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The Newsletter of the INSTAP Study Center for East Crete

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The 2002 Excavations at Hagios Charalambos

The entrance to the cave's lower rooms was a dark horizontal crack on the floor, a little over a foot high, just tall enough to go in after two days of excavation. As Alekos and I slowly slithered down the muddy ramp feet first, lying on our backs, with a single light bulb trailing a cord over 200 meters long hooked up to the nearest house, I turned my head to the side and tried to keep an eye out for the little jagged stalactites just above my head. Once inside the room, we started to stand up. Alekos raised the light, and I looked to my left. The floor was covered with human skulls.

The Minoan burial cave near the village of Hagios Charalambos, where excavations began in July, produced important new evidence for the burial customs of the Early and Middle Bronze Age in Crete. The expedition, sponsored by Temple University, uncovered stratified remains from two phases of deposition and produced the largest corpus of human skeletal remains known from the Lasithi Plain. Several hundred individuals, ranging from infants to adults, were first buried elsewhere, and then their remains were removed from their primary place of deposition and placed in the ossuary at Hagios Charalambos. Along with the bones were complete pots, fragments of pottery, stone vases, human figurines, sealstones, several examples of the Egyptian musical instrument called a sistrum, and other objects.

The expedition was directed by Philip P. Betancourt and Costis Davaras. A large staff of students and professionals included field directors James D. Muhly and Albert Leonard, Jr., conservators Alekos Nikakis and Stephania Chlouveraki, geologist Panagiotakis Karkanas, physical anthropologist Photeini McGeorge, and photographer Erietta Attali. Students from Temple University, the University of Pennsylvania, the University of Athens, the Technological Educational Institution, Athens, and Sheffield University participated as well.

Two strata were found in the cavern, both from the Middle Minoan II period. In both cases, the Minoans deposited grave offerings along with the bones, so that the excavations provided information about the objects given to the dead as well as about the human beings themselves. The residents of the community prepared the cave by building terrace walls deep within the cavern, and they then spread the disarticulated bones behind the walls. Masses of bones with broken and whole vases were carefully placed in several rooms. After finishing the deposition as a relatively level area, skulls, leg and arm bones, and pieces of clay larnakes were placed on the surface.

Among the most interesting finds from the season were a human figurine, several ivory pendants, and a series of clay sistra. The sistrum, an Egyptian percussion instrument, consisted of disks suspended within a frame that could be shaken by the musician playing it. A complete sistrum and fragments of three others were found in the cave this year.

Philip P. Betancourt

Message from the Director

When the INSTAP Study Center for East Crete opened its doors to the archaeological community five years ago, I doubt we had any idea how active the Center would become. Five years later, we have seen the number of excavations run from the Center increase dramatically, with two new excavations, the Hagios Charalambos and Azoria projects, beginning this year. Combined with continuing projects such as Gournia, Halasmenos, Kavousi, Mochlos, and Vrokastro, this has created a dynamic atmosphere at the Center that has been quite productive and enjoyable.

In addition, the Center has accommodated many scholars pursuing individual projects over the past five years. We have seen the formation of the INSTAP Publication Team, which offers services to archaeological projects in the Aegean that need the expertise of photographers, graphic artists, and conservators. Chronis Papanikolopoulos came on board in August as the new photographer for the Publication Team, and Eleni Nodarou will begin in January as the Center's full-time petrographer. The William A. McDonald Petrography Laboratory was founded this year at the Center, and Eleni will use it to create a petrographic reference collection for all periods of the island's history. In a further expansion of the Publication Teams' services this summer, Antonia Stamos provided GPR (Ground Penetrating Radar) analysis for the Azoria and Petras excavations. We are also happy to announce the addition of Kathy Hall, formerly of the Institute for Nautical Archaeology, who will work as a Senior Conservator for the Publication Team.

Eleni Nodarou, the INSTAP Publication Team's new petrographer, studies a sample under the microscope.

