This Is a Crime Scene

On November 4, 2011, an illegal construction excavation encountered a body in a vacant lot in Elmhurst, Queens. The construction workers, believing they had unearthed a recently buried homicide victim, fled the site and reported the discovery to the police (Warnasch, 2011). The following day, members of the Forensic Anthropological Unit of the NYC Office of Chief Medical Examiner’s (OCME) responded to investigate the scene. While approaching the body, they discovered the shattered fragments of a mid-19th century, cast-iron coffin, suggested that the property had previously been a burial ground and therefore the burial much older than originally assumed.

The individual interred in the iron coffin was identified as an adult African-American female, approximately 32 years old, and based on lesions observed on her well-preserved skull, had likely died of smallpox. Radiographic, CT and MRI scans of the woman’s skeleton revealed epiphyseal fusions consistent with an age range of 20-30 years at the time of death. The woman’s excellent state of preservation was due to the cast-iron coffin in which she was buried. The coffin, manufactured between 1848 and 1854, were specifically designed to naturally preserve corpses as a sanitary means of transporting and storing bodies prior to the widespread practice of embalming. The coffin gained popularity beginning with the funeral of former first lady Dolley Madison in 1849. Several other politicians quickly followed including President Zachary Taylor, Henry Clay and Daniel Webster.

Archival research by SCW found that the area of Queens during the mid-19th century was known as Newtown. Towns officials had designated the property where the woman’s body was discovered as an African burial ground in 1816 (Newtown Register, 14 Oct 1868). The property was located along Dutch Lane, now Contra Ave., about a quarter of a mile from town center. In 1868, one year after New York State abolished slavery, the property was purchased by a local benevolent society called the United African Society of Newtown to establish the first Black church in the area. The names of the purchasers listed on the deed were: John Peterson, President; George Downing, Vice President; John Cotes, Treasurer; and John Porter, Secretary.

Genealogical triangulation by SCW is a highly suggestive that the woman in the iron coffin was Martha Peterson, a daughter of one of the five black families of the Petronella, a large, property-owning free black family in Newtown. The image to the left is a forensic reconstruction of Martha Peterson.

Testing Identity with Residential History

In this study, we applied geochemical techniques to test the archival-based identification of the Woman in the Iron Coffin (denoted ICW). We reconstructed geographic residence, diet and aspects of health with several isotopic and elemental systems of two tissue types made available by the Centers for Disease Control. We report three isotopic values (δ18O, δ13C, δ34S) and four elemental concentrations (As, Sr, Pb, Li) from the left second premolar and two isotopic values (δ18O, δ13C) from one strand of hair from ICW in order to aid in identification and reconstruc her past life.

ICW’s δ18O value is statistically higher (One-way ANOVA, p < 0.05) than military personnel from the same time period (ICW, FL) and comparable to individuals from mid-Atlantic and northeastern states (NY, CT, NJ, PA) (Kupper et al., 2016). ICW’s δ13C value is comparable to those of African and African American individuals buried in Florida (France et al., 2014).

As expected, the δ13C/δ18O ratio of ingested water laked within the natural catchment that includes NYC (Dutton et al., 2005). The calculated δ18O value of ingested water laked within the natural catchment site that includes NYC (Dutton et al., 2005).

We interpreted that ICW subsisted on a diet containing (e.g., lettuce, apples, beans, carrots) and C4-based protein, which is likely indicated by a component of terrestrial herbivore protein (e.g., beef, chicken, lamb). δ13C values are not elevated compared to other contemporary or modern samples and therefore there is no isotopic evidence that she suffered from a protein deficiency (e.g., Pahlavani, 2013). ICW shows a diet composition of less corn-based foodstuffs than other African Americans from more southerly regions (Delaware and Virginia) and similar to those living in adjacent areas (Pennsylvania). ICW’s protein consumption was lower than other African and multiracial individuals reported in France et al. (2014), but does not likely represent vegetarian or vegan dietary practices per se. ICW’s relatively low δ13C values may also be the result of consuming legumes. Blat-edged peas, which are nitrogen-fixing legumes, were (and are) staples in African-American culinary traditions (Harris, 2011).

