

The Watkins Quarry: A New Late Pleistocene Mammal Locality In Glynn County, Georgia

M. R. VOORHIES

3:00

University of Georgia

A recent excavation in sediments associated with the Princess Anne Pleistocene Shoreline (approximately 13 feet above present mean sealevel) near Brunswick, Georgia has yielded partial skeletons of one juvenile and two adult individuals of *Eremotherium*, a gigantic megatheriid ground sloth. The site (discovered and reported by Mr. Larry Williamson and associates, Georgia Highway Department) also produced fragmentary remains of fishes, a crocodylian, *Didelphis virginianus*, *Equus* cf. *conversidens*, *Tapirus*, *Odocoileus*, and a mammoth. The bone-producing layer is underlain by a clean quartz sand of probable barrier-island origin and is overlain by carbonaceous clay of salt-marsh or lagoonal origin. Carbon-14 dates (on bone) averaging 10,000 years suggest a postglacial age for the fossiliferous horizon. Considerable geological and biological interest attaches to the occurrence because: 1) None of the numerous Pleistocene mammals previously collected from coastal Georgia has been documented as to precise stratigraphic level. 2) The Princess Anne terrace has been considered to be Middle Pleistocene or older. It now appears to be much younger and questions are raised about possible sealevel fluctuations of considerable magnitude during postglacial time. 3) A high degree of sexual dimorphism in size (males exceeding females by 50% in body weight) appears to be present in *Eremotherium*. That megatheres travelled in family groups also seems likely.

Paleoenvironmental Significance of Bone Orientation In Watkin's Quarry (Late Pleistocene), Glynn County, Georgia

ALBERT G. BRANTLEY

3:15

University of Georgia

Experiments under a variety of fluvial conditions show that mammal bones may be used as paleocurrent indicators. The limb bones are especially useful because of their distinct elongation and marked polarity, which give the sense of current direction. Experimental conclusions have been applied to the interpretation of a large assemblage of Pleistocene mammal bones excavated from Watkin's Quarry, near Brunswick, Georgia. As the bones were removed from the rock, their spatial arrangement (distribution and orientation) was recorded. These field data were plotted on a rose diagram and show that the fluvial or marine current responsible for dispersal and burial of the Watkin's Quarry fauna apparently flowed from the northeast to the southwest.

Radar Geomorphology in Louisiana Coastal Marsh and Swamp

HAROLD C. MACDONALD

Georgia Southern College

ANTHONY J. LEWIS

Louisiana State University, Baton Rouge, Louisiana

WILLIAM P. WAITE

3:30

University of Arkansas, Fayetteville, Arkansas

Geomorphic analysis in coastal marsh and swamp terrains involves detailed examination of drainage patterns, delineation of drainage texture, and determination of plant community spatial relationships. In particular, a

search is made for anomalies or local departures from the expected regional fabric. Recent research has revealed that high-resolution, side-looking imaging radars are particularly sensitive to terrain differences in the coastal environment. The purpose of this study was to determine the feasibility of a radar-derived, geomorphic analysis in coastal marsh and swamp terrains.

In the coastal marsh environment, which is characterized by grasses and sedges, tonal contrasts delineated on dual-polarized, side-looking, radar imagery may provide the identification key to anomalous patterns within marsh plant communities; which in turn, can be related to relative salinity. Aerial photographic interpretation reveals that the vegetational tonal patterns of marsh plant communities become less complex with increasing salinity; however, dual-polarized, radar imagery tonal patterns become more complex with increasing salinity. The increasing complexity of the radar return signal appears to be attributable to the geometric configuration of the plant communities, but the relative increase in salinity of the vegetation-soil-water interface may be a contributing factor. Coastal swamps, which are dominated by dense tree growth, include both the poorly drained basins and natural levee ridges. Radar imagery analysis provides evidence that natural levee drainage patterns can be mapped with intricate detail, regardless of daylight or weather conditions. Although additional studies and quantification of data are necessary, this rapid, radar-geomorphic, reconnaissance technique should have equal applicability for much of the coastline along the southeastern United States.

The Origin of the Okefenokee Swamp

FRED K. PARRISH

3:45

Georgia State University

The first account of the formation of the Okefenokee Swamp was apparently made by Roland Harper in 1909. After discovering Trail Ridge, which forms the eastern border, and possibly being influenced by Bartram's characterization, "a vast lake or drowned swamp," Harper stated that the ridge created a lake to the west. Filling in of the lake by the usual processes resulted in the present swamp. Veatch in 1911 took issue with this account and stated that the swamp was formed because of the flatness of the land. Cooke in 1925 returned, essentially, to Harper's account, but stated that the Pleistocene Okefenokee Sound became a lake when the shoreline retreated to the inner limit of the Penholoway terrace. Subsequent workers appear to have accepted Cooke's account. Re-examination of the facts, particularly in light of more recent data, indicates that the Okefenokee Swamp was formed after the Second Wisconsin Glacial Stage. With the transgression of the sea the base level became higher, apparently resulting in a decreased hydraulic head and decreased velocity of outgoing surface and subsurface water, allowing for an increased retention time and an increased sedimentation of organic debris. The levels of peat and water have risen, essentially together, to the present depth.

The Georgia Speleological Survey

EDGAR ALLEN PADGETT, JR.

4:00

West Georgia College

The Georgia Speleological Survey (GSS) of the National Speleological Society, affiliated with the American Association for the Advancement of Science, has undertaken a study of caves of Georgia. This study began in 1966, unofficially, and was officially recognized in 1970. The survey now lists more than 200 caves. The major objectives of the GSS are the scientific study of caves, the conservation of caves as fragile environments, and the dissemination of cave information to interested persons. This includes locat-