

Conservation

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Front cover: Detail of a fourth-century Roman mosaic, one of several found in the House of the Nymphs at Neapolis, now modern Nabeul in Tunisia. The mosaic depicts a scene from the story of the Trojan War: Chryses, a priest of Apollo, is kneeling in front of King Agamemnon, asking that the king release his captive daughter, Chryseis. The mosaic is presently housed in the Regional Archaeological Museum of Nabeul. *Photo:* Bruce White.



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By Gaël de Guichen and Roberto Nardi

The philosophy and approach to the conservation of mosaics underwent significant change in the post–World War II period, a transformation that is still under way. Where once mosaics were routinely removed from archaeological sites, now the trend is to conserve them in situ when possible.

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By Thomas Roby

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The ancient Roman site of Thuburbo Majus in Tunisia, with floor mosaics in situ. Seen here is the peristyle of the House of Neptune. *Photo: Elsa Bourguignon.*

Visitors admiring the Great Hunt mosaic at the Villa Romana del Casale in Piazza Armerina, Sicily. The site's extraordinary mosaics, which decorate almost every room, were conserved in situ when major excavation was completed at the site in the late 1950s—an unusual practice at the time. *Photo: Guillermo Aldana.*





MOSAIC CONSERVATION

FIFTY YEARS OF MODERN PRACTICE

By Gaël de Guichen and Roberto Nardi

The following was adapted from the keynote address delivered at the ninth conference of the International Committee for the Conservation of Mosaics, which took place in November 2005 in Tunisia. The presentation explored the theme of the conference, “Lessons Learned,” looking back on the history and practice of mosaic conservation and the philosophy that has guided it.

IN SOME SENSE, MOSAIC CONSERVATION is a practice as old as the making of mosaics themselves. Today one can still find ancient mosaics with patches that were made as part of maintenance when the floors were still in use. In more recent centuries, restoration was widely practiced on objects of antiquity, including mosaics. And from the first decades of the twentieth century, we have fine examples of restorations.

Prior to the mid-twentieth century, discoveries of mosaics happened mainly during archaeological excavation of known sites. The postwar period in Europe was a time of tremendous construction and reconstruction, and discoveries of mosaics occurred more frequently throughout the continent. That does not mean these artifacts were ultimately preserved. According to a 1971 study made by Claude Bassier, a French engineer, of 660 pavements found in France and published by archaeologists, at least 92 percent were abandoned, destroyed, or lost. The remaining ones—when the subjects were figurative and considered valuable—were, according to the traditional techniques of the time, systematically removed from archaeological sites. Some were re-laid on concrete slabs, while others were abandoned in storage, where many remain today.

In the early postwar period, strategies for mosaic conservation were very limited—detachment was the primary option available. Interventions were typically undertaken without adequate planning and with a workforce that consisted mainly of artisans, craftsmen, or carpenters. Conservation practice was based solely on empirical knowledge, and the materials used by practitioners were limited to cement, gypsum, and glues. In addition, documentation was lacking. Practitioners worked in isolation, without the benefit of professional associations. An exception to the typical treatment of excavated mosaics was the completion of the excavation of the Villa Romana del Casale in Piazza Armerina, Sicily, in the late 1950s;

there Cesare Brandi introduced the solution of conserving the villa’s remarkable mosaics in situ and protecting the entire site.

In the 1960s, a dramatic evolution in mosaic conservation began. Two important professional figures came to prominence in this decade: Rolf Wihr in Cologne, Germany, and Claude Bassier in Périgueux, France. Wihr was a conservator-restorer, working at the Rheinisches Landesmuseum in Trier. Bassier, in private practice, was called in on rescue excavations when mosaics were discovered. He was able to arrive within two days—with trucks, a crate, and a tent with heating systems—ready to work, even in the middle of winter. In their work, both Wihr and Bassier introduced new approaches, which included systematic documentation, new supports (honeycomb aluminum instead of concrete), and new adhesives (resins instead of glues and cement). They also continued the established practice of polishing the mosaic surfaces.

A third significant figure who advanced the field technologically at an early date was Antonio Cassio of the Istituto Centrale per il Restauro in Rome. Cassio—a mosaicist from a family of mosaicists—preferred a more sensitive and controlled method for detaching mosaics. He used a system typical of mosaic making itself, which permitted the detachment of mosaics in pieces averaging twenty-five square centimeters. This method substantially reduced cutting stresses—and therefore reduced damage to mosaics being lifted.

In the late 1960s, again in Italy, a different field—mural painting—was undergoing a theoretical and practical reevaluation, which would subsequently have a direct and important impact on mosaic conservation. In 1968 ICCROM (International Centre for the Study of the Preservation and Restoration of Cultural Property) joined with the Istituto Centrale per il Restauro to initiate an annual four-month course on the conservation of wall paintings. Initially



Mosaics lifted from their original sites and placed in storage. There is an urgent need to properly conserve the numerous mosaics re-laid on concrete or consigned to storage. *Photo: Gaetano Palumbo.*



Technicians stabilizing a mosaic pavement with lime mortar at the site of Thuburbo Majus, Tunisia. Training technicians in the care and maintenance of in situ mosaics enhances the ability of cultural authorities to preserve mosaic heritage. *Photo: Kristin Kelly.*

the highlight of the course was the detachment of a wall painting, but very quickly, in situ consolidation was embraced as a more appropriate method, as wall paintings came to be considered an integral part of the buildings to which they belonged. This evolution in wall paintings conservation led to the publication in 1977 of *Conservation of Wall Paintings* by Paolo Mora, Laura Mora, and Paul Philippot, still a fundamental book for the profession.

Establishing the ICCM

All this was in the air in 1977 when the first meeting on mosaic conservation—with forty-five participants—was organized in Rome. At the end of this conference, ten of the participants decided to create the International Committee for the Conservation of Mosaics (ICCM) and to act as its first board. The publication of the proceedings of the meeting was called *Mosaic No. 1: Deterioration and Conservation*, and it was addressed to conservator-restorers, archaeologists, technicians, administrators, and the public. Another important result of the meeting was a recommendation to launch a course on mosaic conservation.

The 1977 meeting in Rome was the starting point for a series of regular conferences. The following year, the Institut National du Patrimoine in Tunisia hosted the second conference and went on to host subsequent meetings of the ICCM board. Other ICCM conferences followed. The latest conference, the ninth, took place in Hammamet, Tunisia, in 2005 (see p. 20). Following each of these meetings, the proceedings were published. In addition to the proceedings, twelve newsletters have also been published. These materials represent for the profession a basic source of information that did not exist fifty years ago.

The evolution in the thinking of the ICCM—and, indirectly, the trend in its professional principles—is reflected in the themes of each of those conferences (see sidebar). It is evident from looking at those themes that by 1983 the ICCM was pointing out the importance of in situ conservation and encouraging its use whenever possible. In this way, it mirrored an evolution already followed by wall paintings specialists.

Another principle that the ICCM has come to strongly support is the rejection of the use of cement in the conservation and restoration of mosaics. It had been clear for some time that the use of cement in the conservation of ancient monuments risked an expansion of damage. In response, Italian conservation scientist Giorgio Torraca launched research in 1980 to replace cement with, paradoxically, one of the oldest construction materials known—lime-based mortar. However, even within the ICCM, it required almost ten years of heated debate before lime-based mortars were generally accepted and before they replaced cement applied in direct contact to mosaics. The use of lime-based mortars has allowed the development of in situ consolidation and furthered the practice of maintenance in situ when possible. (Unfortunately, despite the abundant evidence of destruction caused by cement in conservation interventions, this material is still used on mosaics—and worse, its use is still occasionally taught as a technique in some countries.)

One other important advance that can be credited to discussion and reflection during several ICCM conferences was the acceptance by conservation practitioners of a planned approach to safeguarding mosaic floors. In 1996 a question-driven flowchart was developed to help practitioners determine which of several options would be most appropriate to a particular context and set of problems. The questions related to risk, visitation, significance, available resources, and archaeological investigation, and they led to

A view of some of the mosaics in situ and visitor walkways at the site of Paphos, Cyprus. Today, mosaic conservation is not limited to small excavated areas or to works in museums but includes entire architectural complexes or sites with thousands of square meters of mosaics. *Photo: Martha Demas.*



consideration of a range of options, including backfilling, lifting and transferring to a museum, lifting and re-laying in situ, and consolidation in situ.

The previous standard practice of leaving a mosaic on site without protection—or of lifting the pavement and abandoning it in storage—was clearly the result of a lack of planning, as well as demonstrative of the attitude of some archaeologists, insensitive to conservation, who felt that their work ended the day they published their findings. A systematic analysis of practical conditions can help determine different and more appropriate approaches for dealing with an excavated mosaic. With any of these options, serious planning before implementation is required.

After the three ICCM conferences dedicated to in situ conservation, the four subsequent conferences referenced in their titles the issues of public presentation of mosaics. As early as 1977 it was suggested in *Mosaic No. 1* to involve the public “so that specialists responsible for conservation receive support from individuals. It is the public, after all, that benefits and is served by the world-wide conservation movement.” This statement established in the mosaic conservation field the recognition that an objective of the conservation profession is to present and to interpret for the public the cultural properties that we are engaged in conserving.

In order to influence the actual practice of mosaic conservation, these new ideas and approaches required adequate training at all levels. Yet the development of training did not happen quickly. Twelve years passed after the 1977 recommendation for training before the first course for decision makers was initiated. The one-month course—organized by ICCROM in 1989 in Rome—was attended primarily by archaeologists. Today some of the participants of that early course are members of the ICCM board.



Detail of a mosaic pavement adjacent to an irrigated garden at a site in Israel in the late 1990s. Further research on the protection of in situ mosaics is necessary for their long-term preservation and presentation. *Photo: Francesca Piqué.*

Conferences of the ICCM		
Rome, Italy	1977	<i>Deterioration and Conservation</i>
Tunis and Carthage, Tunisia	1978	<i>Safeguard</i>
Aquileia, Italy	1983	<i>Conservation In Situ</i>
Soria, Spain	1986	<i>Conservation In Situ</i>
Palencia, Spain	1989	<i>Conservation In Situ</i>
Faro and Conimbriga, Portugal	1992	<i>Conservation, Protection, Presentation</i>
Nicosia, Cyprus	1996	<i>Mosaics Make a Site: The Conservation In Situ of Mosaics on Archaeological Sites</i>
Saint-Romain-en-Gal and Arles, France	1999	<i>Mosaics: Conserve to Display?</i>
Thessaloniki, Greece	2002	<i>Wall and Floor Mosaics: Conservation, Maintenance, and Presentation</i>
Hammamet, Tunisia	2005	<i>Lessons Learned: Reflecting on the Theory and Practice of Mosaic Conservation</i>

Since that time, several courses at various levels have been—and continue to be—organized. While this activity is generally welcome, certain doubts exist regarding their efficacy. Some of these sessions are too short—lasting a few weeks at most—or the trainers lack the teaching abilities required. In some instances, the production of new mosaics is taught at the same time as conservation techniques—a questionable pairing.

