

CONTEXT



San-Bushmen at a social gathering.
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Shell Middens and New England Archaeology

by Russell J. Barber

The first European settlers in New England must have noticed shell middens, those heaps of shell and other refuse that prehistoric inhabitants of the area had created. Although most of the middens were relatively small, a few, such as the Whaleback Mound in Maine, were immense affairs, 20 feet deep and over 100 yards long, the equivalent of a football stadium filled to the sixth row of seats. Before modern development or erosion destroyed so many, it would have been rare to walk more than a few hundred yards of coastline without encountering signs of at least one of these middens. Early writers, however, are remarkably quiet about shell middens, and we can only assume that many of these sites were mistaken for natural shell deposits.

In the 1860s, however, coastal shell middens burst onto the scientific scene in the center of a major controversy. During the nineteenth century and first quarter of the twentieth, scientific opinion regarding the antiquity of the human occupation of North America swept back and forth with pendulum-like regularity. By the midpoint of the nineteenth century the ascendant notion was that humanity was very ancient in North America and probably was present before the glaciers. Backed financially and professionally by the Peabody Museum at Harvard, C. C. Abbott, a New Jersey dentist, spent most of the 1860s and 1870s searching the gravels around Trenton, New Jersey, for traces of pre-glacial human occupation. His

findings of heavily patinated and crude stone tools (actually blanks ready to be flaked into finished tools, mostly dating to only about four-thousand years ago) fueled the fire.

In 1863, the unlikely figure of Rev. J. M. Jones stepped into this intellectual arena. Little is known about Rev. Jones, other than the fact that he was a clergyman who emigrated from Britain to Nova Scotia shortly before this date. The fact that his name appears only this once in the history of archaeology suggests that his interest may have been peripheral, but he wrote a letter that was published in the *Annual Report of the Smithsonian Institution* for 1863 and that touched off an explosion of interest in shell middens.

Jones's letter indicated the presence of shell middens in Nova Scotia, but few details were given since his investigations were essentially superficial. He noted, almost parenthetically, that these shell middens were not dissimilar to the ones recently excavated in Denmark and found to be of great antiquity. This remark sparked the beginning of the first period of coastal shell midden archaeology in New England.

Before long, a series of shell midden excavations were undertaken from Maine to Florida, but especially from Maine to Cape Cod. These excavations were sponsored by the Peabody Museum of Harvard or the Essex Institute of Salem and featured such luminaries as Jeffries Wyman, Frederick Ward Putnam, and Edward S. Morse.

The major thrust of this activity was to find evidence of very early occupation of the New England coast. If shell middens in Den-

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mark were from the Mesolithic, it was thought that shell middens in New England would be equally old, maybe even older. This preoccupation with antiquity resulted in an unexpected benefit. In that period before radiocarbon dating or long-term chronologies based on artifact sequences, the finding of extinct or regionally extirpated species was a primary means of establishing antiquity. Consequently, these archaeologists (whose training was in natural history anyway) published faunal and sometimes floral analyses in their site reports, giving modern archaeologists a welcome trove of ecological data.

Unfortunately for those favoring great antiquity for North American humanity, the only extinct species found in New England shell middens were great auks and sea mink, both the victims of intensive nineteenth-century Euro-American hunting. In the meantime, Henry Mercer and Alés Hrdlička were waging a successful battle against Abbott and his sites in the Trenton gravels. By the 1880s the pendulum had swung back: great antiquity in North American had again become a dead (or dormant) issue. It would arise triumphant with the Folsom site in 1925, but by that date the theater would be the arid American West, not coastal New England.



Early shell midden excavators such as Jeffries Wyman examined dozens of sites along the New England coast. (Photo courtesy of the Peabody Museum, Harvard University)

During the period between 1880 and World War II, shell midden archaeology was largely in the hands of amateur archaeologists. The professionals (and most of the amateurs, too) preferred sites that yield more artifacts, for shell middens typically produce low artifact densities. During World War II there was a brief renaissance in local shell midden studies when "gas rationing archaeology" restricted scholars in New England to local field work. When rationing ended, so did most of the interest.

The present resurgence of shell midden archaeology is not limited to New England. Since the 1960s and the rise of strong interest in human ecology, shell middens around the world have been increasingly recognized as marvelous sources of data: sites composed primarily of faunal remains. In New England, the word *ecology* has managed to find its way into the titles of most site reports of shell midden excavation. The list of archaeologists who have published reports of shell midden studies in eastern New England reads much like a roster of prehistorians active in that region today: Bourque, Braun, Dincauze, Luedtke, McManamon, Ritchie, Sanger, Snow, Spiess, and Yesner. And my name, too, must be added to the list.

I first excavated in a shell mid-

den during an archaeological survey of Peddocks Island in Boston Harbor in 1974 and have continued my studies with a variety of surveys and excavations along coastal New England, especially in Boston Harbor and in the Merrimack Estuary of northeastern Massachusetts. As I saw more shell middens and came to know more about them, they seemed stranger and stranger.

Why was there so much shell? This simple but critical question begged to be answered. In eastern New England, soft-shell clam (*Mya arenaria*) is the most common shellfish in middens. Looking at meat weights represented by the shell as well as by fish, bird, and mammal bones, clams usually account for 25% to 35% of the meat represented in a shell midden; in a number of cases, however, clams account for 80% to 90% of the meat. Given the seasonal nature of these sites and the small size of the communities using them, either range seems to indicate a huge amount of clams. Clams require, after all, a great deal of effort for collection and preparation, relative to many other animals. Many shell middens were occupied during the warm months, when plenty of food should have been available without resorting to such difficult resources.

