

KENTRO

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THE EVOLUTION OF AN ARCHAEOLOGICAL RESEARCH CENTER ON CRETE

By Thomas Brogan

Anniversaries provide an important opportunity to review progress and evaluate the mission of any institution. The INSTAP Study Center for East Crete opened in 1997, and over the past 15 years, it has worked closely with the 24th Ephorate of the Greek Ministry of Culture, the Institute for Aegean Prehistory, and several projects of the American School of Classical Studies to develop a comprehensive approach to excavation, study, and heritage management. While archaeology has long stressed the importance of temporal, spatial, and material changes in assessing ancient cultures, recent studies have also highlighted the significance of understanding changes in the way archaeologists approach and recover the past. My review considers the evolution of the INSTAP Study Center in this light and its efforts to meet the emerging needs of the wider archaeological community on Crete and in the Aegean.

Our primary goal has always been helping excavators prepare ancient material for study and publication. In 1997 we helped 4 surveys and 4 excavations of the American School of Classical Studies (ASCSA), some in collaboration with members of the Greek Archaeological Service. By 2011, we were assisting 5 more

ASCSA projects and expanding our staff and facilities to help our colleagues in the 24th Ephorate of the Ministry of Culture and in the foreign schools and Greek Universities working on sites in East Crete. The development of the INSTAP Publication Team extended these services to an even wider community working on Crete, the Greek Mainland and Islands, Cyprus, and Turkey. This



*Figure 1. Preparing for aerial photography with the 9 meter boom on Chryssi Island.
(Photograph by Yuki Furuya)*

past year, our 10 senior staff members and an equal number of part time employees and interns assisted more than 40 projects based in the Aegean.* The sheer volume of this work is impressive. Over the past two years the William D.E. Coulson Conservation Laboratory conserved more than 2,500 ceramic, stone, glass, metal, and bone objects; the W.A. McDonald Laboratory of Petrography manufactured 1,100 ceramic thin sections; our artists drew

more than 3,000 objects; our geophysical team conducted 12 surveys using digital mapping tools and subsurface radar; and last but certainly not least our photographer took 18,500 digital photos.

Because of growing concern about the long-term conservation of sites and the curation of the artifacts and the excavation

*Reports by staff members are available at the Study Center website and they provide insight in the detail and quality of this work.

records, the Study Center has improved its ability to assist with site presentation and object and record storage. Stefi Chlouveraki has worked closely with senior members of the Conservation Department and the 24th Ephorate of the Greek Ministry of Culture to develop a series of protocols and mortars for the conservation of sites in East Crete, including Azoria, Gournia, Mochlos, Pseira, Papadiokampos, and Myrtilos. For the past 6 summers our staff and interns from the Conservation Department of the Greek Technical University have undertaken a massive repacking project for the objects in storage. Eleanor Huffmann is preparing a database to serve as the finding aid for all the antiquities and the excavation records stored in the building. As part of this last step we are taking an aggressive approach to the digitization of paper and film records and the storage and management of digitized and born digital files. As examples, I note that a single season of excavation records can exceed 100 gigabytes while a decade of digital photography by our lab (more than 100,000 shots in multiple versions) now exceeds 2 terabytes. Many of these jobs were only minor parts



Figure 2. K. Fragiadakis with Dr. E. Toubaraki and Dr. Th. Papathanasopoulos in the first pilot application of cement-stabilized earth mortars at Mochlos. (Photograph by Stephania Chlouveraki)

of our mission in 1997, but they now take up a significant portion of our time and resources.

The final step in this shifting heritage paradigm involves our efforts to share new discoveries from the Greek past with the wider scholarly community and the local and foreign lay audience. The growing list of preliminary and final publications by our members

is easily seen in *Hesperia* and *Aegean Archaeology*, *Festschriften* and conference proceedings, and the INSTAP Academic Press Prehistoric Monographs. The Study Center's Newsletter, *KENTRO*, was another step in this direction along with articles in Cretan journals like *Amaltheia*, *Kritiki Estia*, and now *Kritiki Panorama*.

From the start, the Study Center hosted a diverse series of summer lectures, which have brought together the archaeological community on Crete each summer. We also have provided tours to student groups from Greek,



Figure 3. Kathy Hall, Matina Tzari, Theocharis Katrakazis, and Stephania Chlouveraki at work in the William D.E. Coulson Conservation Laboratory. (Photograph by Eleanor Huffmann)

European and North American Universities and nearly all the primary and secondary schools in the Ierapetra Municipality. Another major step was provided by the centenary celebration of American work on Crete, Crete 2000, which produced a guide to American work on Crete and a substantial site presentation program by our members. Paths and site signs in English and Greek were installed at Mochlos, Chrysokamino, Kavousi Kastro and Vronda, Halasmenos, Gournia, and Vrokastro. With substantial care, minor repairs and upgrades, this system is still in place for visitors in 2011. More recently, the Study Center has been assisting the 24th

Ephorate of the Ministry of Culture with plans for the display of finds in the Museums of Haghios Nikolaos, Ierapetra, and Siteia from the excavations directed by senior members of the INSTAP Study Center (e.g., Azoria, Kavousi, Mochlos, and Pseira.) We are particularly proud of these efforts in heritage management because they have the potential to impact the widest audience, and they bring a degree of closure to the projects that we have supported. In effect, they are the ultimate addition to an archaeological or institutional *Cursus Vitae*.

