Unraveling a Thirty-Five-Year-Old Mystery: Forensic Archaeology, Eighteenth-Century Quakers and Lancaster, Pennsylvania

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Abstract

Everyone loves a mystery, especially when it involves human skeletal remains. My honors thesis focused on one set of remains found in 1973 in Lancaster, Pennsylvania and focused on determining the sex, possible ethnicity, as well as internment date of the bones. Through radiocarbon dating and careful analysis by forensic anthropologists and graduates students, the remains stored in the North Museum marked “Lancaster City Bureau Police Evidence” began to come to life. Thorough research of historic maps and documents showed the location of the finds to be at the site of an old Quaker cemetery. However, due to the lack of documentation of death records, the full mystery behind this set of human skeletal remains may never be completely solved. Nevertheless, the remains provide an interesting case in forensic archaeology.
Chapter 1: Introduction

Death is a part of human life. Each person lives his or her life and has his or her own stories to tell. While some of these stories live on after the person’s time on earth, some are buried with the person. Historic records such as wills and diaries allow us to understand the lives of some, while others are forgotten. The investigation of human skeletal remains can help give voice to a forgotten past: remains make all of us ask who was this person and what was his story. The field of Forensic Archaeology provides an opening to better understand human skeletal remains in an archaeological setting. This research project focuses on one set of unstudied human remains and provides a case study in forensic archaeology that attempts to uncover the mystery behind the find.

In the past couple of months, my interest in bioarchaeology and forensic archaeology has grown significantly. Under the guidance of Professor Mary Ann Levine, Franklin & Marshall College, I began the search for an independent research project. I visited the North Museum of Natural History and Science and, with the help of Alison Eichelberger, found a skeleton marked “Lancaster City Bureau Police Evidence” that sparked my interest (Figure 1.1). However, it was unclear how the human skeletal remains could fit into an independent research project. My bioarchaeology and forensic interest kept drawing me back to these human skeletal remains. One morning, I woke up and had a plan for my independent: I would thoroughly research the collection and with the help of other institutions attempt to determine who this person was and what his life story may have been.

I obtained permission from Professor Levine and Eichelberger to research the remains. In the next four months, the process moved more smoothly than imagined and I learned more about my fields of interest as well as how to deal with setbacks that occur with any investigation. The
human skeletal remains have been of interest to many people on the Franklin & Marshall College campus as well as those off campus. People are always intrigued by a mystery; I wanted to solve the mystery of the “Lancaster County Bureau Police Evidence” found in the North Museum.

To shed light on these bones, this paper first provides an overview of the field of forensic archaeology, primarily considering how forensic specialists interrogate human remains for clues conveying age, sex, stature, and ethnicity. This is followed by a description of my case study, the human skeletal remains found at the North Museum of Natural History and Science. Background information on the day that the body was first unearthed is provided, followed by Dr. Wilton Krogman’s initial conclusions on the bones and a discussion of how the North Museum of Natural History and Science acquired the remains. The next section addresses my research regarding the skeleton, the examination of the bones by faculty and graduate students at Mercyhurst College in Erie, Pennsylvania, and radiocarbon dating results from Beta Analytic Inc. A discussion of Quaker practices and their views on simplicity follows. Finally, I conclude with a discussion about whether the skeleton is of a European Quaker descent as many of the skeletal analysis and archival sources suggest.
Chapter 2: Forensic Archaeology: Skeletal Analysis

Human skeletal remains provide opportunities for forensic archaeologists to learn about past lifeways. Through a series of techniques, forensic specialists can potentially identify age, sex, stature, ethnicity, as well as possible internment age. It is important to note that, when determining these characteristics, it is difficult to be definitively correct due to the variations amongst humans. This section provides an overview of the methods and calls attention to the problems that can arise in the analysis of human skeletal remains utilized in forensic studies.

Age

Determining the age at death of human skeletal remains involves the combined use of the skull, clavicles, ribs, vertebra, pelvis, and teeth. To minimize inaccuracies, a number of bone analyses should be used to pinpoint an age within a 10- to 20-year range (Burns 2007: 201). Determining the age of adult human skeletal remains involves analysis of the face of the pubic symphysis, sternal extremity of the rib, auricular surface of the hip, cranial suture closure, as well as a dental examination. By using a combination of these, one is able to rule out an age that does not fit within the age estimation of a larger group (Klepinger 2006: 63). There are two types of changes that occur, formative changes and degenerative changes, which can help pinpoint the age of an individual. Formative changes include the examination of dental eruption as well as epiphyses union with the diaphysis. This analysis helps determine the difference between juvenile and adult individuals. In adults the epiphyses, found in juveniles, are fused to the diaphysis, and thus, no longer present. Degenerative changes include analysis of dental wear as well as the presence of osteoarthritis. Greatly worn wisdom teeth are usually equated with an older adult due to increased wear on the teeth (Burns 2007: 200-1). Determining the age of even
complete sets of adult skeletal remains are less accurate than determining the age of juveniles due to the wide age range of an adult.

The pubic symphysis analysis has undergone many tests to more accurately determine age at death. In 1920, T.W. Todd published his results on estimating age from the pubic symphysis. He studied 306 pubic symphyses of males with a known age of death (White 2000: 351). He grouped them into ten different phases, from which he identified three categories: postadolescent, buildup stage, and degenerative stage. Through these phases, scholars could compare the pubic symphyses of human skeletal remains with Todd’s method to determine age of death (White 2000: 352). Other pubic symphysis methods were conducted by Gilbert and McKern (1973), Meindl (1985), and Katz and Suchey (1986). Katz and Suchey worked with 739 male pubic symphyses at a coroner’s office in Los Angeles County, California. They tested Todd’s research as well as the other methods to determine the accuracy of using pubic symphyses to determine age at death and found errors in the data. According to Katz and Suchey, using the pubic symphysis alone to determine age of death is inaccurate. A range of different methods is crucial in obtaining the most accurate results.

**Sex**

Sex can also be determined through a number of different methods. Certain bones that help establish the sex of human remains include the pubis, ilium, femur, frontal, temporal, occipital, mandible, rib, and sternum (Burns 2007: 202-3). According to William H. Bass (1995: 208), “the best area to determine the sex of a skeleton is in the pelvis.” The pelvis in many areas differs between male and female. The pubic bone of females tends to be longer and the subpunic angle is greater than in males. The ventral arc of the pubis is also usually only found in females. Furthermore, the greater sciatic notch is wider and “U” shaped in females and more narrow and

The femur is one of the larger bones in the body, and therefore, it is more likely to be recovered. Due to this, it is frequently used to determine sex. The mean length of the femur is generally larger in males than in females and “the angle of the neck of the femur to the shaft is small in females” (Klepinger 2006: 33). The Terry Collection consisting of 98 male and 101 female African Americans was used by Thieme and Schull to examine sex through the use of the femur. Thieme and Schull determined that the head of the femur produced the most accurate results (Klepinger 2006: 33). However, as with determining age, it is better to use a combination of bones to determine sex to achieve greater accuracy.

The humerus and the skull are also used to determine sex. According to Klepinger (2006:34), “perforation of the olecranon-coronoid septum of the distal humerus is found significantly more often in females.” The skull can also mark the sex of an individual, but extra caution needs to be applied when using this method, which should be combined with another bone analysis for accuracy. Some characteristics associated with determining sex through the use of the skull include: the overall size of the vault, face, and teeth are larger in males; the supraorbital ridges are more pronounced in males; the mastoid process in males is more robust and longer; and the chin is squared off in males, while more rounded in females.

**Stature**

Determining stature in comparison to age, sex, and ethnicity is relatively straightforward. Stature estimation can be analyzed from long bone length. There is a number of different regression equations that verify stature. According to White (2000: 371), when “femur length is known, stature may be calculated with about a 68% probability that the calculated value falls
within 3.417 cm of the actual statue of the individual.” Of course, if the femur is missing, broken, or deteriorated, other skeletal data such as the arm bones or other leg bones can be used. The femur does produce the most accurate estimate of stature.