As I saw more middens, however, I began to see patterns within them. Sites with very high percentages of clams were also occupied in the fall. Further, at sites where excavation was extensive, feature complexes have been found that consist of large hearths with dozens of post molds closely surrounding them. These complexes appear to be the remains of scaffolds over hearths for the drying and smoking of shellfish for preserved meat. Finally, these sites are relatively late, around 800 to 1200 A.C. in eastern Massachusetts; in Maine they appear never to have developed. After the advent of grain agriculture in an area, this type of site no longer occurs.

In contrast to these sites are middens with lower percentages of clams. In these sites, drying and smoking scaffolds are absent,

and occupation took place during the winter or early spring months. These sites are known from the Colonial period back to about 2000 B.C. (Rising sea levels have drowned any shell middens earlier than this date, since earlier shorelines were considerably seaward of those of today.)

Recognition of these two types of shell middens may help explain the apparent peculiar nature of shell middens in New England, and season of occupation may be the key. Winter and early spring were the times of want in prehistoric New England. Animals had dispersed to make the most of meager food supplies, fish had not yet begun annual spawning runs, and available plant foods were few. Stored stocks of food also were becoming depleted by this time. A reliable food source was critical. If nothing else, clams are reliable. They can always be found in the same place, usually in consistent quantities. They may be hard work to gather, but they are not a gamble. Also the digging of clams, while arduous, does not require skill. Children or other members of the group who might not be capable of other food procurement could dig clams. The winter-spring middens, then, can be seen as the result of a forced return from the interior to the still-chilly coast in search of a reliable food source.

Seeing clams as a less than optimal food source, resorted to in times of scarcity, places the fall shell middens in a new light. These sites were occupied just *before* the leanest season. The high percentages of clams and presence of preservation features suggests strongly that the clams were being preserved and stored as a bank against winter hunger. (Dried clams store better than fatty fish or mammal meat, and the availability of clams in quantity makes them an excellent storable resource.) If this interpretation is correct, then later peoples felt the need not only to visit clam flats in spring when food ran low, but also in fall, in an attempt to keep food from running low too soon.

Why would this shift in adaptive stance take place? I suspect that population levels are at its root. In Massachusetts the shift was quite late, and in Maine, where prehistoric population levels were lower, it never occurred. Why did the pattern shift away from storage in the latest period of Massachusetts prehistory? Probably the cultivation of corn, squash, and beans was responsible: clams were replaced with a more easily stored surplus.

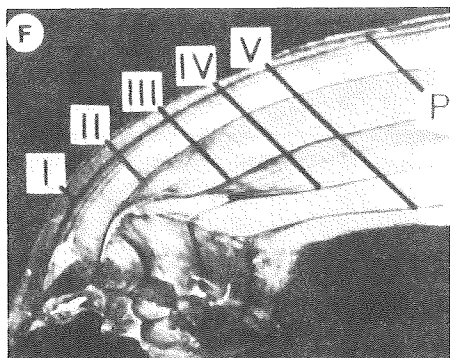
This explanation is promising, but it needs to be tested with more evidence. Too few shell middens have been accorded the painstaking analysis that is required to

estimate dietary inputs or establish the season of a site's occupation. Nonetheless, this case shows that we have come a long way since Putnam and his colleagues looked to shell middens as a means of legitimizing American archaeology by giving it an antiquity comparable to that of its European counterpart. And there still is a great deal more to be learned about the archaeology of the classic *Mya (arenaria)*.

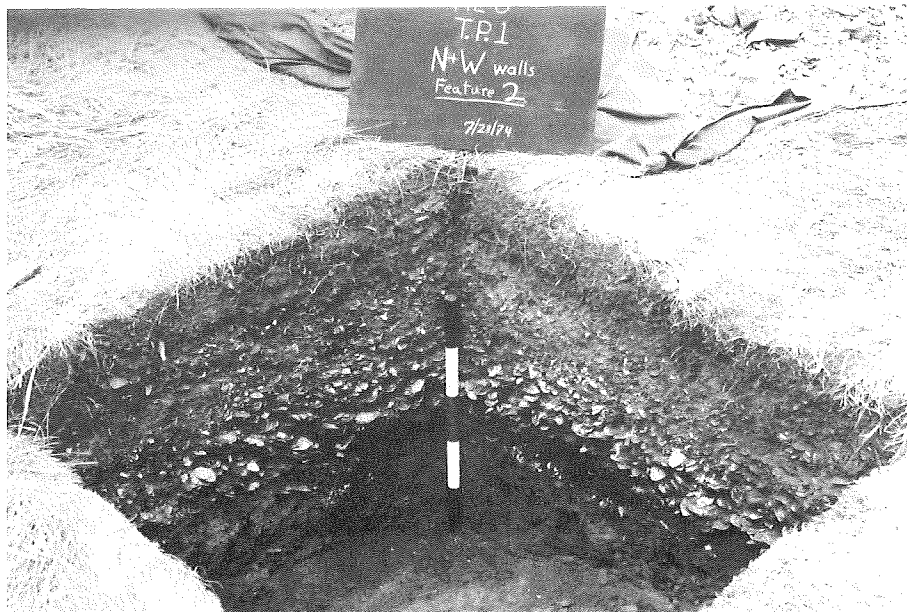
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Further Reading

See Gordon R. Willey and Jeremy A. Sabloff, *A History of American Archaeology*, Winthrop House, Cambridge Massachusetts, 1974, for an overview of the history of research. Soon to be published as a volume of *The North American Indian (a massive reprint anthology)* is *Native Shellmounds of North America: Early Studies*, edited by Bruce Trigger for Garland Publishing, New York. See also Russell J. Barber, *The Wheeler's Site*, Peabody Museum, Harvard University, Monograph 7, 1982, for a detailed example of shell midden archaeology.



