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RECOVERING PAINTED ORGANIC OBJECTS FROM ANCIENT MESOAMERICA: STRATEGIC CONSIDERATIONS IN THE FIELD AND THE LAB

HARRIET F. BEAUBIEN

ABSTRACT

Objects made of organic materials, such as gourds or wood, have been found at sites throughout the ancient Maya world, most commonly as offerings and furnishings in high-status tombs. In these contexts they are typically detected only when they were also ornamented with paint, appearing as concentrations of paint flakes that are the remnants of paint layers after the collapse and complete decay of the organic substrates. Because of this exceptional instability, conservation involvement during the excavation process is key to their recovery. Considerations in developing an appropriate conservation strategy – including decisions about field preparation, lifting, laboratory excavation, analysis and reconstruction – are discussed using variously successful case study examples from several sites in Central America.

1. INTRODUCTION

Painted objects, made of wood, gourd, fiber, and other organic materials, are an elusive component of the material culture of the ancient Maya, who flourished in what is now Guatemala, Belize and neighboring areas of Mexico, Honduras and El Salvador, during the first millennium BCE through and beyond the time of Spanish Contact. We know from indirect lines of evidence that these types of objects were in use on the basis of depictions in other art forms, such as stone reliefs, mural paintings, and scenes on painted ceramics, from descriptions of indigenous lifeways in the chronicles of early Spanish missionaries, and from persistence in local craft practices of traditional Maya communities today.

From an archaeological standpoint, however, these types of objects are poorly represented in the excavation record. Beyond their susceptibility to wear-and-tear, fire and other events during their use-life, objects made of organic materials typically suffer decay, collapse and eventual disappearance of the substrate in a subtropical climate and terrestrial burial environment. As a result, these types of objects can be detected only when they were also ornamented with paint or other relatively inert materials such as stone appliques or inlays, which resist deterioration, albeit often in a highly fragmented state.

The contexts within which these types of deposits are most likely to be encountered are those that are generally relatively undisturbed, and for which the excavation methodology tends to be painstaking since these contexts offer well-associated, more comprehensive and better preserved material evidence. Conservators are also much more likely to be involved in excavations anticipating such special deposits. All of these aspects contribute to a better prognosis for detection and recovery of the remains of painted organic objects.

This paper presents strategies to meet the challenge of recovering these types of deposits. Most of the illustrated examples come from undisturbed Classic-period elite burials during the second half of the first millennium CE at primary and secondary civic-ceremonial centers, including Copán (Honduras), Waka'-El Perú (Guatemala, henceforth shortened to Waka') and Baking Pot (Belize). The non-elite exception is provided by the site of Cerén (El Salvador),

a farming village that was rapidly buried under six meters of volcanic ash in ca. 600 CE, preserving the adobe architecture, household items, and other features in an undisturbed state.

2. DESCRIPTION OF REMAINS

A solid sculptural or flat object may have paint applications decorating all surfaces, or discreet areas thereof; paint applications on a hollow object such as a bowl may be on both exterior and interior surfaces. Depending on the nature of its substrate, a painted organic object may be vulnerable to damage at the time of archaeological deposition as well as during long-term burial, such as crushing by falling debris or soil overburden, and then further deformation, collapse and fragmentation as organic components undergo decay. In subtropical environments, the organic substrate material ordinarily decomposes completely, leaving behind a concentration of unsupported paint fragments (fig. 1).

Despite the object's severe loss of structural integrity, the fragments – especially in relatively undisturbed contexts – still retain something of their original associations according to location on the object. A key feature of these paint flakes is their structure in cross-section, typically consisting of a monochrome ground or preparation layer, which would have been applied to the organic substrate, topped with one or more applications of variously colored paint, making up the decorative scheme (fig. 2). The texture of the colored paint applications is notably very fine, while that of the ground can vary from fine to quite coarse; particularly in the latter case, an intermediate ground layer with a finer texture sometimes is added as a transition layer before the decorative paint is applied. The underside of the paint flake often retains subtle stains and impressions from the organic material to which it had been applied.

Flakes from a particular paint layer are assumed to share a number of characteristics, including a consistent type of ground, as well as a shared palette of paint colors and decorative approaches; their undersides will also display related impressions of the organic substrate. These characteristics are important in interpreting the remains, as are the as-found positions and orientations of paint layers or group of flakes. In describing orientation (from the viewer's perspective), the terms used here are paint-side-up (PSU), and paint-side-down (PSD) with ground surface visible.

