

# OCCUPATIONAL HAZARDS:



## MITIGATING THE DANGERS OF HAZARDOUS MATERIALS IN MUSEUM COLLECTIONS

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This May, I attended a workshop hosted by the Oregon Museums Association about handling hazardous materials in museum collections. Sarah Samson, Collection Manager/Curator at Renton History Museum in Washington, and Joseph Govednik, Museum Director at Cowlitz County Historical Museum in Washington, presented the workshop at Benton County Historical Museum in Philomath, Oregon. The workshop comprised a great combination of pertinent information, networking, and a fabulous collection-space tour from Benton County Historical Museum. Samson's presentation covered various categories of hazards in museums, including environmental dangers, exhibit installation hazards, and of course, the many types of hazardous collection objects. Govednik gave a presentation about safe handling of various sorts of firearms found in museum collections. I was already aware of many of the sorts of hazards that I am likely to find in my collection (an extensive and varied artifact collection at the Oregon Historical Society), but as Samson talked us through her presentation I realized that we have every category of hazard she discussed!

Starting with environmental hazards, we are in an earthquake and volcanic eruption zone here in Portland, and ash and smoke from wildfires have also been an issue in the past. Many of us in the Western region share similar types of risk from these hazards, with coastal museums adding the potential threat of tsunamis to their disaster-planning conversations. Physical hazards from large artifacts that could tip or fall are also a common museum hazard, especially large artifacts suspended in the air. Facilities issues such as lighting or electrical systems are a potential problem as well, particularly during an earthquake or tsunami. Samson made the very good point that the ideal time to discover what kind of air-filtration system you have is not *after* a volcanic eruption!

Moving on to collections issues, it became apparent that many kinds of artifacts are potentially dangerous. At the Oregon Historical Society (OHS) we have a general collection, a costume collection, and an ethnology collection—and they all have their issues. In the past, basketry and taxidermy were often treated with pesticides (commonly arsenic) and may still contain residue from those chemicals. Certain costume items, especially furs and hats, were sometimes processed using mercury. The Connecting to Collections webinar listed at the end of this article has helpful information about arsenic and other textile-collection hazards.



▲ The Revigator was intended to add radioactivity (radon) to drinking water, for health purposes. It was commonly sold between 1924 and 1930. OHS Museum 91-97.846

▼ Fire Grenade, a glass bulb most likely containing carbon tetrachloride, used in the late 19th to early 20th century as a fire suppressant. OHS Museum 91-97.420



Finally, our general artifact collection contains the most potential hazards! We have medical tools and old medications containing mercury, lead, and even more dubious substances. Luckily, we don't own any medical specimens at OHS (phew!) but if you do, you should check out the

Mütter Museum webinar listed in the resources below. Radioactive items are frequently found in museum collections (Fiestaware from certain dates has a radioactive glaze) and at OHS we have a radioactive water cooler from the 1930s, when radioactive water was apparently considered invigorating, rather than deadly. “Fire grenades” also seem to be a common item —Samson told a near identical story to an experience I had at OHS of finding one of these early 20th century fire suppressants and realizing that the chemical housed inside the thin glass is carbon tetrachloride, a very nasty substance. Hers was taken away by her local hazmat team. In our case, we are working with Portland Metro hazardous waste to dispose of it. Old agricultural tools, vehicles, and apparently old computers all can contain problematic substances. Asbestos abounds in historical objects! It's a great insulator, so it pops up everywhere – just in our collection we have found it inside irons, inside gas masks, blacksmith's tongs, tableware, pipes, and a portable foot heater for early automobiles, to name a few examples. Cellulose nitrate film is a well-known fire hazard, but happily, here at OHS we have staff with expertise in handling nitrate film, and we have dedicated cold-storage vaults to keep the film stable.

So, what can collection professionals do to protect themselves and the rest of their collections from all these hazards? Samson presented several suggestions, some of which we have already implemented here at OHS, and others that we are working towards.

- Artifacts can be tested with XRF material testers to see what substances are on them, although this is not a piece of technology which most museums possess!
- Call an expert—larger museums may have staff with specialties in handling specific types of artifacts, e.g. textiles or medical specimens.
- Suspect items should be isolated, bagged, and labeled.
- Radioactive items can be detected with a Geiger counter, and stored under double layers of glass or thick plastic to mitigate the risk. Lead-lined storage bags can also be purchased.
- Nitrate film should be placed in cold storage.
- Implement strict handling procedures for hazardous collections and locked storage for particularly problematic objects.



Early "Plains" percussion rifle. OHS Museum 419

- Consider deaccessioning hazardous artifacts, and work with local authorities to dispose of them.
- Get to know your local fire and police department! (I would also add that we have gotten to know our local Explosive Ordnance Division of the National Guard, who have identified some potentially explosive military artifacts for us and certified them inert.)

Following Samson, Joseph Govednik from Cowlitz County Historical Museum focused on the specific hazards of firearms in museum collections. He gave us a great show-and-tell about different kinds of firearms found in museum collections, using examples he brought with him, and explained different types of mechanisms and how to check if they are loaded. Obviously, firearms are something that should always be kept in secure storage, and he also suggested taking a firearm safety course. Laws regarding firearms vary from state to state, so staying up-to-date with local laws and whether museums are exempt from those laws is important.

Finally, I am including here a list of resources for further information that Samson and Govednik made available at the end of their workshop. Many thanks to the presenters, hosts, and the Oregon Museums Association!

Radioactive Artifacts, a blog post by Sarah Everts on June 5, 2012

Radioactive Artifacts—A Radium Reprise, a blog post by Sarah Everts on June 26, 2012

Arsenic Contamination of Artifacts, a blog post by Sarah Everts on February 1, 2012

Nitrate Films, a guide from the American Museum of Natural History

A Short Guide to Film Base Photographic Materials: Identification, Care, and Duplication, from the Northeast Document Conservation Center

Arsenic & Old Lace: Controlling Hazardous Collection Materials, a Connecting to Collections webinar

The Cabinet of Death: Tales of Conservation & Storage from the Mütter Abditory, a Connecting to Collections webinar ●