

SMALL CRAFT in MUSEUMS: - RESTORATION vs. PRESERVATION

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Introduction

During the past 30 years, the collection and study of small craft has become an increasingly important part of the activities of maritime museums both in North America and throughout the world. Under the influence of Howard I. Chappelle, John Gardner and others, museums which were traditionally concerned with the history of ships have begun to pay more attention to the role of small craft in maritime history.

This increased interest in small craft coincides with a change in the role of the maritime museum in society. In the past, maritime museums were primarily concerned with collecting and preserving of physical artifacts, a rather conservative, passive and objective role; providing present and future scholars with primary historical information about large ships and their operations was the primary goal.

Recently, the emphasis has shifted towards a more liberal, active, and more subjective posture; direct education (and, to a certain extent, entertainment) of the public is now the primary goal, and small craft have always been the boats of the public, of small maritime entrepreneurs. This educational role necessarily involves the presentation of a significant amount of secondary (i.e. interpreted) historical information.

This shift in focus roughly coincides with a shift from dependence upon private funding to public sources and gate revenues as a means of support for museum operations. While preserving collected artifacts was the primary goal in the past, modern attitudes about the role of maritime museums have brought about an increased interest in the alteration and restoration of small craft in museum collections. These restoration practices are the subject of this discussion.

The Role of the Museum

The primary role of a maritime museum concerned with collecting small craft as artifacts has always been, and remains, the preservation of the shape, materials, and condition of that artifact, and the collection of objective documentation to supplement and amplify the information represented by the artifact itself. Preserving this objective historical information allows the museum itself, and present and future scholars and researchers, to draw their own subjective conclusions and interpretations about the craft in question. Of course, these traditional museum activities don't easily translate into exciting exhibits. As a result, museums with small craft collections have resorted to several measures to increase the appeal of small boat displays, including restoring artifact boats to like-new or in-service condition and maintaining boats in suitable condition for in-the-water or outdoor display to enhance exhibit value.

Restoration

In past years the idea has prevailed in maritime museums that the most desirable strategy for any small-craft artifact hull is complete restoration to original structural and cosmetic condition, that the best way to display such a restored boat is in the water, and that the only reason *not* to carry this strategy out is lack of sufficient funding. Recently, this outlook has begun to be supplanted to some extent by a more preservation-oriented view, but the feeling that restoring artifacts is desirable without reservation still persists in many quarters. Restoring artifact boats is, of course, a time-consuming and expensive process, and therefore it is a treatment usually reserved for only the most historically important boats in a museum's collection.

A complete restoration involves replacing failed components, removing alterations and additions to the original configuration, cosmetic upgrading to like-new condition, and, hopefully, documenting the work performed.

Unfortunately, restoring, altering, and even maintaining artifacts often destroys much of their objective historical value at the expense of increased exhibit value. By virtue of this destruction of objective information these practices effectively give the museum a monopoly on drawing subjective interpretations based on this information. Restorations, even when scrupulously documented, are still subjective procedures, and they deprive future researchers the opportunity to base their own subjective analyses on primary and objective historical material and information.

Repair vs. Restoration

While the word "restoration" is used extensively, few small craft in maritime museums have been truly restored. Restoration, in the strict sense, means just that, returning everything to its original appearance, shape, and configuration. Restoration involves copying the mistakes and deficiencies of the original construction, using the same materials and construction techniques (even if these are more difficult and expensive to obtain and execute than other, possibly better or more practical, modern alternatives). In a strict restoration deteriorated components are reconstructed wherever possible instead of replacing them with new material, in order to preserve as much original structure as possible. The result is often a structure which is not as sound structurally as it was originally, and which may not be suited for use as the artifact was originally used. Restoration to working condition and to original structural strength necessarily involves more loss of original material than does restoration for display purposes only.

A true museum restoration must also be accompanied by careful documentation of the work performed in such a manner that as much information as possible is obtained from replaced or reconstructed components, so that future researchers are certain which components are

original, which are reconstructed, and which have been replaced. In addition, the same sort of documentation standards must apply to restoration of hull shape as to replacement of parts.

