



CCI Notes

6/3

Care of Canoes, Kayaks and Umiaks

Introduction

Canoes, kayaks, umiaks and other small vessels have special display and storage problems. Simple methods are often quite destructive. Damage occurs slowly and often goes unnoticed until it is serious and irreversible.

Watercraft were designed to receive the gentle overall support provided by water (Figure 1). When a watercraft is removed from water and placed on a flat surface, the stresses are localized and damage begins (Figure 2). Hulls are built to withstand the compressive forces of immersion. Out of the water, without these forces, the structure is much weaker.

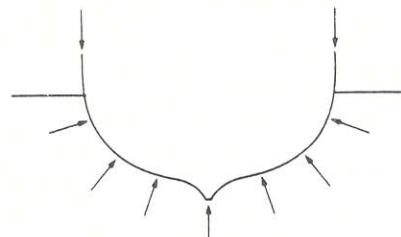


Figure 1.

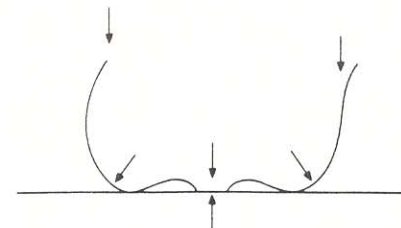


Figure 2

Relative Humidity and Temperature

Wood, skin and bark absorb moisture and are subject to shrinkage and loss of plasticity on drying. To differing degrees, they also expand and contract with variations in relative humidity (RH). Kayaks and umiaks respond to RH changes in minutes while a dugout takes days. Skin-covered vessels in high humidities (greater than 65% RH) can support mould growth. In low humidities the skin cover will quickly tighten and rip or pull away at its seams, and under extreme conditions, will actually shatter the wooden framework. In dugout canoes, substantial cross-grain movement may occur during moisture fluctuations, which can result in checking or propagation of existing checks.

In summary, the relative humidity should ideally be between 45% and 55%. Most important, the RH should be stable because large fluctuations are extremely destructive. Temperatures should remain as constant as possible and should ideally not exceed about 20 °C. (For further information see CCI Technical Bulletin no. 5.)

Waterlogged vessels present a special case, as they undergo serious irreversible damage on drying. If possible, museums should advise those who discover such vessels to leave them under water until the provincial archaeologist is notified and a conservator consulted.

Illumination

Watercraft can tolerate intermediate light levels (maximum of 150 lx with an ultraviolet component of less than 75 $\mu\text{W}/1\text{m}$). However, vessels should not be placed under spotlights or in direct sunlight because heating the surface can cause desiccation and cracking.

Handling

The most important aspect of handling vessels is adequate support. Damage to vessels can occur if the full support of a properly constructed mount is removed. It is thus recommended that vessels be left in support mounts during transport. Use a dolly or wheeled vehicle to transport both the vessel and mount together. If this is not possible, use several people to help maintain even support along the length of the craft. Also, take care not to damage either the vessel or other objects while manoeuvring through storage or display areas.

Display

The ideal mount should imitate the support provided by water when the vessel is afloat. Two basic types can approximate this:

1. Versions of a traditional ship's cradle can be used: a large and complex structure for heavy vessels, or for lighter craft, a simple series of supports shaped to fit the hull (Figure 3). There are four important points to remember about the mount:

- portions in contact with the artifact should be padded;
- it should fit the lines of the vessel;

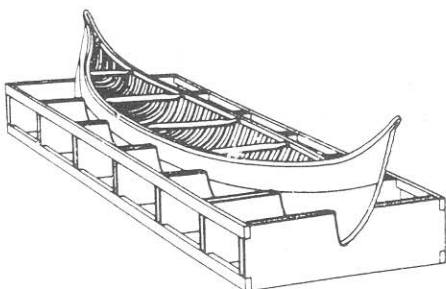


Figure 3.

- it should be positioned under ribs; and
- it should allow for the expansion and contraction of the vessel, which result from changes in relative humidity.

