

THE PLIOCENE VERTEBRATE FAUNAS OF SOUTH DAKOTA

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Scattered along the southern edge of South Dakota are a series of beds which have yielded a considerable number of early Pliocene vertebrate remains. Individual species have been described from scattered localities and one exhaustive study has been made of the fauna from Big Springs Canyon near Martin, South Dakota, by Joseph T. Gregory (2). Compared to the work which has been done on the Oligocene deposits in this area, the Pliocene is virtually untouched.

The Pliocene beds in this area have been variously designated by the different authors. Usually, they have been referred to some nearby formation in Nebraska or Kansas. Mathew and Gidley (4) used the term "Loup Fork beds" for deposits that they examined and collected in from the head of the Little White River at Big Springs Canyon, at various places along the Little White River, near the Rosebud Agency, and at the head of Oak Creek.

Troxell (7) proposed the term Oak Creek formation for deposits east of Mission, South Dakota, from which he obtained a small early Pliocene fauna. This term has been used by various authors including Osborn (6) in his monograph on the horses.

In his revision of the White River Badlands, O'Harra (5), indirectly suggested that the scattered Pliocene deposits in Nebraska, Wyoming and South Dakota be grouped together as the Little White River beds, a term which has found a wide-spread informal acceptance, although it is ambiguous as it covers beds which in addition to a wide geographic spread, also have a lengthy temporal span.

Gregory has summarized much of this in his introduction to the Big Springs Canyon paper and reached the conclusion that for the present, these beds should be referred to the Ogallala group without any formal formational designation.

We believe that, at the present time, this policy should be continued and that only through continuous and careful collecting can the stratigraphic relationships of the various outcrops of Pliocene rocks in South Dakota be understood.

There are four early Pliocene assemblages from South Dakota which may now be recognized. These include Troxell's Oak Creek fauna which is not very large and which cannot be correlated with great exactitude with the other nearby faunas.

The Big Springs Canyon local fauna from 10 miles west and 4 miles south of Martin, Bennett County, South Dakota, was first described by

Matthew and Gidley (4) from a meager collection of mammalian remains. Gregory (2), restudied the geology and added extensively to the vertebrate fauna. The deposit consists of a series of sandy stream channels, tuffs, and volcanic ash. The main collections from this site are at the American Museum of Natural History, the University of California Museum of Paleontology, the Chicago Natural History Museum, and the South Dakota School of Mines and Technology Museum of Geology.

The Mission local fauna was collected from the remnant of a sandy stream channel 7 miles north of Mission, South Dakota, in Mellette County. This channel forms an unconsolidated cap rock on the underlying Arikaree beds and is at present about 25 feet thick (3). The bulk of the material recovered from this location is in the Museum of Geology of the South Dakota School of Mines, while additional specimens may be found at the Zeitner Geological Museum at Mission.

Scattered localities along the Wolf Creek drainage east of Pine Ridge, Shannon County, South Dakota, have been designated as the Wolf Creek local fauna. These deposits of tuffs, sands, volcanic ash, clays, and gravels have yielded a fauna which correlates with both the Mission and Big Springs Canyon faunas (1). The specimens from these localities are at the Museum of Geology, South Dakota School of Mines and Technology.

All of these assemblages indicate a late early Pliocene or Clarendonian age for these deposits. As more extensive collections are made and studied along with the stratigraphy, perhaps a more complete picture of the late Tertiary history of South Dakota will be available.

BIBLIOGRAPHY

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For a detailed list of South Dakota Pliocene references see:

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