Repair, on the other hand, is the restoration of condition, which may be, and usually is, accomplished by using techniques, construction designs, and materials different from those used in the boat's original construction. Repairing corrects mistakes and deficiencies in original construction design, makes use of better materials and methods when possible, and freely substitutes when the original techniques are difficult to execute or original materials are difficult to obtain. Repair involves replacement of deteriorated components without regard for historical value, but with cost efficiency and the relationship of repair cost to repaired market value always kept in mind. A lot of the work that has been done on large museum vessels is really "repair", despite its often being referred to as "restoration".

The Value of the Information in a Small Boat

What is a small craft in the first place? And what information does a small craft artifact contain? For the purpose of this discussion, a small craft is any boat that can be stored indoors, away from the destructive effects of the outdoor environment. Thus, to different museums, "small craft" may mean different things, depending upon each museum's facilities. In any case, small craft are different from ships, in that ships must be kept in the water, in a deteriorative environment, and thus there is no opportunity in most cases to avoid continuous maintenance and periodic major refurbishment; small craft offer a choice.

The information contained in a small boat is a veritable textbook, shedding light on the culture that produced, used, altered, repaired, and eventually abandoned use of that boat. Some of the important aspects of an artifact craft are:

- The shape, size, and proportion of the hull and rig and the characteristics of other propulsive mechanisms Most small craft artifacts have changed shape or configuration to some degree since they were built, either as a result of deterioration or from intentional alteration; the original shape can often be inferred from the present shape - both the original and deteriorated shape have historical significance. To some researchers, the manner in which a boat lost its shape, the conditions which led to that loss of shape, or the construction techniques which allowed it to happen may be more important than the original shape itself.
- The construction design, scantlings, material selection and material usage This information sheds light on the evolution of construction techniques, and reflects on the economic conditions prevailing during the boat's working life. Such small details as the sizes of fasteners and the grain alignment of wood components can provide important information to researchers evaluating construction design. This information is often destroyed during restorations and may be overlooked by museum restorers.

- Condition In engineering terms, an artifact boat's condition is a collection of destructive test information about the boat's hull and construction design, and material selection and usage, which is of great interest not only to researchers but to present-day boatbuilders and designers as well. Repairs, alterations, or restoration work performed by the museum remove or destroy the information which is most interesting in this respect - the failed components. Even if such alterations are scrupulously documented, the museum still assumes the previously-mentioned monopoly on the drawing of conclusions from the information it possessed before the restoration but which was lost during the restoration. There's an element of arrogance here; by restoring a boat, a museum assumes that its present people are more competent than anyone else ever will be at identifying and interpreting the information which will be lost in the process of restoration. The importance of this lost information has been largely neglected by museums with small-craft collections.

The condition of a hull when the boat is first acquired by the museum is particularly important, especially if the boat was recently in service and if no further deterioration has occurred since its removal from service. The condition at this point reveals a lot about the level of maintenance common in the trade in which the boat was engaged, and about the effects on the hull of operation at that level of maintenance.

- Evidence of construction methods Tool marks, pencil and scribe lines, temporary fastening holes, clamp marks, and many other nearly invisible clues can provide valuable information about the techniques used to build a boat. These are often destroyed without being recognized during restoration work.
- Alterations or repairs performed while in service The evolution of a boat after its construction is often as important as or even more important than its original configuration. Altered boats contain much information about the effects of changing economic conditions; many boats made their primary contributions to marine commerce in a configuration other than their original one. A restoration may destroy evidence of a boat's most historically important use by altering it back to its original state.

In many cases, small details present even in a deteriorated hull can help to reconstruct a boat's history when no first-hand documentation exists. Age, place of construction, identity of builder and owners, and usage can often be determined conclusively from the construction design, shape, material selection, or from clues which indicate the construction methods.

Preservation vs. Display and Education

Clearly, maritime museums must balance the need to preserve the important historical information contained in many of their small craft with the necessity to provide interesting and educational exhibits for the public. Restoration of artifacts, to various degrees, is a common technique, and one which provides attractive exhibits. In the case of very important craft,

however, a museum's responsibility for historical preservation often dictates that a boat be preserved unaltered. Severe deterioration, or suitability for restoration, should not necessarily cause an artifact hull (or a potential artifact being considered for collection) to be written off as historically worthless. A number of factors make a hull a candidate for unaltered preservation, among them:

Extreme age Exceptionally old boats, regardless of condition or amount of alteration, have an inherent value which makes preservation desirable, and this should be considered along with other factors.

