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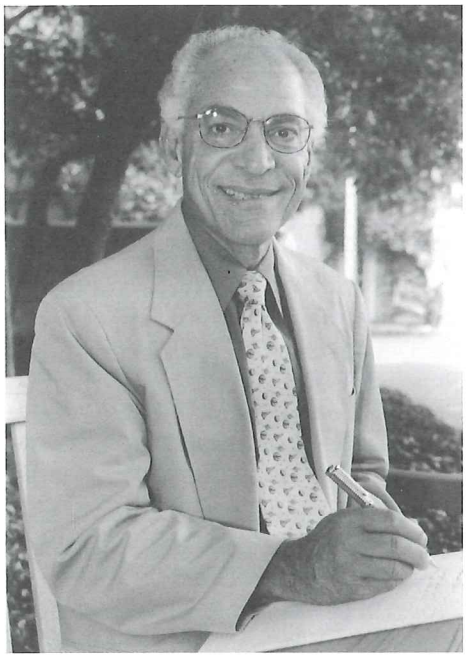
CONTEXT



Dr. Farouk El-Baz is honored for distinguished accomplishments; see story on page 19. Photo by Boston University Photo Services.

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Archaeology in the Balearic Islands of Spain

Investigating the Talayotic Culture on the Island of Menorca

by James Wiseman and Amalia Pérez-Juez

Boston University archaeologists and students joined a Spanish team conducting archaeological investigations in summer 2001 at Talatí de Dalt, an Iron Age site of the Talayotic culture on Menorca (one of the Balearic Islands of Spain), not far from its capital city, Mahón. This article provides background on the Talayotic culture, a report on the 2001 field school, and plans for future research and a field school on the island.

Warriors from the Balearic Islands off the Mediterranean coast of Spain earned a reputation for being "formidable warriors with the sling," *funda bellicosas*, as Pliny the Elder (*N.H.* viii.5.77), a distinguished Roman of the first century A.D., expressed it. Balearic slingers became famous as mercenaries for the Carthaginians in their invasion of Sicily (late fifth century B.C.) and their subsequent wars with the Romans, in whose armies they eventually also served. Greek and Roman authors, however, recorded little more about the islands and their inhabitants, so that we have from ancient literature before the Christian period mainly a spare outline of occasional military actions, geographical notes, a few comments on local produce (high-quality wine

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The taula at Talatí de Dalt.

Talayot at Talatí de Dalt.

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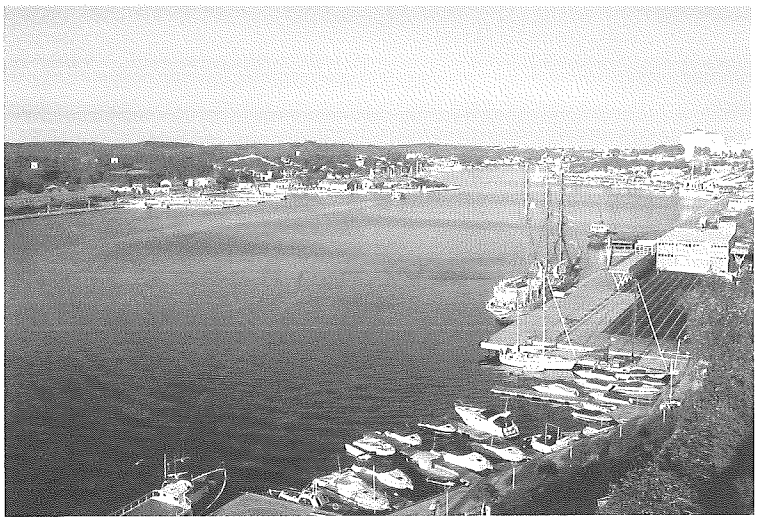
and grain), and anecdotes about social behavior that struck the foreign writers as notably uncivilized or odd: e.g., living in caves or underground; anointing their bodies with turpentine oil; practicing polyandry; and men preferring women and wine to wealth in precious metals.

In contrast to the paucity of ancient literary accounts, the islands themselves are rich in material remains of the past, extending from the earliest occupation of Mallorca, the largest island, at least by the Late Neolithic (fourth millennium B.C.) through historical times. The first inhabitants of Menorca, the easternmost of the islands, seem to have arrived a bit later, sometime in the first half of the third millennium B.C., according to recent carbon-14 dates. Settlements consisting of clustered caves or of stone houses, many with an oval end recalling the shape of a boat, appear on the two main islands in the Bronze Age of the second millennium B. C. But the ancient remains for which the islands are particularly known are the megalithic structures of the Talayotic culture that dot the landscapes of Mallorca and Menorca. The Talayotic culture is named after the talayot, a monumental stone building, usually circular or rectangular in plan, that served as a major, often central, structure in settlements of this long cultural phase, which extended from the Final Bronze Age to the Roman period (ca. 1200 B.C. to 100 B.C.). Talayots may originally have been elite residences or places for some kind of communal activity, but they are tall enough (more than 20 feet high) to provide from their top a view to the distance, which may explain their (modern) name: talayot is derived from an Arabic word for "watchtower." Other characteristic features of Talayotic culture include, from early in the period, burial monuments shaped like upside-down boats (*navetas*) and, of longer use, a walled area for religious ritual marked by a *taula* (="table," an unfortunate misnomer), that is, a central, monumental vertical stone slab capped by a horizontal block. It is the people of this Talayotic culture with which the Phoenicians, Carthaginians, Greeks, Italians, and other ancient seafarers of the Iron Age came into contact and to whom the earliest historical accounts of the Balearic Islands refer.

Despite the ubiquity of Talayotic remains on Menorca and Mallorca, until recently there have been only limited modern archaeological investigations: many of the settlements and funeral monuments have always been visible, and so for centuries attracted interested visitors, people seeking antiquities, and some scholars. During the past few decades on Menorca, however, there has been an increased focus both on site preservation and on archaeological investigations, especially by Spanish archaeologists affiliated with the Museu de Menorca in Mahón and a few foreign scholars, including William H. Waldren, the distinguished expert on the Balearic Islands who is based at the University of Oxford, U.K., and the Deia Archaeological Museum and Research Centre on Mallorca. The opportunity for Boston University to become involved in research on Menorca was developed by one of the authors of this article, Amalia Pérez-Juez, an archaeologist and Assistant Director of Boston University's Program in Madrid, who laid the groundwork for us to join the Museu de Menorca and a private group, the Amics del Museu de Menorca (Friends of the Menorca Museum), in their final season of field work at Talatí de Dalt, a Talayotic site whose

The 2002 Menorca Field School students with Professors James Wiseman (front center) and Amalia Pérez-Juez (front row, far right).



The harbor of Mahón, capital of Menorca. Mahón is derived from Mago, a Carthaginian general and younger brother of Hannibal, who built a fort above the port in the late third century B.C.

visible monuments are familiar to most residents and visitors to the island.

The aim of the overall project, directed by Gustau Joan de Benejem for the Menorcan team, was to study the spatial arrangements of buildings and interconnections in an area near the principal talayot of the settlement, and it was agreed that Boston University would be able to involve students of its archaeological field school in the research program. Accordingly, the two authors of this report served as co-directors of the project and field school in 2001, working closely with Spanish colleagues and assisted by two Boston University graduate students in archaeology, Abbi Holt and Kevin Mullen. Our twenty-one undergraduate students were immersed (along with the rest of us!) in the research program, including excavation, surveying, and documentation at Talatí, followed by work at the museum: cleaning, drawing, and cataloging the excavated artifacts, and conducting other museum studies. A new dimension was added to these customary components of the field school by involving the students in discussions and activities of heritage management and site presentation, long-time concerns of our archaeology program, and special interests of one us (A.P-J.). A number of special projects were undertaken by groups of students, whose participation was facilitated by rotating teams of students, some of whom would spend their mornings in field work, while others were based in the museum. Examples of student projects included the following. One group created an illustrated brochure describing Talatí de Dalt and the ongoing excavations, copies of which were then offered to visitors to the site. Another group put together images and voice-over text on a CD about the field school and the ancient peoples of Menorca, as an illustration of what might be played in a visitors' center. Many of the students also served as site interpreters for visitors to Talatí, giving short talks and answering questions in Spanish, French, and German, as well as English.

The daily routine of the field school began with field work for three teams and museum work for one team in the morning; in the afternoon and early evening, all students were involved in study and processing of artifacts, and attending lectures on the archaeology and history of Menorca, and its relations to the rest of the Mediterranean world through time. On weekends and some afternoons there were field trips on the island to archaeological sites and cultural monuments ranging in date from earliest prehistory to modern times.

The results of our archaeological investigations in 2001 were limited mainly to the later phases of occupation at Talatí, including a residential area of the later Talayotic period, coinciding with the time of Roman domination (after the second century B.C.), alongside a paved courtyard or street giving access to other partially subterranean stone structures used for residential and storage purposes. The material culture included both locally made Talayotic pottery, as well as imported amphoras, Campanian (Italian) table ware, and items of jewelry. Some rough field walls might have served as pens for animals, as stones reused for drinking troughs also indicate, during the period following the Muslim conquest of the islands in the eighth century A.D.

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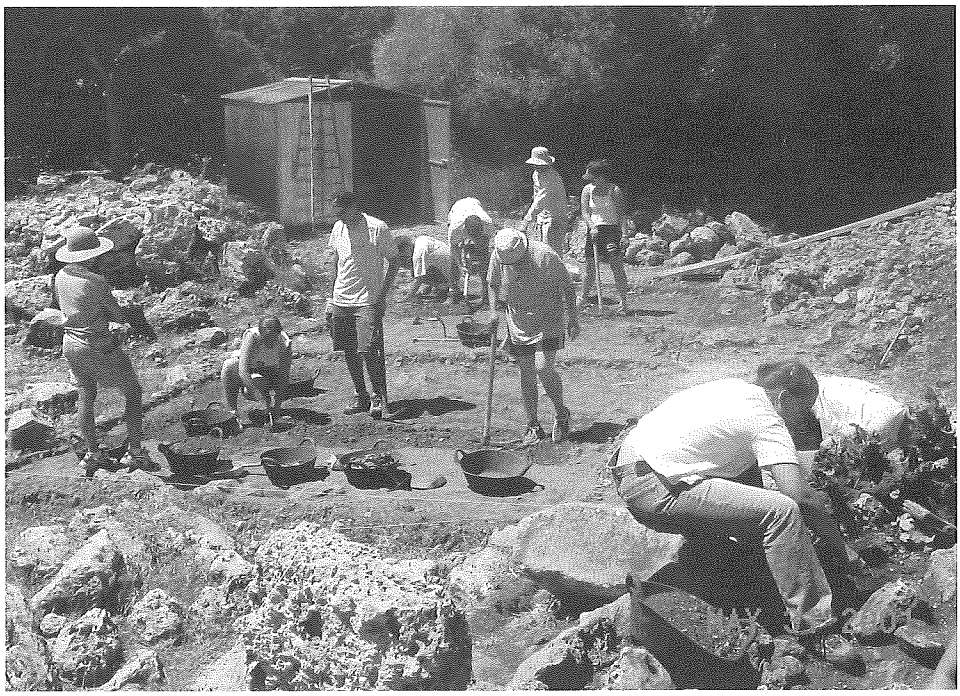

Abbi Holt (left) oversees excavation by field school students at Talatí in 2001.

