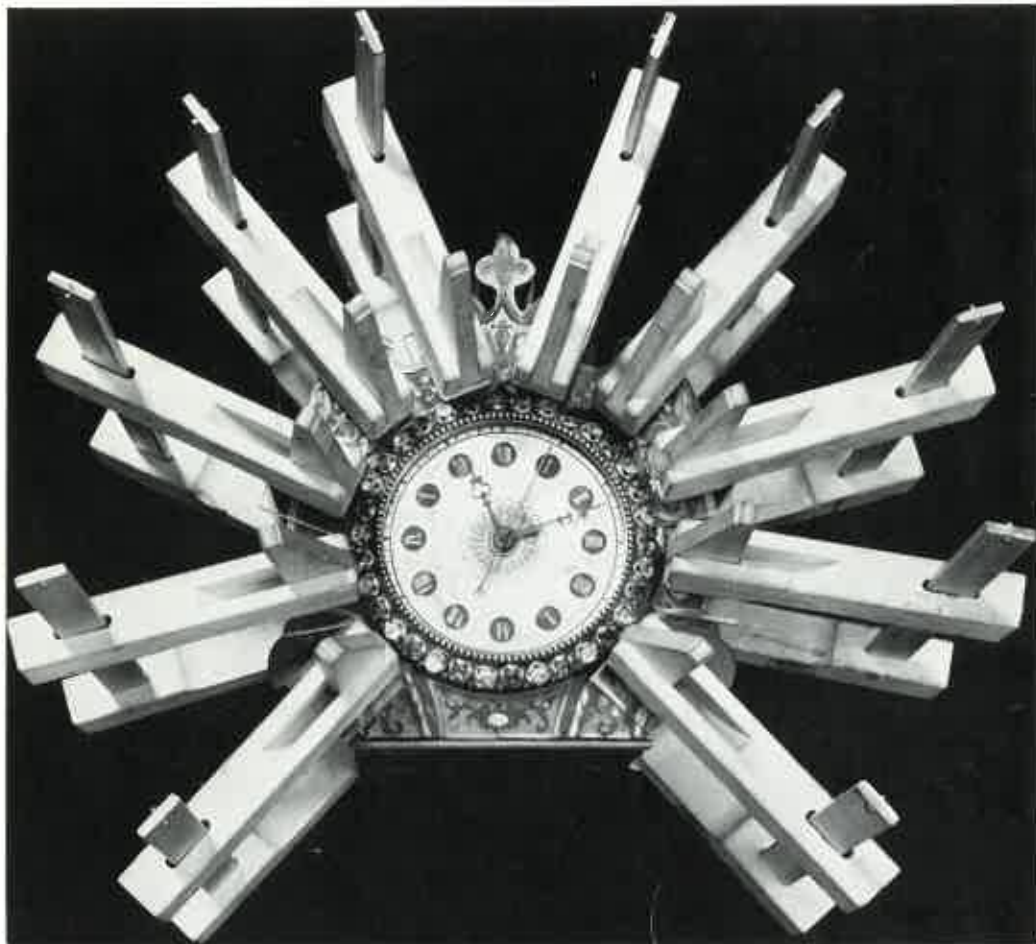

The Care of Wooden Objects



Canadian Conservation Institute

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TECHNICAL BULLETIN No. 8

The Care of Wooden Objects

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Abstract

This Bulletin provides guidelines for the general care of wooden artifacts that fall within the concern of the museum curator. All aspects of care are described, from the initial acquisition by the museum, through cleaning and maintenance, to correct storage and display. Emphasis throughout is placed upon straight-forward and basic conservation which can be practiced by all museum personnel. Lists of supplies and references are included.

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1. INTRODUCTION

This Technical Bulletin describes the proper handling, documentation and treatment of wooden objects within the museum environment. It is a common assumption with objects of wood—particularly furnishings—that any person can, and should, be encouraged to step in and act as a “Mr. Fix-it”. Much harm results from this domestic approach to wooden objects, as inappropriate repairs and “restorations” are often carried out with no documentation and little thought for the historic and aesthetic value of the artifact.

Like all other museum objects, artifacts made of wood are subject to damage in a number of ways: the inadequacies of the physical environment, careless treatment during storage and display, or misguided but well-intentioned attempts at cleaning and repair. All these aspects of the care of wooden objects are discussed here, with a list of easy-to-obtain supplies and a bibliography for further reading.

2. HANDLING

Museum objects made of wood range in size from the smallest jewelry box to full-sized sailing ships. It is difficult to establish clear-cut guidelines for the handling of objects encompassing such a range of sizes. Common sense is the best guide when moving any object.

All artifacts are handled at some time; any museum worker with the responsibility of handling these objects should be made aware of the need for care. Others with access to artifacts (cleaning staff, security guards, truck drivers) should also be instructed not to touch or tamper needlessly with them.

Researchers interested in Canada’s material history use artifacts for study purposes. Although handling of artifacts with care might be assumed in this case, the importance of proper methods cannot be overstated. Improper handling is the single greatest cause of damage to artifacts.

2.1 Basic Ground Rules for Handling

Only authorized personnel should be allowed to handle objects and they must be aware of the hazard and familiar with the methods of handling. Understand the problems of handling and have the courage to tell even a museum Director, “Hands off!”

Following are basic guidelines for handling artifacts:

1. Never handle anything unnecessarily.

2. Never try to move a large piece of furniture alone. Even with smaller wooden objects, try to work with someone else whenever possible.
3. Before moving any object, make sure you know where it is going. Prepare an area with soft padding—like foam plastic—on a firm, level surface to receive the object.
4. Check whether the route is clear and no obstruction, such as narrow doorways or other openings will hinder safe movement.
5. Never hurry.
6. Always grip the object firmly with both hands.
7. Never slide or drag a heavy object along the floor. Vibrations can loosen or break joints, feet can be chipped, legs broken.
8. Whenever possible, use trolleys or dollies for transporting heavy objects. Carry small objects in a tray with high sides and lined with thin foam or blanket material.
9. Do not try to lift anything which is too heavy.
10. Never lift a heavy object like a chest of drawers or bookcase by the cornice around the top.
11. Always take a firm, well-balanced grip on an area which is capable of supporting the weight of the object.
12. Before moving any object, check for and remove detachable pieces; i.e., drawers, lids, pediments. Check for broken pieces; collect, label and keep with the object.
13. If a tall object is unstable, lay it on its side if possible; but if it is round, always wedge it with some soft material to prevent rolling.
14. Remember that pieces of sculpture originally designed to be fastened to a heavy base may be unstable without it; handle with appropriate care.
15. Place soft blankets and padded wood blocks under an object when working upon it.
16. Wear disposable cotton gloves when handling objects, *except* in cases where the gloves might slip or catch on loose pieces. Dress comfortably and don’t be afraid of getting dirty.