3. STRATEGIC CONSIDERATIONS

The exceedingly fragile nature of these deposits and the challenges they offer – from field recovery to physical reassembly to safe disposition and interpretation – argue for conservation involvement at every step, coordinated closely with the archaeological team. In developing an appropriate conservation strategy for these deposits, a number of factors should be considered and prioritized, which have archaeological and logistical implications. These include the deposit's general condition (e.g., how shattered or disturbed the remains are) and details of its context. How accessible is the deposit *in situ*, including space available for personnel and materials? Can surrounding finds and other intrusive materials be cleared first? What is the surface on which it rests and what is underneath? Can the surrounding and underlying matrix be disrupted? Logistical factors include when access can be scheduled and how much time is available to carry out the work. What field recovery tools and materials are available or would need to be brought in? Finally, where will the lifted material be taken for further treatment or storage, and how would the lifted material be transported there?



Fig. 1. Artifact #011 in Burial 24, Structure O14-4, Waka' (Photograph by L. Weber)



Fig. 2. Paint flake cross-section from Artifact #198 in Burial 39, Structure O14-4, Waka' (Photograph by C. Snyder)

From a conservation perspective, a deposit with preserved adjacency and orientation of fragments offers the best possible opportunity to recover and interpret an object, including its overall features – aspects of shape, decorative scheme, and (through larger expanses of impressions on the underside) information about what the organic substrate material might have been – as well as technical details, such as materials used for grounds and paints, and some of the techniques used to create the decoration. However, even a deposit of disassociated fragments can be lifted and meaningfully interpreted, providing documentation of painting materials and decorative techniques in use; these technical features can also be used to confirm associations with other fragments coming from the same object.

The resulting conservation plan generally focuses on the field recovery phase, encompassing the lifting method along with any preparatory treatment, and any post-lift treatment undertaken to accommodate transit and interim storage concerns. In-depth examination, conservation and analysis are critical to an interpretation of the deposit, but require time and adequate facilities – rarely available in the field – in addition to conservation expertise. Provisions for these laboratory-based activities are ideally considered in advance, if at all possible, and also become part of the plan.

Strategies for the field recovery of deposits in various states of preservation, and corresponding follow-up in a laboratory setting, are discussed in more detail in the following sections.

4. FIELD RECOVERY

4.1 LIFTING LOOSE FRAGMENTS

An example of a large deposit in which loose collection was the primary recovery method is represented by the tomb of Ruler 12, found embedded within a massive stone pyramid at the site of Copán (Burial 37-4, ca. early 8th c. CE, in Structure 26) (Fash et al. 2001, Magee et al. 2001). The tomb chamber was dominated by a stone burial dais, covered with a several-centimeter thick deposit of fragmentary materials, primarily paint flakes, as well as concentrations of jade items, shells and ceramics (Figs.3-4). Because of collapse and decay of organic constituents and subsequent seismic disturbance that dislocated wall stones and artifacts, the deposit was quite jumbled. Its situation on a stone surface also limited recovery options to those that did not involve excavating below the resting surface). This context was fortunately one that could be sealed between seasons, giving the conservation team the necessary time to develop a conservation plan.

4.1.1 Lifting Process

The selected lifting strategy for most of the surface area was one of loose collection, after the robust materials had been carefully removed by the archaeologists shortly after discovery. This was carried out within a defined 10cm x 10cm grid system and in a stratigraphic manner whenever layering of components was evident, using soft brushes and small “dust pans” cut from plastic weighing boats (fig. 5). Small aluminum containers were used to hold the fragments from a given grid square, or from a particular layer within a grid square, each secured within a plastic bag labeled with provenience information. These could be stacked carefully in modular plastic boxes according to grid square for transport out of the burial chamber to the site laboratory, and be used for storage.



Fig. 3. Tomb chamber of Burial 37-4, Structure 26, Copán: dais deposit at the time of discovery in 1989 (Fash et al. 2001)



Fig. 4. Detail of fragments on the dais of Burial 37-4, Structure 26, Copán (Photograph by H. Beaubien)

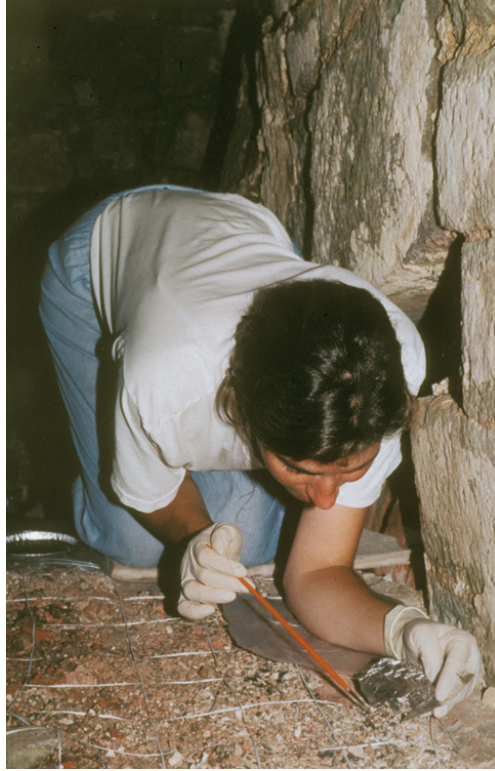


Fig. 5. Loose collection of fragments on the dais of Burial 37-4, Structure 26, Copán (Photograph by C. Magee)



