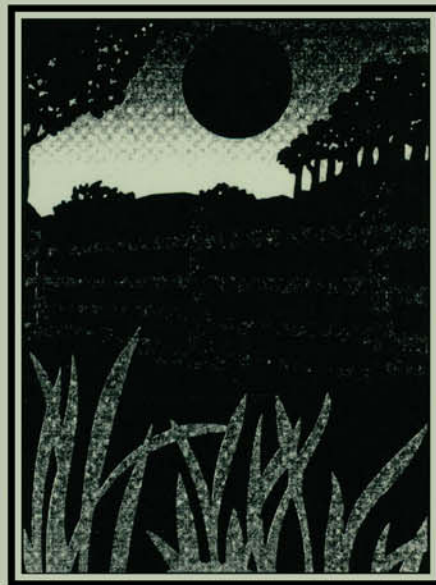


Loss Compensation: Technical and Philosophical Issues

Objects Specialty Group Postprints

Volume Two

1994



American Institute for Conservation of
Historic and Artistic Works

**Loss Compensation:
Technical and Philosophical
Issues**

compiled by Ellen Pearlstein and
Michele Marincola

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FOREWARD

The second volume of *Postprints* to be published by the Objects Specialty Group presents the papers on loss compensation from the OSG session of the 1994 AIC Annual Meeting. The topic of loss compensation was chosen for the session because it gave us an opportunity to explore numerous approaches to a common problem that is shared by conservators with different objects specialties.

While most objects conservators practice loss compensation, their philosophies of treatment and the techniques they employ can vary depending on the material substrate, the object context, and the goals for the treatment. The following papers illustrate how a range of compensation approaches may be necessary for related objects made from the same materials. By contrast, the same compensation technique, one that uses tinted tissue paper fills, is presented for use on very diverse objects for different reasons. It is also noteworthy that conservators presenting evaluations of past compensations on Roman marbles, Islamic ceramics, French gessoed and gilded wood, and European stained glass all asked related philosophical questions. Three of the papers describe the role of native consultants or living artists in establishing the extent of compensation for loss; interestingly, consultants' participation resulted in increased parameters for consideration rather than a single directive. We think the papers that follow contribute a great deal to the lively debate about when, why, and how to compensate for losses.

The papers are organized in the order presented at the 22nd Annual Meeting. The paper presented by Jack Soultanian is not included in these proceedings. Groups of talks were followed by discussions, which were lead by Terry Drayman-Weisser, and which are summarized here by Harriet (Rae) Beaubien. We thank both Terry and Rae for their able contributions. Rae's summaries do not record the discussions verbatim, but instead provide a valuable overview. Additional acknowledgements are due to George Lonsdorf, Coordinator at The Cloisters, and to John DiClemente at The Brooklyn Museum, who shared their computer graphic skills.

The OSG *Postprints* is a non-juried compilation. Only minor editing was performed by the compilers. Authors are encouraged to submit papers presented here for publication in the *Journal of the American Institute for Conservation*, or in other juried publications. Individual authors retain all rights to their papers.

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OSG Co-Chairs

April 1995

**COLLABORATIVE DECISIONS IN CONTEXT:
LOSS COMPENSATION IN NATIVE AMERICAN MUSEUM OBJECTS**
Landis Smith*

The complex issues surrounding the subject of loss compensation in Native American museum objects challenge us to expand our notions of what it means to preserve these materials. Major theoretical changes in North American anthropology have dovetailed with the evolution of many museums towards a philosophy and practice that is inclusive of Native American people. We see a new depth in Native American art history, too, in its exploration of the relationship between form and context and in its inclusion of Native perspectives (Nagy 1994).

The principal of inclusiveness seeks to move scholarship and museum practice away from an essentially colonial and objectifying relationship with Indian people toward a truly collaborative and facilitating one. Rick West, Director of the National Museum of the American Indian, has observed that past scholarship has not been so much wrong as incomplete (West 1993). Scholarship, in this sense, can be taken to include research, exhibits and conservation. As I will describe in this paper, conservation decisions can be greatly informed by collaborative considerations of the objects. Quite simply, inclusiveness is an opportunity for us to understand more about the objects we work with (Bernstein 1992).

Moreover, as anthropologist Michael Ames (1993) of the University of British Columbia has written, "It is not just a matter of listening to other voices or sharing curatorial responsibilities. A basic realignment of museum values and practices is required."

How are these new museum values defined and how are museum practices being realigned, particularly in conservation? How does inclusiveness of Indian people and diverse cultural perspectives and priorities lead us to do things in a different way? Through a discussion of loss compensation in American Indian museum objects, I will attempt to illustrate how new museum principles, particularly those that apply to the consideration of objects, are being integrated into conservation work at the Museum of Indian Arts and Culture/Laboratory of Anthropology (part of the Museum of New Mexico system) in Santa Fe. Conversely, I will describe how questions raised by conservators have affected the way objects are considered curatorially. Conservation is not operating in isolation, but is integrated into the whole of the curatorial decision-making process by concerning itself with the bigger questions and applying them to the consideration of objects and their subsequent conservation. In this sense, conservators are attempting to deal with culturally diverse ideas of truth, beauty, and the exhibition thesis.

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At the Museum of Indian Arts and Culture/Laboratory of Anthropology, a radically new concept for the exhibition of Southwest Indian cultures has been evolving over the past four years. Through the entire structure of the exhibit process, and specifically for conservation, issues of cultural appropriation and representation are actively addressed. These terms refer to political and humanist notions about the way cultures and objects are represented, discussed and treated; who decides, who talks about them, and from whose perspectives. In addition, theoretical anthropological work, particularly in ethnoaesthetics and post-modernism (Ames 1992, Graburn 1976, Karp and Lavine 1991, Maquet 1986, McCracken 1990, Price 1989), have led to a broader concept of context, as well as a greater understanding of the complex layers of meanings held in the objects.

What has evolved for conservation at the Museum of Indian Arts and Culture as a result of this work is a much greater emphasis on the decision-making process. Using what others have described as a Cubist approach (Thomas 1991, West 1993), the object is considered from many different perspectives at once. In collaboration with other specialists, the object and its condition are understood through museum documentation, including archival documents, historic photographs, reference collections and conservation records; through ethnographic literature, consultation with Indian scholars, artists and others, curatorial expertise, conservation examination, and technical analysis.

The intention of this decision-making process is two-fold; one, to place the object in as thorough a context as possible in order to come to an understanding of the object's tangible and intangible meanings. We can then project the potential effect of conservation treatments on those meanings. The second goal is to increase awareness of our own culturally-based assumptions and aesthetic systems in an effort to avoid imposing them on objects during conservation treatment. Although cultural biases cannot be completely avoided, they can be minimized through the collaborative use of multiple perspectives and an investigation of the contextual history of the object.

As an example, a Southern Pueblo cooking pot with a large loss at the rim and wall is at the center of a controversy concerning its presentation in the new exhibit (fig. 1). One curator believes that the loss in the pot ought to be compensated so that it appears as a functional cooking pot in the exhibit; another curator would like to present the total contextual history of the object and show it in its current condition.

Driven by both practical and theoretical academic work, the object is understood within an expanded notion of context which includes not only the culture of origin, but the context of collecting and collector, of anthropology and anthropology museums, of curation and conservation, and the meanings these collections now hold for contemporary Indian people. This post-modern analysis of the museum object investigates social meanings embedded in the object

from the time of its manufacture to the present. Such an approach to the objects acknowledges that museums are Euro-American in conception, holding collections that reflect the biases and cultural contexts of the dominant culture. In other words, anthropology museums are as much about the culture of anthropology as they are about the cultures from which the objects were collected.



Figure 1. Southern Pueblo Cooking Bowl, ca. 1890, Museum of Indian Arts and Culture, 44991/12.

To begin to contextualize the cooking pot, we began with museum documentation in the form of accession records, record photographs, and field notes. From these we were able to conclude that the loss had occurred while in use at the pueblo and that it was not the result of a museum accident. In fact, the condition of the pot and its particular type are major factors in its having been donated to the museum at all.

Obviously, the pot could no longer be used for cooking with a loss that large, but damaged pots were recycled; the definition of an object's function cannot be narrowly defined by the original intent. The ethnographic record shows that broken pots were used as chimneys or as containers for dry storage of, for example, grains or fruit (Dillingham 1990). In fact, the utilization of this damaged cooking pot as a dry food container is supported by museum research which suggests that the pot was bought as part of a large lot of pots from an old storeroom in a Santo Domingo Pueblo household. The pot, then, can be understood as both a cooking pot and a dry storage container.

Next, the curatorial staff is asked by the conservator to briefly explain the criteria for selection of an object and to describe its exhibit context; such information helps to determine the object's presentation and treatment. It is worth noting that this practice on the part of Conservation has opened up a new, Museum-wide discussion about the selection of objects, how they are presented and why, and about the messages conveyed by presenting the objects in various conditions.

This Pueblo pot was selected because it is an example of cooking ware widely used in the Pueblos before 1880. This pottery type was rarely collected by museums or private collectors, in part because they are less decorative than, for example, polychrome water ollas. In addition, Southwest museum anthropologists of the early twentieth century were interested in classifying

pots stylistically by pueblo, and these unpainted utility wares did not support or help illustrate their thesis.

The Museum's Chief Curator, Dr. Bruce Bernstein, would like the loss to be compensated since the pot will be shown as a cooking pot and discussed in terms of that particular function. He also believes it disrespectful and somewhat insulting to Pueblo people to show broken things like this in a discussion about households. He believes this plays into certain negative stereotypes about Indian people and that it is part of the museum's mission to educate and dispel misconceptions. He would like to see a fill that integrates the object visually, but that is apparent at close range. However, Curator Dr. Rina Swentzell (Santa Clara Pueblo), feels very strongly that the loss in the pot should not be compensated under any circumstance; Dr. Swentzell made the point that pots were broken all the time in use and that one could see a whole range of conditions in a household where pots were used. Further, she feels that there is a kind of evocative beauty in objects showing damage through use, in contrast to Western notions of perfection (Naranjo 1993). Dr. Swentzell voiced the conviction that by filling the loss, we would be denying both the truth of this pot as a museum object, as well as its full history.

Dr. Swentzell articulates a Puebloan idea of cycles, of life and death, of deterioration and renewal. To physically stabilize an object, much less compensate a loss, is to freeze something in time, to deny the life of the thing as a changing entity. She, as well as two other curators at the Museum, Edmund Ladd (Zuni) and Gloria Emerson (Navajo), are very in favor of preventive conservation measures, but generally feel it inappropriate to reverse deterioration by compensating losses.

Structurally, the pot would be further stabilized by compensation of the loss; however, extra attention to careful handling would also prevent further damage. Therefore, there is no straightforward reason, from the conservator's point of view, to compensate the loss. In addition, potential information can be gleaned from technical examination of the exposed clay body at the broken edges, i.e. firing conditions, types of nonplastic inclusions, etc. However, since two curators are in favor of compensation because of the pot's exhibit context, several options for fills were presented. Variations in cellulosic hydrocal fills were described, including; fills made below the level of the original ceramic surface; smooth-surfaced fills at the level of the original ceramic surface painted in a flat, neutral color, or to match the pot. Textured compensations, just as fills in which the designs are "completed", involve hypothesizing about what was there, and so are no longer an option. The disadvantage of all these fills is that reversing them can be a messy affair carrying certain risks, and also that they require an intervention in the form of a barrier layer, usually an acrylic polymer, permanently altering the character of the exposed clay body at the broken edges.

Another potential solution was met with almost unanimous approval; this was to exhibit the pot in its uncompensated state, discuss its condition in the label text, and compensate the loss in a precise image, either a drawing or a digitized computer image, shown along with the pot. This way, the pot and its particular history are presented honestly, while, at the same time, the pot is shown whole, as it would have looked when it was used as a cooking pot. The pot would be seen in different ways simultaneously.

Balancing the preservation of the physical with the conceptual is a new challenge with each group of objects. Pueblo Kachina dolls present some of the most interesting problems for conservators, both on the physical and conceptual levels. The dolls were, and continue to be, made by people in the Rio Grande pueblos as well as at Zuni and Hopi pueblos. They were carved from a single piece of seasoned cottonwood root, although some parts, such as beaks, snouts, ears, and sometimes limbs were carved separately and attached with tiny wood dowels without the use of adhesive. As a result, parts can break off, and even slip off, the dowels.

The carved wooden figures under consideration were made in the 1920's and 30's at the Hopi villages by male initiates. They served as mnemonic devices for children and were generally given at the time of religious Kachina dances, although they might also be sold out of Hopi to non-Hopi buyers. They were hung in houses from rafters or on a wall with a hanging string, often resulting in paint abraded or lost at the back of the heads, backs, kilts and heels of these objects. Kachina dolls which are still in use today were made to educate, to be used up, and to eventually deteriorate.

Kachina dolls are regarded as sensitive objects by the Rio Grande pueblos as they represent, and indeed are believed to hold, spiritual aspects of deities. However, for historic reasons, they are not usually regarded as sensitive materials by the Western Pueblos of Hopi or Zuni. In this group of nineteen Kachina dolls selected for loan to a French museum, we observed various lost parts, missing feathers, and paint loss. Ought the losses be compensated? How do we collaboratively decide?

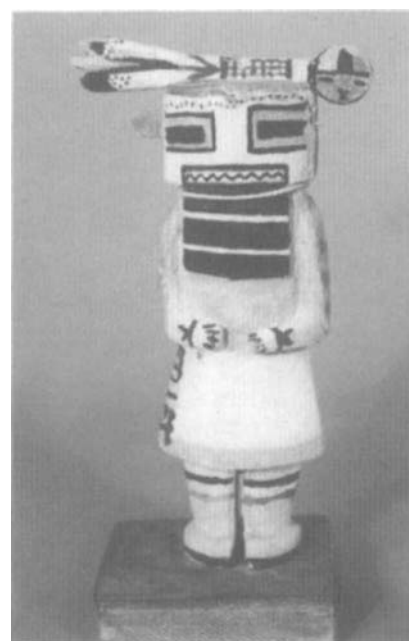


Figure 2. Hillili Kachina Doll, Hopi, ca. 1930. Museum of Indian Arts and Culture, 47817/12.

In answering these questions, ethnoaesthetic studies (Ames 1992, Graburn 1976, Karp and Lavine 1991, Maquet 1986, McCracken 1989, Otten 1971, Price 1989) offer important concepts that can be directly applied to the practice of conservation. One is that any given object holds

an entire aesthetic system, that system understood as the physical manifestation of a system of cultural meanings. For conservators, then, the object and its particular condition can be understood as a complex, multi-layered cultural document that, in collaboration with others, can be read, at least to some extent. Further, ethnoaesthetics utilize Native explanatory principles, that is, aesthetics are interpreted by the makers or society members themselves. These meanings are somewhat mutable and subjective, but nevertheless exist and may be as important to preserve as the physical object.

After many long discussions and visual reviews with both Pueblo and non-Indian curators, we developed an approach to the presentation of these particular Kachina dolls for this exhibit. These decisions are made on a case by case basis, each circumstance potentially leading us to different solutions. During our reviews, treatment options were described and considered in light of all that we knew about the objects, including cultural considerations. Cultural differences between Pueblo and non-Pueblo worldviews became apparent in the ways concepts and preservation issues for these objects were discussed.

In my linear mode of thought, the following guidelines seemed contradictory and mutually exclusive: that these objects were intended to deteriorate; that feathers should not be replaced, straightened or even stabilized; that it would be inappropriate to replace missing parts, but that some loose parts could be stabilized; that paint could be consolidated; and, further, that I could make one of the dolls "look its best" for loan by compensating minor, but very visually distracting, losses in the black face.

After weeks of trying to sort out all the seeming contradictions in what the Pueblo curators were saying about these objects and their preservation, an ethnologist finally pointed out to me that an understanding of the cultural use of conceptual hierarchy in these discussions could help me grasp what was being said. It was suggested to me that I think about what the Curator of Ethnology, Edmund Ladd, a Zuni man, said in chronological order, that there was a hierarchy in the guidelines expressed in a diminishing scale of importance. Furthermore, the hierarchy is accommodating and inclusive so that even if Mr. Ladd's first directive seemed to contradict the second, both could be carried out; however, the first has more importance attached to it than the second.

So, according to all the input that we (conservation and curatorial staff together) could synthesize, the fact that Kachina dolls were meant to deteriorate became the most important concept for these objects. We determined that they should not be made to look renewed; that drastically interventive measures such as replacing parts should not be carried out because the original act of creating the essential aspect of these objects is done in a certain manner. Although the missing part could be replicated, a proper, culturally-bound creation process cannot be reproduced, making the restored physical element "wrong".

The same idea holds true for feathers. It has been explained to me that feathers carry breath, that they are prayers in physical form and hold a particular and powerful place in Puebloan cosmology. Further, specific types of feathers are used for particular Kachina dolls. They were generally tied with cotton string and attached, often at the top of the head with a tiny wood peg. Many feathers were lost years ago to insects, or because of the wood dowel failing at some point. But, if the life of an object used in the Pueblo is seen as continuing in the museum environment - simply a new context - then the distinction between "damage in use" and "damage in the museum" becomes less important in conservation decisions.

Finally, Conservation was asked by both Indian and non-Indian curators to compensate several conspicuous paint losses in the black face mask of one Kachina doll. I proposed to paint Japanese tissue with an acrylic paint, cut out shapes to fit the losses and to attach them with carboxy methylcellulose, a very compatible material for these objects. I was able to achieve a matched color compensation that can be very easily and completely removed. Minimal intervention and easy reversibility have become exceedingly important criterion for conservation treatment at the Museum of Indian Arts and Culture.

In closing, I would like to stress how important it is for our museum to document the decision-making process. I developed a special form for recording the various aspects of the decision-making process to aid in the synthesis of information and perspectives. Why am I proposing a particular treatment, or why do I propose to do nothing? It is an effort to bring long-held, and usually, culturally-based assumptions about what it means to conserve something into my awareness. It is an attempt to incorporate a more holistic and broad-based approach to the objects of another culture, a culture which may have a different ethos than mine as a EuroAmerican museum professional.

For those of us working with documented research collections in areas of the country with vital Native American, or other, communities, there is an opportunity to contextualize objects as fully as we know how. We are considering not only the tangible aspects of these objects, but the intangible as well; could we be destroying something intangible as we preserve the physical? Could the compensation of a physical loss ironically result in a loss of meaning?

What is my priority as a conservator of this particular material culture in the context of this exhibit, in this museum, in this part of the country?

What becomes clear in this process is that collaborative efforts allow us to look beyond what we already know, or think we know, to something more holistic and perhaps more reflective of the complicated cultural meanings held in the objects.

Finally, the decision-making process I describe has resulted in an unprecedented interest, integration and participation of the Museum at large in preservation issues. This collaborative venture is most definitely expanding my understanding of these objects and broadening my concept of conservation.

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CHIEFLY FEASTS: A COLLABORATIVE EFFORT

Judith Levinson and Linda Nieuwenhuizen*

In 1990, the American Museum of Natural History began intensive preparations for an exhibit entitled "Chiefly Feasts: The Enduring Kwakiutl Potlatch". The exhibit was created to present the potlatch as not only an historic event but also as a vital and continuing tradition. The exhibit featured Kwakiutl masks, figures, and accoutrements used in the late 1800's and early 1900's presented alongside contemporary potlatch pieces to elaborate this enduring tradition. At the beginning of this century a significant part of the American Museum's Northwest Coast collection was assembled with the help of a Native American. For this exhibit the museum solicited the active involvement of Indian scholars, chiefs, carvers and others, renewing a type of collaboration which, unfortunately, had been absent for most of the intervening period. This paper explores the impact this involvement had on the conservation treatments of artifacts in the exhibit.

The Kwakiutl¹ live on the North and East sides of Vancouver Island, a densely wooded, rocky land where products of the sea and forest are bountiful. The Kwakiutl are renowned for their elaborately carved and painted wooden masks as well as for a ceremony called the potlatch, a celebration during which a noble family invites guests to witness a display of the host's status.

The potlatch serves as the focal point of native society along the Northwest Coast. A potlatch may be celebrated on occasions such as childbirth, marriage, memorializing the dead, conferring of a ceremonial name, or inheriting a dance privilege. Potlatching specifically refers to the distribution of gifts to pay an audience for serving as witnesses. The acceptance of the payments signifies the guests' validation of the host's claims of status. Such occasions are social, but their fundamental purpose has always been to express relative ranking and group relationships. By proclaiming prerogatives, potlatches make the rights of high ranking individuals clear and play a key role in the organization of society. Among all the events at the potlatch, the most spectacular are the host's extravagant distribution of gifts to his guests; his deliberate destruction of valuable property, thereby displaying his great wealth; an enormous abundance of sumptuous feasting; and elaborate ceremonial dramas portrayed by masked dancers.

The American Museum houses approximately 17,000 Northwest Coast artifacts which were acquired in three major stages between the years of 1880 and 1905. The third group of approximately 8,000 artifacts, including objects for the "Chiefly Feasts" exhibit, were collected by anthropologist Franz Boas and his assistant and native collaborator George Hunt.

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When Boas joined the American Museum in 1895, he decided that although the Museum's collection was well represented in the northern Northwest Coast tribes, the artifacts from the southern tribes were not sufficient. Boas believed that the Kwakiutl would soon vanish because of increasing European contact and because of the Canadian government's ban of the potlatch in 1884. He felt that anthropologists had a responsibility to preserve whatever could be recorded in books and held in museums. Boas persuaded Morris Jessup, President of the American Museum, to fund a major expedition to the Northwest Coast: the Jessup North Pacific Expedition of 1897-1903.

Boas travelled to the Northwest Coast on many occasions but left much of the collecting to George Hunt, who played an integral role in the growth of the American Museum's collection of artifacts and documentation of Kwakiutl life. Hunt was raised among the Kwakiutl, though he was not of Kwakiutl birth. He was the son of a Hudson's Bay Company official and a Tlingit noblewoman who came to Fort Rupert to work in a Hudson Bay Trading Post. Not of Kwakiutl birth, Hunt did not inherit any crests or clan titles, but he was invited into the Kwakiutl feasts. The privilege of attending the potlatch feasts and living among the Kwakiutl afforded him the opportunity to know "all there (*sic*) old ways" (Jonaitis 1991, p. 181), as Hunt conveyed to Boas. George Hunt's "insider" status and his intimate knowledge of the language and region made him a valuable collector of specimens, of text, and of documentation.

Boas, like most anthropologists of his time, had a paradigmatic viewpoint. He was concerned with salvaging the oldest and most authentic elements of the culture and reconstructing what he believed had existed in the past. This approach led to publications and museum displays which described Native peoples in a timeless and ahistoric era, completely separate from the changes and "progress" western cultures were undergoing. The anthropologists believed native cultures were bound to be corrupted from their pure, primitive state by white cultures. Aldona Jonaitis, guest curator of the exhibit "Chiefly Feasts", warned of the dangers of this approach:

Today we realize that museum displays representing Native peoples must be particularly sensitive to the pitfalls of the ahistoric approach;...the process of preserving the "authentic" primitive serves actually to position modern culture above that of the represented society. This is not...an intentional act, but the logical consequence of the structure inherent in such representations. (Jonaitis 1991, p. 31)

Today, Native peoples often object to the imposition of alien notions of tradition and authenticity upon their cultures (Jonaitis 1991, p. 37). In response to this changing standard in anthropology, the western scholar is now seen as just one of many voices in determining what is said about Native American's history and culture in museums. For "Chiefly Feasts", Jonaitis made the decision to work with the Kwakiutl not only as consultants but also as co-creators of the exhibit. Many Kwakiutl individuals² were consulted and worked closely with Museum staff to produce the design of the exhibit, to choose the artifacts, to supply personal family and

documentary information and to write the scholarly material in the accompanying catalogue. Collectively, they hoped that the exhibit would enable a reassessment of the uninformed assumption that prior to white contact Indians were pure, and afterwards they were "less Indian".

The Native American consultants also took part in making conservation decisions. It was clear to all that many of the artifacts desired for inclusion in "Chiefly Feasts" were in dire need of conservation treatment. They were covered with an accumulation of sooty dust and debris gained in storage; many had unstable elements or moving parts; others had abraded or friable paint layers; and a few had major losses which greatly altered their appearance. However, it became immediately apparent that the Kwakiutl consultants had very different views than we did regarding the desired result of our conservation treatments. The conflict centered primarily on the issue of loss compensation. The Kwakiutl wanted far more restoration than we were initially comfortable with providing. Their desire for extensive restoration was governed by how they and their ancestors would have repaired such pieces in use. This conflict with the Kwakiutl regarding the goals or the extent of some of the treatments made us conscious of and lead us to question our principles as conservators in a way that had not been elicited by other projects.

The collaborative process and the ensuing discussions made it apparent that many of the decisions we make as conservators, such as the extent and type of compensation, are deeply embedded in our own cultural context. Prior to this project, treatments, albeit often inventive, tended to be made to satisfy curators' or conservators' personal aesthetic, or were derived from a set of accepted "traditional" western conservation solutions.

It may be obvious and simplistic to say that western conservators at the end of the twentieth century are the product of their own cultural conditioning; but it is far more difficult to try to define influences and to actually characterize how decisions about compensation arise. What does seem clear, however, is that present day conservation is very much a part of our artistic legacy and our own culture's view of the meaning of the arts of other cultures.

In the contemporary western world there is not a unified state art; there is a multiplicity of acceptable styles, topics, points of view and technologies. This variety of acceptable means of expression leads to one of the basic rationales of conservation--every piece and every situation is different and there are supposedly no set recipes for treatment. Conservators are able to live with and actually thrive on the complexity of doing one treatment for one situation and a completely different treatment on the same piece for a different application. Moreover, treatments are to be reversible so that when perspectives change in the future the treatment can be easily undone. This mindset was very puzzling to the Kwakiutl consultants, whose own culture has much more prescriptive ways of creating and of dealing with damaged artifacts.

The romance, appreciation and acceptance of the fragment is another feature of our cultural inheritance that plays a role in our approach to conservation treatment. Late nineteenth- and twentieth-century art has seen the evolution of the idea of the fragment in all of the arts from architecture, painting, and the plastic arts to music and movement, resulting in the dismantling of the representational and the supremacy of the concept. During this period of redefinition, tribal arts were discovered by European painters and the first great archaeological excavations were also taking place. It is no great wonder that by the end of the twentieth century, any person who would choose to be a conservator of archaeological or ethnographic materials would be very comfortable with objects that were fragmentary. To us there are positive emotional undertones of age, use and antiquity if an object shows weathering and loss. Because of this prejudice spawned by modern art and archaeology, we have a much greater tolerance for and appreciation of aged artifacts than might the peoples that made them.

Another feature of our cultural inheritance that, at the outset of this project, influenced our views of what would be appropriate conservation treatments had to do with the prevailing attitude, at least among museum personnel, that museums are a way to preserve the past for the future. The pieces, by virtue of being in a museum collection, are in a certain sense stopped in time and are holding the Kwakiutl's history for them. This attitude is clearly expressed by Boas, who wrote in 1907:

Museums are the storehouses...where scientific materials from distant countries, vanishing species, paleontological remains, and the objects used by vanishing tribes are kept and preserved for all future time, and may thus be made the basis for studies which, without them, would be impossible. (Cantwell and Rothschild 1981, p. 579)

The Kwakiutl, however, are not a vanished people; they have "continually redefine(d) themselves as they experience changes" (Jonaitis 1991, p. 67). They do not think of themselves as "less Indian" than their ancestors; therefore, they do not feel the same kind of pressure as we do to preserve who they were in the past. Their culture is vital and has continued to evolve.

To the Kwakiutl, the artifacts owned by the Museum are representative of their material culture at the turn of the century. They regard the pieces simply as "objects" rather than as sacred materials. The Museum does not have control of the power or status that the objects conferred to the owners and wearers in context. As museum conservators, we felt a sense of respect for the historical integrity of the artifacts, desiring to preserve the 1900's-state of the pieces. The Kwakiutl, on the other hand, wanted us to bring these objects to a condition more resembling the contemporary pieces with which they were familiar.

From our initial contact with Tony Hunt, a Kwakiutl chief and artist, and running as a refrain through many of the meetings with native and non-native advisors, we found ourselves to be the

embodiment of conservatism. Our desire to protect the objects from possible reinterpretation or over-compensation was often thrown into a negative light. We were used to defending the idea of doing less treatment to curators. We were quite unprepared to have to make this type of argument to the Kwakiutl, based on our previous contact with and knowledge of other Native American groups. The Kwakiutl initially suggested that we repaint masks, remake lost parts and refurbish degrading accoutrements. Tony Hunt was quoted as saying, "We know how they (the masks) should look. I'm a hereditary chief and great grandson of George Hunt and I feel a close attachment to the pieces" (Ostrowitz, p. 56). Hunt pointed out that carvings like these would have been the property of high ranking officials in the past and that they would never have been shown to an audience lacking important elements or in a state of disrepair. To ensure the aesthetic quality of the masks, the Kwakiutl would have and still do seasonally rework, repaint and refurbish their objects.

As time went on our attitude shifted from a stance of rigidity to one of compromise. We were challenged to balance the Kwakiutl's requirements for exhibiting their objects with our own sense of what was right for the history of the collection. Below, are a number of examples of treatments illustrating the results of our collaboration.

The first example is a crab puppet collected at Blunden Harbour by George Hunt in 1902 (fig. 1). This type of artifact was used by a *tuxw'id* dancer, usually female, in a drama performed to shock and awe the audience. The *tuxw'id* dancer often used gory special effects, such as concealed bladders full of blood that would be burst. This puppet would be held between the legs or near the feet of the dancer and would be invisible under a long cloak of cedar bark. The dancer would crouch down and feign labor pains, finally producing the crab who would scamper out from under the crouched figure's garment.

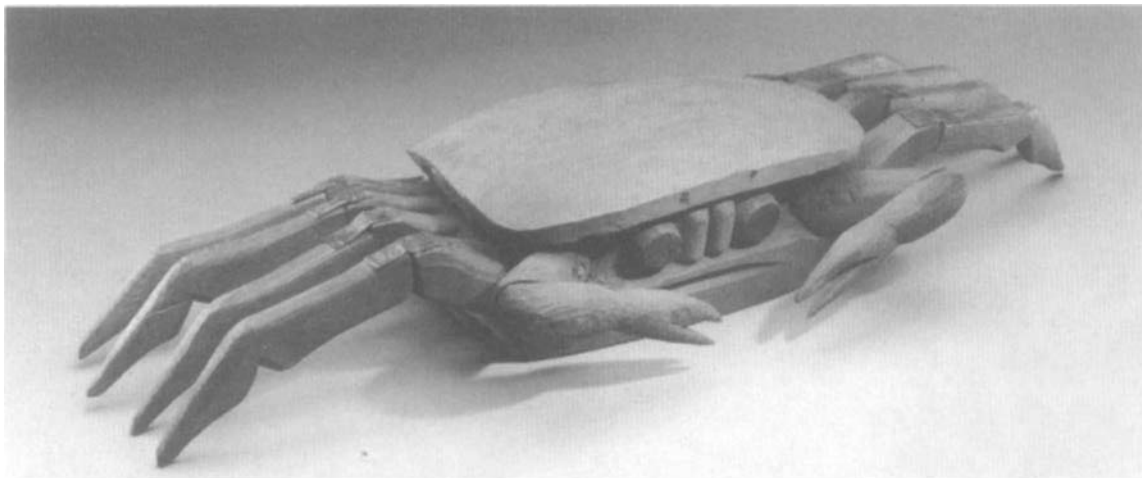


Figure 1. Crab puppet. AMNH 16/8936. After treatment.

When the crab was first examined, the legs of the crab were no longer attached to the body and three legs had been lost. This treatment involved restoration and repair of the legs and presented no particular problems for the conservation staff. Crab leg replication and hinge stabilization was carried out in a manner that is consistent with general western conservation practice. In order to complete the form, the crab legs were carved from pine (the original is in cedar), and painted with Rowney Cryla Flow acrylic paints.³ The date "1990" was written on the leg ends facing the body. New skin hinges were fabricated from commercially tanned calf skin, aged and darkened with potassium permanganate and toned with Acryloid B-72⁴ and dry pigments. Steel tacks for hinge attachment were coated with Acryloid B-72 and Fluorescein⁵ and inserted into existing holes. Under UV light, the replacement legs, hinges, and nails are clearly distinguishable from the originals by their fluorescence.

