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THE CONSERVATION AND RESURRECTION OF SEVEN CLAY COFFINS FROM NIPPUR

Julia B. Lawson

Abstract

The collection of seven Assyrian, Seleucid and Parthian clay coffins in the Near Eastern collections of the University of Pennsylvania Museum of Archaeology and Anthropology were excavated at the Mesopotamian site of Nippur in the late 19th century. They were restored shortly thereafter for display in the Museum's Babylonian galleries where they remained until 1940, when reinstallations consigned the objects to sub-basement storage. They were largely forgotten and their physical condition gradually deteriorated. By the late 20th century, the original restorations were crumbling, the coffins were collapsing under their own weight and it was feared that soluble salts were greatly weakening the fabrics. An Institute of Museum and Library Services grant enabled the Conservation Laboratory to assess the condition of the objects, conduct treatment and provide storage supports.

Introduction

The collection of Mesopotamian clay coffins from Nippur in the University of Pennsylvania Museum have a long and varied history. The coffins were uncovered in the late 19th century by the University of Pennsylvania's Babylonian Expeditions, conducted in four campaigns between 1889 and 1900 in what is today southern Iraq. These were the first American excavations in Mesopotamia, as well as the University's first expedition to any site outside of the United States. The prospect of large and significant shipments of artifacts from Nippur provided the impetus for the building of the University Museum, and the material from Nippur was the first major excavated collection to be housed and exhibited there. These Babylonian clay coffins are the only such artifacts known to reside in the New World.

The history of the University Museum, the Nippur excavations and the establishment of a Department of Archaeology at Penn are completely intertwined. Provost Dr William Pepper was instrumental in founding the archaeology department and accompanying museum almost simultaneously with committing the University to the Babylonian Expedition. He made a promise to the Expedition organizers that the University would provide proper accommodation for the excavated finds in a fire-proof building. The Museum officially began in 1889 as the Museum of Archaeology and Paleontology, which occupied a large room on the top floor of College Hall, with a variety of New and Old World casts and antiquities for the edification of the student population.

It quickly outgrew this space largely through the efforts of Pepper, a group of wealthy patrons headed by E.W. Clark, Sara Yorke Stevenson, Curator of the Egyptian and Mediterranean Sections, and Herman V. Hilprecht, Professor of Assyrian. Hilprecht urgently requested "objects illustrating the life and customs of the various peoples of the Old Testament to the growing

number of theological and philological students in the University.” (Bulletin 1897, 32) The Nippur excavations began to provide these, along with Hilprecht’s own efforts to obtain casts of Near Eastern objects from other institutions and private collectors. Late in the following year of 1890, the Museum expanded into several rooms and a stairwell of the new University Library. It was described as a place where students and the general public could view artifacts illustrating the “history of art, architecture, manufacture and of civilization in general among ancient peoples” (Jastrow et al. 1892, 18). The collections soon outgrew this space as well, and not surprisingly, the Library coveted the Museum’s space for its own collections. Hence, an ambitious and expeditious building campaign was begun in 1892 to erect the Free Museum of Science and Art, which would later reorganize as the University Museum.

The Babylonian Expeditions

Meanwhile, in Mesopotamia, field notes and letters from the Babylonian Expedition are rife with tales of hardship - from days of scorching heat, dust storms, political strife, mud flies, fleas and disease to nights disturbed by shouting, gunshots, mosquitos, bedbugs, jackals and more illness. There is even an account of a plague of locusts. For this privilege, the excavators spent most of the first field season in Constantinople, as it was then known, entreating officials of the Ottoman Empire for excavation permits and permission to export their finds. The Expedition’s financiers understandably wanted to see crates filled with the most significant finds for the nascent museum in Philadelphia. Just as reasonably, at least by today’s standards, the Director of the Imperial Ottoman Museum and His Majesty the Sultan desired that all of the objects, no matter how humble or grand, become the property of *their* museum. Months of negotiations between Dr. John P. Peters, one of the originators of the Expedition and its director for the first two field seasons, and Hamdy Bey, Director of the Imperial Ottoman Museum, resulted in a firman or permit to excavate at Nippur with the stipulation that all material be sent to Constantinople (Peters 1897). Penn’s Museum, to their consternation, would be allowed first choice of material deemed superfluous to the Imperial collection.

