TECH TALK
This issue: Conserving Buttons

MINNESOTA HISTORICAL SOCIETY

Care & Conservation of Political Campaign Buttons
by Paul Storch

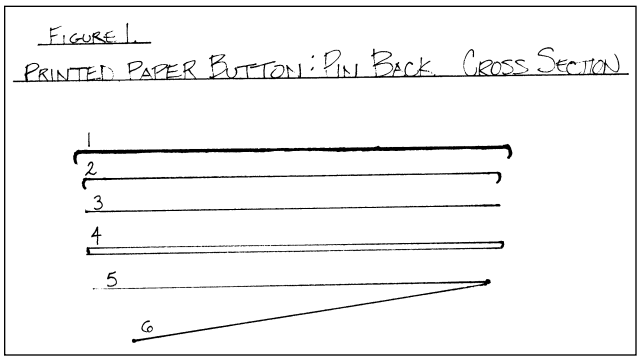
Introduction

In this article I will discuss the history, physical structure, and conservation/preservation of what are commonly called political campaign buttons. These buttons, generally called "pin-back buttons," are used for many purposes besides advertising for political candidates. Buttons are designed, printed and distributed to commemorate public events, movie openings, historic anniversaries, product promotions and anything else that can be depicted on a 7/8"- to 3 1/4"-diameter surface. The Minnesota Historical Society (MHS) Museum Collections also has late 19th-century pin-back buttons with fraternal organization meeting ribbons.

Buttons contain materials that may cause damage to each other under certain conditions, and they contain both organic and inorganic components. For these reasons, knowing the nature of the materials involved will help determine the storage and display needs of the collections.

Publications on political and other ephemera often lack up-to-date and correct conservation information on these objects. I will attempt to fill this gap with conserv-ation information that can be applied to the long-term preservation of these interesting and important historic objects.

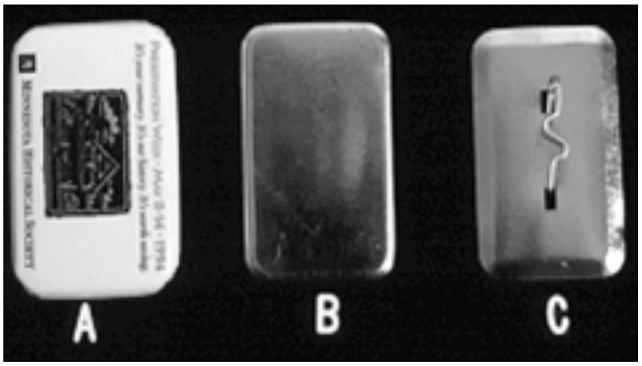
(Note: This article covers only American-made objects.)



1: Celluloid outer cover (Cellulose Acetate, ("Acetate") post ca.1940). 2: Paper with print or lithograph of image. 3: Metal base usually copper alloy or tin-plated steel. 4: Backing (collet) usually copper alloy plated steel or steel. 5, 6: Pin attached to collet, usually copper alloy spring pin. Note: These buttons usually have an "Allied Printing Trades" union label on their margins. Not drawn to scale. Drawing by Paul Storch, January, 1998.

History and Structure

In this country, the idea of mass-produced lapel devices that can be widely distributed goes back to the late 18th century. Most of those objects were solid cast metal. After 1838, with the advent of various photographic processes such as ferrotypes, images of candidates were placed on brass pins. In 1892, the New Jersey company of Whitehead and Hoag developed a method to produce a thin layer of celluloid over a lithographed piece of paper. (Celluloid, patented by J. W. Hyatt in 1872 and manufactured in the United States, consists of cellulose fibers treated with nitric and sulphuric acids and plasticized with camphor. It was one of the first commercially available plastics.) This laminate was then joined to a rounded sheet of tinned iron alloy that was held in place by overlapping it around the metal base and pressing it into place with a marginal rim called a *collet.* The spring pin was usually attached to the collet. (See Figure 1.)



This recent button (for Preservation Week 1994) has been disassembled to show its separate components. A: plastic-coated paper; B: metal base; C: full collet with spring pin.

