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**PHASE IB ARCHAEOLOGICAL FIELD TESTING**  
**PHASE I - BLOCK 1586, LOT 10 SOUTH**  
**90-15 CORONA AVENUE**  
**BOROUGH OF QUEENS, NEW YORK**

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## I. INTRODUCTION

This report concludes the first phase of archaeological testing conducted on October 15<sup>th</sup> to 17<sup>th</sup>, 2011 on the southern portion of the irregularly shaped lot 10 on block 1586, 90-15 Corona Avenue, Elmhurst, Queens (Cover and Figs. 2 and 3). A four-story, mixed-use building measuring 190 feet along Corona Avenue and 85 feet deep is planned for that portion of the lot. The developer intends to build on the remainder of lot 10 in the next two years, but understands that additional archaeological testing will be required prior to the commencement of any further building activity. A second phase of archaeological testing will therefore cover the remainder of the lot, on its north and east sides, and a separate scope for testing those areas will be developed in consultation with the LPC (Fig. 2). It is anticipated that the testing will take place in 2012.

On October 4, 2011, the mummified remains of an African American woman and her iron coffin were discovered in the course of mechanically excavating a foundation trench for the above-mentioned four-story building. The developer, Bo Jin Zhu, of 90 Queen's Inc., should be commended for immediately reporting the find at the 110<sup>th</sup> precinct, which called in the Medical Examiner's Office (M.E.). In the following days, the M.E.'s forensic anthropologists removed the burial and its iron coffin, shattered by the backhoe, to the Queen's morgue. They also identified other areas containing bone fragments and removed these remains to the morgue as well (see Appendix B for the M.E.'s report). The archaeological testing conducted on October 15<sup>th</sup> to 17<sup>th</sup> recovered tombstone and coffin fragments and a further, small quantity of human remains, consisting of one badly damaged *in situ* burial and bone fragments scattered through the fill.

The archaeological investigation initiated by the finding of the mummy and the iron coffin was required in order to comply with the Restrictive Declaration between the Board of Standards and Appeals and the former *and any subsequent owner(s)* of block 1586, lot 10, dated November 6<sup>th</sup>, 2006. This states that the owner:

...identify the existence of any potential archaeological resources and mitigate any potential damage to any such archaeological resources found in connection with the development or redevelopment of the Subject Property and has agreed to follow and adhere to all the requirements for archaeological identification, investigation and mitigation set forth in the

CEQR Technical manual and LPC's Guidelines for Archaeological Work in NYC, including without limitation, the completion of an archaeological documentary study, archaeological field testing, excavation, mitigation and curation of archaeological resources as required by the LPC...

The remains of burials discovered on lot 10 were part of a 19<sup>th</sup> century cemetery associated with the United African Society, later known as St. Mark's A.M.E. Church (Fig. 1). There is a descendant church of this community, led by Reverend Kimberly Detherage and located at 9518 Northern Boulevard, in Flushing. This congregation clearly has a direct interest in the human remains, which belong to the founders of their church, and their wishes regarding the disposition of these remains are being respected. We have kept Reverend Detherage informed of every stage of our investigation, and we are very grateful to her for her support and interest, as well as for her invaluable practical assistance in transporting the tombstone fragments to the church, in making space available for cleaning and photographing them, and in offering her office for meetings. The tombstone fragments continue to be stored in the church. When the study of the human remains is completed, Reverend Detherage will hold a funeral service at the church, with the church's funeral director, Mr. Houston, overseeing the proper burial of the remains.

We are very fortunate to have Mr. Houston's cooperation in this project. Reverend Detherage and her congregation know him and therefore feel reassured and confident that any remains he handles will be dealt with in a professional, dignified and respectful manner. Mr. Houston was willing and able to obtain the necessary permits to transfer the mummy from the Queens morgue, and to offer refrigerated storage facilities for it in his funeral home, Cushnie-Houston, at 102 Sanford Street, East Orange, New Jersey. Mr. Houston also housed in his facility the other burial remains recovered by the M.E. as well as by Celia J. Bergoffen, Ph.D., R.P.A. Additionally, we would like to thank him for making space available to us for analyzing and photographing all of the above materials.

## II. PREVIOUS HISTORICAL RESEARCH AND ARCHAEOLOGICAL TESTING

Jo-Ann McLean Archaeological Consultant Inc.'s phase IA archaeological assessment of block 1586, lot 10 determined that portions of Lot 1 on Block 1586 were potentially sensitive for 19<sup>th</sup> century burials associated with the United African Society, later known as St. Mark's A.M.E. Church (JAMAC 2006). The four founders of the society, possibly including an individual named Coles, bought in 1828 a one and a half acre tract of land on Corona Avenue (then called Union Avenue) to erect a house of worship (JAMAC 2006, 18-19). The earliest burials will have been dug within a few years of the purchase. After the death of the founders, other white denominations used the church and probably also its cemetery. By 1888, according to Seyfried (1995, 61, cited in JAMAC 2006), there were 310 burials, including members of the United African Society as well as individuals of other denominations (JAMAC 2006, 20, from the records of St. Mark's A.M.E. Church). The 1891 Wolverton map indicates that a portion of the cemetery overlapped the project site (JAMAC 2006, 20, Fig. 17). But on the 1903 Hyde map, the cemetery's boundary encompasses almost the entire area of the project site (JAMAC 2006, 210). The triangular area of the cemetery is marked "Dutch Lane Cemetery" and "Old Cemetery" on historic maps (Fig. 1; JAMAC 2006, Figs. 18 and 19).

St. Mark's A.M.E. Church used the cemetery from around 1828 to 1914, although it apparently remained open until 1930 (JAMAC 2006, 22 and 24). In 1928, prior to widening Corona Avenue, the borough of Queens requested that St. Mark's A.M.E. Church disinter the burials in the area of the planned roadbed. The church refused and during construction, twenty burials were removed. These individuals were reburied in Mt. Olivet Cemetery on Grand Avenue in Maspeth (JAMAC 2006, 23). By 1931, the cemetery was no longer mapped (JAMAC 2006, 24, Fig. 21). The original church closed in 1929 or 1930. Its successor, also called St. Mark's AME, is located at 95-18 Northern Boulevard, Queens.

In 1948 a machine tool factory, the Peerless Instrument Company, occupied the newly erected structure at 9015 Corona Avenue. A two story addition extending south to 90<sup>th</sup> Street followed, then a three-story structure, which occupied the rest of the Corona Avenue street front, leaving only a narrow driveway. The driveway led from a gate on Corona Avenue to a parking lot that occupied most of the northern end of the lot, behind

the adjacent lots fronting on Corona Avenue. There was a one-story building on the rear, northwest side of lot 10, adjoining the parking lot.

Based on the results of their archaeological assessment and the development for lot 10 proposed by the former owner, AMF Machine Corporation, JAMAC proposed a scope for archaeological testing that included test pits and trenches in the paved, accessible areas of the lot but not in the approximately five-foot wide asphalted access road behind (west) of the buildings. Bergoffen adopted JAMAC's plan with a few modifications (Bergoffen 2007). The new scope stated that in addition to the then accessible areas, archaeological testing would also be required in the areas covered by buildings once the owner, at that time Jerry Kahen, Principal of Corona Group LLC, removed them. Only part of the area covered by the main complex on Corona Avenue was exempted, since it had already been negatively impacted by a basement (Bergoffen 2007, 5).

None of the twelve backhoe trenches or four hand-excavated test pits opened in 2007 was in the area of the project site that is the subject of this report. Those tests revealed that the parking lot area had been disturbed by dry wells and sewer pipes; by a deep garbage pit dating after 1920, and by a pit containing beakers, possibly deposited by the Peerless Instrument Company in the later 1940s. No human remains or tombstone fragments were found.

### III. SITE CONDITIONS AND METHODOLOGY FOR ARCHAEOLOGICAL TESTING

At some point after the completion of the initial phase of archaeological testing in 2007, all the buildings on lot 10 were demolished and their slab footings removed. Neither the LPC nor Celia J. Bergoffen Ph.D., R.P.A., however, was informed. A concrete foundation was laid in the northern part of the site over the parking lot and partly overlapping the area formerly covered by the above-mentioned one story building (Figs. 4 and 5). This foundation, marked "CONC. SLAB AREA UNDER CONSTRUCTION" on the site survey furnished by 90 Queen's Inc., was abandoned unfinished when the property was sold. Mr. Zhu intends to remove it prior to developing the northern end of the lot in the next one to two years.

An approximately twelve to fourteen foot deep foundation trench (the "deep trench") had also already been excavated over most the area formerly occupied by the combined three- and two-story industrial and office buildings fronting on Corona Avenue (Figs. 3 and 6). The current development plan for the south side of lot 10 calls for the extension of the deep trench further north to include the area of the access road from Corona Avenue and part of the unexcavated, roughly triangular north of the berm (Fig. 2). It will not however include the rear (northwest) 19.33 feet of the lot behind the projected building. The backhoe operator was working at the rear of the lot, on the deep trench's northwest berm, when he discovered the iron coffin burial (Fig. 3).

The first priority of the phase I archaeological investigation was to record and excavate by hand the areas where the M.E. had identified human remains, sifting 100% of all soils recovered from these sensitive areas through one-quarter inch wire mesh to recover bone fragments and artifacts. This was Operation 1.

In Operations 3 and 4 we tested the remaining, roughly triangular area north of deep trench, and in Operation 5, the access road from Corona Avenue, since this will also be impacted by the proposed construction (Fig. 7).<sup>1</sup> We did not excavate the access way from

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<sup>1</sup> In the Scope dated October 11, 2011 and in the Preliminary Report dated October 18, 2011, Operation 5a was the triangular area here called Operation 3, while the access road from Corona Avenue, labeled Operation 5b, is here referred to as just 5. In the Scope,

90<sup>th</sup> Street as this portion of the site will not be impacted and moreover its removal would have gravely compromised the stability of the building on the adjacent lot 55. We did however excavate the berm up to the edge of the access road in Operation 2.

The field method used for operations 2 through 5 was excavation with a track hoe with a one-half inch steel plate welded across the teeth. If any sign of a grave shaft or bones were encountered, excavation then proceeded by hand and the soils screened, as described above. Although deeply buried burials more than six to eight feet below grade were not anticipated, excavations extended to approximately eight feet in depth in order to test for the presence or absence of such deposits.

As noted in Section I.A. above, the Phase 2 field testing, for which a separate scope will be prepared, will cover the north and east portions of lot 10.

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Operation 3 was the five-foot wide access road from 90<sup>th</sup> Street, which for security reasons was not excavated.

#### IV. FIELD REPORT (Phase 1)

All the excavation areas revealed that the project site had been extensively disturbed by the construction and demolition of the buildings that formerly occupied most of this part of the lot. These episodes disturbed the soils to an extent at least as large as the footprint of the basement area, which corresponds to the depth of the deep trench.

Field archaeologists Michael Audin and Peta Joy Sosnowski contributed reports which have been incorporated in the following account.

##### *Operations 1 and 2 (Figs. 3 and 8)*

##### *Burial 1 (Fig. 3 and Appendix B)*

Burial 1, the coffin burial, was excavated by the M.E.'s forensic anthropologists and their report is appended to this document. Other bones recovered by the M.E.'s office are described in Matthew Brown's report (Section V, below). Fragments of the coffin were found in different locations and it was clear that the burial had been dislodged and re-deposited during recent construction activity. The foot of the iron coffin, excavated by Scott Warnasch from the M.E.'s office, was found approximately twenty-five feet west of the mummy and other coffin fragments, these last lying approximately 7.2 feet below the top of the asphalted pavement of the adjacent access road, in a layer of fill. A few bones (Bag 1) were collected in sifting the soils from the trench where the mummified human remains had been flagged by the M.E.'s team.

The fill surrounding Burial 1 ranged from five to ten feet in depth. Its top layer was composed of dark grey soil mixed with organic debris and garbage from the most recent episode of disturbance. Below this was a layer of brown 10YR4/2 sandy, medium coarse soil containing building detritus -- fragments of concrete, asphalt, brick, mortar, glass -- as well as small and medium-sized cobbles and some small boulders. Below this, from about six feet below grade, was a layer of dark yellowish brown 10YR4/3 medium-fine sandy soil in which the remains were discovered. This layer was however severely impacted by subsequent construction.

*Burial 2 (Group 2 flagged area) (Figs. 3 and 10)*

Near the main part of the coffin burial, the M.E.'s team planted three further flags indicating a concentration of human bones and decomposed marble tombstones. The flags followed an east/west orientation, as would be expected from a Christian burial. But the burial was very disturbed by subsequent construction. Three small bags of bone fragments were collected, as well as nails and wood, probably from the coffin, and fragments of decomposed marble, probably from a tombstone (Bags 2 through 5). All the soils removed in the course of excavating Burial 2 were sifted. The burial trench's soil was dark yellowish-brown 10YR 4/4, and its dimensions were 5.4 feet west-east by 2.1 feet north-south. The depth was between 5.8 and 7.2 feet below grade. The bones recovered were largely fragmentary, with metacarpals and metatarsals the only whole bones remaining.

Together with the removal of material from Burial 2, we also cut back and sifted all the soils between this area and the location where the mummy and coffin fragments had been found in order to recover and further fragments of bone, but none were found beyond the group 2 material.

*Group 1 flagged area (Figs. 3 and 9)*

The other main concentration of human bones flagged by the M.E.'s team was located near the top of the steep berm that we had proposed excavating as part of Operation 2. In order to reach this area of "group 1" burials, we cut back part of the topsoil and fill in the baulk above them. The backhoe also built up a platform east of the flagged area as a staging area for the archaeologists. All the soils removed from this area were sifted (100%), but only a few bones and coffin nails (Bags 8 and 9) were collected. There was no sign of a burial or burial shaft. Instead, it appeared that the bones had been scattered here by the backhoe.

With the backhoe, we first opened an 11.0 foot wide trench in the southwestern half of the operation 2 area, which ran up to 7.0 feet from the west lot line and up to the edge of the asphalted access road (Fig. 18). Below the asphalt, there was 2.0 to 3.0 feet of dark grey topsoil and root mat (layer 1) followed by a 1.0 to 1.5 foot thick layer of dark yellowish-brown soil containing many stones and gravel, with some medium to large cobbles and a small amount of building detritus (layer 2). Layer 3, from approximately 4.5 to 6.7 feet below the top of the asphalt, was composed of medium to fine grey sand with a few small

stones and larger pieces of conglomerate. The approximately 5.0 thick layer 4, reaching 11.5 feet in depth below the top of the asphalt, consisted of a fairly compact brown clayey-silt with small stones and gravel. This material appeared to be an intentional fill possibly laid prior to the construction in the late 1940s.

After this trench was backfilled, a second, 19.0 foot wide section of Operation 2 continued the trench eastward (Fig. 13). In this section, we noted recently deposited refuse (i.e. a coke bottle, still partly filled) at approximately 10.0 feet below surface. This disturbance, probably created during the excavation of the deep trench, explains the nearby bone scatters (including those indicated on the M.E.'s report, see Appendix B).

### *Operation 3 (Figs. 3 and 11)*

This area was first excavated southwest and south of the northeast end of the Operation 4 trench (below).

In order not to undermine the fence and adjacent property on lot 55, we left unexcavated an approximately three-foot wide strip along the southwestern edge of lot 10. Otherwise, we continued to open up the area north and northeast from Operations 1 and 2. Fragments of marble tombstones, including part of the headstone of one Nicholas Cole(s), were some twelve feet north of Burial 2 and the coffin burial (Figs. 3 and 23). Two further tombstone fragments were discovered north of the first two, near the corner of lot 55 (Figs. 3 and 24). Northeast of these, the backhoe exposed the bottom of the burial shaft of Burial 3 (Fig. 3).

Burial 3 consisted of the remains of an older adult female oriented east-west, with the head to the east, in a burial trench measuring 1.94 meters (Fig. 12). The bones lay at a depth of approximately 5.8 feet (1.77 meters) below the original ground surface in brown 10YR4/3 fine sand with abundant rounded pebbles and cobbles. Past construction activity had disturbed the remains and the bones were in poor condition. Most of the torso was missing along with the majority of the right side, including the pelvis, right arm to the shoulder, and right leg. The skull was shattered and the mandible was found 3 to 4 inches (6 to 8 centimeters) to the south of the burial. Cervical vertebrae, fragments of the left leg, and various bone fragments were recovered. The arms may have been flexed, as metacarpals were found resting on the left shoulder. Exact determination of age was not possible in the absence of specific portions of the skeleton. One coffin nail and four buttons

were found in the chest cavity (Fig. 26. B). It should be noted that the corner of the building formerly standing on this part of the lot was located by the backhoe, and that grave 3, situated inside the building's perimeter, would have lain only a few feet below its footing.

The soils in the remainder of the large area covered in Operation 3 exhibited a fair level of disturbance and the existence of grave shafts was difficult to discern. The matrix was mostly a reddish yellow sandy material with traces of silt and clay. In a trench excavated along the northwest side of Operation 3, we recovered a few disarticulated human remains, including a skull and several long bones, and fragments of coffin hardware, both re-deposited in this twelve-foot deep layer of fill (Bags 10, 11, 14 and 15). No areas of the excavated soils in Operation 3 exhibited natural stratigraphy in the soil profiles, indicating widespread soil disturbance prior to, and possibly in association with, the building activity that took place in the late 1940s.

#### *Operation 4 (Figs. 3, 7, 14 and 15)*

A portion of the north-south foundation wall of the structure that stood on the front of the lot was exposed in the east corner of the deep trench, near the Corona Avenue site entrance (marked "CONC. WALL" on the plan, Fig. 3). This wall, with the end of a wall running off its south face, reached to the bottom of the deep trench, about 11.0 feet below grade. The purpose of Operation 4 was to find out if there was another section of a northeast-southwest running towards the back of the lot, because this would indicate that the area southwest of it had been removed during the excavation for foundations and any potential burials would have been destroyed. But no further foundation walls were discovered in the operation 4 trench. The southeast end of the trench, immediately adjacent to the return foundation wall, was packed with building detritus in a loose grey matrix, possibly representing a foundation trench. Northeast of this deposit were layers of re-deposited loosely packed brown and red sandy fill which, as Operation 5 showed more clearly, was connected with construction operations in this area.

