



MINNESOTA HISTORY Interpreter

June-July 2001, Vol. XXIX, No. 5

INSIDE

page 3

Tech Talk: Caring for musical instruments, part 2

insert

Preservation Planner

Published by the Minnesota Historical Society
for county and local historical societies and heritage preservation commissions

Photo by Jason Dehne



Members of the Future Farmers of America club at Yellow Medicine East High School created PowerPoint presentations on modern farming techniques for Minnesota's Machinery Museum in Hanley Falls.

Ag students forge links between past and present

Museum/school partnership taps young talent

It all started when Mavis Gustafson, director of Minnesota's Machinery Museum in Hanley Falls, noticed that growing numbers of visitors wanted more information about modern farming. Tourists from other countries, adults from non-farming areas and even local schoolchildren were full of questions about how farming practices of the past compared with those of the present – how today's farm machines work, what crops are grown, why it's so hard being a dairy farmer.

After brainstorming with her board of directors, Gustafson recruited volunteer David Rupp, a computer programmer, to begin developing an interactive computer station in the museum where visitors could browse for information. Armed with a state grant-in-aid from the Minnesota Historical Society, they soon enlisted another partner in their Agriculture Today project – Jason Dehne, the young, enthusiastic new ag instructor at Yellow Medicine East High School.

Partnership continued on page 2

Once upon a time: A museum tale

by Bev Jackson

Executive Director, Freeborn
County Historical Society

Once upon a time there was a small city in southern Minnesota that didn't have a history museum. Someone suggested moving an old cabin to the fairgrounds. There it sat, while slowly but surely around it grew a county museum and historical village. The process took many years. It also took the determination and energy of a few very stubborn people.

Other people sat around the coffee shops and said, "What do they want to save that old stuff for? New stuff is better. And why save old pictures of buildings that aren't even there anymore?"

The stubborn people just kept going. They asked their friends for things to put in the museum and for help building display cases and for money to pay the phone bill. They were even brave enough to ask the county commissioners and city council to pay for lights and heat and paint and nails to make the museum warm and beautiful.

Museum tale continued on page 2

Partnership *continued from page 1*

It was a partnership that would flower in unexpected ways.

Through the museum project, Dehne and the students in his animal science class found practical applications for their studies of modern agricultural practices – practices heavily dependent on technology and computers. As they finished each unit of classroom study, the students created Microsoft PowerPoint presentations on various aspects of livestock production. Then several of the students, members of the school's Future Farmers of America club, volunteered to give the presentations to elementary school tour groups visiting the museum. Projected on a large screen set up near the exhibits, the presentations were an instant hit with the youngsters and FFA volunteers alike.

Reports one third-grade teacher, "From the exhibits and older volunteers at Minnesota's Machinery Museum, my students learned all about early farm equipment. Then on the way back to school, we stopped at a local implement dealer to see modern-day farm equipment. The multimedia

presentation by the high school students provided a key link between past and present."

For Gustafson, the project has generated many more benefits than first imagined. "Having a live narration, with the high schoolers there to answer questions, is much more effective for teaching elementary students than just watching a video or sitting at a computer," she says. "And the FFA kids gain experience in public speaking. But one of the main benefits has been the involvement of the high school students with our programs and the interest they've shown in the whole museum."

Dehne concurs. "It's been a great learning experience for everyone. I was amazed how much fun my students had with the project," he said. "Now we're expanding it to my plant science class, which will develop presentations on crop production."

All visitors to the museum can access the students' PowerPoint presentations at a computer station in



A museum volunteer explains the workings of farm machines to elementary school students at Minnesota's Machinery Museum.

the galleries. With help from Rupp, the presentations have been adapted to two levels – one for younger museum visitors and one for adults. The materials will eventually be integrated into a broader-based electronic information center where visitors can explore a wide range of agriculture-related topics.

For more information on the Agriculture Today project and how it has evolved, call Mavis Gustafson at 507-768-3522. And visit the museum's new web site at www.mnval.com/~mnmac.

Museum tale *continued from page 1*

Then the stubborn people talked and talked – on the radio, in the newspaper, to their neighbors – about how wonderful the new museum was. They said, "Bring all the children. They must learn about who they are."

Other people grew curious. One by one they came to see what the fuss was all about. They walked in the door, looked around and said, "I didn't know you had so much stuff in here. I didn't know it was this nice." They grumbled about paying money to get in. But the longer they stayed, the

more questions they asked. "Do you have a picture of my uncle's farm?" "Did any of my ancestors serve in the Civil War?" "Does the library have old cookbooks with recipes like my mother used to make?" "Do you think my grandmother's old rocking chair would fit in here?"

