Alabama Archaeological Society

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STONES & BONES NEWSLETTER

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ORIGINS OF AGRICULTURE IN EASTERN NORTH AMERICA

The development of agriculture has long been considered a major milestone in human evolution. During the past 10,000 years agricultural economies have also caused significant changes in the earth's ecosystems. This post-Pleistocene transition from foragers to farmers, from a reliance on wild species of plants and animals to food production economies, took place at different rates and times in various regions of the world and involved a rich variety of crop plants.

The recent increase of essential information on agriculture in eastern North America is in large part attributable to the application of four important technological advances to archaeology and serves to underscore the important role of instrumentation in guiding and stimulating research. Water flotation technology has produced dramatic improvements in the recovery of small carbonized seeds and other plant parts from archaeological contexts. Scanning electron microscopy has documented minute morphological changes in seed structure associated with the process of domestication. Accelerator mass spectrometer radiocarbon dating has provided, for the first time, accurate and direct age determinations of very small samples of seeds and other plant parts. Stable carbon isotope analysis of human bone has been a direct means of observing temporal and geographical trends in the relative consumption of maize by prehistoric groups in eastern North America.

Between 2000 and 1000 B.C., native North American crop plant species were initially brought under domestication in eastern North America. Seven to 12 centuries later, between 250 B.C. and A.D. 200, a subsequent initial emergence of food production economies took place, with local crop plants gaining considerable economic importance. Six to nine centuries later, between A.D. 800 and 1100, a shift in food production economies occurred and a single nonindigenous species (maize) came to dominate the fields and diets of farming societies.

In addition to the likely domestication of squash, three other native North American plants were brought under domestication in eastern North America during the second millennium B.C.: sumpweed or marshelder, sunflower, and chenopod. The period from 250 B.C. to A.D. 200 witnessed the initial development, subsequent elaboration, and eventual cultural transformation of the Middle Woodland period Hopewellian societies of

eastern North America. The large and impressive geometric earthworks, conical burial mounds, and elaborate mortuary programs of Hopewellian populations have been the focus of archaeological attention for well over a hundred years. It is only within the past decade, however, that much information has been recovered concerning Hopewellian food-producing economies.

For almost 30 years discussions of Hopewellian domesticates centered almost exclusively on the dietary role of maize, which had been recovered from contexts that suggested an arrival in eastern North America as early as 500 B.C. Recent direct AMS radiocarbon dates on proposed early corn, however, have substantially revised the timetable of initial introduction. The earliest convincing macrobotanical evidence of the presence of maize in eastern North America is the directly dated carbonized kernel fragments from the Icehouse Bottom site (A.D. 175) and the Harness site (A.D. 220).

Although introduced into at least some areas of eastern North America by A.D. 200, likely from the Southwest, maize remained a minor cultigen, or perhaps a high status or ceremonial crop, until after A.D. 800. During the six centuries from A.D. 200 to 800, indigenous crops and food-producing economies were becoming increasingly important across the mid-latitude pre-maize farming zone. This gradual developmental trend took a rapid and expansive new direction between A.D. 800 and 1100, with agricultural economies based largely on corn developing from north Florida to the northern limits of maize farming. This rapid shift encompassed many of the largely forager societies of the Atlantic and Gulf coastal plains and northern latitudes as well as the mid-latitude pre-maize farming zone. This shift involved economic transitions both from long-established hunting and gathering subsistence patterns and from indigenous food production systems.

But the shift to maize-centered agriculture in eastern North America was not simply a matter of the development of new, improved varieties of corn. There is at present no evidence that any higher yield or more storable types of corn played a role in the A.D. 800 to 1100 formation of maize-centered agricultural economies and more complex sociopolitical systems in the Midwest and Southeast. Moreover, like the second millennium initial domestication of plants in eastern North America and the subsequent emergence of food production economies in the region at about 250 B.C. to A.D. 200, the shift to maize agriculture was imbedded within a larger and uniquely eastern North American process of social transformation.

