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FIRST RECORDS OF THE GIANT BEAVERS (*Castoroides ohioensis*) FROM EASTERN TENNESSEE

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ABSTRACT

The first records of the extinct Pleistocene giant beaver, *Castoroides ohioensis* Foster, isolated cheek teeth from caves in Roane and Sullivan counties in eastern Tennessee, are presented.

INTRODUCTION

Remains of the extinct Pleistocene giant beaver, *Castoroides ohioensis* Foster, have been recovered at numerous locations in North America, from Alaska and Oregon in the north and west to Florida in the extreme southeast (Cahn, 1932). The greatest concentration of records, however, have occurred in the Lower Great Lakes states of Ohio, Indiana, Illinois and Michigan. A nearly complete skeleton was found in Randolph County, Indiana (Cahn, 1932), but the majority of these finds have consisted of a single or, at most, a few elements which have been found in various creek and river alluvial deposits, gravel pits, bogs and caves. The geological age of *Castoroides* apparently extended from the Sangamon Interval through the Wisconsin and lasted possibly to the early Holocene; Hester (1960) presents a terminal date for *Castoroides* from Northern Lights, Ohio, of $11,480 \pm 160$ B.P.

Prior to the recovery of cheek teeth (Fig. 1) of the giant beaver described in this paper from two locales in eastern Tennessee, the only other record from the state consists of a large portion of a right lower jaw



FIG. 1: Occlusal view of *Castoroides ohioensis* cheek teeth from caves in Roane (left) and Sullivan (right) Counties, Tennessee. Scale: X3.

with full dentition from Shelby County. This find was first described by Wyman in 1850 and is referred to as the "Memphis specimen" by Cahn (1932). The first of the two new *Castoroides* records from eastern Tennessee consists of a single incomplete upper molar (M^1 or M^2) from Baker Bluff Cave, located about eight miles southeast of Kingsport, Sullivan County. Baker Bluff Cave, little more than a single large chamber approximately 12 feet by 30 feet, is in the west bank

of the South Fork Holston River and situated about 300 feet above the present level of the reservoir. The specimen (CM24680) was recovered by Robert Wilson in 1968 and later presented to the Carnegie Museum by S. D. Dean, Jr. Although the tooth was found in an upper aboriginal occupation level of the cave deposit, it is not considered to be contemporaneous with man but rather a part of the early and/or extinct faunal complex which occurred in the lower levels. The total faunal assemblage recovered by the Carnegie Museum in 1970 is currently being studied; however, remains of certain extinct species (armadillo, *Dasyopus* cf. *bellus*; tapir, *Tapirus* sp.; jaguar, *Panthera onca augusta*) and those with boreal affinities (caribou, *Rangifer tarandus*; pine martin, *Martes americana*) suggest a late Pleistocene and/or early Holocene age. Probably the *Castoroides* tooth from Baker Bluff Cave is a part of this assemblage but was displaced at a later time, possibly as a result of burrowing activities by rodents.

The second record of the giant beaver from eastern Tennessee also consists of a single, complete cheek tooth (right M_1) which was found by Gerald A. Vaughan in the summer of 1972 while caving on the Atomic Energy Commission Reserve near Oak Ridge, Roane County. The solution cave from which the tooth was recovered is situated in the north bank of the Clinch River bluff, approximately 150 feet above the river bed, and is located about $\frac{3}{4}$ mile below or north of the Melton Hill Dam. An entrance to this multi-chambered, previously sealed cave was accidentally opened during construction of a road along the base of the canyon wall. The tooth was found on the surface of the sloping clay floor of the cave approximately 200 yards back from the entrance; no other faunal remains were observed at that time. Considering the inclined nature of the cave floor, the apparent water-deposited clay substrata, and the isolated occurrence of the tooth, it may be assumed that the tooth probably reached its final location by being washed into the cave through a former opening. The tooth was compared with specimens of *Castoroides* in the collections of the Illinois State Museum, Springfield (Parmalee, 1967). Measurements (mm) of the tooth are as follows: height, 31.9; mesial-lingual crown width, 13.5; anterior-posterior crown length, 15.5.

Overall anatomical similarities between *Castoroides* and the modern beaver, *Castor Canadensis*, suggest a like habitat for these two rodents. However, Barbour (1931) and Stirton (1964) have noted significant differences in size (*Castoroides* estimated to have weighed

as much as 480 pounds), nasal passages, the unique structure and length of the giant beaver incisors, and the arrangement of the base of the skull and the musculature of the head. Certain of these differences, among them the relatively weak incisors compared with those of the modern beaver, suggest that *Castoroides* may have been unable to fell large trees or construct dams. Stirton (1964) also suggests that the giant beaver probably preferred lakes and ponds bordered by swamps and that its habits were not unlike those of the modern muskrat.

Numerous records of Pleistocene mammals from cave sites in central and eastern Tennessee have been reported, but until now remains of *Castoroides* had not been found in this region of the state. The giant beaver may have reached its greatest population density in areas possessing expanses of glacial lakes and marshes (e.g. Lower Great Lakes Region), and the eventual reduction and disappearance of these habitats was probably a factor in bringing about its extinction. These Roane and Sullivan County records of the giant beaver do establish the fact that this rodent was part of the Pleistocene fauna of eastern Tennessee, even though it was probably never numerous due to the mountainous topography and lack of extensive marsh habitat.

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