RECLAMATION

Managing Water in the West

Report of Skeletal Remains Excavated at Fort Craig Post Cemetery

Fort Craig Project, New Mexico
Upper Colorado Region

Thomas Smith 1846 - 1866

Levi Morris 1850 - 1877

David Ford 1847 - 1868

U.S. Department of the Interior
Bureau of Reclamation

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Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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By: Alaina K. Goff

Introduction:

Fort Craig was officially garrisoned in April 1854 and was occupied until its decommissioning in 1885. After the fort was established it soon became one of the largest and most important forts in the southwest. The Union soldiers at Fort Craig played a significant role in the Indian Wars and in the Civil War Battle of Valverde on February 21, 1862 (Ball, 1998; Gerow, 2004). The Battle of Valverde resulted in 230 Confederate casualties (72 dead or mortally wounded and 157 wounded) and about 475 Union casualties (111 dead, 160 wounded, and 204 missing; Taylor, 1995). The Union suffered a 17% loss of their soldiers, many of which were treated at the Post's hospital but subsequently died from their injuries. These soldiers, and the bodies of those that died on the battlefield, were buried at the Post cemetery at Fort Craig. Between 1862 and 1885, additional interments included soldiers and civilians who died at or near the Fort whose death was caused by accident, disease, homicide, or suicide (Four Corners Research, 2005).

On July 17, 1862, the National Cemetery System was established by Congress to organize the significant number of deaths that were occurring in the Civil War (Steere, 1953). As a result, it was ordered that the human remains of the approximately 250 graves at Fort Craig cemetery be disinterred for reburial in national cemeteries. U.S. Army records indicate that the disinterments occurred in 1867, 1876, and 1886. This includes the 1867 removal of Captain Alexander McRae to West Point, New York, the 1876 removal of all burials prior to this date to Santa Fe National Cemetery, and the 1886 exhumation of all other remains to Fort Leavenworth National Cemetery in Kansas. However, in 2005 evidence of looting activity at the cemetery suggested that intact graves still remained at the site. As the cemetery is under federal jurisdiction, the Bureau of Reclamation, which is a part of the Department of the Interior, was called upon to investigate the looting activity as well as the presence of human remains (Four Corners Research 2005).

The DMG Four Corners Research Team, under contract by the Bureau of Reclamation, conducted an investigation into the presence of intact graves remaining at the Post cemetery. During the months of March, April, July and October 2005, the multidisciplinary team collected historical, archaeological and remote sensing information, which suggested at least 20-30 intact graves within the cemetery (Four Corners Research 2005). As part of the criminal investigation of the looting, Reclamation conducted focused excavations in 2005. The bones that were collected from the empty graves during the 2007 excavation included hands, feet, and thorax (see Appendix 1). Upon closure of the investigation in early 2007, and after due consideration it was decided to excavate the remaining burials of the soldiers and civilians in the cemetery for identification and reburial in Santa Fe National Cemetery.

The 2007 excavation uncovered 248 graves, the majority of which were empty or contained remnants of individuals who were previously removed. However, 64 intact graves, a partial adult (burial 9) and two "surgeon's pits" (burials 23 and 48) were also excavated. In total, the intact graves included 22 infants, 4 children, 7 adolescents, 17 young adults, 13 middle adults and 1 old adult (see Table 1). The "surgeon's pits" included the burial of 4 amputated lower limbs and an ammunition box containing 2 amputated arms, all probably young adults that died during the Battle of Valverde.

Table 1: Age Distribution of the Skeletal Sample

	Age	Number of Burials	Burial Numbers
Infant	Birth to 3 years	22	1, 2, 3, 8, 10, 12, 16, 17, 20, 21, 25, 27, 36, 37, 46, 52, 53, 56, 59, 61, 63, 67
Child	3 to 12 years	4	22, 28, 29, 60
Adolescent	12 to 20 years	7	15, 38, 39, 47, 50, 51, 54
Young Adult	20 to 35 years	17	5, 13, 14, 18, 19, 30, 31, 33, 40, 41, 42, 43, 55, 57, 58, 62, 64
Middle Adult	35 to 50 years	13	4, 6, 7, 11, 24, 32, 34, 35, 44, 45, 49, 65, 66
Old Adult	50 + years	1	26

The remains were preliminarily assessed in the field by Kimberly Spur and the author before being transported to the National Museum of Natural History in Washington, D.C. for a more thorough investigation. Here, analysis was conducted between May 12 and July 5, 2009, on the 39 adult skeletons and one of the "surgeon's pits" (burial 23). The analysis was carried out by a team led by Dr. Doug Owsley. The data were primarily collected by Dr. Owsley and Kari Bruwelheide. An additional contribution was made by Dr. Richard Jantz, who collected cranial metric data, Dr. Lee Jantz, Aleithea Williams, and student interns Julia Franklin, Gaby Lapera and Alex Newman.