Fig. 6. Artifact #011 *in situ* with fragment boxes in the tomb chamber of Burial 24, Structure O14-4, Waka' (Photograph by H. Beaubien)

Robust fragments surrounding a ceramic vessel on the floor of the same burial at Copán (discussed in more detail in Section 5.1 and shown in figure 12), and sculptural elements that were part of a fragmented deposit in an elite burial at the site of Waka' were removed in a similar fashion (fig. 6). In both cases, the fragments were stored in well-padded containers.

4.2 LIFTING FRAGMENTS IN ASSOCIATION

In the deposit on the burial dais at Copán were several areas where the paint fragment organization was much less disrupted and larger patches of PSU or PSD fragments were exposed. These were lifted as articulated groups after *in situ* treatment.

4.2.1 Pre-Lift Treatment

The fragments were first carefully cleaned with a soft brush and blower bulb, and then linked together using Japanese tissue adhered with an aqueous methyl cellulose gel. This combination of materials proved effective because the fine cellulosic tissue, with moisture, conformed closely to the irregular surfaces, and methyl cellulose was a sufficiently strong, compatible and easily reversible adhesive. Adjacent fragments could be strapped together with tissue strips or, for larger expanses, with a continuous tissue facing applied in overlapping patches. It was often helpful to strengthen the surfaces first with a dilute Paraloid B-72 solution in acetone, which helped tack adjacent fragments together. This application also made it possible to aqueously remove the facing tissue later, without disaggregating the fragments. Easy reversibility of facing/backing materials is an important consideration as the obscured surface may need to be studied during subsequent laboratory investigation.

4.2.2 Lifting Process

In the Copán example, the lift process involved gradually lifting up and sliding a Mylar sheet under the faced group (fig. 7), transferring the group to a flat surface, and then inverting it so that it rested on the more secure faced side. These could be stacked with interleaved padding (e.g., thin Volara or other soft sheet) in plastic boxes for transport and storage.



Fig. 7. Lifting a faced fragment group on the dais of Burial 37-4, Structure 26, Copán (Photograph by K. McHugh)

Sometimes, another layer of fragments was found adhering to the underside of the faced fragment group, with their respective stucco ground layers in contact. We were concerned that this had occurred from B-72 consolidant seeping through cracks from the upper layer of fragments to the underlying fragments, making separation more difficult. We found instead that this aggregation could occur naturally. Many painted objects were once decorated on both sides of the organic substrate material. With the decay of the substrate bringing the two stucco ground layers into contact, these gradually cemented lightly together during burial. Fortunately they could be separated quite easily by facing the adherent layer and then judiciously applying water or ethanol in the seam between them. We noted that this aggregation of paint layers rarely happened when the finely finished painted sides of fragments were in face-to-face contact, likely due to the reduced porosity of the surfaces.

4.3 BLOCK-LIFTING

The scenario that provides the best chance of more nuanced reconstruction is when block-lifting is possible. With this method, a deposit of paint flakes is removed in its entirety. The significant advantages of a block-lift are that it does the best job of keeping all the fragments in their original positions, and “buys time” – allowing the challenge of determining the best way to extricate the fragments to happen later in a more controlled laboratory-type setting.

Because the object is a deposit of loose paint fragments, lifting will require the matrix in which the deposit is embedded to play a significant role in its support. Eligible contexts include those in which the deposit is resting on an earthen floor, such as a number of the elite burials at Copán, Waka' and Baking Pot, or embedded within a particulate matrix, such as the ash filled adobe structures at Cerén. These allow excavation steps to be carried out that isolate the deposit on a pedestal of matrix material, as follows. Enough overlying material is removed to define the nature and extent of the deposit. Leaving at least several centimeters of matrix intact around the periphery as a protective margin, the object is pedestaled by lowering the surrounding matrix to a depth that corresponds to that of the entire object and continues deeper, with enough clearance below the object that the block can be cut from beneath with minimal disturbance to the deposit (fig. 8).