After awhile they went out to the historical village. There they talked and laughed so long that before they knew it, it was time to go home. The museum guide waved goodbye, saying, "We're so glad you came to

visit. Do come back and see us again."

And then you know what happened? The other people decided that maybe the stubborn people weren't so strange after all, and they did come back again and again. And the other people and the stubborn people and the little history museum all lived happily ever after.

Bev Jackson writes a biweekly column, "History Is..." for the Albert Lea Tribune. A longer version of this article appeared in the Feb. 25, 2001, issue.

Caring for musical instruments: Part 2

by Paul S. Storch

This is the second of two Tech Talk articles about the challenges of caring for musical instrument collections. Paul S. Storch, the Minnesota Historical Society's senior objects conservator, looks at common types of instrument materials and how they react to their environment. Part 1, in the May Interpreter, covered instrument coatings, leather and plastics. Part 2 covers instrument wood, metals and textiles and discusses how to handle, display and store musical instruments.

Wood

Wood can be found in many familiar forms in musical instruments – from drum bodies and sticks to the violin family and other stringed instruments (see figures 1 and 2). The type of wood used for a particular instrument – whether hard wood from deciduous trees or soft wood from



Minnesota Historical Society photos by Paul Storch

Fig. 1: This violin from the Minnesota Historical Society's collection, dating to the 1850s, had loose strings and a missing bridge.

coniferous trees – is chosen for its sound qualities, durability, regional availability and appearance.

The physical characteristics of this versatile material are discussed fully by R. Barclay in *The Care of Historic Musical Instruments* (see References, page 6). A brief word here about moisture content and relative humidity will serve to introduce some basic measures for preventative conservation. After harvesting, wood is dried before it is crafted into an instrument shape. During the drying

seasoned. Because of variations in ambient conditions, dryness is a relative term. An object made of wood that has been cut, dried, worked and stored in the arid southwestern United States will have a very different moisture content from an object made in the more temperate and humid region of Appalachia.

Once an object is transferred to a museum, the key to its conservation is to prevent further loss or gain of moisture, preferably by maintaining as closely as possible the object's original climatic conditions. (This is a basic principle for the preventative conservation of all organic-material objects.) In practice, however, this is rarely feasible. In fact, in cases where an instrument has already adapted to another humidity level, it is no longer desirable to maintain the conditions of its manufacture. In addition, the presence of other materials on wooden musical instruments makes



Fig. 2: Repairs to the violin in fig. 1, including a new bridge, brought new life to an artifact from Minnesota's territorial days.

process, the wood loses moisture until it is in equilibrium with its environment. It is then described as

Caring for instruments *continued on page 4*

Caring for instruments

continued from page 3

specific guidelines about moisture content and relative humidity difficult to establish. Most often, compromise climates are recommended (see Table 2, page 6). Wooden instruments do not have to be played regularly to maintain their tonal qualities; it is more important to maintain a consistent environment for them.

Metals

A wide range of metals and alloys are found in musical instruments, including brass, copper, iron, lead and “noble” metals such as gold and silver (see figures 3-6). Gold and silver are usually found as platings on baser metals like brass and copper.

Metals are less vulnerable to breakage and the common deterioration factors that affect organic materials. The most prevalent problem experienced by the metal components of musical instruments is corrosion – the reaction of refined metal with water or water vapor, oxygen and mineral salts. Improper



Fig. 3: The lead alloy reeds inside this harmonica were severely corroded. To stabilize the instrument, it was disassembled for cleaning and coating.



Fig. 4: After stabilization treatment of the metal and wood components, the harmonica from fig. 3 was reassembled.

cleaning and polishing also can introduce corrosive chemicals such as ammonium hydroxide, which reacts with copper alloys such as brass. The rate at which corrosion occurs depends on temperature; objects corrode faster at higher temperatures. For example, silver tarnishes twice as fast at 84 F as it does at 64 F.

Iron, used in fittings of musical instruments, is prone to corrosion under a wide variety of conditions and environments. Ambient moisture often causes a light layer of surface corrosion on iron components.

Lead is commonly used in solder joints and as weights in keyboard instruments. The most reactive metal, it is always found in a corroded state (see figures 3 and 4). Lead darkens with exposure to air; in contact with wood and wood products that emit acetic and formic acids, it forms a loosely adherent, whitish powder. Thin lead components can become structurally weakened by this type of corrosion.