The following is a summary and report of the data collected by Dr. Owsley's team on the adult skeletal remains that were excavated and recovered from the Fort Craig cemetery. Also included in this report is information collected by the author. This includes "additional information" on the adults, dental measurements, dental morphology, a summary of one of the "surgeon's pits" (burial 48), the analysis of the infant remains, and Appendix 1, listing all bones that were recovered from the nearly empty graves.

Methods:

The osteological methods employed for this report are standard techniques used in skeletal biology and follow the methods established by the researchers at the Smithsonian's National Museum of Natural History (see Buikstra and Ubelaker, 1994 and Owsley and Jantz, 1989). The skeletons were first inventoried and examined to estimate sex, age, and biological affinity. The crania and post crania were measured (Howell's, 1973; Zoebeck, 1983; Fazekas and Kosa, 1978; see Appendices 2-5); complete crania were CT scanned; and pathological bones were x-rayed. Each skeleton was examined and scored for pathology following Owsley and Jantz (1994). This includes evaluation of vertebral degenerative changes, cribra orbitalia, periostitis, and the presence of lytic or blastic bone lesions. Congenital anomalies were also noted, as well as behavioral modifications to the skeleton such as musculoskeletal stress markers, Schmorl's depressions, Squatting facets, and Poirier's facets.

The teeth were very well preserved in this series. The dentitions were inventoried, measured, and scored for development (Ubelaker, 1989; Moorees, Fanning and Hunt, 1963a, 1963b; Smith, 1991), and morphology (Turner II, Nichol and Scott, 1991). Infant tooth

development scores and deciduous tooth measurements are presented in Appendices 6-10 and adult dental morphology traits are presented in Appendices 11-12. The teeth were also scored for tooth wear following Smith (1984; see Appendix 13-14), and carious lesions, abscess formation, antemortem tooth loss, and calculus deposition were scored using methods employed by Owsley and Jantz (1994; see Appendix 15 and 16). In addition, adult tooth crowns were measured for their height and bucco-lingual and mesio-distal lengths (Mayhall, 1992). These measurements are presented in Appendices 17-19.

For each adult skeleton, the first right metatarsal was removed for isotopic analysis; the right clavicle for DNA; and selected femora were DEXA scanned. More than 800 photographs were taken of the adult skeletons by photographer Chip Clark at the Smithsonian's National Museum of Natural History in Washington, D.C. In addition, with the assistance of National Geographic photographer Jerry Goff, Stephanie Michaels of the Bureau of Reclamation photographed all bones for future research.

Trauma was noted in 8 skeletons (see Table 5) and described in detail under the skeletal descriptions. Gunshot wounds, autopsy cuts, fractures and an axe wound were noted among the sample. The identifications that were made in this series relied heavily upon the evidence of trauma and signs of disease and autopsy, which were matched against the antemortem historical profiles of the soldiers having been buried at Fort Craig cemetery. Age and ancestry estimates were also matched against the antemortem records to speculate at possible identifications. Among this series, three identifications were made: Levi Morris (Burial 5), David Ford (Burial 19), and Thomas Smith (Burial 54).

SPECIMEN DESCRIPTIONS:

The descriptions that follow will provide the burial (B) and feature (F) number along with a summary of their state of preservation and completeness; age, sex and biological affinity estimations; dental and pathological conditions; and other notable anomalous features. Description of the infants are given by the author whereas the summaries of the adolescents and adults are taken directly from the *Fort Craig Skeleton Collection – Working Notes*, an unpublished document provided to the Bureau of Reclamation, Albuquerque, by Doug Owsley

and his team at the Smithsonian's National Museum of Natural History. These notes were graciously given for the purpose of being reported here.

Notes:

Teeth will be indentified by their position in the mouth; left (L) or right (R) side; incisor (I), canine (C), premolar (P) or molar (M); number in the tooth class sequence (1, 2, or 3); superscript for maxillary and subscript for mandibular; and capital letters will designate the teeth as permanent whereas lower-case will specify the teeth are deciduous. For example, LM^2 is the left maxillary permanent second molar and rc_1 is the right mandibular deciduous canine.

