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ABSTRACT BOOK

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Postcranial skeleton of *Deinotherium* from Lower Don Area (Rostov Region, Russia)

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In 1982 the employees of the Azov local museum excavated an almost complete skeleton of a large deinothere in the Obukhov sand pit near Novocherkassk town (Bajgusheva, 1998; Bajgusheva, Tishkov, 1998). The find comes from the fluvial or deltaic Upper Miocene deposits of the Yanov Formation. This thick sequence of continental deposits occurs between the upper Sarmatian and the lower Pontian marine layers. In these strata of the adjacent Yanov sand pit the remains of *Mammot* cf. *praetypicum*, *M.* cf. *borsoni*, Rhinocerotidae gen. and «*Palaeoryx*» *longicephalus* were found (Bajgusheva et al., 2001). These deposits are correlated with the Late Meotian and the fauna corresponds with the Late Turolian, zone MN 12/13 (Titov, Tesakov, 2013). Originally the deinothere from Obukhovka was determined as *Deinotherium giganteum* Kaup, 1829. But there was noted its rather large size intermediate between *D. giganteum* and *D. gigantissimum* (Bajgusheva, Titov, 2006). Based on the latest revisions they proposed to refer all huge Turolian deinotheres (zones MN11- 13 and partly MN 14) to *D. gigantissimum* Stefanescu, 1892 (Markov, 2008) or to major synonym *D. proavum* (Eichwald), 1831 (Pickford, Pourabrishami, 2013).

The most of bones of *D. proavum* skeleton from the Obukhov sand pit are preserved. In collection of the Azov museum-reserve there are 172 bones and fragments (collections No. AMZ - KP 26579, 29352, 27402). The skull, lower jaws and left scapula were destroyed before excavations during working in the sand pit. The right scapula, cervical and thoracic vertebrae, ribs were considerably damaged. The most part of the II and III phalanges are absent. This skeleton is one of the most complete. After the mounting the following skeletal dimensions were restored: the shoulder height is 370 cm, the length from tusks to the end of the sacrum is 4.2 m. The restored weight of the animal is about 8 tons.

Morpho-functional features and lifestyle of the deinotheres are still controversial. Therefore, the study and analysis of postcranial skeletons of these animals are important. The comparison of the lengths of the long limb bones of the deinotheres indicates a general similarity to other large proboscids, particularly to representatives of Elephantidae. However Deinotheriidae differ markedly by massiveness of the limb bones, especially the bones of the forearm and crus (Fig. 1). The metapodials and phalanges of the deinotheres are comparatively longer than the one of the elephants (Svistun, 1974; Kovachev, Nikolov, 2006).

As noted by V.I. Svistun (1974), a foothold in thoracic limbs rests on the lateral parts, mainly. And the forelimbs were adapted to move not only in the sagittal plane, but could perform more diverse movements in comparison with the elephants. In addition, the manus and pes of these animals were more elongated with well developed muscles; it allowed the animals to expand significantly its carrying surface. This gave them an advantage when driving the movement over a swampy ground.

During assembling of the skeleton in 2009 (under the guidance of E.N. Maschenko, PIN RAS, Moscow), we also drew attention to the fact that a vertebral column of the deinotheres is more direct in comparison with the elephants and a position of pelvis is more vertical. The femoral bone has

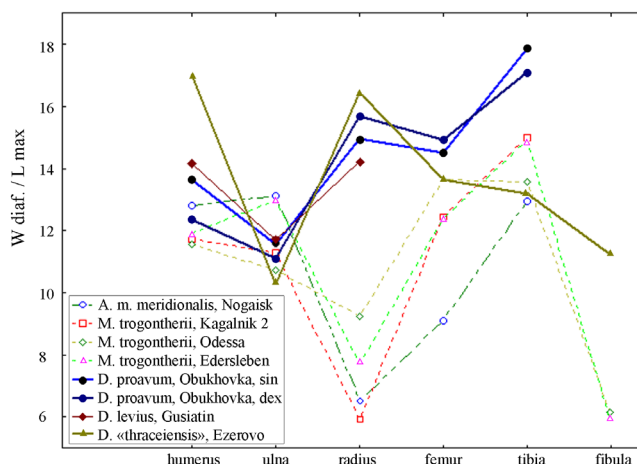


Fig. 1. The comparison of limb bones massiveness of some representatives of *Archidiskodon*, *Mammuthus* and *Deinotherium*.

limited mobility in forward direction, but a greater mobility degree in caudal direction. The forelimb has a considerable mobility in shoulder joint, as compared to the elephants. Probably, it was able to make rake movements inwards and backwards. Apparently, all of these features suggest that the deinotheres were good swimmers. The differences in the morphological characteristics of the deinotheres and the representatives of the Elephantinae indicate a greater adaptability of the elephants for mobility over the land.

References

- Bajgusheva, V.S., Tishkov, M.Yu., 1998. About the find of *Deinotherium giganteum* Kaup skeleton near Novocherkassk town of Rostov Region. In: Kiyashko, V.Ya. (Eds.), Historical and archeological researches in Azov and on the Lower Don in 1995-1997, 15, pp. 305-311, Azov.
- Bajgusheva, V.S., Titov, V.V., 2006. About teeth of *Deinotherium giganteum* Kaup from Eastern Paratethys. Hellenic Journ. of Geosciences 41, 177-182.
- Bajgusheva, V.S., 2003. *Deinotherium giganteum* KAUP skeleton in hipparion fauna of the Sea of Azov Region. In: V.N. Orlov (Eds.), Teriofauna of Russia and neighborhood territories. Moscow, pp. 26-27.
- Bajgusheva, V.S., Titov, V.V., & Tesakov, A.S., 2001. The sequence of Plio-Pleistocene mammal faunas from the south Russian Plain (the Azov Region). Bolletino della Società paleontologica Italiana 40 (2), 133-138.
- Kovachev, D., Nikolov, I., 2006. *Deinotherium thraceiensis* sp. nov. from the Miocene near Ezerovo, Plovdiv District. Geologica Balcanica 35 (3-4), 5-40.
- Markov, G.N., 2008. The Turolian proboscideans (Mammalia) of Europe: preliminary observations. Historia naturalis bulgarica 19, 153-178.
- Pickford, M., Pourabrishami, Z., 2013. Deciphering Deinotheriidae diversity. Palaeobiodiversity and Palaeoenvironments 93, 121-150.
- Svistun, V.I., 1974. Deinotheriums of Ukraine. Naukova dumka, Kiev.
- Titov, V.V., Tesakov, A.S., 2013. Late Miocene (Turolian) vertebrate faunas of the southern European Russia. In: Wang, X., Flynn, L.J., and Fortelius, M. (Eds.), Fossil Mammals of Asia: Neogene Biostratigraphy and Chronology. Columbia University Press, New York, pp. 536-543.

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