

An unusual early primate from the Paleocene Paskapoo Formation, Alberta, Canada

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A new plesiadapiform primate, *Phoxomylus puncticuspis* gen. et sp. nov., is described based on an isolated but well-preserved upper molar from the early Tiffanian (late Paleocene) Cochrane 2 locality, southwestern Alberta, Canada. Although possessing a robust postprotoconal fold, an unambiguous synapomorphy of primates, *Phoxomylus* differs from other plesiadapiforms in its retention of primitive molar features, including acutely pointed major cusps and sharp crests, deep trigon basin, and lack of the bunodont coronal specializations that purportedly marked the transition from insectivorous non-primate ancestors to omnivorous/frugivorous basal primates. Coronal features of the holotype of *P. puncticuspis* imply that during mastication the mandible was adducted in a near-vertical plane, with little capacity for the transverse movement that is already seen in molar morphology of the earliest and most basal plesiadapiform, *Purgatorius*. Instead, molar morphology in *P. puncticuspis* implies emphasis on vertical piercing and shearing, specializations for insectivory unlikely to have been derived via reversal from plesiadapiform ancestors having more bunodont molars adapted for omnivory/frugivory. If that is the case, a long “ghost lineage” must link *P. puncticuspis* to other, basal plesiadapiforms that have yet to be discovered but that had not yet evolved omnivorous adaptations of the dentition.

Key words: Primates, Plesiadapiformes, Paleocene, Alberta, Canada.

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