

Exhibiting Pisidian Antioch with the Aid of 3D Virtual Modeling

In 1924 a team of archaeologists sponsored by the University of Michigan excavated at the site of Pisidian Antioch. Antioch (not to be confused with the Christian capital of the same name) is located just north of the region of Pisidia in central Turkey (Asia Minor), near the modern town of Yalvaç. The excavations lasted only a few months, but in that short time the team made a wealth of discoveries that are documented in archives housed in the Kelsey Museum of Archaeology. Beginning in the 1980s, teams from other institutions have returned to the site, and their research has continued to clarify the site's history. In January of 2006, the Kelsey Museum will open an exhibition at the Duderstadt Center Gallery on North Campus, prepared by Curator Elaine Gazda with the help of several graduate students: Lydia Herring and Hima Mallampati of IPCAA and the Museum Studies Program; Lori Khatchadourian, Diana Ng, Adrian Ossi, and Ben Rubin of IPCAA; Matthew Harrington of Classical Studies; and Kathryn Raff of History of Art and the Museum Studies Program.

The show aims to update the results of fieldwork conducted by the U-M team in 1924 by accounting for subsequent work at the site undertaken by a variety of specialists from other institutions, whose research has centered primarily on monuments of the Roman and late antique periods. Our work has been greatly aided by *Pisidian Antioch: The Site and Its Monuments*, a book published in 1998 by Steven Mitchell and Marc Waelkens that records the results of their detailed field survey of the site in the 1980s. Collaboration with the Duderstadt Center has provided us the opportunity to work with the latest virtual reality technology, which enables us to create a visual experience that brings the ancient city to life in three dimensions.

About Pisidian Antioch

Pisidian Antioch lies in the southern foothills of the Sultan Dağları mountain range, on a hill that is naturally protected by steep slopes on three sides, while the fourth side has a gentler incline that provides access to the hilltop. Rainfall

and springs in the surrounding mountains irrigate the broad valleys in the region, making Antioch's territory fertile and agriculturally productive.

Antioch is one of many cities in Asia Minor founded in the Hellenistic period that bear names related to the Seleucid dynasty, in this case that of King Antiochus. Antioch was originally a colony of Magnesia on the Maeander, a city not far from Ephesus on the western coast of Asia Minor. The colonists chose a strategic site on the main overland route that led from the western coast eastward to Syria and beyond. At that time the most important institution in the region of Pisidian Antioch was the sanctuary of Mên Askaēnos, a moon god, located high atop Karakuyu, a mountain 3.5 kilometers due southeast of the city.

In 25 BC, the emperor Augustus re-founded the city as a Roman colony and settled veterans of his army there. As at other colonial foundations, the veterans at Antioch provided a permanent pro-

continued on page 2



Photo: B. Rubin

View of the theater as recently excavated.



Notes from the Director

As I return from a productive year of leave working on the sealings from our Kelsey excavations at Kedesh, I am amazed anew at the richness of Kelsey activities attested in this Newsletter—from the Antioch exhibition with its exploitation of new computer-aided interactive displays to groundbreaking fieldwork in Armenia and the constant mining of our collections and archives for new information on our ancient heritage.

Plans for the new wing are proceeding quickly. The University Regents approved the schematic design for the project in their May 2005 meeting, and we are planning a groundbreaking ceremony for this spring. See above for the architects' rendering of the Maynard Street façade of the new wing.

As currently conceived, the new wing, to be named the William E. Upjohn Exhibit Hall, will have a 6,500-square-foot footprint. The collection storage facility, registry, study spaces, and exhibit workshop will be housed in the basement. The entire first floor will be dedicated to exhibitions and public activities, while a mezzanine will provide more space for public displays as well as necessary mechanical systems. As part of the final planning process we are submitting grants to various federal agencies to fund compact storage cases for the basement facility and open storage cabinetry for the public areas. The latter is particularly exciting since it will allow visitors to explore a large part of our collections with much the same access as curators now have. Another bonus of the finished project will be the doubling of the conservation laboratory space on the third floor of the current building. This, and the hiring of a second conservator, funded by our NEH Challenge Grant, will allow more undergraduate projects along the line of the one Sara Powers summarizes on page 9.

As the energies of the staff turn more and more to the gargantuan task of preparing our 100,000+ artifacts, prints, and photographs for the move to their new homes, we have been looking for innovative ways in which to keep our collections visible and refreshed. One such effort is the off-site Antioch show curated by Elaine Gazda and described by Adrian Ossi in the cover article of this Newsletter. Another is increased use of the Web, such as the project explained in "Karani's Textiles Online!" (pages 10–11). In a different sort of outreach, thanks to the cooperation of the Kalamazoo Institute of Art, we were able to send some 45 of our best pieces of ancient glass to complement the KIA's exhibition of Dale Chihuly's masterpieces of modern art glass. These will be on display in Kalamazoo until January 1, 2006, and are well worth a visit. When this last-minute opportunity arose, we were able to pull together a selection of "Historic Glass from the Kelsey Museum" thanks to the heroic efforts of Curators Thelma Thomas and Elaine Gazda and terrific work from Suzanne Davis in Conservation, Robin Meador-Woodruff and Sebastián Encina in the Registry, and Scott Meier's design talent.

Finally, I want to express my heartfelt gratitude to Curator Margaret Root for her inspired and thoughtful service as acting director during my leave. It's a pleasure to return to the lively environment she did so much to promote.

Sharon Herbert, Director

continued from page 1

Roman presence and acted as a military reserve in a region that had been a trouble spot for their Seleucid predecessors.