The geochemical profile of the Woman in the Iron Coffin (Queens, New York City)

Monet Watson1, Rhonda Quinn1,2, Scott Warnasch3,4
1Department of Sociology, Anthropology & Social Work, Seton Hall University, South Orange, NJ 07079 USA. 2Department of Earth and Planetary Sciences, Rutgers University, Piscataway, NJ 08854 USA 3S.C. Warnasch, Archaeological Expeditions, LLC, Office of the Chief Medical Examiner, NYC

Archival research by SCW found that the area of Queens during the mid-19th century was known as Newtown. Towns officials had designated the property where the woman’s body was discovered as an African burial ground in 1816 (Newtown Register, 14 Oct 1868). The property was located along Dutch Lane, now Contra Ave., about a quarter of a mile from town center. In 1868, one year after New York State abolished slavery, the property was purchased by a local benevolent society called the United African Society of Newtown to establish the first Black church in the area. The names of the purchasers listed on the deed were: John Peterson, President; George Downing, Vice President; John Cotes, Treasurer; and John Porter, Secretary.

Genealogical triangulation by SCW is a highly suggestive that the woman in the iron coffin was Martha Peterson, a daughter of one of the five black families of the Petronella, a large, property-owning free black family in Newtown. The image to the left is a forensic reconstruction of Martha Peterson.

Measures of Diet and Health

ICW’s δ18O value is statistically higher (One-way ANOVA, p < 0.05) than military personnel from the same time period (ICW, FL) and comparable to individuals from mid-Atlantic and northeastern states (NY, CT, NJ, PA) (Kupper et al., 2016). ICW’s δ18O value is comparable to those of African and African American individuals buried in Florida (France et al., 2014).

As expected, the δ13C/δ18O ratio of ingested water laked within the natural catchment site that includes NYC (Dutton et al., 2005). The calculated δ18O value of ingested water laked within the natural catchment that includes NYC (Dutton et al., 2005).

We interpreted that ICW subsisted on a diet containing (e.g., lettuce, apples, beans, carrots) and C4-based protein, which is likely indicated by a component of terrestrial herbivore protein (e.g., beef, chicken, lamb). δ13C values are not elevated compared to other contemporary or modern samples and therefore there is no isotopic evidence that she suffered from a protein deficiency (e.g., Pahlavani, 2013). ICW shows a diet composition of less corn-based foodstuffs than other African Americans from more southerly regions (Delaware and Virginia) and similar to those living in adjacent areas (Pennsylvania). ICW’s protein consumption was lower than other African and multiracial individuals reported in France et al. (2014), but does not likely represent vegetarian or vegan dietary practices per se. ICW’s relatively low δ13C values may also be the result of consuming legumes. Blat-edged peas, which are nitrogen-fixing legumes, were (and are) staples in African-American culinary traditions (Harris, 2011).

The geochemical profile of the Woman in the Iron Coffin (Queens, New York City)

Monet Watson1, Rhonda Quinn1,2, Scott Warnasch3,4
1Department of Sociology, Anthropology & Social Work, Seton Hall University, South Orange, NJ 07079 USA. 2Department of Earth and Planetary Sciences, Rutgers University, Piscataway, NJ 08854 USA 3S.C. Warnasch, Archaeological Expeditions, LLC, Office of the Chief Medical Examiner, NYC

The individual interred in the iron coffin was identified as an adult African-American female, approximately 32 years old, and based on lesions observed on her well-preserved skull, had likely died of smallpox. Radiographic, CT and MRI scans of the woman’s skeleton revealed epiphyseal fusions consistent with an age range of 20-30 years at the time of death. The woman’s excellent state of preservation was due to the cast-iron coffin in which she was buried. The coffin, manufactured between 1848 and 1854, were specifically designed to naturally preserve corpses as a sanitary means of transporting and storing bodies prior to the widespread practice of embalming. The coffin gained popularity beginning with the funeral of former first lady Dolley Madison in 1849. Several other politicians quickly followed including President Zachary Taylor, Henry Clay and Daniel Webster.

Archival research by SCW found that the area of Queens during the mid-19th century was known as Newtown. Towns officials had designated the property where the woman’s body was discovered as an African burial ground in 1816 (Newtown Register, 14 Oct 1868). The property was located along Dutch Lane, now Contra Ave., about a quarter of a mile from town center. In 1868, one year after New York State abolished slavery, the property was purchased by a local benevolent society called the United African Society of Newtown to establish the first Black church in the area. The names of the purchasers listed on the deed were: John Peterson, President; George Downing, Vice President; John Cotes, Treasurer; and John Porter, Secretary.

Genealogical triangulation by SCW is a highly suggestive that the woman in the iron coffin was Martha Peterson, a daughter of one of the five black families of the Petronella, a large, property-owning free black family in Newtown. The image to the left is a forensic reconstruction of Martha Peterson.