In Memoriam

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Front Cover: Polynomial texture map (PTM) image of a Hellenistic or Roman banded agate intaglio signet. The PTM was created during the Reflectance Transformation Imaging workshop led by Cultural Heritage Imaging at Chersonesos in 2008. The gem, 8 mm long, bears an image of a seated, draped male figure holding a staff in one hand and perhaps sheaves of wheat in the other.

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2010


2011


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# Contents

1. 2008 in Review.............................................................................................................1
   *Adam Rabinowitz, Assistant Director, Institute of Classical Archaeology*
   
   Development of Resources for Study and Publication .........................................2
   *Keith Swift*

2. Metaponto 2008 ..........................................................................................................3
   *Keith Swift*
   
   Italian Edition of Discovering the Greek Countryside at Metaponto ............3
   *Elisa Lanza*
   
   Pantanello ................................................................................................................4
   *Keith Swift, Adam Hyatt, Jessica Trelogan*
   
   Figured Pottery from Pantanello and the Farmhouses in the Metapontine Chora .............................................................................................15
   *Francesca Silvestrelli*
   
   Farmhouses in the Chora: Pottery and Finds from the Farmhouses in the Metapontine Chora ...........................................................17
   *Incoronata Greca: Archaeological Investigations .............................................29
   *Sveva Savelli with Laura Cossalter, Cecilia De Faveri, and Amelia Tubelli*
   
   Ceramic Production in the Metapontine Chora .................................................37
   *Keith Swift*

3. Chersonesos 2008 ......................................................................................................39
   *Adam Rabinowitz*
   
   Two Assemblages of Hellenistic Pottery .............................................................43
   *Stine Schierup*
   
   The Stone Finds from Excavations in the South Region ...................................47
   *Roger Sharp*
   
   The Numismatic Evidence from Excavations in the South Region ..................51
   *Pagona Papadopoulou*
   
   Making Sense of the South Region: Design and Implementation of a Site Interpretation Project .................................................................54
   *Erin Tyson, Sarah Duffy, Adam Rabinowitz, and Chris Cleere*
   
   Work Report of the Project "Megarika" ...............................................................63
   *Lucy Grinenko*
   
   Cultural Heritage Imaging at Chersonesos..........................................................67
   *Adam Rabinowitz, Carla Schroer, and Mark Mudge*

4. Personnel ....................................................................................................................73
The Institute of Classical Archaeology

Mission
The Institute of Classical Archaeology (ICA) is an Organized Research Unit of The University of Texas at Austin. In order to study, document, and preserve sites, monuments, and artifacts of past cultures for present and future generations, we conduct archaeological fieldwork and training in ancient Greek rural territories on the Black Sea and the Mediterranean. We engage in interdisciplinary research and publication and provide technical assistance and expertise for cultural heritage management.

Research Focus
ICA’s research focuses primarily on the chorai, or agricultural territories, that surrounded and supported ancient Greek colonial cities. Our two primary sites of research are the chora of Metaponto on the southern coast of Italy and the chora of Chersonesos on the northern coast of the Black Sea in Crimea, Ukraine. Both settings offer remarkably well-preserved ancient rural landscapes, once densely occupied by farmers and still containing abundant evidence of their homes, burial grounds, and places of worship. Because their locations were strategically important, they also contain archaeological remains from the Roman through Byzantine eras.

Through its research, ICA seeks to contribute a fuller understanding of the settlement, economy, and culture of this previously neglected rural dimension of early western civilization. Metaponto and Chersonesos provide a unique chance to compare rural chorai at opposite ends of the colonial Greek world, as well as the opportunity to train students, foster exchange, and promote international collaboration and good will.

Adjunct organizations
The Center for the Study of Ancient Territories (USA), Pidtrymka Chersonesu (Ukraine), and the Centro di Agroarcheologia Pantanello (Italy) are nonprofit organizations founded to support the mission and goals of ICA. Their special focus is expanding international cooperation for ICA’s projects and ensuring cultural awareness and compliance with local laws.

www.utexas.edu/research/ica
This Annual Report reaches our readers with some delay. I write this introduction in 2011, nearly three years after we concluded the work it describes. There is a good reason for this long silence, however, and that reason is directly connected to the factors that made 2008 a dramatic turning point for the institute of Classical Archaeology. That year saw the intensification of an ambitious, multi-year program of publication and dissemination that has kept ICA’s staff working furiously on the production, editing and layout of comprehensive academic works since then. This publication program looks to the future, for the detailed presentation to a scholarly audience of the results of 35 years of research carried out by Professor Joseph Coleman Carter and ICA’s collaborators in the agricultural territories of the ancient Greek colonial world.

At the same time, ICA’s other activities in 2008 were rooted in longstanding traditions. At Panta nello, where Professor Carter’s work began in 1974, we carried out our last field project before turning exclusively to publication and presentation. This project made use of the GIS-based digital recording system we had developed with L – P: Archaeology in the course of our excavations in the South Region of Chersonesos. Among the team were UT graduate students and several students from Kyiv-Mohyla Academy University in Ukraine, the latest beneficiaries of ICA’s long history of training young archaeologists in the field. Several other Kyiv-Mohyla students came instead to Chersonesos, where our projects in 2008 focused primarily on training in digital technologies and conservation, publication, and the presentation of the rich cultural resources of the site to the public. These projects represent the natural development of ICA’s efforts to bring Chersonesos to the attention of a wider audience since Professor Carter first visited the site in 1992.

In Austin, ICA’s efforts shifted to reflect the same double vision of ICA’s past and future. A highly-skilled layout and editorial team consisting of Chris Williams, Deena Berg, and Dan Davis had begun to work enthusiastically on a series of publication projects, and they and others who have joined ICA more recently have carried on this work at an impressive pace since then. The delay in the production of this Annual Report can be attributed in part to their concentration on the scholarly publications that began to hit the presses in 2009 and 2010: two posthumous volumes on the Neolithic settlement at Capo Alfiere and the archaeozoology of the Metapontino came out first, followed soon after by the lavishly-illustrated publication of the painted grave stelai from Chersonesos. In 2011, these achievements were capped by the completion of the four-volume publication of the first part of the ground-breaking survey of the chora of Metaponto (this installment deals with the area between the Bradano and the Basento rivers). The survey publication, which includes a large-format atlas of detailed maps of the chora in various periods, breaks new ground in the presentation of survey data, and provides its audience with the first detailed view of an extensively-investigated colonial Greek agricultural territory. It will also include an online component: a web-based GIS interface that will allow direct access to the primary dataset on which the published work is based.

Digital approaches to ICA’s primary data also look to the past, as it is reflected in the extensive paper and film archives of ICA’s work before the late 1990s, and to the future, as we tackle the preservation and dissemination challenges associated with the vast quantity of born-digital documentation we have collected since the turn of the millennium. New technologies make it possible for us to organize and present primary archaeological data from both survey and excavation in ways that have never before been possible. Yet at the same time, rapid changes in technology make it difficult to assure the preservation of our archives for future generations. As our publication projects picked up steam, we also began to explore preservation and dissemination options more aggressively. Building on our existing program of slide and image digitization, which had by 2008 created a collection of more than 20,000 catalogued images stored in the DASE infrastructure created by UT’s Liberal Arts Instructional Technology Service, we developed new strategies for long-term storage and interactive presentation. Our initial investigations led us to two new collaborations that began in the last months of 2008. One was with the UT Library system, which was developing a platform for the permanent archival storage of faculty publications. It promised long-term preservation, but was suited only to static, relatively flat material,
such as PDF files generated from print publications. The other was with a team lead by Maria Esteva at the Texas Advanced Computing Center (TACC): this collaboration focused on the storage and management of our dynamic and GIS data, and its presentation through interactive online services. Both of these collaborations have since blossomed into fully-realized solutions to complicated problems related to digital archives and publications, and the results will become clear as the digital components of our print publications begin to come online in the coming years. With the help of a graduate seminar led by Dr. Megan Winget in the School of Information, we also began to think about how we might digitize the rest of ICA’s extensive paper and film archives.

The 2008 Annual Report itself is thus both an end and a beginning. For the next few years, ICA’s exciting discoveries will emerge not from plowsoil or the trenches, but from the careful study of the material produced by nearly four decades of such research. Excavation reports of the sort our readers have come to expect are represented here only by the contribution on the Roman Tile Factory at Pantanello – and even that excavation was intended mainly to prepare for the publication of the structure and its presentation to the public. The other South Italian contributions to the Annual Report focus on the preliminary results of the study of previously excavated material, as do several of the contributions on Chersonesos. Other contributions recount projects designed to share knowledge—with students, with scholars, with the general public.

This Annual Report will be the last for several years to feature updates on field research activities, and so marks a pause in ICA’s long tradition of notes from the field. On the other hand, it reflects the shape of things to come: subsequent Annual Reports will present previews of the scholarly research included in the many print publications and electronic datasets we intend to produce over the next few years.

It is bittersweet to announce these changes to our supporters. All of us enjoy being out in the field as much as we hope you enjoy reading about our fieldwork. But at the same time, we recognize our responsibility to curate the unique data ICA has collected over many years, and to ensure that the results of our work are presented to the public in as comprehensive and useful a manner as possible. These commitments to preservation and presentation – both on paper and on the ground—have directed our current path. And in many ways, as the archaeological landscapes in which we have invested so much time become more accessible to a broad public, and as our digital and print publications offer bright windows into their fascinating history, our readers will be able to enjoy a richer and more direct experience of the information their support has allowed us to gather over the years. It is with great gratitude, then, that we offer this report of ICA’s work in 2008 as a snapshot of where we have been and of where we are going.

Adam Rabinowitz
Assistant Director, Institute of Classical Archaeology

DEVELOPMENT OF DIGITAL RESOURCES FOR STUDY AND PUBLICATION
Keith Swift

Over the course of the summer season at Pantanello and in collaboration with Jessica Trelogan, a plan was formulated for the digital publication and presentation of the substantial pottery assemblages from the Metapontino, using a web-based format and open-source software as a tool both for analysis and dissemination. The assemblages from Pantanello provide an ideal “pilot” for this project, which holds the promise of developing a methodology to deal effectively with the near-intractable problem of publishing the vast quantities of ceramics typical of excavations in Mediterranean regions. Detailed planning and construction of the databases and related components has been initiated and will continue to develop through early 2009. Beyond post-excision studies of the material, this provides one of the more exciting and challenging aspects of work on ICA projects in the near-term, to provide a benchmark for the digital analysis, presentation and dissemination of substantial pottery and finds assemblages.
Metaponto 2008–2009

Introduction
Keith Swift

This year has been a very productive one for post-excavation studies of pottery and other finds from the archaic settlement at Incoronata, the Archaic to Hellenistic phases of the Pantaneello sanctuary and the five farmhouses in the Metapontine chora. The syntheses of the sites and component chapters on each class of archaeological material for these three large-scale studies are on schedule to be completed by the close of 2011.

Excavation at these sites have yielded substantial pottery and finds assemblages from a diverse range of contexts. Through their breadth and variety, these assemblages provide a comprehensive regional perspective—of ceramics and other finds in the Metapontine chora as a whole—with completion of the Metaponto survey volume (Bradano-Basento transect) in 2011 providing the wider regional context for these sites and their substantial finds assemblages.

Comparative study of the material, undertaken by the ICA team during 2008, has brought to the fore key research questions common to the study and interpretation of the finds from each of the excavations, outlined below.

Italian Edition of
Discovering the Greek Countryside at Metaponto
Elisa Lanza Catti

In 2008, the volume, Discovering the Greek Countryside at Metaponto by Joseph Coleman Carter (University of Michigan Press 2006) was published as a new edition in Italian under the title La scoperta del territorio rurale greco di Metaponto (Venosa 2008, Edizioni Osanna. Trans. by Elisa Lanza Catti) (Fig. 1). The book consists not only of the translated text, but includes also updated data and pictures, and an introduction by Elena Lattanzi.

The volume, stemming from a Thomas Spencer Jerome Lecture delivered by Professor Carter at the University of Michigan in 2000, is a complete synthesis of the methods and results of the investigation of the chora (rural territory) of Metaponto carried out by the University of Texas over the preceding thirty years.

The Italian version, presented by Professor Carter at the last Convegno di Studi sulla Magna Grecia, held annually in Taranto, will help the spread of the knowledge about this ancient region, its inhabitants, their culture and daily life, investigated over a period of many centuries, from the early indigenous settlements of the Iron Age to the late Roman occupation of city and its chora.

Figure 1 The cover of the Italian edition of Discovering the Greek Countryside at Metaponto showing the Tavole Palatine temple in a wheat field (C. Williams/ICA).
Pottery Assemblages from the Pantanello Sanctuary
Keith Swift

Primary study of the assemblages from the area of the sanctuary began in February 2008, with the aim of identifying, recording and characterizing the key deposits from site. Study of these was completed during the summer of 2008, providing a chronological framework based on secure-context assemblages (of more than 5000 pieces) within which to interpret the more substantial but chronologically mixed material from the sanctuary.

Of particular note are a series of mid-to-late 6th-century BC deposits from north of the sanctuary walls, the earliest phase for which there are substantial assemblages, and a stratified sequence of deposits from the area of the spring and collecting basin which date to the late 6th or early 5th century BC. Together these allow for examination of the transition from the thriving mid-to-late Archaic fine ware production to a repertoire of black gloss fine wares typical of the Classical period. Seen within the context of assemblages from the survey and the Pantanello necropolis, and straddling the later phases at Incoronata and earliest phases attested in the farmhouses, these assemblages will contribute significantly to our understanding of the late Archaic to Classical-period transition in the Metapontine chora.

Quantification of the ceramic assemblages from Pantanello allows us to characterize the assemblages from this rural sanctuary and permits a synthesis of previous studies of assemblages, which have focused on selected classes, types, or groups of ceramics. Ongoing petrological study of the ceramic fabrics from Pantanello includes over 90 thin section samples accompanied by Neutron Activation Analysis samples. Imported wares from all phases at Pantanello continue to be identified and characterized, permitting the study of inter- and intra-regional distribution.

The sequence of 4th-century BC floors in structures overlying the Archaic sanctuary provides a chronological framework for the late Classical and early Hellenistic phases at Pantanello. These are broadly coeval with many of the farmhouse assemblages—a period which represented the post-Archaic *floruit* of settlement activity previously identified by Prof. Carter from survey and excavation in the Metapontine chora. Study of the late Archaic to early Hellenistic phases at Pantanello is particularly important in this regard since it allows us to examine the nature of long-term change in rural sanctuaries, alongside those apparent in the ICA excavations of the necropoleis and farmhouses, and in the plethora of survey sites in the Metapontine chora.

The archaic to Hellenistic phases at Pantanello will comprise the first of two volumes, which will examine the character of the archaic sanctuary and the nature of the transition over the course of three centuries to the early Hellenistic phases at the site.

Excavations of the Pantanello Tile Factory 2008
Adam Hyatt

The 2008 excavations. Professor Carter’s excavations in the 1970s revealed a substantial Roman-period ceramic manufactory occupying the hillside approximately 60 m northwest of the sanctuary (Fig. 2a). These early excavations defined the limits of the complex and exposed the extant architectural features, including two well preserved kilns. During the summer of 2008, limited excavations were renewed at the manufactory in order to address unresolved questions of chronology and to digitally record the site in preparation for its forthcoming publication.

The main objectives of the 2008 campaign were to define the relationships between the different architectural structures of the kiln complex, develop a fine-tuned chronology for its phases of occupation, and to document the site using GIS and a web-based database. The architectural features were redrawn, geo-referenced and digitized within the site GIS. Seven trenches were excavated by an international team of students and experienced archaeologists from the US, Italy, and—in an exciting new program of exchange with the Kyiv-Mohyla Academy in Ukraine—three Ukrainians. The team had an exceptional mix of talents and gave the season a real sense of international and interdisciplinary collaboration.
The ceramic manufactory. The construction of the ceramic manufactory represents a major transformation in the development of this site. The large kiln was built into the hillside near the bottom of the slope, in a location chosen primarily for its proximity to the spring and nearby clay sources. The associated building complex consisted of three wings arranged around a central courtyard, and was connected to the kiln enclosure by a doorway at the southern end of the west wing (Fig. 2). The total enclosed area of the building measures approximately 590 m².

Excavations from 1974 to 1976 had previously exposed the architectural foundations and removed most of the topsoil within the east and west wings to reveal an extensive tile fall. The foundation walls are constructed of medium to large river cobbles and intermittent fieldstones, sometimes laid between leveling courses of broken roof tiles. In the few instances where a second course of stones is preserved, plow marks are visible on the upper surfaces, illustrating the damage caused to the site by modern agriculture.

The tile fall represents a consistent sealed layer across the site, representative of the destruction of the first phase of the kiln complex (Fig. 3). The 2008 excavation revealed a hard-packed earthen floor with sporadic patches of plaster preserved approximately 15 cm beneath the tile fall. Finds associated with this floor layer were largely limited to two crushed cookware jars and several bronze nails deposited during the roof collapse. No datable diagnostics were recovered from this layer, and no evidence of industrial activity was preserved within the building. However, its industrial nature is demonstrated by its connection to the kiln, the general absence of pottery, the lack of interior division, and the shallow foundation walls. Most likely Room 1 served as a drying shed where unfired ceramics were left to dry before being placed in the kiln (Fig. 4). The lack of clay deposits between the floor layer and tile fall and the even distribution of tile across the site suggest the building was empty of unfired ceramics at the time of the roof collapse.

Beneath the floor layer lay a stratum composed of densely packed stones and earth, ranging in depth from 5–15 cm. Finds include two fragments of painted plaster, two metal fragments, charcoal, bone, and a much higher concentration of ceramic material (mostly residual). The presence of South Italian grey ware and a single sherd of imitation Pompeian red ware provide a general date of 150 BC to 50 BC. This stratum provided a foundation...
for the floor surface, and the high levels of residual material and mix of other finds suggest that the gravel layer was a fill used to level the floor surface.

At the south end of Room 1, adjacent to the kiln enclosure, excavations revealed corresponding strata of a hard packed earthen floor supported by a gravel pavement. The presence of grey ware ceramics corroborated a date of mid-2nd century BC for the building’s construction. A pilaster base fashioned of a reused architectural block (probably of the 4th century BC) was uncovered, suggesting that the design of Room 1 mirrored the main room of the complex, which featured a central row of pilasters along its long axis. However, excavations revealed neither pilaster bases in Room 1, nor evidence of disturbance indicating that other such pilaster bases had been removed. A vitrified ceramic heat shield was excavated in situ in front of the doorway from Room 1 into the kiln enclosure.

The fact that the kiln enclosure was attached to the end of Room 1, connected by a permanent threshold and protected by a heat shield, suggests that the firing chamber of the large kiln was a permanent structure. No new excavation was undertaken on the kilns themselves. Preservation work is currently underway, including the construction of permanent roofs to protect the kilns from weathering.

The rectangular building. Built on an east/west orientation and partially truncating Room 1 of the manufactory, the rectangular building represents a new phase of occupation dating to the Imperial period. The building itself consists of two rooms and occupies a total enclosed area of 105 m² (Figs. 5–6). The foundation walls, of which two courses survive, are constructed of large, squared fieldstones. The interior dividing wall is built upon the cobble and tile foundation of the earlier building.

Although the stratigraphic record for the Hellenistic/Republican phase was intact, the later Roman phases of the site were not as well preserved. Previous excavation demonstrated that the rectangular building corresponded to a later phase, but erosion of the hillside and plowing of this area had greatly disturbed the associated strata and no definite chronological conclusions could be reached. A rubble fall running along the interior of the north-

Figure 4  Axonometric reconstruction and aerial shot of kiln.

Figure 5  Dividing wall.

Figure 6  Rectangular building excavation.
ern wall of the rectangular building appeared to be associated with the building’s collapse, and provided the best opportunity of identifying a preserved floor layer. The area north of this wall had been untouched by the previous excavation, so a trench was extended to the exterior of the building in an attempt to identify any strata preserved between the plow zone and the Hellenistic/Republican phase.

Beneath the rubble fall, excavation revealed a floor layer of reddish clay ranging in thickness from 1 cm to 3 cm overlaying a fill of grayish earth (Fig. 7). The presence of African Red Slip C dates this floor layer to the early 2nd century AD. Adjacent to the northern exterior of the building approximately 30 cm of stratified soil was preserved between the topsoil and the Hellenistic/Republican phase. Ceramics provide a terminus post quem of the mid-4th century AD. Several sherds of terracotta, including a fully preserved face (Fig. 8), were also recovered from this strata, perhaps suggesting associated terracotta production during this period. Unfortunately here the earlier phases had largely been erased due to the proximity to bedrock.

Conclusions. The construction of this manufactory in the mid-2nd century BC, not long after the Roman conquest of this region, signals a dramatic break with previous Greek phases of occupation. Archaeological survey has demonstrated that from the 4th century BC to the 2nd century BC, the number of sites in the Metapontine chora was reduced by approximately 85% (Carter 2006). Numerous small farms give way to larger farms and villas and the landscape is exploited in new ways. Pantanello is only one of several rural sanctuaries in the region that was abandoned and later replaced with an industrial complex (Carter 2006). Most likely these production sites were associated with large villas, although investigations in the vicinity of Pantanello have revealed no such evidence.

The large manufactory at Pantanello was constructed in the mid-2nd century BC and was in operation until the mid-1st century BC. The 2008 excavation uncovered numerous misfired ceramics including amphorae, grey ware pottery, tiles, and lamp fragments. Evidence suggests production at Pantanello centered on amphorae, with tiles and other ceramics fired on a more limited basis according to demand. Although the large ceramic kiln deposit has yet to be fully studied, preliminary investigations corroborate these conclusions. Production was most likely aimed at fulfilling the needs of the local inhabitants. However, its prominent location along the major coastal road and the limited presence of imported fine wares suggest that this site may have also acted as a distribution center for imported goods. The manufactory was eventually abandoned for reasons unknown. It is tempting to link the manufactory’s abandonment to the political upheaval brought about by the slave wars, as Metaponto was used as a base by Spartacus from 73 to 71 BC.