One of the most exciting discoveries of the U-M team was also the centerpiece of the Roman refoundation: an elaborate sanctuary that was dedicated to the worship of the emperor as a god. Here a triple-arched gateway opened onto a broad colonnaded plaza with a large semicircular portico, which frames the cult temple. Other urban amenities were added to the colony in the course of the imperial period. The U-M team followed the course of the main aqueduct to its source at springs in the mountains. Recent work has further illuminated the water system of the city, which included a bath complex, a monumental fountain house, other smaller waterworks scattered throughout the city, and—unknown to the U-M team—a second aqueduct. The U-M excavators located remains of a theater in the center of town, which may have been built in the Hellenistic period and refurbished in the Roman period. The theater was not excavated until the 1990s by Mehmet Taşlıalan, who was then director of the Yalvaç Museum, and later by his successor Ünal Demirer. The U-M team identified and partially excavated two of the major roads through town, which were lined with colonnades at various points, and Taşlıalan uncovered them more fully in the 1990s. The U-M team excavated the triple-arched city gate, which emulates the gateway of the imperial cult sanctuary in its decorative motifs. Recent research indicates that the gate was dedicated to the emperor Hadrian and his wife Sabina, placing its construction almost a century earlier than the U-M team had surmised.

In the late antique period, the region of Pisidia was organized as a Roman province, and Antioch became its capital. After Christianity gained power as the official state religion, a bishopric was established at Antioch, and at least three churches are known to have existed in the city in this period. Two of the churches were excavated by the U-M team: a small church near the center of town and the so-called Church of St. Paul, so named because St. Paul is reported (in Acts of the Apostles, books 13–14) to have preached at Antioch. Recently a magnetometry survey, which uses variations in the magnetic signatures of different types of soil and stone to electronically gather information about buried structures, was performed in

several portions of the site. This magnetometry survey revealed the location of a third church that is almost as large as the “Church of St. Paul” and has a similar ground plan.

Our project was greatly aided by the cooperation of the researchers who recently performed fieldwork at the site. Using their results as well as unpublished data from the Kelsey Museum archives, the exhibition will discuss each of the structures listed above in greater detail in order to provide a comprehensive view of the city as we now know it.

Kelsey Museum Archives

The photographs taken by George R. Swain make up the largest portion of the Kelsey Museum archive of the excavations of 1924 (see the Summer 2004 Newsletter). The photographs provide a visual record of the sequence of those excavations and show the condition of the buildings, sculptures, and other fragments at the time of excavation. Over time the unprotected ruins provided building materials for the inhabitants of nearby Yalvaç, so that the condition of the site today often provides a striking contrast to the site as it was in 1924.

The archive also contains a number of written records from the excavation, including correspondence between the expedition leaders, articles published in that era, and, most importantly, the excavation daily log, which describes the work undertaken each day during the summer of 1924. Excavation record-keeping in the 1920s did not have the scientific rigor we have come to expect from today’s archaeologists, but nevertheless the notebook records valuable information that otherwise would have been lost.

A recent addition to the archive provides additional valuable information

about the architectural remains uncovered in 1924. In the summer of 2005, the American Academy in Rome generously transferred to the Kelsey Museum the drawings of Pisidian Antioch drafted by Frederick J. Woodbridge, Jr., architect of the 1924 excavations. This collection includes over 70 renderings of various architectural details and large-scale reconstructions of buildings, as well as several of Woodbridge’s field sketchbooks. Woodbridge’s drawings provide a glimpse into the working techniques of a master of architectural reconstruction. Woodbridge completed some of the drawings, including detailed reconstruction drawings of the imperial cult temple and the propylon of the imperial cult sanctuary, as recently as 1971, and several of these unpublished reconstruc-

tions will be included in the exhibition and accompanying catalogue.

The Exhibition

In the exhibition, we will present each of Antioch’s major monuments, as well as an overview of the 1924 excavations, in separate sections using a variety of materials: photographs from the Kelsey Archive, artifacts housed in the Kelsey Museum, drawings by Woodbridge, and photographs taken by George Swain in 1924 and by us in 2004 (see the Fall 2004 Newsletter). A computer kiosk in each section will facilitate deeper investigation of each monument.

A major part of the exhibition is made possible by the collaboration between

continued on page 4



Reconstruction of the temple of Augustus and surrounding portico by Frederick J. Woodbridge, Jr., 1971.



Remains of the temple of Augustus and its enframing semicircular portico, 2004.



Photo: G. R. Swain

Workmen pose for a portrait with a hippocamp (seahorse) that decorated the city gate. 5.212.

continued from page 3

the Kelsey Museum and the Duderstadt Center, which houses the University of Michigan 3D Laboratory. This state-of-the-art facility contains the latest in virtual reality technology, with an expert staff under the direction of Professor Klaus-Peter Beier. Among other technological wonders, the lab boasts several immersive technologies that create (with the aid of special glasses worn by the viewer) a convincing illusion of a fully three-dimensional environment, as well as a “three-dimensional printer” that produces physical models of virtual objects using starch or plaster powder and a special binding solution.

Collaborating with the Duderstadt

Center, three students (Matthew Harrington, Adrian Ossi, and Ben Rubin) have been creating a virtual reconstruction of the city of Antioch, funded by a Rackham Collaborative Grant in Spring/Summer 2005, and in conjunction with Professor Beier’s course, Engineering 477: Principles of Virtual Reality, in Fall 2005. In 3D virtual modeling, the user begins with basic geometric building blocks—cubes, spheres, cylinders, etc.—and reconstructs individual buildings shape by shape, adding a column here, a wall there, until an adequate representation is reached. Digital images of actual objects or of materials, such as marble, limestone, or wood, are then applied to the shapes, creating the illusion of a stone wall or a wooden doorway.

In this project, Woodbridge’s architectural drawings are an invaluable aid. To complete our virtual model of Antioch, the individual buildings will then be placed in the proper location on a virtual surface that accurately imitates the topographic contours of the hill on which the city was built.

In the exhibition, this virtual model is presented in a large-scale, three-screen projection theater that provides the viewer with a wide field of view and simulates an immersive visual experience. In the wide-screen theater the viewer will travel on predefined paths through the virtual city, but a kiosk in each section of the exhibition will allow the visitor to explore each virtual building more freely on a smaller scale.

After the show closes, an on-line version will provide ongoing access to the exhibition, including digital images of the photographs and artifacts along with their accompanying explanations, as well as an explorable version of the 3D model of the city. In addition, we are producing an exhibition catalogue that contains a series of essays, which review recent research more fully and present new interpretations of the excavated structures and their meaning for the people of Pisidian Antioch.