(From an article by Bruce D. Smith in "Science", Vol. 246)

SUMMER FIELD SCHOOL

The Alabama State Museum of Natural History at The University of Alabama, in conjunction with the University of North Alabama and the Tennessee Valley Authority, will sponsor a summer archaeological field school near Florence, Alabama, between June 4 and July 15, 1990.

Adults in the community (ages 15 and over), and children accompanied by a parent or guardian, can also participate as continuing education students through the Continuing Education Office at the University of North Alabama. Several tuition plans ranging from a single day ($19) to the full term ($89) are offered.

Research staff from the Museum's Archaeology Division have worked in the locality for four summer seasons. Dr. Boyce Driskell, Senior Research Archaeologist in the Museum, will serve as field school director.

To make arrangements to visit the camp or on the dig: call Dr. or Mrs. Joe Copeland - office 205/760-4402; home 205/767-5579.

Dr. Boyce Driskell
Moundville

CHAPTER NEWS

Birmingham Chapter

Our April 12th meeting was held at the home of long-time Society member Lawson Corley. Lawson has one of the most extensive collections in the Southeast.

Bobby Hawkins

Cullman Chapter

Our meeting for April was held on the 16th at the Cullman County Courthouse.

Howard King

Huntsville Chapter

Bart Henson was the speaker at the Huntsville Chapter meeting on April 25. Bart, a recognized authority on petroglyphs and pictographs, presented the results of his latest research in this area.

The Huntsville Chapter meets the fourth Tuesday of each month at 7 p.m. in the Auditorium of the Public Library. The public is welcome. TaMara Beane of Bridgeport will present the program on May 22. TaMara is a potter, working in the Native American style.

Members of the Huntsville Chapter visited Russell Cave for its annual Indian Day celebration April 21. Despite inclement weather, there was an impressive turnout for the exhibits and talks. Several chapter members took active roles in the day's activities, demonstrating beading, atlatl throwing, and presenting one of the papers.

Dorothy Luke

BOARD OF DIRECTORS MEETING

The Board of Directors of the Alabama Archaeological Society met in Birmingham on April 11.

The date for the A.A.S. summer meeting was set as Saturday, June 23. This will be a dig in Anniston; watch for information in the June STONES & BONES. The winter meeting has been tentatively scheduled for Saturday, October 27, and Sunday, October 28, in Columbus, Georgia.

MUSEUM LAUNCHES ITS 12TH EXPEDITION IN JUNE

On Sunday, June 10, 1990, the Alabama State Museum of Natural History will open Expedition No. 12, the annual summer camp which takes science out of the classroom and into the field.

"This summer we're delighted to have Dr. Paul Welch, archaeologist from Oberlin College, to serve as our camp Scientific Director", announced Kenneth Gaddy, Museum Curator of Collections, who acts as Expedition Leader. "Our plan is to excavate the northernmost mound of the chiefdom, located in Tuscaloosa County some miles upstream from the main Moundville site. This mound was tested in 1978 by Dr. Welch and other archaeologists."

Expedition No. 12, which runs for four one-week sessions from June 10 to July 6, will be based near the Black Warrior River west of Tuscaloosa. More information may be obtained by calling the Museum at 205/348-7550.

ANCIENT CHINESE RECORDS HELP DATE MEDITERRANEAN ERUPTION

Three researchers from the Jet Propulsion Laboratory and a co-worker from UCLA have dated the most powerful volcanic eruption in recorded history, the Thera/Santorini eruption, to the late 17th century B.C. The study was conducted by Kevin Pang, Santosh Srivastava, and Robert Keston, all of JPL, and by Hung-hsiang Chou of UCLA. The results were reported at the fall meeting of AGU in San Francisco.

The work used Chinese historical accounts of the atmospheric effects brought on by the volcano's eruption matched with Greenland ice cores and tree-ring analysis (dendrochronology).

The eruption may have been the basis for Plato's story of Atlantis, which told of an island civilization submerged by the sea. Recent archaeological studies suggest Atlantis may have been the Minoan centers of Crete destroyed by seismic-sea waves from the Thera eruption.