Vertebrae will be identified by their position within the back; cervical (C), thoracic (T) or lumbar (L) and their sequence within each class. Thus L2 denotes the second lumbar vertebra and C2 – L5 indicates discussion of the second cervical vertebra through the fifth lumbar vertebra, which would include C2-C7, T1-T12 and L1-L5. Likewise, the ribs (R) will be referred to in reference to their sequence such that R2 and R10 denote the second and tenth rib respectively.

Burial 1

Feature 5:

Burial 1 contains the complete remains of an infant, estimated to be 1 to 2 months of age. This infant was buried in the southwest corner of the cemetery and is near no other graves. Preservation is good but the cranial vault and ribs are fragmented and the bones are light in weight and of poor quality. Recovered with the infant were red ribbon fragments and buttons.

The remains are much too young for estimating biological affinity and sex. The developing deciduous teeth were recovered and are in good condition. The remains are unremarkable for pathology. The shafts of the arm and leg bones show periosteal proliferations that are most likely attributable to growth rather than disease.

Burial 2

Feature 8:

Burial 2 contains the complete and partially mummified remains of an infant, estimated to be 9 to 12 months of age. This burial is located on the far west end of the cemetery, midway between the northern and southern walls. Closest to this burial are two small empty graves just to the east, but otherwise the remains are isolated. The infant was recovered from a triangular-shaped funerary box with well preserved clothing. Skeletal preservation was excellent.

Biological affinity and sex could not be estimated due to the young age of the infant. No pathological conditions are readily seen, but the medial shafts of the tibiae exhibit proliferative periosteal bone; again most likely associated with diaphyseal growth.

Additional Information: The infant has a quarter-size ossicle at lambda.

Burial 3

Feature 19:

Burial 3 contains the complete and well preserved remains of a partially mummified infant, estimated to be less than 2 months of age. The infant was buried in the second row of graves in the northwestern section of the cemetery. Next to this grave is a Hispanic male (B4) and a mostly empty grave (B9). The infant was buried in a teal dress with red ribbons and bows and is thus estimated be a young female.

Biological affinity is indeterminable due to her young age. Developing deciduous teeth were recovered and are in good condition. No pathological conditions are exhibited in this skeleton. The long bones of the arms and legs exhibit periosteal proliferation most likely attributed to growth rather than a disease process.

Burial 4

Feature 20:

Burial 4 (Figures 1-4) contains the complete and well preserved remains of a probable Hispanic male with Native American ancestry, estimated to be 40 to 49 years of age. The grave is located in the second row from the western wall, in the northern section of the cemetery. The body was buried without a coffin or casket. He was found supine with his arms folded over the

abdomen. This individual was short in stature, moderately robust and died with an active tuberculosis infection. The burial was outside the original cemetery fence built during the Civil War, but within the rock wall constructed during the 1868 cemetery expansion.

The morphological and morphometric analyses of the cranium suggest a Hispanic or Native American ancestry. Morphologically, the cranium is short and broad with midface flattening and zygomaxillary sutures that show no recurvature. The cranium suggests that the individual's ancestry was all or nearly all Native American. However, there is no reference of Native Americans having been buried at the post cemetery. Thus, although it is not possible to determine whether he was culturally Native American or Hispanic, it is likely that this individual was identified as being Hispanic.

Dentition: The teeth are well preserved with all present except for LI_1, which was lost postmortem. The teeth display moderate to heavy wear indicating a more abrasive diet than the other uniformed soldier in this series. The teeth exhibit moderate calculus formation and dark staining on the lingual surfaces of the premolars and molars, most likely from tobacco use. Several teeth display incipient periodontal abscessing due to periodontal disease. The RM_2 has vertical bone loss associated with a true periodontal abscess where most of the roots have resorbed.

Pathology: This individual has multiple pathological signatures including trace cribra orbitalia, a healed nose fracture, vertebral spondylolysis, a healed second rib fracture, remodeling of the pubic bones likely due to tuberculosis, and a healed fracture of the right lower arm, and slight osteoarthritis.

The cranium has mild cribra orbitalia with trace porosity seen within the upper orbits. The cranium also exhibits a slight displacement of the nasal aperature and nasal bones to the left. This is due to a healed and incomplete fracture occurring to the left maxillary frontal process at the superior margin of the nasal aperature. The mandibular condyles of the mandible are slightly porous.

The vertebral column has slight to moderate osteoarthritis with lipping, porosity and mild eburnation of the articular facets and lipping of the centra. Anterior wedging is seen on L2 and

L3 as the centra had compressed. Unilateral spondylolysis is present at the left lamina of L5 and as a result, the articulating right facets of L4 show degenerative remodeling.

