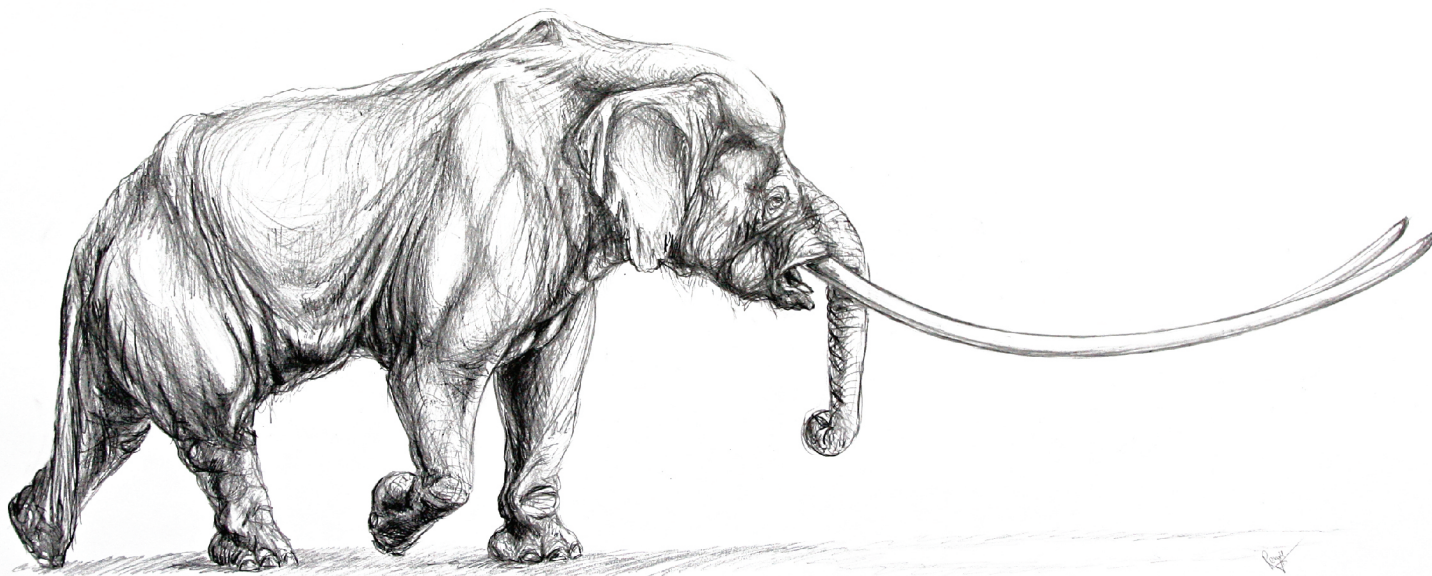




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ABSTRACT BOOK

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Primitive elephantid from Turkey

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In 2010, during road construction in Büyükyalı, Kırıkkale, a tusk and a humerus of an elephantid were found in the locality called Kale Tepe-3, followed in 2011 by a complete mandible. The locality is in the south-west part of the Çankırı-Çorum Basin and stratigraphically fits within the upper levels of the Akkaşdağı Formation which has been thought to be dated to MN15, i.e. Early Pliocene, according to a small mammal fauna from Balışeyh, a locality close to Kale Tepe-3 (Karadenizli, 2011).

In the mandible, three teeth are exposed on the occlusal plane. To be sure of the form of the rearmost tooth, an X-ray image of the mandible from the left side was taken. According to the X-ray image, the posterior tooth has 10 plates and a talon in total, 5 of them exposed on the occlusal plane, 5 buried in the jaw (figure 1). In the X-ray image, the tooth tapers strongly at the back in side view as in a typical m3. So this suggests that the tooth is m3 with 10 plates which fits with Maglio's (1973) count of *Elephas planifrons* m3 (8-13). Although it seems strange that the posterior tooth extends so far toward the back end of the jaw, Osborn (1942, p. 1006, fig. 892 and 893) showed some examples of mandibles of *Elephas (Archidiskodon) imperator* and *E. (Parelephas) washingtonii* with m3 going far toward the back of the mandible. In the Kale Tepe-3 specimen three teeth are exposed on the mandible; small remnant of m1 in front, m2 in the middle and m3 at the back.

All plates of m2 are at an advanced stage of wear, especially the anterior ones which are almost flat. Although the left m2 preserves $\infty 3x$ and the right one has $\infty 4x$ plates, according to the length of the crown the total number of plates is suggested to be about 6-7. Lamellar frequencies of m2s are very low. Enamel is thick and little-wrinkled on the center of the plate. Both left and right m3s are at very early stage of wear with small enamel rings in the first three plates, therefore it is not possible to comment on enamel figure.

The tusk is not twisted significantly as in *Mammuthus* but has a slight curve as seen in *Elephas*.