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In subsequent centuries the area seems to have been used principally for agricultural purposes, as plow marks were detected in the most recent stratified layers. The 2001 field campaign was the final season of the project, and the site, which is on private property, has now been turned over to a private firm to carry out site protection and presentation to the public.

The successes both of the research program and the operation of the field school have encouraged us to accept the invitation to join the Museum and the Friends of the Museum in the archaeological investigation of Torre d'en Gaumès, the largest Talayotic settlement on the island, about twenty minutes by car from Mahón. The settlement, dominated by three large talayots, has been the site of archaeological investigations in the past, but there are large areas still unexcavated and not yet surveyed. The site is under the control of the Menorcan government (in contrast to privately owned Talatí de Dalt), which is committing resources to the museum for long-term investigations and site preservation. The new joint work, and a Boston University field school, will begin in summer 2002 and will include interdisciplinary fieldwork, museum studies, and field trips to cultural monuments throughout the island. The aim of the new joint project is to investigate residential and community life in the settlement over time, with a particular focus in 2002 on a suspected communal area and within a nearby residential structure.

James Wiseman is Professor of Archaeology, Art History, and Classics, and is Director of the Center for Archaeological Studies at Boston University. Amalia Pérez-Juez, who received her Ph.D. in archaeology at the Autónoma University of Madrid in 2001, is Assistant Director of Boston University's Program in Madrid. *The authors thank Lluís Plantalamor Massanet, Director of the Museu de Menorca; Gustau Joan; and Joaquim Pons for their congenial cooperation in Menorca.*

Timeline for Menorca, Baleares

B.C.	
Before 3000	Earliest inhabitants of Mallorca.
3000-2500	Earliest inhabitants of Menorca.
2500-1200	Pre-Talayotic Period: Chalcolithic and Bronze Ages.
1200-100	Talayotic Period.
9th c.	Phoenicians found Carthage in North Africa, and trading posts in Spain and other regions of the west Mediterranean.
Late 7th-6th c.	Phoenicians from Andalusia and Carthaginians found colonies on Ibiza in the Balearic Islands.
573	Fall of Tyre to Nebuchadnezzar brings about interruption of trade between Iberia and Phoenicia; rise of hegemony of Carthage.
406	Carthaginians recruit mercenaries in Balearic Islands for campaign in Sicily.
240	Balearic mercenaries in service of Carthaginians in Sicily after revolt of 240 B.C..
218-202	Second Punic War. Hannibal invades Italy in 218; uses Balearic slingers in Spain and Africa, and others with him in Italy (total: 2000-3,000). Timaeus claimed the population of the Baleares was ca. 30,000.
206/205	Scipio victorious in Spain; returns to Rome. Mago, younger brother of Hannibal, takes Carthaginian fleet to Ibiza, then to Menorca where he fortifies a place above the harbor, which came to be called Portus Magonis, hence Mahón. Mago took possession of island without opposition; recruited 2,000 auxiliaries.
202	Balearic slingers serve in Hannibal's Carthaginian army at Zama in North Africa where Scipio defeats Hannibal to end the Second Punic War. North Africa and Spain controlled by Rome.
123-122	Q. Caecilius Metellus conquers Balearic islands where pirates were alleged to be based. Widespread slaughter by Romans. Some 3,000 Romans colonize Pollentia and Palma on Mallorca.
47	Pompey the Great occupies the Balearic Islands.
Reign of Augustus	Balearic Islanders seek military aid from Rome to kill rabbits which so infested the islands that famine occurred.
A.D.	
74	Mago (Mahon) and Iamo (Ciutadella) on Menorca promoted to rank of *municipia* (towns with a Roman constitution), along with many other Spanish towns.
411	First raids on the islands by Vandals.
416(?)	Bishop Severus carries out forced conversion of Jews on Menorca.
467	Balearic Islands incorporated into Vandalic Kingdom of North Africa.
535	Conquest of North Africa and the islands by Byzantine Empire.
624	Menorca autonomous.
711	Muslim invasion of Iberian peninsula.
768	Muslim conquest of Balearic Islands.

White Shaman Shelter

A dialogue that might have been.

by Al B. Wesolowsky

"A discrepancy, you say? On a photograph?" I asked the student. "Have we met?"

"No, sir. my name is Ramsey. I'm over in Museum Studies, Conservation, actually. It's probably nothing, but my dissertation proposal is next month and maybe you can explain something. I may get asked."

"I'll try," I replied. "Who's your supervisor?"

"Professor Greely. He said you could help."

"Nathan Greely? I've not seen him in years. Still keen on paint, is he?"

"Pigments, actually. I'm working on the stability of rock art. Pictographs, really. Factors that affect their preservation. How to stabilize them without injuring them. Long-term effects, mainly."

"I'm an archaeologist," I reminded him. "Not a good person to ask about stability." I smiled, but I don't think he got the joke.

"Yes, sir, I know. I mean, there's this cave you dug. A rock shelter. Actually, you didn't dig it—back in the 1960s in the Pecos River country, before Amistad Reservoir was finished."

"Oh, the salvage work, we called it then. Now it's 'Cultural Resource Management," I believe. Very dramatic country, western Texas. Arid, vast exposures of limestone cut up by river canyons. Sparsely populated, ranches covering thousands of acres. Not much vegetation. Never did understand what the livestock can find to eat."

"Yes, sir. The dry climate makes it ideal for preserving rock art, though. I've been assembling images of the pictographs—the rock paintings—in the area. Photographs, mainly, but also watercolors and drawings from the 1930s, in the Kirkland volume.

"I'm assessing how the pictographs have deteriorated since the 1930s. I've assembled series of images, showing the changes over the years."

"Sensible. What have you found?"

"Vandalism is the easiest problem to identify. People scratching their name on the figures, marking over them with spray paint. Even shooting at them. But the really spectacular sites are protected now, so not much of that sort of damage. What I'm really interested in are chemical processes that operate on pigments, which colors hold up the best, environmental changes, moisture, that sort of thing."

"I see. A longitudinal study employing archival materials as well as archaeological evidence. I was afraid that you wanted interpretations of rock art. Too speculative a field for me. Frankly, for all their beauty, rock art can be very difficult to deal with archaeologically. No stratigraphy, no real context, no associated artifacts—just painting on a cave wall. Archaeologically speaking, the stuff could have been put up last week.

"Mostly," I continued, "it's just zigzags and wobbly lines with figures that could be almost anything. Some animals we can recognize, of course, like that enormous felid in Catamount Cave. What it meant to the Indians is anyone's guess."

"I'm familiar with those problems, sir. My study concerns chemical processes and their effects."

"Forgive me, son, I do ramble. You said something about a discrepancy?"

"Here, sir," Ramsey said, spreading photographs across the desk. "Here's Catamount, to give you a sense of what I'm doing. This watercolor was made in 1932 by Forrest Kirkland and here's a photograph that was taken in 1934. Kirkland had a keen eye for detail but he tended to fill in deteriorating areas. The photograph shows faded areas, by the leg, and on the tail? The watercolor does not.

"Now," he continued, "it could be that the deterioration we see in the photograph took place in the two years after Kirkland made the painting. But look here—photos from 1938, another from the 1940s, and Newcomb's photos from 1958. Here's mine from this summer. The damaged parts are no larger. The photos from 1934 to the present show little change. Far less change than we see between the 1932 painting and the 1934 photo."

"I'm an archaeologist," I reminded him. "Not a good person to ask about stability." I smiled, but I don't think he got the joke.

"So," I said, "the art is pretty stable."

"When left alone, yes. Over 75 years, anyway, little change at this site. But look here."

"Oh, I recognize this one," I said as the views of hand prints on a rock surface were spread out. "'Seven-Hand Shelter,' on the Devil's River."

"Right. Again, Kirkland 1932, photos from 1935, 1939, 1949, 1958. Here's yours from 1966. They all show very little change, yes?"

"That's right. The hand prints are all very sharp. See where this one is missing the last joint? Very crisp line terminating the digit."

"Now this photo is from 1979, after the reservoir rose to within 30 feet of the shelter."

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2002 Archaeological Field School: Menorca

Dates: May 24 to July 5, 2002
Base: Mahón, port city and capital
Excavations: at Torre d'en Gaumès, Talayotic site about 20 minutes drive from Mahón.

There is still time to apply! For information and application procedures, visit the website:http://www.bu.edu/abroad/countries/menorca_summer/index.html.

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"Oh, dear," I sighed, "they've faded dreadfully. Vandals?"

"No," Ramsey responded. "Until the mid-1970s the Devil's River was a small stream on the floor of a steep canyon. With the reservoir on the Rio Grande just downstream, water backed up into the feeder canyons and increased ambient humidity. Probably the first significant change in the immediate environment in thousands of years. The pigment absorbs moisture directly from the air. Coloring agents—ochre for the red, soot for the black—simply leached out."

"Is it the same at all the rock art sites on the Devil's? There are scores of them."

"All those close to the water in the flood pool, I'm afraid."

"I see. I'm beginning to understand your study now. But Catamount Cave is still all right. Of course, it's on a dry canyon below the dam. No reservoir there. This is fascinating."

"Why, thank you, sir," he said. "Now we come to my discrepancy." He opened a new folder. "These images are from a shelter you worked at."

I would not have thought that those pictures would upset me so. Well, it was a generation ago, I thought, and now youngsters want to know what happened. "White Shaman Shelter," I said aloud. "It's been a long time since anyone's asked about it."

My tone must have been sharp, since Ramsey's face jerked up from the photographs with a worried expression. "Oh, I didn't mean that you did anything, sir," he blurted, "I'm hoping you can recall something about the pictograph. No one thinks you damaged it, I'm sure."

