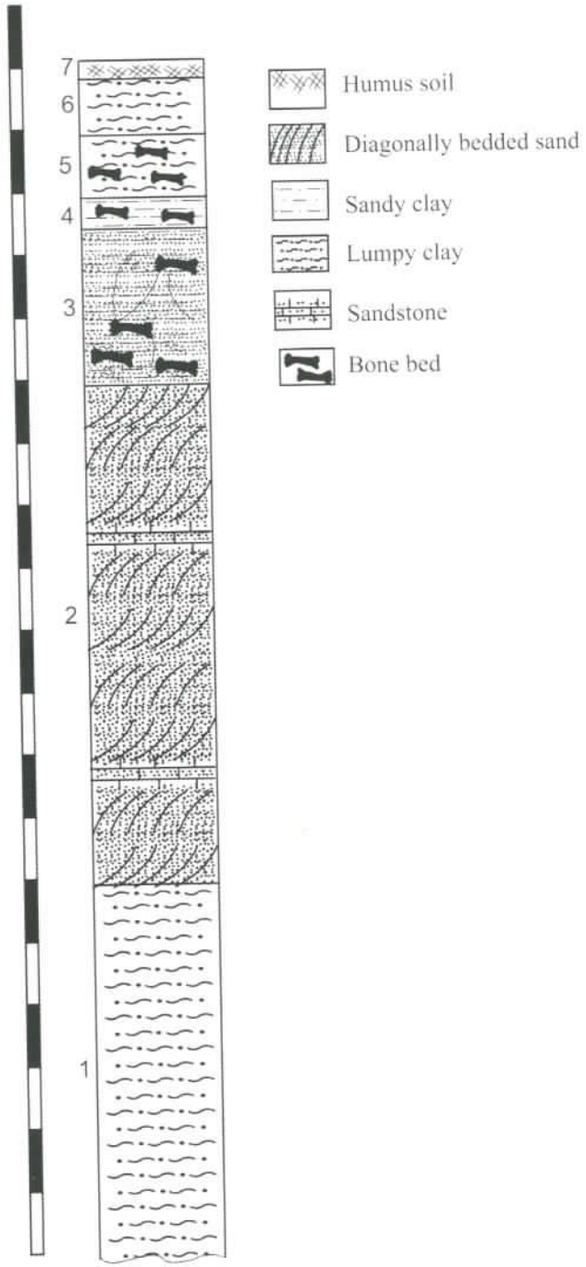

Fig. 15. Geological cross-section of the locality Chimishliya, Rypa Rechea (by NICOARA).

The fauna from Chimishliya is one of the richest known in Eastern Europe (however, many of the taxa need systematic revision). In this assemblage species of open areas (savanna type) predominate.

In recent years, a new locality with terrestrial vertebrates has been found in a quarry situated on the northern side of the town of Chimishliya (ca 80 m a.s.l.). The bone remains were collected from alluvial deposits of the "Kagulsk series" (Fig. 16).

In the lower part of the outcrop coarse-grained sand intercalated by marly-gravel and conglomerate with bone remains of small terrestrial vertebrates were found. They are covered by diagonally bedded clayey-sand passing into lumpy clay towards the top. These deposits represent an alluvial cycle of sedimentation of fluvial and flood plain facies. The following taxa are known from this site:

REPTILIA: *Protestudo* sp., *Ophisaurus* sp., *Lacerta* sp., *Vipera* sp.;

MAMMALIA

Erinaceomorpha: ?*Parasorex socialis*, ?*Erinaceus* sp.,

Soricomorpha: *Ruemkelia* sp.;

Chiroptera: Chiroptera gen. et sp. indet.;

Lagomorpha: *Proochotona* sp., *Alilepus lascarevi*;

