

# What's In That Old Bottle? Collections Stewardship for Pharmaceutical Collections

Anna Fowler • Kerith Koss Schragger • Barbara Rathburn  
Nancie Ravenel, Moderator

2022 New England Museums Association Annual Meeting



## Panel structure

- 2 min. introduction
- 10 to 15 min. talks
- 2 min. Q&A after each speaker
- About 7-20 min. Q&A at the end

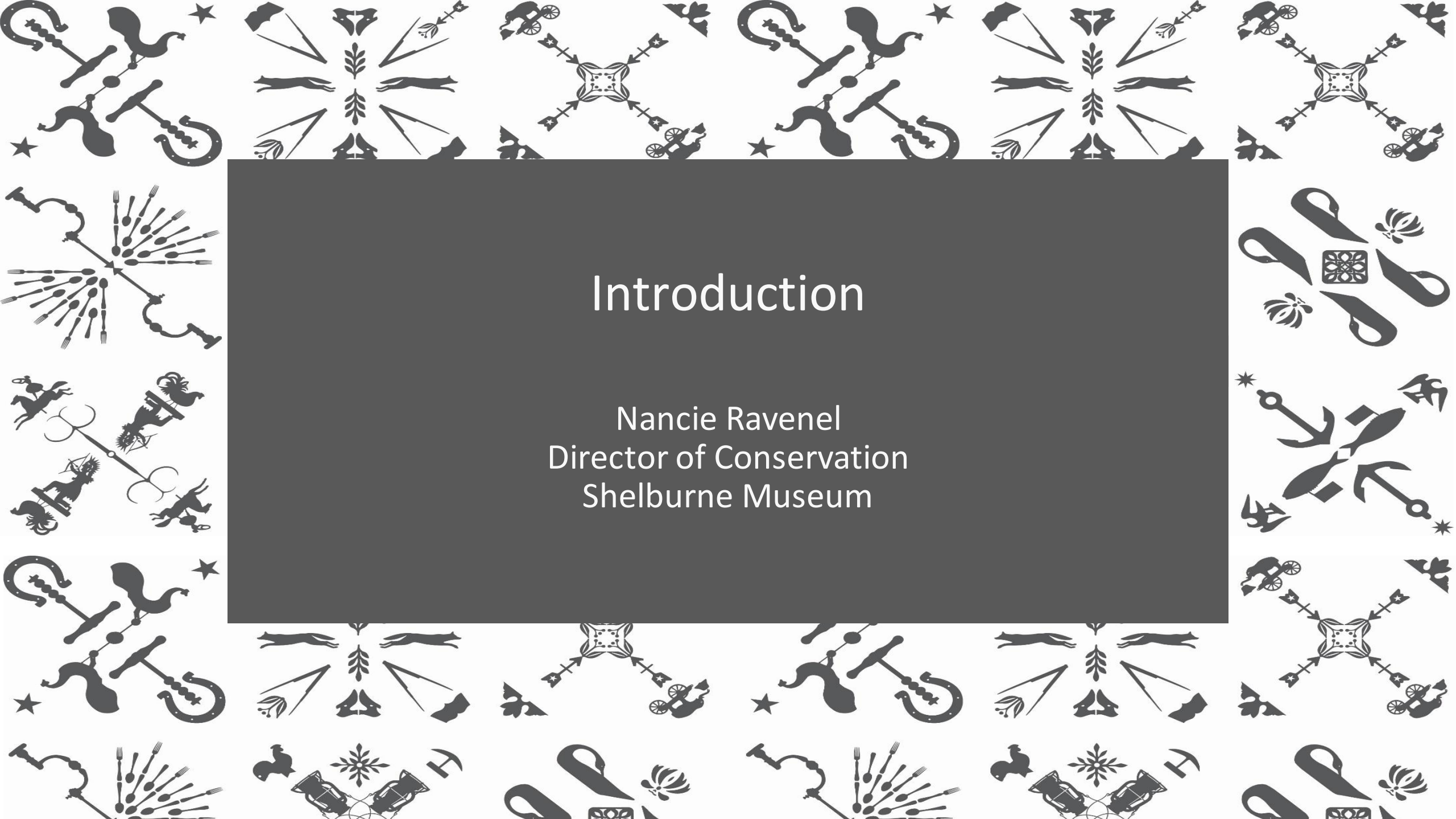


Introduction, Nancie Ravenel

Inventory & Investigation, Anna Fowler

Exposure Assessment, Kerith Koss Schrag

Hazardous Waste Disposal, Barbara Rathburn



# Introduction

Nancie Ravenel  
Director of Conservation  
Shelburne Museum

Not a historic village  
but laid out to evoke one.



Arial view of Shelburne Museum, looking south.  
Photography by Andy Dubak.



Vergennes  
Schoolhouse



Pleissner Gallery



Train Station & Locomotive 220



*Ticonderoga*

General Store  
& Apothecary



SHELBURNE  
MUSEUM





General Store (originally constructed 1837-1842, moved 1953)  
and Apothecary (constructed 1959)





Apothecary (constructed 1959)



Apothecary Main Room South Wall



Apothecary Compounding Room



SHELBURNE  
MUSEUM



SHELBURNE  
MUSEUM



Doctor's Offices on 2<sup>nd</sup> floor of General Store  
Office contents of Dr. D.C. Jarvis (1881-1966) acquired 1966



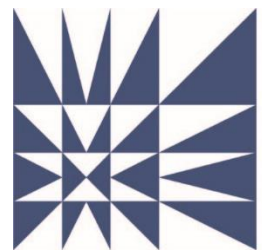
# Visual Inventory and Investigation

Anna Fowler  
Inventory Technician  
Shelburne Museum

Anna's work at Shelburne Museum is funded, in part, by a grant from IMLS MA-245455-OMS-20

# Visual Inventory and Investigation

- Visual Inventory Process
- Health and Safety
- Research
- Future products to share



**SHELBURNE  
MUSEUM**



This project was made possible in part by the Institute of Museum and Library Services [MA-245455-OMS-20].

# Visual Inventory Process

- Don't open anything
- Cataloging into a Microsoft Forms survey:
  - Information gathering
    - Numbers
    - Label text
    - Container
    - Contents
    - Condition
    - Hazards
  - Survey questions are titled with the back-end names of fields in the database
  - The form allows for free-text, multiple choice, single choice, dates, etc.
- Photographs
- Process Data into Excel
- Database Entry – Mimsy XG
  - Mass uploads

18. CATALOGUE.MAKER 

*Manufacturer, if listed or known.*

Enter your answer

19. [CATALOGUE.PLACE\\_MADE](#)

*Where the manufacturer was located, if listed, using the format City, State with the state name fully spelled out.*

Enter your answer

20. CATALOGUE.DESCRPTION

*Type of Container*

- Container: Glass
- Container: Cardboard
- Container: Wood
- Container: Tin
- Container: Ceramic
- Container: Paper sack
- Container: Paper package
- Container: Bottle



# Raw Data created from Form entries



Container: Cardboard;Container: Box;		Content: Powder	Bentonite, USP XII preparation. Other names, Mistura cretae,
Container: Cardboard;Container: Box;	Component part of container: Lid;Component part of container: Paper seal;	Content: Crystals	Capacity 4 ounces of granular laxative chocolate agar.
Container: Cardboard;Container: Box;	Component part of container: Lid;Component part of container: Paper seal;	Content: Crystals	Capacity 1 pound. From label, a combination of Agar, Chocola
Container: Cardboard;Container: Box;Container: Paper package;	Component part of container: Exterior Packaging;	Content: Powder	Calcium Sulfite, Sulphite of Lime. Capacity 5 ounces.
Container: Cardboard;Container: Box;Container: Paper package;	Component part of container: Exterior Packaging;	Content: Powder	Should be white. Capacity 5 ounces. Calcium Sulfite.
Container: Metal;Container: Box;	Component part of container: Paint can-type lid;	Content: Powder	Capacity 1/4 lb powdered wood charcoal
Container: Cardboard;Container: Box;Container: Paper package;	Component part of container: Lid;Component part of container: Exterior Packaging;		Capacity 1 pound. Hieria Picra is most likely a combination of I
Container: Cardboard;Container: Box;Container: Paper package;	Component part of container: Exterior Packaging;	Content: Pill	This is a brown paper bulk package of one dozen smaller oran
Container: Metal;Container: Can;	Component part of container: Lid;Component part of container: Paper seal;	Content: Crystals	Capacity 1/4 pound Iron and Quinine Citrate. Soluble.
Container: Cardboard;Container: Metal;Container: Box;	Component part of container: Lid;		Capacity 1/4 pound. Magnesium Oxide, Heavy - USP.
Container: Cardboard;Container: Box;Container: Paper package;	Component part of container: Lid;	Content: Solid	The box contains 12 un Note: the three paper - documents wer