Adrian J. Ossi, IPCAA Student

Our work on the exhibition is supported by a generous grant from the Summer Collaborative Research program of the Horace H. Rackham School of Graduate Studies and the Institute for the Humanities. We are also indebted to the staffs of the 3D Lab at the Duderstadt Center, the Duderstadt Center Gallery, and the Kelsey Museum for their help with our project.



Photo: G. R. Swain

David Robinson, director of the 1924 excavations (at right, in white hat), watches as workmen lift an inscribed paving stone in the imperial cult sanctuary. 7.1123.

From the Archives: The “Dirt” from Karanis

Most archaeological expeditions involve the removal of large quantities of soil, and in that respect the University of Michigan’s excavation at Karanis, Egypt, was no exception. What was unique was the resourceful way in which the Michigan team arranged for the physical removal of the vast quantity of dirt turned up by the local diggers.

No formal archaeological expeditions had been mounted at Karanis, also known as Kom Aushim, since the 19th century, but in the 20th century the mound began to be excavated for entirely different purposes by an Italian company, the Daira Agnelli. The unpublished report excerpted below, sent to University President C. C. Little by Francis W. Kelsey, summarizes the excavators’ activities from October through December 1926, including their disposal of soil.

“The nearest important town [to Karanis] is Tamieh, five miles to the southeast. Here are the headquarters of the Daira Agnelli, an Italian agricultural corporation which . . . has a concession to take sebbach, or dirt suitable for use as fertilizer, from the mound of Kom Aushim. The sebbach is transported in dirt trains, which are hauled by small steam-engines upon a ‘light railroad’.

The amount carried away from the mound each working day, when the hauling is in progress, averages about 372 tons of 2,000 pounds.

On account of its proximity to cultivated land the exploitation of the mound for sebbach has been going on for a number of years. Before the concession for archaeological exploration was granted to a representative of the University of

Michigan, a large segment had been dug into the heart of the mound.”

The Michigan excavators went on to say, “the Daira Agnelli . . . will haul away, at its own expense, all the sebbach thrown down within reach of its rail-head running into the mound; but if in any season enough sebbach is not delivered at the rail-head to provide for its use in accordance with the terms of its prior concession from the Government, it has the right to dig sebbach for itself, under the supervision of guards paid by the University of Michigan, and thus make up the deficiency. The arrangement is mutually advantageous, and makes possible a substantial saving in the Michigan Camp budget.

In the first season, 1924–25, Mr. Starkey [Karanis excavation director, 1924–25] accumulated a sufficient amount of sebbach at the rail-head to supply the Daira Agnelli till operations at the Camp were resumed in the autumn of 1925. But in the season of 1925–26, owing to the allocation of labour to other work, particularly on the Camp buildings, he failed to make a sufficient accumulation of sebbach for the needs of the Daira Agnelli to the end of last summer. Mr. Kelsey does not understand that in this emergency the Daira availed itself of the right to excavate, but he is informed that if in the future sufficient sebbach is not provided by the Michigan excavations at Kom Aushim, the Daira will turn to the use of chemical fertilizers. The adoption of such a policy would greatly add to the cost of completing the excavation, as it would require the use of a Decauville railroad [a significantly heavier railroad that incorporated a steam engine],

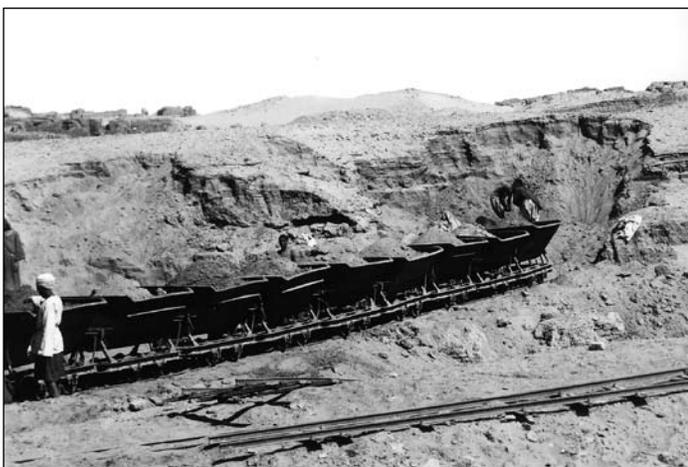
operated at the expense of the Camp budget, to dispose of the dirt.

Mr. Peterson [Karanis excavation director, 1926–35] therefore planned the work for this season with two aims in view: first, to exercise the utmost care and skill in recovering, recording and conserving finds, and interpreting strata; then, to increase the efficiency of his organization of labour so as to accumulate, at the minimum of cost, a large enough supply of sebbach to meet the needs of the Daira until November, 1927. The Daira hauls sebbach only at certain seasons, according to the schedule of crops and seeding; and excavating on the Camp budget is carried on, for six days in the week, only from early November until March.

In December the carriers were throwing down at the rail-head from 375 to 400 tons of sebbach every working day. In the same period the Daira was hauling away approximately 372 tons per day. But the accumulation of sebbach brought by the carriers had so gained upon the removal that on December 31, according to the estimate of one of the native foremen in whose judgement Mr. Peterson has confidence, the surplus awaiting removal was greater than the entire accumulation left at the end of the season of 1925–26. . . .

The dirt thrown out by the diggers is carried in baskets on the heads of the carriers [207 of them, mostly children]. These move in two columns from the excavation breast to the rail-head, where they dump their baskets. Each column consists of two files, one moving out with loaded baskets, the other moving back with empty baskets. Often the children sing in unison as they move, first one group, then another group in response. . . .”

Curator Robin Meador-Woodruff



The sebbach train at the area allotted to Daira Agnelli. 5.2466.



Village children line up to be paid for their work carrying soil. 5.2931.

New Fieldwork in Armenia: The Vorotan Project, 2005



View of the Vorotan River valley and the villages of Anghegakot, Shaghat, and Balak. Excavation took place in 2005 on the summit of the site of Balak, the eroded hill next to the reservoir.

Have you ever wondered what life would be like on a Soviet pig farm? A number of past and present members of the Kelsey Museum community can tell you. In August and September 2005, we stayed in just such a place (actually, a former Soviet collective now in private hands but still a working farm), which served as our base of operations during the first season of the Vorotan Project in southern Armenia.

