

CONTEXT



Twelve year old Eugene Davis (center), here assisting Elaine Makas and Donnie Loveday at Galways Plantation. See page 6.

Castro de Lanhoso, Portugal: Results of the First Season

by Karl M. Petruso

One of the most spectacular geological features of the Iberian peninsula is the granite outcrop near Póvoa de Lanhoso in the Minho province of northwestern Portugal. The well-preserved Medieval castle on its summit (Fig. 1), visible from afar, tempts tourists to stop for a short visit. Much less visible, however, on the heavily forested eastern terraces of the outcrop, are the remains of a modest settlement of the Iron Age. The site was discovered during construction of the automobile road to the summit of the hill nearly 50 years ago, and was excavated by the late Dr. Carlos Teixeira, an eminent geologist and former professor at the University of Lisbon. The settlement is one of several thousand fortified hilltops of the culture today labeled "castrejan." They were occupied in the centuries before the Roman intrusion into western Iberia. Castro de Lanhoso, as our site was christened by Teixeira, is best known for two splendid gold torques and a complete bronze helmet discovered in the 1930s.

During July and August, 1982, Boston University began new excavations at Castro de Lanhoso. With the kind and generous support of Sr. Francisco de Sande Lemos, president of the Unidade de Arqueologia of the Universidade do Minho, and his colleague Sra. Manuela Martins, an authority on the castrejan culture, I directed an archaeological field school in which nine undergraduate students participated. Mr. William K.

Barnett, a graduate student in our Department of Archaeology, was teaching assistant and site architect. The students earned eight credits for participation in the field school, under the auspices of Boston University Summer Term. The Whittlesey Foundation of Wilton, Connecticut, provided partial funding, which we gratefully acknowledge.

Although our total time in the field was brief during this first season, we were able to make substantial progress. We completed a contour map of the area under investigation (no site plan had been published by the earlier excavators), and conducted the first detailed stratigraphic excavation of the site. A glance at the site plan (Fig. 2) will reveal one of the major practical problems we faced: the eastern slope of the hill is extremely steep, averaging 44° drop in elevation from west to east. The terraces on which the buildings were situated are quite narrow, and the site suffers everywhere from erosion by runoff. Nonetheless, we were able to recover fragmentary remains that suggest the overall settlement plan, as well as distinct phases of occupation in some areas.

The architecture at Lanhoso is characteristic of the Iron Age of northwestern Iberia. Most of the houses are round in plan, constructed with small granite stones laid without mortar. Most houses measure between three and four meters in diameter, and were laid out quite carefully. Some have small rectangular annexes that might have functioned as animal pens. One more or less complete house plan (excavated by Teixeira), as well as arcs of walls of

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Digging Up Boston

The following editorial from the September 25, 1982 Boston Globe, written by Otile McManus, gave Massachusetts archaeologists new hope that citizens of the Commonwealth are gaining an awareness of what we are losing through the inexorable destruction of Boston's buried history. For the Boston Globe to come forward with a firm commitment to preserving Massachusetts' cultural and historical heritage and furthermore to urge that a Boston archaeologist be hired to oversee the city's below-ground historical riches makes us hopeful that our concern for Boston's past is one that is widely shared. We reprint the editorial here with permission of the Boston Globe because we know that although the interest in urban archaeology is spreading, we are still a long way from being assured of learning all we can about Boston's growth and development as a major urban center. We join with the Boston Globe in supporting the establishment of a position of an archaeologist for the city of Boston.

Historic preservation has long focused on buildings and facades that point to the past at street level, but recent archaeological digs in downtown Boston dramatize just how much of the city's history lies underground.

Two excavations completed in the last month in the Quincy Market area unearthed artifacts—shoes, clay pipes, nails, a dram cup—that will help archaeologists piece together more information about life in 17th century Boston and along the city's 19th century waterfront as well.

Local archaeologists convinced developers to subsidize both efforts, which shows that developers and archaeologists aren't necessarily natural enemies. Still the projects were only initiated as afterthoughts, informal arrangements, once work began at the construction sites. This shows just how far Boston lags behind places where archaeological questions are addressed systematically before the cranes and piledrivers move in.

Across the country, cities of comparable size and history have appointed archaeologists to staff jobs in preservation offices. Others have hired them on a consulting basis to survey review, and protect sites, supervise development and work with developers.

Archaeologists in Alexandria, VA, which has the country's most ambitious and successful municipally funded program, have catalogued hundreds of artifacts that speak volumes about life for gentry and servants during the 18th century. In the midst of recent subway construction, archaeologists in Washington, D.C., uncovered remnants of a free black community that will provide invaluable information about emancipated plantation slaves' adjustment to urban life after the Civil War. Archaeologists in New York City are looking for clues to what happened to Dutch settlers after the English took over in 1664. Did they live in separate communities. How long did assimilation take? Shards of English

News from the Center

Pilgrim Sites of Early Plymouth

Professor Mary Beaudry and research assistants Douglas George and Donald Jones have begun work on an 18-month project involving collections from several early Plymouth Colony sites. The National Endowment for the Humanities has awarded Professor Beaudry a \$25,000 grant that will provide funding for the preparation of reports on at least three Pilgrim sites excavated in the 1940s by Henry Hornblower, J.O. Brew, and others. The collections from the R.M., Edward Winslow, and Hohn Howland sites are housed at Plimoth Plantation, an outdoor museum founded by Henry Hornblower. The project will result in a monograph that will describe the sites and give a catalog of the finds from each. Work thus far indicates that significant information about life in 17th century Plymouth Colony may

still be gleaned from an analysis of these long-neglected archaeological materials.

Models in Paleoanthropology

John Shea recently received 1st prize for the best undergraduate student paper for 1982 at the regional meeting of the American Anthropological Association. Mr. Shea, a senior in the Archaeology Department this past year (B.A. 1982), plans to continue his studies in Anthropology and Archaeology at the graduate level in 1983. This spring he will participate in the Belize Archaic Archaeological Reconnaissance, directed by Professor Richard MacNeish. The Center and the Department congratulate John on the completion of his undergraduate studies and the receipt of this prestigious award. The following is the abstract of his paper, titled "Models in Paleoanthropology".

It is observed in this paper that paleoanthropological models of hominid subsistence behavior rely heavily on analogy with living human and non-human primate populations. This pattern is typical of much paleoanthropological debate, mutually-contradictory ana-

log models accounting for the same phenomenon.

The nature and use of iconic, analog, symbolic, and theoretical models in science in general and particularly in paleoanthropology are explored. Examples of each model type are taken from current paleoanthropological literature.