MOCHLOS 2011: THE HOUSE OF THE METAL MERCHANT

By Jeffrey S. Soles

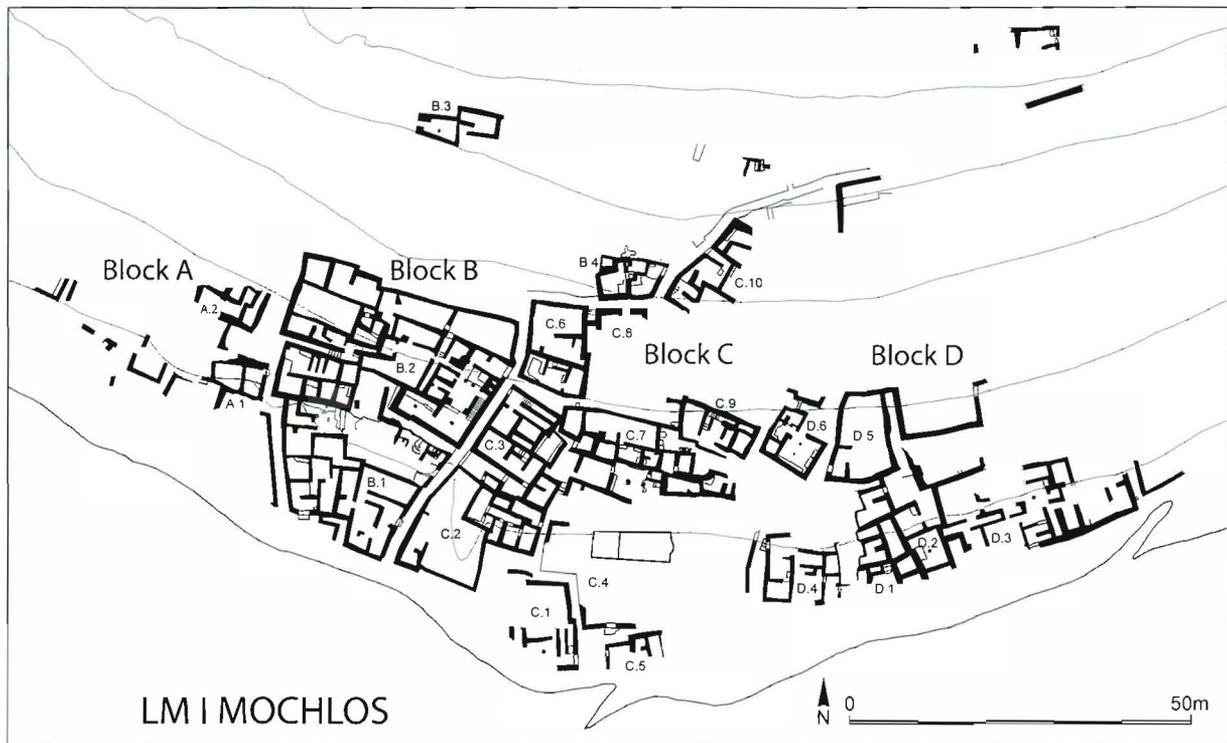


Figure 1. Plan of Neopalatial Mochlos in the LM IB period. (By D. Faulmann and G. Cantoro 2011)

The 2011 Mochlos field season lasted three months during May, June, July, and August and was spent studying and preparing publications of material excavated

during previous seasons of excavation. The main work of the summer focused on *Mochlos IV: Period III. The House of the Metal Merchant and other Houses in the Neopalatial Settlement*. This

book is the first of four that will publish the Neopalatial town that flourished from 1700–1430 B.C. on the island of Mochlos. The remains of this period on the coast of Crete opposite the island have already been published in *Mochlos IA* (Soles 2003). *Mochlos IV* describes the general layout of the main town, which was located on the island, the architecture and stratigraphy of newly excavated houses in this town, and the finds from these houses. It concludes with a discussion of the town's economy. The general layout of the town has been known since 1908 when Richard Seager excavated on the island and described four blocks of houses, A, B, C, and D, with north-south streets dividing them and running up the hill (Seager 1909).

The current Greek-American excavation, conducted by Costis Davaras and myself, has discovered a lot of additional information, however, about the town plan (Figure 1), including the existence of a large ceremonial building, B.2, that extends the whole width of Block B (Soles and Davaras 1996, 184–194), and the existence of a second manufacturing center in Buildings C.7 and D.6, which operated alongside the LM IB Artisans' Quarters on the coast opposite. Our project has also uncovered a lot more of

the town's street system and discovered that the north-south avenue separating Blocks B and C makes a sharp turn to the east above Block C and heads off to the northeast where additional houses were established in ΑΝΩ ΜΟΧΛΟΣ. The current excavation has also uncovered many more houses in addition to those discovered by Seager in 1908 which were located mostly along the shore (A.1, B.1, C.2, D.1–4).

Mochlos IV will publish nine of the newly excavated houses in Blocks B and C, including C.1, C.2, C.3, C.4, C.5, C.6, C.10, B.3 and B.4. Most are incomplete. Some, like C.1, C.2 or C.6, were partly excavated by Seager; others, like C.1 or C.5, were partly destroyed by beach erosion, or, like B.4 and C.10, by Hellenistic reoccupation; another, C.4, lies beneath a Byzantine building and a modern cemetery. Only one, C.3, the House of the Metal Merchant, is largely intact. Despite their varying states of preservation, all of these houses produced large amounts of Neopalatial pottery in remarkably well-stratified deposits. The earliest is MM IIIA which lay in two closed deposits in the southwest rooms of House C.10; they not only date the construction of the house but also the layout of the street system to the very beginning of the Neopalatial period. A small deposit of the MM IIIB period was uncovered at the bottom of the refuse that accumulated in Plateia B outside C.2. Most of the pottery belongs to the LM IA and IB periods. This includes the now famous LM IA deposit beneath the Santorini tephra in C.1, which was probably a foundation deposit laid in place just before the eruption (Soles and Davaras 1990; Soles 2009), and two lesser known deposits in C.3 that belong to the LM IA destruction caused by earthquakes associated with the eruption of the Santorini volcano around 1530 BC. Every house also contains LM IB pottery, sometimes stratified above LM IA in two or more layers, or in the case of the kitchen in C.2, in as many as four different layers.