The next piece was collected in 1900 and identified by George Hunt as a *t'sat'salkwatal* mask (fig. 2). Hunt did not provide any detailed information other than its name. According to Gloria Webster, former director of U'Mista Cultural Center in Alert Bay, British Columbia, *t'salkwa'* means hot and the designs on the band surrounding the face are the rays of the sun (Jonaitis 1991, p. 185). When the dancer performed with this mask, the firelight would be dramatically reflected from its copper eyes and mouth.



When the mask entered the lab it had many empty holes both on the face of the band and regularly spaced along its perimeter. Remnants of a stick-like material were found in a couple of the holes at the edge. Cross-sections of the material were examined under magnification and found to resemble split strips of whale baleen. We were not able to find any clues for the function of the pairs of holes on the face of the band. It is clear from a rendering of the mask published in 1909 in the *Memoirs of the American Museum of Natural History* (Plate L, figure 6), that at the time of drawing the mask did not have anything protruding from the holes on the face of the band, but did have a springy hair-like material surrounding the edge.

Figure 2. *T'sat'salkwatal* mask. AMNH 16/8227. After treatment.

The Kwakiutl were eager to have the baleen replaced. It was not bothersome to us that the baleen was missing. In fact, we had originally suggested reproducing the rendering with an explanation to accompany the mask in the exhibit. Were we to replace the baleen with any material, and we did consider substitutes such as wire and vegetal fibers, we were reluctant to use the original holes with the original type of material because of possibly misleading future viewers. A compromise treatment was devised that consisted, first, of removing the peg ends of baleen from the holes, and documenting their locations in order to save them from loss. Second, a mount was fabricated from Pliacr  epoxy putty⁶ that fit up against the reverse side of the band and was fastened to it by brass fittings. The mount had holes in it that lined up next to the existing holes, into which bundles of split baleen were set. The baleen was obtained from a Right Whale in the American Museum of Natural History's Mammology Department. It was processed by soaking in ammonia to break down the disulphide bonds, thereby allowing the sheets to be peeled into thin strips. We were comfortable with this simple method of replacing lost material by affixing it to a non-intrusive and removable mount.

A related solution was devised for this wolf mask in order to replace its lost hair (fig. 3). The bottom of hair tufts remained in the pegged holes on the top of the head; the rest having been decimated by insects. Pliacr  was molded over the pegged area, on top of a polyethylene film separator. The pegs were drilled out a bit after curing to insure that the Pliacr  would not further damage the tiny amount of remaining hair. Hair bundles of synthetic hair were made by adhering strands together with a polyvinyl acetate resin and then adhering the bundles in the Pliacr  holes with the same adhesive. We were pleased with the idea of the Pliacr  toupee, especially with the degree of protection it gave the extant real hair, but were less than satisfied with the look of the particular synthetic hair chosen.



Figure 3. Wolf mask. AMNH 16/8200. After treatment.

The next artifact is a mask which was collected by George Hunt in 1904 (fig. 4). Our Kwakiutl advisors recognized this type of mask as one that is still worn in an important *tseka* privilege. *Tseka* is what some anthropologists refer to as the winter ceremonials, an initiation performance during which dancers dramatize the interaction of an initiate with mythic beings whose contact in legendary time with his ancestors gave the family the dance privilege. Hunt acquired the rest of the costume with the mask, but it was far too damaged to be included in the exhibit.

The wasp mask was missing most of its stingers when it entered the lab for treatment; only two out of the original seventeen remained. The mask also had meager dessicated remains of fur

pieces at the top of its head and the chin. Grazing patterns over the surface of the skin confirmed loss of hair by insect infestation. Our consultants requested restoration of both stingers and fur based on their familiarity with contemporary versions of this type of mask. However, until a picture surfaced from the archives, we were reluctant to make such drastic alterations. A photo (AMNH 13797), taken by George Hunt in 1904, showed the costume being worn before it entered the collection. It gives a reasonably clear disposition of the sticks, thus we felt more comfortable with replacing them.

Fifteen new sticks were fabricated by whittling down chop sticks which were later bent to attain gentle curves after soaking them in water. The sticks were painted with Acryloid B-72, dry pigments and Florescein. The replaced sticks glow a bright yellow-green under UV radiation. The two original sticks were retained with the mask, and other stub ends remaining in a few of the holes were removed and retained with our records. Each stick was numbered and the location noted. As the exhibit travels the sticks are removed to prevent damage and replaced at each venue.

Fur replacement for this mask was, again, not a necessary element of treatment to us; however, it was strongly desired by both curators and consultants. Hair samples were examined from the skin on the top of the head by Skip Palenik of McCrone Associates and identified as being possibly from a brown bear. The white hairs from above the brow and under the chin were not able to be identified. Because of ready availability to the curators, pieces of Chinese wild dog were obtained from a commercial furrier to replace the brown bear fur; Chinese wild goat replaced the white fur under the chin and on the brow. Fur replacement was done by laying the fur pieces over the existing skin, which had been humidified, reshaped and cleaned. They were then attached by tying with toned dental floss to protruding nail heads remaining from the original fur attachment to the mask. To us, the fur looked unsatisfactory. Its application was appealing from a conservation stand-point because it can be easily removed, and will be, once the piece stops travelling.

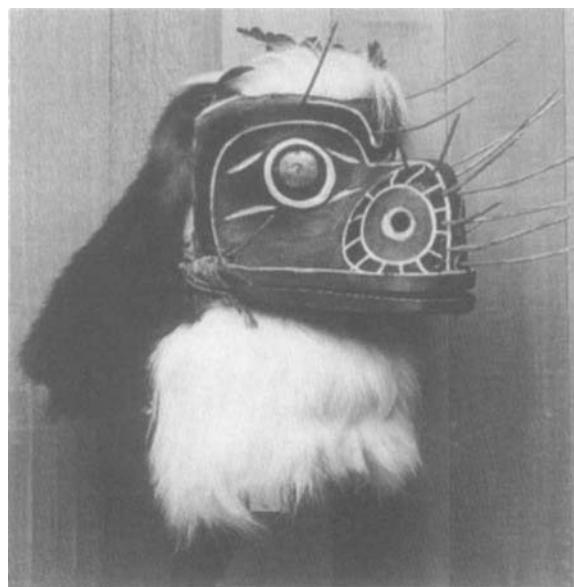


Figure 4. Wasp mask. AMNH 16/9587. After treatment.

If restoration was the aim we would have thought it important to use the same type of fur or at least furs whose qualities resembled the originals. However, again the Kwakiutl were satisfied.

The next piece is a *madam* dancer mask which was collected in Hopetown by George Hunt in 1901 (fig. 5). The *madam* is said to be a mythological bird who lives high in the mountains and appears on a mask as a heavily furred animal with big eyes, a long snout, a square jaw with an adjustable mouth, and long quartz crystals that are said to squeak as *madam* moves. The recipient of one of these quartz crystals is said to be endowed with the ability to fly.

The mask was missing the fur from the skin strip that lay over its forehead and jaws. An artist's representation of the mask published in 1909 in the *Memoirs of the American Museum of Natural History* (Plate L, figure 5), revealed that the fur was gone by the time of collection; however, the consultants and curator strongly believed that the mask should be presented looking its best, as it would have been for a potlatch.

Remaining individual hairs, banded yellow-white and black and 2 1/2" in length, were also identified by Palenik as a type of bear fur. The protruding rays behind the mask had been painted white, but the paint did not begin until 2 inches up from the forehead, further aiding in the fur's identification and indicating that at the time of painting, at least, a long haired fur had been in place. A replacement pelt whose visual characteristics matched the description of the original hairs was procured by the curators from the U.S. Fish and Wildlife Department. This fur, however, was from a wolf rather than a bear. Paper templates to aid in cutting the new fur



were made off the existing skin. Fur toupee sections were cut with small incisions made through them for existing projecting nails, which were used to hold the replacement fur in place. We were more satisfied with this fur replacement than with that of the wolf or wasp masks because there was some attempt to match the visual characteristics, if not correct animal, of the original fur. After several experiences with this type of compensation, we finally understood that what was important to the Kwakiutl was that the masks have hair or fur.

Figure 5. *Madam* dancer mask. AMNH16/8531. After treatment.

That it be of the original type or have the same qualities as the original was simply not important to them.

The treatment of the mask called Born-to-be-Head-of-the-World was the most troubling for us of all of the pieces in the exhibit. The mask, collected by Hunt in 1901, was used on the cover of the catalog and is a centerpiece of the exhibit (fig. 6).



Figure 6. Born-to-be-Head-of-the-World mask. AMNH 16/8410. After treatment.

This transformation mask represents the hero Siwidi, a major subject of Kwakiutl legend and comprising a significant body of dancing paraphernalia and other carvings. Hunt collected three versions of the Siwidi legend. In summary, the story is about an ancestor who undergoes a metamorphosis of nature and appearance. Siwidi is shamed by his father for his lack of initiative in matters of spiritual endeavor. He is almost drowned and then dragged by an octopus to the fantastic house of *K'umugwe*, the chief of the undersea kingdom. Accompanied by the undersea king's attendants, killer whales, Siwidi is launched into a series of adventures as he visits other tribes. Afterwards *K'umugwe* bestows the name Born-to-be-Head-of-the-World upon Siwidi, gives him his house and many supernatural powers. Present day Chief Tom Willie of Hopetown claims the exclusive right to contemporary performances of the dance of the undersea kingdom, a considerable indication of high status.

This transformation mask has been on permanent display in the Northwest Coast Hall probably since its opening in 1909. It was in excellent condition in all respects except for the dangling red and yellow cedarbark hair, which was very actively breaking and shedding. Cedarbark has an inherent vice as an art material. Calcium oxalate crystals and resin inclusions contribute to a fiber tissue structure that tends to separate and fracture causing continual breaking of the

vegetal strands every time they are moved. After dozens of hours of treatment to the bark, by delicate looping together of broken strands with embroidery floss, we still felt so strongly about its poor condition that we tried to have the piece removed from the travelling show. Because it was on the cover of the catalogue our efforts were completely rejected. The Kwakiutl had encouraged refurbishing of all cedarbark fixings on pieces in the exhibit. We avoided this by not travelling the most unstable of these pieces. We were required to replace the dangling cedarbark on this one mask. After careful documentation and with great reluctance, the original dangling cedarbark hair was removed from the mask. It was preserved in storage for study, as it would have been impossible to reattach it to the mask in the original manner. Replacement cedarbark for the red and yellow hair was obtained from one of the Kwakiutl consultants. This bark, all red cedarbark, was supplied in two different colors: as dyed bright-red strands, which is the current Kwakiutl preparation for red cedarbark, and as natural, unaged red cedarbark, which closely resembles the aged yellow cedarbark on the mask. In addition, it was supplied in wide, flat strips and was shorter than required to duplicate the original method of application. For the red strands of the hair, we needed to achieve a close match to the aged red cedarbark, as a thick, twisted strand of it remained affixed to the perimeter of the face. The red dyed bark was, therefore, bleached with hydrogen peroxide and then redyed with a PROcion dye.⁷ The flat strips were then pulled apart and distressed. Because of its short length, the replacement cedarbark had to be applied in two sections: the loops at the top and the dangling fibers. This was not a very satisfying treatment in terms of duplicating the original, but it was a successful simulation that allowed the piece to travel safely.

As an aside, in addition to the actual treatments, the manner of presentation of the artifacts represented another area of challenge and collaboration during the project. The advisors wanted the masks positioned in display as they would have been worn on the head and at the correct dance angles. Mounting systems had to be devised to reflect proper orientation as well as to accommodate the correct movements that the dancer would have made in imitation of the natural movements of the creatures being danced. Needless to say, these were occasionally not what we would have called the most sound positions from the conservation viewpoint. The decisions we made regarding display in our work with the Kwakiutl proved to be another interesting arena of compromise.

The field of anthropology, and museums in general, are in a process of re-evaluation and evolution concerning the representation of minority groups. It is by no means clear how conservators are to respond to this changing landscape. As is probably clear from the foregoing discussion, "Chiefly Feasts" represented a considerable departure from our usual manner of working. The majority of cultures whose works we treat are no longer extant or are so far removed from our context that they are not interested in what we do.

In this case, the Kwakiutl are very much alive and quite concerned with their appropriate representation. While we welcomed the potential opportunity to learn more about the pieces and

the people who made them, we felt challenged throughout the project by our mutually different cultural biases and their effect on our work. As conservators we felt a responsibility to protect the collection from permanent changes informed by current Kwakiutl practices. While we were able to relinquish many of our preconceptions, some proved intractable. Our orientation as museum conservators stresses preservation of both the physical and artistic integrity of the objects and tends to view the time of collection as paramount. Just as our approach to compensation has changed through the years, we felt that the present Kwakiutl practise of refurbishing and repainting might also change. Given our mutual culturally based standards, however, we managed to work together in an environment of compromise to devise treatments involving compensation that reflected both Kwakiutl and western conservation's current attitudes.

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Endnotes

1. The name Kwakiutl (pronounced Kwagiulth) comes from the translation of the sounds these Northwest Coast peoples used when pronouncing their name. The name Kwakiutl is commonly used today, although they would prefer to be called the *Kwakwaka' wakw*, a name that means the speakers of *Kwak'wala*.

2. Consultants included Emma Hunt, Agnes Cranmer, Irene Hunt Haynes, Tony Hunt, Elsie Williams, Adam Dick, Tom Willie, Ethel Alfred, Gloria Cranmer Webster, Helen Knox, Alice Smith, William Hunt, and Margaret Cook. Non-native collaborators included Peter McNair, Bill Holm and Richard Inglis, all specialists in Northwest Coast art and culture.
3. Rowney Cryla Flow acrylic paints are available from Daler-Rowney, Bracknell, Berkshire, England.
4. Acryloid B-72 acrylic co-polymer is manufactured by Röhm and Haas Company, Independence Mall West, Philadelphia, PA 19105, and is available from Conservation Materials Ltd., 1395 Greg Street, #110, Sparks, NV 89431, (702) 331-0582.
5. Fluorescein, a fluorescent labelling reagent, is available from Sigma Chemicals, P.O. Box 14508, St. Louis, MO 63718, (800) 325-3101.
6. Pliacré epoxy putty is manufactured by Philadelphia Resins Inc., 130 Commerce Drive, Montgomeryville, PA 18936, (215) 855-8450.
7. PROcion fiber reactive dyes are manufactured by and available from PRO Chemical and Dye Inc., P.O. Box 14, Somerset, MA 027216, (508) 676-3838.

CURATORIAL CONSIDERATIONS GUIDING THE CONSERVATION OF A JAVANESE GAMELAN ORCHESTRA

Sam Quigley*

In 1990 the Museum of Fine Arts, Boston acquired a complete nineteenth-century Javanese gamelan. Most probably the oldest such ensemble in North America, it includes about 60 individual instruments comprised of bronze keys and gongs supported by elaborately carved and painted teakwood cases. Owing to its age and the damp conditions in which it was stored for the past several decades, much of the casework had been infested and required extensive compensation, in order to restore the instruments' musical functionality. The type and extent of compensation was guided by both physical and musical considerations.

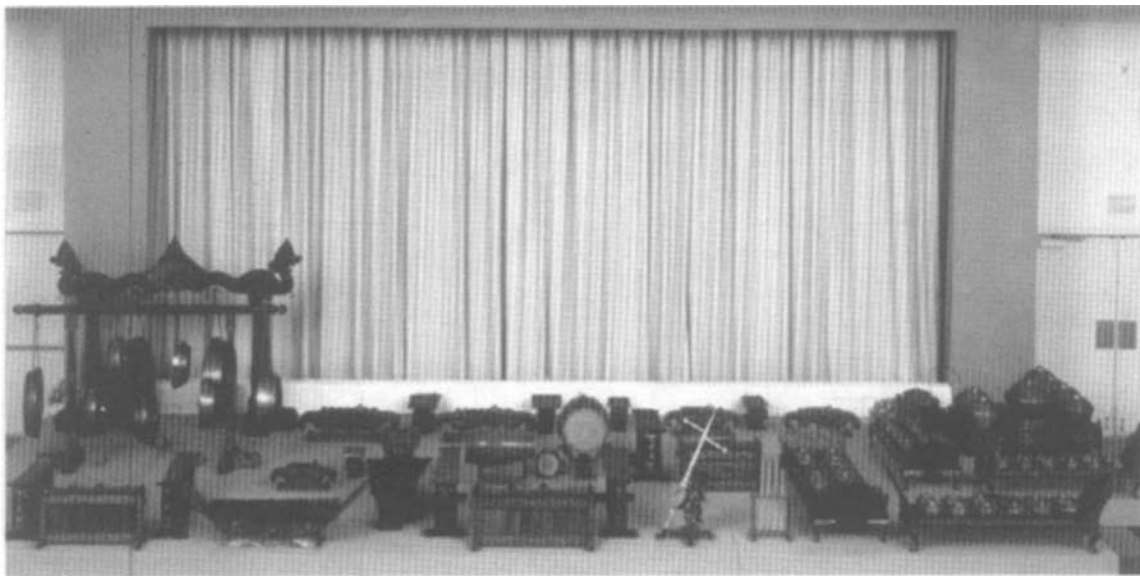


Figure 1. Most of the Blora gamelan on the MFA's Remis Auditorium stage after conservation.

I. Musical Instruments in the Museum Setting

Among collectors, curators and conservators of musical instruments, the question of whether to play or preserve has been vigorously debated.¹ Not so very long ago, it was generally taken as an article of faith that because of their very nature, musical instruments should be restored and maintained as implements with which music can be made. As an increasing number of precious originals were subjected to extensive restoration, appropriate alarms were voiced which have now somewhat mitigated this earlier attitude.

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CIMCIM, the Committee of ICOM on Musical Instrument Museums and Collections, has had a very active working group on conservation which has convincingly advocated restraint regarding restoration projects. One of the results of their sometimes heated debate was the publication of CIMCIM's *Recommendations for Regulating the Access to Musical Instruments in Public Collections*. While recognizing the contradiction between musical usage and preservation, they propose a balance: "The task of the museum is twofold: its responsibility for the safety and preservation of its instruments and its goal to further their study and disseminate the information thus obtained. In this manner the museum acts as a link between the craftsmen, performers and scholars of today and their counterparts whose work is represented in the collection."² The CIMCIM recommendation on access for performance is succinct: "Instruments from public collections should not be allowed to be played for motives of idle curiosity or individual pleasure; nor should they be considered as practice instruments."³

I subscribe to CIMCIM's guidelines and share the concern of those who feel that in many cases there is a need to be even more conservative especially with regard to restoration of keyboard instruments.⁴ However, like most of my colleagues, I view the obligations to educate and to preserve as *equally* fundamental to my role as curator. Whenever possible I try to encourage exploration and understanding of music different from our own, whether it be separated in time or by distance. Since one primary function of musical instruments is to produce sound, it follows that one primary way in which we learn about them is to use them for that purpose. Thus, I am inclined to permit musical usage of our collection under carefully controlled circumstances when the likelihood of harm is remote and the educational benefits are clear.⁵

The Musical Instruments Collection at the Museum of Fine Arts, Boston includes more than 1200 instruments representing nearly all the world's major musical cultures. Originating with the British clergyman, Francis W. Galpin, who assembled the original collection,⁶ usage of the instruments as a means to better understand early European music has always been an important educational function of the collection. Indeed, the remarkable resurgence of interest in historically informed performance partially stems from this mode of musicological research. Recently, as awareness of the global community has become increasingly important, we have greatly expanded our activities. One major music tradition for which our collection lacked examples, however, was that of the large gong chime orchestras found throughout Southeast Asia. Viewing this as an omission too large to be left unaddressed, the Museum's director at the time, Jan Fontein, gave me permission to seek out a Javanese gamelan for the collection. From the outset an important criterion for acquisition was the viability of the gamelan as a playable ensemble for cross-cultural educational purposes.⁷

II. Acquisition of a Javanese Gamelan

Whereas instrumentation, decoration, and performance practice of gong chime ensembles vary,

there are definite regional styles. In Java, where the tradition still flourishes, a gamelan always includes an assortment of knobbed gongs — both vertically and horizontally suspended, a group of metallophones and double-headed hand drums. A gamelan is usually forged of bronze in a single smithy, musically unified by a unique realization of one of two generalized tuning systems, and fitted with carved teakwood supports which share a consistent decorative scheme. Because of this "familial" quality, an ensemble is always maintained as a single unit and, as an indication of respect, usually known by the formal name given to the largest gong.

Other than the completeness of its instrumentation, the primary musical character of a gamelan is embodied in the bronze sounding elements. Everything else, however beautiful or lavishly decorative, is merely support for the bronze. As such, the resonator cases and gong stands are analogous to the legs of a piano or a stand for a harpsichord. It is the bronze which is considered most precious both in monetary and spiritual terms. Gongs in particular are accorded great respect, given formal names, and are believed by some to be mouthpieces of the gods. Indeed, anyone who has witnessed the process of forging gamelan instruments will understand how it can be viewed in mythic terms: elements are taken from the earth, transformed in fire, and finally quenched in water. Once made, some feel that they provide a connection between the temporal and spiritual worlds.⁸



Figure 2. The *sléndro gendér barung* as first encountered.

In 1988, I engaged Bpk. Tentrem Sarwanto, the highly regarded gongsmith with whom I had worked previously, in order to help locate an ensemble for acquisition. I valued his extensive knowledge and wanted to benefit from the opinions of a professional instrument maker to inform my own perspective in evaluating ensembles. After searching for about six weeks, I was taken to the coastal city of Blora to see a large gamelan comprised of about sixty individual instruments. This ensemble met all of my criteria except for one: its condition. Many of the wooden supports showed evidence of insect infestation and some components which had been completely undermined by extensive tunnelling were structurally unsound. This, I was told, was

undoubtedly one of the reasons it had been on the market for the previous eight years. I was also told that it had not yet sold because its musical character was unusual, that extensive tuning would be required to make it compatible with current musical taste. Knowing that most potential Javanese buyers would probably replace the wooden cases and might also re-tune the bronze, I came to believe (and I know this will sound very politically incorrect) that the acquisition by the Museum of this gamelan would be the most important part of its conservation.⁹

III. Physical Compensation of the Blora Gamelan

Depending on one's vantage point, the Blora gamelan is either a single musical unit or an assemblage of individually complete parts. As such, its conservation required compensation on two levels: 1) individual instruments needed work to stabilize various components — work which was determined essentially by non-musical, physical considerations, and 2) the musical unit required the addition of a few instruments to replace those which were missing — decisions which were made exclusively on the basis of musical considerations.

Javanese Woodcarvers



Before shipping the gamelan, I had decided to engage Javanese woodcarvers to make the several new decorative pieces I knew would be necessary to replace pieces which were beyond reclamation. Instead of asking an American carver to learn and copy an unfamiliar style, it seemed preferable to employ local craftsmen who were connected to the tradition and could work quickly and easily using traditional tools while being guided by their own aesthetics. In this way, I would also have the benefit of their professional opinions to inform my decisions about which

Figure 3. Javanese woodcarver making replacement part.

pieces should be replaced. In resolving to employ Javanese carvers, however, I had opted (without discomfort, I might add) to accept slight dissimilarities owing to different cultural values regarding the making of replicas. Whereas conformance to well-established norms is admired in Java, making an exact copy of something, be it a carving, a musical performance,

or culinary treat, is not, since it precludes the opportunity for expression of subtle differences in personal style. Including this somewhat unpredictable element of Javanese tradition in the process seemed entirely consistent with the nature of the project and, upon close inspection, the slight differences would help distinguish the new from the old. Upon my arrival, therefore, I sought out Bpk. Notoharsono, a respected woodcarver in Surakarta with whom I had worked previously. When I requested his help he was surprised that anyone would want to salvage the old cases instead of making new ones.

Nonetheless, he was willing and we proceeded to determine the extent of the work. Shortly thereafter, he set about the task of copying the original designs and having his men fabricate and attach what turned out to be seventeen new pieces, mostly feet of various sizes.

Regarding the preservation of the original pieces which were replaced, there was an attitudinal gap so vast that it was nearly comical. As if it were not enough that this American curator had requested the



Figure 4. Original and copy of *sléndro kempul* stand feet.

replacement of only seventeen components when the whole set might have deserved replacement, Bpk. Notoharsono was even more surprised when I insisted upon the return of the original decrepit pieces. Indeed, in that distant context, I must admit to feeling a bit silly in demanding the preservation and shipping of what even I might have otherwise considered to be firewood. It was not until we unpacked the shipment in Boston that I learned how vital the preservation of the original pieces was. Only then, in bright sunlight, did I see for the first time an inscription subtly carved into one of the pieces I had been tempted to leave behind. The inscription indicates that a Chinese gentleman caused something to happen with this gamelan in A.D. 1867. Exactly what it was that happened has not yet been determined, although it may have been the year in which the black set of instruments was joined with the red set.¹⁰ Regardless, had this piece been discarded, a crucial bit of information would have been lost. The importance of preserving parts replaced during restoration was driven home to me by this incident more thoroughly than by any other experience or study.¹¹

Museum Conservators

Although in this paper I am primarily concerned with presenting the rationale behind the conservation work, it is also important to summarize the actual measures taken in the lab. In

presenting the following, I would like to acknowledge Pamela Hatchfield for the invaluable assistance she gave both in the overall direction of the project and in correcting my brief description of it. I also would like to acknowledge each and every one of the eleven conservators who worked on this project.¹² I owe them all a great debt of gratitude for their excellent work and cooperation.

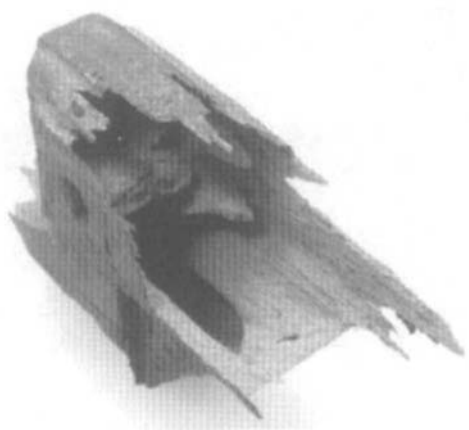


Figure 5. Insect-damaged portion of *sléndro bonang panerus* crossbar shoulder.

of three layers of paint was the thinnest and had been applied without adequate surface preparation (fig. 6), which was why it was flaking off so badly. After securing the paint, the surfaces were cleaned with cotton swabs dampened with deionized water. Losses and undermined areas were sealed with Acryloid B-72¹³ and then filled with a 15% solution of Acryloid B-48N¹⁴ in ethanol/acetone, 1:1, bulked with glass microballoons and calcium carbonate. In areas of major structural loss, such as one of the uprights of the large gong stand, pieces of closely fitted pine

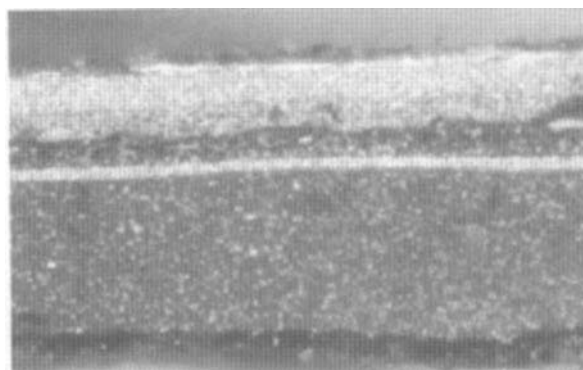
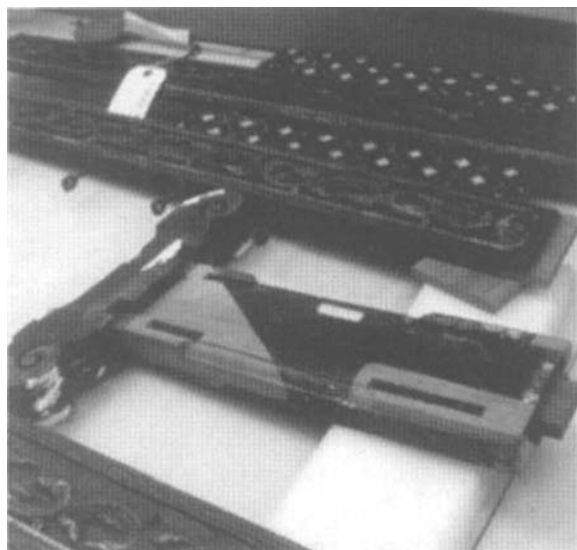


Figure 6. Paint chip from *sléndro* (red) at 20X.

and maple were glued into place using Acryloid B-48N resin in ethanol/acetone, 1:1, to provide

structural integrity and surfaces for recarving and inpainting.



Prior to shipment from Java, a few structural pieces of seven instruments had been identified for replacement but were reserved for American conservators since they were not decorative and there was not enough time to engage the Javanese for this work. Once in the lab, these instruments were dismantled and reassembled after new parts were glued into place. Finally, all compensation, both the new structural pieces carved by Javanese craftsmen as well as all areas that had been filled were inpainted using acrylic paints chosen to match the decoration.¹⁵

Figure 7. *Pélong gendér barung* showing added structural parts.

IV. Musical Compensation

The Blora gamelan required musical compensation on two levels: individual instruments needed attention to produce adequate volume, and a few sounding pieces were missing from the ensemble as a whole. Tube resonators are critical to amplify the sound produced by bronze keys on a number of instruments. Bpk. Tentrem, the gongsmith, had strongly recommended that all of the bamboo resonators be replaced because of their sensitivity to climatic change. Accordingly I commissioned a new set using soldered galvanized steel, the material now preferred in Java, but initially we tried to utilize the original bamboo. Unfortunately, the 50% +/- 5% RH of our gallery and storage area is considerably lower than the norm for tropical Java and the bamboo split and therefore proved musically ineffective. After two years we installed the new steel resonators, having painted them a dark green, a color chosen to be unobtrusive and reminiscent of newly-cut bamboo.

Two large hand drums and two bamboo flutes included with the ensemble were broken and musically unusable. Replacement drums and flutes were purchased and the old pieces were preserved for study. The new orange-yellow nylon rope by which many pieces were hung temporarily for display to potential buyers was replaced with proper red-dyed cotton cordage. Finally, to preserve the fifty-five surviving mallets (from as many as eight old sets!) I purchased a complete set of new mallets which are appropriate for modern performance.

Tuning of the Gamelan

The process of tuning a gamelan is wonderfully irrational and successfully accomplished by only a few experienced gongsmiths and tuners. Unfortunately, it is also utterly irreversible since it involves permanent removal of material from the sounding pieces.¹⁶ Accordingly, it was a foregone conclusion, even before beginning our search, that anyone playing the gamelan in the Museum would have to become comfortable with or otherwise accommodate its tuning, whatever it might be. Given the range of possibilities, however, this was more easily said than done. Nevertheless, to re-tune it would be ethically indefensible.



Understanding the orchestration and tuning of the Blora gamelan was complicated by the fact that it is somewhat unusual compared to the norms now prevailing in Central Java. Furthermore, what is considered "normal" tuning in Java is already a complex subject for several reasons. First, there is no exact theoretical standard such as equal or meantone temperament—each gamelan is a unique interpretation of a generalized system which can be described but not prescribed.¹⁷

Figure 8. Gary Stewart injecting Acryloid B-48N bulked with microballoons and calcium carbonate into gongstand upright.

Second, unlike strings or winds, the bronze of an old gamelan, once tuned, will not change over time as a result of environmental factors—a tuning can thus be understood as a reflection of an aesthetic of a previous era. Without delving into the enormous body of published work on comparative tunings, suffice it to say that most gamelan tunings fall within one diatonic whole tone of one another and that each internal intervallic schema conforms to fairly specific norms.¹⁸

Because of a recent trend toward standardization, it is now nearly impossible to ascertain what instrumental resources and tuning characteristics might have been found in outlying regions during previous eras. While the city of Blora is recognized as a part of Central Java, it lies far to the northeast of the capital cities and as such, reflects influences which are quite identifiable.¹⁹ Further complicating the issue is the fact that it had been held as a frozen asset by a Chinese family, possibly for as long as three generations and it is likely that individual pieces were not added to it nor was its tuning "modernized" since at least the 1930s, and quite possibly, much earlier.²⁰

While it may not be possible to use the old gamelan to play the now forgotten music specific to the region of Blora, the addition of only a few individual gongs would make it fully capable of the modern Central Javanese repertoire. In this way, the Blora gamelan would more readily be an ensemble with which we could realize our cross-cultural educational goals. Choosing which gongs to add, however, is an extremely vexing problem since two of the instruments -- each comprised of a set of gongs -- lack one important tone while another grouping is missing another equally important tone.²¹ The solution to the puzzle is not readily apparent since each option requires musical compensation by the addition of one gong to each of three individual instruments.