One way to know in which season a site was occupied is to examine the growth bands in shells. In this photograph, dark bands indicate winter and the outermost zone indicates the season of death. (Photo courtesy of the Center for Archaeological Research and Development, Peabody Museum, Harvard University)



This site in Boston Harbor shows the shallow but dense shell layer common in many New England middens. (Photo courtesy of Barbara Luedtke)

The Kalahari San: Continuing Lessons in Human Adaptation

by Alice J. Hausman

Throughout most of the twentieth century, the San populations of the Kalahari Desert of southern Africa have been living as their ancestors did for almost fifteen-thousand years. These people, known linguistically and culturally as the Bushmen, rely on the hunting of wild animals and the gathering of nuts, roots, and fruits that grow naturally in their environment for their subsistence. They have very few material goods: ostrich-eggshell water containers, bows and arrows, leather carrying pouches and some basket and gourd containers. By living in small groups and moving constantly, these people have maintained a lifestyle well adapted to the sparse and scattered resources of the desert.

Anthropologists have spent a great deal of time studying the Bushmen to understand the biological and cultural mechanisms that have kept them in such fine tuning with their environment for so many generations. The materially unencumbered nature of the Bushman lifestyle provides a good laboratory case that helps us better understand how humans interact both physiologically and behaviorally with the natural environment. This knowledge can be applied to other populations to help sort out the underlying processes of more complex human biocultural systems. The Bushmen also provide a window into the past. The archaeological record shows that humans lived a similar hunting and gathering existence for millions of years. Observations made of the living Bushmen provide us with a fuller understanding of the dynamics of those earlier human biocultural systems as well.

The Bushmen have not been untouched by other cultures and modern civilization. Today, persistent drought, border conflicts, and increasing development of

southern African nations have led to the settling of these nomadic people and their entry into a market economy. The rapid and deliberate nature of the changes affecting the Bushmen presents an opportunity to witness and measure the impact of changes in subsistence on biological and cultural adaptive mechanisms. In the past, economic changes took a long time to become instituted. Associated nutritional and health changes occurred over several generations. The development of southern Africa has sped up the process so that San individuals who were hunter-gatherers 10 years ago are now food producers. Within a short period of time, the environment of the San has changed, allowing us to observe the effect of economic change on their biology and culture. Thus, while the traditional lifestyle of the Bushmen is rapidly disappearing, these people still provide crucial information about human populations and their adaptation to their environment.

The study of the San before and after economic change has revealed several interesting insights into the San themselves as well as the nature of human biological responses to environmental change. One issue concerns physical appearance of the San, who are very small and slight. One explanation argues that their small size is the result of chronic undernutrition associated with the catch-as-catch-can nature of the hunting and gathering subsistence pattern. The implication is that the San have been merely surviving, and suffer from stunted growth due to their hard life. Another viewpoint suggests that years of selection have led to a genetically programmed small size that is adaptive to living in the desert. This implies that the hunting and gathering lifestyle is not "brutish, nasty, and short," but rather one of relative comfort and leisure. Recent work on the San in transition has shown that parts of both explanations are true. After careful ecological analyses, it seems clear that the San do not suffer from gross malnutrition. However, they do experience both seasonal food shortages and sporadic access to high quality



food resources. Once the food supply becomes relatively constant, the San gain weight and the children achieve higher levels of growth. An increase in the overall height of the San has been noticed over the last seventy-five years and has been associated with improvements in the diet. However, these most recent economic developments seem to have spurred even greater growth activity among the children. It will be necessary, however, to measure these children as adults in a few years to confirm this idea. At the same time, there is no indication that any genetically controlled aspects of growth, such as hormones, are any different than in other populations. Thus, it seems that the San physique is adaptive to given food resources, yet is plastic enough to respond to improvements in the diet.

A second issue involves the population size of the San. The Bushmen do not practice any conscious form of birth control, yet their populations stay within the bounds that permit continued successful adaptation with their environment. Infant mortality rates are high, but it appears that the long

The photos on these two pages depict San-Bushmen in some of their daily activities.



periods of time between babies is the key to low population growth rates. The critical question is how this regulation is achieved without the conscious limitation of family size. Infanticide and abortion have been practiced by the San, but never in frequencies that could actually regulate population growth. Post-partum sexual taboos are also practiced, but for only a fraction of the time that actually occurs between births. San women breast-feed their children until they are about three years old. Since breast feeding (lactation) provides a natural birth control by inhibiting ovulation, it is likely that this prolonged period of lactation contributes to the long intervals between births. However, San women often wait four years before becoming pregnant again. Lactation alone cannot provide protection against pregnancy for such a long period of time. Other mechanisms have been suggested. It may be that a woman needs to replenish her stores of fat before she can successfully bear another child. Until these stores are back to the level appropriate for her body, she may not ovulate. Another outcome of the sedentization of the

San has been an increase in fertility. Within a few years, more babies have been born per year than in the past. There may be many factors contributing to this rise in birth rate, but the increased weight of the women and the reduction of seasonal weight gains and losses indicate that the nutritional changes associated with the economic transition may be contributing to the change in the birth rate.

This information is useful in a variety of contexts. For example, we know that prehistoric populations experienced similar situations of economic development and subsequent biological change. The San themselves have experienced economic change at least once before. About two-thousand years ago, people from other parts of Africa came to southern Africa and introduced a pastoral economic system. Some Bushmen adopted this new life style and developed what became known as the Hottentot culture. Seeing how San respond to similar nutritional/economic changes today has helped us understand the development of Hottentot culture and the origins of the observed biolog-

ical differences between the Hottentots and the Bushmen.

The appearance of new subsistence techniques, such as farming and intensive agriculture, in the archaeological record are often associated with larger and more numerous settlements, indicating an increase in the population size. Whether increased population pressure was the cause or effect of the original introduction of food production is still argued, but it is clear that once initiated, there is a spiraling interaction between the amount of food produced and population size: more food means more people can be supported and further population growth is stimulated, thus generating the need for even more food. Observation of the impact of economic change on San populations helps us outline some of the processes involved. Better maternal nutrition can lead to higher fertility rates and potentially to greater population growth.