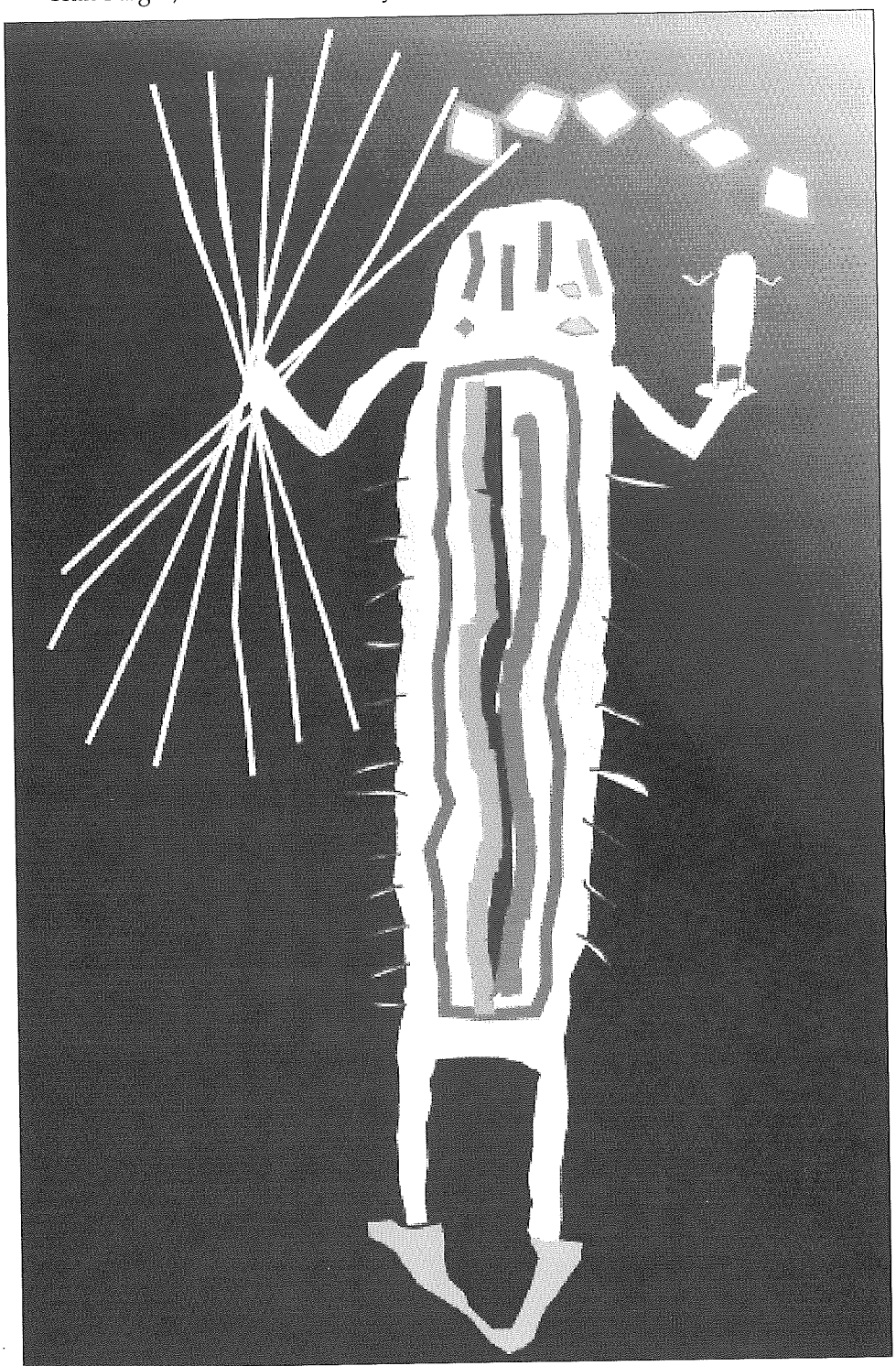
He must not know what happened, I realized. Greely hasn't sent him over to pester me about Nearlith. "We may be talking at cross-purposes, Mr. Ramsey," I assured him, "What is it you have?"

He was rattled and began to hurry along, using a more formal tone, not the relaxed collegiality of a moment earlier. He recited "White Shaman Shelter is named for a remarkable depiction, life-size, of ... of ..."

"A shaman figure," I completed, trying to calm him down. "Or so they term it."

"That's right, sir. There are many 'shaman' figures known from the rock art of the Pecos area, but none so large, so well-done as this one."

"And done in white," I added, my eyes no longer seeing the photographs but looking back across decades. "You couldn't see it from the shelter proper, which was over 100 feet wide by 30 feet deep. There was this natural opening—a cleft—in the back wall. You could turn sideways and scuttle back into it about 30 feet until it opened up into a small, round chamber about 25 feet across. A fissure, a 'chimney,' from the top of the



"A 'chimney,' from the top of the canyon rim penetrated the roof of the chamber, letting light fall upon the far wall. Onto the White Shaman."

canyon rim penetrated the roof of the chamber, letting light fall upon the far wall. Onto the White Shaman.

"He—it, whatever—was brilliant in that beam of natural light. Pure white, with the red and black fringe around the edge. A good six feet tall he was, standing there, illuminating the chamber. Whoever painted him was a master of light and space. Light even reflected off a large patch of flowstone, calcium carbonate, dripping down from the chimney and forming a sort of white pavement at his feet.

"The classic Shaman figure of Pecos rock art," I went on, "has an elongated, sometimes fringed, mass for the torso which sometimes merges into the head, with arms and legs that are, often, spindly. They may represent the peyote cactus or Datura plant in a humanized form. Spirit guide, guardian, whatever they represent, they emit a palpable sense of power. The combination of plant and human is unearthly, and all expression exists in the latent power of the rugose body mass."

After a silence, Ramsey said "It is powerful, isn't it? I've only found two earlier images of it. One from 1934, and the photograph you took in 1966."

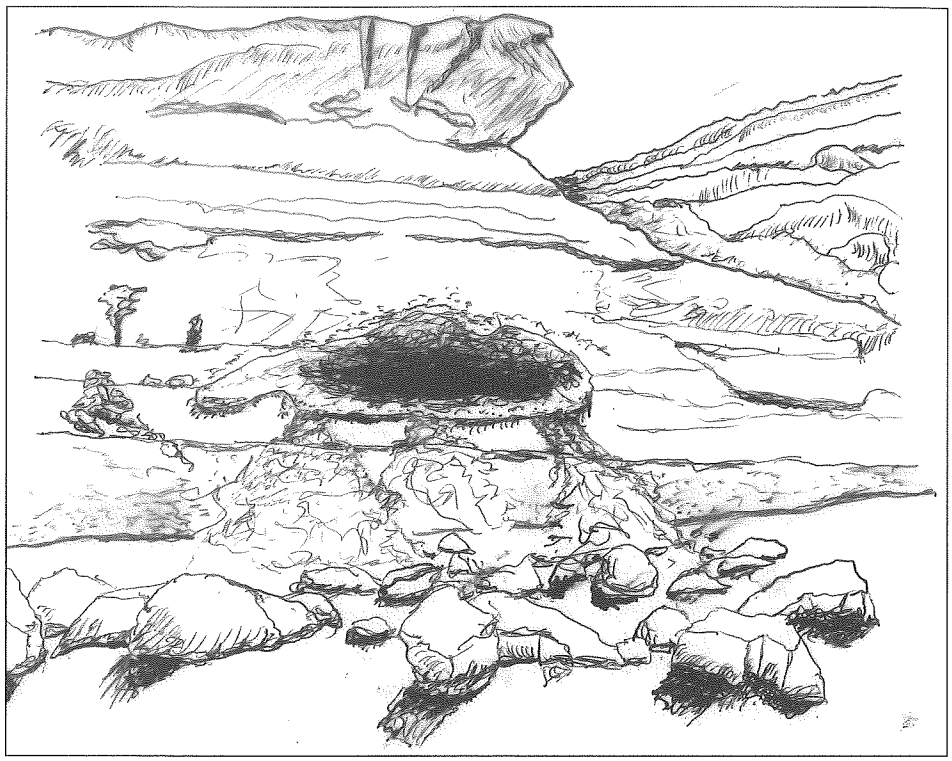
"Not surprising," I said, "The shelter is on private land. The owner didn't like visitors. Only my friendship with a local man gained us access to that site."

"Would that have been Francisco Wong?"

"'Pancho' Wong. Yes. Family descended from a Chinese railway worker who stayed on. His uncle, Pablo, had a liquor store in Mexico, across the river from Del Rio."

"I visited the site last month," Ramsey said. "The old landowner died a few years ago and his heirs are much more welcoming. The pictographs are holding up well, but...well, let me show you. The 1934 and 1966 photos show an identical figure."

"Let me see," I said. "Yes, there was really only one place to stand to photograph it. Contours of the far wall of the chamber blocked the view until you got to the edge of the flowstone. I stood in the same spot as Kirkland."



The entrance to white Shaman Shelter in the cliff face. "Very dramatic country, western Texas. Arid, vast exposures of limestone cut by river canyons."

"Yes, sir. Would you tell me what you see here?"

"Very well. There's the Shaman, of course, standing beneath a curving band containing linked diamond shapes. A rattlesnake maybe, the Western diamondback, but there's nothing to suggest head or tail. The Shaman is done in white but otherwise pretty much the usual form that we see in black or red. Long body, square at the bottom, curved at the top, with small strokes like a fringe along the edges. The feet are planted on either side of a V-shaped design, like a man with a foot on either side of a gully. The arms and legs are very simple—sticklike, almost. Interesting how the Indians emphasized the power of the body, the central mass, leaving the limbs vestigial."

"The left hand is holding what resembles a small shaman figure, minus the limbs. Some plant, maybe. The right hand is holding...yes, I remember, these elongated things, nearly as tall as the figure itself. 'Darts' Kirkland called them. Spears or lances. They are bunched together at the fist, but the ends are separated. Hmm...five, six, seven. Yes. Seven darts, all done in black, the arms and legs are fringed in red. That's about it."

"I agree, sir. Your published account gave a detailed description though this is one of the few sites you didn't at least test."

"That's right. We had to leave. The sheriff persuaded the landowner to let us go back for our equipment."

"How did the sheriff get involved?"

"Did you notice the dedication in the report?"

"Yes. 'In memory of Jerry Nearlith.' He was a professor here, and the original leader of your project."

"Right. I inherited the project after his death."

"He died during the project?"

"Yes, in White Shaman Shelter."

"Oh. Heart attack?"

"Nothing so mundane for Jerry Nearlith. He was killed by a bolt of lightning."

"Inside the shelter?"

"Yes. Well, inside the inner chamber. It was our first day there. We'd mapped the site, taken photographs, set up a grid in the shelter—that sort of thing. We'd had to make several trips to haul our gear down from the

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canyon rim. Took us a good half hour to climb down to the site, longer to get back up. Very broken country, huge boulders all over the canyon floor. We had to carry in water, too."

"How big was the crew?"

"Pancho, two other local fellows, three students, myself, and Jerry. Eight, all told. This was in June, very warm and sunny. No clouds, little breeze, and the only shade was in the shelter. Pancho and one of the students—Price—were tying string onto the corner stakes we had driven in for the excavation units. This was right after lunch. I was writing in the daily log and the others were sorting out the forms and bags from the supply box."

"No one was digging?"

"No, not yet. Someone was assembling the sawhorses for the sieving screens. Nearlith—he was fascinated by the inner chamber—took a shovel back inside the cleft to see if any excavation was possible."

"How so?"

"The flowstone pretty much covered the floor, and we didn't know if there was earth or just more rock beneath it. Nearlith thought that the flowstone could have been a cap over archaeological deposits, preventing any later disturbance. He'd worked at Cuevo de los Muertos, that burial cave not far away, and hoped this site might prove similar. He'd been talking about how an inner chamber would have been perfect for burials, and the pictograph made an interesting association. 'Tomb of the White Shaman,' he joked."

"Was there earth beneath the flowstone?"

