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The Conservation of an Excavated Past

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The Conservation of an Excavated Past

Abstract

Reflexivity as a methodological approach in the production of knowledge takes its primary position from the contextualization of the problem rather than the superimposition of positivist, empirical models. Yet any methodology depends all the interrelationship between theory and practice as expressed through the intersection of principles, practices and procedures. In the case of postprocessual archaeology, ways of approaching past human behaviour are based on contextual, integrated analyses of issues and data derived from the interaction of numerous disciplines and multiple views (multivocality) and the new relationships that arise from such interaction (Hodder 1991).

Comments

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Towards reflexive method in archaeology: the example at Çatalhöyük

By Members of the Çatalhöyük teams

Edited by
Ian Hodder

BRITISH INSTITUTE OF ARCHAEOLOGY AT ANKARA

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Chapter 6

The Conservation of an Excavated Past

Frank Matero

First, of course, there's the things you don't know;
Then there's the things you do know but don't
understand;
Then there's the things you do understand but
which don't matter.

Simple Simon, A.E. Coppard

Archaeology, conservation and heritage

Reflexivity as a methodological approach in the production of knowledge takes its primary position from the contextualization of the problem rather than the superimposition of positivist, empirical models. Yet any methodology depends on the interrelationship between theory and practice as expressed through the intersection of principles, practices and procedures. In the case of postprocessual archaeology, ways of approaching past human behaviour are based on contextual, integrated analyses of issues and data derived from the interaction of numerous disciplines and multiple views (multivocality) and the new relationships that arise from such interaction (Hodder 1991).

The validity of such an approach in archaeological theory has already received widespread attention and criticism yet few projects have actually applied the precepts of postprocessualism in field practice, thus providing a self-conscious look at how archaeology constructs and uses knowledge. At Çatalhöyük, reflexivity has provided a useful vehicle for constructing not one, but many versions of Çatalhöyük, as an archaeological site with defined spatial and temporal boundaries as well as a place possessing complex associative meanings and values for many different contemporary groups and individuals (Hodder 1998). Such dichotomies have become common foils for renewed arguments of cultural relativity, ownership and power in the identification, interpretation and control of heritage sites. However the impact of a reflexive method on the

actual organization and interaction of the different members of the project team and non-professional participants has also forced a new way of thinking about the production of knowledge and who is empowered to generate it and benefit from it. The inclusion of comprehensive site conservation and heritage management alongside excavation from the very beginning of the project certainly represents a novel departure from past practices elsewhere.

The primacy of conservation to the Çatalhöyük research project was clearly stated by Ian Hodder, project director, in 1996 in his introduction to the first volume of field research:

A site of this importance for the Mediterranean heritage needs careful conservation and presentation to the public . . . It poses special problems of conservation of mud brick and wall plaster, and problems of site management . . . The ultimate aim is to provide the Turkish Ministry of Culture with a well-planned heritage site. Visitors will be able to experience the site in a number of ways . . . By providing a range of visitor experiences the full heritage potential of the site can begin to be exploited. (Hodder 1996, 1)

Although issues of heritage and conservation have become important themes in recent discourse on place, cultural identity, and ownership of the past and the political and economic implications posed, few archaeological projects have actually included conservation as a viable strategy in addressing these attendant issues from the beginning. This has been owing in part to archaeologists' ignorance of a long history and tradition of conservation theory and practice, and a general misperception of the preservation field as one concerned with a nostalgic view of the past or focused only on technical issues and solutions. Simultaneously, specialists in conservation and heritage management have been slow to participate in the recent and rapidly expanding discourse on the meaning, use and ownership of heritage for political

and economic purposes and have avoided a critical examination of the historical and cultural narratives constructed largely through past archaeological projects and conservation practices. Yet conservation as an intellectual pursuit is predicated on the belief that knowledge, memory, and experience are tied to material culture. Conservation — whether of a landscape, building or wall painting — helps extend these places and things into the present and establishes a form of mediation critical to the interpretive process that reinforces these aspects of human existence.

The practices of archaeology and conservation are by their very nature oppositional. Excavation, as the primary physical method by which archaeologists reveal and read a site, is a subtractive process that is both destructive and irreversible. In the revealing of a site, structure or object, excavation is not a benign reversal of site formation processes but rather a traumatic invasion of a site's physico-chemical equilibrium usually resulting in the immediate deterioration of associated materials at various rates and patterns of change. Conservation, on the other hand, is predicated on the safeguarding of physical fabric from loss and depletion, based on the belief that material culture possesses unique abilities and the power to transmit knowledge as well as inspire memory and emotional responses, often through associated social interaction. Moreover, the fundamental issues of conservation also concern ways of evaluating and interpreting cultural heritage for its preservation and safeguarding now and for the future (Fielden 1982). In this last respect, conservation itself becomes a way of extending and reifying cultural identities and historical narratives over time through valorization and interpretation.

Conservation is a modern concept born out of the notion of history as something which is linear and has been completed and brought to an end. As such, artefacts and sites are divorced from their past by the present's historical consciousness which dictates new motives and methods for their use and preservation. Such motives and methods found various modes of expression through the application of historical and scientific precepts during the late nineteenth and twentieth centuries. The resulting principles attempted to define a new approach that related the aesthetic and historical values of art and architecture with the material form to ensure the transmission of the whole work as both idea and thing. Contemporary theorists such as Vittorio Gregotti have attempted to explain conservation as an antimodernist/postmodernist stance, founded on non-presentist reactions to notions of progress and

based on the believed value and legitimacy of all past artistic contributions to society (Gregotti 1996). In the end, all conservation is a critical act in that the decisions regarding what is conserved, and who and how it is presented, is a product of contemporary values and beliefs about the past's relationship to (and use by) the present.

To date, most preservation activity has focused on programmes of survey, inventory, conservation, restoration and rehabilitation of specific sites associated with specific histories and selected pasts. This approach has compartmentalized sites and activities into mutually exclusive alternatives rather than inseparable aspects of the same overall treatment that all cultural property requires for its long-term interpretation, transformation, protection, use and maintenance. Similarly, as a modern construct, such approaches have tended to ignore the continuing and changing significance that places and material culture hold, especially for affiliated communities, in defining and preserving everyday life and beliefs in all their diverse forms and expressions.

Beginning with the first International Congress of Architects in Madrid in 1904 and later with the creation of the Charter of Athens following the International Congress of Restoration of Monuments (1931), numerous attempts have been made to identify and codify a set of universal principles for the intervention of structures and places of historic and cultural significance.

Despite their various emphases and differences, all these documents identify the conservation process as one governed by absolute respect for the aesthetic, historic and physical integrity of the structure or place and one requiring a high sense of moral responsibility. Implicit in these tenets is the notion of cultural heritage as a physical resource that is at once valuable and irreplaceable and an inheritance that promotes cultural continuity in a dynamic way.

Summarized from the more recent documents, these principals are as follows:¹

- the obligation to perform research and documentation; that is to record physical, archival, and other evidence before and after any intervention to generate and safeguard knowledge of the structures and site and their associated activities;
- the obligation to respect cumulative age-value; that is the acknowledgement of the site or work as a cumulative physical record of human activity embodying cultural beliefs, values, materials and techniques, and displaying the passage of time;
- the obligation to safeguard authenticity; a culturally relative value associated with the genuine

materiality of a thing or place as a way of ensuring authorship or witness of a time and place;

- the obligation to perform minimum reintegration; that is, to re-establish structural and aesthetic legibility and meaning with the least physical interference; and
- the obligation to perform interventions that will allow other options and further treatment in the future. This principle recently has been redefined more accurately as 'retreatability', a concept of considerable significance for architecture, monuments, and archaeological sites given their need for long-term high-performance solutions, often structural in nature.