Our Project is named after the River Vorotan, which runs across the southern province (Syunik) of the modern Republic of Armenia, creating a major corridor for communication, exchange, and cultural contact, in antiquity just as today. This region itself occupies a “cross-roads” position—not only between the Mesopotamian lowlands to the south and the Central Eurasian steppes to the northeast but also between the Black and Caspian Seas. Our study area lies only a few dozen kilometers from the Iranian and Turkish borders, while both Azerbaijan and Nakhidjevan are literally just up the road. Unsurprisingly, the region has fallen under the sway of various pow-

ers over the centuries. Yet despite this intriguing location, few archaeologists have worked in southern Armenia.

Thus the Vorotan Project has been established to begin to fill the vacuum in what is now largely archaeological *terra incognita*. It is a formal collaboration between the Kelsey Museum and the Institute of Archaeology and Ethnography of the Academy of Sciences in Yerevan; our Armenian co-directors are Dr. Armen Tonikyan and Dr. Mkrtych Zardaryan. Following two exploratory visits in May and September 2004, we have devised a research plan to probe the long-term settlement and landscape history of this region, with fieldwork initially focusing on the Anghegakot-Shaghat-Balak basin of the Vorotan River, a few kilometers upstream of the town of Sisian.

In our first five-week season the 16 members of the Vorotan Project:

- Inspected different types of satellite imagery (Corona, Landsat, and SPOT), with follow-up examination on the ground.
- Tapped into knowledge about local antiquities available from local infor-

mants, resulting in the discovery of unrecorded sites and monuments.

- Carried out extensive survey (walking or driving along various routes in our study region), to gain an overall familiarity with the landscape and its current utilization, as well as to locate sites and other features that would repay more careful subsequent attention.
- Undertook intensive, systematic pedestrian survey, involving line-walking of carefully defined tracts by a team of half a dozen fieldwalkers.
- Laid out 25 x 25 meter grids and collected all surface artifacts from two previously identified sites (Shaghat 1 and Balak), on which test trenches were then dug.
- Identified and investigated other sites discovered through the testimony of local informants, through extensive work, or through intensive survey.
- Located, mapped, and analyzed the many previously known (or newly recognized) tombs in this area. This study of mortuary landscapes, which is a discrete wing of the Project, is being directed by past IPCAA student Dr. Jane Rempel.

This freewheeling mixture of approaches provided a solid basis for research in future seasons. The use of intensive survey methods, so familiar in the Mediterranean basin, is perhaps especially worth highlighting, being a technique relatively new to the southern Caucasus. The results this year (a sample of about 4 square kilometers) were intriguing. Surface material (pottery or obsidian) was found in almost every survey tract, but at very low densities; artifact levels only pick up around places clearly recognizable as “sites.” Whether this pattern reflects highly nucleated settlement in the past (as is the case today), or whether the surface record has been negatively impacted by Soviet-era “amelioration”



Intensive survey tract-walking, with a little interference from cows.



A carved Christian khachkar at our Site 10, a later medieval village.

(landscape modification to improve agricultural production), remains to be seen.

Thirteen sites and many other features were recorded this season, ranging from a rock outcrop covered with prehistoric petroglyphs, to defended hilltop fortresses of first millennium BC date, to medieval and post-medieval settlements, several with *khachkars* (carved memorial stones). In addition, well over 100 tombs, also of many periods, were located. Such variety reflects the Vorotan Project's diachronic scope, extending from Palaeolithic to the present. Yet certain epochs in Armenian archaeology have received decidedly more attention than others, notably the Bronze Age (third and most of the second millennia BC), the kingdom of Urartu (8th and 7th centuries BC), and the Early Christian and medieval periods (post-4th century AD). Armenia claims to be the first country to have adopted Christianity as its state religion (in AD 301), and its beautiful churches are certainly the part of its cultural heritage best known in the West.

One result of this bias has been a regrettable neglect of the later first millennium BC/early first millennium AD—the time span roughly parallel to the Classical, Hellenistic, and Roman periods of the Mediterranean world. The Vorotan Project is placing particular emphasis on the archaeology of these “classical” phases, when Armenia lay on the margins of various ancient superpowers (Persia, Macedon, Rome, Parthia) and under the control of the Yervandid, Artaxiad, and Arsacid dynasties (ca. 6th century BC–4th century AD). Yervandid material previously noted at Shaghat 1 and Balak (both hilltop citadels with extensive surrounding settlements) led to our decision to explore both sites through controlled pick-up, excavation, and detailed architectural mapping.

Surface collection at Shaghat 1, some 6 hectares in extent, generated a very large sample of well-preserved material—a total of 13,226 potsherds, 618 lithic items, and two dozen quernstones and mortars. Four main periods are represented at Shaghat, Early Yervandid material (ca. 6th–4th century BC), as expected, being by far the dominant type encountered. An unanticipated result, however, is the very widespread occurrence across virtually the entire site of small quantities of Early Bronze (“Kura-Araxes Culture”) and Middle Bronze Age pottery. Small test trenches revealed floors and walls of Yervandid date, yielding stratified pottery and radiocarbon samples that will

help strengthen our understanding of this epoch's chronology.

In one trench, below Yervandid levels, we came upon rich Middle Bronze Age material, including abundant pottery, obsidian, faunal remains, and layers with burning. This is very unusual and quite exciting for the southern Caucasus and northern parts of the Middle East, since that region's Middle Bronze Age as a whole is characterized almost entirely by large burial mounds (*kurgans*) and a scarcity of settlements of any sort, suggesting the prevalence of pastoral nomadism and mobile social forms. The Vorotan Project's discovery of what, at present, looks like a Middle Bronze settlement is therefore important; we plan to expand this trench in the 2006 season.

The site of Balak, to which we turned later in the season, was equally productive. About one-third of a metric tonne of very diagnostic pottery was collected from its surface (ca. 6 hectares), again chiefly of Yervandid date, but with a significant medieval component in certain areas; a variety of other small finds (beads, figurines, and spindle whorls) were also found. Limited excavation, at the season's very end, on the site's summit exposed walls, floors, and hearths of Yervandid date. Future study of all these finds will make an immediate contribution to the intriguing, but underappreciated, archaeology of Armenia in the middle of the first millennium BC.

