

# Alabama Archaeological Society

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MEMBER OF THE EASTERN STATES ARCHEOLOGICAL FEDERATION

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## STEVEN B. WIMBERLY SCHOLARSHIP FUND

During the annual Society meeting in November 1982, the Society established the Steven B. Wimberly Scholarship Fund as a memorial to the late Steve Wimberly. Contributions may be made to the fund by checking the appropriate box on the back page of this issue.

## 1983 DUES

1983 Society dues are payable now. See the back page of this issue of the STONES & BONES for categories of membership and amount due.

## INTERESTED IN FORMING A NEW CHAPTER OR REACTIVATING AN OLD CHAPTER?

Members in the Tuscaloosa area will be interested to learn that efforts are under way to reactivate the Tuscaloosa Chapter. Those interested in participating in the A.A.S. through a chapter can help get the ball rolling by contacting:

Mr. John A. Adkison  
3020 Eutaw Highway  
Tuscaloosa, Alabama 35401

All that is required is a minimum of 15 adult A.A.S. members who wish to associate as a chapter, the election of officers, and the submission of a chapter constitution to the Board of Directors for approval. There are no fees or other costs associated with such chapter affiliation, but the chapter and its constitution must be approved by the Society Board of Directors. The new chapter president automatically becomes a member of the Board of Directors.

The Society Secretary can provide answers to specific questions which may arise, including copies of sample constitutions and bylaws. See address on the last page of this issue.

The Editors

January 1983

## TENNESSEE ANTHROPOLOGICAL ASSOCIATION

The A.A.S. Journal Editor, Eugene Futato, authored an article which appeared in the fall issue of the Tennessee Anthropologist, Volume VII, No. 2, 1982. Entitled "An Outside View of Middle Woodland Chronology in the Normandy Reservoir Area", the article develops parallels between the Woodland sites in northwest Alabama and eastern Tennessee. Futato believes that the data from the Alabama sites "may be used to modify current chronological schemes for the Normandy Reservoir" in Tennessee. Good reading!

Full membership in the Tennessee Anthropological Association (\$10) obtains the TAA Journal, Newsletter, and Special Publications.

Also available through the TAA is Miscellaneous Paper No. 8, entitled "The McFarland Project: Early Middle Woodland Settlement and Subsistence in the Upper Duck River Valley in Tennessee", by Gerald W. Kline, Gary D. Crites and Charles H. Faulkner. This publication has been sent to all 1982 TAA members. It is available to nonmembers for \$4 plus \$.80 postage.

To join the Tennessee Anthropological Association or to order Miscellaneous Paper No. 8, write:

Secretary-Treasurer  
Tennessee Anthropological Association  
Department of Anthropology  
South Stadium Hall  
University of Tennessee  
Knoxville, Tennessee 37996-0720

The Editors

## THE ANCIENT CANAL THAT TURNED UPHILL

Eight hundred years ago, without a written language or calculus, the Chimú, a civilization on the northwest coast of Peru, built a 50-mile canal. Their methods of hydraulic engineering were unknown to Europe and North America until the late 19th century. Yet after 50 years of toil that employed 5,000 workers, La Cumbre canal was abandoned near completion and never carried a drop of water.

The Chimú achieved a technical feat, but the ultimate fate of La Cumbre makes it one of the world's most intriguing archaeological mysteries. A team of archaeologists, hydraulic engineers and geologists, sponsored by the Field Museum of Natural History in Chicago and the National Science Foundation, has been studying the canal since 1976. Recently hydraulic engineer Charles Ortloff and archaeologists Michael Mosely and Robert Feldman published preliminary findings.

By 1400, the Chimor dynasty of the Chimu civilization ruled a 1,000-mile coastal empire that stretched from southern Ecuador to central Peru. In pre-Columbian South America, this empire was second in size only to that of the Incas. Possibly the largest adobe city in the world, the capital city of Chan Chan was populated primarily by the ruling elite and a privileged class of priests, technicians and craftsmen. When watered from irrigation canals and wells, Chan Chan's agricultural fields and gardens flourished.