One of the most important aspects to consider in advance is the desirable orientation of the block after lifting. During the initial lift process, the block is maintained in its original orientation, but the circumstances of transport to an adequate location for the next phase of treatment or storage, or the immediate stability needs of the block, may argue for inversion of the block right after lifting. The orientation for transport should be decided in advance, as this will dictate some of the decisions about surface protection of the deposit and matrix support methods, both of which are critical elements for a successful lift.

4.3.1 Pre-Lift Treatment

Once sufficient overlying material has been carefully removed, most deposits of loose paint fragments require some kind of surface stabilization *in situ* as the first step in the process, whether to maintain the articulation of fragments, to protect the surface from disturbance during the subsequent excavation and lifting process, and/or to strengthen the surface if the block is to be inverted.

In the first of the author's encounters with the remains of painted organic objects, a flat rectangular patch of PSD fragments adhering to the floor of a residential building at Cerén (Artifact #2-51, Structure 2) was exposed and gently cleaned, consolidated with B-72, then faced

ith tissue using methylcellulose to secure it prior to block-lifting, shown after block-lifting in figure 16 (Beaubien 1993). The same approach was taken to secure the fragments of a flat circular PSU layer prior to lifting, from a cache found near an elite burial at Copán (Burial 95-1, Structure 16), discussed further in Section 5.2 (Lynn A. Grant, personal communication; Grant 1999).

Paint deposits of a more 3-dimensional nature were also found in various buildings at Cerén, including a number of bowl-like forms (Beaubien and Corbett 2002:160-162). In these situations, fine ash had fully surrounded the objects and filled their interior cavities, thus holding the paint layers in place even after substrate decomposition. As excavation exposed a “rim” of paint fragments, ash was left intact around the object but cleared from the concave hemispherical interior until the paint surface became visible. Before conservators were involved with the site’s excavation, several had been lifted by the archaeological team following a method used in the 1960s for recovery of several painted organic objects in a royal burial at the site of Tikal in Guatemala (Temple 32 Burial 195, Virginia Greene, personal communication); this involved pouring plaster of Paris into the object’s cavity (fig. 9).

While capturing the form and securing the fragmented paint, the disadvantage of this approach emerged as later discoveries showed that such objects were painted on both exterior and interior surfaces, surviving as back-to-back paint layers, both of which were now sealed to and inseparable from the plaster. We also found that the visible paint surface was susceptible to damage from efflorescent salts from the plaster, and the objects were considerably heavy.



Fig. 8. Artifact #011 during clearance of surrounding matrix in the tomb chamber of Burial 24, Structure O14-4, Waka' (Photograph by H. Beaubien)



Fig. 9. Artifact #1-247 from Structure 1 at Cerén, shown inverted after lifting by pouring plaster into the concave interior space (Photograph by H. Beaubien)



Fig. 10. Facing the concave interior paint surface of Artifact #8-160 in Structure 10 at Cerén (Photograph by M. Fenn)

This approach was subsequently modified as follows. The object's interior paint surface was exposed (as before), carefully documented and then lightly consolidated with B-72; this tacked the inner layer to the outer layer by seepage of the consolidant through cracks and losses. The entire concave interior surface was then faced with tissue and methylcellulose (fig. 10), lined with plastic cling wrap as a barrier layer, and filled with plaster. Once set, the plaster insert could be removed; it was then coated thoroughly with B-72 to render the material more inert, and put back in place without the barrier film to serve as a conforming interior support for the paint layer. (Note that alternate materials can be used for the interior support.)

Cyclododecane (CDD), another material for stabilizing and lifting fragile finds, was newly available when paint flake deposits were found in an elite burial at Waka' (Burial 24, ca. 6th-7th c. CE, in Structure O14-4) (Beaubien and Weber 2007). Careful cleaning *in situ* revealed fragments that still maintained their original alignment, including undulating walls (seen in fig. 8); these were backed with tissue and methyl cellulose to hold fragments in position. A combination of facings, cotton wool packing around fragments, and drizzled molten CDD secured the upper surface and the edges of the deposit, and created a simplified overall shape (as seen in the foreground artifact in figure 11). The CDD also provided an effective barrier layer for application of plaster bandages (described below) to create a cap across the top, which would later serve as a robust base when the block was inverted.

4.3.2 Lifting Process

Because the pedestal matrix serves to immobilize the deposit, some kind of subsidiary support around the sides is always recommended. Even if the matrix is very clayey and cohesive, hidden roots or rocks can destabilize the block, so materials that conform and provide a rigid collar around the pedestal are advisable. Gauze bandages impregnated with plaster of Paris powder have proven to be the most useful in these situations, requiring nothing more than scissors to cut the strips into useful lengths, and a bowl of water to dip them in to activate the plaster; the wet strips can then be placed, overlapping and layering them to quickly form an effective collar around the pedestal and/or cap once the plaster hardens (fig. 11). No barrier layer is needed around the pedestal unless the plaster is close to or in direct contact with original material; in these cases, a conforming barrier layer (e.g., aluminum foil, plastic cling film, CDD) must be used to prevent problematic adhesion. In the case of the bowl-like objects from Cerén, a plaster collar around the ash pedestal's sides, in combination with the plaster bowl insert, immobilized the fragile form.