Figure 9. Pamela Hatchfield re-adhering flaking paint with hide glue and lens tissue.

Furthermore, because of the importance of these three instruments to the ensemble, making this choice determines whether the gamelan will be characterized by a high or low pitch level.

Since the two options are equally problematic the decision is necessarily subjective and must be based on musical considerations. Several professional Javanese musicians have studied the ensemble yet none have stated a preference unequivocally. Even the gongsmith, Bpk. Tentrem, was uncertain as to the best solution but in the end recommended the high-pitched option.²² Although I wavered considerably over the past four years, it is now my conviction that the high-pitched interpretation is more faithful to the ensemble. Accordingly, we plan to commission Bpk. Tentrem to make three new gongs to "compensate" the gamelan's instrumentation (and therefore its musical capabilities). This, it seems to me, is a reasonable solution which by no means undermines the authenticity of the ensemble or the educational usage to which it is put.

V. Summary

Resolving the dilemma between usage and preservation is a constant challenge for the curator of musical instruments. Because of the very nature of musical instruments, understanding their function is an essential element to our work. In some cases I feel that it is inappropriate to try

(+/- 2 cents)

Quigley

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to make museum instruments sound again because of their rarity, age, fragility, construction or original state of preservation. On the other hand, it is my belief that some instruments, because of their construction, can be used without concern, a gamelan being one such example. Having determined musical functionality to be a criterion for acquisition, the compensation of the Blora gamelan was determined by both physical as well as musical considerations. Nothing extraordinary was done to stabilize its physical state and only a few new gongs were necessary to enhance its educational value as a musical ensemble. As a result, the Blora gamelan is now preserved as historic evidence for organological study and is viable as a fascinating musical ensemble which can be used in performance for cross-cultural education and enjoyment.

Endnotes

1. The bibliography is too numerous to list; a few titles, however, are important to mention.

Barassi, E.F. and M. Laini, eds. 1987. *Per una carta europea del restauro: Conservazione, restauro e riuso degli strumenti musicali antichi*. Florence: Società Italiana di Musicologia), Florence. (see especially English language articles by Myers, O'Brien, Montagu, and the plenary discussion pp. 391-445).

Barnes, J. 1980. Does restoration destroy evidence? *Early Music* VIII/2 (April): 213-18.

Karp, C. 1979. Restoration, conservation, repair, and maintenance. *Early Music* VII/1 (January): 79-84.

2. CIMCIM, Recommendations for Regulating the Access to Musical Instruments in Public Collections, *ICOM News* 1986. Vol. 39.

3. Ibid. A more recent CIMCIM publication makes the point that using exact reproductions both preserves the original and facilitates the educational role of museums on several levels. (*Recommendations for the Conservation of Musical Instruments: An Annotated Bibliography* 1993. CIMCIM Publications, No.1).

4. For further information, see my entry on conservation in *Encyclopedia of Keyboard Instruments*, Vol. III (I. Kipnis, ed.), Garland Publishing, forthcoming.

5. In determining the extent and kind of usage, I regard the CIMCIM *Recommendations*... as very useful. It provides suggestions about using strings, winds, keyboards, and drums, but it offers no such help on the subject of idiophonic instruments, that is, instruments which are usually played by striking them, such as a bell or xylophone.

6. Nearly 600 of his instruments were purchased by William Lindsey and given by him to the Museum in 1917 as a memorial to his daughter, Mrs. Leslie Lindsey Mason, one of the passengers who perished—on her honeymoon—with the sinking of the *Lusitania*.

7. Other criteria were: the gamelan had to be representative of the tradition, i.e. a complete and unified ensemble of some size; the bronze sounding elements had to be of very high quality; the case decoration had to be visually compelling; to be consistent with the rest of the Museum of Fine Arts' collection, it had to be datable to at least the nineteenth century and its condition had to be good. If at all possible, I also wanted to find one which was out

of circulation.

8. For a discussion of spiritual power associated with gamelan see: Becker, J. 1988. Earth, Fire, *Sakti*, and the Javanese Gamelan. *Ethnomusicology* 32(3): 385-391. In this light it is no wonder that gongsmiths—the ones who manipulate these primal elements to create and tune the sounding elements of the gamelan—are also held in high esteem.

9. I am well aware that some feel it unethical to make such judgements, that the fate of cultural properties should be decided solely by the practioners of that culture, that interceding in this manner is cultural imperialism. In this instance, I make no apologies for taking a contrary view. Whereas I concede that the Blora gamelan *might* eventually have been sold and preserved in Java were it not for its purchase by the Museum, it is my opinion that this was highly unlikely. Furthermore I believe that, by receiving an export license from the Indonesian government (which is mostly controlled by the Central Javanese) after complete disclosure and forthright discussion of the merit of our request, its fate was, indeed, properly decided.

10. What this inscription means and other information regarding the provenance and dating of the Blora gamelan is beyond the scope of this paper. These issues and a detailed study of the bronze elements are the focus of another article, in preparation.

11. Although they occupy space in our crowded storage area, all replaced pieces are kept for some future study should anyone have reason to conduct one.

12. Michelle Barger, Arthur Beale, Susanne Gansicke, Alec Graham, Pamela Hatchfield, Jean-Louis Lechevre, Mimi Leveque, Maureen Russell, Leticia Stevens, Nina Vinogradskaya and especially, Gary Stewart.

13. Acryloid B-72 is manufactured by Röhm and Haas Company, Independence Mall West, Philadelphia, PA 19105, and is available from Conservation Materials Ltd., 1395 Greg Street, #110, Sparks, NV 89431, (702) 331-0582.

14. Acryloid B48N is manufactured by Röhm and Haas Company, Independence Mall West, Philadelphia, PA 19105, and is available from Conservation Materials Ltd., 1395 Greg Street, #110, Sparks, NV 89431, (702) 331-0582.

15. Mention must be made of the three ivory and four wooden fiddles (*rebab*) which were found disassembled in two boxes along with six bows and two bridges. Each of the ivory instruments was missing a few small pieces (eighteen in all) and these were made whole with replacements turned from polyester resin "alternate ivory" which was then tinted with earth color dry pigments applied by brush with methylene chloride. This was done to allow for assembly and display in their complete state, not to restore musical functionality since another *rebab* is used when the gamelan is played. Unlike the string section of a Western orchestra, only one *rebab* at a time is played with a gamelan. A complete ensemble usually includes one for each of the two tunings, although it is not uncommon to find several extras.

16. Filing in the center of a key lowers the pitch while filing at the ends raises it. Tuning a gong is accomplished by filing around the knob, on the instrument's face and shoulder or, when more significant change is desired, hammering to alter the shape and internal dynamics of the instrument. Only an experienced tuner can determine whether or not the bronze is thick or malleable enough to be changed at all. It is not uncommon, especially in the case of old instruments, for the tone to degrade or for the piece to break as a result of ill-advised hammering.

17. For a fascinating discussion on the tuning process see Vetter, R. 1989. A Retrospect on a Century of Gamelan Tone Measurements. *Ethnomusicology* 33(2): 217-228.

18. For data relevant to this topic, see Surjodiningrat, Wasisto, et. al., *Tone Measurements of Outstanding Javanese Gamelan in Jogjakarta and Surakarta*. 2nd ed., rev. Jogjakarta: Gadjah Mada University Press. (1st ed., in Indonesian, 1969).

19. Much has been written about the stylistic characteristics found in coastal (*pesisiran*) batik. See, for example, Elliot, I. McC. 1984. *Batik, Fabled Cloth of Java*. New York, NY, pp. 93-174. There are equally notable regional characteristics in woodcarving, puppetry, music, and many other art forms.

20. Additionally, one cannot ignore the possibility that the gamelan might never have been considered complete or its tuning considered to be pleasing.

21. A crude analogy may be of some help: If one wanted to play a tune in F major on a piano which is missing all the strings tuned to "F," it could be transposed down to E major and probably be acceptable. However, if the pianist is accompanying an orchestral saxophone in F, the transposed tonic, i.e., E, would be out of the sax's range. This would necessitate a different transposition, probably upwards to the key of G major or to any one of several other possible tonalities. In the Blora gamelan, however, there are only two alternatives from which to choose: the sléndro tone row -- to continue the crude comparison -- can be sensibly used in either E or F. Two important instruments - each comprised of a grouping of gongs -- lacks the tone "F" while another grouping is missing "E."

22. Both Bpk. I.M. Harjito, Artist in Residence at Wesleyan University, and Dr. Rahayu Supangga, Director of the National Performing Arts Academy in Surakarta, were uncomfortable with making a final determination after considerable thought. Interestingly, Dr. Supangga pointed out that high pitched tunings were preferred in the coastal region.

DISCUSSION #1

Summarized by Harriet F. Beaubien*

While conservation decision-making for any cultural artifact involves balancing information about its context and intent, treatment needs and "owner" expectations, we are -- as one participant [PH] noted -- "blessed with a dilemma" regarding materials from living cultures. As illustrated particularly by Smith, and Levinson and Nieuwenhuizen, conservators are participating in a dynamic process which includes representatives of the cultures that produced the objects being treated. These representatives may bring viewpoints which challenge how we have traditionally approached conservation decision-making and the choices we might have made. From the presentations and the discussion which followed, it was clear that this process has implications affecting not only compensation, but also documentation, exhibition and storage.

The process through which the decisions were made was the subject of much discussion, with a focus on who the participants were, and the range of perspectives that tribal participants (or consultants) might bring [EH,LS,JL]. Consultants included curators, chosen for their understanding of museums and knowledge of the culture, as well as representatives of all cultures presented in the exhibits [LS]. An example of a situation in which one opinion would usually take precedence was illustrated by a mask; in the case cited, the prevailing opinion was that of the family owning rights to the character that the mask represented [JL]. Even the consultants within one cultural group, for example a scholar and a weaver, might have different attitudes, reflecting their vocational perspectives on the material. Participants nonetheless worked to reach consensus [LS].

Several artifacts served to illustrate how varied native approaches to treatment could be: in one culture, an artifact's history might be honored by keeping intact all signs of age, where in another it was honored by refurbishing. Perhaps indicative of how uncharted this territory is for conservators, participants grappled with the question of how to choose a treatment approach when tribal consulting assistance was not possible. Could cultures be "classified" in their approach? were there points of view (or modes) other than these two? should these be considered the endpoints of a continuum [BA,LM]? While it seemed practical to think about the choices along a continuum, we were reminded that approaches taken within an individual culture might also vary. For example, some Navajo objects were made to deteriorate; others were meant to be renewed continually [LS]. Several participants noted that attitudes within a culture also change and evolve with time, with politics cited as only one of the factors [TR,SQ]. We were urged to resist the tendency to generalize. As one participant [MK] emphasized, for all objects in our labs, we (the conservators) are temporary guardians of their place in their culture. The objects occupy places on a continuum to which we may never be privy; their whole essence may

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not ever be apparent or accessible to us.

In undertaking a treatment involving compensation, a conservator is thus faced with reconciling these sometimes conflicting approaches, complicated further because our profession's *Guidelines for Practice* may advocate a more conservative and noninvasive approach. In the discussion, examples were given which illustrated the limits that conservators were able to place [JL,LS]. One object was ultimately refurbished but only to the point that Levinson felt met a more conventional museum conservation standard. In another example, Smith compensated painted portions of the face but did not replace parts such as feathers which for the culture had spiritual potency.

Other areas of decision-making which illustrated the impact of this more inclusive process were storage and exhibition [EP,JL,LS]. Examples discussed were the storage of Kachinas in an upright, not prone, position, and the arrangement of objects to respect a particular ordering of deities [LS]. One of the issues governing exhibition was whether the material was considered "sensitive" for a particular culture. Smith offered as an example the Rio Grande Kachina figures, which were not displayed locally; by extension, neither were items depicting parallel deities in the neighboring Hopi and Zuni cultures. It was interesting to note that some of the Hopi material was approved for loan, as long as it was exhibited beyond the Rio Grande region to avoid causing offense. The kachinas are being displayed on bases, already nailed on at the time of museum acquisition. While convenient for handling, they are still a subject of debate [LS]. From the conservators' standpoint, precautions taken in the preparation and presentation of "Chiefly Feasts" resulted in an exhibit which has traveled exceptionally well [LH,JL].

Discussion specific to the conservation of the Javanese gamelan touched on questions of its acquisition and fumigation [JK,SQ]. The pursuit of a Javanese ensemble, rather than one from Bali, reflected not only Quigley's scholarly interest in Javanese music but also the greater possibility of still finding an intact set in Java. There they are preserved more consistently than in Bali where old bronze components tend to be remelted to fabricate new ones. In addition, the nineteenth-century date of the ensemble which he located fit in well with the museum's collection.

This gamelan presented an interesting example of variable notions of "value." Instruments recognized as "valuable" were often redone, yet from the museum's perspective this would have devalued the ensemble. Quigley noted that in this instance museum acquisition ironically made its preservation possible. With regard to the decision to fumigate rather than freeze the instruments, this was primarily a compromise to appease the local Fish and Wildlife Service office, as the U.S. Customs office had stated no strong preference. The local office was already upset by the importation of the gamelan's ivory components, despite proper documentation, and was additionally skeptical about the efficacy of freezing.

The speakers admitted that conventional documentation of treatment steps, however thorough, did not adequately capture nuances of the discussions which shaped their choices [JL,LS,SQ]. Solutions they developed included recording and annotating all conversations, articulating as much as possible the reasons behind choices, and developing a "survey" form which included cultural considerations, rationale for treatment, and notes from conversations [JL,LS]. This sparked comments about the applicability and usefulness of this approach to documentation for other types of material, and was suggested as an area to receive commentary in the revised *Code of Ethics/Guidelines for Practice* [TDW].

Contributors to the discussion (listed alphabetically); presentors appear first, marked by an *asterisk:

| | |
|-----|-------------------------------------|
| JL | *Judith Levinson/Linda Niewenhuizen |
| SQ | *Sam Quigley |
| LS | *Landis Smith |
| BA | Barbara Appelbaum |
| LH | Len Hamilton |
| PH | Pamela Hatchfield |
| EH | Elizabeth Hendrix |
| MK | Marian Kaminitz |
| JK | Jeff Kimball |
| LM | Lisa Mibach |
| EP | Ellen Pearlstein |
| TR | Toby Raphael |
| TDW | Terry Drayman Weisser |

FAKED, FLAYED OR FRACTURED? DEVELOPMENT OF LOSS COMPENSATION APPROACHES FOR ANTIQUITIES AT THE J. PAUL GETTY MUSEUM

Jerry Podany*

The practice of compensation, or at least the practice of replacing lost elements and repairing damage, is an ancient one. Its age is attested to by the numerous repairs found on ancient objects of both practical function and religious or aesthetic value. We might say that repair and restoration have existed for as long as we have produced objects of use and of beauty.

The title of this contribution lists three quite general categories of approach to compensation: *faked, flayed, and fractured*. Admittedly this is an oversimplification of a very complex issue with an equally complex history, but it serves the purpose of reviewing some general philosophies in order to define their strengths and weaknesses, benefits, and dangers. Such a discussion also sets the stage for describing the approaches developed in treating the antiquities collection at the J. Paul Getty Museum.

Methods And Philosophies Of Compensation

Methods and philosophies to *reintegrate* or *compensate* losses and damage to ancient artifacts have, over the decades, been most influenced by the desire to return the object to either a pristine (and ultimately imagined) *original* state, or at least to reinstate, to some degree, part of the object's original integrity. The former desire is most fully satisfied by complete restoration which, at its best, provides a harmonious clarity through informed interpretation and at its worst, a willful misinterpretation and a unique creation from the raw material of antiquity. Both results were quite prevalent during the surge of interest in antiquities during the eighteenth and nineteenth centuries. Both can be exemplified by restorers such as Cavaceppi or Albacini who met the seemingly insatiable appetite for intact and *readable* ancient sculpture during the period of the Grand Tour (Howard 1970, Vaughan 1991).

Yet even several centuries prior to this inflated pursuit, artist/restorers often felt that it was their prerogative to improve and their exclusive domain to interpret. Such restorations as these can be placed in the category of faked since what resulted was an intentional pretense far more related to the aesthetics and issues of the restorers' time than to those of antiquity.

More recent philosophies have been influenced by our growing awareness of historical significance, or as some writers on the subject have phrased it "*our emerging historical consciousness*" (Philappot 1976). One need only look at the debates which raged between John Ruskin and Eugene Viollet-le-Duc (Ruskin 1880, Viollet-le-Duc 1875) regarding architectural

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restoration during the latter half of the nineteenth century to appreciate the complexities which filled the romantic visionaries' support of preservation (albeit more of mood and image than of material) and the revivalists' desire to reinstate a functional or nationalistic aesthetic (albeit at the risk of invention). These debates had an enormous influence on the modern ethical structure within the profession of conservation. Nonetheless many of these same issues when applied to in situ monuments and archaeological sites remain unresolved.

Contemporary approaches to compensation and restoration, which have been intimately entwined with professional ethical issues, reflect our absolute respect for the changes which occur to material due to the passage of time; the value we place on the concept of *original*; our reluctance to risk causing additional harm and loss to that original; and our emphasis on material issues of art history rather than on aesthetic interpretations.

In reality of course all of these various philosophies are products and reflections of the time and culture in which they were formed. They are directly dependent upon the knowledge and the perception of past events and foreign cultures held by those framing the ideology. All had, or still have, advantages and benefits, and all, if applied without consideration for the object and its relationship to its past and present time frame, have severe drawbacks. For example even at their most hesitant the eighteenth- and nineteenth-century restorers often misled future scholars by applying their assumed prerogative to *improve* ancient sculpture. This improvement meant not only adding what they assumed to *know* was lost, but also reducing any damage through re-carving. It is in this re-cutting that we can find a warning to our own practices in conservation. For it is these irreversible early restorations, taken with such confident license, that best exemplify the conservator's or restorer's power to influence future interpretations and taste, standards, and aesthetics. For example, the Roman fidelity to anatomical reality was often far too brash for the tastes of the later centuries. The restorers' sensibility (and chisel) brought the sculptures more into line with what was then understood as the classical ideal, whether or not there was any material support for that ideal. Collective memory then turned this *improvement* into an archaeological *reality*. Discussion and judgement of ancient style was given, as a result, the material *proof* of an invented ideal. In turn these acts of alteration often influenced future sculptors and scholars looking for examples to define *classical beauty*. The chain of events rivals a creation by the cartoonist Rube Goldberg, but the effect was lasting and often quite destructive.

In part, the modern realization that such activity misled and destroyed irreplaceable evidence brought us to a point where the desire for archaeological purity and *scientific* objectivity demanded that we not only stop such restorations but remove them wherever they had occurred. This latter action has no doubt delivered great benefit for many sculptures and for some it remains a needed relief. However for many others the results have been less than favorable and the loss of both visual continuity and historical information has far outweighed the purity that was supposedly gained. Additionally many of these past restorations have importance in the

historical review of collecting, connoisseurship, and aesthetics (Oddy 1993); once removed that importance is lost as is the opportunity for future scholars to directly evaluate their impact.

A similar observation can be made in the stripping of Baroque and later nineteenth-century decorations from Medieval churches, often revealing only ruined empty walls (Philappot 1976). This zeal for an unobtainable purity, when applied to disjointed sculpture, has often left us with a visually confusing apparition of amputated historical references and disfigured fragments. The argument as to whether or not the actions of earlier restorers should have taken place at all and the proclamation that we, armed as we are with a newly found *correct* approach, would never undertake such an endeavor, is played out on the sculpture's surface. This leaves in its wake an anachronistic and often contradictory document, reflecting more on the debate about restoration and ethics than on the sculpture and its history. It is here that we find the category of *flayed*, since layers of historical evidence have been removed, revealing visual characteristics which cannot be directly associated with any particular purpose or time.

This category may also include, however, some results from the modern additive approach. There is no specific name for the approach, but it has taken hold of the late twentieth-century conservators' efforts with impressive strength. The approach dictates conceptual distance and objective control. It insists that compensation must be visually distinctive and looks to Gestalt principles to define the perceptual processes which are assumed to occur when the viewer encounters the restored object (Brandt 1963). The imposition of flat, monochromatic, and often recessed synthetic fills (at their best when perfectly executed, and hence ultimately foreign to the ancient and weathered object) is a common sight. When in-fills are necessary for structural or aesthetic reasons, conservators have so desired to visually distance their work in texture, color, and volume that it often creates an overwhelming, and perhaps unwanted, impact on the very fragment which was to be freed of such distractions. What remains interesting in viewing so many of these modern attempts is that what is common to them, and the earlier restorations, is the desire to complete the form, to regain some degree of legibility (albeit that the effort is much more reserved today). Supposedly the visual clues in this modern format are intended to clearly inform the viewer as to what is and what isn't ancient or *authentic*. It is assumed that the audience understands the efforts of the conservator, the reasons for applying this particular style of compensation, and the rules which govern the activity. Considering how limited our attempts to educate the public have been, however, it is unlikely that the viewer has such an understanding of the rules and as a result is often denied a clear visual experience. Indeed the viewer may ultimately be both visually and conceptually confused, unable to accommodate so many conflicting *layers* of information.

In all of this desire to define and simultaneously distance, there remains the need to inform the viewer of what the object might have been if the losses had not occurred, or to at least give a hint of some aspect of its original form. Compensation is a response to such a need and in any discussion of the process it is worth looking closely at the meaning of the very word itself. A

quick glance at any dictionary will lead from compensation to restitution; restoration to rejuvenation; and finally to repair - all having a direct link to re-establishing something lost. That "something" can be a physical part, a function, or a less tangible visual and aesthetic character like "intent". For the conservator of ancient artifacts these aspects are normally out of reach, which means that compensation in the realm of full restoration is out of the question. The distance spanned by time and often by culture and the lack of any hard evidence is far too great. Attempts at complete reconstructions often quickly lead to conjecture and the need to make that conjecture immediately and easily stand apart from the object itself can end in the object's visual subjugation to the compensation. Equally, our respect and even desire for evidence of antiquity through loss, damage, and alteration has grown into an expectation and an aesthetic, indeed even an *assurance* that what we are seeing is *real* and authentic. But it is here in the discussion that we must face the issue of how we define *real*. In an archaeological and strict sense the original is almost always lost, by subtraction or addition through the processes of deterioration, alteration, and accumulation of deposits. What comes to us represents what we understand through remaining evidence as well as our own research. Just as the conservator must be on guard against adding to the loss, they must also be vigilant not to influence that interpretation incorrectly.

There remains, nonetheless, for many ancient artifacts which are exhibited to the general public or are part of educational study collections, a need to present a more accessible object. These objects must offer a more legible version of their original state, form or intent. The challenge to incorporate this information directly on or with the object is, to my mind, one of the main reasons we carry out compensation of ancient artifacts. It is, after all, less often completed (and certainly less necessary) on archaeological excavations, since the archaeologist's need to study the form of a pot can be equally achieved through drawn profiles, (and the field conservator's time is best spent in the business of stabilization and preservation). It is also true that an informed scholar's eyes can accommodate a great deal of intrusion (such as an exposed structural support pin) without being distracted from the fragment itself. However the less informed eye, with less intimate knowledge of and familiarity with such material, requires visual assistance to realize the basic form and the more important visual attributes of the object. Hence compensation of antiquities is more commonly practiced in museums. In such cases compensation is meant to provide a unity, so that the object's original integrity can be brought into harmony with its present state and both can be appreciated, enjoyed, and studied. It is of course true that many fragments need no compensation at all and stand as clear and readable records of antiquity despite losses or damage. Indeed these objects offer other aspects of our appreciation of ancient form which would not have been part of their characteristics in ancient times, such as the effects of age and the implied aesthetics of an incomplete fragment, for example. In such cases damage, alteration, and an incomplete state provide a visual language which speaks of the historical record and of authenticity while still providing an appropriate aesthetic experience. These artifacts are one part of the *fractured* category, and though they stand apart from this discussion, they are not unrelated, since what makes them agreeable and valuable can be quite instructive in our efforts to create the same effect between the ancient artifact and the modern compensations.

This final category of *fractured* can also include an approach which has been increasingly applied at the J. Paul Getty Museum for the in-filling of losses and the construction of structural fills. Essentially the texture, color, and form of compensations are designed to produce the illusion of damage. Holes and gaps are transformed to spalled losses, fractures and cracks remain evident but are more shallow and less disruptive. Many structural components are designed to appear as far more extensively weathered elements. Fills in ceramic vases are, as in the recent past, flat. However they rise to the ancient surface and their color is not a single monochromatic ideal but a blending and layering of many subtle washes to achieve a depth more sympathetic to the ancient fabric. In such an approach there is a continual concern for the maintenance and enhancement of the visual patina. There is a unity sought among the ancient object, existing losses, and imposed compensations in order to provide a balanced aesthetic.

Our questions when addressing issues of type and degree of compensation have been how to provide sufficient visual unity to the object without crossing the line drawn between modern conservation ethics and past restoration practices. How can the compensation be made at one time clearly visible and necessarily discrete? How much sympathy for the visual characteristics of an ancient surface should the fill materials have and how visually distant should they remain?

In considering these questions it is worth noting that the introduction of compensations changes the overall visual "patina" in an additive manner, just as burial and the passage of time may form the patina through alteration and loss. With this view, one then realizes that in-filling and in-painting, reintegration and compensation combine to form a new visual patina, a new state in which the object is presented. What should be the overall goal of that state and what must be the restrictions? Cautiously and without the desire to present manifestos or to condemn other approaches, the main principles can be generally outlined as follows:

I. The compensation must be completely and easily reversible without adverse effect upon the original material. To achieve this we often create the in-fill as a separate part which is then adhered into place with Acryloid B-72.¹ For example, fills on ceramic vessels are formed using a Pliacré epoxy paste.² The support fill is shaped and cut to the appropriate size and then adhered into the ceramic lacuna with Acryloid B-72. Over the top of this structural fill is placed Polyfilla³ which is then painted with acrylic Liquitex paints.⁴ Fills on marble sculpture are either layered structures of Polyfilla (sometimes bulked with microspheres), or Polyfilla layered over the top of an ethafoam support core adhered in place with Acryloid B-72. Paper pulp fills made of cotton fiber pulp bound with methyl cellulose or mixed with Polyfilla have also been used. In all of these cases the complete fill is easily and completely removable in acetone or water.

II. To the greatest degree possible, the fills must remain stable. That is, the material should neither change dramatically over time or cause a change to the original artifact. This requires an evaluation of the material's chemical and physical properties, since it should not place any undo stresses or structural strains on the ancient fragment due to shrinkage, expansion or excessive weight. All the materials we use are fully evaluated and tested to assure that there will be no adverse reactions with the ancient substrates. As to the issue of alteration of the compensation material itself, everything ages. What we aim for is that this material should change as slowly as possible and that the longest serviceable life be guaranteed before it must be redone.

III. The fill should never overlap onto the ancient or worked surface, hiding or obscuring information about the artist's technique, sculptural process or intent. The fill should stop abruptly at the point where the worked surface or form begins.

IV. The fills will be visually *sympathetic* to the original material, that is to say, have the same or similar visual depth, tonality and often texture. Despite this, however, there should remain visual and accessible evidence of the modern origin of the fill as well as *detectability* through available techniques such as ultra-violet examination. What is meant here by *sympathetic* may differ from object to object. In the case of a vase it may be a matter of the in-painting color having a depth and complexity reflecting the same complexity of the mineral clay composition or the subtleties of the glaze. That is not to say the fill fully imitates a glaze, but rather that the in-painting is in visual *harmony* with the original material and shares many general characteristics with it. A lacuna on a stone object may be in-filled in a manner to mimic textured loss. In such a case the *original* surface and sculpted form are not replaced but the offending loss is minimized by presenting it as lesser damage. The goal is to minimize the visual impact of the fills so that they are not a dominant element but function as visual *unifiers* leaving the viewer free to experience what is left of the sculpture. These attempts at compensation should in no way interpret the original artist's or craftsman's hand or intent beyond what is directly accessible through existing evidence. Hence the detailed completion of figurative painting on a vase is, under the majority of situations, not acceptable. However the completion of the form of a vase may be justifiable as might the reconstruction of the general decorative scheme of the painted composition on its surface.

Ultimately this activity and the results are purely visual. The guiding principles may be described, understood or misunderstood through discourse but the actual effect is most clearly understood visually by both general and close examination. At best this paper can offer a few examples which will ultimately be limited by photographic medium and black and white reproductions. Still, by way of illustration, they may serve the need to better explain our efforts.

Examples Of Compensation From The Getty Museum

We can start by looking at ceramics. In most cases ancient ceramic vessels survive in an incomplete form, as a collection of fragments with occasional joins and associated non-joining fragments (usually termed *floaters* since their position in the assemblage is conjectural). Despite the generally incomplete state of most ancient vessels, sufficient fragments often remain to accurately determine the basic profile of the vessel, the contour, diameter, etc. This basic volumetric shape is a characteristic which has both chronological and aesthetic importance. Hence an attempt to recreate the profile or full volumetric form is often attempted. The vase form can be seen in two distinct ways: as a result of the potter's ability to create a three-dimensional expression of cultural aesthetics and/or as a curved *canvas* for the painter (sometimes the same craftsman or artist who potted the vessel) to express an idea or decorative motif. The recreation or restoration of the form not only gives a full volumetric expression of the original but provides physical bridges between extant fragments to form a *solid* vessel whose entrances and penetrations are only those intended by the craftsman and not those resulting from damage and happenstance. Reconstruction also allows a more coherent and fluid portrayal of the painting since the *canvas* is now more or less intact and the painting can be *read* in proper order and association. Added physical elements such as handles, spouts or other attachments may often also be recreated using existing evidence from the fragments.

For example, it was possible to recreate several lost elements of this Caeretan hydria (L.89.AE.45, 6th - 5th century BC, figs. 1-4). Sufficient evidence was preserved of both side handles to allow their full reconstruction, as was also true of the remnants of the central strap handle which was ultimately reconstructed. By reconstructing these elements, as well as the ring foot and the lacunae of the vase, a solid shell was formed to present a more legible expression of form and style (in other cases this will also result in a better understanding of function). Leaving the lacunae fills white (the color of the Polyfilla) however is ultimately visually disruptive and foreign to both the form and the painting. This may also be true if the fills are painted a monochromatic, flat color which holds no association with the ancient surface, material, and characteristics. Hence in the case of this vase a multi-layered color was achieved by airbrushing thin, almost transparent, coats of various tonalities over a basic under-color sprayed on top of the white fill. This provided considerable complexity and depth to the color which was, as a result, more sympathetic to the color and depth of the original material, though unmistakably different. A choice of what design elements were completed was established by both determining what could be completed using existing evidence and to what extent further completion might change the overall appearance of the visual *patina*. The main register bands were, for example, in-painted and established, losses or gaps in the grapevines entwining throughout the image were connected or completed when the gap was small, and left separated by losses in-filled and painted a reserve color when the gap was large enough to have accommodated a change in design or image. Areas of palmettes, if small, were recreated while the figurative drawings such as the face or other parts of the sea-creatures were left in reserve. In general the hydria now presents an immediate impression which is both representative of

aspects of the original condition and a harmonious balance between the extant fragments, the ancient form, and the altered artifact.