#### *Operation 5 (Figs. 3, 7, 16 and 17)*

This area was opened in two sections, the first adjoining the asphalted access road on the southwest; the second, the area of the access road itself on the north. The southeast half of the trench was opened immediately adjacent to a live Verizon telephone cable that ran across the trench approximately 15.3 feet northwest of the Corona Avenue lot line. On the southwest side

of the trench, 19.6 feet southwest of the wall of the house on the adjoining lot 42, we encountered the west face of a concrete foundation wall based at 4.5 feet below grade on a 0.5 foot deep footing. The wider footing extended a further 0.8' into the trench. The mostly dark brown sandy silt in the trench contained small amounts of building detritus all the way down to its excavated depth of 10.0 feet below grade. The foundation wall ended approximately 84.8 feet northwest of the southeast lot line, where it turned northeast. Northwest of the foundation wall, the remaining approximately 15.0 feet of the trench also contained construction debris. The roadbed, below its concrete surface, was made up of 3.0 feet of brownish-yellow and brown sandy silt containing building detritus, mostly concrete with some brick, lathe, and metal pipe fragments. Roofing material was found at a depth of 5.0 below grade, together with chunks of concrete and a large boulder. At approximately 7.0 feet below grade we encountered a water pipe running parallel to the end of the roadbed. From approximately 35 feet northwest of the Corona Avenue lot line, there was much more construction debris, including pipes, brick, mortar, conduits, tar paper, etc., to a depth of 11.0 feet below grade.

#### *Bag list*

Bag 1 – Burial 2, nails & coffin wood

Bag 2 – Burial 2, disarticulated bones

Bag 3 – Burial 2, disarticulated bone and decomposed marble fragments

Bag 4 – Burial 2, disarticulated bone fragments, bottom of the burial trench

Bag 5 - Burial 2, disarticulated bone fragments, bottom of the burial trench

Bag 6 – Operation 3, northeast, single humerus in loose soil

Bag 7 - Burial 1 – disarticulated bones from the trench where the iron coffin & mummy were removed

Bag 8 - Group 1 – disarticulated bones from the flagged area at the western edge of Operations 1 & 2

Bag 9 – Same as Bag 8, nails in fill

Bag 10 – Operation 3, trench on the northwest edge of the area, skull & long bones (Fig. 3)

Bag 11 – Same as Bag 10, coffin hardware, decorative bolt & nail (Fig. 3)

Bag 12 - Burial 3, Operation 3, bones

Bag 13 - Burial 3, Operation 3, coffin nail; buttons found in the skeleton's chest cavity

Bag 14 - Operation 3, trench on the northwest edge of the area, west side, scattered bones in fill (Fig. 3)

Bag 15 – Same as Bag 14, coffin handles loose in the fill (Fig. 3)

## V. THE MUMMY AND THE IRON COFFIN

Dr. Scott Warnasch from the M.E.'s office and the writer examined the mummy and coffin at the Cushnie-Houston funeral home in East Orange, New Jersey, on January 12, 2012. Except for opening and folding back the plastic bag in which the mummy was kept, we did not handle the remains in order not to disturb or damage them further.

The 5 foot 3 inch tall mummy of an African-American woman was lying supine with her arms by her sides, her head slightly tilted to her right (Figs. 19 and 20). This was probably the original position, though some parts were no doubt disturbed when the coffin was broken or when the remains were transported. Aside from the Y-shaped incisions on the chest made by the M.E. for the autopsy, the body appeared undamaged. The woman had long hair, falling over her shoulders, preserved all around her head except on the crown, where only a few small curls were visible (Fig. 20. B). It was not possible to determine whether this was due to decomposition, shaving, or baldness. A probably formerly white or off-white, thin cloth bonnet was on the back of the head, but whether this was because it had slipped backwards or was holding the bulk of the hair was not clear. The face was mostly dessicated and the facial features collapsed or twisted. It was however possible to see that the woman had an oval face with a high rounded forehead, and high cheek bones. The eyes were closed. The nose was decomposed and the mouth askew. Small pox lesions were visible on the top outside of the thighs. The individual had bunions on both feet and hammertoes. On the left foot, the second toe overlapped the big toe. The feet were 7.75 inches long. The body had been dressed in a hand-sewn white or off-white cotton shift with a yoke neck and white or off-white cotton stockings.

The coffin was a Fisk Patent Metallic Burial Case, approximately 74 inches in length. Its curved contour imitated an Egyptian sarcophagus, conforming to the outline of a human body and with a vertically protruding section for the foot. The upper and lower half of the coffin were approximately of the same height and bolted together on both sides along their flanged edges. There was an oval viewing plate of thick glass over the face, which was shattered when the coffin was discovered, as was most of the rest of the upper half of the coffin and the separately made oval metal disk that fitted over the window (Figs. 21 and 22). We counted forty-four separate fragments, not including the shards of glass. Unfortunately, there was no sign of the

customary thin plaque bearing the deceased's name, attached to the rectangular panel protruding from the top of the coffin, over the chest. The metal oval window cover was decorated around its edge with an impressed design of leaves and berries. It was probably identical to the lid illustrated in Wescott et. al. 2010, Fig. 3C, where the wreath of leaves and berries encircles a central leaf and berry cluster. On the top of the foot there was a raised floral design somewhat obscured by concretions but probably to be identified as a thistle flower, since this motif appears in the same position on other Fisk coffins (Wescott et. al. 2010, 291, Fig. 4). The thistle is a Christian symbol for "remembrance, sorrow and pain" (Wescott et. al. 2010, 290). The sides and portions of the top of the upper lid were molded to resemble the shallow, flat and evenly spaced folds of a draped cloth. Dr. Warnash identified some material still adhering to the inside of the coffin's head as the remains of the stuffing or cotton batting of a pillow.

The coffin's style dates its manufacture to 1853, but it may not have been immediately sold, and its final deposition could postdate its manufacture by some years (Habenstein and Lamers 1962, 268, Fig. 11).

Like earlier metallic coffins, Almond Dunbar Fisk's air-tight metal coffin, patented in 1848, was designed to preserve the body for an extended period but in addition, its more streamlined, mummiform shape also greatly reduced the coffin's weight.<sup>2</sup> The benefits of preservation allowed

...distant relatives to journey to the home of the deceased and "behold again the features of their departed friends"...protection of the body against water seepage and vermin; safeguarding against infection and contagious diseases... and, finally, the facilitation of removal of the body for re-burial (Habenstein and Lamers 1960, 266-267; and quote from Evolution 1906, 1).

Moreover, when the deceased had to be transported by steamboat or rail some distance to their final resting place, the use of metal coffins obviated shipping laws requiring wooden coffins to be encased in zinc or lead boxes (Allen 2002, 4).

*The Sunnyside*, a trade circular for funeral professionals, devoted most of one of its 1906 issues to "metallic caskets", the writer of the lead article quoting the manufacturers' averral that:

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<sup>2</sup> I would like to thank Jeremy Pye for sending me a copy of the patent, as well as for his many helpful suggestions for bibliography and his comments (below) on the coffin hardware recovered in our field testing.

“The body of a friend whose death is caused by small-pox, or any of the most virulent contagions, need not be hurried with indecent precipitation to his grave, but may be kept in the dwelling with entire safety and is as free from communicating disease as the metal itself.” (Evolution 1906, 1).

The extent of concern about the possible spread of diseases at funerals is evidenced by the Health Board of New York’s recommendation that “no public or church funerals be given to persons dying of either diphtheria, scarlet fever, measles or whooping cough” (Medical and Surgical Reporter 1877). But with an iron coffin, the deceased could still have a proper viewing and burial ceremony, and the profession of funeral director -- which had appeared approximately at the same time as the iron coffin -- would not be negatively impacted by the fear of contagion at public funerals.

Cost was not necessarily a factor in the choice of an iron casket for burial. An 1850 advertisement of the Fisk and Raymond Company in New York offered coffins at prices ranging from \$7 to \$40 (Wescott et. al. 2010, 17). Secondly, burials in iron coffins is attested for many different types of individuals, in both the Northeastern United States and on the western frontier; of both adults and children as young as two years old, and of both whites and African Americans (Allen 2002, 6-7). As in the case of coffin hardware (below), the use of iron coffins might indicate a high socioeconomic status, but could equally express a desire to mask differences in wealth (Pye 2010, 3; Bell 1990, 55, 70). In the present case, where the interment was in a church cemetery, the community might have set up a collection to pay for this special coffin in order to protect the burial ground from contamination (Bell 1990, 70, notes that “pooling group resources to meet burial expenses...can account for variable mortuary assemblages”, and therefore also, perhaps, coffin types).

## VI. TOMBSTONE FRAGMENTS, COFFIN HARDWARE AND SMALL FINDS

### *Tombstone Fragments*

All the tombstone fragments were made of marble, a material used most heavily in the 19<sup>th</sup> century, according to Jeremy Pye, an expert on American funeral hardware (email, May 6, 2012). In the early 20<sup>th</sup> century, it began to be replaced by granite, which became the predominant stone for grave markers by the 1920s. Dr. Pye found the style of the fragments “generic”, and thinks It is most likely that they were locally made from Vermont marble.

None of the marble tombstone fragments whose find spots are indicated on the site plan, Fig. 3, was *in situ*. Some small lumps of decomposed marble noted both in Operation areas 1 & 2 and in operation 3 were not kept because they had no intact surfaces and crumbled to the touch. Five fragments that had portions of their inscriptions preserved, and one base were catalogued and are now at St. Mark’s A.M.E. Church.

Missing words or parts of words in the inscriptions are indicated, below, with three dots, while suggested restorations are noted in square brackets [ ], and uncertain or partially preserved inscriptions are in parentheses ( ).

1. Fig. 23. B. Marble headstone fragment, 20.3 inches wide, 4.0 inches thick; only the curved top of the stone preserved with a small part of the right and left sides at its edges; deep groove running parallel to the top edge; preserved portion of the inscription reads:

NICHOLAS COL(ES)

A Nicholas Coles, born in New York and residing in Queens, is listed in the 1880 federal census. His birthdate is recorded as “about” 1815, so his age was sixty-five, and he race was noted as “Black”. He had no occupation listed. Both his parents were also born in New York City. He lived with his wife Sarah, who was 60 in 1880, and their grown daughter, Stuard, who was 30 years old. Mother and daughter both worked as washerwomen. Sarah’s parents were also born in New York City.

2. Fig. 23. A. Marble footstone (?) fragment, 10.6 inches wide, 2.0 inches thick; curved top, plain face, bottom not preserved; no sign of any inscription beyond the initials at the top,

which read:

D. T.

3. Fig. 24. B. Marble headstone fragment, 4.0 inches thick; top, bottom and right sides missing; left edge preserved, bordered on the face by a groove running parallel to the edge of the stone; the preserved portion of the inscription reads:

Bo[rn] ...

Die[d] ...

(7)2 s ...

[S](A)RAH ...

Apr[il] ...

The wife of Nicholas Coles (no. 1, above) was called Sarah, but we can not of course verify from the evidence of the inscription whether this headstone, which belonged to someone whose first name we have restored as Sarah, was actually the marker of Sarah Coles.

4. Fig. 24. 1. Marble headstone fragment, 4.0 inches thick; top, left and bottom sides missing; right edge preserved, bordered on the face by a groove running parallel to the edge; the preserved portion of the inscription reads:

...

[Bor]n Sept. 23 1(8)...

[Died] Aug. 14 1883.

5. Fig. 25. B. Marble base, 24.0 inches wide, 12.4 inches thick, 9.6 inches high; 1.9 inch deep groove on the top for a (foot?)stone 12 inches wide by 3.2 inches thick; no markings or inscription.

6. Fig. 25. A. Marble headstone fragment, 2.0 inches thick; top and right edge preserved; other sides missing; the preserved portion of the inscription reads:

[in m] emory of

[B?] BAWNS

This headstone was found by the M.E.'s team, and its find spot, near the mummy, appears

on their plan (Appendix B, fig. 3).

The name does not appear in 19<sup>th</sup> century Federal Census records

### *Coffin Hardware and small finds* (Fig. 26)

In addition to the iron coffin, the coffin hardware and the vulcanite buttons associated with Burial 3, bespeak a degree of pomp and splendor in the burial rituals practiced by the community. The buttons indicate that the individual was wearing a fine garment, in contrast with the iron coffin burial, where the burial garment appears to have been dressed in a plain cotton shift or night shirt and cotton stockings. Perhaps this individual was simply buried in the clothes in which she died out of fear of the risk of contagion.

The coffin hardware, all found loose in fill, consisted of three, double-lug, swing bail handles, that is, the handles were free hanging between two mounts fixed on the coffin. Two of the handles were made of wood overlaid with white metal, though one has completely lost its former casing (Fig. 26A, bottom). The one with its casing preserved is baluster-shaped and faceted, with rounded finials, only one of which is still in place (Fig. 26A, middle). The mounts of these handles were decorated with raised scroll or spiral designs. The best preserved and most elaborately decorated of the three handles was solid cast metal, also with simple raised designs, but of a different, geometric style. The face of the handle was ornamented with a row of dentils, and the top and bottom scored with narrow hatched bands. The terminals come to a point.

According to Jeremy Pye, a specialist in Historic American coffin hardware and funerary customs (email, May 5, 2012):

The one on the top (Fig. 26A top) is a white metal, double-lug swing-bail with tips. They were produced to mimic the more expensive short bar handles while still maintaining the characteristics of the early swing-bail types. Swing-bail with tips handles were in vogue in the 1870s and appeared in some catalogs until 1915. The middle handle (Fig. 26A, middle) is a swelled short bar type handle. The earliest patent example I have found for this type comes from 1891. It looks to be made of white metal and the bar likely does have a wooden core. Wooden cores were used in some cases to provide greater support because the quality of the metal in later production was far lower, and they provided a means of attachment of the tips or finials. The lower handle (Fig. 26A, bottom) is a double lug short bar handle with a wooden core. It is difficult to tell for sure from the image, but

by the impressed pattern it appears as though it was a braided cloth covered bar. Short bar handles appeared in the 1870s, grew in popularity in the 1880s, but for a cloth covered variety your best bet would be 1890s.

The presence of mass-produced coffin hardware in late 19<sup>th</sup> century burials need not be indicative of high social rank but instead may reflect the development of new burial rituals that reached their fullest expression in the second half the 19<sup>th</sup> century. Prior to this, coffin handle styles tended to be “plain or restrained” (Bell 1990, 57). Decorative coffin hardware as well as glass view plates in the later 19<sup>th</sup>-century pauper’s burials at the Uxbridge Almshouse Burial Ground show that in that era, such items were not restricted to the wealthy but could also be found even in institutional cemeteries for the poor. While the Almshouse Burial Ground contained individuals of the same socioeconomic level but of different ethnic backgrounds, it has also been found that ornate hardware was prevalent in 19<sup>th</sup> century African-American cemeteries in the southern United States. These cemeteries included individuals of different socioeconomic levels but the same ethnicity (Bell 1990, 67). Thus, rather than markers of economic status, the material reflected the prevailing fashion of the time for “beautification of death”, in which the elaboration of mortuary paraphernalia and prolonged funerary rituals expressed notions of Victorian respectability and refinement. It may be noted that the appearance of decorative funerary hardware also complemented the specialization in the late 19<sup>th</sup> century of funeral directing as a distinct profession (Bell 1990, 56). This too connotes an intensified ceremonialization of funerary rites.

## VII. OSTEOLOGICAL ANALYSIS, Matthew Brown

### SUMMARY

The analysis of human skeletal material from recent or archaeological sites has the potential to offer an immense amount of information regarding human biology and adaptation to both the natural and cultural environments that is not obtainable through the reading of historical documentation and / or the analysis of artifacts alone. This can include demographic information, for instance, pertaining to ancestry; mortality and morbidity rates; age and sex determination; identification of specific diseases; and diet and growth rates. Moreover, data from mortuary analysis can illuminate connections between the biological aspect skeletal remains and sociocultural variables including social status, economics, and burial rituals. The extent to which these types of data can be extracted, however, hinges on the completeness of the material. Thus, damage to the burial environment and the highly fragmented and incomplete status of the skeletal material from 90-15 Corona Avenue limited the quantity and type of information obtainable.

All skeletal material analyzed for this report was done ethically and responsibly, in accordance with the Society of American Archaeology Statement Concerning the Treatment of Human Remains (see [www.saa.org](http://www.saa.org)).

The analysis followed standard protocol, which includes, in addition to basic identification of skeletal elements, assessments of skeletal age, sex, ancestry and pathology, where applicable. Determination of age was based on standards for fusion rates for post-cranial elements (Scheuer and Black 2000) and cranial suture closure standards established by Meindl and Lovejoy (1985). Estimation of biological sex was based on differences in morphology of specific regions of the skull (Buikstra and Ubelaker, 1994). Measurements were taken of the majority of complete and fragmented cranial and post-cranial bones and specific regions of the cranium were used to estimate ancestry based on methods and characteristics described by Klepinger (2006) and Bass (2005). All bone and dental material was assessed for pathology macroscopically and described according to Ortner (2003) and Buikstra and Ubelaker (1994).

In total, 125 bones and 6 teeth representing a minimum of nine individuals were recovered. No complete skeletons were recovered. Only one set of remains (COR3-2011-

A1) and possibly COR2-2011-A1, were removed from an *in situ*, albeit damaged, burial. The remaining skeletal material was recovered as surface finds or bone scatters mixed in the fill. Maximum length measurements were taken of 44 post-cranial bones, but only 26 of these, all hand or foot bones, were complete. Cranial measurements were obtained from only specimen. Stature reconstruction was not obtainable.

Tentative identifications of biological sex were obtained for three of the nine individuals: two were possibly female and one possibly male. All the skeletal material represented post-child aged individuals, probably older than 16 years of age. Two individuals, COR4-2011-A1 and COR5-2011-A2, were aged using suture closure rates for the cranial vault. Six of the seven remaining specimens were designated with minimum numerical age limits, the last as post-child age without more specific age designation.