An example of training appropriately adapted to the challenge faced is the technician training program launched by the GCI and Tunisia's Institut National du Patrimoine in 1998 (see *Conservation*, vol. 17, no. 1). This long-term involvement in training technicians in the care and maintenance of in situ archaeological mosaics is attempting to enhance the ability of cultural authorities in Tunisia to preserve the wealth of mosaic heritage found in that country.

A Maturing of the Profession

For the mosaic conservation field, the last fifty years constitute a period of great change and maturation. The creation and development of the ICCM have advanced the work begun by the Association Internationale pour l'Etude de la Mosaïque Antique (AIEMA) and later developed by the Association for the Study and Preservation of Roman Mosaics (ASPROM) in Great Britain and the Associazione Italiana per lo Studio e la Conservazione del Mosaico (AISCOM) in Italy.

Unlike three decades ago, the scope of mosaic conservation is no longer restricted to a few square meters of tesserae recently excavated or on exhibit in a museum. Today it has expanded to include entire architectural complexes or sites where thousands of square meters of mosaics are in danger. And today the conservator is joined by other professional figures in the field of conservation in addressing the problems of mosaic conservation. Among them are conservation scientists who share an interest in finding solutions to mosaic conservation globally—and not simply through the lens of a microscope. The fact that 250 colleagues from thirty countries—and with many different backgrounds—attended the ninth ICCM conference indicates that common problems exist and that the interest to solve them collectively is very high.

At the same time it is evident that there are still issues that have not been resolved, and a great deal of work remains to be done. There is an urgent need to properly conserve and store hundreds, if not thousands, of mosaics previously re-laid on reinforced concrete or abandoned in storage. Reburial of mosaics is an important tool for preserving mosaics, but it requires clear protocols and a technical and financial assessment. Further research on the protection of mosaics from biological growth would contribute to mitigating a widespread problem confronting the preservation and presentation of mosaics. Studies of the cost of maintenance of mosaics in situ are needed to help promote this approach. Assessments of training needs for archaeologists, conservator-restorers, and technicians are essential to ensuring long-term protection of mosaics. And finally, the publication of a major book on the conservation and restoration of mosaics is long overdue.

The above issues are only some of the challenges faced by the professionals charged with the responsibility for conserving and exhibiting mosaics. There is still a long way to go. Nevertheless, it is realistic to look to the future with a feeling of optimism. With the help of the ICCM, the great vitality demonstrated by the profession has resulted in standards of mosaic conservation practice today that appeared almost unreachable thirty years ago. Much has been accomplished, and those accomplishments form an essential foundation for the work that lies ahead.

Gaël de Guichen is honorary president of the ICCM and former program director and assistant to the director general at ICCROM. Roberto Nardi is vice president of the ICCM and the founder of the Centro di Conservazione Archeologica in Italy, a private company working in the field of conservation of archaeological sites and monuments.



A NEED FOR STRATEGY

A DISCUSSION ABOUT CONSERVING MOSAICS IN THE ARAB WORLD

How has the conservation of mosaics evolved in the Arab region of the Mediterranean world in recent years? What are the challenges that these countries confront in developing strategies to preserve mosaics? Conservation spoke with three specialists in the field who have devoted much of their professional efforts to the preservation of mosaics.

● *Amr al-Azm is the former director of conservation for the Directorate General for Antiquities and Museums in Syria. An archaeologist by training, he is the current head of the Centre for Archaeological Research and Scientific Laboratories at Damascus University.*

● *Aïcha Ben Abed is director of monuments and sites at the Institut National du Patrimoine (INP) of Tunisia. Former director of the Bardo Museum in Tunis and curator of several international exhibitions, she has managed for the INP the collaborative project with the GCI to train technicians in the maintenance of mosaics in situ. She is the author of a number of publications on Tunisian mosaics.*

● *Isabelle Skaf, a conservator in private practice in Beirut, is the former head of the Conservation Laboratory at the National Museum of Lebanon, where she carried out recovery operations for the museum's collections following the country's civil war. She is currently working on archaeological sites and coordinating conservation projects for Lebanon's Direction Générale des Antiquités.*

They spoke with Martha Demas, a senior project specialist with GCI Field Projects, and Jeffrey Levin, editor of Conservation, The GCI Newsletter.

Jeffrey Levin: *Let's start with the ways that the conservation of mosaics has evolved in the Mediterranean world over the last ten to fifteen years. How would each of you characterize the changes, if any?*

Amr al-Azm: When I took over the conservation and science labs in Syria, the standard practice for mosaic conservation in Syria was basically removal. Once the mosaic was removed, it was laid onto a metal frame with reinforced concrete. You can imagine what a volatile mix that is in terms of mosaic conservation. Often these pieces would then be put on display either within museums or outside, exposed to the rain and other weather processes. Since the year 2000, I've banned the use of that technique all over Syria. There is no more pouring of concrete, and we've now moved on to lightweight frames, including Aerolam [honeycomb aluminum panels]. Although we have also experimented with cheaper options, none of our experiments has really provided us with a viable alternative. I would say that at the moment in storage, awaiting conservation, are probably about three thousand square meters of mosaics.

Martha Demas: *Amr, you've stopped the policy of re-laying on cement, but are you still lifting mosaics from their original contexts?*

al-Azm: Yes, we are. The reason for removal is another issue that we have to deal with. In situ conservation requires not only the Department of Antiquities saying, "we're not going to remove it," but also coordination with the archaeologists who are uncovering these mosaics, ensuring that they have sufficient funds to pay for it. You have to deal with the bureaucracy that has to fund employment for people to protect these mosaics once they're exposed. There are regulations preventing an increase in the number of employees within the public sector. So what choice do I have but to remove? At least once a mosaic's been removed, we can start to provide decent care for it, rather than allow it to deteriorate in poor storage conditions or create new problems for it once it's been laid on concrete.

Isabelle Skaf: In Lebanon, we inherited the 1950s and 1960s practice of re-laying mosaics on cement. Many of these re-laid pavements were moved because their original discovery site was destroyed. Others, however, remained on their unaffected original site. The period of the last ten or fifteen years since the civil war, with intensive reconstruction work done under pressure from developers, has consisted largely of emergency excavation—especially in Beirut. Unfortunately, most of the mosaics discovered throughout this period were removed and stored with little conservation treatment. The Department of Antiquities now faces the dilemma of what to do with all these mosaics. In fact, the problem is twofold—the older, cement-backed mosaics and the more recently detached and inadequately conserved mosaics.

Demas: *You don't see an evolution toward a more acceptable solution for mosaics?*

Skaf: People realize that cement is not a viable option anymore, which is a step forward. Mosaics are systematically lifted when a site is going to be destroyed. To date, there has been no discussion on a strategy to tackle this problem differently in the long term.

Aïcha Ben Abed: The Tunisian experience is a little bit different from the others. In the late 1970s and the beginning of the 1980s, we worked on mosaics in situ—a Tunisian and American team with Margaret Alexander, who was president of the ICCM [International Committee for the Conservation of Mosaics] at that time. We weren't happy with what we had been doing—lifting mosaics or just cleaning them, taking notes, and documenting them for the books. We started being sensitive to the disintegration of the mosaics. Many times we studied one pavement, and when we came back the next year, nothing was left.

In 1993 I was invited by the GCI to join their course in Cyprus on the conservation of excavated sites, and then I personally started to realize how important it was to keep mosaics in situ. We started this process being afraid of the idea of lifting the mosaics. And then we decided to start training technicians, because we don't have any mosaic conservators here in Tunisia. We have conservators, but they mainly specialize in museum objects. With the Getty, we started to think in terms of having a training force for maintenance. We had eight people in the first group, and we're now working with the third group. We still have lots of problems, but when I compare what we have here to what I see elsewhere, I'm happy with what we did. I think the solution can be adapted to what I see in other Arab countries. This problem of hiring people—in Tunisia we had the same problem. We could not hire any new technicians, so we had to deal with what we had—workmen or young people, with a minimum of education. We have tried to adapt the whole process of training to this profile.

Levin: *Does that mean that you rarely do detachment at this point in time?*

Ben Abed: We've had this campaign with all of my colleagues telling them that if they start doing any detachment or lifting, the whole international community is going to be against us! Still, with some emergency excavation, we don't have any choice and we have to detach.

al-Azm: Aïcha, I understand what you said, and that's all really wonderful. But who pays for in situ preservation? The Tunisian government? Or have you managed to get foreign excavators working in Tunisia to pay for it?

Ben Abed: We have bilateral missions but we do not have so many—maybe less than ten. It's the Tunisian government that pays for the conservation and maintenance. We include it in the budget. That's what I'm doing now. I get some money and I put a certain amount of that money into conservation.

al-Azm: It's wonderful that you have the budget from the Tunisian government to do that. One of our problems is long-term sustainability. You might have a site of 150 hectares, a site like Apamea, where you can't have just one or two guards. You need a small army of people—especially if you have mosaics there. So you have to change people's perception about why they need to keep these mosaics in situ and not steal them. If the local population is involved in the care and maintenance of these mosaics, and through development programs they feel the financial benefits of having these mosaics, then they will become guardians of the site. Instead of having to hire a hundred guards, you have a local community of maybe a thousand who will volunteer to do this. It's a long-term thing, because it will take a long time for these communities to begin to understand. In the short term, I need to get foreign missions to start putting aside parts of their budgets to pay for the in situ preservation, which they don't do now.

“If the local population is involved in the care and maintenance of these mosaics, and through development programs they feel the financial benefits of having these mosaics, then they will become guardians of the site.”

—Amr al-Azm



Photo: Courtesy Amr al-Azm

Ben Abed: But what about when they leave? The problem is then you have to pay from your side. Let me say something about my experience. After some contact with conservators, I came to this idea that I don't need just guards—I need people working on mosaics. And once they are on the site and working, of course they will guard it. I don't see the point of having someone standing for hours without doing anything. So we took some of these people who had been hired to be guards and we trained them for conservation maintenance.

Skaf: In Lebanon, all archaeological assets are government property. However, the relevant public authorities do not have the financial or human resources to deal with the huge conservation problems that face the country's cultural heritage. Ideally these responsibilities would be shared between them and other local organizations, such as local municipalities and nongovernmental associations. However, for reasons pertaining to the legalities involved in ownership, they are reluctant to do so. One approach would be to develop new partnership policies in which public authorities share financial responsibility, within a legal framework, with these other organizations.

Ben Abed: I don't agree with you. I think we are mixing two things. Heritage—and it's the case everywhere, as far as I know—should be the responsibility of the government. I don't think individual or private groups can really take care of the heritage. They will not give money because they think the heritage is something good—they will give money to get something in return. It should be under the control of the government. What is important is to get more expertise from outside the government. Push people to be trained in the area of heritage. But I don't think that responsibility for the heritage should be given to anyone else.