**Ethnicity**

Ethnicity\(^1\) is one aspect of forensic archaeology and osteology that is very difficult to determine. Burns (2007: 203) points out that it is important to remember that “human biological variation is greater within race than between races.” Where does this leave researchers who undertake analyses of human skeletal remains to determine ethnicity? Cranial measurements and analysis are the most commonly used method to determine ethnicity (White 2000: 375). Dentition, the mandible, and maxilla are the more common parts of the skull examined to determine ethnicity. The femur is the second most common bone used to determine ethnicity. According to Burns (2007: 203-4), traits to look at on the femur include “anterior curvature of the femoral shaft, shape of the proximal diaphysis….and the depth of the intercondylar notch.” In a person of Asian origin, as well as Native Americans, the anterior curvature would be straighter, the proximal diaphysis shape shows anteroposterior flattening, and unfortunately the intercondylar notch depth is undermined. In an individual of European origin, the anterior curvature is more curved than those of Asian or African origin, the proximal diaphysis shape is rounder, and the intercondylar notch depth is shallow. Those of an African origin have a straighter anterior curvature, rounder proximal diaphysis shape, and a deeper intercondylar notch.

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\(^1\) Ethnicity in this paper will be defined as biological factors, race, as well as the cultural factors, such as place of origin and religion that are tied to an individual. Furthermore, race is an important underlying factor in the study of the incomplete set of human skeletal remains, however, it is also a very controversial topic that can never be completely determined. The research, measurements, and various tests conducted on the skeleton speculate on the origin, religion, and race of the individual. It is very important to keep in mind the various definitions of ethnicity and race, but remember that this study will include both biological and cultural aspects, and thus, “ethnicity” should be read as such.
(Burns 2007: 203-4). Therefore, the skull and femur are the two main bones that are analyzed to determine ethnicity.

Many problems arise when attempting to analyze ethnicity. It is important to realize that a determination of ethnicity through skeletal analysis does not necessarily indicate skin color (White 2000: 374). Examining ethnicity can help pinpoint possible country of origin. Although there is no perfect method of determining ethnicity of individuals, there are methods that can highly predict possible ethnicity of an individual. These methods are useful when attempting to either confirm or disprove a possible suggested ethnicity. In 1985, Mizoguchi completed a study on cranial and dental features. One characteristic of modern Asians is the shovel-shaped incisors, but it is not accurate to identify Asian ancestry on dentition alone. According to Mizoguchi, shoveling “shows wide ranges of expressivity and incidence values in different extant human groups” (White 2000: 375). In 1995, Howells also conducted studies on crania and racial categories. He conducted research on 2504 human crania from all around the world and found that skulls could unambiguously be placed within a particular population. He concluded that those of Asian populations had narrow, concave nasal bones compared to African and European populations. Howells also suggests that African skulls show “wide interorbital distances, rectangular orbits, broad nasal apertures with poor inferior definition” as well as other characteristics that differ from those of Asian and European populations (White 2000: 376). However, Howells’ studies are based on extremely large data sets, while many cases may be single finds or small cemeteries. Larger data sets allow for a greater number of people to be compared to one another, and thus, more clearly mark a particular ethnicity. Determining the ethnicity of a small group is very difficult.
Studies using the femur to establish ethnicity have also been undertaken by Gilbert and Gill in 1990. They determined that “anterior-posterior flattening of the proximal femur just below the lesser trochanter (platymeria) was more pronounced in American Indians than in American blacks or whites” (Klepinger 2006: 76). Another study completed in 2005 by Wescott measured the anterior-posterior flattening and found that the “shape of the anterior subtrochanteric shaft was useful in separating the relatively flat proximal femoral profiles of Native Americans…from American blacks and whites, who had rounder subtrochanteric regions” (Klepinger 2006: 76). However, there are many variations among Native Americans, Europeans, and Africans as well as similarities that may lead to an inaccurate analysis of ethnicity. Case studies conducted on cemeteries with known age, internment age, and possible ethnicity of the deceased provide a good comparison. Nonetheless, a single find makes it very difficult to determine ethnicity accurately due to the lack of comparison with other skeletal remains as well as the variations and similarities that occur among and between ethnicities. Ethnicity has biological, political, and religious ties to it, which further complicates an analysis of human skeletal remains. The lines in which people define their own ethnicity or racial groups greatly vary depending on the cultural group. Physical distinctions, not always evident in human skeletal remains, are often used to differentiate between groups. These include, but are not limited to, hair type, nose, lips, eyes, and sometimes skin color (Burns 2007: 203). Determining ethnicity, although very complicated, helps to better understand the cultural patterns associated with that particular ethnicity in order to better analyze certain actions and behaviors of the group.

As these ethnicity case studies illustrate, determining ethnicity is very complicated. Understanding that ethnicity is a very controversial issue is crucial when applying these methods to human skeletal remains. Forensic anthropologists and osteologists have problems when
figuring out ethnicity and this project is no different. Examining and reaching conclusions about age, sex, and stature provides a more accurate result; however, ethnicity is crucial today for issues concerning reburial and repatriation.

**Radiocarbon Dating**

Radiocarbon dating is used to determine the age of organic material. Bone is one organic material that can be dated using this technique. $^{14}$C is studied to determine how long an object, or individual in this case study, has been dead. The rate at which $^{14}$C decreases after death of an individual is known. The half-life of $^{14}$C is around 5,700 years. A radiocarbon date is accurate within the range of 400-50,000 years ago (Sutton 2006: 306). With an increase in technology over the years, radiocarbon dating is becoming more accurate.

Accelerator Mass Spectrometry (AMS) is a form of radiocarbon dating that uses smaller quantities to determine the date. The cost of this type of dating is three times that of radiocarbon dating (which ranges from $200-$250) and takes longer. However, it allows for small samples of bone to be analyzed (Sutton 2006: 307). Therefore, when only small bone samples can be spared for analysis, this technique is just as reliable and accurate as a bigger sample taken for normal radiocarbon dating.

There are some drawbacks to radiocarbon dating. According to Sutton (2006: 306), one is that “radiocarbon production in the atmosphere has varied through time…and these variations result in radiocarbon dates that do not directly correspond with calendar dates.” The variations for the past 8,000 have been mapped to produce calendar years, but those older than 8,000 years are still in radiocarbon years that do not correspond to the calendar. Second, contamination is a problem when testing a sample. It is important to make sure the sample contains only carbon from the era in which it is believed to be from. Archaeological samples need to be cleaned of any
younger material (Olsson 1991: 24-5). Third, pretreatment methods are crucial in obtaining an accurate radiocarbon dating result. It is important to remove the organic material by washing the bone in de-ionized water, and then by scraping free the outer layers that were exposed to the soil and other organic material that may skew the results (Beta Analytic Inc. 2008: no page number). Radiocarbon dating, therefore, is a very useful and reliable method if performed correctly, but one needs to recognize the problems that can be associated with this dating technique.

Other Factors to Consider in Analysis

Along with an analysis of age, sex, stature, ethnicity, and internment age, analysis of the stratigraphy in which the remains were found as well as possible photographs taken on site help the forensic archaeologists better analyze the remains. Stratigraphy provides a way to determine when the body was interred due to soil color as well as different plant growth in the surrounding area. Different soil colors indicate different levels. As a site is excavated and an archaeologist comes across different soil colors, the change in color indicates a different level than the previous. One level may be a darker brown, while the other may have a slightly red or yellow tint. Material found in each level or different soil tint can help determine when that level was exposed and what people deposited in the level, thus helping to date not only the level, but also when the body was interred. Furthermore, photographs and well-taken notes aid forensic archaeologists if they are unable to visit the site where the remains were uncovered.
Chapter 3: A Case Study: Background Information

This section of the thesis examines one particular set of human remains (Figure 3-1). Obtaining background information regarding the accidental find of the human skeletal remains was an important first step before my research began. This section reviews the circumstances surrounding the recovery, initial analysis, and the current location of the skeletal remains of this case study.

