

**AN OCCURRENCE OF WAPITI (CERVUS cf. C.
CANADENSIS), POSSIBLY OF PLEISTOCENE AGE, IN
NORTH-CENTRAL DYER COUNTY, TENNESSEE¹**

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ABSTRACT

The presence of *Cervus* cf. *C. canadensis* in deposits underlying the valley of Town Creek is consonant with the geologic and physiographic evidence which indicates late Pleistocene age for the valley fill and valley terraces in central Dyer County, Tennessee. The absence of a well-defined weathered zone at the top of the Eocene bedrock suggests that entrenchment may have occurred only a short time before valley filling, possibly during the late Pleistocene.

ACKNOWLEDGMENTS

Appreciation is gratefully extended to Mr. M. Roney of Newbern, Tennessee, who permitted the writer to log his well and collect the fossil from it. Mr. G. E. Lewis, U. S. Geological Survey, and Messrs. C. B. Schultz, T. M. Stout, and L. G. Tanner, University of Nebraska State Museum and Geology Department, collaborated in the identification of the specimen. The helpful criticisms and suggestions of Mr. Lewis and of Messrs. R. G. Stearns and F. M. Alexander, Tennessee Division of Geology, who read the manuscript, are gratefully acknowledged.

INTRODUCTION

Vertebrate fossils of Pleistocene age have been reported from several localities in areas of Illinois, Missouri, and Arkansas adjacent to western Tennessee (Hay 1923 and 1924). The only previously reported locality in western Tennessee, however, is in the vicinity of Memphis (Wyman, 1850; Hay, 1923). The fossils from the Memphis locality include teeth and bones of *Megalonyx*, *Mammut*, *Castor*, and *Castoroides*. Although Wyman stated that these fossils were collected from the Mississippi River flood plain, Safford (1864) and Hay (1923) suggested that they may have come from the loess capping the hills adjacent to the flood plain. There is a possibility that they may have been collected from terrace deposits or fill in the Wolf or Loosahatchie valleys. In view of the doubt as to the stratigraphic unit from which the fossils were collected, they are of little value for dating or correlation.

In May, 1956, the writer submitted to the Paleontology and Stratigraphy Branch of the U. S. Geological Survey a specimen of vertebrate material from a depth of 7 feet in a bored well 3 feet in diameter on a farm owned by Mr. M. Roney, about

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3 miles north of Newbern, Dyer County, Tenn. A joint study of the material by the University of Nebraska State Museum and Geology Department, represented by Messers. C. B. Schultz, T. M. Stout, and L. G. Tanner, in collaboration with the Paleontology and Stratigraphy Branch, represented by Mr. Lewis, resulted in identification of the specimen as *Cervus* cf. *C. canadensis* (Erxleben), the wapiti, or so-called elk. In reporting for the group, Mr. Lewis states, "albeit the age could be almost anything from Pleistocene to Recent, we suggest that it could be as old as Sangamon or Wisconsin."

GEOLOGIC AND PHYSIOGRAPHIC SETTING

The test well is in the valley of Town Creek, a tributary of Biffle Creek which, in turn, is a tributary of the Obion River (fig. 1). During construction of the well, 32 feet of thinly bedded brown and gray clayey silt, 3 feet of sand, and 21 feet of sandy gravel, in that order, were penetrated before the Eocene bedrock was reached. The silt, sand, and gravel probably extend downvalley and grade laterally into the fill underlying the Obion River valley, where the lower part of the fill consists almost entirely of sand and sandy clay, which may be as much as 100 feet thick. The upper part of the fill in the Obion valley differs mainly from that in Town Creek valley by being uniformly dark gray. In both tributary and master valleys, however, the silt maintains a fairly consistent thickness.

Deposits that are similar in lithology and in stratigraphic position to those in the Town Creek and Obion valleys occur in the Forked Deer River valley and some of its tributaries and in other large tributaries of the Obion valley.