Once this method was perfected, various manufacturers produced several hundred million

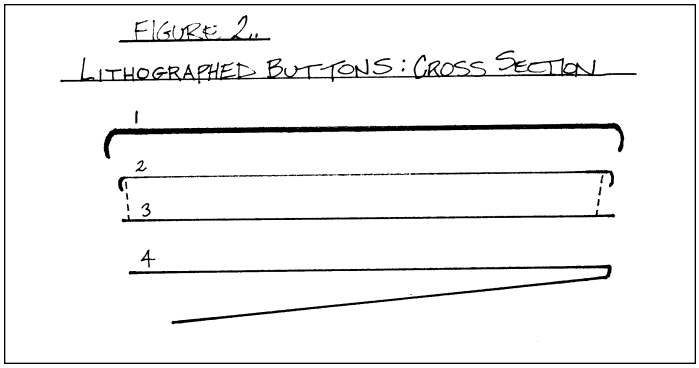
Editor's note: TECH TALK is a bimonthly column for offering technical assistance on management, preservation, and conservation matters that affect historical societies and museums of all sizes and interests.We welcome your comments and suggestions for future topics.

Paul Storch, Object Conservator in the John and Martha Daniels Objects Conservation Laboratory at the Minnesota Historical Society, has been at MHS since January 1991. He has contributed several Tech Talk articles to the *Interpreter;* the most recent was about the treatment of sports memorabilia in the July 1997 issue. He can be reached at (612) 297-5774 or by e-mail at paul.storch@mnhs.org

Storch took the photographs in this Tech Talk.

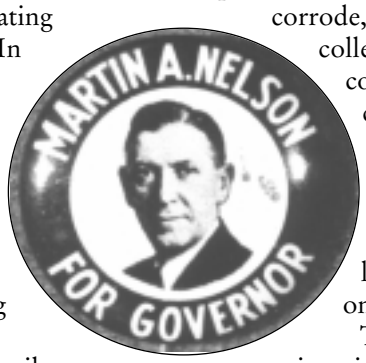
Continued on p. 4

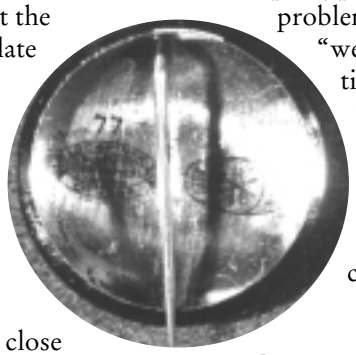
buttons between 1896 and the 1920s. In 1917, another technique was developed that allowed for stamping lithographed images directly onto the tinned iron-alloy support base. The designs were limited because only two or three colors could be used. A collet that contained the spring pin would be added, or sometimes the spring pin was pushed in under the inward-turned edges. (See Figure 2.) These simple buttons may or may not have a plastic coating over the image, and were called "lithos." In the 1940s, the cellulose nitrate film was replaced with acetate film, which has in turn been replaced with more stable plastics such as polyester. The term "celluloid" is still used to refer to plastic-coated buttons.



1: Celluloid outer coating (may be absent). 2: Lithographed paint layer directly on metal backing. 3: Metal base (usually steel or tin-plated steel). 4: Pin attached to ring. Usually copper alloy spring pin. Note: these buttons usually have a "Lithographers Union" label on the base rim or stamped into the base. Not drawn to scale. Drawing by Paul Storch, January, 1998.

Many older buttons also have silk or other natural textile fiber ribbons hanging from the spring pin clasp. Some may also have cotton threads wrapped with gold or silver alloy metal wires that are used as tassels at the ends of the ribbons. Newer buttons (e.g. late 20th century) may also have textile ribbons hanging from the pin clasp, but these will probably be composed of synthetic fibers.





Right: Two views of the same lithographed button. Note the corrosion on the metal base.

Deterioration

Pin buttons are composite objects, which means that they are composed of various types of materials that are in very close proximity to one another. Often one component of an object can actually deteriorate another component merely by being in contact with it.

Let's look at each component and its concomitant problems. The plastic coating is the main surface contacted by handling. It is susceptible to damage by light, temperature and relative humidity, and mechanical abrasion. The older plastic is cellulose nitrate (i.e., celluloid), which is an inherently unstable material. Poor storage and exhibition conditions can accelerate the deterioration of this material.

Excessive handling and improper storage can scratch the plastic surfaces, making the image difficult to read. Celluloid is susceptible to damage by ultraviolet light, high humidity, high temperatures, and contact with metals and alkaline materials.

Corrosion can be caused by poor conditions such as relative humidity (RH) above 60%. If the iron alloy or copper alloy base of the button corrodes, then the metal ions accelerate the breakdown of the cellulose nitrate. As the celluloid breaks down, it releases nitric acid and becomes more susceptible to moisture damage. The high acidity can then, in turn, hasten the deterioration of the paper below the celluloid coating.