Day of Discovery

The morning of Monday, August 6, 1973 started out like any other day of the week for the construction workers on South Queen Street, Lancaster, Pennsylvania (Figure 3-2, 3-3, 3-4, 3-5). On that morning, workers were clearing way for the construction of the Salvation Army building. Not long after they began, the Lancaster City Bureau Police Department received a call at 0930 hours that the workers had uncovered a skeleton. At 1330 hours, Detective J. Geesey and Officer Crump reported to the scene to examine the bones that were unearthed by Richard H. Bortfield, the operator of the back-hoe that morning. According to the police report, Bortfield “was operating his equipment on the East side of the construction site…approximately seven (7) feet down in a ditch, when he was informed that his back-hoe had uncovered part of the skeleton” (Crump et al. 1973: 2) (Figures 3-6, 3-7, 3-8). The report then discusses how blasting had taken place before it was certain that the bones were human. It was only after the blasting occurred that construction workers Gary D. Lausch and Rufus Frey realized that the bones were actually human. The Police Report does not include further details about the recovery, but notes that one of the workers believed the skeleton was buried “in an upright position with one hand raised over its head prior to the blasting” (Crump et al. 1973: 2). There remains a series of
unresolved issues surrounding the accidental nature of the finds and the lack of professional excavation of the human skeletal remains.

The following day, August 7, 1973, Detective Geesey contacted Dr. Wilton Krogman, director of research at the Cleft Palate Clinic of Lancaster, Pennsylvania, who was at the time a well-known osteologist. During the 1920s, Dr. Krogman studied anthropology at the University of Chicago and eventually became a professor of physical anthropology. In 1947, he furthered his professorial career at the University of Pennsylvania. He wrote several books including *The Human Skeleton in Forensic Medicine* published in 1986. Dr. Krogman examined the skeleton and concluded that the bones were of a human male who was 5’3” and about 45 to 50 years of age at the time of his death. Due to the condition of the bones and the location of its discovery, Krogman concluded that the bones were associated with a 200-300-year-old American Indian. His short report, dated August 7, 1973\(^2\) does not include a detailed justification for how he determined that the bones were American Indian. Clearly, he made assumptions (at least in what is presented in his report filed with the Lancaster City Bureau Police) that shaped his conclusion.

Uncertainty about the discovery of the bones and the lack of a professional archaeologist on site on August 6, 1973 highlights the difficulties of fully understanding accidental archaeological finds. Although a well-known “authority on unearthed remains and objects” was contacted to evaluate the remains on August 7, 1973, Dr. Krogman’s results leave unanswered questions prompting further investigation of the remains (Crump et al. 1973: 3). The deposit was most likely already disturbed due to the construction taking place where the skeleton was found, leaving no clear signs of stratigraphy.

\(^2\) Although Krogman’s report is dated August 7, 1973, he does not specify if this was the date the bones were received or the date that he completed his analysis.
On Tuesday, August 7, 1973, the *Intelligencer Journal* of Lancaster, Pennsylvania printed an article featuring the discovery (Figure 3-9). Although the article is rather short, it does provide an account of how the human skeletal remains were found. It mentions the two workers who discovered the bones, Frey and Lausch, and that they would be examined by Dr. Krogman. The article does not indicate the use of dynamite and, unlike the police reports, states that “the remains were shoveled into a pile of dirt along the new building” and that the police spent the day looking for more bones of the skeleton (*Intelligencer Journal* 1973: 5). The explanation in the newspaper shows how potentially misleading or inaccurate information can be disseminated by the press or may also represent human error in the police reports.

**Dr. Wilton Krogman’s Report**

Dr. Wilton Krogman prepared a report on the remains that were brought to him by Detective Joseph P. Geesey on Tuesday, August 7, 1973 (Figures 3-10, 3-11, 3-12). His report is based on an examination of the skull, long bones, pelvic girdle, four rib fragments, phalanx I of toe I, metacarpal I, metacarpal III, and two pieces of animal bone found with the remains. Krogman measured all he believed could be measured, provided descriptive traits, and offered his conclusion of age, sex, ethnicity of the bones.

At the time of his study, the skull was in three pieces; the base was missing and the frontal bone was in two pieces. The skull had a breadth of 148mm and an approximate length of 180mm. Krogman noted that muscle attachment lines on the occiput could be seen. He also pointed out that the occiput was flattened and the supraorbital ridges were moderate in size.

Krogman then examined the long bones. He noted that the head was broken off of the left humerus. He reported that the remains also consisted of two radii; the left was complete and the right was broken. Krogman scrutinized the ulnae fragments and found that the right was missing
the lower end and both ends of the left were broken. He reported that, of the two femurs
recovered, the right was complete and the left was broken in the middle. His report also focused
on a patella, which he thought may have been a left kneecap. Both tibia were also found on site.
Krogman calculated that the left humerus was 310mm in length, the left radius was 211mm, the
right femur head was 47mm, the anterior-posterior measured 47mm, and the vertical total length
measured 412mm. The right tibia measured 306mm, while the left tibia was 312mm. Krogman
(1973: 2) commented that the “humerus had a well-developed deltid tuberosity.” In addition,
the femur had “pronounced linea aspera, large trochanters, [there was] marked antero-posterior
curvature, [and] the femoral condyles [showed] slight ‘lipping’.”

Krogman noted that the pelvic girdle was of the right side, missing the pubis, had an
eroded crest, and a preserved acetabulum. These bones were not described or measured by
Krogman due to the conditions and the lack of other bones. Therefore, he was unable to complete
a further analysis of them.

After describing and measuring the bones, Krogman’s report provides a summary of his
results. Krogman (1973:2) concluded that, due to the “head shape, occipital flattening, bowing of
femur, flattening of tibial condylar surfaces,…radio-humeral and tibio-femoral indices [and the]
moderate supra-orbital ridges,” the bones were American Indian. He believed the remains were
male due to the occipital ridgings and muscle attachments, especially on the femur, that
suggested a rugged build, and thus, male. Based on the sutures, he concluded that the individual
was 45-50 years of age at the time of death; from the left femur and left tibia, he believed the
person was approximately 5’3” tall. Krogman was unsure of the cause of death, but suggested
that it was of natural causes. On the basis of the condition of bones, he surmised that the
interment date was 200-300 years ago. Furthermore, he lamented not being able to gain a clear sense of stratigraphy due to the accidental find of the bones on the construction site.

At the end of his report, Krogman mentioned that the pottery found with the bones was “entirely ‘recent’…[and he] seriously doubt[ed] any relation to the bones whatsoever (Figures 3-13, 3-14). He believed the two animal bones were “either Bovid (cattle) or Cervid (deer or elk)” (Krogman 1973:1) (Figures 3-15, 3-16). The uncertainties of his conclusions leave many questions to be answered about the actual ethnicity of the human skeletal remains.

Dr. Krogman may not have known that the location the bones were found in was a Quaker cemetery. There were various Native American tribes in Lancaster during the eighteenth and nineteenth century, which may have led him to conclude that the bones belonged to a Native American. Human error is also possible in all events and analyses. The tests completed in this research suggest that Krogman’s results were unclear and quite possibly incorrect. When details such as the location of the cemetery or Quaker rituals discussed in this paper are left out, conclusions can be incorrectly determined.

North Museum of Natural History and Science

According to the police reports, once Dr. Krogman suggested that the skeletal remains were Native American, the bones were given to the North Museum of Natural History and Science, located on College Avenue in Lancaster, Pennsylvania. In 1973, W. Fred Kinsey III, Ph. D., curator of the North Museum, “agreed to look over the bones and see if they would be of use in the museum” (Crump et al. 1973: 3). Exactly how they were delivered to the museum and what Dr. Kinsey did once he received them is unknown. What is known is that the remains have remained in the osteology room in a plastic bag that the police department put them in roughly thirty-four years ago.
In 2007, Alison Eichelberger, the current Collections Registrar, was conducting an inventory of the osteological collection at the North Museum when she came across the remains. She wrote a memo pertaining to the un-catalogued human skeletal remains dated December 10, 2007 that stated: “I called Fred Kinsey, who was the Director of the Museum at the time and he had no recollection of the bones and why they would be at the museum” (Eichelberger 2007: 1) (Figure 3-17). The remains had not been catalogued in the last 1992 inventory. In 2007, the collection was catalogued and the remains are now part of the North Museum’s official collection catalogue.