Copper and copper alloys on musical instruments are more stable. But the surfaces of these metals usually tarnish from handling and exposure to oxygen and other gaseous contaminants. This is often erroneously referred to as *patina*. In the context of conservation, a patina on metal is an intentional chemical treatment of the metal surface that acts to protect it from further, disfiguring corrosion.

Silver or silver-plated instruments are generally found in a darkened, tarnished condition (see figures 5 and 6). This thin layer of tarnish is usually silver sulfide. On silver-plated brass instruments, scratched areas where the base metal is exposed may suffer bimetallic corrosion.

Textiles

Textiles, though rare in musical instruments, may be found in objects of non-European origin and as reinforcements and linings of wooden stringed-instrument resonators. Textiles used in this way are fragile because the commonly used hide-glue adhesives become stiff and brittle over time and may discolor the textile. When textiles are used on wooden objects, the differential expansion due to fluctuations in relative humidity can cause tears in the lining and changes in the adhesive.

Textiles found on instrument straps and handles also are vulnerable to deterioration. Exposure to light, especially natural daylight, can cause the textile to become brittle and organic dyes and pigments to fade.

Preventative conservation

Once you familiarize yourself with the materials used in historic musical instruments and the condition problems you may encounter with

them, you are ready to address questions of how to handle, display and store the objects in your collection.

Table 2 offers an introductory guide to the long-term safekeeping and preservation of musical instruments. These basic preventative measures for the proper maintenance of the instruments in your collection will help to minimize damage and deterioration.

For matters relating to the conservation or restoration of musical instruments, including their cleaning and other interventive treatments, it is strongly recommended that you consult an experienced professional conservator. Taking advice from those not trained in conservation techniques – dealers, collectors, traditional instrument makers, musicians – can result in irreversible and costly damage to a valuable object. Be proactive with the artifacts in your care. It's always better to prevent deterioration than to repair damage done.

Caring for instruments *continued on page 6*

Editor's note:

Tech Talk offers technical assistance on conservation, historic preservation and museum management issues that affect historical societies and museums of all sizes. Suggestions for future topics are welcome. Send ideas to Interpreter Editor, Minnesota Historical Society, 345 Kellogg Blvd. W., St. Paul, MN 55102-1906.

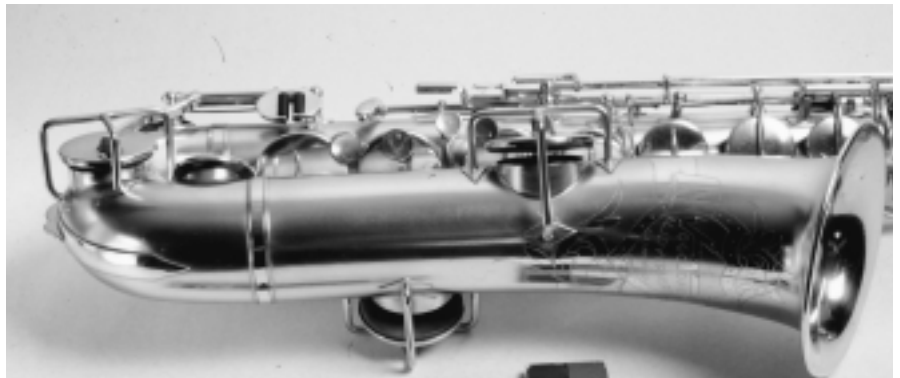


Fig 5 (left): A silver-plated saxophone dating from about 1900 showed overall tarnish.

Fig 6 (above): After cleaning and coating, the saxophone's decorative details, previously obscured by a layer of tarnish, shone through. Smooth surfaces have a matte finish, while engraved areas are highly polished.

Getting the conservation help you need

Minnesota Historical Society



Paul Storch, the Minnesota Historical Society's senior objects conservator, examines the condition of a metal artifact.

Conservators in the Minnesota Historical Society's Daniels Objects Conservation Lab are available for phone or e-mail consultations. Call the Society's Conservation Department at 651-297-1867 or e-mail conservationhelp@mnhs.org.

Questions about the conservation of musical instruments may be e-mailed to paul.storch@mnhs.org. For previous Tech Talk articles by Storch, visit the Society's web site, www.mnhs.org/about/publications/techtalk.html.

For a list of Professional Associate and Fellow members of the American Institute for Conservation (AIC) who are qualified in various specialized fields, call the AIC at 202-452-9545.