17. Attach padding to corners and edges of large pieces, but never apply adhesive tape to any painted, varnished or bare wood surface.
18. Never lift an object by its handles, or chairs by their backs or arms.

Always check relative humidity differences if an object is to be moved from one building to another. If the difference is in excess of 7%, acclimatize the object by completely wrapping it in foam and blankets and leave it for several days after the move before slowly unwrapping. If the wood has a thick cross section in any place, it is advisable to leave it wrapped for a longer period so that it can adjust *slowly* to the new environment. Damage is certain to occur if a wooden object is moved directly from one level of relative humidity to another without buffering.

Finally, handling wooden museum objects requires a special attitude; in general, the activity should be carried out at a slower pace. Anticipate difficulties; think through every step; plan ahead. Do it with care.

2.2 Supports

Beyond the actual physical movement of artifacts lies the important consideration of the position in which they are left. When a wooden object is finally set down, it must be properly supported in order to prevent distortion due to weight on a basically elastic material. Whether in storage, on exhibit, in transit or being worked on, wooden objects must be placed carefully on adequate supports. (See Figure 1)

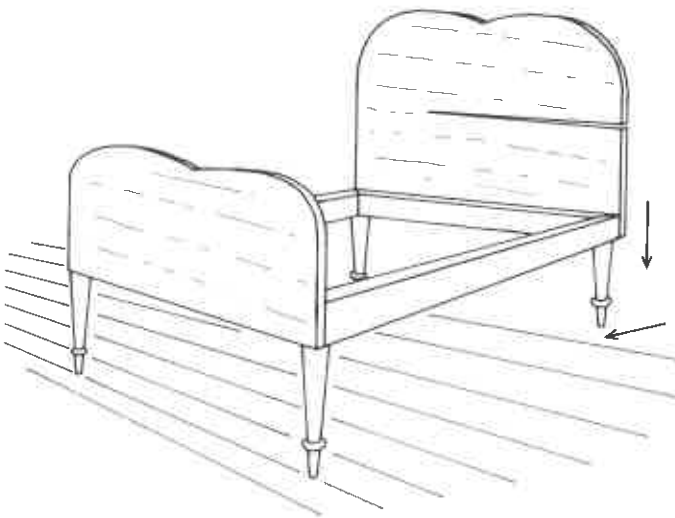


Figure 1: Storing objects on an uneven surface causes distortion and possible damage.

Again, this is a matter of common sense. Every object is different and therefore each support must be tailored to suit the individual artifact. The fragility of birch bark canoes is obvious; their supports must be designed and engineered to accommodate tension, weight and delicacy.

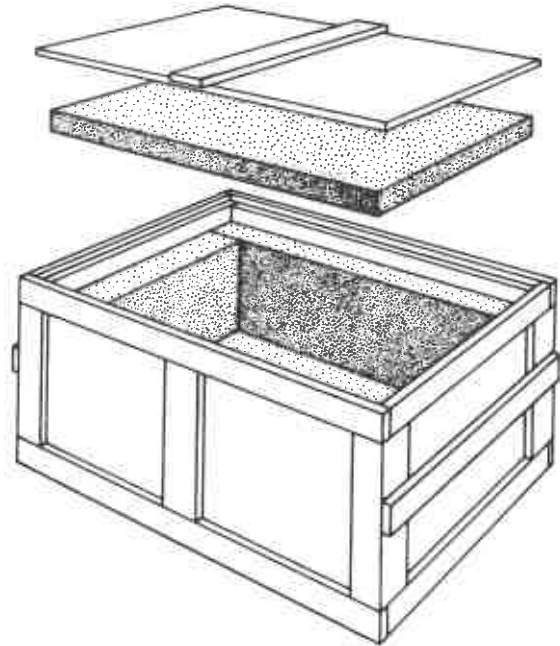


Figure 2: Ideal wooden box for transporting medium-sized objects. Details of construction may vary between boxes.

Always ensure that materials are compatible, that protection is provided and that the artifact is comfortable.

Supports for artifacts in transit can be very elaborate. With particularly fragile objects, they must be. Reference should be made to the specific texts on the subject (see bibliography) if a fragile and valuable object must be shipped. Basically, packing for shipment must protect the object from shock, crushing, puncture and vibration, as well as changes in environmental conditions. A stout wooden box is essential. (See Figure 2.)

The object should be: 1) covered with moisture-absorbing material; 2) wrapped in shock-absorbing material such as bubble pack, cotton batting or a thick blanket (the latter two also contribute to moisture absorbency); 3) covered completely with a layer of polyethylene sheeting; 4) packed in the box, surrounded by foam material for more insulation and cushioning.

Secure the lid with screws—not nails—and provide detailed instruction for unpacking.

3. CONDITION REPORTING

The identification of the type of object in question is seldom a problem and certainly not one which could be

covered here. This section concerns itself more with generating an understanding of certain aspects of wooden objects which might escape detection during treatment to the detriment of the object.

3.1 Examination of Object Before Treatment

Before any cleaning treatment—no matter how superficial—is applied to an object, it is essential to have a knowledge of how effective it will be.

For example, in cleaning an artifact:

- Where does the dirt stop and the surface of the object begin?
- Is the cleaning process going to stop at just the dirt?
- What sort of surface are you trying to achieve by cleaning?

Questions like these are not easily answered by any amount of written advice; it is up to the individual concerned to make the necessary decisions with regard to any treatment. Some useful advice is summarized below, however, and while far from complete, will help the reader consider some important aspects before treatment of an artifact.

- 1) Before cleaning a wood surface, look carefully for any inscriptions or other information which might possibly be removed by incautious cleaning. Pencil signatures of makers can be found on bare wood parts; inks or paints used to colour the wood may be fugitive; deposits in wood cooking-vessels may give a clue to their use; or deposits of dirt may indicate the way in which an artifact was held or used.
- 2) Before glueing a damaged area, clean it well and check that it has not been repaired at an earlier stage. Note all features of interest like old repairs, presence of old glue, or other items in your treatment notes.
- 3) Examine the piece thoroughly for evidence of changes during its use. Furnishings often have later hardware added: strengthening pieces and extra rails are attached to chairs; cabinet maker's tools are altered during their working life; decorative pieces are embellished with added decoration or, alternately, made plainer.

Wood is a tractable material. In use over a period of years, it cannot help but bear the marks of this use, whether these be intentional changes to structure and shape, unintentional marks of ordinary wear or evidence of accidental damage. Look for these marks, record them meticulously and try to leave them intact if they are

considered significant evidence of the artifact's history of use. The whole question of how far to go—how much to do; what to leave undone—is an open-ended one, and a decision to proceed must be at the discretion of the individual concerned.

