

Trailing Questions from The Cabinet of Death: Tales of Conservation & Storage from the Mütter Abditory Webinar

March 22, 2018

AD=response from Anna Dhody, Curator of the Mütter Museum and Director of the Mütter Institute.

GG=response from George Grigonis, Mütter Museum Collections Technician.

G. Asher Newsome [Suitland, MD]: How are the wet samples topped off? What do you do to test the liquid contents?

AD We use a grease pencil to mark the fluid level and the date on the specimens and visually monitor them for fluid loss. We top them off as needed. We can test the alcohol content of the fluid using a hydrometer.

G. Asher Newsome [Suitland, MD]: Has the Mütter ever had any interaction with La Specola in Florence? They have very nice, very old, very accurate wax models

AD We know of the museum but do not have any contact with them at the moment. The Mütter Museum is a member of the E.A.M.H.M.S., the European Association of Museums of the History of Medical Sciences, at our last meeting in the Netherlands there was no representative from La Specola.

Dee Stubbs-Lee [Saint John, NB, Canada]: Question: re: chemicals and drugs - How do you decide whether or not to retain potentially dangerous contents?



AD First, we have to qualify how to define “dangerous.” The majority of our collection comes with a degree of risk. We always consider the cost-benefit of acquiring or keeping an object or specimen that has associated risk. One of the first things I did when I became curator in 2007 was to hire an environmental agency to sweep and scan the entire building for radiation, mercury vapor, and the presence of any toxic or harmful chemicals that were improperly stored, etc. The museum only takes up about 10% of the entire building space, but I wasn’t taking chances. We ended up having to quickly deaccession and dispose of a few highly radioactive objects. Those were too dangerous and the cost of keeping them safely here were too high. Cost, being not just monetary but factoring in other issues like storage space, staff time, potential liability if we do keep it, etc. Every object or specimen is unique and they are assessed on a case-by-case basis.

Catarina Teixeira [Lisbon, Portugal]: Same question as Dee Stubbs-Lee. How do you select historical chemicals?

GG: In the context of pharmaceuticals, unique formulations pre-dating regulatory control and oversight. Post regulatory control and oversight, approved formulations that are no longer manufactured or in the marketplace. The caveat is that the chemistry has likely broken down and of little value since formularies are known. The long-term interest and value is the packaging, container, and any inserts or instructions for use.

Chemistry – If you cannot buy it from a supplier today. For example, Hg(II)Cl₂ salt from 1810 is the same as chemistry you can buy from a supplier today—purity and contaminants are the only difference. What might be of long-term interest and value would be, again, the packaging from a supplier that is no longer in business.

Ann Schempp [Moses Lake]: How do you balance active collecting with limited storage?

AD This is always an issue with museums, big and small. Every potential object is assessed on its own merits. We ask questions, such as:

- Does the object meet the criteria set forth in our Collections Management Policy (under our Acquisition Policy section).*
- What is the current condition of the object? Will it cost us money to conserve it?*
- Is the item redundant? If so, is it in better condition than the one we currently have?*
- How big is it? Can we properly house and care for it?*

We take all of these into consideration before we make our decision.

LORRAINE ZWOLAK: In storage, are specimens segregated according to type? Are they refrigerated?

AD All of our wet specimens that are not on display are in our Wet Specimen Storage room/Conservation Lab. It is climate controlled to 68° +/- 2°. The majority of our osteological specimens are in our osteological storage room. They have climate control.

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Annunziata Morant [Toronto, ON]: If you have limited storage and you are actively collecting do you ever deaccession specimens?

AD *Yes.*

Kimberly LaBrecque [Roanoke, VA]: Good question. How can you possibly still accept new if the old is so vast? How do you decide?

AD *Again, we ask ourselves those questions above. If the object is redundant, in poor condition, and/or does not contribute to the mission of the College (set forth in our Acquisitions Policy), it is a good candidate for deaccession.*

Dee Stubbs-Lee [Saint John, NB, Canada]: Any special concerns re: handling and storage and display of human remains (legal and ethical concerns)

AD *When handling, displaying, and caring for human remains we make sure to treat them with the utmost care and respect. Everyone who handles museum collections must take an Object Handling Training Session where we also discuss respect and proper handling technique. We also let our interns and volunteers know then cannot post pictures of human remains on their personal social media accounts. Before I came to the museum, the previous curator had already conducted the NAGPRA inventory and completed all the paperwork. In terms of new acquisitions, if a potential donor approaches us and wished to donate human remains, they must provide the necessary provenance to prove the material was legally obtained and that they have the legal right to donate it to us.*

Kimberly LaBrecque [Roanoke, VA]: Curious: I have worked with leather, fur, and taxidermy repair and restoration. Is human skin similarly restored?