A support is also needed for the bottom of the block to keep the matrix in place, and to carry the block's weight. This can be a thin rigid board that is slid underneath or onto which the block is maneuvered, and it is useful to cut the pedestal first with a long blade or wire to ease the sheet's passage. Note that enough matrix needs to be cleared around the sides of the pedestal to allow tools or lifting supports to be inserted during the lifting process. A metal sheet with a sharpened leading edge was invaluable for a number of lifts at Cerén.

Another method of supporting the base is to gradually undercut the block, adding plaster bandages in the process, until the bottom is partially or fully encased and the block is freed (as seen in the background artifact in figure 11). This method was used to secure the sides and bottom of the blocks for the three paint flake deposits from Waka'. A clipboard was used as a temporary support on which to slide each of the prepared blocks, but all were immediately inverted onto their plaster caps for transport in boxes to the field lab.



Fig. 11. Artifacts #012 (foreground) and #013 in Burial 24 at Waka', at various stages of block preparation (Photograph by H. Beaubien)

4.3.3 Post-Lift Field Treatment

Additional surface stabilization treatment and creation of plaster caps or other block reinforcements can be carried out in the field immediately after lifting. Plaster caps can be made removable using an aluminum foil or plastic cling film barrier layer, and can serve as a sturdy base if the block is inverted. Inverting the block in the field is generally done if this provides the more secure orientation for transport from the site, as was true for the three blocks from Waka'. For maximum immobilization during transport, any exposed pedestal matrix of the inverted blocks was covered with additional plaster bandage to fully encase the deposits.

5. LABORATORY CONSERVATION

5.1 LOOSE COLLECTIONS AND FRAGMENT GROUPS

If collected carefully by context, loose fragments can potentially be reassembled in the laboratory. One example is provided by a collection of disturbed fragments surrounding a ceramic vessel on the floor next to the dais in the Ruler 12 burial at Copán, previously mentioned in Section 4.1 (fig. 12). A number could be joined, in some cases by simply edge-joining

fragments with B72, or with the addition of small pieces of Japanese tissue adhered with methyl cellulose (fig. 13). The resulting fragment groups included long curving segments of what appeared to be edge or rim segments, as well as quite flat body fragments. These reassembled groups allowed larger expanses of texture to be detected on the reverse, which gave clues to the organic substrate that they once decorated. One reconstructed flat patch showed an intriguing array of what looked like chisel marks, and edge fragment groups showed linear striations in varying orientations as if positioned around a circular shaped piece of wood. These clues suggest that the fragments represent the remains of a painted wooden lid for the ceramic vessel.

We did not expect that the complex disturbed deposit on the burial dais would hold any promise of reassembly in a physical sense. However, the systematic study of the lifted loose fragmentary materials from approximately 350 grid squares yielded surprising results (Fash et al. 2001, Magee et al. 2001). Close examination under the microscope – distinguishing patterns in paint-side-up and -down orientation, color scheme, layering and distribution for each grid square – resulted in a virtual reconstruction of the deposit, which included a painted platform extending across most of the dais, and a raised painted “bed” holding the body of the primary individual.

Even disassociated fragments can yield information useful for their interpretation, through this process. In the case of a paint deposit from an elite burial at Baking Pot (Artifact R from Tomb 2, ca. 7th-8th c. CE, in Structure E), unforeseen tree roots had severely disrupted the block-lifting process, resulting in two partial blocks and an abundance of fragments from unknown locations. With careful sorting of these fragments according to ground type and texture, and further by color and decorative scheme, several discreet objects making up the deposit could be proposed, albeit of unknown form. Three different ground colors – cream, white and brown – were found, with additional textural differences present within the first two ground colors, possibly reflecting application to organic materials with variously textured surfaces. The textural characteristics of the fragments with a cream ground, for example, in combination with their decorative schemes, suggest that they had once ornamented a gourd with a monochrome interior and polychrome exterior (Section II in Audet 2005).

5.2 BLOCK-LIFTED DEPOSITS

With a goal of articulating and documenting all the paint layers in a block-lifted deposit, the conservation treatment will typically require a lab setting because of the potentially complex sequence of steps and time needed. The treatment strategy will likely need to accommodate one or more approaches, such as manual transfer of fragments from discrete layers, or supported removal of expanses of fragments, as well as additional interventions to enable working from the top down and from bottom up at various stages. Note that the painted surface that either directly lies on or is otherwise collapsed onto a flat floor tends to be more intact and better preserved than the vulnerable uppermost layer(s); as a result most excavation strategies include a block inversion step that makes this layer accessible quickly.



