PLEISTOCENE MAMMOTHS IN UTAH AND VICINITY.

ELIOT BLACKWELDER.

ABSTRACT. A lower jaw recently found in the sand on the floor of Bear Lake and other bones from adjacent parts of Utah and Idaho indicate that the Columbian Mammoth, or the closely related Imperial Mammoth, was common in that region during the final shrinkage of Lake Bonneville, probably in the transition from the Pleistocene to the Recent epoch.

The writer's interest in this subject was aroused by the recent finding of a well preserved lower jaw of a small mammoth in the bed of Bear Lake in northeastern Utah. Inquiries in the vicinity and correspondence with local geologists in the state revealed the fact that many bones of elephants, as well as other Quaternary mammals, have been found in recent years in that part of the country and also that few if any of them have been examined by qualified paleontologists or reported in publications. In view of the doubt as to the stratigraphic position of the several species of elephants in Western America and because the occurrence of most of these Utah specimens in reference to physiographic history is rather definitely known, it seems advisable to publish a record of them at this time and call the attention of paleontologists to the location and availability of some of the specimens concerned.

For the information in this paper the writer is indebted largely to Dr. Reed W. Bailey and Mr. W. R. Buss of Ogden, Utah, Prof. George H. Hansen of Provo, Prof. Hyrum Schneider of Salt Lake, and Mr. C. A. Rasor of Pocatello, Idaho. Opinions on the identifications have been supplied by the following vertebrate paleontologists: Prof. Chester Stock, Dr. Walter Granger, Dr. Edwin H. Colbert, and Dr. R. A. Stirton, but it should be remarked that none of them has had the advantage of examining the actual specimens.

LIST OF OCCURRENCES REPORTED.

1. Near Burley, Idaho. Two leg bones and a tooth of a mammoth found in river terrace gravel probably of the age of Lake Bonneville.

2. Near Downey, Idaho. Teeth and fragmentary bones of a mammoth found in a gravel bed.
Fig. 1. Lower jaw of a young mammoth (probably *Elephas imperator*) found in the sand on the margin of Bear Lake, Utah.

Fig. 2. Upper molar of a mammoth (probably *Elephas imperator*) found in an excavation in the Sigsbury delta at Ogden, Utah. (Photograph supplied by Mr. Gordon Y. Croft)
3. Preston, Idaho. A single mammoth tooth unearthed in the digging of a ditch across a field southwest of the town.

4. Garden City, Utah. A small lower jaw in excellent state of preservation was found in 1934 by the young son of Mr. Joseph Cook, while he was digging in the beach sand of the adjacent Bear Lake. A series of dry years had caused the shrinkage of the lake to a level about 15 feet below normal, thus exposing a broad strip of sandy lake bottom that extended hundreds of feet out from the former shore line. The jaw was embedded only a few inches below this surface. A photograph (Plate I, Fig. 1) of this specimen (with scale attached) was taken by the writer and was later submitted to several paleontologists for identification. In their opinion it belonged to *Elephas columbi* or more probably to *E. imperator*. This jaw is about 12 inches long and about the same in greatest width. The teeth have 9 transverse plates in a distance of 115 mm. At last accounts the specimen was still in the hands of the finder.

5. Garden City, Utah. A small tooth was found some years ago on the gravelly beach of Bear Lake. This specimen, now in the possession of Dr. Reed W. Bailey of the U. S. Forest Service at Ogden, is 150 mm. long and has 11 double enamel ridges in that length. From the measurements and a drawing, Dr. Walter Granger has identified this specimen as probably belonging to the species *Elephas imperator*. In view of the location and size it seems possible that this tooth belonged to the same animal as the jaw previously mentioned.

6. Garden City, Utah. A leg bone of a mammoth found “on the shore of Bear Lake.”

7. Near Bear Lake, Utah. According to W. C. Knight, former State Geologist of Wyoming, a mammoth tooth was found at the bottom of a well about 20 feet deep, in this locality. The specimen was obtained by a local collector and its present whereabouts is unknown. It was referred by Knight to *Elephas primigenius*, but in view of the time and circumstances, this identification merits no confidence.