Perhaps the most distressing discovery of the season was that all too many of the tombs we examined had been looted or disturbed, and robbing pits can be seen on many of the sites. In one case,

looted artifacts (probably coming from the immediate area of Shaghat 1), including gold foil and bronze bracelets, were returned to the area's archaeological representatives, who passed them on to the Project for study. But for the most part, all that remains of tomb assemblages are the sorry fragments abandoned in the course of robbing.

Most regrettable was the fate of the necropolis situated on the lower slopes of Shaghat 1. We had noted intact stone burial mounds here last year, and we planned to map and study this complex thoroughly. But to our horror, on our first visit to the site this season we found the entire area had been bulldozed to establish a new cemetery for the modern village—this despite the site's protected status under the Commission for the Preservation of Historical and Cultural Monuments. Our complaints to village headmen and reports to journalists reached the ears of the provincial governor, who visited the site and the Project in person and discussed the problem with local authorities. We hope our work will help foster greater respect for the area's cultural heritage at the grassroots level; during the 2006 season, we plan to mount a small exhibit in the Sisian Museum to promote such awareness.

We are grateful for funding in support of the 2005 season from: the Kelsey Museum, the Office of the Vice President for Research, the College of LS&A, the Horace H. Rackham School of Graduate Studies, IPCAA, the Department of Classical Studies, and the Dolores Zorab Liebmann Fund.

Curators Susan Alcock and John Cherry



Sue Alcock taking notes at one of the many recently robbed tombs encountered by the survey.



Remembering Bill Wood

On October 14, 2005, the Kelsey Museum lost our good friend, William C. (Bill) Wood. Bill was the Kelsey's photographer from 1990 through 1992, coming to us directly upon his graduation from the University of Michigan. Bill graduated in 1989 with a BFA from the School of Art and Design and had been an active photographer on campus during the time he was an undergraduate, working both for the campus newspaper, *The Michigan Daily*, and the *Michiganensian* yearbook.

A meticulous photographer in the studio and the darkroom, Bill would often present his excellent proof sheets and prints with the comment, "I can get this a little better if you'd like to do it again."

He moved to Chicago in 1992, where he continued to pursue his career in photography, but returned home to Michigan in 1996. He worked as a freelance photographer and could be seen on the field at every home Michigan football game, he also became an assistant to the photographer for the Detroit Pistons. In 1997 Bill began work as a staff photographer for U-M Photo Services, a position he would hold until the end of his photographic career. While at Photo Services (which, coincidentally, was founded by another Kelsey photographer, Fred Anderegg), Bill worked tirelessly to promote their visibility on campus. Among other things, he organized their large archive of stock photographs so that it would be easier for people to order images relating to the campus and U-M events, and he helped to initiate a campus advertising campaign for their portrait and passport photograph services. Bill was also able to continue working for the Kelsey in his capacity at Photo Services. We regularly contracted for his service, so he continued to roam

our photo studio and galleries with camera in hand.

Friends and family remember Bill as a fun-loving person who greatly enjoyed planning events to get people together—barbecues, Halloween parties, and trips to the Cadieux Café in Detroit for feather bowling were among his repertoire. Most memorable, however, were the elaborately orchestrated road rallies to Hell, Michigan, which always ended in a party, of course! Bill was a great fan of the University of Michigan (especially the athletic teams) who loved working for the University and being in Ann Arbor.

Although he was diagnosed with early-onset familial Alzheimer's disease in the spring of 2002, Bill was determined to live his life to the fullest while he could. He ran in and completed five marathons after his diagnosis. He and his wife Margie traveled to Maine for a special vacation. He enjoyed his time with his family and loved being a father to his sons, Matthew and Jason, and an uncle to his nieces and nephews. He and his family participated in two of the Alzheimer's Association Memory Walks in Gallup Park. Bill died at the age of 38, leaving behind a loving family and many, many friends.

Michelle Biggs and Robin Meador-Woodruff

IPCAA Alums Excel

After receiving their PhDs from the Interdepartmental Program in Classical Art and Archaeology, many alums have gone on to stellar careers. Seven former students updated us on their recent activities.

Diane Conlin (PhD 1993) is currently Assistant Professor of Art and Art History and Classics at the University of Colorado, Boulder. Her second monograph, *Art and Ideology in Flavian Rome*, is under contract to Cambridge University Press. She also co-directs excavations at the Villa of Maxentius on the Via Appia in Rome.

Beth McIntosh Dusinger (PhD 1997) is Assistant Professor of Classics at the University of Colorado, Boulder. She has received both of the University's top teaching awards: the student-nominated Chancellor's Faculty Recognition Award and the Boulder Faculty Assembly Excellence in Teaching Award. Her second book, *Gordian Seals and Sealings: Individuals and Society*, is being published by the University of Pennsylvania Museum of Archaeology and Anthropology Press.

Elise Friedland (PhD 1997) is George D. and Harriet W. Cornell Scholar in Classical Studies and Associate Professor at Rollins College in Winter Park, Florida. She is collaborating with U-M Professors Sharon Herbert and Yaron Eliav on a multi-phase project entitled "The Sculptural Environment of the Roman Near East." Currently she is editing the papers from an international conference on that topic for publication by Peeters Press.

Mark Garrison (PhD 1988) is Professor and Chair of the Department of Art and Art History, Trinity University, San Antonio, Texas. With Kelsey Curator Margaret Cool Root, he is publishing *Seals on the Persepolis Fortification Tablets* for the University of Chicago Oriental Institute. He is also field director of the Hacimusalar Project in southwestern Turkey.

Paul Legutko (PhD 2000) finished a three-year postdoctoral fellowship at Stanford University, then moved to Boston when his wife was appointed Chief of Ophthalmology at the VA hospital there. He is now Vice President of Research and

Development at a search engine marketing company called SEMphonic.