A well healed fracture is present on the second right rib, located 13 mm from the sternal extremity. The callous has remodeled and the change is slight. The right ribs 4, 7-9 and left ribs 9-10 have enthesophytes at the costal tubercles. Enthesophytes are also seen on the ischia of the pelvis and at the calcaneal tuberosity.

The left and right pubic bones show extensive cavitations and marked remodeling of the pubic symphysis due to abnormal bone loss accompanied with active woven and sclerotic bone (see Figure 3). The remodeling at the symphysis has expanded the ventral and dorsal borders with large sclerotic outgrowths. The innominates were x-rayed and showed that the infected areas have sclerotic margins. The changes were likely caused by an active tuberculosis infection.

The distal shaft of the right ulna has a parry fracture with a well healed callous and the left and right arms show slight osteoarthritic lipping. Lastly, the calcaneus has a deep groove formed along the antero-lateral aspect to support the peroneal tendons (see Figure 4). This groove is also seen on the articulating distal fibula.

Additional Information: The manubrium is fused to the sternal body. The xiphpoid and thyroid cartilage are ossified. The clavicles have costoclavicular stress lesions. The limb bones are moderately robust and the muscle attachments reflect an active lifestyle. The radii exhibit stress lesions on the radial tuberosities. The left hand has lipping on triquetral, lunate and laterally on the MC5.

Burial 5

Feature 25:

Identity: Levi Morris

Burial 5 (Figures 5-8) contains the complete and well preserved remains of a Black male, estimated to be 25 to 27 years of age. The grave is located in the southwestern section of the cemetery and was between empty graves. He was buried supine in a wooden coffin with his arms crossed at the abdomen. Shield nickels (ca. 1867-1885) were found over his eyes causing green staining to the orbits and glabella region of the frontal. This individual was identified as

Private Levi Morris based on comparisons with the historical records, indicating his age, ancestry, and the wound causing his death. Levi Morris was a 27 year old, Black male of Company B, U.S. Calvary 9th Regiment. He is listed in the *Post Medical History of 1877* as, "having died as a result of being struck by an axe in a quarrel with a member of his company." He was admitted on June 21, 1877, for an incised wound of the back; treated in post hospital; and died on June 28, 1877, (USA Hospital Dept. Register, Reg. No. 38, Hos. No. 1; May 5, 1869 to July 31, 1878). According to his *Final Statement* he was buried at Fort Craig cemetery in Grave No. 103.

Dentition: All teeth are present and in excellent condition. Incipient carious lesions are seen on only a few teeth, slight to moderate calculus deposits are present and tooth wear is slight. Possible faint staining from tobacco use is noted on the lingual tooth surfaces.

Pathology: This individual has slight lipping of C1, Schmorl's depressions in the lower vertebrae, a healed arm fracture, and a fatal wound to the back.

The changes seen in the spine presents a classic pattern of spinal compression and damage from horseback riding. C1 has trace lipping and porosity is seen on the articular facets of several other vertebrae. A bone spur is seen at the tubercle of right rib 7 and adjacent T7. Schmorl's depressions are present on T7-L4. These measure 15.5 mm transversely by1 mm anteroposteriorly, with a depth of 3 mm. T9-T12 exhibit anterior wedging with an anterior height of 17 mm compared the posterior height of 20 mm. In addition, all four coccygeal vertebrae are fused together and the right ulna has a healed parry fracture on the distal third of the diaphyses, both of which may possibly be related horseback riding.

Autopsy: The body was autopsied by the sectioning of the manubrium (Figure 7) and sternal extremities of the right and left rib 1. The cuts were made by a saw blade measuring 1.2 mm in width. The cuts began at the first ribs and ran supero-medially to open the chest cavity at the manubrium and presumably the cuts continued across the costal cartilage to expose the heart and pleural cavities. The cut from the right side changed its orientation and has a maximum length of 27 mm. The cut from the left side measured 26 mm in length. In addition, the anterior and inferior portion of the manubrium has a transverse buckle from superior compression of the

bone. This may be a direct result from the trauma or from the cracking of the chest cavity during autopsy.

Trauma: Death was due to penetrating sharp force injury to the back. Trauma was evident on ribs 3, 4 and 5, which were severed at their vertebral thirds, and ribs 2 and 6, which also display associated cut marks (Figure 8). T5 and T6 were also affected with a cut extending down the lateral margin of the inferior articular facet, severing the right transverse process and nicking the articulating T6. Descriptions of the ribs are presented below in Table 2.