Fig. 12. Paint fragments *in situ* on the tomb chamber floor of Burial 37-4 at Copán (Photograph by B. Fash)



Fig. 13. Reassembly in the Copán field lab of fragments collected from the tomb chamber floor (Photograph by H. Beaubien)

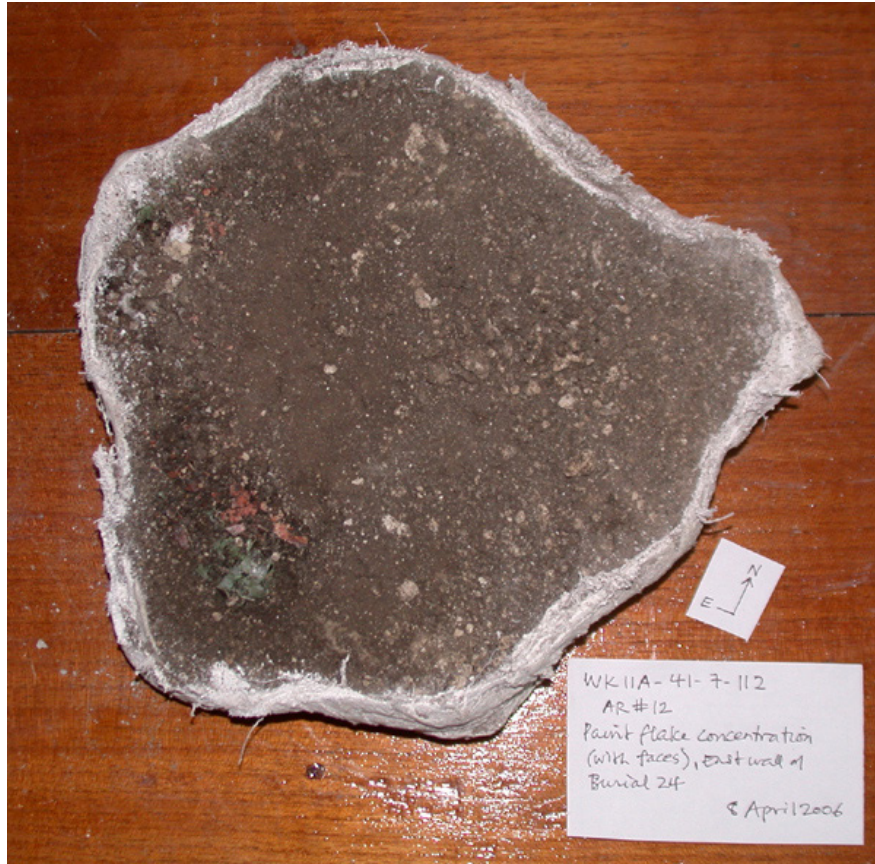


Fig. 14. Excavation of the pedestal soil to expose the bottommost paint layer for Artifact #012 in the Waka' field lab (Photograph by H. Beaubien)

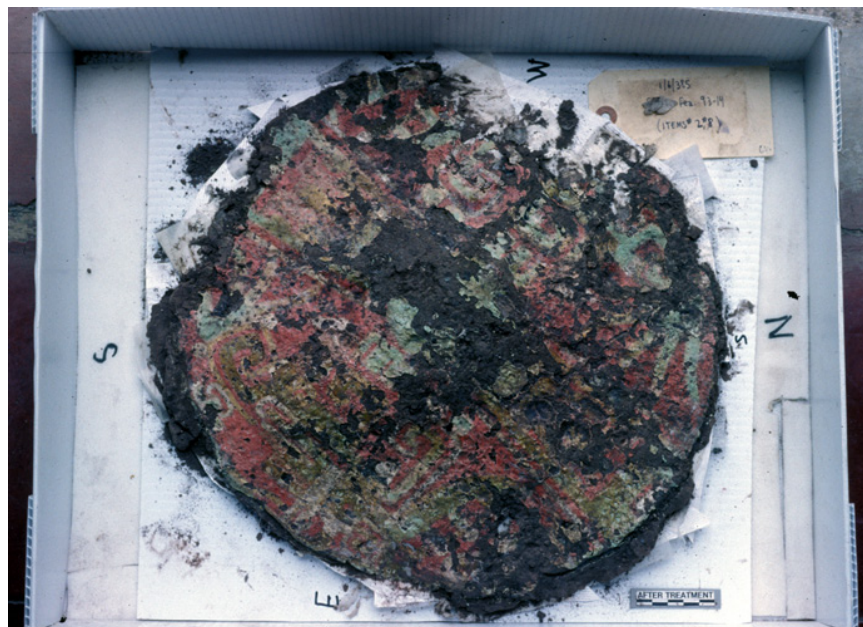


Fig. 15. Artifact #1/6/385-2 from a cache near Burial 95-1 in Structure 16 at Copán, after L. Grant's field treatment (Photograph by H. Beaubien)

