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NOTE

THE LAST RHINOCEROS IN NORTH AMERICA

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Wood et al. (1941) considered the last appearance of rhinoceroses in North America to be a major criterion for the Hemphillian Land Mammal Age. We describe and figure here a fragment of a tooth from the Beck Ranch mammalian local fauna, Scurry County, Texas, that indicates that rhinoceroses survived in North America as much as 1 Ma later than thought previously, into the middle of the Blancan Land Mammal Age.

The fossil (Midwestern State University 11813) was collected by Dalquest in the course of routine screen-washing of matrix from the Yellow Quarry, Jimmie Beck Ranch, Scurry County, Texas. Dalquest (1978) provided descriptions of collecting sites, geology, mammalian local fauna, faunal correlation, and faunal age.

The tooth fragment is certainly of the age of the rest of the fossils from the Beck Ranch. Its color and nature of preservation are like other specimens from the Yellow Quarry. Sediments there consist of a thick loess (lacking fossils) overlain by fine sands and silt containing abundant fossils. Other than fossils, fragments of locally formed freshwater limestone (caliche), and rare pebbles of chalcedony a few millimeters in diameter, there is no gravel to indicate a flood or landslide that could have washed the fossil to the quarry site from higher lands to the west or north. We see no manner in which the specimen could have been transported to the quarry in the distant past, and its presence deep in the fossil-bearing matrix shows that it was not transported to the Beck Ranch in recent times.

The specimen represents a rhinoceros that lived and died during Blancan time when the sediments were being deposited at the Beck Ranch locality. The fact that the Beck Ranch local fauna is truly of Blancan Land Mammal Age is demonstrated by a list of species given by Dalquest (1978). The 51 taxa identified include such typical Blancan species as *Notiosorex jacksoni* Hibbard, *Paracryptotis rex* Hibbard, *Pratilepus kansasensis* Hibbard, *Notolagus lepusculis* (Hibbard), *Nekrolagus progressus* (Hibbard, *Symmetrodontomys simplicidens* Hibbard, *Borophagus diversidens* Cope, and others, but no Hemphillian indicators other than the rhinoceros noted herein.

The rhinoceros specimen (Fig. 1) is the metaloph (posterior lingual portion) of a right upper cheek tooth. The transversely elongated metaloph of rhinoceros upper molars is characteristic, and the size of the tooth fragment and thickness of the enamel indicate that the tooth was from a rhinoceros-sized animal. The tooth was probably small and moderately low-crowned: the length of the metaloph (slightly less than one-half the length of the tooth) is 23 mm and its height is 40 mm. The original height was greater, for the specimen is worn on its crown and broken at its base. A massive cingulum 5.6 mm long is present on the posterior face. No cingulum is present on the lingual end of the hypocone, but a trace of one is present internally, between the metaloph and the protocone. The metaloph is small and aligned roughly parallel to the axis of the massive posterior cingulum. The hypoconal groove, immediately anterior to the metaloph, is well developed. It is especially deep at its base. The enamel is rather thick; its maximum thickness internally at the metaloph is 2.4 mm. The tooth was an upper molar, probably M^3 because of the small size of the hypocone, alignment of metaloph roughly parallel to the cingulum, presence of a massive cingulum on the posterior face of the metaloph, absence of a cingulum on the lingual end of the hypocone, and anteroposteriorly slender metaloph. In rhinoceros upper premolars, and usually also in M^1 and M^2, the hypocone of the metaloph is expanded.

MWSU 11813 is identified only as "Rhinocerotidae undetermined." The last rhinoceroses known to North America were of the genera *Aphelops* and *Teleoceros* (Matthew, 1918, 1932; Wood et al., 1941; Simpson, 1945). Prothero and Manning (1987) note that the genus *Aphelops* increased in size through the Hemphillian Land Mammal Age and terminal species were largest. This was not true of *Teleoceros,* and some latest Hemphillian species were relatively small. On the basis of size the tooth fragment from the Beck Ranch is probably *Teleoceros.*

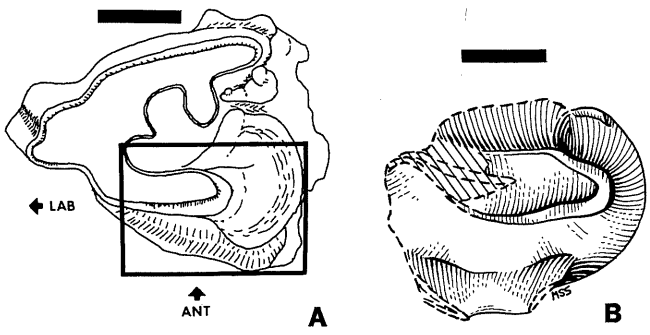

FIGURE 1. **A**, M^3 of *Aphelops,* cf. *A. kimballensis* Tanner, Coffee Ranch local fauna. Bar = 20 mm. Part equivalent to fragment of tooth from the Beck Ranch local fauna indicated by rectangle. **B**, Metaloph of upper right molar of a rhinoceros from the Beck Ranch, Scurry County, Texas, Blancan Land Mammal Age. Bar = 10 mm.

The latest known Hemphillian rhinoceroses are components of the Mount Eden, Southern California; Ocote, Guanajuato; and probably the River Road, Washington, mammalian local faunas (Frick, 1933; Gustafson, 1977, 1978; Dalquest and Mooser, 1980). The faunas are of *late* Hemphillian Land Mammal Age—immediately prior to the beginning of the Blancan Land Mammal Age. Tanner (1967, 1975) considered his Nebraskan rhinoceroses, *Aphelops* and *Teleoceras,* to be of latest "Kimballian" (late or middle Hemphillian), or "latest Pliocene" age. However, judging from associated gomphothere proboscidean faunules and biochronology, his rhinoceroses are considerably older than those in the Mount Eden, Ocote, and River Road faunas. The Nebraska *Aphelops* and *Teleoceras* are associated with a primitive gomphothere, "shovel-tusked" *Amebelodon* Barbour, whereas the Mount Eden and Ocote rhinoceroses are associated with an advanced gomphothere, the short-jawed *Cuvieronius* Osborn.

In our view, the Nebraskan rhinoceroses correlate with the Coffee Ranch, Texas, local fauna, and the "Kimballian" Land Mammal Age is merely a Nebraska synonym of the Hemphillian Land Mammal Age (Breyer, 1981; Tedford et al., 1987), which Wood et al. (1941:12) based in part upon the Coffee Ranch local fauna (see Dalquest and Patrick, 1989). The River Road rhinoceros, contained in the Taylor Flat conglomerate, is from only about 22 m below the White Bluffs tuff (Gustafson, 1977) contained within which is perhaps the earliest Blancan fauna known (Gustafson, 1978). Gustafson (1977) considered his River Road rhinoceros, a *Teleoceras,* to be ". . . probably late Hemphillian in age . . ." and (1978) ". . . tentatively . . . late Hemphillian. . . ." His record should be re-investigated to determine whether it is indeed of latest Hemphillian age or of earliest Blancan age, like his (1978) overlying White Bluffs mammalian local fauna.

The present material demonstrates that rhinoceroses survived in North America into the early part of the Blancan Land Mammal Age, perhaps 1–2 Ma later than thought previously. The Beck Ranch fossil is the youngest rhinoceros record from North America. The Beck Ranch fauna correlates well with the well-known Rexroad mammalian local fauna of Kansas which may be 3.6–3.4 Ma old. The late Hemphillian-aged and rhinoceros-bearing Mount Eden, Ocote, and River Road faunas appear to be at least 5 Ma old.

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