Skaf: I didn't say given. I said shared.

al-Azm: The idea of sharing or not sharing is critical. But it's not just about sharing in the sense of, “we can get an NGO in” or “only the government can deal with the problem.” It's an issue of strategy.

This is the core of the problem, at least in Syria. We have a very, very rich archaeological heritage. And we have more and more joint—or bilateral, as you said—excavations coming in. Sites are being opened up and materials are being brought to light. But while it's good to have great discoveries, it's a problem if you don't put in place a strategy—which is what the government has to do. In the old days, you brought all sorts of stuff out and then cherry-picked the bits you wanted and you threw away the rest. There was no such thing as cultural heritage management. Today this is unacceptable. There has to be a coherent strategy. And only the government is going to be able to do that—impose rules and conditions. If you excavate a site and you find a mosaic, you're going to have to find the money to pay for the maintenance of this mosaic. And this is what we have been pushing for in Syria. Otherwise, we might as well leave the stuff in the ground.

Demas: *What do you think is the main motivating factor for all of this excavation? Is it really research oriented, or is it oriented toward exposing sites for tourism?*

al-Azm: The driving force in Syria—apart from rescue excavations where you build a road, or something like that—is that every academic institution wants a piece of the pie. We give out more permits for excavations than we can manage in terms of the amount of material. There are hundreds of mosaics coming out of the ground, and there has to be a strategy for handling this material. We need to make sure we have enough storerooms to store the stuff coming out. We have to make sure there's financing available for protecting the structures that are being excavated that we wish to preserve. We have to make sure that there is money, personnel, and support for mosaic floors that are going to come out. Are we going to build a shelter over them? Are we going to remove them? Are we going to preserve them in situ? If we preserve them in situ, who is going to do the preservation? Do we have enough trained staff to do this? Before we go out and open up new sites in the name of new

“Long-term solutions for the conservation of archaeological sites, and most particularly for the conservation of mosaics, must be found.”

—Isabelle Skaf



Photo: Courtesy Isabelle Skaf

discoveries, let's clear up the mess we have. And if we are going to open up new sites, maybe we should think about sites that will have some sort of return in terms of tourism.

Skaf: This would be in an ideal situation. However, departments of antiquities come under a great deal of pressure to grant excavation rights to various universities and research institutions. Although these can be limited by the department in terms of number and/or time, the complexity of problems involved—administrative and financial—hampers long-term conservation decisions.

Ben Abed: For Tunisia, the process started maybe ten or fifteen years ago, when we decided to come down on this business of excavation. Except for emergency excavation, you should have only two or three excavations, maximum. We have lots of students, but we just give them already excavated study materials. Nobody is complaining about this.

al-Azm: We have 130 foreign excavations working here every year.

Skaf: Lebanon currently has only ten or twelve ongoing excavations. Emergency excavations are a different problem. I don't think stopping excavations is viable. One could suspend them for one or two years, but not indefinitely. Long-term solutions for the conservation of archaeological sites, and most particularly for the conservation of mosaics, must be found.

Ben Abed: Isabelle, what if you limited excavations to one or two a year, and not ten or twelve?

Skaf: Excavations are already limited in Lebanon. You need, however, to establish a conservation strategy, whether you have excavations or not.

Levin: *Isabelle, with regard to nonemergency excavations in Lebanon, is there any sort of requirement that excavation teams have some strategy and some resources set aside for long-term maintenance of the sites?*

Skaf: No. This is why I mention the idea of sharing responsibility. At the moment, the current pattern is that archaeological teams undertake the excavation, and once the dig comes to an end the Department of Antiquities resumes full responsibility for the sites. Unfortunately, due to a lack of funds, they are not always able to maintain them. Reburial options are being considered now in order to reduce maintenance costs.

Demas: *What are the main impediments to achieving that type of strategy at a nationwide level?*

al-Azm: In Syria we've already started doing it. When a lot of excavators reapply for their permit, they are told, "no, you cannot continue until you restore what you've already excavated." This policy, which has been coming in over the last six or seven years, has caused a lot of friction between the archaeological missions and the DGAM [Directorate General for Antiquities and Museums]. It's been a struggle forcing heads of excavations to find additional funds and resources to maintain the structures that they have excavated. The problem with mosaics is that they are more intensive in terms of the attention required, because you're preserving an object in situ.

Demas: *It's one thing to have a policy for foreign excavations, but what about a policy for decision making about what we excavate and how we care for the mosaics that we already have? Where do you see the impediments of implementing that kind of policy?*

Ben Abed: For many years, in the agreements that were signed between the National Tunisian Institute of Archaeology and foreign universities, we had a provision saying that some of the budget should be given to restoration. And some of these teams did great jobs. But what happened is people would leave after five, ten, or fifteen years, and we didn't have anyone in the country that could do the conservation. That's why we decided to face the problem and make the business of conservation our problem. We still now ask that a third, I think, of the budget of the foreign excavation team

organized environment. A holistic approach to the problem rather than a single-aspect solution would be the most effective option.

Ben Abed: That's for sure. But who is going to do this? Do you think it's the agency or the head of whatever institution you have?

Skaf: The situations in Tunisia and in Lebanon are very different. In Tunisia, a well-established government administration has provided good results. As I've said, Lebanese authorities don't have the funding, and the preservation of the country's cultural heritage is not a top priority. An awareness campaign involving the public, NGOs, and the press could be a good place to start, in parallel with the training of technicians. Because the private sector is very strong and dynamic in Lebanon, it could play a positive role in partnership with the government, and without many of its restraints.

Demas: *Is the situation also different in terms of politics? Is a peaceful political context important for being able to implement these strategies?*

Skaf: It's very important. Certainly the country has suffered from political uncertainty in recent years, further relocating cultural heritage to the bottom of government priorities.

al-Azm: In Syria we have winds of change blowing, with the uncertainties that winds of change bring. But they also bring new opportunities, because we are now being encouraged to change the ways we do things. Although I'm not part of the decision-making process anymore, I have colleagues who are, and I know for a fact that they are being asked to look at logistical changes, administrative changes, and changes in the ways things are generally done. With the existing sets of laws and administrative hierarchies, it's going to be difficult. But if people are willing to make changes at all these different levels, and if, as Isabelle said, we take a holistic view, then I think we have a chance of improving. It's not just about training people.

We are training a lot of people at the moment. The Italian government, for example, has just given Syria something like 12.2 million euros for cultural heritage-based projects, and a sizable chunk of that is for mosaics. We're setting up a new mosaic workshop and training twenty mosaic conservators and technicians over a two-year program. They're not going to come out being fully fledged experts, but they're going to get intensive training in how to conserve mosaics and stone. At the same time, once these people are trained, they have to be allowed to implement their training and use the new materials that they've learned about.

Demas: *And, of course, they have to be hired afterward. You need that commitment from the government.*

al-Azm: The Italians gave the money on the condition that they are hired at the end of it. There is that kind of commitment.

should be dedicated to conservation and restoration. But we had to be able to take over with conservation and maintenance. That is one of the main problems. You have to think about what's after the excavation.

Demas: *That's what I was interested in getting at. What happens in the longer term? It's a sustainability question.*

Skaf: In Lebanon, the reason there is no strategy is that you don't have the tools to implement it. Obsolete 1933 legislation dating back to the French Mandate, combined with inherited administrative procedures instituted under the Ottomans, make for a poor environment in which to encourage better managerial know-how. On top of all this is a lack of funds. It can be quite discouraging and frustrating trying to move forward in an environment so complicated and difficult.

al-Azm: Pretty much the same would apply here, but I would add the lack of trained personnel. What trained personnel we have are too few, and quite often their training tends to be incomplete. When I think of well-trained personnel, I think of someone like Isabelle, who studied in an academic school for conservation. We don't have that yet, but the decision makers in Syria have come to realize that this is a problem, and they are now sending out graduates—twenty to thirty graduates at last count—to get this kind of education. It will take them three to four years of study, and then they will come back and hopefully begin to implement these practices.

Demas: *Both Amr and Isabelle have mentioned the need for training, and Aïcha has talked about the importance of training in Tunisia's strategy. Where would each of you see the priorities in training in your countries for mosaic conservation?*

Skaf: We need to train at all levels. We need to train conservators, we need to train technicians, and we even need administrative training. Trained technicians cannot function without the logistics of a well-

“We are talking
about conservation,
and that means training,
that means strategy,
that means management.”

—Aïcha Ben Abed



Photo: Kathleen Louw

Demas: *What about tourism as a factor in motivating governments to preserve sites for the public?*

Skaf: In Lebanon, tourism is a great motivator. The problem is that the organizations responsible for promoting tourism are in competition with those responsible for the conservation of heritage sites, and there is no consultation or coordination between the two, which hinders both sides. The nature of the tourism also plays a part. If you look at the figures for tourists in Lebanon, half come from Arab countries, and in general they are not really interested in archaeological sites. This is not a criticism, merely a fact—they prefer other kinds of recreational activities. I don't know how much motivation there is to invest in an archaeological site when there could be much more economic benefit by investing in other tourist activities.

al-Azm: In Syria, positions are polarized. You have conservators and archaeologists on one end, and the Ministry of Tourism on the other, and every once in a while, they happen to meet in the middle over a particular issue. But it's always tense, and everybody is eyeballing the other side with great suspicion. A tourism ministry's prime objective is to get as many tourists in as possible. The danger is that you end up with overexploitation of a site, leading to its deterioration. Archaeologists, on the other hand, would like to preserve everything completely pristine and not have anybody go near it except in extreme circumstances. This is where you need what might be called cultural heritage managers who can look at the issues that are dear to the hearts of the people in tourism and look at the needs and requirements of those in archaeology and bridge the gap between the two. We need people who are trained to do that kind of work.

Ben Abed: I have this project at Dougga, one of the big Roman sites in Tunisia. The aim of the project is to get more tourists. I am the head of the project, so the head of the project is a heritage professional, not a tourism professional. The project had problems. They had thought about everything—hotels, restaurants, libraries,

trains—but nobody talked about the site and its conservation. I stopped everything in the first phase of the project and said, “Well, now, first let's look at the site, and see what we can do in terms of conservation.” I don't find any problem in talking about conservation with tourism people. You just have to explain. It's matter of dialogue and of give-and-take. Let them be a part of this process of conservation and explain to them that if they want to keep the site, they have to go through the conservation. Otherwise the site disappears.

Demas: *But you're not getting mass tourism, are you, in Tunisia?*

Ben Abed: We have had all these European tourists coming for the beach. But now the government wants another kind of tourist, a better quality tourist coming for the sites and the cultural heritage. Which is a good thing, I think.