Reconstruction of form is perhaps best exemplified by a project in which two Attic vases of South Italian shape (81.AE.183) were reconstructed (figs. 5-7). Since the shapes were completely unique, little assistance could be won from examples in other collections or from the archaeological record. Fortunately sufficient fragments, providing evidence of each aspect of the two vases, were available in the total collection of the sherds. As is common in our work on ceramic vessels, the fills were constructed of *synthetic* sherds formed of Pliacré epoxy paste which, once fully cured, were adhered into place by Acryloid B-72. Polyfilla paste was applied over the surface of the Pliacré sherds and worked to a level consistent with the ancient surface. In-painting was achieved with airbrushed Liquitex paints, again applied as a series of subtly variant transparent washes to achieve a depth of color. Only basic registers in the vase designs were reconstructed. Figures were not restored although in some cases basic silhouettes were completed to some degree in order to visually *connect* aspects of the figure which were fragmented and to provide a basic sense of the figurative form in the composition. An example of completing a sculptural form on a ceramic vessel is shown in figs. 8 and 9. A double masked satyr kantharos from the fifth century BC (85.AE.263) was disturbingly incomplete and difficult to appreciate when the fragments were assembled but no fills had been completed. In the finished vessel the reconstruction was based on the immediate form and the natural symmetry of the sculpted face. Fills were painted in a manner which allows the viewer to appreciate the basic form of both the cup and the decorative elements of the mask but upon close inspection these remain obvious either by lack of detail (as in the missing inscribed lines on the beard fill) or subtle differences in tonality. Again all the fills are easily removable in acetone, as is the in-painting (Elston 1990).

The fills discussed so far have no specific texture and in that sense are consistent with the surface of ceramic vessels. We have found, however, that such flat fills are not successful when the surface of the original artifact is textured or weathered. In such a case a flat smooth fill will often not recede in visual importance but, quite the opposite, stand proud of the surface and focus attention. We have found that rather than attempting to mimic a weathered or textured original surface, texturing the fill to mimic a spall or surface loss is quite effective. The disturbing lacunae on this terracotta altar (figs. 10 and 11), one of a pair from Southern Italy dated to 400-375 BC (86.AD.598), intrude upon the beauty of the composition which is in itself quite complex and energetic. Without denying the damage, lacunae were filled and textured to mimic areas where fracturing had occurred parallel to the surface and resulted in recessed *chips* (Elston 1990). Damage is expected and accepted on the surface of antiquities (when viewed with our modern sensibilities). Hence the fill, which mimics minor damage, becomes harmonious with the visual qualities of the object and loses its power to conflict with the original form. A similar approach was taken with this marble grave stele of Pollis (figs. 12 and 13), of circa 480 BC (90.AA.129). A through-going fracture just above the helmeted head of the warrior was restored for the market prior to purchase by the museum. This restoration included in-filling

of a large disturbing loss around the fracture with pigmented epoxy paste. Unfortunately the fill extended beyond the damage onto the original surface and the color of the fill was quite mismatched and offending. The smooth texture of the fill (as well as its color) drew attention to the repair and visually dissected the stele. After purchase by the museum the previous fill was removed and the stele fragments disassembled to correct a misalignment in the join. It was decided that the gap caused by the fracture was unacceptably disruptive. A new fill was established mimicking a spalled surface similar to other areas of damage on the relief. Note that there remains in the mimicked area of damage a slight suggestion of the helmet form in order to visually establish a sense of the original composition. The fill was made by applying Polyfilla over a base of epoxy paste pre-formed shapes which were adhered in with Acryloid B-72. The final layer of Polyfilla was toned and in-painted with acrylic paints.

A challenging project was presented by a Hellenistic marble head dated to the mid-2nd century BC (91.AA.14), which had suffered an unfortunate fracture cleaving the *face* of the portrait from the bulk volume of the head and leaving a wedge-shaped loss, figs. 14 and 15. The separation of the two fragments was quite disturbing. Complete reconstruction was not possible since reconstruction of the style and subtleties of the hair and the complete form of the crown of the head would have been conjecture. Nonetheless the goal of the project was to minimize the disturbing character of the loss and provide some sense of unity to the two fragments. After several trial fills made with modeling paste a general form and extent of fill was decided upon. Paper pulp mixed with Polyfilla was formed, dried, and then adhered into place with Acryloid B-72. The final surface was carefully modeled to appear similar to the fractured marble surface on either side of the break. Though the two fragments remain clearly damaged, the unity of the portrait is somewhat regained and the relationship of the elements can be more easily understood. It is clear that a flat, untextured fill in this case would have imposed a prosthetic element, foreign to the antiquity and suggestive of a variety of associations.

The completion of elements lost has already been described in the project of the two vases. This same approach has been applied to other materials, such as the marble Neo-Attic krater (82.AA.170) dated to the 1st century BC in figs. 16 and 17. A major loss, seen near the rim and including several upper sections of two figures, had been filled using a recessed acrylic fill mixed with earth pigments and marble powder. The beaded rim form was recreated by molding part of the original and casting a section for repair. Stylistic and technical evidence pointed however to the existence of a foot which would have been part of the total original form. Exhibited without this element the krater could not be fully appreciated or understood. A campaign to measure and characterize all feet of marble Neo-Attic kraters from the same general date was undertaken. This study included measurements of restorations as well as ancient fragments such as those found with the Madia shipwreck. An *idealized* foot was created, a hybrid of all characteristics that were proportionately and stylistically appropriate. The form included some limited low relief features but nonetheless remained a purposefully simplified silhouette. It was carved in wood and plaster and then the finished form was cast in acrylic filled with marble dust and earth pigments. While the texture and color, as well as translucency,

of the modern foot was visually sympathetic to the original marble body, the differences (and the exhibition label) inform the viewer that it is a generalized reconstruction. The benefit is seen in a more proper stylistic format, one in which the krater rises to its full intended visual height rather than succumbing to gravity in an awkward and incomplete form.

Conclusions

In the first part of this paper I noted that the actions of a conservator, especially with regard to compensation and restoration, are very much subject to the fashion of his or her time. As an example we can see that many historically important restorations, which both reflected and formed the attitudes toward antiquities and aesthetics, have been removed and discarded. The collections of many museums are filled with disparate approaches, all assuming *correctness*, all affecting our approach to and experience of antiquities. We have spent a great deal of time recently reexamining one such case at the Getty, the Lansdowne Heracles. This Roman copy of a Greek original, figs. 18 and 19, was purchased by Lord Lansdowne in the late 1700's after its discovery and restoration. In 1974 the sculpture was removed from exhibition and the late eighteenth-century restorations removed. They were partially replaced by epoxy facsimiles in areas where structural supports were needed. It was thought at that time that these smooth, monochromatic elements, recessed from the ancient surface level, would both recede to the perceptual background and yet provide a unity to the object. In fact we believe that several sacrifices were made and that rather than unity, an anachronistic and confusing form resulted. The *minimalist* approach to compensation, which was applied, did not correspond with the desired impact or the final result.

The Heracles has recently been taken back to the lab and we are in the process of returning the earlier restorations to the sculpture. We believe that the historical and irreversible change that occurred in the 1700's cannot be denied and that attempting to return the sculpture to some illusionary *original* state by removing these additions is impossible. We will use the label and graphics, which will accompany the label, to inform the viewer of the presence and location of these restorations. In doing so the sculpture will be relieved of this burden of explanation. We are not advocating that all such restorations be put back, nor are we advocating returning to a practice which formed them to begin with. But in reestablishing one period's compensation in the case of this particular sculpture we feel there will be a clearer view of the antiquity and a preservation of historically important changes which it has undergone to date. The sculpture will be presented as both a document and as a work of art, not as a patchworked platform for competing philosophies and a collection of compensation approaches. It is perhaps this action which best represents our approach. We are attempting to respond to each object and to present it in the most appropriate manner. Conceptual distance is necessary, as are ethical guidelines, however the final product should result in a valuable document and an accessible experience. What is left to us is both a document of antiquity and a record of what has occurred due to the passage of time. These aspects must be presented in harmony with one another and not in visual conflict. Admittedly this is a matter of perception, fashion, and even taste. That we impose

such aspects which reflect our time is unavoidable, that we consider them carefully, for each individual object, is necessary.

Acknowledgements

The projects which illustrate this contribution reflect the commitment and ability of the staff in the Department of Antiquities Conservation of the J. Paul Getty Museum. Their efforts and their cooperation are much valued.

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Endnotes

1. Acryloid B-72 is manufactured by Röhm and Haas Company, Independence Mall West, Philadelphia, PA 19105, and is available from Conservation Materials Ltd., 1395 Greg Street, #110, Sparks, NV 89431, (702) 331-0582.
2. Pliacré is manufactured by Philadelphia Resins Inc., 130 Commerce Drive, Montgomeryville, PA 18936, (215) 855-8450.
3. Polyfilla is manufactured by Polycell Products Ltd., Broadwater Road, Welwyn, Garden City, Herts AL7 3AZ, England.
4. Liquitex acrylic emulsion paints are manufactured by Binney & Smith, Inc., Easton, PA 18044-0431, and are readily available at artists' supply stores.

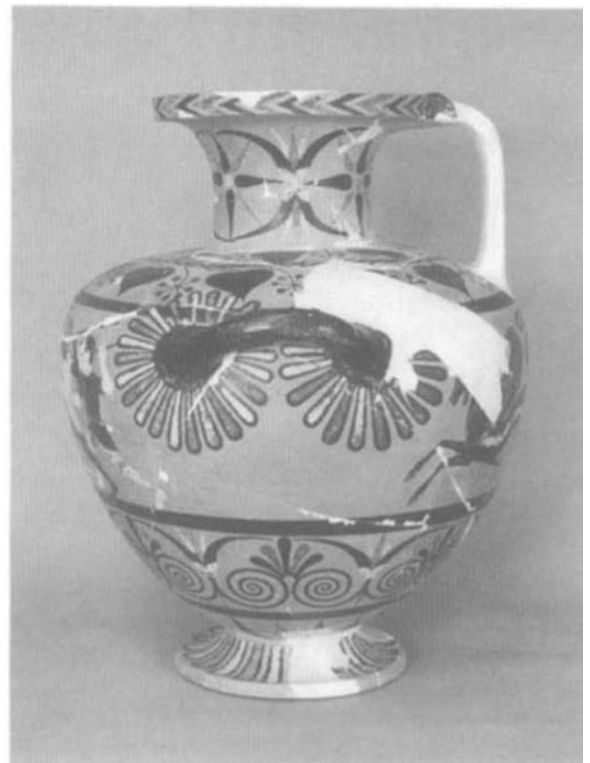


FIG. 1-2 Caeretan hydria
During treatment showing unpainted fills and handle replication.



FIG. 3-4 Caeretan hydria
After completion showing inpainted fills and extent of integration.



FIG. 5 ATTIC VASE

One of two vases during treatment showing filled losses.



FIG. 6 ATTIC VASE

One of two vases after completion. Note that main registers are suggested by the completion of division lines, however the figures are not completed.



FIG. 7 ATTIC VASES

Both vases in completed stage.



FIG. 8 SATYR MASK CUP
Fragments assembled showing unfilled losses.



FIG. 9 SATYR MASK CUP
Finished cup with reconstructed and integrated fills.



FIG. 10 TERRACOTTA ALTAR
Assembled, showing disturbing losses.



FIG. 11 TERRACOTTA ALTAR
Completed altar showing integration
of textured fills.



FIG. 12 - 13 MARBLE GRAVE STELLE

Figure on left shows the disassembled joint with large loss area on either side of the fracture.
Figure on right shows the completed fill textured to appear as surface damage.

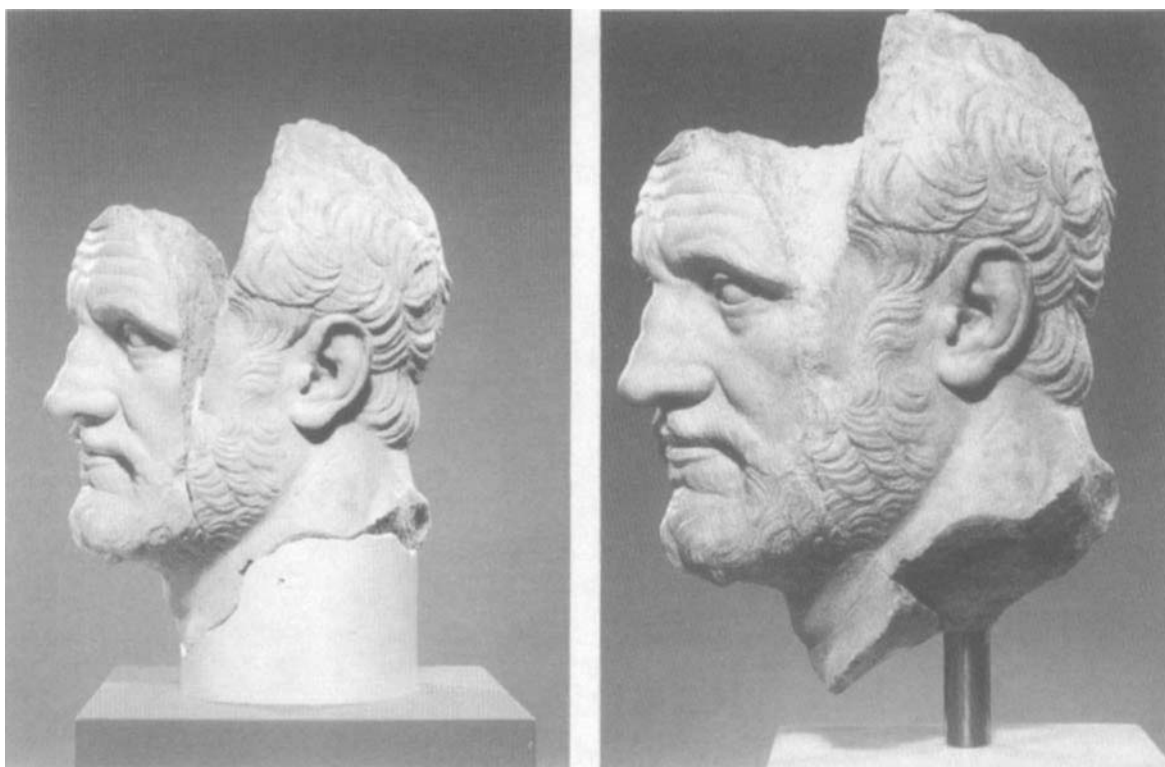


FIG. 14-15 MARBLE PORTRAIT HEAD

Two fragments assembled, note the visually disturbing loss caused by the fracture and (on right) head with infill to unify the two fragments.



FIG. 16 NEO-ATTIC KRATER
The upper body fragment of the
krater partially treated.



FIG. 17 NEO-ATTIC KRATER
Completed krater with reconstructed foot.

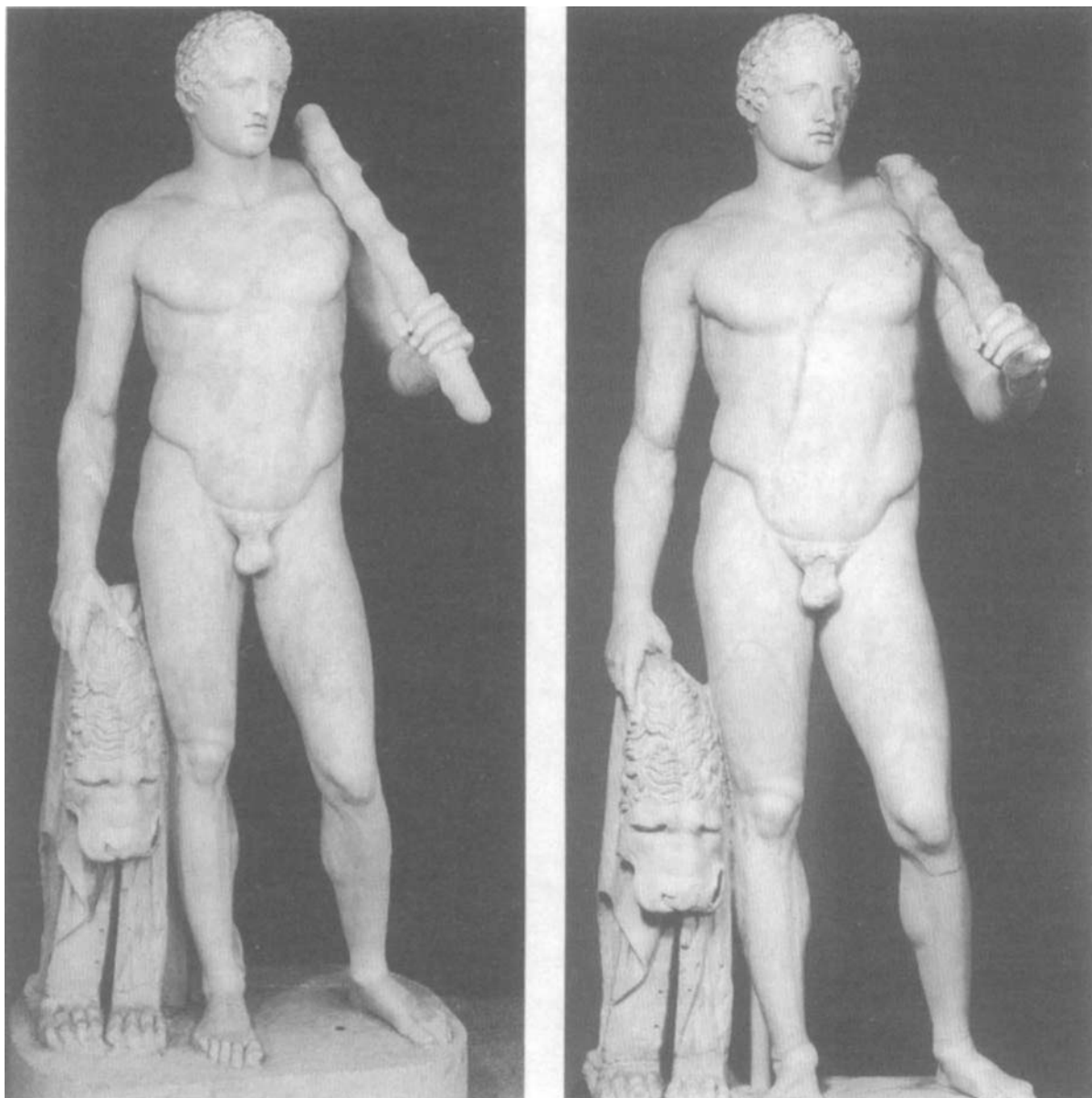


FIG. 18-19 LANSDOWNE HERACLES

Sculpture with 18th Century restoration intact (left) and the sculpture after early 1970's removal of the restorations and addition of synthetic segments and fills (right).

COMPENSATING LOSSES: TISSUE PAPER FILLS FOR SCULPTURE

Pamela Hatchfield* and Michele Marincola**

Since antiquity, losses or voids have been filled in objects of value. A break or loss to a utilitarian object such as a ceramic vessel or basket prevents its intended use; the vessel is either repaired to restore function, put to another use, or discarded. The loss itself may retain specific spiritual function, as in some examples of native American ceramics where a ritual hole is found in the bottom of bowls used for funerary purposes.

As conservators, our focus for sculpture is often on losses which can create aesthetic rather than physical dysfunction. Many of the materials used in the reintegration of surfaces were initially employed for their physical strength, their structural effectiveness and/or their similarity to original materials. In the examples we illustrate in this paper, some questions are raised about the best types of fills to use under different conditions, dictated by the nature of the objects themselves as well as the intended function of the fill itself. We hope to highlight several different approaches, some that may be appropriate to the fine and decorative arts, and others perhaps more appropriate for the treatment of archaeological materials.

The use of tissue paper fills at the Museum of Fine Arts, Boston evolved as part of a treatment program whose primary aim was consolidation of extremely fragile archaeological polychromes, the previous treatment of which had been generally unsatisfactory. Our collection includes more than 100 Egyptian polychromed wood models from the tomb of Djehuty-Nakht alone. Discovered in 1915 in the limestone cliffs on the east bank of the Nile at Bersha, this cache dates from the Eleventh Dynasty, around 2000 BC. The models typically comprise a carved wooden substrate, gesso ground (usually calcium carbonate or sulfate mixed with an organic binder such as animal glue) and painted surface (ground inorganic pigments bound with extremely low levels of organic binders). In addition, we find on the surfaces of later examples a variety of resins generally related to pine resin or mastic but usually somewhat sensitive to water and many organic solvents. The condition of these models did not improve during seventy years of storage near the Museum's furnace. Many of them had been treated with a variety of materials ranging from plaster to cellulose nitrate, wax, emulsions, and plastic resins. The extreme sensitivity of these materials to water and their lack of stability after these early treatments led us to explore the cellulose ethers as an option for consolidation treatment.

We recognized that our difficulties in treating these objects arose not so much from their innate fragility, but from the intractable materials with which they have been traditionally treated. While it is true that archaeological materials are often allowed to show their age and true condition, surface losses are often found to be quite distracting (fig. 1). Areas where white

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gesso (and sometimes even the bare wood) are revealed become a focus for the viewer to the exclusion of everything else. We certainly had so-called reversible materials available to us, but just as we knew we would never be able to extract a consolidant from these friable surfaces, we also knew that barrier layers and fills would be nearly as damaging and difficult to remove. Furthermore, a link has recently been made between contact with the alkaline environment that a plaster or gesso surface might provide and certain kinds of deterioration found in archaeological wood (Blanchette et al. 1994).

Information on cellulose ethers as consolidants has been presented previously and will not be reviewed in detail here (Hatchfield 1988; Hatchfield 1990). The benign qualities that made the cellulose ethers successful as consolidants for this fragile material also made them appropriate for the application of tissue fills. The use of these materials would not impede future treatment, and would provide very low concentrations of stable adhesives that are compatible with wood, original ground layers and paint media.

Cellulose ethers are derived from alkali-treated cellulose whose hydroxyl groups (-OH) are substituted with methyl (-CH₃) and other groups (fig. 2). Figure 2 illustrates the chemical structure of methyl cellulose and hydroxypropyl cellulose. Hydroxypropyl cellulose is completely soluble in alcohols as well as water, while methyl cellulose is soluble in water but precipitates out of aqueous solutions with more than about 50% alcohol. Although most of the polychromes in our collection are initially too water sensitive to treat with water-based consolidants or adhesives, once consolidated with hydroxypropyl cellulose, water-based materials could then be applied without disrupting paint or gesso layers. It might seem that avoiding aqueous-based materials would be preferable, and for that reason hydroxypropyl cellulose presents an attractive option. However, it is much less stable than methyl cellulose. The long side chain present in hydroxypropyl cellulose makes it completely soluble in alcohols but also makes it prone to deterioration. In industry, they are intended for use in materials such as paint strippers, rather than for long-term use. Recent aging studies bear this out (Feller and Wilt 1990), and although it is particularly tempting to use it in the application of paper fills, it cannot be recommended for the long term. Methyl cellulose on the other hand can be relied upon as an extremely stable material with excellent aging properties.

For archaeological applications in particular, the application of tissue paper fills allows visual integration of a surface so that the eye makes the transition between areas of original surface, while those parts which are filled can remain visible due to differences in texture, color, or the level of the fill. Just as with inpainting, one can decide how far to go in mimicking the original surfaces.

The process of preparing and applying these tissue fills is straightforward (fig. 3, a-d). Green's lens tissue is usually used, although other high wet-strength, neutral pH tissues may be used.¹

Strips of the tissue are tinted to the shades needed by applying diluted mixtures of acrylic paints in water by brush and hanging to dry. Losses are sized with a 1/2% solution of Klucel G, hydroxypropyl cellulose, in ethanol.² The tissue is torn to approximate the shape of the loss and applied with a 1/2% solution of Methocel A, methyl cellulose, in deionized water and ethanol 1:1³ (fig. 4). Multiple layers of tissue may be built up and overlapped as required. The use of tissue fills allows losses in both the gesso and paint to remain recessed, and permits bare wood and gesso to be toned without inpainting directly on a barrier-coated substrate. In the case of matte polychromes, the texture of the painted tissue more closely approximates the original surface than does inpainting over a barrier, where wood grain might still be pronounced.

Tissue paper fills have also been used on very different types of materials, including stone. The technique was used to compensate losses on a late twelfth-century sandstone and limestone portal from a small town in the Spanish Pyrenees. The tympanum, characterized as a siliceous limestone (40% silicates), was severely powdering beneath a crusty grey coating material that was peeling and flaking away from the substrate in many areas. This substance comprised calcium sulfate and charcoal; small amounts of pine resin and non-drying oils were also detected by X-ray fluorescence.

The tympanum had been coated after a significant degree of weathering had taken place, apparently while it was still in situ. Although probably applied in an attempt to prevent ongoing spalling, this coating peeled away with whatever it contacted of the design surface itself. Quantities of chloride and sulfate salts were present, the latter at much higher levels (possibly due to contamination). Before compensation, the treatment of this monument required setting down and facing of these areas; this was done both with Klucel in ethanol, which softened the brittle grey coating, and methyl cellulose, which remained insoluble in the subsequent consolidation treatment with ethyl silicate. The uneven appearance of the tympanum caused by spalling of the surface over the years was considered to be disfiguring and distracting; however, the grey coating could not be removed or lightened without damaging original material. Rather than inpainting all of the coating, and because it was closer to the appearance of the stone itself in areas where spalling had not occurred, we decided that compensation of the losses was preferable. After consolidation, the facing was removed and, wanting to introduce as little additional material as possible to the surface, it was decided that tissue fills would be an appropriate solution. The portal is viewed from a distance, and the texture of tissue fills was appropriate for the stone (fig. 5). Figure 5 illustrates a portion of the acanthus leaf molding in the process of integrating areas of surface loss by means of tissue paper fills.

Tissue fills are clearly appropriate for certain archaeological applications and other instances where the character of the surface allows it or the sensitivity of the material requires it. In most cases, we have applied them to rough, uneven, or variegated surfaces, but we have found the technique to be useful in a variety of other ways. For the purposes of a didactic exhibition, an

area of overpaint was removed from a Greek kalpis and highlighted with temporary outlines of red-painted tissue paper using the same methods described above (fig. 6).

The use of this technique on other types of polychromed surfaces has both advantages and limitations. The compensation of loss in Medieval polychromed sculpture at The Cloisters is usually completed with traditional materials sympathetic in nature to the original. Losses in the gesso ground of painted wooden sculpture are most often filled with a gesso made from kaolin or calcium carbonate and rabbitskin glue. Fill materials used for stone are also unremarkable: plaster, or synthetic resins mixed with inerts like stone dust or glass microballoons. These materials offer familiar working properties and surfaces suitable for the imitation of a range of textures and colors, while usually affording an acceptable level of reversibility.

There are instances, however, when these materials do not supply the characteristics required in a specific treatment. When determining the extent of compensation necessary for the sculpture, it is sometimes helpful to try a few fills. None of the traditional materials or methods offers a rapid and reversible fill to help in this situation. The creation of gesso fills for polychromed sculpture is a lengthy process and can require more time than is available for an experiment, or indeed for the project. The compensation materials themselves may sometimes pose other problems; for example, wooden substrates can be so tunneled by wood-boring insects, that gesso fills would be difficult to reverse without damaging the object. Plaster, of course, is unacceptable as a compensation material for stone that contains soluble salts. Synthetic resins, widely used as compensation materials for stone, may have undesirable properties such as excessive gloss or hardness, or the propensity to yellow with aging. In these cases, tissue paper fills may offer an alternative method.

Two case studies of treatment illustrate the application of tissue paper fills to polychromed wood sculpture and present some of the limitations of the technique. Both treatments were executed on a single sculpture, an over-lifesize, twelfth-century Spanish polychromed wood crucifix in the collection of The Cloisters, that underwent an examination and treatment in preparation for loan (fig. 7). The question of compensation of loss in the torso area was raised during discussion of the treatment of the figure. Since the dating of this sculpture rests in part on the carving of the torso of the corpus, it was felt that the large, discolored losses in the stomach that reveal the wood were visually disturbing. The scattered damages impose a two-dimensional pattern of dark blotches on the shallow three-dimensional form, making it difficult to "read" the carving, especially from the viewing distance of the crucifix. In addition, the pale tonality of the flesh tones is distorted by the discolored losses. The compensation of these losses would entail a significant intervention; those involved in the decision wanted to be sure that filling the holes would add enough information to the sculpture to justify the effort. We were also concerned that the compensation of these damages could emphasize the vertical split in the wood, requiring that the crack be filled, a treatment we wanted to avoid. Temporary fills in the

form of color compensation would be of great usefulness in deciding whether or not to fill the losses.

Double layers of tissue paper were adhered as part of this process to several of the losses (figs. 8-9). In an effort to approximate the faint shine of the original lead paint of the skin, a Japanese tissue known as wet strength paper was selected.⁴ This paper, used at The Cloisters as a facing tissue because of its superior strength when wet, has a slight gloss to its surface. Losses to the wood were brushed with a barrier coat of Acryloid B-72;⁵ the tissue fills are attached to each other and to the substrate with a 1/2% solution of hydroxypropyl cellulose, Klucel GF, in ethanol.⁶ The more stable methyl cellulose would be less desirable in this instance because of the sensitivity of the gesso ground to water - the emphasis on this temporary fill was reversibility. The tissue fills were then tinted with a very dilute solution of dry pigments and Mowilith 20 in denatured alcohol.⁷ To further mitigate the possibility of staining the gesso layers below, it is preferable to pre-tint the tissue paper before adhering it to the wood. The entire process took only two hours of working time, whereas experimenting with gesso fills would have taken considerably longer. The overall appearance of the figure was significantly improved, permitting an understanding of the sculptural form. Although this process made the vertical split more apparent, it did not become much more distracting than it already was. It was decided, then, to fill most of the losses in the torso that extended to bare wood.

We considered continuing the fills with tissue paper, but ultimately rejected this approach in favor of gesso fills. Tissue paper provides good color compensation but does not fill the depth of the loss. The adhesive-charged tissue easily conforms to the loss, leaving a visible shadow (fig. 10). If the point of the compensation is to restore contour and allow the eye to pass over the surface, the hard edge of the recessed fill will disrupt this process.

Another important consideration of this technique is the loss of retouching detail that results from inpainting directly on very porous tissue paper. This can be an advantage where the surface to be imitated (for example the torso) is a mixture of layers and colors. Impressionistic renderings of color are possible, but any imitation of the kind of detail that can be found on painted sculpture - such as cut-gold work on Medieval Japanese polychromed wood sculpture, or the realistic flesh tones of late-Medieval German painted sculpture - can only be hinted at. Furthermore, much of the material illusion of European polychromed sculpture relies on a contrast of surface textures, from polished flesh tones and matte gilding to burnished gilding and velvety azurite drapery linings. This wide range of textures would be difficult to imitate with tissue paper.

If, however, tissue paper seems appropriate for the treatment, there are other factors to consider, including the concentration of the cellulose ether, the condition of the surface (whether it is grime-laden or powdery), and the type of substrate. The concentration of the adhesive

should be low, around 0.5%, to insure long-term adhesion of the tissue paper to the substrate. Pre-consolidation of grimey or powdery surfaces may be desirable.

A long-term application of the tissue paper method was applied to another area on The Cloisters' crucifix. In order to help disguise the mortise and tenon joints between the arms and the torso, the sculptor had covered the joins with patches of parchment that were glued directly to the wood and then covered with gesso and paint. These served as an invisible bridge between parts with opposing grain directions and helped cover the gaps that inevitably opened at the joins. A section of this parchment is missing from the proper left arm, revealing a wide, discolored gap at the shoulder. Any solid fill would, of course, be out of the question, but we did want to approximate the appearance of the opposite shoulder. A section of new parchment was considered inappropriate as a replacement material because of its highly hygroscopic nature; it would be difficult to hold the section in place in the desired shape. Tissue paper seemed a more practical solution. Several layers of wet strength tissue paper were feathered into the desired shape and adhered together with a viscous solution of methyl cellulose in water. They were laid dry and take form over the shoulder joint itself, which was protected with a barrier layer of plastic film. When dry, the tissue paper was toned with watercolor to match the surrounding area. The dried and hardened tissue was then spot-glued to the arm with Acryloid B-72, and left free to move on its top and left edges (fig. 11).

In conclusion, tissue paper fills offer an alternative to traditional compensation materials for the treatment of objects. They are particularly appropriate for certain archaeological applications, and in other instances where the sensitivity of the material or the character of the surface demands a readily-reversible, non-invasive color compensation. Although recessed fills and impressionistic retouching sometimes may be considered a disadvantage for non-archaeological objects, tissue paper also has potential in certain instances as a compensation material for polychromed sculpture - in cases of material imitation, for example, or for very shallow losses or where the viewing distance is great. Tinted tissue paper is useful as a material for temporary fills for photography, exhibition, or in decisions of whether to compensate for loss.