Of the 125 bones total, 16 (12.8%) exhibited evidence of pathological conditions (see individual bone inventories). More specifically, four of the nine individuals displayed abnormalities, three of these displaying pathology related to osteoarthritis. Dental pathology affected all 6 teeth from CORX-2011-A1.

The identification of ancestry could be tentatively made for only one individual, COR4-2011-A1, which exhibited cranial morphology suggestive, but not necessarily conclusive of, an individual with African American ancestry.

In conclusion, the fragmentary state of the material, together with the lack of proper grave shafts or associated funerary structures (with the exception of the iron coffin), make any broad statements regarding population statistics/demographics, status, burial rituals, or culture inadvisable.

## CATALOGUE AND ANALYSIS OF SKELETAL REMAINS

Each set of skeletal material was assigned three specimen numbers (INV; SP#; SubSP#) that increased with specificity. A fourth inventory number was given to material removed by the OME. These identification numbers are non-repeating except in the event the skeletal material was from the same individual. The data presented in the tables included in this report has also been entered in an access database which, together with a total 427 photographs of the bones and dentition, are available from the author upon request.

## COR2-2011-A1 (Q-11-4385-5-8)

### *Overview*

COR2-2011-A1 (Bags 2 and 5) consists of forty-three post-cranial bones from upper and lower appendages, hands and feet, the vertebral column, and pectoral girdle, belonging to an adult individual of indeterminate sex. The burial, excavated on 10/15/2011 in Operation 1, was located approximately 2.5 meters east of the iron coffin burial and, according to the M.E.'s report, was found at the same depth (Warnasch 2011). In addition, on 10/5/2011 the M.E. recovered complete and fragmentary bones on the surface between 1 and 3 meters to the south of COR2-2011-A1. The M.E.'s material, bags 5 through 8, is included here. While the material removed on 10/15/2011 showed some evidence of coming from a proper grave cut, this was largely destroyed by backhoe operations, and the burial was therefore viewed as badly disturbed. The analysis of partially articulated bones embedded in large chunks of dirt, however suggested that the material may have still been partially *in situ*, as also perhaps indicated by the presence of iron nails and coffin wood found in association with COR2-2011-A1 (Bag 1 and 5-non OME).

The skeletal material from Bag 5 (non-OME), encased in three blocks of soil and lime, offered some information on skeletal position and type of burial. Based on the position of the phalanges in relation to the proximal third of the shaft of the humerus, It is likely that the arm was bent at the elbow and the hand was placed in the chest area. Prior to removing the soil from the bones, a clear distinction between grave fill and what appeared to be undisturbed soil below the skeletal material was observed (Fig. 27. A).

Individual bones showed a range of preservation from poor and fragmentary to complete and in good condition. Fresh breaks were however readily observable on many, no doubt caused by the backhoe. The incompleteness and condition of the remains did not permit determination of age, sex, ancestry or calculation of stature.

### *Bone Pathology Assessment*

A total of ten bones, including metatarsals, hand and foot phalanges, and vertebra, exhibited pathological changes associated with osteoarthritis (OA) on their articular surfaces (Fig. 27. B, C and D). Possible enlarged muscle attachments were also observed on the left radius and ulna and left and right humerus.

In dry bone, osteoarthritis (OA) is primarily characterized by a polishing of the joint surface (eburnation), or a combination of abnormal bone growth in the form of osteophytes, usually located at the margins, or as plaques, on the articular surface; pitting of the joint surface, and alteration of the contour of the joint. According to Waldron (2009), with the exception of eburnation, the diagnosis of OA requires at least two of the remaining morphological characteristics to be present. While the diagnosis of OA is normally restricted to synovial joints Ortner (2003) applies this diagnosis to arthritic changes in both synovial and non-synovial joints, and this approach has been adopted in this report.

Abnormal bone growth in the form of osteophytes (lipping) was found to affect all three vertebral bodies. The abnormal growth was confined to the border of the superior surface, most extensively in an area between the anterior and lateral sides, at the border of the superior surface of thoracic vertebra number 10 (Fig. 27. B). Bony projections extended approximately 0.5 cm above the normal surface of the vertebral body. The remaining two vertebrae, while exhibiting similar abnormal morphological changes, displayed less severe osteophytic growth. Additions of abnormal porosity (pitting) and eburnation (joint polishing) was not found to affect any of the articular surfaces of these vertebra.

Four of the six metatarsals (MT) exhibited marginal osteophytic growth affecting the articular surfaces (Fig. 27. C and D). All exhibited abnormal bony ridges, with varying degrees of severity, bordering the distal joint surfaces, or, in the case of the right MT1, a bony plaque located within the lateral groove of the distal articulation. While no evidence of joint polishing or abnormal porosity was observed, clear evidence for the alteration of the joint contour was present.

Both hand and foot phalanges displayed abnormal bone deposits affecting the borders of the articular surfaces. Of the three phalanges showing pathological changes (see Table 5), two exhibited osteophytes affecting the proximal articulation only, while the remaining phalange displayed abnormal bone growth at both the proximal and distal articulation. The remaining thirteen phalanges did not show pathological changes.

Osteoarthritis can be caused by a number of factors alone or in combination, including activity, age, and genetics, or secondary to trauma (Waldron 2009). The condition of COR2-2011-A1 however does not permit a determination of either the extent and severity of the pathological changes or their cause(s).

While arthritic changes are often identified in older individuals, but may also be observed in younger individuals engaged in heavy manual labor. Therefore, the presence of osteoarthritis is not necessarily correlated with advanced age. That this individual was above 18 years of age is however indicated by the complete fusion of all observable epiphyses.

## COR2-2011-A1

Table 1: Vertebra

SubSP#	MedEx ID#	BONE	COMP	PATH	CNT	COMM
COR2-2011-A1	Q-11-4385-7	THR10	3	YES	1	Bone in poor condition missing the arch and 1/2 of the body. Abnormal bone growth affecting the superior anterior lateral body.
COR2-2011-A1	Q-11-4385-7	LUM-UKN	4	YES	1	Bone in poor condition. Body fragment only. Lipping on the inferior lateral border of the body. Possible thoracic.
COR2-2011-A1	Q-11-4385-7	LUM-UKN	4	YES	1	Bone in poor condition. Body fragment only. Lipping at the border of the body. Possible thoracic.

Key: SubSP#=Sub-Specimen Number; MedEx ID#=Medical Examiner Identification Number; THR=Thoracic Vertebra; LUM-UKN=Lumbar Vertebra Unknown; COMP=Complete; PATH=Pathology; CNT=Count

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25% complete

Table 2: Pectoral Girdle/Ribs

SubSP#	MedEx ID#	BONE	REGION	SIDE	COMP	PATH	CNT	COMM
COR2-2011-A1	Q-11-4385-7	RIB	SHAFT	RIGHT	3	NO	2	Two partial rib shafts and 7 fragments
COR2-2011-A1		RIB	SHAFT	SND	1	NO	1	Partial rib shaft and 11 fragments.
COR2-2011-A1	Q-11-4385-7	SCP	NA	SND	4	NO	1	Bone in poor condition. Two small fragments.

Key: SubSP#=Sub-Specimen Number; MedEx ID#=Medical Examiner Identification Number; REG=Region; COMP=Complete; PATH=Pathology; CNT=Count; SCA=Scapula;

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25% complete

Table 3: Metacarpals/Metatarsals

SubSP#	MedEx ID#	BONE	SIDE	COMP	PATH	CNT	COMM
COR2-2011-A1		MT1	Right	1	YES	1	Bone is complete and in good condition. Abnormal bone growth affecting distal articulation.
COR2-2011-A1		MT2	Right	1	YES	1	Bone is complete. The distal articular surface exhibits a small ridge of bone at the posterior medial border..
COR2-2011-A1		MT3	Right	1	YES	1	Bone is complete. Distal articular surface exhibits abnormal bone located on the joint surface.
COR2-2011-A1		MT4	Right	2	NO	1	Bone is mostly complete missing the distal end and part of the proximal end.
COR2-2011-A1		MT5	Right	1	NO	1	Bone is complete.
COR2-2011-A1	Q-11-4385-5	MT4	Left	1	YES	1	Bone is complete. Marginal lipping on the posterior edge of the distal articular surface.
COR2-2011-A1	Q-11-4385-7	MC3	Left	1	NO	1	Bone is complete. No pathology.
COR2-2011-A1	Q-11-4385-7	MC4	Left	1	NO	1	Bone is complete. No pathology.

Key: SubSP#=Sub-Specimen Number; MedEx ID#=Medical Examiner Identification Number; MT=Metatarsal; MC=Metacarpal;

PATH=Pathology; COMP=Complete; CNT=Count

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25% complete

Table 4: Tarsals

SubSP#	BONE	SIDE	COMP	PATH	CNT	COMM
COR2-2011-A1	CAL	Right	1	NO	1	Bone is complete. No pathology.
COR2-2011-A1	TAL	Right	1	NO	1	Bone is complete. No pathology.
COR2-2011-A1	NAV	Right	1	NO	1	Bone is complete. No pathology.
COR2-2011-A1	CUB	Right	1	NO	1	Bone is complete. No pathology.
COR2-2011-A1	CUN1	Right	1	NO	1	Bone is complete. No pathology.
COR2-2011-A1	CUN2	Right	1	NO	1	Bone is complete. No pathology.
COR2-2011-A1	CUN3	Right	1	NO	1	Bone is complete. No pathology.

Key: SubSP#=Sub-Specimen Number; MedEx ID#=Medical Examiner Identification Number; COMP=Complete; PATH=Pathology; CNT=Count; CAL=Calcaneus; TAL=Talus; NAV=Navicular; CUB=Cuboid; CUN=Cuniform

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25% complete

Table 5: Phalanges

SubSP#	MedEx ID#	BONE	PHAL-#	SIDE	COMP	PATH	CNT	COMM
COR2-2011-A1	Q-11-4385-7	PHP	2	Left	1	1	1	Bone is complete. No pathology.
COR2-2011-A1	Q-11-4385-7	PHP	3	Left	1	NO	1	Bone is complete. No pathology.
COR2-2011-A1	Q-11-4385-7	PHP	4	Left	1	NO	1	Bone is complete. Broken mid shaft.
COR2-2011-A1	Q-11-4385-7	PHP	5	Left	1	NO	1	Bone is complete. No pathology.
COR2-2011-A1	Q-11-4385-7	PHD	UKN	?	1	NO	1	Bone is complete (# 2 or 5).
COR2-2011-A1	Q-11-4385-5	PFP	1	Left	1	NO	1	Bone is complete. No pathology.
COR2-2011-A1		PFP	1	Right	1	YES	1	Bone is complete. Lipping on the proximal epiphysis
COR2-2011-A1		PFP	2	Right	1	NO	1	Bone is complete. No pathology.
COR2-2011-A1		PFP	3	Right	1	NO	1	Bone is complete. No pathology.
COR2-2011-A1		PFP	4	Right	1	NO	1	Bone is complete. No pathology.
COR2-2011-A1		PFI	3	Right	1	NO	1	Bone is complete. No pathology.
COR2-2011-A1		PHP	1	Right	1	NO	1	Bone is complete. No pathology.
COR2-2011-A1		PHI	3	Right	1	YES	1	Bone is complete. Lipping on the borders of prox and distal surfaces.
COR2-2011-A1		PHD	3	Right	1	YES	1	Bone is complete. Lipping affecting the proximal articular surface.
COR2-2011-A1		PHI	UKN	?	4	NO	1	Bone is missing the distal 3/4.
COR2-2011-A1		PHI	UKN	?	3	NO	1	Bone is missing the proximal 1/2.

Key: PHP= Proximal Hand Phalange; PFP=Proximal Foot Phalange; PHAL#=Phalange Number; PATH=Pathology; COMP=Complete; CNT=Count; SND=Side Not Determined; UKN=Unknown

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25% complete

Table 6: Long Bones

SubSP#	MedEx ID#	APPEND	BONE	SIDE	COMP	PATH	CNT	COMM
COR2-2011-A1	Q-11-4385-8	UP-ARM	HUM	L	3	No	1	Bone in poor condition missing proximal 75%. Partial distal epiphysis. Minor marking on lat edge of the bone.
COR2-2011-A1		UP-ARM	HUM	R	1	No	1	Bone in fair condition missing the proximal epiphysis.
COR2-2011-A1		LO-ARM	RAD	R	1	No	1	Bone in fair condition-broken into 4 pieces. Missing the distal end.
COR2-2011-A1		LO-ARM	ULN	R	1	No	1	Bone is mostly complete missing the olecranon process, 1/2 of the trochlear notch and part of the shaft.
COR2-2011-A1		LO-LEG	FIB	R	4	No	1	Bone in poor condition missing all except for the distal epiphysis and a very small section of the shaft.

Key: SubSP#=Sub-Specimen Number; MedEx ID#=Medical Examiner Identification Number; S=Side; L=Left; R=Right; PATH=Pathology; COMP=Complete; CNT=Count; LO-LEG=Lower Leg; LO-ARM=Lower Arm; UP-ARM=Upper Arm; FIB=Fibula; HUM=Humerus; RAD=Radius; ULN=Ulna Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25% complete

Table 7: Post-Cranial Measurements

SubSP#	MedEx ID#	BONE	S	COMP	MxL <sup>1</sup>	MEAS-D	INSTR	MEAS-NOTES
COR2-2011-A1	NA	CAL	R	Y	77.36	12/06/2011	SLC	Bone complete. No complications.
COR2-2011-A1	NA	MT1	R	Y	68.86	12/06/2011	SLC	Bone complete. No complications
COR2-2011-A1	NA	MT2	R	Y	76.83	12/06/2011	SLC	Bone complete. No complications
COR2-2011-A1	NA	MT3	R	Y	72.57	12/06/2011	SLC	Bone complete. No complications
COR2-2011-A1	NA	MT5	R	Y	66.88	12/06/2011	SLC	Bone complete. No complications
COR2-2011-A1	NA	PFP1	R	Y	36.86	12/06/2011	SLC	Bone complete. No complications
COR2-2011-A1	NA	PFP2	R	Y	27.19	12/06/2011	SLC	Bone complete. No complications
COR2-2011-A1	NA	PFP3	R	Y	25.32	12/06/2011	SLC	Bone complete. No complications
COR2-2011-A1	NA	PFP4	R	Y	23.18	12/06/2011	SLC	Bone complete. No complications
COR2-2011-A1	NA	PFI4	R	Y	12.44	12/06/2011	SLC	Bone complete. No complications
COR2-2011-A1	NA	PHP1	R	Y	36.33	12/06/2011	SLC	Bone complete. No complications
COR2-2011-A1	NA	PHI3	R	Y	29.80	12/06/2011	SLC	Bone complete. No complications
COR2-2011-A1	NA	PHD3	R	Y	19.72	12/06/2011	SLC	Bone complete. No complications
COR2-2011-A1	NA	MT4	R	N	58.80	12/06/2011	SLC	Bone is partial. Measurement affected.
COR2-2011-A1	Q-11-4385-7	MC3	L	Y	75.5	2/1/2012	SLC	Bone complete. No complications.
COR2-2011-A1	Q-11-4385-7	MC4	L	Y	64.5	2/1/2012	SLC	Bone complete. Broken mid shaft.
COR2-2011-A1	Q-11-4385-7	PHP2	L	Y	44	2/1/2012	SLC	Bone complete. No complications.
COR2-2011-A1	Q-11-4385-7	PHP3	L	Y	47.5	2/1/2012	SLC	Bone complete. No complications.
COR2-2011-A1	Q-11-4385-7	PHP4	L	Y	45.5	2/1/2012	SLC	Bone complete. Broken mid shaft.
COR2-2011-A1	Q-11-4385-7	PHP5	L	Y	37.0	2/1/2012	SLC	Bone complete. No complications.
COR2-2011-A1	Q-11-4385-7	PHD-UKN	?	Y	18	2/1/2012	SLC	Bone complete. No complications.
COR2-2011-A1	Q-11-4385-5	PFP1	L	Y	34.0	2/1/2012	SLC	Bone complete. No complications.
COR2-2011-A1	Q-11-4385-5	MT4	L	Y	71.0	2/1/2012	SLC	Bone complete. No complications.
COR2-2011-A1	Q-11-4385-8	HUM	L	N	85.0	2/1/2012	OMB	Bone is partial. Measurement affected.

Key: SubSP#=Sub-Specimen Number; MedEx ID#=Medical Examiner Identification Number; S=Side; COMP=Complete; MxL=Maximum Length; MEAS-D=Measurement Date; INSTR=Instrument; HUM=Humerus; MT=Metatarsal; MC=Metacarpal; CAL=Calcaneus; PHP=Proximal Hand Phalange; IHP=Intermediate Hand Phalange; DHP=Distal Hand Phalange; PFP=Proximal Foot Phalange; PFI=Phalange Foot Intermediate; UKN=Unknown; OMB=Osteometric Board; SLC=Sliding Caliper

<sup>1</sup>NOTE: All measurements are presented in millimeters

## COR3-2011-A1

### Overview

COR3-2011-A1 (Bag 12-Burial 3) is the partial skeleton of an adult (>25 years of age) female individual recovered on 10/17/2011 from a disturbed, in situ grave located in Operation 3, east of the corner of the building on lot 55 (Figs. 3 and 12). The burial was partially truncated with most of the right side of the skeleton missing. Further post-mortem damage resulted in the fragmentation of many skeletal elements, making reconstruction impossible.

The burial was supine, with the head facing east and the feet west. The positioning of the hand bones in the shoulder region suggests that the left lower arm might have been flexed over the chest area. Coffin nails associated with the skeletal material from COR3-2011-A1 suggest that this individual was buried in a wooden coffin. In addition to the nails, four buttons were recovered from the chest region.

A total of only 32 bones (6 cranial and 26 post-cranial elements) were recovered from this burial. Approximate stature reconstruction based on the maximum length of the partial left humerus suggested that this individual was 147.06 cm or approximately 4' 10" tall. Pathology assessment identified evidence of VOA (Vertebral Osteoarthritis) affecting the cervical vertebrae in addition to evidence of marginal lipping present on one of the hand phalanges (Fig. 28).