# Fully processed Excel spreadsheets

CATALOGUE.TITLE	CATALOGUE.OPTIONS	CATALOGUE.MAKER	CATALOGUE.PLACE_MADE	CATALOGUE.DESCRPTION	CONDITION.CONDITION	CONDITION.CON	CONDITION.CON	CONDITIC	CONDITIC	CONDITION.SUMMARY
	Clear Glass Bottle			Container: Glass; Container: Bottle; No closure present; No label present; Content: Residue; Dark amber-brown residue.	Poor; Not Stable; Damaged	2022-08-12	2022-08-12	Fowler, A	IMLS Pha	Container: Worn; Container: Surface Grime; Container: Parts Missing; Container: Closure/Cap/Cork/Seal Missing; Contents: Evaporated, Only
Belladonnae Folia Normal Tincture		Wm. S. Merrell Chemical Co.	Cincinnati, Ohio	Container: Glass; Container: Bottle; Component part of container: Cork stopper; Content: Liquid; About half full of dark brown liquid. 'Atropa belladonna'.	Fair; Not Stable; Damaged	2022-08-12	2022-08-12	Fowler, A	IMLS Pha	Container: Worn; Container: Surface Grime; Container: Torn; Container: Stained; Container: Faded; Container: Closure/Cap/Cork/Seal Damaged; Contents: Signs of use
	Clear Glass Bottle			Container: Glass; Container: Bottle; No label present; No closure present; Content: Residue; Dark brown residue.	Fair; Not Stable; Damaged		2022-08-12	Fowler, A	IMLS Pha	Container: Parts Missing; Container: Surface Grime; Container: Worn; Container: Signs of use; Container: Closure/Cap/Cork/Seal Missing; Contents: Evaporated, Only Residue Remains
Keith's Tinc. Avena Sativa		B. Keith & Co.	New York, New York	Container: Glass; Container: Bottle; Component part of container: Cork stopper; Content: Residue; From label, 60% Alcohol, made from Oats - 'Avena sativa.'	Poor; Not Stable; Damaged	2022-08-12	2022-08-12	Fowler, A	IMLS Pha	Container: Worn; Container: Surface Grime; Container: Torn; Container: Corrosion; Container: Closure/Cap/Cork/Seal Damaged; Container: Signs of use; Container: Soiled; Container: Stained; Contents: Evaporated, Container: Worn; Container: Surface Grime; Container: Corrosion; Container: Stained; Container: Closure/Cap/Cork/Seal Damaged
Puretest Zinc Stearate		United Drug Company	Boston, Massachusetts	Container: Metal; Container: Can; Component part of container: Lid; Content: Powder; From label, Zinc Stearate USP and Balsam of Peru.	Poor; Stable; Damaged		2022-08-12	Fowler, A	IMLS Pha	Container: Worn; Container: Torn; Container: Faded; Container: Signs of use; Container: Signs of use
Powdered Extract Ox Gall USP		Eli Lilly & Company	Indianapolis, Indiana	Container: Glass; Container: Bottle; Component part of container: Cork stopper; Content: Powder; Capacity 1 ounce. Ox Gall U.S.P.	Fair; Stable; Damaged		2022-08-12	Fowler, A	IMLS Pha	Container: Worn; Container: Faded;

CATALOGUE.ID_NUMBER	HAZARD.HAZARD	HAZARD.RATING	HAZARD.HANDLING_INSTRUCTIONS	HAZARD.DESCRPTION	HAZARD.IDENTIFIED_BY	HAZARD.DATE_IDENTIFIED
PHA3162-2022	Unknown: Requires Testing	Moderate risk	Examine prior to handling.; Wear appropriate respiratory PPE when handling.; Wear disposable gloves.	Disposal Priority: Remove Later	Fowler, Anna	2022-08-12
PHA3163-2022	Poison/Pesticide (Toxic); Other Hazards Po	Significant risk	Examine prior to handling.; Wear appropriate respiratory PPE when handling.; Wear disposable gloves.	Disposal Priority: Remove Later	Fowler, Anna	2022-08-12
PHA3164-2022	Unknown: Requires Testing	Moderate risk	Examine prior to handling.; Wear appropriate respiratory PPE when handling.; Wear disposable gloves.	Disposal Priority: Remove Later	Fowler, Anna	2022-08-12
PHA3165-2022	Alcohol (Flammable.); Lead/lead compoun	Low risk	Examine prior to handling.; Wear appropriate respiratory PPE when handling.; Wear disposable gloves.		Fowler, Anna	2022-08-12
PHA3166-2022	Unknown: Requires Research	Moderate risk	Examine prior to handling.; Wear appropriate respiratory PPE when handling.; Wear disposable gloves.		Fowler, Anna	2022-08-12
PHA3167-2022	Contents inert or not hazardous	Low risk	Examine prior to handling.; Wear appropriate respiratory PPE when handling.; Wear disposable gloves.		Fowler, Anna	2022-08-12
PHA3168-2022	Contents inert or not hazardous	Low risk	Examine prior to handling.; Wear appropriate respiratory PPE when handling.; Wear disposable gloves.		Fowler, Anna	2022-08-12
PHA3169-2022	Poison/Pesticide (Toxic)	Significant risk	Examine prior to handling.; Wear appropriate respiratory PPE when handling.; Wear disposable gloves.		Fowler, Anna	2022-08-12
PHA3170-2022	Unknown: Requires Testing	Moderate risk	Examine prior to handling.; Wear appropriate respiratory PPE when handling.; Wear disposable gloves.		Fowler, Anna	2022-08-12
PHA3171-2022	Unknown: Requires Research	Moderate risk	Examine prior to handling.; Wear appropriate respiratory PPE when handling.; Wear disposable gloves.		Fowler, Anna	2022-08-12
PHA3172-2022	Unknown: Requires Research	Moderate risk	Examine prior to handling.; Wear appropriate respiratory PPE when handling.; Wear disposable gloves.		Fowler, Anna	2022-08-12


MEDIA.MEDIA_ID	MEDIA.LO	MEDIA.RE	MEDIA.ME	MEDIA.FO	MEDIA.TH	MEDIA.LA	MEDIA.ME	MEDIA.ITE	MEDIA.CA	MEDIA.DAT	MEDIA.PU	MEDIA_ITI	MEDIA_ITEMS.STEP
PHA3162-2022 scale thumb.jpg	T:\Collect	IMAGE	digital	JPEG	Y	T:\Collect	1	1	Fowler, A	2022-08-11	N	PHA3162-	3
PHA3162-2022 view 1 thumb.jpg	T:\Collect	IMAGE	digital	JPEG	Y	T:\Collect	1	1	Fowler, A	2022-08-11	N	PHA3162-	1
PHA3162-2022 view 2 thumb.jpg	T:\Collect	IMAGE	digital	JPEG	Y	T:\Collect	1	1	Fowler, A	2022-08-11	N	PHA3162-	2
PHA3163-2022 scale thumb.jpg	T:\Collect	IMAGE	digital	JPEG	Y	T:\Collect	1	1	Fowler, A	2022-08-11	N	PHA3163-	5
PHA3163-2022 view 1 thumb.jpg	T:\Collect	IMAGE	digital	JPEG	Y	T:\Collect	1	1	Fowler, A	2022-08-11	N	PHA3163-	1
PHA3163-2022 view 2 thumb.jpg	T:\Collect	IMAGE	digital	JPEG	Y	T:\Collect	1	1	Fowler, A	2022-08-11	N	PHA3163-	2
PHA3163-2022 view 3 thumb.jpg	T:\Collect	IMAGE	digital	JPEG	Y	T:\Collect	1	1	Fowler, A	2022-08-11	N	PHA3163-	3
PHA3163-2022 view 4 thumb.jpg	T:\Collect	IMAGE	digital	JPEG	Y	T:\Collect	1	1	Fowler, A	2022-08-11	N	PHA3163-	4
PHA3164-2022 scale thumb.jpg	T:\Collect	IMAGE	digital	JPEG	Y	T:\Collect	1	1	Fowler, A	2022-08-11	N	PHA3164-	2
PHA3164-2022 view 1 thumb.jpg	T:\Collect	IMAGE	digital	JPEG	Y	T:\Collect	1	1	Fowler, A	2022-08-11	N	PHA3164-	1
PHA3165-2022 scale thumb.jpg	T:\Collect	IMAGE	digital	JPEG	Y	T:\Collect	1	1	Fowler, A	2022-08-11	N	PHA3165-	6