With this uncertainty in the back of their collective minds, the Expedition made the long and winding six week journey to the backwater site of Nippur by horse and camel caravan. In subsequent field seasons much or all of the trip would be made by boat down the Euphrates and through the swamps of Afej, but for that first trip the business manager and photographer, John Henry Haynes, was demonstrating extra care with the budget while providing his superiors with a romantic experience. The first field season found no evidence of any spectacular objects with which to create a blockbuster exhibition at Penn, but they did uncover the beginnings of a trove of inscribed tablets. In keeping with the general air of misadventure, the Expedition was forced to beat a hasty retreat near the end of the first season when ill will between the camp’s Turkish military guards and the local Arabs flared into violent conflict. The field camp was burned to the ground and its equipment and funds plundered (Hilprecht 1904). Fortunately, the officers of the Department of Archaeology and the Babylonian Exploration Fund, who did not have to deal with any of this first hand, kept their enthusiasm for the excavations and persuaded Peters and Haynes to go back for a second season.

Haynes would lead the third and fourth campaigns and be largely responsible for the excavation

of the collection of clay coffins, despite a certain lack of enthusiasm for them by the Exploration Fund back home. He writes about a group of coffins in a letter sent from the 3rd field campaign:

Seven coffins are now prepared for transportation and await the possible addition of others to their number. Four of these are the so-called slipper pattern. One was coated with a pale blue glaze, which on exposure to the sun quickly faded to a pale green color. This coffin is richly decorated with a sort of rope ornament dividing the body of the coffin into four smooth panels, in the center of each of which is the well known female figure in high relief. Three of them are unglazed; are without trace of color, and show but little attempt at decoration of any kind..."(Haynes 1894).

He goes on to say,

It seems to me a matter of time expense and care, tempered with some skill, to collect and preserve all existing types of coffins to be found at Niffer, Warka, or any other place of extensive sepulture in Babylonia. Am I, therefore, mistaken in thinking that a complete and well arranged collection of such coffins would awake a deeper and livelier interest among laymen, and the general public, than collections of smaller objects, that are found at Niffer? I would not for one moment forget that the first and chief object of exploration is to establish authentic history by whatever feeble accents, and broken record it come to us from the remote past. Yet so far as it can be done incidentally and in subordination to the more important task of gathering inscriptions and works of art, the burial customs and accoutrements of any great civilized nation of antiquity are most valuable adjuncts to the proper study of history and Archaeology" (Haynes 1894).



Figure 1. Excavated slipper coffins in situ during the Fourth Expedition. J. H. Haynes. UPM Neg. #148755

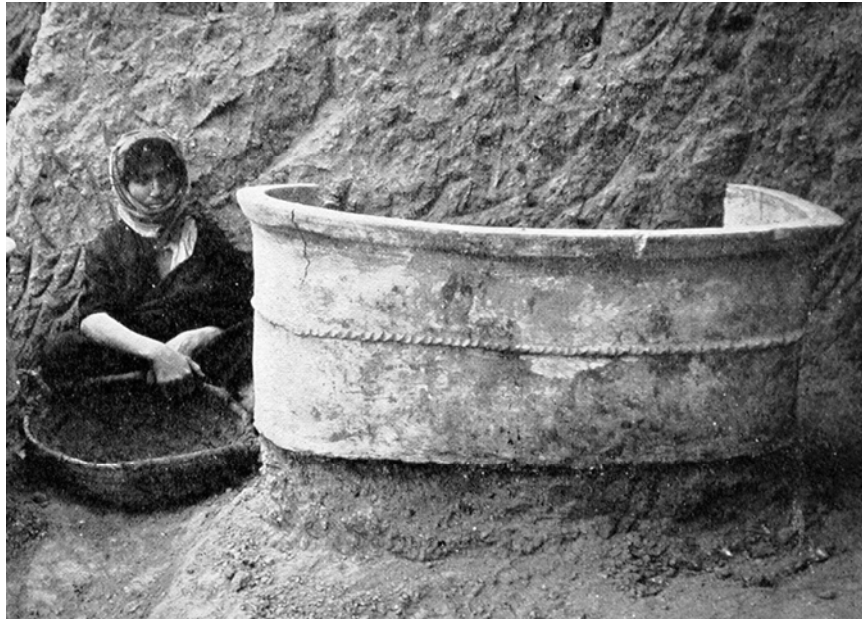


Figure 2. A bathtub coffin in situ with local laborer. J. H. Haynes (from Hilprecht 1904, 337).