As summarized in the Australian ICOMOS (Burra) Charter, the ultimate aim of conservation is to retain or recover the cultural significance of the thing or place and must include provision for its security, its maintenance and its future. Conservation is based, first and foremost, on a respect for the existing fabric and should therefore involve minimal physical intervention. It should not distort the evidence provided by the fabric, especially as this relates to the traces of additions and alterations related to its history and use. The conservation policy appropriate to a thing or place must first be determined by an understanding of its cultural significance and its physical condition. The conservation policy should determine which uses are compatible with the formal and material reality, not the reverse.

Today, contemporary practice has evolved an entire lexicon of intervention strategies based on the degree of intervention. This has resulted in a more sophisticated as well as sometimes confusing definition of approaches, depending largely on the type and context of heritage. In most professional contexts, conservation has become the designated term for 'an objective, scientific approach to the past in the form of historical knowledge, not the same as the continuity guaranteed by former tradition; a modern phenomenon of maintaining living contact with cultural works of the past' (Philippot 1976). In the United States and Australia, the terms *preservation* and *conservation* have come into the professional language as distinct concepts. Explicit and unique to the definition of preservation is the notion of the *status quo* or the means by which the existing form, integrity, and materials of a structure are maintained and deterioration retarded. Conservation, in this same context, has been relegated to mean the whole spectrum of technology applied to the safe-guarding of cultural heritage.

Both terms, in concept and process, have as

their fundamental objective the protection of cultural heritage, meaning the transmission of intangible as well as tangible products of culture. However, whereas preservation seeks to control change by maintaining the existing physical state, or at least the illusion of no change, conservation, as a concept, seeks to sustain continuity through controlled changes. Both are ways of maintaining living contact with the past through the identification, transmission, and protection of that which is considered culturally valuable and worthy of retaining. Yet their differences in approach can be explained partly in response to negative attitudes toward past restorations in Europe and North America which by today's standards deprived the work of material integrity and historical and cultural authenticity. Both definitions and their implicit approaches depend on each other for meaning and a clear understanding of their usage is critical.

For some traditional societies the concepts and practice of preservation are often viewed as antithetical to the role of continuing traditions, or those beliefs, actions, and material correlates which are valued by a group and considered worthy of retaining and passing on from one generation to the next. Whereas continuity of tradition may be critical to ensuring cultural identity, it is important to remember that tradition is as dynamic as culture change itself. Only by recognizing the changing nature of tradition as constructed memory and cultural identities, can a community effectively and responsibly manage its present and future through personal and collective interpretations of the past rather than through imposed fictions from the outside. Like history, conservation represents the conscious commitment to cultural continuity where living memory ends.

In the late twentieth century conservation has become a major strategy in shaping and interpreting our physical world. Every conservation measure is a form of argument that touches upon cultural values and our definition, treatment, interpretation and use of the past. Often historical arguments or values for or against the identification, designation, and physical retention of cultural property are based on an epistemology of scholarship and facts. Facts and scholarship, however, are explanations that serve the goals of conservation and are a product of their time and place. Out of this dilemma, our current definition of conservation has emerged as a field of specialization concerned primarily with the material well-being of cultural property and the peculiar conditions of ageing and survival; focusing on the qualitative and quantitative processes of change and

degradation. It finds its outlet in minimal but opportune interventions, conducted with both traditional skills and experimentally advanced techniques. It avoids at all costs a generalized irrational renewal of form and materials.

This last point is important as it leaves open for discussion the possibility for more drastic interventions, such as the reassembly, installation or replication of missing or damaged components. Such interventions, common on archaeological sites, are often based on the desire or need for visual legibility or structural re-integration. These interventions become even more critical if they sustain or improve the future performance or life of the site or structure in its environment. Obviously for archaeological sites, changing or controlling the environment by reburial, building a protective enclosure or shelter on site, or by relocating selected components such as murals or sculpture, often indoors, are options which allow maximum physical protection. However, such interventions significantly impact on the contextual meaning and appearance value, an aspect already discussed as significant for many such sites. Similarly, interventions developed to address only the material condition of objects, structures, and places of cultural significance without consideration of associated cultural beliefs and rituals can sometimes denature or compromise their power, 'spirit' or value. In this regard, cultural and community context and dialogue with professionals are critical.

In light of these issues, conservation emerges as the science of safeguarding cultural heritage by observing and analyzing the evolution, deterioration, and maintenance of material culture; the conducting of investigations to determine the cause, effect, and solution of problems; and the directing of remedial interventions focused on maintaining the integrity and quality of the existing historic fabric. Two associated terms — science and technology — are critical to this definition and require some clarification as they are often taken in their most basic or obvious expression to represent the goals of conservation. By science, what is meant is an imposed systematic and structured way of understanding the material world, different from the approaches of history, philosophy, or aesthetics. Technology is the application of science or an entire body of methods and materials used to achieve the stated objectives. If we accept the premise that the practice of conservation began with the relational study of the underlying causes of deterioration and the refining of an etiological approach, then it was in the 1930s and 1940s, along with the development of conservation laboratories and spe-

cialists, that the field was born. Yet within the understood limitations of the scientific method to generate certain kinds of data, conservation still begins and ends as an interpretation of the work. One is not only dealing with material things and places, but with complex cultural questions of beliefs, convictions, and emotions, as well as aesthetic, material, and functional significance. Science helps to interpret, but it cannot and should not be the sole agent to create meanings nor singularly represent one truth when applied to heritage.

Archaeological sites

The conservation and management of archaeological sites is a field of increasing interest as evidenced by a growing number of professional conferences, published proceedings, and international projects (Matero *et al.* 1998). Archaeological sites have long been a part of heritage tourism, certainly before the use of the term 'heritage' and the formal study of tourism. However, current concern can be attributed to the perception among the public and professionals that archaeological sites, like the natural environment, represent non-renewable resources deteriorating at an increasing rate. This deterioration is attributable to a wide array of causes ranging from neglect and poor management to increased visitation, vandalism, and environmental degradation and pollution, from inappropriate past treatments to treatment life span termination. No doubt the pressures of economic benefit from touristic development in conjunction with increasing global communication and mobility have caused accelerated damage to many sites unprepared for development and visitation.

Despite the global increase in the scale of these problems, issues of recovery, documentation, stabilization, interpretation and display have been at the heart of archaeological conservation since the early twentieth century. One of the first coordinated attempts to codify principles and procedures of site conservation was formulated in the Athens Charter of 1931 where measures such as accurate documentation, protective reburial, and international interdisciplinary collaboration were clearly articulated. In 1956, further advances were made at the General Conference on International Principles Applicable to Archaeological Excavations adopted by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) in New Delhi where the role of a centralized state administration in managing, coordinating, and protecting excavated and unexcavated archaeological sites was advocated.

Other charters such as the ICOMOS (Venice) Charter of 1964 extended these earlier recommendations through explicit practices including the avoidance of reconstructions of archaeological features except in cases where the original components were available but dismembered (*anastylosis*) and the use of distinguishable modern techniques for the conservation of historic monuments. The Australia ICOMOS (Burra) Charter of 1981 expanded the definition of archaeological site to also include place, challenging Eurocentric definitions of value and significance, and notions of authenticity and integrity to include context and traditional use, an idea important for culturally-affiliated indigenous groups. Finally in 1989, the ICOMOS Charter for the Protection of the Archaeological Heritage was adopted in Lausanne, Switzerland, formalizing the international recognition of many archaeological sites as living cultural landscapes and the responsibility of the archaeologist in the conservation process.²

Like all disciplines and fields, archaeological conservation has been shaped by its historical habit and by contemporary concerns. Important in its development has been the shifting, even expanding, notion of site conservation to include the stabilization and protection of the whole area rather than simply *in situ* artefact conservation or the removal of site (architectural) features. The public interpretation of archaeological sites has long been associated with the stabilization and display of ruins. Implicit in site stabilization and display is the aesthetic value many ruin sites possess based on a long-lived European tradition of cultivating a taste for the picturesque.³ With the scientific investigation and study of many archaeological sites beginning in the late nineteenth century, both the aesthetic and informational value of these sites was promoted during excavation-stabilization. In contemporary practice, options for archaeological site conservation include: reconstruction, reassembly (*anastylosis*), *in situ* preservation and protection including shelters and/or fabric consolidation, *ex situ* preservation through removal, and excavation/reburial with or without site interpretation.