The present debate over models of hominid subsistence behavior is examined by the comparison of the three most popular models of hominid subsistence and origins: the Killer Ape Model, the Seed Eater Model, and the Savanna Chimpanzee Model. All three are mutually-contradictory analog models. The present state of paleoanthropological research is insufficient to eliminate one or more of these models.

It is concluded that the nature of paleoanthropology as an historical science contributes to the creation of situations such as the one described here by the unique requirements of a paleoanthropological explanation. The resolution of the debate over models of hominid subsistence lies in the skillful

and Dutch pottery and other household items hold some answers.

Unfortunately, archaeologists are still drawn as dusty old fuddy-duddies preoccupied with Mayan ruins or Etruscan coins at the expense of everything else. The caricature is unfair. Archaeologists are detectives of human behavior. They can read trade patterns, economic conditions, and class differences into artifacts.

Urban archaeology, a relatively recent undertaking spurred by urban renewal and downtown development since the sixties, has been helped by the National Historic Preservation Act of 1966 and the 1969 National Environmental Protection Act, which recognize archaeological remains as part of the country's cultural resources. These laws ensure that any construction project receiving federal funds or requiring federal permits comply with standards which protect archaeological sites.

State law requires that staff archaeologists working for the Mas-

sachusetts Historical Commission conduct surveys, recommend sites as archaeological landmarks and issue permits to anyone conducting field investigations on state land or land owned by cities and towns. They do an admirable job but the state archaeologist's office is overworked. It can't possibly keep up with what is happening in Boston, especially with respect to private development.

The city could ameliorate this problem by appropriating additional funds for the city's preservation office so that a full-time or part-time archaeologist could be hired. Appropriating money to conduct a comprehensive archaeological survey of the city and establishing guidelines for private developers would provide a less expensive alternative. Perhaps the city could require developers to set aside a small percentage of construction costs to pay archaeological expenses. New York City offers developers a tax break in return for picking up excavation costs. Alexandria depends on vol-

unteers to assist its paid staff of three.

This is a crucial time for urban archaeology. According to some estimates, sites are being lost at the rate of two a day and could disappear altogether by the year 2000. New construction techniques and natural erosion along river beds and waterfront property have already consumed many important sites.

Preservation has always been a throw-the-little-old-lady-in-front-of-the-bulldozer operation in this city. Right now Boston spends only \$190,000 a year to support the work done by its Landmarks Commission in conjunction with its Art Commission, Conservation Commission and Back Bay and Beacon Hill Architectural Commission. That's peanuts. Boston depends on its past, makes money on its history and trumpets its superior heritage at almost every opportunity. For that reason, preservation and urban archaeology should be of more than peripheral concern.

application of "normal scientific" techniques of paleoanthropological investigation.

Archaeology for High School Students

Nancy Seasholes, a graduate student in the Department of Archaeology, used her archaeological training to help design and conduct workshop sessions for Cambridge Public School teachers on the history of Cambridge, Massachusetts. The workshop was financed in part by a grant from the National Endowment for the Humanities, and was administered through the Harvard Graduate School of Education under project director Elizabeth Cori-Jones.

This year the teachers will be using material from the workshop to develop a resource book on Cambridge history from an archaeological point of view. At present, most of the sixth grade social studies curriculum is a study of ancient civilizations and it is hoped that an introductory unit on a more familiar society, Cambridge, will help the students

understand the rest of the year's subject matter. Ms. Seasholes plans to develop a course using a similar interdisciplinary approach, focusing on Boston, as the subject of a seminar at the Center for Archaeological Studies.

The Byzantine Studies Conference, 1982

Boston University and the Center for Archaeological Studies were well represented at the eighth annual Byzantine Studies Conference held in Chicago this past October 15-17. Four Center members presented papers on their research in this rapidly growing field. James Wiseman, Director of the Center for Archaeological Studies, and members Lucy Wiseman and Elizabeth Gebhard (Professor of Classics, University of Illinois at Chicago Circle) also attended the conference.

Michele Salzman, Assistant Professor of Classics, spoke on "Concorniates and the Calendar of 354: New Evidence". Professor Salzman's paper was presented in a session titled *Christianity and Pa-*

ganism that explored and challenged the traditional scholarly perception of pagan-Christian conflict in the 4th and 5th centuries A.C.

Emily Hanawalt, also of the Classics Department, chaired a session on Byzantine literature. Topics discussed in this session were: Byzantine literary criticism, the *Vita Maximi Confessoris*, the epic *Digenis Akritas*, and the theological correspondence between Gregory II of Constantinople and Theodora Raoulaina in the thirteenth century.

Two papers on the Boston University Archaeological Project at Stobi were presented in a session titled *Late Antique and Early Byzantine Art and Artifacts*. Caroline and Frederick Hemans discussed the frescoes and architecture of the 4th and 5th centuries Episcopal Basilica complex at Stobi. Reconstruction and interpretation comprised the focus of their discussion on this important ecclesiastical foundation of the Early Christian period.

Continued from page 1.

several others, may be seen on the site plan.

Since our efforts in 1982 were directed at the recovery of the stratigraphy (our 2 m. x 2 m. trenches may be seen on the plan), we exposed very little new architecture. Among the thousands of sherds of typical castrejan pottery (which are primarily micaceous fine wares of buff color, incised with simple curvilinear motifs), we have found a surprisingly high proportion of pottery of presumed Bronze Age date (before ca. 700 B.C.). The Bronze Age pottery, labeled "Penha" after a site near Guimarães, some 20 kilometers from Lanhoso, tends to be coarse, dark, and incised with broad and deep rectilinear patterns (Fig. 3). While we were unable to isolate uncontaminated deposits of Penha pottery in 1982, we recovered it in quantities large enough to enable us to suggest that the hill was occupied before the Iron Age. Very little is known about Bronze Age settlements in northwestern Portugal, and sites known to have been occupied in both the Bronze and Iron Ages are rare indeed.