But water was a critical problem, for Chan Chan is located in one of the world's driest coastal deserts, between the Pacific coast and the western Andes. Except for a downpour every 25 years or so, rains barely wet the ground. The average annual rainfall is less than one-tenth of an inch.

Apparently water sources began drying up when movements in the Earth's crust made the water table drop, so Chimu rulers decided to divert water through a canal from the Chicama River some 50 miles to the north. Because the Chimu lacked a written language, archaeologists have had to rely almost entirely on excavation and analysis of La Cumbre's rubble. The Chimu carefully surveyed and built the canal through difficult foothill terrain between two valleys. They constructed elaborate terraces and aqueducts more than 10 stories high on mountainsides that sloped at a dizzying 60 degrees. But the first survey turned up some puzzles: some sections of the canal, for example, run uphill.

Clues to La Cumbre's failure began to emerge with aerial photographs, studies of erosion patterns in stream beds, and the discovery of fault and shear planes in the Earth's crust. The planes indicated that large blocks in the Earth's crust had moved, tilting the slopes uphill. The Field Museum study concludes that the present topography is not the same as the one that Chimu engineers originally faced and that they were defeated by geological changes during construction.

To learn how these changes affected La Cumbre's original design, Ortloff measured a section of the canal's channel for its bottom width, sidewall angle, and sidewall roughness - characteristics that present-day engineers manipulate to achieve the best flow of water. He then made a computer model of La Cumbre.

Ortloff found that the canal probably would have met modern standards, but the Chimu were thwarted by the shifting Earth. There are indications that the Chimu tried to correct for it; some sections of the canal were rebuilt four times. But the builders apparently gave up around 1300. About a century later the Incas overran Chan Chan and broke up the Chimu empire. By the time Pizarro arrived in 1532, the adobe city of Chan Chan was empty.

How the Chimu built La Cumbre remains unknown. The channel designs indicate that they had developed, without writing, an advanced science of hydraulics. Feldman speculates that they relied on thousands of years of observations rather than on calculations. The technology could have been passed from generation to generation through ritual and memorization.

Ortloff notes that the precise surveying required through the foothill and dune areas would be difficult even with modern aerial photography, photogrammetry, and lasers. The study team speculates that the Chimu used such basic instruments as a plumb bob, rope, and wooden rod to take hundreds of sightings to get reliable results.

Peruvian archaeologist Raphael Larco Hoyle has found depictions of runners carrying bags of colored beans on the pottery on Chimu ancestors. Excavations in the area have uncovered stone, clay, and wood plates with grids plotted on them. Perhaps by shifting markers from box to box on the grids, the Chimu were able to record survey data and make design calculations.

Although the region is still seismically active, a multinational project costing several hundred million dollars is currently under way to construct a large canal system in a valley north of La Cumbre. Feldman says he is preparing a report for the Peruvian government on why La Cumbre never worked, but he isn't confident that the project engineers will take a lesson from the history of tectonic movement in northern Peru.

(Article by Bruce Hathaway in SCIENCE, October 1982)

The Editors

#### BOOK REVIEW

FORT CENTER: An Archaeological Site in the Lake Okeechobee Basin.  
By William H. Sears. University Presses of Florida, Gainesville, 212 pages.

Sears is one of the foremost archaeologists in Florida and the southeast, and his careful and dedicated methods show up in the work at Fort Center. Fort Center was a site occupied for some 2,000 years up to and including the historic period. The site was ditched and drained by the Indians and mounds raised in some areas. Sears believes the site to be Hopewell-related due to many of the similar manifestations found there.