# And finally, a database record

Information

PHA3175-2022  
Bismuth and Ammonium Citrate  
Container: Glass; Container: Bottle;  
Component part of container: Cork stopper;  
Content: Crystals; Capacity 1/4 pound.  
U.S.P. preparation of Bismuth and Ammonium. Nearly full of fine-grained white crystals.

Media



Links

- Activities (3)
  - Condition (1)
  - Hazard (1)
    - Moderate risk: Unknown: Required
  - Location (1)
- Authorities (2)
- Media (3)
- People (1)
- Other (1)

OBJECTS 3175 / 3318

> \* ID Number (1) PHA3175-2022  
Category Medical Accessories, Medicine

> Object Name (1) Bottle, Medicine  
> Title (1) Bismuth and Ammonium Citrate

Descriptive Title

> Maker (1) Mallinckrodt Chemical Works

> Materials (0)

> Culture (0)

Place Made New York, New York

> Date Made (0)

Edition

> Accessories (0)

> Components (0)

> Whole/Part (0) WHOLE

> Collector (0)

Tombstone

> Label Text (0)

Style

Pattern

Technique

> Measurements (0)

> Other Measurements (0)

> Description (0) Container: Glass; Container: Bottle; Component part of container: Cork stopper; Content: Crystals; Capacity 1/4 pound. U.S.P. preparation of Bismuth and Ammonium. Nearly full of fine-grained white crystals. Pale amber glass.

# Hazards and Staff Safety

- PPE
  - Respirator with appropriate cartridges, we use OV/P100
  - Goggles or other Protective Eye Wear
  - Chemical and Fire resistant Lab coat
  - Chemical Resistant Gloves and Nitrile Gloves
- Environmental Controls
  - Portable fume extractor with Charcoal and HEPA filters
  - Eye Wash Station
  - Chemical Spill Kits
  - Benchkote
  - Spill tray
  - Flammables Cabinet
  - Air and Surface Testing



# Visual Identification of Hazards on Labels

- Color-coded dots on inventory labels to visually identify hazards before handling:
- Black – Mercury
- Orange – Flammable
- Blue – Poison/Inert
- Green – Safe/Inert
- Magenta/Pink – Controlled Substance
- Red X – Potentially Explosive Substance
- Note: There are a number of ways to do this labelling; we arrived at this as a simple way to incorporate identification of a few hazards at a glance into the inventory process.




# Database Hazard Identification

Information

PHA2560-2022  
Medical Accessories, Medicine  
Metoso

Media



Links

- Activities (3)
  - Condition (1)
  - Hazard (1)
    - Significant risk: Metaphen (Carcinogen. Toxic. Emits toxic NOx fumes and Mercury vapor when heated); Mercury/mercury compounds (Corrosive. Inhalation hazard. Reproductive toxicity.)
  - Location (2)
- Authorities (2)
- Objects (1)
  - PHA2560-2022: Metoso
- Media (5)

HAZARD

1 / 1

\* ID Number PHA2560-2022

Category Medical Accessories, Medicine

Object Name Bottle

Title Metoso

Maker The Abbott Laboratories

Materials

Measurements

Description Container: Glass; Container: Bottle; Container: Plastic; Component part of container: Lid; Content: Liquid; Capacity 8 fluid ounces. Nearly full. From label, contains 15% alcohol, "a bacteriostatic solution containing Metaphen (4-nitro-anhydro-hydroxy-mercury-orthocresol, Abbott) 1:2000". Indicated as a mouth wash twice a day, or as a spray/gargle.

Condition Fair; Stable; Damaged

Location Flammables Safety Cabinet

Valuation

Hazards Metaphen (Carcinogen. Toxic. Emits toxic NOx fumes and Mercury vapor when heated); Mercury/mercury compounds (Corrosive. Inhalation hazard. Reproductive toxicity.)

OBJECT HAZARD HISTORY

1 / 1

\* Hazard Metaphen (Carcinogen. Toxic. Emits toxic NOx fumes and Mercury vapor when heated); Mercury/mercury compounds (Corrosive. Inhalation hazard. Reproductive toxicity.)

> \* Rating (0) Significant risk

Description Disposal Priority: Remove Later

Component/Accessory

Position

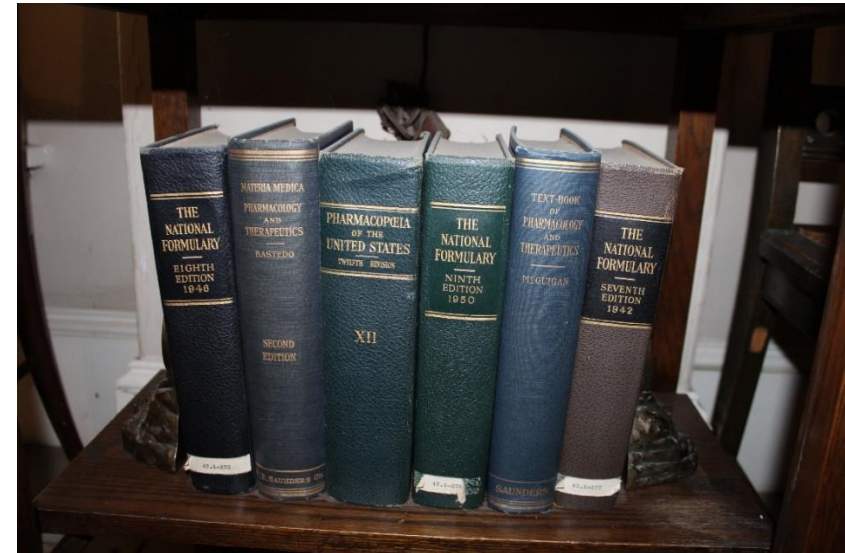
Restrict Handling  N

May Be Handled By

Handling Instructions Examine prior to handling.; Wear appropriate respiratory PPE when handling.; Wear disposable gloves.

# Research

- Books
  - Merck Index (probably the older the better, ours is ~1960s)
  - Pharmacopoeias, National Formulary, various books written on Nostrums
  - Materia Medicas (we love Emily Stoney, 1910)
    - We also appreciate Dr. A. Emil Hiss and Dr. Charles W. Oleson
- Digital Resources
  - Journals for Druggists/Apothecarists/Pharmacists
  - Journal of American Medical Association
- Archives & Archivists
  - Existing companies – All Roads Lead To... Pfizer?
  - Historical Societies
- Our own Records Room
- Check out the mini-bibliography handout on the NEMA webpage for a few of our most-used references.



## 245. LOTIO NIGRA.

Black Lotion.

*Black Wash. Aqua Phagedænica Nigra* (Germ. Pharm.).

Mild Chloride of Mercury . . . . . 64 grains.

Water . . . . . a sufficient quantity.

Solution of Lime . . . . . enough to make 16 fluidounces.

Triturate the Mild Chloride of Mercury with *one-half* ( $\frac{1}{2}$ ) *fluid-ounce* of Water, and gradually add a sufficient quantity of Solution of Lime, to make *sixteen* (16) *fluidounces*.

This mixture should be well agitated, whenever any of it is to be dispensed.