Samples of both castrejan and Penha wares were brought back to Boston, and are currently being analyzed by Ms. Georgeana Little, a graduate student in the Department of Archaeology. Among other things, Ms. Little is investigating whether there are any differences in clay composition and firing temperature and techniques between the two types. It is hoped that the results of her analysis will enable us to make distinctions between the wares on other than visual grounds. One of the greatest deficiencies in our understanding of the pre-Roman ceramic sequence of northwestern Iberia concerns absolute chronology. For the period before Roman occupation (which began in the 2nd century B.C.) virtually no absolute dates can be attached to the pottery. We plan to carry out thermoluminescence dating on our pottery samples during the coming year, and we thus look forward to making a substantial contribution to the prehistory of

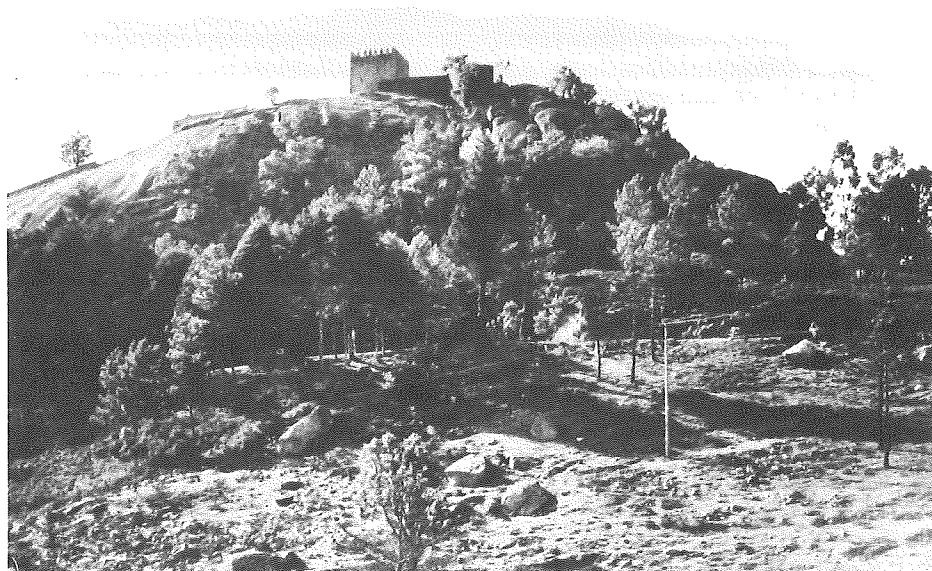


Figure 1: Granite outcrop of Lanhoso: general view.

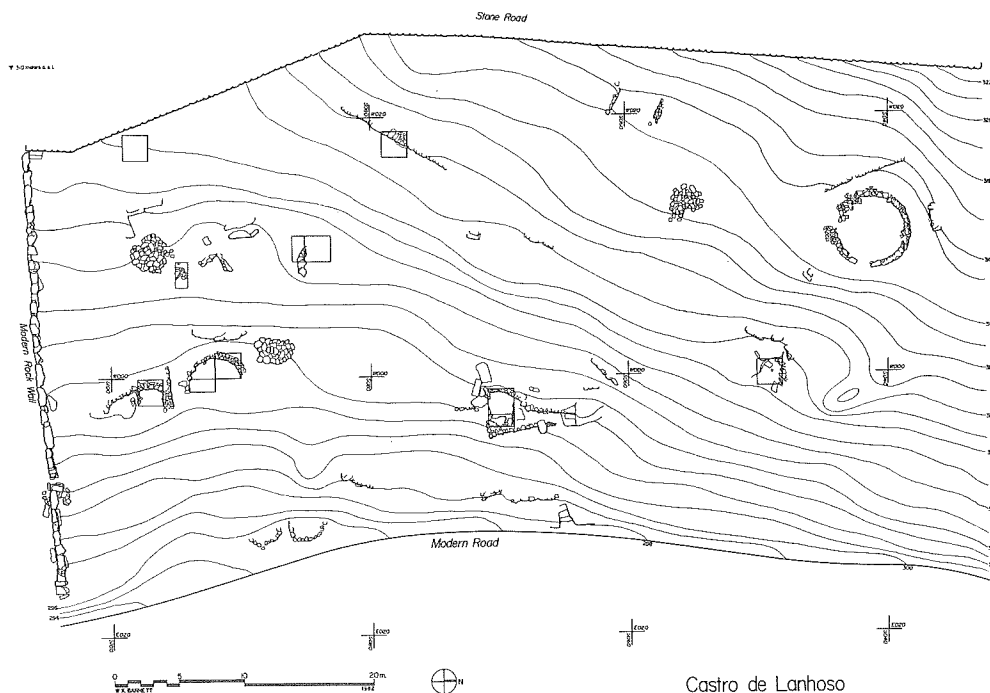


Figure 2: Castro de Lanhoso: area investigated in 1982 (plan drawn by William K. Barnett).

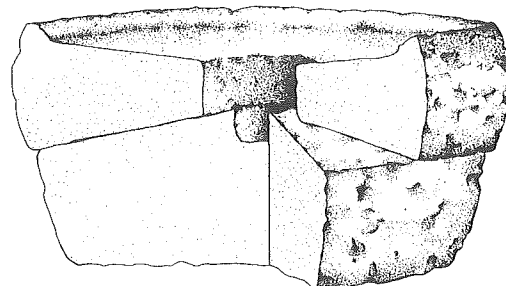


Figure 5: Rotary milling stones, cut-away view. Foodstuff to be ground is poured into upper (concave) element (drawn by Eric J. Brunnemann).

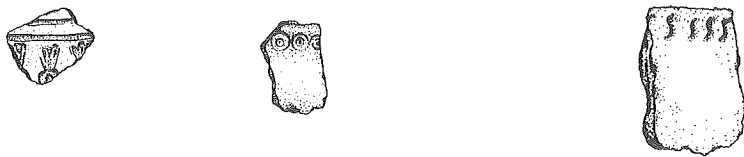


Figure 3: (a) Above: decorated sherds of castrejan pottery. (b) Below: decorated sherds of Penha pottery. (drawn by Eric J. Brunnemann).

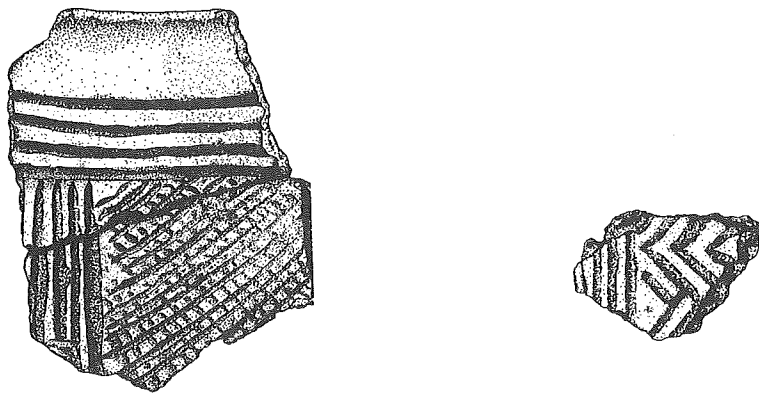


Figure 4: Relief sculpture found in a round house. Height ca. 0.50 m. (drawn by Eric J. Brunnemann).