The better understanding of these processes is particularly useful for other situations of rapid economic change. Many developing nations are experiencing the deleterious effects of population growth. In attempts to improve the quality of living for all, population sizes must be brought in line with available food resources. By understanding how nutrition, fertility, and mortality interact, effective programs providing health care, food supplementation, and family planning can be implemented to achieve this balance. Study of populations in transition, such as the San, can help in these attempts.

Alice J. Hausman received her Ph.D. in Anthropology in 1980 from the State University of New York-Binghamton. Her dissertation research focused on the origins of the biological variability seen among modern Kalahari populations. Currently she is using a National Institutes of Health Public Service Research Award to investigate the impact of changing nutrition on San population structure. In 1984 she will return to southern Africa on a project funded by the National Science Foundation to look at growth and health changes associated with the introduction of pastoralism two-thousand years ago.

Discovering Water Management Strategies on an Eighteenth-Century Caribbean Sugar Plantation

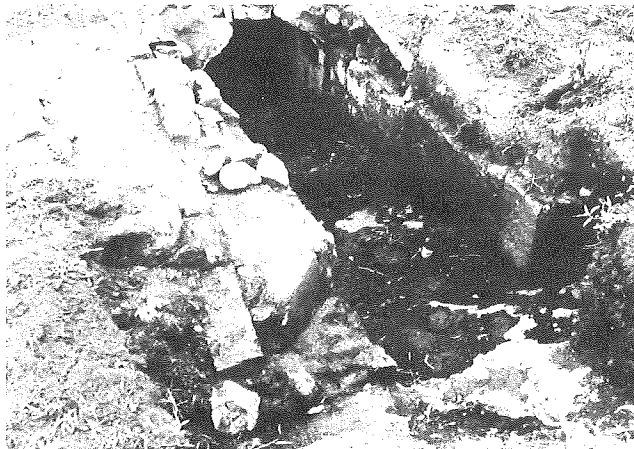
by Lydia M. Pulsipher

The Galways Plantation Project on Montserrat, West Indies, which begins its fourth year of research in January 1984, is codirected by Dr. Pulsipher and Conrad Goodwin, a doctoral student in the Department of Archaeology at Boston University. Sponsored by the Montserrat National Trust, this interdisciplinary project is designed to study the evolution of the plantation system in the Caribbean from the seventeenth century to today. Previous reports have appeared in Context (see volume 2:1 [1982] 4-5 and volume 2:3 [1982] 6-7). Water management, the subject of this report, was a major research theme of the 1983 season.

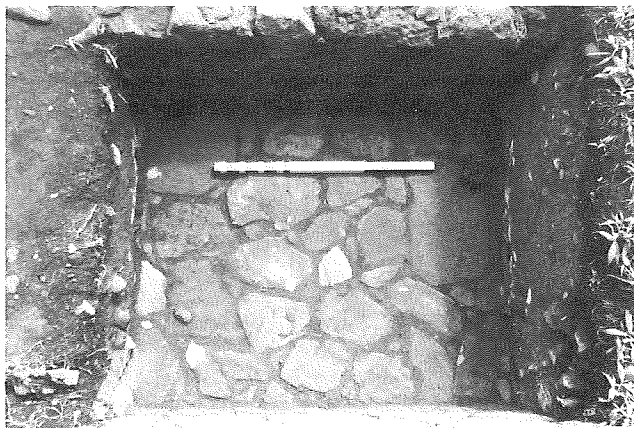
To the casual observer, features such as a heap of red clay roofing tiles, a vaulted stone tunnel, or piles of mortared stones clinging to the steep side of a mountain might not evoke thoughts of past water resource management; but to the geographers and archaeologists studying the eighteenth-century Galways sugar plantation on the eastern Caribbean island of Montserrat, it is now commonplace to evaluate virtually every feature for clues to how water was once managed.

In 1981 when research began at Galways it soon became obvious that water had been a pivotal resource in the life of the plantation. Not only had water been important in the selection of the site, high on a steep mountain slope where rain fell frequently, but the management of water was an important factor in the design of the plantation. Paradoxically, adaptation to the problems of both too much and too little water are clearly reflected throughout the plantation site.

Too much water in the form of rainfall and runoff posed a threat to the plantation structures and necessitated accommodation. For example, cross-slope retaining



The stone tunnel at Galways that drained run-off away from the sugar boilinghouse and also may have served as the tailrace of a water wheel.



Exterior stone floor and retaining wall just upslope of the Galways boilinghouse. Both floor and wall were intended to protect against water damage and erosion but in time were themselves buried by eroded soil.

walls controlled sheet erosion and an exterior, outward-sloping stone floor running the length of the sugar boilinghouse drained water away from the structure and into a subterranean stone tunnel or sluice. Also, a massive earthen platform with subterranean drains was built to hold the stone windmill tower securely on the steep slope and to protect it from erosion.

Scarcity of water was equally influential. Three years of research has failed to reveal on the site a single well or spring that would have provided water for industrial and domestic uses. Instead, it appears that the plantation relied on distant springs and a variety of stone and earthen catchments to trap rainfall and runoff. The red-tile roof of the sugar boilinghouse caught rainwater that was channeled into and stored in a series of adjacent stair-stepped stone cisterns. And, although its purpose is not yet understood, apparently an aqueduct brought sulphurated water down the rugged mountain slope from the volcanic crater to

the vicinity of the industrial complex. Since this water would not have been potable, one possibility is that the water was used to run a mill for cane crushing. Indeed, it may be that the stone sluice, mentioned previously, also served as the tail race of a water wheel. Additionally, a massive stone structure just above the plantation yard has many characteristics that suggest it was once a reservoir intercepting and storing runoff, possibly to power a water wheel. Another substantial U-shaped stone wall set into the slope just below the greathouse may have stored water for draft and farm animals.

