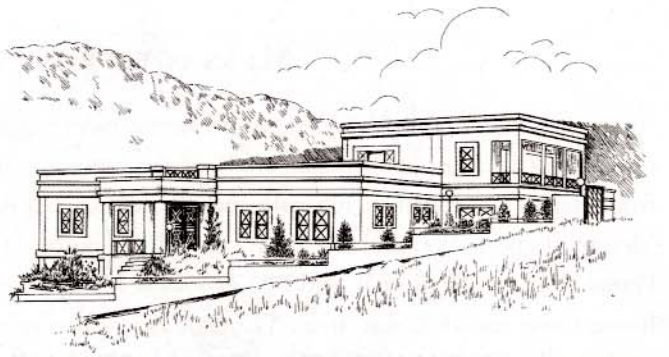
KENTRO

The Newsletter of the INSTAP Study Center for East Crete

Volume 8 (Fall 2005)



MESSAGE FROM THE DIRECTOR

New milestones are reached each year at the Study Center, and this letter highlights the outstanding variety of research conducted by our staff and members during the past 12 months. More than 120 students and scholars used the facility as readers and members in 2004 and 2005. The group included Andrew Koh, who is conducting doctoral research at the University of Pennsylvania on the organic contents of pottery from the recent excavations at Mochlos. The project involves residue analysis of 350 vessels from the Bronze Age and Historical levels at the site, including complete assemblages from Minoan kitchens and a vat installation. All the samples were extracted before the vases were cleaned and conserved, and the preliminary results suggest that 90% contain traces of organic remains, including an impressive number with olive oil.

Natlia Vogeikoff-Brogan, Catherine Crawford, Leslie Day, Nancy Klein, Evi Sikla (front row) and Tom Brogan, Angus Smith, Sean Hemingway, and Kevin Glowacki (back row) at the STEGA conference. Photo by Chronis Papanikolopoulos.

We were also pleased to host Vasif Şahoğlou as an INSTAP fellow. One of the goals of his research is to identify the provenience of numerous Cretan imports recently found at the Bronze Age site of Çesme at the western tip of the Izmir Peninsula. Vasif worked at the British School at Athens and at Knossos and also used the Study Center in April and May.

The staff of the Study Center enjoyed a very productive year with several publications and papers at international conferences. These included the November 2004 Rome conference titled "Weight Measurement in the Eastern Mediterranean," and, in that same month, the Aegean International Symposium, "Aegean Metallurgy in the Bronze Age." In May 2005 Stephania Chlouveraki and I presented a paper titled "New approaches to cultural heritage management in the Mirabello and Messara regions of Crete" at the Istanbul conference that focused on historic preservation and site management.

Under Eleni Nodarou's leadership, the William A. McDonald Petrography Laboratory conducted 10 projects with a total of about 750 samples that were processed. The results of several projects, such as the Byzantine Pseira, Hellenistic Trypetos, and LM III Mochlos studies are now in press. The Petrography Laboratory also hosted its second intern, Georgia Kordatzaki, from the University of Rethymnon. Her research concerned the study of a large MM and LM ceramic assemblage from the peak sanctuary of Vrysinas in Rethymnon.

As part of our continued commitment to site presentation, Eleanor Huffman completed work on the Gournia site signs, which should be ready for installation before Christmas. Several on-going site conservation projects are mentioned in a separate article by Stefi Chlouveraki, and Kathy Hall has recently completed several important metal projects, including the repacking and conservation of artifacts from Lefkandi, the British School at Athens' excavations around Knossos and Mochlos.

Four teams (Azoria, Mochlos, Halasmenos, and Priniatikos Pyrgos) conducted excavations from the Study Center this summer. Four more teams used the Center's facilities in the