A thorough examination of the object must be made and all features of it which are considered of interest should be noted.

A few small tools will aid in this examination:

- dental mirror
- flashlight
- tweezers
- magnifying glass
- mounted needle
- camel hair brush

Use the instruments carefully to avoid damage to the object upon which you are working.

3.2 Documentation Before Treatment

All information derived from the examination of an object, including such simple things as its dimensions, should be written down in the form of a permanent record. Records should also be kept of *any* work done on the object, even of such a seemingly straight-forward process as cleaning.

A cross-referenced card index system should, of course, be kept for the whole collection. This can be used to refer, in turn, to more extensive condition and treatment records filed elsewhere.

During examination, photographs should be taken and diagrams and drawings should be made of all notable features. Photographic equipment may not always be available to the curator but, in its absence, accurate line drawings in stable black ink on white paper or drawing film provide an excellent substitute. In many cases, a drawing is worth far more than a photograph. Maker's marks, labels and inscriptions can be copied onto thin tracing paper using a very soft pencil lightly applied and then inked in, transferred later to drawing film or paper as desired. Thorough examination and documentation, both graphic and descriptive, is extremely important.

4. STORAGE AND DISPLAY

The following notes on Storage and Display, and Care and Treatment, cover the majority of problems encountered in the average collection of wooden objects. If there is any doubt about the need or desirability of treatment, or the ability of the individual to perform that treatment, professional help should be sought.

For both storage and display of wooden objects, it is critical that the total environment provide objects with adequate protection. This comprises: the relative humidity (R.H.), temperature and light levels; mode of storage and display; and protection from moulds, fungus, insects and dirt.

4.1 Atmospheric Conditions

4.1.1) Relative Humidity and Temperature

Generally, for wood and other organic material, a relative humidity of 45% at 20°C is the optimum value. In practice, it is more realistic to suggest a range of R.H. values; for Canadian conditions, this is generally agreed to lie between 35% and 55%.

Large fluctuations in R.H. can have disastrous results upon objects made wholly or in part of wood, because water is absorbed from the air by the wood when the humidity is high and given back to the air when the humidity is lower. This exchange of moisture results in movement of the wood—swelling and shrinking—which can be very damaging. Often, if a piece of wood is free to move—for example, the loose bottom of a drawer—it will suffer no damage because its movement is not restrained. However, if wooden parts are closely joined, and especially

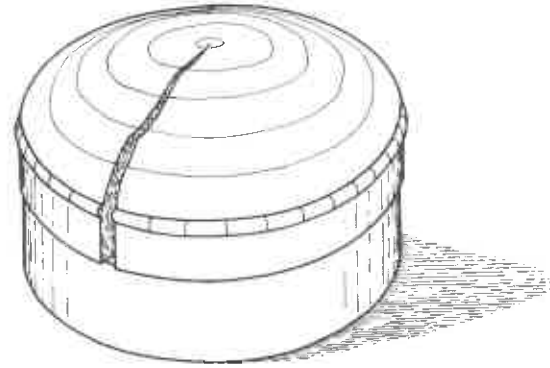


Figure 4: Shrinkage crack in an object turned from a whole section.

if their respective grains run contrary to one another, free movement will be prevented and cracking and warping will result. Differential shrinkage of this kind is most often seen in table tops and other flat surfaces where long boards are used for the main structure and short “capping” boards are attached across the ends. Inevitably, the boards will shrink across their grain and become damaged by restraint of the end pieces. (See Figure 3.) If veneer is laid over this sort of structure, cracking and lifting of the veneer along the lines of stress will be seen.

Movement of wood will have damaging consequences wherever joined wooden objects are subjected to fluctua-

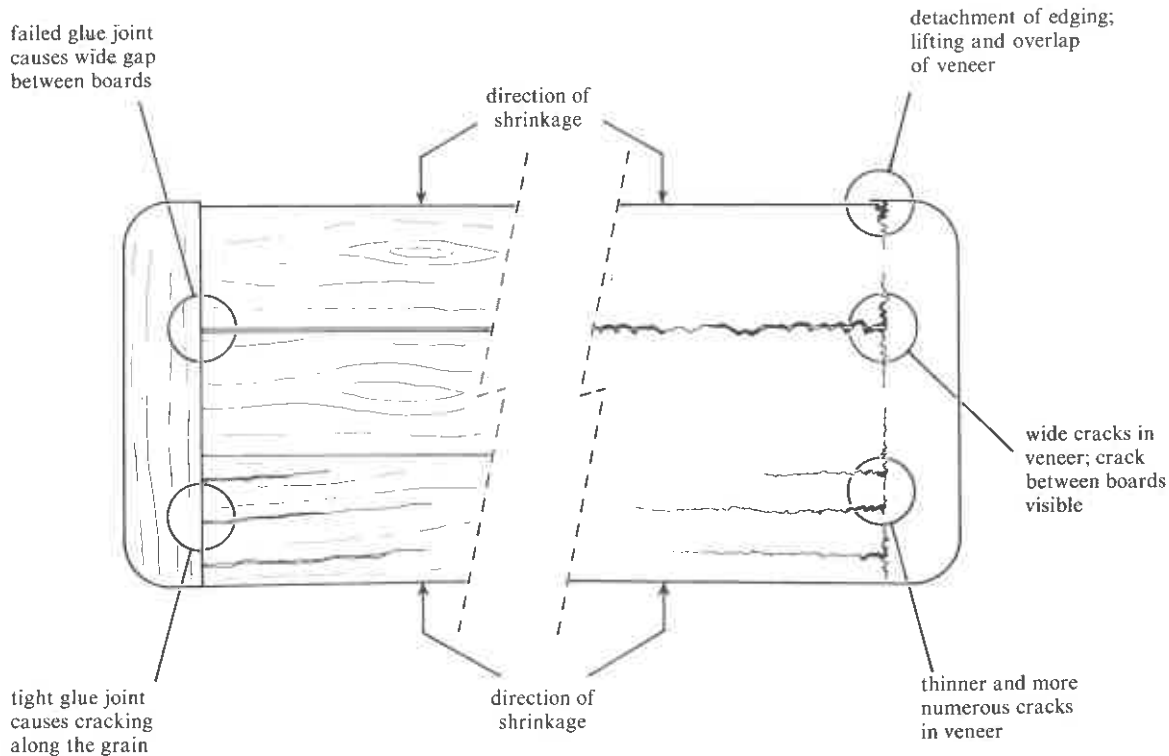


Figure 3: Example of the kinds of damage caused by capping board on a table top.

tions of humidity. Even under ideal conditions, fresh wood parts—especially those made from improperly dried stock—will lose some of their moisture and shrink in the process. Wooden parts made from cross sections of whole branches will very often show radial cracks running from the centre out to the edge. (See *Figure 4*.) Turned wooden bowls, round box lids and other items of this sort are often cracked in this way. It is a rare wood sculpture that does not show some signs of normal drying and shrinkage. Generally, when the humidity level is close to the range recommended here, this kind of damage can be kept to a minimum.

