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## A Bioarchaeological Investigation of Two Unmarked Graveyards in Bridgetown, Barbados

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A BIOARCHAEOLOGICAL INVESTIGATION OF TWO UNMARKED  
GRAVEYARDS IN BRIDGETOWN, BARBADOS

by

Christopher Crain

A Thesis  
Submitted to the  
Faculty of The Graduate College  
in partial fulfillment of the  
requirements for the  
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Department of Anthropology

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2005

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Christopher Crain

# A BIOARCHAEOLOGICAL INVESTIGATION OF TWO UNMARKED GRAVEYARDS IN BRIDGETOWN, BARBADOS

Christopher Crain, M.A.

Western Michigan University, 2005

In 1996 and 1999 two previously unknown graveyards were discovered in separate sections of Bridgetown, Barbados. Emergency excavations of the sites recovered the skeletal material of at least thirty-two (MNI=32) individuals as well as a number of grave goods. While the artifacts were from the historical period there was continuing speculation as to the ancestry of the individuals interred within these graveyards. During the summer of 2004 the first preliminary osteological analysis of the skeletal material was conducted to identify the biological characteristics, including the ancestral affiliation, of these individuals. The analysis determined that the individuals interred at these sites were of African ancestry and were most likely part of Bridgetown's enslaved population. While archaeologists have previously investigated the lives of enslaved peoples in Barbados using skeletal evidence from Newton Plantation, a rural sugar estate in the parish of Christ Church, the materials from the Bridgetown are the first of their kind and are beginning to shed new light on urban slave life.

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## CHAPTER I

### INTRODUCTION

The archaeological investigation of human skeletal remains and their conditions of interment have been significant in studies of past populations. Graveyards and the human remains they contain are invaluable sources of information about both individuals and communities that may not be included in historical or ethnographic accounts. The burials excavated often reflect both the social and behavioral parameters of the past societies they represent.

Consequently there are two main areas of investigation involving mortuary materials. One involves the study of the actual construction of the interments themselves and their associated grave goods (Trigger 1989), analyzed as a reflection of that which created them. The second involves the osteological analysis of human skeletal material. Such analysis can provide information that is relevant to the understanding of the general health, nutrition, occupational stress, and mortality rates of the past populations such samples represent (Jurmain 1999; Kelly 1984, 1989, 1991; Kennedy 1984, 1989; Lovell 2000; Larsen 1995, 1997; Martin et al. 1985; Orser 1981; Pfeiffer 2000; Stuart-Macadam 1989). Though such information may be somewhat subjective and unrepresentative of the true population (Wood et al. 1992),

it provides hard evidence of the interaction between the population and their environments. Understandably when used in conjunction both methods can provide a reservoir of information about archaeologically based populations and the surrounding world.

### *Premise for the Investigation*

During the summer of 2004 I was asked by Dr. Frederick Smith if I would be willing to accompany him to Barbados to assist him with a continuing project he had been involved with for a number of years. My primary function was to conduct a preliminary osteological analysis of a skeleton he and Dr. Karl Watson had recovered from the Pierhead section of Bridgetown the capital of Barbados. I was informed that an articulated and rather complete skeleton had been recovered from the site which was an unmarked graveyard unrecorded in historical documents. The primary goal for the analysis was to discern as much information as possible about the individual recovered, including their ancestral affiliation which had become a matter of importance due to the speculation that had developed over this issue.

Consequently, on a visit to the Barbados Museum and Historical Society in Bridgetown, I was introduced by Dr. Smith to the Assistant Curator of Archaeology and History, Mr. Kevin Farmer. Mr. Farmer asked me if I could also conduct a preliminary osteological analysis of skeletal material that he, Dr. Watson, and Richard Beales had excavated from another unmarked graveyard located in the Fontabelle section of Bridgetown during the year 2000. What was interesting was that

Fontabelle is similar to the Pierhead area in many aspects and the two graveyards were believed to be from the same period.

The purpose of this work is to present the results of the two preliminary analyses of the recovered skeletal remains from these unmarked graveyards. Along with a short presentation of the grave goods recovered, information will be reported on the minimum number of individuals, sex and age composition of the recovered remains, as well as the observation of traits that indicate their ancestral affiliation. In addition there will be a short introduction to the history of bioarchaeological investigation in Barbados and to some of the pathological lesions observed upon these materials during both analyses.

### *The History of Bioarchaeological Investigation in Barbados*

The first English settlers arrived on the island of Barbados in 1627 and it quickly became an island inhabited by planters who produced such crops as tobacco, cotton, ginger, and indigo with a labor force mostly made up of white indentured servants (Galenson 1982). By 1660 the economy had become a monoculture system based upon the production of sugar with a growing labor force of enslaved Africans (Galenson 1979, 1982; Thornton 1955), an institution that was both maintained and cultivated by the transatlantic slave trade. By 1712 the numbers of enslaved people in the colony had increased to seventy-seven percent of its total population (Dunn 1969). Most slaves were located on the medium-and large-scale plantations that had become the norm by 1679 (Molen 1971). The institution of slavery lasted over two

hundred years and left significant archaeological evidence, which can now be investigated for its value in understanding the lives of enslaved people within this colonial system.

While there have been a number of bioarchaeological investigations into New World African populations for this historical period (Kelley and Angel 1987; Orser 1998; Owsley et al. 1987; Rathbun 1987; Singleton 1995), only one has involved Barbados. The remains of several individuals were excavated from the slave cemetery on Newton Plantation (Handler and Lange 1978). The cemetery was excavated in the early 1970s by Handler and Lange as part of a larger historical project concerned with the social and cultural life of the island's slaves from the foundation of the colony until their emancipation. The archaeologists were specifically interested in how newly arrived Africans lost, modified, or retained their cultural heritages or created new ones in an environment created by European colonialism and the institution of slavery (Handler and Corruccini 1983). The archaeological investigations were designed to yield information that was either minimized or missing from more traditional written resources (Handler and Lange 1978; Handler and Corruccini 1983).

Handler and Lange (1978) explain that they chose Newton Plantation as the site for their investigation because of the large amount of historical documentation associated with it and because of the existence of an undisturbed slave cemetery on its grounds. During its operation the slave population and its environment was considered to be typical for the medium to large sugar plantations that were common in Barbados during this time. The main burial areas in the cemetery consisted of

several low mounds containing from one to several individuals. Recovered were a number of grave goods associated with the burials, including clay pipes, glass beads, and metal jewelry. Much of the skeletal material (MNI= 101) recovered from the slave cemetery was poorly preserved and fragmentary, and was initially analyzed only for sex and age determination. After the investigation most of the remains were reburied in the cemetery. Some of the more complete elements, including several partially complete crania and all of the recovered dentition, were transported to Southern Illinois University for storage and possible future analysis (Handler and Corruccini 1983).

