Ocmulgee Mounds

National Park Service
U.S. Department of Interior

Ocmulgee Mounds NHP

Archaeology: Our Window to the Past

LARGEST DIG IN THE USA

Did you know that the largest dig ever conducted in this country occurred here at Ocmulgee and the surrounding area? Between 1933 and 1936, over 800 men in Roosevelt's Works Progress Administration (WPA), Civil Works Administration (CWA), Federal Emergency Relief Administration (ERA & FERA) and later the Civilian Conservation Corps (CCC) excavated under the direction of Dr. Arthur R. Kelly from the Smithsonian Institute. Kelly was the only archaeologist at the Ocmulgee camp and conducted evening training courses for the men. Hundreds of thousands of artifacts were discovered including pottery, pottery sherds, metals, arrowheads, spear points, stone tools, pipes, bells, jewelry, seeds, bones, etc. – some of which is on display in the Ocmulgee Mounds National Historical Park museum or stored in the museum curatorial. This dig helped piece together a timeline of people who lived on the Macon Plateau between 12,000 BCE and 1800 CE. Each of the major periods was represented here at Ocmulgee: Paleo (15,000-8,000 BCE), Archaic (8,000-1,000 BCE), Woodland (1,000 BCE-900 CE), Mississippian (the mound builders at Ocmulgee, 900-1540 CE), and Historic (when written records were kept, 1540-present).

(ARCHAEOLOGISTS UNCOVERING THE EARTH LODGE)

DATING METHODS

Relative Dating techniques can be used to find out if one culture is older or younger than another, but these techniques do not give a specific year. The famous Kelly excavations conducted here at Ocmulgee used a relative dating technique called stratigraphy. In **stratigraphy**, an archaeologist observes the soil stratum (layer) where artifacts are found. Deeper stratums mean older artifacts, rocks, or fossils. **Seriation** is a technique involving the description of stylistic changes in artifacts as well as their popularity. Another way of determining relative age is **typology**. People of the same culture will almost always make their tools, decorate their pottery, or build their houses in similar ways. For instance, when projectile points (spear points and arrowheads) are found to be made in the same shape (or type), it is safe to say people of similar cultures made them. **Technological changes** can also be used for relative dating of archaeological material. **Biological criteria** can also be used for relative dating. Fossils, palynology (microscopic examination of fossil pollen grains in stratified peat or lake deposits to determine plants), and floral time charts are all biological criteria helpful in relative dating.

Absolute Dating means that the technique used can give an age in years. Physicists use **radiocarbon dating** to measure the amount of radioactive carbon (C14) in pieces of organic material such as bone, wood, or shell found at archeological sites. When something dies, it begins to lose radioactive carbon. The smaller the amount found, the older the artifact. The physicist can give the archaeologist a date (plus or minus 200 years) for the artifact tested. One helpful tool for physicists is the accelerator mass spectrometer, which

DATING METHODS (CONTINUED)

counts carbon in small samples and allows artifacts to be dated more accurately than the conventional radiocarbon method used before the 1980s.

For those interested in technical descriptions, there are other absolute dating techniques. **Radioactive Dating** methods are the most widely used and accepted absolute dating methods. They are based on the natural radioactivity of certain minerals found in rocks. The rate of radioactive decay of particular isotopes is known so the age of a specimen can be computed from the remaining radioactive material and its decay products (example: uranium -238 to lead -206 or potassium -40 to argon -40). Each radioactive member in these series has a known, constant decay rate and age range, which allows excavated rocks to be dated. Other somewhat unreliable radioactive dating methods include **fission track** (when uranium -238 atoms fission within a solid medium such as a mineral or a glass, they expel charged particles that leave a trail of damage called fission tracks which are a function of time), **thermoluminescence** (based on the luminescence produced when a solid is heated – used in dating pottery), and **electron-spin resonance** (measuring the amount of trapped electrons by detecting the amount of microwave radiation they absorb). Although the last three techniques are somewhat unreliable, museums often use them to determine if a ceramic piece is an antique or a forgery.

Chemical Dating includes **amino-acid racemization** (measuring amino-acid chemical changes that occur over time) and **obsidian hydration** (used where obsidian is abundant such as Mesoamerica). **Paleomagnetic Dating** is based on changes in the orientation and intensity of the earth's magnetic field that have occurred over time. The magnetic characteristics of an object or area are matched to a date range when the earth's magnetism was similar. Scientists can also date igneous and sedimentary rocks, which are rich in magnet particles based on a record of the earth's polarity. **Fluorine Dating** is useful for dating early human remains. Buried bones absorb fluorine from surrounding soils. The amount of fluorine is proportional to the amount in the surrounding deposit and the time that the bone was buried. This method may not be considered absolute, but can be used to measure the ages of bones found at the same site.

(AN ARCHAEOLOGIST AT A DIG SITE)

OUR ROLE

In 1933, concerned Macon citizens recruited Dr. Arthur Kelly from the Smithsonian in order to understand the importance and history of Ocmulgee. What would have become of the area if they had not? It is important that everyone understand the urgent need for preserving the archeological resources in Georgia. It is everyone's responsibility. If construction or vandalism destroys a site, the window is broken and the archeological information is lost forever leaving little chance for you to find history on your next walk. You can learn more about the mysteries of archaeology by visiting a museum, participating in archeological digs, attending a lecture, or visiting archeological web sites. The more we study the past, the more we learn about ourselves.

Federal Law: Archaeological Resources Protection Act of 1979 states "No person may excavate, remove, damage, or otherwise alter or deface or attempt to excavate, remove, damage, or otherwise alter or deface any archaeological resources located on public lands or Indian lands unless such activity is pursuant to a permit . . . or the exemption for Indians on their own tribal lands . . . no person may sell, purchase, exchange, transport, receive, or offer to do the same if such resource was excavated or removed from public lands or Indian lands."

Georgia Law: GCA § 40-813a states that "The State of Georgia . . . reserves to itself the exclusive right and privilege of exploring, excavating, or surveying all prehistoric and historic sites, ruins, artifacts, treasure, treasure-trove, and other similar sites and objects found on all lands owned or controlled by the state."