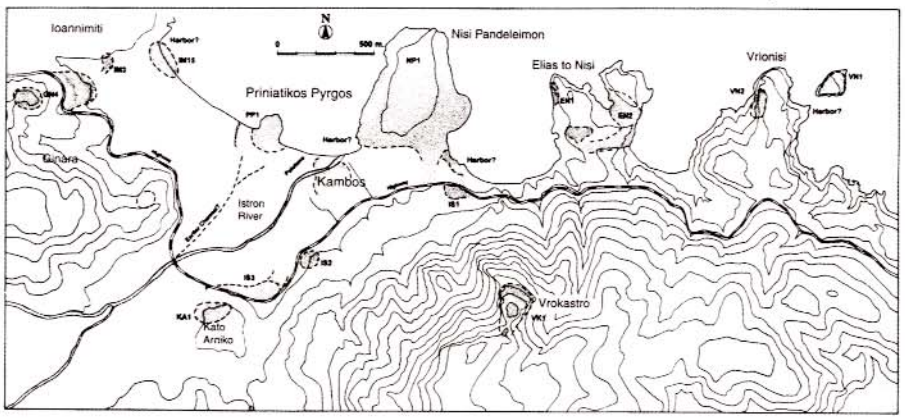
winter and spring. Tina McGeorge and Etienne Baxter finished one part of their groundbreaking study of the human remains from Hagios Charalambos, reconstructing more than 220 skulls. Metaxia Tsipopoulou and her team studied the pottery from Petras House 1, Deposit B, and two new MM I/II deposits (a house tomb and domestic area). Yiannis Papadatos continued work on the FN/EM I site of Hatziyiannis on Kephala Petras. Finally, Natalia Vogeikoff-Brogan examined a large deposit of Hellenistic pottery from Trypetos, Siteia, which was washed, cleaned, conserved, drawn and photographed in one month. Several papers were delivered and publications submitted from each of these projects by June, providing the scholarly community with immediate access to the fruits of these labors. In addition, Doug Faulmann, Michel Roggenbucke, and Chronis Papanikolopoulos worked at the sites of Çesme, Limantepe, and Miletos in Turkey providing expert draftsmanship, conservation, and photography to these Publication Team projects.

Finally, I would like to mention the summer lectures, which brought colleagues from across the island to the Study Center. Our four talks included Vasif _aho_lou, who presented a paper titled "Recent Excavations in the Izmir Region," and Metaxia Tsipopoulou, who gave a lecture titled "Filling the Gaps: Recent Excavations at Petras, Siteia." Eleni Nodarou reported on the two years of ceramic petrography at the Center and gave preliminary results of her studies, as well as an outlook on the future of the Laboratory. At the end of July, Jeff Soles and I lectured on the 2004 to 2005 excavations at Mochlos as part of the Minoan Seminar Series. The high point of the summer was the STEGA conference (STEGA: The Archaeology of Cretan Houses and Households) from the 26th to the 28th of May, organized by Kevin Glowacki and Natalia Vogeikoff-Brogan in Ierapetra. The more than 60 papers presented examined material from the Neolithic Period to the Roman era, including several papers about sites on the Isthmus of Ierapetra (Mochlos, Kavousi, Azoria, Gournia, and Halasmenos). The Study Center hosted the closing party of the conference, which benefited from the warm company of the trustees of the American School of Classical Studies.

Thomas Brogan

EXCAVATION AT PRINIATIKOS PYRGOS, ISTRON, MIRABELLO, 2005

Director, M. Tsipopoulou, 24th Ephoreia;
Field Director, B. Hayden, University of Pennsylvania Museum



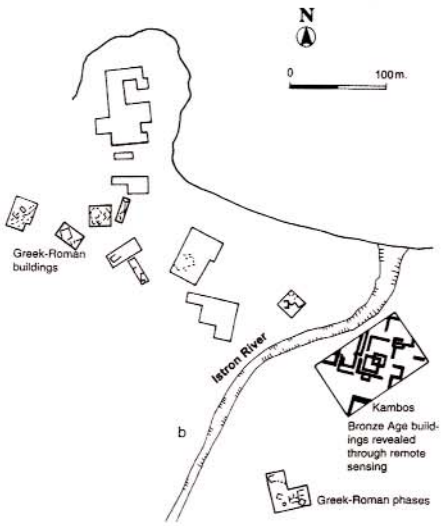


Figure 1a and b: Map showing location of Priniatikos Pyrgos and overall harbor settlement area, including Neolithic and Bronze Age walls found in the Kambos (b).