At some point after the collapse of the tile roof, wash from upslope would have covered the tile. This tile layer, covered with earth and gravel, provided the floor surface for the western room of the rectangular building constructed in the early 2nd century AD. Ceramics dating between the late
1st century BC and the late 1st century AD do occur in very limited quantities, indicating some activity at Pantanello between these building phases, however no evidence of structures dating to this period has been identified. The construction of the rectangular building signals renewed production at this site and most likely coincides with repairs made to the large kiln. Stratified ceramic evidence suggests continuous occupation of the site until the mid to late 4th century AD.

GIS

Jessica Trelogan

The excavation at Pantanello this year, though limited in scale and scope, proved an excellent opportunity to test some of the recording methods we have been developing at excavations in Chersonesos (in Crimea, Ukraine) for the last several years (see Trelogan and Eve, ICA Annual Report 2005). It was also a perfect occasion for a number of our student participants, including three from Kyiv-Mohyla Academy in Ukraine, to get hands-on training in the use of surveying techniques (total station, GPS, and photogrammetry), GIS and database software, and traditional drafting techniques. Although an official field school was not on offer, our continued emphasis on training young archaeologists—from the local area and abroad—was still a priority, and everyone was able to spend some time rotating through for practical training with the various specialists involved in the excavation and ceramics processing and analysis.

One of the main challenges in recording the re-excavation of a site like Pantanello is integrating the old information (mostly in paper form) with the new (now largely digital). Not only is it necessary to digitize old paper records so that they are compatible with new data that are “born digital,” but also to combine the varying levels of detail. In the first years of excavation at Pantanello, the main form of recording was a running interpretive narrative, with special attention paid to architecture and artifacts and less of an emphasis on stratigraphy. The main unit of excavation was the grid square, based on a 5 by 5 meter grid laid over the site, and the battuta, a uniformly thick level made in one pass over the square. Now our main unit of excavation is the stratigraphic unit, or context. While these two basic units of recording cannot be perfectly meshed, combining the spatial data (grid squares and the extent of contexts) within a GIS, we are able to assess the relative location of material from previous and current excavations and view the site as a whole (Fig. 9).

The first step was to move the old plans to digital format. They were scanned prior to the field season and then georeferenced (tied to spatial coordinates) using a combination of GPS and total station survey conducted at the beginning of the season. These plans provided the spatial framework for an intra-site GIS, which was used to manage, display and query the spatial data collected throughout the season. New spatial data were collected during the excavation using traditional hand-planning, again tied to the site’s coordinates with a total station (and GPS units, which provided real-world locations for a number of fixed
datum points) (Fig. 9). The location of individual finds and samples were also recorded with the total station and immediately uploaded into the GIS.

For some of the more complex tile and rubble collapses (which would have taken days to plan by hand), we applied a technique using photogrammetry that we had earlier experimented with on excavations at Chersonesos. With a standard digital camera and PhotoModeler (a relatively inexpensive photogrammetric software), photographic and topographic information were collected at the same time for producing planimetric quality orthophotos and—in special cases where topography was important—three-dimensional models. These, like the hand-planned drawings, were then georeferenced with total station survey points and imported into the GIS to generate plans and to create photographic mosaics (Fig. 11).

Using GIS software (in this case, ESRI’s ArcGIS 9.2), all the spatial data were easily combined together in a common scale and coordinate system. Material from the previous excavations can now be easily overlaid and queried to help answer questions about the relative stratigraphy and chronology of the site (Fig. 12).

The non-spatial information (including running narratives and interpretations as well as direct observations about soil composition and construction materials) was recorded on paper and the data entered daily into a database that has a direct connection to the site GIS (Fig. 13). The database we chose to use is a new open-source, web-based system that

Figure 10  Allisa Stoimenoff draws a context plan for eventual digitization in the GIS.

Figure 11 Rubble and tile collapse digitized from an orthorectified photograph.
we (together with L–P: Archaeology, a commercial unit based in the UK) have been helping develop called ARK (the Archaeological Recording Kit). This system runs on a web-server, which we installed on a portable server at Pantanello, using a combination of MySQL and PHP. Because its front end is web-based, users who wish to access the data can do so through a web browser without installing (or learning to use) proprietary software on his or her own computer. Though the database is currently only available to the ICA team and its specialist collaborators, our eventual goal is to make it available publicly as a companion to the site publication. Scholars and researchers will then be able to explore the evidence for our interpretations and ask their own questions.

The standard “tool kit” ICA uses for excavation recording is something we have paid special attention to developing and improving over the last decade of excavations. The basic methods and tools we use are not unlike those of most archaeological projects today. Single-context recording assisted by total stations, GPS, GIS, databases, 3D image capture, and ground-based remote sensing are fairly standard features of the 21st century excavation, but ICA has made it a particular part of its research agenda to develop a way of working in the field that can remain practical, flexible, and sustainable under future unforeseen budget constraints while meeting the needs of a large, interdisciplinary team scattered over several continents. We aim to use technology not for its own sake, but to make our own work in the field (and later at the desk) easier and quicker in terms of producing final publications, and to facilitate the communication between our team as it studies the material. We are also concerned with making the primary data accessible after the final publication phase so that we—and whoever else might be interested—can reexamine our interpretations later by looking back at the data (in as raw a form as possible) and the process by which we collected it.

Excavation, as we all know, is a destructive process. The bulk of what we dig up to answer the questions that interest us at a given point is lost to future interrogation as soon as it hits the back-dirt pile. This fact makes it especially important to...
record what we are, in essence, destroying as we go. But approaching total collection and complete documentation is a practical impossibility—even at the relatively slow pace of a research excavation (as opposed to rescue operations that sometimes have to happen literally overnight)—if a finished report is ever to see the light of day. ICA’s excavation recording system tries to balance speed and efficiency with completeness and accessibility.

Pottery Assemblages from the Pantanello 2008 Excavations
Keith Swift with Adam Hyatt and Victoria Leitch
The excavations and survey of the ICA in the Metapontine chora have yielded substantial pottery assemblages from a diverse range archaeological sites and contexts (Carter 2006; Carter and Prieto, 2011). Through their breadth and variety, these assemblages have provided a wider and more comprehensive regional perspective of ceramics in the Metapontine chora as a whole than can be encompassed by material from excavations of single sites. Alongside the ICA excavations of the necropoleis and farmhouses, and the plethora of sites identified in survey of the Metapontine chora, the late Archaic to late Roman pottery assemblages from Pantanello constitute an important component of this regional perspective. Comprising a corpus of around 5500 sherds dating from the late Archaic to late Roman periods, the assemblages from excavations in 2008 have also provided a framework within which to re-evaluate a further corpus of ca. 8500 sherds from the extensive 1974–1976 excavations of the hilltop structures.

Late Archaic pottery and the Pantanello sanctuary. Residual material of the Archaic to Hellenistic period was present beneath the extant late-Republican and Roman-period structures.

The earliest pieces in the excavations of the manufactory date to the Archaic period. Most of these date from the second half of the 6th to the very early 5th century BC, although there are a few fragments from the early 6th century BC. The ubiquitous markers for this period—banded and semi-slipped fine wares—make up the late Archaic repertoire in southern Italy in the century prior to the adoption of Classical-period black gloss *stricto sensu*, a process which appears to have taken place piecemeal through the last quarter of the 6th and the first quarter of the 5th century BC. This period saw the selective production of black gloss forms adopted and adapted from the typical Greek repertoire (attested by imports from mainland Greece), whilst regional production continued very much in the Archaic tradition at least as late as the early 5th century BC. Straddling this period, the substantial assemblages from the Pantanello sanctuary provide an unparalleled resource for examining the nature of this transition in southern Italy during this economically vibrant period in the Metapontine chora (Carter 2006).

Residual pottery of the Classical period. The 5th and early 4th century BC phases at Pantanello are well-represented by residual black gloss and southern Italian red figure fragments. Although there is sporadic material from the area of the sanctuary dating to this period, there is little direct evidence for significant activity—the 4th century BC structure represents the next significant phase of construction after those associated with the late Archaic sanctuary. Continuation in the area of the sanctuary from the mid-5th to mid-4th century BC, utilizing structures with their foundations in the late Archaic period, seems likely: the spring and collecting basin related to the earlier sanctuary would have provided a focus for local activity during this period as they did in the preceding century.

On the hilltop, the relatively high frequency of kraters in the corpus of residual black gloss and red figure fine wares compared to skyphoi and other shapes is perhaps indicative of the presence of tombs disturbed by the construction of the manufactory in the late Republican period. As with the succeeding period, the pottery from the Pantanello sanctuary is closely paralleled by the tomb assemblages from the nearby Pantanello necropolis (Carter 1998). With their many well-preserved vessels, these assemblages have provided the foundation for the survey typologies, for the study of survey and excavated sites in the chora, and for the Pantanello sanctuary in particular.

Pottery from the late 4th century BC phase. Material from this phase is residual in late Republican and Roman-period contexts on the hilltop. Downslope, pottery from a sequence of 4th-century BC floors in structures overlying the Archaic sanctuary provides a chronological framework for the late Classical
Although residual in late Republican and Roman-period deposits, ceramic production is attested at Pantanello during the late 4th-century phase. A small corpus of annular kiln spacers, relatively standardized types, and a campaniform firing cover point to the production of black gloss fine wares and are closely paralleled in the Metapontine kerameikos, where similar examples are dated in the second half of the 4th century BC (Cracolici 2004). Further evidence for pottery production includes an overfired, semi-vitrified mold-made mortarium from the 1975 excavations in the area of the late Republican kiln (Fig. 14). Although it consists only of a few key pieces, this new evidence for pottery production during the later 4th century BC phase at Pantanello has done much to alter our understanding of the economic character of the 4th-century BC sanctuary—a more explicitly ‘economic’ role for the sanctuary may be envisaged, perhaps part of a process of economic diversification blurring any clear-cut dichotomy between sanctuaries and farmhouses/estates during this period, at least as far as the production and consumption of ceramics is concerned.

**Pottery from the Late Republican/Hellenistic phase.** The late Hellenistic/Republican Roman phase at Pantanello, dating from ca. 150 BC, represents substantive changes in economic activities at the site, not least in terms of the production of Metapontine amphorae (Fig. 15), fine grey wares, and roof tiles associated with the excavated structures.

![Figure 14](image1.png)

**Figure 14** Mold-made mortarium waster from Pantanello. The form dates to around the second half of the 4th c. BC and was found together with a small corpus of related forms, regularly-fired, in fabrics consistent with the range of locally-produced plain wares.

![Figure 15](image2.png)

**Figure 15** Metapontine amphorae developed from regionally-produced late “Corinthian” Type B and late Greco-Italic amphorae in the 2nd c. BC, attested at another production site for these amphorae which has been located further inland on the marine terraces through survey in the Metapontine chora. Metapontine amphorae with distinctive “collared” rims of the 2nd and early 1st c. BC are well-attested in the kiln deposit. Local and imported pottery fabrics have been characterized petrologically as part of a wider regional study, integrating examples from production sites such as Pantanello with field survey sites. Profiles scale 10 cm, fabrics scale 10 mm, thin section width of field ca. 5 mm (left) and 12 mm (right).
Grey wares are the primary pottery types for dating the late-Republican period in southern Italy. They were produced at Pantanello and, presumably, at other sites in the Metapontine chora during the later 2nd and 1st centuries BC and represent the regional version of late Campana black Gloss wares common in other regions of peninsular Italy. Lacking an oxidizing phase typical of Classical and Hellenistic black gloss fine wares, they are technologically more closely related to Sicilian Campana C wares (Fig. 16). The stimulus for the transition to grey-fired fine wares was probably a result of the influence of late Hellenistic mold-made grey wares, relatively well-attested at Pantanello. The repertoire of regional grey ware forms represents the continuation and development of black gloss fine wares of the 3rd and early 2nd centuries BC. The main period of production at Pantanello fell in the second half of the 2nd and the first half of the 1st centuries BC, attested by the substantial corpus of grey wares from the kiln deposit to the SE of the manufactory (Burgers 1991), consisting of production waste filling a clay pit.

A waster from the 1975 excavations in the manufactory also indicates that mold-made grey ware lamps were also produced at Pantanello, suggesting a potential use for the very small kiln adjacent to the larger pottery kiln associated with the hilltop structure. A pyramidal loom weight waster from 2008 (Fig. 17) is supplemental to the grey wares, Metapontine amphorae, coarse wares, and tiles to which ceramic production at Pantanello appears to have been geared.

Pottery from the early Roman phase—late 1st century BC to late 1st century AD. Italian terra sigillata (ITS) is represented in the excavated assemblages from the hilltop. Although few forms are extant, those that are indicate that the main phase of importation of these wares was from the mid-Augustan period to the late 1st century AD, at which point they were “replaced” by African Red Slip wares. To judge from the fabrics, the majority of the sigillatas are western Italian in origin, many perhaps from the Tiber valley. A handful of fragments may be northeastern Italian (Po valley). The quantity of ITS is not large, reflecting perhaps a relatively restricted supply, but significant enough to infer substantial and/or sustained activities at Pantanello during the 1st century AD.

Internally red-slipped cooking wares (“Pompeian red ware”) may also belong to this period or perhaps slightly earlier, with examples including the typical Campanian “black sand” fabric and a biotite-rich fabric which may be eastern Mediterranean in origin (with other eastern Mediterranean imports attested by eastern terra sigillata A and B in the early 1st century BC and later 1st century AD respectively), and locally-produced internally-slipped cooking wares no doubt imitating these better-quality imports.

A small corpus of extra-regional amphorae points to continued access to amphora-borne commodities in the Metapontine chora well into the Roman period—a trend not obvious in the survey assemblages, where the number of sites dating to this period are relatively sparse (Carter 2006; Carter and Prieto, 2011).

Pottery from the mid-Roman phase—2nd and 3rd centuries AD. It is extremely difficult to assess the relative intensity of activity at Pantanello between the 1st and 2nd centuries AD given the continuity of coarse wares. Thus the primary indicator is the supply of extra-regional fine wares—ITS for the 1st century and African Red Slip for the 2nd and 3rd centuries AD—rather than simply intensity of activity at the site.
African Red Slip wares are well-represented in deposits associated with the rectangular structure and provide a date for construction in or slightly after the 2nd century AD. The majority of earlier forms dating to the 2nd and 3rd centuries AD are in ARS A fabrics, with many likely to have come from the area around Carthage. The repertoire of African red slip wares appears to vary from those typical of sites in western Italy, which may indicate a separate eastward flow of trade to southern Italy, perhaps as part of onward distribution networks involving the Adriatic and/or further east to Greece and the regions of the northeastern Mediterranean (Leitch, pers. obs.). Sporadic eastern terra sigillata B wares point to distribution eastwards during the late 1st and early 2nd centuries AD. African cooking wares are also represented, with a repertoire close to that of western Italy.

**Pottery from the Late Roman phase—4th to 6th centuries AD.** A Late Roman phase at Pantanello, apparently unrelated to extant structures, is evidenced by the sporadic but significant presence of African Red Slip wares post-dating the mid-4th century BC in surface deposits in the area of the manufactory. Their frequency in general points to relatively intense and/or sustained activity in the vicinity in the Late Roman period, and these imports are accompanied by Late Roman red-painted wares, apparently of local or regional origin. Phocaean red slip is also represented by a single body fragment, identified through its fabric, which nevertheless demonstrates that extra-regional imports from the eastern Mediterranean penetrated beyond the littoral during this period, as they had in the Hellenistic and early Roman periods.
Figured Pottery from Pantanello and the Farmhouses in the Metapontine Chora
Francesca Silvestrelli

The 2008 work on the figured pottery from the chora has been focused on the evidence from excavations of the farmhouses and from Pantanello. Although figured pottery has been recovered in the excavations of all five farms—Fattoria Stefan, Fattoria Fabrizio, Sant’Angelo Grieco, Sant’Angelo Vecchio and San Biagio—the quantities of figured pottery from these sites, whose major phase of occupation is in most cases later than the period of the production of figured pottery, is scarce.

Fattoria Fabrizio has yielded 4 fragments, 2 of them dating back to the Archaic and Classical period, residual in their contexts. Four fragments found in the excavations of the Late Roman farm of San Biagio are also residual. Of particular interest is the rim of an Attic red-figure bell-krater of the second quarter of the 5th century BC.

The excavations of Sant’Angelo Grieco yielded 12 figured fragments ranging in date from the 6th to the late 4th century BC. Noteworthy amongst these is a stemless kylix of the Red Swan Group that can be associated with the occupation of the site in the second half of the 4th century BC (Carter 2006, 146–147, with bibliography). This group of vessels, identified by J.D. Beazley (Beazley 1947, 223–24; Schauenburg 1993, 21–39), and connected to the Xenon Group for technique and decoration (Robinson 1996, 447–452), was probably mainly meant for indigenous consumption; examples are nonetheless occasionally found in tombs in the Metapontino (Tomb 38 in proprietà Venezia: Tagliente 2006, 732-733, pl. IV.1; Pantanello, Tomb 145: Elliott in Carter 1998, 647 fig. 19. Pantanello, Deposit over the clay pit: Carter 1983a, 470, no. 56, fig. 35) and were certainly produced at Metapontion, as confirmed by fragments found in the kerameikos excavations.

Fattoria Stefan has yielded more than 70 fragments of figured pottery that can be attributed to at least 40 individual vessels. Most of the material consists of red-figure pottery. There is a consistent proportion of Gnathia pottery whilst one fragment can be ascribed to the Xenon Group. Some of the fragments come from layers excavated inside the rooms of the farmhouse, but at this stage of the research the stratification and formation processes of the archaeological deposits have not been defined in detail and it is not yet possible to know whether the figured pottery can be considered part of the domestic assemblage or if its presence must be explained in a different way.

Red-figure pottery from Fattoria Stefan is well attested but with a limited range of shapes, mainly kraters. A bell-krater fragment of the late 5th to the beginning of the 4th century BC is decorated with a kottabos-stand flanked by a figure holding a dish and a second figure leaning on a staff; on a second fragment a young male seems to hold in his hands a cup. Both fragments were probably depicting scenes of a symposiastic or Dionysiac subject. Most of the material can be dated to the second half of the 4th century BC when a volute-krater, found in a large discard deposit excavated just in front of the farmhouse, is attested (Fig. 18), together with bell-kraters, net-decorated lekythoi and lekanides, all from the interior of the farmhouse structure.

The range of shapes in Gnathia ware is composed of skyphoi, kraters, oinochoai and plates together with a bombylios. They should all be attributed to Metapontine production.

Of particular interest is a fragment of a Xenon Group mug of the second half of the 4th BC (Fig. 19) which adds new evidence for the presence, in Greek

Figure 18 Volute krater from a large discard deposit excavated just in front of the farmhouse structure of Fattoria Stefan, dating to the second half of the 4th c. BC.

Figure 19 Fragment of a mug of the Xenon Group from Fattoria Stefan, dating to the second half of the 4th c. BC. This piece provides new evidence for the presence of this type of pottery on Greek sites in the region, produced at Metaponto but distributed especially in the indigenous world.
sites, of this type of pottery, produced in Metaponto but distributed especially in the indigenous world. The shape is quite unusual and can be connected with Xenon Group mugs produced and distributed in Daunia; fabric and slip are nonetheless consistent with the local production.

Excavations in the area of Pantanello have yielded a large amount of figured pottery of the Archaic and Classical period, and the sample collected in the excavations held between 1974 and 1978 (see Jircik in Carter 1982 for a preliminary analysis on the finds) has now been increased by excavations in 2008 (see report above). A few vessels imported from Attica have been identified; among them there are a black-figure cup-skyphos (Fig. 20) and a red-figure closed shape, perhaps a pelike. Lucanian red figure pottery is attested with numerous fragments and with a wide range of shapes; some of the fragments can be connected to the most important painters of the Lucanian school, such as the Amykos and Dolon Painters. Recognizable shapes consist of bell-kraters, calyx-kraters, amphorae of pseudo-Panathenaic type, hydriai, kylikes, Type A and C skyphoi, and Type A owl-skyphoi. The presence of a rim of a Type I nestoris found in the fill of the collecting basin (Fig. 21) is noteworthy; this shape was introduced in the Lucanian morphological repertoire by the Amykos Painter and depends on indigenous models; it was also decorated by the Creusa, Dolon and Brooklyn-Budapest Painters. Most of the known nestorides are without provenience; vessels with secure findspots show that they were produced for indigenous consumption. The possible ceremonial function of this vessel for the wine has been recently recognized (Colivicchi 2004), and its presence in the Pantanello sanctuary deserves attention. A large proportion of fragments can be dated to the second half of the 4th century BC. Bell-kraters, hydriai, oinochoai, lekythoi, and lekanai have been identified. The mascaron of a volute-krater of the third quarter of the 4th c. BC (Fig. 22) also comes from the collecting basin.

This new corpus of evidence, much better preserved than the survey material (Silvestrelli in Carter 2008, 26–27), will increase our knowledge of the red-figure pottery from the Metapontine chora and, together with the vases already known from Metapontine necropoleis, will probably give us enough material to attempt a synthesis of the problems associated with the distribution of red-figure pottery at Metaponto and its chora.

The corpus has a second major point of interest: the fragments from excavated farmhouses and from the area of Pantanello will be analyzed in relation to their contexts and provenience, shedding light on the functions that this pottery had in the sanctuary and eventually in domestic contexts, allowing us to compare the evidence deriving from different types of context and contributing to the identification of patterns in the selection of shapes and subjects.
Farmhouses in the Chora: Pottery and Finds from the Farmhouses in the Metapontine Chora

Introduction
Keith Swift

2008-2011 has seen substantial and sustained progress by the team of ICA specialists towards the completion of the pottery assemblages (in excess of 25,000 pieces) and finds from the five excavated farmhouses in the Metapontine chora – the Greek farmhouses of Fattoria Fabrizio, Sant’Angelo Greco, Sant’Angelo Vecchio and the mid- to Late Roman period farmhouse at San Biagio.