Table 2: Rib Trauma in Burial 5

Bone	Location	Direction	Description & Interpretation
Rib 2	56 mm from head end	left to right	The cut penetrated 14 mm into the rib but did not sever it.
Rib 3	53 mm from head end	left to right	Completely severed the rib head and neck from the body.
Rib 4	40 mm from head end	left to right	Complete separation of the rib head with cut passing through the neck of the rib.
Rib 5	-	left to right	Head end is severed off and this piece is not represented.
Rib 6	-	left to right	Tiny nick at the tubercle representing the inferior end of the cut to the upper ribs.

Hospital Description of Levi Morris from the Morning Sick Book, Fort Craig, New Mexico (Jan. 15, 1876 - May 20, 18):

June 22, 1877 (Friday): "Incised wound of back invading pleural cavity. Wound 4 1/4 inches. Cold water deepening to wound. Morph. Sulph. 1/4 hypodermically. RX Ext. Tconitizad fld [probably meant Tonicidad] Teaspoonful every half hour"

June 23, 1877 (Saturday): "About 20 oz. matter blood oozed out of wound during night-

Friday-Saturday. About 20 oz. was obstructed by Dieulafoy's Aspirator at 10 A.M. Brandy at Intervals. Every hour 2… During night brandy and water every 15 minutes"

June 24th (Sunday): "Brandy and water every half hour. Cont powder. Milk. Chicken broth."

June 25th (Monday): "Cont. brandy and water. Cover incision with [?] plaster. 'Chicken broth.' 1/3 [?] Morph. Sulph. hypodermically at 8 p.m."

June 26th (Tuesday): "Cont. milk, also brandy and water…"

June 27 (Wednesday): "[Dedurt?] fluid from pleural cavity. Washout with diluted [?] iodine. Use chloric in cord. Locally liquor [?] to wound. Medicine increased..." June 28th (Thursday): "Brandy and water and… Morph Sulph..." Died at 5 A.M. (Reveile)"

Description of Levi Morris from the *Final Statement*:

> "Injured sometime around 6-21-77. During a quarrel, he was struck with an axe on the right side of the spine, inflicting a wound over 4 inches long, opening the chest cavity and fracturing the 3rd & 4th ribs, the wound entering from the posterior superior angle of the right scapula obliquely downwards toward the spine. Fluid and very offensive matter was taken out of the pleural cavity by means of the Aspirator and the pleural cavity was washed out with Tincture of Iodine, largely diluted. The edges of the wound separated somewhat and became gangrenous. He died 6-28 of pleurisy with purulent effusion into the cavity of the chest, as proven by the autopsy made the same day. Buried 6-28."

Additional Information: The thyroid cartilage is ossified. The clavicles exhibit costoclavicular stress lesions, and the humeri are very robust with a large stress defect on the right medial border. Stress lesions are also seen below the coracoids of the ulnae.

Burial 6

Feature 27:

Burial 6 (Figures 9-11) contains the complete and well preserved remains of a White male, estimated to be 42 to 48 years of age. He was buried next to burial 7 and within the same row as Private Levi Morris (burial 5). He was laid supine in a wooden coffin with his left hand crossed at the abdomen and his right forearm across his chest. He was wrapped in a wool blanket and gauze bandages were found extending from the base of his sternum to L2. It is likely that he died in the hospital due to thoracic trauma evident by the multiple healing rib fractures and the bandages at his thorax.

Dentition: The teeth are well-preserved, but the majority of teeth were lost antermortem. There are 15 teeth remaining in the mouth, which exhibit 3 periapical abscesses and slight calculus deposits. The anterior teeth have slight to moderate wear, but the molars and right canines are heavily worn. Tobacco staining is seen lingually and a partial pipestem groove is present between the LP_{1-2}. The opposing maxillary teeth have been lost antemortem.

Pathology: Many traumatic signatures are present in this skeleton, including a well healed left facial fracture, multiple healing or healed rib fractures, and an incomplete fracture of the acetabular surface. Also present are Schmorl's depressions and slight vertebral arthritis.

The left zygomatic shows evidence of a previous injury to the zygomatic and maxilla causing diastatic fracturing of the fronto-zygomatic and temporo-zygomatic sutures as well a compression fracture at the left zygo-maxillary suture. As a result, the left zygomatic is slightly displaced medially and inferiorly. Associated with this injury is a cloaca that is present inferiorly from the maxillary sinus.