Despite the level of intervention, that is, whether interpretation is achieved through *anastylosis* or reconstruction, specific sites, namely those possessing impressive masonry remains, have tended to establish an idealized approach and desirable end product for the interpretation of archaeological sites in general. Places such as Çatalhöyük at once challenge these ingrained notions of ordered chaos and arranged masonry by virtue of their fragile materials (earth), temporal and spatial disposition (as a tell of

superimposed levels), and relationship with associated foreign, national, and traditional communities and their narratives. Moreover, changing notions of 'site' have expanded the realm of what is to be interpreted (Dunnell 1992) and preserved resulting in both archaeological inquiry and legal protection at the regional and local level. These aspects of site conservation and interpretation become all the more difficult when considered in conjunction with the demands of tourism and site and regional development for the larger physical and political context.

It is for all these reasons that conservation and archaeology at Çatalhöyük must be conceived as an integrated strategy, the aim of which is to link the needs and potentialities at all scales and levels from the artefacts and murals to the buildings and urban plan, from the contemporary local villages to the surrounding region, from objects and site to people and place.

Earthen architecture in the archaeological context

The exposure of earthen architecture at archaeological sites presents tremendous difficulties both during and after excavation. Like all buried structures and artefacts, earthen buildings and their associated features such as wall paintings exist in unique microenvironments created by a wide range of factors including soil type, ground water, buried material, depth and configuration, animal and plant activity, microflora and bacteria. After years of interment, overall thermo-hygrometric equilibrium is usually achieved with the surrounding environment, assuming external conditions remain the same. The destabilization of this environment through excavation can cause structural instability and potential collapse from rain and snow erosion, wind load, seismic and vibrational forces, and plant and animal (including human) activity.

At the micro-scale, a loss of surface pressure and rapid drying owing to surface evaporation inevitably results in the migration of soluble salts to the surface as well as shrinkage cracking, loss of cohesion, and delamination. Through evaporation, accelerated by wind action, salts may crystallize on the surface or within the subsurface pores of the material causing disruptive internal pressures resulting in disaggregation, flaking, and detachment. Immediately upon excavation, all exposed surfaces become a plane of climatic activity. Heat is absorbed and moisture evaporates. Newly exposed walls may be subjected to dramatic temperature changes ranging from the extreme midday heat to cold nights. Slight differences in thermal coefficients between

mud-brick walls and plasters may exacerbate plaster and paint failure. Cracks, delaminations, and the natural layered structure of wall and floor plasters facilitate plant root growth and salt formation causing gross macro-failure, detachment and collapse. The more gradual the process of excavation or exposure, the more likely it is to mitigate damage by slowly acclimatizing the buried remains to the variations of the new environment.

While such processes affect all excavated porous materials, the situation becomes particularly damaging for clay-based materials owing to their thermo-hygrometric sensitivity and resultant dimensional changes (expansion/contraction). Highly reactive clays such as smectites, present in the marls used for the plasters, mural paintings and reliefs at Çatalhöyük, are especially problematic. This is critical for freshly excavated walls as rapid desiccation in the Anatolian summer climate leads to rapid shrinkage, and extreme mechanical stress causing cracking, detachment and collapse. Earlier experiences at mud-brick sites in Iran proved that the period of greatest danger for newly excavated work was the first few weeks (Bruno *et al.* 1968–69, 449), a situation also observed at Çatalhöyük.

Over the past three decades, numerous international symposia and conferences have been held in order to collect and disseminate information relating to strategies and techniques for the temporary protection, preservation and display of earthen sites. The consensus regarding earthen archaeological structures is that every effort should be made to preserve and protect them either through reburial, shelters, or direct material consolidation or surface protection. Where removal is necessary due to excavation safety and the objectives of the archaeological research programme, recording and sampling must be extensive.

Site conservation history at Çatalhöyük

The discovery and excavation of Çatalhöyük by James Mellaart from 1961–65 immediately gained world attention for a site unique in its great size, apparent complexity, and enormous time depth as well as for the amount and quality of finds discovered. Popular and academic coverage of the excavation in the *Illustrated London News* and *Anatolian Studies* quickly established Çatalhöyük's significance. Mellaart labelled Çatalhöyük '... a supernova among the rather dim galaxy of contemporary peasant cultures' (Mellaart 1965, 77) and cited among its many 'firsts' were the largest Neolithic urban settlement and most extensive mud-brick architecture found to date as well as

the unprecedented discovery of highly sophisticated mural paintings and painted plaster relief sculpture.

Dwellings were constructed of sun-dried mud-brick with timber posts and beams on a modular rectangular plan. Entrance to each house was gained through flat roofs made of reeds and earth supported by wooden beams and staggered to allow each building access to light. Multiple layers of plaster made from locally available marly soils coated the walls. Many of the interior spaces contained elaborate plaster reliefs and wall paintings, all of which indicate an enigmatic symbolism. The extensive physical evidence revealed at Çatalhöyük has dramatically altered traditional views of prehistoric Anatolia and the Near East in general. Here a civilization existed with sophisticated artistic and technological ability and complex religious beliefs. These monumental components — buildings, paintings and relief sculpture — were immediately understood as significant features of the site; however their physical preservation proved challenging and without precedent.

Excavation at Çatalhöyük lasted for four seasons from 1961–65 with a hiatus in 1964; only a thirtieth of the sixteen-hectare East mound was dug. Minimal site protection was employed both during and after each season and the extreme fragility of the site became particularly apparent in 1965 when the excavation resumed after having been left unprotected for two years. The published field report for the 1965 season stated; 'after two successive winters of rain and snow the remains discovered in 1963 had badly weathered, many walls had fallen, others were dangerous' (Mellaart 1966a, 166). The vulnerability of the unprotected site to the ravages of weather was all the more obvious in 1993 with the re-opening of the excavation after 28 years.

Fortunately, emergency measures were taken on several paintings and plaster relief sculptures during the 1960s excavation. Given the unexpected discovery of the wall paintings and the absence of an integrated conservation programme as part of the project, the only, and preferred, option for preservation at the time entailed the removal of the paintings and reliefs from the site. It is through these early efforts that surviving examples exist today in the Museum of Anatolian Civilizations at Ankara. No efforts were made to preserve any of the structures or their murals *in situ*.

Past conditions, current problems

The existing conditions of the architecture, murals and reliefs during and between excavation seasons

from 1960–1965 are difficult to reconstruct from the available information. Nevertheless through isolated observations in the published field reports, limited photographs, interviews, and current excavation experience, it is possible to reconstruct something of the conditions of the walls and their associated art as found in the 1960s. According to Mellaart, wall conditions varied depending on proximity to the surface, plant and animal disturbance and subsidence from upper level compression (Mellaart 1962a, 976). As Todd has pointed out, the difficulties encountered at other archaeological sites with poorly preserved and collapsed mud-brick walls were not normally encountered at Çatalhöyük; in some instances walls had deformed and failed causing plaster to crack, buckle, slump, and fall, but generally the walls were in sound condition (Todd 1976, 19 & 35).⁴

By the third season (1963), as the excavation reached lower building levels, Mellaart was faced with structural concerns and safety issues due to the depth of the excavations and the 'heavy mud brick walls perilously lean[ing] at drunken angles and mak[ing] any work in depth in a restricted space impracticable'. As a result he cautioned, 'If wall paintings are found at any great depth, it is not safe to clean them . . .' (Mellaart 1964a, 158) Partial excavation of the lowest level, X(1), revealed structures in the poorest state of preservation owing to compression damage and moisture. He observed, 'Because of its depth and the tremendous weight of five successive shrines (IX–VIA) built on top of it, the walls bulged, the decoration had been somewhat compressed and its west wall was deformed beyond recognition' (Mellaart 1964b, 73).