"Um...we never found out. Jerry was back pretty quick, complaining that the stone was thicker than he'd thought. He needed something to break it up a bit. He got the maul that we used for corner stakes and went back into the cleft. I remember seeing he'd left his shovel out with us.

"A minute later the shelter lit up—Flash!—with this astonishing brilliance, like a thousand strobe lights going off at once. Color washed out of everything. Just pure whites and stark black shadows, like the world had become a giant negative. Lord, was it bright! Pancho was facing the back of the shelter when it hit, and he was seeing spots for the rest of the day.

"Then the thunderclap. BLAM! The sound slammed the living rock of the canyon wall. Small pieces of the ceiling spalled off and pattered down on us. Dust flew up everywhere from the concussion. We were stunned, deafened, and windblown. My shirt ballooned out from my back and Pancho's hat went flying out into the canyon."

"Amazing," said Ramsey. "Must have been a terrific shock."

"It was. My first thought was that we must all be dead. I stood up and dropped my clipboard. It vanished into the suspended dust that was swirling around our feet and flowing out the mouth of the shelter.

The bolt had hit him in the chest. Smoke, or steam, was boiling out of this...wound, this crater in his chest. I could see the flowstone floor gleaming through that huge hole in him.

"Price pointed at my face. There was a bloody cut where a bit of stone nicked me. We were all frightened witless. Price was the first to speak. 'Was that lightning?'

"Our ears were ringing and sounds were muffled. Pancho walked towards the cleft, yelling for Nearlith, asking if he were all right. I followed him and we both scuttled into the opening, feeling our way with our hands. The rock was much warmer than it should have been. Pancho stumbled at the widening into the chamber and fell down. In the light streaming in from the roof I could see that he'd stumbled over Jerry. What was left of Jerry."

Ramsey was sitting back in his chair, looking as stunned as Pancho and I must have when we were looking down at that corpse.

"He was stretched out on his back, with his head almost at the passage. The bolt had hit him in the chest. Smoke, or steam, was boiling out of this...wound, this crater in his chest. I could see the flowstone floor gleaming through that huge hole in him. His eyes were wide open. My knees turned to water. I braced myself against the chamber wall. I didn't scream until I realized my palms were gummy, sticking to the wall."

"Oh, no."

"Yes. Jerry's blood was spattered and caked on the wall, about chest high.

"We went back out and told the others. I sent a couple of the students off to the ranch house to telephone the police. Sheriff, actually. The rancher learned he had a fatality on his property and threw a fit. He came out and told us to leave just as soon as the authorities were done with us."

"It must have been a bad afternoon," said Ramsey.

"You got that right. The sheriff and his people told us lightning strikes were not uncommon out there, but he'd never seen one that actually blew a hole through someone. He shone his light on the spray of blood where my hands had been. 'Ejecta'—that was the word he used—from the exit wound in Jerry's back. The hammer was in the middle of the floor, where he must have dropped it. The blast threw him a good ten feet towards the cleft."

"Towards the cleft?" asked Ramsey, "Didn't the lightning come through the shelter first?"

"The sheriff thought the bolt must have come down the chimney in the top of the chamber, hit Jerry, then passed through the cleft and out the shelter. He said lightning does all sorts of weird things."

"'Weird' is right, having someone die like that on a project."

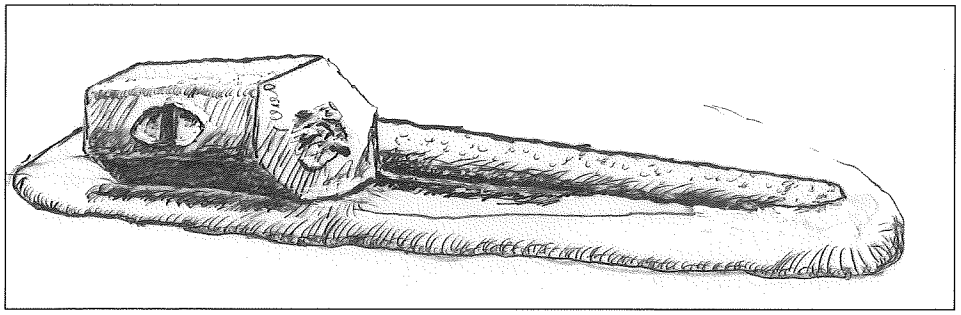
"It was awful," I agreed. "They took Jerry out on a litter. That rancher wanted us off his property pronto. The sheriff persuaded him to let us haul the gear out. I left the crew to do that, and I went into town to make statements and call the University."

"Was the hammer left there, where Dr. Nearlith dropped it?"

"Huh? I have no idea. No, wait. That's right. At the next site we couldn't find it with the other tools. I got a new one in Comstock. I guess we did leave the hammer in the chamber. What makes you ask?"

"I was at the site just last month. The family there told me that some archaeologists were planning to dig at the shelter. Something about a state park facility and interpretive exhibits. There's an easement for Parks and Wildlife so visitors can see the site. But anyway, I found the hammer just where you said it had been dropped, on the floor. Well, in the floor. The flowstone has continued to form and now the maul is embedded in it. I tugged at it, but it's really fastened tight."

"Well, I guess no one has been in there for 35 years," I replied. "Funny, that hammer's now part of the archaeological record."



"The flowstone has continued to form and now the maul is embedded in it....that hammer is now part of the archaeological record."

"The hammer made me think that the pictograph might had been vandalized, but now I guess not," Ramsey said.

"Damaged? Didn't you tell me that the White Shaman was still in good shape?" I asked.

"Look at this photograph of the Shaman. I took it just last month."

"Seems as well preserved as ever," I said.

"Please look at it carefully, sir."

"Very well. Are you all right, son? You look faint."

"I'm fine, sir. Please look at the photograph and tell me what you see."

"As before, here's the 'rattlesnake,' with its diamonds. Here's the mass of the torso, with the little fringes trailing away. All those little strokes of paint look very crisp. No changes there. The feet and the V are there. Here's the hand with the plant. Looks even better than I remember. You're a good photographer, Mr. Ramsey."

"The right hand, sir," he persisted.

"Still holding the darts. No, no changes I can see. The White Shaman looks as good now as it did in 1966, or in 1934, for that matter."

"Sir, the right hand. Count the darts, would you?"

"Let's see...four, five, six? That can't be right. Where's my photograph? Ah, here...five, six...oh...seven. Kirkland's has...seven, too. One dart is missing."

"There's no trace of it at all, sir."

"You don't think it just peeled off the wall, do you? Wouldn't that mean more overall deterioration?"

Ramsey nodded, silent.

"Oh...you're thinking.... That's preposterous! The shaman protecting...? Oh, poor Jerry. Wait. you said there was a new project out there now?"

"That's right. The landowners said the new dig would start...where's my date book? Oh, dear God, this morning!"

Author's Note

While details in this story are altered, there really is a White Shaman Shelter in the Pecos country of Texas. So far as I know, no one has tried excavating it. The illustration of the White Shaman on page 6 is from my archives.

Al Wesolowsky is Managing Editor of the Journal of Field Archaeology *at Boston University. He has done extensive field work in Greece, the former Republic of Yugoslavia, and in southern and southwestern sections of the United States, especially Texas.*

Student/Alum News

Joe Basile (B.A. 1987) recently sent us an update on his activities since graduating from Boston University. He received his Ph.D. from Brown University in Old World Archaeology and Art in 1992 and taught a year at the Boston University Academy. He then joined the faculty of the Maryland Institute College of Art in Baltimore, where he chairs the Art History Department. In 1998 he married Monica Sylvester who attended Boston University from 1985-1987. They have one son, Nicholas, who was born in June, 2000. Joe is also Associate Director of the Brown University excavations at the Great Temple in Petra, Jordan. Friends can reach him by e-mail to: joenmonica@hotmail.com.

Jennifer Boerner, undergraduate archaeology major at Boston University, presented a brown-bag lecture entitled "Daikokumori Kofun: the 2001 Excavation of a Japanese Burial Mound" at the International Center for East Asian Archaeology at Boston University on October 31, 2001.

An article by **Steve Brighton**, graduate student, entitled "Prices That Suit the Times: Shopping For Ceramics at the Five Points," has been published in *Historical Archaeology* 35:3 (2001) 16-30. He also gave a brown-bag talk on "Exploring the Lives of Landless Tenants in 19th-Century Rural Ireland: Findings from Ballykilcline Townland, Co. Roscommon, Ireland" in December, 2001, to introduce a field school in Ireland for summer 2002.

Christa Beranek (Ph.D. candidate) won first prize in the Annual Student Paper Competition of the Council for Northeast Historical Archaeology for her paper "Small Things from Tyngsborough: The Lives of the 18th-century Tyngs," which she presented at the Council's 2001 conference held at Niagara Falls, Ontario, October 19-21, 2001. The award provides Beranek with a membership in the Council for the year 2002 and the opportunity to publish her paper in

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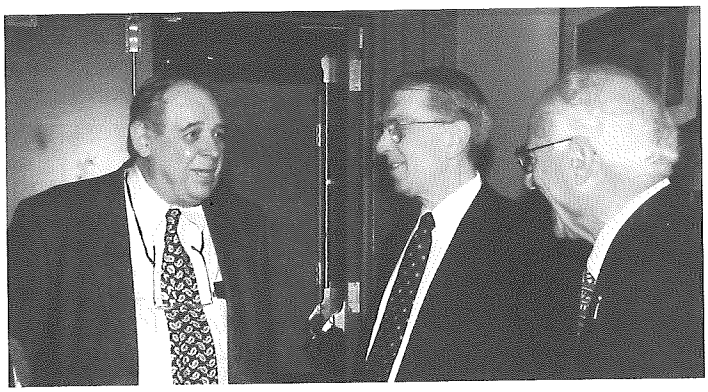
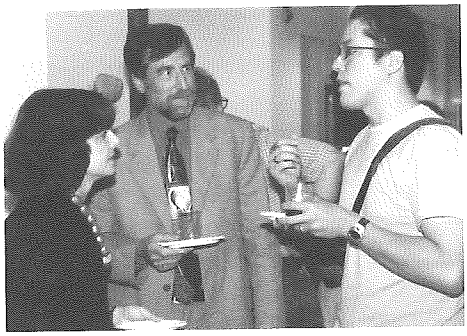
Center Activities

During the summer, fall, and winter, 2001/2002, the Center for Archaeological Studies and the Department of Archaeology at Boston University sponsored several lectures and other activities, including archaeological field schools in Spain and Belize. A special event that took place in November 2001 was a three-day international conference, "The Reconstruction of Archaeological Landscapes through Digital Technologies," organized by Maurizio Forte (National Research Council, Rome, Italy); P. Ryan Williams (Field Museum of Natural History, Chicago); and Professors Kathryn Bard, Farouk El-Baz, and James Wiseman (Boston University).