Portugal.

Aside from the ceramics, the site yielded very little in the way of artifacts in 1982. Occasional fragments of small thin-walled glass vessels were recovered, as well as a few minute chips of broken flint blades. We did succeed in relocating a sculptural relief about one-half meter in height, carved on the inner face of an orthostate of a round house that had been excavated by Teixeira. This relief (Fig. 4) is most peculiar. I have been unable to find any close parallels for it, either in style or in subject matter. The face of the figure seems to be a caricature. He holds what appears to be an ax or hoe (such ground-stone implements, made to be hafted on sticks, have in fact turned up at other contemporary sites in the region).

One of our primary concerns during our first season was the collection of data relevant to reconstructing the paleoenvironment and economy of Castro de Lan-

hosos. Toward this end, we collected soil samples from both the modern forest floor and the ancient occupation levels. With the assistance of Professor Gerald Kelso of our Department, we are in the process of extracting pollen from the soil samples in the hopes that we will be able to document both the natural vegetational regime of the site during its occupation, and to recover evidence of domesticated plants which might have been raised on the ancient terraces. At Professor Kelso's recommendation, we also extracted pollen from the grinding surfaces of several rotary milling stones in order to determine what food-stuffs were ground in them (Fig. 5). In this regard it is interesting to quote the Greek geographer Strabo (1st cent. B.C.–1st cent. A.C.), who described the diet of the barbarous hill tribes of this region as follows.

All the mountaineers lead a simple life, are water drinkers, and sleep on the ground . . . They eat goats' meat mostly . . . For two-thirds of the year they eat acorns, which they have first dried and crushed, and then ground up and made into a bread that may be stored away for a long time. (Geography III.3.7)

We hope that our pollen analysis of these milling stones will illuminate us on the subsistence of this hardy Iron Age hillfolk.

It is our expectation that this excavation will continue for many seasons to come (during this first season we concentrated our efforts on the southern end of the site; the site plan shows only about one-quarter of the total area known to have been occupied during the Iron Age). With the collaboration of our colleagues, we anticipate enlarging the scope of the project to include reconnaissance of the region in which Castro de Lanhoso is located. The potential to contribute substantially to the archaeology of northwestern Iberia is great, and Boston University looks forward to participating in this endeavor.

Karl M. Petruso, Assistant Professor of Archaeology and Classics, was Director of the Boston University Field School at Castro de Lanhoso, Portugal, in 1982.

Galways Sugar Plantation: 1982 Season

by Donald Jones

The tiny Caribbean island of Montserrat was once dominated by sprawling sugar plantations. Today, a superficial look at Montserrat reveals little evidence of this plantation system that so drastically influenced the present-day culture on the island, yet the stone ruins that dot the mountainsides—many completely hidden by the jungle—prove that information concerning the history of Montserrat does exist. Recognizing this potential, the Montserrat National Trust now sponsors a project to study this plantation system. Under the direction of Lydia Pulsipher, an historical geographer at the University of Tennessee, and Conrad Goodwin, doctoral student in historical archaeology at Boston University, the project recently concluded its second season of research. A report on the 1981 season appeared in the Spring 1982 issue of Context (Volume 2, Number 1, pp. 4–5). The following is an update on the progress of the 1982 season.

Upper Galways is located at 1100 feet above sea level on the south slopes of the Soufriere Hills. The estate was founded during the 17th century by an Irishman named David Galways, and it probably ceased operation during the 19th century. The ruins visible today include a boiling house, windmill tower, cattle mill, cistern complex, the great house, a stone-

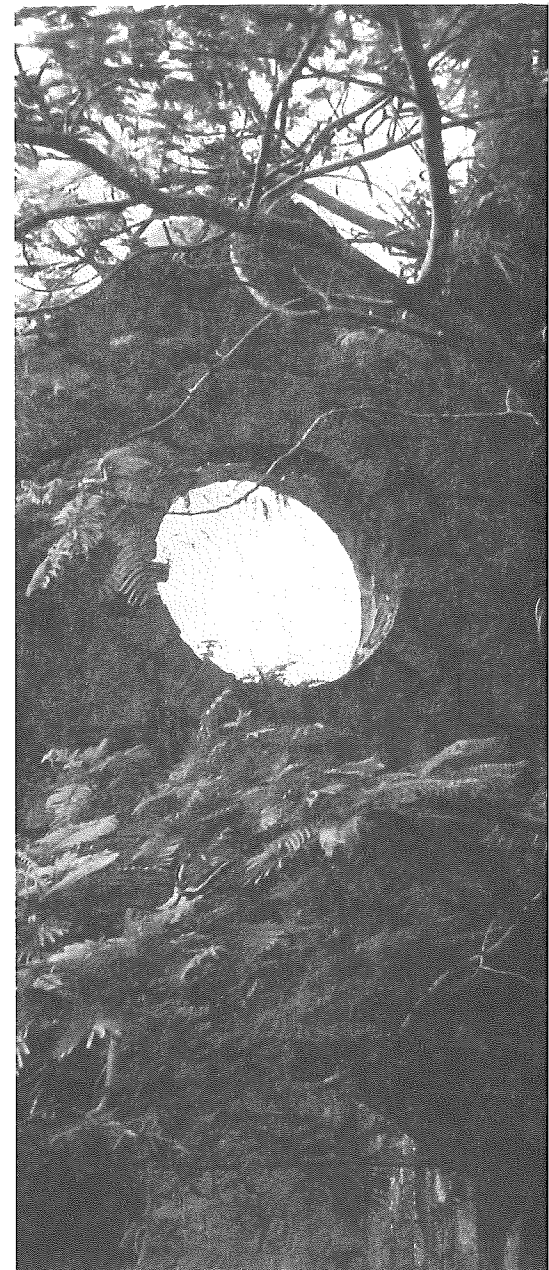
arched tunnel, and various other structures and features of unknown function. This season, we devoted particular attention to three areas of the site: the cistern complex; the boiling house; and the stone tunnel.

As in 1981, our work force was comprised mostly of Earthwatch volunteers. Earthwatch, an organization through which interested laymen can become participants in field research projects around the world, assembled two teams of volunteers—each of which spent three weeks on Montserrat involved in all aspects of the project. Team members ranged in age from teenagers to senior citizens and came from areas as widespread as Tennessee, Texas, and California. In addition to the Earthwatch volunteers, several residents of Montserrat also volunteered their time and energy to the project. With the dedication of these people, we were able to follow up leads from 1981 and enjoy a rewarding season of research.

