



Basic Care of Coins, Medals, and Medallic Art

Introduction

Coins, medals, and medallic art¹ are commonly found in museum collections. These items often have considerable curatorial and monetary value. Mishandling, inappropriate storage materials, or an inhospitable storage or exhibit environment can cause irreparable damage and loss of value. This Note gives general guidelines for preserving these items.

Handling

Coins, medals, and medallic art should be handled by their edges. As with all metal objects, the handler should wear clean, well-fitting cotton or plastic gloves to protect the metal surface from the skin's corrosive oils and acids. This is particularly important with proof coins that have a mirror-like finish. Any mark, however small, can disfigure the coin and lessen its value. Handlers who find gloves uncomfortable may wish to consider wearing finger cots, which are small latex sheaths designed to fit over individual fingertips.

Note that cotton gloves must be used when handling silver coins, because the sulphur in latex causes silver to tarnish.

Display and Storage

Environment

The ideal environmental conditions for displaying and storing coins, medals, and medallic art are the same as for other metal objects (see CCI Notes 9/2 *Storage of Metals*). Relative humidity (RH) should be kept as low as possible because metals become increasingly susceptible to corrosion as the humidity rises. Ideally, the RH should be below 30%; however,

¹ Medallic art includes aesthetic and commemorative medals struck with special care and often with higher relief than seen on coins.

this is often impractical with mixed collections, where levels of 35–55% are the norm. In these cases, regular examination and condition assessment will indicate whether or not the storage or exhibit environment is appropriate. If the collection begins to corrode, a separate dry microclimate should be established using silica gel (see Lafontaine 1984; Raphael 1992).

Although coins and medallic art are not sensitive to light, the ribbons that usually accompany military or commemorative medals are. The ribbons, often silk, are highly susceptible to fading. Medals with ribbons should be stored in the dark and their exposure to light should be limited. Exhibit light levels should not exceed 50 lux and 75 $\mu\text{W}/\text{lumen}$ (see CCI Notes 2/1 *Ultraviolet Filters* and 2/4 *Environmental Monitoring Equipment*).

Storage holders

All coins, medals, and medallic art should be stored individually in protective storage holders. Choosing an appropriate storage holder is important. The holder should provide long-term protection and not cause any physical or chemical harm.

Traditionally, plastic flips and paper envelopes have been used for housing these collections. Flips have two pockets: one for the coin and one for curatorial information. Paper envelopes should be made of good-quality, acid-free rag paper.

Of the two types of holders, the clear plastic flips are preferable because they reduce handling, i.e. they allow the coin to be examined without removing it from its holder. Plastic holders should be made from an inert, pure, archival-quality plastic such as polyethylene, polypropylene, poly(ethylene terephthalate) (e.g. Mylar D, Kodar), polystyrene, or poly(methyl methacrylate) (e.g. Plexiglas).

Vinyl flips (poly(vinyl chloride), PVC) should be avoided. The plasticizer in PVC is particularly corrosive

to copper alloy coins, producing a green corrosion product commonly called green slime. Silver coins with a high copper content may also exhibit this form of corrosion. PVC can be readily identified by the Beilstein Test (see CCI Notes 17/1 *The Beilstein Test: Screening Organic and Polymeric Materials for the Presence of Chlorine, with Examples of Products Tested*). If coins, medals, and medallic art are currently stored in PVC holders, they should be rehoused in archival-quality holders.

Mylar flips are inexpensive and readily available, and they come in a variety of sizes. Alternatively, many collectors prefer the cardboard and Mylar folders available from hobby shops. Although the cardboard is acidic, the Mylar window sits as a barrier between the coin and the cardboard. The cardboard surround provides ample space to record catalogue and accession information. Care should be taken to pinch back the staples to prevent them from scratching other coins or tearing other folders when coins are stacked together.

Archaeological coins are often too fragile to be housed in Mylar holders or flips. Instead, it is recommended that they be housed in small polystyrene boxes, within which they are mounted on custom-carved polyethylene foam (e.g. Ethafoam) mounts that have been lined with a soft, non-abrasive material such as cotton jersey.

A variety of physical tests involving stretching, burning, and tearing can be used to identify plastics. The tests can be particularly helpful when older collections are housed in holders of unknown composition. Identifying the plastic will help to determine whether or not the collection needs to be rehoused. The Caveman Chemistry Kit (TaylorMade) contains directions for identifying the most commonly used plastic film materials. The kit includes labelled samples of films and detailed instructions for testing and identification.

Manufacturers or suppliers of numismatic holders, or of any archival-quality materials, should clearly state what materials are used in the product. If they cannot or will not supply this information, an alternative supplier should be sought.

Many medals are stored in their presentation cases. The cases are an important part of the object, and every effort should be made to keep the two items together. Medals without cases, or medallic art too large for Mylar flips or holders, should be boxed for their protection. Small, acid-free, archival-quality boxes (e.g. microfiche or small artifact boxes) or clear polystyrene boxes are affordable and appropriate. A box lining of soft, non-abrasive packing material such as acid-free

tissue or Microfoam, an uncrosslinked polypropylene, will provide adequate support.