8. Clarkston, Utah. A fragment of a tusk about four feet long was found in a gravel deposit near the town, on the west side of Cache Valley. All of the deposits in this locality belong to the last expansion of Lake Bonneville.

---

9. Bear River City, Utah. In the course of excavating for the foundation of a house at the edge of the town, an elephant tooth was found in a sandy clay deposit which must have been that of the Stansbury or a still lower stage of Lake Bonneville.

10. Ogden, Utah. A fragment of a jaw containing one tooth (a third upper molar) was found in an excavation near the corner of 26th and Binford streets and is now in the collection of the Ogden High School. The deposit is referable to the Stansbury stage of Lake Bonneville. From a photograph of the tooth (Plate I, Fig. 2) Dr. Walter Granger identified the mammoth as *Elephas (Paralephas) columbi*.

11. Provo, Utah. A pelvis, jaw bones, and a tooth of a mammoth were found “near the city,” in gravel of Lake Bonneville at the Stansbury or a lower level.

12. Springville, Utah. Bones and a tusk of a mammoth were reported by G. K. Gilbert as having been found in a post-Bonneville marsh near the eastern shore of Utah Lake. This must be below the Stansbury level.

13. Payson, Utah. Two tusks, two legs with feet, a lower jaw, several ribs and two teeth of a mammoth were found in gravel apparently belonging to the Stansbury stage of the shrinking Lake Bonneville, two miles east of Payson, and are now in the collection of Brigham Young University at Provo. One of the teeth mentioned has 6 double enamel plates in a length of 100 mm., a fact which indicates that it represents *Elephas (Archidiskodon) imperator*. This and the next find were reported in 1928 by Prof. George H. Hansen.

14. Payson, Utah. One rear leg of an elephant found in a gravel pit two miles west of the town.

In recent years many bones of Pleistocene mammals have been found in excavations near the American Falls reservoir about 15 miles west of Pocatello, Idaho. Among these are bones of some species of mammoth but apparently none of them has been studied by a paleontologist. Most of these specimens are now in the collection of the Southern Branch of the University of Idaho at Pocatello.

Other specimens have been found in a gravel excavation near the east end of the American Falls dam in Idaho. In a paper

---


on this locality Dr. C. L. Gazin\(^4\) reports teeth and other bones of the American mastodon (*Mammuth americanum*) and of a mammoth which he referred to *Elephas columbi*?.

In the majority of the cases listed above, the elephant remains are clearly associated with the deposits of the final dwindling of Lake Bonneville. In several cases they are definitely referable to the Provo and Stansbury stages of the shrinkage of the lake. In some instances, where the bones are buried only a few feet below the present surface in deposits which may even be of post-Bonneville age, there is a strong suggestion that these elephants lived in Utah after the close of the ice age.

Although many of the specimens are in excellent condition the present state of classification of elephants in this country is so unsatisfactory and so controversial that it seems unwise to attempt positive identification of species. It may be said, however, that several of the leading vertebrate paleontologists of the United States are all inclined to refer most of these specimens to either *Elephas columbi* or the closely related species *E. imperator*.

The small size of several of the individuals, notably those at Garden City, Utah, and the one reported by W. C. Knight\(^5\) from southeastern Wyoming, indicates young individuals of one of the large well known species rather than a dwarf species such as the one recently discovered on the Channel Islands near Santa Barbara, California.

From its distribution and relations it has generally been inferred that *Elephas columbi* and *E. imperator* were adapted to a mild and even semiarid climate in contrast to their congener the hairy mammoth (*Elephas primigenius* or *E. boreus*) which is known to have had a sub-arctic habitat. In many cases the association of these Utah specimens with the declining stages of Lake Bonneville suggests that these mammoths were not denizens of a particularly cold climate but perhaps lived in the mild epoch of early Recent time. According to Antevs\(^6\) the period from about 5500 to 2000 B.C. had an average climate somewhat warmer and drier even than that of the present. Such conditions may have favored the spread of the mammoths

of Southwestern United States over most of the Great Basin and Rocky Mountain regions. While the cause of the final extinction remains an unsolved problem, there may be significance in the accumulation of evidence in favor of the opinion that Mongoloid human tribes entered North America by way of Alaska during the final wasting of the Pleistocene ice sheets and soon spread all over the continent.

Stanford University,
California.