Metal and mixed artifacts

On the other hand, metal objects are best kept in a drier atmosphere because water vapour in the air is partially responsible for initiating corrosion. Other objects present special problems with regard to humidity levels, in that the variety of materials used in their construction suggests more than one specific humidity level. Clearly, in the case of objects where both metal and wood components exist, such as a cabinetmaker's plane or a flintlock pistol, compromise is indicated. If such a balance in the relative humidity level is necessary, as in the above examples, then it is preferable to bias conditions in favour of organic substances like wood, whose dimensions and physical characteristics are greatly influenced by the moisture level of the environment. Metal components will generally give no problems at a relative humidity near that optimum for wood and organic materials, but they should be periodically observed for slight changes.

With wooden objects, it is important to remember that the actual level of R.H. is not as important as its stability. Rapid changes in relative humidity cause the most damage to wooden objects. The solution is properly constructed display cases and storage facilities with accurate control of humidity and temperature. Where it is difficult to control humidity effectively, it may be necessary to create a "microclimate": the objects in question are kept in polyethylene bags to which have been added packages of prepared silica gel. Further information on this is provided in the bibliography.

More detailed information on climate control is contained in CCI Technical Bulletin No. 1, "Relative Humidity: Its Importance, Measurement and Control in Museums" by K.J. Macleod.

4.1.2) Air Cleanliness

Airborne chemical and particulate matter, most prevalent in industrial areas, can be excluded partially from a collection by ensuring that most items are kept in cupboards or drawers with close-fitting doors or in correctly

constructed display cases. Some airborne chemical pollutants, in the presence of moisture, can cause corrosion of metal fittings and other parts. This is especially so in maritime areas, where salt can be carried in solution in the airborne water. Metal parts on composite objects, where there may be a majority of organic materials requiring a higher relative humidity, must be checked periodically.



Figure 5: Ideal storage drawer for small objects.

Larger dust particles which have a disfiguring rather than damaging effect can be easily controlled by regular and efficient housekeeping. If any decorating or construction work is to be done in the display or storage areas, make sure all artifacts are removed or covered with sheeting as a protection against dust and splashes of paint. Old hospital or hotel sheets are useful for this; make sure that they are well washed—but not bleached—before use.

4.2. Mode of Storage

Because of the variety of physical sizes in the average collection of wooden objects, adequate storage is often difficult to organize effectively. The following guidelines should provide at least an introduction to the problems and a suggestion for their convenient solution.

Small objects are best kept in drawers lined with small size bubble pack sheeting or Microfoam. (See *Figure 5*.) Be sure to obtain a stable, nondegradable plastic foam sheeting. Objects should be arranged so that their long axes lie at right angles to the drawer front in order to minimize rolling and sliding when the drawer is opened and closed. They should be arranged in order according to their size and each drawer should be labeled with its complete contents. Drawers should run freely, and have locks. Preferably, they would be made of enamelled metal. Wood drawers are a very acceptable substitute, but steer clear of composition boards which are sometimes cemented to-



Figure 6: *Ideal storage shelves for medium size objects. Note the top shelf is not used for storage; it is there to protect artifacts. Also, the lower shelf is raised off the floor if the shelves are located in the basement. Dust flaps are shown rolled up in this illustration.*

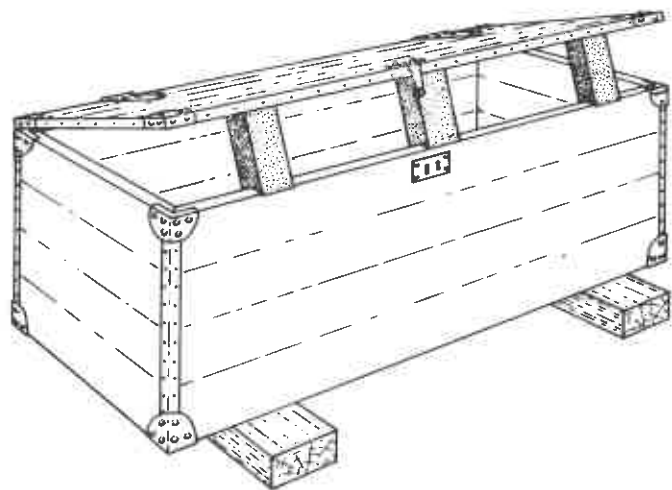


Figure 7: *A chest raised on blocks, with blocks of foam plastic to hold the lid open. A lid support of this type should be checked periodically to ensure that there is no distortion.*

gether with very acid adhesives. The use of wood components in storage facilities, and also the use of cellulose packing materials in drawer linings, has been advocated as an aid to buffering changes in relative humidity. While it is not absolutely necessary to provide buffering materials of this sort, or indeed to construct the facilities from a material like wood which has these properties, their use can certainly be recommended.

Medium-sized objects may be kept in large, shallow vertical cupboards or on flat shelves. (See *Figure 6*.) Padding for all supports should be made from Microfoam or thick, soft felt wrapped with polyethylene sheet. If flat shelves are chosen, the object must be laid so that the greater part of its surface is in contact with the padding. Padding for flat shelves should be similar to that recommended for drawers. Padded shelves should not be used for upright, small-based objects: it makes them unstable.

Large objects, like most pieces of furniture, should be kept at floor level, although if they have flat bottoms—as is the case with blanket chests and trunks—they should be raised on padded blocks to allow free air circulation. (See *Figure 7*)

It is essential that all stored artifacts be easily accessible and that an artifact may be taken from storage without the necessity of disturbing others. To this end, shelves and cupboards should be shallow and the spacing between shelves wide enough for easy access. All objects should be lifted from shelves, not slid out sideways.

4.3 Mode of Display

Small artifacts should be displayed in glass cases, if possible. Mounts and supports can be made from a variety of relatively inert materials, such as acrylic sheet, and objects can be suspended with securely fastened monofilament nylon line. The design of display cases and supports for artifacts falls outside the scope of this bulletin, but sources of information on the subject are given in the bibliography.

It is not only impractical to display large pieces of furniture in cases, but to do so might detract from their appearance. Therefore, adequate protection from damage must be given the object by physical barriers. Otherwise, continuous surveillance while visitors are present is, unfortunately, necessary.