Because the Galways project places special emphasis on understanding the human ecology of the slaves who formed the vast majority of plantation residents, the question of how slaves obtained and managed water is of particular interest. Unfortunately, history has recorded very little of slave lifeways, so scraps of information must be pulled from all possible sources. Previous re-

search has indicated that slaves had their own subsistence gardens, raised small animals, and engaged in other small-scale economic endeavors. Therefore, in addition to providing for their personal needs, slaves would have needed water for their gardens, animals, and other projects.

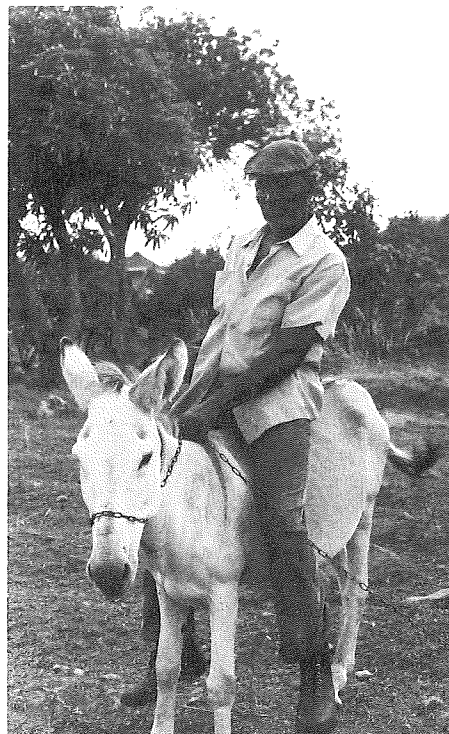
While slaves may have had access to water stored in the reservoirs and cisterns described above, the capacities of these structures and their spatial location in relation to the slave domestic area suggest that the slaves may have had to procure much of their water elsewhere. An examination of the landscape surrounding the slave domestic site revealed that most of the small watercourses in the vicinity had been modified to form stair-step catchments with holding capacities of from fifty to several hundred gallons. Unlike the stone catchments constructed on the main site, these smaller ones were simple, consisting of piles of stone banked with mud and gravel dug from the streambed. It is postulated that these streambed catchments and more distant springs provided the primary sources of domestic water for slaves at Galways.

But how can we learn more about slave water use and more about how water needs affected the daily texture of life? In this regard, ethnoarchaeology, the study of lifeways in the present and recent past to gain insights on life in the distant past, has been especially useful. Many elderly descendants of the slaves who once labored at Galways have provided information on water use in the early twentieth century before water was piped to households. Their experience is taken as an analogue of slavery days and is helping to refine hypotheses on how water use practices influenced and were influenced by slave lifeways.

Certainly we must be cautious in assuming too much about similarities between life in 1920 and in 1820 or yet earlier; nonetheless, the ethnographic data has already provided much useful information on the material culture of folk water use and storage. And interestingly, the data has suggested

that previous assumptions about slave life may need reassessment. For example, it seems that, at least in the recent past, fetching water from sources even a mile or more away was not viewed as an onerous task. Quite the contrary, the chance to go for water was seen positively as a time to get away from other tedious tasks, a time to interact with friends encountered on the way. Children marked their maturity by their ability to carry water and vied for the chance to do so. In multi-dwelling houseyards, water was shared and the number of people willing to carry water meant that someone was nearly always en route collecting and carrying water. As a result, water was not a particularly scarce commodity in the household. In fact, the people interviewed voiced the opinion that in the old days they may have used water more freely than today because then it was not metered.

The story of water at Galways is still far from complete. As archaeological and environmental analysis proceeds, we are learning more about how the plantation influenced water resources, as well as about the influence water has had



Mr. Abraham James, participant in the Galways ethnoarchaeology study.

on the archaeological record. The very act of building the plantation and clearing the land for cane cultivation produced major environmental changes, many directly affecting the way water moved through the system. When the mountain side was covered with a complex rain forest, the movement of moisture through the forest foliage and root systems was relatively slow. Surface runoff was negligible because most of the moisture reaching the ground level was retained by organic detritus or guided into the soil via root systems, eventually reaching the aquifer. However, when the land was cleared for construction and for cane fields, this moisture regime was drastically modified. Water moved through the system much more quickly, mostly as surface runoff. Not only was the aquifer bypassed but the runoff created serious erosion. In fact there is evidence that this erosion, induced by plantation cultivation, then began to threaten the industrial complex itself, necessitating a number of the erosion control measures mentioned earlier. On the other hand, the clearing resulted in a general drying-out of the environment. Evaporation rates increased and many of the natural plants, no longer capable of surviving in the drier regime, were replaced by plants, both native and introduced, which could cope with the new situation.

Undoubtedly beneath the dense tropical foliage there are yet more relics of past life at Galways that will help answer the many remaining questions on water management. Meanwhile, those working on the project are delighted whenever one more small piece of the puzzle is encountered. The trick is to be sure that the puzzle piece is recognized as water-related when it does turn up.

Lydia Pulsipher is a professor of Geography at the University of Tennessee and co-Director of the Galways Plantation Project. Her main research interests are the historical and cultural geography of the Americas, especially Latin America and the circum-Caribbean area. She will be a colloquium speaker at the Center for Archaeological Studies on January 26 (see announcement in the Calendar section).