Demas: *This tourism comes mainly from outside. To what extent is there interest among Tunisians in their cultural heritage?*

Ben Abed: They did start a few years ago with the schools and students. There is a program at the high schools where students have to go at least once a year to visit a site, a museum, and things like that. The idea is good, but the way it's done is not good at all, and we are evaluating this program and thinking about doing it another way. And at the same time, I think you have 10 percent of tourists from Tunisia—not so many. The locals are willing to come, but you have to attract them, you have to have educational programs and night programs, which is not done yet. We are far from this when I compare what we have to European countries. But I hope we can start seriously with this Dougga project.

Levin: *Aïcha, early in this conversation you made reference to the fact that you had spoken to some of your colleagues regarding the disapproval of international organizations toward the detachment of mosaics. My question for Amr and Isabelle is how much*

al-Azm: I'd agree with Isabelle entirely.

Demas: *Speaking of the ICCM, the theme of the recent conference was "Lessons Learned" (see p. 20). I'm wondering if you came away with any particular lessons in mind that you felt emerged out of that conference most forcefully.*

Skaf: I think the management aspect was an important topic at this conference, especially the type of management problems that directly affect conservation decisions.

al-Azm: In addition to what Isabelle mentioned, I would say the need to be informed and to kept abreast of what people are doing in terms of how they're managing their problems—the solutions coming out on a regional level. It was interesting to see how a lot of us were facing similar problems. In addition to our own unique problems, we have many similar problems, and no one was really talking to anyone else. All these people were trying to do the same thing in some way, and yet nobody had really discussed that until we met at the ICCM and started listening to each other's lectures or started meeting each other or looking at the posters.

Ben Abed: That's the feeling I had. Everyone has his own little experience and is thinking he will find the solution for everything. Then you find somebody else doing the same thing. Everything is the same—and at the same time, it's different. Lots of people have been saying, "training technicians on in situ mosaic conservation, that is what we are doing," and I have the feeling we are not really talking about the same concept. It is important that Arab countries that share the same problems, the same kind of heritage, the same mentality, build something together, because I'm sure we can understand each other. We are talking about conservation, and that means training, that means strategy, that means management.

al-Azm: Tunisia has had a much longer experience in managing its mosaics than anyone else. Yet only very recently have I been enlightened by what they've done. I only wish that I had been more aware of their experience earlier and had been able to learn from it—and perhaps that people before me had done the same, as well. And that people after me will learn from other people's experience. That is what it's all about. Learning from other people's experiences—rather than reinventing the wheel again and again and again.

influence, if any, do international organizations focused on conservation have on thinking and practice in Syria and Lebanon?

al-Azm: In some cases, quite a lot of influence. I can cite one example. Twelve months ago there was an illegal building erected in Palmyra, and the issue was taken on by UNESCO, which sent a letter to the DGAM saying that if you allow this particular activity to go on, then you are endangering the status of Palmyra as a World Heritage Site. The DGAM had tried for a year to get this building torn down, and it was meeting resistance from various interested parties. But as soon as this letter became publicly known in the power circles, orders came right from the top that the building was to be removed *right now*—and it was literally bulldozed within two or three days. World organizations can have a lot of impact.

Skaf: International organizations have some influence by virtue of their well-known prestige. What they say—especially when it comes to a World Heritage Site—has some importance. Sometimes government policy can be affected by this prestige. For instance, there is currently a project for the World Bank to sponsor the presentation, interpretation, and conservation of two sites—Baalbek and Tyre. The World Bank has stipulated certain conditions in terms of capacity building and conservation requirements. So yes, international organizations certainly do have a positive role to play.

Demas: *How do you all feel about the need for specialization in conservation of mosaics? Are we specializing too much here? Is this not part of the bigger issue of archaeological sites? Is there a need to have an international organization, such as the ICCM, that looks specifically at mosaics?*

Skaf: It's certainly useful to have an organization like the ICCM for mosaics, from a technical point of view. However, since anyone who works in this field will almost certainly be aware of the need to be informed of the broader issues, I don't feel there is a problem with specialization.



ASSESSING THE PROTECTIVE FUNCTION OF SHELTERS OVER MOSAICS

By John D. Stewart, Jacques Neguer, and Martha Demas

The following was adapted from presentations given at the ninth conference of the International Committee for the Conservation of Mosaics, held in Tunisia, November 2005.

HUNDREDS OF ARCHAEOLOGICAL SITES WORLDWIDE are covered by modern constructions that provide shelter from the sun, rain, wind, and snow for excavated remains and for visitors. These shelters—as they are commonly called—come in a variety of shapes, sizes, and materials, ranging from primitive wooden huts and delicate, decorative nineteenth-century metal pavilions to heavy slabs of concrete and high-tech designs, such as space frames or membrane structures. Although there are notable examples of nineteenth-century and early twentieth-century sheltering, such as those at Pompeii and Herculaneum or over mosaic sites in England, the majority of shelters date from the 1960s onward.

The types of archaeological remains protected by shelters are equally varied, ranging from Paleolithic tool assemblages to Byzantine churches and Maya pyramids. Among these, ancient mosaic pavements are especially prevalent. Mosaic pavements were a common feature of private houses and villas, public buildings and porticoes, and basilicas and churches in the Hellenistic, Roman, and Byzantine periods, and they are therefore to be found throughout the Mediterranean and much of Europe and the Middle East. Beginning in the 1980s and gaining momentum in the 1990s, a distinct trend in the conservation of mosaics has been toward preservation in situ, rather than removal to a museum or to storage, which was previously standard practice, especially for figural mosaics. This shift to in situ conservation reflects, in part, a change in how we value mosaics. Artistic or aesthetic considerations—reflecting a view of mosaics principally as artistic creations—were uppermost in the decision to remove them to museums. In contrast, in situ preservation recognizes the historic and scientific values of *context* (the architectural ensemble for which they were created), *technology* (the information that resides in the stratigraphy), and *authenticity* (the excavated mosaic as a testament to its physical history, with all its marks and scars of age).

In response to this shift in approach, there has been a corresponding growth of interest within the conservation field in treatments and methods of protecting mosaics in situ, including a marked acceleration in the construction of shelters over mosaics. It would, however, be misleading to suggest that shelter construction is driven primarily by conservation needs. It has been spurred

on as well by growing pressures to develop archaeological sites for tourism, for which shelters are often constructed to serve visitor comfort and interpretation. While the two aims of conservation and visitation are not necessarily incompatible, too often the protective function of the shelter design is secondary to, or eclipsed altogether, by the architect's vision of how a shelter might meet a museological objective and enhance visitor experience. From a conservation perspective, the design of shelters should involve a clear decision-making process and address criteria aimed at protecting the archaeological remains. Even so, such critical information is often provided in only the most general terms, without reference to the condition of mosaics and associated risks. Also, there is often a lack of technical specifications that would allow the architect or engineer to build a shelter that will mitigate or prevent future deterioration.

Recent initiatives are beginning to address the need for performance evaluation and conservation criteria for shelter design. Specialized conferences on shelters in Bologna (2000), Arizona (2001), and Sicily (2003), and shelter initiatives of the Istituto Centrale per il Restauro in Rome, all attest to the current interest in protective shelters. These efforts have been notable for the emphasis on clear criteria and a multidisciplinary approach to planning for and designing a shelter. Assessments and evaluations of existing shelters are also increasing. Environmental monitoring is being used to assess performance of a shelter or, in advance of shelter construction, to inform the design. Modeling of shelter environments is also practiced. Numerous historical overviews and critical assessments of well-known shelters have also emerged in recent years.

Impact of Shelters on In Situ Mosaics

Despite these indicators of a more rigorous and sophisticated approach to the evaluation and design of shelters, we remain severely hampered by an incomplete understanding of causes of deterioration of mosaics and therefore an inability to provide architects with a specific conservation brief for the protection of the site. Although they are still often ignored, general criteria for protective shelters have long been understood—including the need to provide effective drainage, inhibit birds, mitigate environmental

fluctuations, and minimize the impact on archaeological remains. Also incomplete is our understanding of the degree to which existing shelters have been effective in conferring long-term protection. It is clear that some shelters actually contribute to deterioration of the pavements they are meant to conserve, but why this is so has not been sufficiently investigated.

Concerned with the performance of existing shelters and the proliferation of new shelters being designed and built over mosaics, English Heritage, the Israel Antiquities Authority, and the Getty

Conservation Institute came together in 2004 to develop a pilot project to respond to these concerns. English Heritage (the statutory agency for protection of the historic environment in England) and the Conservation Department of the Israel Antiquities Authority (charged with protection of archaeological sites in Israel) have long held responsibility for undertaking, advising on, and assessing conservation measures for mosaic sites, and both organizations had been independently investigating the efficacy of shelters in protecting in situ mosaic heritage in their own countries. The GCI—which

Sheltered Mosaics in England

There are currently fourteen sites in England with sixty-nine Roman mosaics presented in situ under shelters; just under half of the mosaics have been lifted and re-laid. Most are located in the south of England—a damp and temperate climate, but subject to winter frosts. In response to climatic conditions, some of the ancient mosaics of Britain rest on hypocausts, used to heat the rooms. Many of these sites were discovered in the nineteenth century, and shelters were erected over them as early as 1812. Several sites have had a sequence of shelters, beginning with simple sheds and moving on to permanent buildings. The early shelters (nineteenth and early twentieth century) are traditional vernacular structures of masonry or masonry-and-timber walls supporting a timber roof covered with stone slates, thatch, or other materials. From the 1960s onward, modern structures with large spans became common. *Photos:* Courtesy English Heritage.

Chedworth Roman Villa (Gloucestershire)



Shelters for the western bath suite.



Triclinium mosaic.

Five mosaic pavements at Chedworth were sheltered around 1867, soon after their discovery. The shelters, of timber on masonry walls with slate roofs, are heated in the winter. Although the mosaics appear to be stable, the shelters and the environment of the site have been monitored for the past eight years to inform improvements or the design of new shelters.

Bignor Roman Villa (West Sussex)



Thatched vernacular shelter structures.



The Venus and Gladiators mosaic with remains of underlying hypocaust.

The site presents seven mosaics within four shelters erected between 1812 and 1818, with two twentieth-century additions erected to protect reexcavated mosaics. The earlier shelters are of stone or brick with thatch or slate roofs. Since recent changes in site hydrology have resulted in some damage to mosaics, improved site drainage is being introduced, and results are being monitored.

Fishbourne Roman Palace (West Sussex)



The shelter as seen from the peristyle garden.



Interior of the shelter before current modifications.

Discovered in 1960, Fishbourne Roman Palace has the largest collection of in situ mosaics in the country; thirty are presented under the shelter, which was opened in 1968. Solar gain from the glazed south elevation and a high water table with aggressive soluble salts have contributed to accelerating deterioration. As a result, the shelter is undergoing substantial modification to improve the internal environment.

Dorchester Roman Town House (Dorset)



Overview of the shelter.



Interior with glass panels.