The northwest slopes are covered with a myriad of small and large walls, plaster, slag, mudbrick fragments, paving fragments, burned cobbles embedded in mud packing, sherds and a few wasters (these primarily historical in date); thus this area should reveal much more evidence for industrial activity at the site. This pyrotechnical function spans millennia, and occurred here because of the strong updraft from northwest sea winds across the western slopes of the promontory.

Thirty meters to the south, two trenches were opened in area G, on the 3 m. high slope above the eroded western beach of the headland. Trench G1000 (excavated by M. Eaby, University of North Carolina, Chapel Hill) was placed on this steep slope, around a large apparent ceramic kiln that had been eroding out of the slope for the last decade. Excavation of this trench revealed a deep section that preserves most of the history of occupation at the site (Figure 9). Found in these strata were parts of iron and bronze artifacts, loomweights, glass, a small stone lid, burned clay, and groundstone tools. The highest wall found along the eastern side of the trench was a large and possibly late terrace wall, bedded on two walls that may belong to the Bronze Age. The base of the terrace wall is 1.50 m. below the modern surface on a hard, yellow, claylike soil (roofing or construction material?) that reflects the ancient surface. This continued to the base of the trench and contained small rocks, carbon, patches of red burned clay, and bits of white lime plaster. Pottery in the upper part of the yellow soil ranged from Early to Late Minoan, and a bone needle/pin, ground stone, and obsidian were also found.

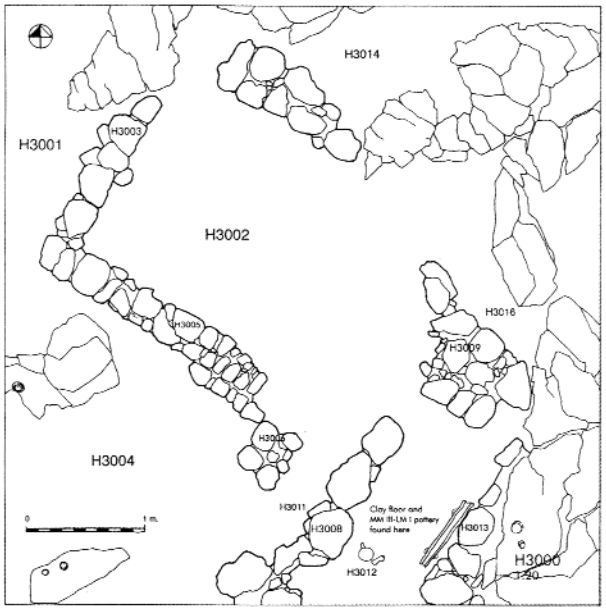


Figure 5: Plan of trench H3000.

Figure 6: Neopalatial cup as excavated in southeastern part of trench H3000.

Figure 7:Terracotta water channel as excavated in southeastern part of trench H3000.

At a lower level pottery appeared to be primarily Neopalatial (perhaps early in this period), although a few later Bronze Age sherds were recovered. A green schist paving, one slab incised with a kernos, was found in the southern part of trench, approximately 30 cm. above the beach. This floor continues south and out of the trench. Just above the floor, thin lenses of yellow-white clay can be seen in the scarps above pebble packing; these lenses appear to be surfaces but could not be traced across the trench. Two limestone pavements were also found on the north side of the trench and north of the kiln; the lower of them is on the same approximate level as the schist paving. In this northern area we found stone weights, a possible potter's wheel or bat, burned stones, clay, and obsidian. A small oval to leaf-shaped clay boat, perhaps of MM or LM date, was found in the eastern scarp at the northern end of the trench (Figure 10).

A large channel kiln occupies the central to western portion of the trench (Figure 11). The kiln has three channels, each lined with burned mud packing over thin stone walls. The firing chamber was located to the west, and has been destroyed by the sea, although one external southern wall preserves an east-west dimension of over 3 m. The small stones carefully packed over a thick clay platform at the preserved back of the kiln may have been placed there as a firing surface for the pot-

Figure 11: Large Neopalatial channel kiln in trench G1000 from west, showing channels.