The noon-time lecture series continued to be popular with faculty and students, with informal talks over a brown-bag lunch. Speakers were alumni, graduate students, and visiting scholars, including such archaeological luminaries as Brian Fagan, University of California at Santa Barbara, and Michael B. Schiffer, University of Arizona. The "Welcome" reception in September 2001 was well attended, as faculty and students became reacquainted and met incoming students, and the second semester "Welcome Back" reception in January 2002 was a lively affair. And everyone enjoys the annual Christmas party. Photographs on page 10 and 11 by Michael Hamilton.



Boston University President Jon Westling (center), who opened the "Archaeological Landscapes" conference in November, in discussion with Professors James Wiseman (left) and Farouk El-Baz.



Satoru Murata, first-year graduate student and holder of Boston University's Presidential Fellowship, speaks with Professors Kathryn Bard (left) and Paul Zimansky (center) at the September 2001, departmental "Welcome Back" reception.

Michael Thomas, Director of Applications for NASA, talks with NASA colleagues Tom Sever (right) and Daniel Irwin (left) before presenting the keynote address at the conference on "Archaeological Landscapes."

Professor McAnany (left) chats with Liz Garibay, graduate student, at the September departmental reception.

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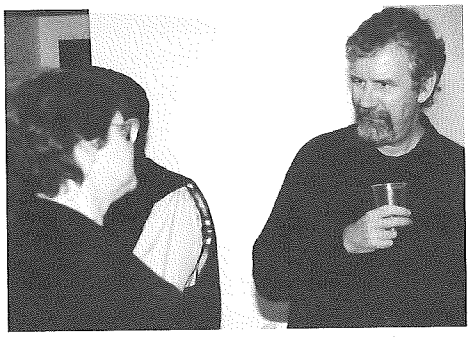
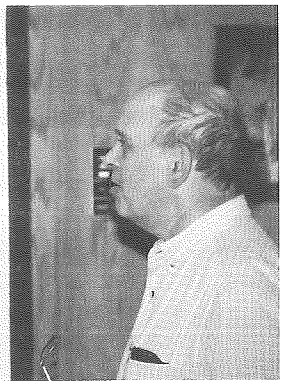
the Council's journal, *Northeast Historical Archaeology*. Her paper dealt with material that was excavated by the 1982 Boston University field school at the Tyng Mansion site, which is now owned by Boston University. She may do additional excavation at the Tyng Mansion site as part of her dissertation research.

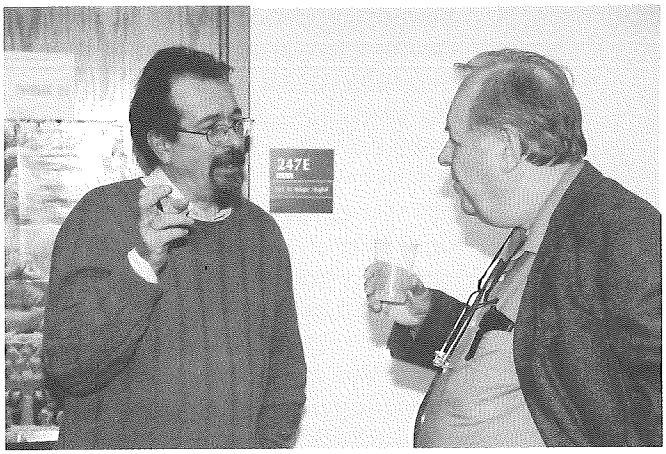
Meg Watters (M.A.1997) writes that she is currently employed as an Applications Specialist at Geophysical Survey Systems, Inc. (GSSI), which is a ground-penetrating radar manufacturing company. The company develops new hardware and software as well as conducts extensive training for different agencies or professions, (U.S. Department of Transportation, utility mapping concrete analysis, forensics, archaeology, geology, environmental studies). Prior to being employed at GSSI, she worked at a CRM America. Over the past four years Meg has participated in field projects in North America, China, Turkey (The Black Sea Project), Sudan, Peru, Italy, and Greece.



Julie Hansen, Chair, welcomes Professor Clive Gamble at the departmental reception held for him in January 2002.

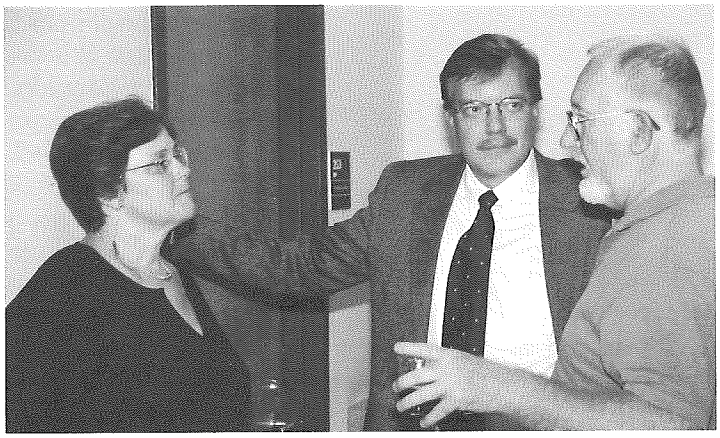


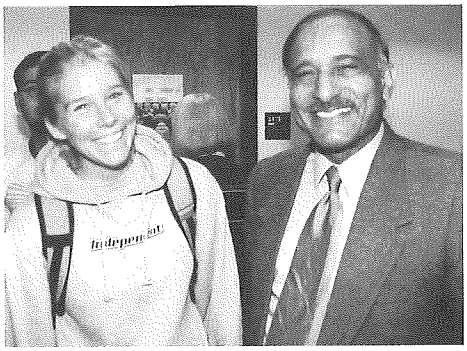
Left photo: *Professor Sheldon Sandler, Research Fellow, and Chantal Esquivius, graduate student, share a conversation at the September "Welcome Back" reception.* ***Right photo:*** *Professor Clemency Coggins (left) listens carefully to Chris Dayton, Teaching Fellow.*



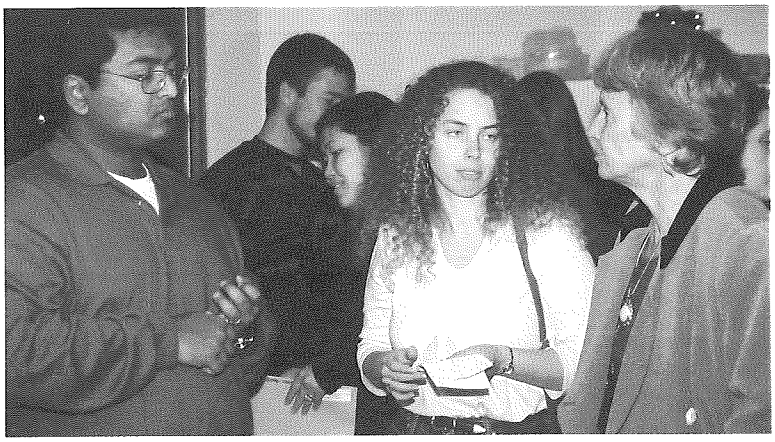
Armando De Guio, Associate Professor in the Department of the Science of Antiquity (Dipartimento si Scienze dell'Antichita), University of Padua (Padova), Italy, was a Visiting Professor in the Department of Archaeology for two weeks in December, 2001. His residency was part of an on-going faculty exchange between Boston University and the University of Padua, where Boston University has an international studies program. Professor De Guio, who excavates prehistoric alpine sites in the Veneto region, Vicenza Province, is establishing a Center for Remote Sensing in Archaeology at the University of Padua and was at Boston University to study its Center for Remote Sensing and its integration with archaeological studies. In the photograph to the left, he and Professor Wiseman (right) enjoy a laugh at the departmental Christmas reception.

Julie Hansen (left), Chair of the Department, and Robert Murowchick, Director of the Center of East Asian Archaeology and Anthropology, with Norman Hammond during the "Welcome Back"reception in September 2001.

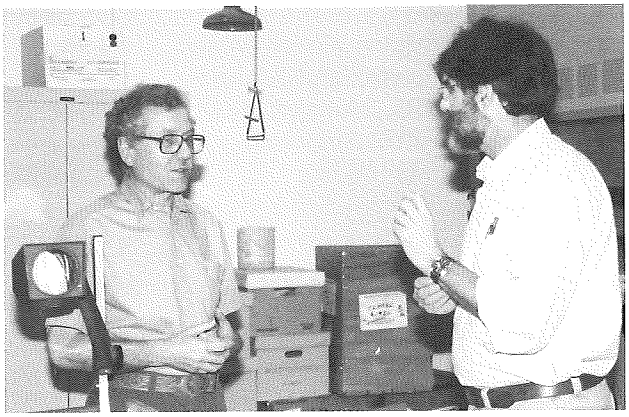




Professor Mughal (right) and Julia Speer, undergraduate archaeology major, seem to be enjoying the holiday party in December 2001.



Mary Lee Bartlett (right, Ph.D. 1998) returns with her daughter, Sarah Angelini, to visit old friends. Here she chats with Ben Thomas (left), Ph.D. student, during the departmental holiday party in December, 2001.



Dr. Michael B. Schiffer (left), University of Arizona, discusses with Professor Paul Goldberg his lecture, "Contextualizing Technology: A Methodological Discussion," presented on November 16, 2001.

Faculty News

Kathryn Bard conducted an archaeological reconnaissance in Egypt during March 4-10, 2001, at the Middle Kingdom/Twelfth Dynasty port of S3ww, which dates to about 2000 B.C. and is possibly the oldest known seaport in the world. She presented a lecture on results of the reconnaissance entitled "An Archaeological Reconnaissance in the Wadi Gawasis/Gasus" at the annual meeting of the American Research Center in Egypt, which was held at Brown University in April 2001. Dr. Bard and Professor Rodolfo Fattovich of the Instituto Universitario Oriental, Naples, conducted excavations again at Aksum, Ethiopia in May-June 2001 (see the article "Keepers of the Faith. The Living Legacy of Aksum" in the July 2001 issue of *National Geographic Magazine*). Bard and Fattovich will return to Ethiopia during the summer, 2002, to conduct further investigations at the Aksum site. A report on their work during the summers of 2001/2002 will appear in a future issue of *Context*.

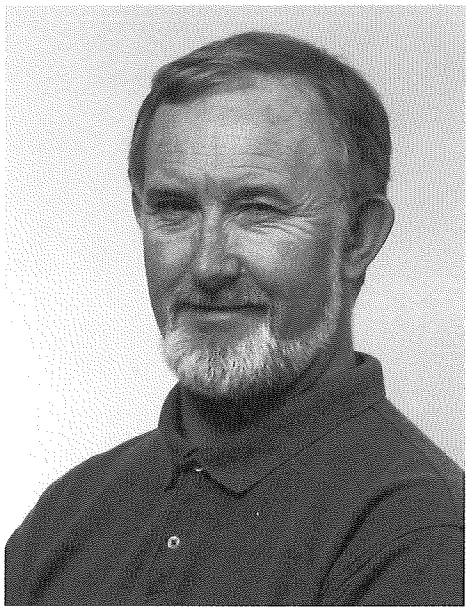
Professor Bard contributed a chapter, "The Emergence of the Egyptian State," to the *Oxford History of Ancient Egypt*, which was edited by Ian Shaw and published in 2001.