Figure 3. Coffins being heavily faced with paper and glue in preparation for shipment to Constantinople. UPM Neg. # 148759

It was no easy task to salvage these large degraded clay objects, especially in an “incidental subordinate way”. Haynes often mentions that coffins are “badly broken.” Other descriptions mention that the “porous yellowish (green) terra-cotta is so rotten that although about 3/4 of an inch thick, it is easily broken in the hand.” Hilprecht noted that W. K. Loftus of the British

Museum, about forty-three years previously at the site of Warka, only succeeded in removing similar coffins after many fruitless attempts and the demolition of perhaps a hundred specimens. Haynes benefited from Loftus' experiments and experiences in coffin moving and employed his ultimately successful method of facing them inside and out with thick layers of paper and paste. At the time, Hilprecht, wrote of the facing that "When thoroughly dried, this hard mass became like a sheath, strengthening and protecting the enclosed coffin, which now could be lifted and handled without difficulty." He cautioned, though, that "It is by far wiser to save and pack all the fragments of glazed coffins separately and to put them together at home in a strictly scientific manner," as the facing method is "most damaging to the blue enamel" (Hilprecht 1904, 142-43). Presumably this refers to the difficulties of facing flaking corroding glaze that could also be poorly bonded to the clay substrate, both of which were observed one hundred or so years later during conservation. Despite all obstacles, Haynes sent at least twenty coffins to Constantinople in the 1893-94 season and over thirty large, well- preserved sarcophagi a year later.

Coffins in the Museum

In the 1890s, approximately 5200 objects, including at least eight coffins, were shipped from the Imperial Ottoman Museum, now the Istanbul Archaeological Museum, to Philadelphia. Museum catalogue cards list the restorer as a William H. Witte. He was employed by the University Museum in various collections-related capacities and is better known there as the first Museum photographer. The image of the original gallery featuring material from Nippur was likely produced by him (Fig. 4).



Figure 4. Four slipper coffins can be seen in the Baugh Pavilion, c. 1899, one of two original galleries devoted to the Babylonian expeditions. UPM Neg. #22428

The new Babylonian galleries were a prime attraction in the new permanent Free Museum of Science and Art when it opened in the autumn of 1899, and the clay coffins remained as prominent fixtures in the Nippur exhibition for the next 40 years. During that time, the University's field work expanded to several other sites, including three more in the Near East: Beth Shean, Tepe Gawra and Ur. These discoveries received considerable popular attention throughout the late 1920s and 30s as well as scholarly study. The Great Death Pit of the Royal Tombs of Ur, with its media-conjured images of sex, violence and riches, particularly caught the popular imagination in a way that eclipsed the more staid governmental and religious center of Nippur. By 1940, the original Nippur galleries were considered dated from both an academic and stylistic viewpoint, so the Victorian displays were dismantled and the clay coffins sent to a sub-basement storage area to make way for a modern comprehensive display of Mesopotamian art and archaeology. There they were largely forgotten as older curators and other collections staff retired or moved away. Eventually an ambitious intern (now a registrar) conducting an early computer inventory tracked them down in the 1980s and was able to point them out a few years later to a relatively new Associate Curator inquiring after lost coffins. He was thrilled to finally see them, but horrified at their deteriorating condition. Recognizing the importance and rarity of such objects outside of Baghdad and Istanbul, he approached the Conservation Laboratory and suggested that the coffins be resurrected.



Figure 5. Coffins on the old shelves in the basement. Slipper coffins are on upper left and middle shelves, bathtub coffins are in upper right and trough coffins are on bottom shelves.

Coffin Types

The coffins are of three distinctive styles, referred to as bathtub, trough and slipper coffins as befits their shapes. The bathtub coffins have flat bases and deep vertical sides with one rounded

and one square end. They usually had wooden lids and were either plain or very simply decorated. This is the oldest type, originating in Assyria, or northern Mesopotamia, in the mid to late 2nd millennium BCE. Its use spread south to Nippur, where they continued to be used into the 2nd century BCE, or the Seleucid period, named for Seleucus, success to Alexander the Great. Trough coffins came into use in Babylonia in the late Seleucid period. The troughs, as one might expect, are long and narrow with straight shallow sides, 2 rounded ends and no decoration. They originally had 2-part ceramic lids, though they are not extant in this case. Slipper coffins were introduced into Nippur by the conquering Parthians in the 1st century CE. Presumably the corpse was slid into the oval opening rather like a foot into a slipper. A rope tied around the ankles and pulled through the foot hole may have aided this process. Two of the Museum's slipper coffins are unglazed and have very simple modeled geometric or pinched rope-like decoration. A third is glazed and has a more distinctive design with four molded female figures in panels, possibly the deity Inanna, that seems to be exclusive to Nippur (Zettler 2002).