Table 2: Recommendations for Handling, Display and Storage

Material	Handling	Display	Storage
Coatings	Work with clean hands or plastic gloves; avoid cleaners, solvents and preservative coatings.	Low light levels: 50-100 Lux and <300,000 Lux/hrs. Moderate relative humidity (RH): 40-50%.	Same as for display; dark storage.
Leather	Work with clean hands or plastic gloves; avoid cleaners, dressings and other preservative coatings unless recommended by a conservator.	Internal supports when possible. Low light levels if dyed: <50 Lux, <150,000 Lux/hrs. Moderate RH: 40-50%.	Same as for display; use unbuffered acid-free tissue and paper products for support; dark storage.
Plastics	Work with clean hands or plastic gloves; avoid cleaners, solvents and preservative coatings of any type.	Low light levels: <50 Lux, <150,000 Lux/hrs. Moderate RH: 40-50%. Temperature not to exceed 72 F.	Same as for display; dark storage.
Wood	Work with clean hands; avoid damaged and flaking painted areas; avoid cleaners and preservative coatings.	Moderate light levels: <100 Lux, <300,000 Lux/hrs. Moderate RH: 40-50%. Avoid temperatures above 72 F.	Same as for display; use buffered acid-free tissues and paper products; dark storage.
Metals	Use plastic gloves; avoid abrasive and chemical cleaners and preservative coatings.	Avoid contact with acidic and corrosive materials. Light and RH levels must be compatible with the most sensitive components of composite objects.	Same as for display.
Textiles	Work with clean hands.	Low light levels: <50 Lux, <150,000 Lux/hrs. Moderate RH: 40-50%. Protect from dust accumulation; use mounts and supports for straps.	Same as for display; use unbuffered acid-free paper and board materials for support; protect from dust, crushing and creasing; dark storage.

References

The following resources can serve as a starting point for further inquiry into the care of musical instruments.

Bachmann, K., ed. *Conservation Concerns*. Washington, D.C.: Smithsonian Institution Press, 1992.

Barclay, R., ed. *The Care of Historic Musical Instruments*. Ottawa: Canadian Conservation Institute, 1997.

Barclay, R. *The Care of Musical Instruments in Canadian Collections*. Technical Bulletin No. 4. Ottawa: Canadian Conservation Institute, 1982.

Barclay, R., et al. *Recommendations for Regulating the Access to Musical Instruments in Public Collections*, 1985. Posted on the web site of the International Committee for Musical Instrument Collections of the International Council of Museums: www.cimcim.org.

Blank, S. "An Introduction to Plastics and Rubbers in Collections." In *Studies in Conservation*. Vol. 35, no. 2, 53-63. London: International Institute for Conservation, 1990.

Odell, S. J. "Musical Instruments." In *Caring for Your Collections: Preserving and Protecting Your Art and Other Collectibles*, edited by A. W. Schultz, 128-137. New York: National Institute for the Conservation of Cultural Property (Heritage Preservation), Harry N. Abrams, Inc., 1992.

Torres, A., ed. *Collections Care: A Selected Bibliography*. Washington, D.C.: National Institute for the Conservation of Cultural Property (Heritage Preservation), 1990.

Stories to tell

Museum exhibits open windows on the past

From fishing to fashions, market gardening to military history to means of communication. Those are just a few of the many subjects explored in a busy summer of exhibits at museums around the state. Here's a sampling:

Folks got a jump on the fishing season in Itasca County this spring with the opening of "Bobbing around Minnesota" at the **Itasca County Historical Society** in Grand Rapids. In addition to historical photographs from the ICHS collections are displays assembled by members of the Minnesota Fishing Federation: hand-made lures; equipment for net, spear and ice fishing; outboard motors dating from 1912 to 1956; and a section on fishing regulations through the years. Enjoy it all to the strains of Bob Hope and Bing Crosby crooning "10,000 Ways to Enjoy Life," from a promotional record issued in 1950 by the Minnesota Department of

Business Development. For more information call 218-326-6431.

Dakota County's market gardeners take center stage in a new exhibit at **Dakota City** in Farmington. Meet the onion growers, berry producers, potato farmers and corn harvesters who sold their crops at roadside stands or trucked their produce to the Farmers Market in downtown St. Paul. A photo wall will be added to as new stories come in through the course of the two-year exhibit. See www.dakotacity.org for links to exhibit information.

Thanks to a donation from the United Way of Pipestone, the **Pipestone County Historical Society** will create a new children's area in its museum. Young visitors will soon be able to assemble jigsaw puzzles of local historical scenes, piece together patchwork quilts, and build miniature farms and earth lodges. For more information on this children's program initiative, call 507-825-2563 or toll-free 1-866-747-3687.