AD *Yes, there are similar issues regarding tanned integument.*

Kimberly LaBrecque [Roanoke, VA]: Also, problems with oxidation, light washing, etc. Things fade. Any advice on prevention or restoration for those issues? (The usual reason for using models and keeping originals in dark, temp control areas.

GG *I assume relating to UV/chemical bleaching. When the color is gone you cannot restore the original color. All one can do is a match in the context of restoration.*

Dee Stubbs-Lee [Saint John, NB, Canada]: How do you address biohazards?

GG *Like any biohazard following guidance from CDC and/or other reputable institutions in the context of freshness of the bio-material and relative to infection and animal source.*

AD *We are lucky to have a close working relationship with CDC and can contact them with any questions we may have.*

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Michael Nagy [Atlanta, Georgia]: Have you had to reject donations due to medical ethical concerns?

AD Yes, as we mentioned above, if a potential donor cannot provide the necessary documentation to establish proper provenance, we will not accept. We will also not accept anything that falls under the NAGPRA legislation, anything associated with Canada First Nations, etc.

G. Asher Newsome [Suitland, MD]: Solutions may have once been proprietary, but there must be evaporation over time. What steps are taken for those types of materials?

AD Prior to the 1890's the main preserving agent in the solutions was alcohol. Formularies in the historical literature indicate most were basically similar. If they evaporate, we will top off or replace the fluid entirely with our 70/30% Ethanol-water solution. There are a few preserving fluids that do not allow this, such as methyl-salicylate.

Molly Richmond [Brighton, MA]: Where did you work before the Mütter? Just curious!

AD I was an Osteologist at the Peabody Museum at Harvard University.

Joan Bacharach [Washington DC]: Do you wear any masks when working on wet specimens of unknown contents?

AD No, in general the high-grade ventilation in our Wet Specimen Storage & Conservation Lab is adequate enough to let us do most tasks in the lab. We do have a fume hood for special cases.

G. Asher Newsome [Suitland, MD]: how are wet specimens labeled? On the outside jar? A tag inside the liquid?

GG Yes, both inside and outside. I will provide source for 8.5" x 11" sheets that are Laser Jet printable and a template developed with VISO graphic application. One can export the file to a suitable design CAD software supported by the organization.

Paul Storch [St. Paul]: Can you submit fluid samples to a lab for instrumental analysis and identification?

GG In general, you can submit anything for wet chemical analysis. The caveat with the analytical testing lab will be "What chemistry are you looking for?" And volume of material needed. Another issue is the cost; it will be very costly to conduct this type of analysis.

Joanna McMann [Quebec]: Is the preserving fluid "impregnated" in the specimen so that when you remove it from the original liquid it does not start to deteriorate?

AD A specimen that has been placed in formaldehyde or formalin for a certain period of time is "fixed" by that fluid. However, any specimen completely out of any fluid for an extended period of time will begin to degrade.

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Rose Smart [St.John's]: Sorry. Did you say specimen must be put in formalin, however briefly?

AD No, many of our specimens pre-date the invention of formalin and have only been in an alcohol solution. However, your state or parent institution may have certain laws or restrictions regarding human biological material so it is always best to check.

Alyx LeBlanc [Washington DC]: How do you test for residual formalin in the final ethanol solution?

GG No need to. The formalin is diluted out with washes and ethanol series if time frames are long enough relative to size and volume of tissue.

Dee Stubbs-Lee [Saint John, NB, Canada]: Any concerns with old glass specimen jars becoming brittle?

AD Glass does not become brittle. Its physical properties are determined by its formulation and manufacture. All of our recycled containers from 19th century eventually see the environment of a dishwasher in final cleaning processes. Pre-cleaning in some cases may involve chemical cleaning (acid or base washes) like preparing glassware for chemistry labs. We never had a problem with old glass containers. Where the integrity of the glass was not compromised by a crack.

Rose Smart [St.John's]: And, what was the permitted solution in UK?

<http://stainsfile.info/StainsFile/prepare/preserve/preservative-kaiserling.htm>

Alyx LeBlanc [Washington DC]: What do you use to reseal the lid? Gelatin?

GG Clear silicone caulk.

Joanna McMann [Quebec]: Usually we want to hide labels for display - different "protocols" for these types of objects?

AD We do not hide our labels. So I cannot comment on this.

Paul Storch [St. Paul]: Electrical grade silicone caulk sealant?

GG OTC products – clear feature ... what you would purchase from a home center for sinks and tubs. Sometimes black if simulated bitumen/tar seal is needed for aesthetics.