The cistern complex—an array of at least five stone cisterns arranged in a spiral, stairstep fashion—was originally interpreted as a system for the collection and storage of water. By the end of the summer, however, an exciting new theory gained considerable support. The cisterns may have been used in the production of rum. Excavations revealed the presence of ash and large quan-

ties of metal artifacts within the central portion of the cistern complex, and these associations suggest this may have been the location of a still. The cisterns, then, may have been used as storage vats for water, fermentation, and rum, neatly arranged around the still for easier access.

The boiling house is a beautifully constructed stone building ca. 72 feet long and 27 feet wide. The architecture is such that the aesthetics of the structure must have been as important to its builders as its functional considerations. Five crew members spent two weeks preparing a scaled, stone-by-stone drawing of the east elevation of the boiling house. Not



Principal Investigator Dr. Lydia Pulsipher and Ed Grey, a psychiatrist from Texas, excavate a portion of the caved-in tunnel that once carried water through the plantation as seven year old Thomas Boston looks on.



only did this provide a permanent, detailed record of its appearance, but it also forced us to look at the details of construction much more closely than if we had simply taken a photograph. This proved rewarding as we discovered an interesting stone decoration over the doorway and a stone compartment built into the wall, two features that had previously gone unnoticed!

Test pits revealed that a stone wall is located about 5 feet from and parallel to the east wall of the boiling house. We originally interpreted this structure to be a retaining wall, and we also thought that the fill between this wall and the boiling house represented the

builders' trench, that is, the trench dug for the foundation of the boiling house and subsequently filled with construction debris. Excavation, however, produced unexpected results. At a depth of ca. four feet a stone floor was revealed. The discovery of this pavement alters tremendously our interpretation of the boiling house. First, the boiling house now appears to have been four feet higher in elevation, changing the overall aesthetics of the architecture. Secondly, what was thought to be construction debris can now be seen as destruction debris that was deposited after the building fell into disuse. Therefore, the dates provided by the artifacts recovered from that fill do not correspond to the construction of the boiling house, but are instead associated with its abandonment or its post-abandonment period.

The third structure investigated was the tunnel. The interior of the tunnel is ca. 2.5 feet wide and 3 feet high from its bedrock foundation to the center of the arched ceiling. It extends for at least 100 feet running from an area next to the cattle mill straight downslope past the north end of the boiling house. The lower end of the tunnel was destroyed by the construction of the modern road, but it may have lined up with an open water course discovered on the opposite side of the road. The up-

per end of the tunnel branches into a Y-shape—one branch possibly continuing up the mountain and the other connecting with a stone structure of unknown function located between the tunnel and the cattle mill. Late in the season a stone aqueduct was discovered further up the mountain that future investigation may show is associated with the tunnel.

Our theory at present is that these features are part of an elaborate water management system. The aqueduct collected water from a spring located upslope, delivered the water to a reservoir (possibly located just above the plantation), which in turn fed into the tunnel and onto the open water course.

Why such a system was necessary became apparent late in the season. Local tradition holds that, in addition to the windmill and cattle mill, a watermill was used at Galways to crush the cane; it is possible that the structure located between the cattle mill and the tunnel housed the waterwheel. This exciting possibility will undoubtedly occupy much of our research next season.

As excavation is only one aspect of our research design, many other activities took place that will contribute to our understanding of Galways. A topographical map was made of the entire site, surveys were conducted at other plantation ruins, oral histories were collected, and documents concerning Montserrat are presently being microfilmed for future research. All of this information will be combined with the archaeological data to aid in our interpretation of Galways and our understanding of the plantation system. In light of the findings of this past season, plans are now being prepared for 1983, a season that promises to be an exciting one.

Donald Jones, laboratory supervisor for the Galways Project, is a doctoral student in New World Historical Archaeology. Conrad Goodwin, who prepared the photo essay, is the Co-Principal Investigator with Professor Lydia Pulsipher at Galways, and is also a doctoral student in New World Historical Archaeology.

We sometimes paused from the hard work of excavation to feel the ambience created by the beautiful stone architecture that surrounds us on the site. These ruins stand in mute testimony to the skill of the enslaved Africans who built them.

Atop this stone tower sat a wooden house that held the sails and gears that powered the cane crushing mechanism below. Cane from the fields was delivered up the ramp to the rollers and juice was troughed down to the boiling house.



Archaeological Research in New England's National Parks

by Frederick Hemans

The North Atlantic Regional Office of the National Park Service, including under its jurisdiction park lands in New England, New York, and New Jersey, is the caretaker of our archeological resources on these lands. This brief look at their ongoing work highlights some of the research and preservation activities that are having a considerable impact on archaeology in New England. This is the second in a series of articles for Context on the governmental and private agencies that are concerned with archaeology in Massachusetts. Special thanks are due to Francis McManamon, director of the Division of Cultural Resources at the National Park Service, for his cooperation in preparing this article.

The federal government has long been active in the protection of historic and archaeological properties. Under the Antiquities Act of 1906 the President was empowered to designate properties owned by the federal government as national monuments. This legislation inaugurated our system of national parks. In more recent legislation the role of government has expanded considerably through the creation of the National Register of Historic Places and the providing of a review mechanism in all federally funded or licensed projects to protect our historic resources. The national parks remain, however, a major focus of attention because of their unique capacity to maintain natural habitats and historic resources on a large scale.

Within the National Park Service (NPS), the Division of Cultural Resources is responsible for investigating and preserving the archaeological, historic, and historic architectural resources within the park lands. Head of this division, for the North Atlantic Region, is Francis McManamon. Mr. McManamon came to this office from the Massachusetts Historical Commission in 1977; before that he had studied at the State University of New York at Bingham-

ton. The permanent archaeological staff was recently doubled with the addition of a staff archaeologist, Dick Ping Hsu, who previously was part of the Washington, D.C. staff.

There are two major programs now being conducted by the NPS, each of which will have considerable impact on archaeology in the northeastern United States. The first is a series of park-wide archaeological surveys and the second is a project to inventory and catalog the archaeological collections that were previously excavated at sites within the parks. In addition to these long-range programs, projects of shorter duration are conducted on specific sites and problems. These projects are often initiated by scholars from academic institutions in the area. For example, a study of the Roger Williams National Monument in Providence, Rhode Island, was recently completed by Pat Rubertone and Joan Gallagher of Brown University. The NPS encourages and lends support to members of the scholarly community who wish to conduct research under their auspices. In the last two years several short-term projects have been completed and published: a study of the Bunker Hill Monument by Tom Mahlstedt, an archaeological evaluation of Minute Man National Historical Park by Vernon Baker, and a study of the historic resources of Jamaica Bay in the Gateway National Recreation Area in New York by Frederick Black, are examples of such projects.