With the plate number and other measurements and also enamel figure of m2, Kale Tepe-3 specimen is very close to *M. rumanus* from Europe MN16 and specimens from Bethlehem. For *Mammuthus*, Maglio (1973) suggested a migration route from Africa via Gibraltar at c. 2.5 Ma, but with the earlier specimens of *M. rumanus*, migration via Levant at c. 3.5 Ma is more probable (Markov, 2012). As early mammoths and the Asian species *Elephas planifrons* have similar dental morphology, *E. planifrons* used to be included in the genus *Archidiskodon* which resulted the idea of *E. planifrons* occurrence in several localities in Europe (Markov, 2012). But now it is assumed that *E. planifrons* did not occur in Europe or Africa (Maglio, 1973).

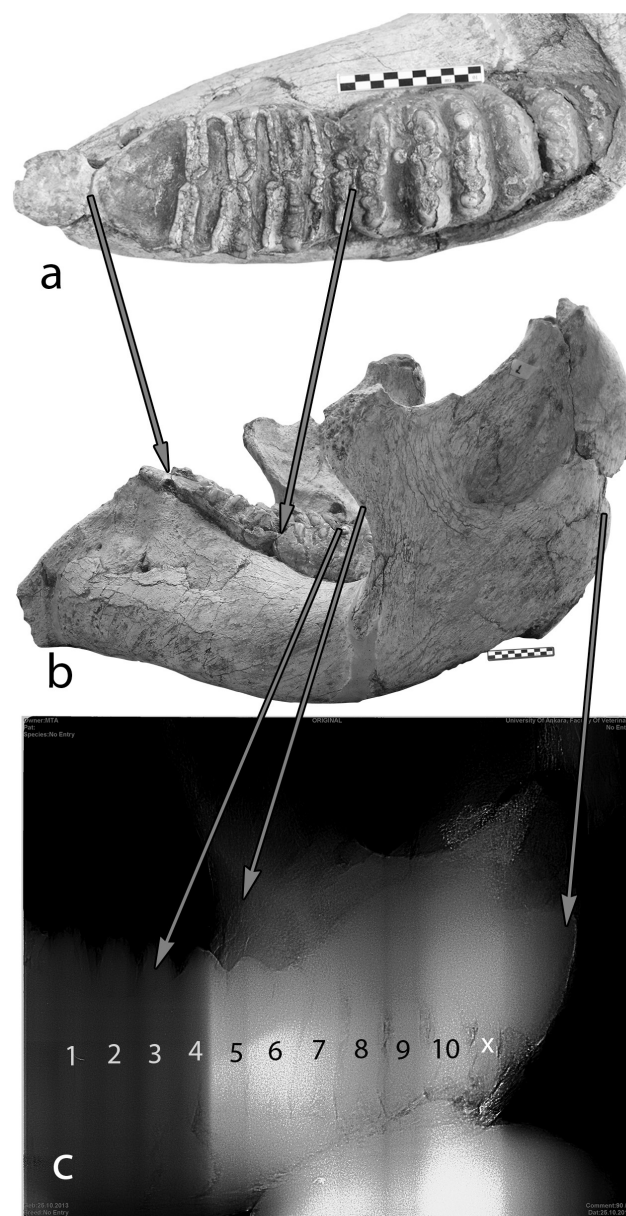


Fig. 1. Mandible of the elephantid from Kale-Tepe 3; **a**, Occlusal view of left tooth row; **b**, Lateral view of the mandible from the left side; **c**, X-ray image of the mandible from the left side, numbers and x indicate the numbers of the plates and talon. Scale bar equals 10 cm.

Because of its key position between Africa, Asia and Europe, Turkey has potential importance for elucidating the history of early Eurasian elephantids (Albayrak & Lister, 2012). Although the tusk is more similar to *Elephas*, with its gentle curve, the specimens from Kale Tepe-3 could be assigned to *E. planifrons* of Asia or *M. rumanus* of Europe according to features of the mandible and the teeth. There are many debates and questions on early mammoths (Lister et al., 2005, Markov, 2012). The material from Bethlehem has played an important part in these discussions; originally

described by Hooijer (1958) as *E. planifrons*, Markov (2012) considered them as a possible *M. rumanus*, and further discussion is provided by Rabinovich and Lister (this volume). The specimens from Kale Tepe-3 may be similar to those from Bethlehem, and the same questions on their taxonomy pertain. Although the age of the Akkaşdağı Formation is MN15, according to new finds the age could be younger as early Late Pliocene, i.e. MN16a, (Levent Karadenizli, pers.comm.) and this age is very consistent with the earliest *M. rumanus* and Bethlehem specimens.

Primitive specimens from Turkey like Kale Tepe-3 or Yukarısöğütönü (Albayrak and Lister, 2012) are important pieces in this puzzle, and a step forward on understanding the migration and early evolution of elephants outside Africa.

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