NEW DATA ABOUT THE SKULL OF THE *ELASMOTHERIUM SIBIRICUM*

Ekaterina PETROVA. Zoological Institute of the Russian Academy of Sciences, Saint Petersburg, Russia. *mammut2003@mail.ru*

The *Elasmotherium* is a giant rhinoceros, which lived in the Late Pliocene – Middle Pleistocene of the Eurasia. This animal occupied an important position in the Pliocene – Pleistocene ecosystems along with the elephants. There were found a lot of skeletal remains of *Elasmotherium* in Eastern Eurasia, mostly as isolated teeth, fragments of skulls and mandibles, bones of postcranial skeleton. The information about these remains is rather scant, as a rule. In this connection, we studied four complete and 11 partial skulls of *Elasmotherium* stored in the collection of the Zoological Institute of the Russian Academy of Sciences, Paleontological Institute of the Russian Academy of Sciences, Central Museum of Geological Exploration, Saint-Petersburg State Mining Institute, Vernadsky State Geological Museum, Stukenberg Museum of Geology and Mineralogy of Kazan State University. All the specimens come from the localities of the Volga region. The skull from Luchka (ZIN 10792), which was designated as lectotype *Elasmotherium sibiricum* Fischer, 1809 has been also investigated. The skulls were compared with specimens from Tokmak (Late Pliocene), Liventsovka (Late Pliocene) and Zelenokumsk.

The investigation has shown that the skulls are similar to each other by general features. At the same time there are some various signs. One part of the skulls has got not a big occipital crest and not a big width in mastoid, and also a weak roughness of a frontal bone, triangular nuchal fossa and mastoids, which not protrude beyond the level of the orbits. The other part of skulls has a wide occipital crest, a big width in mastoid, strongly developed roughness of a frontal bone, oval nuchal fossa and mastoid protrudes beyond the level of the orbits. Comparison of the sizes of skulls *Elasmotherium* from the Volga region has shown that on the general sizes they are similar to *E. chaprovicum* from Liventsovka and with *Elasmotherium* from Tokmaka, which at first has been determined as *E. caucasicum*, and they were redefined, as *E. peii*.

All the studied sculls of the Volga region correspond to the lectotype of *Elasmotherium sibiricum* in general morphological and morphometric features. Morphological and morphometric differences that were revealed most probably reflect the sexual dimorphism, rather than individual, geographical, or geological distinctions. This is clearly expressed in some fossil and modern forms of Rhinocerotidae Gray, 1821. Firstly, it is evidenced by the fact that all studied skulls belonged to adults and sexually mature animals, as all sutures on the skulls are obliterated and septum are completely ossified. Secondly, it is indicated by the fact that same localities produced skulls with different features. For example, among four *Elasmotherium* skulls from Luchka, two (ZIN 10792, SNM 8470) do not have a strong occipital crest and triangular nuchal fossa, whereas the other two (ZIN 10794, 10795) show a very wide occipital crest and oval nuchal fossa. Thirdly, similarity of the skull sizes of *E. sibiricum* from the Volga region with that of Late Pliocene Liventsovka and Tokmak forms indicate a very weak cranial variability in *Elasmotherium* through the studied geological period.

Thus, our study shows the possibility to attribute skulls of *E. sibiricum* to sexes. To Females of *E. sibiricum* are represented by individuals with a moderate occipital crest and not a big width in mastoid, with a weak roughness of a frontal bone, triangular nuchal fossa and mastoids, which not protrude beyond the level of the orbits. Skulls with wide occipital crest, big width in mastoid, strongly developed roughness of a frontal bone, oval nuchal fossa and mastoid, which protrudes beyond the level of the orbits, should be referred to males.

INQUA

SEQS

International Union for Quaternary Research (INQUA)
Section on European Quaternary Stratigraphy (SEQS)
Southern Scientific Centre, Russian Academy of Sciences
Geological Institute, Russian Academy of Sciences

QUATERNARY STRATIGRAPHY AND PALEONTOLOGY OF THE SOUTHERN RUSSIA: connections between Europe, Africa and Asia

Abstract volume
2010 annual meeting INQUA-SEQS

Rostov-on-Don, Russia
June 21–26, 2010

Rostov-on-Don
2010

Supported by INQUA, by RFBR, grant nos. 10-05-06045-r and 09-05-00307a, by the Programme for basic research of the Presidium of RAS "The origin of the biosphere and evolution of geo-biosystems" and by the Programme for basic research of the RAS Department of Earth Sciences "The condition of environment and forecast of its dynamics under the influence of quick global and regional natural and socio-economic modifications"

The conference is devoted to the memory of Andrey Dodonov – geologist, colleague, friend and teacher

Quaternary stratigraphy and paleontology of the Southern Russia: connections between Europe, Africa and Asia: Abstracts of the International INQUA-SEQS Conference (Rostov-on-Don, June 21–26, 2010). Rostov-on-Don, 2010. 228 p.

The book presents the materials of the International Conference held in Rostov-on-Don (Rostov Region, Russia). Reports concern a wide spectrum of issues connected to the study of Quaternary marine and continental deposits of Eastern and Western Europe, Asia, and Africa. Paleobiological record of the Eastern Europe, faunal connections with Asia, Africa, and Western Europe are considered. The special attention is given to questions of paleogeography, climatic changes in the Quaternary, stratigraphy and sedimentology of Eastern Europe. Also presented are the newest data on the tectonics and climatic record. Questions of distribution and chronology of Paleolithic sites, adaptations of the ancient people to paleoenvironment are discussed.

Addressed to geologists, stratigraphers, paleontologists, paleogeographers, and archaeologists.

Materials are published with the maximal preservation of the authors' texts

ISBN 978-5-902 982-83-8

INQUA

SEQS

Международный союз по изучению четвертичного периода
Секция европейской четвертичной стратиграфии
Южный научный центр РАН
Геологический институт РАН

ЧЕТВЕРТИЧНАЯ СТРАТИГРАФИЯ И ПАЛЕОНТОЛОГИЯ ЮЖНОЙ РОССИИ: взаимосвязи между Европой, Африкой и Азией

Материалы международной конференции
INQUA-SEQS 2010

Ростов-на-Дону, Россия
21–26 июня 2010 г.

Ростов-на-Дону
2010