Figure 12: Calderimi over trench G2000 from southwest.

trench A1000 was placed in an area of potential smelting furnaces or ceramic kilns that were identified through remote sensing (trench supervisor was J. Ott, American School of Classical Studies, New York University). Excavation revealed a broad, well-preserved limestone paving of possible Late Roman/Early Byzantine date, possibly a road or a plateia, which extends up to the foundations of a ruined chapel located on the crest of the hill, 25 m. to the north. A well-built wall defining two western rooms was found slightly below the level of the paving to the west, and a one-course wall of large stones borders the broad paving at the southeast.

In the northwest corner of the trench, pieces of rubble enclose small areas containing fine burned gray-black soil. These small curved walls are packed with bits of burned clay that appears to be fused with iron slag, suggesting that these features were probable iron-smelting shaft furnaces. Directly to the south, a piece of burned, curved furnace lining was recovered. Three types of slag were found in the trench: iron slag; a glassy, green-colored lighter slag (derived from copper or iron smelting, or from glass?); and a light, coarse crystalline, glassy black and white slag. This slag does indicate the smelting of iron ore, though glass may also have been manufactured in this area. These possible furnaces are not located directly on the limestone paving, but are pedestalled on earth 10–15 cm. above the pavement. This suggests that the metallurgical activity, at least in this area, may be late or post-antique. Directly west, a large area of slag has been identified, strewn across the western slopes of the promontory. Judging by the size of the slag heap, it is probable that many more furnaces will be identified with further excavation of this area.

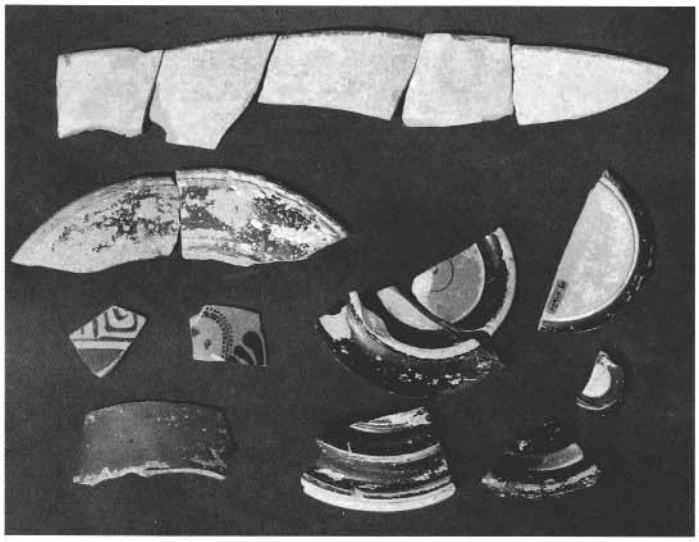


Figure 13: Greek pottery from Area 1, southeastern corner, trench G2000.

Priniatikos Pyrgos is part of a large, well-preserved harbor settlement that belongs to both the Prehistoric and Historical periods. The topographical situation of this coastal promontory also insured its long-term industrial function. The site is, therefore, a template for study of the cultural and economic development of the west-central Mirabello region from the inception of settlement in the Neolithic until the Byzantine/Venetian period. Similar sites are rare in the island today-many have been damaged or destroyed by development, or are otherwise inaccessible. Thus, this excavation provides a rare opportunity to explore the long-term development of this primary coastal site's historical development, industrial and agricultural base, and trade networks. ❑

typical domestic houses, but sandstone blocks were quarried from a small ravine on the coast near the site for the ceremonial ashlar Building B.2. The walls of the Archaic settlement at Azoria represent a combination of local dolomite (alatsopetra), crystalline limestone (sideropetra), and phyllites and schists (primarily green and gray schists) in a mud mortar. The Archaic houses were built on a series of concentric terraces, supported by megalithic retaining walls. While these terraces are generally stable, the slope of the peak of the South Acropolis is steep (30–40 degrees), and both natural and anthropogenic events have caused walls to collapse, shift or slip down slope, or succumb to catastrophic erosion. In many cases walls on the outer edges of the terraces are not preserved in archaeological contexts, having collapsed or slipped off the edge of the terraces in antiquity.

Some of the rubble structures at these sites were originally faced with a layer of lime plaster that sealed the structures and prevented direct effects of the environmental factors. Intrasite conservation studies carried out on specific types of building stones and structures have determined that the causes and the mechanisms of deterioration are multiple and complex. Not surprisingly, conservators are usually cautious when selecting conservation materials and their application on the ancient material.

