



74-12 - THE AGE OF NASKAL, THE TYPE LOCALITY OF INDIA'S FIRST KNOWN CRETACEOUS MAMMAL



Monday, October 11, 2021

10:50 AM - 11:05 AM



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Abstract

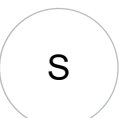
The first Cretaceous mammals described from India were recovered from the Naskal locality, located near the village of Naskal in the state of Telangana. The Naskal locality is located on the eastern edge of the Deccan Traps Volcanic Province (DTVP), where it is preserved between two basalt flows. Naskal and similarly preserved sites are “intertrappean” in position and are distinguished from “infratrappean” sedimentary exposures, which are positionally below the locally lowest basalt flow. Historically, this field-based designation has been used as a proxy for relative age assignments, with intertrappean sites generally considered to be of similar age to each other, but collectively younger than infratrappean (Lameta Formation) sites. However, the DTVP flow stratigraphy is complex, so this age proxy can be incomplete and misleading. Moreover, because the DTVP eruptions spanned the Cretaceous-Paleogene boundary (KPB), it is often unknown whether intertrappean sites, including Naskal, are Cretaceous or Paleogene in age.

Naskal accounts for nearly half of published mammal records from DVTP-associated sediments, as well as a host of other microfossils. The age of the Naskal locality takes on singular importance in the context of mammalian evolution in India and the effects of the end-Cretaceous mass extinction and subsequent evolutionary radiation. Here we present evidence from $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology, magnetostratigraphy, and chemostratigraphy of the over- and underlying basalt flows to narrow the permissible age of the sediments at the Naskal locality. In conjunction with palynostratigraphy and vertebrate biostratigraphy, this site can be confidently restricted to a <100 ka interval spanning the KPB. The most probable $^{40}\text{Ar}/^{39}\text{Ar}$ age is latest Cretaceous, but an earliest Paleogene age cannot be ruled out. We explore the implications of this age assignment, and additionally describe two new mammal species from the same genus from Naskal.

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TRUE AGE OF THE MYSTICAL CREATURE**

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