The

## American Druggist

AN

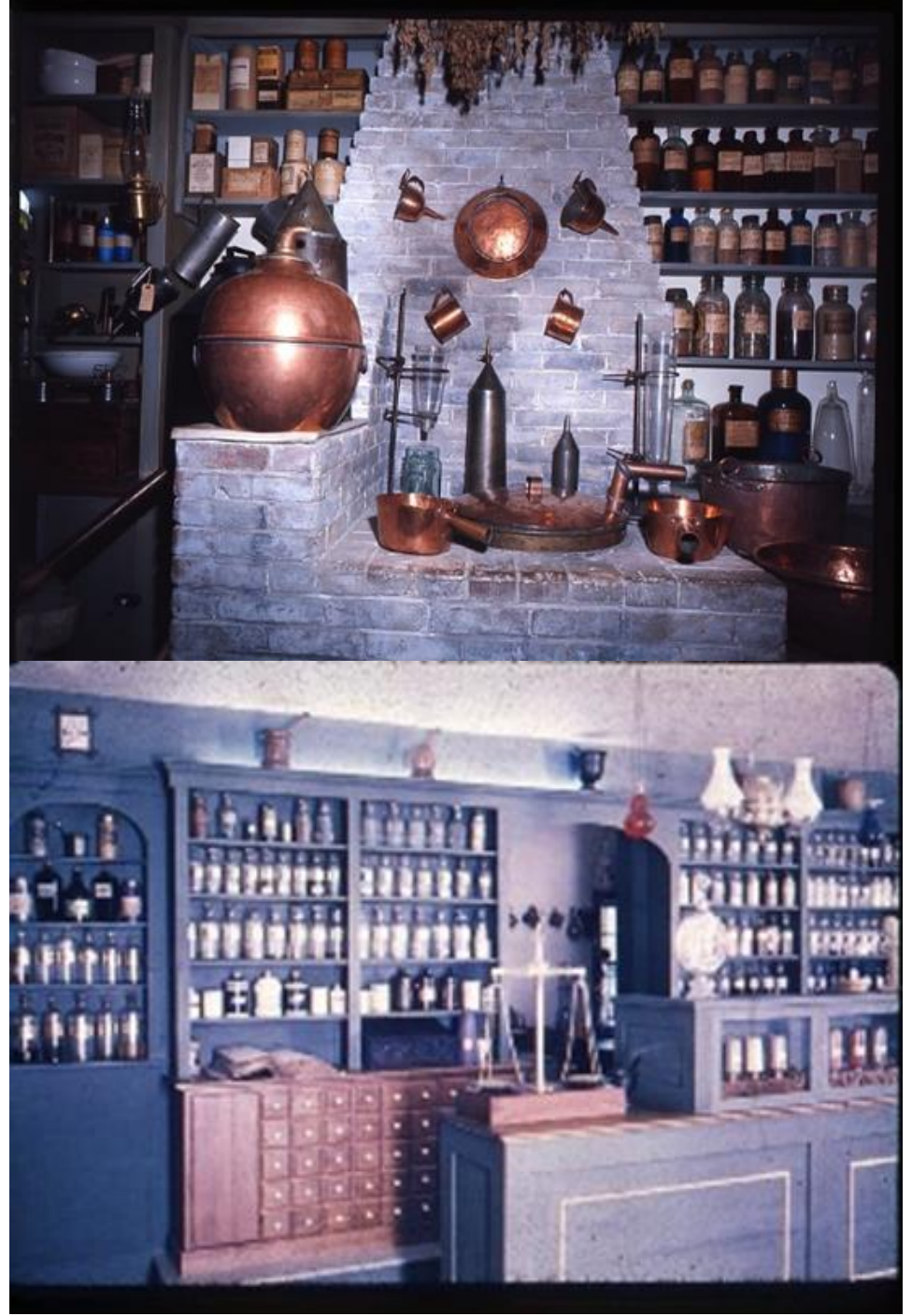
ILLUSTRATED MONTHLY JOURNAL

OF

Pharmacy, Chemistry and Materia Medica

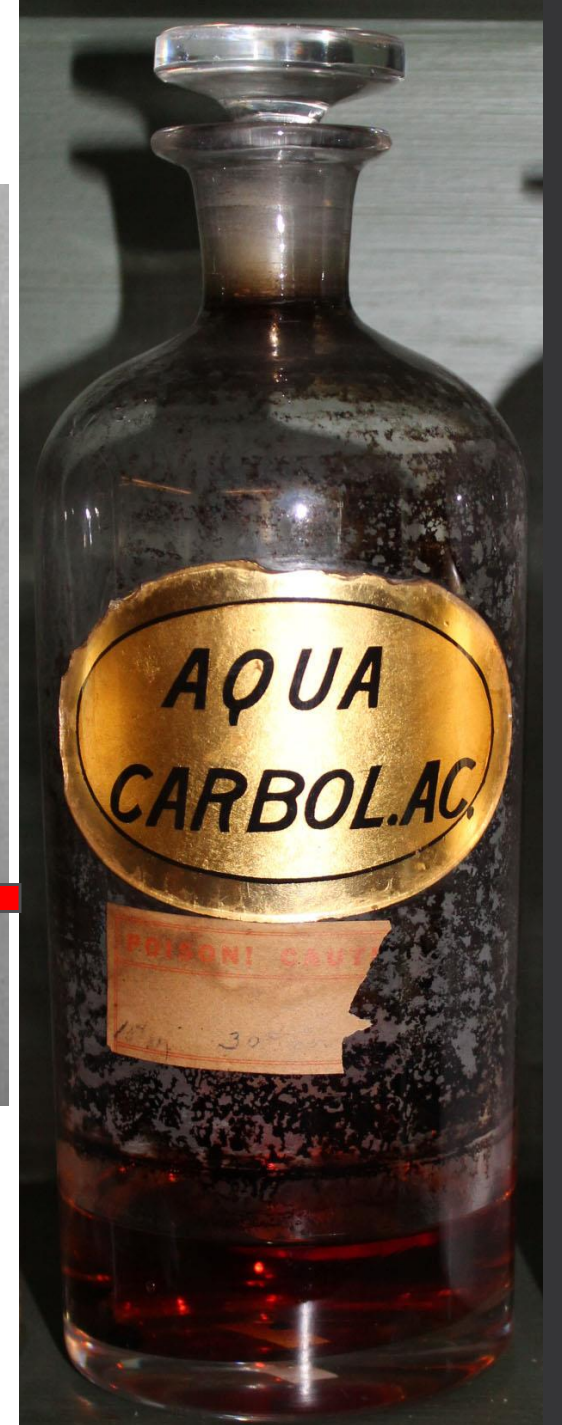


c.1970





# Substance degradation over time



Change in condition from c.1970 to 2021 in Linim. Saponis. (L, Center: 2<sup>nd</sup> from left top shelf) and Aqua Carbol. Ac. (R, Center: lower shelf, far right)

Many of the objects on the same shelves look identical to their 1970 appearance, but not these!