Acknowledgements

The authors would like to thank Jack Soultanian, Conservator, Metropolitan Museum of Art and The Cloisters, for his thoughts and advice on the compensation of loss for The Cloisters' crucifix.

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Endnotes

1. Green's lens tissue is available from Talas, 213 West 35th Street, New York, N.Y., 10001, (212) 219-0770; neutral pH tissue is available from Archivart, 301 Veterans Boulevard, Rutherford, N.J. 07070, (800) 631-0193.
2. Klucel G is manufactured by Aqualon, 1313 North Market Street, Wilmington DE 19899-8740, (800) 345-0447.
3. Methocel A is manufactured by Dow Chemical and available from the company, 2040 Dow Center, Midland, MI 48674, (800) 232-2436.
4. Japanese wet strength paper is available from Talas, cf. Note 1.
5. Acryloid B-72 is manufactured by Röhm and Haas Company, Independence Mall West, Philadelphia, PA 19105, and is available from Conservation Materials Ltd., 1395 Greg Street, #110, Sparks, NV 89431, (702) 331-0582.
6. Klucel GF is a food-grade hydroxypropyl cellulose manufactured by Aqualon Company and available from the manufacturer or from Conservation Materials Ltd, cf. Notes 2 and 5.
7. Mowilith 20 is a polyvinyl acetate of low glass transition temperature, close in viscosity and refractive index to PVA-AYAB, and manufactured by Hoechst, Frankfurt (Germany); it is available in this country from (among others) Kremer Pigments, 61 East 3rd Street, New York, N.Y. 10003, (212) 995-5556.



Figure 1. Late Ramesside mask from anthropoid coffin. Before treatment. (MFA 72.4774)

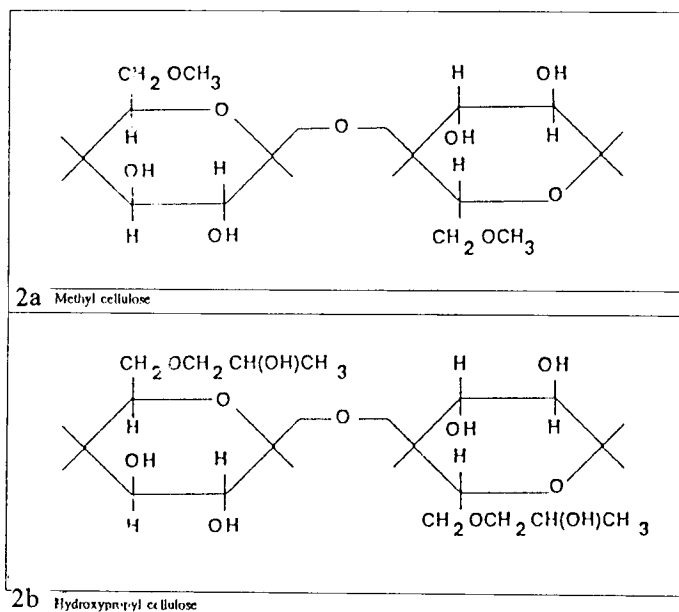
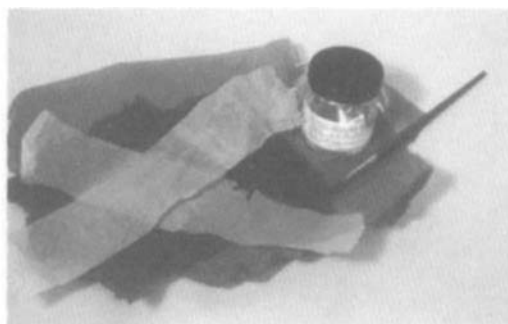


Figure 2. Structure of (a) methyl cellulose (b) hydroxypropyl cellulose.

Figure 3. Preparing tissue paper fills.

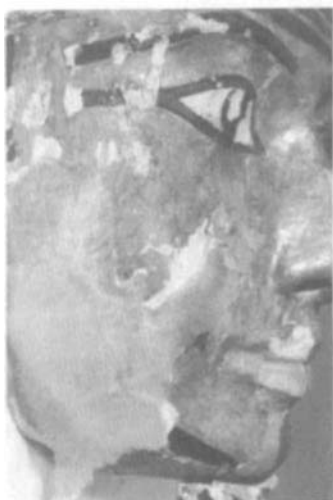


(a) painting tissue paper.



(b) tissue paper prepared for fills.

Figure 3 (cont.). Preparing tissue paper fills.



(c) fitting tissue paper fills. (MFA 72.4774)



(d) after filling. (MFA 72.4774)



Figure 4. Coffin mask after treatment. (MFA 72.4774)



Figure 5. Portal, San Miguel de Uncastillo, Spain, second half of the 12th century; acanthus leaf molding during compensation. (MFA 28.32)



Figure 6. Red-figure kalpis, South Italian, late 5th century; red tissue line indicates area of overpaint removal. (MFA 41.56)

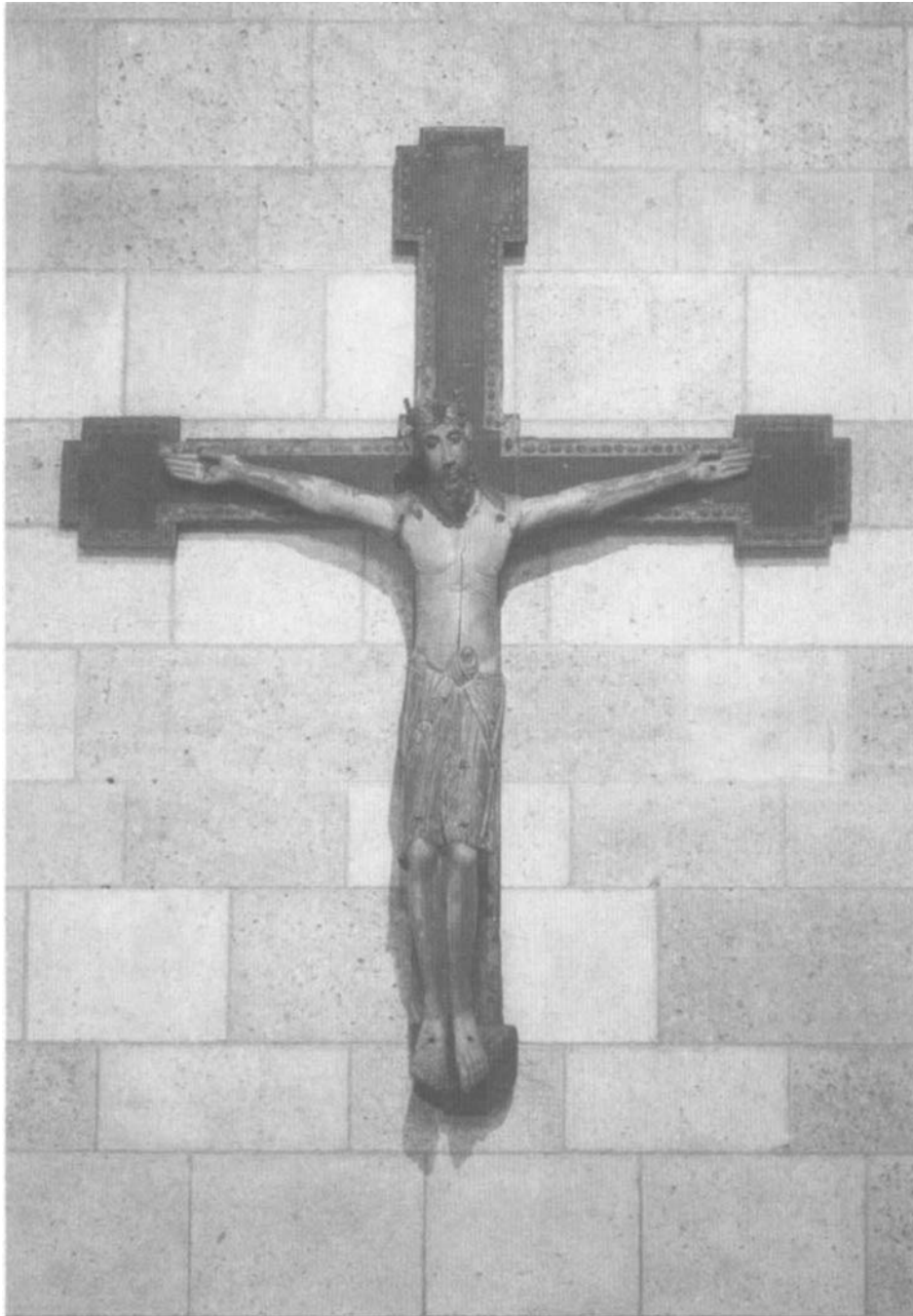


Figure 7. Crucifix, Spain, Convent of Santa Clara de Astudillo (Palencia), second half of the 12th century, polychromed wood; after treatment. (MMA, The Cloisters Collection 35.36ab)



Figure 8. Crucifix, detail of torso with tissue paper fills in place. (MMA, The Cloisters Collection 35.36ab)

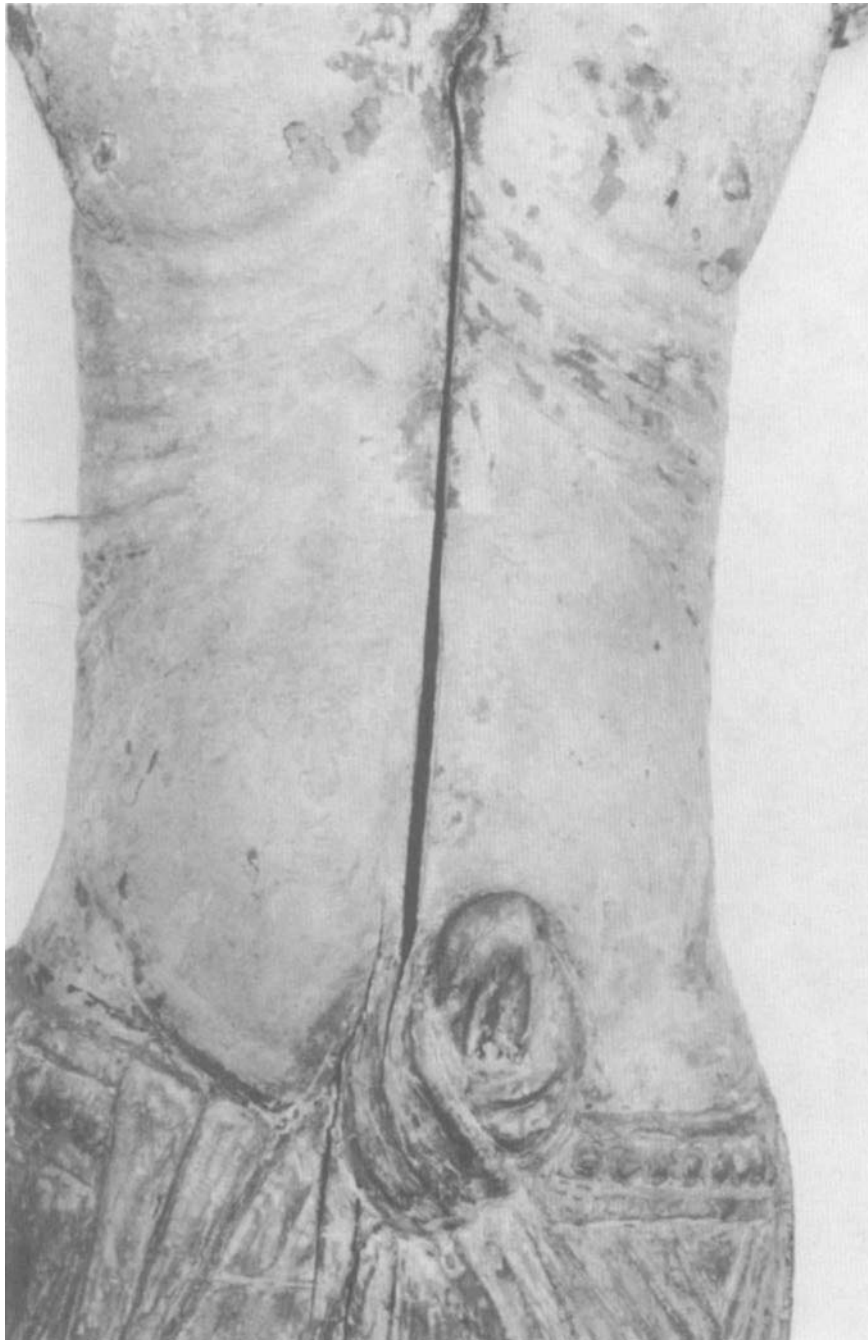


Figure 9. Crucifix, detail of torso with tissue paper fills toned. (MMA, The Cloisters Collection 35.36ab)

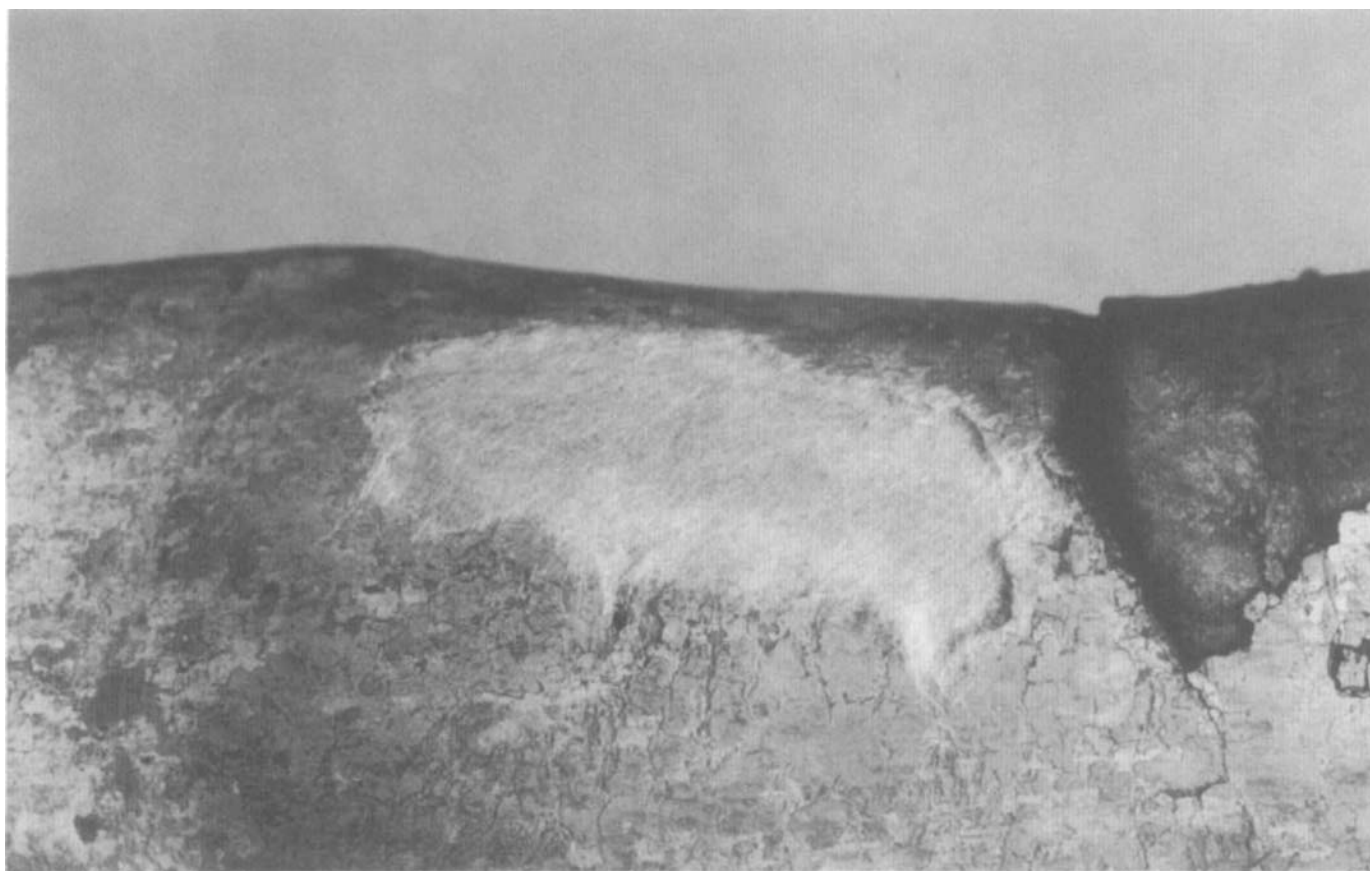


Figure 10. Crucifix, detail of arm, tissue paper fill conforming to contour of loss. (MMA, The Cloisters Collection 35.36ab)



Figure 11. Crucifix, detail of upper body, tinted tissue paper used as imitation parchment at join of left arm (see arrow). (MMA, The Cloisters Collection 35.36ab)

DISCUSSION #2

Summarized by Harriet F. Beaubien**

Discussion proceeded in a practical vein with further details offered on aspects of cellulose ethers and the use of paper-based fills.

For poorly bound substrates and tenting paint layers that are sensitive to aqueous solution, Klucel G (hydroxypropyl cellulose) is used as a preliminary consolidant because it may be dissolved in various organic solvents. Several participants noted Klucel's instability over time and did not advocate its use alone [VG,SRP,PH]. Once dry, further consolidation and manipulation of tented paint may be safely carried out with methyl cellulose (a stable material); Hatchfield recommended successive applications (where needed) of a mixture in 1:1 water:ethanol (approximately 0.5% solution). It was noted that as matte an appearance can be achieved with methyl cellulose as with the hydroxypropyl cellulose [SRP].

A question arose about the adhesion of paper pulp fills to porous substrates. Several participants recommended the use of Saran Wrap as a barrier during the initial fabrication of the fill [JG,JP]. Wet pulp, pressed into the area of loss, can then be removed easily from the substrate and the barrier discarded. After drying, it is adhered in place with an appropriate adhesive.

For organic substrates that experience movement, tissue paper fills are best prepared for losses or splits when they are at their maximum size [JT]. The water-cut fills are adhered in place while slightly damp, tautening to fit as they dry. These will relax slightly when the substrate swells, but will accommodate its maximum shrinkage in dry conditions. The surfaces of these fills may also be easily ingilded or inpainted with solvent-based materials. Another variation was offered for the use of tissue fills in shallow losses [CA]. The tissue is feather-cut to fit, coated on both sides with PVA-AYAA and inpainted on one side. The fill may then be adhered in place with a tacking iron to prevent any movement that the use of solvents might cause.

Contributors to the discussion (listed alphabetically); presentors appear first, marked by an *asterisk:

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JP *Jerry Podany
CA Christopher Augerson
JG John Griswold
JT Jonathan Thornton

MM *Michele Marincola
JS *Jack Soultanian
VG Virginia Greene
SRP Shelley Reisman Paine

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A VISUAL REVIEW OF COMPENSATION PHILOSOPHIES FOR ISLAMIC CERAMICS

Meg Loew Craft*

The treatments of three twelfth- to thirteenth-century Islamic bowls undertaken in 1992-1994 presented an opportunity to review the aesthetic options available for compensation. Treatments were undertaken to replace deteriorated, discolored, old restorations that rendered the bowls aesthetically undisplayable and, in one case, structurally unstable. The old restorations were undocumented and were probably carried out in the late nineteenth or early twentieth century prior to acquisition by their current owners. The past restorations had been carried to extremes to obscure losses and damages to make the objects appear intact. Original surface decoration was covered over and deceptive retouching did not follow the underlying decoration.

The bowls belonged to the collections of two fine arts museums, The Cincinnati Art Museum in Cincinnati, Ohio, and The Walters Art Gallery in Baltimore, Maryland. The ceramics were viewed as art objects prized for their beauty and rarity and were displayed out of cultural context. The appearance of each individual object became very important. In a different setting, such as in a study or research collection, the aesthetic appearance might not be as significant. The intent of the treatment was to reveal the extant decoration without deception but at the same time to present an aesthetically pleasing and understandable form.

In the new repairs, inpainting was restricted to areas of loss. Missing design elements were replaced only where repetitive or to complete gaps in obviously connecting lines. No inscriptions or figurative elements were invented. While this is a consistent and logical philosophy, actual execution of details on individual pieces during treatment forced us to consider additional factors, such as the condition of the surface and the extent of losses. Many details had to be decided based on consultation between the curator and the conservator.

The old repairs had been carried out using traditional materials including shellac and hide glue for adhesives, plaster for fills, and oil paint and natural resin varnishes for inpainting. More than one campaign of restoration was apparent on all the bowls. In addition, ceramic restorations were fired and inserted to complete the fragmentary forms of two of the bowls. Former restorations illustrated not only the skill of the restorer and the availability of repair materials but also the contemporary philosophy of compensation at that time.

Identification of the ceramic inserts was made by visual observation. Combinations of features used to distinguish the later inserted pieces were: variable shrinkage in size from firing after forming in the loss areas, warpage or distortion of the profile, an increased or decreased number

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of pinholes in the glaze, variations in the glaze color, gloss or texture, and the presence of a rill or ridge of glaze around on the edge of the manufactured inserts. The rill of glaze around the edge of the suspect fragment or glaze wrapping the edge of the fragment onto the cross section of the break were the most convincing features denoting a manufactured fired ceramic insert.

None of the inserts examined appeared to be scavenged from other vessels. Each appeared to be manufactured for the individual bowl being examined. A general determination was made to leave the inserts in place to prevent unnecessary wear and tear on the remaining original fragments during the removal process. The presence of archeological fragments from other vessels would have complicated decisions and demanded special consideration to select a proper treatment course. Marriage of different vessels was not a complication in the treatments of these three Islamic bowls.

The goals of treatment were: first, safety and improved prospects for preservation of the object; second, aesthetic presentation for display; and, third, improved potential for study or research. Three treatment case studies demonstrate different solutions to achieve a balance between the aesthetic demands for display in a fine arts setting and, at the same time, to avoid deception.

Ceramic Body and Glaze Characteristics

After determining the goals of treatment, a brief review of the types of ceramic ware and their methods of manufacture was necessary before evaluating the condition of the individual objects. In the case studies presented, the two types of Islamic ceramic wares, lusterware and overglazed enameled or painted and gilded Minai ware, are noted for reaching technological high points in glazing and decoration.

The ceramic body, which is reported to be composed primarily of quartz with alkaline frit and clay, was an attempt to imitate Chinese porcelain in Persia where ingredients and firing technology were unavailable. The fritted body, made from ground pebbles, plant ash, and a light-colored, high-shrinking clay, was fired at a low temperature. The resultant body was more similar to Egyptian faience than to Chinese porcelain. The body was molded for large or complicated forms but could be hand thrown for smaller, simple shapes. The pieces were trimmed to reduce the thickness of the walls. The resultant fired wares were exceedingly lightweight and white-bodied. The hardness of the treated objects varied from soft and very fine grained to relatively hard, glassy and granular.

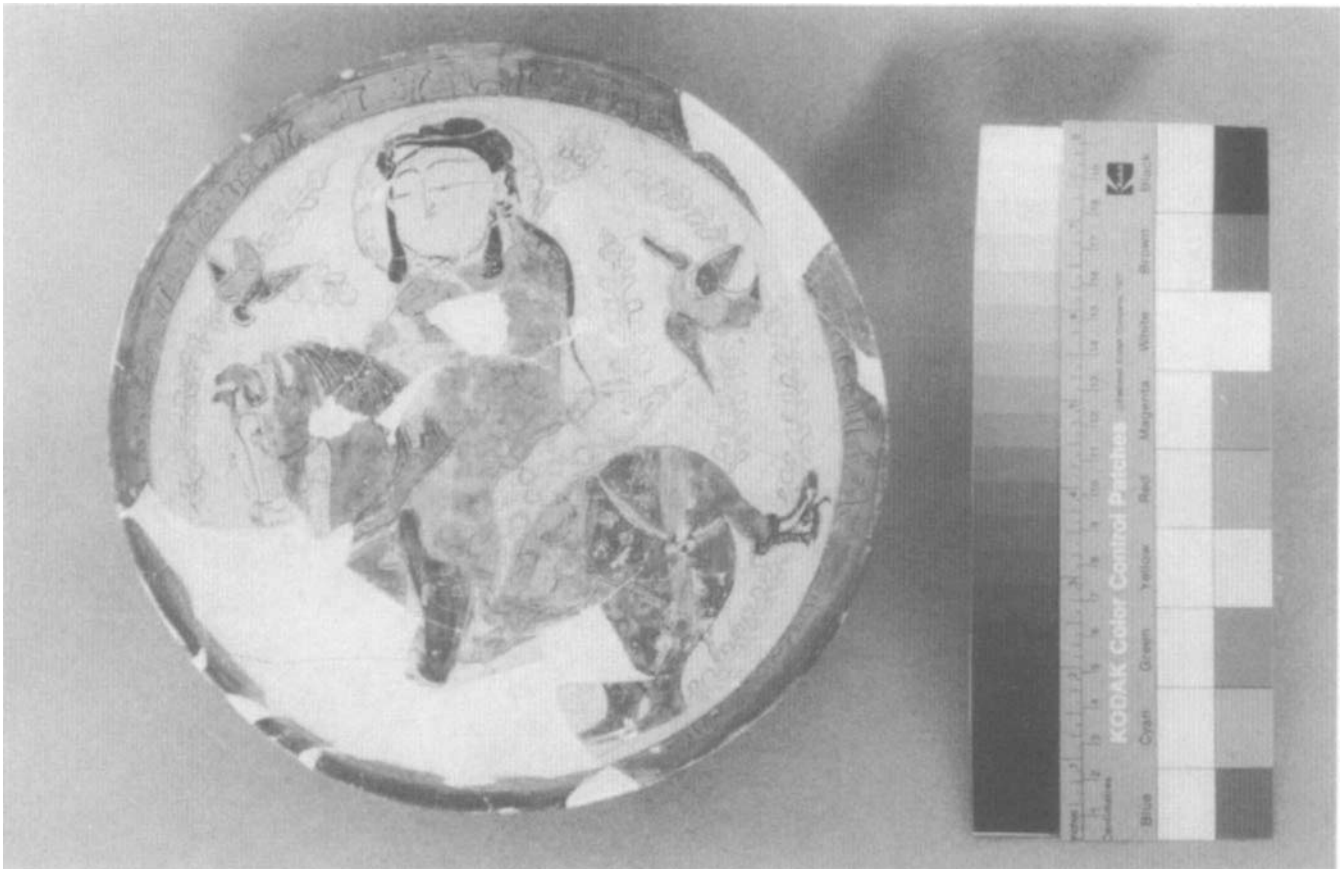


Figure 1. Minai bowl with single mounted horseman and two birds, during treatment, revealing extent losses. (Cincinnati Art Museum 1948.102)

Lusterware is noted for control and refinement of the overglazing process. The wares were initially glazed with a tin-opacified lead glaze in a single firing to mature the body and provide a white background for decoration. The luster overglaze was painted on and then fired in a second, reducing atmosphere. The deep reds are achieved with metallic copper particles suspended in the glaze. Some gold tones are reported to be a mixture of silver and copper. None of the bowls treated were analyzed but the deep wine-red to brown colors in the Zodiac bowl appear to be copper based. The blurred edges of the lines are typical of the copper-based luster which is more difficult to control than the yellow silver lusters. The lead glaze is soft and can be easily scratched or abraded.

Minai (which means enamel) wares are noted for miniature overglaze enamel and gilded decorative hunt or court scenes. The bowls, with background lead-based glaze, were fired in

a single operation. The background color was often copper-based turquoise blue or tin-opacified white. The decorative scenes were then enamel painted and gilded and refired at lower temperatures. The overglaze decoration may be visibly raised above the glazed background and is thick, matte, and painterly in appearance. Adhesion to the body, if not damaged by excessive weathering, salt damage or past repairs, is adequate to permit normal handling. The gilding is poorly adhered to the glazed ceramic. The gilding is often worn, fragile, and easily damaged by handling and any abrasion, which may limit treatment.



Figure 2. Minai bowl with single mounted horseman and two birds, after treatment, with background tones inpainted in loss areas. (Cincinnati Art Museum 1948.102)

Case Study 1: Minai Bowl with Single Mounted Horseman and Two Birds

The Minai bowl decorated with a horseman and two birds (Cincinnati Art Museum, 1948.102) had been broken into approximately 45 pieces and repaired with traditional materials in the past. The small bowl with a straight rim and low foot measured 21 cm. in diameter and 8 cm. in height. The background glaze was opaque white, discolored by entrapped soil in eroded pits to a pale cream color, with a large stained crackle pattern. Overglaze colors included blue, red, black, green, and gold.

When received for treatment the largest fill had already been stripped of discolored overpaint (fig. 1). Small losses were scattered overall. The most substantial loss was located in the lower left quadrant. Approximately 25% of the bowl was lost. Little design was lost with the exception of the horse's lower legs and the red garland on the bowl interior. The sections of the inscription were partially lost on the interior rim. Several border fragments were floating in the large plaster restoration. The joins were stable and primarily well aligned. The fills were strong but rough and not level.

Upon further examination, the eight floating rim fragments with inscriptions on the interior were determined not to be original to the bowl. None had entrapped soil or surface erosion from burial. The outer profile of the bowl suffered minor distortion from the insertion of replacement fragments. Evenly spaced red circles on the exterior rim border were reproduced but improperly spaced on the inserts. The interior border was decorated with partially fired and partially painted strokes to imitate the inscription. Gold details and highlights, which were readily removed by excessive contact, were present on original and inserted fragments.

Since the adhesive joins and large plaster fill were stable, a decision was made not to disassemble the fragments or destroy the fill to remove the inserts. Old overpaint was removed with acetone. Uneven fills were leveled and surfaced using Polyfilla Fine Surface filler.¹

During treatment, losses to the interior of the bowl were inpainted with acrylic emulsion colors to reproduce the background white and the blue border colors. Initially, an attempt was made to reproduce a partial outline of the lost horse legs and the red garland on the largest interior loss. The trial was rejected by the curator and removed. The loss was inpainted to match the background glaze color with the crackle pattern (fig. 2). The restored inscriptions on the interior border and the mismatched turquoise band on the exterior border of the inserts were toned to match the background colors.

In summary, inserted fragments were left in situ to avoid unnecessary wear and tear on the original. Losses and deceptive decoration on inserts were toned to match the background colors.



Figure 3. Minai bowl with three mounted horsemen, front, before treatment. (Walters Art Gallery 48.1079)

Case Study 2: Minai Bowl with Three Mounted Horsemen

The Minai bowl decorated with three mounted horsemen (Walters Art Gallery, 48.1079) was broken into at least 41 fragments and repaired in the past. The small bowl with a straight rim and low foot measured 19.9 cm. in diameter and 8 cm. high. The figures and inscriptions were painted in polychrome enamel and gilding on an opaque turquoise background. Fragments were well aligned and securely held with dark red-brown shellac. Joins and losses were filled and

overpainted with a blue tinted gesso and natural resin-based paint. The fills had cracked and the overpaint turned a grey or yellow-white color. The old compensation was discolored and deteriorated, extended beyond the damages, and did not faithfully follow the original decoration (see figs. 3,4,6).