In 1978 the skeletal remains were analyzed by Corruccini, a physical anthropologist who specializes in dental morphology (Corruccini et al. 1982; Handler and Corruccini 1983). This second laboratory analysis used the materials as much as possible to describe the general skeletal health of the slaves, including their demographic characteristics, exposure to disease, general wellness, nutritional inadequacies, and rates of growth and maturation. This analysis reaffirmed the absence of sub-adult remains in this sample, an absence most likely a result of the cultural preferences of many West African societies for other forms of burial treatment for younger children (Handler and Lange 1978). Biologically the analysis revealed that the population suffered from periodontal infection, some trauma involving the head, malocclusion, hypercementosis, and enamel hypoplasias. Corruccini also reported that there was no significant reduction in the size of the temporomandibular joint, suggesting that the population had to contend with what would be considered a “hard” diet.

Following this analysis the skeletal material from Newton has been used to investigate a number of research questions including: the implications of the high rates of hypercementosis found in the recovered dentition (Corruccini et al. 1987); the accuracy of historical records of slave births and deaths (Corruccini et al. 1989); the biological and historical evidence of lead poisoning and its social and health implications for such a population (Handler 1996; Handler et al. 1986); and the identification of both the osteological evidence for and prevalence of congenital syphilis among these people (Jacobi et al. 1992). Although the Newton Plantation skeletal material has been the only archaeologically based material investigated in Barbados up to this time, the investigations have provided an amazing amount of information and insight into the lives of Caribbean slave populations during the mid 17th to mid 19th centuries.

## CHAPTER II

### BACKGROUND TO THE INVESTIGATION

The rapid pace of development in Barbados has often led to the demolition of both historic buildings and the destruction of important archaeological sites. While many developers ignore archaeological remains, some have modified their work schedules in order to give archaeologists an opportunity to recover archaeological deposits. When developers working on the expansion of the Dacosta Manning's store in the Pierhead district during 1996 and the Small Business Development Center in Fontabelle in 1999 uncovered skeletal remains during their work, they acted responsibly and notified the Barbados Museum and Historical Society about their discoveries. Managers and contractors from both projects graciously altered their work schedules to give the archaeologists an opportunity to investigate and to conduct emergency excavations to recover the skeletal and archaeological materials from these sites (Crain et al. 2004; Farmer 2004).

In both instances archaeologists recovered as much skeletal material and artifacts as possible. They mapped and photographed the sites and made detailed drawings of the stratigraphy. At the Pierhead site the skeletal remains of at least 14 individuals could be seen in the sidewalls of the construction trenches and a complete

skeleton was found directly in the path of construction which was recorded in situ and removed. The skeletal remains of that individual along with other elements, grave goods, and associated artifacts were collected and stored in the Archaeology Laboratory of the University of the West Indies, Cave Hill Campus. The later excavation at Fontabelle in turn uncovered three articulated burials, two disarticulated burials, and nine cranial fragments. These remains, along with their associated cultural material, were removed, cleaned, and then stored on the grounds of the Barbados Museum and Historical Society (Farmer 2004).

#### *Location of the Cemeteries*

The cemeteries salvaged by the archaeologists were located in the Pierhead and Fontabelle sections of Bridgetown near the coastline. In the seventeenth century both areas were composed of undeveloped beachhead and swampland. Fort Willoughby, constructed in 1656, on the western tip of the Pierhead shoreline was the only major architectural feature in this area of Bridgetown. Samuel Copen's (1695) sketch "A Prospect of Bridgetown" shows that the Pierhead area south of the Constitution River was relatively unsettled and used mainly for careening ships. In Copen's sketch, the location of the cemetery is an open pasture, though a small two-story structure stands nearby. In 1700, the West Bridge, near the site of the present-day Swing Bridge, was destroyed in heavy floods and was not rebuilt (Alleyne 1978), thus hindering future development of the Pierhead area. William Mayo's map of



Bridgetown, for example, shows that there were still only a handful of structures, probably storehouses, in the Pierhead area by the year 1722.

In the mid-eighteenth century, the Pierhead area began to see some urban expansion. In 1760, the West Bridge was rebuilt. Although the bridge was a small wooden structure, it would have made the Pierhead accessible to pedestrian traffic, and thus, urban development. Consequently, the Great Fire of 1766 devastated Bridgetown, which led to changes in the urban landscape that brought the Pierhead under Bridgetown's jurisdiction. The planers reshaped Pierhead and encouraged suburban and residential development to help meet the housing needs of Bridgetown's growing population. It may have been during this time that the Pierhead burial ground ceased to function as a cemetery. The Hurricane of 1780 severely damaged the Pierhead area, which lay in ruin until the early nineteenth century (Alleyne 1978). Maps of the Pierhead reconstructed by historical geographer Martyn Bowden show that, although residential development was expanding in the Pierhead, the area where the cemetery was located remained an open space until the early nineteenth century (Bowden 2003) but later was used for coal storage and lumberyards. By this time the unmarked burial ground, covered over by coal piles and warehouses was most likely forgotten.

There are no historical records of a cemetery or a church ever being located in the Pierhead area. Lacking such documentary evidence for a burial ground at Pierhead caused significant speculation, among investigators, about the individuals buried at the site. The presence of historic period materials such as iron nails and copper staining, most likely from burial shrouds, upon some of the skeletal material

(Figure 1) proves that these individuals were not Amerindian, but nor were they Christian or Jewish European residents of Bridgetown. Christian Europeans in Bridgetown were buried in St. Michael's churchyard while the Jewish population was buried at the synagogue just north of James Street.



Figure 1. Copper stains upon the skull from Pierhead (Source: Author).

The possibility of their being Quakers was nullified due to the fact that the Quakers buried deceased congregants in the Quaker burial ground adjacent to the synagogue. There were also the additional possibilities that the interred were European soldiers garrisoned at Fort Willoughby, or seamen who had died soon after their arrival in Barbados, or criminals executed at the nearby execution grounds, or victims of the many great fires, floods, hurricanes, and outbreaks of epidemic disease that hit Bridgetown in the seventeenth and eighteenth centuries. But these possibilities are questionable because of the kinds of grave goods recovered and the apparent lack of headstones for the graves. Furthermore the types of grave goods and lack of headstones were consistent with what archaeologists, Jerome Handler and Frederick Lange found, at the Newton Plantation slave cemetery (1978), strongly

suggesting that the individuals buried at Pierhead most likely represented the local African population.

Documentary reports mention the presence of African burial grounds in the environs of Bridgetown. In 1748, for example, English physician Robert Poole visited Barbados and recorded the events surrounding a slave funeral in the Fontabelle section. Poole wrote of the burial ground “It is facing the sea, at but a little distance from it, and is sort of a sandy beach before it” (Watson 2000). This description of the Fontabelle burial parallels what was seen at the Pierhead burial ground, which was also located close to the sea and just beyond the beach. Thus, there may be a pattern to the placement of slave burial grounds in Bridgetown. Both the Pierhead and Fontabelle burial grounds were located on marginal coastal lands on the outskirts of Bridgetown. It is perhaps possible officials in Bridgetown allowed slaves to use these areas as burial grounds because the use of these spaces did not impede urban growth or impinge on sugarcane agriculture.