House C.3 is of course exceptional because of its two well preserved metal hoards, one identified as a foundry hoard, which served as a household treasury, and the other as a merchant's hoard (Soles 2008, 2011). Every house may have had its own treasury of copper ingot fragments and scrap bronze, but only C.3 preserved a merchant's hoard, and the occupant of this house was a major dealer in the town's metal commerce and probably involved in three different enterprises as an importer, producer, and distributor. He or she, as the case may be, lived in a spacious home with three stories including the basement (Figure 2). The house had a main entrance off the street separating Blocks B and C, which led into the ground floor, and a rear entrance off a side street which led into the basement level (Soles and Davaras 1996, fig. 11). A main staircase led from the main entrance to the



Figure 2. House C.3, The House of the Metal Merchant. (By D. Faulmann)

second floor and roof, and an auxiliary staircase led down from the ground floor to the basement. The house's main entrance and its exterior walls were trimmed with ashlar quoins and probably also coping blocks that marked different floors. The house is not, however, extraordinary in its architecture. Many of the others to be published in this volume were equally spacious and well-appointed. They display an "architecture of affluence," as Clairy Palyvou writes in reference to the LM IA houses of Thera (Palyvou 2005). The architecture reflects the prosperity of the town, especially in the LM IB period, and "speaks vividly of a sophisticated urban society in which high living standards ... were shared by many members of the society" (Palyvou 2005, 37). They also contain ample storage facilities, usually on the basement level where pithoi stored various agricultural commodities. At the time of its destruction House C.3 held as many as 32 pithoi with an estimated storage capacity of 2000 liters!

Trade was the catalyst that drove the economy and accounted for the wealth of the community. The opportunity to trade, often with merchant ships from overseas, created a class of local merchants like the one in C.3. It also created a class of local artisans like those working in C.7 and D.6, or the coast opposite, who were full-time specialists producing for a potential market in the region, meeting local and foreign demand. Farmers, merchants, and artisans provided the backbone of the local economy, but also laid the foundation for many other occupations such as carpentry, stone-quarrying, house-building, and especially ship-building, which would have occurred on the sandy shores of the isthmus connecting Mochlos to Crete. The population was engaged in many different activities, each requiring individual acts of economizing which in turn support a "formalist" interpretation of the economy, according to which the individual Minoan was master of his own affairs. He was responsible for his own decisions in all aspects of economic behavior, including production, distribution and consumption. He made his own choices on

the basis of his own specific goals, and in doing so created a complex interdependent economy that created a great amount of wealth for the community at large with many opportunities and a considerable degree of freedom for its individual inhabitants.

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Did you know you can download previous issues of the Kentro Newsletter? Visit our website at www.instapstudycenter.net. You can also check the resources available in our library, download application forms for individuals and team usage of the Study Center, and learn about our facilities and services. In addition, you can obtain information about places to stay in Pacheia Ammos, Kavousi, Mochlos, and Ierapetra, and catch up on the weather in east Crete! The site lists our lecture series, and you can learn about our staff members and how to contact them.

COOK IT UP AND DISH IT OUT! A SENSORY EXPERIENCE: AN APPROACH TO EXPERIMENTAL ARCHAEOLOGY

By Jerolyn E. Morrison

This year communities in East Crete have been able to explore ancient cooking practices and interpretations of the flavors of Minoan foods during the Neopalatial period (ca. 1700–1425 B.C.) through local participation in cooking demonstrations created in collaboration between *Minoiton Gefseis* (Minoan Tastes) and various institutions. *Minoiton Gefseis* is a collaborative effort between Bronze Age scholars, ecologists, biologists, and craftspeople that developed from the desire to incorporate experimental archaeology into research and teaching methods to better understand how ancient people performed daily activities. The founders are Jerolyn Morrison, Jad Alyounis and Stefi Chlouveraki, with support from Matina Tzari and Theocharis Katrakazis.

Three events were held in 2011 that hosted between 80 and 200 people at each event.

The first was in the winter at a taverna in Pacheia Ammos. The second was a coordinated lecture and cooking demonstration with Jennifer Moody and Oliver Rackham, entitled “The Edible Landscapes of Bronze Age Crete” for the INSTAP Study Center Summer Lecture Series, and the third was a coordinated archaeological tour and cooking demonstration with Chrysa Sofianou and the 24th Ephorate introducing the Minoan coastal town of Papa-diokampos during the Siteia summer festival.

Cooking demonstrations are rooted in experimental archaeology, but have an experiential component that provides opportunities, within the appropriate parameters, for the participants to engage all senses when investigating ancient life. Recently, published works focusing on the final phase of the Neopalatial period made it possible for us to incorporate archaeological and ecological evidence in our work (Soles 2003, 2004; Barnard and Brogan 2003; Shaw

and Shaw 2006; Sackett, et al. 2007; Brogan and Hallager 2011). This allowed us to develop reasonable explanatory models of Late Minoan I cooking. Building these explanatory models using a hands-on method for discovery and teaching is a two-phase process. First, the LM I kitchen is reconstructed, and then the food is prepared and served as a *meze* (small bites of food) to a group of individuals willing to participate and share their impressions of the

experience. Second, whether it is a modern or an ancient kitchen, one must have a collection of cook-pots, utensils, a hearth, and the proper ingredients to prepare food.