Naomi Norman (PhD 1980) is Associate Professor and Associate Department Head of the Department of Classics at the University of Georgia. In Carthage, Tunisia, she directs a University of Georgia excavation of the large and well-preserved Yasmina Cemetery. She is currently writing a book on the archaeological history of Roman Carthage and working on publishing results of the Yasmina project. In 2004 she was named Editor-in-Chief of the *American Journal of Archaeology*.

Lea Stirling (PhD 1994) holds a Canada Research Chair in Roman Archaeology and is Associate Professor of Classics at the University of Manitoba (Winnipeg). With Nejb Ben Lazreg (Institut National du Patrimoine) and **David Stone** (IPCAA 1997), she co-directs fieldwork at Leptiminus, Tunisia. She also maintains an interest in Roman sculpture, and her book *The Learned Collector: Mythological Statuettes and Classical Taste in Late Antique Gaul*, was published this year by the U-M Press.

Kylix Conserved by Undergraduate Apprentice

To an undergraduate studying classical archaeology at the University of Michigan, the Kelsey Museum is a valuable resource. It allows classroom instructors to display real artifacts, not just slides. We get to learn about Roman burial practices by reading the inscriptions from ancient grave markers. Scenes from Greek drinking parties are brought to life for us on the faces of the amphora actually used. In my case, the Museum also helped me determine a career path. In my junior year, after talking to Conservator Suzanne Davis, I became interested in the work done in the Museum's conservation lab. Suzanne found a beautiful red figure kylix (a type of cup) in the collection that was in need of repair and allowed me to do the work necessary.

The kylix was originally broken into about thirty pieces. In a previous reconstruction these fragments had been poorly joined, with adhesive, paint, and gap-filling material obscuring parts of the surface. Using an ultra-violet lamp, we discovered that the adhesive used was shellac, which does not age well and becomes insoluble over time. There was also a clear surface coating of cellulose nitrate, probably applied to make the surface seem glossier. This too can have poor long-term aging properties. I needed to remove the old coating, paint, fill material, and adhesive, disassemble the kylix, and then reassemble the pieces using a new adhesive with better aging properties.

The first step was to remove the coating of cellulose nitrate and any paint on the surface. This was done using cotton swabs dipped in solvent and gently rubbed over the entire surface until it was clean. Once the surface had been cleaned, the kylix was ready to be taken apart. For disassembly, the kylix was placed in a solvent chamber—a small, lidded plastic box in which I placed a large piece of cotton soaked in solvent. After the kylix sat in the chamber for a few days, the evaporating solvent had dissolved enough of the shellac that the pieces simply fell apart. But adhesive remaining on the edges of the pieces still had to be removed before the kylix could be reassembled.

The shellac was very difficult to remove. I first had to soften the rock-hard adhesive by placing poultices of cotton soaked in solvent over each edge of all thirty pieces of the kylix. Then I gently cleaned the edges using a cotton swab, paintbrush, sharpened bamboo stick, or even a scalpel depending on how stubborn the adhesive was. This time-consuming process had to be repeated often, but eventually all the old adhesive was removed and I could begin reassembling the kylix.

All of the edges to be glued back together were sealed with a clear, dilute, acrylic resin, named B-72, so that the new adhesive (concentrated B-72) would not be drawn into the body of the kylix, making it more difficult to reverse in

the future. Then, like a puzzle, I had to figure out which pieces went where. I also had to plan in which order to assemble them to ensure the tightest fit. I had to adjust the fit of a few pieces after they had been glued by softening the adhesive using a heat gun, then shifting the pieces into a better fit. When I was satisfied with the fit of all the pieces, I glued the final fragments together, and the kylix was finally back in one piece.

I am still performing some cosmetic work on the kylix, such as making and painting two plaster fills necessary for structural support, but my work is basically done. During my time in the lab I learned a great deal about the work of a conservator. Attention to detail and patience are two key qualities for a conservator. When working on objects as fragile and rare as some of the objects in the Kelsey's collection, one small mistake can cause irreversible damage. Also I learned how dependent the survival of the Museum's artifacts is on the conservator. Every decision made by a conservator, whether it is to loan an object, to put it on exhibit, or to allow its use in a classroom, must be determined by the object's ability to survive such action. It is remarkable that the beautiful objects in the collection of the Kelsey have survived for us to enjoy. The job of a conservator is to ensure their continued care and survival. I would like to thank the Kelsey Museum, and especially Suzanne Davis, for allowing me to experience this enjoyable and rewarding job.

Sara Powers, LS&A graduate, 2005



Photo: S. Davis

Sara Powers displays the kylix (KM 2601) during reassembly.

Grant Funds New Kits

We are pleased to announce that the Archaeological Institute of America (AIA) has awarded its Ann Arbor Local Society a Local Society Incentive Grant. The award will be announced at the annual meeting (January 2006) of the AIA in Montreal, Canada. The grant funds will be used to create an educational kit that will help teachers explain archaeological field methods to middle and high school students. Classes using the kits will also be encouraged to design small exhibitions in their schools on archaeological excavation, survey, and field conservation. Participating schools will be invited to the Kelsey Museum at the end of 2006 for an event celebrating their exhibitions. The program was the brainchild of Todd Gerring, the Kelsey's Coordinator of Museum Visitor Programs.

Karanis Textiles Online!

The Kelsey's textiles from Roman-period Karanis, Egypt, have been acclaimed as an extensive and all too rare archaeologically documented corpus since their initial publication in 1933 by Lillian Wilson in her *Ancient Textiles from Egypt in the University of Michigan Collection*. Until now Wilson's catalogue of 143 items out of the collection of 3,500 pieces has been the most comprehensive publication of the textiles.

This situation became painfully clear to me as I undertook research for my 2001 exhibition, "The Fabric of Everyday Life, Textiles from Karanis, Egypt" and the accompanying catalogue. I found the extent and quality of previous cataloguing was frustratingly uneven, and I resolved to clean up the data before undertaking a major interpretive project based on the intrinsic characteristics of the textile artifacts.