The National Endowment for Humanities awarded **Mary Beaudry** a Humanities Fellowship for Advanced Study at the Winterthur Museum and Library. She spent September through December 2001 in residence at Winterthur, Delaware, to complete research for, and writing a book on, the artifacts of needlework and sewing.

During June 2001, Beaudry taught a new course (AR372 Archaeology of Colonial Boston) for Boston University's Summer Term. The course consisted of lectures by Beaudry and field trips highlighting aspects of Boston archaeology, including an after-dark tour of Boston's burying grounds as well as other city expeditions. The course will again be offered during the summer, 2002 (see details on page 13 of this issue of *Context*).

During the fall and spring, 2000/2001, **Clemency Coggins** gave the following lectures: "Cultural Property and Ownership: Antiquities," at the Cultural Property Rights Symposium, University of Connecticut School of Law; "Chichen Itza and the Toltec: Changing perspectives on 'Influences'" at the "West by Non-West" Columbia University Conference; and "Maya Quest," a lecture for educators involved in the National Interactive Field to Classroom Expedition at the American Museum of Natural History.

At a special ceremony in June 2001, the Society of Antiquaries of London presented **Norman Hammond** the



Professor Norman Hammond.

Society's Silver Medal for distinguished service to the Society. Professor Hammond was elected a Society Fellow in 1974, and has been the American Secretary for the past ten years. Hammond delivered the inaugural Ellen Sperry Brush Lecture in New York for the Archaeological Institute of America in April, and later that month was keynote speaker for Alaska Archaeology Month in Anchorage; he also spoke at the University of Alaska. In May, Professor Hammond delivered the 2001 Armand Brunswick Distinguished Lecture at the Metropolitan Museum of Art in New York. All of his lectures were on different aspects of ancient Maya civilization.

Michael McKinnon, Research Fellow, has won first prize in the "young scholars" publication competition from the International Association of Classical Archaeology (Associazione Internazionale di Archaeologia Classica—AIAC) in Rome. The prize-winning article, "Animal Production and Consumption in Roman Italy: Integrating the Zooarchaeological and Ancient Textual Evidence," was drafted in 1999-2001 when McKinnon held a two-year post-doctoral fellowship in the Department of Archaeology. He has also received a fellowship from the American Academy in Rome to study there during the summer, 2002. McKinnon currently teaches archaeology and anthropology at the University of Winnipeg, Canada.

Curtis Runnels and Priscilla Murray (Research Associate, Department of Archaeology) have published *Greece Before History: An Archaeological Companion and Guide* (Stanford University Press, 2001). The book can be purchased from Amazon.com or directly from the publisher. It is based on the authors' research over a period of 25 years and is the first overview of Greek prehistory from the Stone Age to the end of the Bronze Age to be presented to a general readership since Emily Vermeule's *Greece in the Bronze Age* was published in 1965. It takes into account the many discoveries made in the 1970s-1990s and is illustrated with over one hundred drawings and maps.

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Professor Curtis Runnels.

Elia Awarded Tenure

The Trustees of Boston University voted to grant tenure to Associate Professor Ricardo Elia of the Department of Archaeology. The decision in December 2001 was the latest milestone in a long association between Elia and the University; he received his B.A. degree here in Classical Studies in 1973 and, following a stint at The Ohio State University, where he obtained an M.A. degree in 1975, he returned to Boston University for his Ph.D., which he received in 1982.

From 1982 until 1995, Elia served as Director of the Office of Public Archaeology (OPA), a research unit of the Center for Archaeological Studies that conducted cultural resource management studies in New England. As OPA director, Elia brought to the University almost $5 million in contracted research. Among his more notable projects were excavations at the Paul Revere House in Boston; investigations of the Central Artery/Tunnel project in Boston; surveys of two Revolutionary War sites, Fort Griswold in Groton, Connecticut, and Putnam Memorial State Park in Redding, Connecticut; and excavation of a nineteenth-century almshouse burial ground in Uxbridge, Massachusetts, a project for which he received a Preservation Award from the Massachusetts Historical Commission in 1996.

In 1995 Elia switched to a full-time teaching position in the Department of Archaeology. He developed a Master's program in Archaeological Heritage Management and regularly teaches undergraduate lecture courses and his signature course, AR 480/780 Archaeological Ethics and Law. He is the Editor of the *Journal of Field Archaeology* and is currently completing a second term as Vice President for Professional Responsibilities for the Archaeological Institute of America. Elia is well known as an advocate for archaeological preservation and a vocal opponent of looting and the art market that stimulates it.

Receiving tenure was gratifying for Elia. "I was delighted to hear the news. I am honored to have the support and respect of my colleagues in the Department and the University. I can't imagine being anywhere else besides Boston University."

During his sabbatical leave in 2002-2003, Professor Elia plans to complete a book on international approaches to archaeological heritage management, and to write another book detailing his research into the looting, selling, and collecting of Apulian red-figure pottery from South Italy.

Visiting Professor Clive Gamble, Scholar of Early Prehistory

Clive Gamble, internationally renowned prehistorian, is Visiting Professor of Archaeology at Boston University during the spring term, 2002, supported in part by a grant to the Department of Archaeology for this purpose from the Humanities Foundation of the College of Arts and Sciences. He is teaching a course on the Upper Palaeolithic and the Mesolithic to graduate students and advanced undergraduates, and consulting with faculty and students. He is also in the latter part of a two-year Research Readership funded by the British Academy, and is writing a book in which he compares the development of agriculture in the late glacial societies of the Near East with the rise of complex hunting and gathering societies in Europe.

Dr. Gamble is Professor of Archaeology at the University of Southampton, where he has taught since 1975, and where in 2000 he helped to found the Centre for the Archaeology of Human Origins. He has received a number of honors, including election to the British Academy in 2000; the British Archaeological Book Award in 1994 for *In search of the Neanderthals: solving the puzzle of human origins (1993)*, which he wrote with Chris Stringer of the Natural History Museum; and the Society for American Archaeology's Book Award in 2000, for *The*

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Announcing "Study Boston" Course

Unearth buried history and discover how the early residents lived in Colonial Boston. A summer course entitled Archaeology of Colonial Boston (CAR AR 372/GRS AR 772) is being offered May 22–June 12, 2002 by Mary Beaudry, Associate Professor of Archaeology. The course is being offered as part of the new Study Boston at Boston University program offered through Boston University's Summer Term. Course participants will explore Boston and the Boston Harbor islands, guided by archaeologists who have helped unearth the city's past. The Study Boston courses follow an accelerated format that combines traditional classroom lectures each morning with dynamic field experiences in the afternoon. Housing is available for students enrolled in the Study Boston courses. For details visit http://www.bu.edu/summer/courses/archaeology.html or contact Summer Term at 617/353-6000.

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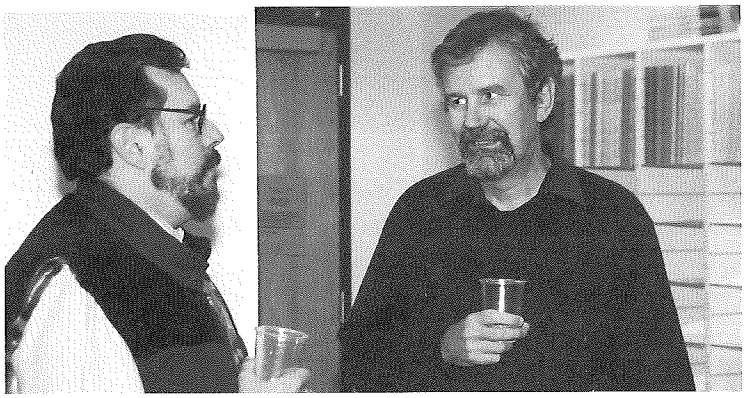
Palaeolithic societies of Europe (1999). Gamble is the first European to receive this prestigious Book Award from the SAA. Other books include *The Palaeolithic settlement of Europe* (1986) and *Timewalkers: the prehistory of global colonisation* (1993), which deals with the questions: when, how, and why did we go global?

"One of the advantages of being a Palaeolithic archaeologist," Gamble commented for *Context*, "is travel. Between 1984 and 1993 I visited many sites and excavations in Australia, Argentina, Jordan, and Alaska as well as most of the countries of Europe." The results were the two books published in 1993 cited above. "In the 1990s," Gamble continued, "I was part of the European Science Foundation Network on the 'Oldest occupation of Europe'. Criss-crossing the continent to visit sites and attend seminars resulted in four edited books on the occupation of Europe." Gamble's travels have continued up to the present—witness his presence in Boston—including excursions to all the world's continents last year and seeing some of the most important sites for human origins, while serving as "Presenter" on a six-part TV series (for C5 in the U.K.) that will be broadcast in April. For program five, Gamble says, "we traveled from the Arctic Circle in Alaska to the Beagle Channel in southern Chile—all filmed in three breathless weeks, but great for my air-miles!" These recent journeys have served to remind him, he notes, "that this period is the only true world archaeology."

At a reception given in his honor during the second semester, Professor Gamble (right) chats with Professor Runnels.



Context and Human Societies Lectures

Anthony M. Snodgrass on "Graves in the Landscape"

The distinguished archaeologist, Anthony M. Snodgrass, Laurence Professor Emeritus of Classical Archaeology at the University of Cambridge, will present the Context and Human Societies Lectures during the week beginning April 8, 2002. The series of three illustrated lectures are on the topic, "Graves in the Landscape: the Setting and Affiliations of Ancient Cemeteries," which Professor Snodgrass describes as follows. "The organization of cemeteries in Classical Greece turns out to have been hardly the orderly and well-regulated affair that we tend to assume. These lectures will explore the empirical evidence for the ancient realities."

All lectures will begin at 6:30 p.m. in the basement auditorium B50 of the Stone Science Building, 675 Commonwealth Avenue, on Monday, April 8; Tuesday, April 9; and Thursday, April 11. The individual lecture titles are: Lecture 1, "Dissolving the Certainties;" Lecture 2, "The Urban Sector and Burial Affiliations;" and Lecture 3, "The Rural Sector and Landscape Setting." A reception in The Castle, 225 Bay State Road, will follow the first lecture.

Snodgrass, the author of nine books and many articles and chapters of books, was Sather Professor of Classical Literature at the University of California at Berkeley in 1984/85, and is a Fellow of the Society of Antiquaries of London, Fellow of the British Academy, and was recently appointed Senior Fellow of the Center for Hellenic Studies of Harvard University. His archaeological research has focussed on the Greek world, and includes his directorship of the Cambridge/Bradford Boeotian Expedition, an archaeological survey begun in 1979.

During his visit to Boston University, he will also lead an open seminar in the Archaeology Department's core graduate seminar, Archaeology of Complex Societies, on the topic "Roman Britain and Roman Germany: a Tale of Two Countries." The Open Seminar, primarily for faculty and graduate students, will be held on Wednesday, April 10, 1-4 p.m., in College of Arts and Sciences Room 202, 725 Commonwealth Avenue.