# Looking to the future

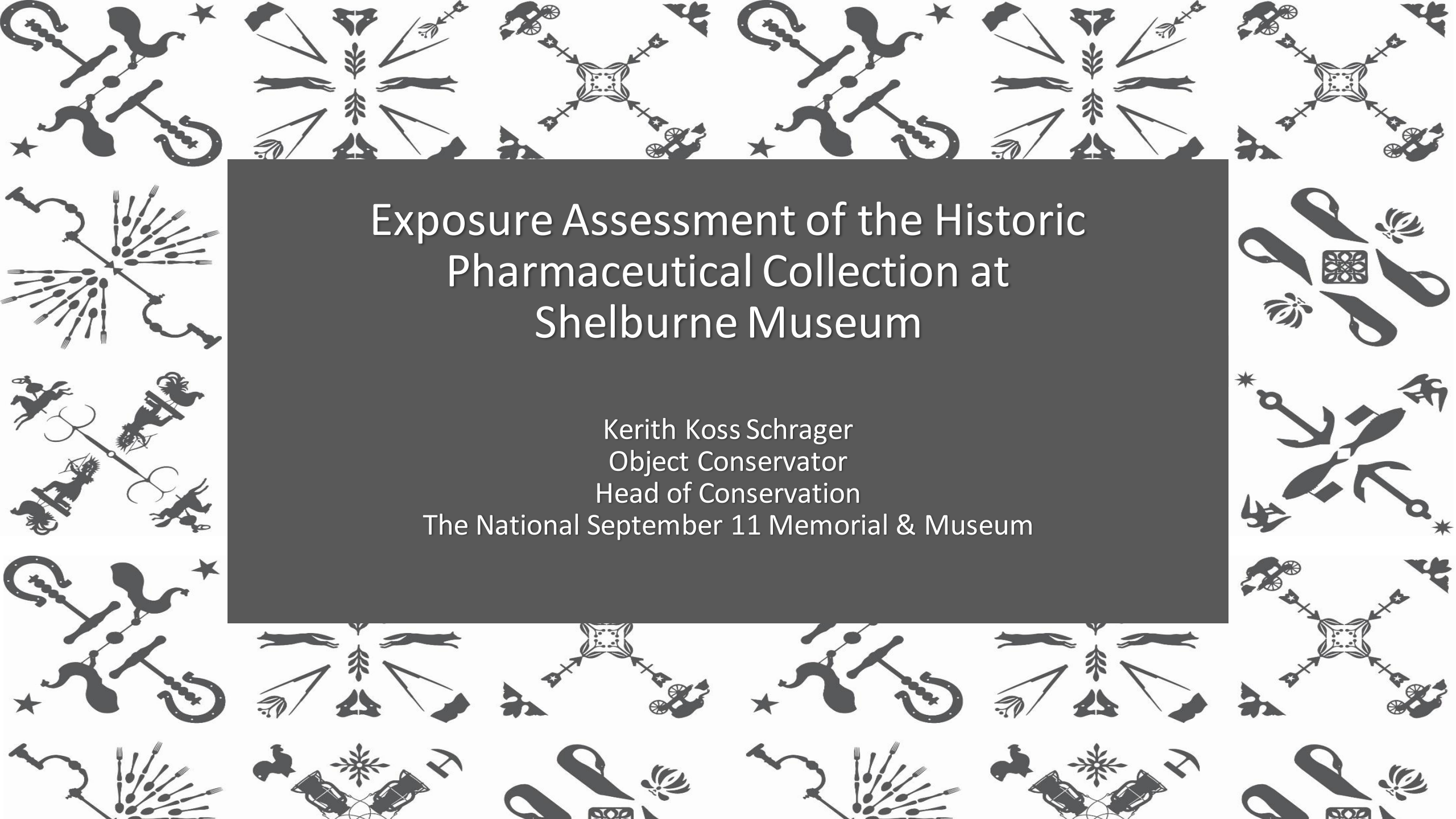
- Collaboration and Transparency
  - We want to share what we've learned with anyone who needs it!
  - Possible products:
    - A 'dictionary' of substances we've run across in our collection, currently an excel spreadsheet ~600 items long and growing
      - Includes alternate names, definitions, origins, uses, hazards, source of information, product names
    - Databases of companies, branded products
    - A reference list – don't forget to check out the handouts on NEMA's page, but if you want or need more, please reach out!
  - Do you know something we don't?
    - A story of never ending mysteries! Was the French and American Importing Company real or a fraud? What were they putting in their products?







Questions?



# Exposure Assessment of the Historic Pharmaceutical Collection at Shelburne Museum

Kerith Koss Schrager  
Object Conservator  
Head of Conservation  
The National September 11 Memorial & Museum

# EXPOSURE ASSESSMENT

## OF THE HISTORIC PHARMACEUTICAL COLLECTION AT SHELBURNE MUSEUM (Vermont)



What's in that Old Bottle? Collections Stewardship for Pharmaceutical Collections  
NEMA Conference 2022  
Kerith Koss Schragar, Objects Conservator



# HAZARD vs. RISK: An Important Distinction

## HAZARD

Intrinsic property of a substance to cause harm

## RISK

Probability that the hazard will cause harm and the degree to which it affects your system



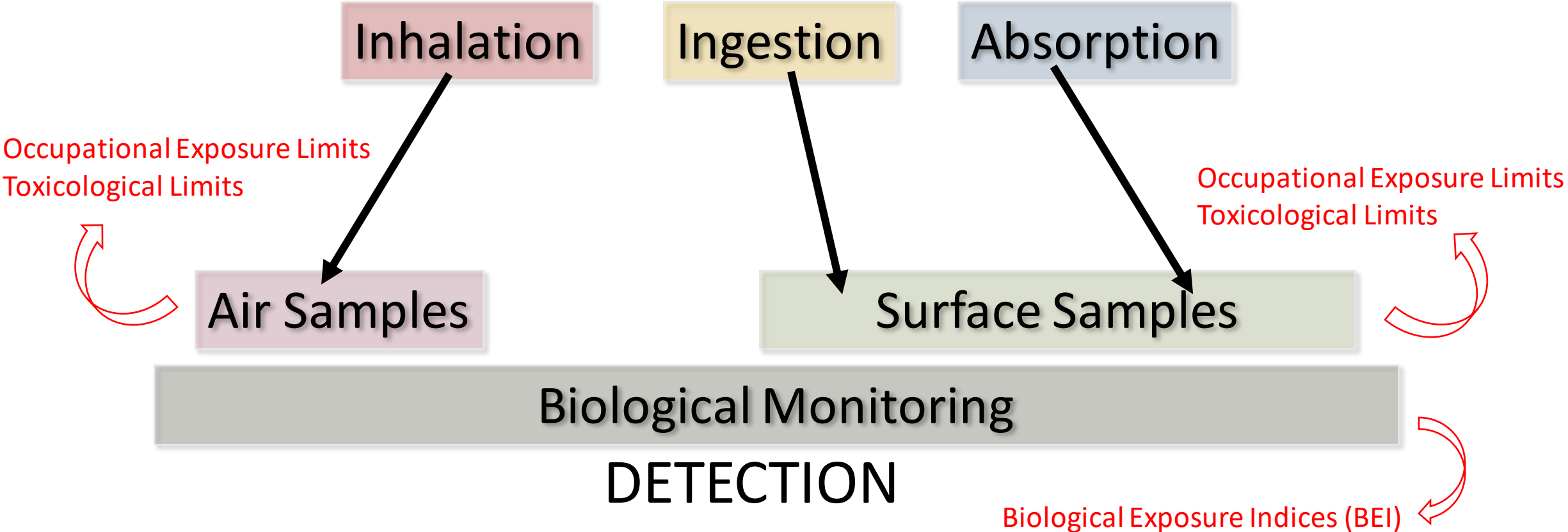
You may not be able to change the nature of the *HAZARD*,  
but you can control *RISK* through limiting *EXPOSURE*



# EXPOSURE

the opportunity for the body to receive a dose substantial enough to result in an adverse health effect

## ROUTES OF EXPOSURE



# EXPOSURE ASSESSMENT AT SHELBURNE MUSEUM

## Air Samples

- **Volatile Organic Compound (VOC) Sampling**
- **Mercury Vapor Sampling**
- **Total Particulate Matter (PM) Sampling**

## Surface Samples

- **Wipe Sampling (Lead & Arsenic)**
  - Bottles & Containers
  - Surfaces
  - Workspaces
  - Compare spot tests to analytical results

- **Significant contaminants within collection**
- **Well-established health effects**
- **Well-established regulatory levels**