At our sites, however, immediate conservation treatment of the architectural remains is often necessary to prevent further deterioration of structures and their components. Moreover, the reasons for the conservation treatment often vary: some are rescue-based, some are temporary, and others are permanent, depending on the specific characteristics of the sites and the individual structures within the site context. Both active and preventive conservation methodologies have been applied at the archaeological sites by the conservation and archaeological teams of the Study Center.

Active conservation practices include:

- Cleaning and extinction of biological growths on an annual basis
- Systematic consolidation of walls with mortar
- Placing fallen stones back to their original position when possible
- Filling cracks and fissures of individual architectural members with thin mortar mixtures
- Small scale in situ mending of stone

Figure 2: The foreman M. Kasotakis and the students of Azoria working on wall consolidation.

The application of modern mortar can obscure the visibility of the original structure; nevertheless, the original material along with any information it may contain is preserved within the rubble walls and is available for future studies. The choice and application of conservation materials and techniques are subject to formal evaluation and approval by the Conservation Directory of the Greek Ministry of Culture. Laboratory tests and experimental application of mortars in pilot projects have been carried out in collaboration with the engineers and the geologists of the Conservation Directory of the Greek Ministry of Culture as well as Alekos Nikakis, the Head Conservator of the local archaeological authority, in order to choose the most compatible materials and to establish the most appropriate methodology for their application on site.

Preventive conservation measures include:

- Back filling on a temporary or permanent basis (Chrysokamino, Mochlos, Priniatikos Pyrgos)
- Fencing of the archaeological site to prevent destruction caused by grazing sheep and goats (Chrysokamino)
- Construction of retaining/protective walls (Mochlos, Azoria)
- Management of visitors by guiding tours through pathways which are safe for both the visitors and the archaeological remains: establishment of walking paths with reversible materials that do not interact with the ancient structures (Chrysokamino, Mochlos,

The Greek-American excavations at Mochlos, directed by Costis Davaras and myself, continued in the summer of 2005 with the support of the Institute for Aegean Prehistory, the National Endowment for the Humanities, the Loeb Classical Library, and generous private donors. Our goal was to dig to bedrock everywhere in the area of the Neopalatial settlement where Richard Seager had dug in 1908 and where we had previously excavated in 1989–1994 and 2004 (Figure 1). In this way we hoped to complete the excavation of partly uncovered Late Minoan I buildings and to uncover the earlier settlement remains that lay beneath these buildings, especially the remains of the Prepalatial settlement of the 3rd millennium BC, whose cemetery Seager had previously exposed. We made considerable progress in achieving these goals, although the more recent Hellenistic remains that lay above the Minoan settlement slowed our work in some areas.

Hellenistic Mochlos

The Hellenistic remains on the island date to the late 2nd and 1st centuries BC and belong to a major period of occupation on the site when it appears to have been heavily fortified, probably as Natalia Vogeikoff-Brogan has demonstrated, as an outpost of the nearby polis of Hierapytna. In trying to complete the excavation of two Minoan buildings, Building C.7 and House A.1, we encountered substantial Hellenistic remains, which demonstrated among other things that the ancient overseas trade route between Mochlos and the Levant that flourished throughout the Bronze Age was still very active in these centuries. Part of the Hellenistic fortification circuit lies above the north side of Building C.7 and had been excavated in previous seasons by Seager and by us. It consists of a string of rooms set back on a low terrace. This summer we excavated three more of these rooms and found a number of imported amphoras, including one from Rhodes with both handles stamped. Another Hellenistic building, which stood outside the fortification circuit, had cut into and destroyed the northern side of the old Minoan House A.1. We excavated one room in this building, a large rectangular space with a doorway located off center on one of its long sides. A large built hearth against the opposite wall from the door was found in the room. It appears to have formed an andreion where people (or at least men) could recline on couches and dine. Broken terra sigillata bowls imported from Syria lay on the floor of the room together with fragments of additional amphoras and a variety of animal remains. The most informative find in the room was a well-preserved bronze coin with a ship's prow on the obverse and a crocodile on the reverse (Figure 2). It was marked with the letters CRAS and was minted in 34–32 BC by P. Canidius Crassus who served as Mark Antony's general in the east. He brought his army to join Antony in the year 32 BC and took charge of all the land forces at Actium in 31 BC. He also appears in Shakespeare where he betrays Antony and hands the army over to Octavian after the naval defeat, but in fact he was a loyal lieutenant and remained at Actium with the army for seven more days hoping Antony would reappear. When he didn't, Canidius fled to Egypt where he was eventually killed by Octavian. The coin belongs to a happier day when Antony and Cleopatra's hopes were high. Its discovery at Mochlos this summer was greeted with great excitement among the locals and led to the story that Antony and Cleopatra had themselves dined at Mochlos with Canidius on their way to Actium. Enjoying the fish from the nearby Hellenistic fish tanks and delighted by the beauty of the place, Cleopatra is said to have demanded Mochlos for herself, and Antony quickly obliged.