Gamble Lecture

The Center for Archaeological Studies and the Department of Archaeology will sponsor a public lecture by Professor Gamble, "The Archaeology of Social Life, or: 'What did the Palaeolithic ever do for us?'" on Wednesday, April 24, at 5 p.m. at Boston University. Call the Center (617 353-3242) or the Department (617 353-3415) for the location of the lecture hall and other details.

Early Colonial Mapping of New Spain

by Chantal Esquivias

The author reports on how ethnohistorical investigation can complement archaeological research on the pre-Columbian landscape.

When Hernan Cortés's army approached the Mexican capital of Tenochtitlan in 1519 and contemplated its grandeur, some Spaniards thought they were dreaming. One soldier, Bernal Daze del Castillo (1991:19), expressed his amazement: "And when we saw all those inhabited cities and villages in the water, and other great towns on dry land, and that straight and leveled causeway leading to Mexico, we were amazed, and we said it looked like the things and enchantments from the book of Amadís, because of the large towers and cues [temples, pyramids] and buildings that were rising from the water, all made of stone…".

First-hand accounts from Spanish sixteenth-century chroniclers, especially Daze del Castillo, have greatly aided archaeologists trying to imagine the Mesoamerican pre-Columbian landscape. During the early Colonial period, churchmen generally did not appreciate ruins or antiquities, encouraging destruction of all remains from a past replete with an idolatry that they wanted to extirpate (Bernal 1980). A 1531 letter by Bishop Zumárraga reports: "…five hundred temples razed to the ground, and above twenty thousand idols of the devils they worshiped smashed and burned…." (Garcia Icazbalceta 1881: 311). While there were some splendid descriptions of sites and monuments (Bernal 1980, Landa 1985), little of antiquarian interest has been documented.

There was, however, an interest in recording the physical and economic landscape: in addition to the more formal cartography of the Relaciones Geográficas (RG), a large number of maps were produced each year by the hundreds of corregidores (local officials) across New Spain as part of land-grant, or *merced*, suits (Mundy 1996:181). One such map (Fig. 1) from the area of Solcuautla, southern Veracruz, found in the *ramo de Tierras* (A.G.N., Tierras), followed the standard formula for requesting a *merced*: Juan de Contreras' request for five *sitios de estancia para ganado*

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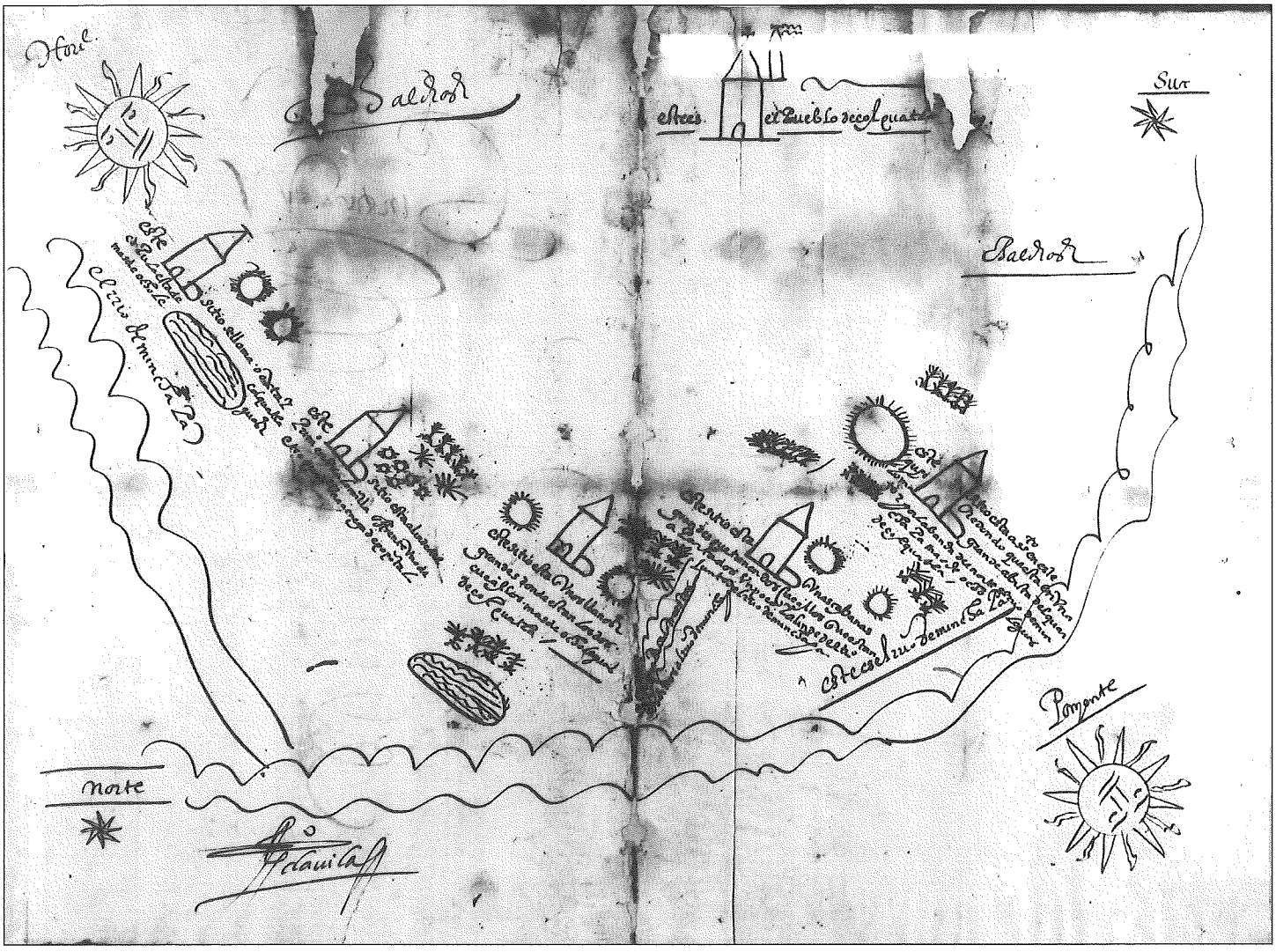

Figure 1. Colonial map of Solcuautla dating to 1588-89.

Figure 2. An archaeological mound in Chacalapan, southern Veracruz.

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mayor (places for cattle ranches) in the area of Solcuautla and Tuxtla was sent to Gonzalo Davila, alcalde mayor of the Tlacotalpa province wherein the grant lay. This official had to announce the grant's location and size to nearby communities through public notice on a Sunday or feast day when all were gathered in church. Davila made the announcement before the doors of Solcuautla's church to the native governor of the town, Juan de Luna, and to the town's native *principales* (elite). After ensuring that the grant would not encroach on any indigenous or Spanish lands, several witnesses were interviewed to ensure that the new grant would also not threaten the livelihood of native communities. As final proof that the grant could be made without "harm or damage" to nearby native communities, a map (*pintura*) was prepared indicating the location of the proposed land grant with reference to other settlements (Mundy 1996:183).

The map from this *merced* petition is interesting. This map, 20 cm x 28 cm, is part of a ten-page document. The ink and paper are in good condition, apart from damage produced by colonial period binding; "North" is written in the lower left corner. According to Mundy (1996:30), a large number of the maps produced for the RG and for land petitions were made by native artists and were seldom signed. The Solcuautla map, however, is signed at the lower left by Gonzalo Davila indicating that he possibly drew it himself.

This map locates the town of Solcuautla at the top center, towards the southeast, surrounded by untilled fields (*baldios*). On the banks of the Minchapa (modern San Juan River) River, it shows the five *estancias* that Contreras was petitioning. In the text that accompanies the map a short description of each estate is given: most significant from the archaeological point of view is the mention of each parcel with reference to *cues* or *cuecillos* (nahuatl for "temple" or "pyramid." archaeological mounds). The mounds are rendered on the map as circles bordered by hachures. The first site to the northeast (left) is associated with "*unos cues grandes que corren de norte a sur junto al rio de Minchapa*" (some large *cues* that run north-south by the Minchapa river). The second site has "*una cienaga grande...y seis cuecillos chicos*" (large marshlands...and six small *cuecillos*). The next site has "*dos cuecillos que corren de norte sur y tienen por la banda del norte una cienaga grande*" (two *cuecillos* that run north-south and have to their north large marshlands). The fourth site has "*dos cuecillos un poco apartados el uno del otro y estan de norte sur*" (two distant *cuecillos* that run north-south). The fifth and most southern site has "*un que redondo grande que esta en una loma que corre de horiente a poniente*" (a large, round *cue* that is on a hill which runs east-west).

Cues are mentioned in this map as a feature of the Gulf coast landscape along with marshlands, hills, and untilled fields, but by using the nahuatl term "*cue*," the Spanish were acknowledging that they were artificial structures. Thus, among these highly standardized documents of sixteenth-century land grants, we find one of the earliest colonial mentions of archaeological sites (Fig. 2). The documents offer information about the number of mounds at a site, their orientation and relative size, and their location in reference to natural and geographical features in the landscape such as rivers, trees, and marshlands, as well as the distance in Spanish leagues to the closest town. While the archaeological record is rich on the ground in Mexico, the colonial archives of Mexico and Spain also provide an important resource for archaeological research, including areas now destroyed by modern development. What is more, it is a resource that is largely unexamined.

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Chantal Esquivias is in her final year of Ph.D. studies. Her dissertation focus is on Mexican imperialism in southern Veracruz, Mexico.

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Notes from Cerro Baúl

Earthquakes, Aridity, and Life in the High Sierra of Southern Peru

by Chris Dayton

The author reviews the role of earthquakes and environmental stress in the lives of modern and ancient inhabitants of the desert sierra region near Moquequa, Peru. His observations were made in summer, 2001, while working with Michael E. Moseley, Professor of Anthropology, University of Florida, and Patrick Ryan Williams, formerly Assistant Professor of Archaeology at Boston University and now Assistant Curator of Archaeological Science at the Field Museum of Natural History in Chicago. The project, funded by the National Science Foundation (Award 0074410), is concerned with interactions between colonies of the Andean states of Wari and Tiwanaku in the later first millennium A.D.

At night in the high desert of southern Peru, the rushing of blood in one's ears is disconcertingly loud. Other than the occasional, furtive scratching of an insect or rodent, there is nothing else to hear. I could not sleep in that silence last summer, even though I was bundled snugly in my sleeping bag, nestled comfortably into the fine, soft sediment blanketing the summit of Cerro Baúl, and exhausted from climbing, fieldwork, and a touch of altitude sickness. The stars were so shockingly bright they demanded attention. Despite my fatigue, then, I stared at the night sky for hours, always particularly drawn to peculiar dark spaces, the regions of absence observed by Andean peoples for millennia. Although modern astronomers inform us that the black shapes—named by their ancient observers after llamas and other animals—are actually clouds of interstellar dust obscuring our view, my mind could not grasp the concept that these apparent gaps represent a something rather than a nothing (see Moseley 2001:52). Surely these dark spaces should emit an ominous whisper, the sound of a void, of things we can see being swallowed by things we cannot. In these moments the rushing of my own bloodflow in my ears seemed oddly appropriate to the celestial panorama.