Wherever possible, try to arrange large pieces of furniture on display in a way that allows free passage. For example, in a period room-setting, make sure visitors can pass between furnishings without brushing against them: cameras, handbags and other carried objects are potentially damaging items. As an alternative, the whole room may

be cordoned off at the doorway. If an exhibit is designed to permit touching, then every attempt should be made to provide reproductions of the original objects.

Artifacts placed directly on the floor are also vulnerable to damage from mops, polishers and vacuum cleaners. Guidance and instruction to museum staff are the best preventive measures.

Displayed artifacts should always be easily accessible to museum staff, and their removal from display must be straightforward and easy-to-execute.

Descriptive labels should never be attached to the objects themselves, although free-standing label holders may be placed on a horizontal surface if the bases are sufficiently padded so as to avoid scratching. Alternately, labels can be attached to walls adjacent to or on barricade posts in front of the artifact.

4.4 Fungus and Insects

Fungal attacks, insect infestations and other problems of a similar nature can be eliminated by good housekeeping and maintenance of a stable, clean environment. Fungus will grow on any substance which provides nutrient, but only in conditions of high humidity. If it is not possible to decrease the relative humidity of the display or storage environment to 45% R.H., the optimum level, then the fungal growth must be repeatedly treated with a suitable fungicide. A commercially available spray fungicide and insecticide may be used for this purpose, but this must never be used in the vicinity of any decorative finish. Growths on bare wood, leather, or other elements may be treated with a mixture of 30% ethanol in water, but again, never near any varnish or other finish. Do not soak the material being treated; use the solution on a dampened cloth.

No object should be allowed to stand on a damp floor. If dampness remains, the article should be raised on blocks which, in turn, sit on polyethylene sheets.

Infestations of insects are best dealt with by hanging small cloth bags of paradichlorobenzene crystals (or moth balls) in storage cupboards and display cases. They may even be hung inside the backs of cupboards and chests as an added protection. Felt and other cloth parts of upholstery are favoured by carpet beetles and moths and should be very thoroughly and regularly checked. Never allow paradichlorobenzene to come in direct contact with varnishes or paints as it can act as a solvent. Always ensure that it is in an enclosed porous container.

If an attack of furniture beetle larvae (incorrectly called "woodworm") is suspected, move the affected piece

onto a hard, vibration-free surface, such as the concrete floor of a basement or garage, and put sheets of black paper carefully under the suspicious areas. If there is any insect activity, a light dust called "frass" will be seen deposited on the paper over a period of a few days. Thoroughly vacuum clean the piece before doing this test to remove as much frass from the flight holes as possible. Pay special attention to undersurfaces and less accessible areas. This test is not infallible: an absence of dust may not mean that the piece is free of infestation.

The common furniture beetle (*Anobium punctatum*) is rarely seen active in much of Canada, but frass from old damages can often be shaken out by rough handling or sudden knocks. It is possible that a number of other insects will attack wooden objects, especially when they are stored in what would amount to outdoor conditions, but insect growth is generally discouraged by maintenance of a stable, clean environment in the exhibition and storage areas. If some form of active insect attack is suspected, reference should be made to the steps outlined in Section 5 on "Care and Treatment".

Larger pests, like rodents and birds, are easily dealt with by regular cleaning and eliminating any means of ingress.

Professional assistance should be sought immediately if any doubts or uncertainties arise with regard to a case of infestation.

4.5 Light Level

Excessive light can cause bleaching of certain pigments and fading or discolouration of finishes. Regular exposure to sunlight is often recommended for maintaining the whiteness of ivory parts on furniture inlays, but this should not be done at the expense of any fugitive pigments or susceptible finishes elsewhere on the object. No piece of furniture, or any other artifact, should ever be displayed in direct sunlight. More complete information on light levels in museums is given in CCI Technical Bulletin No. 2, "Museum Lighting," by K. J. Macleod.

The above general notes on storage and display are intended simply as guidelines. It is outside the scope of this bulletin to deal at greater length with any of these topics, and in most cases, would merely duplicate more detailed publications already available. A bibliography is provided at the end of this bulletin for further reading.

5. CARE AND TREATMENT

The following notes are intended as guidelines on minimum care. If an artifact requires any treatment, it should be done only under the guidance of trained person-

nel. If there is any doubt as to the extent of treatment required, or the ability of staff members to perform the treatment, then guidance should be sought. Treatment is better left undone if there is the slightest chance of causing damage by well-intentioned intervention.

That is not to say general maintenance, minor repair, cleaning and upkeep should not be done—they *can* be, and very effectively. Also, it should be remembered that the materials and methods of the commercial repairer or restorer may not necessarily be compatible with those of the conservator.

The hobby of furniture re-finishing, which has blossomed in recent years, has often spelled the finish of many a fine piece of furniture. Much valuable historical evidence about early paints and varnishes has been lost by the uninformed stripping to the bare wood, abetted by commercial establishments which specialize in this. Though this type of treatment may be considered realistic for use on domestic furnishings, it has absolutely no place in the museum. If layers of overpaint must be removed, it must be done carefully under the guidance of a professional conservator.

While not intending to discourage curators from providing the care a collection may require by consulting with professional restorers and repairers, these people should be well-recommended.

5.1 Repair of Broken Parts

Before any repair is undertaken, it is necessary to determine whether the broken parts will fit back together cleanly and tightly. Try fitting them "dry" first; i.e., without adhesive. This often requires more pressure than can be applied by hand. Before a tight fit is established, it may be necessary to remove any excess glue if the joint has been previously repaired. Either scrape the hardened glue off with a suitable pointed instrument, taking care not to damage the wood itself, or use a cotton swab moistened in warm water to loosen thicker areas. If a clamp is used to try the fit, place a soft wood block, folded paper or some other resilient substance between the clamp jaws and the object so as not to leave a pressure mark.

The glue used to repair a break should provide a reasonably strong joint, yet be easily soluble in the future. Cold hide glue is recommended for this purpose. When making a glue joint, place wax-coated cooking paper over the area being glued before applying the clamps. This will allow the wood pressure blocks to come free of the joint after the glue has set and the paper can then be removed with a damp cloth. Excess glue can also be removed from the surface with a damp cloth, either at the time of glueing or when the glue has set. (See Figure 8.)