In 2008, I visited the North Museum to determine if the museum curated any osteological material that I could study and was shown the human skeletal remains. In October 2008, the remains moved from the plastic bag with a police evidence tag they were stored in for 35 years to a brand new osteological box the museum purchased that same month. This was important for three reasons: one, the plastic bag was inadequate to preserve the remains preserved; two, it was disrespectful to the deceased person; and three, I would need a way to carefully transport the human remains to another institution to have them examined. The osteological box, therefore, was a crucial and necessary investment.
Chapter 4: Research

Documentary research is a crucial component of solving a forensic archaeology case. Small archival findings can lead to a better understanding of the story surrounding human skeletal remains and can be combined with careful osteological analysis. This chapter focuses on the research conducted on the location the bones were found, the bones themselves, analyses undertaken by specialists at Mercyhurst College, the results of the radiocarbon dating from Beta Analytic Inc. on one bone sample, and setbacks associated with fully solving the mystery.

Property

Collecting information on the property was an essential first step in determining possible reasons why the body was buried at South Christian, Washington, and South Queen Streets prior to 1973. Maps located in the Shadek-Fackenthal Library at Franklin & Marshall College showed the transformations of the city block through time. I first looked at an 1858 map, which provided a general layout of the property where the skeleton was found; nothing seemed unordinary (Figure 4-1). I then looked at an 1875 map that once again showed the property (Figure 4-2). From there, I found an 1886 map, which showed the city block similar to the 1858 and 1875 maps (Figure 4-3). It was an 1874 map, which included an important notation that set my research in motion (Figure 4-4). The letters “Cem” were placed on the current property of the 1973 section of the Salvation Army. A cemetery once existed on the property where the remains were found. According to this map, the property at that time was connected to the Odd Fellows Hall. I consulted History of Lancaster City by Ellis and Evans and saw that the property had previously been owned by Quakers. I then searched for Quakers within this book and learned that they had laid out a burial ground around 1759 with permission from the Sadsbury Monthly
Meeting. Deed research was necessary to learn how long it was in use and when it was destroyed.

Deed research was undertaken at the Lancaster County Historical Society and the Lancaster City Courthouse. I also utilized two books, *Religious Life in Lancaster Borough* by Caroline S. Coldren and M. Luther Heisey and *Quakers: Origins, Families, and Beliefs in Lancaster County, Pennsylvania* by Ross I. Morrison, Sr. On the basis of this research, I learned that the first Quaker meeting in Lancaster was held as early as 1735, with the first land deeded in 1754 on South Queen Street bounded by South Christian and Washington Streets (Morrison 2006: 46). This deed was signed by James Hamilton to the trustees of the Quakers: Peter Worrall, Isaac Whitelock, and Thomas Poulteny. In 1759, the meeting house was completed and a burial ground was laid out behind the building. By 1802, possibly due to the dwindling Quaker congregation in Lancaster and the divisions over dictation regarding doctrines among the Quakers, the Sadsbury Monthly Meeting discontinued the meeting (Klein 1924:842; Brinton 1964: 188). Around 1810, services were held in the Quaker meeting house by Reverend John Elliot. There is also speculation that it was used as an African School by the Lancaster City School District (Rineer 1993: 198), but this was not mentioned in any deeds that I found.

On March 24, 1845, the land the Quaker meeting house was located on was deeded to Ellis Lewis by Gainer Moore, Samuel Whitson, Truman Cooper and Robert Moore, who represented the Society of Friends or Quakers. Lewis then sold the land to the International Order of Odd Fellows (IOOF) Lancaster Lodge No. 6, a Masonic lodge, and the Odd Fellows Hall was built on the property. The graveyard during these two deed transactions was still in the hands of the Society of Friends. It was not until June 12, 1874 that the burial ground was deeded to Warwick Cooper by Isaac Moore and Parvin Smith, both trustees of the Society of Friends. In
this 1874 deed, it is mentioned that the graveyard is no longer in use and only briefly referred to in future deeds. On July 3, 1874, Warwick Cooper sold the land to the IOOF, Lancaster Lodge No. 61; the deed states that the land was reserved for the Society of Friends Graveyard. After this time, the property was no longer listed as the location of a graveyard.

An article written in 1909 printed in the *Friends’ Intelligencer* mentions how the Friends were upset once the property changed hands from IOOF, Lancaster Lodge No. 61 or Odd Fellows Hall to the next owner. With this “re-sale went the reserved rights when [transferred] by Friends, such as for burial in the graveyard belonging to the meeting and other privileges” (Matlack 1938: 248). The Quakers feared that the graveyard would eventually be forgotten. This fear was legitimate for, after the property was sold by Odd Fellows, the graveyard was no longer mentioned in the deeds.

The property then went through eleven more transactions before the Salvation Army bought the lot. The land where the burial ground was located was deeded in 1898 to Bishop Thomas McGovern of the Roman Catholic Diocese of Harrisburg, Pennsylvania in trust for the use of the land for St. Mary’s Roman Catholic Congregation. On July 12, 1899, the land changed from the property of Bishop Thomas McGovern to Bishop John W. Shanahan, probably due to death or retirement. The property where the graveyard was located on May 6, 1907 was transferred from John W. Shanahan to J.W. Fehl. From Fehl, it became the property of Amos Herr on July 15, 1907. On February 11, 1921, Amos K. Herr deeded the land to John K. Herr; it was then given to his son John K. Herr Jr. on March 1, 1958. John K. Herr Jr. sold the land to the Stateside Shoe Manufacturing Company on April 2, 1958. The property was condemned by the Redevelopment Authority of Lancaster and deeded to the Redevelopment Authority on January 21, 1971. The Salvation Army then bought the property, along with several other properties.
adjacent to it on January 17, 1973. Eight months later, when digging for the foundation of the Salvation Army began, the human skeletal remains were found on the property of the former Society of Friends/Quaker cemetery. The Salvation Army still owns the property today.

**Mercyhurst College**

Second opinions and analyses of human skeletal remains are always crucial in determining and analyzing the approximate ethnicity, age, and sex of skeletal remains. On October 22, 2008, I obtained a loan from the North Museum of Natural History and Science to transport the remains to a facility dedicated to help solve forensic mysteries (Figures 4-5, 4-6). On Thursday, October 23, 2008, I traveled to Mercyhurst College in Erie, Pennsylvania to consult with a team of faculty and graduate students in the Forensic Anthropology department. The team measured and studied the human skeletal remains found at the Salvation Army site to provide independent guidance in solving the mystery. Included in the study were Dr. Stephen Ousley and Dr. Steven A. Syms as well as graduate students Susanne Daly, Alexandra Klales, and Allison Nesbitt.

I first provided the team with background information, without indicating Dr. Wilton Krogman’s results or the location of the finds in a Quaker cemetery. The human skeletal remains were given a case number at Mercyhurst: MC08-095 (Figure 4-7). Daly, Klales, and Nesbitt measured the parts of the bones that were measurable, including: the maximum cranial breadth, minimum frontal breadth, parietal chord, occipital chord, innominate approximate height and approximate iliac breadth, maximum length of femur, bicondyhlar length of femur, epicondylar breadth of femur, maximum diameter of head of femur, anterior-posterior (A-P) subtrochanteric diameter of femur, transverse subtrochanteric diameter of femur, A-P diameter of midshaft of femur, transverse diameter at midshaft of femur, circumference of midshaft of femur,
epicondylar breadth of humerus, maximum diameter at midshaft of humerus, minimum diameter at midshaft of humerus, maximum length of radius, radial head diameter, length of tibia, maximum proximal epiphyseal breadth of tibia, maximum distal epiphyseal breadth of tibia, maximum diameter at nutrient foramen of tibia, transverse diameter at nutrient foramen of tibia, and circumference at nutrient foramen of tibia. Dr. Ousley repeated these measurements and then put them into the FORDISC database. The FORDISC software program was created by Dr. Ousley and Dr. Richard L. Jantz (of the University of Tennessee) to help forensic anthropologists identify human skeletal remains. The program “is an interactive discriminant functions program which classifies an unknown adult cranium based on known samples using up to twenty-one cranial measurements,” it provides a very diverse population pool for comparing skeletal remains (University of Tennessee, Knoxville website, October 2008). The software uses more recent populations to compare measurements and is continually adding to the database with contemporary populations, with hopes of also adding older populations to the program (Personal Communication with Ousley: October 23, 2008). This software was used in determining the possible ethnicity of the human skeletal remains studied in this project. Multiple searches consistently suggested the human skeletal remains were of a white male whose height was approximately 64.8 inches +/- 2.4 inches, due to the length of the femur and other combinations of measurements. One search indicated that the skeletal remains may be of a Norse male suggesting that the individual may have migrated to Lancaster, Pennsylvania or the surrounding areas. However, the probability that it was a white Norse male is very low (Figures 4-8, 4-9, 4-10, 4-11, 4-12).