Powerful though this nocturnal scene was, in the end it was a different ambient sound that most defined my field experience last summer: the roar of the earthquake that struck as our 20-person field crew was preparing to leave the summit on June 23, 2001. Measuring 8.4 on the Richter scale, the main tremor caused the kilometer-long mesa of Cerro Baúl to buck like a rodeo bull. Thrown to the ground in the first few seconds, I lay spread-eagled in the dust and watched the edge of the mountain heaving violently in relation to the surrounding peaks and valleys. The main quake and the dozens of aftershocks that followed—some as strong as 7.6 on the Richter scale—were centered just off the southern Peruvian coast and resulted in about 100 deaths. While any loss of life is certainly a tragedy, the toll could have been much worse; a smaller earthquake off the coast of Peru in 1970 killed 70,000 people, testifying to the destructive potential of such events in more densely populated areas.

The quake was equally cruel to the living and the dead. As modern-day Peruvians cleared away piles of shattered bricks and twisted reinforcing rods, their recent ancestors lay exposed in moldering clothing and

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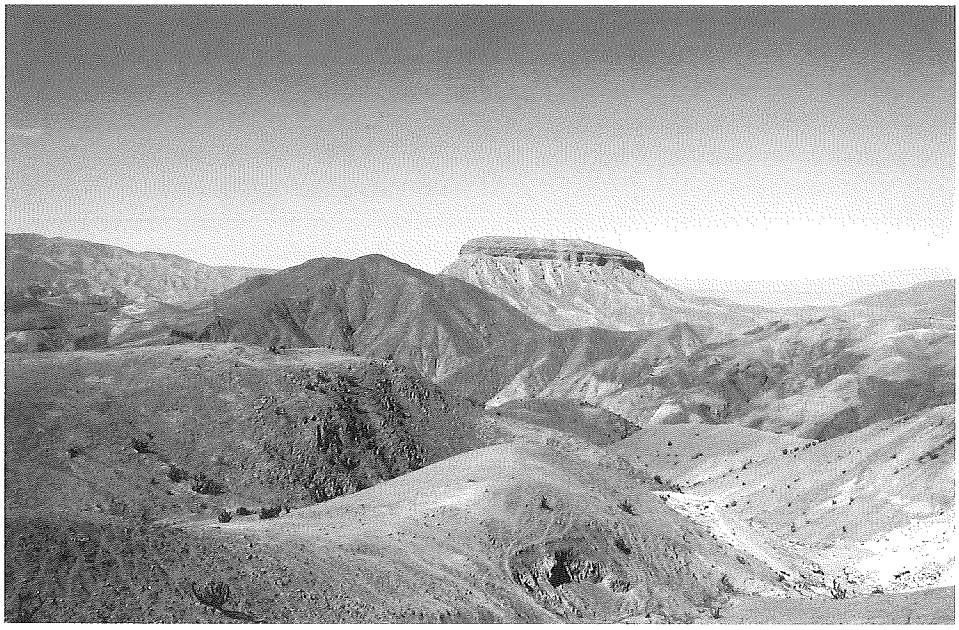

View of Cerro Baúl and the extremely rugged desert terrain surrounding it. Using sophisticated canals and agricultural terraces, the Wari may have been able to grow enough food on these slopes to support a relatively large population atop the bedrock remnant. Courtesy P.R. Williams, Field Museum of Natural History.

View from the summit of Cerro Baúl immediately after the main tremor of 23 June 2001, as landslides race down surrounding slopes. Courtesy P.R. Williams, Field Museum of Natural History.

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splintered coffins. To conserve space, the dead had been interred in multi-story above-ground sepulchers similar to beehives, and the earthquake shattered the high wall that had formed the main support for the tombs. On the way to and from work every day, we passed heaps of rubble mixed with overturned caskets.

The ancient dead fared no better. Slumped sediments in road-cut profiles revealed pre-Inka tombs, but the exigencies of earthquake recovery prevented the authorities from devoting much attention to the protection of these newly uncovered features. Although there has been an increase in local awareness about the crucial differences between looting and the careful excavation and painstaking recording of legitimate archaeological work, bones and pots falling out of the walls of earth were quickly spirited away.

Earthquakes and other natural disasters have been important factors in Andean life since the first peopling of the region. Sometimes the interaction of ancient people and natural forces left vivid evidence, as in the case of the pre-Inka Chimú people (ca. 1000-1470 A.D.) of the northern Peruvian coastal desert. A highly developed civilization with a huge capital city, superb artwork, and precisely engineered agricultural systems, the Chimú waged a losing battle against an array of natural processes. Sand dunes buried some fields, canals, and buildings; catastrophic flooding caused by the El Niño ocean-current cycle swept others away; and carefully designed long-distance canals bringing precious water from higher elevations were rendered useless by tectonic uplift of the coast (Moseley 1978:15). The topographic distortion is so great that today some stretches of Chimú canals appear to run uphill (Ortloff, Feldman, and Moseley 1985:90).

The inhabitants of the settlement atop Cerro Baúl, far to the south, also had to contend with intense environmental challenges, the most pressing being extreme aridity. Colonists from the expansive state of Wari first occupied the dusty, rocky summit in the seventh century A.D. (Williams 2001:68). The almost inaccessible location of their outpost in an already marginal environment bears closer scrutiny. Usually the Wari built important sites in more hospitable valley bottoms. Their choice of the natural fortress of Cerro Baúl for a relatively large community represents a significant strategic departure; they may have been attracted to the site because of its proximity to local colonies of Tiwanaku, a contemporary expansive state in modern-day Bolivia (Moseley 2001:237). Artifacts found at local Tiwanaku and Wari sites support the notion that there was extensive interaction between the two states, though its nature has not yet been established.

The sheer cliffs and steep rubble slopes that make Cerro Baúl so advantageous for defense also prevent the easy delivery of food, water, and other supplies to the inhabitants of the summit. The severe aridity of the region makes this problem an issue of life and death. Very little rain falls in the immediate area; a few drops clinging to dust thrown into the air by the June 2001 earthquake prompted much excited conversation. In contrast to Tiwanaku colonists, who chose to farm lower-elevation plains alongside local rivers, the Wari carved agricultural terraces into the dry, rugged slopes of the high sierra. The crops grown in these terraces were entirely dependent on water brought down from even higher elevations in carefully engineered canals and aqueducts (Williams 2002: 361-374). Investigating and describing the fundamental characteristics of the Wari canal system, therefore, are crucial to understanding the Wari presence in the region. Water scarcity is also a key component of political and social interaction. The first incursion of Wari colonists in the seventh century A.D.—and their large-scale use of precious high-altitude runoff to irrigate agricultural terraces—may have exacerbated a drought-related water shortage for the downstream Tiwanaku colonists (Williams 2002: 361-374).

The investigation of the Wari canal system near Cerro Baúl is in its preliminary stages. Engineering and construction techniques used by the Wari have yet to be fully characterized; excavation and examination of surviving canal, terrace, and aqueduct fragments will continue this coming summer. Although geological

processes and human activity have destroyed much of the original system, some of the remaining fragments are quite well preserved; a few even contain finely bedded sediments that appear to have been deposited during the canal's use. I have stabilized several samples of canal bed material in polyester resin and intend to examine them for evidence of diagnostic minerals or other components that might help us determine how far into the upper sierra the canal reached. High-resolution electronic scans of these samples—and enhanced printouts of the resulting images—will provide useful reference material in the field. In addition, radiocarbon samples collected from these bed sediments are currently in the laboratory and will indicate whether or not the main canal was used only during the Wari occupation. If the inexorable forces of plate tectonics cooperate with us and celestial introspection is kept to a minimum, fieldwork in summer 2002 will enable us to clarify ancient strategies for survival in this extraordinarily challenging environment.

Chris Dayton is a Ph.D. student and Teaching Fellow in the Department of Archaeology. He has a special interest in remote sensing.

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Honors for Farouk El-Baz

Dr. Farouk El-Baz, Director of Boston University's Center for Remote Sensing and an associated faculty of the Department of Archaeology, has recently received significant honors, including the American Muslim Achievement Award from the Islamic Center of Southern California, and election to the National Academy of Engineering (NAE).

Dr. El-Baz (right) shows his assistant, Abbie Parker, the certificate from the Los Angeles Sheriff's Department and holds the American Muslim Achievement Award in his left hand.

The Muslim Achievement Award was presented during ceremonies in Los Angeles on January 27, and recognizes his "unparalleled achievements in chemistry, geology, aeronautics and space technology, archaeology, and geography." El-Baz, a distinguished geologist, was Science Advisor to President Anwar Sadat of Egypt, and in the U.S. has served as head of the Smithsonian Institution's Air and Space Museum, and was a senior participant in the Apollo Space Program, involved in the training of astronauts and the selection of lunar landing sites, and was principal investigator for photography. El-Baz also has written and spoken frequently since the September 11 attacks on the U.S on the need for religious tolerance and peace between Muslims and non-Muslims, including his keynote address at Boston University on the occasion of its 17th annual commemoration of Martin Luther King, Jr. He was also presented a certificate by the Los Angeles Sheriff's Office, honoring him as a good citizen.

Election to the NAE is an honor bestowed on persons who have made "important contributions to engineering theory and practice" or displayed "unusual accomplishment in the pioneering of new and developing fields of technology." As the founding Director, El-Baz has led the Center for Remote Sensing at Boston University to a position of international renown in the search for groundwater in the desert lands of the Middle East; in the study of desertification; in environmental change more broadly; and, often with colleagues on campus, in archaeology. The Center was named a Center of Excellence by NASA in 1997. The election of Dr. El-Baz follows his nomination by Professor Donald Fraser, a member of NAE, who is also Director of Boston University's Photonics Center.

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Runnels has also recently published two chapters in books. One article is on the contribution of regional surveys in Greece to the recognition of environmental disaster in the archaeological record, which appears in a volume edited by Garth Bawden, *Environmental Disaster and the Archaeology of Human Response*, (University of New Mexico Press, 2001). An article on the Palaeolithic and Mesolithic periods in Greece, originally published in the *American Journal of Archaeology* in 1995, was updated in 2000 and has now been published in *Aegean Prehistory: A Review*, edited by Tracey Cullen.

During the summer, 2001, Runnels joined the Mallakastra archaeological project in the Apollonia region of Albania which is being directed by Jack Davis, Blegen Professor of Aegean Prehistory, University of Cincinnati, and Muzafer Korkuti, Director of the Institute of Archaeology, Tirana, Albania. He is contributing to the publication of the Palaeolothic and Mesolithic materials from the survey and excavations. Runnels' article on "The Palaeolithic of the Bosphorus Region, NW Turkey," co-authored with Mehmet Ozdogan of Istanbul University, will be published in the *Journal of Field Archaeology*. Finally, Runnels' latest book, *The Archaeology of Heinrich Schliemann: An Annotated Bibliographic Handlist*, is being published by the Archaeological Institute of America.

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