During excavation Mellaart and Todd noted that plastered walls began to deteriorate immediately, the exposed plaster developing large cracks upon drying (Mellaart 1964b, 39). This is evident in the published close-up photographs of the paintings after exposure where the surfaces reveal a pattern of fresh parallel vertical cracks typical of shrinkage cracking. Apparently not only did the unprotected walls and plasters suffer, so did several of the colours of the paintings. Mellaart stated that 'upon exposure the flesh-coloured bodies turned brown and the pinks either turned gray or faded completely' (Mellaart 1966c, 24).

Todd further mentions that because of the rapid hardening of the plasters upon exposure and drying in the hot Anatolian climate and the resulting difficulty in removal of the plaster layers overlying the paintings, the use of a gridded excavation system



Figure 6.1. South area, Building 2/Wall 64. Wall plaster detachment and collapse from root growth, salts, and desiccation during excavation. (Photo: F. Matero.)

with balks was abandoned as too time-consuming. Instead, excavation was performed by individual building units allowing entire walls to be exposed, conserved and revealed quickly before surface hardening, thus ensuring speedy removal of the outer layers of plaster with dental knives (Todd 1976, 19, 35). Site photographs from the 1960s suggest few if any protective shelters were employed during the excavation to retard rapid drying. Writing a decade after the excavation closed, Todd postulated that if a controlled sheltering system as at Can Hasan III had been employed, the surfaces would not have desiccated so rapidly and the recovery process could have occurred in less haste (Todd 1976, 19).

Immediate desiccation, shrinkage, detachment and collapse of the walls and plaster surfaces have also been observed at the site on freshly excavated walls during the past four field seasons of the cur-

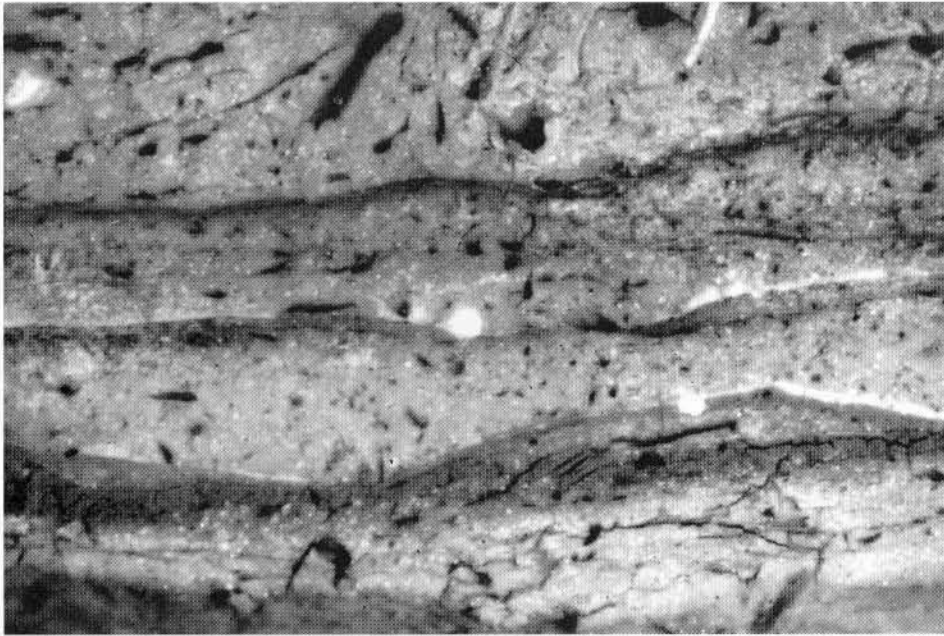


Figure 6.2. Cross-section of painted wall plaster illustrating typical stratigraphy of porous tan marl base (preparatory) and dense white finish layers with superimposed hematite pigmented design layers, presumably related to painting. [Sample B95, 18.75× magnification, in plain polarized reflected light/Nikon SMZ-U stereoscope.] (Photo: E. Kopelson.)

rent excavation (Fig. 6.1). Exposed walls protected by sun and wind-screening shelters display lower temperatures and slower desiccation than those exposed without protection. These external protective controls coupled with partial excavation temporarily leaving 5–10 cm of protective excavation fill against the surfaces (floors and walls,) and polyethylene sheeting loosely draped over walls and features during excavation have significantly reduced shrinkage cracking which occurs immediately after exposure and before conservation work.

Plasters, paintings and relief sculpture

By Mellaart's own admission '[Çatalhöyük's] most spectacular contribution to Near Eastern archaeology, as well as to art history, [was] its wall-paintings, the earliest yet found on man-made walls' (Mellaart 1962b, 57). As many as 80 two-part sequences of ground and finish plaster layers, each measuring 0.5 mm or less, have been revealed in the recent examination of representative earthen plaster and mud-brick samples (Fig. 6.2). Paintings, most often executed on the dense white finish plasters and often subsequently plastered over, were observed in cross-section examination between many of the super-imposed sequences. What is perhaps less well-known and buried within the field reports of *Anatolian Studies*, unpublished technical conservation reports, and the anecdotal coverage in the *Illustrated London News*, is their remarkable discovery and the creative efforts to conserve them.

Discovery of the first mural paintings occurred during the first field season (17 May–29 June, 1961) on the East Mound in two 'shrines' in Levels III and IV and in two 'houses' of Level VI. Among these finds were some of the best examples of geometric and figural painting to be discovered on the site including the leopard dancers and deer and bull hunt scenes of Shrine A.III.1 and the so-called mortuary structure images of Shrine VI.B.1 (formerly E.VI.1.) In order to understand the nature and importance of the discovery of these early murals, a contemporary account published in a series on the first field season in the *Illustrated London News* is quoted *in extenso*:

... on the second day of the excavation, a wall appeared in our first trench that was covered with a white plaster. One of the workman knocked against it and part of it fell off, revealing an area of red plaster beneath . . . After cleaning the entire wall, even a cursory examination revealed that the red patch accidentally revealed was not a patch of a red-painted wall but part of an animal, painted in red on a pinkish-white background (Mellaart 1962a, 976).

Given the fragility and importance of these elements, Mellaart arranged for the production of detailed watercolour 'copies' or 'transcripts' of many of the wall paintings and reliefs by artists Anne Louise Stockdale, Grace Huxtable and Raymonde Enderle Ludovici (Mellaart 1963, 43). This graphic record documented the murals both in their as-found condition, exhibiting areas of loss and partial exposure of the various superimposed layers of painting, as well as render-

ings of individual design levels with their missing portions sometimes reconstructed with dotted lines. Drawings were apparently produced directly from the walls by first tracing them 'in *grisaille* on cellophane' between each painting exposure (Mellaart 1966b, 25). On at least one occasion these 'transcripts' were positioned in place on the wall to illustrate the effect of the restored painting *in situ* (Mellaart 1966a, pl. 42a). As such, these drawings represent a significant, and often the only, record of the extent and condition of the paintings as found prior to their detachment, and occasional loss. Photographic documentation appears to have been limited or at least subsequently compromised owing to the unfortunate loss of Mellaart's field notes and records from fire.