Although block-lifted deposits can be stored immediately after field recovery with no further intervention, it is useful to carry out a preliminary excavation step in the field lab to remove excess soil from the block and reduce the size and weight of the object. The three block-lifted artifacts from Waka' were all processed in this way once they were transferred to the field lab. The plaster wrapping was cut away from the upper surfaces of the inverted blocks and the pedestal soil shaved down to a level where paint flake surfaces began to be revealed (fig. 14). These represented the painted surface that originally either directly lay or otherwise collapsed on to the flat floor. The exposed flakes were consolidated lightly with B-72 and locally faced with tissue using methylcellulose. An overall tissue layer was lightly attached to the entire surface with methylcellulose, and a removable plaster cap was made to form a secure housing for the block, which now contains little else but the paint deposit.

A similar strategy was followed by Lynn Grant to investigate the circular paint deposit from Copán (Artifact #1/6/385-2 from near Burial 95-1, ca. mid-5th c. CE, in Structure 16), mentioned in Section 4.3 above. Its polychrome PSU surface had been consolidated and temporarily faced in the field and the deposit block-lifted from the dense clayey matrix, using elastic bandages wrapped around the pedestal sides. The block was inverted in the field (not transported to the lab in this case), in order to remove the pedestal matrix and expose a possible paint layer decorating the object's underside (Lynn A. Grant, personal communication). In this case, no other paint layer was encountered, nor any trace of substrate material. A thin film of soil was left *in situ* to protect the underside of the paint layer; it was consolidated with a dilute B-72 solution, and then backed with tissue secured with B-72 adhesive. The supported paint layer was then returned to its original orientation, and the temporary facing tissue removed (fig. 15). These conservation steps reduced the size and weight of the artifact, simplifying its storage, and the surface treatment allowed the dimensions, the format of the decoration, and the iconographic elements to be preserved for further study (Grant 1999).

In the case of Artifact #2-51 from Structure 2 at Cerén, the lifted remains were approved for temporary loan to the Smithsonian's Museum Conservation Institute for conservation and technical study. For the single (bottommost) layer of PSD fragments adhering to the earthen floor of the structure, mentioned previously in Section 4.3, the goal of lab treatment was to uncover the painted side of the fragments (fig. 16). A removable conforming plaster support was molded (using a barrier layer) over the tissue-backed layer. The block was inverted and the pedestal soil was removed to expose the polychrome painted side of the fragments. As described in detail elsewhere (Beaubien 1993), this paint layer was part of a thicker deposit that had been removed by sliding a metal sheet along the floor surface, prior to the author's arrival on site (fig. 17). The thicker deposit was left untouched until transfer to the lab.

The treatment of this deposit began from the top down. The uppermost layer (#1) was transferred fragment by fragment to a sheet of tissue, while still maintaining the fragments' relative *in situ* positions. These PSU polychrome fragments were found to have a second layer of very thin monochrome fragments adhering to their undersides with ground surfaces tangent (#2, PSD). Other than basic documentation, these PSD fragments were not separated as a discrete layer; instead the back-to-back fragments were secured to the tissue with methylcellulose, oriented with the PSU decorated layer #1 visible. The layer (#3) exposed by this removal step was a continuous, relatively undisturbed, monochrome PSU group of fragments. To make sure that only fragments from this layer were lifted, they were transferred manually to Mylar, maintaining their relative *in situ* positions using a grid system. These fragments were generally more robust than the layer #2 monochrome fragments; adherent fragments from a paint layer

below were less common, and were gently separated prior to transfer. Placement on Mylar facilitated any repositioning of fragments to create better joins, and when a temporary tissue facing was adhered to their painted surfaces with methylcellulose to hold the reconstructed layer together, the Mylar also kept the fragments from sticking. Layer #3 could then be inverted to examine the texture preserved in the ground. Once documented, a tissue backing was then attached to the ground side of the fragments, thus sandwiching them between tissue, and the layer was returned to its PSU orientation. The easy reversibility of the adhesive made it possible to selectively remove the earlier facing using a dampened brush. The polychrome PSD fragments that remained in the deposit were the final layer (#4), originally in contact with the floor and adjoining the fragmentary single layer lifted separately and described above. These were removed as an articulated group of fragments, by attaching a backing tissue, molding a removable plaster support on them, and inverting the block to expose the painted surface of the layer #4 fragments.