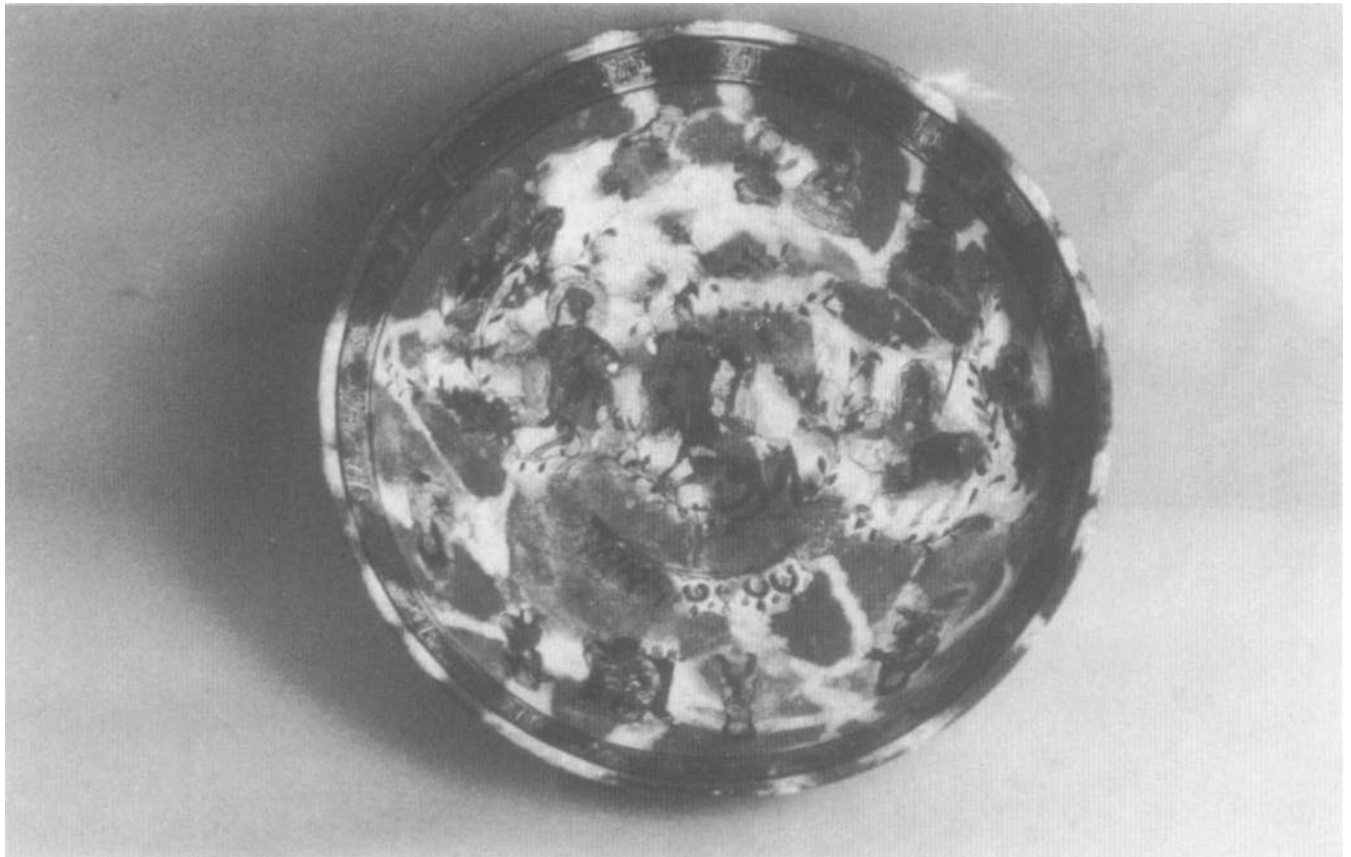


Figure 4. Minai bowl with three mounted horsemen, front, viewed in ultraviolet light. (Walters Art Gallery 48.1079)

Upon further examination, 11 fragments comprising approximately 40% of the bowl were found to be fired ceramic inserts. The inserted fragments were distinguished by the following features which differed from the original:

- the turquoise background glaze was brighter in color
- the surface iridescence/soil was applied with an adhesive and was shinier in gloss than that found on the original
- a rill of glaze was visible around the perimeter of some of the inserts indicating an

- unbroken edge and glaze dripping over the edge during firing
- fewer but deeper pinholes in the glaze
- minor irregularities on the rim perimeter
- portions of the decoration were painted on in combination with firing
- the black exterior inscription was darker, shinier with slightly thicker strokes
- the edges of the original fragments adjacent to inserts were sanded.



Figure 5. Minai bowl with three mounted horsemen, front, after treatment, with inpainting to unite old fired restorations with extant figures. (Walters Art Gallery 48.1079)

Overfill and overpaint were removed using ethanol and/or distilled water. On the interior, overpainting of the figures re-enforced the original but was more crude. The original was fine lined and very abraded. Many elements, such as leaves and branches, were invented to obscure damages. After cleaning, it was revealed that nearly every figure on the interior of the bowl was partially restored. At the same time, no figures were complete inventions. To present an

understandable form for display, extensive new restorations would have to have been undertaken if the bowl was disassembled to remove inserts.

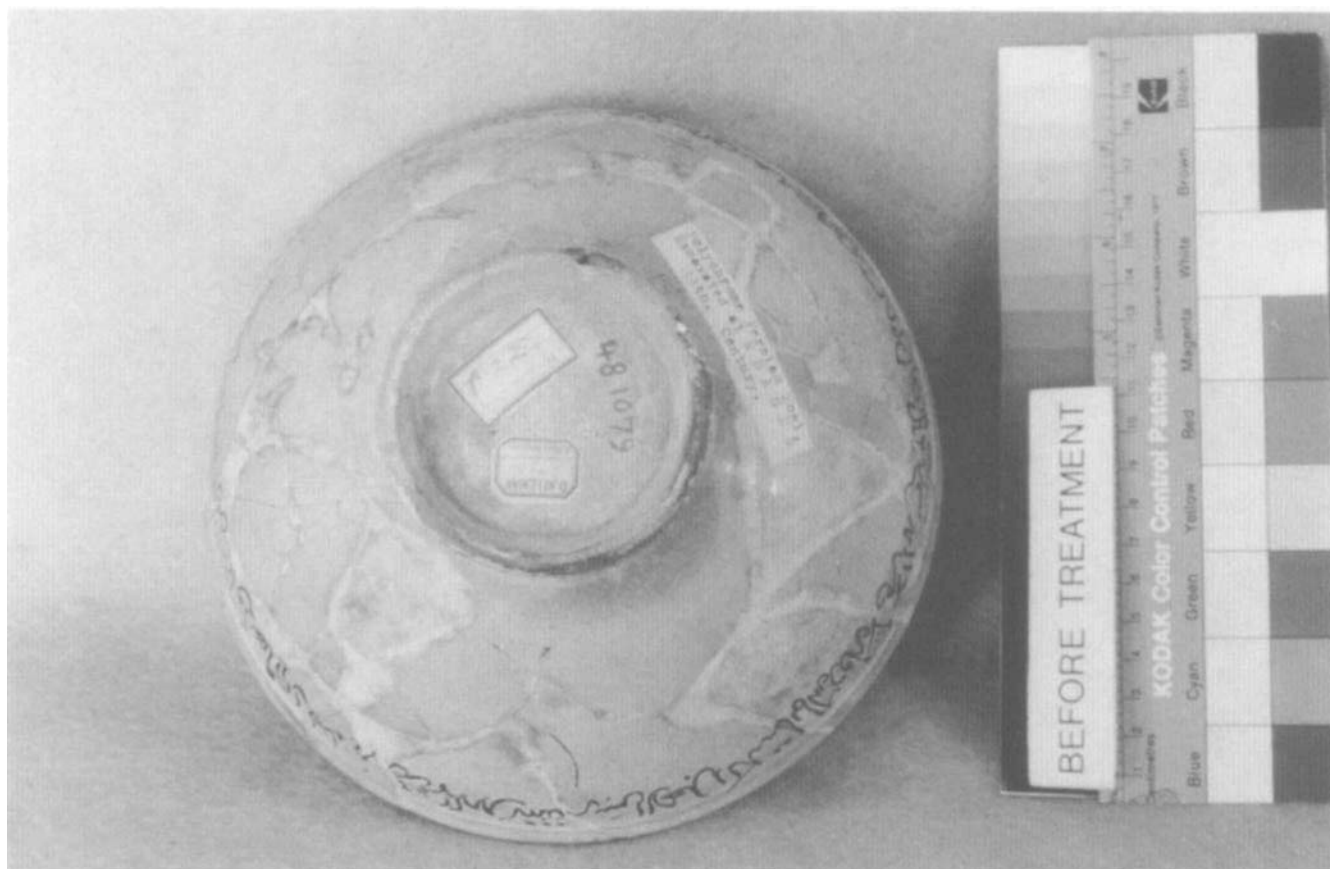


Figure 6. Minai bowl with three horsemen, reverse, before treatment. (Walters Art Gallery 48.1079)

As in the first treatment example, a decision was made not to disassemble the fragments to avoid unnecessary abrasion and handling of extant fragments and to avoid the need for creative inpainting. To allow serious scholars to locate inserts, the exterior, which was not easily viewed by the general visitor, was fully cleaned. The gaps between fragments were filled to just below level and inpainted a uniform shade of turquoise. No effort was made to disguise the differences in color, gloss or condition to permit the inserts to be easily identified. This was important to permit study of the inscriptions on the interior and exterior of the bowl. A different course was taken on the interior to present a unified surface for the museum visitor. Losses to the figures were inpainted to join the original and the old fired restorations on the inserts. The border inscription was toned to match the cobalt-blue background. The turquoise background was toned

to match the original both in color and in sheen using Liquitex acrylic emulsion colors² and Soluvar acrylic varnish.³

In summary, the exterior of the bowl was very conservatively treated leaving damages and inserts fully exposed. The interior was more aggressively inpainted to present an impression of a complete bowl. All extant decoration was left visible (figs. 5,7).

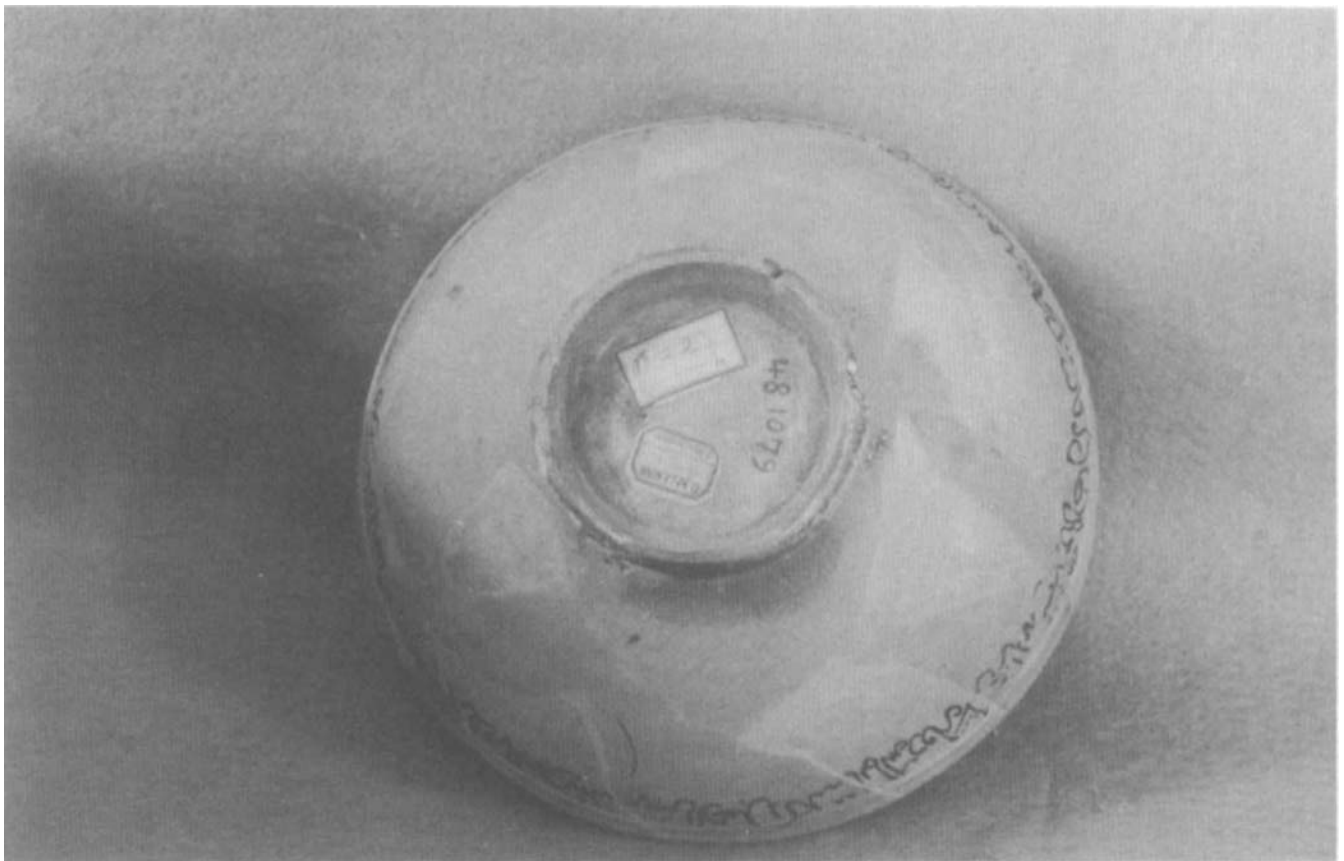


Figure 7. Minai bowl with three mounted horsemen, reverse, after treatment, with inserts left visible. (Walters Art Gallery 48.1079)

Case Study 3: Lusterware Bowl with the Signs of the Zodiac and Dervishes

The lusterware bowl with the signs of the zodiac and dervishes (Cincinnati Art Museum, 1948.113) illustrates the most difficult and challenging treatment due to the extensive losses and poor condition of past repairs. The large bowl with straight rim and very low foot measured 43.6 cm. diameter and 10.5 cm. height after treatment. The overall decoration was painted with a copper-based luster which produced a dark red-brown pattern on an opaque tin-opacified lead glaze background.



Figure 8. Lusterware bowl with the signs of the zodiac and dervishes, detail of fragments before treatment. (Cincinnati Art Museum 1948.113)

Initial examination indicated that approximately 50% of the bowl survived. Approximately 11 fragments were clustered together on one side, although there were no clear joins between some

of the pieces (fig. 8). The other side of the bowl was a plaster restoration painted with discolored bronze powder paint. The restoration had been broken and repaired in the past and was not in stable condition.

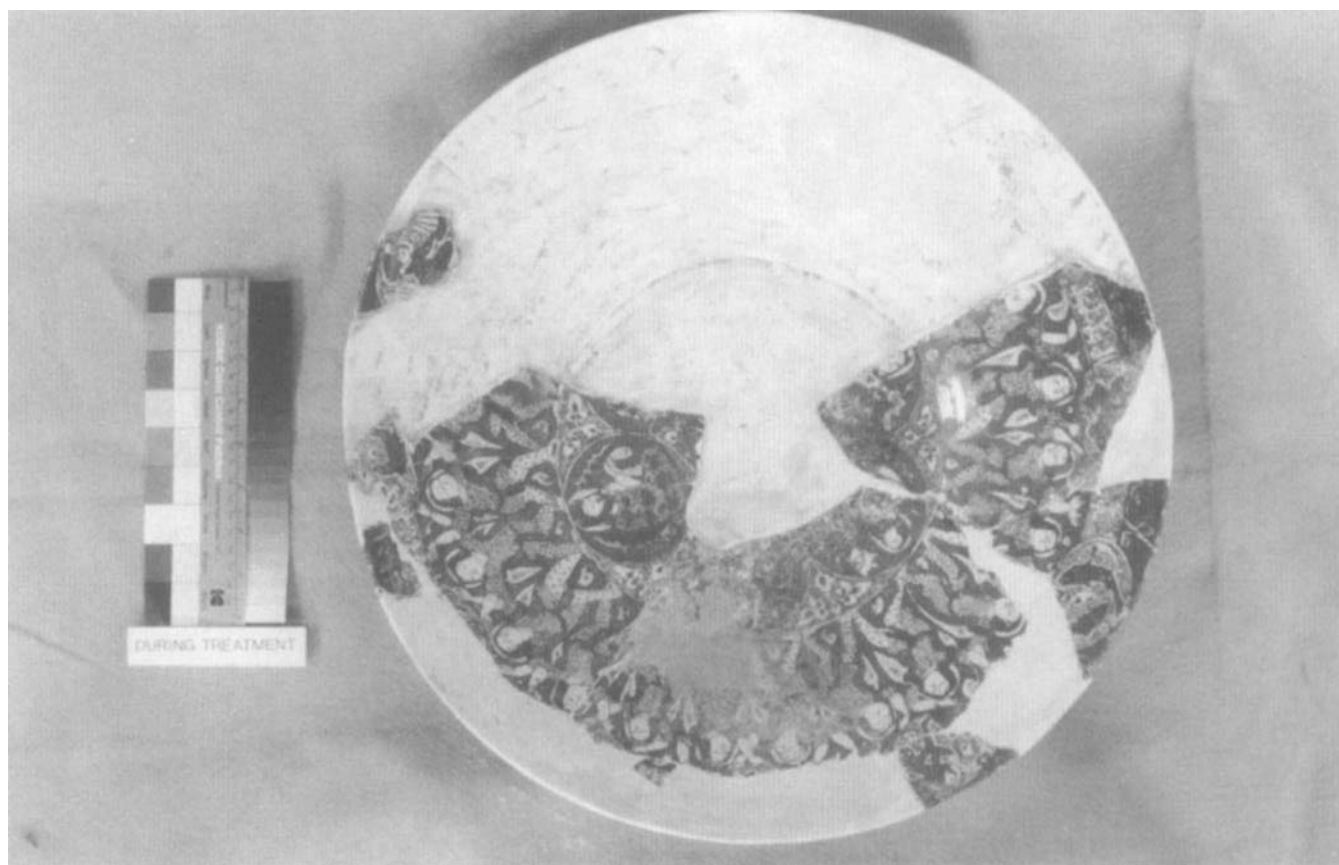


Figure 9. Lusterware bowl with the signs of the zodiac and dervishes, after removal of overpaint. (Cincinnati Museum of Art 1948.113)

Surface cleaning to remove the overpaint revealed losses far more extensive than anticipated (fig. 9). The bowl was in fact less than 40% intact. The surviving fragments appeared to belong together without inserts or composite construction. The fragments were improperly arranged, forcing extensive overfilling to cover the misalignment. Overpainting did not follow existing design or inscriptions below. The bowl was extremely distorted and warped from manufacture and firing. The profile existed from the center of the base to the rim in only two places and was not consistent in either location.

Treatment possibilities were reviewed with the curator and it was decided to continue treatment for display. The following options were considered:

1) Display the fragments on a plexiglass mount or other stand. Advantages were minimal treatment and expense, and ease in future treatment or re-arrangement of fragments. Disadvantages were the difficulty in recognizing the signs of the zodiac and in mounting the pieces to communicate the fragments as a bowl.

2) Complete the form and paint the restoration a background color. An advantage was ease in recognizing the object as a bowl. Color options were the tin-opacified white background, the red-brown luster of the decoration or some other color coordinated with the bowl or with the display case. The gloss could also be adjusted.

3) Complete the form and inpaint the outlines of the missing design medallions on a background color. This educational approach furthered the idea of completing the form and pattern of missing medallions, which was known information. The disadvantage would be the contrast between the retored and original fragments.

4) Carry out more extensive restoration of the design. This was not seriously considered or attempted due to a lack of information about the missing design elements. Traditionally, the zodiac symbols were not arranged in any specific order. Old reconstructions did not offer confidence-inspiring information about losses.

Prior to disassembling the old restorations, silicon rubber molds of the interior and the exterior were made. The molds were re-enforced with cheesecloth but left thin enough to be flexible. The old restorations were removed and discarded. Groups of joining fragments were assembled using very thick Acryloid B-72⁴ in toluene as the adhesive and as an isolation layer for all exposed edges. The fragment groups were arranged to allow for the best alignment and smoothest profile. Sections of the exterior silicon rubber mold were distorted and secured to an outer support made of plasticine. The fragments were laid on the mold and weighted into place. The losses were skim coated with Liquitex Acrylic Modeling Paste⁵ directly onto the mold. After drying, the structural core of the fills was made with HXTAL Crystal Plus epoxy⁶ bulked with microballoons and fumed silica. Finally the interior surface was skimmed with modeling paste.

Option 3 was chosen and carried out using a white background with dark narrow lines to delineate medallions (fig. 10). While logical, the aesthetic result was unacceptable. The lines distracted from the fragmentary remains. The final and most aesthetically pleasing decision was an intermediate solid red-brown color coordinated with but not matching any color on the bowl (fig. 11). The intermediate color allowed the existing decoration to be appreciated and, at the

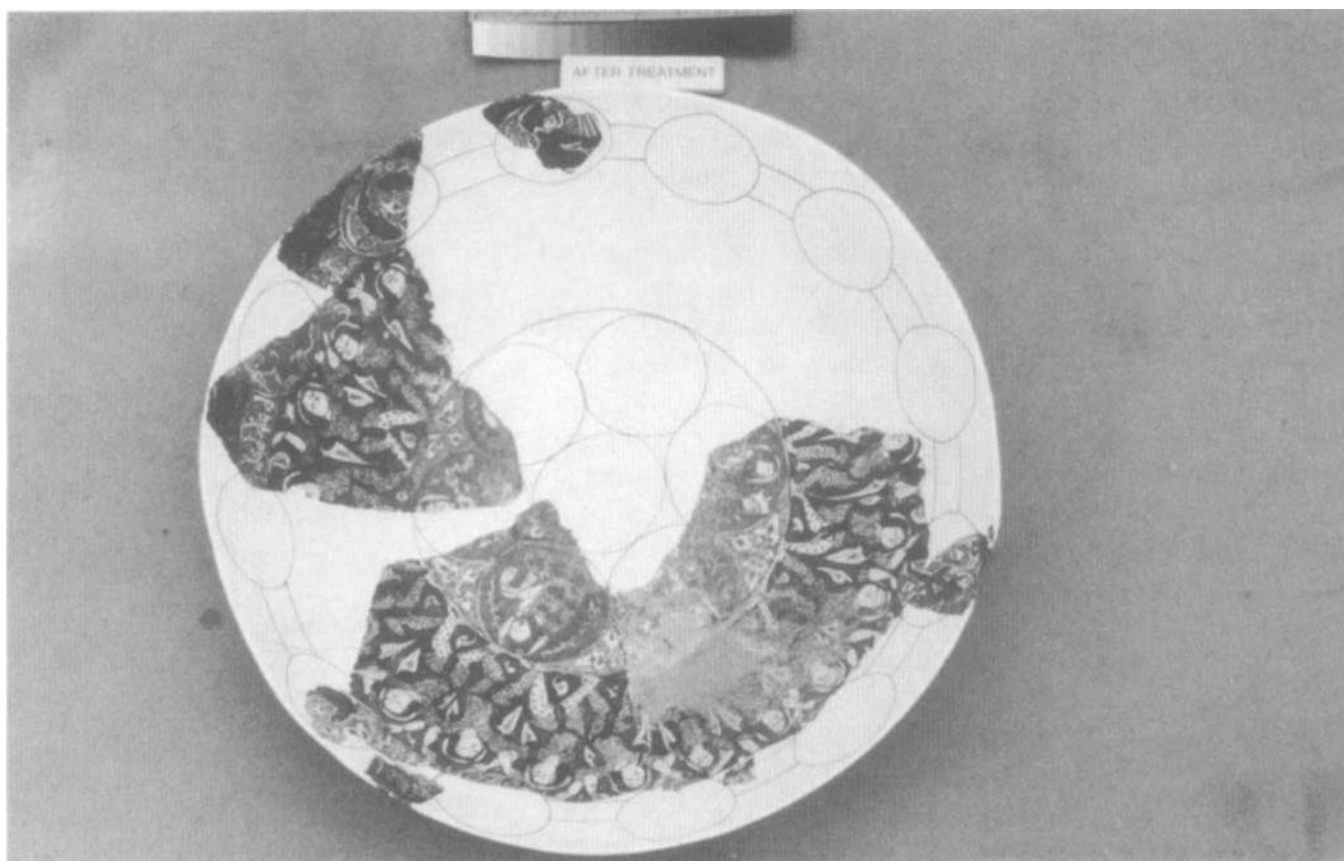


Figure 10. Lusterware bowl with the signs of the zodiac and dervishes, after treatment, with indications of medallions on a white background. (Cincinnati Museum of Art 1948.113)

same time, the form to be understood.

Summary

The trend in the philosophy of compensation is toward greater respect for the integrity of the object. The goal for compensation of Islamic ceramics in fine arts museums remains to present a high degree of finish and completeness without being deceptive. Recognition of the fragility of the quartz-frit-clay body and the overglaze decoration and gilding, combined with improvements in conservation materials, has led to safer treatments. It is apparent that there is no one absolute method to achieve a balance between aesthetic presentation, preservation safety, and study potential. Compensation continues to be challenging with the individual object

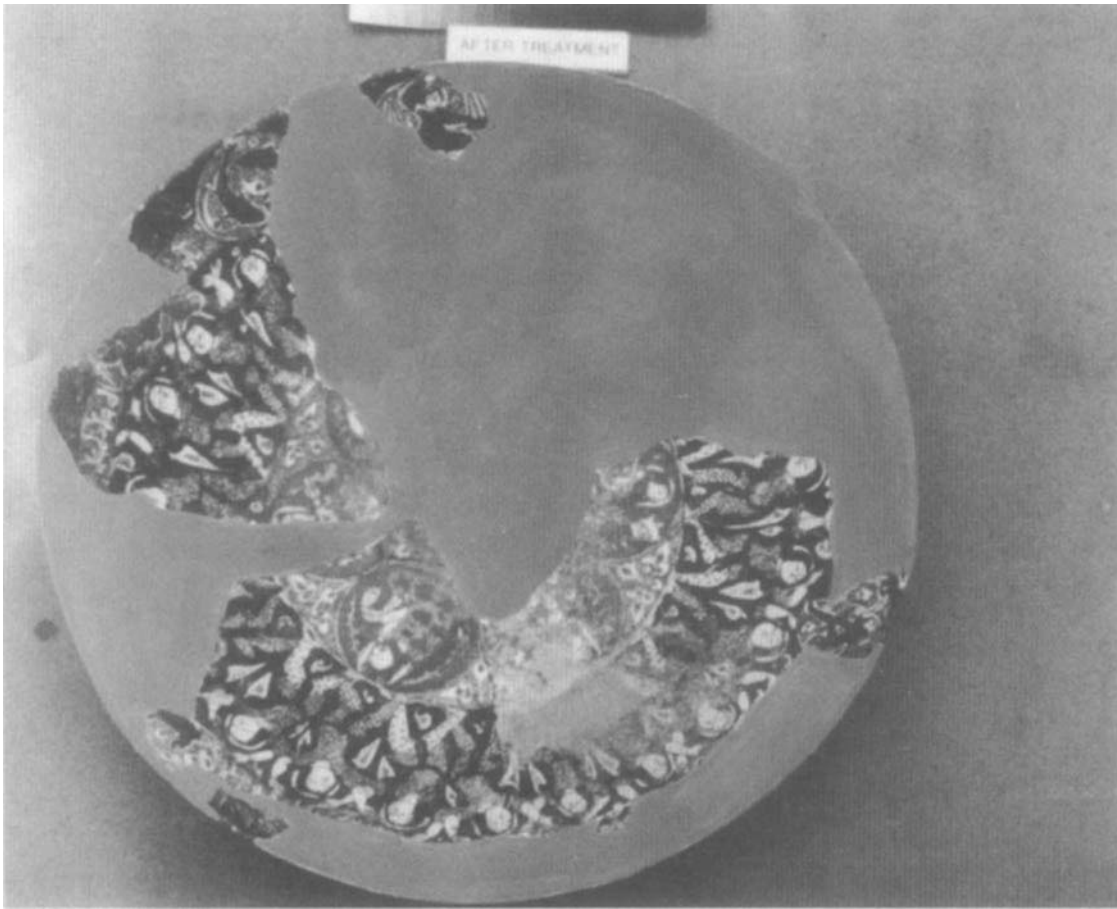


Figure 11. Lusterware bowl with the signs of the zodiac and dervishes, after treatment, with losses toned an intermediate color. (Cincinnati Museum of Art 1948.113)

and its condition guiding the ongoing discussion.

Acknowledgments

I would like to thank Dr. Glenn Markoe, Curator of Classical and Near Eastern Art, and Stephen Bonadies, Chief Conservator, at the Cincinnati Art Museum, Cincinnati, Ohio and Dr. Hiram Woodward, Jr., Curator of Asian Art, and Terry Drayman-Weisser, Head of Conservation and Technical Studies at the Walters Art Gallery, Baltimore, Maryland for allowing me to work on and present the treatment of Islamic ceramics from their collections.

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Endnotes

1. Polyfilla Fine Surface interior filler is manufactured by Polycell Products Ltd., Broadwater Road, Welwyn, Garden City, Herts AL7 3AZ, England, and is available in hardware and department stores in England.

2. Liquitex acrylic emulsion colors are manufactured by Binney & Smith, Inc., Easton, PA 18044-0431, and are available in artists' supply stores.

3. Soluvar Gloss Picture Varnish and Soluvar Matte Picture Varnish are manufactured by Binney & Smith, Inc., Easton, PA 18044-0431, and are available in artists' supply stores.

4. Acryloid B-72, 50% solids in toluene, is manufactured by Röhm and Haas Company, Independence Mall West, Philadelphia, PA 19105, and is available through Conservation Materials Ltd., 1395 Greg Street, #110, Sparks NV 89431, (702) 331-0582.

5. Liquitex Acrylic Modeling Paste is manufactured by Binney & Smith, Inc., Easton, PA 18044-0431.

6. HXTL Crystal Plus epoxy is manufactured by Hillery Enterprises, Inc., Austin, TX 78757, and is available through Conservation Materials Ltd., 1395 Greg Street, #110, Sparks, NV 89431, (702) 331-0582.

STAINED GLASS CONSERVATION: A FIELD IN FLUX

Mary Clerkin Higgins*

There are often interesting things to be learned from studying the losses in a work of art. Why did they occur? How have they been treated, if at all? What does that tell us about the function of a work and the value placed upon it? While lacunae are an important part of the history of a piece, they can interfere with the aesthetic functioning and appreciation of the work. This paper discusses loss considerations as they relate to stained glass conservation.

Jarrow

At Jarrow in England, fragments of unpainted glass were excavated in 1973 (Cramp 1975). The original method of setting these fragments is uncertain, though a few lead comes (H-shaped lead supports) were also uncovered on the site. Contemporary accounts indicated that window glass at the associated monastery in nearby Monkwearmouth had been leaded together in a glazing undertaken in 675 AD by the Abbot Benedict Biscop and the Jarrow windows may also have been glazed (leaded).

After excavation, the fragments were awkwardly fitted together in a completely conjectural configuration, crudely suggesting a human figure and placed in leads (fig. 1). The result was then put forward, by some, as the "earliest stained glass window."

This "earliest" window would be of great significance if it were true, because, while there are numerous early accounts of colored glass being used to glaze window openings, and several fragments survive, no complete window pre-dates the twelfth century. The edges of this glass are described as being carefully shaped, but the panel makes use of wide leads with significant gaps between the pieces. What we are left with is a group of fragments whose original pattern is not known, that have been placed together to complete some recognizable form.

If one were to accept this configuration of glass and lead, a comparison with comparable objects from the period would suggest that these early artists/craftspeople were not connected with the art of their time, nor were they at all accomplished. While it is very interesting that the fragments exist, it is extremely misleading to present them in their current pattern since what has been put forward would seem to bear no relation to any original configuration of glass or lead. This is an interesting illustration of some of the difficulties faced in the restoration and conservation of stained glass. It is a medium that is made up of discrete parts. Panels can be taken apart, glass can be replaced or re-ordered, and the casual observer may not be at all aware of it, for what they see is, to all appearances, a complete window. The challenge to the

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conservator and art historian is to first discern what has occurred, and then see what is necessary and possible in order to present a window correctly.

An Architectural Art

Stained glass is, traditionally, an architectural medium. In its original location, it is almost always an integral part of the fabric of a building, functioning not only as a work of art, but also as a screen, letting in light and keeping out the elements.

Of the three main components of stained glass - vitreous paint, glass, and lead - the glass and lead are essential structurally, while aesthetically all three play important roles. The loss of any one will impact significantly on the whole. There is not the option of leaving a window in its damaged state on philosophical or aesthetic grounds--a hole exists which must be filled, or soon there will be birds flying around inside the building, as well as light and rain flooding in. The question is not will the hole be filled, but rather, how will the hole be filled.