## Sources of Contamination

- Environment
- Visitors
- Building Materials
- Collection



\*

\*

\*

\*

\*

\*

# WIPE SAMPLING



# WIPE SAMPLING RESULTS

SAMPLE ID	DESCRIPTION	LEAD	ARSENIC
		µg/ft <sup>2</sup>	µg/ft <sup>2</sup>
SMAPOTH-2	Green wall paint	-	-
SMAPOTH-7	Interior of window Unit #19	-	-
SMAPOTH-24	Blank	-	-
SMAPOTH-3	Lead capped bottle (Unit #21)	139	-
SMAPOTH-8	Stoppered bottle w/ white powder labeled "Lead"	102	-
SMAPOTH-12	Chamberlain Bottle	28	-
SMAPOTH-13	Wyeth Lead Acetate Box	-	-
SMAPOTH-14	Sheep Powder Box	50	21
SMAPOTH-15	Chicken Feed Box	7	-
SMAPOTH-16	Unknown Bottle "678"	11	344
SMAPOTH-17	Liquid Lead Bottle	158	-
SMAPOTH-20	Arsenic Bottle (Compounding Room)	1115	1672
SMAPOTH-4	Shelf with lead topped bottles (Unit #21)	223	-
SMAPOTH-5	Shelf with lead bottles (Unit #19)	149	-
SMAPOTH-6	Countertop outside Unit #19	74	-
SMAPOTH-11	Iodides Counter Unit #20	56	-
SMAPOTH-18	Outside Lead Drawer (Dentist Office)	28	-
SMAPOTH-19	Arsenic Bottle Shelf (Compounding Room)	28	-
SMAPOTH-23	Medicine Cabinet (Upstairs Dr. Office)	74	-
SMAPOTH-21	Lead Shelf #2	93	-
SMAPOTH-9	Workbench	102	-
SMAPOTH-10	Photo Label	195	-
SMAPOTH-22	Lab Coat	11	-

## DUST EXPOSURE LIMITS (LEAD)

### EPA:

10 µg/ft<sup>2</sup> (floors)

100 µg/ft<sup>2</sup> (sills)

### OSHA:

"as free as practicable"

200 µg/ft<sup>2</sup> (HUD level) for  
worksurfaces

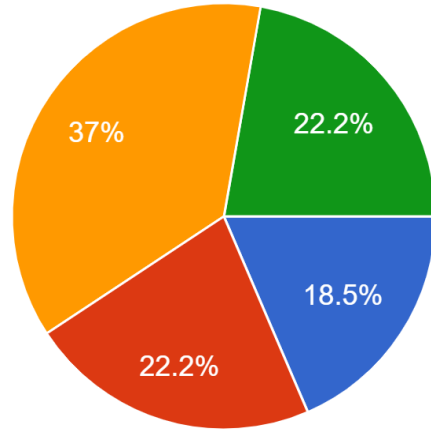
### VERMONT "Lead Dust Hazard":

40 µg/ft<sup>2</sup> (floors)

250 µg/ft<sup>2</sup> (sills)

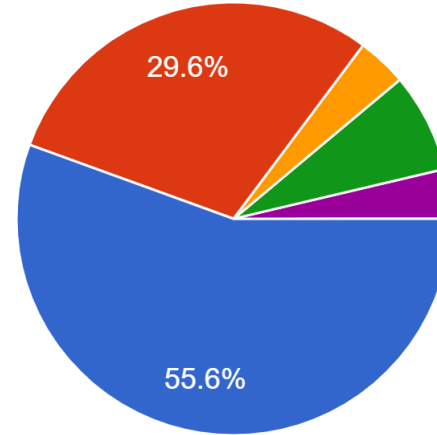
# SURVEY RESULTS

## SIZE OF COLLECTION



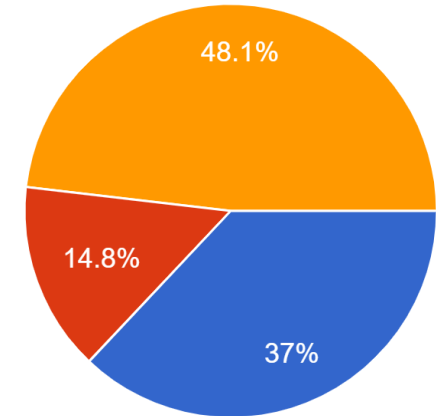
- Limited: Only a few items
- Several dozen items
- Sizeable: Greater than 100 items
- Significant: Greater than 1000 items

## PERCENT OF COLLECTION



- <1%
- <10%
- <25%
- <50%
- >50%

## IMPORTANCE OF COLLECTION



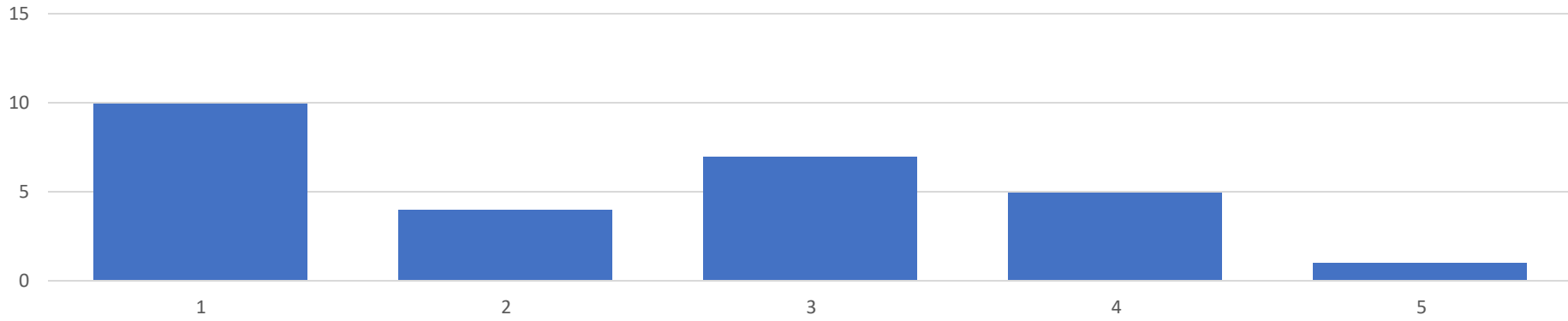
- Significant: exhibited frequently and/or important to the organization's mission
- Occasional: Play a integral part in the narrative of the organization but in a supporting role
- Limited: Rarely displayed or researched
- Unimportant/unrelated: Never displayed or researched

- **50%** believe they are properly caring for their pharmaceutical collections
- **62%** feel like their organization does not have the resources to properly care for their collections
- Almost **90%** have their collections at least 50% catalogued
- **60%** consider their pharmaceutical collections a health and safety risk
- Over **50%** say more than 50% of their collection contains original contents
- Most indicate that the bottle and packaging are more important to their organization than the contents

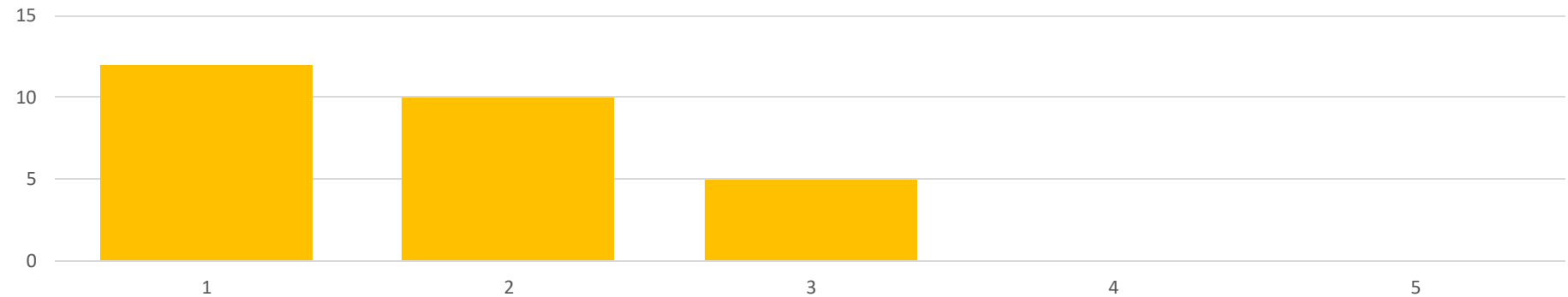
# SURVEY RESULTS

How prepared are you for handling pharmaceutical collections through:

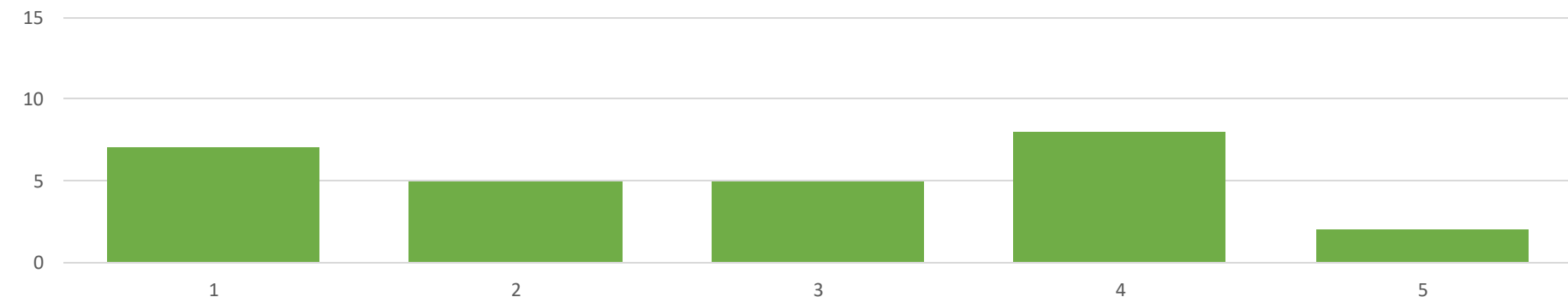
your **EDUCATION?**



your **WORKPLACE?**



your **PROFESSIONAL DEVELOPMENT?**



1 = not prepared ⇨ 5 = very prepared



# THANK YOU!

## **Shelburne Museum Staff**

- Barbara Rathburn
- Nancie Ravenel
- Anna Fowler

## **Department of Environmental Health Sciences, NYU**

- Dr. Terry Gordon, PhD
- Dr. Catherine Klein, PhD

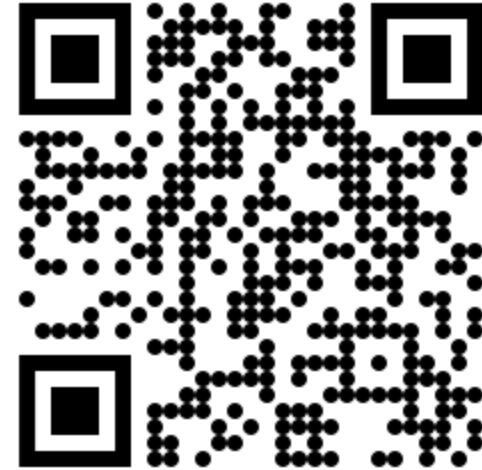
## **Museum and Cultural Heritage Working Group, American Industrial Hygiene Association (AIHA)**

- Kathryn Makos, Certified Industrial Hygienist
- Jeffery Sotek, Certified Industrial Hygienist

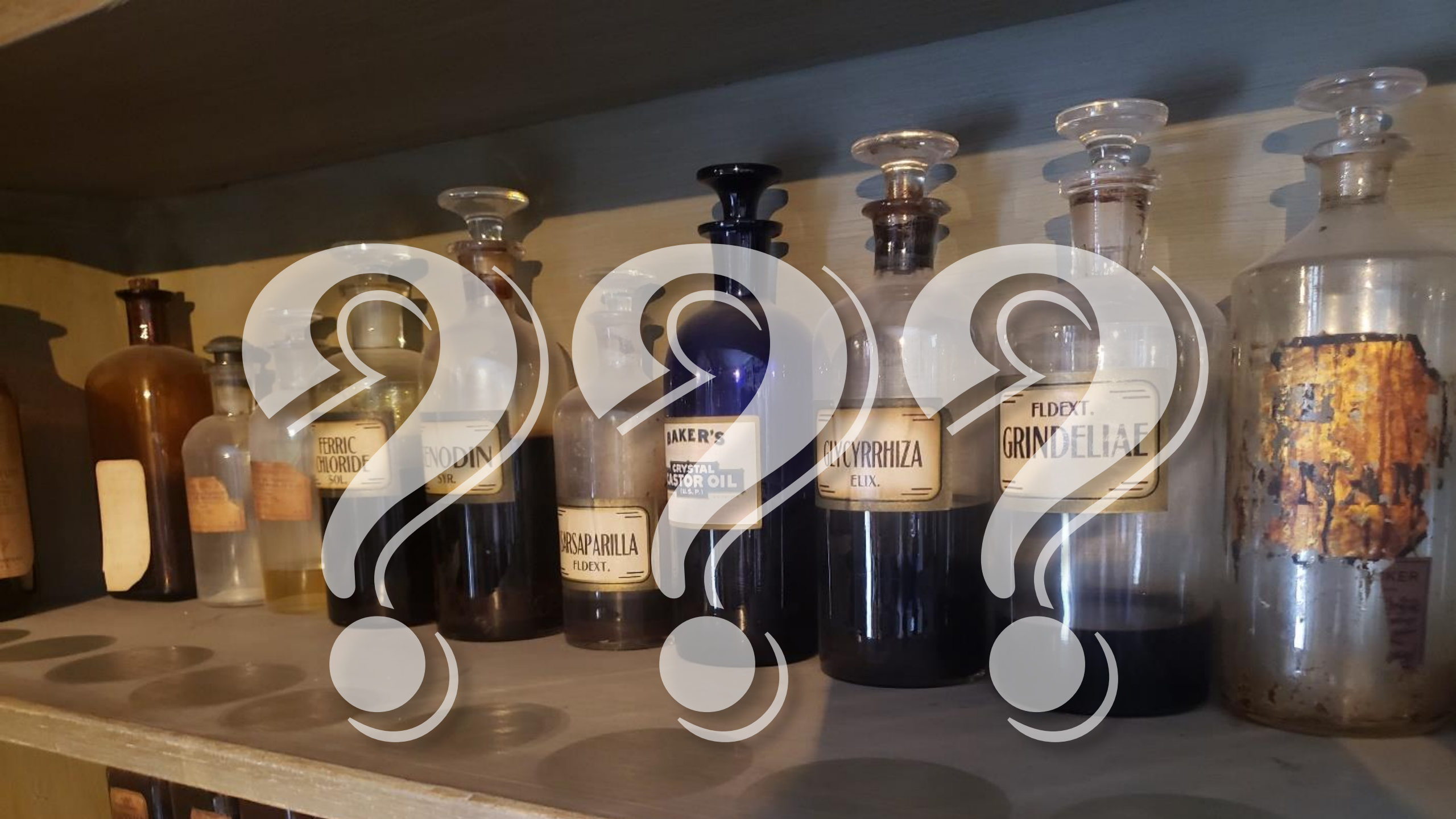
## **Health & Safety Network, American Institute for Conservation (AIC)**

## **Institute of Museum and Library Services (IMLS)**

TAKE THE SURVEY



<https://tinyurl.com/MuseumMedicinals>



FERRIC  
CHLORIDE  
SOL.

ENODIN  
SYR.

SARSAPARILLA  
FLDEXT.

BAKER'S  
CRYSTAL  
CASTOR OIL  
(L.S.P.)

GLYCYRRHIZA  
ELIX.

FLDEXT.  
GRINDELIAE



# Hazardous Waste Disposal

Barbara Rathburn

Director of Collections  
Shelburne Museum



# Hazardous Waste Disposal

# State and Federal Regulations

- Check the Federal EPA regulations for hazardous waste and the regulations for your state.  
[https://rcrapublic.epa.gov/rcrainfoweb/documents/rcra\\_subtitleC\\_forms\\_and\\_instructions.pdf](https://rcrapublic.epa.gov/rcrainfoweb/documents/rcra_subtitleC_forms_and_instructions.pdf)
- Register as a hazardous waste generator.
- The regulations for storage and disposal will vary depending on the quantity you have on site.
- You will need to have an EPA ID# to dispose of hazardous waste using a contracted vendor.

 <b>VERMONT</b> <b>VT HAZARDOUS WASTE HANDLER SITE ID FORM</b> Please return completed form to: <b>VT DEC Waste Management &amp; Prevention Division</b> <b>One National Life Drive, Davis 1</b> <b>Montpelier, Vermont 05620-3704</b> <a href="http://dec.vermont.gov/waste-management/hazardous">http://dec.vermont.gov/waste-management/hazardous</a> 802-828-1138	<b>Shaded box for VT DEC Office Use Only</b> Date In:  Date Complete:
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# Local Disposal – Solid Waste District

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- Contact your county or local solid waste district to determine if they will accept the waste.
- Shelburne Museum is using the Chittenden County Waste District – Environmental Depot for residential and business hazardous waste.
- Check the Safety Data Sheet – how comfortable are you with transporting the waste?
- Do you have the proper PPE for handling it to pack for transit?
- Contact a local university or college for additional disposal advice.