The NPS has recognized the value of a large-scale regional perspective in archaeological research. As a result, a major archaeological project was initiated in 1979, on the Cape Cod National Seashore, as the first park-wide survey in this region. Cape Cod National Seashore encompasses nearly 45,000 acres and thus provides a unique laboratory for studying archaeological problems such as subsistence strategies, population, and the diversity of artifact assemblages over time and space. This park, created in 1961, contains approximately half the land of outer Cape Cod north of Eastham, primarily those lands on

the Atlantic Ocean side of the peninsula.

The first report of archaeological remains in the area dates to 1620 when a party of Pilgrims searching for food and water sources inadvertently uncovered a human burial. In the early 1800s, Henry David Thoreau enjoyed several walking tours through the cape and speculated about the locations of Indian villages based on his keen observation of their cultural remains.

Before the park was created a preliminary survey of the area's archaeological sites was made by Ross Moffett; but this report, as in the case of earlier descriptions, only whetted researchers' appetites for a more detailed study of

Neolithic House Models in Greece

by Ricardo J. Elia

The following article is based on research conducted in 1979 in Volos, Greece, as part of the author's doctoral dissertation on the Neolithic architecture of Thessaly. The house models described below are located in the Volos Museum.

The region of Thessaly is the largest and one of the most fertile plains in Greece. As early as the 6th millennium B.C. (in uncalibrated radiocarbon dates), Thessaly was covered with scores of Neolithic villages whose inhabitants grew wheat, barley, oats, peas, and lentils, and raised cattle, sheep, goats, and pigs. The material culture of these Neolithic villagers included a well-developed lithic industry with tools of obsidian, flint, and other raw materials, and a ceramic technology whose finest products rival anything produced in the region until the Classical period. In many respects, the Neolithic communities in Thessaly and Greece in general established a way of life that has persisted, at least in rural areas of the country, into the modern period.

By the 5th millennium B.C., during the so-called Middle Neolithic period in Greece, settlements in the Thessalian plain consisted of small, one-room houses with a

past human activities in the area. Now such research is being conducted. Under Frank McManamon's supervision, a group of 15 archaeologists are doing extensive sampling and testing. To produce data comparable to other excavated sites in New England, larger amounts of specific sites will be excavated over their horizontal extent. The work at Cape Cod is one of the largest projects ever conducted in New England and the incorporation of survey data and intensive site excavation will provide a level of information that will enable sophisticated reconstructions of the ancient human environment.

Several reports on this Cape Cod project have already ap-

peared. Readers of the *Journal of Field Archaeology* will find a preliminary report by Francis McManamon in the first issue of this year, titled "Prehistoric Land Use on Outer Cape Cod". At the completion of this project Frank hopes similar work will be initiated at other parks in the region: Acadia National Park, Minute Man National Historical Park, and Gateway National Recreation Area.

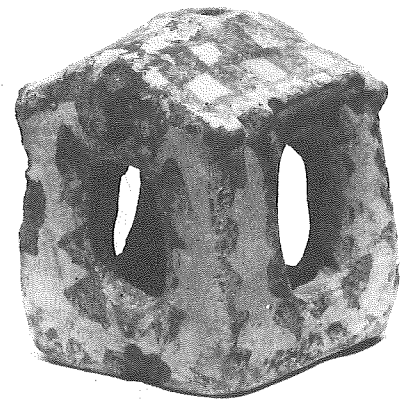
Another important project, currently underway, is an inventory of archaeological collections previously excavated at sites within the area's national parks. Alan Synenki is heading a team that is organizing, cataloguing, and producing a user's guide for these collections. Recently completed

are the collections at the Salem Maritime National Historic Site and the Great Island Tavern Site in Morristown National Park. This work will now make these collections accessible to researchers. The data generated by the project is also being assembled in computer files that will eventually allow even greater access to the information contained within these collections.

Our national park system is clearly an archaeological resource that will provide new insights into our past. Because of the foresight of the creators of the park system, this is available to us today and will continue to be an invaluable resource in the future.



Left: map of Greece showing region of Thessaly and location of important Neolithic sites.



Right: middle Neolithic house model from Krannon. Length: 0.09 m.; width: 0.085 m.; height: 0.15 m.

square or slightly elongated plan. Walls were generally made of sun-dried mud brick, often resting on a foundation of stone. At sites where clusters of contemporary structures have been excavated, it is clear that although the houses are usually free-standing structures, they are typically grouped together in a dense pattern that remained characteristic of many Greek farming villages of all periods.

The Neolithic village sites of Thessaly were often intensively occupied for several millennia. This continuous habitation in one place resulted in the formation of numerous cultural mounds called *maghoules*, which rise above the level Thessalian plain. Cultural strata in these *maghoules* can reach depths of up to 10 meters or more. The main constituent of

these mounds is debris from successive levels of houses and other structures, often appearing in the form of indeterminate masses of dissolved mud brick.

Because of the depth and complexity of *maghoula* sites, the investigation of Neolithic architecture is severely hampered in many ways. Architectural remains were frequently disturbed or destroyed as structures were constantly being built, repaired, destroyed, levelled, and rebuilt over the centuries. Houses constructed of light materials such as wattle and daub, posts, reeds, or branches, leave few traces in the archaeological record. When mud brick is used as a building material, special conditions such as conflagration are generally required for preservation.

Archaeological remains of Neo-

lithic architecture in Thessaly are often not very informative about the superstructure of houses. What survives in archaeological contexts is generally limited to data from the level of the foundation—floors, floor features, foundation walls, and occasionally traces of the lowest courses of mud-brick walls. Evidence for doors, window openings, roof types, and roof construction, is normally lacking.

Fortunately there is a small but significant body of evidence in the form of Middle Neolithic clay house models, that allows us to supplement the information derived solely from excavated remains of actual houses. Five Neolithic house models have been found in Greece; of these, three

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come from sites in Thessaly. The production of clay house models is a phenomenon with a wide distribution among the Neolithic and Chalcolithic cultures of Southeast and Eastern Europe. Within these cultures, the house models belong to a broad class of miniature ceramic objects, which in Greece includes clay figurines of animals and people, as well as miniature vessels, tripods, tables, and seats.