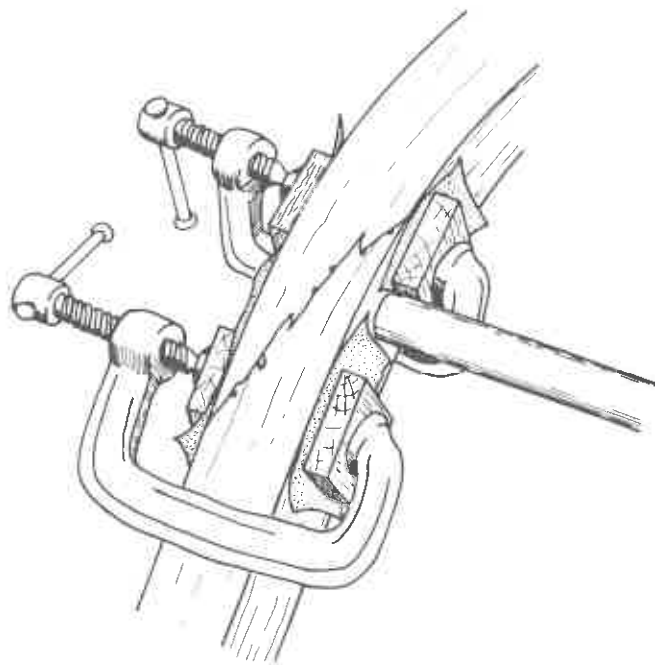


Figure 8: Clamping a glue joint with waxed paper and softwood blocks under the clamps.

5.2 Re-laying Lifted Veneer

It may be necessary for the safety of an object to re-lay small areas of veneer which have become detached, particularly if they are at an edge or on a corner where they may catch and become more damaged. The old, hard glue should be carefully cleaned out, either by scraping or with moist swabs as previously mentioned, and the veneer clamped "dry" with a small piece of transparent Plexiglas to flatten it. Plexiglas is used so that the area being clamped can be seen after pressure has been applied. (See Figure 9.)

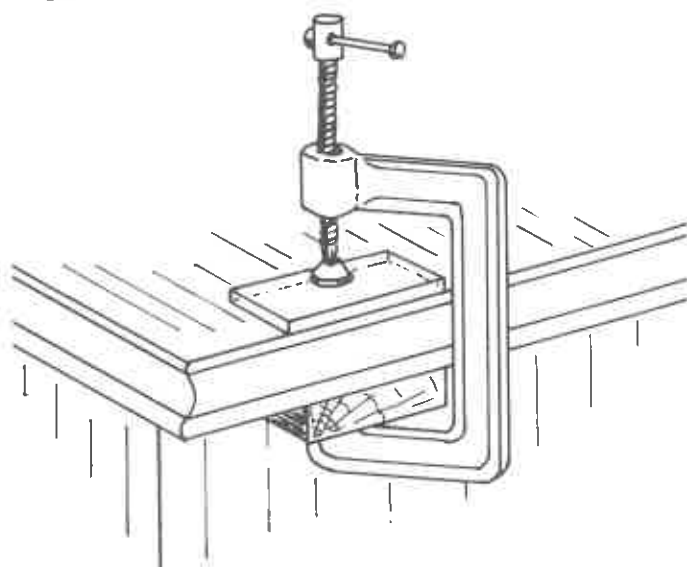


Figure 9: Clamping a section of re-laid veneer with a piece of Plexiglas under the clamp.

Press gently at first, as some veneer tends to crack easily. When it is clear the veneer will lie down properly, work the cold hide glue under the veneer and re-apply pressure. A syringe with a No. 18 needle is useful for injecting glue under veneer.

We emphasise veneer should only be re-laid if it returns to its original position very easily. In the event of shrinkage or distortion, gaps and overlaps may occur; these are difficult for the novice to deal with effectively. In any case of re-adhesion, it is important to remove as much old glue as possible, since the new glue will not adhere to it.

5.3 Tightening Loose Fittings

If fittings such as hinges, catches and locks are loose, their screws may be tightened. However, it is important to ensure that the screwdriver fits the screw slot both in width and thickness to avoid spoiling the screw and making later removal or tightening difficult. (Many old screws have a thin, uneven slot and it may be necessary to grind the blade of a screwdriver down to accommodate these.)

If the screw will not turn by applying reasonable force, leave it: the heads of old screws can be sheared off very easily. If, on the other hand, the hole is so worn that the screw turns without gripping, it must be removed and a small softwood plug made which should fill the space occupied by the thread. (See Figure 10) When the screw is put back, the wood plug will expand and help the screw grip again. Before doing this, check for even the finest of cracks in the vicinity of the screw; it might indicate a

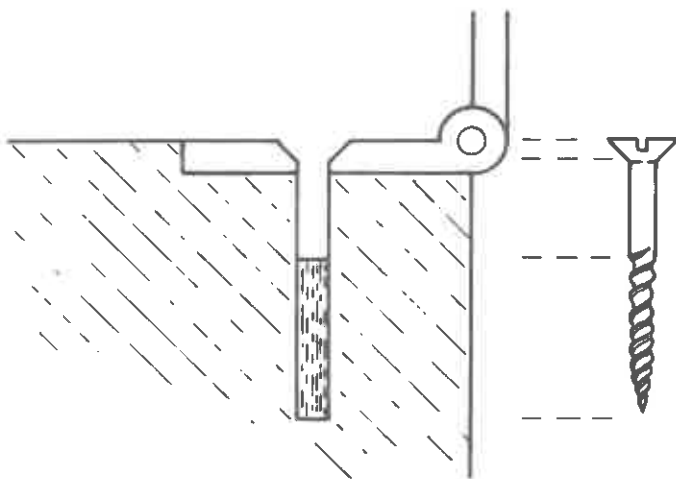


Figure 10: A dowel of softwood used to fill a worn screw hole on a hinged section. Note the screw thread only will enter the wood plug.

weakness in the wood. If a crack is found, it is better to leave the screw loose. Put a small blob of hide glue on its end to secure it and return to its hole.

5.4 Cleaning and Polishing

Basic cleaning is best begun by the use of a small bristle brush and a vacuum cleaner. Hold the vacuum cleaner nozzle a few centimeters away from the object to be cleaned and brush loose dust and dirt towards it. (See Figure 11)

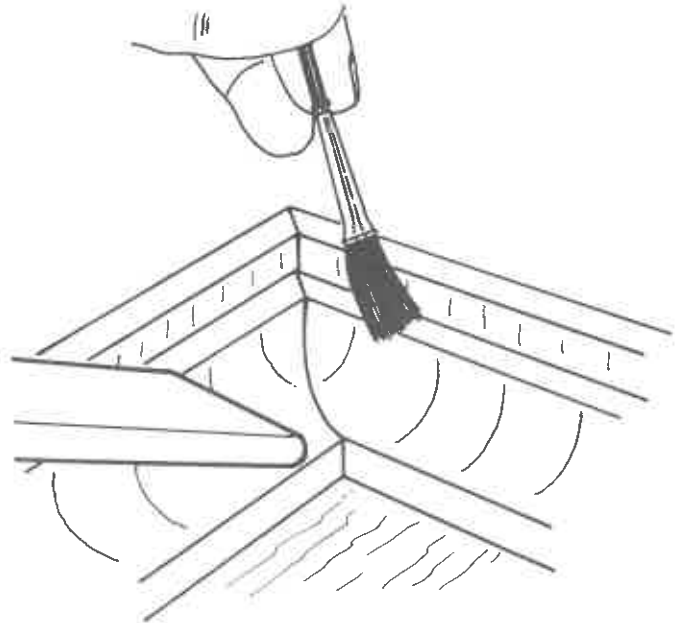


Figure 11: Dust is brushed off the object. Hold the vacuum nozzle a few centimetres away.