Figure 2: Bronze Coin from Hellenistic Andreion.

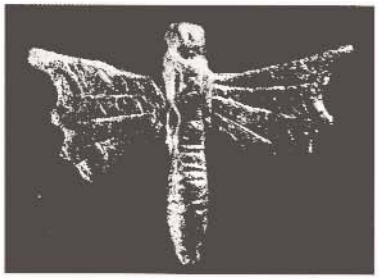


Figure 3: LM I Dragonfly Bead.

Neopalatial Mochlos

The project also made some intriguing LM I discoveries. We nearly completed the excavation of Building C.7, the large agricultural and manufacturing center where our continuing residue analysis program headed by Andrew Koh has now found evidence for the production of olive oil as well as wine. We were able to define its northern, eastern and southern limits this summer and found that it was surrounded by streets on all four sides. The eastern street, however, had been closed with four or five walls that were erected to buttress the building's east façade in response to damage caused by the final LM IA eruption of Thera. In the LM IB period, a large kitchen and dining room were erected along the building's south façade. The street that

pieces, which may once have sat in the bedrock depression above the altar; an amphibolite drill-guide, used in stone-vase making, which had been placed inside the altar's vase; and a small seal stone that pictured a vase with a plant growing out of it beneath a cosmic star (Figure 5).

Prepalatial Mochlos

We also uncovered a large part of the Prepalatial settlement that lay beneath Blocks B and C of the later Neopalatial town. We uncovered numerous individual rooms belonging to this period where people cooked and ate and probably also slept, but we were not able to identify separate houses. We also uncovered parts of several paved streets, but have not been able to reconstruct a good picture of the overall settlement plan. There is a lot of excavation that still needs to be done in order to complete our study of this period. Still, we made important discoveries. One is that there was a major destruction of the settlement at the end of the EM IIB period when EM III pottery was beginning to appear. There is little or no evidence of MM I pottery or any kind of immediate reoccupation after this destruction. This is something we had already deduced from an examination of Seager's discoveries in the Prepalatial cemetery, but it appears to be part of a larger EM IIB calamity that befell other sites in east Crete including Palaikastro and Myrtos Fournou Koriphi.

One of our goals in excavating the Prepalatial settlement was to find a manufacturing area where some of the treasures that Seager found in the cemetery were actually produced. It

Figure 6: EM IIB stone vase making workshop.

Figure 7: Stone tools and discarded stone vase in EM workshop.

was a little disappointing then that most of the rooms we uncovered were simple living spaces, but toward the end of the summer we had a stroke of good luck and found in among the ordinary rooms a stone vase making workshop (Figure 6). Lying all over the floor of this room were unfinished or partly finished stone vases like those from the Prepalatial cemetery and a large number of stone implements that were used to produce them (Figure 7). Tristan Carter, who has undertaken the study of the Mochlos lithics, will have a field day when we begin to study this material.

Finally, another goal was to discover evidence for social ranking in the Prepalatial settlement of the kind suggested by the cemetery remains. In particular we were looking for the house of the individuals who were buried with gold diadems in the monumental tombs on the west terrace of the cemetery. In the last three days of the excavation we found a good candidate. It was located directly beneath the LM IB kitchen and dining room outside C.7 in the same area where we found the Goddess' dragonfly and consists of a suite of interconnecting rooms, one of which is quite large, with some unique architectural structures. Unfortunately, we were barely able to look at this complex before our excavation permit expired and the 2005 season came to an end.