For the cooking demonstrations, replicas of LM I cook-pots, e.g. tripod cooking pots, jars, and wok-shaped cooking dishes with broad spouts were produced from clay that macroscopically and petrographically closely matches the Mochlos

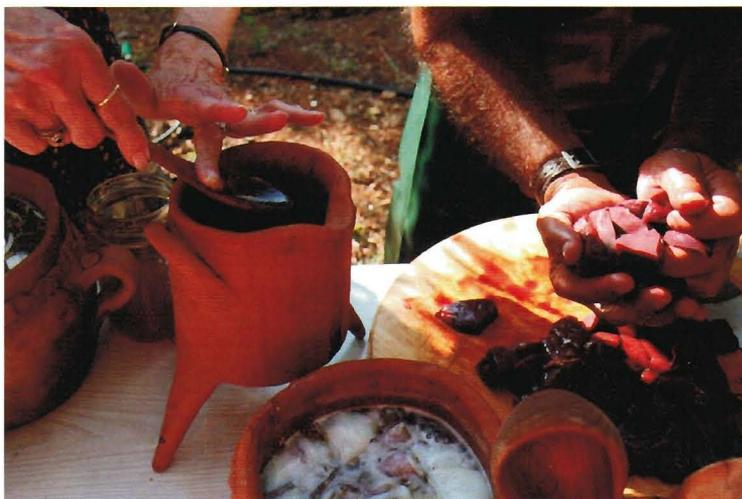


Figure 1. Mary Betancourt and Jad Alyounis preparing food for the hearth at Tholos Beach. (Photograph by Stella Johnson)

cook-pots (Barnard 2003; Nodarou 2003; collaboration between Barnard, Nodarou and Morrison 2004-current). Utensils were collected, such as wooden spoons, wooden lids covered with leather and super-saturated with water, ceramic lids, thick cotton pot-holders, straw brooms, and flat wooden paddles used to move coals under the pots for cooking. As supplementary modern tools, tin-foil lids and iron shovels and tongs were collected. Built hearth structures are largely absent from the archaeological record, but concentrated areas of ash and charcoal are found in domestic settings indoors and outdoors (Muhly 1984; Soles 2003; Rutter 2004; Brogan et al. forthcoming). For this reason, a large hearth was built at each venue by placing stones in a circle and fueled using olive wood charcoal, small branch clippings and oil. Future cooking experiments using crushed olive pits as a cooking fuel are scheduled, as suggested by Evi Margaritis in her analysis

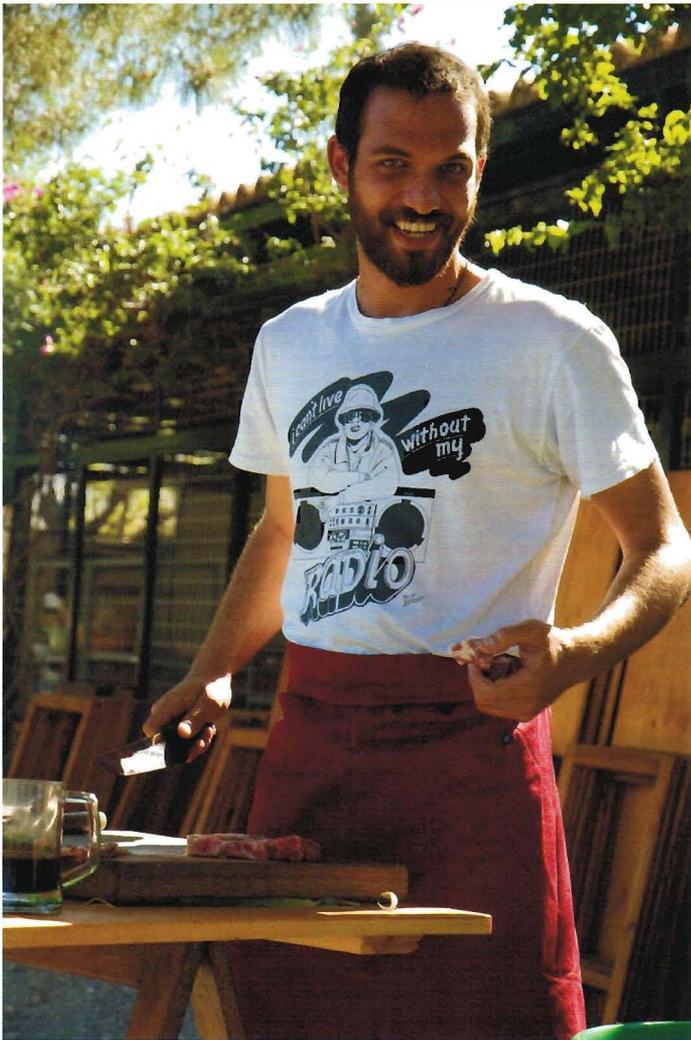


Figure 2. Theocharis Katrakazis cutting goat into meze size bites at the INSTAP Study Center. (Photograph by Chronis Papanikolopoulos)

of paleoethnobotanical remains at Papadiokampos (Personal communication with Sofianou, Brogan, and Margaritis 2009). To prepare the food dishes for tasting, a “grocery list” of ingredients provided by macroscopic identification and chemical residue analysis was purchased at local markets (Moody, submitted 2009 and the references therein).