# Packing for local transport



Handlers can remove the bag and you can keep the container for a future disposal.





# Explosives

- The Bomb Squad may not come to your rescue if a hazardous waste removal company can take care of the problem.
- Contract with hazardous waste removal company for neutralization of potentially explosive materials.
- Follow up Lab Pack with company for actual removal once neutralized.



# Neutralization – On Site Treatment

- Complete forms provided by waste removal company.
- Waste removal company completed the work plan provided to the state.
- Publish public notice about on-site treatment.
- Alert the local fire department that the event is happening.
- Within 24 hours of completing the treatment, inform your state authority that the event has occurred.

## PUBLIC NOTICE

The State of Vermont, Agency of Natural Resources, Dept. of Environmental Conservation, Waste Management & Prevention Division, has issued Hazardous Waste Emergency Permit No. DEC-HW-EP-22-01 to Shelburne Museum, located in Shelburne, VT. The Emergency Permits are issued for the purpose of allowing on-site treatment of:

Description	Quantity	Hazard Designation	Container Size
Ethyl Ether	2	Peroxide Former	1x250ml, 1x2oz
Alcohol / Ether	2	Peroxide Former	2x2oz
Picric Acid	1	Shock Sensitive	1x1oz
Picric Acid Gauze	1	Shock Sensitive	Yard
Acetyl Benzoyl Peroxide	2	Shock Sensitive	2x1oz
Mercury Oxycyanide	1	Reactive Cyanide	1x1oz

Clean Harbors Environmental Services will conduct the treatment of these wastes under an approved work plan. After treatment, the containers shall be packaged and transported to a permitted off-site hazardous waste facility for disposal.

The Emergency Permit is effective as of May 9, 2022, and will expire on June 8, 2022. Any questions or requests for further information may be directed to William Sisson of the Department of Environmental Conservation, Waste Management & Prevention Division, 1 National Life Drive, Davis 1, Montpelier, VT 05620-3704; (802) 461-6603; [william.sisson@vermont.gov](mailto:william.sisson@vermont.gov).

# The Event

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- Occurred when museum was closed.
- Set up a safety zone work area – no vehicular or foot traffic.
- 50-foot radius.





Retrieving containers  
from the building

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# Remote opening in Blast Deflection Unit

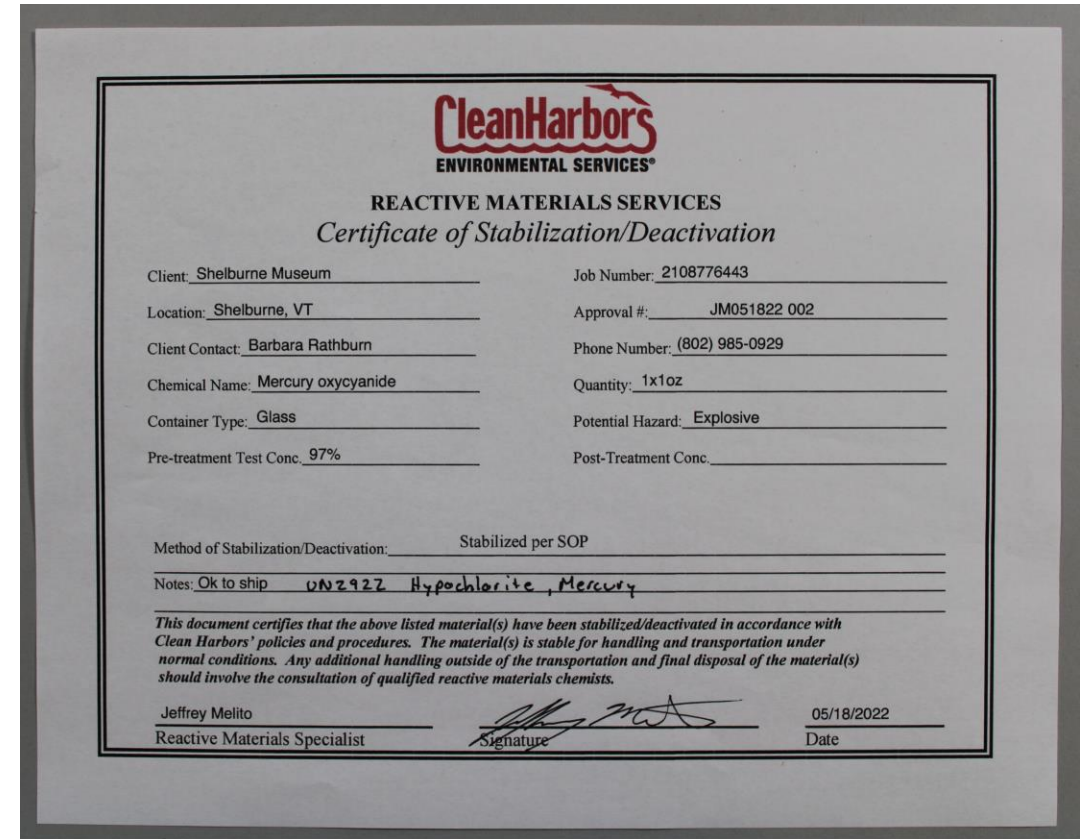
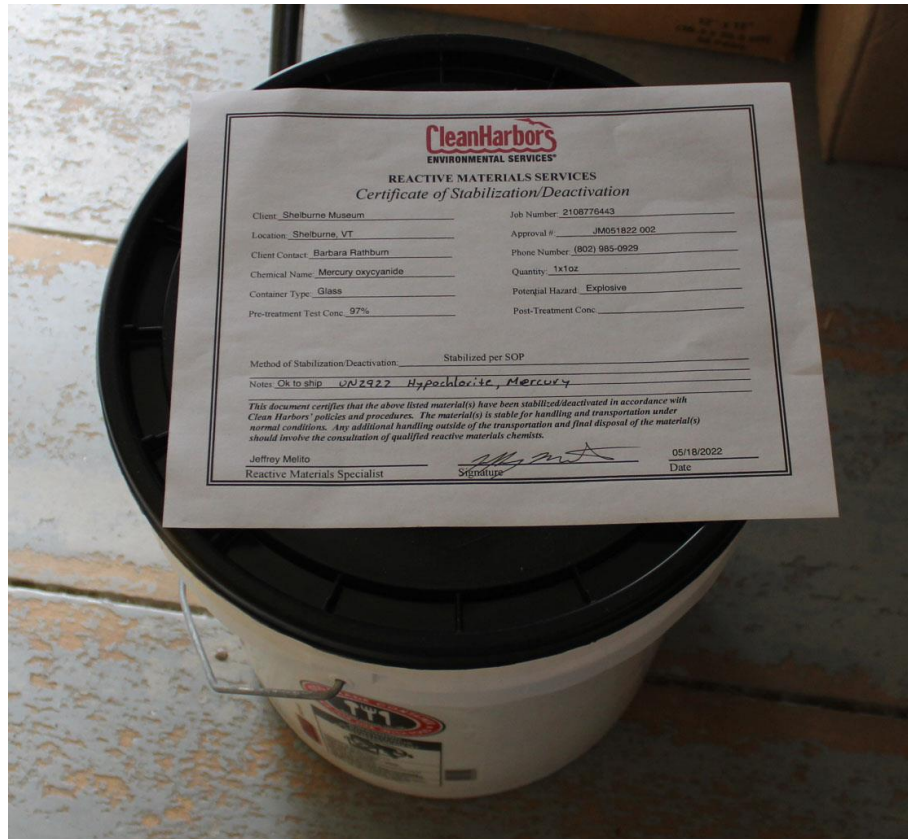
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# Neutralizing the chemicals



# All done – for now...



# Lab Pack

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Reactives for incineration - minimum price was \$200 for a 5 gallon container - fill it up!

Product's exterior box was retained when possible. Containers are considered hazardous, could not remove contents and keep the bottle.

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Different packing methods – depends on the chemical and disposal method.

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More  
paperwork!

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Thank You!

This project was made possible in part by the Institute of Museum and Library Services. MA-245455-OMS-20.



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