Over the course of 2008, the component classes of pottery from four of the farmhouses continued to be studied in tandem by the ICA team. Their individual reports are presented by ceramic class, below. Since the finds and pottery specialists are working on assemblages from several farmhouses at once, studies of each class of material include a strong comparative component. Considered together, the corpus of archaeological pottery and finds from the farmhouses constitutes a very large body of material from deposits which range in date from the late Archaic to Late Roman periods. Typological analysis of the pottery assemblages has added and will continue to add significantly to the regional typologies formulated for the Metaponto survey, supplementing this with better-preserved and independently-dated examples from excavated contexts.

Black Gloss Pottery from the Farmhouses
Elisa Lanza and Eloisa Vittoria

During 2008, study of the black gloss pottery aimed to further define the typology, chronology, function and technical aspects of the material from the farmhouses. Following the phase of full recording, quantification and cataloging of all diagnostic black gloss fragments—rims, bases, handles and body fragments—a typological catalog has been formulated, consisting of representative examples accompanied by quantification each of the types in the assemblages from the farmhouses.

For the black gloss wares, the typologies applied the detailed typology formulated by Cracolici for the survey material from the area between the Bradano and Basento rivers in the Metapontine chora (Carter and Prieto 2011). The structure of the typologies is ultimately based on the classificatory structure of black gloss wares from the large corpus of grave goods from the Pantanello necropolis (Carter 1998), with the aim of giving uniformity to black gloss studies in each of the ICA studies in the Metapontine chora. New forms and types not encountered in these previous studies have been inserted into this established framework. Examples include Archaic lekanides, attested exclusively by the characteristic horizontal ribbon handles at the farmhouses of Sant’Angelo Greco and Sant’Angelo Nuovo; the gutti and bombyloi from Fattoria Fabrizio; and a variety of bowls with thickened rims from Fattoria Stefan, variants of the well-established types B3 and B5.

Comparative study of the assemblages of black gloss from each of the farmhouses points to a certain degree of homogeneity. Some variation in prevailing forms from different contexts probably arose from the different chronologies of occupation, as much as from variations in the uses and specific needs associated with domestic activities.

A good number of pieces dating to the Archaic period (fragments of Ionic cups, skyphoi with offset rims, kotylai) attest to habitation of the chora in the second half of the 6th century BC, more specifically in the area of Fattoria Fabrizio, Sant’Angelo Greco, Sant’Angelo Vecchio (Fig. 23) and, sporadically, Fattoria Stefan (where the structures date back instead to the late 5th and above all to the 4th century BC).

Later black gloss wares belong to the 3rd and only sporadically to the beginning of the 2nd century BC, a period during which grey wares became increasingly more common until the later 1st century BC.
Vecchio the piece SA80-20PL came from the F-7 square located immediately north of the tombs at the site, while SA79-1062PL comes from the hilltop structure/s to the north of Sant’Angelo Vecchio; the fragment SG246.3 comes instead from a room within the main structure at Sant’Angelo Grieco.

Dishes round out the usual fine ware repertoire from the farmhouses. Ten examples were found at Fattoria Fabrizio, 15 at Sant’Angelo Grieco and 67 at Fattoria Stefano (Fig. 27), still under study. At present black gloss dishes—more common in plain and banded wares—are not represented at Sant’Angelo Vecchio.

Study during 2008 has confirmed that black gloss closed forms are not common in the farm-house assemblages, confirming the conclusions of the preliminary study in 2007. Black gloss amphorae are clearly identified, with two examples from Sant’Angelo Vecchio and Grieco (and none from Fattoria Stefano). Jugs are sufficiently well attested at Fattoria Fabrizio, with five examples, while these are relatively rare at the other farmhouses with a single example from Sant’Angelo Grieco, and two from Fattoria Stefano. A single hydria is present at Fattoria Fabrizio along with the only olpe fragment. Oinochoai (one from Fattoria Fabrizio and two from Sant’Angelo Grieco) and pelikai (one from Sant’Angelo Grieco and one from Sant’Angelo Vecchio) are also represented along with the lebes gamikos, attested by three examples (two from Fattoria Fabrizio and one from Sant’Angelo Grieco). Of the more diminutive types, bombylioi are very rare (two at Fattoria Fabrizio and a single, tentatively-identified example from Fattoria Stefano) while lekythoi are slightly better represented (three examples from Fattoria Fabrizio, including a squat type lekythos, and three examples from Fattoria Stefano).

Material from the tombs in the area of Sant’Angelo Vecchio completes the picture: black gloss amphorae were recovered from TT.1 and 2 (SA79-937P and SA79-969P), lebetes gamikoi from TT.3, 4 and 8 (SA79-967P, SA79-959P, SA79-966P, and SA79-973P) and a single lekythos in T.5 (SA79-1054P).

The mug, a container characterized by a wide mouth shrinking at the shoulder which thus makes it intermediate between an open and closed shape, is represented in the assemblages from all of the farms with the exception of Sant’Angelo Vecchio: three
examples were found at Fattoria Fabrizio, five at Sant’Angelo Grieco and six at Fattoria Stefan, including the type with ribbed wall represented at the Pantanello necropolis (Type M15; Carter 1998).

Among the smallest shapes, five examples of the salt cellar are represented at Sant’Angelo Grieco, 34 from Fattoria Stefan (Fig. 28) but only two at Sant’Angelo Vecchio.

Some black gloss shapes are not represented at all in the farmhouse assemblages—alabastra, askoi, feeders, and pyxides are notable by their absence.

In terms of pottery production, closer study during 2008 confirmed the observations made in 2007 that the majority of black gloss fine wares were produced locally or regionally. For more precise information, we await the results of petrographic analysis of thin sections.

Grey Wares from the Farmhouses

Eloisa Vittoria

The grey ware from the farms of Sant’Angelo Vecchio and Fattoria Stefan, currently being studied, is only sporadically attested. Nonetheless, the material which has been examined allows us to broaden the typology evident across the Metapontine chora and to confirm the findings from the study of the grey ware at Sant’Angelo Grieco (Vittoria in Carter 2008, 35–36).

The few diagnostic fragments all relate to open forms, mostly dishes and some cups. For both farmhouses it has been possible to delineate new typologies which differ from those evident in the survey material: among the 20 fragments of grey ware examined at Sant’Angelo Vecchio, there was a cup of Type GW-C3 (SA 80-42PL) and three dishes. Two were of the type already known from the surveys, with vertical rims (Type GW-D2, SAV 81-23PL e SA 79-438PL) and the other is attributable to the black gloss typology (SA 79-29PL, Type D22a, with a large rim and an oblique inner face, recovered inside Room I), for which a new grey ware type will be created (Fig. 29). This dish presents similarities with Form 7 in the preliminary grey ware typology formulated from the material from the kiln of Pantanello (in 1991 by G. Burgers), for which dating has not been established. At present it is not possible to have more detailed chronological information to deepen the study and the bibliographical comparisons. However, the similarity with the black gloss dish type Morel 2237, dating to the second half of the 3rd century BC, leads us to hypothesize a date as early as the first half of the 2nd century BC for the form in grey ware.

The diagnostic fragments for Fattoria Stefan came from Room I. The material still has to be cleaned and restored, but a preliminary analysis shows the pieces to have been misfired, with a consequent change of the color of the gloss to a greenish-gray. Worthy of note from Fattoria Stefan are a dish rim (78ST765) similar to Form 2 from Pantanello, dated to the second half of the 2nd century BC (Fig. 30), and a very small rim of a cup (78ST770) which may belong to a campanulate cup with incurved rim, Form 24, dating to the first half of the 1st century BC. Alternatively, it could belong to a relief-decorated cup. (Fig. 31).

Plain and Banded Ware from the Farmhouses

Anna Cavallo

Overview. Full recording and first-hand study of the corpus of just under 10,000 plain and banded wares from the farmhouses was completed in 2008. Ongoing study includes the formulation of detailed
typological catalogs of around one thousand type sherds encompassing the diverse range of forms produced in plain and banded wares.

This has resulted in a working chronology for the wide range of regionally-produced forms. This was a major research desideratum, broadening the survey typology with securely-dated and better-preserved examples from excavated contexts, and moving from questions of typology to address issues of chronology for this ubiquitous class of archaeological material. Further chronological study will be anchored to the more precise chronologies provided by fine wares from the farmhouses, to assess and refine the plain and banded ware chronologies based on associated material from excavated contexts.

With full quantification of the assemblages completed, ongoing study will elucidate the composition of domestic assemblages from the farmhouses, for example the role of the plain and banded ware in “sets” of table ware alongside fine ware types. Through quantification of the plethora of form types, the relationships between plain vessels and banded counterparts will be investigated, for example the production of similar forms in both plain and banded ware, and local and extra-regional influences on the diverse repertoire of forms. Some forms are very much within the southern Italian tradition, such as jugs with vertical handles which recall southern Italian matt-painted pottery forms (Fig. 32), while other forms, such as one-handed cups or bowls, lebetes, and small olpai show strong affinities with Ionian (eastern Greek) traditions (Fig. 33).

Study of the substantial corpus of plain and banded wares will be completed in 2009. Some preliminary results are presented for each of the farmhouses below.

**Fattoria Stefan.** With around 4000 plain and banded ware sherds, the corpus of plain and banded wares from Fattoria Stefan is the largest from the excavated farmhouses in the Metapontine chora. Parallels give a range of dates between the 5th and the 3rd centuries BC, with a concentration of datable pieces in the 4th and 3rd centuries BC.

In terms of functional types, forms used for food preparation and processing are the most frequent. Lekanai with out-turned rims are incredibly well-represented, always lacking slips though generally characterized by good-quality fabrics and occurring in a wide range of morphological variations of the general shape. Mold-made mortaria are of particular interest, as the shapes are closely related to those of the Corinthian tradition.

Vessels used to contain and pour liquids are also very frequent, and clearly formed a key component of the table and storage ware repertoire. These vessels could have been used to hold liquids, but only for short-term storage. There is only a slight prevalence of plain wares in these shapes, with a relatively high proportion showing banded decoration.

Bowls and dishes round out the main components of the plain and banded ware repertoire, produced in relatively fine fabrics with well-executed forming. Although a large number are plain, there appears to have been a definite preference for forms embellished with brushed-slip decoration.

In addition to the small- and medium-sized vessels, large vessels for storage and preparation, associated with a “pantry” function, are consistently represented in the assemblages. Amongst these, *delia* (very large storage jars) are the most common. Substantial deep basins, large containers and rarer
ollae, probably used for short term storage, were also recovered (Fig. 34).

Of particular interest is the presence of five *louteria* (large shallow basins) and twenty miniatures in the assemblages from Fattoria Stefan (Fig. 35). These vessels are usually associated with a religious function and are commonly found in sanctuaries. Within the excavated contexts of Fattoria Stefan, these point to elements of domestic cult associated with the farmhouse.

**Fattoria Fabrizio.** Identifiable plain and banded ware forms from Fattoria Fabrizio range in date from the 6th to the 3rd century BC. Quantification of the assemblages, consisting of over 2000 identifiable pieces, shows a predominance of plain wares with a relatively small group of banded wares.

Analysis by vessel shape shows the prominence and prevalence of banded wares in the repertoire of table wares, relative to their frequency in the assemblages as a whole. Amongst the large group of drinking vessels, the majority of one-handled cups occur in banded ware and around one half of all jug forms carry banded decoration. Partially-slipped plates comprise all of the rare forms in plain and banded ware associated with food consumption. However, the majority of identifiable forms consist of vessels for food preparation and transfer, including a large number of flanged lekanai along with basins and mortaria.

There are numerous examples of jars with outturned rims and vertical handles, commonly defined as *dinoi* (Fig. 36), which often bear banded decoration and represent an original local production. Containers for food storage are few and are represented mainly by pithos fragments, with a rarer “olla” jar forms. Miniatures are relatively quite rare at Fattoria Fabrizio.

**Sant’Angelo Greco.** The corpus of 1600 plain and banded wares from this farmhouse can be dated through parallels to a chronological span extending from the 5th century BC to the 1st century AD.

Plain wares are well-represented in the assemblages, with a relatively small number of banded wares. Amongst the latter, table-service vessels for food and drink are particularly frequent. However, the largest shape group in the assemblages consists of one- and two-handled jug forms in both plain and banded wares. Table amphorae with narrow necks in the Roman tradition, not represented at the other farmhouses, are found at Sant’Angelo Greco, but in contrast trefoil oinochoai and olpai are relatively rare. Compared to the other farmhouses, the quantity of food preparation vessels is rather limited, consisting mostly of lekanai with some basins and mortaria. Three fragments of louteria and two likely fragments of *thymiateria* were also recovered.

**Sant’Angelo Vecchio.** Dating to the 4th and 3rd centuries BC, the substantial quantity of plain ware from Sant’Angelo Vecchio, almost 1400 fragments, includes food service vessels and, in particular, drinking vessels. Amongst these, banded wares certainly stand out, above all one-handled cups, with no plain cups represented. A similar ratio is evident in forms used for the consumption of food, such as dishes, which are always characterized by fine fabrics and well-executed decoration. In contrast, there emerges a preference for a lack of decoration on liquid containers, which include one- and two-handled jugs and more rarely olpai and oinochoai.

Food preparation is evidenced by a rather large group of basins and lekanai without slipped decoration, with a few mortaria. Storage vessels include dolia and deep basins. Of particular note are a single louterion fragment and a small group of fragmentary miniatures. Amongst the more typologically interesting pieces are a table amphora with a molded rim, a lekythos mouth, and a pair of two-handled cups without parallels outside the farmhouses.

**Unguentaria from the Farmhouses**

*Donatella Rizzello*

The study of the *unguentaria* from the farmhouses is in the phase of typological analyses and classification, following the classificatory framework used in the Metaponto survey. Six basic shape types of unguentaria have been identified, with a number of

![Figure 36](image-url)
sub-types for each shape, resulting in an alphanumeric classification.

The six main types of unguentaria follow trajectories of morphological development from types with globular bodies to fusiform types, though not all types are attested at each farmhouse. The best-represented unguentarium type from the farmhouses as a whole is a fusiform type with high shoulder and low foot (classified as Type U3) with two main sub-types, one with a slender body and one with a more compressed or squat form. Other types are represented by a few fragments from the farmhouses.

**Cooking Wares from the Farmhouses**

*Antonietta Di Tursi and Maria-Francesca Blotti*

In 2008, the study of the cooking ware from the farmhouses of the Metapontine chora (Fattoria Fabrizio, Sant’Angelo Vecchio, Fattoria Stefan and Sant’Angelo Grieco) continued. During the initial phase of the study, a database was created for each farmhouse, followed by a division of the cooking wares on the base of forms. A descriptive typological and bibliographic catalog is being assembled, integrated with illustrations of the most relevant examples. Form types and morphological variations within these forms were considered especially in relation to the rims.

A sample of fabrics was also selected and visual examination performed to assess consistency, composition, and firing colors. Later the same group of material will be analyzed microscopically to present the range of cooking ware fabrics from the farmhouses. Preliminary petrological study confirms the local/regional origin of the selected fabric samples of cooking ware. Methodologically, the attribution and classification of the cooking ware considered the fabrics specifically in relation to the functional-ity of the forms, whose morphological characteristics were determined by the daily use of the vessels in cooking.

**Fattoria Fabrizio.** The spatial analysis of the farm attests a larger quantity of fragments in Rooms I and II. From a preliminary counting of 1305 fragments, the study of the joining sherds and the re-attribution of certain pieces to plain ware (non-cooking wares were occasionally produced in the coarse fabrics more typical of cooking wares) allowed us to reduce their number to 691. The forms studied emphasize the use of a functional set for the cooking of food through boiling. Twenty-six examples were identified, characterized by deep shapes with wide mouths (with rim diameters ca. 13–14 cm) and without the seat for the lid of Greek tradition (the *chytra*). In addition, for the cooking of stews or casseroles, twelve samples of lidded pans were also recovered, with internal lid seats. Frying probably only occurred sporadically, since only three flat-bottomed pans with very shallow basins and vertical walls were identified in this assemblage.

The current state of our research into the regional chronologies of cooking wares and typological comparisons with other sites both within and outside the region (including the urban area of Metaponto, Cozzo Presepe, Pomarico Vecchio, Locri, Oppido Mamertina, Kaulonia and Sibari), permits a date of the cooking ware from Fattoria Fabrizio to a period spanning the 6th to the 4th centuries BC. This chronology will be further defined when the study of the more precisely dated fine wares from the excavated contexts is completed.

**Sant’Angelo Vecchio.** The study of the cooking wares from Sant’Angelo Vecchio is ongoing. At present, it is possible to quantify the shapes and define the chronological span of the cooking wares. Compared to Fattoria Fabrizio, the cooking wares are more heterogeneous, inferring perhaps more
complex and varied cooking practices, as initial quantification of the cooking ware assemblage demonstrates: 43 pots (lopades and chytrai, Figs 37 and 38) were recovered together with 51 stew-pan, 47 lids, 13 flat-based pans and 9 frying-pan plates. An interesting discovery was attested with the finding of klibani, domed covers used in baking, which required slow-fire cooking. Of particular interest are a group of large casserole and flat-based pans with rim diameters of 30-38 cm, which date to the Classic-Hellenistic periods (Fig. 39).

The primary chronological phase attested by the cooking wares dates from the end of the 4th to the 3rd century BC, with later material attributable to the 2nd century BC. Treatments to the internal and external surfaces are evident especially for the 2nd century BC wares, characterized by reddish-brown fabrics. These indicate the use of burnishing and of slips to produce “non-stick” interiors. These draw on the technical characteristics of “Internally Red-Slipped Cooking Wares” (“Pompeian red ware”) produced in other regions of Italy and the Mediterranean, as the treatment evident on a pan with a bifurcated rim illustrates.

**Fattoria Stefan.** Cooking ware from Fattoria Stefan is currently being classified. The presence of large quantities of material, its wide typological and morphological variation, and its excellent state of preservation will allow us to use this farm assemblage as a starting point for compiling a typological sequence as a reference for the other farmhouse catalogs. Currently it is impossible to quantify the types and variations of the classes but it is possible to define the number of samples attested: 109 vessel fragments with deep globular bodies and 179 fragments of pans, with characteristic rims and wall profiles, together with 39 lids and 1 klibanos. Pans are attested at Fattoria Stefan with great frequency (25 examples), characterized by a shallow basin with oblique or vertical profile and flat bottoms. The attested chronological range includes the 4th and 3rd centuries BC.

**Sant’Angelo Greco.** The chronological range for the cooking ware at Sant’Angelo Greco dates run mainly from the 4th to the 3rd century BC, with some examples extending to the 1st century BC. Study of the joining fragments allowed us to identify 430 vessels from the initial 807 fragments. The typology is still being defined, but 9 types of pans, 4 types of lids, 5 types of chytrai, 7 lopades and 6 caccabai have already been recognized. The most frequent forms are the cooking jars and pans, the former employed to heat liquids and the latter, shallower and easier to manage, to cook stews. Different kinds of flat-based pans, with thicker walls when compared to the forms recovered in other farms, attest to the practice of frying food. A small group of lids, unusual in the forms of the handles and the rims, and an example of a klibanos were also recovered. Of the handles, the most common are horizontal rod handles for the casserole and the vertical ribbed strap handles for the deeper containers. Fabrics are for the most part coarse and porous, orange in color, while a small percentage

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Figure 39  Klibanos from Sant’Angelo Vecchio (SA 79.923.01PL).
of samples show a brown and black fabric. From preliminary analysis of both the fabric and ware, these samples seem to be locally produced.

**Transport Amphorae from the Farmhouses**  
*Oda Teresa Calvaruso*

Study of the transport amphorae from the farmhouses has been completed for Fattoria Fabrizio and is in the course of study for the other three Greek-period farmhouses. There are 187 amphora fragments from Fattoria Fabrizio, of which 167 are body sherds relating to the diverse types attested by the diagnostic rim, handle, and toe fragments, and occasionally necks or shoulders, represented in low frequencies in the assemblages. On the basis of the diagnostic form sherds the minimum number of individual vessels is estimated at 19 (consisting of 8 rims, 7 handles, and 4 necks, without any diagnostic toes).

For publication, the typology refers to and develops the typological classifications used for the transport amphorae from the necropoleis (Carter 1998) and the Metaponto survey (Carter and Prieto 2011). As was found to be the case in the survey, there are five common types, or groups of types, which have been assigned as follows: Type 1 is Corinthian Type A; Type 2 is Massaliote type; Type 3 is Corinthian Type B; Type 4 is Greco-Italic; and Type 5 is Metapontine. Variant forms have been assigned sub-types within this scheme.

**Fattoria Fabrizio.** In overview, the amphorae from Fattoria Fabrizio can for the most part be attributed to the Classical and Hellenistic phases, with some late Archaic amphorae of the 6th and early 5th centuries BC represented. Most of these come from the area of the slope rather than the excavations of the farmhouse structure itself, and include two Corinthian Type A amphorae, a Corinthian Type B and three amphorae with rolled rims, and Greco-Italic amphorae. From within the farmhouse structure, most come from Room VI and beneath the collapse in Rooms I and IX.

**Sant’Angelo Vecchio.** The corpus of amphorae from this farmhouse consists of 532 sherds, including 16 rims, 26 handles and 7 toes, with the remainder consisting of walls and 4 necks. The types are late Republican, consisting of Lamboglia 2, Dressel 1C, Dressel 2-4 and Metapontine amphorae.

**Fattoria Stefán.** A corpus of 331 amphora fragments is represented in the assemblages from this farmhouse, including 23 rims, 48 handles, and 14 toes. Identifiable types include Greco-Italic type A and B amphorae, also represented in the Metaponto survey assemblages and datable to the late 4th or early 3rd to the end of the 3rd century BC, in addition to late Corinthian Type B amphorae dating to the late 4th century BC and Metapontine amphorae.

**Sant’Angelo Vecchio.** A corpus of 239 amphora fragments come from this farmhouse, including 14 rims, 14 handles. Greco-Italic types are represented by 6 handles, with Corinthian Types A and B and Metapontine amphorae also identified. A few fragments of Greco-Massaliote amphorae of the archaic period are also present.