Conservation

The treatment phase of this narrative is written with the caveat that no groundbreaking protocols were developed. The historical thread will continue along with observations about condition, treatment choices and necessary compromises.

To start with, one of the greatest challenges posed by the unglazed slipper and trough coffins was coaxing them out of the old three-tiered shelving which was set into a wall recess along a dimly lighted narrow aisle with pipes running across the floor. All seven coffins rested there with little or no clearance in any direction. When possible, each coffin was prepared for moving by bracing with pallet shrink wrap run longitudinally around the sides and transverse bandages of soft Tyvek spun bonded high density polyethylene sheet tied around them. Several able bodied assistants were then drafted to ease a Mylar covered board between the coffin and the shelf. Both were then slid from the shelf and placed on a cart, where the object was then wrapped more securely with pallet shrink wrap so that it could be lifted over the pipes, pushed up a steep ramp, maneuvered into a passenger elevator and eventually lifted onto a worktable.

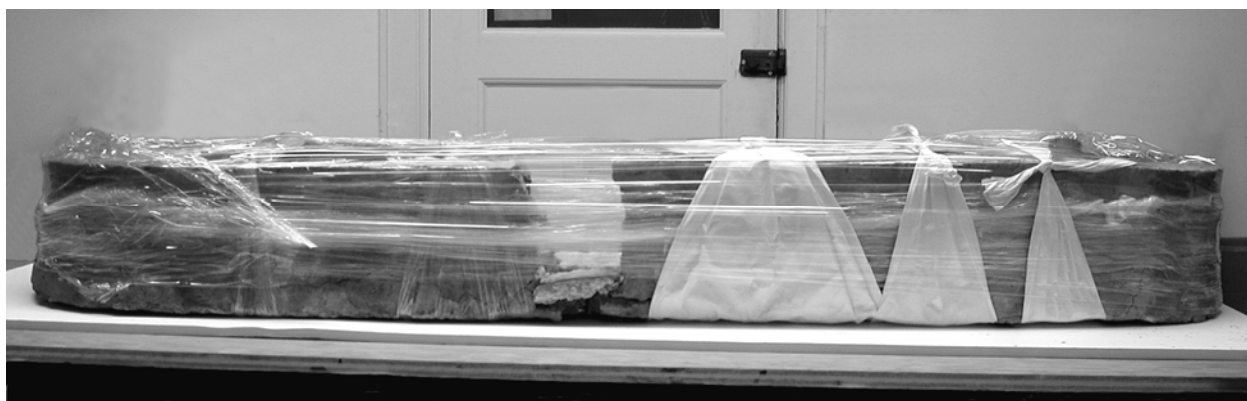


Fig. 6. A trough coffin is seen with pallet wrap and Tyvek bandages after removal from the basement.

The project began with the smallest, most intact, most readily transportable coffin as a manageable subject with which to become familiar with the clay fabric, the old restoration materials and condition problems. What was first apprehensively seen as a friable exterior slip layer under a coating of grime turned out to be, upon closer examination, modern paint and gap filler used to obscure break joins, stains and accretions degraded by a water leak in sub-basement storage. Cleaning revealed two apparent campaigns of adhesive mending. Exterior surfaces were completely filled and inpainted, with the hard adhesive-like fill material extending well beyond the break joins and lacunae, completely obscuring several of the mends. It was marked by some shrinkage cracks, but was in generally stable condition except for the localized areas of water damage. Visible mends held a stable brown adhesive. Spot testing (Biuret test; Odegaard 2000, 144-45) indicated that the plain adhesive was a proteinaceous glue and the loss compensation consisted of animal glue bulked with a calcareous material (which effervesced in HCl) and paper pulp. The interior surfaces of the coffin presented a different picture. A heavily crazed and crumbling brittle yellow-brown adhesive, identified as a cellulose nitrate by spot-testing (diphenylamine test; Odegaard 2000, 164-65) and solubility, could be seen in many of the break joins. The joins were reinforced with staple-like non-ferrous wire ties that span the breaks and have their bent ends embedded in small drilled holes filled with a soft putty.