International Archaeology and the Dawn of the Iron Age at 'Ain Dara

by Paul Zimansky and Elizabeth C. Stone

The wave of destruction that swept across the Near East at the end of the thirteenth century B.C. was a catastrophe for those who would read ancient texts as well as those who wrote them. Powerless to follow the course of events as literacy is extinguished in Greece, Anatolia, and much of the Levant, the historian must abandon the field until scribes again come to his rescue in the tenth century. For the interim, the archaeologist alone can elucidate one of the most profound changes in Old World history, namely the introduction of inexpensive iron.

Even in the abstract, this was not simply a change in technology, but rather a transformation of society at its very roots. Bronze, the basic metal for tools and weapons prior to the Iron Age, had been expensive, available only through long-distance trade, and more or less the exclusive property of elites. When iron became readily available, both the military and productive capacities of the peasantry were significantly en-



Breaking up the plow zone on the first day of the 1983 season. The citadel mound and temple are visible in the background.

hanced and the rules of government and conquest changed. A profound disruption of the pattern of daily life and a transformation of social institutions must have accompanied its influx. But to go beyond these generalities and discover what actually happened in detail, one must penetrate a singularly dark age, and there are few opportunities to do so. Some thread of continuity and sedentary existence connecting the civilizations of the Bronze Age with those of the Iron must be discovered to lead the archaeologist through the maze of barbarian incursions, ephemeral kingdoms, and isolated ceramic sequences.

Tell 'Ain Dara, located in a fertile valley in northern Syria twenty-five miles northwest of Aleppo, is well situated for an inquiry into this problem. The Hittite Empire had controlled the area in the Bronze Age, and in the first millennium it lay within the sphere of the Neo-Hittites, a Luwian-speaking people whose culture bore clear links to the imperial past. The site itself consists of a towering citadel mound and a 24-hectare lower town. Its importance in the early Iron Age has been conclusively established by Syrian archaeologists, who have uncovered a major temple, decorated with sculptures in the earliest Neo-Hittite style, on the summit of the acropolis.

Was 'Ain Dara, like so many Neo-Hittite sites, a new foundation in the Iron Age, or a place where settlement extended back into the Bronze Age? What of the daily lives of the people who inhabited the site in these dark times? Such questions could not be answered by the Syrian excavations because the builders of the temple had done their work so thoroughly: a foundation of stone rubble several meters deep isolated the building from its surroundings and obscured its past.

Thus, when given the chance to initiate an investigation of the lower tell, we were not slow to accept. The opportunity for American involvement at this intriguing site sprang from Syrian generosity and, indirectly, the Fulbright program. We were spending a year at the University of Aleppo and vis-

ited the Syrian expedition in the autumn of 1981. Dr. Ali Abou As-saf and Wahid Khayyata, the directors, responded to our query about what was in the settlement mound with an invitation to join them and find out. Their own resources were committed to the obvious first priority of clearing the temple, but they very much wished to know what lay below and were willing to assist us in every way possible. The following spring, accompanied by two graduate students in Anthropology at SUNY, Stony Brook, Kathy Yunger and Steven Ericson, we began our investigation.

The lower tell, like the citadel mound itself, clearly had a long history of settlement, and our first objective was to determine when it was occupied and how substantial were the remains of each period. Initially it was by no means certain that there even was an early Iron Age settlement at the site; one friend went so far as to suggest the whole lower tell might be a Roman camp. To answer this question, a twofold strategy of investigation was adopted. First, all



Fragment of horse-and-rider clay figurine.



Egyptian scarab found in a pit of Iron Age II context.

the pottery from the surface was collected and frequencies of diagnostic types for each historical period were plotted for every 50-meter square on the contour map of the site. Second, three slit trenches were opened at different surface elevations to be sure that the survey was giving us an accurate idea of what was in the ground as well as on it, and to provide some idea of how accessible the Iron Age levels were. The findings of this preliminary season were encouraging. The lower town appeared to have reached the approximate dimensions of the modern tell as early as the Late Bronze Age and to have had a long sequence of domestic architecture spanning the early Iron Age. There were also traces of Hellenistic and Byzantine occupation, but nothing that would prevent us from reaching the Iron Age levels with relative facility.

In the summer of 1983, the American contingent returned to 'Ain Dara, this time with the support of a generous grant from the National Geographic Society, and initiated what we hope will be a long-term program of excavating larger horizontal units and tracing the sequence of changes in archaeological assemblages back through the Iron Age and into the Bronze Age. A crew of fourteen local workers was hired for the basic task of earth removal, while the skilled pick work was performed by the authors, two more students from Stony Brook, Virginia Hiesey and Edward Luby, and a graduate of Aleppo University's new program in ancient Semitic languages, Hamido Hammadeh. Two 10 x 10 meter squares were opened, and in the seven-week season between the end of the holy month of Ramadan and the beginning of the academic year they were cleared to a depth of nearly two meters below the surface.

At the end of the season we were still at a relatively late level in the Iron Age sequence, but already there were some surprises. We had expected to find ourselves in a domestic context, and we did: the area was riddled with pits, criss-crossed with mud brick walls, and featured one small room with a long series of super-

imposed bread ovens. But in addition there was evidence that the people who lived here were by no means isolated or impoverished. From one pit came an Egyptian scarab and from another a large red slipped and burnished ceramic tub. Large ashlar blocks had been removed from some nearby structure and reused for the foundation of a major wall that belonged to no simple house. Pins and pieces of inlay in bone and ivory, along with a few clay figurines and a small, crude lion carved from basalt, reinforce the general impression of a lifestyle not immune to beauty or external contact.

It is premature to say much more of the results of this season, let alone relate the findings to the general problem of human adaptation in the Iron Age. Pottery, pollen, carbon, and soil samples have

been collected, but remain to be analyzed. What can be said at this juncture is that a cooperative project is "alive and well" despite the rather grim state of Syrian-American political relations. The excavation team, whose members communicate with each other in Arabic, English, Kurdish, and occasionally German, is at least as heterogeneous as the ancient people it is studying, but this diversity enhances rather than inhibits the work. The Chinese notion that it is a curse to live in "interesting times" fits neither ancient nor modern 'Ain Dara.