Paul Storch [St. Paul]: Could you also use silicone vacuum seal 'grease'?

GG Yes, but the lid is not secure and will pop if tilted suddenly.



Kimberly LaBrecque [Roanoke, VA]: Bags are bad for bones? I know they destroy skins...

AD Again, it all depends on the condition of your collection. We have many bones that have been broken ante or peri-mortem and it is better for them not to have any pressure placed on them from a bag.

Faithe McCreery [Tamworth, NH]: How do you roll your movable shelving without jostling the specimens?

GG Very slowly. We are not in a rush. Fixed tissue is firm. Severe jostling is only hazardous if tissue is mounted with sutures for illustrative reasons AND if the connective tissue histo-infrastructure is not robust. Mounted muscular tissue can take a bigger jolt than liver, spleen or brain.

AD As we mentioned, we are looking to get safety rails very soon to further ensure the safety of our specimens. We also limit the individuals we are trained to move the shelves.

Mandi Schwarz [Prince George, BC]: I love mobile shelving! Does the increased ventilation affect preservation than solid shelving? Or did you a solid shelf top on the new shelves too?

AD (Not sure we understand the question, but we tried...)

GG We have solid PVC foam board on top of the shelf. Rocking of containers are a risk to wire surfaces.

Rosslyn Shipp [Vancouver]: What's your opinion on archival skull storage boxes? Or, was open air your choice?

GG I think this speaks to efficiency and consolidation logistics. Boxes are easy to stack and provide some protection from impact damage. We are not stacking osteology specimens on top of one another. Single layer open-air storage on shelves is sufficient for us to maximize compact storage.

Louisa McMurray [Brooklyn, NY]: Are there labels on the skulls or on the shelves?

GG Our shelves are labeled for location coding. Catalogue number for skull is painted on each element of the specimen that can become disassociated.

Kimberly LaBrecque [Roanoke, VA]: In archaeology, bones are usually numbered with a sharpie...What do you use? Just use two to make an X on each side.

GG We put down a layer of B-72, which is similar to a clear nail polish. Then we use white acrylic, Micron Archival ink pens for hand written numbers and another coating of B-72 to seal and fix the number. Our older objects still have paper object tags with string, we are slowly replacing the paper labels, but it will take some time. <https://bit.ly/2GCHbgm>

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Virginia Bones [Martinez, CA]: Here in California, we use super simple and cheap bungee cords on our mobile storage shelves to protect against seismic events. They work great!

AD Good to know, thanks!

Canada]: Many of our zoological collections are stored in a carpeted area - ventilation and odour is a huge problem.

AD Carpets do hold odors and without ventilation, this can be unsafe for prolonged human exposure. If possible, remove carpets, absorbent ceiling tiles, and any other items that may trap odors. If you are unable to do that I recommend limiting the amount of time an individual is allowed in that room.

Alyx LeBlanc [Washington DC]: Do you have a fume hood to work in when you do conservation treatments?

GG Yes, the fume hood is used when working with noxious volatiles. No when working with most conservation tasks.

Rose Smart [St.John's]: I am interested in WHMIS compliance/concerns, but I know that's a big topic.

GG Yes, it is, when you are working in a chemical plant making tetra-ethyl lead or working in a biological weapons facility. Not so much when working with the stuff we work with 95% of the time. We do maintain and reference MSDS information when new chemistry is brought in for a special project.

Kimberly LaBrecque [Roanoke, VA]: How much of your library has been digitized? Would love to be able to access!

AD For more information on our Library, please go to: <https://collegeofphysicians.org/library>

Sarah Halter [Indianapolis, Indiana]: Can you recommend a particular radiation detector?

AD We use an older model that is not available anymore, but you can purchase them on Amazon: <https://www.amazon.com/Lab-Geiger-Counters/b?ie=UTF8&node=318143011>

Naomi Rath [Oliver, B.C.]: Do you have any tips for making sure that medical tools in collections are clean and sanitary?

GG We have a stove-top portable field sterilizer (a micro-lab pressure cooker) for sterilizing suspect instruments if incoming instruments are suspect.

Libby Stoesz [COLONIAL MANOR]: Where did you get the moving shelving from?

GG First project was direct from Metro; second project was through a reseller. <http://www.metro.com/shelving>

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Christina Claudio [Charlotte, NC]: For “bad smells”, you mentioned decomposing organic varnish. I curate moth specimens that are stored in shadow boxes. When I open the cabinets there is an odor. I’m wondering if the boxes are painted with some type of varnish? Are you familiar with insect collections?

AD *Unfortunately, without actually smelling the odor I don’t know what it could be. There are so many possibilities. It could be camphor breakdown or other pesticide used for the collection.*