Dr. Ousley then studied the skeleton and remarked upon the thickness of the skull, which he said was common in Native Americans, but also very common in Europeans around and
before the 1800s. He thus disagreed with Krogman’s report that suggested occipital flattening and flattening of the tibial condylar surface, which Krogman used to conclude the remains were Native American. Ousley did not feel comfortable measuring the breadth of the skull, due to the missing glabella. He also commented on the humerus deltoid tuberosity, which forms from excessive lifting over a long period of time. It was found in Civil War soldiers (most likely of European decent) who carried buckets up and down a hill for a long period of time at Harpers Ferry (Personal Communication with Ousley: October 23, 2008).

The two pieces of pottery, possibly part of the rim of a pot, found in the bag with the skeletal remains were examined by Sarah Dost, student, and Judith Thomas, M.A., professor. They concluded that the two pieces were nineteenth-century glazed red-bodied earthenware that was very popular up until 1800 and then not as popular but still in use after 1800. Indicating the approximate time period of internment the pottery also fits in with Ousley’s conclusion, the FORDISC data, and the age of the person possibly buried in the Quaker cemetery on the Salvation Army site. Following Quaker tradition and simplicity, the pottery may have been placed with the body as a possible internal grave marker. Furthermore, pottery was also found at the Quaker burial ground in Alexandria, Virginia, which will be discussed further in Chapter 5.

**Beta Analytic Inc. Results**

In order to obtain a radiocarbon date, Alison Eichelberger of the North Museum and I cut a section of the broken left femur (Figure 4-13). I had been in contact with Darden Hood of Beta Analytic Inc. regarding the size of the sample need (2-10 grams), the price ($685.00), as well as the correct packaging to mail the sample in (wrapped in foil in a ziplock bag and then sent priority mail). I applied for a Nissley Scholar’s Grant and was awarded $1000 by the Committee on Grants at Franklin & Marshall College. This helped pay for the AMS radiocarbon dating
completed by Beta Analytic Inc. This section examines the results of the AMS radiocarbon
dating.

After the sample arrived at Beta Analytic Inc., it underwent a pretreatment stage before
analysis was conducted to eliminate carbon that could skew the final results. First, collagen
extraction with alkali was performed to isolate the carbon to represent the period of time with
which bone was associated. Then, an analysis was performed to measure the carbon to benzene
ratio to calculate the radiocarbon age. According to the report, “AMS results were derived from
reduction of sample carbon to graphite, along with standards and backgrounds. The graphite was
then detected for 14C content in one of 9 accelerator-mass spectrometers (AMS)” (Beta Analytic
Inc. 2008: 2). After multiple tests of the bone were run, the results were calculated.

Radiocarbon dating is usually expressed using conventional radiocarbon age. Due to
problems in accurately calculating the half-life of the bone, conventional and calibrated
radiocarbon ages were calculated. Beta Analytic Inc. calculated the conventional age of the
bones at 200 +/- 40 BP. Before present (BP) in these results is calculated from AD 1950
following the typical way of calculating the before present time frame. The calibrated ages,
indicated on the graph, give three possible time periods for the actual age of the bones. The 2
Sigma calibrated results indicate that when the bone sample is examined there is a 95%
probability that it will fall between AD 1640 to 1700 and AD 1720 to 1820 and AD 1920 to
1950. The 1 Sigma calibrated results indicate that when the sample is tested there is a 68%
probability that the dates will fall between AD 1660 to 1680 and AD 1740 to 1800 and AD 1940
to 1950 (Figure 4-14, 4-15). Regardless of the multiple possibilities, the specimen is clearly
associated with the historic and does not date to the precontact period. The conventional date
indicates that the bone dates somewhere between 1670 and 1870. The calibrated age shows some
overlap with the cemetery, 2 sigma AD 1720 to 1820 and 1 Sigma AD 1740 to 1800. Although there are dates that do not overlap with the cemetery, the results are not unusual. Due to the recent age of the bones, the results indicate that radiocarbon dating of the specimen is pushing the outer limits of accuracy. Even though the dates do not all coincide with the time the Lancaster Quaker cemetery was in use, the conventional radiocarbon age as well as two of the calibrated dates indicate that the skeleton was more than likely buried in there.

**Discussion**

Although I was able to investigate a wide range of issues, this section examines the challenges that did not allow for a complete analysis of the human skeletal remains. I specifically discuss age at interment, difficulties of a complete accurate determination of sex, as well as overall research problems concerning the accidental finds of the site.

Due to the accidental find of the human skeletal remains on the Salvation Army property, the skeleton was incomplete. The different combinations of estimating age in Chapter 2 suggested by Burns and Klepinger were impossible to apply to the skeleton due to the lack of complete skull, ribs, vertebrae, pubis, and teeth. Therefore, this project did not conduct tests and measurements to determine age.

Furthermore, although the data suggests with a high degree of certainty that the remains are male, there were difficulties in accurately determining the sex of the skeleton. At Mercyhurst College, the hipbone and femur were used to determine the sex of the individual. In addition to an analysis performed at Mercyhurst College, the greater sciatic notch was a major determinant in the decision of the sex of the human skeletal remains. However, it is important to note that the hipbone is incomplete and missing the pubic bone, which is discussed in Chapter 2 as one of the main methods of determining sex. Although it is very likely that the human skeletal remains
were male, the incomplete skeleton does not allow for a better analysis using a combination of bones to determine sex.

Research problems were also an issue due to the nature of the accidental finds. The time lapse between when the bones were given to the North Museum and when I began to solve the mystery caused various problems addressed here. Stratigraphy was unable to be determined and no known description of the site exists outside of the police records and newspaper article. Due to construction on the site, it had been seriously disturbed and an accurate description of the site was unable to be determined or very roughly included in the police records. In correspondence with the Lancaster City Bureau Police Department, I learned that photographs were taken. However, the police department moved into a new building in 2002 and either destroyed or misplaced the photos. Furthermore, the photographer was unable to be reached to see if he had retained any of his own copies. Multiple calls and phone messages to the photographer’s son were not returned. Sgt. Heiser did mention that the photographer would be around 80 years of age. Therefore, health issues may have been the reason for unreturned phone calls. Nonetheless, this minor issue did not affect the progress of my research.
Chapter 5: Society of Friends

Quaker practices during the eighteenth and nineteenth century differed from the mainstream Christian beliefs of the time period. Understanding Quaker views of simplicity associated with funerals and cemeteries is crucial in considering the link between the accidental find and its possible Quaker roots. This section examines the Quaker practices and compares the cemetery in Lancaster with a Quaker burial ground that underwent archaeological excavation in Alexandria, Virginia. Therefore, this provides a means to both compare and contrast the Quaker burial practices. From the literature used in this paper, Quakers are classified as one group without regional differences in burial practices due to the split happening towards the end of the time the Lancaster Meeting was in session.

Quaker Practices and Simplicity

The Society of Friends during the eighteenth and nineteenth century lived very simple lives. Their doctrines were based on serving God without unnecessary decorations, while promoting equality among all members. Howard Brinton (1964: 134) states that “the eighteenth century meeting houses exhibit not only plainness but fitness, beauty and proportion.” Simplicity infused Quaker life, including Quaker dress, homes, speech, and manners (Brinton 1964: 135). Not only did the Society of Friends practice simplicity in daily activities, but also during weddings and funeral services.

Quaker funerals and graveyards differ from those of other Christian denominations of this time period. According to Edwin Bronner (1953: 214), “Friends’ desire for simplicity extended even to such markers as gravestones, and the placing of any marker over graves was frowned upon.” Grave markers and tombs were associated with the world, whereas the Quakers focused more on pleasing God. Once the individual passed away his or her soul was with God. The body
and the coffin were worldly material items that the soul was no longer attached to. The material aspect of grave markers and tombs was unnecessary in heaven; thus, they were not part of Quaker practice. The Philadelphia Quaker graveyard did not make use of grave markers. The Quakers built the Arch Street Meetinghouse on the same spot as the graveyard (McDannell 1995: 103). Furthermore, this shows the simplicity aspect of the Quaker religion as well as the lack of importance of earthly concerns.