**Metal Finds from the Farmhouses**  
*Lorena Trivigno*

The study of the metal from the farmhouses was initiated in 2007 (Carter 2008) and during 2008 a closer examination of the samples allowed for a more precise delineation of the material. The database, typological classifications, and a catalog with technical descriptions and bibliographical comparisons have been completed for Fattoria Fabrizio and Sant’Angelo Grieco.

**Fattoria Fabrizio.** Domestic objects include a bronze grater (Fig. 40), usually recovered from tombs rather than domestic contexts. Two lead clamps and a lead casting are also represented. Similar objects have been found at the other excavated farmhouses as well, and point to restoration activities associated with the household. The precise chronology of the artifacts, broadly dated between the 6th and 4th centuries BC, needs to be further defined with reference to the fine wares from the excavated contexts.

![Figure 40](image.png)  
*Figure 40*  
Bronze grater from Fattoria Fabrizio.
Sant'Angelo Grieco. During 2008 the typological catalog of metal finds from this farmhouse was completed. Toiletries were particularly well represented; in this group were multiple examples of bronze spatulas (Fig. 41), mirrors, and tweezers. Objects of personal adornment are represented by an iron fibula. It is difficult to reconstruct the type of shaft as this example was not recovered in its entirety. On the basis of comparisons with similar examples, especially from tombs, it is possible to attribute this piece to the double arched fibula type, which was produced in bronze, silver or iron and often decorated with amber or bone. The example from Sant'Angelo Grieco can be dated through parallels to the 2nd or 1st centuries BC.

A bronze rectangular plaque and a bronze circular plaque were also present, along with two iron keys (Fig. 42) which are directly paralleled by examples from Gravina and date to the 2nd or 1st century BC. Unfortunately no pottery was present.

Other metal finds include objects associated with agriculture and carpentry, such as an iron scythe or reaping hook and an iron chisel. An iron suspension ring and a hook are also present, along with various lead objects including clamps, like one used to repair the rim of a cooking vessel (Fig. 43), a lead plate or sheet and a cylinder.

Nails in iron and bronze are relatively well-represented. The typological classification of these artifacts was based on their forms and dimension because the morphological characteristics remained largely the same through time. On the basis of these examples, and others from collapse or rubble deposits associated with the farmhouse, it appears that larger nails were associated with the roofing system or door frame. At the same time, smaller nails were probably associated with objects or installations furnishing the interior of the building. Part of a possible iron bridle was also represented, along with miscellaneous objects of unknown function.

Of particular interest are four pieces of metal slag, pointing to metalworking associated with the farmhouse. These fragments will be subjected to laboratory analyses.

Incoronata. The samples from Incoronata have been quantified, the pieces restored, and a preliminary typological classification concluded. The sample typology for this site is very varied with a predominance of less “agricultural” artifacts, the only exception being a reaping hook.

The majority of examples are “male” items, especially those associated with personal defense, of which the various weapons, including a spear point (Fig. 44), are an example. The heterogeneous typology of feminine artifacts comprising a corpus of 14 pieces, including finger rings, hairpins, fibula pins, and pendants, all in bronze, perhaps attest to the social status of the inhabitants of Incoronata. The chronological range for these objects is between the 9th and the 7th century BC, based on comparisons with similar objects from contexts at other sites such as Ruvo del Monte, Sala Consilina and, in Calabria, the area of Castrovillari. A single piece of metal production waste is also represented, hinting at metalworking at Incoronata.
Study of Other Finds from the Farmhouses
Keith Swift

In addition to the studies of the substantial quantities of pottery outlined above, study of loom weights from the farmhouses and from the survey by Prof. Lin Foxall (University of Leicester) has elucidated the distribution of stamped loom weights within the chora, associating this with movements arising from intermarriage and/or gift-giving in the domestic sphere. Such a gendered perspective hints at social relations through the movement of objects previously associated primarily with domestic (cloth) production and represents a significant step forward in the ways in which this class of find has been interpreted.

Study of the terracottas by Professor Rebecca Ammerman (Colgate University), including figurines and plaques, from the farmhouses, the survey, and the Pantanello sanctuary continues to define the material culture of religious practice in the chora, examining aspects of domestic cult associated with the farmhouses in the Metapontine chora and the extent to which the material culture of houses and sanctuaries can be differentiated on the basis of their terracottas.

Study of the Excavations of Fattoria Fabrizio
Elisa Lanza Catti

During 2008 a systematic synthesis and revision of all the available data has been undertaken to bring to publication the excavations of the ancient farmhouse of Fattoria Fabrizio, carried out in the summer of 1980 by Joseph C. Carter and Claire L. Lyons.

The farmhouse of was located on a macchia-covered slope, descending from east to the west and northwest, roughly midway between the high marine terrace plateaux of Lago del Lupo and the Venella valley, about 2 km upstream from the well-known rural sanctuary of San Biagio and the Basento River valley. The modern name of the site is derived from the “Ponte Fabrizio” bridge over the Venella tributary and associated with the landowner. The location of the site must have been chosen at least in part because of the presence of water, provided not only by the river but also by the springs formed at the interface of the layers of sand and clay which make up the marine terrace in this area, several meters below the level at which the building was erected.

The site was discovered during survey works carried out by J.C. Carter and A. Keys, and then was excavated over a period of three weeks in the summer of 1980. A survey of the site carried out the following year made it possible to complete the documentation of the site and the excavations. A revisit in May 2007 was undertaken to establish the present condition of the site and the extant remains, while a more recent visit to the site in April 2008 showed that the Mediterranean scrub had overgrown the site with such a density as to make the archaeological remains inaccessible (Fig. 45).

In June 1980, the area was first cleared of the heavy brush, subdivided in 16 squares (5 x 5 m) and then excavated by continuous passes (Italian battute) in layers. Some long orthogonal baulks were kept during the excavation in order to preserve the stratification.

Ionic cups were found on the surface of the site in the SE soundings and more rarely in the lowest layers of the building, attesting to a phase of Archaic activity during the second half of the 6th century BC. However, the building of the preserved farmhouse and the main phase of occupation belongs to the late 5th to 4th centuries BC, with the latest material dating to the early 3rd century BC.

Figure 45 The location of the remains of Fattoria Fabrizio as visible at present. (E. Lanza/ICA)
The almost square plan (13.5 x 14 m) is articulated in three rows of interconnected rooms of rather uniform size, with a further room in the eastern corner (ca. 4 x 2 m), probably completely open on one side and covered by a roof (Fig. 46). The southwestern rooms—almost half of the building—had collapsed down the slope of the hill and their arrangement is therefore hypothetical. There is no direct evidence for an upper story. The open space in the NW side should have served as a courtyard where agricultural activities associated with the farmhouse are likely to have been carried out.

The main entrance of the building was probably located in the northern corner, giving access to Room 3. On the exterior façade, to the right of the entrance door hung a terracotta plaque (πῖθος) depicting a goddess, whose head is not preserved (in the past, an unrelated head was erroneously thought to belong to this relief), and a worshipper, depicted at a smaller scale, carrying a sheep over her shoulders (Fig. 47). This may allude to the activities of the inhabitants of the building, who, given the geomorphology and the topographical location of the site, may have been as much or more involved in shepherding as they were in agriculture.

The walls consisted of a stone socle as a foundation course (0.50 m wide), constructed from river cobbles and small conglomerate blocks, probably quarried from the hill below. These foundations supported mudbrick walls: it is not possible to determine whether the mudbrick superstructure was set within a wooden framework. The roof appears to have been covered by tiles of the “Laconian” type, characterized by their typical curved surface. The floors consisted simply of beaten earth with pebbles.

On the basis of the excavated features, pottery, and finds, the farmhouse appears to have had a fairly typical arrangement, subdivided into living and work areas. Rooms 1 and 2 were probably associated with domestic processing and storage, as evidenced by the pithoi (large storage jars) discovered on the floor, as was Room 9, which has a complete mortar in its western corner. These three rooms show the highest concentration of pottery. A hearth was built in Room 4, which was evidently also a kitchen, to judge from the cooking wares found in this room, though in lower concentrations than in Rooms 1 and 2. The central Room 5 was very narrow (only 1 m wide) and contained only a very few fragments of pottery. Its function is not clear: it has been identified as a “light well” or a “flue”, following the analogy of similar spaces discovered in the houses of Olynthos in Greece. It could also have hosted a wooden stair giving access to a (hypothetical) second floor. Similar small
central rooms characterize the plans of other farms of the Metapontine chora, such as the Archaic building of Cugno del Pero and the Late Roman farmhouse at San Biagio. Usually a small family necropolis was located nearby each farmhouse, but in the case of Fattoria Fabrizio no tombs have been discovered to date, despite soundings carried out along the SW slope and around the building.

How and why the site was abandoned is a challenging question. Indeed there is no evidence of a violent destruction. The almost total absence of finer material and of the richest equipment, such as the metal instruments or the figured vessels, as well as frequently-used small tools, such as terracotta loom weights or lamps, could suggest that the farm was intentionally abandoned by its occupants, who removed everything that was not too heavy to carry away. But it is also possible that the site was visited after the abandonment of the building and that the furnishings were looted. In modern times, perhaps half a century ago, the area is known to have been used to make charcoal from the dense macchia (Mediterranean scrub) vegetation, and in the course of this work an artificial terrace was created. Unfortunately, this activity deeply compromised the upper layers of the archaeological stratification of the site, making it difficult to investigate the later phases of occupation.
Incoronata Greca: Archaeological Investigations
Sveva Savelli with Lara Cossalter, Cecilia De Faveri, and Amelia Tubelli

Introduction
In 1977 and 1978, under the direction of Prof. Joseph C. Carter, the University of Texas at Austin conducted two seasons of excavations on the hilltop of Incoronata “greca”. Archaeological investigations were undertaken on the south side of the plateau. The small hill of Incoronata forms part of a more complex system of marine terraces situated on the west side of the Basento River. This area was the center of an extensive Oenotrian settlement traditionally known as Incoronata “indigena” which also encompassed an extensive necropolis on the plain of San Teodoro.

Study of the archaeological excavations and finds has identified two main phases of occupation in the area. As initially recognized by Prof. Carter, the earlier phase, dating to the 7th century BC, includes a number of pits of variable dimensions and the remains of a small structure with a rectangular plan (the “Rectangular Structure”) in which an a mix of Greek and indigenous material was recovered. The more recent phase, dating to the 6th century BC, yielded votive objects and the remains of a structure related to a place of cult in the Metapontine chora. A preliminary study of the pottery allowed us to hypothesize a later phase on the hilltop relating to the 5th century BC.

The corpus of archaeological pottery and finds is substantial and in a relatively good state of preservation, allowing for a series of important reflections on indigenous production and on the Greek tradition. The repertoire of indigenous forms in impasto wares, relatively well preserved, can be dated through associations with the Greek pottery. Analysis of the Greek pottery showed both a high degree of fragmentation and a significant frequency of joins between pieces from different excavation areas. This feature of the assemblages is particularly important for the interpretation of the archaeological contexts and their formation processes at Incoronata. The excavations and their pottery and finds present an opportunity to examine and define the nature of settlement at Incoronata, particularly in relation to the extensive indigenous settlement with which it appears to have been connected.

Preliminary Results: Indigenous Pottery
Large Containers in Fine Fabrics
Cecilia De Faveri

This class of large containers in fine fabrics is represented in significant quantities. The examples, in the course of being studied, fell into that part of specialized production inspired by imported Ægean products evidenced since the late Bronze Age, above all in the area of Sybaris but also along the remainder of the Ionian coast of southern Italy. Systematic study of these containers started at Broglio, carried out by researchers from the Università di Roma “Sapienza”, who studied a consistent corpus of this ware and proposed the first typological and chronological classifications and reflections on the social and economic exigencies of indigenous Oenotrian settlement. In the late Bronze Age this ceramic class had a wide diffusion in southern Italy and is attested in the inland areas of Basilicata, in the north-central part of Apulia, in the area of Salento, and along part of the Adriatic coast.

The production of these wares entailed a high degree of technological knowledge and skill: in the earliest phase, artisans of Mycenaean origin worked for local elites, with subsequent production by local artisans.

The production of doli in fine fabrics is documented in the Iron Age settlement and it is not surprising that this class is represented in our contexts: examples come from Pit E, Pit D, Pit XII and in smaller quantities from the area of the rectangular structure. The fabric is fine, hard, and compact, and ranges in color from pinkish-brown to orange. The walls are smoothed and occasionally slipped. In a few examples, traces of turning are visible. In spite of the fragmentary state of these vessels, the forms can be seen to vary from oval to globular. Below, we attempt to reconstruct the original dimensions, which could reach a height of 1.3 m and a width of 1.2 m in the largest part of the body. Finally, there are also fragments with traces of residue or surface deposits—future analyses could specify the use of these containers, usually employed to store and preserve both liquid and solid foodstuffs.
Impasto Pottery

Cecilia De Faveri

Fine impasto wares with burnished surfaces giving a lustrous black appearance are represented at Incoronata. These are in the protohistoric tradition, attested in the late Bronze Age and the 9th century BC. Amongst the forms represented at Incoronata are bowls with incurved rims and curved or carinated bodies, deep or shallow, with characteristic oblique ribbed decoration (Fig. 48). In our contexts, examples were recovered from the pits and from the rectangular structure. Significantly, the assemblages of well-represented forms from these deposits were characterized by a marked presence of indigenous wares alongside local and imported Greek wares. This is crucial for verifying the chronology and standardization of the form repertoire of indigenous wares.

Consistent with the corpus of larger impasto wares, the fabrics range in color from brown to dark grayish-brown, moderately compact with smoothed surfaces or irregularly levigated fabrics, rough to the touch.

Among the attested vessels, the majority are associated with the storage, cooking and serving of foodstuffs. In detail, these include ollae (a type of jar) with straight to inclined or out-turned rims, sometimes marked by an internal lip, and ovoid or globular bodies; some examples are preserved below the rim. Jugs and bowls are also represented, and more rarely cups, mugs and pans (Fig. 49). Numerous examples of medium-sized triconical vessels with lugs on convex necks and indentations beneath the rim are also represented (Fig. 50), along with larger containers.

For impasto production it will be important to verify and compare the attested form types in the repertoire of undecorated pottery to identify possible specializations or technological influences amongst the different classes. For example, a few fragments are characterized by a coarse fabric, durable and rough to the touch with traces of turning on the surfaces, for which a later chronology can be hypothesized.

Indigenous Matt-Painted Pottery

Lara Cossalter

“Matt-painted” pottery constitutes a numerically very conspicuous group amongst the indigenous pottery attested in the assemblages from Incoronata. The better-attested forms are typical of the Bradano Middle Geometric and Late Middle Geometric periods: biconical and globular ollae, jugs, bowls (Fig. 51), mugs and askoi, with a strong prevalence of closed forms.

The majority show evidence for hand-forming, though for others it is possible to infer fast-wheel forming. Production technology, still one of the more controversial aspects of this type of pottery, is without doubt an area where the pottery from Incoronata can make a significant advance in research.

Chronologically, it can be confirmed that a small proportion belongs to the transitional phase between the Early and Middle Geometric, a phase at the transition of the 9th and 8th centuries BC. Chronological indicators for this period are decorative motifs consisting of fringed bands accompanied by rows of dots. Among the chronologically significant forms are closed forms with biconical profiles and bulging necks, also attested in the nearest and earliest Oenotrian burials at San Teodoro.

The Middle Geometric phase is well attested, characterized by the presence of decorative motifs typical of the Oenotrian repertoire, among which is the well-known “curtain” motif which is an

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Figure 48 Impasto bowl from with incurved rim with oblique ribbed decoration, from Incoronata.

Figure 49 Impasto pan from Incoronata.

Figure 50 Impasto triconical vessel with lug, from Incoronata.
indicator of the facies for the Oenotrian world of the early Iron Age. This motif is widespread throughout the principal Oenotrian centers in Basilicata during the 8th century BC (Fig. 52). Nonetheless, Late Geometric pottery is prevalent in the assemblages from Incoronata. Compared to the sobriety of the preceding Middle Geometric phase, the decorative syntax becomes richer with motifs derived from the Greek and indigenous geometric styles, with a great variety of formulations. Progressively, the entire production follows the new logic, with motifs including small rhombuses with central dots, hourglasses, and panels elaborated with dots, inserted in thick horizontal sequences very low on the vessel bodies, with a quasi-miniaturistic taste of Corinthian inspiration. Also, the lower parts of the vessels are occupied by hanging motifs, such as reticulated hanging rays, often present on smaller vessel shapes (Fig. 53).

The matt-painted pottery from Incoronata confirms the impression of a decorative koiné in the area of the Bradano River at the end of the 8th century BC which encompassed the production of the most important indigenous centers in the region—Monte Irsi, Gravina, Matera, Cozzo Presepe, L’Amastuola—which elaborate with great originality the models provided by contemporary Greek repertoires. A small but important proportion of the pieces relate to the sub-Geometric style of the 7th century BC.

Indigenous Plain Wares

Lara Cossalter

This class of pottery is better represented than matt-painted pottery in both the pits and the rectangular structure. Above all, it is important to consider that the identification of plain pottery can be misleading since many could belong to the undecorated parts of matt-painted vessels. The examples from Incoronata are generally characterized by a very fine fabric with smooth surfaces, with very fine inclusions of quartz/quartzite or calcite. The color is mostly pale yellow, rarely orange or brownish-orange. The morphological repertoire shares common forms with matt-painted pottery: globular or biconical ollae with outturned rims, globular mugs with loop or rod handles/lugs and bowls with thickened rims. Some morphological types relate to the repertoire of impasto forms, raising questions of the morphological and functional relationships between the production of plain pottery and the Geometric and impasto wares.
Indigenous Pottery with Incised Decoration
Lara Cossalter

The presence at Incoronata of indigenous pottery with incised decoration is also attested in the excavations and publications of the University of Milan. This is represented by a small number of bowl fragments, the only shape associated at the site with this production, which at Incoronata relates to the Late Geometric Period.

The small corpus may indicate that this was a more prestigious production, perhaps related to ritual use. The decorative syntax is based on a very simple scheme consisting of a band or metopal register, with the interior incised with swastikas or meanders.

This production, which appears to be typical of the indigenous settlement at Incoronata, is attested above all along the axis of the Bradano River to Gravina and Monte Irsi, and along the Tarantine coast, at Grottaglie-Masseria Tarantino and in the locality of Dolce Morso, raising questions of the relationships with the Iapygian area in the last decade of the 8th century BC.

Greek and Greek-Type Pottery
Imported Fine Wares
Sveva Savelli

Although not attested in large quantities, imported fine wares are important because they contribute greatly to the chronology of the excavated contexts and allow us to delineate the systems of interregional exchange involving Incoronata between the end of the 8th and the 7th century BC.

Among the imports are proto-Corinthian wares, usually in a highly fragmentary state, which include cups such as kotylai and skyphoi among the open forms and aryballoi and conical lekythoi amongst the closed forms. Particularly important in the small corpus of imports is a complete late Proto-Corinthian kotyle discovered during excavations of Pit B (Fig. 54).

Other classes of imports are much rarer; East Greek imports, for example, are attested only by fragments of banded hydriai or table amphorae produced in Miletus, which are rather rare in general in Magna Grecia.

Greek Colonial Ware
Sveva Savelli

The most well represented class of fine wares in the Greek tradition at Incoronata is “colonial ware”, in terms of both proportions in the assemblages and variety, as was also the case in the excavations conducted by the University of Milan. Many pieces were attributed to local workshops, characterized by very fine fabrics with a powdery consistency and numerous micaceous inclusions. Firing colors tend to be pale pink (ca. Munsell 7.5YR 7/5 to 10YR 7/4). The range of fabrics associated with this class will be further characterized and defined through petrological study.

Of the Orientalizing colonial production, two classes predominate: imitation proto-Corinthian ware, which reproduces more or less faithfully the Corinthian models, and Italo-Geometric wares, which mix elements of different stylistic traditions from Greece and Magna Grecia. In the first class, there is a clear prevalence of open forms, particularly the skyphos and kantharos. The skyphoi are divided between those of the “Thapsos” type and the sigma-decorated variant (“conornate a sigma”). The kantharos is attested in the “Ithaca” type and is often characterized by a poor-quality reddish gloss. Vessels from Pit B are notable for their high degree of preservation, and are associated by context with an aryballos and conical oinochoe dating to the late proto-Corinthian period.

Italo-Geometric ware is attested in colonial centers in the 7th century BC. The formal and decorative repertoire of the Incoronata workshop/s is very diverse and requires an in-depth study to formulate and define the complex typology. Lekanai, cups, kraters, kantharoi, and one-handled cups are the better-attested open forms. Hydriai (Fig. 55), oinochoai, stamnoi, and olpai are represented amongst the closed forms. Decorated vessels such as the krateriskos and the dinos are also attested.

The fine wares with linear decoration constitute the local production in the second half of the
6th century BC. They are characterized by standardized decorative schemes consisting of bands and lines of colored slip, represented by a significant number of examples of small olpai and cups relating to the phase of use of the sanctuary.

**Archaic Grey Wares**

*Sveva Savelli*

Grey ware is well attested at Incoronata. This particular class, studied thoroughly by G. Stea in 1991, is characterized by a grayish ceramic body with a gray gloss over the surfaces. This class falls within the Aeolian Greek tradition amply testified in the Anatolian peninsula. It was hypothesized that these were not imported but were part of a local production inspired by Corinthian and western Greek models. The material at Incoronata dates to the third quarter of the 7th century BC. The best attested form from the ICA excavations is the kantharos, as was also the case in the excavations of the University of Milan. Kantharoi with high-swung handles are represented by both globular and piriform variants. Fragments of cups and *kalathoi* are also attested, the latter characterized by thin grooves on the rim.

