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ABSTRACT BOOK

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Data on elephants from Middle – Upper Pleistocene sediments of Astrakhan Volga area (Astrakhan Region, Russia)

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In river bank cliffs of the lower Volga Valley the Middle and Upper Pleistocene deposits are exposed. They contain remains of freshwater and brackish-water mollusk shells, as well as the remains of large and small vertebrates. Based on materials from the Lower Volga Region the Middle Pleistocene Singil and Khazar faunal complexes of mammals were substantiated (Gromov, 1935, 1948; Gromov et al., 1965). Here there are the typical localities of these complexes (Raygorod – for Singil and Cherniy Yar – for Khazar ones). Over the recent 100 years the representative collection of the Pleistocene elephant remains from this territory has been gathered in collections of the Astrakhan Museum-Reserve (teeth of different wear stages, jaws and bones of the postcranial skeleton). Unfortunately, the most part of the finds has no precise stratigraphic data. They come from consolidated sand and gravel, brought from local sand pits and obtained by dredging in the river. However, some ancient elephant specimens were found directly in the Middle Pleistocene layers. For example, several diagnostic teeth and almost complete skeleton of mammoth were found in the Khazar and Singil deposits at the Cherniy Yar site. *Mammuthus trogontherii chosaricus* Dubrovo, 1966 from this locality was described previously.

The revision of the Astrakhan Museum-Reserve collections identified four elephant taxa: *Mammuthus trogontherii*, *M. chosaricus*, *M. primigenius* ssp. (small form) and *Elephas (Palaeoloxodon)* sp. At this stage of investigation only the last generation teeth were analyzed.

***Mammuthus trogontherii*.** Lower teeth m3 of this large elephant form (n=5) are characterized by a long crown of 356-372 mm, rather broad crown (IW, ratio of width to length of crown, n=2) of 29 and 31.7 %, lamellar frequency (LF, min-M-max) – 6.25-(7.12)-8.25, the length of single plate (LSP) – 17.3-(18.99)-21.55, relatively thick enamel (ET) – 1.8-(2.02)-2.18 mm. The plate number is 19-20 in m3 (without talonids), 21-22 with talonids. The incipient lamellar wear figures are of mixed type - from meridionaloid --, and intermediate -- to antiquoid --. The remains of this elephant probably come from the so-called "Singil" Middle Pleistocene clays deposited in marsh-lake, estuary or oxbow lake environments, which are exposed at the base of coastal cliffs in the region.

***M. chosaricus*.** The length of M3/m3 crowns of this elephant form exceeds 310-320 mm and the plate number is 22-23 / 20-26 (without talons/talonids) and 24-25 / 22-28 with talons. Index width of crown IW is (n = 8/7) – 36 % / 29.4-33.6 %. LF is 7.25-(7.73)-8.25 / 7.25-(7.59)-8.25, LSP is 13.2-(11.55)-14.3 / 13.5-(12.44)-14.15 mm, ET is 1.7-(1.88)-2.2 / 1.8-(1.96)-2.1 mm. Hypsodonty index (HI) – 1.3-(1.81)-2.3 / 1.3-(1.73)-2.4. The incipient lamellar wear figures are of mixed type – it consists of three roughly equal ovals – – or, sometimes similar to antiquoid one --. The bone findings of this elephant form come from the Khazar fluvial deposits.

***M. primigenius* ssp. (small form).** There are no complete teeth of this form of elephant in collections, what makes it difficult to restore the exact number of enamel plates in the crown. LF at M3 (n=3) is 8.5-(9.56)-11, LSP is 10-(11.02)-12.3 mm, ET is 1.8 mm (average). The incipient lamellar wear figures are of mixed type, it consists of three roughly equal ovals – – or, sometimes it is similar to antiquoid one --. The teeth of that form have a relatively high crown, HI is 1.6-(1.99)-2.2. The remains of these mammoths may come from the lower Upper Pleistocene sediments, so-called Atel deluvial loess loam and sandy loam, and from the synchronized alluvial deposits which are typical for the region.

***Elephas (Palaeoloxodon)* cf. *antiquus*.** The upper M3 of this elephant (n=1) is characterized by a high crown (HI – 2.4), strongly plicate enamel and weakly marked median sinus. The incipient wear figures are of implicit antiquoid type --. LF is 7.5, LSP is 13.3 mm, ET is 2.57 mm. The lower m3 of this elephant form (n=4) are narrow and long (the ratio of width to length of crown is 26.3 %) with weak medial sinus and explicit incipient antiquoid type of plate's wear figure --. LF is 6.25-(7.12)-8.25, LSP is 12.3-(14.36)-16.1 mm, ET is 1.7-(1.87)-2 mm. The forest elephant probably coexisted with the Trogontherian and Chasarian elephants in the Middle Pleistocene during warm periods, when the deciduous forest landscapes expanded in south of Eastern Europe.

The study of this elephant collection from the Lower Volga Region will contribute to test the validity of *M. chosaricus*, and concepts about the "early" woolly mammoths.

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