The new photographer for the INSTAP Publication Team, Chronis Papanikolopoulos.

One of the goals of the Study Center is to support initiatives that inform the wider public of our work. Beginning in 2000, we have designed and installed informative signs at various archaeological sites on Crete. This ongoing project has been expanded to include museum work, with the installation of several display cases at the museums of Siteia and Ierapetra, including a reconstruction of a cremation burial from the Late Geometric cemetery at Vronda, Kavousi. This project was a collaboration by Leslie Day, one of the Directors of the Kavousi Project, Stavroula Apostolakou of the 24th Ephoreia, Alekos Nikakis of the Hagios Nikolaos Museum, and staff members of the Study Center. A new display in the Siteia Museum of pithoi from the Minoan Palace of Petras was made possible by the collaboration of the project's Director, Metaxia Tsipopoulou, and the Study Center's conservators.

Among our summer activities was the Study Center's retirement party for our close friend and respected colleague Jim Muhly, the Director Emeritus of the American School of Classical Studies at Athens. A veritable feast was provided by Jan and Anneke van Dijk and despite unsea-

The new William A. McDonald Petrography Laboratory will be used for the creation of thin sections for the study of ceramic inclusions.

sonably cold and even rainy weather, the party was a great success. We all wish Jim and Polly the best.

The Study Center's summer lecture series included three stimulating talks by colleagues. Stavroula Apostolakou, who analyzed the Hellenistic and Roman cemeteries in ancient Kamara (modern day Hagios Nikolaos) spoke on the 20th of July. Krzysztof Nowicki's talk on the 26th of July described his excavation of the refuge site at Monastiraki Katalimata. This talk commemorated the dedication of the William Coulson Conservation Laboratory at the Study Center, in honor of our departed friend and colleague. Mantinades written to Willy by his friends from Kavousi were read by Manolis Kasotakis. On the 2nd of August, Vivi Adrimi-Sismani of the 13th Ephoreia reported on the spectacular LH IIIB administrative center at Dimini. The Study Center's summer lecture series is open to the public, and food and drinks are provided afterwards.

On a sad note, this year the Study Center lost a valued colleague with the unfortunate passing of Nikos Papadakis. Mr. Papadakis was the director of the 24th Ephoreia of Prehistoric and Classical Antiquities during the period when the Study Center was built and began operation. Several members of the Study Center were working on projects with him, including the publication of the LM III cemetery at Limenaria Mochlos, the Hellenistic houses at Trypitos, and Archaic deposits in the Siteia area. It is my hope that the publication of these collaborative projects will honor his memory and his work in east Crete.

In closing, I would like to thank all the staff members and colleagues who have helped make these past five years a success. The Study Center hopes to continue to expand its services and resources for archaeologists on Crete. Our core mission remains to facilitate the collection, preservation, study, and publication of material that might otherwise be lost in the hustle and bustle of life in the 21st century, A.D.

Thomas Brogan

Polly and James D. Muhly take time out from the party to appreciate the coveted "Martha Stewart" award, a tasteful watering-can with flowers designed for the couple by Mary Betancourt.

The Azoria Project, 2002: A Study of Urbanization on Crete

by Donald C. Haggis and Margaret S. Mook

The first season of the Azoria Project took place this past summer under the joint auspices of the Archaeological Service of Eastern Crete and the American School of Classical Studies in Athens. Azoria (Azorias) is a distinctively rounded hill, one kilometer southeast of the modern village of Kavousi overlooking the Bay of Mirabello and the Kavousi plain (Figure 1). It sits in a naturally strategic position, some 300 to 372 meters above sea level, at the confluence of two rivers and traditional transportation routes, at a juncture between the lowland plain of the north Isthmus of Ierapetra and mountain valleys of Avgo and Papoura. Although Harriet Boyd excavated a single trench on the hilltop in 1900 (Boyd 1901), neither the chronology nor the size of Azoria was understood until 1989 when intensive survey was undertaken in the Kavousi region (Haggis 1996).