**Ionic Cups**

*Amelia Tubelli*

Among the fine wares in the Greek tradition recovered in ICA excavations of the site of Incoronata, around 800 fragments belong to so-called “Ionic cups”. Initial study of these attributed them to the B2 group of forms, following a typology of Ionic cups formulated by Villard and Vallet in one of the early studies of these cup types from Megara Hybleia and in which production of East-Greek inspired types developed towards western Greek tastes in form. A large number of fragments from Incoronata, including rims, walls, feet, and handles, can be attributed to these typologies, ranging in date from the second quarter of the 6th to the first half of the 5th century BC.

Visual examination of the pottery clay fabrics suggests local production, since these are close to other classes of “Colonial” fine ware from Incoronata. These are characterized by a very fine, powdery consistency with numerous micaceous inclusions, while slips are generally matt reddish-brown, very diluted on external banding and often unevenly applied.

Most of the B2 cups represented at Incoronata are of a variant type which was widespread throughout the western Mediterranean over the course of the second half of the 6th century BC. These cups had characteristic decoration with a band of slip on the rim extending to above the shoulder-mounted handles, rounded shoulder above the lower body and a more pronounced flared lip demarcated from the shoulder by a marked offset. The relationship between the flared rim and the main body is extremely variable, but a large number of examples show a short lip, a marked offset between rim and upper shoulder (*Figs. 56 and 57*), and a main body characterized by a rounded or less-pronounced curve in the lower shoulder. These usually have slipped exterior rims with a reserved band on the shoulder.

Production of these relatively well-defined variants is probably datable to the late 6th and the early 5th centuries BC. The fragmentary nature of the pieces often makes it difficult to distinguish with certainty between these Ionic cups and the much deeper “Pantanello skyphoi” (also referred to variously as Pantanello Type Cup, skyphos ad orlo distinto, or skyphos a labbro, depending on chronology), since the latter took inspiration from the rim morphologies and decoration of the typical Ionic B2 cups.
A few examples of another type are strongly influenced by Attic cups of the “Bloesch C” type, entirely slipped with thick and more lustrous black gloss with characteristic morphologies representing the final evolution of the Ionic B2 cups.

A few imported Ionic B2 cups are also represented. Compared to the usual examples produced locally, these are characterized by a higher rim, a deeper basin and a thicker, more lustrous and higher-quality slip. These do not appear to be of East Greek or eastern Mediterranean origin, but probably belong to western Mediterranean colonial Greek production.

The corpus of Ionic cups from Incoronata points to a chronological gap spanning the last thirty years of the 7th century and the first quarter of the 6th century BC: Ionic A2 and B1 cup types typical of this period are not represented in the assemblages from Incoronata. There are only a few fragments of cups with high flared lips with a pronounced offset from the upper shoulder which could be interpreted as variants of A2 cups—the rims entirely covered in matt reddish-brown slips, very diluted with visible brush strokes—but at this point in the study there are no close parallels for these variants.

Two cups from an earlier phase at Incoronata are represented, probably of East Greek origin and datable to between 670 and 640 BC. Both have deep bodies with a slightly inclined rim decorated with an undulating band and a series of thin horizontal bands in a very dilute slip (Fig. 58).

Also present are Ionic cups with flared rims, relatively shallow or compressed bodies above ring feet or flat bases, entirely covered in diluted matt reddish-brown slips except for a reserved band at the level of the handles. Although these appear to have been produced locally, further study will try to determine whether they should be interpreted as imitations of proto-Corinthian wares, or alternatively as local developments inspired by the East Greek A1 type cups of the mid-7th century BC. In this regard, it is important to note that imported Ionic A1 cups are not represented at Incoronata.

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Figure 58. East Greek cup from Incoronata.

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Miniatures

Amelia Tubelli

Significant quantities of miniatures are also represented at Incoronata greca, providing evidence for cult activity in the area during the 6th century BC. The major group consists of miniature hydria or hydriskoi, representing in miniature the range of characteristic morphologies of their common, full-sized counterparts, including both the unslipped and slipped-rim variants. Other miniature forms include the krateriskos/kantharos and copetta, along with a few examples of miniature Ionic B2 cups.

The miniatures provide evidence for cult activity and for the most part reproduce contemporary full-sized forms, so they can therefore provide chronologies for this activity at Incoronata. The presence of Ionic cups in excavated contexts likewise allows us to interpret the functions and uses of these cups as one of the most common vessel types associated with these activities. Together these can be related to other votive finds and the excavated deposits and structures at Incoronata.

Black Gloss Wares

Amelia Tubelli

From later phases at Incoronata, during the 5th century BC, there are a few unremarkable examples of skyphoi and black gloss cups, probably produced locally. Precise classification of the later black gloss wares by comparison with those from the necropoleis, farmhouses, and the Metaponto survey assemblages will provide a more precise chronological framework for the more recent phases of occupation at Incoronata.

Common Ware

Sveva Savelli

These wares can be divided into two basic classes: the first consists of grey fabrics with abundant inclusions, and the second of fine undecorated fabrics with smoothed surfaces. As is the case in other contexts of study, the functional scope of the common wares is difficult to identify for the Archaic period at Incoronata and for this reason classification of these wares was based on morphological characteristics.

The form repertoire in the grey fabric class includes the oinochoe, olla, situla, basin, high-footed stand and pan, with large containers represented
by the pithos. A common form is the olla, particularly the type with flared rim. Some fragments show traces of burning, indicating that they were used for cooking.

Examination of the undecorated pottery was complicated by the relatively few diagnostic fragments recovered. The form repertoire shares many characteristics with the fine wares with linear decoration (see above) and includes the hydria, situla, small cup, one-handled cup, basin, dish and lekane.

**Transport Amphorae**

*Sveva Savelli*

Amphorae were recovered in large numbers in the excavated areas, the pits and the rectangular structure. It is an important and complex class assemblage originating in different regions of the Mediterranean and with different chronological ranges. It includes types from mainland Greece (Attica and Corinth), East Greece (Miletus, Clazomene, Samos, Lesbos and Chios), Magna Grecia (Sybaris, Campania) and Pithekoussai.

The amphorae are in general highly fragmentary; it was possible in some instances to partially reconstruct them, with fragments found in different areas of the excavation (two SOS amphorae from Attica, one Lesbian amphora, one Milesian amphora and a western Greek amphora). The only exceptions are pieces from the excavation of Pit B which are very well preserved and from which a complete Corinthian amphora was reconstructed.

The most frequent amphora type at Incoronata is the Corinthian Type A (Fig. 59). SOS amphorae of Attic production are also attested. The East Greek amphorae are of particular interest: they include a Clazomenian amphora from Pit D and an amphora from Miletus in Pit F. The chronological horizon dates to the 7th century BC.

Corinthian Type A amphorae are very frequent in the area of the Rectangular Structure. SOS amphorae are also well represented, predominantly of Attic provenience, although non-Attic SOS amphorae of unknown origin are also present. Amongst the corpus of East Greek amphorae, examples from Chios and Samos stand out. The western Greek amphorae of the Archaic Corinthian Type B are datable to the 6th century BC, with three examples of Sybaritide production. Also very important is the rim of an amphora in the western Phoenician (Punic) tradition, probably of Pithekoussan production.

![Figure 59 Corinthian Type A amphora from Incoronata.](image)

Later amphora types are also represented, including fragments of a Corinthian Type A, a western Greek amphora of Campanian origin, and a Chian amphora of the “Bulging-Neck” type, all datable to the 5th century BC.

**Instrumentum Domesticum**

*Sveva Savelli*

A diverse range of utensils from Incoronata attest to the types of activities associated with settlement and economy. Amongst these are ceramic objects providing evidence for spinning and weaving such as spools, spindle whorls (spherical, biconical, and turned cylindrical types) and loom weights (pyramidal and rectangular types), manufactured in both fine and coarser impasto fabrics. There were also some fragments of a ceramic brazier (cooking/hearth supports), currently under study to reconstruct the brazier and to identify its form and dimensions.

**Future Research and Prospects**

The settlement at Incoronata remains one of the most important sites for understanding the relationships between Greeks and indigenous populations in the pre- and post-colonial phases, during which we witness archaeologically profound developments and change within the local communities inhabiting the littoral of the Ionian Sea in southern Italy.
In this respect, study of the exceptional corpus of archaeological evidence from the excavations of ICA is of the utmost importance. The primary objective has been the study of the diverse range of wares from Incoronata to formulate a typology of ceramic production to elucidate aspects of indigenous production and define its chronologies, in particular for the impasto wares, dolia in fine fabrics and matt-painted pottery.

Study of the matt-painted pottery has the potential to define the geographically-specific cultural koiné of the population who settled at Incoronata during the Iron Age. The extra-regional wares allow us to frame this study within the context of exchange networks linking the Oenotrian settlement with the wider indigenous world of southern Italy. The succeeding sub-Geometric pottery has allowed us to focus on Greek and indigenous relationships over the course of the 7th century BC.

Systematic analysis of the pottery from Incoronata contributes significantly to our understanding of “colonial” ceramic production and products in the Greek West during the 8th and 7th centuries BC. In this regard, it is fundamental to deepen the analyses of the composition and properties of pottery fabrics and clays to establish the characteristics of local production. Analysis of the wide range of forms further defines the typologies and chronologies specific to the area, which in turn elucidate the relationships between local production and imported wares, identifying the components which led to the realization of the colonial repertoire.

Quantitative analysis of the excavated assemblages and comparisons of the state of preservation of indigenous products, usually very fragmentary, to that of the Greek wares, will be used to examine and better define the formation processes of the archaeological contexts at Incoronata.

Further study of the Ionic cups, miniatures, and black gloss wares will allow for a better understanding of the most important elements of local production and its development during the 6th century BC and the influence exerted by other wares in the Greek tradition. This study will also add to the chronology of the archaeological contexts during the second phase of occupation at Incoronata. The miniatures provide direct evidence for cult activity at the site during this period, and the frequent appearance of Ionic cups in sanctuary contexts suggests that this was one of the most important vessels employed in cultic activities. It will also be very useful to relate these to votive objects and the excavated structural remains. Typologies and chronologies of the Ionic cups and black gloss wares will be related to those from the excavated necropoleis and farmhouses in the Metapontine chora.
Along with evidence for ceramic production at Pantanello in the late Republican period, at the excavated farmhouse at Sant’Angelo Vecchio and in the Archaic period at Incoronata, during 2008 Keith Swift and Victoria Leitch examined assemblages from the small number of survey sites with evidence for ceramic production were examined with a view to identifying the wares and characterizing the petrology of associated fabrics which may have been produced at these sites.

From the point of view of regional ceramic production, the two most important survey sites are Site 266, situated on the marine terraces in the eastern part of the Bradano-Basento survey transect, which provides evidence for the production of Greco-Italic and “Corinthian” Type B amphorae (not previously demonstrated as a regional type) in the early Hellenistic period; and Site 105, located in the lower Basento valley near the Sant'Angelo Vecchio farmhouse, which provides direct evidence for the production of black gloss fine wares in the 5th and/or early 4th centuries BC. Microscopically, the fabrics are very close to those from the Metapontine kerameikos, which has been studied as part of an ongoing collaboration with Francesca Silvestrelli, one of the excavators of this ceramic production area. Both production centers are located on Pleistocene and later fluvial sediments deposited by the Basento River. Site 105 clearly indicates that high-quality Classical-period fine ware production was not limited to the urban center and that consequently we cannot assume that all “local” fine wares radiated outwards from the asty, or necessarily that all the fine ware consumed by the urban center was produced in the kerameikos.

The picture that is emerging through re-analysis of the survey assemblages is therefore a more complex one than might originally have been envisaged in a “simple” model of asty/chora relations seen through the lens of the fine (and other) wares. It remains to be seen whether sites from the Basento-Cavone transect will provide further evidence for ceramic production in the Metapontine chora, as have those from the Bradano-Basento transect. This constitutes an important research desideratum for a micro-study in 2009.
Chersonesos 2008

Introduction
Adam Rabinowitz

For a year in which ICA did not conduct an excavation at Chersonesos, 2008 was surprisingly busy. In the summer, the ICA team carried out materials study, conservation, and digital documentation projects, while in the spring and fall we laid the groundwork for long-term IT sustainability at the National Preserve and carried out a program of exchange between Ukrainian heritage professionals and members of the US National Park Service.

Archaeological Research
The publication study of the extensive material recovered during our excavation in the South Region of the urban center intensified in 2008. Most of the contributors to the projected two-volume final publication of the 2001–2006 excavations had already completed their examination of the material in the field, but two of our collaborators spent several productive weeks examining material in the storerooms. Stine Schierup, a doctoral student at the National Museum of Denmark and a specialist in Greek pottery, returned to study a sealed Hellenistic deposit we found in 2006. Ms. Schierup had already studied the Hellenistic pottery from our excavations under the Packard Laboratory, and she has been able to draw some interesting conclusions from the comparison (see report). While the publication of the Panskoe site in the city’s far chora includes a good selection of Hellenistic pottery from western Crimea, the Lab and South Region assemblages will be the first well-contextualized Hellenistic assemblages from the urban center of Chersonesos to be published in English.

We also brought two numismatists to work through the coins from the South Region and from our previous excavations at the rural site of Bezymyannaya. Pagona Papadopoulou, a specialist in Byzantine numismatics, studied the South Region material, and her chronological observations suggest that the destruction of our portion of the city, at least, may have taken place earlier than is usually thought (see report). At the same time, William Bubelis, a Classical epigrapher and numismatist, looked at the coins from Bezymyannaya. He noted that the Bezymyannaya assemblage contrasts with published numismatic assemblages from other sites in the chora, and suggests that the site was more loosely integrated into the monetary economy of the urban center than its neighbors. In the Roman period, a surprising number of foreign coins were present, and Dr. Bubelis suspects that this indicates a military presence at the site at that time.

Conservation and Presentation
As the conservation of the South Region excavation site progressed, we realized that we had to make choices about the way the site would be presented to the public: which structures would be visible, which periods would be emphasized, which stories would be told. We therefore un...
dertook a collaborative site presentation project, which brought together conservation consultant Chris Cleere; Sarah Duffy and Erin Tyson, two students from the Historic Preservation Program in the UT School of Architecture; and Larissa Sedikova and myself, as the co-directors of excavation (see report). Together, we developed a presentation strategy, which was then carried out over the following months by our highly-skilled local conservation specialists Dmitry Davydov and Aleksandr Kuzmin. Their preliminary reports indicate that the visiting public is very interested in the didactic material we produced. The site will now serve as an interpretive as well as a conservation test-bed, so that the effectiveness of the strategies and materials we used can be evaluated over time.

Dmitry Davydov also assisted Chris Cleere in a training program for the conservation of stone objects. This workshop attracted not only members of the Preserve conservation staff, but also students from conservation academies in Kyiv, Lviv, and at the Sevastopol branch of Moscow State University. Participants examined a variety of stone objects in various states of preservation, and under the supervision of Mr. Cleere and senior Preserve conservation staff, proposed and executed treatments designed to deal with the specific problems facing each object. The workshop took place in the Packard Laboratory, where the stone material in the Preserve collection is also stored. Thus students were also able to consider the interactions between storage environment and the conservation strategies they chose.

**Digital Heritage**

On the other side of the Packard Laboratory, in the room containing the display of painted stelai we inaugurated in 2006, the epigraphic collection of the Preserve was undergoing a different sort of preservation treatment. A group of Preserve staff members, together with other Ukrainian and European students and cultural-heritage professionals, took part in an imaging workshop offered by Mark Mudge and Carla Schroer of the non-profit Cultural Heritage Imaging (CHI). The workshop trained participants in a technique known as Reflectance Transformation Imaging, which can derive from a series of digital still photographs an image in which lighting can be interactively manipulated (see report). This technique is especially useful for the visualization of objects with surface relief. In the workshop, it was applied to everything from a 0.8 cm long gemstone to ceramic plates. But the most obvious candidates were again the many inscriptions found at Chersonesos. The highlight of the workshop came at the end, when all members of the Preserve community were invited to participate in the imaging of the democratic oath of Chersonesos.

This workshop also provided the starting point for a pilot program involving the imaging and online presentation of some of the epigraphic monuments of Chersonesos. The imaging of the epigraphic material was also carried out by local specialists Dmitry Davydov and Aleksandr Kuzmin, while its online presentation fell under the purview of the Megarika project. The Megarika project, under Lucy Grinenko, the head of the Preserve’s Scientific Library, has carried out digitization and information-management projects since 2003. In 2008, however, there were two important developments (see report). The first involved an evaluation and consultation by digital information professional Christian-Emil Ore, who brought his extensive experience with the creation and management of digital museum collections and with the CIDOC-CRM information ontology to his analysis of the various aspects of the Megarika project. Dr. Ore, who had already visited ICA in Austin in the spring, had a number of suggestions to make about the online presentation of information. This had long been one of the stumbling-blocks of the Megarika project, which under Ukrainian rules had limited ability to disseminate archival material publicly.

This leads to the second major development: as a result of Dr. Ore’s suggestions and ICA’s discussions with the Ministry of Culture, Megarika received permission to store copies of the digitized archival records in a secure off-site location, guaranteeing the survival of the information in case of fire or water damage at the Preserve. And it was also granted permission to make available online a selection of the glass-plate negative images collected in the course of archaeological work at Chersonesos between the 1890s and the 1950s. These images represent a trove of information for scholars, and a vivid glimpse into the site’s more recent history for the general public.
Governmental Relations

Making connections between Ukrainian cultural heritage and a broader public was also the primary goal of an exchange program organized by Taissa Bushnell, through a generous grant from the Trust for Mutual Understanding. This program brought a group of Ukrainian cultural heritage professionals to several US historical parks in the spring of 2008. The group was led by Barbara Pitkin, the program manager of the Department of the Interior’s International Technical Assistance Program. The participants visited historic parks at Jamestown, Colonial Williamsburg, Old Sturbridge Village, and Plimoth Plantation. A reciprocal visit brought four US National Park Service professionals to Ukraine in the fall, where they visited several sites, including an open-air museum of vernacular architecture outside Kyiv and Chersonesos itself. Fortunately, Professor Carter and I were also in Ukraine during their trip, and we were able to meet with them at the Preserve and discuss their impressions.

Our visit to Ukraine in the fall was intended to continue our collaborative work with the Ministry of Culture toward the nomination of Chersonesos to the UNESCO World Heritage List. Both the presentation of archival material online and the cultural exchange program were made possible by the goodwill of the Ukrainian government, which has taken an increasing interest in the site as plans for a World Heritage nomination become more concrete. In the summer of 2008, we were delighted to receive a visit by a delegation including Katerina Yuschenko, then the First Lady of Ukraine, and the wife of the then-speaker of parliament Arseniy Yatsenyuk. Madame Yuschenko toured the Packard Laboratory and the collections of the Preserve, and heard about our joint projects. She also graciously agreed to hand out the certifications of specialization received by the participants in the stone conservation workshop.

Professor Carter and I then traveled to Kyiv in October to meet again with Madame Yuschenko at the offices of her charitable foundation, and with Mr. Vovkun, at that time the Minister of Culture and Tourism. We discussed many topics, including the deed to Area 10, the UNESCO nomination, the protection and dissemination of the results of the Megarika project, and the finalization and implementation of the general management plan for the National Preserve, a full draft of which was completed in 2008 through the efforts of consultant Henry Cleere and Taissa Bushnell, working with Preserve staff. The meetings were comprehensive and efficient, and we left feeling very hopeful.

While in Kyiv, we also had a chance to meet with our longtime collaborators at Kyiv-Mohyla Academy University and at the Institute of Archaeology of the Academy of Sciences. During these meetings, we reiterated our commitment to collaboration and to the training of the next generation of Ukrainian archaeologists. During the summer, we brought three students of archaeology from Kyiv-Mohyla Academy to Chersonesos, where, under the supervision of Vitaly Zubar...
Zubar, they participated in the digital imaging workshop and learned other advanced digital techniques while working with material from the South Region excavation. Three of their classmates, meanwhile, traveled to Metaponto to gain experience in the field at the excavation of the Roman tile factory at Pantanello.

I write of our collaboration with Kyiv-Mohyla University Academy with great sadness, however. Our 2008 summer season marked a milestone: it was the 40th summer our longtime friend and supporter Vitaly Mikhailovich Zubar spent at the site. It also turned out to be the last. Professor Zubar died unexpectedly at home of a sudden illness in March 2009.

Vitaly Mikhailovich first came to Chersonesos in 1968, and devoted his entire career to exploring the site’s history and culture, and promoting its importance to fellow scholars and the world at large. His knowledge of the site and the surrounding area was unsurpassed, as was his dedication to the dissemination of information. He spent the summer of 2008 working on a detailed history of excavation and research at Chersonesos from 1827 on, the second volume of which came out shortly after his death. It was gratifying to see that he had included ICA’s work at the site in great detail, but devastating to realize that we would no longer enjoy his advice, his wisdom, his long experience, and most of all his generous friendship. He continues to be greatly missed in both Austin and Chersonesos. This section of the 2008 Annual Report is dedicated to his memory.
Considering the extensive research carried out in Chersonesos for more than a century, it is surprising how few Hellenistic assemblages have been excavated. Although local transport amphorae—and especially their stamped handles—have been thoroughly studied and provide us with good chronological evidence, very little is known of the common pottery and fine table ware in use in Chersonesos during the Hellenistic period. The excavation of significant Hellenistic assemblages in 2003, during the construction of the new Packard Laboratory (block 36 of the ancient city), and again in 2006, in the course of excavations of the Byzantine residential block in the South Region, therefore presented a great opportunity. Both assemblages are now being prepared for publication and the preliminary results are presented here.

**Block 36—The Site of the Packard Laboratory**

On the site of the Packard Laboratory, where a 19th century monastery bathhouse building had previously been located, excavations prior to construction revealed a residential complex from the Byzantine period, below which were the remains of a Hellenistic building and road. In layers predating the road, the remains of two Classical cremation graves were identified. A few joining limestone ashlar blocks (possibly part of a tomb monument), human bones, traces of ashes, and late 5th century pottery fragments were the only visible evidence. Remains that may belong to an early city wall were also uncovered. Unfortunately, all the archaeological layers had been disturbed to a greater or lesser extent by the construction of the basement and sewage system of the monastery building. The stratigraphic reliability in general is therefore poor. The ceramic record, however, offers evidence for the continuous use of this area from the end of the 5th century BC to the Late Byzantine period. The following discussion focuses on one part of the block 36 assemblage: the Hellenistic tableware.