Proportion of original structure remaining A boat which is in essentially original condition contains more important information about its construction, and more important destructive test data pertaining to its construction design, than a boat which has been altered or frequently repaired. In general, boats which have escaped large-scale repair, alteration, or conversion tend to be those which were well-constructed and well-suited to their original use, and are worth preserving as examples of successful design and construction (This does not mean that all repaired, converted, and altered boats, or boats that are examples of poor design and construction, are not worth saving - some of them are).

Availability of historical documentation Information about construction, usage and the conditions of service, documentation of repairs and maintenance, the history of the particular hull, and the general history of the type makes a boat itself more meaningful, and assists researchers in drawing conclusions about the boat. Data revealing which construction methods worked and which did not have more impact if the conditions to which the hull was exposed throughout its life are known.

Lack of non-service deterioration A hull that is placed in the museum immediately after leaving the service for which it was originally designed is more interesting than a boat that deteriorated during a period of abandonment after its service, or that was converted to another use not related to its designed role. In particular, conclusions about the suitability and soundness of a boat's construction that are based on the observed deterioration of the hull are much more valid if all of the deterioration happened under known conditions and in the boat's regular service.

The existence of similar or identical boats A boat that is the only known example, or the best or most representative example of its type, is more important and a better candidate for preservation than a boat of which many duplicates already exist in museums.

The above guidelines apply primarily to decisions about the fate of boats already "in captivity". There are other things to be considered - most importantly, a boat's historical value, either as an individual craft or as a representative example of a class, a type, or a particular theory

of design or construction. Such other considerations certainly should influence decisions about the treatment of artifact hulls, but they are more properly criteria for deciding whether the boat belongs in a museum in the first place than for deciding its fate once there. Similarly, the guidelines presented above for determining restoration or preservation policy toward artifact hulls are certainly secondary factors to be considered in decisions about the initial acceptance of small craft into museum collections.

The Practice of Preservation

A large number of boats in the collections of many museums meet the criteria for unaltered preservation; their survival to tell their own stories to future generations depends upon how carefully they are preserved. Successful preservation involves a number of necessary procedures:

Documentation The first step in preparing a boat for preservation should be recording its shape and condition as completely as is practical and as soon as possible after acquisition. This step allows loss of shape and structural deterioration which may occur as a result of long-term storage to be distinguished by future researchers from historically significant deterioration which occurred in service.

This recording of the shape (the "taking of the lines") is practiced in a number of ways at different museums, but almost universally, the procedure involves attempted reconstruction of the boat's original shape, either by physically forcing the hull to conform to the supposed original shape before measurement or by graphic reconstruction of the assumed original shape after the measurement procedure, during the preparation of the drawings. The deteriorated shape, which is the only truly objective information available, is often not recorded in any permanent manner. The reconstructed shape, just like the hull of a restored boat, is subjective information - an educated guess of the measurer and draftsman about the boat's original shape. Both the reconstructed shape and the actual, possibly deteriorated shape are important, the former to the student of hull design and naval architecture, the latter to the boatbuilder and the student of construction design.

Similarly, the recording of construction usually involves preparing drawings showing the either the present or the draftsman's best guess at the original construction details. But such drawings rarely show details of deterioration or of failed components.

Maintenance of the Proper Environment Wooden artifacts are best preserved in the driest possible environment. However, changes in humidity, which result in dimensional changes and corresponding stresses in stored artifacts, are more damaging in the long run than moderately high levels of humidity. An environment with the lowest relative

humidity that can be stably maintained without expensive artificial controls is the best storage condition for artifact hulls. High moisture levels in combination with high temperatures are particularly damaging, as biological and chemical deterioration processes proceed faster under these conditions.

Just as changes in moisture content are damaging to preserved wooden artifact craft, such changes are also damaging to boats in use. Traditionally, great care is taken to prevent wooden boats in service but laid up for short time periods from drying out excessively during layup. This is a sound practice which minimizes changes in the moisture content of wood, changes which often lead to damaging dimensional change.

Since those charged with preservation of artifact boats in maritime museums have often been trained in the commercial marine industry, the attitude that "stored boats should be kept from drying out" has, in many cases, affected storage policies for artifact craft in museums. Here, the distinction between preserved artifacts and museum craft in service must be made decisively. Preserved artifacts must be kept in a low-humidity environment, while museum craft in service should be stored in accordance with the traditional guideline of preventing them from drying out.