There are eight rib fractures that are healing or healed in this skeleton. This individual likely died in the hospital with injuries to the thorax. Thus, it is likely that the trauma producing these injuries ultimately led to or contributed to his death. Fractures are seen on the left ribs 3, 8, 9 and 10, and the right ribs 6, 8, and 10. Minor periostitis is seen on the visceral surface of right rib 8.

Left Ribs:

Rib 3 Well healed sternal fracture.

Rib 8 Healed fracture at the vertebral ¼ with callous formation and some porosity and lipping.

Rib 9 Healed fracture at the vertebral ¼ with callous formation.
Rib 10 Well healed fracture at the vertebral end.

Right Ribs:
Rib 6 Actively healing fracture with callous formation and woven bone deposition 22 mm from the sternal end. The fracture runs superiorly and oblique from lateral to medial.
Rib 8 Fairly well healed fracture on the mid shaft, with macroporosity on the inferior margin.
Rib 10 Two fairly well healed fractures, although still active, located 22 mm and 48 mm from the vertebral end.

The right ilium has bony thickening of the superior acetabular rim and an incomplete fracturing of the acetabular surface (Figure 11). The superior right acetabulum has two fracture lines that intersect. This is indicated by a disruption that continues transversely in the acetabulum along with a separate fracture that extends into the joint surface for 14 mm in length. In association with this injury, this individual has only slight muscle development.

This individual has a medium build and, despite his age, the arthritic changes are slight. The spinal column and limb bones do not indicate a history of strenuous labor. The humeri and bones of the forearm show only slight to moderate muscle development and the femora have only slightly raised ridges for the gluteal muscles and muscles of the posterior legs.

Vertebral arthritis is minimal with only slight periarticular lipping on C5 and C6 and the centra of T7-11. Other arthritic changes in the skeleton are also minor. Small Schmorl's depressions are present on T7, T8, T10 and T11. The largest is measured transversely at 10 mm by 8 mm antero-posteriorly with a maximum depth of 3 mm.

Additional Information: The thyroid cartilage is ossified. C1 has a retroarticular bridge. The femora have Poirier's facets.

Burial 7

Feature 26:

Burial 7 (Figure 12-13) contains the complete and well preserved remains of a White male, estimated to be 35 to 42 years of age. The remains are in good condition despite the damage to the ribs and pelvis from backhoe stripping. This grave is within the same row as Private Levi Morris (burial 5) in the southwestern section of the cemetery. He was buried supine, in uniform, and with his hand to his side. Bronze numbers "1" and "5" were found with the remains, signifying probable membership in the 15th United States Infantry. Cuff and collar general service buttons were also found with the remains, which caused green copper oxide staining in these areas.

Dental: The mandible is slightly compressed and the condyles do not set well within the temporomandibular joint. The majority of teeth are present and in good condition. Four teeth were lost antemortem and the remaining teeth exhibited 2 carious lesions and slight to moderate calculus. Wear is slight on the postcanine dentition to moderate on the anterior teeth. The I1s have semi-circular notches on their incisal edges, which may represent some sort of task activity and be associated with the increased anterior wear.

Pathology: The right first metacarpal has an expanded proximal joint surface with marginal lipping from a healed fracture. In addition, both first metetarsals have peri-articular, erosive, gout-like cavitations on their distal medial surfaces. No other conditions were noted.

Additionally Information: The nasal spine is prominent and the nasal bones are steeply angled with marked deviation toward the left. In addition, the eye sockets are slightly asymmetrical. The thyroid and xiphoid cartilages are ossified. C7 has a cleft at the left pedicle representing a failed union to the centrum. The T1 has no spinous process representing poor union and the L5 is fused to the sacrum.

Burial 8

Feature 51:

Burial 8 contains the complete and well preserved remains of an infant, estimated to be 3 to 6 months of age. The infant was buried on the outskirts of the cemetery, next to the wall in

the northwestern corner of the cemetery. The remains were buried supine within a wooden casket with the arms folded over the abdomen. Found with the remains were a glass bottle fragment, fabric, and a burgundy ribbon.

Ancestry and sex could not be estimated due to the young age of the infant. Deciduous teeth were recovered and are in good condition.

Pathology: This infant exhibits an active proliferative systematic disease most closely resembling a treponematosis. This infant likely died of congenital syphilis.

The bones of the cranial vault are porous, lightweight and thickened with woven bone deposition endocranially and ectocranially. The Maxilla, mandible, sphenoid, temporal and zygomatic bones are also thickened and porous. The post-cranial skeleton has marked osseous proliferation on the arms and legs with diaphyseal thickening and new bone enveloping the old, including the long bones of the hands and feet (Figures 14-15). The scapulae, clavicles, ribs, and pelvic bones are also thickened and porous. The changes are consistent with those seen in congenital syphilis.