Quakers were buried in plain coffins without any celebration or mourning surrounding the deceased. According to Francine W. Bromberg et al. (2000: 177), there are no records “of how the body is clothed when placed in the coffin or what the coffin itself is like other than being ‘plain.’” Most likely, during the late eighteenth or early nineteenth century coffins were made of wood without decorations or added metal. Around 1800, Thomas Clarkson wrote a number of volumes on Quakers; there are reports that, “the Friends object to the use of the tombstone and monumental inscriptions” (Bromberg et al. 2000: 178). There may also not have been grave markers at the Lancaster, Pennsylvania Quaker cemetery.

Quakers’ desire to maintain simplicity in all aspects of their life raises questions concerning the graveyard on South Queen, South Christian, and Washington Streets in Lancaster, where the human skeletal remains were found. The Lancaster Society of Friends sold the graveyard in 1874 to a non-Quaker who probably had no attachment to the land. Apparently, Warwick Cooper, who bought the property in 1874, was not concerned with the skeletal remains still present in the graveyard as no deeds mention the repartition of the bodies buried in the cemetery, suggesting they are still buried on the Salvation Army property. As was the case with the Philadelphia Quaker graveyard, the Quaker graveyard in Lancaster also appears to have been built upon.
The lack of concern with material objects seems to also apply to the burial ground. Between 1759-1810, Bronner and McDannell’s publications on Quaker burial rituals suggest no grave markers were used and their use was strongly discouraged. One source points out how a grave digger was disciplined for “setting up such marks of distinction” while backfilling the grave; the ground was supposed to be level with little or no sign of a burial beneath (Bronner 1953:214). Once the person passed, there was no need for an earthly reminder; the deceased was now with God. Therefore, there were probably no markers at the Lancaster graveyard and no one in 1973 would have known it existed without conducting research, for, after 1874, deeds do not mention the property being the past site of a Quaker graveyard.

**Quakers Buried in Lancaster, Pennsylvania Cemetery**

Quakers during the eighteenth and nineteenth century rarely wrote about the cemetery in which their members were buried. The Friends Historic Library at Swarthmore College houses the death records of the meetings associated with the Sadsbury Monthly Meeting during the time period the cemetery was in use. The librarians emphasized that people who were nonmembers were also buried in the Quaker graveyards, but their deaths would not be mentioned in the records. Quakers tended to be sympathetic to nonmembers, and perhaps their belief that all “men were equally children of God,” led them to more graciously provide a burial spot for a nonmember in their burial ground (Tolles 1948: 70).

Eight people in the records were identified as having been buried in Lancaster. Three people were deceased before the Meeting was set up, four died from 1759 to 1766, and the eighth person died in 1831 after the Meeting was discontinued. Hannah Whitelock died on March 16, 1759 at the age of 26 years. Margaret Whitelock, approximately one month old, died on March 16, 1759. Issac Whitelock, almost 2 years old, died on September 9, 1766. The father
of Issac, also named Issac Whitelock, died on April 2, 1766 at around 55 years of age. (Sadsbury Monthly Meeting Births and Deaths 1733-1835 no date: no page number; Records of the Births and Burials of Friends’ Children no date: no page number). Issac Whitelock was born in Yorkshire, England on approximately December 9, 1711, making him around 55 years of age. His name also appears on the first deed for the purchase of the Lancaster property on Queen Street. He was the only adult male mentioned in the records as buried in Lancaster, and therefore the only one who may be a possible match for the human skeletal remains of this thesis.

**Quaker Burial Ground in Alexandria, Virginia**

Although few Quaker cemeteries have undergone archaeological excavation, a Quaker burial ground was excavated in Alexandria, Virginia from December 1993 to March 1995. Excavations at a burial graveyard that belonged to the Alexandria Monthly Meeting of the Religious Society of Friends reveal evidence of the simplicity of the deceased Quakers. The Alexandria Quakers first met in 1783 at the home of one of the Friends and later bought a half-acre burial ground at Queen and Columbus streets on May 5, 1784, thirty years later than the burial ground in Lancaster was established. This burial ground was in use from 1784 to the 1890s and later used as a site for a library. Like the Lancaster site, this burial ground was also built on and it was not until a 1954 addition needed to be replaced that archaeological excavation of the site took place. Although the Quakers of the Alexandria Meeting were concerned with disrupting the grave sites, they allowed for the construction and excavation to continue as long as “appropriate preservation measures were instituted….and a commitment [was] made to [maintain] respect and privacy for the remains” (Bromberg et al. 2000: 1). The 159 burial features found on site were to be reburied on the same property as soon as excavations and research were completed. This appears to be the only excavated Quaker cemetery in the nation.
that corresponds with the time period of the Quaker burial ground in Lancaster. According to Bromberg (et al. 2000: 17-18), there are only two other excavated cemeteries belonging to the Religious Society of Friends. However, they do not correspond to the same time period as the Lancaster or Alexandria, Virginia burial grounds. The Old Quaker Meeting House cemetery located in Newport, Rhode Island dates from 1680-1720 and only two graves were excavated. The remains were of two women. One was between the age of 60-75 and the other was between the age of 50-60 at the time of death. The second excavation took place in Golansville, Virginia to determine if it was the site of the Golansville Society of Friends Meeting House cemetery, which was active from 1739-1853. However, only one burial of an infant was uncovered along with 15 other possible grave shafts. Therefore, archaeologists were unable to confirm the site as a Quaker cemetery.

Graves at the Alexandria, Virginia site did contain coffins. However, in keeping with the Quaker tradition of simplicity, coffins dating prior to 1850 did not contain evidence of decorative hardware and there was some, but no dramatic, decoration used after this time. Gravestones were also found on site, but according to Bromberg (et al. 2000: 538), “it is noteworthy that the earliest stone recorded from the site dates to the 1830s.” Therefore, there were no gravestones used to mark graves prior to this time. Wood or other simple materials that would not survive the weather may have also been used. The fact that there were either no gravestones or ones made of wood suggests there were also no externally marked graves at the Lancaster site.

At the Alexandria Quaker graveyard, there were some simple remains of clothing found. However, of 64 excavated graves, 39 lacked evidence of any artifacts associated with dress or grave goods. Bromberg’s (et al. 2000: 540) research found that linen or wool shrouds were commonly used among Quaker families; these would easily deteriorate leaving no trace. The
clothing that was found in the burial plots dated to as early as 1851, again suggesting that very simplistic burial measures were adhered to prior to this date.

One unusual grave good found in a grave of an adult female was that of an ironstone plate dating to the 1860s which was placed over the stomach area of the deceased. According to Bromberg (et al. 2000: 555), “the presence of plates in burials has been associated with traditional African and African American burial practices into the twentieth century.” Furthermore, she states that “it would not be out of keeping with Quaker sympathies for blacks, perhaps even if they were not members, to be buried in the cemetery….but [it] is unclear if burial of non-members was also permitted…in the mid-to late nineteenth century” (Bromberg et al. 2000: 555). Other dishes have also been found in Christian graveyards in England and Jamaica. The placing of pottery in the grave may be outside of Quaker simplicity traditions, but the nineteenth-century red-bodied glazed earthenware pottery located near the skeletal remains found at the Lancaster site may suggest that this was not as uncommon as believed.

An analysis of the human remains of the Alexandria site also resembles the skeleton found in Lancaster. The remains were mainly incomplete and poorly preserved except for Burial 19, which reveals similar bone structure to that of the Lancaster skeleton. According to Karin L. Sandness and Douglas W. Owsley (2000: 6), “the deltoid tuberosity was moderately developed on both [the left and right humeri], but more on the right than on the left. Muscle attachments sites on the proximal third of both humeri were moderately developed.” The deltoid tuberosity is also moderately developed on the right humerus of the Lancaster skeleton, suggesting that the skeleton is of a European ethnicity rather than Native American due to the jobs they performed. Many Quakers worked as merchants, tailors, carpenters, as well as other jobs where they worked.
with their hands (Tolles 1948: 41). All of these jobs could produce this type of muscle development.

