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## Occurrence of Mammoth Fossils in the Touchet Beds, South-Central Washington<sup>1</sup>

In 1967, while a proposed pumped-storage reservoir site was being mapped in the Glade Creek and Dead Canyon drainage basins, mammoth bones were found on and just below a wind-scoured surface in silt and sand lakebeds. These beds are correlated by the senior author with the Touchet Beds that Flint (1938, p. 494) named in the Walla Walla Valley, 50 miles to the east. This report is prepared to add the fossil information to the previously reported data on the Touchet Beds.

The sedimentary materials of these beds are silt and fine and medium sand with rafted erratics ranging upward from granules to huge boulders. The circumstances of their deposition in proglacial Lake Lewis have been described by Allison (1933), Hogenson (1964), Newcomb (1965), and others. The Touchet Beds in this part of the Columbia River drainage are a widespread mantle up to an altitude of about 1,150 feet—wherever erosion has not removed the deposits.

The mammoth bones were found at an altitude of 580 feet at an eroded edge of the Horse Heaven Plateau where the Touchet Beds, which underlie the plateau surface, are entrenched by a 60-foot-deep dry wash tributary to Dead Canyon. The occurrence, United States Geological Survey vertebrate locality M1213, is 800 feet west of the center of sec. 18, T. 5 N., R. 24 E. It is three miles north of the Columbia River in Artesian Coulee and in the southwestern part of Benton County.

In this area the Touchet Beds underlie the land surface and at places are exposed to a depth of 20 feet. The total thickness in places may be as much as 60 feet. The top 10 feet of the deposit is characterized by relatively thin beds two to six inches thick, but a progressively downward thickening of the beds is evident. Granitic, metamorphic, and basaltic granules and pebbles are erratically distributed in the silt and sand of the beds; cobbles, boulders, and large boulder blocks are more sparsely scattered. The largest erratic seen in the reservoir site is a block of granitic rock 22 by 12 by 9+ feet which lies on the surface in an eroded area 1.4 miles south southeast of the fossil locality. Near the fossil site, the Touchet Beds are cut by upward-branching laminated dikes of silt and sandy silt which are generally vertical, one to four inches thick, about 10 feet apart, and randomly oriented. In all the areas except where wind erosion is most active, one to two feet of sandy loess lies on top of the Touchet Beds. This loess soil zone underlies the land surface of the Horse Heaven Plateau northward from the fossil site.

The mammoth bones lie on and just below a wind-eroded, roughly planar surface which is cut in strata 10 feet below the top of the Touchet Beds (Fig. 1). All bone

<sup>1</sup> Publication authorized by the Director, U.S. Geological Survey.



Figure 1. Site of the mammoth bone occurrence. Robert H. Russell with some of the bones arranged at lee end of small dune (left foreground) from beneath which some of the fossils were dug. Top of low scarp in background is southern edge of the extensive Horse Heaven Plateau.

material found lies within a circular area of 20-foot radius. Most bones are covered by windblown sand lodged about clumps of sage. None of this bone material is on slopes that are inclined away from the site to the south, that are generally at the same level to the east and west, or that rise slightly to the low escarpment to the north. Within the 40-foot circle of occurrence, small bone fragments, especially rib fragments, are rather uniformly scattered. No orderly orientation of an animal skeleton is apparent from the parts found. If a complete skeleton were deposited here, it can be assumed that the remaining parts either lie below the present surface or were exposed and completely removed during an earlier erosional time.

The main bones (Fig. 2) found to date are identified by the junior author as:

- 1 cervical vertebra, incomplete and weathered;
- 1 posterior thoracic vertebra, lying somewhere in the 12th to 19th series, fairly incomplete;
- 6 vertebrae fragments;
- 3 costal fragments;
- 1 fragment of atlas on which are rodent tooth marks;
- 1 left unciform, complete but badly weathered;
- 1 left lunar, complete, not badly weathered;
- 1 left metacarpal II, nearly complete but badly weathered;
- 1 left scapula in three pieces, incomplete but not weathered;
- 1 calcaneum, incomplete and weathered.

From the material on hand it is possible to say that the specimen belongs in the

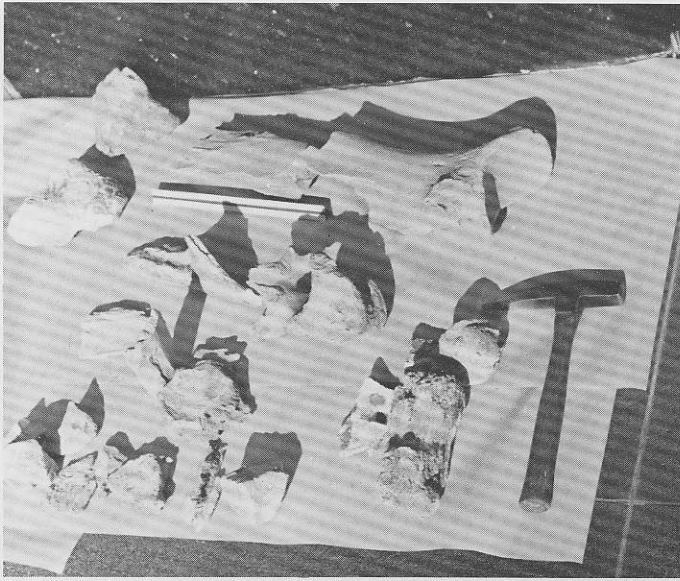


Figure 2. Principal bones found. A 12-inch engineer's scale and hand pick for scale.

genus *Mammuthus* and that the species is not identifiable. The indicated age is middle Pleistocene to early Holocene.

Attempts to get a carbon-14-age dating through use of the acetic-acid restoration method of Haynes (1968) from this fossil bone were futile, as they resulted in an illogically youthful determination of  $4905 \pm 140$  years B.P. (Geochron GX-1457)

The stratigraphic position of this second find of mammoth remains within the Touchet Beds is similar to that of the first find near Touchet, Wash., 50 miles to the east, by Professor Richard H. Clem and students of Whitman College (Scott, 1967).

The two finds suggest that further search in the eroded edges of the Touchet Beds may yield additional fossils.

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*Accepted for publication September 8, 1969.*