The back surface of the metal backings was often coated with a cellulose nitrate-based lacquer, which has a golden-yellow color. This coating is highly soluble in solvents such as alcohol and acetone. The metal corrosion under this lacquer coating can sometimes look like thin strings. If moisture penetrates under the paper layer, the metal can corrode, particularly around the edges of the collet on the under-side of the button. The corrosion can penetrate the paper layer, causing dark, reddish spots that are often referred to as "foxing." Lithographed metal buttons (which print the ink or paint directly on the surface) can have the same problems with corrosion, leading to disfigurement of the ink/paint on the printed top surface.

The fiber ribbons that hang from the spring pins also can present preservation problems. Silk from the 19th century was "weighted" with various metal salts that over time will become acidic and break down the fibers. Silk and other fibers that are in stable condition overall can still become wrinkled and distorted from improper storage and handling. Textile ribbons also can become easily soiled from contact with dust, grime and dirty hands.

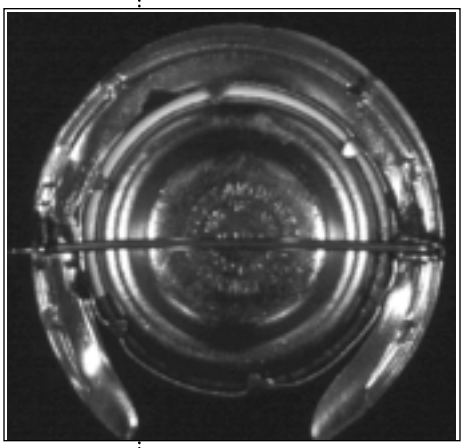
Recommendations for Care and Handling

Storage

Because campaign buttons are composite objects that contain sensitive materials, proper storage is

Continued on p. 5

critical to their long-term preservation. Buttons, with or without ribbons, should be stored flat in trays. They can be placed on polyester batting or polyethylene sheeting (Dow "Ethafoam") so they have some cushioning and do not slide around when the storage drawers are pulled out. Only non-buffered storage materials, (such as tissue paper, mat board and storage boxes) should come in contact with buttons containing celluloid, as the alkaline buffering material will accelerate the deterioration of celluloid.



Above: An elaborate pin-back button with a photo-print of Theodore Roosevelt. Below: The reverse side of the same button, showing a stamped full collet.

Do not stack buttons on one another in a tray or store many buttons on top of one another in a box. This limits accessibility and increases handling and damage.

Riker mounts (flat, black boxes with glass tops, originally intended for biological collections) are not recommended, for they also limit the accessibility of the objects for research, increase handling, and increase the possibility of damage if the buttons are pressed too hard against the glass cover.

If the Riker mounts are kept in conditions of high humidity, moisture can build up on the underside of the glass and can cause deterioration of the celluloid covers on the older buttons. Air exchange for the celluloid is also limited in these mounts, which can accelerate deterioration of the other, acid-susceptible materials.

To meet the environmental requirements of all the possible components of the buttons, the temperature in the storage area should be in the range of 65° to 70° F. Relative humidity (RH) should be in the range of 40 to 55 percent over the course of each year, with a daily fluctuation in the range of 10 percent. RH levels much below 35-40 percent for extended periods can cause excessive dryness in textile fibers, and levels above 60-65 percent can promote fungal growth.

Avoid cabinets and drawers constructed of highly acidic hardwoods such as oak and maple, as these will contribute to the corrosion of the metals in the objects. Sealing with coatings can be done, but this is expensive and time-consuming, and is not 100 percent effective as a barrier against volatile organic acids from woods and wood products. Even wood products that are formaldhyde-free, such as Medite II, still need to be coated to prevent off-gassing of harmful acids, such as acetic acid. Powder-coated, or baked-enamel painted, metal cabinets that completely meet conservation specifications are the optimum storage fixtures for this type of collection. An experienced conservator should be contacted for more details on storage materials specifications. As mentioned above, the storage cabinets should have good air circulation and provide acid-vapor absorbing materials to protect other collections in the storage areas.

Handling

Care should be taken in handling buttons, especially those that have pendant ribbons. The latter should be supported from underneath with a strip of acid-free, non-buffered cardboard that extends under the ribbon. Persons who handle the buttons should be wearing clean cotton or powder-free plastic gloves. The buttons should only be picked up by the edges, and it is a good practice not to open the spring pins.

Buttons can be packed for shipping to different exhibit venues by padding the buttons on both sides with soft, non-abrasive materials such as polyester batting or Volara A (R) cross-linked, closed-cell polyethylene foam. This latter material is softer than Ethafoam and less abrasive.

Labeling

Accession numbers can be affixed by putting down a reversible laquer patch on uncoated metal components, preferably the reverse surface of the metal backing. The number can be written in permanent ink, then sealed with the same clear lacquer. Consult a conservator or qualified museum collections manager for labeling details. A simpler, but less secure way to label these objects is to afix the string of a paper label to the pin. Never write or sew labels on the textile ribbons. The resulting damage is irreversible.