The Alexandria site provides a good comparison for the remains found at the Lancaster site. Both graveyards were later built on and the excavation. An examination of the Alexandria site provides evidence of what the Lancaster cemetery may have contained or lacked due to Quaker simplicity. Archaeological analysis combined with written Meeting records are useful in understanding Quaker burial practices. The Alexandria site is the only site that the graveyard corresponds with the time period of the Lancaster Quaker cemetery, which allows for comparison of rituals of the dead. Therefore, the comparison of the Alexandria cemetery and the human skeletal remains found at the location of the Lancaster Quaker cemetery provides a better understanding of Quaker burial practices during the late-eighteenth century and early-nineteenth century.
Chapter 6: Assessment of Findings

Through my research, a number of different conclusions suggest the bones may be of someone who practiced the Quaker religion and was buried in the cemetery behind the Lancaster meeting house. This section will analyze the pottery, deeds, Quaker simplicity practices, the FORDISC software and Mercyhurst visit, and the radiocarbon dating results in relation to the time period of the Quaker cemetery. While Dr. Krogman concluded that the bones were Native American and older than an individual buried in the cemetery, the research gathered seems to contradict his analysis.

Are the Remains Quaker?

Deeds, maps, research on Quaker simplicity, dating of the pottery found with the bones, a comparison with the Alexandria site, and FORDISC software and radiocarbon dating results all suggest that the bones were buried around the time period that the Quaker cemetery was in existence. It is important to note that, although many Quakers were of European descent, this does not mean that other ethnic backgrounds were not Quaker or buried there. The results of the FORDISC system continuously pointed to a male of white origin rather than one of Native American or of Africa descent, which suggests that it is highly likely the individual was a European Quaker.

Map and deed research proved to be a crucial step in unraveling the mystery of the human skeletal remains. The 1874 map of Lancaster City marked with a cemetery over the current spot of the Salvation Army sparked my hypothesis that the remains were possibly Quaker. The presence of a Quaker cemetery used around 1759-1810 suggests that the bones are less likely to have been those of an earlier Native American, but rather a Quaker buried in the unmarked graves of the cemetery.
The pottery that was found by the construction workers and police was believed by Krogman not to bear any relationship to the bones. However, due to the research finds in the maps and deeds, it was crucial to determine the date of the pottery. Professor Mary Ann Levine as well as a student, Sarah Dost, and professor Judith Thomas, M.A. at Mercyhurst College, all determined that the pottery was glazed red-bodied earthenware that dated to around 1800. The pottery may have been an internal grave marker, since the Quakers rarely used outside grave markers prior to the 1830s. Furthermore, the pottery dates to the time frame in which the cemetery was in use.

The deltoid tuberosity muscle development on the right humerus (the left was not uncovered) is also present in Burial 19 of the Alexandria, Virginia site. Since both of the sites were once Quaker cemeteries and the muscle attachments on the humerus are similar, this provides more evidence that the Lancaster skeletal remains may be of the Quaker religion. The jobs that the Quakers are associated with during this time period could produce this muscle development from carrying or lifting heavy objects excessively over a long period of time. It is more common in European skeletons, such as Civil War soldiers at Harper’s Ferry. Thus, the reoccurrence may not necessarily mark it as European, but it is important to point out the commonalities among the two Quaker cemeteries.

The conclusions drawn at Mercyhurst College with the help of the FORDISC software also suggest the remains were Quaker. The multiple results concluded that the bones were probably of a white European male. Therefore, since the results showed the bones more likely belonged to a white male and not a Native American, the remains are more likely of a European Quaker. Furthermore, there is a greater possibility of a European Quaker rather than an earlier deceased Native American buried coincidentally in the same location as a Quaker cemetery. The
conclusions drawn from the measurements and results of the FORDSIC software and Ousley’s examination of the bones at Mercyhurst College indicate the individual was more likely of European descent than Native American.

The radiocarbon dating did not conclusively demonstrate the individual dated to time of the cemetery, 1759-1810. The Beta Analytic Inc. results produced dates during the time in which the cemetery was in use, and therefore, that it is highly possible that the bones may have been part of the cemetery. The three possible calibrated dates given could be due to the more recent death of the individual, and therefore, inaccuracies in the radiocarbon dating results are to be expected. However, the time frame that the cemetery was in use is represented in the data, which although the results are not conclusive, they provide another analysis which indicates that the human skeletal remains may date to the years the cemetery was in use.

The map and deed research, pottery found with the skeleton, a comparison with the Alexandria site, the FORDISC software, and the radiocarbon dating results all strongly suggest that the human remains belong to an individual practicing the Quaker religion during the late eighteenth century. However, for all of the reasons explained above, it is still very difficult to determine accurately if the human skeletal remains found in Lancaster are truly Quaker.
Chapter 7: Conclusion

The human skeletal remains research project provided me with a unique opportunity to study an area of interest that is not offered at Franklin & Marshall College. The North Museum’s human skeletal remains provided an opportunity to solve a forensic archaeology mystery that directly linked my interests in bioarchaeology and forensic archaeology. The research began as any project would, but with the help of the Nissley Scholar’s Grant, I was able to take my research to the next level.

With the support of the grant, I was able to send a sample to Beta Analytic Inc. to radiocarbon date the bone. I was also able to travel with the bones to Mercyhurst College to have trained forensic anthropologists analyze the bones. Based on the results of the radiocarbon dating and FORDISC software used at Mercyhurst College with my own research, I strongly suggest that the remains were part of the Quaker burial ground at Queen, Washington, and South Christian Streets in Lancaster. However, as seen in Chapter 2 of this paper, determining the exact ethnicity of the bones is very difficult. Therefore, I suggest the remains were of someone who practiced the Quaker religion, but do not suggest the actual race of the remains. Furthermore, my research did suggest that Quakers were sympathetic to those outside of their faith, such as those with an African, African American, or perhaps Native American background, but I found no evidence that concluded the Quakers of the eighteenth and nineteenth centuries included these populations in their cemeteries if they were not of the Quaker faith. Research did conclude that in later centuries this practice was more likely to occur. My conclusion is that the remains belonged to a male who practiced the Quaker faith during the late eighteenth century.
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Appendix

Figure 1-1 Police Evidence Tag found on bag of Human Skeletal Remains.
Figure 3- 1 Human Skeletal Remains Found at South Queen St., S. Christian St., and Washington St., Lancaster, Pennsylvania in 1973.
Figure 3-2 Salvation Army, 2008, location where human remains were found, S. Queen St (L), S. Christian St. & Washington St. (R).

Figure 3-3 Salvation Army Welcome Sign, 2008, S. Queen St. Entrance.
Figure 3- 4 Washington St. & S. Christian Street, Lancaster, PA, 2008.

Figure 3- 5 View of Salvation Army from Washington St. & S. Christian St, 2008.
Figure 3-6 General Case Report Lancaster Police Department, August 6, 1973. (page 1).
Skeleton Uncovered In City

An excavation crew uncovered what city police believe to be a human skeleton at the site of the new Salvation Army building just off S. Queen Street Monday morning.

Det. Joseph P. Geesey said a search of a dirt pile at the scene during the day uncovered about 10 or 12 whole or parts of the skeleton, including part of a skull, ribs and other bones.

In an effort to try to pinpoint the age of the remains as well as other vital information, Det. Geesey said he will have the bones examined this morning by Dr. Wilson M. Krogman, the famed "bone detective."

Dr. Krogman, director of research at the Lancaster Cleft Palate Clinic and an internationally-known anthropologist, has agreed to inspect the bones, Det. Geesey said.

WORKING ON BUILDING

The bizarre find was made by two brickyakers who were working on the new building at 10 a.m. The workers, Ruth Frey and Gary Lauch, noticed what they believed were human bones in a pile of dirt which had been excavated from a construction ditch leading into the new building.

A backhoe digging a ditch at Christian and Washington Streets uncovered the skeleton. The remains were shoveled up into a pile of dirt along the new building. Police after learning of the find, spent the day digging through the mound of dirt, trying to unearth more of the parts of the skeleton.