Along the coasts of the Mediterranean and the Black Sea, fine black-gloss table ware has been found in nearly all archaeological sites from the Hellenistic period. Around 300 fragments of this ware were identified within the assemblage from block 36, although many of them are small, making it difficult in to determine the exact shape of the vessels from which they came. The identifiable pieces, however, mainly represent traditional shapes associated with eating and drinking: drinking cups (primarily kantharoi, although single fragments of skyphoi was found) and plates and bowls (in many cases decorated with palmetto-stamps or rouletting). Other shapes are represented only by a few exemplars or even by a single vessel, like the *guttus* (*Fig. 64*), an oil-container, decorated on the shoulder with garlands, ribbons, flowers and possibly the tail of a dolphin in the characteristic “West Slope” manner that became popular during the 3rd century BC. Examples of other vessels intended to contain oil were also found, including the mouths of two lekythoi and a single fragment of an *askos*. A comic mask attached to a strap handle as a thumb rest (*Fig. 66*) can be identified as an Attic import.

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**Figure 64** Neck and shoulder fragment of an oil container, a so-called *guttus*. The vessel is decorated in the “West Slope” manner with incised garlands and leaves in added clay. Traces of dotted flowers and ribbons in white paint are visible.
on the basis of its fabric. Kantharos handles of this type are commonly found at several North Pontic sites. During the excavation of the Hellenistic deposit in the South Region (see below) two examples of this type were found, one with a similar comic mask and the other with a woman’s head.

Another group of table ware is the so-called grey ware, which acquires its characteristic gray clay color when fired in a reducing atmosphere. It is characterized by a thin slip ranging in color from grayish to black and in general by a very homogenous fabric of fine gray clay with calcite and occasionally quartz or mica inclusions. Pottery of this type is represented by a smaller group of 44 diagnostic fragments. The shapes are often imitations of or derived from contemporary black-gloss pottery shapes, and grey ware has traditionally been considered a “cheaper” local variation of imported fine black-gloss table ware. The grey ware from block 36 can mainly be dated within the 2nd and 1st centuries BC, though single fragments seem to echo shapes from the 3rd century BC black-gloss repertoire. Olbia and Histria are considered the most important production sites of this ware in the northern and western part of the Black Sea area.

The ceramic finds in block 36 suggest that the area was in use throughout the Hellenistic period. The greatest quantity of fine table ware can be dated within the 3rd century BC, but because of the damage to the site’s stratigraphy, it is difficult to base interpretations of activity in the area on this observation. The finds from the road may represent pottery that was broken or discarded on the spot, but it is also possible that these sherds were brought from elsewhere in fill used during road construction. Evidence for the chronology and function of the Hellenistic building is just as tenuous. Even the lowest archaeological layers of room 5, for example, contained Roman as well as Hellenistic pottery. The only pottery found in situ was the bottom of a pithos set in a cut in the bedrock below this room. The pithos has been dated by the excavators to the Hellenistic period, and thus it might be tentatively proposed that the room served as a storage facility, perhaps a domestic pantry.

**South Region—Hellenistic Deposit**

During excavations below the Late Byzantine residential structures in the South Region in 2006, a significant Hellenistic assemblage was recovered from the fill of a linear trench cut into the bedrock. Part of that fill had been disturbed in the Early Byzantine period, but one section was sealed below a thick layer of reconstituted bedrock formed by the erosion and re-hardening of the soft limestone sides of the trench. The Hellenistic material from both the disturbed and sealed sections of the fill clearly represents a single assemblage, and the pottery from the sealed section, which included stamped amphora handles, provides a

![Figure 65](image_url) Comic mask attached to the strap handle of a kantharos as a thumb rest. Attic import. Block 36.
very good chronological context for the assem-
blage as a whole.

Early Hellenistic drinking vessels of the classi-
cal kantharos type with plain rim and molded foot
(Fig. 66) are the most common drinking vessels
found in the assemblage, though single examples
of bolster-cups (Fig. 67) and skyphoi were also
found. Many examples are decorated in the “West
Slope” manner with garlands of olive or ivy made
with incisions and decoration in fine thinned clay
or white paint. Similar examples were found in the
block 36 assemblage. In contrast to the block 36
assemblage, however, black-gloss drinking vessels
are far more frequent in the South Region deposit
than bowls and plates, and only a few examples
of plates with palmetto stamps were identified.
Several of the black-gloss bases within the assem-
banges carry owners’ marks. Usually these marks
are single letters, but examples of rather complex
monograms are also found. One fragment comes
from an oinochoe (Fig. 68) with a twisted rope
handle, a rare shape that has not yet been identi-
fied at any other sites in the Black Sea region.
The shape is similar to that of a “West Slope” oinochoe
commonly found in Attic contexts of the second
quarter of the 3rd century, while other finds in-
dicate that undecorated examples of this type of
oinochoe had already begun to be produced by the
beginning of the 3rd century.

In both assemblages, there are several exam-
ples of early Hellenistic black gloss shapes that can
be identified as Attic imports on the basis of fab-
ric analysis. Such imports are frequently present
in contemporary assemblages at other Black Sea
sites. During the 3rd century, vessels of a coarser
quality, with dull and carelessly applied slip, began
to prevail. Variations in the fabric of these vessels
seem to indicate that they came from a number
of different centers of production, the majority of
which cannot be identified at this point.

Examples of various shapes decorated with flo-
ral ornaments in red paint were found in this as-
semblage and also in the earliest layers of the cen-
tral courtyard of the South Region complex (Fig.
69). The clay fabric of these vessels is very similar
to that of local Chersonesan amphorae, and it is
quite certain that these painted vessels were a local
product. The local origins of this ware have also
been documented by previous excavations in the
potters’ quarters of Chersonesos. It has not been
possible to identify large quantities of this ware
on any site outside the city walls of Chersonesos,
but a Chersonesan krater decorated with garlands
was found during the excavation of building U6
at Panskoye in the northeastern part of Crimea
(within the farther chora of Chersonesos), and a
Chersonesan amphora with red floral decoration
was discovered in the Chaika settlement in north-
western Crimea (near modern Yevpatoria). It is in-
teresting that this type of decoration seems also to
have been applied to transport vessels, a practice
for which no other parallel examples have been

Figure 66a–b Examples of the Classical kantharos shape, the
most common type of black-gloss drinking vessel in the early
Hellenistic period. South Region, Hellenistic deposit.
found. It is possible, however, that other decorated transport vessels have not been recognized, since it can be difficult to determine whether a small fragment belonged to an amphora or another large common ware vessel.

Jugs decorated with encircling bands of red, brown or white are another characteristic local product represented in the South Region deposit. Two variants are found: one has a short neck, globular body and double-barreled handle, while the other has a tall neck, wide mouth and ribbon handle. Numerous examples of this type have been found in a cistern with a contemporary 3rd-century fill in the north-eastern sector of Chersonesos (block 96), excavated by M. L. Zolotarev in the early 1990s.

The South Region assemblage also included a large number of local amphorae, as well as a few examples of imports from Sinope and Colchis. Undecorated examples of common ware of local production, including several louteria and both handmade and wheel-made kitchen ware, were also present. Only one or two fragments of grey ware from uncertain forms were found in this assemblage. The absence of this ware from the earlier South Region deposit, and its much greater visibility in the later assemblage from block 36, may suggest that the ware was not in common use in the early Hellenistic period. Further research, however, is necessary to establish a firmer chronology for grey ware at Chersonesos.

In the 4th century and the early Hellenistic period, Attic pottery was exported to the Black Sea area in great quantity, and well-dated contexts excavated in Athens thus provide us with valuable comparative examples for the dating of these assemblages. Athenian comparanda suggest that the earliest fragments of black-gloss pottery from the deposit in the South Region can be dated to the last quarter of the 4th century. The remaining shapes can all be dated to the 3rd century, and primarily to the first half of that century. The fact that no examples of the popular mold-made Megarian bowls were found within the assemblage makes it almost certain that this material was deposited no later than the end of the third quarter of the 3rd century. This dating is further confirmed by the dating of the amphora stamps from the assemblage. As a whole, the South Region assemblage seems to be generally domestic in character. A full range of forms for the production, storage, and consumption of food and drink are represented, although the proportion of wine-related shapes, higher here than in block 36, may be significant.

**Concluding Thoughts**

There are still many more questions to be asked regarding the identification and interpretation of the Hellenistic pottery in the two assemblages described here. Fortunately, excavations and research in the last decades have already led to the publication of several important Hellenistic assemblages in the northern Black Sea area, and the situation will only improve. The imminent publication of the South Region material and of the Hellenistic pottery excavated by ICA and the Preserve in the chora of Chersonesos, at Site 151 and Bezymyannaya, will contribute substantially to our understanding of the fine table ware and common ware imported to and produced within the territories of Chersonesos in the Hellenistic period.
The site of Chersonesos is one of the few places where the accidents of history have preserved areas of Middle and Late Byzantine settlement extensive enough to allow us to reconstruct daily life in those times. The stone artifacts are the everyday tools of that life. They are, in the main, of locally sourced materials and made to patterns and in forms conforming to local preferences. In the simplest of cases such objects are made without recourse to specialists, and thus have the potential to reveal much about traditions and habits at very modest levels of society. At the same time, those functional objects that were imported reveal trading links at the non-elite level.

Stone artifacts have been uncovered in all the excavated quarters of the urban center of Chersonesos. These items tend to be similar across the site in type, quantity, and quality, but differences in assemblages from different areas can also be identified. The stone finds can therefore provide invaluable information about the range of activities carried out in individual neighborhoods and in the city as a whole. This information helps us understand such issues as the degrees of specialization both within a block or area and between different areas, differences in status or prosperity between one area and another, and the importance of trade within the settlement as a whole.

The block in the South Region excavated by the joint ICA-Preserve project takes its form from the ancient grid plan of the city. Within the block itself, a group of buildings are arranged around a central courtyard, each of the individual units having varying degrees of communication with each other and with the yards and alleys inside the block. Stone artifacts have been uncovered in all the individual zones of the block and point not only to the range of activities undertaken but to separate areas devoted to specific uses.

Figure 70 Examples and drawings of stone artifacts: (a) grindstone, (b) mold, (c) spindle whorl, (d) whetstone, (e) loom weight.
The artifacts reveal a blend of household and industrial activities. The spinning and weaving of wool, represented by spindle whorls and loom weights, are associated with the domestic realm. Grindstones in most areas can be associated with the milling of cereals (wheat or rye), while others might be connected with fish-processing, with the grinding of material such as rock salt or—together with molds and whetstones—with small scale metallurgy. Anchors and net weights point to the importance of fishing in the local economy, both for subsistence and export, a factor amply recorded in literary sources (Fig. 70).

The distributions of the finds suggest localizations of activities within the block. Grindstones and whetstones are concentrated in certain areas, while spindle whorls are found in others. Millstones found in association with large storage vessels (pithoi) help pinpoint zones of storage and food preparation. Such patterns aid in the identification of distinct domestic spaces and workshops, although the general distribution of the finds highlights the proximity of living quarters to the noise, smell and disturbance of cottage industries. At the same time, an effort seems to have been made to maintain some distance between certain activities. Domestic spaces are connected with or adjacent to storage and food preparation zones but separated from smelting or smithing. Sensibility to noise and fire risk must have played a part in such division.

Stone artifacts of the 11th to 13th centuries are strikingly similar all across the excavated areas of Chersonesos. This similarity extends to quantities and distributions as well as to type and design, indicating that the same activities were being performed across the settlement with the same sorts of tools. The tools themselves, in their range and type, indicate that these activities reflect cottage industries carried out by self-sufficient groups of households. There is, nonetheless, evidence suggesting the possibility of specialization in some zones and thus some interdependence between different parts of the city. Tentative conclusions on such issues can be reached because of the relative abundance of two groups of finds: millstones and spindle whorls, which have very distinct functional connotations. Because these items were used by families across the social spectrum, and because at Chersonesos they were sometimes made of imported stone, they also have the potential to reveal trade links and cultural practices at the most modest levels of society.

In one quarter of the city complete and near complete millstones were uncovered together in a number greater than in any other zone to date. A number of them also bore features such as handle slots, dispersal grooves and indentations for spacers (rynds) that maintained separation between the stones for ease and efficiency of use. All those features suggest that this quarter was involved in the production of a greater quality and quantity of meal, which may have been traded locally. No excavation, however, has revealed any assemblages of stone tools large enough to indicate major specialized operations. The only millstones found at the site to date are human-powered hand querns, in contrast to the extensive use of donkey-driven mills in flour production elsewhere in the Byzantine world. The activities in medieval Cherson appear, on the evidence of stone artifacts, to have been localized and small scale.

The quality of milled flour or other grain is dependent upon the type of stone used. The best material is igneous rock or sandstone, neither of which sheds grit during milling. The least suitable is sedimentary rock such as limestone conglomerate, the local material, although there are degrees of fineness even within this category. The bulk of the stones excavated in our region have been of this low-grade, locally sourced limestone, in keeping with finds from other parts of the city. The modest nature of the production represented by these objects is also confirmed by the absence of the features mentioned above (handle slots, grooves and rynd slots). Those features were signal absent from the stones uncovered in our region. Most stones were therefore locally and cheaply made to a basic design for low intensity use.

Of the forty or so stones uncovered in our area, however, six were not of a local material. Two are of distinctive sandstone and the others of volcanic tuff (Fig. 71). These stones would have been highly desirable even in a worn state. Not only would they have produced a finer meal, but they would have had a significantly longer use life. Their presence in Middle and Late Byzantine Cherson could only have arisen as the result of trade, although they may have arrived at the site many years before they were
deposited where they were found. There are only a handful of sites from which igneous material could have come and which are known from sources to have been connected by trade links with Chersonesos. Likely candidates are the area around Trebizond, on the southern shore of the Black Sea, and the Aegean. Recent research has suggested that material may be an indicator of both source and period, since some centers in the Aegean appear to have ceased production in the medieval period. One potential source of particular interest lies in Illintsi, a region south of Kiev, known from research to have been a production center of millstones in tuff. This would reinforce the notion that Chersonesos had strong trading links with the Kyivan Rus’ in the Middle and Late Byzantine periods. The millstones uncovered at Chersonesos thus deserve closer scrutiny, since they might add to our knowledge of the city’s well documented connection with the Rus’ from the middle of the 9th century forward.

Extensive contact with the Rus’ is also suggested by a second group of artifacts: the spindle whorls. The function of a spindle whorl is to both accentuate the spin of the spindle and add weight to draw out the threads. It is a simple object, but precision is needed in its production to ensure accurate centering and balance. To that end, whorls in the pre-modern period were often made of easy-to-work materials such as clay, bone and even metal. Almost half the spindle whorls found in our block, however, are made from stone or shale, a material somewhat more difficult to work. This pattern is consistent with the medieval evidence from the rest of the urban area. The evidence thus seems to point to a marked cultural preference for whorls in stone and shale.

Cultural information can also be gleaned from other aspects of whorls, such as shape, wear patterns, incised decoration and color. Local patterns in the size and weight of whorls can indicate the type of fabric being spun and thus hint at local economic and agricultural activities. Wear patterns reveal whether the whorl was positioned at the top or the bottom of the spindle (both have been found at various times in Mediterranean cultures). In our area, as in the city as a whole, the whorls were at the base of the spindle and the weight/diameter ratio suggests the production of relatively fine yarn from short hair wool.

Some of the ceramic and bone whorls of the settlement bear incised patterns (wavy lines, quartering and circles). A closer study of those patterns may elicit information on cultural ties, or indeed differences, between the city and other Crimean settlements. Of real interest in this context are the shale whorls. Over eighty of these have been recovered in urban contexts dated between the 9th and the 13th centuries. Finds from our block include four of these, all of a distinctive pinkish purple hue. The source of the material is conventionally identified as Ovruch, northwest of Kiev. The numbers uncovered suggest whorls in such material were highly desired. The preference for these slate whorls is unlikely to have been determined by functional considerations, like weight or ease of production, since these features could have been provided by local versions in cheaper materials. The choice, therefore, is more likely to be a reflection of cultural factors.

One whorl uncovered in our block takes matters a step further. It was made from bone but deliberately dyed purplish-red. This was clearly related to the decorative properties of the object, rather than its function. The choice of color is telling: it seems to represent an attempt to mimic the color of Ovruch shale. The object would never have passed for slate, so the dyeing is more likely to have been meant to evoke the more fashionable and desirable slate whorls. Why Ovruch shale was so popular is
a matter of conjecture. If these whorls were used by local inhabitants, their exotic origins may have contributed to the attraction; if, as many have argued, they were used by populations of ethnic Rus’ resident in Cherson, they may represent trading and cultural links with the Rus’ homeland. Perhaps they themselves helped to create a deep, long-lasting local tradition that persisted even after explicit foreign connotations had faded (Fig. 72).

The stone artifacts found at Chersonesos reflect day-to-day activities carried out at a basic level. The finds from our region show no obvious differences, in form or material, from those from other areas of the city. Our block was certainly no more wealthy than those around it; in short, it seems to have been an unexceptional quarter of the city much like any of its neighbors. The noise, clatter, and reek associated with domestic and workshop activities existing cheek by jowl, in individual blocks and from one block to the next, can only be imagined. The nearest we may come to it in our time is in the souks and alleys of those rare cities, like Tripoli, that still preserve some of their crowded medieval character (Fig. 73). Yet even in an environment very foreign to us, the modest, everyday items described here reveal very familiar human experiences—not only the basic production of food and clothing, but individual desires, local fashions and traditions, and far-flung trading links.

Figure 72  Examples of spindle whorls: (a) Ovruch shale, (b) Imitation (?) dyed bone whorl.

Figure 73  The Street of the Coppersmiths, Tripoli.
The collaborative excavations undertaken in the South Region from 2001 to 2006, with an interruption in 2003, have yielded 324 coins, out of which 279 are identifiable. All the coins, which range in date from the 4th century BC to the 13th century AD, are bronze or copper and reflect the currency used in everyday transactions. The bulk of the material belongs to the period of Byzantine rule or influence on Chersonesos; next in number are the late Roman coins. More precisely, the number of coins found per period is outlined in table 1.

<table>
<thead>
<tr>
<th>Period</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient (4th–2nd c. BC)</td>
<td>10</td>
</tr>
<tr>
<td>Roman (1st c. BC–3rd c. AD)</td>
<td>10</td>
</tr>
<tr>
<td>Late Roman (4th–5th c. AD)</td>
<td>72</td>
</tr>
<tr>
<td>Early Byzantine (6th–mid-9th c. AD)</td>
<td>31</td>
</tr>
<tr>
<td>Byzantine (mid 9th–13th c. AD)</td>
<td>155</td>
</tr>
<tr>
<td>Islamic (8th c. AD)</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 1 Examples of spindle whorls: (a) Ovruch shale, (b) Imitation (?) dyed bone whorl.

The following discussion will provide a brief overview of the numismatic record in each of these periods.

**Ancient Coins**
The earliest coins from the South Region date from the 4th to the 2nd century BC and coincide with the period of the hegemony of Chersonesos over the southwestern coast of the Crimea. Since Chersonesos used the coins of its metropolis, Herakleia Pontica, during the first years of its existence, the earliest of these coins represent the first products of the local mint, which would continue to be active for several centuries. Besides coins minted locally and bearing the figure of the Parthenos or Maiden, a highly venerated local deity, the finds also include coins issued in Pantikapaion (present day Kerch) and Kerkitis (present day Yevpatoria), thus reflecting the relationship of Chersonesos with other parts of the Crimea.

**Roman Coins**
After Mithradates’ VI defeat and suicide in 63 BC, Chersonesos, along with the rest of the Bosporan Kingdom, came under Roman rule. A local mint was active during that period and its products prevail in the numismatic material of the site: out of ten coins, only one—dated to the end of the period, under Diocletian (285–305 AD)—comes from a mint outside Chersonesos.

**Late Roman Coins**
Coins of the 4th and 5th centuries AD form the second most numerous group of coins from the South Region. This fact is not surprising by itself, since these coins were produced in large quantities and are very common not only in Chersonesos, but in the eastern Mediterranean in general. In the South Region, however, they correspond with other archaeological evidence for a period of substantial industrial activity in the area between the 4th and early 6th centuries AD. It is during this period that various pits for large storage vessels and for combustion seem to have been in use, and the relative abundance of coins may be another sign of the frequency of the area at this time. On the other hand, it is also possible that these coins attest to occupation in the following period. As is common among the coins of Late Roman and early Byzantine Chersonesos, these coins are heavily worn, a sign of their long circulation, which is further attested by the fact that some were countermarked and re-introduced to the market as late as the reign of Heraclius.

Figure 73 Copper coin of Leo I (457–474). Although this emperor’s AE2 coins are found exclusively in Chersonesos, the mintmark CON they bear stands for Constantinople and shows that they were actually produced in the capital.
Within the set of different copper denominations issued in the 4th and 5th centuries, there is a clear prevalence of AE2 coins (20–23 mm in diameter), even after 395 AD, when the use of this denomination was discontinued in the rest of the empire (Fig. 73).

“Byzantine” Coins

The period of Byzantine rule or influence on Chersonesos can be divided into two periods. The first period lasts from the reign of Anastasius I (491–518 AD), who reformed the monetary system, to that of Theophilus (829–843 AD), who established the theme (a territorial unit under a military commander) of Klimata, with Chersonesos as its capital. The second period extends from the mid-9th century AD to the destruction of our block in the South Region at some point in the 13th century AD.

The preference of the local market for copper coins of AE2 size and weight continued after the Anastasian monetary reform of 498 AD, at which time the pentanummium, a coin of equivalent size and weight, became the basis of the monetary system at Chersonesos. It is characteristic that when the local mint resumed its activity under Justin I (518–527 AD), it issued coins of this module and denomination. Pentanummia from both the local mint and other imperial mints compose a substantial part of the early Byzantine numismatic assemblage from the South Region (Fig. 74).