A variety of methods have been tried over the centuries, but there have proved to be only two reliable, waterproof alternatives in repairing breaks or losses in architectural glass: the replacement of the broken glass, or the insertion of repair leads.

The former means that original material is removed. The latter is unsightly, will begin to confuse the graphic legibility, and may result in glass being cut or ground away ("grozed") along each break line to make room for the insertion of the repair lead (fig. 2).

Modern adhesives have significantly expanded the alternatives, enabling one to achieve effective and unobtrusive repairs both in architectural settings and under museum conditions. Certainly, the function of some windows is purely architectural. They are neither works of art, nor are they historically significant. In these instances it is a matter of general building maintenance and any broken or missing glass would be replaced rather than conserved.

Glass Loss

Glass loss may be attributed to any number of causes -- vandalism, weather (for example, hailstones or hurricanes), various political or religious movements (such as the Reformation and, later, the French Revolution) -- or perhaps to a change in taste.

Restorers frequently take along extra glass (and sometimes glass fragments saved over the years) for emergency repairs on site. Such inserts are intended to be temporary, though they are not always replaced. A "stopgap" is a piece of old glass which is re-used to fill a loss. For example, the head of a figure was found placed backwards and on its side (fig. 3) in an Austrian canopy panel from about 1420 in the collection of The Duke University Museum of Art (1978.20.7). The head was originally from the same group of windows as the canopy, and it is not known when it was inserted here as a stopgap, or what happened to the panel it came from. During the last conservation treatment, the head was removed from the canopy and its gaps were filled where the glass had been grozed with a tinted epoxy resin and then inpainted (fig. 4).

Over time, windows mended using traditional methods can become a jumble of repair leads and glass inserts (fig. 5). While there may be a certain charm to the many insertions in these panels, their arrangement bears almost no resemblance to the original layout. For a number of windows there would be little point, at this stage, in trying to "restore" the glass and lead graphic since so little original material remains.

In Europe, many workshops make use of their glass fragments by piecing them together to fill in windows. The grisaille ensemble, known as *The Five Sisters*, at York Minster Cathedral, England, is composed of many small fragments of glass. It no longer resembles the original grisaille window, which would have had a very definite lead pattern with larger pieces of glass. What is left is actually an assortment of glass fragments which work quite effectively as a large shimmering field of grey.

However, the same approach is much less successful with a figure, and there are many examples of such windows. For instance, in another window at York, a wonderful fifteenth-century head has been glazed together with a body composed of hundreds of fragments of Medieval purple glass and a new border (fig. 6). The artist who created the head would never have drawn such a broken-up figure. While it is understandable that the caretakers would wish to have the head on view, this patchwork approach ultimately does not work since so much is compromised. Glazing together these fragments in this way shows a perfect disregard for the idea behind the original lead pattern. Just as many casual viewers consider it quaint that the Medieval and Renaissance artists drew lead lines across a face (which of course, they did not, as these later leads were used to cover breaks), they will not question this strange assemblage which is the antithesis of the aesthetic pursued by the original artists. Such a fabrication does much more harm than good in fostering an appreciation of the art of stained glass.

In The Field

While there is a growing understanding in the stained glass field of conservation approaches and philosophy, there are still many who would replace original material without a second thought, simply because this is what they have been taught to do in repairing architectural glass.

In one recent instance, a local studio was brought in by museum curators to work on a group of sixteenth-century panels. As the workmen took the glass out of its leads they broke some pieces, yet their attitude was not that they should change their procedures, but rather, that breakage was to be expected and altering their approach would entail a loss of time and money.

Though the conservation department pointed out that they were certainly willing to compensate the studio for the time necessary for a careful job, the workshop maintained that the breakage was not a problem - their glass painter could easily replace the sixteenth-century glass that had broken with newly painted pieces! There was absolutely no understanding of the inappropriateness of this approach.

This relates directly to the purely architectural outlook many studios have. They may not be aware of the conservation issues involved and they only implement the two traditional repair options: the replacement of the glass itself or the insertion of a repair lead. For some architectural glass this might be sufficient, but for much of it, and certainly for any glass in museum collections, this is not appropriate.

In the end, the museum's conservators went to the workshop to glue together the broken glass, since no one there had the skills to do it. The studio still re-leaded the previous breaks just as they found them, rather than eliminating or at least minimizing them. This particular studio's outlook is certainly not unique, but it is also not as pervasive as more and more studios are being exposed to the methods, materials and philosophy of stained glass conservation through articles, workshops, and other means of communication.

Fills

A significant part of any present-day restoration entails determining what glass is original, what has been inserted, and what the original lead lines were. This may involve re-ordering the glass after research and consultation with curators and art historians on the project. Replacement pieces and gaps are usually filled using glass, which is painted, if necessary, with vitreous paints which are then fired in a kiln. These glass inserts are much more stable over time than resin ones would be. They also enable one to better match the missing paint using the original

techniques which may involve the layering of traces, washes and mattes, and brushing and scratching away the dry powdered pigment, all difficult to achieve with "cold" (unfired) paints.

Repairs on glass objects frequently make use of materials which are as transparent or translucent as the glass itself. Resin fills are fashioned to look like the missing area and are attached directly to the original glass. There has been some resistance by stained glass conservators to using this approach, especially when the new fill is of glass. Yet this is exactly what is done in other conservation specialties - a new fill is made, often of the same material used in the original, and joined in a way that is reversible and detectable.

The greatest difference is that glass is translucent and very unforgiving. Because of this, it may not always be appropriate to glue in a fill, but in those situations where it can be done, there is no reason to reject it outright. At times, one may wish to make a clear distinction between original material and later insertions (fig. 7). Here the curator wished to retain the later insertion at the neck of the figure, but not to glue it in. In this instance, the two pieces were copper foiled together.

Glass

The glass itself has many characteristics - color, texture, density, bubbles, striations, to name just a few. While it is not true that Medieval or later glass cannot be duplicated, it is true that it may be difficult or impossible to find in one replacement piece all of the necessary characteristics of the missing glass unless the replacement is custom-made - a very expensive proposition if one can even find a glassmaker to work with who is skilled in blowing and color matching. For the most part, the manufacture of sheets of glass is an industry not tailored to producing small amounts of custom glass.

From the earliest times, stained glass craftspeople have rarely manufactured their own glass. Normally, one group of artisans manufactures the sheets of glass, either hand-blown or machine made, while another transforms the material into stained glass windows. Artists such as Tiffany and La Farge were able to work with small glass factories to produce very unique glass for some of their windows. They passed the considerable cost of this on to their clients. Replacing a glass loss often means going through many dozens of sheets of available glass to find a good match and, as is often necessary, manipulating the replacement with paint or additional layers of glass. Glass may exist that is similar to, but not exactly like the original, which is one compelling reason not to remove original material.

Some losses are due to the composition of the glass itself. In some John La Farge (d.1910) windows, for instance, there are now holes because over time some of the glass developed

numerous cracks which gradually joined together, causing the glass to crumble and fall out of its leads. This particular deterioration cannot be stopped since it is inherent in the glass. The remaining material must be stabilized to prevent more loss and new glass found to match that missing.

Windows composed of more than one layer of glass are said to be plated. One complication in a plated window is that it can sometimes be difficult to know when plating (additional layers of glass) has been eliminated or by whom. The John La Farge window, *Peonies Blown in the Wind* (30.50), made between 1878 and 1881 for Henry Gurdon Marquand's Newport, Rhode Island, residence, and now in the collection of The Metropolitan Museum of Art, had several places where it seemed probable that plating had been removed, since there was still physical evidence on the window of removed plating leads.

One pink cast-glass peony was exceedingly bright and glaring, and from the leads on the back one could see that a piece of plating had been removed. One small petal of the flower still retained its piece of plating behind it. From that petal it was possible to make at least an educated guess that the larger plate had been similar, and then to put on a new plate. In other areas there was no such information, and they were left as they were. It is not known why some of the plating was removed, though there are a number of accounts of plating being taken off American opalescent windows which were considered at some point to be too dark.

Paint

The vitreous paint used on stained glass windows is composed of a low firing glass flux and various metallic oxides, generally iron or copper. After being applied to the glass it is fired in a kiln to approximately 1200° F, at which point the glass flux fuses to the base glass, holding the opaque metallic oxides in place. The paint is used both to control the light and to provide details. Colored glass enamels consist of a lower firing glass flux in which various metallic oxides are either dissolved or held in colloidal suspension, imparting the color. They are usually not as durable as vitreous paints, though the vitreous paint can also fail, due either to a poor composition of the paint, or of the base glass, or to underfiring. Aging and loss are expected, to a certain extent, and have their own aesthetic contributions to make. However, certain losses make a panel very hard to read, at which point one must consider compensating for that loss. The intent is not to make the piece look new, but to make it cohesive where a lack of painted detail is disfiguring. In one panel there may be sufficient information to determine what the missing areas looked like, while in other panels such a determination might be difficult, or impossible.

In a John La Farge panel from the Detroit Institute of Arts (59.170), approximately half of one inscription, "Write me as one that loves his fellowmen," was missing (fig. 8). It was known

precisely what the inscription was and there were still some ghost indications on the glass to guide the layout. A new backing plate of clear glass was cut and painted with the missing half of the inscription. This was fired and then inserted behind the original glass to complete the inscription (fig. 9). The original half of the inscription was then consolidated using Acryloid B72.¹

Lead

The lead has both a functional and an aesthetic role to play. It is used not only to hold the glass together, but also to relate important information concerning the overall graphic design. These lines are usually planned out by the artist and drawn with great care. Losing the pattern or the scale of the original lead network will significantly detract from the effect of the window. As repair leads are inserted to cover breaks in the glass, the original lead pattern is lost and it becomes very difficult to recognize the iconography.

Lead is, in so many ways, the ideal material to hold the glass pieces together, but it has the disadvantage of needing to be replaced every 100 years or so, due to natural deterioration (eg. cracking and fatiguing). At this critical step it is important that the replacement lead be of the same width and profile as the original so that the scale of the window is not adversely affected and painted details along the edges are not covered or obscured.

The fourteenth-century grisaille panel from St. Ouen, Rouen (fig. 10), in The Cloisters Collection (1984.199.1-11), had been re-leaded at some point with a wide flat lead which altered the scale of the lead pattern to the overall design of the window and also covered important details. A band of yellow silver stain runs parallel to the leads, but this effect was completely lost with the wide replacement leads. In the most recent re-leading this was rectified (fig. 11).

Conclusion

The traditional architectural approaches to the compensation of losses in stained glass windows - glass replacement or the insertion of a repair lead - are still in frequent use but are often at variance with basic conservation principles. Glass compensation is not the only concern, the glass paint and lead came network have their own compensation considerations. While some windows are strictly functional, none would be harmed, and many would benefit substantially, from a greater adherence by craftspeople in the field to the methods and philosophy of conservation.

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Cramp, R. 1975. Window Glass from the Monastic Site of Jarrow. *Journal of Glass Studies* (V17): 88-96.

Endnotes

1. Acryloid B-72 is manufactured by Röhm and Haas Company, Philadelphia PA 19105, and is available from Conservation Materials Ltd., 1165 Marietta Way, P.O. Box 2884, Sparks NV 89431, (702) 331-0582.

Figure 1. Map of "conjectural" leadlines. Glass excavated from Jarrow, England.

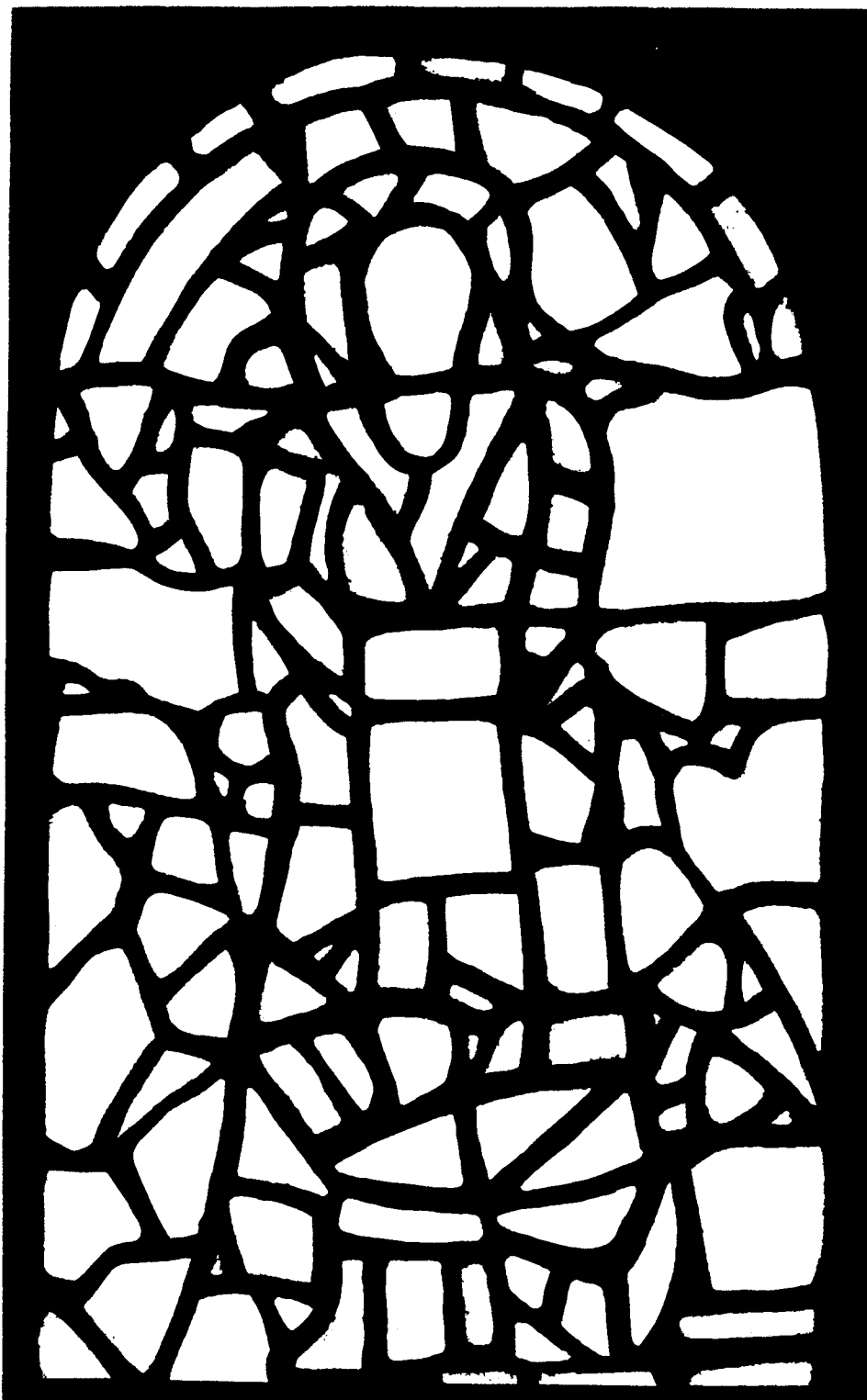




Figure 2. Silver-stained roundel after gap filling, before complete inpainting. The white lines of the fills show how much glass removed after it had broken in order to make room for the insertion of the repair leads. *Ben-Hadid and the Siege of Samaria*, 1525. (MMA, The Cloisters Collection, 32.24.30)



Figure 3. Head of a man inserted on its side and backwards into an architectural canopy section (c.1420), Waasenkirche, Austria. (The Duke University Museum of Art. 1978.20.7)



Figure 4. Inserted head from Figure 3 after cleaning, gluing, filling, and inpainting.

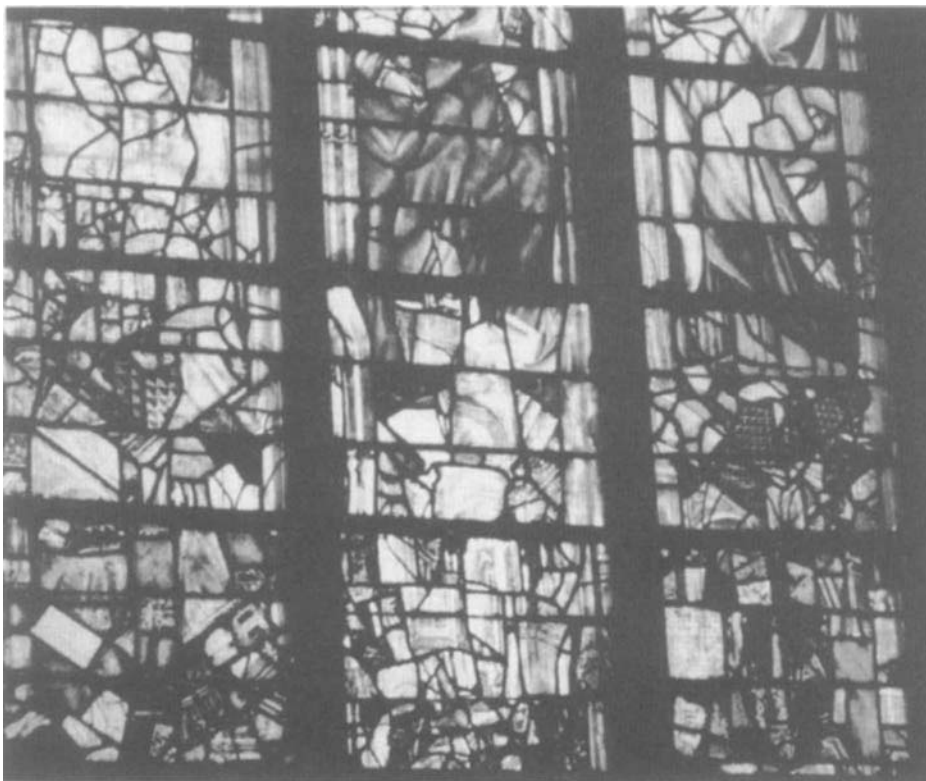


Figure 5. Window made up of glass fragments. Saint Maclou, Rouen, France.

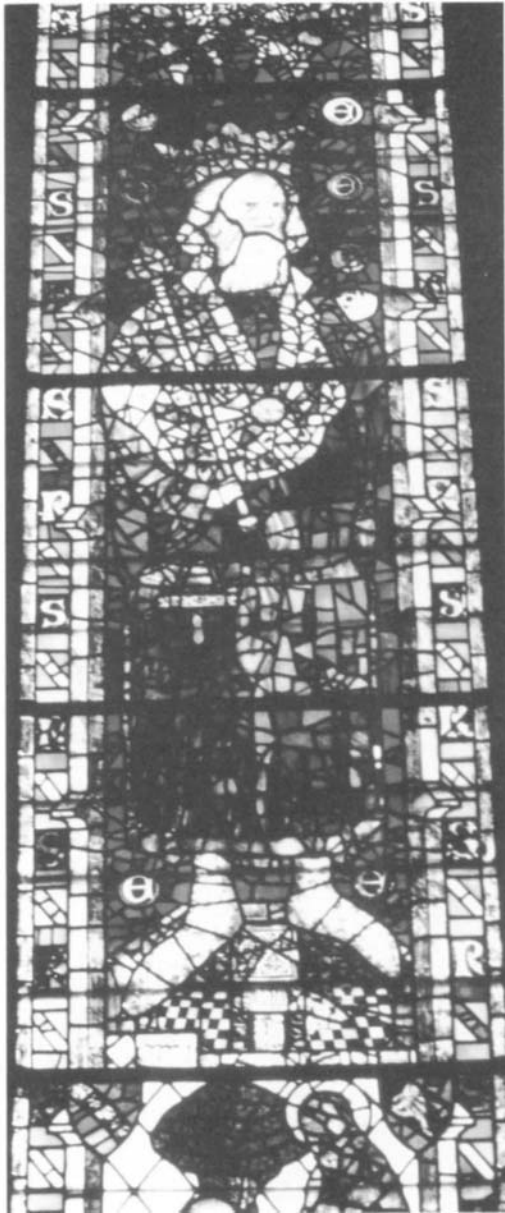


Figure 6. *Edward the Confessor*, York Minster Cathedral, England.



Figure 7. The Virgin's right shoulder is a later replacement. In order to clearly distinguish between the two pieces, they were joined using copper foil rather than an adhesive. *Virgin Kneeling at a Prie-Dieu*; 1552; French. (The Metropolitan Museum of Art, 07.287.12)

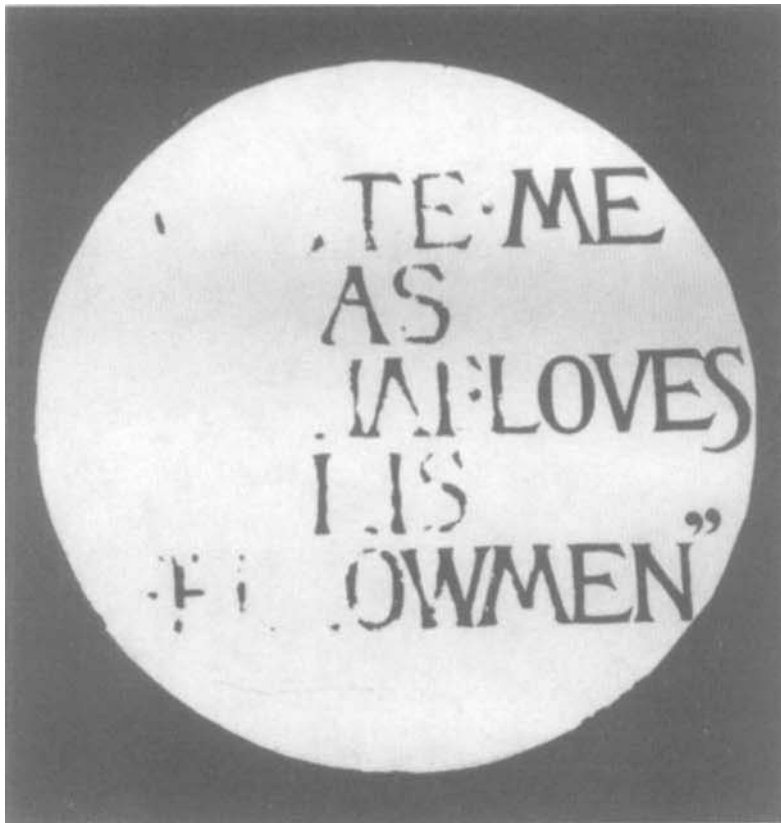


Figure 8. The inscription showing paint loss. *Write Me As One Who Loves His Fellowmen*, John LaFarge; 1889. (The Detroit Institute of Arts, 59.170)



Figure 9. The original inscription together with the backing plate which completes it.

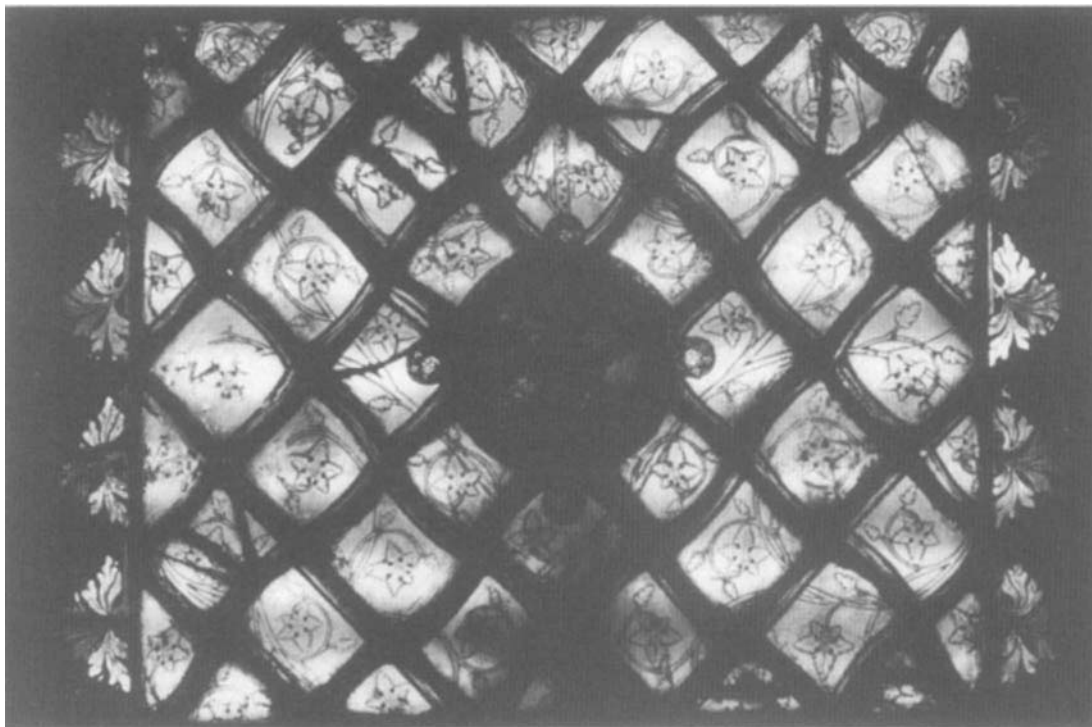


Figure 10. The panel in wide leads before conservation. Note the borders had been attached upside down. Grisaille Panel; 1325; The Abbey of St. Ouen. (MMA, The Cloisters Collection, 1984.199.1-11)

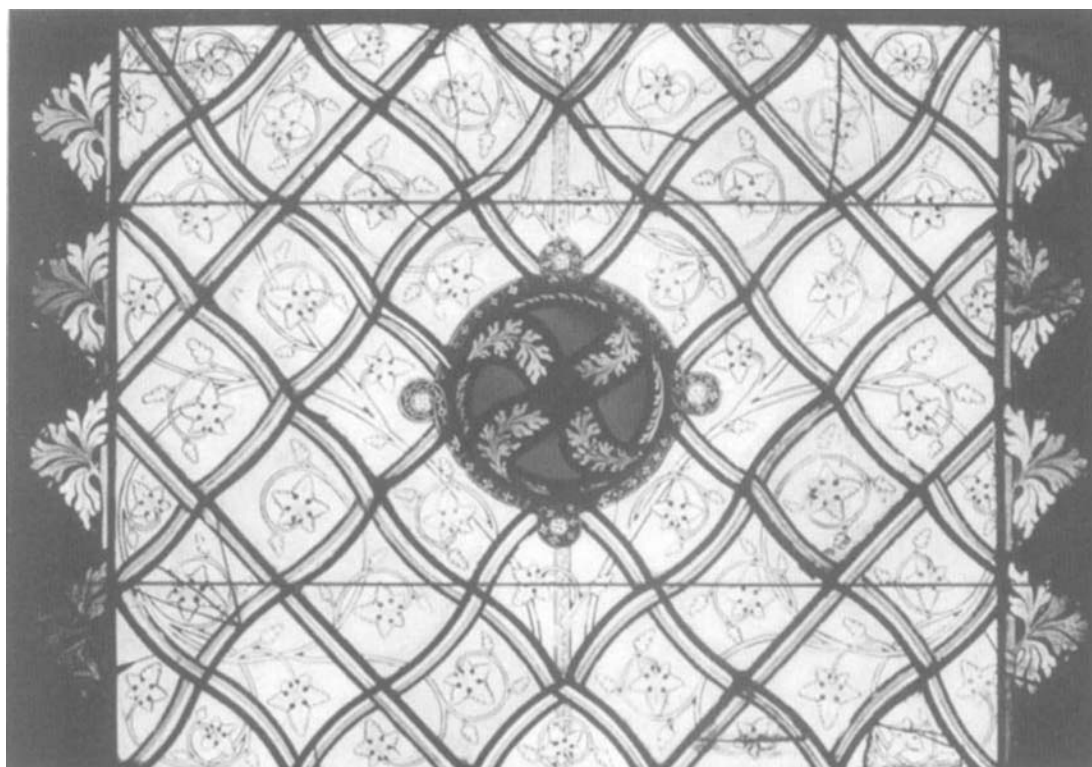


Figure 11. The panel after conservation. It is now possible to see the vitreous and silver stain banding running parallel to the lead lines.

LOSS COMPENSATION IN CONTEMPORARY SCULPTURE

Rosa Lowinger and Donna Williams*

The topic of the general session at the AIC conference in Nashville was "Artist's Intent". In conservation of contemporary art, especially in the area of loss compensation, artist's intent is a key issue in making proper treatment choices, choices that will preserve aesthetics as well as other, unseen results of intent and underlying philosophy.

To discuss loss compensation in contemporary art as a whole appears to be too large a subject. It may seem like talking about compensation of loss in decorative arts or sculpture or ethnographic artifacts in general. The term includes an entire genre with objects ranging in type from the monumental outdoor sculptures of Alexander Lieberman to the ceramics of Kenny Price. Contemporary artists work in a palette of materials that extends from the traditional, such as bronze, to the plastics, postcards, and nylon stockings of the assemblage artists.

As with any work of art, the demands of the material will largely dictate some of the treatment options. However, what makes it possible to discuss this genre as a group is that choices in loss compensation, indeed, the treatment as a whole, is just as likely to be influenced by unseen factors- by the artist's intent- as by the material requirements themselves.

In dealing with any aspect of the conservation of a contemporary work of art one confronts a series of aesthetic and philosophical issues that are fundamental to the work itself. Often these notions run counter to what is considered traditional conservation ethics, which includes the notion that treatments should be carried out with stable, reversible materials, that radical alteration should be avoided, or, indeed, that preservation of the artwork at all is preferable to losing it.

When dealing with contemporary art, what would be considered "radical treatments" are often the norm. Because the very notion of contemporary art means that the genre is alive and changing, conservators need to constantly adjust the approach to loss compensation and treatment as a whole. It is not always easy to do this. In truth, the conservation of contemporary art, especially the issue of loss compensation, can be confusing and leave the conservator with the sense that something other than conservation has taken place in the process of treatment. This is largely due to the inherent conflict that exists between conservation as we practice it, and the nature of artmaking in the late twentieth century.

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It is not unusual, for example, to repair a break in an object by replacing an entire element or to deal with flaking paint by stripping and sanding the entire object. This latter problem is best illustrated by the demands of painted steel sculpture such as produced by Tony Smith or Lieberman. There are also instances where the aforementioned problems in similar objects may be dealt with entirely differently. Consider the treatments of the Tony Smith sculpture against the same problem when it is encountered in a sculpture by David Smith (figs. 1-2). In the case of the Tony Smith, the sculptures are traditionally sandblasted and repainted. David Smith pieces are more often treated in a traditional fashion, with corrosion spots carefully excavated, cleaned and repainted.

As the authors of this paper see it, the challenges that one confronts in the conservation of contemporary art are linked with three distinct issues. The first of these is the radical experimentation with new materials that has taken place in the late twentieth century. This is represented by the work of the late Ed Keinholz, who works in resins, waxes, auto parts, dolls, and a myriad of found objects, or Bruce Nauman, whose early work consisted of experiments with materials such as synthetic waxes, metals, and resins. It is often difficult to know how our materials, reversible or otherwise, will combine with mixtures of materials that may be hard to identify and whose future stability is questionable.

The second issue involves the challenge of working with a living artist, who often has distinct ideas about the preservation of their pieces that run counter to traditional conservation practice. This was the case with the late Donald Judd, or the assemblage artist Bruce Connor.

But it is in the approach to aesthetic questions in contemporary art that the greatest difficulty is encountered. In contemporary art, approaches to aesthetic questions vary widely. Some pieces, such as represented by the minimalist work of Judd and others like him, require perfect, unblemished surfaces, whereas the work of other artists, such as Mark di Suvero or John Chamberlain, incorporate flaking paint, rust, and loss of elements into their fundamental design. Still other artists, which include di Suvero and Tom Otterness, expect a certain degree of "deterioration," even perhaps loss of paint or patina alteration, to occur over the life of a work. The unifying principle among all of these pieces is that in twentieth-century art the appearance of the object is only one of its components. The integrity of the object may be based on philosophical and poetic underpinnings that will surely impact the choice of conservation treatment. It is a challenge for the working conservator to understand the relationship of all the aforementioned factors- the material requirements, the artist's intent, and the overlying philosophical principle of the work being treated.