### *Grave Goods*

A number of cultural artifacts were recovered from these cemeteries, including grave goods. With the articulated individual from Pierhead both a small coin or medallion and a long-stemmed white kaolin clay English tobacco pipe were recovered. The coin/medallion was perforated. It was found in the area of the chest and was probably worn as a necklace. It was made of copper or some copper alloy

and the edge was rouletted. There were some distinguishing marks on the surface of the coin/medallion, but corrosion has made the marks unreadable. Moreover, the owner may have used the necklace as a kind of worry-bead and, thus, rubbed away any markings. Archaeologist Kevin Farmer of the Barbados Museum and Historical Society recovered a large number of similar coin/medallions from the African burial ground in Fontabelle (Farmer, personal communication 2004). However, no such coin/medallions were recovered from the more than one hundred burials at Newton (Handler and Lange 1983). If these are in fact coins, then, perhaps, they represent the greater economic opportunities open to Bridgetown's enslaved population and, thus, their greater access to coinage.

The bowl of the tobacco pipe was placed in the right hand and the stem lay between the arm and torso. The highly burnished tobacco pipe's shape and bowl configuration are consistent with clay tobacco pipes produced in the early to mid-eighteenth century (Noel-Hume 1991). The borehole diameter of the tobacco pipe stem is 5/64ths of an inch suggesting the later end of the date range. The bowl of the tobacco pipe had a makers' mark consisting of two Roman-numeral ones side by side within a horseshoe-shape (II). Despite much research, the makers' mark has not yet been identified, which would help narrow the date range for the production of the tobacco pipe. The makers' mark was not applied after the tobacco pipe was cast but was engraved in the mold. Thus, the pipe maker's greater economic expenditure for the distinctive pipe mold suggests that the tobacco pipe was more expensive than typical pipes with stamped makers' marks or those with no makers' mark at all.

Farmer found an identical clay tobacco pipe with an identical makers' mark (Figure 2

and 3) at the African burial ground in Fontabelle (Farmer, personal communication 2004). There were no burn marks inside the tobacco pipe's bowl found at Pierhead, indicating that it had never been smoked. In other words, it was new when it was placed in the hand of the deceased.

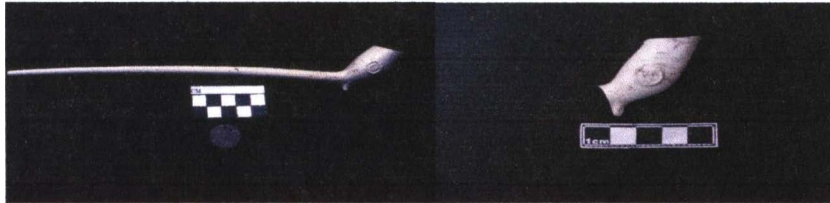


Figure 2 and 3. Smoking pipes excavated from Pierhead and Fontabelle. Note the same maker's mark upon the bowls (Figure Two courtesy of Fred Smith; Figure Three, Source: Author).

Tobacco pipes were prevalent in the Newton Plantation slave cemetery. Handler and Lange (1978) recovered twenty-one whole tobacco pipes with seventeen individual burials. Many of these whole clay tobacco pipes were found with women. The use of tobacco pipes as grave goods reflects West African beliefs about the afterlife. Handler and Lange (1978) argue that clay tobacco pipes were placed in graves as gifts to the ancestors and to help aid the deceased's journey to the spirit world. They also emphasize that planters gave items such as tobacco pipes to slaves as part of a reward and incentive system aimed at eliciting a favorable slave disposition. The presence of clay tobacco pipes in slave burials is, therefore, a reflection of that system. The presence of various clay tobacco pipes in the urban

slave cemeteries like Pierhead and Fontabelle suggests that such a reward and incentive system was not just operative on the rural sugar estates.

## CHAPTER III

### METHODS

The methods used in the osteological analysis of the skeletal material from these graveyards involved both metric and non-metric techniques. Any observable pathological lesions were also photographed with a digital camera. All data was collected either at the laboratory facilities located on the grounds of the Bellaire Research Institute in Holetown, Barbados, or at such facilities provided by and on the grounds of the Barbados Museum and Historical Society in Bridgetown. Specific methods for the collection of the biological data are described below.

#### *Minimum Number of Individuals (MNI)*

While a number of articulated and semi-articulated individuals are represented in both of these samples, most of the skeletal remains were recovered in a commingled state. In order to determine the minimum number of individuals present the most frequent element present within each sample was counted.

### *Sex Determination*

Sex determination was assessed only for adult remains, due to the problems associated with methods used for immature individuals (Schwartz 1996; Stewart 1979). Assessment of sex was performed following standard osteological methods for adult remains including observations of various cranial morphological traits such as: nuchal crest development, the relative size of the mastoid process, characteristics of the supra-orbital margin, the glabella, and the projection of the mental eminence. Postcranial characteristics such as the general morphology of the pelvis, the size of the greater sciatic notch, and the presence of a developed preauricular sulcus were also used (Bass 1995; Buikstra and Ubelaker 1994; Byers 2002; Rogers 1987; Ubelaker 1999; White 2000). General levels of robusticity were not used due to the lack of previous evidence about the life ways of this population and their occupational workload.

### *Age Estimation*

Estimation of individual age at death relied on ectocranial suture closure (Bass 1995; Buikstra and Ubelaker 1994; Meindl and Lovejoy 1985; Rogers 1987; Ubelaker 1999), tooth formation and eruption (Buikstra and Ubelaker 1994), epiphyseal fusion (Bass 1995; Buikstra and Ubelaker 1994; White 2000), and sternal rib-end analysis (Iskan et al. 1984a, b, 1985). The auricular surface of the sacroiliac



joint was also used as an indicator of individual age due to the absence of the pubis regions (Buikstra and Ubelaker 1994; Lovejoy et al. 1985; White 2000).

### *Ancestral Affiliation*

The determination of ancestral affiliation was based upon the analysis of cranial characteristics that have been found to be representative of different populations. Such characteristics include those regarding the nasal region, facial profile, vault sutures, and dental arcade shape (Bass 1995; Byers 2002). Metric analysis, when possible, was also used to help determine the accuracy of the morphological observations through the recorded values of individual cranial and nasal indexes (Bass 1995; Giles and Elliot 1962).

