

INDIANA HISTORICAL SOCIETY COLLECTIONS ADVISOR

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Caring for Metals

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Most institutions have metal objects in their collections - silver tea sets, utensils, decorative objects, wrought iron railings, some toys, etc. No matter what form the metal in your collections takes, the majority of it is highly susceptible to damage through corrosion. Over time, your metal collections objects undergo chemical changes that can happen more rapidly if they are not properly cared for. That silver tea set will tarnish and turn black. Lead toys will disintegrate into powder. Copper pots will turn green.



Rusted finial

Common causes of corrosion are contamination by other materials like salt, ammonia, dust, and organic acids. In high relative humidity environments, metal objects that come into contact with other objects made of different metals can also damage each other through a process called galvanic corrosion. Some objects are made of metal alloys – combinations of types of metals – which can affect their rates of corrosion.

Storage:

- In general, it's best to store like metals with like metals. That will allow you to provide optimal environmental conditions for the objects. Most of us don't have that option because of limited storage space and varying ability to adjust storage environments. We can be aware of and use the appropriate storage materials when possible.
- Create the best environment you can and monitor relative humidity and temperatures. Different collections objects like to live in different environments so be aware that you're looking for the best situation for most of your objects.
- To avoid exposing metal objects to corrosive agents, keep them away from direct contact or enclosed with unsealed wood and wood-based products, latex (emulsion) paints, silicone sealants and adhesives, and rubber products. These materials emit acids, ammonias, peroxide, and gasses.
- Use stable materials such as acid-free board, polyethylene, silicone-free sealants, and glass. Clear polyester film can be used as a buffer layer between the object and whatever it's sitting on.

Handling:

- Whether or not to wear gloves when handling collections objects often depends on the object and its condition. When handling metals, wearing gloves is the standard. Clean nitrile gloves without any added chemicals are the best to keep chemical transfers to a minimum and protect both the object and you. White cotton gloves provide some protection but are porous and salt from your hands can travel through them to the object. If you are using cotton gloves, be sure to wash them in a dye-free, scent-free detergent to remove chemicals prior to handling your metal objects.
- Common handling practices apply to metal objects. Never grasp or carry an object by its handle. The join is a weak point and the handle may become disconnected from the object. Don't assume that the base of an object and its body are solidly connected. Corrosion and wear may have created a weakness that will cause the two pieces to separate.

Cleaning:

- Tarnished metal is stable. In fact, the tarnish is a protective layer. Polishing the silver is by nature an abrasive act and a layer of metal is removed with the tarnish. Additionally, commercial polish is often acidic or alkaline and can leave damaging residue.
- Do no harm. Develop guidelines for how and how often metal objects will be cleaned. As with many collections objects, a gentle cleaning with a soft, natural bristle brush is a good option. Vary the cleaning methods according to the best care for the objects.
- Consider using your tarnished silver as a learning opportunity to talk to visitors about how we care for our collections objects and why we let some objects do what they're going to do.

With metals, as with other collections objects, the best thing to do is learn about them – what they are made of, how they were made, how environments and conditions affect them, and how they prefer to live. Once you know that you can make good decisions for how to care for them now, make a guide for their continued care, and plan for their future preservation.

References

- [Caring for Metal Objects](#) (Canadian Conservation Institute)
- [Caring for Silver and Copper Alloy Objects](#) (National Park Service Conserve O Gram)

[Storage of Metals](#) (Canadian Conservation Institute)

General Resources

- [Collections Advisors](#) (Indiana Historical Society)
- [Timely Tips](#) (Indiana Historical Society)

Collection Trainings

[Website and Social Media Archiving](#)

Nov. 13 (Conservation Center for Art and Historical Artifacts)

[Keeping the Groove: Caring for Grooved Audio Media](#)

Nov. 14 (Connecting to Collections Care)

[Contamination and Pesticide Residues for Small and Mid-Sized Cultural Institutions](#)

Nov. 19 (Connecting to Collections Care)

Webinars

- [Recorded](#) (Indiana Historical Society)

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