Chemical Analysis of Ti-Ameny Net

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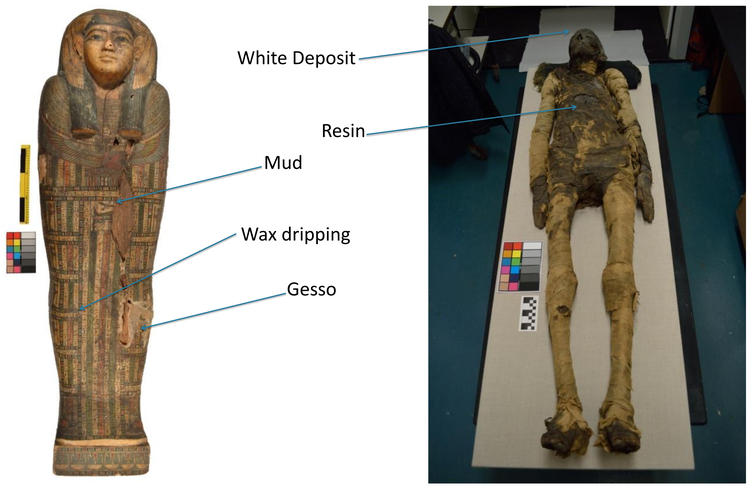
Who is Ti-Ameny Net?

Ti-Ameny Net was an Egyptian woman who lived almost 3000 years ago during the 25th dynasty in the Ancient Egyptian city of Thebes. Her remains were most likely excavated for the entertainment of the future King Edward VI, then the Prince of Wales, on his tour of Egypt. In 1875, Dr. Jabez Lamar Monroe Curry of Richmond, VA purchased Ti-Ameny Net's remains and transported them back to the United States, where she was briefly on display in Philadelphia. She was then given to the University of Richmond, where she has remained, in one corner or another, ever since. A great deal is known about Ti-Ameny Net's life, death, and afterlife, through the inscriptions on her coffin and medical tests that have been performed through the years, as well as through the conservation work done last year and chemical analysis performed this year.

What is conservation science?

Conservation science is the application of chemical analysis techniques on historical or cultural heritage objects in order to learn more about how they were made, where they came from, what they were used for, and what has happened to them since their creation. The value of the objects in question often requires extremely small sample sizes or non-destructive testing methods in gathering this information as well as an understanding of the technological context in which they were made.

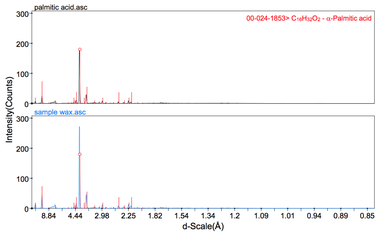
Our Goals: Our primary objective in the analyses we have run on Ti-Ameny Net's remains and coffin was to gain a better understanding of the materials and methods used in her mummification. Analyses were run on a variety of samples that were collected last year as Tia and her coffin underwent a conservation treatment.



Data

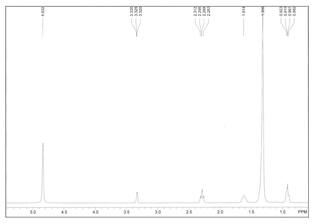
White Deposit

A few years ago, a white seemingly crystalline deposit was observed on the exposed skin of Ti-Ameny Net's face and neck. Its removal was the original purpose of the conservation efforts that took place in the Spring of 2013. Initially thought to be mold, and then salt efflorescence, tests results using XRD, FTIR, and XRF methods have found it to be a recrystallized product from the palm oil (or wax) that was used during mummification.



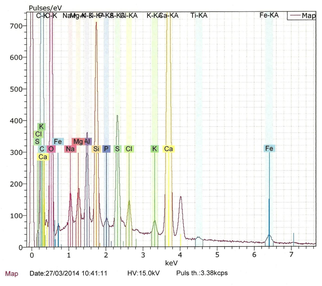
Wax

At some point in her burial, discovery, or transportation, a small amount of wax was dripped on the surface of the coffin. Testing was run using XRD, FTIR, and NMR in order to try and determine the identity and origin of the sample. Some of the wax was removed for testing and the rest remains to preserve a record of the coffin's history.



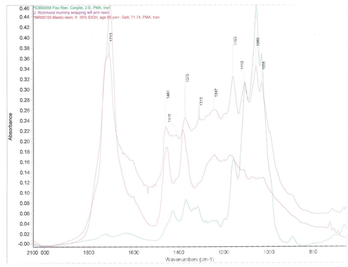
Paint

During the course of the conservation process several flakes of paint fell off the coffin's surface. SEM-EDS testing was performed to try and identify some of the pigments used in the coffin's decoration. The following colors were tested: black, blue, green and red/brown.



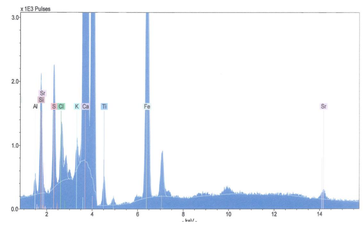
Resin

Resin was used to attach linen to the body to Ti-Ameny Net and was found over much of her body. Over time the resin turned black and became brittle. FTIR testing suggested that it was derived from a deciduous tree rather than a conifer, probably a member of the *Pistacia* family.



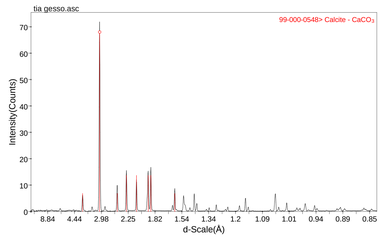
Mud

In construction of a coffin, mud mixed with clay was used to establish smoother contour lines for the coffin's external shape. XRF and XRD testing was run to establish the presence of any heavy metals in the dried clay. Iron was found in the sample along with several other elements consistent with clay and mud deposits.



Gesso

Gesso was used as a primer for the paint on the surface of the coffin. The white powdery substance was tested using XRD and was found to be calcium carbonate, the same as gesso that is available in art stores today.



For more information, visit the Ancient World Gallery (North Court 208) or see http://classics.richmond.edu/collections/museum/egyptian-catalog/mummy/