Monetary finds from the 8th century AD are extremely rare throughout the Byzantine world. This find, along with similar coins and ceramic evidence from other parts of Chersonesos, indicates that the commercial relations of the city with Constantinople, no doubt stimulated by the exchanges with the Khazars, continued throughout the so-called Dark Ages. The other coin is a copper follis of Leo V (813–820 AD) from the mint of Syracuse in Sicily (Fig. 75). It has been observed that large quantities of Syracusan coins were introduced at Chersonesos during the reign of Leo V and his son Michael II (820–829 AD). This phenomenon, initially attributed to the iconoclast persecutions and to relations maintained among monks fleeing to Sicily, Chersonesos, or other places, is now interpreted in connection with the presence of the Byzantine fleet in the Black Sea. It is in this context that the Syracusan coin from the South Region should also be regarded.

It is the second period of Byzantine influence on the city that provides the bulk of the coin finds from the South Region—155 coins, or 56% of all identifiable coins from these excavations. With the exception of four coins that will be discussed later, these are all cast coins produced by a local mint. They usually bear the initials or monogram of the ruling emperor, but sometimes portraits of the emperor and members of his family or the initials of the latter are also added (Fig. 76). Due to the frequent recur-

![Figure 74](image1.png) Anonymous copper follis from the mint of Chersonesos (6th c AD). The Greek letter H (=8) represents the value of the coin, equal to eight pentanummia.

![Figure 75](image2.png) Copper follis of Leo V (813–820) from the mint of Syracuse, Sicily.

![Figure 76](image3.png) Copper coin of Constantine VII (913–959) from the mint of Chersonesos. The Greek letters on the reverse are the emperor’s initials and identify the bust on the obverse.
reference of a few names (Basil, Constantine, Romanus) among the Byzantine emperors, the attribution of these issues to one or the other emperor is sometimes disputable. It seems, however, that at some point the local issues ceased to follow changes in the imperial throne and for several decades—perhaps even centuries—used the same type, which bore on the obverse a combination of the Greek letters rho and omega (a monogram for “Romanus”) (Fig. 77). The duration of the production of this particular coinage is a matter of debate: some scholars date the end of the series in the 12th century AD, others in the 13th. In any case, these are not only the most numerous coins found in the South Region, but also the ones that are found throughout the destruction layer, which is dated by both pottery and other numismatic evidence to the 13th century AD.

Of the 155 coins of this period, only four are not locally produced. Two of the four are 10th-century folles from the mint of Constantinople and two are imitative coins—a so-called Bulgarian Imitative Type A and a Latin Imitative of small module Type A. The latter two are the latest datable coins from the South Region. They were issued after the fall of Constantinople to the Crusaders in 1204 AD and before its recapture by the Byzantines in 1261 AD, but due to their imitative character cannot be dated more precisely. They are, however, indicative of the local character of Chersonesos’ monetary economy during that period, when it was clearly characterized by a very low penetration of external coinages.

**Islamic Coins**

One of the most extraordinary finds of the South Region is a copper fals that can be dated to the 8th century AD, bearing on both sides parts of the shahadah (“There is no God but Allah and Mohammed is his Prophet”) (Fig. 78). Such anonymous coins were struck in great numbers towards the end of the Umayyad period and probably into the first decades of the Abbasid period. Its occurrence in Chersonesos might support mentions in hagiographic sources of non-Byzantine inhabitants of the city in this period, and at the least testifies to early connections between Chersonesos and the Islamic world.

As far as other Islamic coins are concerned, no copper fulus of the Seljuk Sultanate of Rum were found in the South Region excavations. These coins, mostly dating from the reign of ‘Alā al-Dīn Kayqubād I (1220–1237 AD), are, however, frequently found in destruction layers of similar quarters excavated in other parts of the site of Chersonesos, and taken together with the numismatic record from the South Region, they may suggest that the destruction that overtook this part of Chersonesos is best dated to the first half of the 13th century AD.

![Figure 77 Rho-omega coin from the mint of Chersonesos.](image)

![Figure 78 Anonymous copper fals (8th century AD).](image)
Chersonesos is a complex, multi-period site with a long history of excavation. Visitors to the site must take in all at once archaeological remains reflecting almost 2000 years of human activity: Late Byzantine houses sit atop Roman fish-salting cisterns, which are built in turn into ancient Greek houses. This layering naturally creates a certain amount of visual confusion, which makes interpretation all the more important. As the joint ICA-NPTC excavations in the South Region of the ancient city drew to a close, therefore, the participants began to think about ways in which the excavation site could be made comprehensible to the visitor. Various projects in the city have generally been responsible for their own interpretive material, with the result that there is little consistency in the presence of signage or presentation conventions across the site (Fig. 79).

Since the joint excavations in the South Region had already served as an experimental test-bed for excavation and conservation methodologies that might be suitable for wider adoption at the Preserve, ICA decided to make it the subject of an experimental interpretation program as well. The following report summarizes the development and implementation of that site interpretation and presentation program in 2007 and 2008. The project was organized and executed by conservation consultant Chris Cleere; Erin Tyson and Sarah Duffy researched interpretation strategies at other archaeological sites and prepared a formal proposal for the scientific committee of the Preserve; excavation co-directors Adam Rabinowitz and Larissa Sedikova framed the important issues at the site and produced the text and graphics for the interpretive signage; and ICA collaborators Dmitry Davydov and Aleksandr Kuzmin, working with Chris Cleere and other members of the conservation team, laid down the surfaces, constructed the mounts, and installed the signage.

**Background**
Excavations of the southern region of the Chersonesan urban center began in the late 19th century under K. K. Kostsyushko-Valuyzhinich and continued in the second half of the 20th century, under the direction first of N. Pyatysheva and later of L. Sedikova. These excavations uncovered a monu-
mental public cistern, initially dated to the 2nd or 3rd century AD but now thought to belong to a somewhat later period; a complex of public buildings of similar date; and, over these, Late Byzantine residential blocks located on either side of one of the city’s principal streets. As faithful readers of this Annual Report may remember, it was one of these blocks that began to be excavated by a collaborative team from the Preserve, the University of Lecce, and ICA in 2001. A five-year excavation program—as a three-way collaboration with the Lecce team in 2001–2002, and as a direct ICA-NPTC collaboration in 2004–2006—revealed perhaps a third of a residential block across the street from the cistern. This end of the block included three structural complexes of mixed domestic, industrial, and commercial function arranged around a central courtyard, and a small block chapel containing multiple burials. These Late Byzantine buildings had been destroyed by a violent fire at some point around the middle of the 13th c. AD, leaving in situ a rich record of daily life in that period. Our understanding of the Late Byzantine urban streetscape was also enhanced with the discovery of a drainage system below the street that ran along one side of the block and benches made of reused column capitals arranged along the block’s exterior walls. The most visible and comprehensive structures thus belong to this final phase, but excavations also revealed the remains of earlier periods, including a rock-cut trench filled in the middle of the 3rd century BC, a Roman-period monumental pavement, and Early Byzantine industrial and domestic installations.

Concept and Research
As excavations drew to a close in 2006, the need for a plan to interpret the site for the public became clear. The visual complexity and fragility of the exposed archaeological remains underscored the need for a set of interventions that would address both presentation and protection of the ancient structures. The interpretative plan would need to enhance the legibility of the ruins and thereby foster visitors’ understanding of the history of this area. It would provide a clearly-defined path along which visitors could easily circulate through the excavation site while protecting sensitive areas of the site from unintentional damage caused by visitors, who often climb on the walls of the ancient buildings, and from casual vandalism. While ensuring high-quality visitor experiences and safeguarding the excavated remains in the South Region stood as the main goals of the interpretative plan, we also intended it to provide one possible model for interpretive measures in other areas of the Preserve. The interpretative plan therefore needed to take into account a number of factors: “best practices” for interpretation employed at other cultural heritage sites; adherence to national and international conservation and interpretation standards; suitability for conditions present at Chersonesos; and compatibility with the preferences of Preserve staff and with the Preserve’s institutional culture.

The development of an effective plan that addressed these various and complex considerations had to begin with research into the ways in which other managers of cultural heritage carry out site presentation efforts. During the spring of 2007, ICA interns Sarah Duffy and Erin Tyson, graduate students in the Historic Preservation Program in UT’s School of Architecture, contacted various National Park Service sites and US state parks with significant architectural remains from the past and inquired about their “best practices”. They interviewed park personnel about the form and material components of trails at the sites, measures to control visitors’ movements through the remains, compliance with accessibility standards, and design and installation of didactic exhibits. The following sites participated in interviews: Aztec Ruins National Monument, Pecos National Historic Park, Chaco Culture National Historical Park, Mesa Verde National Park, Effigy Mounds National Monument, Homolovi Ruins State Park, Casa Grande Ruins National Monument, Cahokia Mounds State Historic Site, Poverty Point National Monument, and Jekyll Island. Meanwhile, conservation consultant Chris Cleere investigated sites in Europe and Africa, including Ephesus in Turkey, Trafalgar Square in London, and Garamba National Park in the Democratic Republic of the Congo, asking similar questions. The set of sites researched represent very different resource types, geographic locations, climate conditions and approaches to interpretation. The research team synthesized the disparate findings and sought ways in which successful solutions at other sites in the survey could be adapted to conditions at Chersonesos.

In the summer of 2007, the interpretation project team engaged in a participatory process
with excavation co-directors Larissa Sedikova and Adam Rabinowitz to discuss ways in which the excavation site might be presented to the public. Regular meetings with NPTC conservators and archaeologists, culminating in an open meeting of the NPTC Scientific Committee, provided a public forum for the proposal of interventions and the discussion of their advantages and disadvantages. Since we hoped that this plan might serve as a model for interpretation in other areas of the Preserve, it was imperative that all parties involved in the management of cultural heritage at Chersonesos had opportunities to voice their opinions and participate in the decision-making process.

**Practical Considerations and the Initial Plan**

Many of the areas of the Preserve investigated in the 19th or early 20th century have been left as they appeared after excavation, with multiple chronological layers visible at once (Fig. 80). In our area, such an approach would have been confusing and incomprehensible to visitors. We decided instead to focus on the development and occupation of the area in the Late Byzantine period, since it is for this period that the site’s physical narrative is clearest and best-preserved. Preliminary ideas for content for the interpretive display emphasized the daily life of the non-elite Byzantine residents, including information about their diet and economic activities. During the interpretative planning process, discussions also focused on strategies to convey some sense of the site’s multiple historical layers in a comprehensible manner.

Because Chersonesos offers, in addition to its rich cultural resources, an undeveloped stretch of seaside close to the center of Sevastopol, it draws visitors who come to enjoy the rocky shoreline during the hot summers, as well as those who come to see cultural monuments. Therefore, it was important not only to factor in the effects of tourist traffic on the South Region remains, but also to suggest ways in which vacationers heading for the beach might also be attracted to the archaeological site. In the preliminary discussions, the interpretation team proposed a path which incorporated the original main street and directed visitors around the periphery of the excavation. The team also recommended placing a large, introductory interpretive sign at the intersection of the ancient road and a modern road leading up from a secondary gate to the park. In addition, the incorporation into the plan of two viewing platforms that would highlight not only the Byzantine history but also the earlier Roman material was suggested. Where possible, ADA (Americans with Disabilities Act) accessibility guidelines were used to inform decisions that may have affected handicap access.

These proposals were subsequently modified after discussion with the broader Preserve community. There was vigorous discussion about the construction and location of viewing platforms, and in the end the two proposed platforms were consolidated into a single platform at the head of the ancient main road, in an area where modern building had already removed the archaeological record. Initial plans had called for as many as six interpretive signs placed around the block, but the Preserve

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**Figure 80** View of a block near the 1935 Basilica: remains from the Hellenistic, Roman, Early, and Late Byzantine periods are visible.
community felt strongly that this would be out of keeping with general practice and would create “a forest of signs” that would be aesthetically displeasing. After a long discussion, it was agreed that the interpretive program would include only two signs next to the block, together with an orientation sign at the beginning and two overview panels mounted on the viewing platform.

Finally, dialogue regarding how to navigate visitors around the site suggested the most logical artery of circulation would be the ancient road itself. Earlier plans had proposed a route of circulation that included both the ancient road and a path around the periphery of the excavation site, but these plans were modified in the face of topographical and logistical challenges (the area around the unexcavated side of the block is steep and uneven, presenting a challenge to less mobile visitors, and the installation of permanent display material would complicate future excavation in that area).

The dual performance of the road as an interpreted cultural resource and main way-finding feature posed a challenging conundrum. While the ancient pathway provides a spatial procession ideal for understanding the original organization of the site, its functional role as a path and its direct inhabitation by visitors could discourage awareness of its significance as a part of the monument. The team proposed to resolve this problem through a combination of signage and the creation of walking surfaces. The latter would rely on the alternation of grass cover and gravel-and-clay mixtures of different colors to draw visual distinctions between different original surface types. This principle of differentiation of space by surface color would be extended across the site, creating visual cues by which Late Byzantine interior space, courtyards, and street surfaces could be easily distinguished.

The selection of materials like those gravel-clay mixtures was a particularly important part of the planning process. There are several environmental factors that affected the proposed material choices. The site is located in an area of Ukraine that experiences extreme weather in both winters and summers. Therefore decisions about the selection of materials needed to allow for exposure to UV and extreme heat as well as the effects of freeze/thaw cycles and extreme cold. Additionally, the proximity to the Black Sea meant that the chosen materials could not be susceptible to sea salt erosion. There were also several anthropogenic factors that were discussed during the planning process. Vandalism was one of the primary issues. Since it is very difficult to prevent vandalism, the team needed to think carefully about the material choices. It was necessary to pick materials that would not scratch easily and could be cleaned should they be damaged or defaced. An additional challenge related to the human environment was the risk of theft, especially with respect to materials that are valuable or combustible. It was therefore important to seek materials that are of low value or are difficult to reuse, and to make sure that they could be effectively secured in place. Finally, it was necessary that materials be cost-effective, easily replaced, and locally sustainable wherever possible.

2007: Field Testing of Materials and Strategies

In 2007, we began to explore options for surface treatment and signage. Gravel and clay, available in a palette of red, buff, and dark gray, were acquired from local Crimean sources and mixed to create various tones, which were tested first in the summer of 2007 in a few limited areas of the South Region block. This incremental approach gave us a chance to modify our strategies on the basis of feedback from both project members and Preserve staff. Initially, we decided to fill interior spaces that were originally open (courtyards, for instance) with soil from our excavation dump and to allow those spaces then to go to grass, which would be regularly trimmed. The road would be indicated by a composite of white gravel and clay, and roofed interior spaces would display surfaces composed of dark gray gravel and clay. The only exception to this strategy, which highlighted the arrangement of space in the Late Byzantine period, was the decision to leave open the slabs that formed the Roman pavement. These remains had less need to be protected from the weather, and they provided our only strong visual indication of activity in the area prior to the Late Byzantine structures.

By the fall of 2007, several issues had emerged. First, it became apparent that the soil with which the open courts had been re-filled had settled and was now considerably lower than the original surface. Not only did new soil need to be added, but more substantial reinforcements had to be added to prevent the higher soil of the main courtyard...
from eroding over the Roman paving stones, which were at a lower level. More importantly, there was a strong negative reaction from the larger community to the dark-gray floor covering of the interior spaces: although this dark color was probably closer in tone to the color of the original beaten-earth floors, many felt that it looked too artificial and too much like asphalt.

Signage options were also tested during this period. Background research of US archaeological sites had highlighted many new and innovative products, and two companies were generous enough to provide samples of their signage materials for testing on the ground. Envirosigns contributed sample sub-printed signs, while Wilderness Graphics contributed embedded fiberglass sign samples. In the summer of 2007, to test the ability of these materials to withstand the weather, one plaque was affixed to the roof of the Packard Laboratory in an inconspicuous location. A second plaque was attached to a stone plinth and set up outside the laboratory, where it would test the material’s resistance to both climatic and human factors. An additional test was offered fortuitously by the engraved aluminum marker that had been attached to the Packard Laboratory during its inauguration in 2006.

All these signage materials presented significant drawbacks. While the sub-printed sign on the roof withstood UV and weather damage very well over the course of the year between the summer of 2007 and the summer of 2008, the sign mounted at ground level revealed a vulnerability we had not considered. We had been concerned with vandalism involving either the removal of sign material altogether or its defacement with paint. The ground-level sign was damaged in another way altogether: it was deeply gouged with a sharp stone or instrument, and since the graphics lie on the surface of the material, this damage was irreparable. As an additional drawback, signs of this sort were only available from companies within the US, and therefore almost impossible for the Preserve to acquire without assistance.

The aluminum sign on the lab, which had been produced closer to Chersonesos (in Turkey) and at a lesser cost, reacted adversely with environmental conditions, and specifically, it seems, with the heavy concentration of moisture and salt in the sea air. It became significantly tarnished over the two years that it was exposed to the weather, and although it could be cleaned, the effort involved ruled this material out for the interpretive program. Different materials needed to be sought.

2008: Modifications and Implementation

After the intense discussions of the summer of 2007, the site was prepared for presentation over the winter of 2007–2008. The most difficult parts of this process involved the clearing of the dense vegetation that had grown up around the site, and the re-routing of visitors from the well-worn shortcuts that passed through the excavations. The latter intervention was necessary both to protect the ancient cultural material from inadvertent damage—especially that caused by visitors climbing on walls, a common practice at Chersonesos—and for safety reasons, since many of the paths required visitors to climb over unstable remains or the loose stones used to buttress the edges of the excavated area.

Experimentation with surface-color conventions continued over the winter, and by the spring the team had reached a solution that met the interpretive needs of the site and satisfied both the excavators and the broader Preserve community. Work on the surface treatment of the entire site began in early summer. The main components of the surfaces were gravels containing clay dust: a buff-colored gravel from quarries at Balaklava and a dark-gray gravel from a quarry near Simferopol were mixed in different proportions to obtain the desired color effects. The main road and side-street were covered with a 3 cm thick layer of a mixture with a dark-gray tone applied over a leveling bed of sand, which in turn was separated from intact archaeological deposits by geotextiles. Spaces in the Late Byzantine complexes that had originally been covered were filled to just below the 13th-century floor-level with excavation backfill separated from intact strata with a geotextile barrier, over which was a leveling bed of sand. Over the sand in these interior spaces was laid a layer up to 5 cm thick of a light pinkish-buff mixture. Spaces that were open during the Late Byzantine period continued to be represented with bare soil allowed to go to grass, but were further filled in to compensate for the settling of the original fill (Fig. 81). An additional barrier was placed between the Byzantine central courtyard and the Roman paving slabs, to prevent the soil from the court from eroding onto the lower pavement.
Initially, the gravel mixture was laid dry, with the expectation that it would set naturally over time as the clay dust grew damp and then hardened. These surfaces, however, were quickly damaged both by pedestrian traffic and vehicles that attempted to drive up the ancient road, which the drivers often seemed to mistake for a modern access road. Another layer was then applied wet and thoroughly compacted with a manual roller (a gas-powered tamper was also deployed, but the team carrying out the application found the manual roller more effective). Low barriers were also erected at the intersection of the ancient and modern roads to prevent vehicles from attempting to drive up the ancient road.

At the same time, a solution had been found for the issue of signage materials. Among the solutions at comparable sites discussed in the first phase of the project, Chris Cleere had singled out a series of signs placed at Trafalgar Square and other points of interest in London. These signs consisted of stainless steel plates onto which monochromatic line drawings had been engraved, with lines picked out in a durable dark fill. These steel plates were tilted at a low angle and mounted on metal supports in outdoor locations at some of the most highly-trafficked sites in the city. They appeared to resist damage from weather, were hard to scratch, and could be cleaned or retouched if damaged by graffiti or vandalism. The steel itself was of low value as scrap material and would not react with the salt in the air at Chersonesos. We therefore decided to employ such signs in the South Region, with one substantial modification: the metal supports used in London, which were vulnerable to bending or cutting, would be replaced with stone supports made of locally-sourced Inkerman limestone. This would make them less vulnerable to damage, and the heavy stone supports would not need to be sunk as deeply into archaeological levels as metal posts.

Once this decision had been made, the constraints of the medium were taken into consideration during the production of the graphics for the signs. Care was taken to ensure that the illustrations would reproduce well as thick-lined engravings. After lengthy discussions, the team decided that the two signs along the street would offer simple reconstruction drawings to bring the buildings to more vivid life for the visitors (Fig. 82). Originally, we had planned to include reconstruction drawings on the larger panels on the viewing platform as well, but as mock-ups were produced, it became apparent that issues of perspective and historical period would make these too confusing to visitors. Instead, we decided that these panoramic panels would bear line-drawings of the visible remains in their current state, as they look from the viewing platform, with markers referring to textual explanations of areas of special interest (Fig. 83).

The illustrations were produced by Ukrainian artists, and the texts, written by the excavation directors, were provided in English, Ukrainian, and Russian. The signs were laid out by members of the interpretive team so that every detail could be considered. We decided, for example, to vary the order of the languages on different signs: although this is a potential source of confusion for the visitor, it was necessary, in the context of Sevastopol, in order...
to avoid the perception of bias by visitors of different linguistic backgrounds and political convictions. The layouts were sent to the company in the UK that had produced the London signs, and the plates themselves were brought back to Ukraine by Chris Cleere for installation in the late summer of 2008. The plates for the signs next to the block and on the viewing platform were secured with industrial-grade epoxy to the upper surfaces of the limestone supports, which had been cut at an angle. The larger introductory sign was mounted vertically on two substantial posts set in a concrete base at the intersection of the ancient street and the modern access road (Fig. 84).

The implementation of the South Region site-interpretation plan allowed us to assess its potential as a sustainable solution at other parts of the site. Like the conservation strategies employed by Chris Cleere for the standing structures, which relied on a trained local conservation team and local materials, the surface treatments are fully sustainable. In addition to helping visitors understand the interplay of open and closed space at the site, the treatments offer protection for both the underlying archaeological remains and the Byzantine walls, the foundations of which tend to collapse when earlier levels below them are left open. The use of geotextile barriers and sand layers also ensures that the treatments are fully reversible.