At first it was thought that the cellulose nitrate may have been used to consolidate old joins, perhaps when the object was shifted into or from the gallery, as such mends are not unusual in the Museum's collections. Further consideration and observation as the project progressed, however, led to the theory that the cellulose nitrate was applied in the field, though proof of this could not be found in the field reports or incomplete supply lists. If employed as a later consolidant, it likely would have appeared as accretions on at least some of the wire ties, but this was not observed. The adhesive's original claims to fame were its ability to be used straight from the can, long shelf life, relatively fast setting time, strength and waterproofness. It was marketed early on as repair adhesive for canvas and birch bark canoes and became popular with outfitters such as the Hudson's Bay Company. It could have been a natural for fieldwork by Americans beginning in the late 1890s.

Back at the new Museum, the restorer, William Witte, likely had access to the latest methods in museum restoration, the "strictly scientific manner" espoused by the Assyrian curator. Friedrich Rathgen of the Royal Museums, Berlin, recommended animal glues, shellac or sodium silicate for mending broken pottery and "stone cement" for gap filling. This consisted of Cologne (or hide) glue boiled together with shredded paper. It was to be stirred continually with a stout wooden rod while adding, in turn, sifted whiting, linseed oil and Venetian turpentine (Rathgen 1905). A variation of this, probably with little or no oil and turpentine, does indeed seem to be what was found compensating for losses both large and small in the coffins. It appears that Witte used animal glue to repair any joins that failed or new breaks that occurred during the arduous journey from the East, then reinforced all joins with the wire ties. He then filled lacunae and gaps with the stone cement, partially obscuring some of the ties. Lastly, each coffin was given several low conical disk feet of plaster and stone cement for exhibition purposes. These later became a destructive force in the large coffins, as they lent highly uneven support to the bases.



Figure 7. Underside of an unglazed slipper coffin after the mechanical removal of old black painted plaster and stone cement feet.

These observations provided welcome insight into the considerable problems of the other much larger and fragmentary bathtub coffin, which was also more seriously degraded. Many of the sherds were only held in place by gravity, some were tenuously attached with wire ties and many fragments had fallen from the sides of the object. The collections Keeper had gathered many loose fragments into trays over the years, including some picked up from the floor. At least its condition made it a relatively simple matter to load the various sections and sherds onto a Rubbermaid cart for easy transport to the Conservation lab, though treatment would be a lengthy process. Once again, the initial fear that the clay fabric may have been weakened by soluble salts, possibly to the breaking point, quickly dissipated. Almost all of the break edges were old weathered breaks with adhesive accretions. Spot testing showed that virtually all of the failed joins were made with cellulose nitrate, either plain or bulked with an inert white material, probably plaster. And again, intact joins held animal glue and glue-based stone cement. Thick powdery residues of degraded fill material coated everything. Cleaning of detached sherds in water baths after vacuuming yielded further evidence of past treatment, as many of the fragments quickly turned the water a clear amber color. Though this was not analyzed, a plausible explanation, given the object's history, is that it was a vegetable gum used as a facing adhesive, and perhaps applied more heavily in some areas as a sort of consolidant. Testing of soaking water for chlorides with the silver nitrate spot test indicated relatively low to moderate amounts. As no salt damage could be seen, it was decided that salt removal would be an unnecessary expense of time, which was not limitless, and could potentially cause more harm than benefit to the low-fired ceramic.

Old mends that were unstable but had not completely failed were undone. As with the first coffin, it was decided to leave the rest of the old mends in place and consolidate them with liberal applications of Paraloid B-72 in acetone and bulked B-72 where necessary to conserve both time and the often friable break edges. The wire ties were left in place in such areas, as they were causing no harm, are generally not visually disturbing as they are limited to the interior surfaces, and are part of the object's history. They were inpainted with Golden Acrylics acrylic