#### *Cranial Bones Inventory – Sex and Age determination*

COR3-2011-A1 contained a partial skull consisting of five cranial bones and a mandible in fair to poor condition. Three of the six bones were considered to be mostly complete. Of the five areas used for identifying biological sex, three were present, all exhibiting female type morphology (see Table 7).

Degenerative changes affecting the cervical vertebra, complete fusion of all post-cranial bones (where observable), resorption of the alveolar sockets of the maxilla and mandible, and evidence of cranial suture closure indicate that the individual was an adult over 25 years of age. While there is evidence of suture closure in regards to the occipital bone and the lambdoidal suture, the fragmented nature of the regions of importance does not allow for complete assessment using standard methods (Meindl and Lovejoy 1985).

#### *Post-Cranial Bones Inventory - Estimate of stature, bone pathology assessment*

Post-cranial skeletal material (see Table 2-6) consists 26 of fragmented bones from the upper and lower appendages, left hand, vertebral column, and the pectoral girdle. Similar to the cranial material, all post-cranial elements were generally incomplete and in fair to poor condition.

Maximum length measurements were taken for 11 of the 26 post-cranial bones (see Table 8). Of these only two bones were complete. The fragmentary state of the majority of

the long bones did not allow for direct stature estimation based on the measured MxL. The left humerus, however, was complete enough to allow an estimated MxL and a calculation of approximate stature.

It is estimated that approximately 3.5-4 cm were missing from the left humerus. If 3.75 cm is added to the total maximum recorded length of 23 cm, the MxL for the left humerus is increased to 26.75 cm. Using the formula for adult female African Americans (White 2000), the height of this individual may be estimated at been between 151.31 (~5 feet) and 142.81 (~4 feet 4 inches), with an average of 147.06 cm (~4 feet 10 inches). It should be noted, however, that the African American ancestry of this individual was inferred from the cemetery's history and not on the basis of the osteological material, which was too fragmentary to determine racial ancestry.

All three cervical vertebrae from COR3-2011-A1 displayed evidence of degenerative changes associated with Vertebral Osteoarthritis (Fig. 28. B and C). Macroporosity affecting the superior and/ or inferior surfaces of the bodies, with or without bony plaques, marginal osteophytes affecting the articular facets, and lipping at the border of the vertebra bodies, were found to affect all three cervical vertebra with varying severity. There was, however, no evidence of any eburnation of the joint surfaces. In addition to the degenerative changes listed above, all three vertebrae displayed varying degrees of abnormal anterior compression of the vertebral body. These types of changes which are observed in cervical 3 through 5 are often seen in older individuals as a result of normal aging during which there is a breakdown of the intervertebral disc or as resulting from trauma or a combination of the these two processes.

Abnormal bone growth (lipping) was observed on the distal end of a left proximal hand phalange (Fig. 28. A). No other phalanges displayed similar changes. The growth is present on the palmar surface at the border just proximal to the distal articular surface. The affected area is approximately 0.5 cm by 0.5 cm and does not actually encroach onto the articular surface. There is no evidence of abnormal porosity or eburnation associated with this growth. Similar to the changes observed affecting the cervical vertebrae, advanced age and trauma could have played a role in the abnormal bone growth affecting this bone.

## COR3-2011-A1

Table 1: Cranial Bone Inventory

BONE	SIDE	COMP	PATH	CNT	COMM
PAR	Right	2	NO	1	Bone in fair condition missing the sagittal 1/2 of the bone PM. Bone has been broken into 2 pieces PM.
OCC	L&R	1	NO	1	Bone in good condition missing some fragments PM. The occipital was damaged PM and is now in 3 pieces. Both condyles are present and fair condition.
TEM	Right	1	NO	1	Bone is mostly complete.. The articular surface is complete and in good condition. The right SPH-GW is attached to the anterior border of the squama.
SPH-GW	Right	2	NO	1	Sphenoid consists of the right GW only. Bone is attached to the right temporal
MAX	L&R	3	NO	1	Bone in fair to poor condition. Right sinus missing approximately 50%. The left sinus missing 95%. Most of the alveolar sockets lost PM. For the alveolar areas present, complete resorbition has occurred.
MAN	L&R	2	NO	1	Bone mostly complete missing both condyles and coronoid processes. Mandible shows resorbition. Most teeth lost anti-mortem. The right side exhibits evidence for vacant alveolar sockets possibly from RM <sub>1</sub> and RPM <sub>4</sub> . The left side shows a partial resorbed alveolar of what seems to be LM <sub>1</sub> . It is likely all or most anterior teeth were lost anti-mortem except for possibly the RC <sub>1</sub> .

Key: OCC=Occipital; TEM=Temporal; MAN=Mandible; PAR=Parietal; SPH-GW=Sphenoid-Greater Wing; MAX=Maxilla; PATH=Pathology; COMP=Complete; CNT=Count

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25% complete

Table 2: Vertebra

BONE	COMP	PATH	CNT	COMM
CER3	2	YES	1	CER3 is missing most of the arch. The body is complete. Anterior compression. The superior body exhibits macroporosity indicative of VOA. Bony plaques found on the superior surface of the body. Lipping on the left superior articular surface. The inferior body exhibits the same pattern of macroporosity and bony plaques as was observed on the superior surface. Lipping on the anterior edge of the body (superior and inferior).
CER4	2	YES	1	CER4 is missing the posterior section of the arch. The body is complete. Anterior compression. The superior body exhibits evidence of macroporosity indicative of VOA. Bony plaques found on the superior surface of the body. The inferior body exhibits the same pattern of macroporosity and bony plaques as was observed on the superior surface. There is evidence of lipping on the anterior edge of the body. There is evidence of pseudo joint forming on the left and right inferior articular facets.
CER5	2	YES	1	CER5 is missing the arches but the body is complete but has suffered PMD on the inferior surface (approximately 75% eroded PM). There is evidence of macroporosity on the superior body without plaques of abnormal bone. Minimal lipping on the anterior body and less evidence of anterior compression of the body.
THR-UKN	4	NO	4	Four thoracic vertebra arch fragments from 4 separate vertebra. No numerical identification. Not 10-12. Five inferior facets present. No pathology.
LUM-UKN	4	NO	2	Small fragments (2) of at least 2 lumbar vertebrae. No pathology. 4 articular surfaces present...

Key: CER=Cervical Vertebra; THR-UKN=Thoracic Vertebra-Unknown; LUM-UKN=Lumbar Vertebra Unknown; COMP=Complete; CNT=Count

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25% complete

Table 3: Pectoral Girdle

BONE	SIDE	COMP	PATH	CNT	COMM
CLA	Right	3	NO	1	Clavicle in poor condition missing the inferior surface and the lateral and medial ends.
CLA	Left	3	NO	1	Clavicle missing the medial and lateral segments of the bone. The overall preservation is poor.
SCA	Left	4	NO	1	Bone in poor condition. The glenoid fossa is approx 50% complete and fused. The acromion process and coracoid process have been lost post-mortem. No pathology.

Key: CLA=Clavicle; SCA=Scapula; PATH=Pathology; COMP=Complete; CNT=Count

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25% complete

Table 4: Phalanges

BONE	PHAL#	SIDE	COMP	CNT	PATH	COMM
PHP	UKN	Left	2	1	YES	Bone is mostly complete missing proximal 1/3. Abnormal bone growth present on the palmar surface at the border of the distal articular surface affecting the lateral 1/2 of the border.
PHP	5	Left	1	1	NO	Bone mostly complete missing fragments from at proximal end. No pathology.
PHP	3	Left	1	1	NO	Bone in good condition missing fragments. Both epiphyses fused. No pathology.
PHP	UKN	SND	2	1	NO	Bone in fair condition missing the both ends PM. SND due to PMD. No pathology.

Key: PHP= Proximal Hand Phalange; PFP=Proximal Foot Phalange; PHAL#=Phalange Number; PATH=Pathology; COMP=Complete; CNT=Count; SND=Side Not Determined; UKN=Unknown

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25%

Table 5: Metacarpals

BONE	SIDE	COMP	PATH	CNT	COMM
MC2	LEFT	2	NO	1	MC2 is in fair condition missing the distal end. No pathology.
MC3	LEFT	2	NO	1	MC3 in fair condition missing distal end PM. No pathology. Proximal epiphysis fused.
MC4	LEFT	2	NO	1	MC4 in fair condition missing the distal end. No pathology. Proximal end fused.
MC1	LEFT	2	NO	1	MC1 in fair condition missing most of the proximal epiphysis. No pathology.

Key: MC=Metacarpal; PATH=Pathology; COMP=Complete; CNT=Count

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25% complete

Table 6: Long Bones

APPEND	BONE	SIDE	COMP	PATH	CNT	COMM
UP-ARM	HUM	Left	2	NO	1	Bone is mostly complete no proximal end. No extensive muscle markings -relatively gracile. Missing the medial epicondyle. Septal aperture present.
LO-ARM	ULN	Left	2	NO	1	Bone mostly complete missing the both ends. No pathology.
LO-ARM	ULN	Right	3	?	1	Right ulna in poor condition missing most except for the prox 1/3 without the very proximal end. Possible abnormal porosity at the articular surface for the radius but also might be the result of PMD.
LO-ARM	RAD	Left	2	NO	1	Bone in fair condition missing some fragments from the shaft.
LO-LEG	TIB	Right	3	NO	1	Bone in poor condition missing anterior surface of the proximal 1/3 of the shaft. Proximal articular surface 50% complete missing the posterior 1/2.
LO-LEG	TIB	Left	4	NO	1	The left tibia is in poor condition. The posterior surface of the proximal 1/3 shaft only.

Key: LO-LEG=Lower Leg; UP-LEG=Upper Leg; LO-ARM=Lower Arm; UP-ARM=Upper Arm; TIB=Tibia; FEM=Femur; HUM=Humerus; RAD=Radius; ULN=Ulna PATH=Pathology; COMP=Complete; CNT=Count

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25% complete

Table 7: Sex Determination

GLA	LSOM	RSOM	LMAP	RMAP	NUC	MEE	SEX	CNT	COMM
NOBS	NOBS	NOBS	NOBS	1	1	1	FEMALE	1	Sex determination based on skull morphology.

Key: GLA=Glabella; L=Left; R=Right; SOM=Supra-Orbital Margin; MAP=Mastoid Process; NUC=Nuchal Crest; MEE=Mental Eminence; CNT=Count; NOBS=Not Observable

Scoring: 1=Female; 2=Female?; 3=?; 4=Male?; 5=Male

Table 8: Post-Cranial Measurements

BONE	SIDE	COMP	FUSED	MxL	MEAS-DATE	INSTR	INITIALS	MEAS-NOTES
TIB	RIGHT	NO	YES	180	10/25/2011	OMB	MB	Approximate measurement. Partial bone.
ULN	LEFT	NO	NOBS	170.5	10/25/2011	OMB	MB	Approximate measurement. Partial bone.
HUM	LEFT	NO	YES	230	10/25/2011	OMB	MB	Approximate measurement. Partial bone.
MC1	LEFT	NO	YES	39	10/25/2011	SLC	MB	Approximate measurement. Partial bone.
MC2	LEFT	NO	YES	57	10/25/2011	SLC	MB	Approximate measurement. Partial bone.
MC3	LEFT	NO	YES	50	10/25/2011	SLC	MB	Approximate measurement. Partial bone.
MC4	LEFT	NO	YES	57	10/25/2011	SCL	MB	Approximate measurement. Partial bone.
PHP-3	LEFT	YES	YES	41.15	10/25/2011	SLC	MB	Bone is complete
PHP-5	LEFT	YES	YES	30.24	10/25/2011	SLC	MB	Bone is complete.
PHP-UKN	SND	NO	NOBS	36	10/25/2011	SLC	MB	Approximate measurement. Partial bone.
PHP-UKN	LEFT	NO	YES	34	10/25/2011	SLC	MB	Approximate measurement. Partial bone.

Key: TIB=Tibia; ULN=Ulna; MC=Metacarpal; PHP= Proximal Hand Phalange; UKN=Unknown; COMP=Complete; MxL=Maximum Length; MEAS-DATE=Measurement Date; INSTR=Instrument; OMB=Osteometric Board; SLC=Sliding Caliper

Table 9: Stature Reconstruction

BONE	SIDE	MxL	FORMULA	AVG	HIGH	LOW	MEAS-NOTES
HUM	LEFT	230 <sup>1</sup>	3.08 (HUM)+64.67±4.25 <sup>2</sup>	147.06	151.31	142.81	Approximate stature in centimeters
				~4' 10"	~5' 0"	~4' 4"	Approximate stature in feet/inches <sup>3</sup>

<sup>1</sup>Note: MxL in millimeters converted to centimeters for formula; <sup>2</sup>Note: Formula is for female African Americans; <sup>3</sup>Note: stature is based on value rounded to nearest whole number

## COR4-2011-A1

### Overview

The skeletal material from COR4-2011-A1 (Bag 10) consists of a total of nine bones, seven cranial bones from a mostly complete cranium and two post-cranial long bones from the lower appendage of an adult individual of indeterminate sex, approximately 45 years in age. The remains were excavated on 10/17/2011 from the fill of the northern area of Operation 3 (Fig. 12). The individual bones of the cranium show some evidence of post-mortem damage in addition to the loss of the splanchnocranium (face) and basal cranium but are otherwise in fair to good condition. The two long bones, however, are in poor condition, missing large portions of the proximal and distal ends.

The relationship between the cranium and the long bones, other than being collected from the same fill, is not clear. Being that it could not be determined that the long bones did in fact belong to a separated individual, the MNI for COR4-2011-A1 will remain

at 1. Coffin hardware was recovered from the same trench, but the relationship to the skeletal material, if any, could not be established.

The relative completeness of the cranium did allow for some cranial measurements and estimation of ancestry, which suggested an individual of African American ancestry.

#### *Cranial Bone Inventory and Measurements*

All of the cranial bones were complete except for the right and left nasal bones and the occipital bone. The frontal bone suffered some post-mortem damage along the coronal suture, separating it from the left and right parietals. Fresh breaks in the region associated with the connection between the maxilla and the frontal bone and in the area between the zygomatic and the temporal are likely the cause for these missing elements (left and right zygomatic and maxilla). Extra sutural bone was identified within the left and right segments of the lambdoidal suture and within the right parietal notch.

The cranial index (CI=79.2) was calculated based on the maximum breadth and length of the cranium. The CI for COR4-2011-A1 is associated with a Mesocrany type skull (Bass 1995). As noted above, the frontal had been separated from the rest of the skull post-mortem. Therefore, during the measurement of the maximum cranial length the frontal bone had to be manually held into place.

#### *Post-Cranial Inventory and Measurements*

The two partial long bones from the lower appendage are in poor condition and not more than 50% complete (see Table 2). Maximum length measurement for the left femur (see Table 5) was estimated to be approximately 35.0 cm not taking into consideration the missing proximal and distal ends. The right tibia was not measured due to post-mortem damage.

#### *Age Determination*

The frontal bone and left and right parietal bones exhibit post-mortem breakage along the coronal suture. This region encompasses Bregma, one of the five points used in this method of age determination. There was, however, no significant damage to the region that would not allow for evaluation of the extent to which Bregma exhibited closure. All

sutures utilized for this method exhibited significant closure (see Table 3) returning a composite score of S4 (12-15) which translated into a mean age of 45.2 years of age.

### *Sex Determination*

All four cranial regions available for assessment returned mid-range scores of 3 (see Table 4). Of these areas, the glabella exhibited the most male-type morphology. In addition to these regions, the posterior zygomatic process did not significantly extend past the external auditory meatus, which is generally a female type characteristic. On the other hand, there is also some evidence of a sloped (rather than a vertical) frontal bone in the forehead region, which has been associated with male type crania. Based on the evaluation of all these regions, the sex of COR4-2011-A1 was considered indeterminate.

### *Ancestry*

Determination of ancestry was based on cranial morphology, which suggested but was not necessarily conclusive of an individual with African American ancestry. The diagnostic traits included a broad interorbital distance, low nasal bridge, and partial evidence of “Quinset Hut” type nasal bones and a wide nasal aperture (Klepinger 2006). The last two characteristics identified reflect partially complete regions. Other regions, including, suture typology and mastoid process morphology were evaluated. Sutures were not generally observable due to fusion and therefore not usable. The mastoid process of individuals with African American ancestry often has a posteriorly positioned tubercle, but this characteristic was not observed in COR4-2011-A1.

# COR4-2011-A1

Table 1: Cranial Bone Inventory

BONE	SIDE	COMP	PATH	CNT	COMM
FRO	L&R	1	NO	1	The frontal is complete. Both orbits are present and in good condition. The frontal was original fused to the left and right parietal but has since been damaged (separated).
ORB	Left	1	NO	1	The left orbit is mostly complete missing fragments. No pathology.
ORB	Right	1	NO	1	The right orbit is mostly complete missing only small fragments. No pathology.
PAR	Left	1	NO	1	The left parietal is complete and in good condition. No pathology.
PAR	Right	1	NO	1	The right parietal is complete and in good condition. No pathology.
OCC	L&R	1	NO	1	Bone is mostly complete missing both condyles and connection to the sphenoid.
TEM	Right	1	NO	1	Bone is complete and in good condition.
NAS	Left	3	NO	1	The left nasal bone is missing approximately 75%. It is fused to the frontal.
NAS	Right	3	NO	1	The right nasal is missing approximately 75% of the bone.

Key: OCC=Occipital; TEM=Temporal; MAN=Mandible; PAR=Parietal

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25%

Table 2: Long Bones

APPEND	BONE	SIDE	COMP	PATH	CNT	COMM
LO-LEG	TIB	Right	2	NO	1	Bone in poor condition missing the proximal and distal end.
UP-LEG	FEM	Left	2	NO	1	Bone in poor condition missing the proximal and distal ends in addition to segments of the shaft

Key: LO-LEG=Lower Leg; UP-LEG=Upper Leg; TIB=Tibia; FEM=Femur

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25% complete

Table 3: Age Determination –Cranial Sutures

LMLAM	LAM	V-OBE	ASAG	BRE	C- SCR	A-RANGE	MEAN	CNT	COMM
2	2	3	3	3	S4 (12-15)	24-75	45.2	1	Based on the closure of the vault sutures, this individual was approximately 45.2 years of age.