Dorchester Roman Town House, discovered in 1937, was reburied soon after excavation. In the late 1990s, the house was reexcavated and sheltered. The steel-framed structure has open gables above and glass panels below, allowing a high degree of ventilation. Lack of gutters and difficult site drainage have led to aggressive microbiological colonization and an unstable interior environment. Modifications are now being planned, to be followed by close monitoring of the condition of the mosaics.

had conducted previous research and design initiatives related to shelters and is currently working on a mosaics project—was interested in increasing its understanding of the impact of shelters on mosaic sites. Recognizing this shared interest, the three organizations agreed to collaborate on a shelter evaluation project.

Considering existing sheltered sites, the evaluation seeks to understand the relationship between the condition of a mosaic pavement and the environment created by the design of its shelter. The ultimate aim is to define improved criteria for shelters over mosaics in different environments. This is a complex undertaking, since there are many variables to consider, such as the original materials and techniques of mosaic construction, the mosaic's setting and environment, the materials and design of the shelter, and whether the mosaic is re-laid on a new support (often cement) or rests on its original lime-based support.

The methodology that has been developed by the three partners entails two phases: survey of shelter design and mosaic condition, and in-depth site-specific investigation and monitoring. The first phase involves a rapid countrywide-level survey of the design of shelters and the condition of the mosaics that they protect. From this rapid assessment, we hope to understand general trends and determine if a basic correlation between mosaic condition and shelter construction can be established. It is especially important to learn if the mosaic is showing active (that is, ongoing) deterioration—an indication that the mosaic's environment is not conducive to long-term preservation. Excluded from the assessment are aspects of shelter construction and mosaic condition that have no direct bearing on active deterioration, such as visitor-related features (e.g., walkways) or damage (e.g., graffiti). These aspects are not excluded because of their lack of importance, but simply because these are problems we understand and know how to address. What we do not understand is the relationship between shelter design and deterioration, such that we can specify the type of environment a shelter should create and ways to avoid creating conditions that will promote active decay.

Prior to the on-site survey, existing written, photographic, and graphic records of the shelter and environmental data are compiled, as the basis for understanding change over time and for determining the presence of active deterioration. Good archival records are critical to understanding whether deterioration is ongoing and to assessing the rate of change over time. One of the main challenges and weaknesses of the survey has been the lack of available records, of quality information, and of rationales behind treatment decisions, especially lifting and re-laying. Nevertheless, the compilation of existing data constitutes a basis for future monitoring and recording. The on-site survey is based on empirical observation. Intended to be undertaken in one day, it records mosaic materials, deterioration phenomena, site environment, and aspects of shelter construction,

with emphasis on features related to drainage and ventilation. Conditions are numerically graded by their extent and severity. The strength of the survey lies in its collection of site-specific data in a systematic manner across a broad spectrum that allows for comparability among sites and regions and has the potential for revealing patterns of deterioration.

Assessment in England and Israel

Rapid assessment has now been conducted on all sheltered mosaics in England and Israel, but the process of collating and synthesizing the data has only just begun. Apart from environment, a major distinction between mosaic sites in England and Israel is the date of excavation and shelter construction and the accuracy of associated archival material. Half of the English sites were excavated and presented under shelters in the nineteenth century, and some of these mosaics were not re-laid until a century later.

Preliminary results from England suggest that most mosaics protected by enclosed traditional structures—many for well over a hundred years—are in reasonably good condition, although half of these mosaics have been re-laid on new supports. The shelter survey points to site hydrology and internal environment as key elements to control, especially where aggressive soluble salts are present. Active deterioration of mosaics on the English sites always seems to be associated with such salts, and survey results indicate they may be exacerbated by shelter design, such as significant heat gained from solar exposure (i.e., solar gain).

In Israel, most sites were excavated and sheltered in the late twentieth century. Mosaics in enclosed shelters were, on the whole, found to be better preserved than those in open shelters, but most of these were re-laid. In cases of re-laying, it is difficult to distinguish whether beneficial or negative impacts on a mosaic derive from the shelter or from re-laying on a new support. Where mosaics are re-laid on a support of cement with iron rebars, results suggest that sheltering (both open and closed) provides sufficient protection to slow deterioration when compared with similar mosaics left exposed to the environment. The main threats to sheltered mosaics were identified as lack of regular monitoring and maintenance of the mosaics and the shelter, as well as inadequate site drainage. In some cases, bulging of the mosaic may actually have occurred as a result of the environmental conditions created by a shelter—especially when those conditions involved changes in relative humidity and moisture content, leading to crystallization of soluble salts and/or soil expansion and contraction.

We anticipate that the results of the rapid surveys will clarify the areas of greatest danger in designing shelters for mosaics under different environmental conditions. But the information provided by the surveys can only point to general trends of preservation and

patterns of deterioration. To go beyond such generalizations will require in-depth site-specific investigation and monitoring of selected sites in the second phase of the project. This step will likely involve testing a hypothesis for deterioration by monitoring ambient and subsurface environments over several seasonal cycles.

Combined with other long-term monitoring being conducted at sites such as Chedworth in England and Orbe in Switzerland, it is hoped that results can form the basis for more informed decisions in designing shelters to protect mosaic sites.

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Sheltered Mosaics in Israel

In Israel there are some 36 shelters over 105 mosaics. Mosaic sites are distributed throughout the country in varied climatic conditions, ranging from maritime environments with high relative humidity and aerosols to desert climates with extreme temperature fluctuations. The first protective shelters were built in the 1930s, but the majority were constructed in the 1990s, when development of archaeological sites for tourism became a national priority, and large-scale projects were carried out at the sites of Caesarea, Zippori, and Beit She'an. There is a full spectrum of shelter types covering mosaics, ranging from simple shed constructions to full enclosures with controlled environments. *Photos: Nicky Davidov, Israel Antiquities Authority (unless otherwise noted).*

Ein Gedi Synagogue



Overview of the shelter.



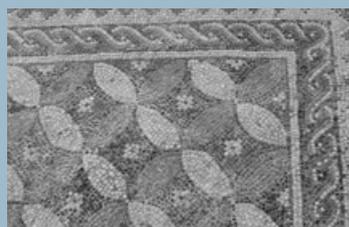
Mosaic pavement.

Located in an area of extreme heat and aridity near the Dead Sea, the dramatic open tensile structure provides the third-century mosaics of Ein Gedi with protection from solar radiation and thus from extreme fluctuations of temperature.

Caesarea, NN4 Site



Shelter over the NN4 test area.



Detail of mosaic from test area.

Photo: Bettina Lucherini.

At the site of Caesarea, which is located on the coast, where relative humidity is very high, a simple timber shelter constructed in an experimental context lacked sufficient ventilation. The result was condensation problems, which led to salt crystallization, bulging, and detachment of the mosaic.

Beit She'an, Tel Itztaba



View of the shelter and exposed mosaic.



Detail of exposed mosaic with vegetation growth.

Tel Itztaba is the site of a Byzantine basilica with several geometric mosaics, located in the Jordan Valley, south of the Sea of Galilee. A simple open shelter that was constructed in 1996 over one of the mosaics has prevented intensive growth of vegetation, which damaged the other exposed mosaics in the complex.

Zippori, The Synagogue



The synagogue shelter—exterior.



The synagogue shelter—interior.

The closed shelter over the synagogue at Zippori incorporates two transparent walls, air-conditioning, and lighting. Since its completion in 2002, the shelter has provided good protection for the re-laid mosaic. The transparent walls are set sufficiently back from the mosaic to avoid the common problem of extreme heat and temperature fluctuations.



LESSONS LEARNED

A REPORT ON THE 2005 ICCM CONFERENCE

By Thomas Roby

IN NOVEMBER 2005 IN HAMMAMET, TUNISIA, the International Committee for the Conservation of Mosaics (ICCM) held its ninth conference since its founding in 1977. The ICCM has its roots in the Association Internationale pour l'Etude de la Mosaique Antique (AIEMA), which has focused on the study and understanding of mosaics—rather than on their conservation—since its inception in 1963. The 1977 meeting, which gave birth to the ICCM, was organized by ICCROM and included members of AIEMA. That meeting in Rome was a significant example of collaboration between archaeologists and conservation professionals concerned about the deterioration and loss of mosaics on archaeological sites.

The latest ICCM conference was a collaborative effort hosted by the Institut National du Patrimoine (INP) of Tunisia and its director of sites and monuments, Aïcha Ben Abed, with the professional and organizational support of the Getty Conservation Institute and under the guidance of the ICCM board—particularly its president, Demetrios Michaelides. The theme of the conference was “Lessons Learned: Reflecting on the Theory and Practice of Mosaic Conservation.” It seemed appropriate that after almost thirty years of ICCM conferences, the mosaic conservation field should look back on its experiences and draw conclusions about what has been accomplished and where the field needs to go. The location of the 2005 conference provided an opportunity to attract participants from Arab countries and from Turkey, which are usually poorly represented at ICCM conferences. To capitalize on this opportunity, the Getty Foundation provided a grant that enabled the participation of forty-nine professionals from ten Arab countries and Turkey.

Two members from Arab countries were elected to the ICCM board at the end of the conference—a significant widening of the board’s geographical representation.

The four days of conference papers were organized into different sessions with their own themes: evaluating mosaic practice, caring for mosaics in museums, documenting and assessing sites at risk, managing sites with mosaics, sheltering mosaics, and training conservation practitioners. In addition, there was a session on case studies in which papers illustrating recent conservation projects were grouped. Conclusions drawn from the various sessions were summarized at the end of the conference (see sidebar). Publication of the proceedings will be undertaken by the GCI.

In the closing session of the conference, the ICCM board put forth two general recommendations:

1. Taking into consideration the great need for the maintenance of mosaics left in situ in the open air or under shelters, the ICCM encourages the managers of archaeological sites to systematically measure during the next three years the cost to maintain the mosaics in good condition while presenting them to the public.
2. Recognizing that numerous training programs, without any connection between them, have been launched in various countries during the last years, the ICCM encourages the undertaking of an assessment of needs for training in Mediterranean countries in order to eventually launch a coordinated effort to improve the level of knowledge and intervention of the professional staff of these countries.

Site Visits in Tunisia

The ICCM conference included visits to the ancient sites of Thuburbo Majus, Jebel Oust, Neapolis (Nabeul), and Carthage, as well as a visit to the Bardo Museum in Tunis, which houses the world's largest collection of ancient mosaics. The visits to Thuburbo Majus and Jebel Oust provided the opportunity not only to see the extensive mosaics of those sites but also to meet and to view the work of the mosaic maintenance technicians. During three different recent fourteen-week courses, these INP technicians were trained for the maintenance of in situ mosaics by a team of GCI staff and consultants. The maintenance technicians have already had a dramatic effect on a number of sites with mosaics. But they need the supervision of Tunisian conservators (which do not yet exist), as well as of site managers, to support and direct their work. The INP is working to develop these new site personnel profiles, with the assistance of the GCI. At Neapolis, a site newly opened to the public, the in situ mosaics of the House of the Nymphs were visited, and the regional archaeological museum in the modern town offered the opportunity to view the figurative mosaics of the house, which had been removed from the nearby site many years ago, following its excavation.