Before vacuuming inside large articles, be sure to sift the dust because objects of historical importance or parts of the object itself may be present. Retain significant pieces such as newspaper, paper labels, etc. For cleaning inaccessible areas, a thin rubber or plastic hose can be attached to the vacuum cleaner nozzle and a finger hole provided for quick release of pressure. (See Figure 12)

General surface dusting may be done with a soft cloth or feather duster making sure that no projecting edges of loose veneer catch the duster and cause further damage. If the surface has a high finish, a slightly damp cloth may be used—this should feel only slightly damp to the touch and leave no excess moisture when used.

Bare wood surfaces should never be cleaned by any wet method. Use an art gum eraser or draughtsman's eraser powder, but be sure not to remove any historical evidence such as penciled inscriptions and maker's marks. When using eraser powder, pour a small quantity onto the object and roll it around on the surface with your fingertips. Do not use this type of material near any metal fittings: it can contain volatile substances which aid in corrosion.

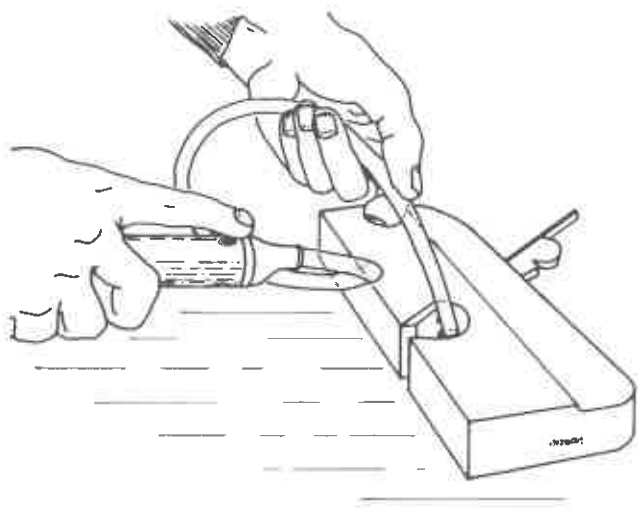


Figure 12: A thin hose attached to a vacuum cleaner nozzle will get into concealed areas.

If the piece has an original finish (oil, varnish or shellac) and is in good condition, the surface may only need rubbing with a clean, dry cloth. If dirty, it may be cleaned with a mixture of warm water and vinegar, or warm water and ammonia, both in the proportion of 40-to-1. This mixture should be applied with a wrung-out cloth, then quickly dried with another cloth. A mild detergent solution followed by thorough cleaning may also be used. If the surface has sticky wax build-up in corners and edges, remove it with a cloth dampened with mineral spirits, (Varsol, Shellsol); then carefully dry the surface. A sharpened coffee stick can be used to loosen deposits of dirt and old wax around cabinet fittings, mouldings and edgings. Do this carefully in order to avoid damage to the finish below the dirt.

Once a surface finish is cleaned and dried, it can be polished by application of a wax furniture polish. A plain paste wax should be applied sparingly with a soft cloth, taking care to avoid build-up in corners and around the edges of raised parts which may catch the cloth and cause damage. Do not apply the wax too thickly. Polish it off well. In this way excessive deposits of wax on surfaces can be avoided in the future. This treatment can be given to any object which has a high finish and would benefit from it.

Do not use any mixture which includes linseed oil, either for cleaning or finishing, since it is apt to build up in corners, remain sticky—thus attracting dust—and eventually, become darkened and insoluble. Many an object has been ruined by application of linseed oil “formulas”. Even

in cases where linseed was regularly applied to an artifact during its working life, the practice should be discontinued upon acquisition by a museum.

Any polish—particularly an aerosol can—which contains silicones should be avoided, as these can amalgamate with some surface finishes and be impossible to remove. Lemon oil and other oils should not be used, since they are not compatible with antique finishes and the results of their use are unpredictable.

Some varnished wood surfaces show a distinct pattern of craquelure or bubbling after many years exposure. This is especially so with wood parts of buggies and sleighs, as well as the flat, horizontal surfaces of pianos, organs and similar objects. This effect results from exposure to the elements or improper application of varnish. The resultant finish is often quite durable and attractive, and should not be treated in any way if possible. Light dusting may, of course, be done; but waxing will only cause excessive build-up, due to the reticulated surface. Removal of this finish could cause damage to the historical integrity of the piece. The state of the varnish or other finish is as much a part of the history of an object as the underlying structure and should be considered as such when determining its treatment.

5.5 Wax Filling

In some cases, an otherwise unblemished finish may be marred by cracks or other defects in the surface. These can sometimes be filled with wax, tinted to match the surrounding wood finish. Wax filling sticks are available for this purpose (see Supplies List), or a filling wax can be made simply by melting together three parts beeswax and one part carnauba wax. Add dry powder colours to this mixture to match the surface to be filled. To colour match, let a small drop of tinted wax solidify on the surface and check the colour.

If the crack is very deep or wide, it should be filled to within 2mm. of the top with very soft balsa wood. This can be cut roughly to shape with a sharp knife, pushed into the crack in short sections and tamped down to the correct level with a piece of hard wood.

Make sure the balsa wood fits snugly in the crack, but is not too tight. The melted wax can then be poured into the crack or dripped in from the tip of a warm metal spatula or knife.

Once the wax has hardened, it can be scraped down to surface level with a piece of hard wood; a coffee stir-stick is very useful for this. Do not use any scraper which may harm the existing surface at the sides of the crack. When the filling is leveled, buff with a soft cloth. This technique

will not make cracks invisible, unless the operator is able to vary the colour and texture of the wax filling to match the grain of the wood, but it will make them less obtrusive.

Shellac sticks in various colours are also sold for filling surface defects, but these should not normally be used on museum objects: they are difficult to apply, as well as being brittle and inflexible when hard. Because wood has a tendency to move with atmospheric changes, any filling material must be slightly flexible. A hard filling will increase the probability of damage occurring elsewhere on the piece, due to unrelieved strains.