The signs, on the other hand, would be harder to implement as a solution across the site, unless a local producer could be found. They were significantly more expensive than other interpretative materials now employed at Chersonesos, and there are various barriers to large-scale contracts between the Preserve and non-Ukrainian companies. Engraved steel plates, however, do not require particularly complex technology, and we hope that it will be possible in the future to identify a Ukrainian company capable of producing similar signs at a manageable cost.

**Interpretation in Action**

Once the surfaces and signage had been installed, the site became much more inviting for visitors. The plinths on the viewing platform are larger and more visually striking than the interpretive material elsewhere on the site, but these qualities have tended to attract visitors who might otherwise have stayed on the main tourist itinerary (Fig. 85). We have not administered a formal response survey, but we have...
observed that a large number of visitors spend time reading the signs, both at the viewing platform and in the street. Visitor interest in the signs began almost immediately, when we put out paper mock-ups to test their appearance, and most visitors who stop to read spend several minutes with each sign (Fig. 86). So far, the signs do not seem to have been subject to vandalism; the most visible damage is currently a personal name scratched shallowly into one of the limestone plinths, from which it could be easily removed (Fig. 87). During the winter, the epoxy holding one of the signs on the viewing platform to its plinth began to degrade, allowing a corner of the sign to come loose, but an aggressive reapplication appears to have solved the problem.

At the same time, some of the interactions of the interpretation strategies with the natural environment proved more complicated than we had expected. A sudden torrential rain in the late summer of 2008 carved channels into the surface treatments of both the main road and the side street and led to erosion around depressions and in areas where ground level was irregular. Chris Cleere rectified this situation with a subsurface drain made of tiles and looser gravel. Although the rain damage required substantial work to repair, it brought an unintended benefit: the patterns of erosion closely matched the Byzantine drainage arrangements, and we could see very clearly the natural drainage of the block. We could also see which parts of the Byzant-
The worst erosion was concentrated at the intersection between the side street and the main street, precisely along the line of a Byzantine box drain (and where the road surface had been washed off the drain’s cover slabs in the 13th century) (Fig. 88). The Byzantine occupants of the block clearly had similar problems with drainage and erosion, and corrected them in much the same way.

When part of the team returned in October of 2008, during a season of heavy rains, the surface treatments in the block were holding up well. Issues with drainage, however, turned out to be much less serious than issues with plants. We knew that plant growth in the open areas would have to be controlled, but we had hoped that the clayey gravel surfaces would retard plant colonization in those areas. While the surfaces did delay growth, they were not impervious, and it soon became clear that a plant-management strategy would have to be employed over the course of each year. In the open spaces, cutting alone would be enough, but in the rooms, invasive plants would have to be pulled up carefully by hand or removed with weed-killer (Fig. 89).

The South Region site interpretation project will therefore require ongoing maintenance, as indeed would any interpretation program at the National Preserve. While not impossibly labor intensive, the repair and maintenance of the surfaces and the control of invasive plants will require some man-hours every month. The National Preserve has only a few groundskeepers, and much site-maintenance work across the whole urban area must be carried out by small groups of volunteers, often school-children. Here, too, then, our approach has not been entirely sustainable, in that the site will continue to require maintenance in the years to come. Such maintenance, however, is well within the capabilities of National Preserve staff and local assistants, and we hope that in the future the National Preserve will acquire the human resources that, in the long term, could make this presentation strategy feasible across the site (Fig. 90).
Work Report of the Project “Megarika”
Lucy Grinenko

In 2008, our work illustrated the famous saying that sooner or later quantity is transformed into quality. The amount of digitized data accumulated and the settlement of legal issues on the level of Ministry of Cultural Affairs of Ukraine have now made possible the dissemination of much of the Preserve’s library and archival holdings over the World Wide Web (Fig. 91).

The project sponsors—the Packard Humanities Institute and the Institute of Classical Archaeology of the University of Texas at Austin—warmly welcomed the 2007 internet publication of the archive of K. K. Kostsyushko-Valyuzhinich, the founder of our museum, and recommended that we make public part of the Preserve’s unique collection of glass plate negatives from the late 19th and early 20th centuries. Before we could present this material online, however, we had to thoroughly study the collection content and the history of its creation.

Archaeologists and Photographers
A summary of the results of this study first appeared as an online exhibit entitled “The Archaeologists and Photographers at the Excavations of Tauric Chersonesos in the late 19th–early 20th Centuries” (www.archaeo-photo.chersonesos.org). In addition to selected images of the “Warehouse of Local Antiquities,” as the Preserve’s first antiquarium was called, the site discusses the early photographers of excavations and finds, provides a chronology for the creation of the photographs, and presents the history of the collection of glass plate negatives, including information on the number of negatives it contains and their size and state of preservation.

The site also describes in detail the work done to attribute the images and the creation of the database that now stores both digital copies of the images themselves and metadata about them (Fig. 92). Finally, it provides an overview of the invaluable collaboration between specialists from the Harry Ransom Humanities Research Center at the University of Texas and the staff of the archives of the National Preserve. This collaboration, which took place between 2005 and 2007, built skills and established practices to help ensure the survival of the Preserve’s archival collection for another century.

We also thought it important to remind visitors to the site of the complicated and labor intensive photographic techniques deployed at the turn of the last century. The design of the site was thus inspired by the style of old-fashioned photo albums. The team that created the site and its content included members of the Preserve staff—L. O. Grinenko, N. V. Krasovskaya, and T. V. Dianova (historical sketch and story about the collection)—and members of the “Megarika” project—O. S. Panasenko (brief history of photographic techniques), A. Y. Sibirko and V. B. Sibirko (programming and design), and N. I. Khrapunov (English translation).

The site was promoted to the general public with both printed notices and a formal presentation to which were invited members of the press and all those with an interest in the history of photography (Fig. 93).
Discovering Chersonesos

The next step was the development of a networked database for the online publication of the collection of glass plate negatives collection and the archaeological reports with which they were originally associated (these were also digitized in the course of the project). Before any online publication could be carried out, however, it was necessary to obtain a permit for the publication of those negatives which constitute a part of the State Archival Collection of Ukraine.

By the end of 2008 we had obtained the necessary permit, making possible new opportunities for the online publication of archival information about early archaeological research at Chersonesos. This material has begun to be presented in a separate website, “Discovering Chersonesos” (www.discovering.chersonesos.org), to be aimed at both the scholarly community and the general public (Fig. 94).

Images from more than 300 negatives from the collection are already displayed on the website, which allows the user to browse the collection by excavation site or area (the various zones of the ancient city, the chora, the environs of Chersonesos). Eventually, the site will display several thousand images, together with archival reports on excavations at Chersonesos in the early 20th century (Fig. 95).

Long-term Digital Preservation

Another very important issue was resolved in 2008. For several years, we have discussed the problem of long-term preservation of our digital holdings. We were unable to rely on off-site backups and copies, since the project was required to store all material on the grounds of the Preserve, and the main building was the only suitable location. In 2008, however, agreements were put in place to store high quality digital copies of the archival material from the Preserve in off-site facilities. It is safe to say that this is the first time such an off-site preservation strategy for master copies has been used in Ukraine.

Digital copies of the most important archival materials, specifically the archive of K. K. Kostyushko-Valuyzhinich, the glass plate negatives, and archaeological reports, were burned to DVDs and transferred to Sevastopol branch of PrivatBank, where they are now stored in its main depository. The creation of the DVDs was carried out by A.
A. Romanov, the project’s system administrator, and the disks were transferred together with all the necessary documentation. Now the project’s participants, its sponsors, and the general public need not worry about the preservation of these digitized collections well into the future. We see this as one of the project’s great successes this year.

**Chersonesos’ Digital Library**

In 2008, we added a considerable amount of material to the website of the library at Chersonesos (library.chersonesos.org), which was set up several years ago as a way to disseminate facsimiles of some of many rare books in the library’s collection (Fig. 96). This year, two remarkable collections were added.

The first is “Zapiski Odesskogo obschestva istorii i drevnostei [Records of the Odessa society of history and antiquities]”, a journal published in Russia from 1844 to 1916 (33 volumes) that continues to be an important source for study of history and archaeology of Russia, Ukraine, Moldavia, and some other countries.

The second is the “Izvestia Russkogo Arkheologicheskogo instituta v Konstantinopole [Proceedings of Russian Archaeological Institute in Constantinople]” (16 volumes), a series published in Bulgaria from 1896 to 1912. This series includes a famous album with frescos of the Kariye Camii mosque (the former Byzantine Church of the Holy Savior in Chora). The limited distribution of these volumes and the short life of the institution that published them make this collection extremely important for science in general and for the history of science in particular.

Behind all these resources lie many hours of dedicated work by the members of the project. The creation of digital copies of books and documents is often painstaking and complicated: for example, some volumes of the Records of the Odessa Society run to more than 700 pages, including numerous inserts with plans and drawings. Extensive work also had to go into design, web development, text recognition, and translation into English to make our materials available to the broadest possible audience. Preparation and publication were carried out by project members L. O. Grinenko, A. N. Kondyuk, A. O. Sibirko, V. B. Sibirko, Z. I. Atajan, and N. I. Khrapunov.

**Museum Software**

Much work has also been done in the past year in the sphere of software development for the automation of museum work. Modules created previously for the “Megarika” system were improved and updated. In the process, new functions were added...
to the library and archives modules, and an electronic database of archival drawings was created and populated with 273 entries (Fig. 97).

New developments in 2008 include database modules for the numismatic collection, which contains more than 18,000 coins (the “Mint” module), and for the creation of electronic “passports” (formal inventory forms) for the site’s vast number of archaeological monuments (the “Periegesis” module) (Fig. 98).

In addition, the staff of the museum exhibition department have now begun to deploy the “Museion” module, which facilitates not only the organization and maintenance of physical exhibits, but also the development of virtual exhibitions of various objects (Fig. 99).

Data Integration
In 2007 and 2008, we had the opportunity to work with Norwegian digital data specialist Christian-Emil Ore, one of the “founding fathers” of unified museum descriptions, who joined our team as a consultant. Dr Ore has been the president of the International Committee for Museum Documentation (CIDOC) of the International Council of Museums (ICOM) since 2003. He carried out a thorough evaluation of the “Megarika” system to advise on the potential of using the CIDOC “conceptual reference model” (CRM) to make our digital collection interoperable with the digital collections of museums and libraries across Europe. Dr Ore presented the CIDOC-CRM to the members of the project in a series of lectures and presentations, so that we could begin to work to correlate our databases with this ontological model.

The process could begin once the whole system had been updated and the final modules for epigraphic and anthropological material added. Programmer A. A. Zhelnin carried out this work, and has now created a single interface that integrates all of the system’s modules and components—a primary access point that allows all modules to be searched using a conventional classification system.

Other News
The members of the project would like to express their special gratitude to A. A. Romanov, the Megarika project’s system administrator, for his constant highly skilled technical support in our work. In addition to his indispensable ordinary services, this year Mr. Romanov personally repaired no fewer than 19 pieces of equipment that had been damaged by the unstable electricity supply of the Preserve!

O. S. Panasenko, a conservator of books and documents, reduced her hours in 2008 to care for her newborn son. Even while focusing on her maternal duties, however, she worked with the project on the optical character recognition of paper cards from the library’s archaeological card catalogue. Over 2400 records related to articles in journals and edited volumes were entered into the digital version of the library catalog. In 2009 we will complete the digital catalogue of articles and will turn to the digital catalogue of books.

In conclusion, the author would like to express her heartfelt gratitude to all the members of the Institute of Classical Archaeology of University of Texas at Austin for their help in the realization of this project. We express special gratitude to Christian-Emil Ore, our consultant and expert, who generously shared with us his professional knowledge and invaluable experience. We would like to think that the attention paid to our project by a specialist of this level is an indication of its present success and future potential.
One of the first collaborative projects undertaken by ICA’s director Joseph Carter and the National Preserve of Tauric Chersonesos was the scientific study and publication of a group of painted Hellenistic grave stelai found in the 1960s inside the Tower of Zeno and other parts of the defensive walls. Professor Carter began this study in the mid-1990s, and then passed it on to stelai specialist Richard Posamentir, then of the Deutsches Archäologisches Institut in Istanbul. The stelai, together with other architectural fragments also taken from an extramural necropolis to be used as building material at a moment of insecurity, bear unusually well-preserved painted decoration. They also testify to the organization of workshops for funerary monuments at Hellenistic Chersonesos, and provide evidence for the connection between family groups and workshops.

Special imaging techniques were applied to these objects by Dr. Posamentir during the course of his study, which was published in 2010. He used ultraviolet light to reveal painted details not visible to the naked eye, and brought out the patterns in chisel-marks through the use of raking light. Advances in digital photography have made it easier to document these monuments in ever greater detail. Much of this documentation will be included in the final publication, but it would not be possible to publish in a standard publication all of the hundreds of images collected. Those that will be published will naturally illustrate the study conducted by Dr Posamentir. Students of such material recognize, however, that no photograph will satisfy every audience, and most look for ways to engage more closely with the objects they study (usually by firsthand examination).

Chersonesos is not as easily accessible as many Mediterranean sites, however. It is in recognition of this fact that ICA has sought, over the last 17 years, to bring as much information about the site as possible before Western audiences. This fact also lies behind the development of the Megarika project (discussed elsewhere in this report), which, with the generous funding of the Packard Humanities Institute, is currently making available online an increasing proportion of the Preserve’s archives of primary data. As digital techniques have become more commonplace at the Preserve, ICA collaborators have explored ways in which those techniques might help to bring the Preserve’s treasures more fully to life. In 2006, Megarika participant Andrey Kondyuk used polynomial texture mapping to create a three-dimensional version of one of the many inscriptions at Chersonesos; around the same time, collaborator Aleksandr Kuzmin began to experiment with the digital manipulation of images to bring out details in damaged inscriptions.

Imaging was in the air at Chersonesos, therefore, when ICA staff first saw the work of California non-profit Cultural Heritage Imaging (CHI) at the 2006 Computer Applications in Archaeology conference in Fargo, North Dakota. Working with Tom Malzbender at Hewlett-Packard Laboratories, CHI founders Mark Mudge and Carla Schroer had developed a technique to create interactive, re-lightable images of objects with surface relief. This technique, known as Reflectance Transformation Imaging, uses a series of still photographs taken from the same position, but with a changing light source, to create a single file in which the angle of the light can be adjusted by the viewer. While the interactive image created in this way is very high-resolution, versions can easily be created at lower resolutions for online access with a lightweight, free viewer (detailed information about the process and the viewer can be found on CHI’s website, <www.c-h-i.org>). The capture of the still photos requires only normal photographic equipment—a digital SLR, a handheld flash, some tripods and studio lights—and the photos can be processed to create an RTI using software that is free and available online. The results are particularly useful for the study of relatively flat objects with surface relief—the sorts of objects, like coins and petroglyphs, that scholars often need to light from various angles to document fully. Furthermore, CHI had been working on a variant of the technique, dubbed “highlight RTI”, which allowed the creation of RTIs for large, free-standing objects. The approach thus seemed well-suited both to the vast array of objects in the collection of the National Preserve (a collection including coins, seals, and a large number of inscriptions, as well as the famous stelai) and to conditions at the National Preserve, where the local infrastructure favors lightweight and inexpensive digital technology.
After that first chance encounter, we began to lay the groundwork for a collaborative project at Chersonesos. Sarah Duffy, an MA student in the program in Historic Preservation in UT’s School of Architecture who had already participated in ICA’s conservation work, also encountered CHI’s work and saw its potential for Chersonesos. In 2007, she decided to focus her MA thesis on the suitability of RTI techniques to material at the site, and that summer, she carried out a pilot program consisting of both imaging experiments and an extensive survey administered to staff at the National Preserve, visiting archaeological specialists, and students from the graduate archaeology program at Kyiv-Mohyla Academy. The results were very promising: not only was Ms Duffy successful in the creation of RTIs of difficult or damaged objects (for example see Fig. 100, a graffito scratched on the surface of a large, curved pithos), but the responses to her survey were very enthusiastic. The time seemed right to introduce the technique at Chersonesos on a more substantial level.

Thus, with the generous support of our sponsors, we were able to organize a nine-day workshop led by Mr. Mudge and Ms. Schroer at the Preserve in July of 2008. Twelve people took part in the workshop, including National Preserve staff members from the library, the conservation lab, and the department of archaeology; a representative from the Demetra Foundation at Kerch; students from Kyiv-Mohyla Academy and the Lviv Academy of the Arts; and ICA team members and local collaborators. By the end of the workshop, more than 35 objects had been shot and 18 RTIs completed. More importantly, when the participants completed exit surveys, most of them indicated that they were ready to apply the techniques on their own.

For the first few days, Mr. Mudge and Ms. Schroer explained the digital and mathematical principles behind the technique, and demonstrated how the camera and other equipment should be set up. In very simple terms, Reflectance Transformation Imaging relies on a series of photographs with a light source in different known positions. As long as the position of the light source is known and the framing of the pictures is absolutely identical, mathematical operations permit the calculation of the entire range of possible reflectance and lighting values for each individual pixel. The workshop leaders therefore demonstrated how the camera and its tripod should be set up and how the position of the light source could be recorded. They demonstrated an elegant two-part solution for the latter: on a low-tech level, the distance of the light source from the object was kept constant using a string of fixed length (Fig. 101), while on a higher-tech level, the position of the light source was calculated, using a separate software program, from the highlights on a pair of reflective black balls included in every frame (Fig. 102).
After the technique and the basic set-up had been explained, the participants set themselves to the creation of RTIs, beginning with the stelai. These were not the only objects to be imaged, however: RTIs were also made for other items with surface relief, from an intaglio gem 8 mm across, to inscriptions, coins, the pithos graffito, ceramic plates, and even a mill-stone from the South Region excavations (we hope to examine wear patterns more closely using this technique) (Fig. 103). The culmination of the workshop was the creation of an RTI of the famous Oath of Chersonesos, a fundamental document for the study of democracy and a particularly significant one for modern Ukraine. The citizens of Chersonesos who recited this oath in the 4th or 3rd century BC made a commitment to set the well-being of their community above their individual interests, and to work together to ensure its safety and prosperity. It was fitting, then, that this final shoot was open to the entire community of the National Preserve. An open invitation was issued to anyone who wanted to participate, and many National Preserve employees came to hold the flash, trigger the shutter, or stretch the string to set the distance between the light source and the object (Fig. 104). The imaging of the oath was thus truly a civic effort.

This workshop demonstrated that the RTI techniques developed by CHI can be sustainable at Chersonesos. The equipment involved, much of which was left in the hands of the National Preserve’s photography department, cost less than $3,000 in total. National Preserve staff are now well-acquainted with the software and digital techniques involved. And to establish that RTIs could be created even without expensive, high-powered laptops, the workshop used the desktop of one of the National Preserve participants for some of the processing work. Although processing was substantially slower on this older, less powerful computer...
than on newer laptops, it produced the same results. The RTI techniques taught by Mr. Mudge and Ms. Schroer can therefore continue to be used at the National Preserve: they need only existing equipment and existing skills, and they are independent of some of the infrastructure constraints at Chersonesos (irregular power supply, older computers, lack of budget for software licensing fees).

At the same time, the implementation of these techniques at Chersonesos created interesting challenges and highlighted issues that might not have emerged under more ideal circumstances. The importance of flooring, for example, came to the fore: since the camera can not move during a shoot, even by a single pixel, without spoiling the results, we realized that the workshop had to take place in a building with concrete floors. The flexible wooden flooring of most of the buildings of the National Preserve would have jolted the camera every time the photographer took a step. Other challenges required more creative thinking on the part of the participants. In general, the creation of RTIs requires a clearance of about four times the diameter or width of the object on all sides. In the densely-arranged store-rooms and displays of the National Preserve, however, such clearance is rarely available, and the workshop participants had to come up with creative approaches to applying the technique in awkward spaces.

Some of the results of the workshop are now posted on CHI’s website at <http://www.c-h-i.org/examples/ptm/gallery_cher_2008/index_chersonesos_2008.html>. Readers with an internet connection and the Java Runtime Environment installed on their computers can experiment themselves with the relighting of several stelai and the Oath (Fig. 105). We also plan to present the results of the workshop, and observations on the sustainability of this technology, at the 2009 Computer Applications and Quantitative Methods in Archaeology conference. We hope that our experiences will encourage other projects, especially those working in distant or difficult areas, to experiment with these techniques.

Participants at the Chersonesos workshop certainly seem to have developed a good sense of the potential of this approach to imaging. We are now planning a 2009 pilot project, to be carried out by a local team at Chersonesos, to use Reflectance Transformation imaging to document some of the Preserve’s extensive epigraphic collection. Thanks to the Packard Humanities Institute, the texts of some of these inscriptions are now available online at...
The work from which those texts are drawn—the early 20th-century Inscriptiones Orae Septentrionalis Ponti Euxini (IOSPE2)—is also available for download from the website of the Chersonesos library (www.library.chersonesos.org) (Fig. 106). Happily, there is also a project underway to update and republish the IOSPE2, and, if funding is available, to publish an online scholarly edition using the epigraphic markup language EpiDoc. We hope to work with Dr Igor Makarov, the editor of the Chersonesan corpus for this project, to link RTIs of inscriptions from Chersonesos with the records in the online scholarly publication. If the project is successful, the ultimate result would be the first major epigraphic corpus in the world to be published online not only in the form of textual records and photographs, but as a set of interactive, re-lightable images. These images would serve the same purpose for epigraphers that paper-pulp squeezes did for most of the 19th and 20th centuries—but unlike squeezes, they would be distributed instantly, world-wide, and attached to a searchable database of epigraphic material.
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Chersonesos 2008

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Tatiana Yashaeva, Legazy of Byzantine Cherson Catalogue
Yevgeniy Zherebtsov, The Vanished Chora: Documentation from the 1950s and 1960s
Chersonesos 2008

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