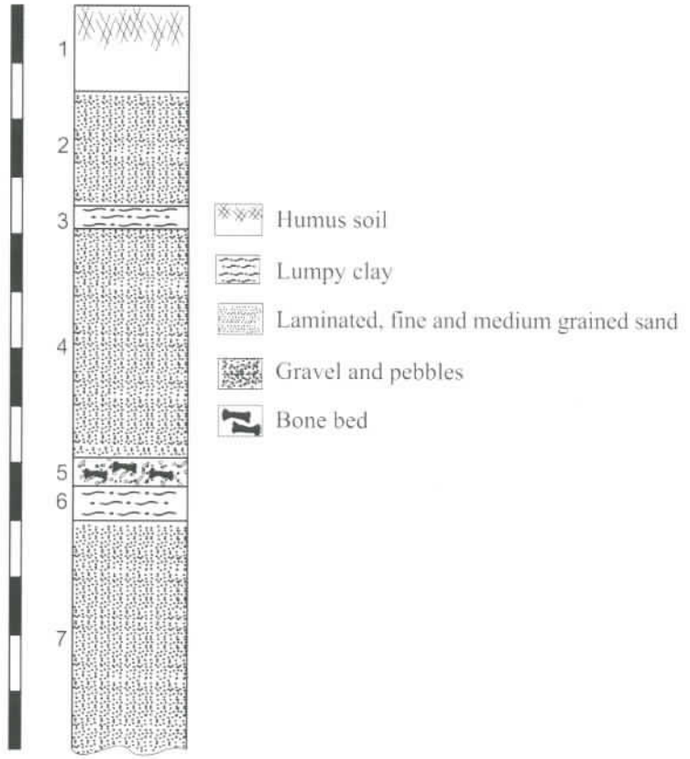

Fig. 16. Geological cross-section of the locality Chimishliya, in the northern part of the pit (by NICOARA).

Rodentia: *Tamias atsali* DE BRUIJN, 1995, *Trogontherium* (*E.*) *minutum* cf. *rhenanum*, *Myomimus maritsensis* DE BRUIJN, DAWSON and MEIN, 1970, *Apodemus* sp., *Neocricetodon* (*K.*) *browni* (DAXNER-HÖCK, 1992), *Pseudocricetus orienteuropaeus* TOPACHEVSKY and SKORIK, 1972;

Carnivora: *Lutra* sp., *Ictitherium* sp.

The remains of the Muridae and Cricetidae predominate. The age of the fauna from Chimishliya is considered to be Late Maeotian (Middle Turolian, early MN12) age (Fig. 2), or older. Perhaps it is younger than the fauna from Grebeniki and Chiobrūchiū and possibly from Tarakliya.

Locality: Gūra-Galbene. The locality is situated in the Kogylnik river valley, in the eastern part of Gūra-Galbene village, 20 km north of the town of Chimishliya (south of Kishinëv, Fig. 1).

Patches of fine-bedded structureless clays grey-green in colour alternate with fine-grained quartzy-micaceous and clayey sands, representing a continental formation of lacustrine-fluvial origin (thickness about 50 m). These deposits represent the "Kagulsk series" of rhythmical stratification (structure), in which several alluvial cycles can be discerned. Each cycle begins with medium-grained quartzy-micaceous sands passing into fine-grained and quartzy-micaceous and clayey sands, which are covered by structureless clays of grey-green colour.

The geological age is controversial. According to the stratigraphical position and taphonomy, Gūra-Galbene is similar to Chimishliya. Apparently they are of the same age and were formed under identical conditions. According to SUKHOV (1945) and KONKOVA (1957) this locality contains the following taxa:

MAMMALIA

Lagomorpha: *Alilepus* sp.;

Carnivora: *Machairodus* sp.;

Perissodactyla: *Hipparion* sp., *Chilotherium schlosseri*, *Aceratherium incisivum*;

Artiodactyla: *Microstonyx major*, *Cervavitus variabilis*, *Helladotherium duvernoyi*, *Gazella deperdita*;

Proboscidea: *Mammut borsoni*.

Locality: Tūdora. This locality is situated on the western bank of the lower Dniester river valley, in the northwestern part of Tūdora village (southeast of Kishinëv, Fig. 1).

According to GABUNIA (1959), the following strata are exposed, from top to bottom (Fig. 17): Layer 1 (thickness 0.4 m) consists of humus soil. Below, layer 2 (thickness 0.7 m) is built of sandy clays green in colour intercalated with reddish, poor clayey sands. Layer 3 (thickness 2.0 m) consists of Early Pontian coquina limestone. Layer 4 (thickness 1.0 m) is composed of poorly-bedded green-brown clayey sandstone. In layer 5 (thickness 2 m) green clays with intercalations of black bituminiferous clays passing into clayey sands occur. Layer 6 is built of greenish-light brown and horizontally-bedded sands with rare pebbles and remains of mammals.