emulsion paints wherever they were deemed aesthetically intrusive. Oversized areas of reconstruction, mainly in the bull nose rim and corners, were pared down and surfaces obscured by it were uncovered. The coffin was then reconstructed from the base up, with much musing over fragment placement. It was readily apparent, after the lower half or so of the wall was reattached, that the side walls had all broken along the same point, slightly more than halfway up. A horizontal indentation encircled the coffin along with a slight angling of the sides up from this point. This appeared to be a seam where long slabs of clay were joined in the manufacturing process. One big slab formed the base, two long rectangular slabs formed the left, curved front and right sides and two shorter slabs formed the square rear side of the bathtub coffin. The rim was modeled separately and luted on. Not surprisingly, this object, and indeed all the coffins, failed along the seams. All had breaks around the perimeter of the base, and in this case, because of the much greater depth of the sides, at the seam in the side walls. The join between the heavy rim and the top of the sides was also unstable. Further evidence of fabrication could be seen in areas with impressions of plaited basketry or matting (such as seen here) on the exterior and fingermarks on the interior, particularly at the seams. This would indicate that clay slabs were likely patted out and handled on large reed mats, a common work surface in this part of Iraq well into the 20th century (Ochsenschlager 2004, Figs. 4.15, 7.3, 7.4).

Significant losses along many of the seam break edges and the straight unkeyed nature of several others above and below the seam made extra support necessary or advisable in some areas as the fragments were reattached. It was reluctantly decided that that a judicious number of dowels could meet this end, but they needed to be either flexible enough to bend or weak enough to break if the object met with accidental mechanical stress. Extruded acrylic rod of 1/8" and 3/16" diameter was chosen because it can be easily snapped in two and appears to be weaker than the ceramic, while still lending an extra dimension of support. The large gaps spanned by the dowels were then filled with plaster of Paris cast in place, while narrower gaps were filled with Paraloid B-72 bulked to a putty-like consistency with glass microballoons. Plaster was poured into large gaps in vertical side walls after making molds with Vigor firm green sheet casting wax, 16 or 18 gauge, held in place with non-drying modeling clay similar to Plasticine. Deionized water was brushed liberally onto surfaces adjacent to these lacunae before applying mold materials to avoid adherence of both oily clay and plaster residues. The ceramic was sufficiently textured to allow a secure mechanical bond.



Figure 8. The largest intact section of the 2nd bathtub coffin. Wire ties across break joins can be seen in the exposed interior surfaces.



Figure 9. Coffin during reconstruction showing breaks along the horizontal center seam (square back end is to the left, rounded end to the right).



Figure 10. Front of coffin during treatment.



Figure 11. Upper central fragment group held in place with acrylic rods prior to gap filling.



Figure 12. Object is nearing end of reconstruction. A sheet wax and modeling clay mold in the upper left corner is ready to help form a lost section of rim where old loss compensation was discarded.



Figure 13. Object after treatment. The center of the rim was deformed originally, apparently from handling during manufacture while the clay was still pliable.

Treatment of the rest of the coffins was conducted in much the same way; they proved to simply be oversized ceramics with the usual problems encountered in clay, but amplified by size.

After treatment, the coffins were each placed on their own dolly/storage support to facilitate transport to the Near Eastern collections storage rooms and allow them mobility within the space. These were constructed of $\frac{3}{4}$ " plywood sealed with acrylic latex paint, fitted with six heavy duty 360° swivel casters and covered with $\frac{1}{4}$ " Ethafoam closed cell polyethylene foam sheet. Both ends were given two large eye hooks so that double-ended dolly handles of braided

synthetic rope could be clipped on the front for pulling and the rear for guiding. Keeping the coffins on individual mobile supports in storage allows full access for research, teaching, etc. without the use of forklifts or other heavy equipment to move them on and off of shelving.

Conservators often are highly critical, if not derisive, of old restorations that cross our paths. While these coffins had their share of excess fill material and overpaint, and the metal ties may seem rather extreme, the original restorer of these objects is deserving of great respect. He used the approved methods and materials of the day, much as was done in this project, to complete a daunting task under a tight deadline. In the course of the project it was realized that the same basic process as Mr. Witte's was being repeated, with the substitution of contemporary synthetic materials. The opportunity to be part of the continuing history of these ancient objects was much appreciated and it is hoped that this treatment will sustain the coffins well into their third millennium.