Key: LMLAM=Left Mid-Lambdoidal; LAM=Lambda; OBE=Obelion; ASAG=Anterior Sagittal; BRE=Bregma; C-SCR=Composite Score; A-Range=Age Range; CNT=Count

Table 4: Sex Determination

GLA	LSOM	RSOM	LMAP	RMAP	NUC	MEE	SEX	CNT	COMM
3	3	3	NOBS	3	3	NOBS	?	1	Sex determination based on skull morphology. Indeterminate.

Key: GLA=Glabella; L=Left; R=Right; SOM=Supra-Orbital Margin; MAP=Mastoid Process; NUC=Nuchal Crest; MEE=Mental Eminence; CNT=Count; NOBS=Not Observable

Scoring: 1=Female; 2=Female?; 3=?; 4=Male?; 5=Male

Table 5: Post-Cranial Measurements

BONE	SIDE	COMP	FUSED	MxL	MEAS-DATE	INSTR	INITIALS	MEAS-NOTES
FEM	LEFT	NO	NOBS	370	11/15/2011	OMB	MB	Approximate measurement accounting for bone shaft only

Key: FEM=Femur; COMP=Complete; MxL=Maximum Length; MEAS-DATE=Measurement Date; INSTR=Instrument; OMB=Osteometric Board

Table 6: Cranial Measurements

MEAS-TYPE	MEAS	MEAS-DATE	INSTR	INITIALS	MEAS-NOTES
MxCB	137	11/15/2011	SLC	MB	Measurement okay
MxCL	173	11/15/2011	SLC	MB	Bones manually held together for measurement.
INT-ORB-B	28.67	11/15/2011	SLC	MB	Approximate measurement – Post-mortem damage.
UP-FAC-B	103.84	11/15/2011	SLC	MB	Approximate measurement – Post-mortem damage.
MIN-FAC-B	94.95	11/15/2011	SLC	MB	Approximate measurement – Post-mortem damage.

Key: MEAS=Measurement; INSTR=Instrument; MxCB=Maximum Cranial Breadth; MxCL=Maximum Cranial Length; IN-ORB-B=Inter-Orbital Breadth; UP-FAC-B=Upper Facial Breadth; MIN-FAC-B=Minimum Facial Breadth; SLC=Sliding Calipers

## COR5-2011-A

(COR5-2011-A1 and COR5-2011-A2)

### *Overview (COR5-2011-A)*

COR5-2011-A (Bag 14) consists of a mixture of cranial and post-cranial human skeletal remains from at least two individuals excavated on 10/17/2011. The material was found in the form of a bone scatter in the fill at the western end of Operation 3. There were no associated artifacts and no indication of a proper grave cut.

A MNI of two was established for this material based on the presence of two very fragmented crania. As such, COR5-2011-A received two Sub-Specimen Numbers (COR5-2011-A1 and COR5-2011-A2). The post-cranial bones could belong to COR-2011-A1 or A2, or some or all of the non-cranial material could belong to additional individuals. This being said, the MNI will stand at 2 for this group of bones. Post-cranial material originally part of Bag 14 has been provisionally cataloged under COR5-2011-A2.

A total of 19 identifiable bones (cranial and post-cranial) were cataloged under COR5-2011-A in addition to 22 long bone fragments. While there was variation in the completeness and preservation of the material, it was found that all material suffered from post-mortem damage and was generally in fair to poor condition. Basic age and sex determination was possible for both individuals with varying specificity (see below); evaluation of ancestry and stature was not. No pathology was observed affecting any of the material from COR5-2011-A.

## COR5-2011-A1

All material associated with COR5-2011-A1 was in poor condition and post-mortem damage had fragmented much of the material making reconstruction difficult to impossible.

The partial cranium consisted of 7 bones. With the exception of the left zygomatic bone all other cranial material was found to be 25% or less complete.

Due to the highly fragmented state of the skeletal material from COR5-2011-A1, standard age determination was not possible. Based on thickness of bone and overall estimated size, however, it is not from a child (1-14) or an adolescent (15-17) and is therefore more likely to be from an individual above 18 years of age.

Of the five areas used for identifying biological sex, only one region, the mastoid process, was present. A female intermediate score (2) was achieved (see Chart X). As noted above, this designation must be viewed with caution due to the highly fragmented state of this material and the fact that only one region was available for assessment.

## *Post-Cranial Inventory and Measurements - See COR5-2011-A2*

### COR5-2011-A1

Table 1: Cranial Bone Inventory

BONE	SIDE	COMP	PATH	CNT	COMM
PAR	Right	4	NO	1	Fragment of the right parietal from the temporal region. Bone is in poor condition.
PAR	Left	4	NO	1	Bone in poor condition-less than 25% complete. Fragment from the temporal region.
OCC	L&R	4	NO	1	Bone is highly fragmented. This segment of occipital is represented by only a single apical bone (wormian bone). No other part of the occipital is present.
TEM	Right	2	NO	1	Bone is mostly complete missing part of the squama and the external surface of the mastoid process. The right greater wing is attached to the anterior temporal.
SPH-GW	Right	3	NO	1	Fragment of the right greater wing. Bone is attached to the right temporal bone.
ZYG	Left	2	NO	1	Bone in fair condition missing the arch. No evidence of any pathology.
MAX	Left	4	NO	1	Bone in poor condition. Fragment with partial sinus cavity only.

Key: OCC=Occipital; TEM=Temporal; PAR=Parietal; SPH-GW=Sphenoid-Greater Wing; MAX=Maxilla; PATH=Pathology; COMP=Complete; CNT=Count

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25% complete

Table 2: Sex Determination

GLA	LSOM	RSOM	LMAP	RMAP	NUC	MEE	SEX	CNT	COMM
NOBS	2	NOBS	NOBS	NOBS	NOBS	NOBS	FEMALE?	1	Sex determination based on skull morphology. Indeterminate Female type.

Key: GLA=Glabella; L=Left; R=Right; SOM=Supra-Orbital Margin; MAP=Mastoid Process; NUC=Nuchal Crest; MEE=Mental Eminence; CNT=Count; NOBS=Not Observable

Scoring: 1=Female; 2=Female?; 3=?; 4=Male?; 5=Male

## COR5-2011-A2

COR5-2011-A2 consists of a partial cranium of an adult individual and fragmentary post-cranial material. In total, 10 identifiable bones were cataloged. A total of 22 additional long bone fragments could not be identified to specific element due to post-mortem damage.

The partial cranium consists of only two bones: the partial left and right parietal fused along the sagittal suture. Both sides are in fair to poor condition missing over 50% of the bone. Age determination was based on ectocranial suture closure according to Lovejoy et al (1985). A composite score was not obtainable due to missing cranial components. Individual score for suture closure were taken three locations on the vault. These scores were then averaged. Based on this calculation the cranial material from COR5-2011-A2 was from an individual approximately 45 year old. This outcome must however be viewed with caution due to incompleteness of the vault.

As noted above, the non-cranial material could belong to either COR5-2011-A1 or A2 or neither. It consists of fragmentary remains of the vertebral column, pectoral girdle and upper and lower appendages. All material with the exception of the atlas vertebra is in poor condition. No measurements were taken due to the incompleteness of the long bones.

All of COR5-2011-A2 is highly fragmented and in poor condition, which prevented any significant reconstruction of the material. Sex determination was not obtainable. There was no evidence of pathology.

## COR5-2011-A2

Table 3: Cranial Bone Inventory

BONE	SIDE	COMP	PATH	CNT	COMM
PAR	Right	2	NO	1	Bone in poor condition missing approximately 50%. The right parietal is fused to the left. Sagittal suture almost completely fused suggesting that this individual is an adult.
PAR	Left	3	NO	1	Bone in poor condition missing fragments from the anterior portion and from the posterior 1/2. The ectocranial surface exhibits post-mortem damage. The sagittal suture is almost completely fused suggesting that this individual is an adult.

Key: PAR=Parietal; PATH=Pathology; COMP=Complete; CNT=Count

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25% complete

Table 4: Vertebra

BONE	COMP	PATH	CNT	COMM
CER1	1	NO	1	Atlas is complete and in good condition. Missing small fragments.
THR 2-9	2	NO	1	Mostly complete vertebra. Non-THR1-2, THR10-12. Bone not numerically identified. Bone does belong with the other 2 thoracic vertebrae from this specimen. No evidence of any pathology.
THR 2-9	2	NO	1	Mostly complete vertebra. Non-THR1-2, THR10-12. Bone not numerically identified. Bone does belong with the other 2 thoracic vertebrae from this specimen.
THR 2-9	2	NO	1	Mostly complete vertebra. Non-THR1-2, THR10-12. Bone not numerically identified. Bone does belong with the other 2 thoracic vertebrae from this specimen.

Key: CER=Cervical Vertebra; THR =Thoracic Vertebra; COMP=Complete; CNT=Count

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25% complete

Table 5: Pectoral Girdle

BONE	SIDE	COMP	PATH	CNT	COMM
SCA	Right	4	NO	1	Highly fragmented right scapula retaining only a fragment of the spine and inf-sup fossae.

Key: SCA=Scapula; PATH=Pathology; COMP=Complete; CNT=Count

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25% complete

Table 6: Long Bones

APPEND	BONE	SIDE	COMP	PATH	CNT	COMM
UP-ARM	HUM	Left	4	NO	1	Bone is highly fragmented. All that remains is a fragment from the distal shaft. Fragments from bag 14 are likely to have belonged to this bone.
UP-LEG	FEM	Left	3	NO	1	Bone is highly fragmented. Only proximal and mid shaft present.
LO-LEG	TIB	SND	4	NO	1	Bone is highly fragmented. Side determination not possible. Some of the fragments are likely to have gone with this bone.
LO-LEG	TIB	SND	4	NO	1	Bone is highly fragmented. Fragments from bage14 are likely to have belonged to this bone.
LO-LEG	FIB	Left	3	NO	1	Bone is highly fragmented. All that remains is the distal 1/3 of the bone. Bone is completely fused. Outer cortex in poor condition.

Key: LO-LEG=Lower Leg; UP-LEG=Upper Leg; UP-ARM=Upper Arm; TIB=Tibia; FEM=Femur; HUM=Humerus; PATH=Pathology;

COMP=Complete; CNT=Count

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25% complete

Table 7: Post-Cranial Measurements

BONE	SIDE	COMP	FUSED	MxL	MEAS-DATE	INSTR	INITIALS	MEAS-NOTES
FEM	LEFT	NO	NOBS	250	11/15/2011	OMB	MB	Approximate measurement only. Partial bone.

Key: FEM=Femur; COMP=Complete; MxL=Maximum Length; MEAS-DATE=Measurement Date; INSTR=Instrument; OMB=Osteometric Board

Table 8: Age Determination –Cranial Sutures

LMLAM	LAM	V-OBE	ASAG	BRE	C- SCR	A-RANGE	MEAN	CNT	COMM
NOBS	2	3	3	NOBS	NA	44.6-45.2	44.87	1	Composite score not applicable. Individual averages for suture points only. Range based on these scores only.

Key: LMLAM=Left Mid-Lambdoidal; LAM=Lambda; OBE=Obelion; ASAG=Anterior Sagittal; BRE=Bregma; C-SCR=Composite Score; A-Range=Age Range; CNT=Count; NOBS=Not Observable

Scoring: See Meindl and Lovejoy 1985.

## COR6-2011-A1

COR6-2011-A1 (Bag 6), consists of a single, incomplete left humerus in fair to poor condition, excavated on 10-15-2011 from the northern side of Operation 3. The bone was found loose in fill and there was no evidence of a grave cut or associated skeletal material.

The outer cortex of bone is damaged and flaking off, and it is missing the proximal and distal ends as a result of post-mortem damage. The preserved length was 25.6 cm. Based on overall size and evidence of fusion of the distal end, the bone was likely from a non-child/adolescent individual. The sex was indeterminate. No pathology or abnormality was observed.

## COR6-2011-A1

Table 1: Post-Cranial Inventory and Measurements

BONE	SIDE	COMP	FUSED	MxL	MEAS-DATE	INSTR	INITIALS	MEAS-NOTES
HUM	LEFT	NO	NOBS	256	12/6/2011	OMB	MB	Approximate measurement only. Partial bone.

Key: HUM=Humerus; COMP=Complete; MxL=Maximum Length; MEAS-DATE=Measurement Date; INSTR=Instrument; OMB=Osteometric Board; SLC=Sliding Caliper

Table 2: Stature Reconstruction

BONE	SIDE	MxL	FORMULA	AVG	HIGH	LOW	MEAS-NOTES
HUM	LEFT	256 <sup>1</sup>	3.08 (HUM)+64.67±4.25 <sup>2</sup>	151.218	155.468	146.968	Approximate stature in centimeters
				~5' 0"	~5' 1"	~4' 10"	Approximate stature in feet/inches <sup>3</sup>

<sup>1</sup>Note: MxL in millimeters converted to centimeters for formula (add 2.5 cm to this total); <sup>2</sup>Note: Formula is for female African Americans;

<sup>3</sup>Note: stature is based on value rounded to nearest whole number

## COR7-2011-A1

### Overview

COR7-2011-A1 (Bag 8) was recovered on 10-16-2011 in Trench 1 at a depth of 1.4 feet below surface in fill. It consists of a mixture of cranial, post-cranial skeletal, and dental material from the disturbed burial of at least one individual, probably a young adult or adult, judging by overall size, evidence of fusion, and bone thickness (non pathological). Except for the six teeth, which were in good condition, most of the material exhibited evidence of post-mortem damage and was in poor condition, therefore offering little diagnostic information. In addition to the skeletal remains, coffin nails were found. While the MNI (minimum number of individuals) is 1, the material from COR7-2011-A1 may actually represent multiple individuals.

### *Cranial, Post Cranial and Dental Material*

There were four fragmentary cranial bones. The nuchal crest of the occipital bone exhibited relatively gracile morphology (score 2), suggesting a more female typology. But the lack of other diagnostic material does not permit definitive identification of sex.

Except for two phalanges, all post-cranial material was also fragmentary, exhibiting evidence of post-mortem damage. Material from the pectoral girdle and pelvic girdle were present, as well as a few partial ribs and incomplete long bones. Maximum length measurements were taken but it was not possible to reconstruct height.

The dental material consisted of six loose teeth. The lack of a maxilla and the post-mortem damage to the mandible made direct connection impossible. All teeth exhibited some evidence of pathology.

### *Bone Pathology Assessment*

Abnormal bone growth was identified on the inferior surface of the right clavicle (Fig. 28. E). within the area of the attachment for the conoid ligament (both branches). There is no evidence of active (woven) bone present. The growth is in the form of a pedestal that extends approximately 0.5 cm outward from the surrounding normal bone, with the flat surface of the pedestal measuring approximately 1.25 cm anterior-posterior by 2.5 cm medial-lateral.

The presence of this abnormal bone growth could be related to the formation of a pseudo-joint between the clavicle and the coracoid process of the scapula. While this type of abnormality has been reported as having a congenital origin and being bilateral (Faraj 2003), the left clavicle associated with COR7-2011-A1 does not exhibit evidence of abnormal bone growth in the specific area. It is noted, however, that the coracoclavicular region of the left clavicle is incomplete and therefore cannot be fully assessed. Moreover, the lack of the associated scapular region (coracoid process) does not allow complete assessment of the potential coracoclavicular pseudo-joint.

### *Dental Pathology Assessment*

All the teeth displayed evidence of calculus, while one exhibited hypoplastic defects and one tooth displayed early evidence of caries formation. Minimal dental wear, while not necessarily pathological in origin, was observed on all teeth.

Calculus, or mineralized plaque, was recorded based on standards developed by Brothwell (1981). Deposits affecting these six teeth exhibit little variation in terms of quantity with the majority of surfaces showing moderate to heavy amounts of calculus up to a thickness of approximately 0.1 cm. (Fig. 28. D). Five of the six teeth displayed calculus at and or below the CEJ which is suggestive of periodontitis.

Enamel hypoplasia resulting from reduced production of enamel during tooth development often forms as abnormal linear groves on the external surface of the tooth (Hilson 1995). These defects represent periods of non-specific stress during the growth and development of the enamel. Two linear enamel hypoplasias were found on one tooth. Measurements were made using a sliding digital caliper (to .01 mm) from the hypoplastic line to the CEJ on the BUC/LAB surface of the tooth. Identification of the age at which the defects occurred is possible under specific circumstances (Hilson 1995, 2005) allowing for a more thorough interpretation of potential etiology (i.e. weaning). The lack of comparative collections and unworn teeth make specific age-defect correlation impossible. It is important, however, to note that this individual survived multiple period of extended stress.

One pin prick size lesion was found on the distal surface of one unidentified pre-molar.

Dental wear was minimal. Scoring for attrition is based on standards found in Buikstra and Ubelaker (1994). All teeth exhibited scores of 1. While no dentine was exposed, evidence for blunting of the pre-molar cusps was present.

## COR7-2011-A1

Table 1: Cranial Bone Inventory

BONE	SIDE	COMP	PATH	CNT	COMM
OCC	L&R	4	NO	1	Bone in poor condition. The medial section is the only portion present.
TEM	Left	4	NO	1	Bone is represented by a fragment of the petrous pyramid. No evidence of pathology.
MAN	L&R	3	NO	1	Very fragmented remains of the mandible - approximately 25% complete. Fragments of the anterior section and body of the left and right side. No evidence of any pathology.
PAR	Right	4	NO	1	Bone in poor condition missing more than 75%. All that remains is a small fragment from the posterior section on the parietal with partial lambdoidal suture present. Direct connection with the small section of right lambdoidal suture on the occipital.