The presence of bone remains in compact clays and fine-graveled clayey sand-rocks, and also intercalations of humus soil indicate that they were deposited in the shallow water

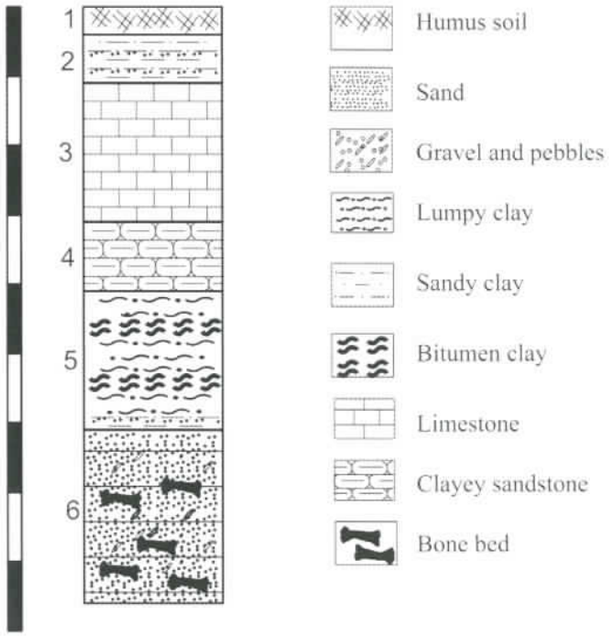

Fig. 17. Geological cross-section of the locality Tūdora (by NICOARA, description after GABUNIA, 1959).

of a lake or liman type. The presence of sand and pebble intercalations in the outcrop indicates that the accumulation of animal remains was caused by temporary streams. According to KROKOS (1916) the presence of leaf prints of such genera as *Salix* sp., *Ulmus* sp., *Populus* sp., etc., testifies to the presence of a moist temperate climate.

The fauna of Tūdora was described by PAVLOV (1913, 1914), KROKOS (1916) and GABUNIA (1959). According to BELIAJEVA (1948), the Tūdora assemblage contains:

MAMMALIA

Carnivora: *Adcrocuta eximia*;

Perissodactyla: *Hipparion tudorovense* GABUNIA, 1959, *Aceratherium incisivum*, *A. simplex* (KROKOS, 1914);

Artiodactyla: *Microstonyx* aff. *major*, *Tragoportax amaltheus*, *Palaeoryx majori*, *Gazella deperdita*.

The majority of taxa present in Tūdora are also known from the remaining Maeotian faunal assemblages of Ukraine, although new forms of *Hipparion* (*H. tudorovense*) and rhinoceros (*Aceratherium simplex*) appeared. GABUNIA (1959) dated the fauna of Tūdora as Late Maeotian, corresponding with the observation that the Tūdora continental deposits with terrestrial vertebrates are covered by marine deposits of the Early Pontian.

The fauna from Tūdora has not been studied in detail. It represents the Turolian faunal type and is apparently younger than the *Hipparion* fauna of Chiobrūchiū, Tarakliya and Chimishliya. Its age is considered as late MN12 or early MN13 (Fig. 2).

5. *HIPPARION* FAUNA LOCALITIES IN PONTIAN BEDS

In the central part of the Kodrinsk Upland (360-390 m a.s.l.) on the erosional surface of the "Baltsk series" (N1bl), rhythmic bedded continental deposits termed the "Stolnichensk series" (N2st) are present. The "Stolnichensk series" differ from the "Baltsk series" because they contain Carpathian jasper and pieces of siliceous rocks (5%). The "Stolnichensk series" of Leordoaya, Veveritsa, Bakhmūt, and Belenesht contain numerous remains of terrestrial vertebrates. They document the latest phase of evolution of the *Hipparion* fauna in the Turolian.

Locality: Leordoaya. The locality is situated in the Kelerash region (northwest of Kishinëv, Fig. 1). On the erosional surface (360-380 m a.s.l.) of the "Baltsk series", built of grey, quartzy, and fine-grained laminated sands, the beds of "Stolnichensk series" are formed (Fig. 18).

