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TWO EARLY BIHARIAN MORPHOTYPES OF
MERIDIONALOID ELEPHANTS, *ARCHIDISKODON*
MERIDIONALIS (NESTI, 1825), RECOVERED FROM SARKEL
(LOWER DON AREA, SOUTHERN EUROPEAN RUSSIA)

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Latest Villafranchian/Early Biharian fauna of the newly discovered Sarkel locality (47°42'N, 42°12'E, Lower Don area, southern European Russia), that includes “meridionaloid” elephants as well as diverse and stratigraphically significant small mammals, becomes a very important biostratigraphic reference level for southern Eastern Europe. Two morphotypes of fossil elephants, *Archidiskodon meridionalis* cf. *tamanensis*, have been recovered from the site in clear stratigraphic and biostratigraphic context (Nikolskiy, Tesakov, 2003; Dodonov et al., 2007; Tesakov, 2008; Baygusheva, Titov, 2012). The Sarkel fauna not only helps to clarify biostratigraphic interpretations of “southern elephants” (genus *Archidiskodon*) that are strongly influenced by the accuracy of relative and/or absolute age determination (Nikolskiy et al., 2014), but also it confirms the occurrence of two divergent forms of elephants in Latest Villafranchian/Early Biharian of East Europe, that is a key important pattern of early evolution of elephants belonging to Mammuthini tribe.

The Sarkel locality have been discovered in 2001. In this site, fossiliferous fluvial crossbedded grey sands up to 4 m thick (Sarkel beds), outcrop along the steep northern bank of the Tsymla Reservoir near Sarkel settlement. The Sarkel beds unconformably overlay the blue Eocene clays and are overlaid by Early Pleistocene greenish brown sandy-clays crowned by paleosol, altogether up to 6 m thick, followed by Middle-Late Pleistocene loams and loesses, up to 2–5 m thick (Nikolskiy, Tesakov, 2003; Dodonov et al., 2007). The Sarkel

beds have been shown to be reversely magnetized and referred to the late Matuyama Chron (Dodonov et al., 2007). The large mammals represented in Sarkel by detached postcranial fragments and teeth, small mammals, mostly by isolated teeth, and occasionally by mandibles and postcranial elements. The faunal list currently includes: *Archidiskodon meridionalis* cf. *tamanensis*, *Equus* sp., *Stephanorhinus* sp., *Elasmotherium* sp., *Cervalces (Libralces)* sp., Cervidae indet., *Pontoceros* sp., Bovidae indet., *Bison* sp., *Martes* sp., *Sorex* ex gr. *araneus*, *Sorex* cf. *minutissimus*, ?*Drepanosorex* sp., *Beremendia fissidens*, Erinaceidae gen., *Talpa* cf. *minor*, *Desmana* sp., *Lepus* sp., *Ochotona* sp., *Ochotona* ex gr. *pusilla*, *Trogotherium* sp., *Sicista* sp., *Pygeretmus* cf. *brachydens*, *Allactaga* sp.1, *Allactaga* sp. 2, *Plioscirtopoda stepanovi*, *Apodemus* sp., *Spermophilus* sp., *Spalax minor*, *Cricetus nanus*, *Allocrietus ehiki*, *Cricetulus* sp., *Eolagurus argyropuloi adventus*, *Prolagurus pannonicus*, *Lagurodon arankae*, *Allophaiomys pliocaenicus*, *Mimomys pusillus*, *Mimomys intermedius*, *Clethrionomys hintonianus*, *Ellobius (Bramus) tarchancutensis*, *Ellobius (Ellobius)* sp.

The Sarkel small fauna is dominated by advanced *Allophaiomys pliocaenicus*, *Lagurodon arankae*, and *Prolagurus pannonicus*, and it is correlated to the Calabrian stage of the Early Pleistocene, or to early Biharian. The fauna belongs to the local Tamanian faunal assemblage, and the regional zone MQR8 (Pevzner et al, 2001). The age of the fauna is therefore estimated between 1.2 and 0.9 Ma.

The following remains of *Archidiskodon meridionalis* cf. *tamanensis* have been recovered from Sarkel locality: 1M3, 7m3, 1M2, 5m2, fragmented tusks – 2, limb bones – 8, ribs and vertebrae – 7. The lamellar frequency of the studied *Archidiskodon* teeth varies from 4.5 to 5.5, and the enamel thickness – from 2.5 to 3.2, corresponding to respective parameters of the type series of *Archidiskodon meridionalis tamanensis* from Sinyaya Balka, and somewhat overlapping values of *Archidiskodon meridionalis meridionalis* from Upper Valdarno. The key important fact is that all evolutionary significant morphometric parameters of Sarkel elephants demonstrate clear bimodal distribution exactly as it appears in *Archidiskodon meridionalis tamanensis* from Sinyaya Balka. Taking into account the close ages of both fauna but the totally different geologic and taphonomic environments in Sarkel and Sinyaya Balka we suggest that two forms of meridionaloid elephants, primitive and derived, existed in southeastern Europe somewhat between 1.2 and 0.9 Ma.

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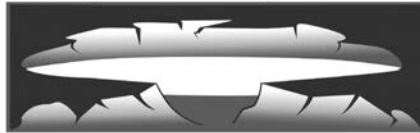
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