

Conserving Çatalhöyük, a Neolithic site in Anatolia

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In the last issue of Archaeology International, Louse Martin and Shahina Farid provided a brief introduction to the contributions of Institute of Archaeology research teams to the Çatalhöyük Research Project. Here Elizabeth Pye and Duygu Camurcuoğlu Cleere describe in more detail the work of the Conservation team, which deals with the conservation of buildings, wall paintings and other art, as well as human bones and artefacts. They describe their methods and their adoption of a holistic approach to conservation that involves working with other specialists, but also with students and the local community, in a wider study of the site as a whole.

Çatalhöyük is a remarkable Neolithic settlement site in Anatolia, central Turkey, famous for its wall art and clay figurines. Discovered in the 1950s, it was first excavated by James Mellaart in the 1960s; since 1993 it has been the focus of an international research project directed by Ian Hodder¹ (see *Archaeology International* 11).

Since 2003 conservation has been the responsibility of a team from UCL Institute of Archaeology led by Elizabeth Pye with Duygu Camurcuoğlu Cleere. Other members are Masters' students from the UCL conservation programmes, and Turkish students interested in developing conservation skills. We work closely with the other specialists, providing first aid on site, and treating finds in the well-equipped site laboratory to make them accessible for study. We seek to integrate conservation into the wider study of the site, and we take a holistic approach to conservation: working on structures and artefacts, using preventive and remedial techniques, combining research and practice, working with students, specialists and the local community, and attempting to work as sustainably as possible by training future conservators, promoting conservation in Turkey, and testing local materials and traditional techniques.

Burial and excavation conditions

The normal climate in the Anatolian plain consists of hot dry summers and very cold winters, with heavy snow. The burial conditions are affected both by the human habitation material forming the mounds, and by more recent activities such as fertilization and irrigation of the surrounding fields, all of which have introduced salts into the soil. Materials buried for extensive periods tend to reach an equilibrium with the surrounding conditions, but this is disrupted by excavation, sometimes resulting in rapid deterioration as the material is exposed to new conditions. At Çatalhöyük material remains slightly damp during burial but on excavation it can dry very rapidly resulting in crystallization of salts, flaking and even disintegration.²

Two large shelters cover the parts of the site that are being excavated (Fig. 1) and the excavated buildings remain exposed so that they can be viewed by visitors.³ However, the conditions under the shelters can be very hot, wind is funnelled through them which exacerbates the drying of the exposed structures, and wind-blown dust soon covers surfaces. Monitoring of conditions through the year shows extremes and fluctuations of temperature

and relative humidity (RH), with low temperatures and very high RH levels in the winter and high temperatures with very low RH levels in the summer. These conditions make long-term preservation of exposed structures very challenging.

Conservation of buildings and installations

The emphasis is to display the site, so to leave features *in situ* for as long as feasible. Thus one of our aims has been to devise appropriate conservation strategies which are compatible with future investigation and research. Conservation of mud brick is difficult;⁴ the exposed buildings have been treated using the method developed by Frank Matero (University of Pennsylvania) in the 1990s (Matero 2007).⁵ This has been very successful as can be seen in the preservation of Building 5, which has survived exposed to view under its own small tent-like shelter for ten years (Fig. 2).⁶ However,



Figure 1 Looking down the length of the North shelter showing excavations and visitors



Figure 2 Building 5, still going strong after ten years' exposure and regular re-treatment



Figure 3 Installation of bulls' horns in Building 77

there have been some studies of plasters and pigments.⁹

Her research will also address questions crucial to the wider study of Çatalhöyük such as whether the plaster was always composed of local white marl or was sometimes lime plaster (therefore whether lime was ever burned at the site); whether the limited range of colours (red, black) used on the paintings was chosen for practical, aesthetic or ritual reasons. Blue and green pigments have been found in burials but not on paintings – possibly because they were less plentiful, or because they were unsatisfactory in some way when used as paints (e.g. they may have changed colour).

now that the large North shelter covers it and adjacent archaeology, it is beginning to be affected by the adverse conditions created by the large shelters. Although very successful, its long-term preservation has involved extensive, routine use of synthetic polymers which are expensive and may compromise further excavation, so we have started to test modified approaches, drawing on the traditional local techniques for caring for mud-brick buildings.

Some of the art at Çatalhöyük involves bulls' skulls and horns or mud plaster low reliefs (Fig. 3). These are important features but conserving them *in situ* for any length of time is very difficult because of the dangers of drying, cracking and peeling. However, protecting or enclosing them with clear plastic "museum cases" would create further problems of mould and algal growth, so they are fully documented, left exposed, and deterioration is managed by applying local consolidation when necessary (Fig. 4).

The wall paintings

Çatalhöyük is famous for the wall paintings found by Mellaart in the 1960s, depicting animals, landscapes, geometric patterns, or simple red bands.⁷ Fewer have been found since the present project started, probably because excavation so far has concentrated on other parts and levels of the mound. Those that have been found have mainly been bands of colour or simple geometric patterns (Fig. 5).

Duygu Camurcuoğlu Cleere is now undertaking research into the paintings. This has three main aims: to study the technology; to consider the implications for the role of craft specialization; and to devise improved conservation treatments. Considering the importance of the paintings, it is perhaps surprising that there has been no in-depth research into their technology. Previous research has concentrated largely on iconography⁸ and



Figure 4 Conservators working on the installation in Building 77



Figure 5 A red painted wall being conserved *in situ*

under the skull. This made it possible to remove the skull successfully and prepare it for display in the Konya Archaeological Museum.