Project Planning

The Kelsey had a textiles database, devised many software generations ago in about 1980 without input from specialists in textile studies, so the format was antiquated and inflexible, the information both inconsistent and incomplete. I began to consider "publishing" the Karanis textiles, using now-standard analytical categories, in a revised database with multiple color photographs for each entry so as to offer open access for the burgeoning community of textile scholars. Participation, in the fall of 2001, in a conference at the Abegg-Stiftung (a Swiss museum, research center, and conservation center focused in large part on historic textiles), "Textiles in Situ: Their Find Spots in Egypt and Neighboring Countries," confirmed for me that this audience would welcome open access.

As it happened, Jane Batcheller had come to the Kelsey for two weeks in the late summer of 2001 to study our Karanis textiles as she completed her dissertation, "Late Roman Textiles from Karanis, Egypt: An Investigation into the Characterization of Archaeological Textiles" (University of Manchester) based on the small group of Karanis textile fragments at the Bolton Museums near Manchester. And she had devised a database for her catalogue. Now, with Jane's input, a Kelsey database became feasible.

Over the next six months, I planned the staging and applied for the necessary funding for this collaborative project.

Initial funding was provided by the Horace H. Rackham School of Graduate Studies, and Rackham's International Partnerships Program, which allowed me to purchase equipment and enlist the aid of two consultants. Jane Batcheller of the University of Manchester Institute of Science and Technology has completed her work for the project. Annemarie Stauffer of the University of Applied Sciences, Cologne, in the Institute for Restoration and Conservation of Art and Cultural Goods will assist with the next phase, which will focus on the late antique textiles that were purchased for the Kelsey, for which there is no archaeological information. The last two years of funding were provided by History of Art and the Kelsey Museum.

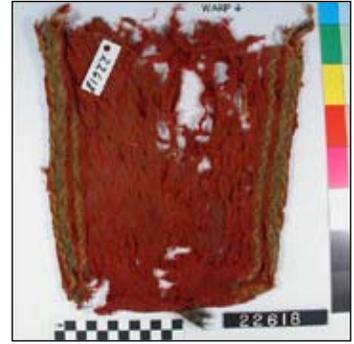
Implementation

Jane Batcheller is responsible for the redesign of the existing database, which prioritized the identification of decorative motifs over description of fabric structure and so was of little use to specialists. In addition, Jane provided technical illustrations, undertook to train Kate Carras in textile analysis and data entry, and compiled a detailed instruction manual.

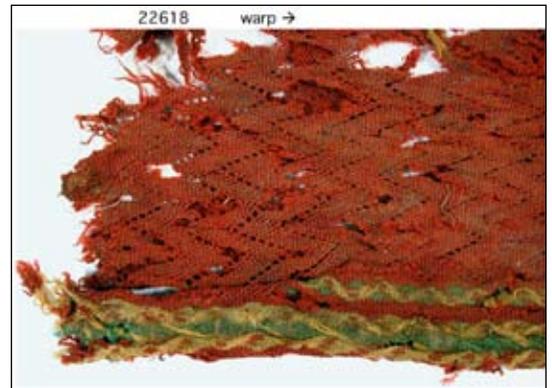
Kate Brings Weaving Expertise

Kate, who had worked with me on the exhibition, had a great deal of practical experience in spinning and weaving and an insatiable curiosity that led her to undertake a crash course in prehistoric and Roman textiles. During the project, Kate was responsible for photography, analysis, and the crafting of a general description as well as detailed descriptions appropriate for fields dedicated to condition, selvedge, border, sewing, thread count, and yarns.

The year after the project began, Jane returned for a weeklong consultation, with a special focus on the sprang pieces in the collection. These fragments were originally listed as "knitted" by the excavators but are more accurately described as done in a knotting technique (similar to macrame). Kate, a hands-on thinker, made a sample of sprang and of another nonwoven technique, cross-loop knitting (also called nalbinding), done with one large sew-



Overall photograph of KM 22618 from database. Large fragment of red wool sprang joined at top with green and purple wool closing cord and along sides with green and yellow wool twining to form a cap.



Detail photograph of KM 22618 from database.



Overall photograph of KM 22607 from database. Small pouch of cross-loop knitting in yellow, red, green/blue, purple, and green with overhand knots at each side of the open end of the pouch, possibly the remains of a carrying cord.

ing-type needle. Her perspective greatly enhances my academic approach.

Kate writes: "As a spinner and weaver myself, it has been fascinating and very satisfying studying these textile fragments in such detail. It gives me a connection with the distant past, knowing that women 1,600+ years ago were doing some of the same things that I can do



Overall photograph of KM 11928 from database. Fragment of tapestry-woven wool with undyed linen warp, weft of undyed linen, red, gold, green, and purple wool.

today. The main difference between us is that I do spinning and weaving because I enjoy them; they did the same things because they had to. Of course, there are some other differences between us. I spin mostly on a spinning wheel, which wasn't invented until at least the thirteenth century AD. I know how to spin on a drop spindle but do it mostly to demonstrate for historical purposes. My yarns tend to have a high twist but are nowhere near as tightly spun as some of the warp yarns in the Karanis fragments. I was also amazed that most of the ancient yarns were used as singles; that is, they were not plied. Plying balances a yarn, so that it doesn't kink and twist. Most modern hand-spun yarns are used for knitting, and unbalanced singles can be difficult to work with. I was amazed to see single yarns used for warp in weaving because there is so much tension and abrasion on the warp yarns. The extremely tight twist probably made it possible to use singles for warp."

The individual written entries can be added to or revised, and digital photographs and other illustrations replaced or added quickly, with negligible expense. Global changes are possible as well. Moreover, the Kelsey Textile Project (KTP) database is linked to other Kelsey Museum databases, most important of which are the Artifacts and Excavations databases (also available online).

Sebastián Solves Technical Problems

The final form of this project would not have been possible without the interventions of Sebastián Encina. Soon after Sebastián took up his position as Coordinator of Collections in 2003, he bought the eBox, a digital camera enclosed within a box outfitted so as to surround an object with light. The lack of shadow was, at first, very disconcerting, and Kate and Sebastián had to do a great deal of

tweaking to keep the colors from being washed out. Now, for all but the largest textiles, the eBox produces a more consistent photographic record with good color and clear details.