Burial 9

Feature 21:

Burial 9 contains the partial remains of an adult that was previously disinterred. The recovered bones include a right scapula, hyoid, 4 cervical vertebrae, left and right rib 12, some hand phalanges, and articulated feet. In addition, 8 teeth were recovered and are in good condition. This type of assemblage is what is typically found in this cemetery when bodies were removed (i.e. see Appendix 1).

Burial 10

Feature 49:

Burial 10 contains the complete and well preserved remains of a mummified infant, estimated to be 8 to 16 months of age. This infant was buried in a coffin, which was also well preserved, and decorated with rivets. She was laid supine, in a long sleeve dress with her arms

crossed about the hip and holding plastic flowers. In order to preserve the integrity of this infant, analysis was very limited. Age was assessed using dental eruption and sex was estimated based on her clothing. Only loose bones were measured and using the linear regression formulae from Scheuer et al (1980), the femur and tibia lengths provide an age estimate of 10.8 – 11.8 months.

Burial 11

Feature 46:

Burial 11 contains the fragmented and partially complete remains of a Black male, estimated to be 38 to 45 years of age. This grave is one of two burials near the center of the cemetery, both of which are looted Black males.

Dentition: Half of the teeth were not recovered and were presumably lost post mortem. Those that were recovered are heavily worn and exhibit moderate to heavy calculus. There are two carious lesions, but no abscessing.

Pathology: This individual has an enthesophyte projecting superiorly from C2 and a small Schmorl's depression on T12. In addition, the distal right radius shows abnormal curvature due to an old fracture and the right femur has a smooth, non-reactive cortical bulge on the disto-medial surface. The right femur also has a small enthesophyte at the mid-shaft.

Additional Information: The arms, legs and feet are moderately robust suggesting an active lifestyle. The thyroid cartilage is partially ossified.

Burial 12

Feature 56:

Burial 12 contains the complete and well preserved remains of a young infant, estimated to be 6 to 9 months of age. The grave is located in second row from the western wall, in the southern section of the cemetery. The infant was buried in a wooden casket wearing a garment with 20 glass buttons. Preservation is good, but the majority of the skeleton shows post mortem

breakage. The cranium is fragmentary and exhibits salmon-colored staining. The ribs, left arm and left fibula are also fragmented. Sex and biological affinity could not be estimated due to the infant's age. No pathology was observed.

Dentition: Deciduous teeth were all present and in good condition. The first permanent molars, except LM_1, were present and beginning to develop. The right and left deciduous 2^{nd} molars have Carabelli's cusps with free apices.

Burial 13

Feature 57:

Burial 13 (Figures 16-18) contains the mostly complete and well preserved remains of a White male, estimated to be 32 to 38 years of age. This individual was buried in the second row from the western wall, in the southern section of the cemetery. He was buried in a wooden coffin and the original body position is unknown due to looting. Found with the remains are buttons, shoe fragments, and an unfired .58 caliber Minié ball. The remains are well preserved, but looting activity caused post mortem breakage of some of the elements. In addition, T12, some left ribs, and the right innominate are missing.

Dentition: The dentition is well preserved and in fairly good condition. Three teeth were lost antemortem and the remaining teeth have several carious lesions and moderate to heavy calculus. There are 7 carious lesions, two of which have dental fillings. The LM_1 and RM_1 have amalgam fillings on mesial-occlusal tooth surfaces and have discolored the surrounding teeth. The teeth also exhibit staining from tobacco use. The RM^3 (Figure 18) exhibits two extra lingual cusps; one mesially as Carabelli's cusp and a second between this cusp and cusp 4 (the hypocone).

Pathology: This individual shows mild anaemic porosity, slight vertebral osteoarthritis, and periostitis of the ribs and tibiae.

The cranium has very mild cribra orbitalia and porotic hyperostosis evident by slight porosity seen in the upper orbits and on the parietals. The parietals exhibit slight but active woven bone deposition. The vertebrae show slight degenerative lipping on the mid-thoracic

centra, and incipient lipping and porosity on some of the articular facets. The left ribs 3-10 display plaque-like periostitis on their necks. The tibiae have healed periostitis evident on the diasphyses.

Additional Information: The thyroid and xiphoid cartilage are ossified. C1 has a retroarticular bridge and a non-union of the neural arch at the mid-line. He has a sternal hiatus and, despite costoclavicular stress pitting, generally lacks accentuated muscle attachments. The sacrum has 6 segments.