### *Analysis for Pathological Lesions*

A cursory analysis for evidence of pathological lesions in these two samples was based upon the works of Buikstra and Ubelaker (1994), Jurmain (1999) Larsen (1997), Ortner (1981), and White (2000). Specific observations were made for signs of porotic hyperostosis and cribra orbitalia for the presence of anemia; periosteal reaction or osteomyelitis as evidence of infection; osteoarthritis as an indicator of general physical activity; dental caries and ante-mortem tooth loss as indicators of dental health, and enamel hypoplasias for signs of physiological stress. Observations

were also conducted for any evidence of trauma. All such observations were made under normal light conditions without the aid of microscopy.

## CHAPTER IV

### RESULTS

The purpose of this chapter is to present the findings of the preliminary analyses of these two samples. These findings include the minimum number of individuals for each sample, demographic data, ancestral affiliation, and evidence of pathological conditions.

#### *Pierhead*

During the emergency excavation of the site Dr. Karl Watson and Dr. Fred Smith both noted that there were numerous individual elements of human skeletal material in the excavation area including one skeleton that appeared to be rather complete. Based upon a count of the right femurs and other elements, recovered, the minimum number of individuals present in this sample is six (MNI= 6), with the high probability of there being more due to the fact that there are some sub-adult elements, including a portion of a juvenile pubis, among the remains. In addition to the one articulated individual the other elements consist mostly of various fragments of long bones, crania, meta-carpals, and meta-tarsals. Only one skeleton was complete

enough to proceed with the analysis necessary for the development of a biological profile. Because of this the following sections for the assessment of sex, age and, ancestry are dedicated to this one individual.

## Sex

The estimation of sex for the skeleton was based upon the observations of the accepted morphological characteristics used for such assessments. The morphology of the cranium and mandible indicated that the individual was female. This was concluded due to the overall gracility of the skull, as well as the morphological indicators such as: the lack of a developed nuchal area, small mastoid processes, the undeveloped supra-orbital margins and glabella, undefined temporal lines, and the individual's non-projecting mental eminence (Figure 4). The innominates were complete except for the pubis regions. Determination of sex utilizing the innominates was based upon their wide greater sciatic notches as well as the presence of a defined preauricular sulcus upon the ilia, both characteristics that indicate that this individual was female.

## Age

For the analysis of age a number of skeletal elements and their morphological characteristics were used. First a standard age range was noted from the dentition.

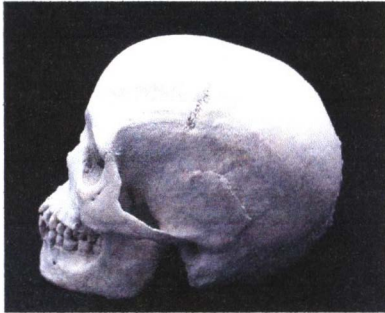


Figure 4. Lateral view of the skull of the individual from Pierhead (Source: Author).

Following Ubelaker's (Buikstra and Ubelaker 1994) data for dental development, the eruption and full occlusion of the third molars suggest someone at least between the ages of 21 to 35 years. In addition except for the observed destructive dental carries located upon the right second mandibular molar and the left maxillary first and second molar, the dentition was in very good condition with little attrition. Second, there was a visual inspection of the cranial sutures. While there was notable damage to individual sutures, most likely from taphonomic changes, it was still possible to make a general observation about their stages of fusion. All of the sutures that appeared to be undamaged were fairly open and were scored a minimal closure value, again indicating this was a younger adult individual.

Postcranial elements that were available for the assessment of age include some sternal rib ends, portions of the auricular surfaces of the ilia, and the various epiphyses. Of the sternal rib ends found, their morphological appearance fell between Iscan, Loth, and Wright's (1985) phase two and phase three, indicating an individual somewhere between 15 to 25 years old. As for the innominates because of the noted absence of the pubis regions the auricular surfaces of the ilia were used (Lovejoy et

al. 1985). The right auricular surface appeared to be in transition between phase two and three of the age related chart, and the left was evaluated to be between phase three and four, thus representing someone between the ages of 24 to 39 years old, though most likely between 25 to 34 years of age. The last item to note relating to age is that all epiphysis were fused including the medial end of the clavicle, a characteristic of someone most likely older than 24 years of age. From these observations it can be concluded that this individual was between 24 to 35 years old when she died.

### Ancestry

The next step in developing a biological profile for any skeleton is determining the ancestral affiliation of the individual. This again can be done by analyzing and comparing certain morphological characteristics found upon the skeleton, more particularly the crania and mandible (Bass 1995; Byers 2002). Some of the traits used to assess ancestry include: rectangular eye orbits, receding zygomatics, a rectangular dental arcade, spatula-like incisors, simple cranial sutures, s-shaped zygomaxillary sutures, a post-bregmatic depression, a wide nasal opening, nasal guttering, notable facial prognathism, and a round auditory meatus. In addition, measurements were taken for both the cranial and nasal indexes of this individual. The results of these measurements, according to the work of Giles and Eliot (1962), place the cranial index (72.19) into the doliocranic category and the nasal aperture shape (56.25) within the platyrrhiny category. These values along with the observed

morphological characteristics noted above indicate this female was of African ancestry.

### Stature

Stature can be estimated when there are elements available for its calculation. For the assessment of stature for the Pierhead skeleton a complete right femur was used. Due to the fact that there was no osteometric board available, the femur was measured using metric tape and the corner of a wall for a constant flat anchoring surface. The measurement of the femur was 45.5 centimeters (or 455 mm). Using Trotter's data and formula, as presented by Byers (2002) for the reconstruction of the stature for women of African ancestry ( $st = 2.28 * Fem + 59.76$  SE of 3.41), it was calculated this woman stood between 5' 3" to 5' 6" tall.

### Observations of Pathological Lesions

The Pierhead skeletal material exhibits a number of observable pathological lesions involving both the cranial and post-cranial skeleton. The right frontal bone of the individual skeleton has a small portion of bone missing, approximately one to two centimeters long and a millimeter wide, running perpendicular to her eye orbit with little or no remodeling. There are also pathological conditions involving her dentition. While there is some noticeable loss of alveolar bone around some of her dentition, one of the most destructive lesions is located upon the mandible's right

first molar which is missing its crown and body. This molar's roots are also exposed due to the missing adjacent alveolar bone most likely a result of abscesses. The first and second molars of the left maxilla are also missing their crowns and bodies, with their roots exposed as well. In addition the corresponding second premolar has been chipped along the adjacent edge and has an apparent discoloration at that point.

While some of the loss of alveolar bone is most likely due to periodontal disease (Larsen 1997), the destruction of the molars and the abscessing of the surrounding alveolar bone is due to dental carries (Powell 1985). Another point of interest is the apparent lack of the mandibular third molar on the right side. There is no evidence of eruption or of alveolar remodeling, suggesting that its absence may be congenital. Among the other remains collected from Pierhead two other recovered mandibular fragments also exhibit ante-mortem tooth loss, alveolar resorption, and a number of observable enamel hypoplasias.

