Some Late Pleistocene Fossils from Washita Local Fauna

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Multiple species of microvertebrates have been found in a Pleistocene deposit of light gray, silty clay. The site from which these specimens were obtained is located 12 km south of Weatherford, SW 1/4, NE 1/4, Sec. 18, T11N, R14W, Washita County, Oklahoma. The deposit is approximately 18 m long and 2.3 m deep. This Pleistocene deposit rests on a bed of Permian red sandstone of the Cloud Chief Formation. There is a gradual color change between the two beds. The matrix is also rich in gastropod shells, as well as other unidentifiable bone and dental fragments.

During three previous excavations, bone samples from the site were radiocarbon dated (Geochron Laboratories , Krueger Enterprises, Inc., 711 Concord Avenue, Cambridge, Massachusetts). These samples yielded an average date of 16,350±190 years before present (YBP). Samples used to date the site include *Bison cf. occidentalis,* 1990; *Equus excelsus,* 1991 (*1*); and *Bootherium bombifrons,* 1993 (*2*).

Screenwashing efforts, which began in the summer of 1995, produced several microvertebrate specimens. Some microvertebrate samples have been compared to the collection at Midwestern State University by Dalquest (personal communication). Among the specimens found were four partial upper incisors of *Geomys* sp., three from the right side and one from the left, and on all four of which the lateral groove is wider than the medial groove; six molars of *Neotoma* sp; one upper molar of an adult *Sylvilagus* sp; one upper second incisor of a juvenile *Sylvilagus* sp; one right mandible, lacking teeth, of *Cynomys ludovicianus;* and one fragmented arvicoline rodent molar, either *Synaptomys australis* or *Neofiber* sp. In addition to these specimens, several unidentified specimens have been excavated, among them a possible *Sorex* sp. mandible containing three teeth.

Recent screenwashing efforts, beginning in August of 1996, have produced several microvertebrate specimens and fossils belonging to a musk ox, which were identified by comparison of specimens at Midwestern State University. Among the specimens recently excavated are three *Thomomys* sp, incisors, one complete and two fragments.

The site lies on the border between the present-day ranges of two species, *Neotoma micropus* and *Neotoma floridana.* The *Neotoma* specimens present in our collection at this time include one left M^1, one right M^2, one right M_1, one left M_2, and one right mandible fragment containing an M_2 and an M_3. According to Harris (*4*), the genus *Neotoma* in the Southwest can be divided into two major groups based on the development of a dentine tract on the labial surface of Ml. *N. albigula, N. floridana,* and *N. micropus* generally have tract development to a height of <0.2 mm, while other species typically have a tract of ≥0.2 mm. The M3 has a bilophate form, which is typical of most Rancholabrean specimens (*5*). Measurements of the right Ml were taken using methods described by Harris (*4*), and include mid-length, 3.49 mm; greatest width of loph 2, 2.03 mm; base of lingual fold 1 to base of fold 2, 0.98 mm; base of lingual fold 2 to anterior face, 2.63 mm; and dentine tract height, 0.01 mm. All the measurements taken are within the observed range of *N. floridana* (*4*). On the basis of these measurements, this specimen compares favorably to *N. floridana.* Other late Pleistocene faunas of similar age occur within a 400-km radius of this site. These include the Kanopolis Local Fauna from Ellsworth County, Kansas (Yarmouth) (*6*); The Robert Local

Fauna of Meade County, Kansas (11,000±390 YBP) (*7*); the Tonk Creek Local Fauna (13,270±110 YBP) (*8*); and the Elm Creek Local Fauna (11,630±90 YBP) (*9*). Each of these sites has indicated the presence of both *Geomys* and *Thomomys,* and all the above, except the Tonk Creek site, indicate *T. talpoides.*

In the late Pleistocene, the large bovid *Bootherium bombifron* (including nominal species of *Symbos)* ranged from Alaska to Texas and Louisiana (*10*).

At the Washita Local Fauna, we recently excavated a thoracic vertebra, an upper premolar, and a lower right second molar belonging to *B. bombifrons.* These specimens were found 1.2 m from the top of the clay deposit and 1.1 m from the contact of the clay with the underlying Permian sandstone of the Cloud Chief Formation.

Measurements for the teeth we found are as follows: (a) the lower right second molar length, 75.44 mm, width at top of crown, 40.32 mm, and width at bottom of root 36.95 mm; (b) upper premolar length, 61.88 mm width at top of crown, 23.29 mm width at bottom of root, 19.98 mm.

B. bombifrons apparently lived in a variety of habitats. Preserved food specimens, found in the infundibula of the teeth and in fossilized feces of these animals, indicate they foraged in habitats ranging from coldweather grasslands to woodlands (*11*).

A long-standing debate has been tentatively settled concerning the taxonomy of *Bootherium.* Recent comparative studies resulted in placing *B. bombifrons* in a valid taxon, while designating *B. sargenti* as the female form of *Symbos cavifrons (12).* McDonald determined in 1984 that a mummified helmeted musk ox discovered in 1940 was distinctly different from the taxon *Ovibos,* to which modern musk oxen belong (*11*).

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