The most significant aspect of the site was the discovery of the remains of a burned raised platform that was used as a charnel house. When the platform burned, it collapsed into the pond. Much of the material was preserved in the pond muck, including elaborately carved wooden figures and the remains of at least 150 individuals. The caretakers of the charnel house lived on the premises and may have raised their own food on nearby raised fields or the food may have been brought to them. Based on the corn and other foodstuffs found, Sears was unable to positively determine if the corn was raised on the site. This phase began about 100-200 A.D. and continued for 600 to 800 years. The charnel house function seems very similar to those encountered in the southeast in early historic times. This book is fourth in the "Ripley P. Bullen Monographs in Anthropology and History" series and is well illustrated with photographs, tables and drawings. Sears' writing style is candid and refreshing, and he has the

courage to propose reasons and conclusions. This is an unusual site and a good report - we recommend it for both the professional and amateur.

The Editors

## CHAPTER NEWS

### Cullman Chapter

The meeting for December was a dinner at Roberts' in Hartselle on the 15th.

### Huntsville Chapter

The Huntsville Chapter met on December 21 to elect officers for 1983: President - Larry Warren; First Vice President - Roy Blair, Jr.; Second Vice President - John L. Williams; Secretary/Treasurer - Nancy Rohr; Librarian - Georgia Dunn. A workshop session took the place of a formal program.

The Huntsville Chapter meets the third Tuesday of each month in the Arts Council Conference Room, Von Braun Civic Center, at 7 p.m. The January 18 program will be a slide presentation narrated by Melinda Herzog, Huntsville Chapter member and Director of the Burritt Museum on Monte Sano Mountain. Ms. Herzog will speak on "The Adaptation and Formation of Anglo Log Structures from Aboriginal Origins, with a Description of Ethnic Cultural Influences on their Stylistic Differences."

### Muscle Shoals Chapter

The Chapter held its Christmas supper meeting at the Western Sizzlin Restaurant in Florence on December 13. Twenty members and guests attended the meeting. Charles and Mary-Eliza Moore presented a slide narration of Chaco Canyon in New Mexico and Canyon de Chelly in Arizona. The next meeting will be at 7:15 p.m. at the Indian Mound Museum in Florence on Monday, January 10, where Houston Wright of Huntsville will present a program.

## BOOK REVIEW

ALONSO DE POSADA REPORT, 1686: A Description of the Area of the Present Southern United States in the Seventeenth Century. Translated and edited by Alfred B. Thomas and published as Volume IV of The Spanish Borderlands Series by the Perdido Bay Press, Pensacola, Florida, 1982. This soft-bound book with 69 pages and fold-out maps may be ordered for \$8.95 from the Perdido Bay Press; Route 2, Box 323; Pensacola, Florida 32506.

Thomas, Professor Emeritus, University of Alabama, has worked several years on this work and, as a one-time student under the respected specialist of Spanish Borderland history - Professor Herbert E. Bolton - he is well qualified for such a difficult task of accurately translating 17th century Spanish.



The report was commissioned by the King of Spain in 1685 and Fray Alonso de Posada, who had arrived in New Mexico in 1651, was selected to compile the report. He had been a missionary and head of the missions on the northern frontier for some 15 years. The report covers the area from the Colorado River across the southern part of the U. S. to the Atlantic Ocean and up the coast to Labrador. The report is important for three reasons: 1) identification of rivers, mountain ranges, coastal bays and other place names; 2) Indian tribal relationships of the period - especially the Plains region - and 3) international rivalry between Spain and France for the control of the Gulf of Mexico. Little is known of the southern interior region between De Soto/Le Luna expeditions and the French settlements in the early 18th century, and this work makes a contribution toward filling that gap.

The Editors

#### ALABAMA HISTORICAL COMMISSION NEWS

The Board of Advisors of the Alabama Historical Commission has conducted a survey of publications available from the various historical societies. This resulted in a printed listing of these publications, which is available through the AHC. Write to Alabama Historical Commission; 725 Monroe Street; Montgomery, Alabama 36130.