The menu prepared for the cooking events is derived from archaeological and ecological evidence; however, because tastes are cultural, the combination of ingredients used to prepare food is an interpretation of LM I tastes. For example, Dimitra Mylona has identified evidence that suggests the occupants of House A.1 at Papadiokampos prepared seafood soup made from top shells, limpets, and crab, in tripod cooking pots, jars and cooking dishes (Brogan, et al. forthcoming). For the demonstration organized at Papadiokampos, *Minoiton Gefseis* prepared a seafood soup in a replica cooking dish using top shells and limpets and flavored with honey, grape syrup, red wine vinegar, sea salt, olive oil,



Figure 3. Late Minoan replica cook-pots with olive oil warming by the hearth at the INSTAP Study Center. (Photograph by Chronis Papanikolopoulos)



Figure 4. Stephania Chlouveraki stirring lentils in a Late Minoan replica tripod cooking pot at Papadiokampos. (Photograph by Agapitos Legakis)

leeks and garlic. The additional ingredients used to flavor the shellfish would have been available to the occupants of House A.1 to be used for cooking (Moody submitted 2009 and the references therein).

Seven food dishes have been created by *Minoiton Gefseis* and served at the cooking events. In the tripod cooking pots and jars the following have been prepared.

Lentils seasoned with honey, bay leaf, crushed coriander seed, sea salt, and topped off with olive oil.

Octopus simmered in either beer or red wine, and seasoned with thyme, garlic, and leeks.

Beef liver simmered in pureed chestnuts, honey, crushed coriander seed, and garlic.

Rabbit stewed with leeks and garlic, seasoned with honey, bay leaf, and whole coriander seeds.

In the bowl of the cooking dishes the following foods were prepared.



Figure 5. Jad Alyounis cooking seafood soup in a Late Minoan replica cooking dish at Papadiokampos. (Photograph by Agapitos Legakis)



Figure 6. Cooking hearth with Late Minoan replica tripod cooking pots, jars, and a cooking dish at Papadiokampos. (Photograph by Agapitos Legakis)

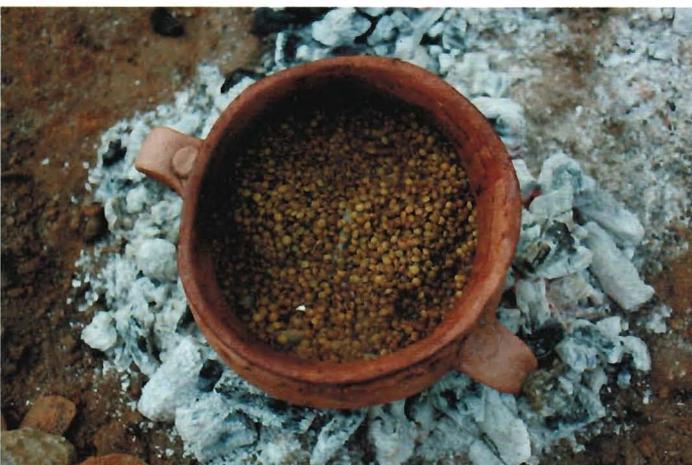


Figure 7. Cooked lentils in a LM replica jar at Tholos Beach. (Photograph by Stella Johnson)

Sautéed cuts of pork, mainly pancetta, seasoned with grape syrup, leek, and garlic.

Sautéed lamb seasoned with whole coriander seeds, garlic and leek, and finished off in a Cretan red wine reduction.

The cooking dishes were also turned upside down and placed on supports over coals. This enabled their domed surfaces to be used to bake flat bread.

The response to the cooking demonstration continued to be enthusiastic, and on occasion overwhelming. For the winter event in Pacheia Ammos, the weather was cold, windy, and rainy. It was difficult to maintain the proper cooking temperatures in the poorly covered hearth. Once the problem became apparent, participants immediately began building a more suitable roof to protect the hearth, stoking and fanning the coals to keep them lit, and covering the replica cook-pots with lids and tin foil to maintain the heat. From this experience, it was obvious that regardless of an individual's knowledge of ancient cooking practices, they understood fundamental principles of cooking over a hearth fire. This confirms that introducing archaeological topics to the public in interactive ways can extend curiosities beyond viewing objects in a museum to how these objects were used daily in ancient societies.

It was such a pleasure pulling the replica cook-pots off the fire, plating the food, and serving people. Below is a selection of the memorable comments.

"Oh, liver...hummmmm. I am not sure. Typically, I do not eat it, but I'll try."

"Really? You CAN cook in those pots?"

"This MUST take a long time!"

"WOW! This octopus is a-m-a-z-i-n-g! Can I have the recipe?"

"I've never eaten lentils without tomatoes."

"Ah, so you can cook on both sides of a cooking dish."

"The Minoans might have enjoyed food sweetened with honey? Interesting."

"I thought the legs would fall off the tripod pots after a few rounds of cooking. I guess not!"

"This is very filling and tasty!"

When preparing the food, there was a noticeable difference between the techniques required to cook in the various types of LM I replica cook-pots. The tripod cooking pots and jars are closed vessels that made it difficult to visualize into the pot to determine if the food was fully cooked. The food must be either spooned out in order to see with your eyes, or for your nose to smell the food, and/or for your hands to feel its texture to determine if it is ready for serving. Open vessel shapes of the cooking dishes expose the

food making it visible. In tripod cooking pots and jars, the food is cooked in the belly of the pot, making the evaporation of natural juices and added liquids fairly slow. It would be difficult to deep fry or sauté a large quantity of food quickly in these pots without it becoming saturated with oil. Cooking dishes are perfect for sautéing, frying, creating soups or sauces that have a slightly thicker texture and baking flat bread. Its broad spout is perfect for pouring soups and sauces into serving containers.