Physical Support During Storage Just as a moisture content that is ideal for winter storage of a boat in service is too high for a stored artifact, methods of support that are sufficient for seasonal out-of-water storage are often not sufficient to prevent the deformation of the shape of artifact hulls in long-term dry storage. While wood is quite strong and elastic in short-term loading, especially when that loading involves bending, wood undergoes permanent deformation under long-term bending loads far smaller than those that it can withstand without permanent effects in the short-term. Extremely close attention must be paid to providing properly distributed support for artifact hulls that are placed in long-term curatorial storage.

Other Strategies

Not every boat is, or should be, a candidate for unaltered preservation. Various degrees of restoration and several other treatments are possible for museum craft that for one reason or another are not candidates for unaltered preservation:

Restore to original or in-service appearance and/or condition This turns the boat into an attractive and attention-getting display, possibly in the water, possibly even allowing the boat to be used. The restoration process destroys original material and the information contained therein. Restoring a boat to structurally sound condition usually detracts considerably from its historic value. If the boat is to be floated or used, continued maintenance is necessary, which further erodes the boat's objective historical value.

Restore cosmetically This procedure also makes an attractive land-based display with little or no replacement of original components. If done carefully, cosmetic restoration often obscures, but usually does not destroy, the information contained in the hull. There are, of course a number of possible courses of action which fall between a complete museum quality restoration and a cosmetic enhancement.

Maintain in service condition Museums usually have no choice but to follow this strategy for their large ships. The exhibit value of the vessel is maintained at the expense of continual maintenance and periodic major repairs that slowly turn an artifact, (historically, although not legally), into a replica of itself. Important small craft need not be subjected to this treatment.

Repair and put into use This category is reserved for craft that are not considered to be a permanent part of the collection, but that can provide some temporary benefit by being in the water in usable condition. No attempt is made to restore in the strict sense; the boat is put into and maintained in sound operating condition through normal commercial repair and maintenance techniques.

Do not alter The possibilities here range from disposal or complete abandonment in storage, to stabilization and true preservation under controlled environmental conditions along with careful recording of shape and condition at the time the boat is accepted. Under the best circumstances, more historical information is retained by unaltered preservation than by any other strategy.

A boat that is preserved unaltered is not necessarily an uninteresting exhibit, it's just a bit more of a challenge to present it in an interesting way. Although an unrestored boat doesn't have the initial impact of an immaculately restored and highly finished hull, there is a greater depth of information available in the unrestored hull that can be very interesting and educational if it can be properly interpreted by imaginative and thorough exhibit design.

Replication When possible, building a replica is an excellent adjunct to preservation. Not only are the building process itself and the finished replica boat excellent exhibits, but the museum acquires a fully usable boat that has both the operational characteristics and appearance of the original, but that is not itself an irreplaceable artifact. In addition, the research involved in the replication generally adds to the available documentation and understanding of the original, making interpretation of both the replica and the original more interesting. And, of course, the original boat can be preserved in its unaltered state.

Disposal As museums continue to collect small craft, storage facilities are becoming overcrowded. Rather than placing moratoria on new acquisitions, museums must continually weed out their less valuable craft to make room for more significant additions to their collections. This problem won't continue for long in the case of wood hulls- only

a few years remain for the collection of significant numbers of wooden working and pleasure craft.

Conclusions

In order for maritime museums to fulfill their obligations to preserve objective historical information, the unaltered preservation of valuable artifact boats must come to be considered a desirable strategy which should be applied to the most historically valuable boats in their collections rather than a strategy dictated only by financial necessity for boats not important enough to be restored.

The day isn't too far off when the only wooden small craft that were actually built and used for the purposes for which their designs evolved will be either (1) preserved unaltered in museums; (2) restored or extensively rebuilt in museums; or (3) extensively rebuilt, possibly converted to other uses, and in private hands. Of these, only those in the first category will be valuable objective historical artifacts. As working examples of wooden small craft become rarer, the importance of the artifact small craft in museums and the importance of the information which those craft contain will continue to increase. Hopefully a fuller understanding by museums of their long-term roles and the development of better and more far-sighted standards for the preservation and documentation of small craft artifacts will enable those museums to strike the proper balance between interesting, educational and dynamic exhibits and the long-term preservation of valuable artifacts.