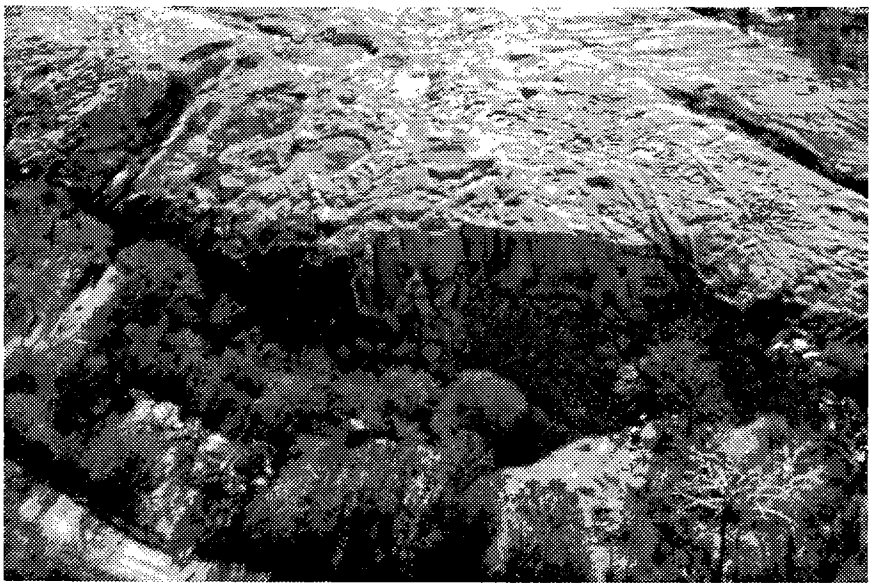

Figure 17 *(question 52)*. Aerial photograph of the Capitol Quarry and Ten Acre Rock, located about 1 mile east of Troy, Oklahoma. Ten Mile Rock was a prominent landmark when this part of Oklahoma was first settled. The approximately 1.4-billion-year-old Tishomingo granite was quarried about 1916 for use in the ground floors of the State Capitol Office Building in Oklahoma City. (Photograph by M. Charles Gilbert, School of Geology and Geophysics, University of Oklahoma.)

53. How did the Ice Ages affect Oklahoma?

The continental glaciers came no closer to Oklahoma than northeastern Kansas, but the climate during the Pleistocene was cooler and wetter than it is now. Animal and plant life reflected these conditions.

Although the continental glaciers that covered much of North America during the Pleistocene epoch never extended as far south as present-day Oklahoma, the climate then was much different than it is today. Based on studies of plant fossils, geologists know that the average summer temperatures during the four glacial periods probably were 5° to 10°F cooler than now, but winters were slightly warmer. Cooler summers meant that precipitation did not evaporate as quickly as now; as a result, the climate was more humid and forests grew farther west than they do today. The dominant trees were spruce, fir, pine, and northern hardwoods. Oklahoma's western prairies did not exist. However, during the Pleistocene interglacial periods, the climate probably was similar to what it is today in northeastern Oklahoma, and grasslands and forests of oak-hickory and pine were common.

A wide variety of fish, amphibians, reptiles, birds, and mammals lived in Oklahoma during the Pleistocene. Most notable among these were musk-ox, saber-toothed cats, giant beavers, Columbian mammoths, camels, ground sloths, bison, tapirs, short-faced bears (Fig. 18), and precursors of modern horses.

During the interglaciel periods, when the alpine glaciers in what is now Colorado and New Mexico were melting, the major east-flowing rivers of Oklahoma were much larger than they are today. Wind eroded fine sediment from the mud-, sand-, and gravel-choked rivers and floodplains and deposited it across much of the Panhandle. Elsewhere, extensive sand-dune fields formed, especially near the rivers.

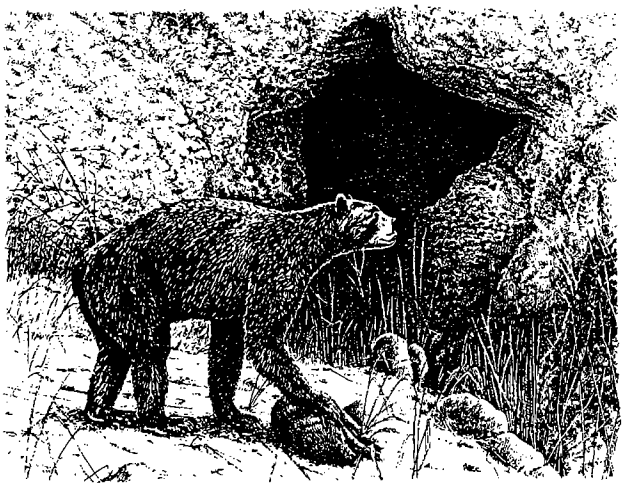

Figure 18 *(question 53)*. Reconstruction of *Arctodus simus* (Cope), short-faced bear. The right lower molar of a probable *A. simus* was discovered in Gittin' Down Mountain Cave, Adair County, in 1975 and is the only known occurrence of the short-faced bear in Oklahoma (Smith and Cifelli, 2000, p. 17). (From Feldmann, 1996, p. 369. Reconstruction by James L. Glover, Ohio Department of Natural Resources, Division of Parks and Recreation.)