The Cabinet of Death: Tales of Storage
From the Mütter Abditory

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Goals of Lecture

- Give a brief overview of the College, museum, and collections.
- To present the types of storage we use to house our collection.
- To showcase the “unique” storage issues inherent in a medical museum’s collection.
- To argue for the continued storage upgrades and preservation of our medical history.
- To slightly disturb you!
The College of Physicians of Philadelphia
Dr. Thomas Dent Mütter

(1811 – 1859)
The Mütter Museum: Upper Floor
The Mütter Museum: Lower Floor
Wet Specimens

- The Museum has over 1300 wet specimens in its Collection
Wet Specimens

- What is a wet specimen?
- Any biological object that is preserved using a liquid fixative.
Osteological Specimens
Dried Specimens
Models

- Wax
- Plaster
- Paper mâché
Instruments, Chemical, and Drugs…(Oh My...)
And Many Other Things....
Some Are Old and Some Are New....
Some are Borrowed and Some Are Few…
Let’s Talk Numbers…

The College of Physicians
75,600 sq. ft.

The Mütter Museum
10,923 sq. ft. = 14.45%
Storage
3,545 sq. ft. = 4.689%
Wet Specimen Storage: Then & Then…
And Now!
Osteological Storage: Then & Now!
Mobile Storage...Just Now...
The Cabinet of Death!
Stacks Storage

Image courtesy of Kyle Griffin/Oak Leaf Media
Stacks Storage

I THINK INSIDE THE BOX

BECAUSE
IT’S
BIGGER
ON
THE
INSIDE
Stacks Storage
Stacks Storage
Osteological Storage Issues

- 3,200+ Osteological Specimens
  - Storage Issues
    - Temp, RH, dust
    - Gravity
Osteological Conservation

- Naturally articulated
- Artificially Articulated
- Mounted Specimens
- Unmounted Specimens
Osteological Conservation

- Cleaning issues
- Repair issues
The Hyrtl Skull Project
Goals

- Out of Formalin into alcohol
- Stable container with proper seal
- Provide a stable storage area to safely store specimens.
Wet Specimen Conservation

Preserving Solutions

- Alcohol
- Formalin
- Methyl salicylate
- Phenol
- Glycerin
- “Proprietary Solutions”
Wet Specimen Conservation
Storage Issues

Issue 1:
Loss of climate control or significant fluctuations in temperature

- Wash specimen and container thoroughly
- Replace fluid
- Stable climate control!
  - Storage
  - Exhibit
Storage Issues

Issue 2:
Specimen damaged beyond repair

- LET IT GO!!
Storage Issues

Issue 3: SPACE!!!
Issue 4: When your collection is trying to kill you.

- DON’T PANIC
- Who to call?
- Follow Your Protocol
Storage Issues

Radioactive Items in Your Collection

Is it hot in here or is it just me?
Storage Issues

How do You Know?

Invest in a Radiation Detector!
Storage Issues

Things that go Boom in the Night!
The Mütter Höt Zöne
A Scab Story
Why Preserve?
Second-Pandemic Strain of Vibrio cholerae from the Philadelphia Cholera Outbreak of 1849

ABSTRACT

In the 1840s, cholera caused major epidemics in the Indian subcontinent, Europe, and South America. The source of these outbreaks and the precise strain identification remain uncertain. We used targeted high-throughput sequencing to examine Vibrio cholerae genome data from the Philadelphia cholera patient of a 1903 outbreak. Our results indicate that the 1903 Vibrio strain was 98.4% identical to the classical 1853 genome, differing by 217 nucleotide polymorphisms, 16 of which are present in other Philadelphia isolates and could potentially have been present ten 100 years earlier. This result highlights the need for long-term monitoring of Vibrio cholerae populations to detect the emergence of the new variant of the disease.

Ancient pathogen DNA in archaeological samples detected with a Microbial Detection Array

OPEN

Ancient human remains of paleoanthropological interest typically contain highly degraded DNA in which pathogens are often amplified. We describe a high-throughput, broad-spectrum microbial assay that detects both known and unknown pathogens with high specificity and high throughput. We used our novel microbial detection array (MDA) to screen ancient human remains from a Mediterranean coastal site for 40,000 possible bacterial and viral pathogens and identified a novel pathogen. This result demonstrates that the MDA can detect DNA from diverse pathogens and can be used to detect multiple pathogens in a single sample.
The Research Arm of the Museum

Mütter Research Institute
of The College of Physicians of Philadelphia
Looking to the Past to Improve Our Future
How? - Preservation Plan

The Mutter Museum
at the
College of Physicians of Philadelphia
Preservation Plan
2008-2012

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In Conclusion...
Questions?