"Our previous search for Chinese historical accounts of the atmospheric effects of very large eruptions recorded in Greenland ice cores has been 100 percent successful", Pang said, "and Thera/Santorini, the most powerful historical eruption, is no exception."

Climatic anomalies were recorded in the time of King Chieh, the last king of the Xia, the earliest recorded Chinese dynasty. "At the time of King Chieh, the sun was dimmed", the records report. "Three suns appeared." "Winter and summer came irregularly." "Frosts in the sixth month [July]." "Last year of King Chieh, ice formed in the morning", a very unusual event since the Yellow River Valley had a much warmer climate at that time.

The records also indicate crop failures and famine. Hydrologic extremes were recorded. "There was heavy rainfall and communities were destroyed." The floods were followed by a severe drought that lasted seven years into the next (Shang) dynasty. Pang believes that heavy rainfall is a characteristic atmospheric effect of major volcanic eruptions. Cold, wet summers also followed three other eruptions traced with similar methods - Tambora in 1815, Laki in 1783, and an unnamed Icelandic eruption in 208 B.C.

According to Pang, "To date the Thera/Santorini eruption, we use archaeologically verified prehynastic and dynastic Shang and Western Zhou royal genealogies, calibrated by absolute astronomical dates. Fitting a line through the datum points, we graphically solve for the Thera/Santorini eruption date, that is, King Chieh's reign, which was 24 generations before 841 B.C. The answer is 1600 ± 30 B.C. The correlation coefficient is better than 99.8 percent."

(From "Geotimes" - March 1990)

ESAF ANNUAL MEETING

The Eastern States Archeological Federation will hold its Annual Meeting November 9-11 in Columbus, Ohio. Titles for papers about Eastern North American Mortuary Practices as well as suggestions for symposia and papers may be sent to:

Verna L. Cowin, 1990 ESAF Program Chair
5800 Baum Blvd.
Pittsburgh, PA 15206

Tel. 412/665-2602

STATE MUSEUM ACTS TO HELP RESTORE IRONDALE FURNACE PARK

On February 22, 1863, an enterprising Yankee by the name of Wallace S. McElwain purchased an 80-acre piece of land in Jefferson County and began the construction of the Cahaba Iron Works. This land included two detached sites on the Cahaba River and extended from present-day Spring Valley, Westbury and Cherokee Roads on the south to Red Mountain on the north.

Furnace Branch and Shades Creek provided steam power, and after the Cahaba Iron Works began operations in 1864, it became the first blast furnace in Alabama using coke instead of charcoal for making pig iron. The furnace ceased operations in 1873 when it closed and the owners left the area.

According to Carey B. Oakley, assistant director of the Alabama State Museum of Natural History, Division of Archaeology, plans are now under way to do an archaeological assessment of the ruins in order to restore and preserve the site for a park.

A committee made up of park board members and employees, other city workers, a historian and concerned citizens will take action to begin the clearing of the ruins around February 1, and continue through April or May.

C.S.S. ALABAMA

If Kevin Foster, interim director of the Confederate Naval Museum in Columbus, has his way, the remains of the most famous high seas raider of the Civil War, the CSS ALABAMA, will end up in Columbus. The ALABAMA is now being raised from the sea off the coast of France. "Why not?" asks Foster, 31, an expert on the maritime history of the Civil War. "....This is the only museum in the world devoted entirely to the history of the Confederate Navy", Foster says. "The Confederate Naval Iron Works was located here during the war. It turned out gunboats and built engines for a great number of Confederate Navy Vessels. Engines for the majority of the ships of the Confederate Navy were designed here. Columbus was a center of industrial activity during the war. The city had a worldwide impact during that time."