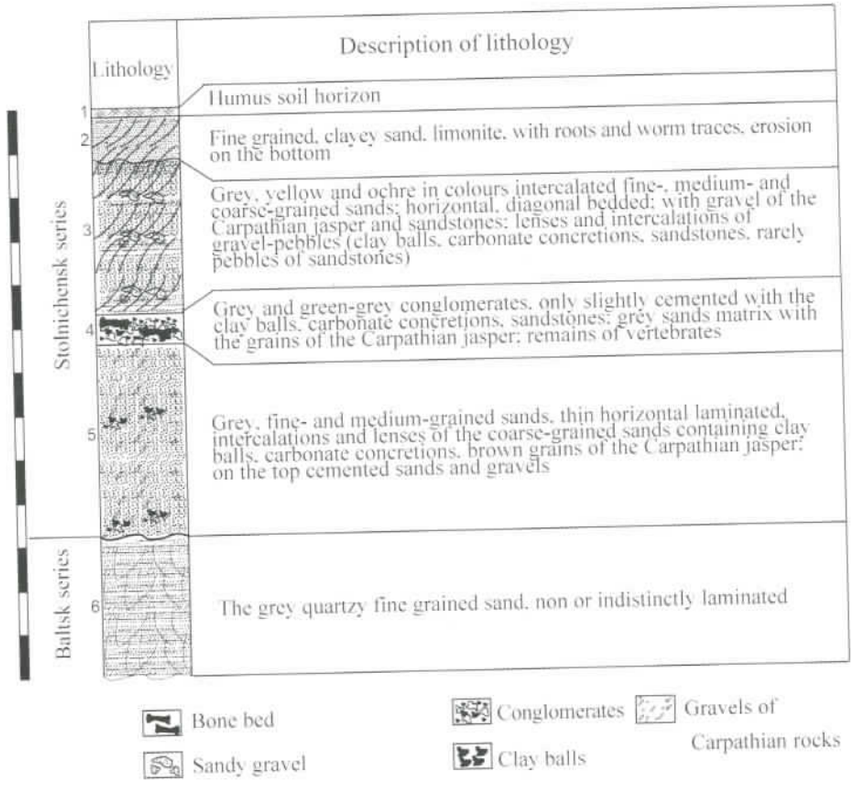

Fig. 18. Geological cross-section of the locality Leordoaya (after NICOARA & LUNGU 2008).

In the lower part of the "Stolnychesk series" (layer 5), horizontally bedded fine- and medium-grained sand intercalated with coarse-grained sand, a matrix containing clay, yellow and red grains of Carpathian jasper, as well as grains of siliceous rock can be found. The top of this series consists of cemented sand, gravel and pebbles. Higher up, layer 4 consists of green-grey conglomerate with grey sand containing grains of Carpathian jasper, fragments of sandstone and carbonate concretions. Bones of terrestrial vertebrates were found in this layer. Over this conglomerate, beds of horizontally or diagonally bedded medium- and coarse grained sand (layer 3) with gravel, small flat pebbles of Carpathian jaspers and sandstone, intercalations and lenses of gravel and pebble (clay, sandstone) can also be seen. On the top of the outcrop (on the eroded surface) fine-grained clayey-sand, diagonally bedded, partly showing iron oxidation (limonite), roots and worm traces form layer 2. It is covered by humus soil (layer 1). Layers 2-5 containing grains of the Carpathian jaspers, as well as grains of siliceous rocks, comprise the alluvial plain facies.

The remains of terrestrial vertebrates are found in conglomerate and medium- to coarse-grained sand (layers 3-5) which comprise the alluvial facies. The bones are scattered in the beds (no concentrations) and show a degree of abrasion. Apparently, they were transported by streams from various distances and buried in the bed of the Pontian river. Bones of large terrestrial vertebrates were found in the conglomerate. The small terrestrial vertebrate remains are present in the lenses of gravel and coarse-grained sand. The locality was probably formed over a long period of time as a result of intense surface erosion.

The following fossil terrestrial vertebrates are known from Leordoaya (LUNGU 1998; NICOARĂ and LUNGU 2008; RZEBIK-KOWALSKA and LUNGU 2009; NICOARĂ 2009; NICOARA 2011, personal communication):

REPTILIA: *Protestudo* sp., *Ophisaurus* sp., *Lacerta* sp.;

MAMMALIA

Erinaceomorpha: *Erinaceus* sp.