Occasionally oils and fats used to treat the skin of kayaks and umiaks cause a sticky surface that can stick to the support padding. In this case, silicone release paper should be placed between the padding and the object.

2. A simpler method suitable for lighter vessels, is to place the craft in a bed of Styrofoam chips (Figure 4). The chips must be checked periodically for settling or crushing. Do not use this technique for vessels with sticky surfaces.

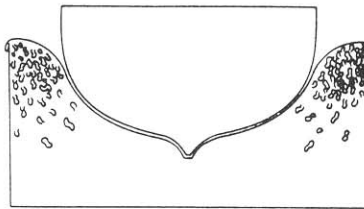


Figure 4.

It is not wise to display a vessel on an angle since the stresses will be unevenly distributed, which frequently leads to deformation (Figure 5).

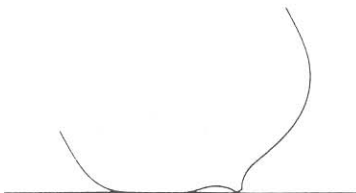


Figure 5.

Storage

Heavy vessels (such as dugout canoes) should be stored in padded cradles (Figure 6). Lighter objects (such as kayaks) can be cradled. They can also be stored upside down, supported on the gunwales with padded supports positioned in line with the deck beams. This allows for rack storage and also saves space.

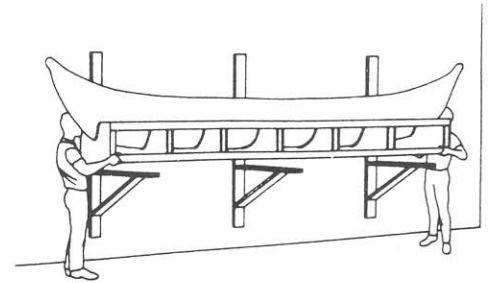


Figure 6.

It must be emphasized that these are only general recommendations; each vessel must be considered individually. If an object is damaged, a storage or display system should be devised to reduce stress on the damaged area without causing stress elsewhere. Particular care must be taken with kayaks, since damage to their frameworks may not be obvious.

Good housekeeping should be practised in the storage area. Vessels should be protected from dust, which can react with moisture and accelerate chemical deterioration. Dust may also attract insects and encourage mould growth. A loose cover of polyethylene sheeting will help reduce dust. If the surface of the vessel is covered with oils and fats, the polyethylene sheeting should be supported so that it does not contact the sticky surface. Collections should be checked for insects at least twice a year, because insects can cause great damage. New acquisitions should be isolated from storage or display areas until it is certain that they are free of insects. (see CCI Note no. 3/1, *Examining for Insect Infestation*).

Cleaning

With a soft brush, move dust gently toward a gauze covered vacuum cleanernozzle.

The repair of damaged vessels (restraint or filling of cracks, for example) should be discussed with a conservator. An inappropriate material or method can cause irreparable damage. For advice, contact the Ethnology Laboratory at the Canadian Conservation Institute.

Suppliers

Styrofoam chips, polyethylene sheeting:
packaging suppliers, suppliers of plastic products or construction materials.

Silicone release paper:
art supply stores.

Further Reading

Canadian Conservation Institute. *Care of Rawhide and Semi-Tanned Leather*. CCI Note no. 8/4. Ottawa: Canadian Conservation Institute, September 1983.

Barclay, R.L., R. Eames and A. Todd. *The Care of Wooden Objects*. Technical Bulletin no. 8. Rev. ed. Ottawa: Canadian Conservation Institute, 1982.

Canadian Conservation Institute. *Examining for Insect Infestation*. CCI Note no. 3/1. Ottawa: Canadian Conservation Institute, 1986.

Lafontaine, Raymond H. *Environmental Norms for Canadian Museums, Art Galleries and Archives*. Technical Bulletin no. 5. Ottawa: Canadian Conservation Institute, 1979.

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by the Staff of the
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Copies are also available in French

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