Paul Zimansky is a newly-appointed Assistant Professor of Near Eastern Archaeology in the Department of Archaeology at Boston University. Elizabeth C. Stone is an Assistant Professor of Anthropology at the State University of New York, Stony Brook.



Elizabeth Stone drawing a profile of ash layers.



Expedition staff of the 'Ain Dara project. Seated on the temple façade are, from left to right: Abu Faiyez, Ali Abou Assaf, Hamido Hammadeh, Edward Luby, Virginia Hiesey, Abu Ibrahim, Elizabeth Stone, Wahid Khayyata, and Burhan Nisani. In the back row: Paul Zimansky, an unknown interloper, and Mahmud Hassani.

Boston Society Honors AIA

The return of the country's first and largest archaeological organization to Boston and the establishment of its national headquarters at Boston University was celebrated on October 6, 1983, at a gala reception at the Boston Athenaeum. Held by the Boston Society of the Archaeological Institute of America, the fete honored the national organization as well as the employees of the AIA national office, now located in temporary quarters at 808 Commonwealth Avenue (see *Context* 2:4 [1983] 1). Lt. Gov. John Kerry, representing Gov. Michael Dukakis, read a proclamation from the Governor that named October 6 "Archaeological Institute of America Day" in the Commonwealth. Machteld Mellink, President of the Archaeological Institute of America, received the proclamation from Lt. Gov. Kerry and spoke briefly about the significance of the move to Boston. Jon Westling, Associate Provost of Boston University, spoke on behalf of President John Silber in welcoming the AIA to Boston. He indicated the commitment that the University has to the study of the past through the discipline of archaeology, saying that the move of an organization as large and as prestigious as the AIA to Boston University was only one of the most visible means of realizing this commitment. Raymond Liddell, Executive Director of the AIA, thanked everyone for the warm welcome and mentioned that the Institute has not been idle since its move, for it has already begun work on matching challenge grants from the National Endowment for the Humanities and the Kress Foundation.

Over one-hundred invited guests attended the reception, many of them members of the local archaeological community. Professor James Wiseman, Vice-President of the AIA and Chairman of the Department of Archaeology at Boston University, expressed his pleasure at the AIA move. He, like the others who attended, seemed to find the Boston Athenaeum an ideal setting for the

event. The book-lined walls and antique furnishings of the reception hall were at once evocative of old Boston and of the search for knowledge about the past, certainly appropriate given the purpose of the evening.

Following the reception, guests walked to King's Chapel on Tremont Street, where Professor Wiseman introduced Stephen Mrozowski, newly-appointed City Archaeologist, who spoke briefly about his plans for Boston archaeology. Mrozowski's talk formed the prelude for Dr. Ricardo Elia's illustrated lecture, "Paul Revere's Houselot and Beyond: Early Boston Underground." As Director of the Office of Public Archaeology at Boston University, Elia directed recent test excavations at the Revere property and codirected, with Professor Mary Beaudry, the Center for Archaeological Studies field school in urban archaeology at the nearby Wilkinson Backlot Site (see *Context* 3:1-2 [1983] 5-10). His talk was the first public presentation of the results of both of these exciting projects.

Update on the Blackstone Block

by Mary Beaudry

The last issue of *Context* (3:1-2 [1983] 8-10) described the results of the Center for Archaeological Studies field school in urban archaeology, held at the Wilkinson Backlot Site in downtown Boston. *Context* went to press before we made an exciting discovery: a seventeenth-century feature filled with well-preserved food remains and architectural debris. This rectangular feature, which had once possibly served as a sawpit, was of such significance that the Center was able to obtain an emergency grant from the National Endowment for the Humanities to salvage it. Salvage excavations took place in August, under the direction of Mary Beaudry and Ricardo Elia. Boston University students Tamara Wamsley, Judy Dolan, Douglas George, Richard Kanaski, Cooper Wamsley, Erika Albert, John Shea, Jerry Maccom-



Presentation of the governor's proclamation, naming October 6, 1983 "Archaeological Institute of America Day" in the Commonwealth of Massachusetts. From left to right: Professor James Wiseman, Director of the Center for Archaeological Studies; Jon Westling, Associate Provost of Boston University; John Kerry, Lt. Gov. of Massachusetts; Machteld Mellink, President of the AIA; Raymond Liddell, Executive Director of the AIA; and Charles Barry, Massachusetts Secretary of Public Safety.

ber, and Lauren Cook all participated in the excavations, volunteering much of their time.

The seventeenth-century feature was located at a depth of almost 6 feet below the present surface, in a layer of wood chips and leather trimmings. Because it was partially waterlogged, the preservation conditions were excellent. The pit had been backfilled with architectural components of a seventeenth-century timber-frame house. These framing members, identified by Dr. Abbott Lowell Cummings, Director of the Society for the Preservation of New England Antiquities, included a principal rafter, common rafter, and principal purlin. Other architectural remains consisted of lathes, roof boards, wattles, roughcast, a trunnel or "tree-nail," and interior trim fragments: among these a piece of a drop pendant, possibly from the newel post of a stairway. It seems likely that these elements represent the remains of a house destroyed in one of the fires that

swept through Boston in the late seventeenth century.

The fill of the feature also produced a wide spectrum of well-preserved food remains such as seeds, fruit pits, faunal remains, and even raisins. The phenomenal preservation conditions also resulted in the survival of fragments of textile, fish net, gilded straight pins, gold thread, leather, and a seventeenth-century scrub brush. The wide range of materials not usually found on sites of this time period will enable us to add immeasurably to what we already know about the foodways of seventeenth-century Bostonians. In addition, these materials will provide new insight into the tradition of vernacular timber-frame building in an urban area that retains only one of its earliest buildings: the much-altered Paul Revere House.