The CSS ALABAMA, a legendary vessel to Civil War buffs, was built in Birkenhead, England, in 1862 for the Confederacy. In 21 months of action, it captured 64 Union ships, burning and sinking 55 of those; took thousands of prisoners and seized more than $5 million worth of supplies. On June 19, 1864, the ALABAMA went down in a point-blank fire fight with the USS KERSARGE seven miles off the coast of France near Cherbourg. Foster says the ALABAMA's remains were located in 190 feet of water by the French in 1984. Although only about a third of the famous warship remains, he says interest in the salvage of the ALABAMA is intense around the world. Among competitors for the relic are Mobile, Alabama, hometown of Raphael Semmes, captain of the ALABAMA; the Confederate Naval Historical Society of Richmond, Virginia; and a trust in England, where the ship was built and largely crewed. Columbus is considered a serious contender partly on the basis of a proposed plan to build a new $14 million museum on the Chattahoochee riverfront by 1994.

(From an article in "Chattahoochee Tracings" - Volume 20, Winter 1989)

PETROGLYPH NATIONAL MONUMENT

On November 15, 1989 the Senate Energy Committee sent to the Senate floor S.286, legislation establishing a Petroglyph National Monument west of

Albuquerque, New Mexico. This site, the West Mesa Petroglyphs, is on the National Trust's list of the nation's 11 most endangered nationally significant historic places.

(From "Preservation News" - January 1990)

SHIPWRECK PROTECTION

The Abandoned Shipwreck Act of 1987, which became law in the spring of 1988, is being challenged in federal court. The National Trust joined archaeology and maritime-history organizations in a near decade-long struggle to pass the law, which gives states ownership of historic vessels within their waters. Harry Zych, a treasure salvager, has requested that, under provisions of admiralty law, the federal court grant him the right to salvage the Lady Elgin and the Seabird, two historic shipwrecks in Lake Michigan. Zych contends that the shipwreck law's transfer of ownership of historic vessels to state governments is unconstitutional. The State of Illinois is defending its ownership of the shipwrecks.

(From "Preservation News" - January 1990)

NPS URGES PRIVATE LANDOWNERS TO PRESERVE THEIR ARCHAEOLOGICAL SITES

The National Park Service has issued a report (Technical Brief No. 6) entitled "The Kentucky Archaeological Registry: Landowner Participation in Site Preservation". The report urges landowners to make a commitment to preserve and protect their significant archaeological sites.

This publication describes the Kentucky Archaeological Registry created through a unique cooperative program between the Kentucky Heritage Council and the Kentucky State Nature Preserve's Commission and addresses the problem of protecting archaeological sites located on private property.

Modeled on the Nature Conservancy's nationally successful program for protecting privately owned natural areas, the Registry represents a way to involve private landowners in the protection of Kentucky's significant archaeological sites. Landowners who make a commitment to preserve and protect their sites are presented awards to recognize these commitments. In addition, they participate in public education activities that promote protection of Kentucky's archaeological heritage. The owners are provided management assistance and informed about stronger preservation options available to them.

Technical Brief No. 6 is available free of charge by writing to: U.S. Department of the Interior; National Park Service; Archaeological Assistance Division; Publication Specialist; P.O. Box 37127; Washington, D.C. 20013-7127.

PUBLICATIONS AVAILABLE

Available issues of *Journal of Alabama Archaeology* Vol. 20-29 each issue ..... ($2.50 to Members)	$5.00 pp
Stanfield-Worley Bluff Shelter Excavations (Journal of Alabama Archaeology) Vol. VIII Nos. 1 & 2 - Reprint, each issue	$5.00 pp
Special Publication 1 — Fort Mitchell	$2.00 pp
Special Publication 2 — *The Archaeological Sequence at Durant Bend, Dallas County Alabama*	$4.50 pp
Special Publication 3 — *Archaeological Investigations at Horseshoe Bend*	$6.50 pp
Handbook of Alabama Archaeology Part 1, Point Types	$10.00 pp
Lively, Long, Josselyn - *Pebble Tool Paper*	$3.00 pp
Investigations in Russell Cave, published by the National Park Service	$7.50 pp
Exploring Prehistoric Alabama through Archaeology (Juvenile)	$7.00 pp

CHECKS SHOULD BE MADE PAYABLE TO: **ALABAMA ARCHAEOLOGICAL SOCIETY**
SEND CHECKS TO: **MR. EUGENE FUTATO, Office of Archaeological Research**
1 Mound State Monument, Moundville, Alabama 35474

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