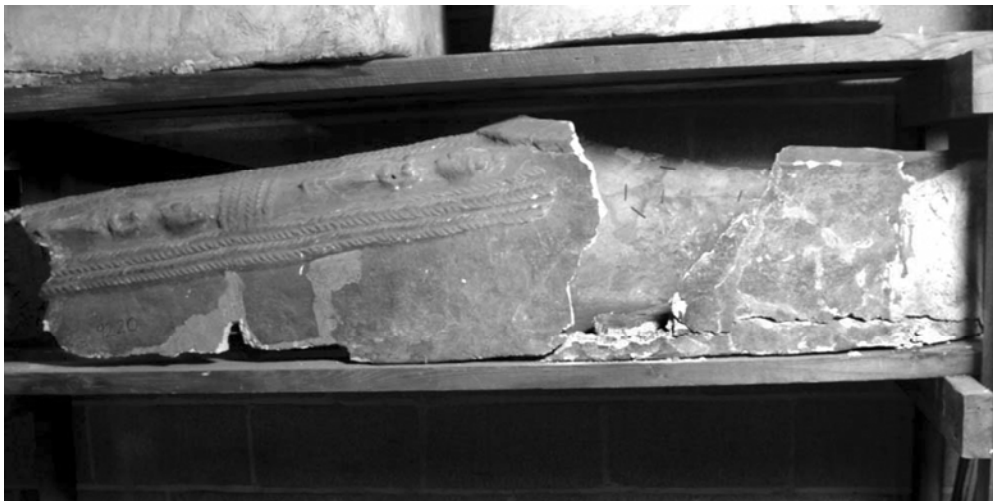


Figure 14. The glazed slipper coffin in old storage.



Figure 15. A section of the coffin enters the Conservation Lab.



Figure 16. Reconstruction began with the base.



Figure 17. The oval head end of the coffin during reconstruction, but prior to removal of old discolored inpainting.



Figure 18. Foot of coffin during treatment.



Figure 19. Foot of coffin during treatment, showing the wax mold held in place by clay.

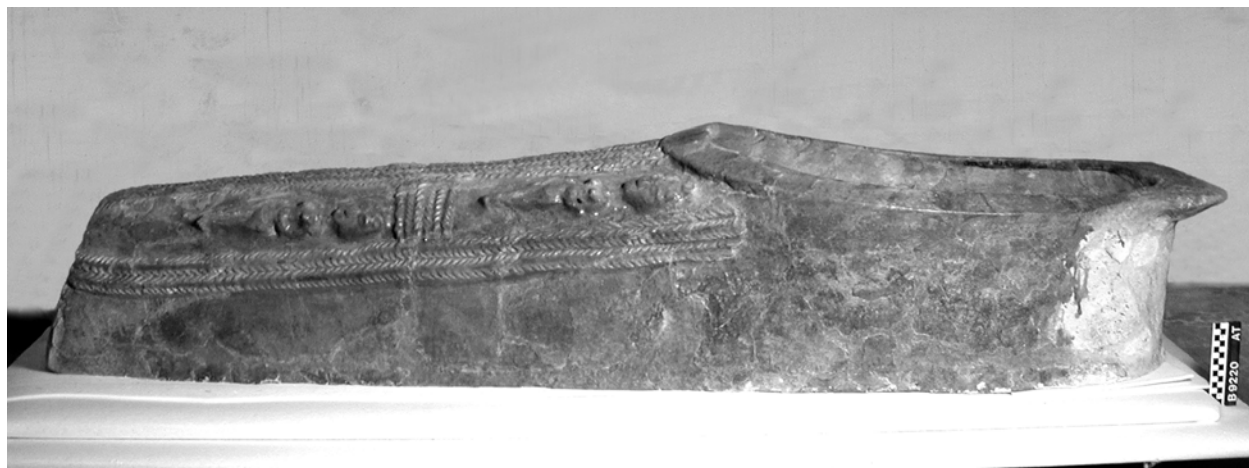


Figure 20. Glazed slipper coffin after treatment.

Acknowledgments

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Suppliers

Acrylic rod, extruded:

Arch Street Plastics, Philadelphia, PA. 215-636-0890

Casters and accompanying bolts, nuts and drill bits:

McMaster-Carr Supply Company, New Brunswick, NJ. 732-329-3200, (www.mcmaster.com), and other hardware stores.

Dolly handles:

Clean Run Productions, LLC, Chicopee, MA. 800-311-6503, (www.cleanrun.com)

Ethafoam (closed cell polyethylene foam):

Advanced Packaging, Inc., Baltimore, MD, 888-206-5250 and Foam Fair Industries, Aldan, PA. 800-796-3626.

Pallet shrink wrap:

Ship-It, Twinsburg, OH. 800-481-3600

Plaster of Paris (hydrated calcium sulfate, Diamond P grade):
Samuel H. French & Co., Philadelphia, PA. 215-482-6770

Vigor sheet casting wax:
Kingsley North, Inc., Norway, MI. 800-338-9280, (www.kingsleynorth.com)

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