The function of the house models is unclear, although they are sometimes assumed to have a religious or cultic significance, and have been called representations of "shrines" or "temples". Some of the excavated European house models were found buried beneath the corner of the house, near a central roof support, or under the doorway; one might suppose that the models in these cases were used in some sort of foundation ritual designed to promote the prosperity of the new house and its occupants.

Because all the house models found in Greece are surface finds, it is impossible to determine their function. They may have served as votive offerings, or as children's playthings, or they may simply have been the result of a creative impulse on the part of their makers. Although we must await the discovery of additional house models from excavated contexts in order to learn what function they had, it is possible to use the available house models to supplement our understanding of the superstructure of Neolithic houses. For lack of better evidence at the present time, we may begin with the working assumption that the maker of a given house model drew upon the traditional architectural forms of his society, and, given the limitations of the clay medium and his own skill, produced a model that resembles the actual houses of his culture. We may also assume that the house models represent domestic structures insofar as specific architectural features on them correspond to actual features observed in domestic structures that have been excavated.

The three Thessalian models

come from Krannon and Stephanovikion, two sites in eastern Thessaly, and from Myrrhini, in the western part of the plain. All three represent single-room squarish structures with pitched roofs, which is consistent with the excavated remains of actual Neolithic houses.

The most detailed example is the house model from Krannon, which depicts a structure with an opening in each of its four sides, and a central smoke hole in the roof. The painted decoration on the model, which is the typical red-on-cream "Solid Style" of Middle Neolithic pottery, emphasizes the door or window openings in the side walls, and delineates the sloping rafters of the roof. The central ridge beam, pierced by a smoke hole, is clearly modelled, and projects beyond the walls of the house, as do the ends of the parallel roof rafters. Evidence from excavations indicates that the rafters would have been covered with a layer of reeds, which in turn was covered with a layer of clay to make the roof impervious to rain.

The four openings in the Krannon model are unusual if this is meant to represent a domestic structure; excavated houses of the period show only one door opening, and there were probably few if any window openings. Perhaps the Krannon model represents a special building in the community, such as a public or religious structure, or it may simply be that something was meant to be displayed inside the house model.

The house model from Myrrhini is similar to the Krannon model in several ways. Like it, it has the typical "Solid Style" decoration of red-on-cream interlocking squares and triangles. It also exhibits a double-pitched roof, and the central ridge pole and corner roof poles likewise project beyond the walls of the house. Unlike the Krannon model, however, the Myrrhini model contains no openings in the side walls, and instead of a small central smoke hole there is a large opening with a raised lip in one corner of the roof. It has been suggested that this model represents a special structure, such as a communal

storage facility.

The third Thessalian house model, from Stephanovikion, consists of three joining fragments which preserve one short side and two long sides of the house. The roof is sharply pitched, and does not slope downward at the gable end like the models from Krannon and Myrrhini. The roof rafters of the long sides are indicated by a row of thinly incised marks. A smoke hole is located in the center of the roof at the broken end of the model. Each of the partially preserved sides exhibits a rounded opening, and there were probably originally four openings, as on the Krannon model.

In several important respects, including house plan, length-to-width ratio, the presence of pitched roofs, projecting roof beams, and smoke holes, the three Thessalian models correspond to the architectural evi-

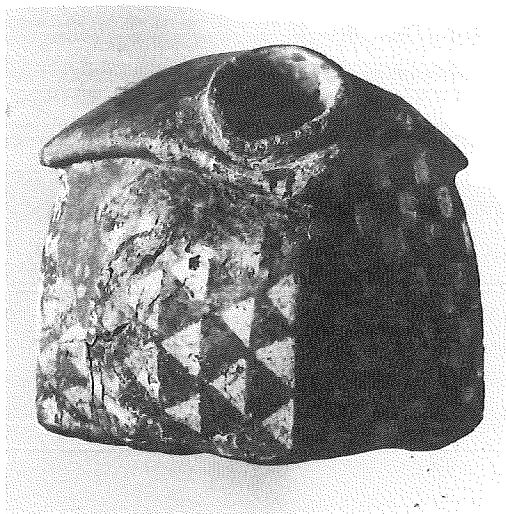
New Appointments

Archaeometry

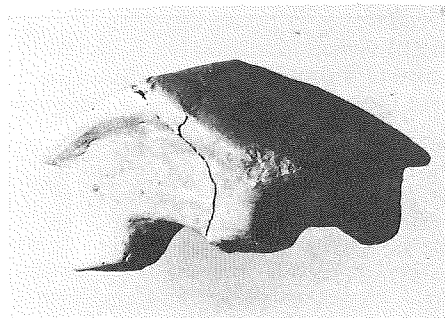
Edward V. Sayre, one of the nation's leading scholars in the field of archaeometry, has been appointed Research Professor of Archaeometry in the Departments of Archaeology and Chemistry at Boston University. His appointment, as do all faculty appointments in Archaeology at Boston University, carries with it an appointment as a Fellow of the Center for Archaeological Studies. Dr. Sayre will continue to hold concurrently his positions as Senior Chemist at Brookhaven National Laboratory and Director of Research/Senior Scientist with the Research Laboratory of the Museum of Fine Arts in Boston.

Dr. Sayre studied at Iowa State University (B.S. 1941) and at Columbia University (A.M. 1943, Ph.D. 1949). His teaching career has included appointments at the American University at Cairo, the University of California at Irvine, and the Institute of Fine Arts at New York University.

Dr. Sayre is the author of numerous distinguished publications. He has written extensively on the technical study of fine art



Left: middle Neolithic house model from Myrrhini. Length: 0.11 m.; width: 0.08 m.; height: 0.11 m.



Right: middle Neolithic house model from Stephanovikion. Max. preserved length: 0.06 m.; max. preserved width: 0.05 m.; max. preserved height: 0.045 m.

dence for Neolithic houses that derives from excavated remains. Other features, such as the numerous wall openings on the Krannon and Stephanovikion models, and the peculiar roof opening on the Myrrhini model, are more difficult to explain in terms of domestic architecture, and are not paralleled in archaeological remains of Neolithic structures. The explanation of these differences will not be possible until we are able to learn more about what the makers of the house models were intending to represent, and this must await the discovery of other house models in good archaeological contexts.

Ricardo J. Elia is Director of the Office of Public Archaeology at Boston University. In addition to conducting cultural resource surveys in the New England area, Rick plans to continue his study of Neolithic culture in Greece.

and archaeological materials, and has been especially concerned with the application of neutron activation methods and nuclear dating techniques to such studies, as well as with chemical microscopy and spectroscopy, separation of isotopes, and photographic chemistry. An important recent study, co-authored with Dominique Fillion and Garman Harbottle, is "Neutron-Activation Study of Figurines, Pottery, and Workshop Materials from the Athenian Agora, Greece", which will appear in issue 1 (March) of volume 10 (1983) of the *Journal of Field Archaeology*.