Storage cabinets

Wooden coin cabinets are a traditional and attractive way to house coins and medallic art, but they are not recommended. Wooden cabinets and display cases, particularly when new, can emit acidic vapours that can corrode many metals. Oak cabinets in particular should be avoided.

Instead, store coins, medals, and medallic art in inert plastic containers such as polyethylene or polystyrene or in metal storage cabinets — ideally ones that have a powder coating (see CCI Notes 9/2 *Storage of Metals*).

Exhibit cases

Exhibit cases, like storage containers, should be constructed of stable, nondeleterious materials. Any lining fabrics, especially those in direct contact with coins, medals, or medallic art, should meet the same criteria (see Tétreault 1992).

Ideally, all materials destined for the interior of an exhibit case should be tested to ensure that they are not potentially corrosive (see Green and Thickett 1995).

Security

Exhibit and storage security are particularly important for coins, medals, and medallic art as these objects tend to be small, valuable, and exceedingly portable. Exhibit cases and storage cabinets should always be locked, and access to the keys should be limited. In the event of a theft, a detailed description of the items, including up-to-date photographs (obverse and reverse), will help the police recover them or the owner file an insurance claim.

Properly identifying and assessing the value of these collections helps to ensure that insurance coverage is adequate. If photographing the entire collection is too expensive or time-consuming, consider using a video camera to record the condition of each object. Ensure that the video is dated and is stored in a relatively dry, cool environment (RH below 50%; temperature below 22°C), and away from any sources of magnetism. The life expectancy of videotapes is about 20 years.

Cleaning Coins

Many numismatists believe that coins should never be cleaned. They prize the patinas, toning, and tarnish that can occur on the surface of a coin over time. Toned or tarnished silver coins are particularly valued.

Toning is the corrosion product silver sulphide, which can appear in colours ranging from yellow and red through to blue and black. The thickness of the film (i.e. thin film interference) determines what colour is seen; essentially, the thicker the film, the darker the colour.

In general, removing corrosion from the surface of a coin should be left to a conservator. Coins can be washed, however, to remove surface dirt and contaminants such as oils, salts, and acids deposited from handling. Washing does not affect any underlying patina. It is advisable to wash and degrease all coins before placing them in holders, even if they do not appear dirty.

Procedure

- Ensure the work area is well ventilated.
- Wash the coin in lukewarm distilled water using diluted mild soap (under no circumstances should powdered dishwasher detergent be used). Take care not to scrub the surface of the coin.
- Rinse in distilled water.
- Degrease and dewater the coin by soaking it in acetone.
- Allow the coin to air-dry on a paper towel.

Coin dips and metal cleaners (cloths, wadding, and liquids or pastes) should not be used to clean coins. Coin dips contain acids that, if left on the surface through insufficient rinsing, can lead to degradation. Most metal cleaners contain abrasives that can scratch the surface of a coin.

Cleaning Medallic Art

Medallic art is treated similarly to coins. However, some medallic art may have been originally coated with dark brown resins or shellac to give the appearance of a patina. These coatings are often soluble in degreasing solvents. Examine the medal closely before cleaning to determine if such a coating is present. If it is, do not degrease in acetone.

Cleaning Medals

Unlike coins, most medals were meant to have their bright surfaces maintained.

Lightly tarnished silver and brass medals can be cleaned using a coin dip cleaner (provided the medals are properly rinsed). This method is not recommended for medals with attached ribbons.

Procedure

- Gently apply the dip solution to the medal using a cotton swab (do not immerse the medal in the dip).
- Thoroughly rinse the dip from the surface of the medal, first in running tap water, then in distilled water.
- Degrease and dewater the medal in acetone.
- Allow the medal to air-dry on a paper towel.

Light tarnish can be removed with jewellers' cloth, which has an outer layer of flannelette and an inner layer of flannel impregnated with jewellers' rouge (hematite), a fine abrasive. Gently and evenly rub the inner layer of the cloth over the surface of the medal, and then remove the residual rouge by polishing with the soft outer cloth. Ribbons should be protected during this procedure by wrapping them in a material such as HandiWrap or a lightweight Mylar. After cleaning, degrease the medal in alcohol or acetone (applied with a swab if ribbons are attached).

It is important to remember that some medals, such as the Victoria Cross, were issued with a patina, and some were painted or enamelled. These original surfaces should be retained.

Surface Coatings

Protective coatings such as lacquers and wax are often applied to the surface of coins, medals, and medallic art to protect them from handling and an inhospitable environment.

Lacquering is a job best left to a specialist. A poorly applied lacquer coating is not only unattractive, but can lead to corrosion at a later date.