Clearly, there is still a lot of digging to do at Mochlos, and many more discoveries to make, but our immediate objective for the next two or three years will be the study of material already excavated and the publication of more Mochlos volumes. As George Bass is fond of telling his students, myself included, the most exciting discoveries come in the library when you figure out what it is that you have actually found! ❑

without consulting the catalog. I am also checking over the catalog and removing inconsistencies in, for example, the transliteration of Greek titles, or the information cataloged for each entry. I have also started to process the large and valuable collection of offprints that have been donated to the library.

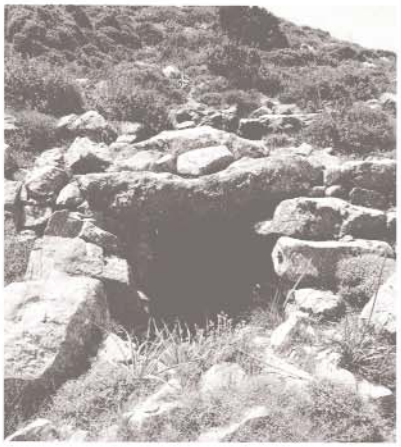
The library at INSTAP Study Center for East Crete is a valuable resource for research on topics that relate to the archaeology, history, and ethnography of Crete. It is very gratifying to contribute to the improvement of the Kentro Library as its first Library Fellow. ❑

Work at the INSTAP Study Center for East Crete

Melissa Ealy has worked on various projects at the Study Center since 2001 including the Azoria, Priniatikos Pyrgos, and Halasmenos excavations. She received a Fulbright Graduate Student Award in the fall of 2003, and currently holds the Olivia James Traveling Fellowship from the Archaeological Institute of America. She is a Ph.D. candidate in the Classical Archaeology Department at the University of North Carolina at Chapel Hill, and is working on her dissertation titled "Mortuary Variability in Early Iron Age Cretan Burials."

My dissertation focuses on Early Iron Age (ca. 1200–700 B.C.) burials from Crete. The Early Iron Age and Archaic periods in the Greek Aegean represent important phases of culture change, witnessing the emergence of the first Greek city-states. This cultural transformation is exhibited in changes in settlement patterns, settlement forms, ritual contexts, and most strikingly, in burial practices. My research involves the compilation of EIA Cretan burial sites, examining burial methods, architecture, assemblages, and spatial contexts in order to reach an understanding of the socio-political and cultural meanings suggested by mortuary variability within the individual cemeteries and regions of the island.

LM IIIC-SM tholos tomb from Karphi.



LM IIIC-SM tholos tomb from Karphi.

I have been able to use the INSTAP Study Center as the base for research on my dissertation thanks to the support of a Fulbright Graduate Student Award and the Olivia James Traveling Fellowship. The Center's library has been of great assistance, providing a nice, quiet, climate-controlled atmosphere (hard to find in this area!) in which to work. My time outside the center has been spent traveling to sites and museums in the area.

While at the Center, I have completed a catalog and database of all known EIA burials on the island; burials have been found in the vicinity of 127 modern villages. One goal of my research is to search for and explain regional and local patterns in social organization and complexity, as well as socio-political and economic changes over time in the EIA. Further, this project will include an investigation of the relationships between the tombs/cemeteries and their associated settlements, thus supplementing the findings of recent surveys (e.g. Vrokastro and Kavousi), which, for example, have revealed local variations in settlement patterns/clusters. ❑

Announcements

The INSTAP Study Center for East Crete has a new website: **www.instapstudycenter.net.**

You can access the new INSTAP website **(www.aegeanprehistory.net)** from this page.
The INSTAP website has downloadable forms for grants.

The Friends of the INSTAP Study Center are proud to announce an illustrated lecture by Nanno Marinatos, Professor in the Department of Classics and Mediterranean Studies at the University of Illinois at Chicago, on April 6, 2005 in the Rainey Auditorium at the University of Pennsylvania Museum. Professor Marinatos will lecture on Minoan Religion.