The KTP database took three years (rather than the planned two) from receipt of first grant to completion. Some delays were due to problems with the database program, FileMaker Pro 6, and the long-delayed release of FileMaker Pro 7. Unfortunately, the great numbers of photographs for our project proved too much for FileMaker Pro 6. Sebastián overcame these technological obstacles, realizing we needed to upgrade some aspects of our software and hardware. Of course, he then had to resolve complications with FileMaker Pro 7, initial formatting problems for the Web version, and issues with photo sizes and server capacity. Sebastián's solutions took care of the immediate problems of capacity and will also allow the Kelsey Museum to be even more adventurous with information and resources.

Sebastián explains: "Before now, researchers needed to have FileMaker Pro software installed on their computers in order to access the databases, or else physically be at the Kelsey to view our records. Now all they need is a Web browser (preferably Internet Explorer) and an Internet connection. The Kelsey Museum databases are available online at the Kelsey Museum Web site (www.lsa.umich.edu/kelsey) under 'Research'. The feed for the online version of the database comes directly from the in-house database, so it is constantly updated whenever any changes are made in the in-house version. As images are uploaded, they will appear instantaneously on the Internet."

Research Continues

Kate and I have just begun research for eventual print publication, focusing on close analysis of textiles grouped by fabric type and by function, with recourse to written sources also discovered at Karanis. We will, of course, make extensive use of the Kelsey's new database as well as APIS (the Advanced Papyrological Information System—another early inspiration for this project), which "publishes" in a searchable database ancient texts on papyri and ostraca from Egypt, including those from Karanis.

Curator *Thelma K. Thomas*,
with *Kate Carras and Sebastián Encina*

The Kelsey Museum of Archaeology

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Sharon Herbert

Associate Director

Lauren Talalay

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John Cherry, *Prehistory and Publications*
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Dynastic Egypt
Margaret Cool Root (on leave),
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Lauren Talalay, *Academic Outreach*
Thelma K. Thomas, *Postclassical*
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Sebastián Encina,
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Todd Gerring, *Coordinator of Museum
Visitor Programs*
Margaret Lourie, *Editor*
Sandra Malveaux, *Secretary*
Scott Meier, *Exhibits Preparator*
Jackie Monk, *Office Assistant*
Lorene Sterner, *Graphic Artist*
Alex Zwinak, *Student Services Assistant*

Museum Hours

Tuesday–Friday 9:00–4:00
Saturday–Sunday 1:00–4:00
Admission free and open to the public

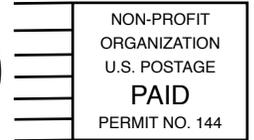
World Wide Web Address

<http://www.lsa.umich.edu/kelsey/>

University of Michigan Regents

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Laurence B. Deitch Andrew C. Richner
Olivia P. Maynard S. Martin Taylor
Rebecca McGowan Katherine E. White
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THE
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Calendar of Events

Exhibition

- *Building a New Rome: The Imperial Colony of Pisidian Antioch (25 BC–AD 700)*
Duderstadt Gallery, North Campus
Opening lecture Friday, January 13,
7:30 p.m., Chesborough Auditorium,
Chrysler Center

Lectures

- *Sleazy Bars, Fancy Countertops: Reused Marble for Status Therapy at Pompeii*
by J. Clayton Fant, University of Akron,
Thursday, September 22, 5:30 p.m.,
2175 Angell
Reception following; cosponsored with
Archaeological Institute of America
- *Restoration of the Acropolis Buildings*
by Fani Mallouchou-Tufano,
Documentation Office of the Acropolis
Restoration Service, Thursday, January
19, 4:00 p.m., Kelsey classroom
Reception following; cosponsored
with Modern Greek Program
- *Everyday Life in Ancient Assyria*
by Lynn Rainville, Sweet Briar College,
Thursday, March 23, 5:30 p.m., 2175 Angell
Reception following; cosponsored with
Archaeological Institute of America

FAST Lecture Series

(Field Archaeology Series on Thursdays)
Thursdays at 6:00 p.m. at the Kelsey,
cosponsored with the Interdepartmental
Program in Classical Art and Archaeology
(IPCAA) and the Modern Greek Program.
For anyone interested in the "how-to" of
archaeology.

- *Fragments of Archaic Crete:*
Archaeological Studies on Time and Space
by Lena Sjogren, Uppsala University,
Sweden, November 3
- *The Eastern Galilee Survey Project:*
Methodology, Results, and Some of Their
Historical Implications
by Uzi Leibner, Bar Ilan University,
Israel, December 1
- *Current Archaeological Fieldwork in*
Vorotan, Armenia
by John Cherry and Sue Alcock,
Brown University, January 12
- *Archaeology in South Eastern Europe: Cur-*
rent Archaeological Fieldwork in Bulgaria
by Adela Sobotkova, IPCAA,
February 2
- *Northern Greek Communities in Later*
Prehistory: Food Storage, Prehistoric
Economy, and Local Politics
by Despina Margomenou, Modern
Greek Program, February 23

- *Coloring the Ancient Mediterranean:*
Current Archaeological Fieldwork in Greece
by Alex Nagel, IPCAA, March 9
- *City of Aphrodite: Archaeological*
Fieldwork in Aphrodisias, Turkey
by Leah Long, IPCAA, April 6

Events

- *Holiday Party*
Thursday, December 8, 6:30–8:30 p.m.
- *Latin Inscriptions in the Kelsey Museum*
by Steve Tuck, Miami University of
Ohio, book release reception, January 26
- *A Tiffany Gem: The Fox Memorial Window*
a talk on the Kelsey's Tiffany window
by Julie Truettner
Sunday, March 19, 1:30 p.m.
- *Associates Spring Event, TBA*

Family Days

- *Ann Arbor Family Days,*
Arts of the Ancient World
Saturday and Sunday, January 14–15,
1:00–3:00 p.m.
- *Sports, Games, and Gladiators!*
Saturday, February 4, 1:00–3:00 p.m.
- *Egyptian Family Day*
Saturday, April 22, 10:00 a.m.–noon
- *Egyptian Family Day*
Saturday, July 8, 10:00 a.m.–noon