When Geesey determined the bones were that of a human, Dr. Krogman was contacted at the clinic. He agreed to inspect the remains this morning to assist police in their probe. Geesey said he hopes to learn the age, sex, and height of the deceased.

Figure 3-9 Newspaper article in Intelligencer Journal of Lancaster, Pennsylvania, “Skeleton Uncovered In City.” August 7, 1973.
Figure 3-10 Dr. Wilton Krogman’s Report, August 7, 1973 (page 1).
Ectocranially: Sagittal 3.5, coronal 3.5, lambdoid 3.5
medially, 1.0 laterally
Endocranially: S, 3.8; G, 3.4; L, 3.5

On frontal bone supraorbital ridges are moderate in size.

Long bones

Humeral has well developed deltoid tuberosity.
Femur has pronounced lineae asperae, large trochanters, R and L
marked antero-posterior curvature; the femoral condyles show
slight "lipping"

Pelvic bone

R os coxae slightly tipped.

Summary:

Race: American Indian: head shape, occipital flattening; bowing of femur,
flattening of tibial condyles surfaces suggest habitual squatting
position; radio-humeral and tibio-femoral indices; moderate supra-
orbital ridges

Sex: Male: occipital ridging; muscle attachments on long bones, femora
especially; rugged build

Age: 45-50 on sutures, tho absence of marked tipping may suggest a 40-45
age bracket

Stature: 5'3" (+/- 1") on basis femur L and tibia L

Pathology: none evident

Cause of death: natural (?)

Interment Age: 200-300 years (250?), judged by condition of bones; at the
site I could not gain any idea of stratigraphy or so-called
"horizon"
I might add that two pieces of pottery, entirely "recent" were found. I seriously doubt any relation to the bones whatsoever.

Submitted, August 7, 1973

Wilton Marion Krogman
Wilton Marion Krogman, Ph.D.

Professionals serve as a courtesy.
Figure 3-13 Glazed Red-Bodied Earthenware circa 1800.
(Scale – paper clip measures 3 x .06 cm)

Figure 3-14 Glazed Red-Bodied Earthenware, Circa 1800, (back of Figure 3-13).
(Scale – paper clip measures 3 x .06 cm)
Figure 3- 15 Animal Bone, possibly Deer/Elk or Cattle, Found in bag with Human Remains.

Figure 3- 16 Animal Bone, possibly Deer/Elk or Cattle, Found in bag with Remains.
Memo:

Alison Eichelberger

Collections Registrar

North museum of Natural History and Science

12/10/2007

During the inventory of archaeological material, some questionable un-cataloged human remains were found with a tag that reads;

Human Skeletal Remains from the Lancaster City Police Department Evidence Aug. 6 1973. They were also not listed in the last inventory from 1992.

I called Fred Kinsey who was the Director of the Museum at that time and he had no recollection of the bones or why they would be at the museum. I then called the Lancaster City Police Department and talked to Sgt Heiser who looked into it for me.

According to Sgt. Heiser, the bones were discovered during the excavation of the new Salvation Army building. It took 18 sticks of dynamite to blow a hole big enough for the foundation. The bones were discovered after the hole was blown. Photographs were taken of the bones in place. Apparently they were laid out in an extended position with the arms over the chest. Sgt. Heiser is going to try to locate the photos that were taken by Sgt. Groff.

The remains were sent to a Dr. Kaiser of the Clef Palate clinic who was (I am told) an expert in Indian remains. He determined that the remains were of a Native American male, 40-45 years of age, 5ft 3 inches and approximately 200-300 years old.

The remains were then given to Fred Kinsey of the North Museum.

The skeletal material is to remain at the North Museum with the rest of the Native American remains until such time that they can be repatriated.

Figure 3-17 Alison Eichelberger Memo, December 10, 2007.
Figure 4- 1 1858 Map of site of future Salvation Army property.
Figure 4- 2 1875 Map of site of future Salvation Army property.
Figure 4-3 1886 Map of site of future Salvation Army property.
Figure 4-4 1874 Map of site of future Salvation Army property.
Figure 4-5  North Museum of Natural History and Science loan permission form to take human skeletal remains to Mercyhurst College.
Figure 4-6 Return Receipt of Loan from North Museum of Natural History and Science.
Figure 4-7 Table of Measurements taken at Mercyhurst College, Erie, Pennsylvania on October 23, 2008.
Figure 4-8 Postcranial results from FORDISC indicating a white individual.
Figure 4-9: Postcranial graph results from FORDISC indicating a white individual.
Figure 4-10 Data set results from FORDISC indicating a white individual (this table indicates possible Norse ancestry).
Figure 4- 11 Data set results from FORDISC indicating a white individual (this table indicates possible Norse ancestry).
Figure 4-12 FORDISC results of stature.
To Whom it may concern;

This letter gives permission to Chelsey Zeruth to obtain a sample of bone, from human skeletal remains of unknown origin, in the North Museum collections for destructive C14 analysis, and is subject to all applicable laws and regulations. This is to determine age of skeletal remains found during the excavation for the Salvation Army building on Christian and Washington Streets in Lancaster PA. on August 6, 1973.

Alison Eichelberger
Collections Registrar

Margie Marino
Executive Director

400 College Avenue
Lancaster, PA 17603
717.291.3941
FAX: 717.358.4504
www.northmuseum.org

Accredited by the American Association of Museums

Figure 4-13 Permission to Take Destructive Sample of Human Skeletal Remains from North Museum.
Figure 4- 14 Cut Bone Sample sent to Beta Analytic Inc. to radiocarbon date.
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

Laboratory number: Beta-250689
Conventional radiocarbon age: 200±40 BP

2 Sigma calibrated results: Cal AD 1640 to 1700 (Cal BP 310 to 260) and
(95% probability) Cal AD 1720 to 1820 (Cal BP 220 to 140) and
Cal AD 1920 to 1950 (Cal BP 30 to 0)

Intercept data
Intercepts of radiocarbon age with calibration curve:
Cal AD 1670 (Cal BP 280) and
Cal AD 1780 (Cal BP 160) and
Cal AD 1790 (Cal BP 160)

1 Sigma calibrated results: Cal AD 1660 to 1680 (Cal BP 290 to 270) and
(68% probability) Cal AD 1740 to 1800 (Cal BP 210 to 150) and
Cal AD 1940 to 1950 (Cal BP 20 to 0)

References:
Database used
INTCAL04
Calibration Database
INTCAL04 Radiocarbon Age Calibration
Mathematics
A Simplified Approach to Calibrating C14 Dates

Beta Analytic Radiocarbon Dating Laboratory
4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)665-0166 • E-mail: beta@radiocarbon.com

Figure 4-15 Radiocarbon dating results from Beta Analytic Inc.
## Figure 4-16 Radiocarbon dating results from Beta Analytic Inc.

**REPORT OF RADIOCARBON DATING ANALYSES**

Ms. Chelsey ZeRuth  
Report Date: 11/17/2008  
Material Received: 10/20/2008

<table>
<thead>
<tr>
<th>Sample Data</th>
<th>Measured Radiocarbon Age</th>
<th>13C/12C Ratio</th>
<th>Conventional Radiocarbon Age(*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta - 250689</td>
<td>110 +/- 40 BP</td>
<td>-19.3 o/oo</td>
<td>200 +/- 40 BP</td>
</tr>
</tbody>
</table>

SAMPLE: fmcz/1088
ANALYSIS: AMI-Standard delivery
MATERIAL/PRETREATMENT: (bone collagen); collagen extraction: with alkali
2 SIGMA CALIBRATION:
- Cal AD 1640 to 1700 (Cal BP 310 to 260) AND Cal AD 1720 to 1820 (Cal BP 220 to 140)  
- Cal AD 1970 to 1950 (Cal BP 30 to 0)

Dates are reported as RCYBP (radiocarbon years before present, “present” = AD 1950). By international convention, the modern reference standard was 95% the 14C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby 14C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured 13C/12C ratios (delta 13C) were calculated relative to the PDB-1 standard.

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta 13C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta 13C, the ratio and the Conventional Radiocarbon Age will be followed by "**". The Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the "Two Sigma Calibrated Result" for each sample.