The primary goal of the Azoria Project is to excavate an urban settlement that was established at the end of the Bronze Age (ca. 1200 B.C.) and occupied continuously through the Iron Age (down to ca. 500 B.C.). With a broader chronological scope in mind we want to explore the process of urbanization and state formation at a single site with both a well-established regional context and an apparently unbroken occupational history from 1200–500 B.C.

In 2002 the excavations at Azoria set out to address

Figure 1 Aerial view of Azoria from the south.

Figure 2 View of a segment of the spine wall on the South Acropolis (A1200) forming the back wall of the large storeroom in the *andreion* complex.

problems of emerging complexity. Other sites in the Mirabello area belong largely to the early phases of LM IIIC to Late Geometric, and there is a dearth of evidence for the Archaic period on the island. We planned to define the history of the site, establish its urban character, and design a sampling strategy for evaluating diachronic changes in crop-processing, animal consumption, social and political organization, and economy during the course of the Early Iron Age. We focused our excavation on the hilltop of the South Acropolis, where a "spine wall" was discovered joining three houses on the south slope. This monumental wall ties together the buildings on the hilltop, creating a complete 250 meter long circuit that runs roughly the full extent of the 364 meter contour. Forming two building levels—one above, the other below—the structure served a retaining function by effectively stabilizing the slope and permitting building on the terraces. It also was the core element off of which the houses of the South Acropolis were built (Figure 2).

In this area, we recovered five houses of two distinct plans: a linear axial plan, similar to Protogeometric to Late Geometric buildings from Kastro-Kavousi and Vrokastro (cf. Hayden 1983) and a square corridor plan, characteristic of Archaic houses elsewhere in Greece (cf. Morris 1998). The corridor type is interesting, as excavated examples demonstrate changes over time which usually involve the building of walls that partition the interior space. This may indicate division of room functions and perhaps changing social complexity through time. In the storage area of one house, we found an interesting series of pithos jars, one of which was a Late Minoan IIIC heirloom (Figure 3).

On the west slope of the South Acropolis at the bottom of densely packed stone tumble, we uncovered the remains of the largest single room on the site (4.5 by 6.5 meters). The floor of the room is clay, and a single round column base of hewn limestone was set in the middle of the room, slightly off-center of the doorway. The doorway itself is over 1.10 meters wide and leads through a well-built cross wall of small boulders. On the floor were fragments of three large terracotta krater stands, two of which are fenestrated (Figure 4). One stand has a torus molding with red-painted triglyph and metopal sections, and a lower register with alternating black and white sections. The stands probably formed the centerpieces in drinking and dining ceremonies. Our hypothesis is that this room is a storage area or repository for objects used in the main room of the building (planned for excavation in 2003).

On the terrace below and to the west of this large room, we discovered two kitchens of similar size and orientation. Both kitchens had a well-preserved clay floor, a bench along

Figure 3 A Late Minoan IIIC pithos smashed on the floor of a house on the south slope (B300).

Figure 4 Krater stands *in situ* within the *andreion* (A800).

the east wall, and a hearth in the northeast corner. The north kitchen had a clean and even surface, but the south one was filled with food debris—fragments of numerous cups, pithoi, and what is probably a hydria smashed on its side. The food debris included olive pits, concentrations of limpet and top shells, animal bones (sheep, goat, pig, agrimi, cow, hare, fish) and remains of sea urchin and crab. This debris was not the result of food preparation in the kitchen itself, but rather a dump or midden which was created after the kitchen had gone out of use. The condition of this debris suggests a garbage heap (discarded both from food preparation and consumption) probably related to the large room with the krater stands, which lies above and to the east.