Key: OCC=Occipital; TEM=Temporal; MAN=Mandible; PAR=Parietal

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=&lt;25% complete

Table 2: Dental Inventory

D-Type	T-Type	T#	Path	CAR	CAL	HYP	W	CNT	Notes
MAND	IN	23	Yes	No	Yes	No	Yes	1	Tooth in good condition. Minimal wear. Evidence of heavy calculus build-up on 3 of the 5 surfaces.
MAND	PM	21	Yes	No	Yes	No	Yes	1	Tooth in good condition with evidence of calculus on all surfaces. Minimal wear.
MAND	CA	27	Yes	No	Yes	Yes	Yes	1	Tooth in good condition with evidence of calculus and hypoplasia. Minimal wear.
MAX	CA	11	Yes	No	Yes	No	Yes	1	Tooth in good condition. Minimal calculus present on all surfaces except for the occlusal surface. Minimal wear.
MAND	PM	29	Yes	No	Yes	No	Yes	1	Tooth in good condition. Minimal to heavy calculus present. Minimal wear.
MAX	PM	UKN	Yes	Yes	Yes	No	Yes	1	Tooth in good condition. Evidence of early caries (pin pricks) on the mesial and distal surfaces. Heavy calculus on the lingual surface. Double root. Minimal wear.

Key: D-Type=Dentition Type; T-Type=Tooth Type; T#=Tooth Number; Path=Pathology; CAR=Caries; CAL=Calculus; HYP=Hypoplasia; W=Wear; CNT=Count; IN=Incisor; CA=Canine; PM=Pre-Molar; M=Molar

Table 3: Pectoral Girdle/Pelvic Girdle/Ribs/Patella

BONE	SIDE	COMP	PATH	CNT	COMM
CLA	Right	2	YES	1	Bone is partial missing the medial and lateral ends. Pathology affects the lateral 1/2 of the bone.
CLA	Left	3	NO	1	Bone consists of a partial shaft missing portions of the medial and lateral shaft in addition to the medial and lateral ends.
SCA	SND	4	NO	1	Bone in poor condition. Only small fragment of the spine remains.
RIB	Left	Shaft	NO	3	MNI for ribs =3 plus 7 additional fragments
ISCH	Left	3	NO	1	Bone in poor condition. Fragment of the acetabular region of the ischium only
PAT	Right	1	NO	1	Bone is complete and in good condition. No pathology

Key: CLA=Clavicle; SCA=Scapula; ISCH=Ischium; PAT=Patella; SND=Side Not Determined

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=&lt;25% complete

Table 4: Long Bones

APPEND	BONE	SIDE	COMP	PATH	CNT	COMM
LO-LEG	TIB	Right	2	NO	1	Bone in poor condition missing the proximal and distal end. No pathology.
UP-LEG	FEM	Right	4	NO	1	Bone in poor condition missing all except for a fragment of the distal end.

Key: LO-LEG=Lower Leg; UP-LEG=Upper Leg; TIB=Tibia; FEM=Femur

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=&lt;25% complete

Table 5: Phalanges

BONE	PHAL#	SIDE	COMP	CNT	COMM
PHP	3	Right	1	1	Bone is complete and in good condition. No evidence of any pathology
PFP	2	Right	1	1	Bone is complete. No evidence of pathology.

Key: PHP= Proximal Hand Phalange; PFP=Proximal Foot Phalange; PHAL#=Phalange Number  
Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25% complete

Table 6: Post-Cranial Measurements

BONE	SIDE	COMP	FUSED	MxL	MEAS-DATE	INSTR	MEAS-NOTES
TIB	RIGHT	NO	NOBS	270	1/12/2011	OMB	Bone missing the proximal and distal ends. Approximate measurement of shaft only
CLA	RIGHT	NO	NOBS	120	1-12-2012	SLC	Approximate measurement accounting for shaft only.
PHP-3	RIGHT	YES	YES	41.15	1/12/2012	SLC	Complete bone.
PFP-2	RIGHT	YES	YES	30.24	1/12/2012	SLC	Bone is complete.

Key: TIB=Tibia CLA=Clavicle; PHP= Proximal Hand Phalange; PFP=Proximal Foot Phalange; COMP=Complete; MxL=Maximum Length; MEAS-DATE=Measurement Date; INSTR=Instrument; OMB=Osteometric Board; SLC=Sliding Caliper

Table 7: Sex Determination

GLA	LSOM	RSOM	LMAP	RMAP	NUC	MEE	SEX	CNT	COMM
NOBS	NOBS	NOBS	NOBS	NOBS	2	NOBS	FEMALE?	1	Sex based on skull morphology. Possible Female.

Key: GLA=Glabella; L=Left; R=Right; SOM=Supra-Orbital Margin; MAP=Mastoid Process; NUC=Nuchal Crest; MEE=Mental Eminence; CNT=Count; NOBS=Not Observable

Table 8: Calculus

T#	OCCL	DIST	MESI	LING	BUC/LAB	SUR-A	SUR-OBS	CAL Notes
23	0	3	3	3	2	4	5	Calculus found all surfaces except the occlusal. Calculus at and below the CEJ
21	1	3	2	3	2	5	5	Calculus on all surfaces and at and below the CEJ
27	0	3	2	2	2	4	5	Moderate calculus on 4 of the 5 surfaces. Calculus below the CEJ.
11	0	1	1	1	2	4	5	Minimal calculus on three surfaces. Calculus at and below the CEJ.
29	1	2	3	2	1	5	5	Moderate calculus present on most surfaces. Evidence of calculus below the CEJ.
UKN	1	1	1	2	1	5	5	Minimal calculus present.

Key: T#=Tooth Number; Occl=Occlusal Surface; Dist=Distal Surface; Mes=Mesial Surface; Ling=Lingual Surface; Buc/Lab=Buccal/Labial; SUR-A=Surfaces Affected; SUR-OBS=Surfaces Observed

Table 9: Hypoplasia

T#	HYPO	LEH	LEH-LOC	LEH-CNT	LEH1-M1	LEH2-M1	Hypoplasia Notes
27	Yes	Yes	BUC/LAB	2	2.13	2.84	Two hypoplastic defects on the Buc/Lab surface.

Key: T#=Tooth Number; HYPO=Hypoplasia; LEH=Linear Enamel Hypoplasia; LEH-CNT=Linear Enamel Hypoplasia Count; LEH1-M1/2=Linear Enamel Hypoplasia - Measurement 1;2

## COR8-2011-A1

COR8-2011-A1 (Bag 4) consists of two small long bone fragments recovered on 10/15/2011 from sifting at the base slope that contained material from COR2-2011-A1. This was on the northern side of Operation 3. The MNI is zero for this material as it is

possible that it belongs with COR2-2011-A1. Both bones are in poor condition and offer no diagnostic information.

#### COR9-2011-A1 (Q-11-4385-1)

This material, consisting of the distal third of a left femur, was excavated by the Office of the Medical Examiner (OME) on 10/5/2011. According to the report and map filed by the OME's office, the femur was located on the surface approximately nine meters to the west of the body associated with the iron coffin and approximately one meter east of an *in situ* concentration of bones (Figure 3 in OME report). COR7-2011-A1 (Bag 8) was excavated between three and five meters south of COR9-2011-A1. There is however no observable relationship between the material recovered by the OME or COR7-2011-A1 and COR9-2011-A1. The MNI for COR9-2011-A1 is one.

Complete fusion in addition to arthritic changes affecting the distal epiphysis suggest that this distal femur was from a non-adolescent, probably from an individual above 18 years of age. Sex was indeterminate.

The left femur exhibits abnormal bone growth at the borders of the distal articular surface (Fig. 28. F). In addition, both the left and right femoral condyles display marginal lipping affecting the medial and lateral borders of the joint surface. No eburnation or abnormal porosity however was observed. This individual suffered from joint disease affecting the distal articular surface of the femur.

Table 1: Long Bones

APPEND	BONE	SIDE	COMP	PATH	CNT	COMM
UP-LEG	FEM	LEFT	3	YES	1	The left femur is in poor condition, missing the proximal ¾. Distal epiphysis complete and fused. Abnormal bone growth present.

Key: UP-LEG=Upper Leg; FEM=Femur

Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25% complete

Table 2: Post-Cranial Measurements

BONE	SIDE	COM	FUSED	MxL	MEAS-DATE	INSTR	INITIALS	MEAS-NOTES
FEM	LEFT	NO	NOBS	143	2/1/2012	OMB	MB	Approximate measurement accounting for bone shaft and distal epiphysis

Key: FEM=Femur; COM=Complete; MxL=Maximum Length; NOBS=Not Observable; MEAS-DATE=Measurement Date; INSTR=Instrument; OMB=Osteometric Board

## COR10-2011-A1 (Q-11-4385-10)

COR10-2011-A1 (Q-11-4385-10) consists of the shaft of a radius or ulna from a non-child individual of indeterminate sex. This bone was recovered by the OME on 10/5/2011 from the surface approximately 7.5 meters south and down the slope from COR2-2011-A1. The bone is in poor condition missing fragments from the proximal and distal ends as well as fragments from the outer cortex. Thus, no information regarding sex, ancestry, stature or pathology could be extracted.

## COR10-2011-A1

Table 1: Long Bones

APPEND	BONE	SIDE	COMP	PATH	CNT	COMM
LO-ARM	UKN-LB	SND	3	NO	1	Bone in poor condition missing the most of the proximal and distal shaft and cortex and all of both epiphyses.

Key: COMP=Complete; PATH=Pathology; CNT=Count; LO-ARM=Lower Arm; UKN-LB=Unknown Long Bone; SND=Side Not Determined  
Scoring: 1=75%-100% complete; 2=50%-75% complete; 3=25%-50% complete; 4=<25% complete

Table 2: Post-Cranial Measurements

BONE	SIDE	COMP	FUSED	MxL <sup>1</sup>	MEAS-DATE	INSTR	INITIALS	MEAS-NOTES
UNK-LB	SND	NO	NOBS	104.5	2/1/2012	OMB	MB	Bone is incomplete. Measurement affected.

Key: COMP=Complete; MxL=Maximum Length; MEAS-DATE=Measurement Date; INSTR=Instrument; UKN-LB=Unknown Long Bone; SND=Side Not Determined; NOBS=Not Observable; OMB=Osteometric Board

<sup>1</sup>Note: All measurements are in millimeters.

## VIII. CONCLUSIONS AND RECOMMENDATIONS

Having carefully excavated the areas of flagged remains in Operation areas 1 and 2 and sifted the soils in their vicinity, we excavated Operation areas 3 through 5 thoroughly to virgin soil at a depth of between ten and twelve feet. Only a small number of human remains were recovered. One *in situ* interment, Burial 3, was in a very fragmentary condition. One humerus, a skull, and coffin hardware were found on the west edge of Operation 3.

According to the osteological analysis, the 125 bones collected represent a minimum of nine adults over 16 years old, two possibly female, and one possibly male. Aside from osteoarthritis in four individuals, there was no evidence of any severe pathological conditions. The fragmentary nature of the material did not allow the determination race.

The marble tombstones, fine buttons associated with burial 3, and the coffin handles found in the fill, reflect the elaborate funeral rituals typical of the Victorian era, which were practiced over a wide socioeconomic and racial spectrum. The most historically significant finds were the tombstone fragments of Nicholas Coles and possibly also of his wife Sarah, although the latter's last name is not preserved. Nicholas may have been related to the "Coles" who is recorded as one of the church's founders (see Section 2, above).

In general, the backhoe trenches revealed that the former cemetery area investigated in the Phase 1 excavations had been severely impacted by construction, probably in two episodes. The first could have occurred in the 1940s, when the three- and two-story buildings in this part of the lot were erected, the second, during the past four years when the deep trench was excavated. As the phase I area has now been thoroughly investigated, this report concludes that no further archaeological testing in this area is necessary, and recommends that phase 1 of the archaeological testing of lot 10 be considered completed.

It should be stressed, however, that *in situ* burials may well be preserved in the remaining part of lot 10, north and west of the area tested in phase 1. We intend to test this area in phase 2 (aside from the former parking lot, which was tested in 2007 and proved sterile). The phase 2 area was not impacted by construction except for a one-story building without a basement. We recommend that a GPR survey be conducted as part of the phase 2 investigation, prior to archaeological testing by backhoe trenching and excavation by hand, where indicated.

## IX. BIBLIOGRAPHY

Allen, Dan Sumner. 2002. The Mason Coffins: Metallic Burial Cases in the Central South. South Central Historical Archaeology Conference Sept.20-22, 2002, Jackson, Mississippi.

Bass W. 2005. *Human Osteology: A Laboratory and Field Manual*. 5<sup>th</sup> Edition. Missouri Archaeological Society.

Bell, Edward L. 1990. The Historical Archaeology of Mortuary Behavior: Coffin hardware from Uxbridge, Massachusetts. *Historical Archaeology* 24(3): 54-78

Bergoffen, C.J. 2007. *Phase IB Archaeological Field Testing 90-15 Corona Avenue, Block 1586, Lot 10, Borough of Queens, New York*. Prepared for Jerry Kahen, Principal, Corona Group LLC.

Bergoffen C.J. 2011. Scope for archaeological testing of 90-15 Corona Avenue submitted to the Landmarks Preservation Commission, Oct. 11, 2011.

Brothwell D. 1981. *Digging up Bones*. Cornell University Press. 3<sup>rd</sup> Edition. Ithaca, New York

Buikstra J and Ubelaker D. 1994. *Standards for Data Collection from Human Remains*. Arkansas Archaeological Survey Research Series No. 44. Fayetteville, AK. Arkansas Archaeological Society.

Evolution 1906:

n.a. 1906. Evolution of Metallic Caskets... *The Sunnyside*, Vol. XXXVI, No. 10, Oct. 15, 1906.

Faraj A. A. 2003. Bilateral Congenital Coracoclavicular Joint: Case Report and Review of Literature. *Acta Orthopaedica Belgica*. Vol. 69. 552-554

Habenstein, R.W. and Lamers, W.M. 1962. *The History of American Funeral Directing*. Revised ed. Milwaukee: Bulfin Printers.

Hillson S. 1996. *Dental Anthropology*. Cambridge University Press.

JAMAC 2006. Mclean, Jo-Ann. *Phase Ia Archaeological Investigation – Documentary Research and Sensitivity Assessment of the 90-15 Corona Avenue Project Area, Elmhurst, Borough of Queens, New York City*.

Klepinger L. 2006. *Fundamentals of Forensic Anthropology*. Wiley-Liss.

McLean J. 2006. *Phase 1a Archaeological Investigation-Documentary Research and Sensitivity Assessment of the 90-15 Corona Avenue Project Area, Elmhurst, Borough of Queens, New York City*.

Medical and Surgical Reporter. 1877. "Dangers from the Dead". *The Casket; a Journal Devoted to the Interests of Funeral Directors*.

Meindl R. and Lovejoy O. 1985. Ectocranial Suture Closure: A Revised Method of for Determination of Skeletal Age at Death Based on the Lateral Anterior Sutures. *American Journal of Physical Anthropology*. Vol. 68. No. 1. 55-66.

Ortner D. J. 2003. *Identification of Pathological Conditions in Human Skeletal Remains*. 2<sup>nd</sup> Edition. Academic Press. New York.

Sanborn 1914. *Sanborn Atlas of New York City*. Vol. 10, pl. 59.

Pye, J. 2010. Typology and Analysis of Burial Container Hardware Recovered from the Excavation of Rambo Cemetery, Rome, Georgia. Archaeological report Prepared for: Mr. Mike Reynolds Brockington and Associates, Inc.

Scheuer L. and Black S. 2000. *Developmental Juvenile Osteology*. Academic Press. New York.

Seyfried, V. F. 1995. *Elmhurst, From Town Seat to Mega-Suburb*. Queens Community Series.  
Waldron T. 2009. *Paleopathology*. Cambridge University Press.

Walker P. 2008. Bioarchaeological Ethics: A Historical Perspective on the Value of Human Remains. In: *Biological Anthropology of the Human Skeleton*. Katzenburg, M. and Saunders, S., eds. Wiley-Liss.

United States Federal Census 1880.

Warnasch S. 2011. Forensic Report for 90-15 Corona Avenue, Elmhurst, Queens, New York. Office of the Medical Examiner.

Wescott et. al. 2010:

Wescott, D. J., Brinsko, I., Faerman, M., Golda, S.D., Nichols, J., Spigelman, M., Stewart, B., Streeter, M., Tykot, R.H. and L. Zamstein. 2010. A Fisk patent metallic burial case from Western Missouri: an interdisciplinary and comprehensive effort to reconstruct the history of an early settler of Lexington, Missouri. *Archaeological and Anthropological Sciences* 2: 283-305.

White T. 2000. *Human Osteology*. 2<sup>nd</sup> Edition. Academic Press.

www.saa.org . Society of American Archaeology Statement Concerning the Treatment of Human Remains.

## APPENDIX A: SAMPLE RESULTS OF BONE ANALYSES, Matthew Brown

### SAMPLE RESULTS

Table 1: Specimen Inventory – Sample Results

INV	SP#	SubSP#	MedEx ID#	MNI
COR1-2011 <sup>1</sup>	COR1-2011-A <sup>1</sup>	COR1-2011-A1 <sup>1</sup>	NA	NA <sup>2</sup>
COR2-2011	COR2-2011-A	COR2-2011-A1	<sup>1</sup> Q-11-4385-5-8	1
COR3-2011	COR3-2011-A	COR3-2011-A1	NA	1
COR4-2011	COR4-2011-A	COR4-2011-A1	NA	1
COR5-2011	COR5-2011-A	COR5-2011-A1	NA	1
COR5-2011	COR5-2011-A	COR5-2011-A2	NA	1
COR6-2011	COR6-2011-A	COR6-2011-A1	NA	1
COR7-2011	COR7-2011-A	COR7-2011-A1	NA	1
COR8-2011	COR8-2011-A	COR8-2011-A1	NA	0
COR9-2011	COR9-2011-A	COR9-2011-A1	Q-11-4385-1	1
COR10-2011	COR10-2011-A	COR10-2011-A1	Q-11-4385-10	1
TOTALS				9

<sup>1</sup>Note: Explanation of the Identification Numbers is as follows:

COR=Corona; 1,2...,10=consecutive inventory numbers have no relationship to burial numbers, bag numbers (non-M.E.) or other site specific contextual information; 2011=Year of Excavation; A=represents a group of skeletal remains regardless of MNI; A1,2...=Identifies separate individuals found in the same group of bones; Q-11-4385=Number of M.E. the numbers following (1,2...10) represent the bag numbers assigned by the M.E. only.

<sup>2</sup>Note: COR1-2011-A1 represents the mummified remains from the iron coffin. The individual while constituting an MNI of 1, was not part of this report and therefore was not counted in the MNI for the skeletal material.