Dr. Sayre will offer a half-course seminar (two credits) during the first part of the Spring term, 1983: AR 703 Seminar in *Archaeological Materials: the Characterization of Archaeological Materials*. The course will meet on Tuesday and Thursday evenings, at 7-8:15, in the seminar room of the Department of Archaeology.

Office of Public Archaeology

The Center for Archaeological Studies is pleased to announce the appointment of Ricardo J. Elia as Director of the Office of Public Archaeology (OPA). The OPA, a ma-

major component of the Center, conducts archaeological excavations and surveys as a part of environmental impact studies and historic preservation in New England. As Director of the OPA, Dr. Elia will oversee the activities of a staff of archaeologists and other researchers, and will report to the Director of the Center. Dr. Elia has also been appointed Adjunct Assistant Professor of Archaeology, and in the spring semester, 1983, will teach, with Professor James Wiseman, AR 100 *Great Discoveries in Archaeology*. Dr. Elia received his B.A. in Classics at Boston University in 1973. After further studies at Ohio State University (M.A. 1975), he returned to Boston University where he earned the Ph.D. in Classics with a concentration in Archaeology in 1982. His doctoral dissertation is entitled "A Study of the Neolithic Architecture of Thessaly, Greece".

Dr. Elia, who was an Instructor in Archaeology and Classics at Boston University last year, brings to his new post broad archaeological experience both abroad and in the United States. He was a staff member of Boston University's Stobi (Yugoslavia) Archaeological Project during the summers of 1977 and 1978, and has also been

a member of the American School of Classical Studies at Athens. Last summer he taught the archaeological section of Boston University's Summer Program in Greece. His first archaeological field work, however, was at the site of an 18th century glass factory, excavated by Boston University near Temple, New Hampshire, beginning in 1976. He has maintained a strong interest in the archaeology of the northeastern United States and has participated in numerous excavations and surveys in New England, especially in Massachusetts.

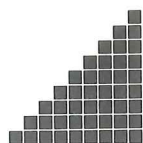
Activities Coordinator

Deborah Durham, a graduate student in the Department of Archaeology, has been appointed Activities Coordinator for the Center. Her duties include registering members for the Center's seminars and workshops; coordinating receptions; publicizing the various activities of the Center; and assisting in a variety of ways in the Center's main office.

Ms. Durham, who has a B.A. in History from Smith College, entered the Ph.D. program at Boston University in 1981.

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January 20

Departmental Colloquium: Dr. Barbara Price, "Ethnological Models in Archaeology: Observations on Metatheory and Application".

February 2

Center Lecture: Dr. Carole L. Crumley, Associate Professor of Anthropology at the University of North Carolina, "Sacred and Secular Space: a Regional Survey of Burgundy from the Iron Age to the Present".

February 5, 19, and 26

Center Workshop: Dr. Mary C. Beaudry, "Archaeology of Life in Colonial New England," Saturdays from 1-5:00 p.m. Fees are \$90 for members and \$110 for non-members.

February 19

Departmental Colloquium: Dr. Richard H. Meadow, Director of the Zooarchaeology Laboratory, Peabody Museum, Harvard University, "From Hunting to Herding in Prehistoric Baluchistan, Pakistan".

March 19, 26, and April 2

Center Workshop: Caroline J. Hemans, "The Illustration of Archaeological Artifacts", Saturdays from 9 a.m. to 1 p.m. Fees are \$95 for members and \$115 for non-members.

April 6

Center Lecture (co-sponsored by the American and New England Studies Program): Dr. James J.F. Deetz,

Director, Lowie Museum of Anthropology, University of California, Berkeley, "Historical Archaeology and the Course of American Culture".

April 2, 16, and 30

Walking Tours of Early Boston

April 21

Departmental Colloquium: Dr. Peter Wells, Associate Professor of Anthropology, Harvard University, "Models for Economic and Social Change in Late European Prehistory (Bronze and Iron Ages)".

Walking Tours are from 10 to noon on Saturday mornings. Each tour begins at Faneuil Hall from the statue of Samuel Adams. A charge of \$5 (\$4 for students and members) is payable on the day of the tour but reservations must be received by noon of the previous Friday. In the event of rain the tour will take place the following Sunday; please call to verify this between 9 and 9:30 a.m., Saturday morning.

Departmental Colloquia take place at 5:30 p.m. in the Archaeology Library at 232 Bay State Road (members only please).

Center Lectures are held at 7:30 p.m., room 522, at 725 Commonwealth Avenue.

Center Workshops are offered at the Center facilities at 232 and 236 Bay State Road. Call Deborah Durham at the Center office, 353-3416, to enroll.

The Center for Archaeological Studies, which was founded at Boston University in 1980, has as its chief aim the development and coordination of interdisciplinary archaeological programs in education and research on local, national, and international levels. The Center also seeks to increase national and international awareness of the importance of understanding other cultures, and of preserving the world's cultural heritage, by involving professional archaeologists, scholars in other fields, and the general public in the activities of the Center.

Context is the newsletter of the Center for Archaeological Studies and is published quarterly. Institutions and individuals may subscribe separately to *Context* at a cost of \$10 per year. Membership to the Center is open to the public; annual dues are \$20 (\$10 for students); benefits include a subscription to *Context*, invitations to attend our fall and spring lecture series and other events, and the use of our library facilities. The Center also offers special seminars for the public during the academic year and summer field schools here in the Boston

area and abroad. Other categories of membership are: Contributing Member, \$50; Institutional, \$50; Patron, \$100; Benefactor, \$500; Corporate, \$1000; and Life Member, \$400. These categories include a subscription to the *Journal of Field Archaeology*. Please make checks payable to the Center for Archaeological Studies and send to the Center office at Boston University, 232 Bay State Road, Boston, MA 02215. Gifts to the Center are tax-deductible.

Editorial Board: James R. Wiseman, Director, Center for Archaeological Studies; Frederick P. Hemans, Managing Editor.

Faculty of the Department of Archaeology: Mary C. Beaudry, Ricardo J. Elia (adjunct), Creighton Gabel, Alice Hausman, Howard Kee (adjunct), Gerald K. Kelso, Fred S. Kleiner, Richard S. MacNeish, Keith Morgan (adjunct), Karl M. Petruso, James Purvis (adjunct), Edward V. Sayre, Edwin Wilmsen, James R. Wiseman.

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