The female from Pierhead also exhibits other notable stress markers both pathological and non-pathological on her postcranial skeleton. Various levels of osteophytic lipping are present on all three types of vertebrae. Following Stewart's (1958) guidelines, the lumbar vertebrae exhibited anywhere from phase zero (none) to phase two (moderate) lipping, and all of her cervical and thoracic vertebrae exhibited phase one to phase two. Further effects of osteoarthritis are apparent upon the superior edge of the lesser tubercle of her right humerus, where a bone spur had formed. Analysis of her long bones also revealed obvious symmetrical development of the muscle attachment points on her humeri, ulnas, and radii. All indicators that this woman was associated with hard physical labor involving her upper body. At this



time there is no evidence of extreme trauma or pathological infection to be found upon her remains. Though this is not uncommon especially in the case of disease, since it takes a long and chronic condition to leave skeletal traces and most of these conditions kill their victims long before they leave such traces (Larsen 1997).

### *Fontabelle*

As with the Pierhead remains, the skeletal material from the Fontabelle graveyard was discovered in 1999 by construction workers and excavated rapidly to secure and preserve as much of the material as possible. These excavations recovered three articulated individuals along with the disarticulated remains of a number of others (Farmer 2004). The preservation of this material ranges from a few elements that are rather complete to the majority which are highly fragmented. Again a count of skeletal elements places the minimum number of individuals within this sample at twenty six (MNI=26). Though, like the Pierhead sample this number should be considered conservative due to the fact that there were a number of sub-adult elements observed among the remains. This section is divided according to the catalogue numbers associated with the spatial distribution of the material at this site assigned by the Barbados Museum and Historical Society. Described below are these identified elements and assessments of sex, age, and ancestral affiliation when possible.

## 30 bu 6

Most of this skeletal material is highly fragmented; identifiable elements include various cranial fragments, rib portions, and the partial diaphysis of an ulna. The resulting MNI for this catalogue number is one.

## 30 bu 12

The remains present are fragmentary, but there are again a number of identifiable elements present: including several vertebrae, tarsals, a right mandible, and a portion of a scapula. Sex and age assessment of the mandibular bone reveals a probable adult female. This assessment is based on the eruption and full occlusion of the third molar suggesting that the individual was at least twenty-one years of age at their time of death. Though it is most likely she was older due to the amount of dental attrition observed upon the second and third molar and the fact that the first molar is missing with alveolar resorption being concluded. An MNI of one is assessed for this catalogue number.

## 30 bu 21

These remains include the mixed elements of at least one adult and one sub-adult. While there were no complete adult long bones, there were portions of such elements in conjunction with various adult vertebrae. As for the sub-adult elements there are several vertebral bodies belonging to an individual that was between one and five years of age at their time of death (assessed by their development), a

manubrium, and a lateral-superior portion of the right eye orbit. The manifestation of cribra orbitalia, a pathological lesion associated with anemia, is present upon this element (Figure 5). Only the sub-adult vertebrae provide insight into the age of the individual they belonged to. Due to this, estimates of age can be only placed within the adult and sub-adult categories. An MNI of two is assessed for this catalogue number.



Figure 5. A sub-adult eye orbit from Fontabelle exhibiting lesions associated with cribra orbitalia (Source: Author).

30 bu 30

This skeletal material included here has elements from both human and non-human sources. The identifiable human remains reveal a mixture of adult vertebrae, an adult humerus, and sub-adult vertebral bodies. The sub-adult vertebrae are aged at one to five years based upon their development. The distal humerus exhibits developing osteoarthritis near the superior edge of the coronoid fossa. An MNI of two

is assessed for this catalogue number and as with the material catalogued with 30 bu 21 any age estimation can only be placed into the adult and sub-adult categories.

#### 30 bu 44

Skeletal remains included here are composed of different highly fragmented elements including adult vertebrae and cranial fragments. Of special interest is an adult atlas with developing osteoarthritis upon its articular facets and other cervical vertebral bodies with moderate osteophytic lipping (phase two). There is also a portion of crania with part of the left maxilla and nasal aperture present. The nasal base of this crania portion has a guttered morphology, an attribute that indicates the individual was most likely of African ancestry. The MNI of this catalogued group is assessed at one.

#### 30 bu 54

A number of somewhat complete elements are of interest among this material including an adult mandible and some cranial fragments. Mandibular pathological lesions present postmortem absences of the first right incisor along with all of the dentition along the left side including complete alveolar resorption. The second and third molar was lost antemortem with the adjacent alveolar bone in the process of resorption. In addition this individual suffered the antemortem loss of all of their molars on the right side again with advanced alveolar remodeling (Figure 6). In addition all of the remaining dentition exhibits staining, moderate to severe attrition, and visible hypoplasias. Other elements of interest are cervical and thoracic vertebral

bodies exhibiting minor compression and phase one to two osteophytic lipping. Also there is notable osteoarthritis on a number of the phalanges present. Something else of special note is the presence of a depression on the left side of the frontal bone one to two centimeters long and a quarter of a centimeter wide running almost parallel to the coronal suture. The MNI for this catalogue number is one.



Figure 6. A mandible exhibiting advanced antemortem tooth loss and alveolar resorption (Source: Author).

30 bu 56

This is a smaller assemblage than the others and it contains both human and non-human material. Of the human remains, elements of interest include a distal humeral end with a large fossa, a robust humerus with a large foramen, and a left ulna and radius that are also very robust. All of which exhibit developed muscle attachment points. Of taphonomic interest with these remains is that some of them show changes due to the chewing damage caused by small animals. The MNI of this catalogue number is two.

30 bu 61

These remains are generally fragmented. Of special interest among these remains is a very robust left humerus with highly developed muscle attachment points and a pair of well preserved left and right ilia. In addition there is a right fragment of an adult mandible with only its second molar present surrounded by excessive alveolar resorption. Other identifiable post-cranial elements include a number of vertebral fragments as well as a pair of right and left proximal ends of two radii that have large tuberosities with a marked flattened appearance. The elements present that allow for an estimation of sex among these materials are represented only by the ilia and a lone right mastoid process. The greater sciatic notch of both the right and left ilia and the small mastoid process suggests the individual they belonged to was female (Figure 7). As for the estimation of age, the morphology of the auricular surfaces of the ilia are characteristic of phase four and five, indicating the individual was between 35 to 45 years of age at their time of death.

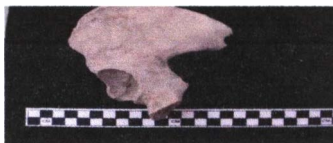


Figure 7. A left ilium portion with a wide greater sciatic notch indicating it belonged to a female (Source: Author).

30 bu 72

Among these skeletal remains are two right and two left femurs, one very gracile left humerus and one very robust right humerus, both of which exhibit pronounced muscle attachment points. Of special interest from this material is a

rather complete cranium which has a number of features that allow for the assessment of the sex of the individual it represents. The features observed and recorded, included a developed nuchal crest, a large mastoid process, a thick supra-orbital margin, a developed supra-orbital ridge (glabella), and a zygomatic root that extends past the auditory meatus. Morphological characteristics that indicate this individual was male (Figure 8).