To the north we excavated a series of storerooms which probably belong to the kitchen complex. The largest is 6.5 by 3.0 meters with a long stone and clay-built bench in the northeast corner, ca. 3.0 meters long and 0.50 meters wide (Figure 2). At the northern end of the bench, three upright stones form a three-sided bin or hearth, around which we found a considerable amount of ash and iron slag. At least six separate pithoi were found smashed directly on the floor surface. We recovered a whole *lekane* on the floor on the east side of the room. Red and black patches on the floor surface preserve the patterns of fallen roof beams and branches of roof packing and attest to an intense fire, which contributed to the destruction of this room but also preserved a large number of olive stones and grape pips, perhaps evidence of the contents of the storage jars.

Figure 5 University of North Carolina student Krystal Bishop excavating a pithos in a house on the south slope (B400).

We are able to make some general observations about the history of Azoria based on our finds from this first season. It is now even more evident to us that Azoria has a rich Bronze Age past. The site was first occupied in the Neolithic and was in use continuously into Prepalatial and Protopalatial periods. Although we are uncertain of the size of Azoria in the early second millennium, it was apparently quite substantial by Late Minoan IIIC. The site was inhabited continuously from LM IIIC until the Late Orientalizing period (ca. 1200–700 B.C.). By the early sixth century B.C., the settlement was rebuilt, not only utilizing the debris of earlier buildings as a foundation, but also significantly transforming the plan of the site and its spatial and architectural organization.

Our plans for the 2003 season include completing the excavation of the large room and kitchens on the South Acropolis. Our goal is to dig down below the sixth and fifth century levels in order to investigate the stratigraphy of the earlier phases of occupation at the site. We hope to gain a deeper understanding of the history and process of urbanization, and to study Azoria as it developed from its Neolithic origins to emerge as a small-scale Greek city-state and complex urban center in the sixth century B.C.

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Donald Haggis, Krzysztof Nowicki, and Peggy Mook in front of the William Coulson Conservation Laboratory at the Study Center for East Crete.

Funding for the Azoria Project was provided by the Institute for Aegean Prehistory; the National Geographic Society; the National Endowment for the Humanities, a federal granting agency; the Wenner-Gren Foundation for Anthropological Research; the College of Arts and Sciences, the Office of the Vice Chancellor for Research, and the Department of Classics at the University of North Carolina at Chapel Hill; and the Azoria Project Fund.

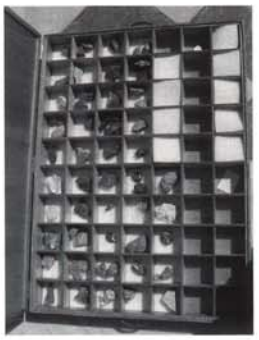
The Cretan Geological Reference Collection for Archaeologists

by Doniert Evely, Tom Strasser, and Heidi Dierckx

The title says it all. The germ of the idea had been floating about our several consciousnesses for some time as we individually wrestled with—and oftimes despaired at—securing an identification of a stone type even somewhere in the right ballpark. It finally took its concrete form in the summer of 2001 as we motored about the high-and by-ways of Central and Eastern Crete in the company of Charalampos Fassoulas (our mentor and guide), leaping out periodically to set upon some uncomplaining outcrop of interest.

In this manner, we assembled well over one hundred sets of samples from the eight nappes (geological eras, if you like) that make up Crete proper. These we have been processing in 2002 at Knossos, courtesy of the BSA. Broken down further to display both weathered and fresh surfaces, the corpus has been divided into groups from Central and Eastern Crete, and internally by nappes. The individual pieces have all been numbered and provided with an interim list of identification of type and of find spot. The collection is housed magnificently in two wooden boxes, for whose organization we would like to thank Kostas Venianakis of the BSA at Knossos. Some space exists for future expansion and addition of local peculiarities.

Heidi Dierckx, Doniert Evely, Tom Strasser: your rock guides.



The geological reference box for Eastern Crete.