Table 2: Determination of Sex – Sample Results

SubSP#	MedEx ID#	SEX DETERMINATION	SKULL-SEX DETERMINATION	SEX DETERMINATION COMPOSITE	CNT
COR1-2011-A1		OTHER	NA	NA	NA
COR2-2011-A1	Q-11-4385-5-8	NO	NA	NA	1
COR3-2011-A1		YES	YES	FEMALE?	1
COR4-2011-A1		YES	YES	?	1
COR5-2011-A2		NO	NA	NA	1
COR5-2011-A1		YES	YES	FEMALE?	1
COR6-2011-A1		NO	NA	NA	1
COR272011-A1		YES	YES	MALE?	1
COR8-2011-A1		NO	NA	NA	0
COR9-2011-A1	Q-11-4385-1	NO	NA	NA	1
COR10-2011-A1	Q-11-4385-10	NO	NA	NA	1

Table 3: Determination of Age – Sample Results

SubSP#	MedEx ID#	COMPOSITE-AGE	CNT
COR1-2011-A1		NA	1
COR2-2011-A1	Q-11-4385-5-8	18+	1
COR3-2011-A1		25+	1
COR4-2011-A1		45.2	1
COR5-2011-A1		17+	1
COR5-2011-A2		44.87	1
COR6-2011-A1		16+	1
COR7-2011-A1		17+	1
COR8-2011-A1		NA	0
COR9-2011-A1	Q-11-4385-1	OTH	1
COR10-2011-A1	Q-11-4385-10	12+	1

Table 4: Cranial Bones – Sample Results

SubSP#	BONE	SIDE	COMP	PATH	CNT
COR3-2011-A1	PAR	Right	2	NO	1
COR3-2011-A1	OCC	L&R	1	NO	1
COR3-2011-A1	TEM	Right	1	NO	1
COR3-2011-A1	SPH-GW	Right	2	NO	1
COR3-2011-A1	MAX	L&R	3	NO	1
COR3-2011-A1	MAN	L&R	2	NO	1
COR4-2011-A1	FRO	L&R	1	NO	1
COR4-2011-A1	ORB	Left	1	NO	1
COR4-2011-A1	ORB	Right	1	NO	1
COR4-2011-A1	PAR	Left	1	NO	1
COR4-2011-A1	PAR	Right	1	NO	1
COR4-2011-A1	OCC	L&R	1	NO	1
COR4-2011-A1	TEM	Right	1	NO	1
COR4-2011-A1	NAS	Left	3	NO	1
COR4-2011-A1	NAS	Right	3	NO	1
COR5-2011-A1	PAR	Left	4	NO	1
COR5-2011-A1	PAR	Right	4	NO	1
COR5-2011-A1	OCC	L&R	4	NO	1
COR5-2011-A1	SPH	Right	3	NO	1
COR5-2011-A1	TEM	Right	2	NO	1
COR5-2011-A1	ZYG	Left	2	NO	1
COR5-2011-A1	MAX	Right	4	NO	1
COR5-2011-A2	PAR	Left	2	NO	1
COR5-2011-A2	PAR	Right	3	NO	1
COR7-2011-A1	OCC	L&R	4	NO	1
COR7-2011-A1	TEM	Left	4	NO	1
COR7-2011-A1	MAN	L&R	3	NO	1
COR7-2011-A1	PAR	Right	4	NO	1
TOTALS					26 <sup>1</sup>

Table 5: Long Bones – Sample Results

SubSP#	APPEND	BONE	SIDE	COMP	PATH	CNT
COR2-2011-A1	UP-ARM	HUM	Left	3	NO	1
COR2-2011-A1	UP-ARM	HUM	Right	1	NO	1
COR2-2011-A1	UP-ARM	RAD	Right	1	NO	1
COR2-2011-A1	UP-ARM	ULN	Right	1	NO	1
COR2-2011-A1	LO-LEG	FIB	Right	4	NO	1
COR3-2011-A1	UP-ARM	HUM	Left	2	NO	1
COR3-2011-A1	LO-ARM	ULN	Left	2	NO	1
COR3-2011-A1	LO-ARM	ULN	Right	3	?	1
COR3-2011-A1	LO-ARM	RAD	Left	2	NO	1
COR3-2011-A1	LO-LEG	TIB	Right	3	NO	1
COR3-2011-A1	LO-LEG	TIB	Left	4	NO	1
COR4-2011-A1	UP-LEG	FEM	Left	2	NO	1
COR4-2011-A1	LO-LEG	TIB	Right	3	NO	1
COR5-2011-A2	UP-LEG	FEM	Left	3	NO	1
COR5-2011-A2	LO-LEG	FIB	Left	3	NO	1
COR5-2011-A2	LO-LEG	TIB	UKN	4	NO	1
COR5-2011-A2	UP-ARM	HUM	Left	4	NO	1
COR5-2011-A2	LO-LEG	TIB	UKN	4	NO	1
COR6-2011-A1	UP-ARM	HUM	Left	2	NO	1
COR7-2011-A1	LO-LEG	TIB	Right	2	NO	1
COR7-2011-A1	UP-LEG	FEM	Right	4	NO	1
COR8-2011-A1	UKN	UKN-LB	UKN	4	NO	1 <sup>2</sup>
COR9-2011-A1	UP-LEG	FEM	Left	3	YES	1
COR10-2011-A1	LO-ARM	UKN-LB	UKN	3	NA	1
TOTALS						23

<sup>1</sup>Total does not include Orbits as they are not individual bones; <sup>2</sup>Not counted in total-could belong to COR2-2011-A1

Table 6: Pectoral Girdle (Scapula &amp; Clavicle) – Sample Results

SubSP#	MedEx ID#	BONE	SIDE	COMP	PATH	CNT
COR2-2011-A1	Q-11-4385-7	SCA	?	4	NO	1
COR3-2011-A1		SCA	Left	4	NO	1
COR3-2011-A1		CLA	Left	3	NO	1
COR3-2011-A1		CLA	Right	3	NO	1
COR5-2011-A2		SCA	Right	4	NO	1
COR7-2011-A1		SCA	?	4	NO	1
COR7-2011-A1		CLA	Right	2	YES	1
COR7-2011-A1		CLA	Left	2	NO	1
TOTALS						8

Table 7: Ribs/Patella/Pelvis – Sample Results

SubSP#	MedEx ID#	BONE	SIDE	COMP	END	PATH	CNT
COR2-2011-A1		R3-10	?	NA	SHA	NO	2
COR2-2011-A1	Q-11-4385-7	R3-10	Right	NA	SHA	NO	2
COR7-2011-A1		R3-10	Left	NA	SHA	NO	3
COR7-2011-A1		ISCH	Left	3	NA	NO	1
COR7-2011-A1		PAT	Right	1	NA	NO	1
TOTALS							9

Table 8: Vertebrae – Sample Results

SubSP#	MedEx ID#	BONE	COMP	PATH	CNT
COR2-2011-A1		10	3	YES	1
COR2-2011-A1	Q-11-4385-7	LUM-UKN	4	YES	1
COR2-2011-A1		LUM-UKN	4	YES	1
COR3-2011-A1		3	2	YES	1
COR3-2011-A1		4	2	YES	1
COR3-2011-A1		5	2	YES	1
COR3-2011-A1		THR-UKN	4	NO	4
COR3-2011-A1		LUM-UKN	4	NO	2
COR5-2011-A2		1	1	NO	1
COR5-2011-A2		THR 2-9	2	NO	1
COR5-2011-A2		THR 2-9	2	NO	1
COR5-2011-A2		THR 2-9	2	NO	1
TOTALS					16

Table 9: Metacarpal/Metatarsal/Tarsal – Sample Results

SubSP#	MedEx ID#	BONE	SIDE	COMP	PATH	CNT
COR2-2011-A1	Q-11-4385-7	MC3	Left	1	NO	1
COR2-2011-A1	Q-11-4385-7	MC4	Left	1	NO	1
COR2-2011-A1		MT1	Right	1	YES	1
COR2-2011-A1		MT2	Right	1	YES	1
COR2-2011-A1		MT3	Right	1	YES	1
COR2-2011-A1		MT4	Right	2	NO	1
COR2-2011-A1		MT5	Right	1	NO	1
COR2-2011-A1	Q-11-4385-5	MT4	Left	1	YES	1
COR2-2011-A1		CAL	Right	1	NO	1
COR2-2011-A1		TAL	Right	1	NO	1
COR2-2011-A1		NAV	Right	1	NO	1
COR2-2011-A1		CUB	Right	1	NO	1
COR2-2011-A1		CUN1	Right	1	NO	1
COR2-2011-A1		CUN2	Right	1	NO	1
COR2-2011-A1		CUN3	Right	1	NO	1
COR3-2011-A1		MC2	Left	2	NO	1
COR3-2011-A1		MC3	Left	2	NO	1
COR3-2011-A1		MC4	Left	2	NO	1
COR3-2011-A1		MC1	Left	2	NO	1
TOTALS						19

Table 10: Phalanges (Hand and Foot) – Sample Results

SubSP#	MedEx ID#	BONE	PHALANGE NUMBER	SIDE	COMP	PATH	CNT
COR2-2011-A1	Q-11-4385-5	PFP	1	Left	1	NO	1
COR2-2011-A1		PHP	1	Right	1	NO	1
COR2-2011-A1		PFP	1	Right	1	YES	1
COR2-2011-A1	Q-11-4385-7	PHP	2	Left	1	NO	1
COR2-2011-A1		PFP	2	Right	1	NO	1
COR2-2011-A1	Q-11-4385-7	PHP	3	Left	1	NO	1
COR2-2011-A1		PFP	3	Right	1	NO	1
COR2-2011-A1		PFI	3	Right	1	YES	1
COR2-2011-A1		PHI	3	Right	1	YES	1
COR2-2011-A1		PHD	3	Right	1	YES	1
COR2-2011-A1	Q-11-4385-7	PHP	4	Left	1	NO	1
COR2-2011-A1		PFP	4	Right	1	NO	1
COR2-2011-A1	Q-11-4385-7	PHP	5	Left	1	NO	1
COR2-2011-A1	Q-11-4385-7	PHD	UKN	?	1	NO	1
COR2-2011-A1		PHI	UKN	?	4	NO	1
COR2-2011-A1		PHI	UKN	?	3	NO	1
COR3-2011-A1		PHP	3	Left	1	NO	1
COR3-2011-A1		PHP	5	Left	1	NO	1
COR3-2011-A1		PHP	UKN	Left	2	YES	1
COR3-2011-A1		PHP	UKN	?	2	NO	1
COR7-2011-A1		PFP	2	Right	1	NO	1
COR7-2011-A1		PHP	3	Right	1	NO	1
TOTALS							22



## OFFICE OF CHIEF MEDICAL EXAMINER

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**Q-11-4385**

**Not Forensically Significant**

### BACKGROUND:

On Wednesday, 5 October 2011, Mr. Scott Warnasch, Mr. Christopher Rainwater, and Miss Victoria Dominguez of the Forensic Anthropology Unit (FAU) of the Office of Chief Medical Examiner responded to the scene of a body reportedly exposed during construction excavation at 90-15 Corona Avenue in Queens. The team arrived on scene at approximately 9:45 AM and was met by Police Officer Vacchio. The area of investigation was located at the south and west end of a large, irregular-shaped lot and consisted of a level, unpaved section surrounding the deep, rectangular building footprint along Corona Ave and 90<sup>th</sup> Street (Figure 1).

### SUMMARY:

The members of the FAU surveyed the construction area and discovered the body of an adult in supine position, surrounded and covered by metal coffin fragments and soil (Figure 2). The body was located in a cut in the dirt embankment approximately six feet below ground surface (Figures 3 and 4). It was evident that the body had been contained in a metal coffin, which had been broken as a result of construction excavation.

Based on the coffin fragments, it was determined that they were likely from a mummiform iron coffin. The mummiform coffin appeared to be a Fisk-patented Metallic Burial Case, manufactured in Queens between 1848 and 1854 (Habenstein and Lamers 1956). Information provided by Amanda Sutphin of the New York City Landmarks Commission confirmed that the property was used as an African American cemetery from 1828 to approximately 1930. Since the body was clearly from an historic burial, likely dating to around the 1850s, the case was determined to be not forensically significant.

Members of the FAU removed the coffin fragments and residual soil from the body and determined that the body was an adult African American female dressed in a night shirt and knee-length stockings (Figure 5).

Upon further searching of the area, two additional *in situ* concentrations of human bones were observed, as well as several loose bones on the surface (Figures 1, 3, and 4). These bone concentrations, while part of the cemetery, were not related to the iron coffin body. The first *in situ* concentration was discovered in the embankment approximately two meters east of the iron coffin body at the same depth. The *in situ* skeletal remains were located in close proximity in three discrete concentrations. Other related bone fragments were discovered on the surface a short distance down slope from the *in situ* skeletal remains. The surface finds include: foot bones, a distal humerus fragment and other indeterminate bone fragments. The second concentration of *in situ* bones and a distal femur surface find were discovered approximately nine meters west of the body. In addition, an isolated bone fragment was discovered on the surface at the lower grade approximately seven meters southeast of the body (Figures 1 and 3).

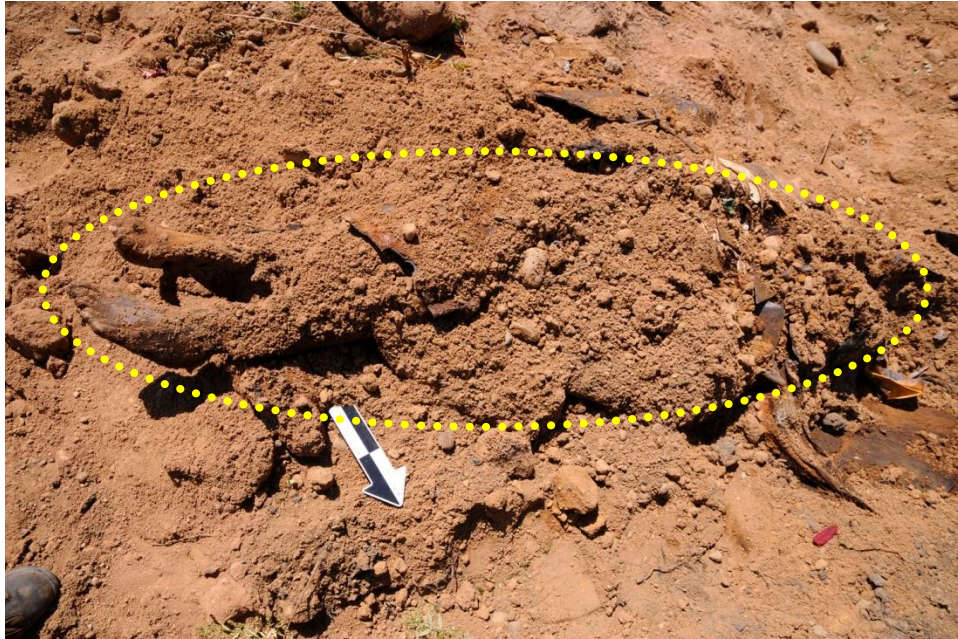
The surface finds were recorded and collected. The *in situ* skeletal remains were flagged, recorded, covered with plastic, and left on site.

Members of the NYPD Crime Scene Unit photographed the remains prior to and during investigation. Upon completion of the documentation, the body, coffin pieces, and loose bone fragments were collected and transported to the Queens morgue.

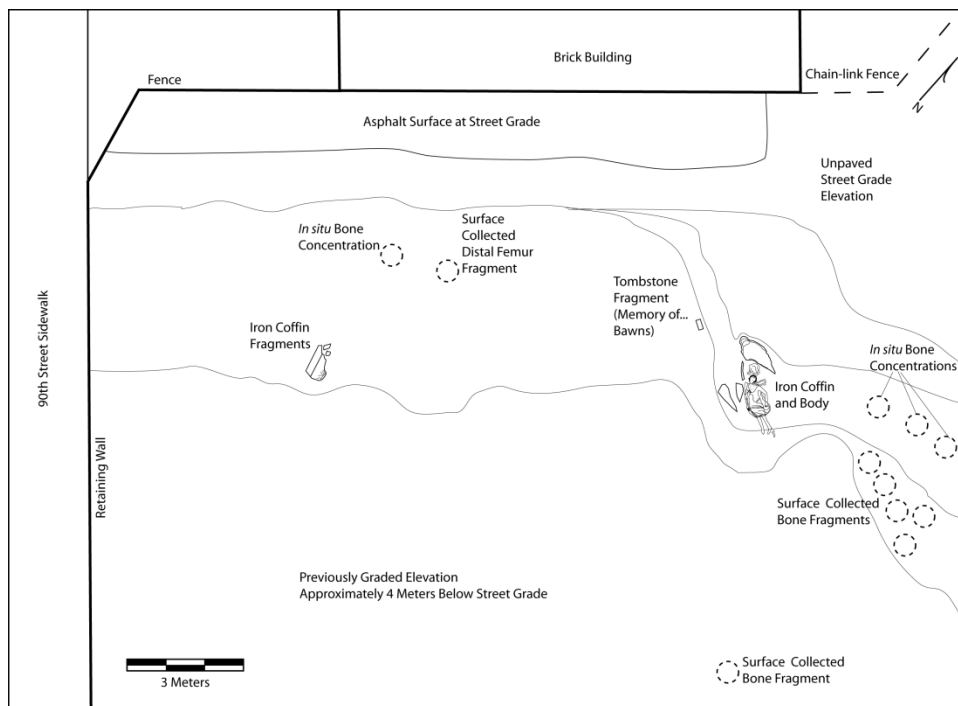
On 10 October 2011, Mr. Warnasch and Miss Jennifer Godbold, of the FAU, returned to the scene and recovered additional coffin fragments and delivered them to the Queens morgue.