Of the three aforementioned factors, the one most often discussed in conservation circles is the challenge created by the use of new materials - epoxies, rubbers, silicones, and waxes, the synthetic fabrics, soup cans, metal scraps, and found objects that artists are using to experiment

with in an effort to create images that mirror the contemporary world. Conservators and curators often lament an artist's choice of materials, especially in cases where it is difficult to even sort out what is there. In some of these instances, loss compensation can only be done with whatever will work to give the desired aesthetic. We try to pay attention to the issues of conservation ethics, such as utilizing stable materials, using something other than the original so the repair will be reversible, however, it is often the case that eventually one reaches for whatever works - whatever will bond well to the original materials and provide the desired aesthetic appearance. Often this is some variation on the original material itself.

To be honest, this can leave a conservator accustomed to traditional ethical practice with a guilty conscience. Talking this through with another conservator often provides the best solution because the questions on these objects are being solved communally as conservation itself evolves. Yet fundamental questions arise as treatment choices are made, questions that clash with accepted ethical conservation practice - For example, *should* a different material be used to repair something like a fiberglass or cast resin sculpture? Why would this be advisable? In fact, is the notion of reversibility, of being able to separate out the repair, as important in cases where unstable materials are used in the original work?

In many if not all cases in contemporary art, the material choice of a work is not accidental. The image itself, the content of the work, arises out of the material, from the deliberate or chance decision of the artist that may have, at its outset, nothing to do with the idea of longevity.

In the late twentieth century, the idea of making things to last for years, for generations, forever, runs counter to contemporary notions of the ephemerality of things - cars, computers, architecture, even people. When it comes to compensating for missing sections in the works, our premises as conservators collide with what may be the intended expendable nature of the art itself. The notion that art should last may be holding the artist to a standard that has nothing to do with the world that shaped his or her thinking.

Nowhere is this more apparent than in the case of installation sculpture. Although by definition installations are sculptures that are intended to remain in place for a limited period of time, they are often in need of conservation. One such example encountered by the authors was a temporary, site specific installation by author Williams, entitled *Negotiated Settlement* (figs. 3-4). The piece, which was commissioned at the onset of the 1991 war in the Persian Gulf, consisted of commercial fenceposts and vinyl-coated nylon mesh cloth. It was intended to address the issues of compromise, cooperation, and respect for the unknown - the individual's responsibility to create meaning out of ambiguousness. It was installed for a three month period and was vandalized on two separate occasions (fig. 5). After the first incident, a fifty-foot section was repaired. After the second incidence of vandalism, the artist and the funding agency

made a joint decision to leave the piece standing minus a portion of the fabric rather than remove the piece completely before the completion date. This was decided on, in part, because all available resources for further repairs were spent, and part of the work itself became the situation of the community living with the results of malicious mischief in its midst. This then triggered a response from the community, including the photograph tacked to a section of the fence. Discussions within a family resulted in several family members making a public display of their support for the artwork (fig. 6). In this case, the decision not to repair the piece actually forced the public to confront the meaning of the work itself.

It is not just in the case of installation sculpture that the issues of loss compensation come into question. As in most things, Andy Warhol was part of the vanguard in this area. Some of his sculptural works consist of objects made from a blueprint provided by the artist. There are, of course, a limited number of authorized pieces to be made from the blueprint. One notable series are the Kellogg's Cornflakes crates in the collection of the Norton Simon Museum.

In 1986, when it came time to repair these pieces for installation at the Los Angeles County Museum of Art, the decision was made to conserve the various nicks and chips that the plywood had suffered over the years by filling and inpainting the losses, rather than making new pieces from the blueprint. These objects, which had been constructed by a silkscreener and the museum's preparators and were never touched by Warhol's hand, took on the significance of original artwork.

Working with a living artist usually alters the traditional process of conservation. Often this is advantageous because the artist may provide materials for compensation of a loss. In some ways, Warhol's blueprint can be considered such a "compensation aid". Ed Keinholz provided blue flocking to accompany the *Back Seat Dodge* and Jeff Koons has specified the brand of basketball that should be used to replace the ones in his pieces.

Even artists working in more traditional materials are keenly concerned about the conservation of their pieces. At the UCLA installation of sculptor Tom Otterness, the pieces are constructed of patinated cast bronze with small dangling figures decorating key elements. The pieces are inviting to the touch, and of course, several were snapped off almost immediately. As a result, the artist had his foundry cast a number of the susceptible pieces so they can be replaced as needed. Because the artist has indicated his wish that the patina alter with time, the replaced elements are provided to the conservator without a patina, so that the proper color may be matched at the time.

One dramatic example of an artist's influence affecting loss compensation occurred during the 1986 treatment of a painted aluminum work by the artist Billy Al Bengston. (D. Domergue et

al., 1987) The work, made of airbrushed automotive lacquer over distressed aluminum, was in storage at a museum which planned to restore it in preparation for installation in a new wing. The main damage in question was a two-inch long, D-shaped loss in the center of the piece.

Originally it had formed a flap created when the artist gouged the metal. To compensate for this loss, the artist suggested filling it with a "Japanese style gilded repair," which would have been highly visible. Because of the unorthodox nature of the request, the artist's dealer was contacted. He informed us that this was what the artist always suggested when the subject of loss compensation came up, although no one had actually ever carried it out. But the artist's request had not been made on a whim. Bengston had been trained as a ceramicist and was particularly interested in Japanese pieces. His request was based on his extensive knowledge of the process and was not made on a whim.

The gold repair patch was prepared to match the size and shape of the gap. It was gilded as the artist requested and set in place. When the museum staff assembled to view the finished product, most were sufficiently unhappy with the repair that the artist was contacted to come in and see it. However, before he came in, a traditional repair patch was also made, so that he could have a chance to see both. During the viewing, the lighting of the piece caused the gold patch to radically show. When the traditional repair patch was put in, the piece looked much better and the artist recanted from his original request. In this case the conservator's influence certainly strayed into the artmaking process, not by creating the gilded repair, but by influencing the artist's aesthetic and philosophical choices.

Determining what is a loss and what forms part of a deliberate omission of paint or surface can also be challenging. This is a question that arises in the conservation of the sculptures of John Chamberlain, which are made of crushed and varnished auto parts. Traditionally, flaking portions of these pieces are tacked down and losses are inpainted, even when these losses are directly adjacent to larger areas of loss that were original to the piece. One asks oneself about this when one is setting down a flake on a crushed auto part. And yet it makes sense somehow. The flaking paint, the rusting, and paint loss are the colors and textures of Chamberlain's palette. Though they formed part of the original concept and construction of the sculpture, they are no longer acceptable parts of its ongoing process.

In the case of the works of Donald Judd, the artist maintained strict approaches on how his pieces are to be conserved. The industrial quality of the pieces themselves further dictates, to a degree, how the work should be approached. Some of the qualities of Judd's pieces are very subjective, and without an understanding of what these qualities are, the standard conservation protocol would dictate a totally inappropriate solution, one not in keeping with the artist's sense of what his work should look like.

In one instance, the approach to loss compensation would be to completely refinish the surface; in another situation, even the application of a protective coating would be contrary both to the artist's wishes and to his intent. Within one artist's body of work you have the dilemma exemplified for the conservation of contemporary artworks.

The necessity for loss compensation occurs as a result of damage to a work of art. It is an indication that something must be replaced, that the piece is somehow incomplete. Our last example in this presentation is the sculpture by artist Nam June Paik, titled *Portable God*. The piece is composed of an antique wooden cabinet, a nineteenth-century Buddha altar, worship money, a Samsung TV and Panasonic VCR, and a Zenith TV. We have been asked to address the loss of the cable that connects the VCR to the television. Both of us feel that any standard cable for that equipment will be acceptable. Would it be acceptable to upgrade the wiring as new and better/safer technologies become available? What about the TVs and VCR? Would one replace a broken set only with one of the same model and year? Is a used TV an acceptable replacement? The approach to loss compensation in contemporary art in many instances requires a review of not only the conservation ethics and standards of practice but a review and determination of how, in fact, contemporary art will be treated as an artifact.

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Figure 1. David Smith, *#2 Circle IV*, Private Collection
Philadelphia, PA.

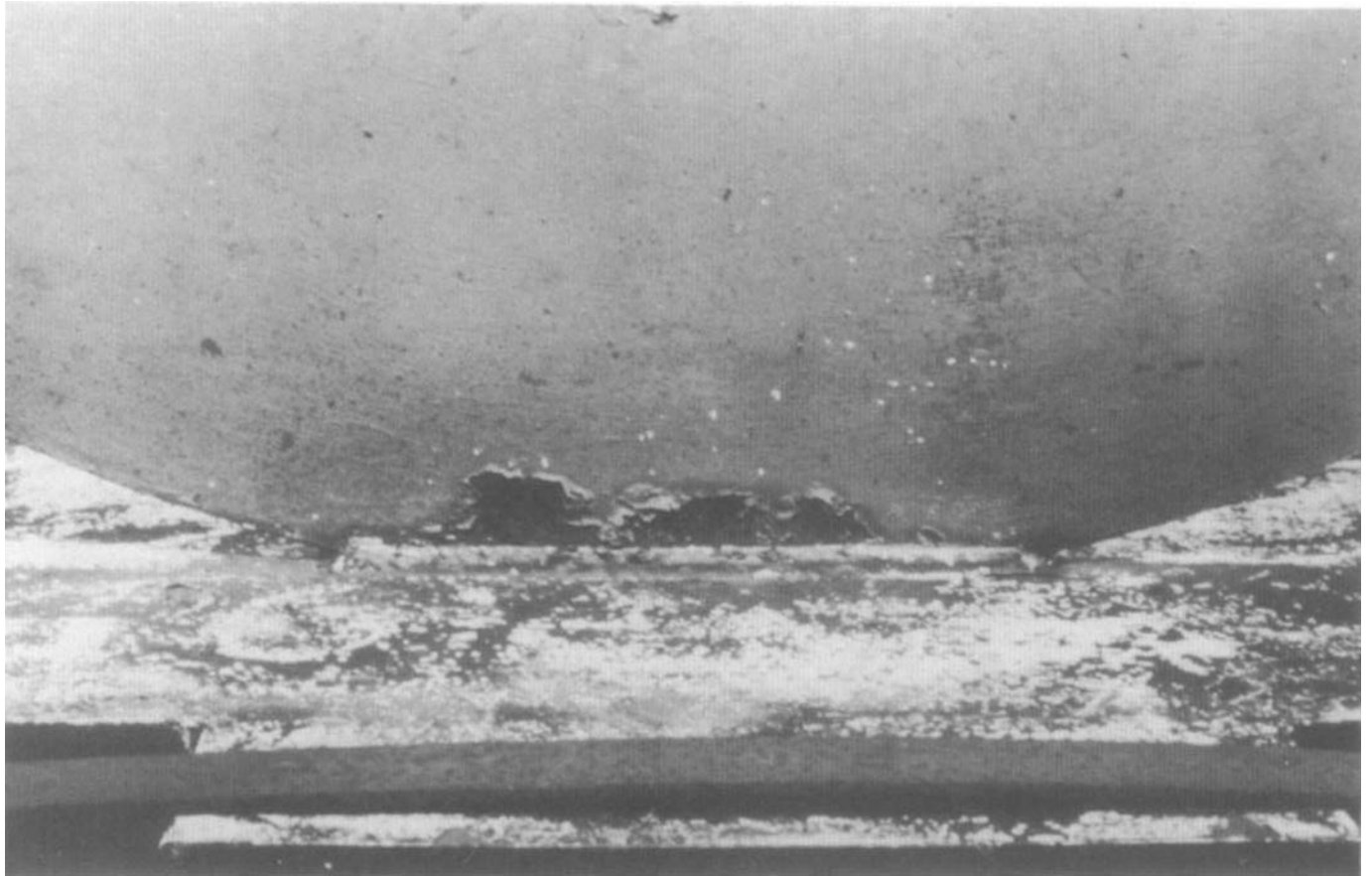


Figure 2. David Smith, #2 *Circle IV*, Private Collection
Philadelphia, PA. Detail, corrosion at base.



Figure 3. Donna Williams, *Negotiated Settlement*, 1991
Site specific installation, Claremont, CA
7' x 125' x 150'
Vinyl-coated nylon mesh, commercial fence posts.



Figure 4. Donna Williams, *Negotiated Settlement*, 1991
Detail of entrance after first incident of vandalism.

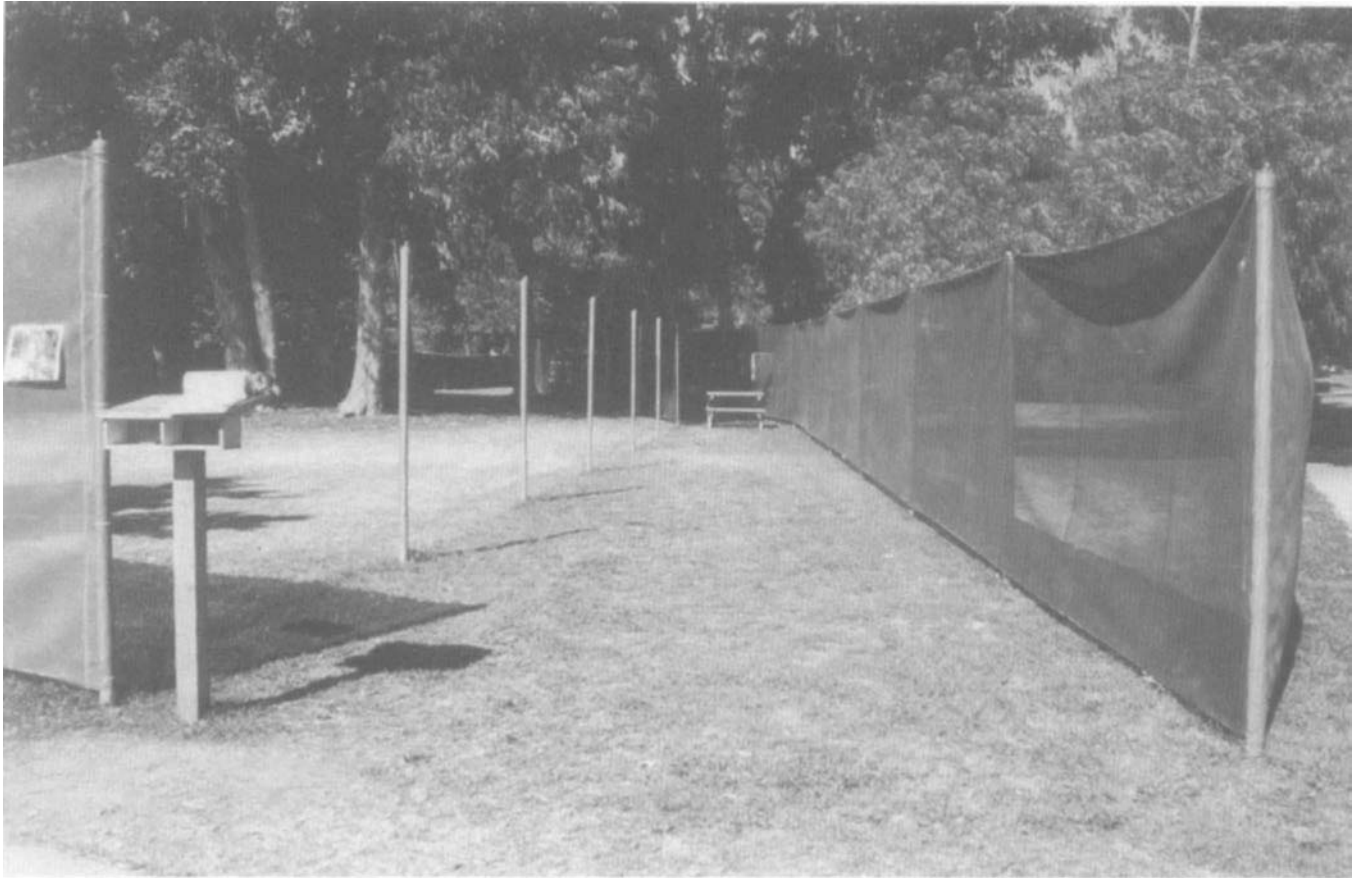


Figure 5. Donna Williams, *Negotiated Settlement*, 1991
Detail of entrance after removal of vandalized mesh panel.
Installation exhibited in this manner until one month later.

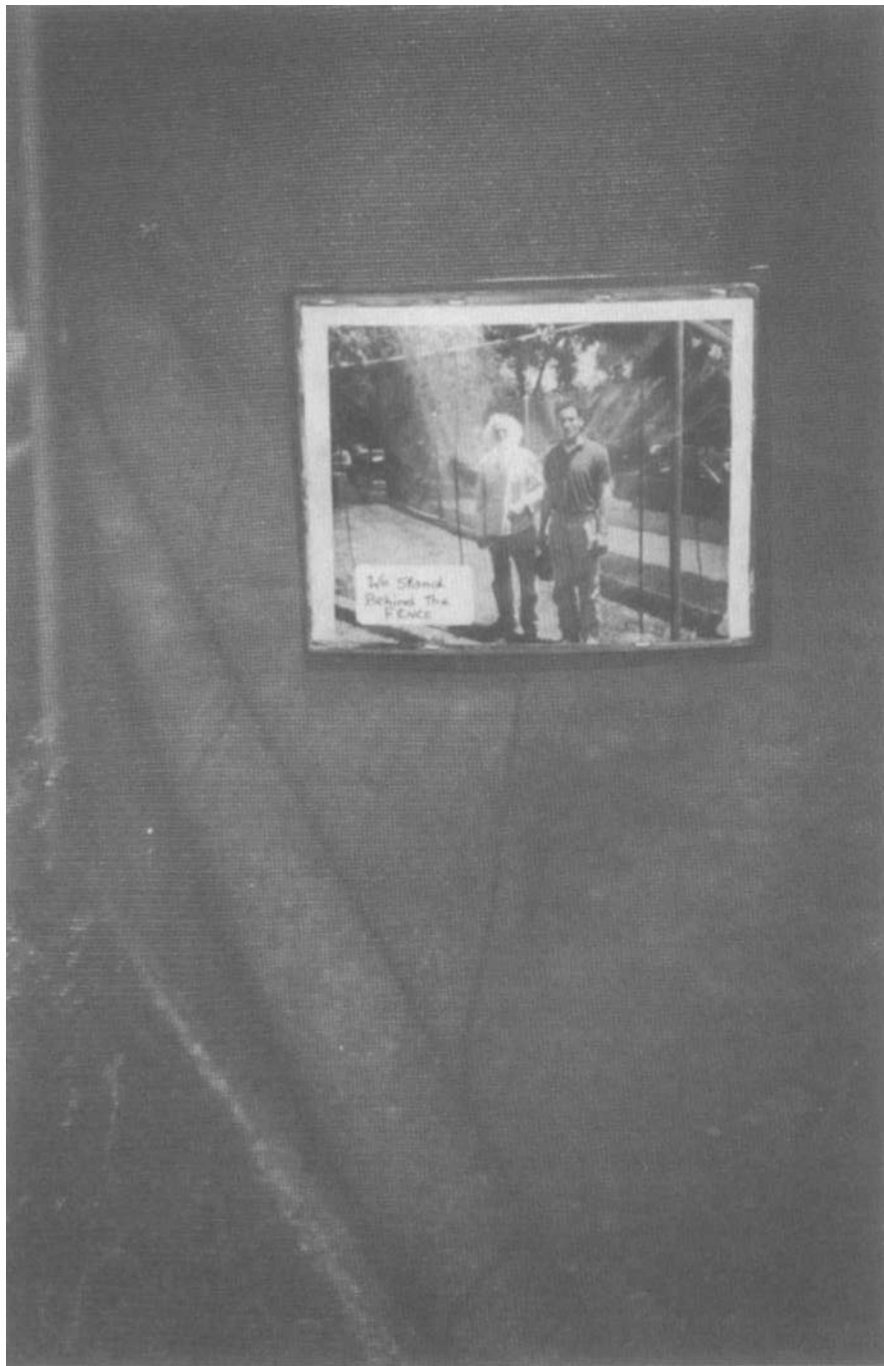


Figure 6. Donna Williams, *Negotiated Settlement*, 1991
Detail of color xerox affixed to artwork by
community members in support of the exhibition.

CONSERVATION OF THE DARNAULT MIRROR: STRIKING A BALANCE

Nancie Ravenel* and Gordon Hanlon**

The Darnault mirror frame (fig. 1) dated 1751, in the collection of the J. Paul Getty Museum, measures 11 x 4 1/2 feet and takes its name from the label of the *marchand-mercier* found on the white painted panel and frame constructed back board. It has an oval opening at the top which formerly housed a canvas painting, and thirteen overlapping gilded wood moldings attached to the back board with screws, which hold the looking glass in place. The frame is flanked by two narrow gilded and white painted wall panels which join the mirror frame's back board with tongue and groove joints. The painted areas had been repainted a number of times, and the gilding was grimy, flaking, water damaged, and covered with overpaint and a darkened glue size. The moldings have been repaired several times in the past, yet the frame retains evidence suggesting it was once an excellent example of the art of French eighteenth-century gilding (Considine 1991). Characteristic of the period is a lively and elaborately carved gesso layer which became evident when the clogged details were cleaned of the overpaint and grime (fig. 2). Carving of the gesso is known as recutting and was executed with hook-shaped tools which cut on the pull stroke, rather than the push stroke as is the case with chisels. Over the gesso is a thin layer of yellow size and, on the highlights of the carving, a red-brown bole. Also characteristic of the period is the sophisticated alternation of matte and burnished areas of gilding revealed after the moldings were initially cleaned. As exquisite as these passages are, other areas are in extremely poor condition with an exposed pock marked, porous, and friable gesso layer. The deteriorated size over the gilding also proved to be fairly intractable where thick. These extremes of condition seriously compromised the mirror's overall unity. The highly deteriorated surface was no longer representative of the French eighteenth-century aesthetic, and the frame could not be displayed in the context of other objects from the same period. The conservation treatment had to re-establish the aesthetic unity for the object to be fully meaningful, yet retain the original material for documentary purposes.

This paper will address the issues involved in the decision making process and some experimentation undertaken for designing a method to compensate surface losses in the gilt wood moldings. The treatment is still in progress, and continues to undergo alterations in technique and changes in approach due to the complexities imposed by the nature of the object and the aesthetic demands placed upon it.

Architectural mirrors were integral parts of the overall room interior which consisted of wall paneling, mantles, tables, and seating furniture. This frame and its accompanying panels are, therefore, a fragment of a larger unified decorative scheme. The curator will be displaying this mirror frame in a gallery setting, placing a console table under the mirror. The table is dated

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about 1750-55, after designs by Contant d'Ivry, and had been gilded by the dealer prior to purchase by the Getty Museum. The gilding on the table appears rather even, and lacks muscularity in the recutting and the alternation of matte and burnish one would expect from gilding of the French Rococo. It will not be necessary to return the mirror frame to such a new appearance, since the curator has asked that the new gilding on the table be altered to achieve a balance among the mirror, the table and a bed which will also be displayed in the gallery. Dated 1750 and attributed to Jean Baptiste Tillard, the bed's gilding is in an excellent state of preservation, and appears to be original with the exception of the highly burnished bands which were recently regilded by applying new leaf over the original layers of bole and gesso. Ideally, the level of restoration required for the mirror would replicate the level of preservation found on the bed's gilding.

Historically, gilt wood objects have been restored in a number of ways. They could be stripped back to the wood and be gilded again. Objects could be regilt whereby losses are filled where necessary and a new layer of gold leaf is applied over the original gilding layers. Regilding can be local, where new leaf was applied over areas of wear and loss. Objects could be regilded entirely where gold leaf was applied over original gesso and bole. In contrast, overgilt objects have new layers of gesso and bole applied over the existing gilding. This method has the disadvantage of obscuring details of the original recut gesso due to the thickness of the added layer. These three methods alter or conceal the original material, and regardless of the models used, the resulting surface will be a modern interpretation shaped by the aesthetic choices of the craftsman, curator, or conservator. Losses can also be compensated by filling and ingilding or by inpainting. Inpainting often simulates the gilded surface but occasionally, where a more archeological approach is permissible, losses are neutrally painted in imitation of the wood substrate or some other layer.

Where the mirror frame was in fairly good condition, it might be acceptable to isolate the losses, fill the areas of deep loss and ingild those fills and inpaint the sporadic pitting with gouache. However, these options might not be acceptable for the areas of widespread pitting, where small islands of gilding are surrounded by large areas of uneven gesso. These areas would require more intervention. They would have to be isolated overall, filled to bring the surface level, coated with new yellow size and red bole, and regilt. Since the amount of original gold leaf left in these areas was so small and our aim was to reunify the frame, would it not be possible to over-gild these areas, provided the new gilding did not clog up the recutting and was of the same appearance as the old gilding?

Traditional methods for compensating losses to the gesso layer using proteinaceous glues and whiting would not be separable from the animal skin glue-based original material on their own, but could be made separable with an isolating varnish. Non-traditional methods which use synthetic materials such as cellulose ethers and polyvinyl alcohols rather than the proteinaceous glues have been amply described in the literature (Adair 1992; Hebrand and Small 1991; Hoven

1992; Serlick 1993; Thornton 1991).

The desired method of compensation would re-establish the visual unity that had been destroyed by water damage and the darkened size layer, but would not alter the clarity of the recutting. The method should be fully separable from, yet compatible with, the original gilding. It had to be capable of providing a soft sheen in matte gilded areas, and a bright shine after being burnished. Since the quality and character of burnish achieved is dependent on the kinds of materials under the gold leaf, the gesso and the bole used to fill areas that will be burnished should be as similar physically to the original materials as possible. Thus, from the start we leaned towards the use of an isolation layer and rabbitskin glue-based gessos and boles rather than those based on the cellulose ethers and the polyvinyl alcohols.

If new layers were to be added to the mirror frame, the new material should be as thin as possible. The desirable characteristics for an isolating layer would be formation of a very thin film and reversibility in a solvent that would not affect the underlying areas.

Arkon P-90, a hydrocarbon resin produced by Arakawa Chemical,¹ was chosen to be tested as a barrier coating because of its small molecular size and its reversibility in mild solvents (de la Rie and McGlinchey, 1990). Its compatibility with protein-based materials was not known. A mock-up of the Darnault mirror's gesso was made by coating a piece of wood with a gesso made from over-cooked rabbitskin glue and calcium carbonate to simulate an aged gesso. When the gesso had fully dried, the mock-up was submerged under running water and dried in a microwave oven, producing a porous and cracked surface. One third of the surface was left unprepared as a standard, one third was painted with one layer of weak rabbitskin glue size colored with a dye, and the remaining third was coated with two layers of the colored rabbitskin glue size. Arkon P-90, dissolved in naphtha, was colored with a small amount of yellow oil paint and was applied to all three areas of the mock-up in three solution strengths, 15%, 45%, and 90%. The coating layers were colored so that the penetration of the materials into the gesso could be traced.

Arkon P-90 was readily absorbed into the control area of gesso, even at the 90% solution. One coat of rabbitskin glue over the gesso was successful at preventing penetration of the 45% solution into the gesso matrix. The rabbitskin glue size appeared to act as a consolidant for the porous gesso below and prevent penetration of the Arkon. At the 45% concentration of resin, it was still possible to apply gesso putty and bole, and burnish the gilded surface without cracking through the bole layer. The 45% solution did not fill the interstices of the carving whereas at higher concentrations of resin, gesso and bole beaded on the surface and the resin filled the interstices of the carving.

The first step in compensating the mirror frame was to document the areas of matte and burnish by taking 1:1 photographs of the moldings -- 63 8x10 black and white prints -- overlay them with mylar, and outline the areas of burnish and added or lost ornament. The documentation not only provided a specific record of the moldings after cleaning, but also would serve as a map for us to follow while applying bole and burnishing. It was decided to compare the aesthetic appearance of overgilding on a barrier coat with selective inpainting and ingilding on a total of three moldings. A lower portion of the mirror's painting frame and the upper most molding would be fully isolated with two coats of rabbitskin glue, followed by a layer of 45% Arkon P-90 in naphtha. Losses were filled with a traditional gesso putty of precipitated chalk and rabbitskin glue, coated with yellow size or with red bole where burnished areas were indicated on the documentation maps. They were then gilded and burnished, but not toned or distressed. The central shell over the mirror was only coated with rabbitskin glue and Arkon P-90 in the areas of loss, which were then filled with traditional gesso putty. The areas of loss in the matte areas were inpainted with gouache, and fills in the burnished areas were coated with red bole, ingilded, and burnished.

After completion of the gilding it was evident that there was not enough of a difference between burnish and matte on the fully isolated pieces. This method of compensation did not perform in practice as it did in theory or on the simplistic mock-up. The layers of rabbitskin glue and Arkon P-90 were filling some of the detail in the carving, which compromised the recutting. Application of what were perceived to be fine layers turned out to be too thick, which obscured the very fine veining recut into the petals and leaves. And, as mentioned before, the flexibility of the Arkon P-90 was not sufficient to produce a burnish comparable to the burnish on the original gilding. If overgilding were continued in this manner, a surface comparable to that on the console table would have been produced on the mirror frame, bearing little resemblance to that of the model, the bed. It was clear that the preferable route would be to inpaint or ingild the matte areas of loss and ingild the burnished areas in order to preserve the aesthetic integrity of the mirror frame and to display the art of the craftsman who produced the moldings. To a certain extent, the object will have to dictate how it will be compensated. The present aim is to make the best match possible by locally inpainting or ingilding, depending on what the area demands. This method is now considered preferable for achieving unity for the whole, rather than globally imposing a new layer on the moldings to force that unity.

The primary dilemma in the compensation of this mirror frame is the problem of aesthetically integrating three objects -- the mirror, the console table, and the bed -- which have similar origins and decorative elements, but have had three separate histories and exist in a range of states of preservation. Society's taste has historically demanded impeccable gilt surfaces. Since these surfaces are prone to dirt and damage, and it is much quicker and easier to regild than to clean water gilding, surviving eighteenth-century gilding is extremely rare. In an ideal world, we would prefer to display the cleaned surface with as little compensation as possible. Constraints imposed by the demand for a high degree of finish, and unity among objects displayed together, challenges our desire to simply present historic material. The compensation

issue goes beyond a choice of method and materials. For this mirror frame, it means finding a balance between the current physical reality of the object and the ideals it is expected to convey.

Acknowledgements

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Endnotes

1. Arakawa Chemical (USA) Inc., 625 North Michigan Avenue, Suite 1700, Chicago, IL 60611.



Figure 1. Darnault Mirror Frame, before treatment.



Figure 2. Detail of right side of frame, after cleaning.

DISCUSSION #3

Summarized by Harriet F. Beaubien***

This discussion session began with a clarification about the use of a superimposed piece of painted glass to compensate the La Farge inscription losses, rather than direct inpainting [VT,MCH]. Because of the relative instability of synthetic resin paints on glass ("cold paint") compared with vitreous paints, Higgins felt this type of separable compensation would be less problematic over time.

The Minai ceramics provided an opportunity to observe the lengths to which our predecessors have gone to reconstruct archaeological pieces for presentation in a fine arts context [EP, VG, TDW, MLC]. Many of these have undocumented provenance and unclear repair history, as evidenced by the complex sequence of fills. Craft showed additional slides and pointed out features of sherds manufactured for fill purposes; she noted in particular the beading up of glaze along their edges and slight differences in craquelure, gloss and color. These carefully crafted fills were reused in subsequent restoration campaigns in conjunction with plaster fills. She also mentioned that fired fill sherds have been used as a compensation technique for other objects, citing Greek Tanagra figurines and vases, majolica and Staffordshire wares.

The high value ascribed to Minai wares has given rise to objects such as one in the Buffalo Science Museum collection, mentioned as an example of a marriage of three or four different pieces [JT]. Disassembled now and mounted as separated pieces (pinned into an Ethafoam support) for a more archaeologically informative presentation, the "bowl" may be included in a possible exhibit about the Middle East antiquities trade which would highlight pastiches such as this.

Contributors to the discussion (listed alphabetically); presentors appear first, marked by an *asterisk:

| | |
|-----|-------------------------------|
| MLC | *Meg Loew Craft |
| MCH | *Mary Clerkin Higgins |
| RL | *Rosa Lowinger/Donna Williams |
| NR | *Nancie Ravenel/Gordon Hanlon |
| VG | Virginia Greene |
| EP | Ellen Pearlstein |
| VT | Valentine Talland |
| JT | Jonathan Thornton |
| TDW | Terry Drayman Weisser |

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