What does "taking a header" mean? What is a skirt guard and why was it necessary? Find the answers to these and many other questions in "A Century of Cycling" at the **Clay County Historical Society** in Moorhead. The exhibit features more than 100 years of bicycles ridden by county residents, from 1880s high wheels to today's mountain bikes. For exhibit hours call 218-299-5520.

Commemorating the 60th anniversary of the Japanese attack on Pearl Harbor is a new exhibit at the **Minnesota Military Museum** at Camp Ripley, north of Little Falls. Augmenting stories of Minnesotans stationed on Oahu in 1941, especially the crew of Minnesota Naval Reservists aboard the destroyer *USS*



Minnesota Historical Society collections

Harvesting potatoes was a family affair for these children in Dakota County around 1915. A new Dakota City exhibit takes a look back at market farming in the county.

Ward, is a look at changing attitudes in both the United States and Japan since that fateful event. For information, e-mail museum administrator Sandy Erickson at mnmuseum@brainerd.net.

In the children's area of the **Crow Wing County Historical Society** in Brainerd, young visitors can explore 150 years of changing fashions – what people wore for work, for play, for special occasions or just to keep warm. Clothing replicas have been made or purchased so children can try on garments without risking damage to artifacts. Call 218-829-3268 for details.

"Making Connections: A History of Communications in Carlton County" opened in May at the **Carlton County History and Heritage Center** in Cloquet. From letter writing and telegraphs to radio broadcasts, telephones and the age of TV, the exhibit examines the many ways in which we communicate with one another. For more information call 218-879-1938.

Itasca County Historical Society



From "Bobbing around Minnesota": A day's catch brought smiles to the faces of these Coleraine residents.

Constructing mannequins for historic costumes

Conservation workshop covers the basics

Historic costumes require careful handling. But they can be safely and beautifully displayed if fitted to the right mannequin. Learn how to construct the proper mannequin for the garments in your museum's collection at this two-day conservation workshop, June 7-8, at the Beltrami County Historical Society.

Taught by textile conservators from the Canadian Conservation Institute in Ottawa, the workshop is

part of the Minnesota Historical Society's conservation outreach program. It is funded by a grant from the George W. Neilson Foundation for outreach in northwestern Minnesota.

Enrollment is limited and has been offered to the 21 county historical societies in northwestern Minnesota. For details on this and other Society conservation programs, call Bob Herskovitz at 651-297-3896 or email bob.herskovitz@mnhs.org.

Deadlines for fall grants

Deadlines for the fall cycle of state grants-in-aid are fast approaching. If you're planning to apply, you are strongly urged to submit a pre-application.

Aug. 3: Pre-application due.

Sept. 7: Grant application due.

Oct. 11: Grants Review Committee meets.

Capital grants are also available. Awarded to units of government planning the restoration of publicly owned buildings, capital grants require a pre-application (for details, see the enclosed *Preservation Planner*).

Application forms and the State Grants-in-Aid Manual are available online at www.mnhs.org/about/grants/stgrants.html. For more information about the Society's grants programs, contact grants assistant David Grabitske by phone at 651-297-4416 or e-mail at david.grabitske@mnhs.org.

Minnesota History Interpreter is published nine times a year by the Historic Preservation, Field Services and Grants Department of the Minnesota Historical Society.

Readers are invited to submit information for publication. To be considered, items must reach the editor by the first of the month, two months before publication. Send to Interpreter Editor, Minnesota Historical Society, 345 Kellogg Blvd. W., St. Paul, MN 55102-1906.

Material from this issue may be reprinted with the following credit line: Reprinted with permission from *Minnesota History Interpreter*, June-July 2001, Vol. XXIX, No. 5, published by the Minnesota Historical Society. Do not reprint material taken from another source without permission.

On request, this publication is available in alternative formats: audiotape, large print or computer disk.

For address corrections e-mail michele.decker@mnhs.org or call 651-296-5434. For other matters call Tim Glines at 651-296-5460 or e-mail timothy.glines@mnhs.org.

Britta Bloomberg, Head,
Historic Preservation, Field Services
and Grants Department
Tim Glines, Manager, Outreach Services
Mary Ann Nord, Editor
Kate Raver, Layout

www.mnhs.org



MINNESOTA HISTORICAL SOCIETY

345 Kellogg Boulevard West
Saint Paul, Minnesota 55102-1906

Address service requested

Non-Profit
Organization
U.S. Postage
PAID
St. Paul, MN
Permit No. 854