Significant features such as wall paintings and reliefs are sometimes removed if, for example, further excavation would destroy them. The most complex lift of the last seven seasons involved a Neolithic wall frieze, found near the end of the 2007 season (Fig. 6). It consisted of a spiral decoration incised in mud plaster running round three walls of a small room in Building 74. After consolidation, the frieze was protected for the winter with geotextile, soft perlite-filled bags and firmer sand bags. When it was lifted in 2008 the back of the wall was reduced in thickness, the surface of the frieze and the wall were protected with layers of geotextile and foamed polyethylene sheet,

Retrieval of excavated finds

Bone provides a good example of the difficulties posed by the drying conditions on site. Bone is preserved to greater or lesser extent in many archaeological environments, but its condition can vary significantly.¹⁰ The slightly alkaline soil conditions at Çatalhöyük cause bone to become brittle, and to disintegrate upon drying. This poses a particular problem when excavating burials which frequently contain more than one skeleton. Excavation and recording can take several days and the already degraded bone deteriorates rapidly as it dries. Working with the human bone specialists, we have developed a method for controlling this drying using Gore-tex (waterproof, breathable polytetrafluoroethylene membrane). At Çatalhöyük, it has proved to be a successful means of creating a humid microclimate that protects the bones for several days, and the human bone specialists now employ this method routinely.

When artefacts are too fragile to be excavated unaided they may require specially designed methods (known as “lifting” methods).¹¹ At Çatalhöyük, the conservation team has undertaken some complicated lifts which require knowledge of the site, discussion with the other specialists and careful planning. One of these concerned a human skull with a red painted, plastered surface, found during the 2004 season. Because of its importance, it was vital that it was removed from the site without damage. This was particularly difficult as the skull was undercut by rodent burrowing. The method used involved placing a wooden framework around the skull and filling the voids created by the rodents with sieved clean sand. The sand was then consolidated to provide firm support



Figure 6 The frieze immediately after lifting



Figure 7 Part of the stored site archive

held in place with sand buckets and bags to prevent collapse. The back and top of the wall were consolidated. Then the supporting material was removed and the frieze cut away from the wall, together with some of the mud brick behind, and lowered onto a padded supporting board. It is hoped that this, too, will eventually be displayed.

Storage and conservation of the site archive

Exceptionally important finds are normally taken to the Archaeological Museum at Konya, but other finds remain at the site and form a research archive which is studied by specialists (Fig. 7). We are responsible for the preventive care of this archive which means dealing with the problems of limited space, difficulties of access, and locating suitable packaging materials. We have collaborated with the specialist teams to improve storage; for example students worked with the human remains team to design a packaging system which has improved protection and accessibility of skeletal material, uses locally obtainable materials, does not take up unnecessary space, and is simple and easy to use.

Working sustainably

We make every effort to obtain conservation-grade materials locally in Turkey. Our intention is to promote availability of conservation resources, to reduce costs for the project, and avoid problems with the Turkish customs. We have been working with some Turkish companies that already provide conservation materials, and encouraging them to import other materials not already available in Turkey (e.g. conservation-grade adhesives). We are also researching the sustainability of packaging materials, particularly as large quantities are used by the project as a whole. The problem is not only whether acceptable materials can be found locally, but whether those that *are* available would be suitable substitutes for those we normally advocate.

Another way in which we seek to work sustainably is through passing on conservation skills. We do this through formal training of students but also through working closely with excavators, other specialists, and the local community.

We work with students who are already training in conservation, as well as archaeology students who are interested in evaluating conservation as a career. They gain a taste of the real life situations which are often very different from their experience in a museum or laboratory environment (Fig. 8).



Figure 8 Conservation students excavating a fragile horn core (note the feet of the admiring audience)

Working with the local community

One of the key aims of the whole Çatalhöyük project is to involve the local community and to encourage them to value and look after their heritage. Local women contribute by learning the slow and delicate job of revealing paint layers on plastered walls on the site (Fig. 9). We take part in all the events designed to inform the local community about the Çatalhöyük project, working particularly with children to introduce them to conservation through activities such as simple pottery reconstruction. We also involve local workmen and the site guards in aspects of conservation. With their knowledge of the landscape, the soil and the architecture as well as basic

training from us, they help us during the excavation seasons, and they monitor the site and provide first aid if necessary between seasons. Their comments on conservation issues, and the solutions they suggest, often drawn from their experience of maintaining traditional mud brick buildings in their village, have been interesting and useful, particularly when we have been considering how to test traditional techniques and materials. In addition, a former site guard has written his reminiscences (translated by Duygu Camurcuoğlu Cleere) adding another voice to the many who have contributed to the understanding and care of the site.¹²



Figure 9 Local women uncovering pigment within plaster layers

Conclusion

The fact that we work closely with the other members of the Çatalhöyük project community means we can demonstrate the versatility and value of conservation, and pass on useful field skills. How effective this relationship is was apparent during the excavation of the first full *bucranium* (bull's skull) discovered during the current project (in 2005, in Building 52). Working with faunal specialists enabled us to discuss the significance of the find and how that might shape our conservation decisions, and the specialists gained an understanding of conservation options and procedures. Thus after seven years we can clearly see the effects of our involvement at Çatalhöyük, not only in the shape of the material we have successfully conserved, but in the general appreciation of the contribution conservation can make to excavation and research.

Notes

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