Soricomorpha: *Talpinae* gen. et sp. indet., ?*Crusafontina* cf. *kormosi* (BACHMAYER and WILSON, 1970);

Primates: Primates gen. et sp. indet.;

Lagomorpha: *Proochotona eximia*, *Alilepus* sp., *Prolagus* cf. *sorbinii* MASSINI, 1989;

Rodentia: *Miopetarista* sp., *Blackia* sp., *Chakvaromys (Spermophilinus) turolensis* DE BRUIJN and MEIN, 1968, *Hylopetes maciedonensis* BOUWENS and DE BRUIJN, 1986, *Trogontherium* (*E.*) *minutum rhenanum*, *Castor* cf. *neglectus*, *Keramidomys* aff. *carpaticus* (SCHAUB and ZAPFE, 1953), *Occitanomys* (*Hansdebruijnia*) aff. *neutrum*, *Apodemus* sp., *Parapodemus* sp., *Anomalospalax tordosi* KORDOS, 1998, *Lophocricetus minuscilus* SAVINOV, 1977, *Neocricetodon* (*K.*) *browni*, *Neocricetodon* sp., *Ichimomys* sp., *Epimeriones austriacus* DAXNER-HÖCK 1972, *Microtinae* gen. et sp. indet., *Myomimus maritsensis*, *Glis* cf. *minor* KOWALSKI 1956, *Sicista* sp.

Carnivora: *Metailurus* sp.;

Proboscidea: *Zygolophodon turicensis*;

Perissodactyla: *Hippotherium* sp., *Rhinocerothidae* gen. et sp. indet.;

Artiodactyla: *Microstonyx* cf. *major*, *Cervavitus* sp., *Procapreolus* sp., *Gazella* sp.

The age of the fauna can be compared with Turolian (MN13), Early Pontian (Fig. 2).

6. CONCLUSIONS

In the Republic of Moldova, Late Miocene fossil remains of the *Hipparion* fauna appear in marine, pro-deltaic, deltaic, and lacustrine-fluvial facies and are referred to transgressive and regressive cycles of depositions where they commonly appear as concentrations in the form of lenses. They are known from many localities of different stratigraphic levels of Sarmatian (Bessarabian and Khersonian substages), Maeotian and Pontian stages and help to explain some aspects of *Hipparion* fauna evolution during the Late Miocene in the Eastern Paratethys.

The geological events which took place in the area of the eastern Paratethys in the Late Miocene influenced the biological environment and increased the passage of faunal elements from different palaeobiogeographic provinces in Eastern Europe. During the Late Miocene, the territory of Moldova was situated at a point of contact of these palaeobiogeographical provinces which clearly shaped the evolution of its theriofauna.

Some peculiarities of the faunal assemblages of Bessarabian localities demonstrate their geological age as Early Vallesian (MN9) and Khersonian as Late Vallesian (MN10). Faunal assemblages from the Maeotian and Pontian are of Turolian character and should be refered to as biozones MN11-MN13 (Fig. 2).

Apparently, numerous elements of the fauna appeared in the palaeobiogeographic provinces not simultaneously but at different times. This must be taken into consideration during the description and correlation of local and interregional stratigraphic schemes.

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ANNEX 1

Romanian, Russian and English (transcribed from Russian) names of localities listed in the text