Mural paintings and reliefs were also depicted in their architectural context at first schematically in perspective building views by RIBA architect Peter Winchester (Mellaart 1962b, 42) and later as partial perspective interior room views, illustrating specific period reconstructions ('restorations') drawn by Grace Huxtable. These 'restorations' have had a profound affect on all subsequent interpretations of the interior architecture, especially in relation to the limited number of photographic views that have been available for subsequent study. Limited technical analysis of the paints and plasters was conducted during the second season by S.J. Rees-Jones of the Courtauld Institute in London (Mellaart 1963, 43) and later by Pamela (Pratt) French during follow-up treatments to the mural paintings from 1968–74. Recent analyses by Matthews, Kopelson, Turton, Moss and Myers have extended the knowledge about the plasters, paintings and mud-brick.

Published site photographs of the mural paintings and relief sculptures generally suggest these works were found in a remarkable condition with a clarity of surface and design. What must be remembered, however, is that much of the painted wall art that was photographically recorded and ultimately removed was freshly revealed on site either behind superimposed protective layers of white plaster or subsequently 'peeled' painting layers. Mellaart reported that he spent two days removing the protective overlying layers of white plaster after discovery of the first painting. The poor condition of the panel, attributed to its proximity of less than five inches from the surface, however, prompted the field application of polyvinyl acetate emulsion after cleaning and before removal and transfer to the Archaeological Museum in Ankara (Museum of Anatolian Civilizations.) Paintings con-

sidered too damaged or fragile for treatment were reported to be covered up after recording (Mellaart 1962b, 58–9).

The conservation of mural art (wall paintings and sculpture), and in particular detachment and removal, has an extended history beginning with Vitruvius.⁵ Long justified as the only means of preserving such works where the building was in jeopardy or the environment harmful, or in the early twentieth century, as a way of studying artist's techniques, the detachment of mural paintings and mosaics has fallen out of favour except in situations of extreme crisis such as the Florence flood of 1966. By the 1960s, conservators, especially those working in Italy, possessed a well-developed *repertoire* of techniques for the removal of wall paintings executed on lime-based substrates. These techniques were based on the extent and level of removal relative to the design layer, substrate, and support interface and employed specific methods and materials depending on the level of detachment. Superimposed multi-layered paintings and relief sculpture executed on earthen plasters and mud-brick supports such as at Çatalhöyük represented a technical problem well outside the realm of experience with lime-based paintings, even those in an archaeological context.⁶ This is due primarily to the lack of inherent strength and susceptibility of clay plasters to water and other polar solvents necessary for the detachment process.

During the first season at Çatalhöyük, field preparation required cleaning, supporting, removing and packing the wall paintings and reliefs, techniques which were formulated and undertaken by Perry Bialor and Mrs Mellaart under the supervision of Ernest Hawkins of the Byzantine Institute of America in Istanbul. Development of a conservation programme for the wall paintings and reliefs was subsequently undertaken by Henry Hodges, Pamela Pratt, T. Martin, Viola Pemberton-Pigott, Margaret White and later Priscilla Berridge and Anne Searight. Little recorded detailed information on the *in situ* conservation of the wall paintings and reliefs exists; however, according to unpublished conservation reports from 1968–74, paintings removed from the site in 1962 and 1963 were either block lifted, including the mud-brick support (*stacco a massello*) or partially detached removing either the design layers with the underlying base plaster (*stacco*) or the individual design layers alone (*strappo*). Unmounted paintings detached by the block method were surface consolidated with polyvinyl acetate both with and without facings of Japanese tissue, linen and glue size. Mounted paintings detached by 'peeling' the plaster off the

mud-brick support (*stacco* or *strappo*) were faced. Depending on their size, paintings and reliefs were removed in sections for ease in manipulation and transport.

Beginning in 1968 previously recovered paintings and reliefs were prepared for treatment and display by Pamela Pratt. Examination revealed a host of problems related to their earlier site preparation for detachment and subsequent storage. Conservation treatments generally included refacing, removal of the mud plaster base coats, and consolidation of the paint layers with polymethyl-methacrylate. A primary backing was then applied consisting of a mixture of the same as a binder with marble dust and glass powder fillers reinforced with strips of pre-washed muslin. The cut sections were rejoined and the whole reinforced with adhesive and aluminium mesh (Pratt 1970, 6). Some of these paintings are currently on display at the Museum of Anatolian Civilizations in Ankara.

Strategic Plan for Site Conservation Program Çatalhöyük, Turkey

Phase I.

Problem Assessment

- Significance
- Condition
- Integrity

Phase II.

Intervention Strategy

Phase III.

Interpretive Program

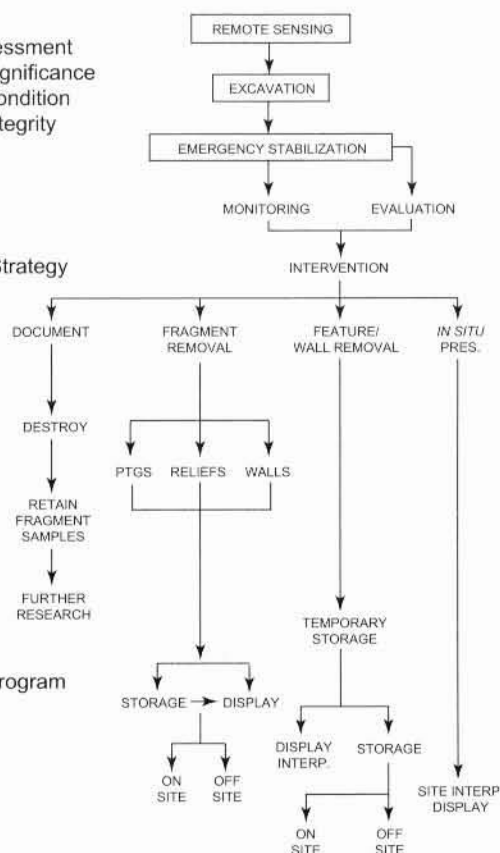


Figure 6.3. Strategic plan for site conservation programme at Çatalhöyük.

Summary of the current programme of field conservation and research

In 1993, thirty years after its discovery, Çatalhöyük was reopened by the Turkish government through a 25-year archaeological programme developed under the direction of Ian Hodder of Cambridge University. One of the principal aims of the renewed programme is the conjoining of the archaeological agenda with conservation, cultural tourism and heritage management. Central to this is site interpretation through the public display of the extraordinary architecture, mural paintings and relief sculpture *in situ* as well as the construction of a site museum. Site conservation activities including research and fieldwork are under the direction of Frank Matero, Lindsay Falck, and Catherine Myers of the Architectural Conservation Laboratory of the University of Pennsylvania.⁷

The primary objective of the current programme is to develop sound techniques and interpretive approaches to the immediate and long-term conservation of the site and its architecture, including the monumental art (wall paintings and reliefs). A second objective is the development of standards and guidelines for the examination, documentation, and characterization of earthen materials so that future studies can be conducted against a broader, more consistent data base. A third objective is the opportunity for the practical training of conservators, archaeologists and students in archaeological site and material conservation. This project is key to Turkey's cultural heritage and the development of cultural tourism in central Anatolia and seeks to coordinate applied research on a much-neglected subject in response to actual site conservation needs and field training of local and foreign students and professionals.

A phased programme of research and fieldwork has been coordinated to develop integrated methods for the conservation and management of the site including: the *in situ* stabilization and protection of wall paintings, plaster reliefs, and selected buildings; the development of non-destructive transfer methods for the wall paintings, reliefs, and architectural elements; and the development of techniques for the separation of multiple layers of wall paintings (Fig. 6.3). Activities include: emergency stabilization and protection during excavation and between field seasons, condition survey and environmental monitoring, materials analysis, and conservation treatment development, testing, and application. The methodology employed is *de riguer*

for any conservation project involving:

- documentary research on the site's excavation and treatment history to establish previous conditions and subsequent conservation methods;
- technical analysis and characterization of the mud-brick, plasters, paintings and relief sculpture using standard geo-technical and wet-chemical techniques, microscopical and instrumental analyses;
- monitoring and recording of site conditions using developed methods for earthen materials and diagnosis of deterioration mechanisms; and
- the design, testing, and execution of a treatment programme specifically focused on the *in situ* and off-site stabilization of architectural fabric including plain and painted earthen plasters and mud-brick walls and features.