Since deposition of the valley fill, two periods of stream entrenchment, each followed by a period of lateral plantation resulting in the development of a cut terrace, have taken place in both the Obion and the Forked Deer valleys. The upper terrace, 20 to 45 feet above the present flood plain, consists of remnants of the former valley floor, over which a blanket of Peorian loess was deposited. The lower and younger terrace, which stands 5 to 10 feet above the flood plain, is carved into the dark silt forming the upper portion of the valley fill. A very thin layer of the Peorian loess veneers the lower terrace also.

The tread of the lower valley terrace and the floor of Town Creek valley form a gently sloping but continuous surface modified only slightly by erosion and slope wash. This surface was developed when the Obion River, which constituted the local base level to which its tributaries were graded, stood at the level represented by the terrace.

AGE OF TERRACES

Terraces equivalent to those in the Obion and Forked Deer valleys have been recognized in the Hatchie River valley by

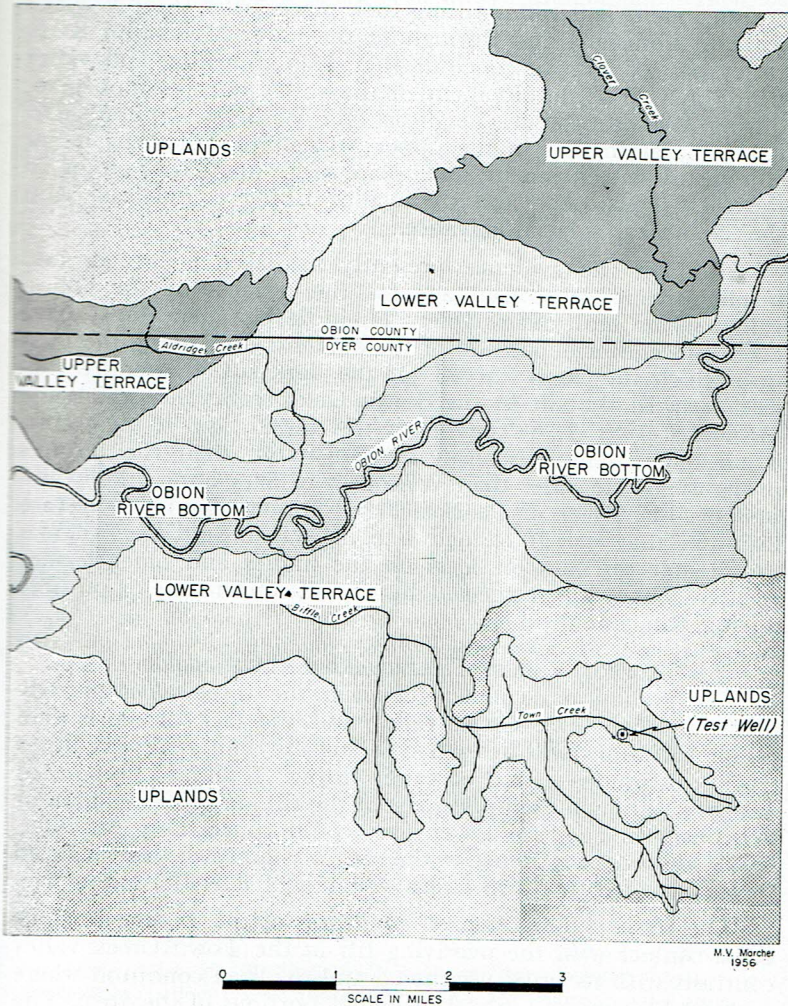


Figure 1

Leighton and Willman (1949), who dated them as early Mankato and late Mankato. A Wisconsin age for the terraces in the Hatchie, Obion, and Forked Deer valleys also was postulated by Fisk (1949) who, however, mapped them as a single unit called the Prairie terrace.

Fisk and Leighton and Willman agree that the age of the terraces is probably Wisconsin but their opinions as to when

entrenchment and valley filling took place differ sharply. Fisk's work in Louisiana and throughout the lower Mississippi River valley has led him to conclude that deep trenching and valley filling as well as development of the valley terraces took place during Wisconsin time. Leighton and Willman, on the other hand, maintain that in the upper Mississippi valley the major episode of entrenchment took place prior to glaciation or in the early Pleistocene and that valley filling commenced with the Nebraskan glacial advance.