Transcription in English	Romanian	Russian	Pages
Breila	Breila	Бреила	14
Būzhor-I, II	Bujor-I, II	Бужор-I, II	20, 25
Chimishliya	Cimişlia	Чимишлия	43
Chiobrūchiū	Ciobruciu	Чиобручиу	37
Dragushany	Drăguşeni	Драгушаны	36
Gidigich	Ghidighici	Гидигич	9
Girovo	Hirovo	Гирово	18
Gūra-Galbene	Gura-Galbănă	Гура-Галбэнэ	46
Isakovo	Isacovo	Исаково	28
Kalfa	Calfa	Калфа	15
Keīnar	Căinari	Кэйнарь	29
Kishinëv	Chişinău	Кишинёв	9, 11, 25
Leordoaya	Leordoaia	Леордоая	48
Lepūshna	Lăpuşna	Лэпушна	23
Malye Mileshty	Mileştii Mici	Милештий Мичь	14
Mikeūts	Micăuţi	Микэуць	9
Nisporen	Nisporeni	Ниспорень	28
Otovaska I, II	Otovasca I, II	Отоваска I, II	11, 25
Pitūshka	Pituşca	Питушка	33
Pokshesht	Pocşeşti	Покшешт	34
Poshta Veke	Poşta Veche	Пошта Веке	9
Pripichen-Rezesh	Pripeceni-Rezeşi	Припичень-Рэзеш	37
Prūnkūl	Pruncul	Прункул	9
Respopen	Răspopeni	Рэспопень	36
Sirets	Sireţ	Сирец	25
Tarakliya	Taraclia	Тараклия	40

Transcription in English	Romanian	Russian	Pages
Tiraspol	Tiraspol	Тирасполь	32
Tūdora	Tudora	Тудора	46
Varnitsa	Varniţa	Варница	23
Veveritsa I	Veveriţa I	Веверица I	27
Visternichen	Visterniceni	Вистерничень	9
Yaloven	Ialoveni	Яловень	9

ANNEX 2

Different versions of Russian and Russified names: 1st column – author's own transcription, 2nd col. – Russian spelling, 3rd col. – transcription, 4th col. – other spelling versions used in literature.

Alexejew, Алексеев, Alekseev, Alexeev
Andrusov, Андрусов, Andrusov
Barbu, Барбу, Barbu
Beliajeva, Беяева, Belyaeva, Beliaeva, Belijaeva
Bilinkis, Билинкис, Bilinkis
Borissiak, Борисяк, Borisyak
Chemyrtan, Чемыртан, Chemyrtan, Cemirtan
Chkhikvadze, Чхиквадзе, Chkhikvadze, Čkhikvadze
Darevski, Даревский, Darevskii, Darevsky, Darevskij
Daudin, Даудин, Daudin
Dmitrieva, Дмитрева, Dmitrieva
Donov, Донов, Donov
Eberzin, Эберзин, Eberzin
Efremov, Ефремов, Efremov
Ganea, Ганя, Ganya
Gabunia, Габуния, Gabuniya, Gabunea, Gabunija
Godina, Година, Godina
Gromova, Громова, Gromova
Khomenko, Хоменко, Khomenko, Homenko, Chomenko,
Khozatzky, Хозацкий, Khozatskii, Khosatsky
Khubka, Хубка, Khubka, Hubca, Hubka
Kirpitschnikov, Кирпичников, Kirpichnikov
Kojumdieva, Коюмджиева, Koyumdzhieva
Kolesnicov, Колесников, Kolesnikov
Konkova, Коныкова, Konkova, Konikova
Krokos, Крокос, Krokos
Korotkevich, Короткевич, Korotkevich, Korotkevic
Kurotchkin, Курочкин, Kurochkin
Laskarev, Ласкарев, Lascarev
Lungu, Лунгу, Lungu
Moroshan, Морошан, Moroshan
Nalivkin, Наливкин, Nalivkin
Nevesskaja, Невесская, Nevesskaya

Orlov, Орлов, Orlov
Pavlov, Павлов, Pavlov, Pavlow
Redkozubov, Редкозубов, Redkozubov, Redcozubov
Riabinin, , Рябинин, Ryabinin, Rjabinin
Roshka, Рошка, Roshka, Rosca
Savinov, Савинов, Savinov
Semenov, Семенов, Semenov, Semionov
Sinzov, Синзов, Sinzov
Sukhov, Сухов, Sukhov, Suhov
Tarabukin, Тарабукин, Tarabukin
Topachevsky, Топачевский,Topachevski , Topachevski, Topacevski
Trofimov, Трофимов, Trofimov
Yakubovskaya, Якубовская, Yakubovskaya
Zerova, Зерова, Zerova

INDEX OF LATIN NAMES

Ceratherium 11, 41.
Ceratherium incisivum 14, 17-8, 32, 38, 42-43, 46-47.
Ceratherium simplex 47.
Ceratherium sp. 10, 18, 22-23, 25, 27-28, 37, 40.
Acerorhinus sp. 43.
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