**Figure 1. Overview map of 90-15 Corona Avenue, Queens showing body location (circle) and bone concentrations (squares). “A” represents the entrance to the construction site.**



**Figure 2. View of the body and coffin fragments prior to excavation (circle).**



**Figure 3. Overview map of the scene showing body and *in situ* and surface collected bone fragments.**



**Figure 4. View of *in situ* bone concentration (circle) and body (arrow).**



**Figure 5. View of the body and coffin fragments after excavation.**

The body was well-preserved, likely dating from a 19<sup>th</sup> century burial in an iron coffin. The excellent state of preservation of the body is likely attributed to its interment in the iron coffin. The skeletal remains observed and collected in proximity to the iron coffin body are clearly part of the same cemetery, but are from a different individual or individuals. All of the remains are historic in origin and are not forensically significant.

Date: 19 December 2011

---

Scott Warnasch MA, RPA  
Forensic Anthropologist

## **REFERENCES**

Habenstein, R.W. and W.M. Lamers  
1956 *The History of American Funeral Directing*. National Funeral Directors Association.  
Bulfin Printers. Milwaukee, WI.

November 3, 2011

Dear Brad,

Thank you for involving us in this interesting public health investigation. We have complete laboratory testing of the samples taken for virus testing and have no evidence of viable virus in the material as well as no ability to amplify viral specific nucleic acid. The gross pathology is consistent with smallpox and we remain interested in testing samples if there is a chance of finding some genetic material that would allow study of the virus makeup during this period. Unfortunately, pathologic evaluation of tissues show extensive degradation of samples and confirmation of virus particles is not found. I have contacted other scientists globally regarding their experience in "ancient" human tissue for detection of smallpox and am gathering information about the techniques that were attempted. In all cases, detection of live virus has failed (for orthopoxviruses). Please keep us informed on any developments and the possibility to continue some work on this investigation in the hopes of learning more about this disease during that time in the New York area. It is of high historical interest in the infectious disease community.

Summary:

Gross anatomy/pathology: consistent with smallpox

Pathology: inconclusive due to tissue degradation

Molecular testing: negative due to degradation of DNA in samples likely due to the age of the body

Culture of virus: negative on all tissues tested (external and internal sampling)

Thanks to you and Dr. Ambrosi and her staff and all others involved.

Kevin L. Karem, PhD

Team leader

Poxvirus Program/CDC/DHCPP

[kkarem@cdc.gov](mailto:kkarem@cdc.gov)

404-639-1598

Cc: Chris Paddock, MD

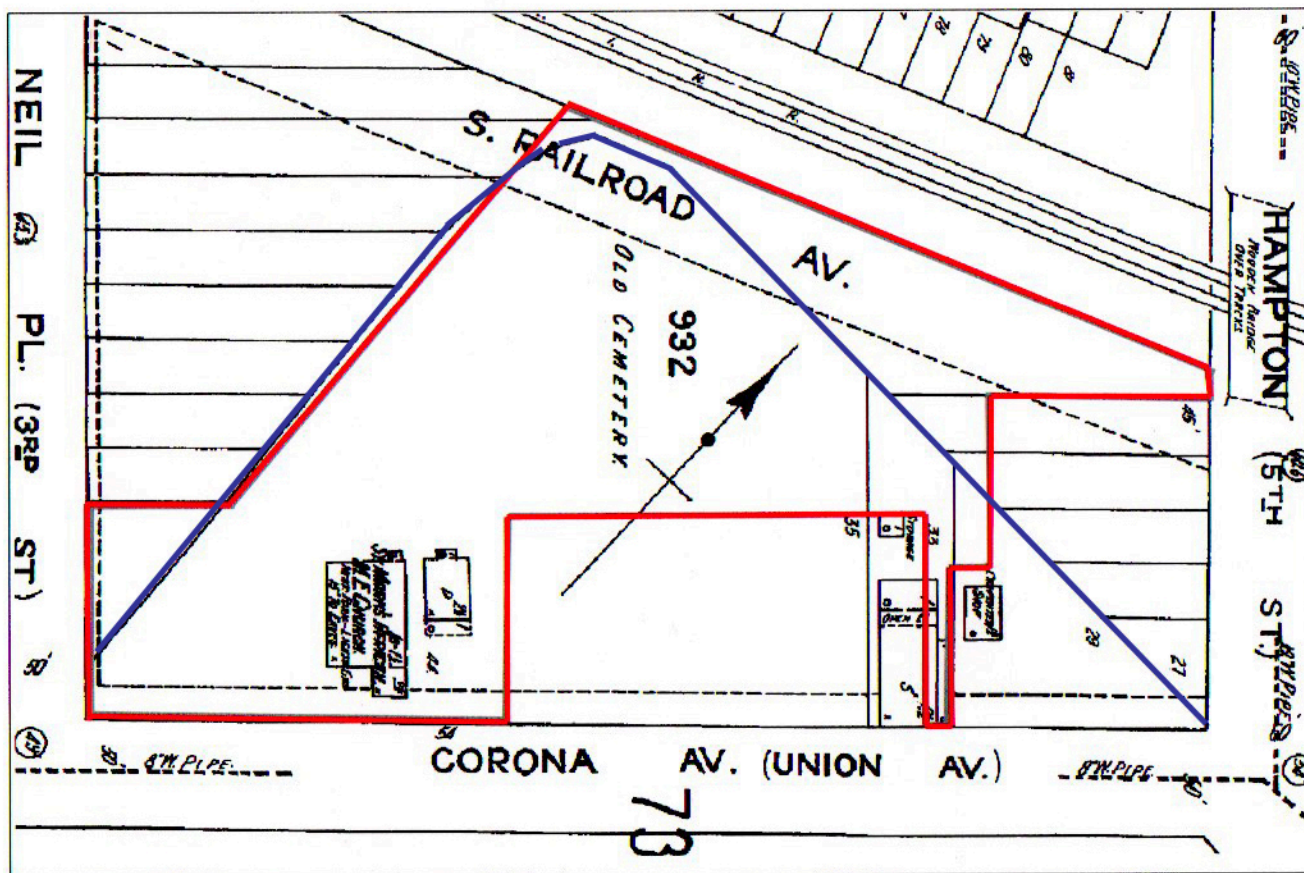


Fig. 1. 1915 Sanborn map of block 1586 showing the boundaries of the "Old Cemetery" in blue and the present lot 10 in red.

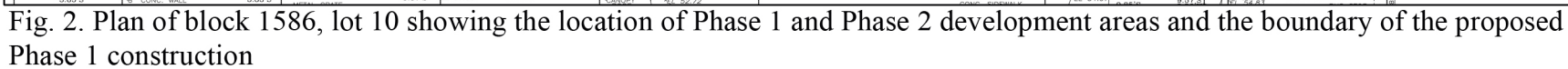
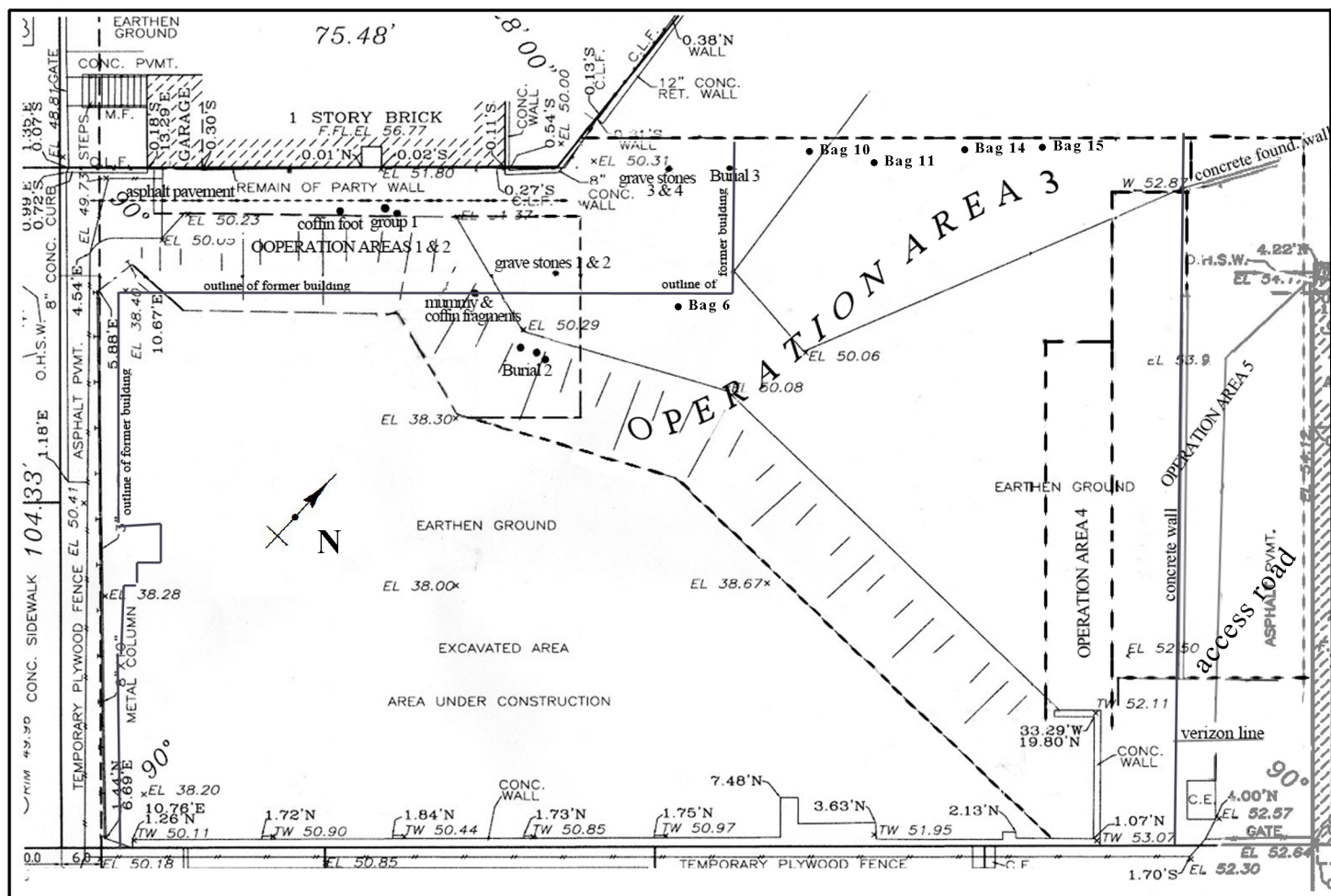


Fig. 2. Plan of block 1586, lot 10 showing the location of Phase 1 and Phase 2 development areas and the boundary of the proposed Phase 1 construction



**Fig. 3. Plan of the Phase I excavation area showing: the locations of the sites flagged by the Medical Examiner's office; the operation areas, grave stones and burial 3 excavated in the course of archaeological testing, and the outline of the western end of building that formerly stood on the lot**



Fig. 4. View of the northeast end of lot 10 showing the concrete foundations



Fig. 5. View of the north end of lot 10 looking northwest



Fig. 6. View northeast across the deep trench towards the access road



Fig. 7. View of the access road, Operation 5, left, and the Operation 4 area, right, looking towards Corona Avenue



Fig. 8. View of Operation areas 1 and 2: the coffin foot is on the left, under the plastic, and Burial 2 (Group 2) is under the plastic on the right



Fig. 9. Operation area 1, Group 1 (flags placed by the M.E.)



Fig. 10. Operation area 1, Burial 2, Group 2 (flags placed by the M.E.)



Fig. 11. View of Operation area 3 looking southwest



Fig. 12. Operation area 3, Burial 3



Fig. 13. Operation area 2 - removal of the berm



Fig. 14. View of Operation 4 looking southeast, foundation walls visible on the right



Fig. 15. Operation 4, looking southeast



Fig. 16. Operation 5b,  
east half, looking southeast



Fig. 17. Operation 5b, east half, l  
looking northeast



Fig. 18. Operations 2 and 3 looking southeast



Fig. 19. Mummified remains of the woman buried in the iron coffin



A.



B.



C.



D.

Fig. 20. A. The mummy; B. The head of the mummy from the top, with the coton cap;  
C. The cotton shift bunched on the shoulder; D. The stockinged legs and feet, now bare



Fig. 21. The Fisk iron coffin, (lid fragments on the left)

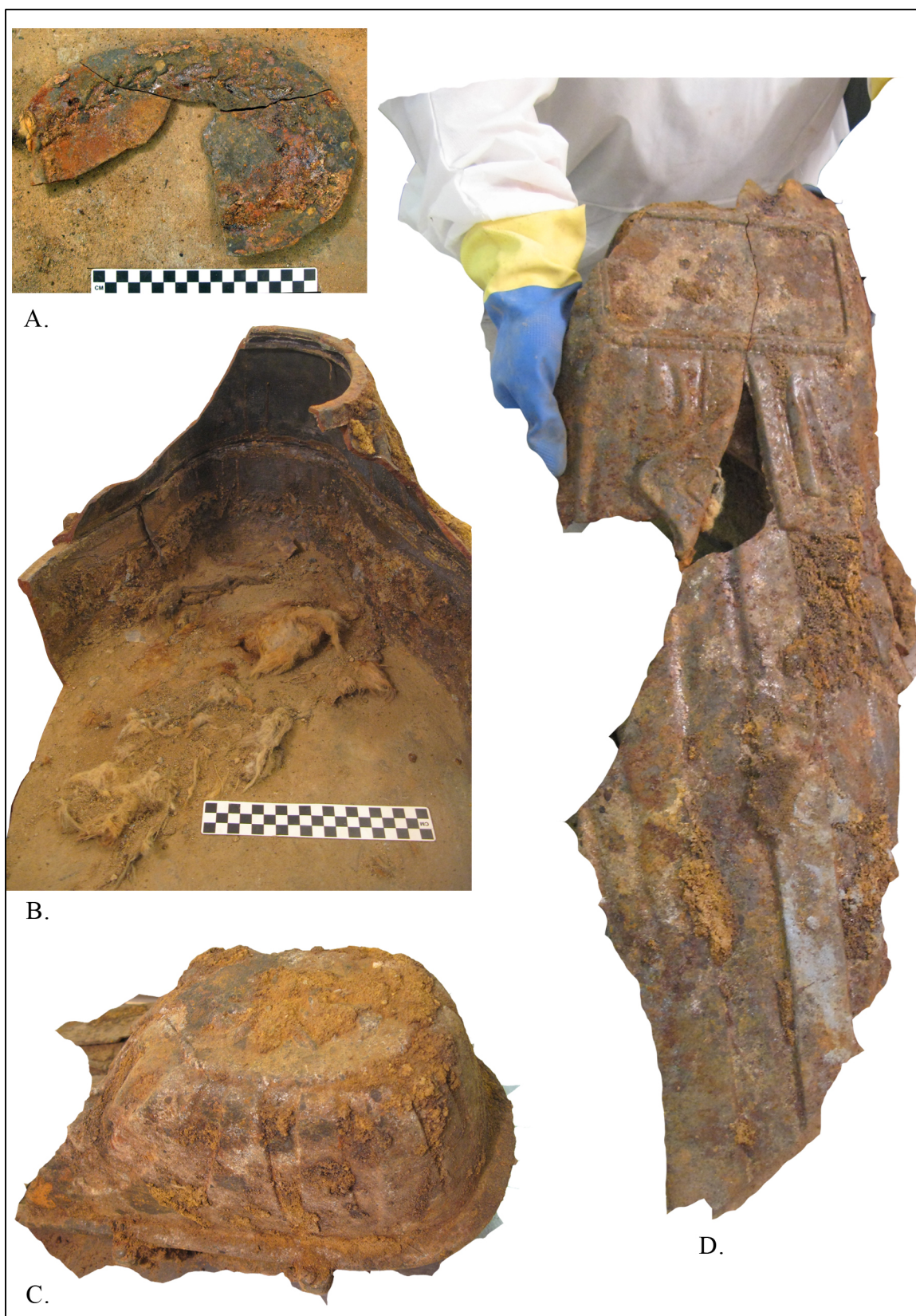


Fig. 22. Fisk iron coffin: A. Plate originally covering the glass window over the face; B. Interior of the coffin with the remains of a pillow; C. Foot of the coffin; D. Top of the coffin with the empty rectangular area for a name plate



Fig. 23. Grave markers: A., Catalogue no.2, B. Catalogue no. 1



Fig. 24. Grave markers: A. Catalogue no. 4, B. Catalogue no. 3



Fig. 25. Grave markers: A. Catalogue no. 6, B. Catalogue no. 5



Fig. 26. A. Coffin handles; B. Buttons found in the skeleton's chest cavity, Burial 3



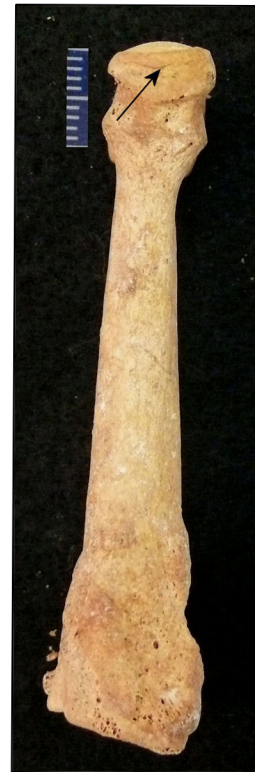
A



B



D



C

Fig. 27. A. COR2 Humerus embedded in soil and lime; B. COR2 Thoracic vertebra 10, showing osteophytes on the anterior border of the vertebral body; C. COR2 Metatarsal 3, showing abnormal bone growth at distal end; D. Same, detail



A



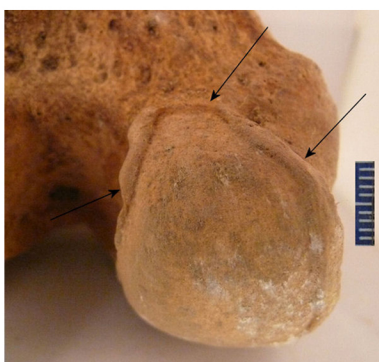
B



C



D



F



E

Fig. 28. A. COR3 Palmar view of hand phalange showing abnormal bone growth at the distal end; B. COR3 Cervical vertebra 3, inferior view, showing macroporosity and abnormal bone growth on the body and borders; C. Same, superior view; D. COR7 Tooth 26, distal view, showing calculus on distal and lingual surfaces; E. COR7 Right clavicle showing abnormal bone growth; F. COR9 left femur, distal end, showing abnormal bone growth