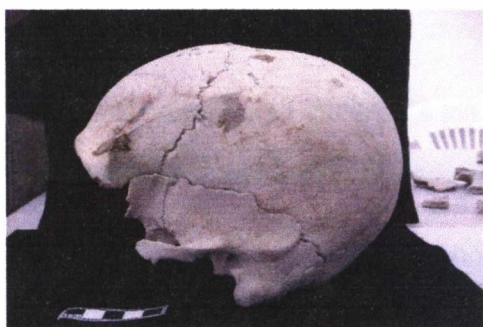


Figure 8. A view of the skull from Fontabelle showing some of the traits used in the estimation of sex and ancestry, note stains possibly from coffin nails (Source: Author).

The cranium was also used for age estimation, with both endocranial and ectocranial sutures being observed. The stage of fusion for the sutures ranged from significant closure to complete fusion indicating someone at least 40 to 50 years of age or older. Morphological traits for ancestry were also observed and included a narrow face; a post-bregmatic depression, simple sutures, and a round auditory meatus, features when taken into consideration together indicate that this individual was a person of African ancestry. The MNI for this catalogue number is two.

30 bu 80

Most of this skeletal material is highly fragmented with very few elements that are easily identifiable. Those of interest that have been identified include a right patella with minor osteoarthritis, a number of cranial and rib fragments, and some distal phalanges. An MNI of one is assessed for this catalogue number.

30 bu 85

While these remains were partially mixed they contain one of the most complete individuals of the entire sample (Figure 9). The cranium and mandible were almost complete along with major portions of the ilia, sacrum, and vertebral column. In addition there were a large number of rib fragments and metatarsals. All of the vertebral bodies exhibited osteophytic lipping ranging from phase zero to two, with the cervical vertebrae also suffering minor compression. In addition the atlas also exhibits osteophytic alteration along the inferior edges of its lamina.

For this individual both the skull and innominates were used for the estimation of sex and age. The overall gracility of the skull and the cranial morphological traits of an undeveloped nuchal crest, rather sharp supra-orbital margins, small supra-orbital ridges, and small mastoid processes, indicate this individual was female. Both of the ilia indicate the same with their wide greater sciatic notches and the fact they both have a well defined preauricular sulcus. Due to the amount of elements present with this individual a number of morphological characteristics were used in their age assessment. First the individual's dentition that



suffered from moderate attrition had both its upper and lower third molars in full occlusion, indicating that this individual was most likely older than 21 years old. In comparison the individual's ectocranial sutures remained open with no evidence of closure, another feature indicative of a younger adult. As for the postcranial skeleton there were two sternal rib ends which exhibited the morphological changes associated with phases four and five, suggesting an age range for someone between 24 to 46 years of age. In conjunction the auricular surfaces of the ilia have the characteristic morphology of someone between 25 to 34 years of age (phase two to three). Other elements for the assessment of age for this individual included a fused medial clavicle, which is usually complete by the time someone reaches the age of 24. When these morphological characteristics are compared it indicates the age of this individual was between 24 to 34 years at the time of her death.

Since the crania and mandible for this individual was rather complete a number of variables could be used in the estimation of ancestry. The skull exhibits a number of distinctive features including: a prevalent facial prognathism, a rectangular dental arcade, a nasal base with a guttered morphology, a round auditory meatus, and a mandible with a more rounded chin. In addition the cranial sutures are also very simple in their patterning. Because of the completeness of the crania measurements were taken for the cranial and nasal indexes. Again following Giles and Elliot's (1962) data the values for both of these (a cranial index of 64.4 and a nasal index of 68.3) as well as the morphological characteristics noted above indicate that this female was of African ancestry.



Figure Nine. A rather complete female individual from the Fontabelle graveyard located in Bridgetown, Barbados (Source: Author).

30 bu 89

Skeletal elements of interest among these remains include a rather complete cranium with a dark circular stain on the right rear parietal (possibly caused by a coffin nail) and a rather complete mandible. The mandible has complete eruption of the third molars, with significant wear of the first and moderate wear of the second and third molars. In addition to these elements there are a number of vertebrae with phase one and two osteophytic lipping upon their bodies.

The remains available for the estimation of sex are the surviving cranial elements and the mandible. The cranial characteristics observed included: a small nuchal crest, two small mastoid processes, narrow supra-orbital margins, and an undeveloped supra-orbital ridge. In association with the non-sloping forehead and overall gracility of the crania these characteristics indicate the sex of this individual was female. The mandible with its small mental eminence and a sloping ramus also indicate it belonged to a female.

For the assessment of age there were a number of elements used. The cranial sutures were mostly fused indicating the individual was likely an older adult (mid-

40s). The rather complete mandible as noted before had its third molars in full occlusion which were suffering along with the second molars moderate wear. All of which suggest an individual at least in their mid to late 20s if not older. Elements from the postcranial skeleton that are available for age estimation are confined to several sternal rib ends. The rib ends exhibit morphological characteristics of someone between the ages of 30 to 55. If all of these elements came from the same individual, this person would have been most likely between the ages of 30 to 50 years old when they died. As for cranial characteristics that help in the assessment of ancestry the presence of a post-bregmatic depression, simple suture patterns, a round auditory meatus, and a mandible with a more rounded chin indicate this individual was most likely of African ancestry.

30 bu 94

These remains include the second most complete individual of the entire sample in conjunction with a second adult right femur portion and various sub-adult elements. The complete individual's left humerus, ulnas, and radii have pronounced muscle attachment points, and the cranium exhibited both the green and dark reddish-brown stains that appear upon several other elements throughout both samples. In addition the surviving cranial elements provide the only morphological characteristics that can be used in the estimation of sex. The surviving sharp supra-orbital margin, smaller supra-orbital ridge, small mastoid processes, undeveloped nuchal crest, and non-projecting mental eminence indicate this individual was female. An assessment supported by the general gracility of the skeleton. As for age, the overall fusion of the

long bone epiphyses suggests someone who was at least 18 years of age. The mandible with its left third molar in full occlusion and its right third molar's absence with alveolar resorption suggests someone at least in their mid- 20s. The cranial sutures available for estimation were beginning to show minimal closure, suggesting someone most likely in their young to mid-adult years (mid-20s to mid-30s). Therefore when this information is compared it indicates this individual was most likely in their mid-20s to mid-30s when they passed away.

The assessment of ancestry was based upon the observations of the existing cranial features of: a circular auditory meatus, simple cranial sutures, nasal base with a guttered morphology, a more rounded chin, and a post-bregmatic depression. Characteristics that when observed together are indicative of an individual of African ancestry. An MNI for this catalogue number is three.