Framing members from a seventeenth-century house found in a partly water-logged feature at the Wilkinson Backlot Site, including a principal rafter, common rafter, principal purlin, and roof boards. These unusual finds and many organic remains were recovered from the feature.

Center Workshops

Making Stone Tools

In January John Shea will conduct a four-session workshop on the production and use of flaked stone tools. Students will be trained in the actual production of stone tools using the "soft-" and "hard-hammer" techniques of flintknapping. A series of controlled experiments with the implements manufactured in the course will be conducted to test the performance characteristics and uses of stone tools in antiquity. Various materials will be described and used, including local New England felsite and Belizian "Sand Hill" chert, highly valued in the antiquity of Mesoamerica.

John Shea is a staff member of the Belize Archaic Archaeological Reconnaissance Project. He is currently conducting use-wear studies on the stone artifacts found in the Belize excavations (see *Context* 3:1-2 [1983] 18-19).

Four three-hour sessions will be held from 1 to 4 p.m. on January 14, 15 and 21, 22. Registration and a \$95 fee (\$115 for non-members) are due by January 11, 1984.

Artifacts and Historical Archaeology

In February, Assistant Professor Mary Beaudry will conduct a workshop on the identification and treatment of artifacts from New England historical sites. Materials from seventeenth to nineteenth-century sites will be examined, including those from recent excavations conducted by the Center at the Paul Revere House and the Blackstone Block in downtown Boston (see *Context* 3:1-2 [1983] 5-10).

Hands-on experience in laboratory processing, including washing, labeling, cataloguing, and mending of ceramics, glass, and other materials will be provided. Considerations of the significance of excavated material in dating and interpreting sites will also be a focus of the workshop.

There will be four sessions, from 1 to 4 p.m. on Saturdays and Sundays over two weekends. The first sessions will be held on February 4 and 5 and the second on February 11 and 12. The registration form and a \$95 fee (\$115 for non-members) are due by February 2.

Photography for Archaeology

In March, Fritz Hemans will conduct a workshop on the basic techniques of black and white photography and its application to archaeology. No previous experience will be assumed, although participants will need to provide their own 35mm camera (larger formats will be acceptable).

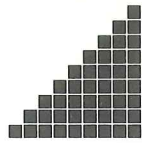
In addition to learning the basic processes of shooting, developing, and printing black and white film, an aim of the workshop is to familiarize the students with the properties of light and the performance of various photo materials. Particular problems of archaeological photography, such as distortion of features, studio and field lighting, the creation of archives, and preparing for publication will be explored. A variety of archaeological materials will be experimented with: ceramic, flora, fauna, and lithic.

Meetings will be held on four consecutive Saturdays, March 3-24, from 1 to 4 p.m. Registration and a \$95 fee (\$115 for non-members) are due by February 29.

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CALENDAR

Thursday, January 19

Departmental Colloquium: Dr. Heather Lechtman, Professor of Archaeology and Ancient Technology at Massachusetts Institute of Technology and Director of the Center for Materials Research in Archaeology and Ethnology (CMRAE), "Technologies of Power-the Andean Case."

Weekends, January 14, 15 and 21, 22

Center Workshop: John Shea, Boston University, "Making Stone Tools," Saturdays and Sundays from 1 to 4 p.m. See page 11 for details.

Thursday, January 26

Departmental Colloquium: Lydia Pulsipher, Assistant Professor of Geography, University of Tennessee, "Geography, Archaeology, and Ethnoarchaeology Conspire to Solve the Water Puzzle on an Eighteenth-Century Caribbean Plantation."

Weekends, February 4, 5 and 11, 12

Center Workshop: Mary Beaudry, Assistant Professor of Archaeology, Boston University, "Artifacts and Historical Archaeology," Saturdays and Sundays from 1 to 4 p.m. See page 11 for details.

Thursday, February 16

Departmental Colloquium: Kent Lightfoot, Professor of Anthropology, State University of New York at Stony Brook, "Prehistoric Political Organization: A Case Example from the American Southwest."

Wednesday, February 29

Center Lecture: Peter Schmidt, Associate Research Professor of Anthropology, Brown University, "The Ethnoarchaeology and Archaeology of a Complex African Technology."

Weekends, March 3, 10, 17, and 24

Center Workshop: Frederick Hemans, Research Fellow in Archaeology, Boston University, "Photography for Archaeology," Saturdays from 1 to 4 p.m. See page 11 for details.

Thursday, March 22

Departmental Colloquium: Philip Kohl, Professor of Anthropology, Wellesley College, "Soviet Archaeology in Central Asia: A General Assessment."

Tuesday, April 10

Center Lecture: Karl Butzer, Henry Schultz Professor of Environmental Archaeology, University of Chicago, "Beniali: Historical Archaeology of a Fifteenth-Century Muslim Hill Village near Valencia, Spain." Professor Butzer's visit is cosponsored by the Humanities Foundation of Boston University and the Boston Society of the Archaeological Institute of America.

Thursday, April 12

Departmental Colloquium: Karl Butzer, Henry Schultz Professor of Environmental Archaeology, University of Chicago, "Floods, Alluvial History, and Urban Geo-Archaeology in Alzira, Eastern Spain."

Thursday, April 19

Departmental Colloquium: Ian Todd, Associate Professor of Classics, Brandeis University, "Recent Research in the Vasilikos Valley in Cyprus."

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

Departmental Colloquia will take place at 4:00 p.m. in Room 501, 725 Commonwealth Avenue.

Center Workshops are held in the Center facilities at 232 and 236 Bay State Road. See page 11 for details.

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

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