5.6 Cleaning Hardware, Metal and Other Parts

Metal is often found in association with wood, but the two substances are never truly compatible in the long term. If possible, metal parts should be removed from wooden objects during cleaning, but this should not be done if there is a possibility of causing damage. For example, if the drawer-pulls on a chest of drawers cannot be easily removed (screw threads are tight or bent, screws rusted in, etc.), leave them in place and clean carefully around them.

Cutting edges on tools, like plane irons, can be removed if it is possible to move wedges, screws and other fixing devices. In many cases, metal parts are attached to an object in such a way that easy removal is impossible. Banding around wooden trunks, hinges on boxes and cupboards, metal parts of scientific and navigational instruments: all must be treated in place.

Generally, it is sufficient to remove surface dirt and accretions from brass or plated cabinet hardware and not attempt polishing—especially if the piece must be treated in situ. A small cotton swab soaked in water—to which has been added a little detergent—should be satisfactory, but a stronger solvent, such as mineral spirits, can be used if needed. Confine treatment to the metal parts themselves and be careful not to allow the solvent to come in contact with the wood, particularly bare untreated wood.

Lightly rusted iron or steel parts may be rubbed with 0000 steel wool moistened with light lubricating oil. Again, confine treatment to the metal alone and be careful to avoid spills. Instead of steel wool, a glass bristle brush may be used. This is available as draughtsman's erasers from some art supply stores. Plastic gloves and particle masks should always be worn when working with a glass bristle brush, as the bristles will penetrate the skin and enter the lungs very easily.

5.7 Furniture Beetle Treatment

In the rare cases of active infestation by some form of furniture beetle, the larvae may be treated by injecting a

residual insecticide. This treatment can only be carried out in the Provinces where residual insecticides like Chlordane are available to the general public. The treatment is carried out by injecting the insecticide solution into the flight holes every inch or so. This may be done with a plastic syringe adapted for the purpose, as follows: Cut a small circle of rubber from an old inner tube or something of similar thickness with a round punch or scissors; push through this circle an 18g needle and grind off the needle until only 1/16" remains protruding from the rubber; put into the flight hole, the rubber disc making a seal at the surface, and inject the insecticide. (See Figure 13)

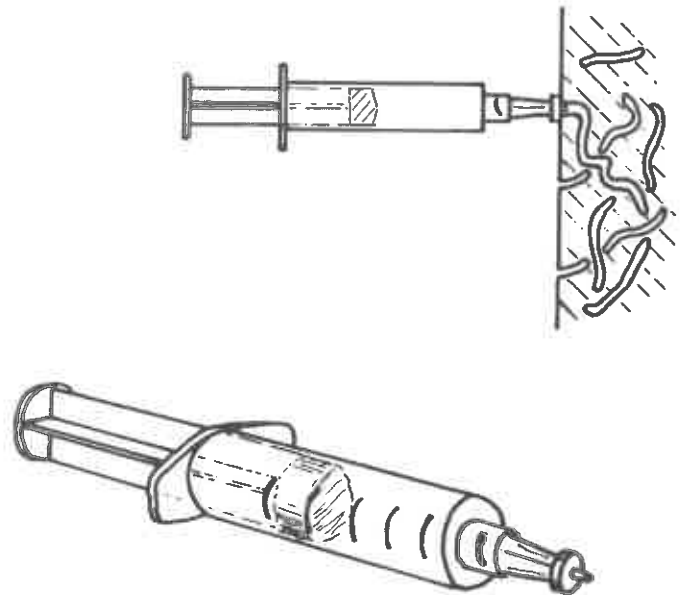


Figure 13: An adapted syringe for injecting insecticide into furniture beetle flight holes.

A 10 c.c. syringe holds enough insecticide for quite a large area of flight holes. It will travel deep within the larva tunnels and kill any larvae with which it comes in contact. In addition, because of its residual nature, it will protect the surface parts of the object from further attacks in the future.

Insecticides are *highly toxic*. Use with great care: wear disposable plastic gloves at all times; destroy the syringe, gloves and wiping rags in an appropriate manner; and *always* observe the manufacturer's directions and cautions on the label.

We stress that the injection technique should *only be used where absolutely necessary*. If there is any doubt, seek expert help.

If furniture beetle holes in a finished surface are considered obtrusive, they can be filled with wax by the method previously described.

6 REPAIR AND RESTORATION

As a general rule, no major repair or restoration of any museum object should be carried out without the guidance of a restorer who is fully conversant with the aims and intentions of conservation. Some minor repairs may, of course, be done from time to time (as mentioned in the previous section), but only if these can be easily and simply executed without the slightest chance of further damage to the fabric of the artifact, and only where damage is likely to occur if the work is not done. Materials used in the repair of these damages must be compatible with the practices of good conservation, particularly with regard to their reversibility.

The previous notes on "Care and Treatment" cover a wide range of possible problems. We hope extensive restoration or repair is rarely required. If, however, there exists any doubt—either on the feasibility or the necessity of undertaking more work than is covered in these guidelines—consult a professional conservator.

SUPPLIES

Hardware Store

Polyethelene Sheet
Spray Fungicide (Lysol, etc.)
Paradichlorobenzene (or Mothballs)
Liquid Hide Glue (Franklin's, etc.)
Detergent (Lux, Ivory)
Ammonia (Household strength)
Mineral Spirits (Varsol, Shellsol)
Wax Polish (Goddard's, Johnson's)
Steel Wool
Light Machine Oil
Chlordane 2% }
Diazinon 0.5% } Insecticides
Propoxin 1% }

Drug Store

Syringes and Needles
Cotton Swabs (Q-Tips)
Disposable Gloves
Particle Masks

Art Supply

Artist's Brushes
Drawing Ink
Art Gum Eraser
Erasing Powder (Opaline, Dandy Rub)
Glass Bristle Eraser
Dry Powder Colours

Other Sources

Bubble Pack (Air Cap)
Microfoam

Acrylic Sheet (Plexiglas)

Consult your local Plastics Supply Company for all of the above.

Mono-filament Nylon Line—Fishing Store
Ethanol—Liquor Store
Coffee Stir Sticks—Catering Supply
Filling Wax—Mohawk Ltd.

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- Fine Woodworking, published by Taunton Press, 52 Church Hill Road, Newton, CT 06470.
- IIC-CG Journal and IIC-CG Newsletter, published by the International Institute for Conservation—Canadian Group, Box CP 9195, Terminal, Ottawa, Ontario, K1G 3T9.
- Information upon request from Conservation Analytical Lab, Smithsonian Institution, Museum of History and Technology, 14th Street and Constitution Avenue NW, Washington, DC 20560.
- Various publications available from: Canadian Museums Association, 331 Cooper Street, Suite 400, Ottawa, Ontario K2P 0G5.

Note:

These publications may be obtained from your local library or through the interlibrary loan system.