As it stands, the collection exists to assist archaeologists on Crete in identifying the material of a given artifact—though we would recommend always using field guides and consulting a real geologist as insurance policies here. Not every rock-type known on Crete is represented; our efforts have been focused on those represented in the everyday assemblage of the prehistoric period (7000–1000 B.C.). It also should be remembered that the sources we visited are by no means the only ones existing; it is always worth assessing what is locally available to a site. Cycladic emery and some other less conspicuous foreign stones supplement the East Crete box.

In the future (2003–2004), we wish to complete a more comprehensive pamphlet and CD-ROM to accompany each of the existing boxes at the Aghios Nikolaos Museum, the American Center at Pacheia Ammos, Kommos, Knossos, the Herakleion Museum, and the Chania Museum. Finally, it would be worth compiling a third box for each set for West Crete.

We wish to acknowledge and thank INSTAP and California State University (Sacramento) for their generous funding, as well as the practical assistance from the American School of Classical Studies and the BSA in Greece. Permission to collect the samples was given by the Institute of Geological and Mineralogical Research in Greece and the Greek Ministry of Culture, as well as the Ephoreias of Central and Eastern Crete.

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Jan and Anneke van Dijk prepare a Polynesian-inspired feast for Jim Muhly's retirement party.

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Conservation Work at The Study Center: The Reconstruction of Palatial Magazines

by Klio Zervaki, Chief Conservator for the Petras Excavations

During a twelve-month period spanning 2001 and 2002, I worked with a team of assistant conservators, M. Tzari, B. Basilakis, and N. Nikakis, to preserve and restore a series of pithoi from the Minoan Palace at Petras. Dr. Metaxia Tsipopoulou excavated these huge vessels in the North Storage Magazine of the palace in the course her work at Petras in 1989 and 1991. Funding was provided by INSTAP, and the project was undertaken at the William Coulson Conservation Laboratory of the INSTAP Study Center for East Crete. I would also like to thank assistant conservator George Misemikes for his valuable cooperation, dedication, and industrious effort during the last year in the completion of the project.

Our first job was to locate and sort the pithos sherds from the mass of ceramic materials from the excavation. There were more than forty storage crates of pithos fragments for us to explore. With the help of excavation photographs of the finds *in situ* and our skills at putting together jigsaw puzzles, we were able to identify parts of at least 28 pithoi. Of these, we eventually restored 7 pithoi with full profile, 3 with nearly full profile, and 18 in fragmentary condition.

During the initial stages of cleaning the sherds, we paid special attention to preserving the edges to allow for the best possible joins. The sherds were all cleaned, and where necessary, the surfaces were consolidated. We stabilized the pieces and then began the tricky task of joining them using nitrate cellulose glues. It was necessary to proceed very slowly, allowing the joins to harden thoroughly before adding on additional sherds. While the glue was setting, the pieces were held together by elastic bands.

For the 7 best preserved examples, we used plaster colored with the same acrylic binding pigments used for painting fine icons. The gaps were filled in both for aesthetic purposes and to help stabilize the large vessels. All materials and methods used in the conservation and restoration process are reversible.

These storage vessels are now on permanent display in the Archaeological Museum in Siteia. They are a testament to the skill and technical capabilities of Minoan potters, and they help to tell us more about the palace-based economy of Petras. I must add that they also are a testament to the ingenuity and resourcefulness that characterizes the work of modern conservators in helping to promote our knowledge of the past.

The seven pithoi that we were able to preserve in complete profile are seen here at the end of the conservation process.

In the William Coulson Conservation Laboratory, the fragments of each pithos are placed on a table covered with plastic. Pieces of the pithos that join are placed side by side. This "jigsaw puzzle" is traced onto the plastic, and the fragments are numbered. The plastic then becomes a blueprint for the reconstruction of the pithos.

Elastic bands are placed around the glued pithos to insure that its pieces are held firmly together during the drying process.

This pithos is restored to its complete profile. Pigments mixed with acrylic binders will be painted onto the plaster filler to complete the pithos' conservation.