Interestingly, the entire cooking event from lighting the coals to serving took approximately two and one-half hours. It takes about 45 minutes to prepare the coals and warm the replica vessels for cooking, while the remaining time was used to cook the food. This is not a significant amount of time when compared with the time it takes to prepare these food dishes in a modern kitchen equipped with a gas stove.

Other notable observations are that once the cooked food was removed from the replica cook-pots the vessels cooled quickly, allowing them to be cleaned using bare hands and room temperature (or warm) water. The cleaned vessels retained the smells of the food. At first, one could imagine that perhaps the Minoans kept certain pots for specific food items, such as those used to prepare seafood, but this might not be the case. Smells and ideals of sterilization are cultural and what would be unpleasant or unclean to us might not have bothered the Minoans. We learned that at the beginning of the subsequent rounds of cooking the smells from previous cooked food were not detectable once the cook-pots were warmed near the coals and their interiors were coated with olive oil in order to prevent food from sticking.

The value in this teaching method is that the participants, through their five senses, approach archaeological and anthropological topics more intuitively, allowing for a deeper and more accurate understanding of how people lived in the past. It also provides a format for archaeologists to test their theories about how ancient people performed specific tasks, like cooking.

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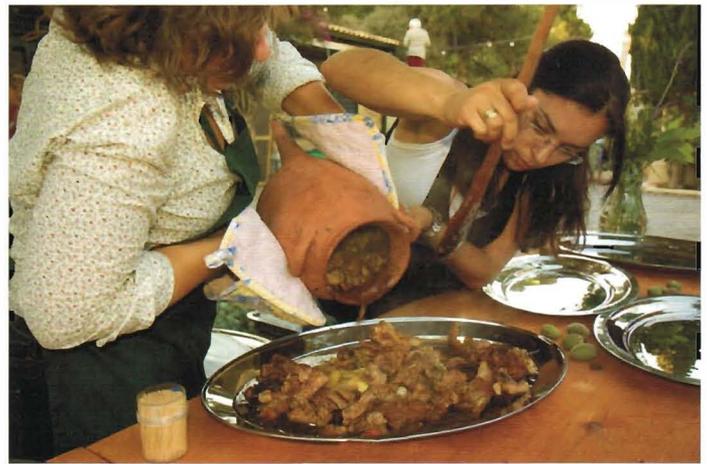


Figure 8. Matina Tzari and Jerolyn Morrison plating food for tasting at the INSTAP Study Center. (Photograph by Chronis Papanikolopoulos)



Figure 9. Participants at the Papadiokampos cooking event. (Photograph by Agapitos Legakis)



Figure 10. Susan Smith and Metaxia Tsiopoulou trying Minoitan Gefseis interpretation of Late Minoan tastes at Tholos Beach. (Photograph by Stella Johnson)

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Acknowledgments

Orchestrating large-scale cooking events is a group effort. While many have contributed in countless ways, I would like to specially thank the people of Pacheia Ammos, Maria and Yiannis Chalkiadakis of the Tholos Beach Hotel, the Sylogos of Papadiokampos, and the greater community of the INSTAP Study Center for East Crete. Without their enthusiastic response to the project and their willingness to lend support by performing back-breaking work collecting materials and building hearths, and enduring the long hours of preparation for these events, these occasions would not have been possible. My gratitude is also extended to the following funding bodies: the American School of Classical Studies of Athens, the Fulbright Foundation, the Institute for Aegean Prehistory, and Leicester University.

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Applying for the Study Center's Richard Seager Fellowship

The INSTAP Study Center for East Crete's Richard Seager Fellowship is intended for scholars in the field of the Aegean Bronze Age/Early Iron Age who are working to complete their PhD Dissertations. Each year one recipient will receive \$4,000 for work to be done at the Study Center in Pacheia Ammos, Crete. Applicants should read the instructions for the fellowship and fill out an application, both of which can be found at www.aegeanprehistory.net. Applications are due on November 1 of each year, and the recipient is announced by December 15th.

HELLENISTIC BURIALS, HEALTH, AND DISEASE IN ANCIENT ITANOS

By Susan Kirkpatrick Smith and Chrysa Sofianou

For four of the past five summers, the basement of the INSTAP Study Center for East Crete has been an osteology classroom. One of the authors (SKS) has worked for up to four weeks each summer teaching undergraduate students from Kennesaw State University in an Atlanta, Georgia suburb how to clean, sort, inventory, and analyze human skeletal remains (Figure 1). This has been an excellent learning experience for them because NAGPRA regulations (North American Graves Protection and Repatriation Act) prohibit the excavation of most archaeological cemeteries in the United States. American students benefit so much by being allowed to work with researchers in places where the analysis of human remains from archaeological sites is not so restricted. The INSTAP Study Center has provided an excellent location for this teaching and research opportunity, and has also facilitated the collaboration between Greek and American scholars.

The human remains that have been studied in this joint field-school and research program have all been excavated by the 24th Ephorate under the supervision of Stavroula Apostolakou and Chrysa Sofianou. The collections have spanned the ages from the Minoan to the Early Christian periods and have ranged in size from one to several dozen tombs. Here we present the results of one these research projects.