In order to accommodate the exigencies of excavation, fieldwork and research have been guided by emergency issues such as temporary protection and structural stabilization during excavation and between field seasons. Related to this has been the need to develop an understanding of the environment through a monitoring programme designed to measure ambient temperature and humidity and ground and wall moisture. During the academic year between field seasons, research has focused on the characterization of the plasters and paintings, mud-brick, and associated materials using micromorphological, mineralogical and petrographic analysis, as well as instrumental techniques including scanning electron microscopy, x-ray analysis (EDS), and x-ray diffractometry in order to determine composition, layer structure, execution techniques, and overall physico-chemical properties.

Deterioration mechanisms have been hypothesized and studied in conjunction with the environmental monitoring programme for immediate and long-term evaluation of site conditions and intervention assessments (Figs. 6.4 & 6.5). Based on existing condition, and environmental and material characterization studies, a variety of conservation

techniques have been examined and laboratory-tested on facsimile models as well as on site as pilot treatment tests (Fig. 6.6). This has allowed for the gradual adjustment of the developed programme over time and the opportunity to provide advanced training for conservation graduate students and other professionals.

A long-term strategy designed to shape current excavation techniques in conjunction with conservation needs is on going. This involves an understanding of site materials and construction technology, site formation processes and conditions before, during, and after excavation, and field applications of the developed techniques for the conservation of the architecture, mural paintings and relief sculpture at the site. Current research will build on earlier research and experiences developed during the 1960s excavation and 1970s mural conservation and together through feedback from field experience, a site conservation plan can be implemented.

Experimental research

In situ preservation of earthen archaeological sites has received limited study owing to earlier attitudes of expendability of the earthen remains and the lack of research in site conservation techniques. Current research conducted in preparation for site conservation at Çatalhöyük has focused on a range of issues

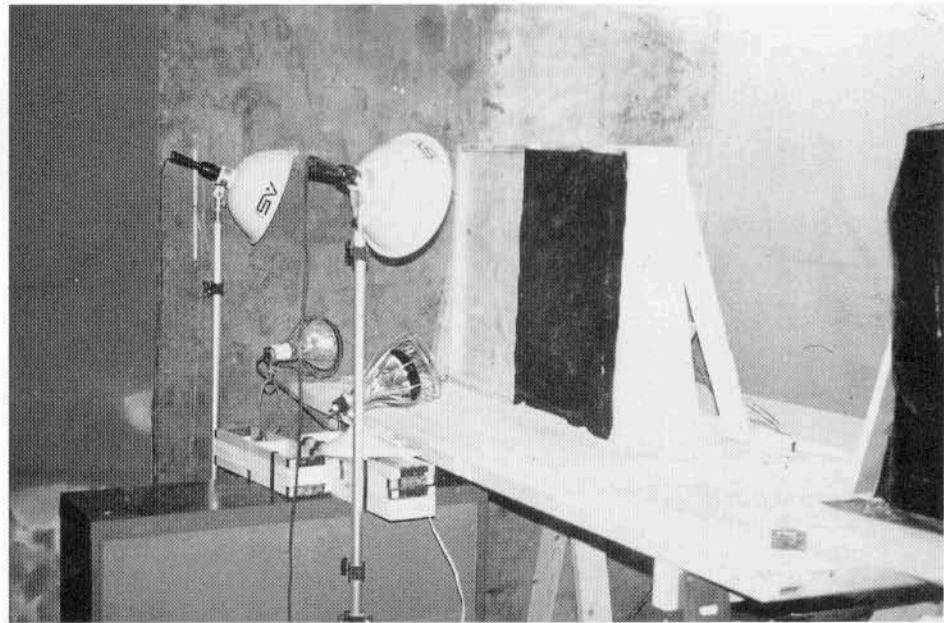


Figure 6.4. Experimental model of plastered and painted mud-brick facsimile wall with protective geo-fabric batten of perlite-vermiculite during desiccation trial. (Photo: E. Moss.)

including:

- analysis and characterization of the earthen plasters, paintings and mud-brick;
- treatment testing and assessment of plaster reattachment and consolidation;
- development of lifting apparatus for the detachment, removal, and transport of retained architectural walls and elements;
- development of preventive conservation techniques involving temporary passive environmental control during excavation for mitigating the effects of rapid drying. In addition, a research programme for the removal, and separation of the mural paintings was conducted (Turton 1998).

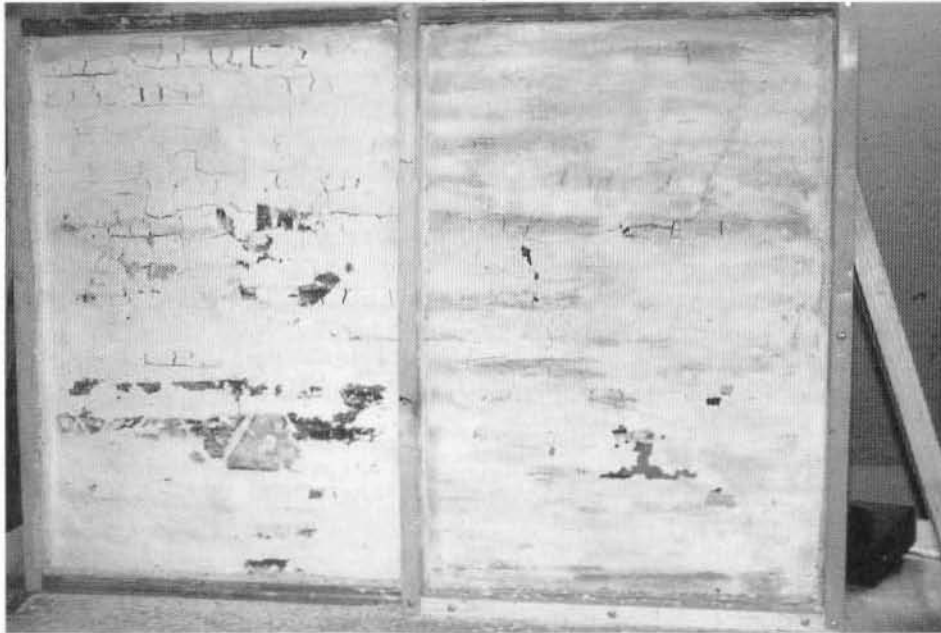


Figure 6.5. Results of desiccation experiment after 30 hours. Note cracking, flaking and loss on the exposed left side and layer retention on the protected right side. (Photo: E. Moss.)



Figure 6.6. Experimental programme to test detachment techniques for mural paintings. (Photo: C. Turton.)

control during excavation for mitigating the effects of rapid drying. In addition, a research programme for the removal, and separation of the mural paintings was conducted (Turton 1998).

The major causes of deterioration affecting the murals are: a loss of cohesive strength within discreet layers and of adhesive strength between individual layers of the plaster and mural paintings; salt infiltration, macrobiological growth, and mechanical stresses induced by the drastic ambient changes brought on by excavation. Additionally, continued excavation of the site places remaining paintings at greater risk of destruction, a factor that requires an evaluation of methods for the transfer and reattachment of the painted plasters.

