

LARGE DINOSAUR BONEBED DEPOSITED AS DEBRIS FLOW: LANCE FORMATION NIOBRARA COUNTY, WYOMING

WEEKS, Summer Rose, Earth and Biological Sciences, Loma Linda University, Griggs Hall, 11065 Campus Street, Loma Linda, CA 92350, CHADWICK, Arthur V., Geology, Southwestern Adventist University, 100 Magnolia, Keene, TX 76059 and BRAND, Leonard R., Department of Earth and Biological Sciences, Loma Linda University, Loma Linda, CA 92350, sweeks@llu.edu

Almost thirteen thousand bones and fragments have been collected from a mostly monospecific assemblage of *Edmontosaurus annectens*, in the Upper Cretaceous Lance Formation in east central Wyoming in the Powder River Basin. In this area the Lance Formation is interpreted as continental deposits of coastal plains, meandering streams, and associated flood plains (Committee, 1965).

The bonebed contains disarticulated skeletal remains of *Edmontosaurus annectens* including *Edmontosaurus* skull bones as well as postcranial elements, and teeth of scavengers such as *Tyrannosaurus rex*, *Troodon*, *Dromaeosaurus*, and *Nanotyrannus*. The bones are in the form of a matrix supported, normally graded, one meter thick bed. The bed contains a matrix of silty claystone bounded on top by a flat lying fine-grained sandstone and on the bottom by a sandstone that transitions laterally into mudstone. The quarry, as currently exposed, covers an area of 50,000 square meters.

The normally graded nature of the bonebed gives evidence that the bones and matrix were deposited as a subaqueous debris flow, thus representing a single sedimentation event for the estimated 500 or more dinosaurs.

References Cited

Committee, W. G. A. T. S. (1965). Geologic History of Powder River Basin. *Aapg Bulletin*, 49(11), 1893-1907.