Although the evidence presently available is meager and inconclusive, a Wisconsin age for the terraces in the Obion valley seems most reasonable. Their development must have taken place after deposition of the dark silt underlying the loess into which they were carved. If the dark silt is laterally continuous with the silt in the Town Creek valley, in which the fossil of *Cervus* cf. *C. canadensis* was found, and if the wapiti is no older than Wisconsin or Sangamon, then the terraces probably are no older than Wisconsin or Sangamon. The thinness of the veneer of Peorian loess capping the lower terrace indicates that it was formed late in Wisconsin time, whereas the greater thickness of loess on the higher and older terrace suggests that it was formed earlier in Wisconsin time or possibly during Sangamon time.

AGE OF VALLEY FILLING AND ENTRENCHMENT

The gradational contacts between the three types of sediments in the Town Creek valley and the lack of more than minor variations within each type suggest that there was but a single continuous period of valley filling. It should be pointed out that, although the upper part of the fill may be Sangamon or Wisconsin in age, the lower part could conceivably be older. In the absence of evidence to the contrary, however, it is believed that all the fill in Town Creek valley is of late Pleistocene age.

The fresh and unoxidized condition of the Eocene bedrock at its contact with the overlying fill in the Town Creek valley contrasts with its usual weathered and oxidized condition where overlain by sand and gravel in higher portions of the area. The absence of a weathered zone at the top of the Eocene rocks probably reflects an insufficiency of time between entrenchment and filling for such a zone to be developed. If this is true and if all the fill in the Town Creek valley is of late Pleistocene age, then it is possible that entrenchment also took place during the late Pleistocene.

REFERENCES CITED

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NEWS OF TENNESSEE SCIENCE

(Continued from Page 4)

- Otto Vos—Mammalian Recovery Group. Dr. Vos received the Ph. D. from the State University of Groningen and has been employed as a histologist with the Medical Biological Laboratory, National Defense Research Council, Rijswijk, Netherlands.
- The following resignations have recently become effective:
- Alan D. Conger—Cytology and Genetics Group. Dr. Conger has accepted a position on the staff of the Department of Botany and Biology of the University of Florida, Gainesville.
- Edward Novitski—Cytology and Genetics Group. Dr. Novitski has accepted a position on the staff of the Department of Biology of the University of Oregon, Eugene.
- Robert Rabson—Plant Physiology and Photosynthesis. Dr. Rabson has accepted a position with the Department of Biology of the University of Houston, Texas.
- Wilbrod St. Amand—Mammalian Genetics and Development Section. Dr. St. Amand has accepted a position with the Department of Biology of the University of Mississippi.
- Kimball C. Atwood—Cytology and Genetics Group. Dr. Atwood has accepted a position on the staff of the Department of Obstetrics at the University of Chicago.
- George D. Hanks—Cytology and Genetics Group. Mr. Hanks will be working toward the Ph. D. at the University of Oregon, Eugene.

UNIVERSITY OF TENNESSEE

Dr. David T. King, of the U-T Department of Physics, is conducting a research project on the nucleus of the atom using cosmic radiation data gathered by balloons sent above the earth's atmosphere. The project is being financed by a \$27,000 National Science Foundation grant.

Low temperature experiments are being conducted by Dr. John Oliver Thomson of the U-T Department of Physics. Temperatures approaching absolute zero can be reached with liquid helium. Reactions of such substances as copper and brass are being studied.

A lecture series featuring guest lecturers in the field of medical research has begun at the U-T Memorial Research Center in Knoxville. Dr. Peyton Rous, of the Rockefeller Institute for Medical Research in New York, gave the first lecture in October; his topic was "The Known Relations between Viruses and Cancer."

Dr. Michael Klein, assistant professor of anatomy at the University of Tennessee Medical Units in Memphis, has been awarded a \$69,000 grant

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