In order to test treatments, facsimile sample types were developed based on material analysis of plaster samples. Executed on 6" x 6" and 12" x 12" gypsum board and terracotta tiles, the samples were made of 14 layers of plaster and paintings of materials similar in character and superimposition of the original painted plasters (Figs. 6.6 & 6.7). The treatment research programme addressed the following issues:

- surface consolidation of

- powdering paint and plasters;
- interlayer detachment/preconsolidation;
- consolidation of the earthen plasters;
- evaluation/selection of facing adhesives for mural detachment;
- evaluation/selection of detachment methods; and
- compatibility of treatments.

Visual assessment and standardized tests developed by ASTM, CRATerre and the Federation of Societies for Coatings Technology were used to evaluate methods and materials.

Site conservation

In view of the high levels of preservation of the site's monumental art and architectural features, including mud-brick walls standing to two metres in height, permanent and temporary shelter facilities and structural and environmental protective methods are required both during and after excavation and treatment. Of particular importance is the interpretation and display of monumental art and architecture *in situ*. A strategy for handling these resources both in place and in the museum is required to allow follow-up research work to occur during and after the excavation period. Techniques already under investigation and trial assessment include *in situ* stabilization, partial removal, and full scale lifting and transport utilizing two special rigs developed in 1997 by Lindsay Falck and Caitlin Moore specifically for the purpose (Fig. 6.8). This latter option will

be especially critical where building features identified for preservation will need to be removed to gain access to the lower occupation levels. Structures preserved *in situ* are being stabilized, interpreted and protected with specially designed shelters, the first one completed in summer 1999.

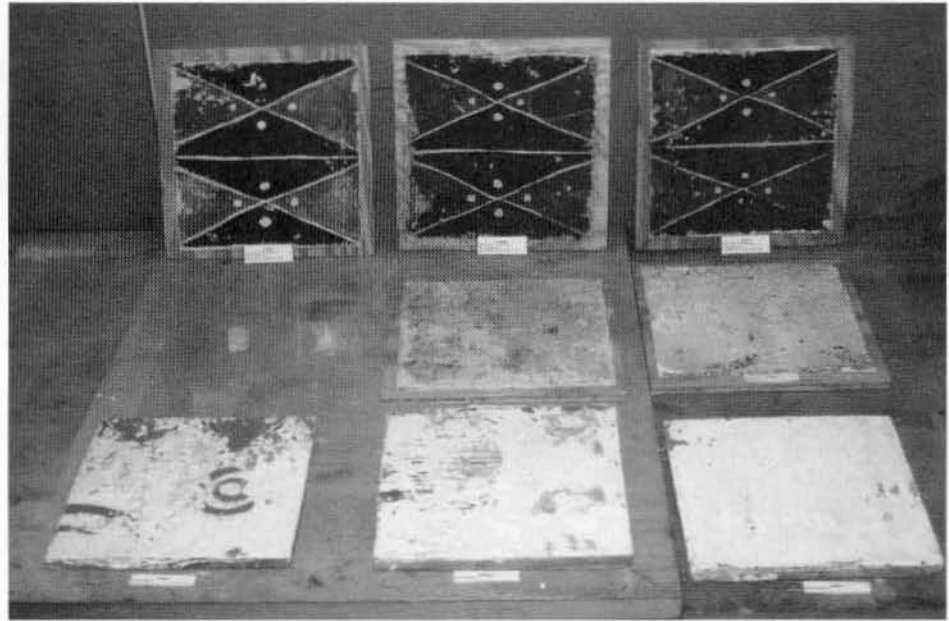


Figure 6.7. Results of various detachment methods for superimposed design layers. (Photo: C. Turton.)



Figure 6.8. Rig assembly on site (South area) during experimental wall lifting operation. (Photo: L. Falck.)

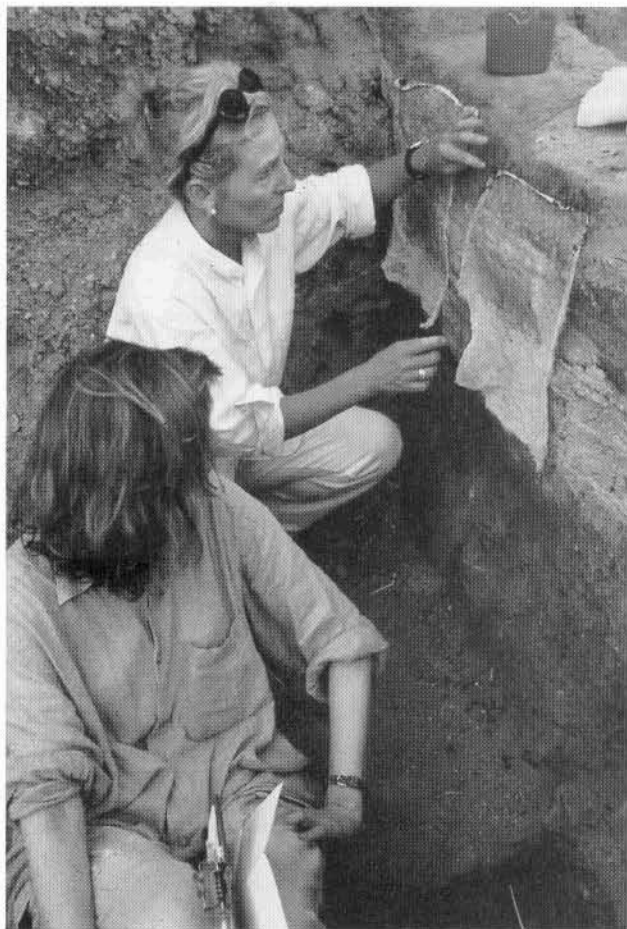


Figure 6.9. In situ plaster layer detachment tests, North area-BACH 1. (Photo: T. Ready.)

Emergency stabilization of the architecture, murals and relief sculpture

Emergency stabilization refers to temporary measures to arrest rapid and destructive alteration during and between field seasons. Current research and field trials have focused on techniques and materials for mitigating deterioration during excavation by controlling desiccation through decelerated drying. This has proven to be most effective through the use of woven synthetic battens filled with perlite and vermiculite to absorb and pass moisture, stabilize surface temperature and humidity, and provide positive pressure (where needed) for fragile, delaminating surfaces and reliefs during exposure (Moss 1998) (Figs. 6.4 & 6.5). To address larger-scale structural collapse, simple lightweight reusable clamp and truss assemblies provide support and allow excavators easy access to the space and the floors for sampling and excavation.

Removal of murals, relief sculpture, features and buildings

Location, condition and significance of each structure, mural painting and relief will affect the intervention strategies selected (Fig. 6.3). To date no paintings or reliefs of significance or great extent have been uncovered. Specific treatments considered for field application based on the previous conservation work and facsimile tests conducted over the past several years include: separation of superimposed layers (*strappo*), removal of all layers together with a layer of the substrate (*stacco*), removal of all layers with partial thickness of the wall (*stacco*

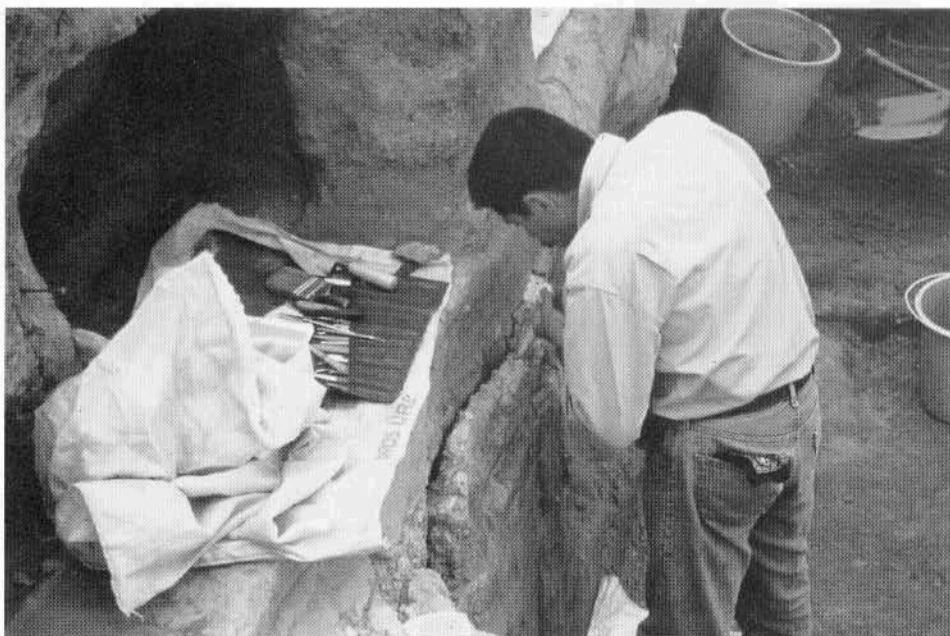


Figure 6.10. Wall plaster reattachment using grouting techniques, North area - Building 5. (Photo: T. Ready.)