Mr. Edwin C. Bridges is the newly appointed director of the Alabama Department of Archives and History, filling the position of the late Milo B. Howard, Jr.

The Athens-Limestone Community Association has acquired the former Trinity High School, located on a Civil War battlefield.

(From "Preservation Report", quarterly publication of the Alabama Historical Commission; Volume X, Number 3, Summer 1982)

The Editors

#### PRESERVED BONES REVEAL FIERY DEATH AT HERCULANEUM

Since the discovery of Herculaneum in 1706, scholars had been confident that most citizens of this small, prosperous community on the flanks of Italy's Mt. Vesuvius escaped when the volcano erupted in August A.D. 79. But recent excavations reveal people trapped in passageways in the ancient town, and what then was the beach is littered with skeletons of men, women and children buried alive by cascades of volcanic debris even as they launched boats in a desperate attempt to flee.

Nearly 2,000 years ago the volcanic eruption destroyed Pompeii, Herculaneum and several other towns near the Bay of Naples. So far, more than 80 skeletons have been found at Herculaneum, researchers announced this week at the National Geographic Society in Washington, D. C. The discovery is notable because the bones are the first sizable group of Roman skeletons to be studied scientifically. Sara Bisel, a physical anthropologist who is leading the preservation and analysis of the ancient bones, says previous sources of information about the Romans have been writings, sculpture and paintings - but that few actual bones have been found. Analysis of bones can provide missing details about diet, life-span, stature and longevity.

To demonstrate, she gestured toward the preserved skeleton of a soldier found face-down on the beach, his decorated scabbard still at his side. Flattening of specific bones indicates where thickened muscles flexed repeatedly as he threw a javelin and wielded his heavy shield. His teeth are in good condition, possibly because of the low sugar content of the Roman diet, she suggests. Like many other Herculaneans, he was rushing toward the shore when part of the volcano collapsed after the initial eruption, sending a mixture of hot gas and pumice flowing down the mountain. Haraldur Sigurdsson of the University of Rhode Island said the blast was 10 times more powerful than the eruption of Mt. St. Helens in May 1980.

When the first skeletons were found, Giuseppe Maggi, director of the excavation, called upon the National Geographic Society for assistance in preserving the bones, which decompose rapidly when exposed to air and water. So far, 36 skeletons have been dismantled and dipped in an acrylic-resin solution that slows their decay.

At Pompeii, 10 miles away, no skeletons have been found, but plaster casts made of holes in the ash deposits trace the agonized death postures of the buried people. Herculaneum was covered by volcanic mud flows, rather than ash. As the bodies decayed, the mud closed around the bones and preserved them, Maggi said.

(Article by C. Simon in "Science News", November 20, 1982)

Footnote: There was also an article with photographs in the December 1982 National Geographic Magazine.

The Editors

## PUBLICATIONS AVAILABLE

Available issues of <i>Journal of Alabama Archaeology</i> Vol. 13-18 .....	\$1.00 pp
Vol. 20-24 (\$2.50 to Members) .....	\$4.00 pp
<i>Stanfield-Worley Bluff Shelter Excavations</i> (Journal of Alabama Archaeology) Vol. VIII Nos. 1 & 2 - Reprint .....	\$5.00 pp
Special Publication 1 — Fort Mitchell .....	\$2.00 pp
Special Publication 2 — <i>The Archaeological Sequence at Durant Bend, Dallas County, Alabama</i> .....	\$4.50 pp
Special Publication 3 — <i>Archaeological Investigations at Horseshoe Bend</i> .....	\$6.50 pp
<i>Handbook of Alabama Archaeology Part 1, Point Types</i> .....	\$7.35 pp
Lively, Long, Josselyn - <i>Pebble Tool Paper</i> .....	\$3.00 pp
<i>Investigations in Russell Cave</i> , published by the National Park Service .....	\$5.00 pp
<i>Exploring Prehistoric Alabama through Archaeology</i> (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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