



PLTW Virtual Learning

Medical Detectives

Lesson 35

May 22, 2020



7 & 8 Grade Medical Detectives

Lesson: Solving Mysteries as a Forensic Anthropologists, May 22, 2020

**Objective/Learning Target:
Lesson 35, Part 5**

Students will learn how forensic anthropologists solve a modern forensic cold case file.

Disclaimer: Forensic Anthropologists work with human skeletons to solve crimes and mysteries. If you find this upsetting, in any way, please do not proceed with this lesson.

Warm-Ups:

What did you learn about Anne Calvert? Where was she born? How did she die? How did they identify her remains to discover who she was? Did you find it interesting to see how they were able to recreate what she looked like?

What health issues did Anne have?

Take a minute to answer your questions.

[One-Minute Timer](#)



Lesson Introduction/Background Information:

A Modern Forensic Cold Case File

Consider the clues – cuts, broken bones, and charring. This modern forensic case spotlights just how much a skeleton can reveal. The remains can tell us not only about the deceased person in life, but also about events prior to and surrounding their death and burial.

This cold case mystery remains were buried, without an autopsy, after a house fire, because his death was considered accidental. No reason for an autopsy ... right? Evidence obtained years later led to exhumation of the body to determine whether the death was actually a homicide. Was the dwelling set on fire to disguise a murder? Was he actually murdered or was his death really accidental? Let's find out!

<https://naturalhistory.si.edu/education/teaching-resources/written-bone/forensic-case-files/modern-forensic-case-file>

Practice:

Skeletal Evidence

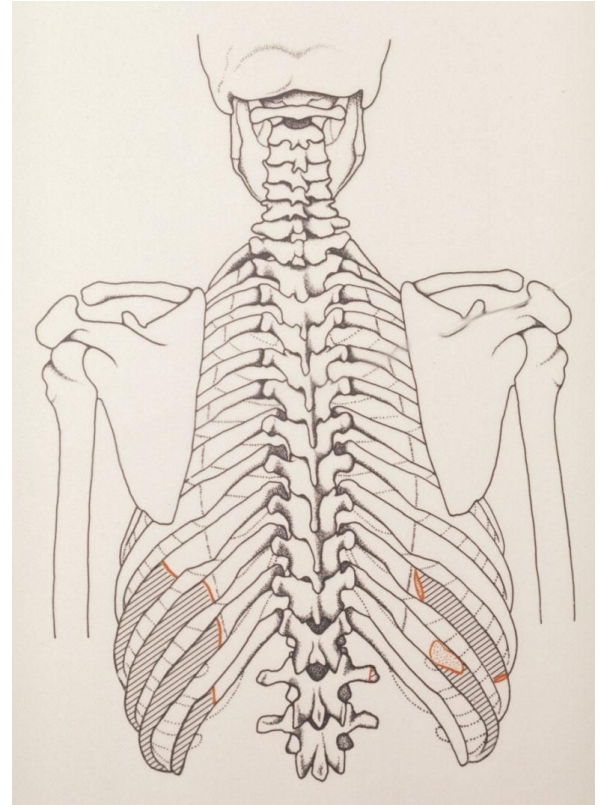
In addition to numerous healed bone injuries, at least seven unhealed cuts can be identified on our mystery man. It would have taken a large, sharp knife to completely slice through the bone. Postmortem changes in the bones indicate that the body was burned and buried without embalming.

Age at death: 40-45 years

Height: about 5 ft. 9 in.

Ancestry: European - long, narrow face

Notice the broken bones caused by being stabbed in the rib cage area multiple times, which are marked in red.



Anterior view of skeleton showing bone breaks. Smithsonian photo

Practice:

Trauma: cause of death -- multiple cuts and stab wounds. Cuts were found, most concentrated on the ribs, and were not showing any form of healing. Similarities in bone color between the cut edge and outer bone show that the cuts did not occur after his death. Six lower ribs on both the left and right sides have been completely severed by a sharp, bladed instrument. The lower right ribs were cut through in three identifiable locations, by at least three separate cuts. The tip of one of the vertebrae was also severed.

Antemortem (Before Death) Clues

Our mystery man had healed fractures of the right tibia and fibula, nasal bones and maxillae, and pelvis (with two fused lobes) which are consistent with injuries from a car accident. Several teeth had also been knocked out.



Cranium with several missing teeth. Smithsonian photo

Self Assessment:

Case Closed and Mystery Solved!!

As a result of the autopsy's findings, and related criminal investigations in this case, a suspect was brought to trial and found guilty of murder and arson. One who would have gotten away with it, if weren't for information shared years later and for the forensic anthropologist!

Questions:

1. What is your assessment of this cold case?
 2. Do you think the killer would have gotten away with murder if it weren't for the forensic anthropologist? Why? Would the new evidence had been enough to convict the suspect?
1. What happens if a body is cremated? Can forensic anthropologist obtain information from the bone ashes? What do you think and why?
 2. Do you find this interesting? If so, is this something you would like to do?



Extend Your Learning/Continued Practice:

To learn more information about the Smithsonian Institute's exhibit, *Written In Bone*, and to read more murder mysteries that happened during the 17th century, more than 400 years ago, click on the image to the right and go to the website.

Enjoy reading and learning even more about this time in history and how forensic anthropologists are able to solve all types of different mysteries.



Skeleton Keys - Ways to examine bones, what bones can reveal



Forensic Case Files - Solving the mysteries of how people died



Webcomic - "The Secret in the Cellar" - How the boy of Leavy Neck died



Forensic Anthropology - Science, history, analysis and even art



Unearthing the Chesapeake - Colonial risks revealed in bone