30 bu 103

This skeletal material was highly fragmented with most of the material being difficult to identify. Some of the elements, though, that are identifiable and of interest include a number of phalanges, a glenoid fossa, numerous rib fragments, and a portion of a clavicle. An MNI of one is assigned to this catalogue number.

30 bu 115

Most of this material, like the rest of the sample, is highly fragmented and not easily identifiable. Those elements that have been identified include a distal end of a left femur, mixed portions of vertebrae, several cranial fragments, and a right patella.

In addition to these there is a proximal portion of a sacrum, numerous phalanges, tarsals, carpals, and rib fragments. An MNI of one is assigned to this catalogue number.

30 bu 121

Elements that have been identified among these remains include numerous meta-tarsals exhibiting signs of osteoarthritis, rib fragments, and an anterior portion of a right mandible. Other elements of interest include several cranial fragments, portions of vertebral bodies, and a right clavicle. The MNI for this catalogue number is one.

30 bu 142

Among the assorted skeletal elements with this material is a diaphysis of a right femur, right and left fragments of a mandible, and a large fragment of a left ilium. Of these the right mandibular fragment is missing all of its dentition with the adjacent alveolar bone having gone through extensive remodeling and the left fragment is missing its second molar with loss of the adjacent alveolar bone. The left ilium is the only material that can be assessed for the sex of the individual it belonged to. The morphology of its greater sciatic notch and the presence of a well defined preauricular sulcus indicate this it belonged to a female. As for the estimation of age both posterior mandibular fragments having evidence of antemortem tooth loss and extensive alveolar resorption suggest the individual they belonged to was most likely older than 21 years of age.

30 bu 147

Of specific interest among these fragmented remains are the left portion of a mandible and some cranial fragments. Two observations worth noting include the presence of a carious lesion upon the second molar of the mandibular fragment and the presence of lytic lesions on the endocranial portion of an occipital bone, most likely caused by an invasive soft tissue infection (Figure 10). These remains were also the only ones available for the estimation of sex. The left ramus of the mandibular fragment slopes at a graceful angle which in conjunction with the cranial characteristics of small mastoid processes and little nuchal development indicate this individual was female. As for age only the portion of mandible can be used. Its third molar is in full occlusion with the other dentition exhibiting moderate attrition suggesting the individual was most likely older than 21 years.



Figure 10. The inside portion of an occipital bone with lytic lesions (Source: Author).

30 bu 154

Among these remains were a number of adult and sub-adult elements including: a portion of a sub-adult ilium, a sub-adult humerus with no fusion of the

humeral head, various adult cranial fragments, an adult humerus with developed points of muscle attachment, and the fragments of three right adult femurs. The preserved cranial features of a sharp supra-orbital margin, undeveloped glabella, and a small mastoid process all indicate the presence of at least one individual that was female. Though the presence of a sub-adult humerus without the fusion of its proximal head indicates one individual was most likely less than nineteen years of age when they died.

#### Loose Dentition

While there was a number of loose dentition among the remains reported throughout this section there is also a number of cataloged materials that only contain such elements. The catalogue numbers: 30 bu 90, 30 bu 146, 30 bu 157, 30 bu 149, and 30 bu 153 represent loose dentition only. All of these individual teeth show various rates of wear, hypoplasias, and stages of hypercementosis.

## CHAPTER V

### DISCUSSION

This investigation represents an initial phase in the analysis of these two previously unknown skeletal samples. Even though much of the material is commingled and highly fragmented it provides a number of clues about the individuals interred within these graveyards. As stated at least thirty-two individuals are represented by both of these samples and most likely more due to the presence of a large number of disarticulated elements including a large quantity of sub-adult material. As for the ancestral affiliation for these people, all of the morphological attributes observed upon the cranial material such as: rectangular dental arcades, round auditory meatus, simple sutures, s-shaped zygomaxillary sutures, guttered nasal bases, distinctive facial prognathism, and post-bregmatic depressions, when constantly viewed together are indicative that these individuals were of African ancestry. A conclusion supported by the values of the cranial and nasal indexes of the woman from Pierhead and the rather complete female (30 bu 85) from Fontabelle.



### *Biological Summary*

The osteological analysis of these two samples show that the people interred at these sites ranged in age from young children through older adults. Both samples also include individuals of African ancestry that are primarily females and children, even though there seems to be a higher number of elements that can be attributed to females. This supports historical documents that show by the late 18th century the purchase of more females was the norm (Galenson 1979). These cemeteries may in fact be the resting place of the domestic women and their children.

### *Observed Indicators of Stress*

Pathological conditions noted among certain cranial elements include evidence of possible trauma, anemia, and a case involving lytic lesions. The female individual from Pierhead and one cranial element from Fontabelle have features that may be the result of trauma. From Pierhead the right side of the frontal bone of the female skeleton has a small portion of bone missing, approximately one to two centimeters long and a millimeter wide running perpendicular to the eye orbit which appears to have little or no remodeling. While the cranial element from Fontabelle (30 bu 54) has an edged depression on the left side of the frontal bone one to two centimeters long and a quarter of a centimeter wide running almost parallel to the coronal suture. While the cause of these two lesions cannot be identified there have

been a number of lesions associated with interpersonal violence upon the cranial elements from Newton Plantation (Corruccini et al. 1982).

A second pathological condition observed upon cranial material was found on a portion of the right eye orbit from a sub-adult in the Fontabelle sample (30 bu 21). This element exhibits a manifestation of cribra orbitalia with porosity and coalescence of its foramina. These lesions are the direct result of the increased production of red blood cells in response to some form of anemia (Kelly 1989; Ortner 1981). It can have a genetic origin or it can be induced by an environmental condition involving nutritional inadequacies, bacterial infections, or parasitic diseases, though often it is most likely a combination of all of these (Martin et al. 1985; Ortner 1981; Stuart-Macadam 1989; White 2000). While a genetic explanation may be accurate an environmental cause must also be considered for three reasons. First no lesions for cribra orbitalia or porotic hyperostosis were identified on the Newton materials (Corruccini et al. 1982; Handler and Corruccini 1983). Second, while enslaved Africans had some access to protein based foods, such access was limited in both quantity and quality throughout this period (Handler and Lange 1978; Sheridan 1976). Third, Bridgetown during this historical period was identified by many living there as being the least healthy place in Barbados to live (Dunn 1969).

The last pathological condition observed on the cranial material was found upon an occipital bone among the materials from Fontabelle (30 bu 147) this bone exhibited several lytic lesions on its endocranial side near the nuchal area. These lesions, two of which are at least a centimeter in size, may be the result of secondary

osteomyelitis due to such infections as meningitis (Ortner 1981), or caused by the development of certain cancers (Jonsdottir 2003; Ortner 1981; White 2000).