Site visit to Thuburbo Majus. *Photo: Kathleen Louw.*



Mosaic maintenance technicians working at Jebel Oust. *Photo: Elsa Bourguignon.*



A mosaic pavement at the site of Neapolis, with the figurative portion of the mosaic removed. *Photo: Sibylla Tringham.*



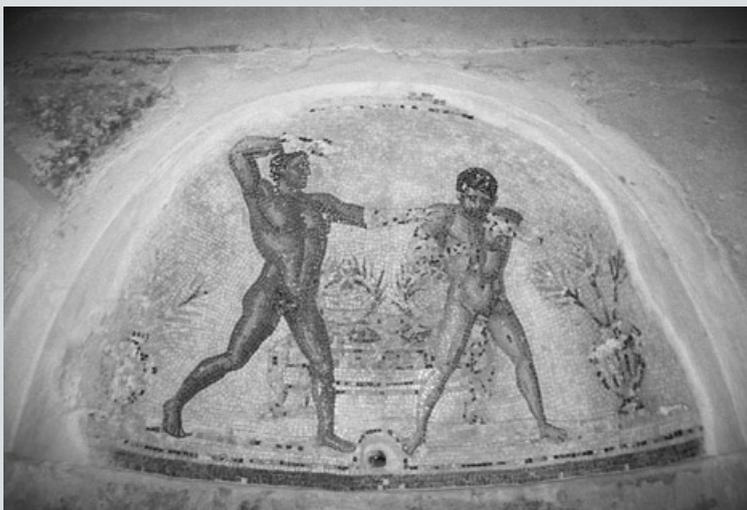
Site Visits in Libya

The ICCM conference ended with an optional three-day post-conference tour to Libya, which included visits to the Archaeological Museum in Tripoli and to the ancient cities of Sabrata and Leptis Magna, as well as to Villa Silene and several other smaller sites normally closed to the public. At the sites of Sabrata and Leptis Magna, in particular, one could see—beyond the scale and extraordinary artistic and historic significance of their architectural remains—the long-term effects of insufficient site maintenance and management. The tour included visits to the site museums of Sabrata and Leptis Magna, where the major Roman and Byzantine mosaic discoveries from the past century could be viewed, including the spectacular gladiator scenes from a recently excavated villa outside Leptis Magna. *Photos: Elsa Bourguignon.*

Leptis Magna.



A mosaic in situ at Sabrata.



An apsidal wall mosaic at Villa Silene.



Detail of a mosaic at the Sabrata Museum.

It is interesting to compare these recommendations with those that came out of the 1977 meeting. Both meetings addressed the need for training in mosaic conservation, although more training initiatives have been organized in the nearly three decades since 1977. The focus now is more on the quality and sustainability of the training than on making it available. Whereas in 1977 the concern was for the loss of information resulting from the detachment or other interventions on mosaics, now that in situ conservation is more commonly practiced, there is a need for documentation regarding the costs of in situ conservation, so that mosaics, along with the rest of the site, can be better managed.

The recommendations of previous ICCM conferences called for the conservation in situ of mosaics through protection or reburial and through maintenance—with detachment considered an intervention of last resort. They also called for research by scientists, conservators, and archaeologists to improve the methods of preserving and maintaining mosaics (1986). Past conferences have specifically recommended the use of conservation materials compatible with the original lime-based materials of mosaics (i.e., not cement), and the provision by site directors of the financial resources necessary for in situ mosaic conservation (1996). More recently the ICCM has advocated that programs for conserving and presenting mosaics should be part of an overall site conservation plan that is based on the collaboration of archaeologists, conservators, architects, administrators, and the general public (1999). The importance of the public in the conservation of mosaics and in issues of presentation has been increasingly recognized at ICCM conferences.

Over the past thirty years, ICCM conferences have managed to effect a shift from the detachment of mosaics to their conservation in situ. These conferences have also increased the awareness of those in the mosaic conservation field regarding the essential role of preventive conservation, as well as the importance of monitoring and maintenance for successful in situ conservation. But how much of this message is reaching archaeologists and site directors who do not have a specialist interest in mosaics? Discussion at the conference suggested that it was very difficult to find ICCM conference proceedings in libraries. Relatively few copies of the proceedings are printed, and little effort is made to distribute them to major libraries. To reach more people outside the field, the director of ICCROM at the time of the conference, Nicholas Stanley-Price, proposed the production of a short publication of principles and guidelines for mosaic conservation for nonconservation audiences. While this would be outside the usual activities of the ICCM, such initiatives could help improve the level of collaboration between it and archaeological organizations such as AIEMA, thereby advancing the practice of mosaic conservation.

Another issue raised was mosaic reburial. At least one participant was convinced that this was not an effective technique for preserving mosaics in the long term, while others favored it. At past conferences as well, papers that addressed the reburial of mosaics sometimes provoked divergent opinions. During the 2005 conference, it was proposed that reburial be a session topic at the next ICCM conference, as a way of achieving more informed opinions and consensus about this important mosaic and site conservation option.

This conference, which invited participants to reflect on the history of the mosaic conservation field, did not always reach the hoped-for level of self-analysis, but it did lead to the realization among many that a flexible approach to mosaic conservation is needed. At past ICCM conferences there was a greater division, if not antagonism, between those who practiced conservation through the lifting of mosaics and those who practiced in situ conservation. At the Tunisia conference, various participants acknowledged that lifting should happen much less often than it still does, but that in certain instances it is the last and only option for the conservation of a mosaic.

A common opinion expressed at the conference was that the field needs to take a much broader view of mosaic conservation and address it as an element of overall site management, while also taking a long-term approach, which requires maintenance and monitoring to ensure the sustainability of conservation interventions. However, for this approach to be successful, the development of new categories of staffing and a greater financial commitment of governments responsible for sites are required.

The next ICCM conference will take place in Palermo in 2008; it will be hosted by the Sicilian Regional Center for Conservation (Centro Regionale per la Progettazione e il Restauro). This event promises to showcase the efforts of Sicilian authorities to take a broader, long-term approach to mosaic conservation at its sites, including the famous Villa Romana del Casale at Piazza Armerina—just as Tunisia has begun to do by training conservation technicians, as well as future conservators and site managers.

Thomas Roby is a senior project specialist with GCI Field Projects and manager of the Institute's collaborative project with the Institut National du Patrimoine in Tunisia that is providing training in the care and maintenance of in situ archaeological mosaics.

For additional information regarding the ICCM, please visit its Web site at www.iccm.pro.cy.

2005 ICCM Conference Session Conclusions

On the final afternoon of the 2005 ICCM Conference, an overview was presented of the main messages that emerged during the thematic sessions. This overview was based on summary points—reproduced here—which were distilled from each session by conference rapporteurs.

Evaluating Mosaic Practice

- Evaluation of past interventions and practices is essential to improving current and future practices but is largely dependent on accurate and accessible documentation.
- The practice of mosaic conservation has evolved from one of limited options (detachment), materials (cement), values (aesthetic), and stakeholders (professionals), to one involving complex decision making and planning with a range of viable in situ options (both temporary and long term), the use of scientific methods and compatible materials, and the recognition of multiple values and varied stakeholders.
- Conservation interventions are sustainable only when there is a clear vision, an effective management structure and planning process in place, trained personnel, and regular maintenance and monitoring.
- Decisions about how to treat a mosaic must be made on a case-by-case basis (there is no single formula that can be applied to all mosaics on a site). They are the result of thorough assessment and need to be based on defined criteria and guidelines.
- An understanding of causes of deterioration to in situ mosaics requires recognition of unsolved problems, implementation of long-term and in-depth investigations, and wide dissemination of their results.

Caring for Mosaics in Museums

- Decisions need to be shared by curators and conservators in order to achieve successful and sustainable conservation solutions.
- Previous conservation interventions can sometimes be detrimental to the condition of mosaics in museums; negative effects of past treatments (such as embedded iron rods) can often be mitigated or slowed through preventive conservation measures, such as the control of temperature and relative humidity in both gallery and storage conditions.
- It is important to consider both the objects and the building envelope in making conservation decisions about mosaics displayed in museums; poor storage conditions is a subject of increasing concern.
- Where adequate documentation does not exist, analysis of past treatments and treatment materials may be necessary in order to develop appropriate conservation measures; historic photographs can also be useful in understanding the change in an object's condition over time.
- In some cases, past interventions have become important to the history of the object and merit conservation in their own right.
- Interpretation and presentation to the public are important values in museum conservation; treatments carried out in full view of the public can be useful in increasing understanding of and support for conservation.

Documenting and Assessing Sites at Risk

- Mosaic corpora that include conservation information and risk assessment strategies undertaken at national or regional levels can be significant tools for the conservation and management of the mosaic heritage.
- It is important to establish systematic documentation standards and protocols to facilitate decision making and to improve practice.
- Attention should be given to the development of documentation strategies that permit improved sharing of information, perhaps through more effective use of digital technologies and the Web.

- Archaeologists and conservators must work together effectively on rescue excavations to ensure that decisions made are those that are best for the heritage at risk.

Managing Sites with Mosaics

- There is a clear trend emerging to look at sites holistically and to undertake more systematic assessment and planning before arriving at decisions regarding conservation and management of sites.
- Stakeholder participation is crucial in gaining support for in situ preservation and in the prevention of looting.
- Techniques like geographic information systems (GISs) may be useful in documenting, monitoring, and managing the mosaic heritage.
- There are multiple options for mosaic conservation that include conservation in situ, detachment and replacement in situ, detachment and replacement in a museum, and reburial. These choices should be made through a systematic study of the entire site that considers the condition of each mosaic and its treatment history, the environment, the desirability of presentation to the public, and the cost.
- Better and more comparable information is needed regarding the relative costs of various types of treatment in order to make informed decisions regarding site conservation.
- Further research may be required regarding reburial methods and the nature of the reburial environment.

Sheltering Mosaics

- The assessment of existing shelters, with regard to protection, cost, and maintenance, for example, can lead to a better understanding of the criteria that affect shelter performance and provide valuable information for the design of new shelters.
- Shelter evaluation should be based on a study of the nature and rate of deterioration in relationship to environmental conditions in the sheltered space. Various types of monitoring strategies may be used to better understand conditions and to assess risks in the sheltered environment.

- Decision making regarding the design of a shelter must be informed by a number of factors, including performance criteria, stakeholder concerns, interpretation and presentation issues, and cost.
- The real cost of a shelter includes not just the initial cost but that of "cost in use," i.e., the cost over the life of a shelter to maintain it in good condition. Too often the need to maintain a shelter is overlooked.
- Shelters cannot be considered in isolation. A shelter affects the entire site, including its condition, appearance, and use. Long-term planning can prevent unintended consequences.

