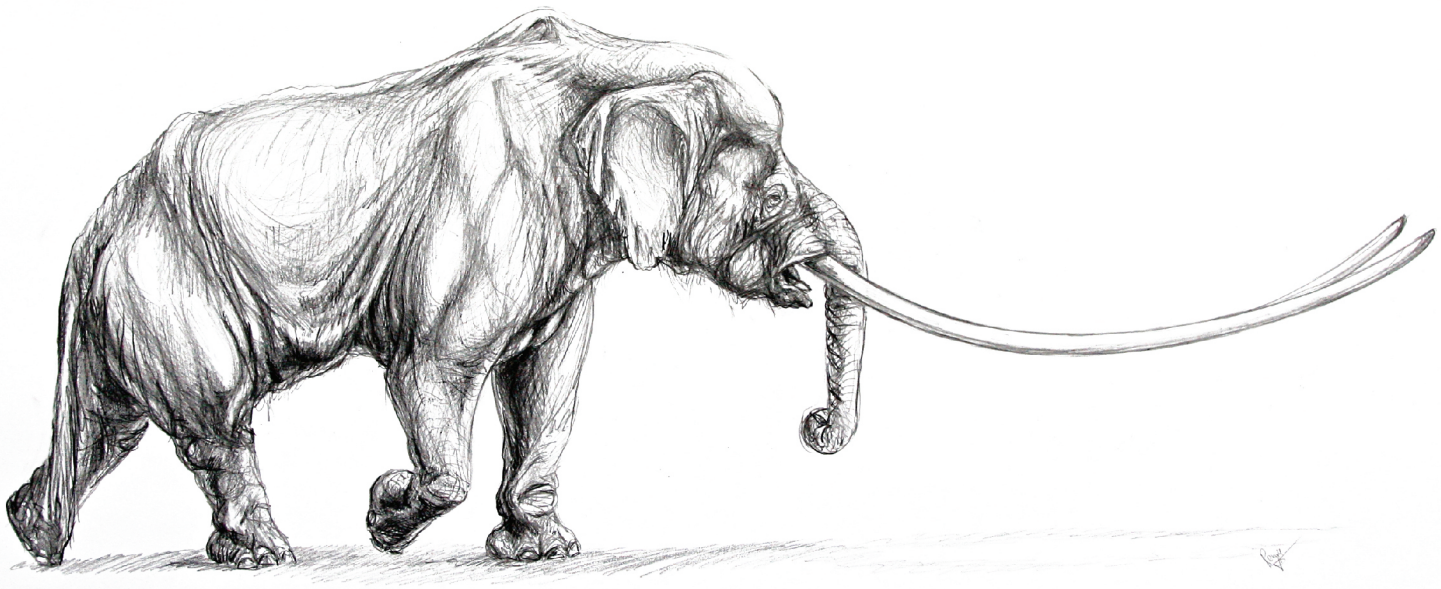
SCIENTIFIC ANNALS of the School of Geology,
Aristotle University of Thessaloniki

SPECIAL VOLUME 102



GREVENA
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GREECE 2014

VIth International Conference on Mammoths and their Relatives

ABSTRACT BOOK

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THESSALONIKI, MAY 2014

Early Biharian *Archidiskodon meridionalis* (Nesti, 1825) from Sarkel (Lower Don area, southern European Russia) and associated small mammals

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Evolutionary concepts and biostratigraphic interpretations of "southern elephants" (genus *Archidiskodon*) are strongly influenced by the accuracy of relative and/or absolute age determination. Unfortunately, many records lack reliable information on stratigraphic position and age. Even the age of the name-bearing types of *Archidiskodon*, such as the lectotype of *A. meridionalis* (Nesti, 1825) from Upper Valdarno, and the holotype of *A. meridionalis tamanensis* Dubrovo, 1964 from Sinyaya Balka are not precisely defined. This is why all finds of fossil elephants with clear stratigraphic and/or biostratigraphic context are very important. *Archidiskodon meridionalis* cf. *tamanensis* recovered from the site of Sarkel (47°42'N, 42°12'E, lower Don River, southern European Russia) is exactly such a case (Nikolskiy, Tesakov, 2003; Dodonov et al., 2007; Tesakov, 2008; Baygusheva, Titov, 2012). Sarkel locality was found 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 paleosoil, 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 Sarkel beds yielded a rich and diverse Early Pleistocene mammalian fauna. The large mammals represented 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*, *Trogontherium* sp., *Sicista* sp., *Pygeretmus* cf. *brachydens*, *Allactaga* sp.1, *Allactaga* sp. 2, *Plioscirtopoda stepanovi, Apodemus* sp., *Spermophilus* sp., *Spalax minor, Cricetus nanus, Allocricetus 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 (Fig. 1): 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 overlaping values of *Archidiskodon meridionalis meridionalis* from Upper Valdarno.

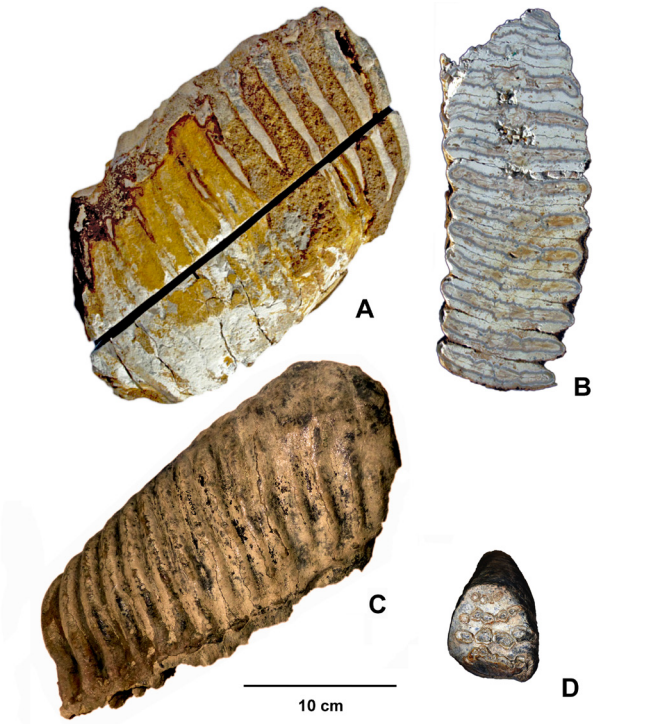

Fig. 1. *Archidiskodon meridionalis* cf. *tamanensis* from Sarkel locality, lower Don River, southern European Russia, late Early Pleistocene. **A-B**, M3 in A, buccal view and B, crosscut; **C-D**, m3 in C, buccal view and D, occlusal surface.

Latest Villafranchian/Early Biharian fauna of Sarkel, that includes "meridionaloid" elephants as well as diverse and stratigraphically significant small mammals, becomes a very important biostratigraphic reference level for southern Eastern Europe.

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Citation:
Nikolskiy, P., Titov, V., Tesakov, A., Foronova, I., Baygusheva, V., 2014. Early Biharian *Archidiskodon meridionalis* (Nesti, 1825) from Sarkel (Lower Don area, southern European Russia) and associated small mammals. Abstract Book of the VIth International Conference on Mammoths and their Relatives. S.A.S.G., Special Volume 102: 142.