A complex series of steps such as this should be anticipated for the articulation of any multi-layered paint deposit. In the case of the Cerén artifact, access to both painted and ground surfaces of the fragments, and large expanses of fragments in close to original positions, supplied evidence needed to interpret the remains. These allowed the painted decoration, substrate impressions and layer orientation to be better understood, and supported an identification of the object as a painted globular bowl made from a gourd. This had decayed into a flattened deposit, leaving behind fragments of a monochrome green interior paint layer and a polychrome exterior decorated with repeating seated figures around the rim, and radiating bands at the base referencing the gourd's own botanical features (fig. 18).

Other paint deposits found at the site followed a similar pattern of decoration, increasing the number of known examples of painted organic objects to more than ten items (Beaubien and Corbett 2002). Among these were several bowl-shaped deposits block-lifted using the removable plaster inserts described in Section 4.3 above; the block pedestals were supported around the sides with collars made of plaster-impregnated cloth strips, and removed using a metal sheet. In the field lab, the block-lifted objects were inverted, to rest on the plaster insert (fig. 19). Working down through the pedestal, the matrix ash was cleared, exposing the paint layer first at the object's base. Where the tissue from the interior application was visible, it was spot-tacked with B-72 to anchor it to the plaster support. The painted surface was successively cleared in this manner. Future access to interior surfaces of the inner and outer paint layers will be difficult but not impossible because of the use of reversible materials, while the lifting method also allowed the paint schemes to be documented and the form to be preserved.



Fig. 16. Block-lifted paint layer from Artifact #2-51 (Structure 2, Cerén), during lab excavation (Photograph by H. Beaubien)



Fig. 17. Lifted paint deposit from Artifact #2-51, Structure 2, Cerén (Photograph by H. Beaubien)



Fig. 18. Exterior decorative scheme of Artifact #2-51, reconstructed from fragmentary layers: rim decoration from PSU layer #1 (above); base decoration (below) combining PSD layer #4 and the single layer segment (Drawing by H. Beaubien)

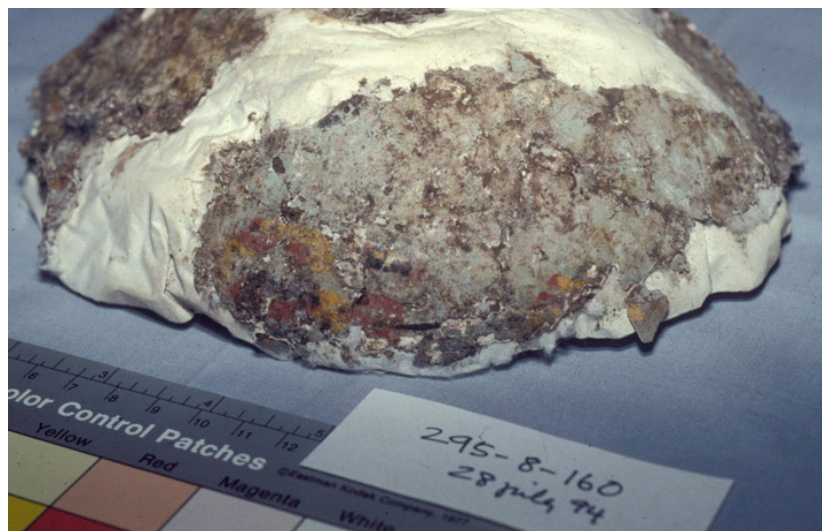


Fig. 19. Artifact #8-160 from Structure 10 at Cerén, secured to the plaster mount with polychrome exterior decoration visible (Photograph by H. Beaubien)

6. TECHNICAL ANALYSIS

Fragments, whether available from loose collections or as components of block-lifted deposits, offer ready access to outermost painted surfaces, undersides and edges for further analysis, supplementing observations recorded during the lifting and lab conservation stages described above. Instrumental analysis of selected fragments, using techniques such as microscopy, X-ray diffraction, scanning electron microscopy-energy dispersive spectroscopy, Fourier transform infrared spectroscopy, and gas chromatography-mass spectrometry, can potentially yield key technical information about the materials making up the paint flakes, the paint application process, as well as the now-decomposed organic substrate. While presentation of those results of analysis is not the focus of this paper, it has been an important component of the conservation work carried out by the author and colleagues on the painted organic objects described above (Audet 2005; Beaubien 1993; Beaubien and Corbett 2002), yielding in combination new information about these elusive and largely unstudied artifact types, and enriching the body of archaeological research on the ancient Maya.

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