Training of Conservation Practitioners

- Training is needed at all levels, from that of mosaic technician to conservator and site manager.
- The sustainability of a training initiative will be based on a number of factors. These include:
 - the use of tools, materials, and techniques appropriate to the resources and skills in the local environment;
 - a training effort that is not confined to a single experience but involves a continuous effort over time; and
 - the existence of a management context in which those trained will find employment and support once their training is complete.
- Regional, international, and institutional partnerships can be of great value in training initiatives. Partnering can take many forms, including collaboration in national or regional training initiatives as well as the exchange of personnel or periods of supervised work in centers of expertise.
- The coordination of training activity for mosaic conservation and the larger issues of site management is increasingly important. This will allow for the better use of resources, will prevent duplication of effort, and will facilitate the sharing of didactic materials and strategies.

Southern African Rock Art Project

In August 2005, in conjunction with the Getty Conservation Institute's Southern African Rock Art Project, the Institute and its South African partners undertook a two-week site management workshop and a three-week guide training course at two South African World Heritage Sites: the Mapungubwe Cultural Landscape in the north and the Cederberg Wilderness Area in the south. The objectives of the Southern African Rock Art Project are to build capacity and create awareness of the significance of rock art in the southern African subcontinent through developing interpretation and management plans for sites, and to enhance education and tourism as a model for sustainable conservation and community participation.

Rock art is frequently overlooked as a ubiquitous heritage. It is not only often of exquisite beauty but also reflects ancient ways of communication, healing, and the origins of religion, which are still poorly understood. Across the southern African subcontinent, there exists one of the great bodies of rock art paintings and engravings. Created primarily by the San hunter-gatherer peoples, the paintings typically occur in natural rock shelters, often in mountain fastnesses. Some date to deep antiquity. A decline in the creation of this art began with the arrival of the Bantu peoples from the north and continued with pressure from the much later European settlement of the area, so that by the

nineteenth century, art was probably being created only in very remote and isolated regions.

The preservation of paintings on rock surfaces is a great challenge, since there are so many threats to the work—weathering, collecting, and destroying. One key to preserving this art is the involvement of local communities around the sites. When sites of centuries-long local significance are removed from their traditional owners and given over to government agencies for care and management, the result has been alienation of these communities and adverse consequences for the art.

The Mapungubwe course organized by the GCI in partnership with the South African Heritage Resources Agency (SAHRA) and South African National Parks, both national authorities, focused on site management workshops for the many scattered sites within the boundaries of the park. This newly declared national park, protected by national legislation, provides an opportunity for integrating cultural heritage management with the natural heritage of an ecologically diverse region. Participating in these workshops were staff from South African National Parks and professionals from Zimbabwe, Botswana, Namibia, Zambia, and Tanzania.



The rugged landscape of the Cederberg Wilderness afforded the San peoples protective rock overhangs and shelters in which they created paintings. *Photo: Neville Agnew.*



Detail of a painting of a herd of eland, largest of the African antelopes and sacred to the San, moving over a rock face in the Cederberg Wilderness. Photo: Neville Agnew.

In the Cederberg Wilderness Area, the focus was on rock art guide training for young people. Here, the training course was run in conjunction with the Living Landscape Project, based in the historic town of Clanwilliam, to the north of Cape Town. Formal training was undertaken by the Cape Peninsula University of Technology, with content provided by consultant Dr. Janette Deacon and Professor John Parkington from the University of Cape Town. With a rich San rock art heritage, Cederberg was chosen as an area in which disadvantaged youth could acquire accredited guiding skills. Participants from other southern African countries as far afield as Tanzania were among the twenty trainees.

In summer 2006, the Southern African Rock Art Project will return to the two areas to continue guide training and the development of site management plans. Activities at the two sites will be reversed. Mapungubwe will be the focus of training for rock art guides, including guides from private game ranches surrounding the park that are also rich in rock art sites. At Clanwilliam, the focus will be on developing site management and presentation and interpretation plans for the sites.

Canvas Staining Project

The Getty Conservation Institute, the Hirshhorn Museum and Sculpture Garden, and the National Gallery of Art in Washington, D.C., have formed the Canvas Staining Project, a collaborative effort to study issues concerning staining found on unpainted, unprimed areas of canvas in twentieth-century works of art. The aim of this project is to develop safe, well-researched treatment protocols to conserve these works through better understanding of the mechanisms of staining and canvas degradation, and to assess the efficacy of past and current conservation treatments.

The technique of painting on unprimed canvas is most often associated with the Washington, D.C.–based Color-field school, which was active from the mid-1950s through 1970. Artists such as Morris Louis, Kenneth Noland, and Helen Frankenthaler developed a new style of painting that relied on the application of monochromatic fields of color to unprimed canvas. Color-field artists poured, dripped, or brushed thinned paints onto the canvas that soaked through the surface and stained the fabric supports, thereby integrating textile and painting. Many other artists also experimented with painting on raw fabric—nearly every museum worldwide with holdings in modern and contemporary art contains artwork on unprimed canvas.

The texture of the raw canvas can create a velvet-like appearance, and

expanses of unpainted canvas form an integral visual component of these works. The exposed canvas, however, is susceptible to readily noticed stains, discolorations, scuffs, and marks. Most of these stains are of unknown origin, and those from known sources are formed by poorly understood mechanisms.

Conservation treatments for Color-field paintings are few, and properly evaluated treatments are fewer, even though these issues became apparent while the school was still active. Today, condition and visual surveys of these works, as well as information gathered from conservators experienced with these paintings, highlight the increasingly problematic staining of Color-field paintings and other works on unprimed canvas in museum and private collections.

The great need for improved conservation treatments prompted the formation of the Canvas Staining Project. The project has identified two topics for researching stain mechanisms: stains due to stretcher bars and stains due to sizing agents. Volatile, possibly reactive components within the wood stretcher bars are believed to migrate to the canvas. Textile manufacturers apply sizing agents, such as starch or wax, to yarns to aid the weaving process, and artists have been known to stiffen the canvas by applying hide glue prior to painting.

In January 2006, specialists from the fields of modern paintings conservation,

UCLA/Getty Program Begins

conservation science, accelerated aging, cellulose degradation, and textile manufacturing gathered in Washington, D.C., under the auspices of the Canvas Staining Project, for a two-day meeting centered around the topics of stains due to stretcher bars and sizing agents.

The meeting began with exchanges on various conservation treatments, storage and display environments, and textile manufacturing processes, which significantly informed the subsequent discussions. Among the topics discussed were the potential benefits and pitfalls of accelerated aging for studies of stretcher bar stains and sizing agents, sampling and testing techniques for fiber samples, and sources and uses of authentic sample materials, as well as the need for more detailed surveys of Color-field paintings and other works on unprimed canvas.

The discussions and ideas brought forth at the meeting will help guide the research plan being developed for the Canvas Staining Project.

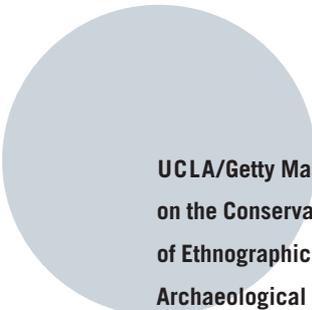
The UCLA/Getty Master's Program on the Conservation of Ethnographic and Archaeological Materials (see *Conservation*, vol. 18, no. 3) welcomed its inaugural class of master's degree candidates in September 2005. The six students have varied academic and conservation experience, including degrees in chemistry, archaeology, and art history, as well as experience working with rock art, with museum collections, and in field situations. The UCLA/Getty program is the first conservation training program on the U.S. West Coast, and the first in the country to emphasize materials and technologies associated with archaeological and ethnographic objects and sites.

The UCLA/Getty program is administered through the Cotsen Institute of Archaeology at UCLA, an interdepartmental institute that draws on faculty from the departments of Anthropology, Art History, Near Eastern Languages, and Classics. In the three-year UCLA/Getty program, students will study for a master's degree in conservation. Classes will be held at the UCLA campus and in the conservation training laboratories at the Getty Villa. The program will provide foundation training in material properties, technology, sources of deterioration, and treatment and prevention methods. Additional training includes documentation techniques for both collections and sites, a collaborative course with a tribal museum in southern California, and two courses in preventive conservation that

emphasize both collections and site management. Students will gain archaeological experience by participating in field excavations in Chile, Albania, and Turkey.

Faculty and staff for the program include David A. Scott, program chair; Ioanna Kakoulli, assistant professor in materials science and engineering; Ellen J. Pearlstein, program academic coordinator; Vanessa Muros, staff research associate; and program assistants Gillian Bailey and Amber Cordts-Cole.

The next class will be enrolled in September 2007. For further information visit the UCLA Web Site at ioa.ucla.edu/conservation/ or visit the Getty Web site at www.getty.edu/conservation/education/ucla_getty/.



UCLA/Getty Master's Program on the Conservation of Ethnographic and Archaeological Materials Inaugural Class

Christian De Brer
Özge Gençay-Üstün
Molly Gleeson
Allison Lewis
Steven Pickman
Liz Werden

Baryta Layer Symposium

In January 2006, the Getty Conservation Institute and Boston-based independent conservator Paul Messier presented a daylong symposium, “Understanding Twentieth-Century Photographs: The Baryta Layer,” in conjunction with the Institute’s Research on the Conservation of Photographs project. Held at the Getty Center, the symposium focused on the scientific investigation of the baryta-layer coating used in black-and-white photographic paper and its role in the identification, authentication, and provenance of twentieth-century silver gelatin photographs. In attendance were more than eighty participants, including conservation scientists, photography conservators, photography historians, museum curators, photographers, and auction house representatives from the United States, United Kingdom, France, Germany, Canada, and Mexico.

Scientific investigations conducted independently by the GCI and Messier have identified a number of chemical and physical markers of baryta-coated black-and-white photographic paper that can be used for provenance, authentication, and, in some cases, dating of photographic material and photographs.

Messier presented the results of his research in optical brighteners and discussed his extensive collection of well-

documented photographic papers that became the focus of collaborative baryta-layer research with the GCI. Dusan Stulik, a GCI senior scientist, discussed this research, from the development and verification of the scientific methodology to its results and applications for both photography conservation and art-historical research. Future work will include application of the newly developed methodology to provenance and art-historical questions and to research in data mining and data interpretation of twentieth-century photographs.

GCI graduate intern Renaud Duverne presented research conducted on cross sections of photographs that has shown that detailed physical measurements, together with a study of the morphology and size of particles of the baryta layer, can also be used as markers to develop a provenance strategy for photographs. In addition, GCI research addressing important questions on the internal chemical stratigraphy of photographs was discussed by GCI Research Lab Associate Art Kaplan. David Miller, from the Department of Chemistry at California State University, Northridge, demonstrated that a study of both minor and trace chemical elements present in photographs is another potential tool for dealing with difficult provenance issues.