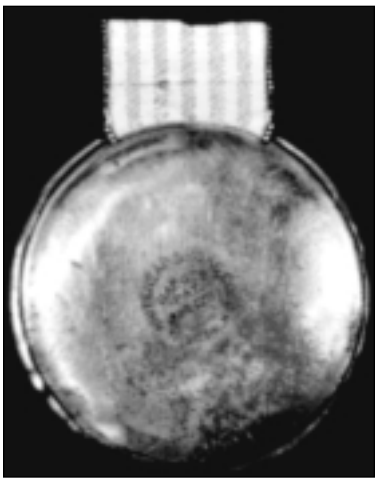
Cleaning

As with most museum and collection objects, all do-it-yourself treatments are discouraged. Cleaning is really a conservation treatment when the objects in question are historic and important enough to be collected by an institution or serious collector. Oftentimes, more damage can be done to an object by well-meaning, though misguided, recipes and commonly used cleaning methods than through benign neglect. In no case should it be attempted to separate the various components of a button. Currently, there

Continued on p. 6

are no safe methods to do this without causing permanent damage to the plastic and paper layers.

If it is determined that a political campaign button collection is in need of cleaning and probably other remedial treatments prior to an exhibition or research project, a qualified professional objects conservator should be consulted to assess and evaluate the conservation needs of the collection. Objects with badly damaged and fragile textile components requiring treatment beyond storage preparation can be looked at by a textile conservator.



Above: The ribbon connects the button to a pin-back badge. Right: The back of the same button, showing corrosion on the full collet.

Exhibition

The general rule for the display of objects is to adjust the environmental conditions and lighting so that they are appropriate for the most sensitive materials of the object. The most sensitive materials in campaign buttons are the printed paper and plastic layers. Temperature and RH ranges should be similar to the ranges used for storage; the temperature should be closer to 70˚ F to provide for visitor comfort.

Lighting is the critical parameter for display, since long exposure to light can cause irreversible fading of dyes, yellowing of plastics and other permanent and disfiguring damage. Ultraviolet light (UV), the short wavelength component of visible light, is the most damaging to the materials of campaign buttons. Infrared, the longwave component of visible light, is also damaging; it heats the materials, causing deformations and other damage. Even visible light, if at high enough intensities and for a long enough period of time, can cause similar types of damage to these objects.

Damage from light is cumulative and relative to the intensity of the light. Therefore, objects that are sensitive should be exposed to low levels of light for relatively short periods of time. For buttons of all types and ages, a simple rule of thumb for exhibition lighting would be 5 Foot Candles (50 Lux) for one year. The maximum amount of UV radiation from a light source should be 75 microwatts/lumen or less. Consult a conservator for further details on lighting for exhibitions.

Mounts for displaying campaign buttons can be simply made by attaching the pin to a backing of non-buffered mat board with nylon monofilament. In no case should a button be mounted with silicone adhesive or any other adhesive method. This can cause permanent damage to most of the materials that compose the button, and make it difficult to remove the button from the mount in an efficient manner.

Textile ribbons must never be sewn to mounts, and in most cases can simply be draped on the mount, without folding or otherwise distorting it mechanically.

Fabrics used to cover display boards and mounds should never contain wool or sizing. Wool felt contains sulphur that can tarnish silver and other metals. Sizing is a compound that usually contains formaldehyde, which under certain conditions can corrode most metals and adversely affect other materials. Unsized natural fabrics, such as cotton and silk, and synthetics such as polyester, are acceptable.

Conclusion

Campaign and other buttons are fascinating collectible objects as historical documents, and they also have an interesting technological history as graphic objects. It is important to take a preventive conservation approach to their care. This requires a holistic, measured approach, and in most cases requires professional conservation advice and assistance.

Further Reading

Blank, Sharon. *An introduction to plastics and rubbers in collections. Studies in Conservation.* Vol. 35, No. 2, May 1990, pp. 53-63.

Morgan, John. *Conservation of Plastics: An Introduction.* London: Plastics Historical Society, 1991.

Reilly, Julie A. "Celluloid Objects: Their Chemistry and Preservation," *Journal of the American Institute for Conservation.* Vol. 30, No. 2, Fall 1991, pp. 145-162.

Schultz, Jeffrey R. "Political Campaign Buttons: History, Collection, and Care," *IHA Technical Insert, Insert No. 20.* March-April 1986, Illinois Heritage Association, Champaign, IL.