In 2003, the 24th Ephorate conducted a rescue excavation in the northern part of the necropolis of Itanos in northeastern Crete. Three graves with human remains were excavated along with several areas which showed signs of burning. The tombs had been looted and the burials disturbed. The grave goods indicated that the burials date to the Hellenistic period. The two large burned areas date to the Geometric and Archaic periods. What follows is a discussion of each of the three burial areas and their associated artifacts and skeletal remains.

The one cist grave (Tomb 3) found in this excavation was built out of stone and covered with rectangular slabs, of which only two were discovered. The skeletal remains were scattered within and

outside of the tomb. The tomb contained an inscription which reads ΔΗΜΗΤΡΙΟΥ ΔΗΜΗΤΡΙΟΣ ΧΑ[ΙΡΕ] and provides a *terminus post quem* of the end of the 2nd century B.C.. The other finds included two perfume bottles with elongated bodies dating from the mid-2th to early 1st century B.C., and part of a kylix with handles from the 1st century B.C. The skeletal remains from Tomb 3 showed that at least one adult female had been interred here. The disturbance of the grave in the past resulted in the human remains being rendered fragmentary. Unfortunately, this resulted in so few bones being preserved that it was not possible to tell their age more precisely.

Tomb 6, which was cut into soft slate and covered with three stones, was also previously disturbed. No artifacts were found in the tomb, but to the north of the grave was an extensive burned



Figure 1. Kennesaw State University students Bridget Ebeling and Katherine Austin working on skeletal analysis in the basement of the INSTAP Study Center. (Photograph by Susan Kirkpatrick Smith)



Figure 2. Inner view of occipital bone from an adult male from Tomb 6 showing pathological circular lesions in the surface of the bone. (Photograph by Susan Kirkpatrick Smith)



Figure 3. Two fragments of cremated human from the burned area around Tomb 6. This was the only burned human bone identified in the collection. (Photograph by Susan Kirkpatrick Smith)

area with two copper buckles, coiled textile weights, and an aryballos dating to the Late Geometric period. The buckles suggest that this burned area was perhaps the pyre of a woman, though no human bones were found there. It seems likely that Tombs 3 and 6 from the Hellenistic period were placed on top of previous cremation areas from the Geometric period.

The human remains from the area of Tomb 6 contained a minimum of four individuals, three adults and one juvenile. The adults were one male, one female and one whose sex was not possible to determine. The male adult was likely to have been over 50 years old at the time of his death, and the female over 35 years old at the time of her death. Areas of the skull and pelvis that are most useful for determining age were damaged, however, so more specific ages could not be determined. The juvenile was probably between the ages of 5–7 years and was the only juvenile represented from these tombs. The adult male had evidence of a healed infection on the inside surface of his skull on the occipital bone (at the back of the skull). The inner surface has a number of small holes with smooth margins (Figure 2). The smooth margins indicate that the damage was caused during life. This type of damage to the skull would have been caused by an indeterminate form of meningitis. No other pathologies were present on any of the adult or juvenile bones from the area of Tomb 6.

There were areas of burning around Tomb 3 in which were found shells, a Cypriot vessel, and a bronze bowl with burned animal bone inside. These materials date from the Geometric to the Archaic period. No human bone was found in this area. The

burned area around Tomb 6 had fragments of burned human bone (Figure 3) as well as burned bone from sheep or goat. The human bone consisted of fragments of femur and tibia from an adult. It was not possible to determine the sex of the individual.

The third grave, Tomb 7, was outside the area of burning, to the east than Tomb 3 and Tomb 6. It was cut into soft slate and covered with three rectangular stones which were found *in situ*. Like the others, this grave had been disturbed. It contained a fragment of an amphora dating to the late 2nd or early 1st century B.C. The skeletal remains from this tomb indicated that a minimum of three adults, two males and one female, had been buried here. Two of the bone fragments, the temporomandibular joint and one vertebra, had very minimal arthritis. There were no other pathologies observed.

There was an area of burning called Tomb 4, which was much smaller than the other three tombs. This diminutive and circular area contained only a few fragments of bone from an adult of indeterminate sex. There was no burned human bone found here. This individual suffered an injury to his or her clavicle that had completely healed at the time of death. The injury was most likely from a fracture or from an injured ligament in the shoulder. No other pathologies were present.

The human bone from these burials had been disturbed and much of it was outside of the graves. It is possible that individuals buried in one tomb had their remains scattered over several areas. In order to account for this possibility, a minimum number of individuals for the entire collection was assessed. Based on the

number and size of femora present, there was a minimum of eight individuals in the Itanos burials. A minimum of two adult males, two adult females, three adults of indeterminate sex, and one juvenile were represented in the inhumations and a minimum of one adult was represented by burned bone. This is based on the total number of femora (for the adults) and the size of the juvenile bones recovered.

What is the value of analyzing such fragmentary remains? We can learn something about the inhabitants of ancient Itanos even with this meager collection. From the demographic information it is clear that this burial area was not restricted by age or sex and that it may have been a family burial area. This burial location was in use from Geometric to Hellenistic times. Even though the burial rites changed from cremation to inhumation, the location continued to be used. This suggests that there was something special about this place in terms of burial ritual. The pathologies present are also interesting and can contribute to our understanding to our knowledge of health and disease patterns in Crete. One of us

(SKS) has seen similar patterns of pathology in the skull described above (Figure 3) in remains from other sites in Crete. As more material is published on this, it will be possible to assess how common this type of disease was in Crete and who was likely to suffer from it. The same can be done with patterns of dental disease. Dentition reflects diet in many ways. Comparisons of dental disease between sites and across time can provide information about subtle changes in the quality of diets and the types of foods that were not just available, but that were frequently eaten.