Figures 6.11–6.13. North area - Building 5. Sequential phases of reburial for temporary site protection during the winter months between field seasons. (Photos: E. Kopelson.)

a masello), and removal of all layers with all of the wall (Fig. 6.9). Where whole or partial structures are deemed significant and in an excellent state of preservation, but need to be moved to proceed with the excavation, block lifting of the walls and features will occur using the specially designed rigs for the project. Re-erection can then occur on- or off-site.

Site conservation and display

Methods developed and field tested on sites in the American southwest have been applied at Çatalhöyük with good results.⁸ Buildings and features deemed suitable for *in situ* interpretation and display such as Building 5 in the North area have recently been stabilized and exhibited under a protective shelter. Mildly hydraulic lime-based grouts have been developed and employed for consolidating voids and cracks in walls and detached plasters after dimensional stability is reached through conditioning (Fig. 6.10). Specially designed modular shelters have been designed that provide protection and display and allow for future reuse and expandability as the site needs change. Easily reversible reburial methods for site protection between field seasons were also developed based on the above research into environmental control and surface protection during excavation (Figs. 6.11–6.13).

Heritage planning and management

Fundamental to the project is the recognition that integrated, comprehensive strategic planning is crucial for any public archaeological site which must accommodate and help shape any and all potential development in the larger context of the social, cultural and economic forces and the physical realities that define and shape such places. The region of Anatolia in south central Turkey has seen the interaction between human settlement and the natural environment for at least the last 9000 years. Since the recession of the last period of glaciation, some 15,000 years ago, the highly fertile soils of the Konya Basin have supported human settlement and agricultural production in a cyclical but ever increasing way, up to the present time. With the more rapid intensification of irrigation-based agriculture in the post-war period, increased international interest in the cultural history of the region since the excavation of Çatalhöyük in the 1960s, and the subsequent development of Konya and Cappadocia as a recreational destination for the area, increasing pressures of growth and change have occurred, making the need for site and regional planning critical. Increased tour-

ism and heritage development, if not properly managed, could have a seriously negative impact on the historic and cultural landscape of the region and especially the unique nearby village and farm communities.

The site already attracts visitors and their numbers are likely to increase as excavations proceed to provide a substantial income-generating tourist and educational market which needs to be encouraged and accommodated as required by national and regional authorities. A site visitor centre has been constructed and the excavation is now open to the public. In order to accommodate these needs, the programme has not only taken into account the technological issues but also the economic and social value of developing the site for tourism and improvements in access and infrastructure that will be needed to accommodate them. Site planning including a regional survey of the vernacular cultural landscape of the area and the surrounding villages will begin in 2000 in conjunction with the Faculty of Architecture and Preservation at Istanbul Technical University and other local agencies.

Conclusions

Archaeological sites, like all places of human activity, are constructed. Despite their fragmentation, they are complex creations that depend on the legibility and authenticity of their components for meaning and appreciation. How legibility and authenticity of such structures and places are realized and ensured must be understood for effective conservation. Certainly conservators, archaeologists, and cultural resource managers need to know well the theoretical concepts and the history of those concepts pertaining to conservation, and they need to know something of the historical and cultural context of structures and sites, archaic or past building technologies, and current technical solutions. They need to familiarize themselves with the political, economic and cultural issues of heritage management and the implications of their work on local communities, including issues of appropriate technology, tradition, and sustainability.

This problem of integrating established conservation principles into the care, preservation and display of existing structures, sites, and objects is further compounded by the fact that conservation is not routinely involved in the planning, execution, or review of proposed interventions such as archaeological excavation. This is due not only to the constraints already mentioned, but it is also related to the com-

plex professional and legal structure required for many projects, involving archaeologists, architects, engineers, scientists, general contractors, tradesmen, and the public. Decisions involving the selection and extent of any given conservation treatment as well as the actual execution of those treatments by trained conservators are still unlikely for many projects. With rare exceptions, even project development and site supervision and approval of specialized conservation work from documentation to remedial treatments often occur without the involvement of a professional site conservator on the project team.

So within the contemporary field of archaeological site conservation, it is possible to find any number of incompatible and quarrelsome, diametrically-opposed viewpoints and work methods: from the strictly idealist one which hopes for an improbable return of the structure or site to an origin that can never really be established with any certainty, to the pragmatic one which permissively treats as historical values all the alterations made to the site and its structures over the course of time. To this must also be added the recognition of cultural and community ownership and the input of cultural affiliates in the decision-making processes.

The basic tenets of conservation are not the sole responsibility of any one professional group. They apply instead to all those involved in the conservation of cultural property and represent general standards of approach and methodology. From the broadest perspective, archaeology and conservation should be seen as a conjoined enterprise. For both, physical evidence has to be studied and interpreted. Such interpretations are founded on a profound and exact knowledge of the various histories of the thing or place and its context, on the materiality of its physical fabric, on its cultural meanings and values over time, and its role and effect on current local and distant societies. This implies the application of a variety of specialized knowledge based largely on scientific method, but ideally the process must be brought back into a cultural context so that the archaeology and conservation project become synonymous.

Notes

1. The primary general charters include the ICOMOS (Venice) Charter of 1964 and the Australian (Burra) Charter of 1981 (rev. 1988).
2. For a compilation of these and other documents see US/ICOMOS 1999.
3. This long-lived tradition can be found as recently as 1981 in M.W. Thompson, *Ruins: Their Preservation and Display*.

4. This generally good and unusual state of preservation may be due in part to the intentional and swift burial of many structures, thereby reducing the deleterious effects of weathering and collapse through exposure over time.
5. For an historical overview see Catherine Turton, Plan for the stabilization and removal of wall paintings at Çatalhöyük, Appendix B. MSc Thesis, University of Pennsylvania, 1998.
6. Prior to the work at Çatalhöyük in the 1960s and 70s, very few examples of mural painting detachment on earthen substrates or supports can be found in the literature. Two important early examples are the removal of kiva mural paintings from Kuaua (Coronado State Monument) in New Mexico and Awatovi and Kawaika-a Pueblo ruins in Arizona in the 1930s. Both projects dealt with the combined problem of detaching the paintings from the walls and the intralayer separation of individual superimposed paintings.
7. Past and current project team members include: Evan Kopelson (Building Conservation Associates), Caitlin Moore, Elizabeth Moss, Kent Severson, Constance Silver (Co-director 1993–95), Catherine Turton, and Harriet Beaubien (Smithsonian Institution), A. Esin Kuleli (Directorate of Ruins and Monuments), and Latif Özen (Museum of Anatolian Civilizations).
8. Similar situations of environmental control and plaster reattachment have been implemented at Mug House and Cliff Palace at Mesa Verde National Park, Colorado.

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