Of the pathological lesions found upon the dentition antemortem tooth loss and alveolar resorption are the most prevalent in both samples. Of the mandibles identified eighty-eight percent (seven of eight mandibles) exhibit ATML, with fifty-one percent (four out of seven) involving the loss of multiple teeth, such a condition is often the end result of the development of dental caries. A situation caused by the invasion and destruction of both the inorganic and organic matrixes of the dentition by acids of bacterial origin (Powell 1985). The female individual from Pierhead has three molars that are in the advanced stages of this condition, most likely the result of both poor oral hygiene and a diet high in carbohydrates (Larsen 1997). A subsistence condition forced upon the slaves in Barbados due to the monocrop agriculture practiced upon the island that required the importation of large amounts of cereals and grains from other British colonies (Handler and Lange 1978; Sheridan 1976).

Various postcranial elements from both samples exhibit various lesions associated with primary osteoarthritis or Degenerative Joint Disease (DJD). Two separate humeri, from two individuals, exhibited osteological growths, or spurs around points of articulation. Such osteological alteration was also identified upon most of the adult vertebrae recovered. Forty-five percent of all the adult vertebrae, including thirty-six percent of all of the thoracic, exhibited minor to moderate osteophytic lipping, though no fusion of any osteophytes was observed. While DJD involving the vertebral column is considered by many to be a natural occurrence due to the nature of bipedal locomotion (Jurmain 1999), such conditions are often the

result of numerous factors including the age, sex, mechanical stress, and genetic predisposition of the individuals involved (Kent et al. 1979; White 2000).

Consequently when one compares the assessed ages of these individuals with the amount of DJD occurring upon the observed vertebrae, mechanical stress due to heavy labor would appear to be a major contributing factor to this pathological condition. Such manifestations of osteoarthritis have been both observed among other samples of slave populations from this period (Kelly and Angel 1987, Rathburn 1987, Owsley et al.1987).

Another indicator that the members of this population were involved with heavy labor is the observation of specific muscle attachment points. Wolff's Law of Biomechanics explains that bone deposition is increased to areas of the skeleton that require additional structural support (Hawkey and Merbs 1995; Kennedy 1989) All of the adult long bones associated with the upper body in both of these samples exhibit such hypertrophic symmetrical development. The attachment points observed include those of the: deltoid process of the humerus for the deltoid muscle, the greater tubercle of the humerus for the pectoralis major, the lesser tubercle of the humerus for the teres major, the olecranon process of the ulna for the triceps brachii, and the radial tuberosity for the biceps brachii (Mckinley and O'Loughlin 2006). All muscles used during intense labor involving both heavy lifting and repetitive actions that require ample and constant force performed over a long period of time. Such enhanced muscle attachment points, again, have been observed in various skeletal samples of enslaved African populations which were based in both urban and rural areas of North America (Kelly and Angel 1987, Rathburn 1987, Owsley et al.1987).

In summation the osteological evidence indicates that these two samples represent a group of individuals of various ages, both sexes, and of African Ancestry. It also gives us ample evidence that they were involved with intense physical activity involving the upper body for long portions of their lifetimes. In addition to their work loads, they suffered from the hardships of urban life common in early historical Bridgetown including poor diet and infectious disease, conditions that have been reported in numerous historical documents (Dunn 1969; Sheridan 1976).

## CHAPTER VI

### CONCLUSION

The speculation as to the ancestral affiliation of the individuals interred within these unmarked graveyards is now laid to rest. The preliminary osteological analyses have shown that these two samples are made up of individuals of various age categories, both sexes, and perhaps, most importantly, of African ancestry. With the additional evidence observed about general health, pathological lesions, and indicators of occupational stress it can be discerned that these people lived within an environment that was filled with constant hardships.

The osteological evidence, when analyzed along with the other evidence including: the condition and general layout of the cemeteries, their locations in marginal regions, the lack of headstones, and the types of grave goods recovered, tell us that the individuals studied were, in all probability, members of the enslaved population of Bridgetown, representing the first archaeologically based samples of their kind. While much has been gained from the preliminary analysis of these two samples more research is necessary. As soon as possible both samples should be fully catalogued in both written and digital formats. Such a process would provide the opportunity for a more detailed analysis of the more fragmentary elements in both

samples and allow a more thorough description of specific osteological characteristics, pathological lesions, and other evidence of stress markers in the materials.

### *Future Directions*

In addition future directions of research should include microscopic investigations that could aid us in the identification of these individuals geographic origin. One direction for investigation is the analysis of exposure to lead. The use of lead by humans began over 8000 years ago, and conditions in the past provided numerous opportunities for individuals to be exposed to it (Wittmers et al. 2002). Because of this its quantization in archaeological skeletal material has the promise of giving some insight into aspects of human behavior (Wittmers et al. 2002; Aufderheide et al. 1985; Handler et al. 1986). Since 70 to 90 percent of the body's lead burden is deposited into the bones of an individual, such material can provide an investigator with a reliable sample for analysis (Wittmers et al. 2002). Therefore giving us insight into these individuals exposure to lead over their lifetimes, the possible affects upon their health, and as suggested by Handler and his fellow investigators (1986), an ability to possibly discern if these individuals originated from Africa or were in fact creole.

Additional analysis of individual bone chemistry involving the measurement of stable isotopes would allow us to characterize the diets of these people. The

reading of chemical signatures passed to people through their food allows us to develop “consumption profiles” for past populations (Larsen 1997; Grupe and Schutkowski 1989). While diagenic effects need to be taken into consideration, standardized sampling of specific skeletal elements will allow for the collection of useable data (Lambert et al. 1985) that could benefit investigators in inferring dietary patterns. This information not only would allow us to interpret such patterns, but when correlated with demographic data, could be used to identify any differences in diet associated with status and gender. In addition, the levels of chemical elements in bone do not fluctuate quickly once adulthood is reached (Beck 1985). It should therefore be possible through the analysis of carbon and strontium values to identify the individuals in these two samples who may have originated outside of the Caribbean.

As can be seen, the evidence that can be gathered both macro and microscopically from these samples will provide a growing treasure of variable forms of data. This data and its analysis would not only provide for a greater understanding of these individuals and their lives, but would also create comparative samples for use in the studying of other skeletal remains that may be recovered in the future in Barbados or other parts of the Caribbean.



Appendix A  
Permission Letter

To: Christopher Crain  
10240 E 22 Rd.  
Manton, MI 49663

July 27, 2005

From: Dr. Fred Smith  
Department of Anthropology  
Western Michigan University  
Kalamazoo, MI 49008

Subject: Permission for the use of a research image.

I am writing this letter as evidence for the granting of permission for Chris Crain to use an image of mine for his thesis. The image is of the grave goods recovered from the burial excavated in 1996 from the Pierhead in Bridgetown, Barbados. I grant Chris Crain the right to use such image in his thesis entitled "A Bioarchaeological Investigation of Two Unmarked Graveyards in Bridgetown, Barbados," and any other supporting work.

Dr. Fred Smith

A handwritten signature in black ink, appearing to read 'Fred Smith', written in a cursive style.

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