The final value of this type of project is the connections it forges between Greek and American scholars. American students need access to skeletal remains in order to learn how to conduct osteological analyses, and Greek archaeologists can be aided by trained osteologists to help them with some of the backlog of material that is waiting to be studied. The INSTAP Study Center and the 24th Ephorate are providing a way for this beneficial connection to flourish and grow.

Meet the New Librarian!

The INSTAP SCEC library is now one appendix less, thanks to Lily Bonga. She had hers removed in Hagios Nikolaos. Lily is from Pittsburgh, PA and is a graduate student at Temple University. She is currently writing her dissertation on Neolithic pottery from Central Greece. She is happy and honored to be part of the renowned INSTAP team and is enjoying village life in Pacheia Ammos.



Self portrait by Lily Bonga.

The 2012 Richard Seager Doctoral Fellowship

Thanks to the generous donations from the supporters of the Friends of the INSTAP Study Center for East Crete, we were able to raise the \$4,000 needed to create our third fellowship for a doctoral candidate. The fellowship has been named in honor of Richard Seager, and has been awarded to Mihalis Zoitopoulos. Mihalis is a Ph.D. candidate at the University of Athens, and he will use the fellowship to work at the Center in June and July on his dissertation entitled “The “Postpalatial” Period in Far Eastern Crete: The Case of Zakros.”

Donations Welcome!

We would very much like to offer another fellowship for the year 2013, with the goal of enabling another doctoral candidate to use the Study Center’s resources to help bring his or her dissertation closer to completion. If you would like to help fund the 2013 fellowship, please make a check payable to the INSTAP Study Center and send it to the address printed below. All donations are tax deductible to the full extent of the law.

Please send checks to:

**Friends of the INSTAP Study Center
2133 Arch Street, Mulberry Atrium
Suite 300
Philadelphia, PA 19103 USA**

If you have any questions, please contact Elizabeth Shank:
(215) 496-9914 or elizabethshank@hotmail.com

We also welcome any cash donations for specific laboratories or our library, including book donations to the library. For library donations please contact Lily Bonga at lily.bonga@temple.edu.

If you would like your donation to be applied to a specific laboratory or the library, just tell us in the “memo” portion of your check.



Entrance to the Study Center. (Photograph by Elizabeth Shank)

INSTAP Study Center for East Crete Summer 2011 Lectures

Our first lecture in the summer of 2011 was presented by Oliver Rackham and Jennifer Moody on Saturday June 18, 2011: “Edible Landscapes of Bronze Age Crete.” Jerolyn Morrison and Jad Alyounis were co-authors.

On Friday July 1, 2011, Matt Buell delivered a paper titled “Some Preliminary Thoughts on a New Building Excavated at Gournia, Summer 2010.”

Rodney Fitzsimmons also gave a paper that evening titled “Feasting on Minoan Culture: The Northeast Bastion at Ayia Irini, Kea, and its Significance for Understanding Minoanization in the Aegean.”

On Saturday July 23, 2011, Katerina Kopaka presented a lecture titled “Cultural approaches to the island of Gavdos. A long-term dialogue with Minoan complexity.”

Check the Study Center’s website (www.instapstudycenter.net) for updates on the summer lecture series in 2012.

Report from the 2011 Richard Seager Doctoral Fellowship Awardee, Konstantinos Chalikias

With the help of the Richard Seager Doctoral Fellowship provided by the Friends of the INSTAP Study Center for East Crete, I was able to complete my dissertation and defend my thesis at the Ruprecht-KarlsUniversität in Heidelberg at the beginning of November. During my research, I focused on the settlement patterns of the South Ierapetra Isthmus and used Chryssi Island as a case study. Recent excavations by the 24th Ephorate on Chryssi and intensive fieldwork on the island provided significant evidence for the settlement history of the Ierapetra area, and suggested the existence of a thriving and complex network of settlements on the opposite coast of Crete. Additionally, the archaeological investigation on Chryssi Island helped better our understanding of the “colonization” and exploitation of island landscapes off the coasts of Crete, the insular character of their communities, and their ties with the nearby coastal towns.

Ariel Pearce and Konstantinos Chalikias were married on May 7th, 2011 in Lambertville, NJ. They also had a Greek wedding on July 16th, 2011 in Lastros, Crete.



INSTAP STUDY CENTER FOR EAST CRETE

United States

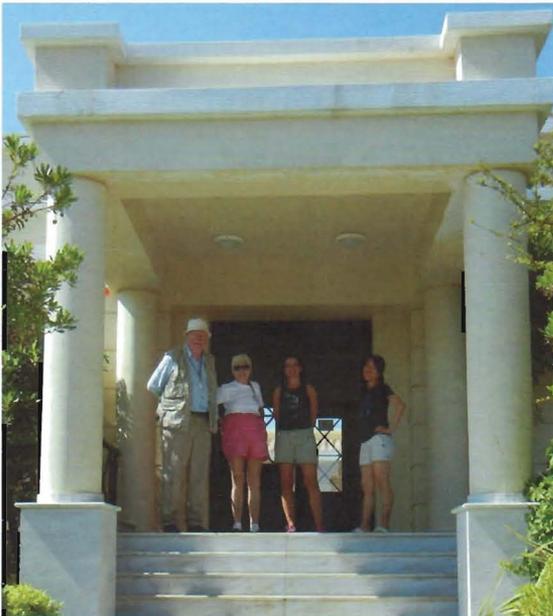
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Jim Muhly, Mary Betancourt, Lily Bonga, and Florence Hsu at the Study Center's front entrance. (Photograph by Elizabeth Shank)

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