A wax coating generally provides less protection than lacquer, but is easier to apply and remove. A suitable wax can be made by mixing equal parts of a good-quality floor paste wax (e.g. Aerowax) and odourless mineral spirits.

Procedure

- Apply the wax and solvent mixture with a soft cloth.
- Use a hair dryer to melt the wax into all recesses.
- Allow the solvent to evaporate.
- Buff the surface lightly with a soft cloth.

Wax coatings can easily be removed in the future using odourless mineral spirits.

Suppliers

Note: The following information is provided only to assist the reader. Inclusion of a company in this list does not in any way imply endorsement by the Canadian Conservation Institute.

Jewellers' cloth and coin dip cleaner:
jewellery or hardware stores

Soap (Orvus WA Paste):
Carr McLean
461 Horner Avenue
Toronto ON M8W 4X2
Canada
tel.: 416-252-3371 or 1-800-268-2123
fax: 416-252-9203 or 1-800-871-2397
www.carrmclean.ca
(note that dishwashing liquid from a grocery store will suffice if Orvus WA Paste is not obtainable)

Acetone, odourless mineral spirits:
hardware stores or chemical supply houses

Wax:
grocery or hardware stores

Coin holders:
coin dealers, hobby stores, or the manufacturer

Mylar flips:
TaylorMade Company
PO Box 406
Lima PA 19037
USA
tel.: 215-459-3099
fax: 215-459-3867

Saflips:
E&T Kointainer Co.
PO Box 103
Sidney OH 45365
USA

Kodar Flip (Blue Ribbon Safety Flipette):
Harold Cohn & Company
3224 North Halsted Street
Chicago IL 60657
USA

Cotton gloves:
photography stores or safety supply houses (referred to as "inspection" gloves)

Rubber and vinyl gloves:
drugstores, medical supply stores, or safety supply houses

Finger cots:
University Products
PO Box 101
Holyoke MA 01041-0101
USA
tel.: 1-800-628-1912
fax: 1-800-532-9281

Caveman Chemistry Kit:
TaylorMade Company
PO Box 406
Lima PA 19037
USA
tel.: 215-459-3099
fax: 215-459-3867

Archival-quality boxes, acid-free tissue, silica gel, etc.:
Carr McLean
461 Horner Avenue
Toronto ON M8W 4X2
Canada
tel.: 416-252-3371 or 1-800-268-2123
fax: 416-252-9203 or 1-800-871-2397
www.carrmclean.ca

Polystyrene boxes:
plastics supply stores

Ethafoam, Microfoam:
plastics supply stores
(note that Volara Type A, Plastazote, Minicell, and XL-PE are also suitable)

Bibliography

Green, L.R., and D. Thickett. "Testing Materials for Use in the Storage and Display of Antiquities—A Revised Methodology." *Studies in Conservation* 40, 3 (1995), pp. 145–152.

Lafontaine, R.H. *Silica Gel*. Technical Bulletin No. 10. Ottawa, ON: Canadian Conservation Institute, 1984.

Maltby, S.L. "Preserving Collectibles." Monthly column in *Coin World* (published columns available from the publisher—Coin World, PO Box 4315, Sidney, OH 45365, USA, cwbooks@amospress.com).

Michalski, S. "A Control Module for Relative Humidity in Display Cases." pp. 28–31 in *Science and Technology in the Service of Conservation* (edited by N.S. Brommelle and G. Thomson). London, UK: International Institute for Conservation of Historic and Artistic Works, 1982.

Raphael, T. "Standardized Packaging Containers for Silica Gel." pp. 241–243 in *Storage of Natural History Collections: Ideas and Practical Solutions* (edited by C.L. Rose and A.R. de Torres). Pittsburgh, PA: Society for the Preservation of Natural History Collections, 1992.

Sharpless, T.W. "Corrosion: The Problem of Storage." *The Numismatist* (October 1980), pp. 2450–2454.

Storch, P.S. "Curatorial Care of Numismatic Collections." *Conservation Notes* (a quarterly

publication of the Materials Conservation Laboratory, Texas Memorial Museum, The University of Texas at Austin) 13 (1985), pp. 1–4.

Tétreault, J. "Matériaux de construction, matériaux de destruction." pp. 163–176 in *La conservation préventive: Colloque sur la conservation restauration des biens culturels, Paris, 8, 9, 10 octobre 1992*. Paris, France: Association des restaurateurs d'art et d'archéologie de formation universitaire. (English version "Materials of Construction, Materials of Destruction" available from CCI.)

Tétreault, J., J. Sirois, and E. Stamatopoulou. "Studies of Lead Corrosion in Acetic Acid Environments." *Studies in Conservation* 43 (1998), pp. 17–32.

by Tom Stone

Originally published 1989

Revised 1997, 2007

Copies are also available in French.

Texte également publié en version française.

© Minister of Public Works and Government

Services Canada, 2007

Cat. No. NM95-57/9-4-2007E

ISSN 0714-6221

Printed in Canada