The second part of the symposium included a demonstration by GCI consultant Tram Vo of the new analytical methodology for determining the provenance of twentieth-century photography. The event concluded with a roundtable discussion of issues related to the authentication and provenance of photographs, current research in photographic conservation, and the need for a systematic worldwide development of a photographic materials reference collection.

For more information please visit the Getty Web site at www.getty.edu/conservation/science/photocon/index.html.

Getty Foundation New Orleans Initiative

The Getty Foundation, the philanthropic arm of the J. Paul Getty Trust, has launched a special initiative to assist New Orleans visual arts institutions to recover from the impact of Hurricane Katrina—the Fund for New Orleans, a \$2 million fund to aid the city’s visual arts organizations.

The Getty Foundation’s Fund for New Orleans will enable nonprofit arts organizations to apply for support in two areas: conservation and transition planning. Conservation grants are designed to assist the city’s cultural institutions to care for their art collections and archives, historic buildings, and landscapes. Transition planning grants are aimed at strengthening nonprofits as they respond to the changed environment for the arts following the storm.

The existence of New Orleans, as well as the city’s cultural economy, were threatened by the hurricane. The Fund for New Orleans recognizes that increasing cultural tourism is an important part of the recovery effort.

Shortly after the storm, the Getty Foundation funded the launch of the National Trust for Historic Preservation’s recovery and outreach efforts in the devastated region (see *Conservation*, vol. 20, no. 3). The grant covered the expenses necessary to organize and deploy volunteer teams of architects, conservators, and engineers to Alabama, Louisiana, and

Directors' Retreat for Conservation Education



Longue Vue House and Gardens, with equipment drying out the building following Hurricane Katrina. The site is a National Historic Landmark in New Orleans. *Photo: Kristin Kelly.*

Mississippi, to assess the damage caused to historic buildings and districts by the storm and flooding. This work served as an essential first step in preserving and rebuilding the area's towns and neighborhoods.

The Getty Foundation's Fund for New Orleans reaffirms its commitment to philanthropy in New Orleans. While this special fund has been designed to provide concentrated assistance in New Orleans, the Foundation will also consider support through its regular grant categories for other organizations in the region that were impacted by Hurricane Katrina. In addition to the grant fund, Getty staff members will lend their expertise to selected conservation or transition planning projects.

For more information please visit www.getty.edu/grants/fund_for_new_orleans/index.html.

The Getty Conservation Institute, the American Institute for the Conservation of Historic and Artistic Works (AIC), and the Association of North American Graduate Programs in Conservation (ANAGPIC) will hold a Directors' Retreat May 23–25, 2006, in Austin, Texas. The focus of this retreat will be on ways to employ Web-based technology more effectively to achieve teaching and learning goals in conservation education.

The AIC-ANAGPIC-GCI Directors' Retreat draws upon each organization's experience and growing interest in using the Internet in conservation education, which includes AIC's integration of distance education into its program of continuing professional development, ANAGPIC's interest in the Web in academic teaching and learning, and the GCI's exploration of resource sharing and distance mentoring via the Web. The retreat's objectives are to gather ideas, to develop a better understanding of the potential of Web-based technology for conservation education, and to consider ways of building upon a growing collective experience.

The retreat will be attended by directors of academic programs in conservation with interest and experience in using the Web for teaching. The participants will be primarily from academic programs in North America, with several participants from Europe and Australia. In addition to

discussions and interactive sessions, participants will visit the University of Texas at Austin campus, including the Kilgarlin Center for Preservation of the Cultural Record at the School of Information, the Harry Ransom Humanities Research Center Conservation Department, and the new Blanton Museum of Art.

The Directors' Retreats for Conservation Education are an ongoing series of meetings that aim to promote collaboration and strategic thinking among conservation educators internationally. For more information, please visit the Getty Web site at: www.getty.edu/conservation/education/drsretreat/.

Of the Past, For the Future: Integrating Archaeology and Conservation

Edited by Neville Agnew and Janet Bridgland

Conservation is a core value for most archaeological professional organizations. It is highlighted in their codes of ethics, statements of mission, and governance. In recognition of this, the World Archaeological Congress, with the Getty Conservation Institute and a consortium of other conservation organizations, brought together scholars working throughout the globe to discuss vital issues that affect archaeological heritage today (see *Conservation*, vol. 18, no. 1).

This volume presents the proceedings of the Conservation Theme at the congress, held in Washington, D.C., June 22–26, 2003. Among the topics discussed are: Innovative Approaches to Policy and Management of Archaeological Sites; Finding Common Ground: The Role of Stakeholders in Decision Making; Archaeology and Tourism: A Viable Partnership?; Preserving the Cultural Heritage of Iraq and Afghanistan; Archaeology and Conservation in China Today; and Managing Archaeological Sites and Rock Art Sites in Southern Africa.

Neville Agnew is a principal project specialist at the Getty Conservation Institute. Janet Bridgland is the president of the Preservation Management Institute.

336 pages, 9 x 11 inches

47 color and 67 b/w illustrations

paper, \$75.00

The Restoration of Engravings, Drawings, Books, and Other Works on Paper

By Max Schweidler

Translated, edited, and with an introduction, appendix, and glossary by Roy Perkinson

Since its original publication in Germany in 1938, Max Schweidler's *Die Instandsetzung von Kupferstichen, Zeichnungen, Büchern usw.* has been recognized as a seminal modern text on the conservation and restoration of works on paper. To address what he saw as a dearth of relevant literature, the noted German restorer composed a technical manual covering a wide range of specific techniques, including instructions on how to execute structural repairs and alterations that, when skillfully done, are virtually undetectable.

This volume, based on the authoritative revised German edition of 1949, makes Schweidler's work available in English for the first time, in a meticulously edited and annotated critical edition. The editor's introduction places the work in its historical context, while some two hundred annotations elucidate the text itself. An appendix presents technical reports on eleven old master prints that underwent repair or other treatment with techniques similar to those Schweidler describes; it complements Schweidler's own text in aiding curators, conservators, and collectors to detect such repairs. There is also a glossary.

Roy Perkinson is head of the Virginia Herrick Deknatel Paper Conservation Laboratory at the Museum of Fine Arts in Boston.

304 pages, 7 1/2 x 10 5/8 inches

20 color and 81 b/w illustrations

paper, \$50.00

Jonathan Bell

Associate Project Specialist, Field Projects

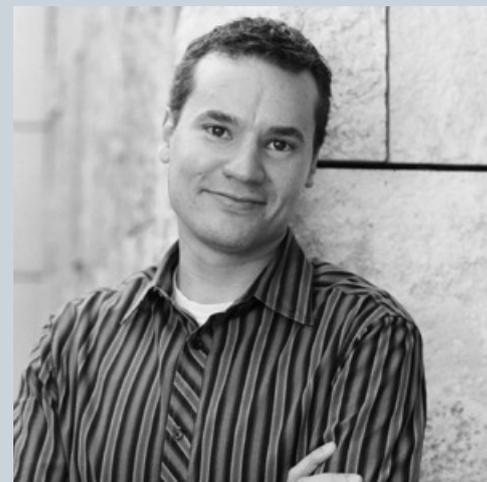


Photo: Dennis Keeley

Claudia Cancino

Associate Project Specialist, Field Projects



Photo: Dennis Keeley

For Jonathan Bell, who grew up in New York City, travel was a part of his life early on, and included trips to the North Carolina farm where his mother grew up, and later to the Caribbean and Jamaica, his father's place of birth. In his teens, Jonathan also spent some summers in France, where he added French to the Spanish he had learned as a young child. He attended Hunter College High School in Manhattan, where he played piano, sang in a jazz group, and participated in school activities that had an international focus. He knew, even then, that he wanted to do international work.

At Harvard, he selected East Asian studies as his major and began intensive work in Mandarin Chinese. Another course sparked an interest in Buddhism, and Jonathan ended up writing an undergraduate thesis on the Buddhist iconography in wall

paintings at a couple of sites in China. He also worked at the university's Museum of Archaeology and Ethnology, cataloging and researching its Tibetan *thangka* collection.

Graduating in 1997, Jonathan spent two years at the Université Paris–Sorbonne (Paris IV) studying Tibetan iconography and earning a *diplôme d'études approfondies*. As part of his studies, he traveled to China's Sichuan Province to view the murals of the remote Baiya Monastery. There he had the opportunity to watch an Italian conservation team at work, an experience that initiated his interest in conservation—and in learning Italian.

During an internship and subsequent consultancy with the Cultural Heritage Division of UNESCO in Paris, Jonathan decided that he wanted more technical background in conservation. He enrolled in the historic preservation master's program at Columbia University in New York, and while there he wrote a thesis that analyzed

the compatibility of modern building materials with historic fabric in a fifteenth-century Islamic tomb complex in Pakistan.

After graduating from Columbia, Jonathan came to the GCI briefly as a consultant in June 2001. Five months later, he returned to the Institute as a staff member, hired to assist on the China Principles project. Since then he has been enjoying the intellectual challenge of working as part of a team applying those principles at two very different sites—the Mogao Grottoes and Chengde. Conservation requires him to draw upon a wide range of knowledge and skill, and for Jonathan that keeps the work exciting.

Claudia was born in Lima, Peru, the middle child of three, to parents who were physicians. As a child, Claudia would often go to see her father's family in Trujillo, and while there she would visit the World Heritage Site of Chan Chan, as well as other nearby historic earthen sites, which sparked an interest in historic places. She had other childhood interests as well, including competitive swimming, something she pursued vigorously. Indeed, at the age of twelve she became part of the Peruvian national swim team, won several international championships, and traveled to most of the countries in South America.

Her interest in architecture dates back to when she was five. An older cousin who was studying architecture taught her basic design on a drawing table, and she decided early on that she wanted to be an architect. Even while she was earning her degree in

architecture from the Universidad Ricardo Palma in Lima, she knew that she wanted to work with historic environments. While at the university, she developed a course on historic preservation for schoolchildren that she taught for two years.

After several years working as an architect in Lima, she went to Rome for six months to attend ICCROM's International Architectural Conservation Course. Returning to Peru, she began teaching conservation, history of architecture, and earthen construction at the Universidad Peruana de Ciencias Aplicadas, with course work that included hands-on earthen construction—an activity that she particularly enjoyed. During this time, she also earned a degree in business administration.

Three years later, she entered the University of Pennsylvania Historic Preservation Program, where she earned first a master's degree and then an advanced

certificate in conservation. Her studies with the program included fieldwork at Mesa Verde National Park in Colorado.

In 2002, after completing the program, she applied for a position at the GCI, and she subsequently joined the Institute's Field Projects department, where she had the opportunity to capitalize on her interest by going to work on the GCI's earthen architecture initiative. She is currently working on the dissemination of information regarding the GCI's research on seismic strengthening of earthen buildings, and she is part of a team evaluating possible sites for a field project related to earthen architecture. She is also working on the preparation of the 2007 World Symposium of the Organization of World Heritage Cities and manages the Institute's project to evaluate past treatments on decorated surfaces at a site in Mexico.

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