Burial 14

Feature 53:

Burial 14 (Figure 19-20) contains the complete and well-preserved remains of a White male, estimated to be 23 to 27 years of age. This individual was buried in the second row from the western wall, in the southern portion of the cemetery. He was buried supine in a wooden coffin, with his hands crossed at the abdomen and his head tilted to the left. Found with the remains were general service buttons, blanket fragments and an unfired .58 Minié ball. The remains are in excellent condition with green staining underlying the copper buttons on the distal left arm and lower vertebrae. The cranium was autopsied and a bandage was found at the torso near T10-T12. It is not evident from the bones, but it is likely that this was a traumatic death.

Dentition: All teeth are present and well preserved. He had retained his rdm^1, which abscessed and perforated both lingually and buccally. The RM_1 also exhibits periapical abscessing and has a buccal perforation. The remaining teeth exhibit 7 carious lesions, moderate calculus formation, and minimal wear.

Pathology: This individual has cranial vault porosity, an autopsied cranium, indicators of horsemanship, enthesophytes, and subperiosteal bone formations on the tibiae.

The cranium has widespread but slight ectocranial porosity, especially on the frontal and parietals near bregma, indicating porotic hyperostosis. The cranial vault was cut in a standard

autopsy manner in order to retrieve the brain. The cut was circular and low on the vault, and made with a .75mm blade. There are no indicators as to why the brain was removed.

The skeleton exhibits features in the back and legs that are associated with horse-back riding. Schmorl's depressions are seen on five thoracic vertebrae, T7-T11, measuring 17 mm anteroposteriorly by 7 mm transversely with a depth of 4 mm. The external ilia have slightly raised attachments for the gluteal muscles. The acetabulae are elongated superiorly and femora display moderately large Poirier's facets.

The tibiae have enthesophyte formations at the anterior tuberosities and the patellas have enthesophytes inferiorly. The enthesophytes are associated with partial ossification of the patellar tendon just below the knee. The tibiae also show subperiosteal bone formation. The mid medial surface of the left tibia has trace bone formation with microporosity and the right tibia has a slight, healed periosteal lesion of the medial surface of the middle third of the diaphysis.

Additional Information: This individual has large costoclavicular stress pitting, a supracondylar bone spur on the left humerus, and congenitally malformed hamates.

Burial 15

Feature 79:

Burial 15 (Figures 21-24) contains the complete and well-preserved remains of a Black male, estimated to be 18 to 22 years of age. The grave was located in the third row from the western wall, in the northern portion of the cemetery. He was buried supine in a wooden coffin, with his hands crossed at the abdomen and his head tilted to the left. Found with the remains were general service buttons and uniform fragments. Postmortem breakage is evident on the right ribs, right ulna, left radius and pubic bones. Green staining was found underlying buttons on the right lower arm and lumbar vertebrae.

Burial 15 was buried next to identified soldier David Ford (burial 19). David Ford died on June 6, 1868, and if the graves are in sequential order, this may be the body of Shadrack Donald or Walter Simms. These were the two Black soldiers that died just prior to, and following Ford's death. Walter Simms was a 22 year old Black male who died on May 21, 1868,

as the result of drowning in the Rio Grande and Shadrack Donald was a 21 year old Black male who died on July 1, 1868, of Typhoid fever.

Dentition: The mandible has a poor fit with the cranium. Nevertheless, the teeth are in excellent condition and all but one tooth are present; the RM_1 was lost antemortem. Wear and calculus are very minimal and only two teeth exhibit mild carious lesions.

Pathology: This individual shows signs of an active systemic infection. Active and widespread periostitis is present on the midshafts of the left and right tibiae and fibulae (Figure 23). Additionally, the sternal ends of the left ribs 3-8 and right ribs 4-8 display plaque-like periostitis on their visceral surfaces. Several bones are also very porous.

Additional Information: This individual has a large cleft in the left posterior arch of C1 (Figure 24). Spicules extend from either side of the cleft and possibly represent attachments areas for the fibrous tissue that bridges the open area. Also, the clavicles exhibit costoclavicular stress pitting and a bone spur is present on the left tibia just under the condyle.

Burial 16

Feature 81:

Burial 16 contains the partial and poorly preserved remains of an infant, estimated to be less than 2 months of age. This burial was located in the northwestern section of the cemetery and is only 25 to 50 percent complete. The remains are very fragmented and several cranial bones, ribs, vertebrae and limb bones were not present. No teeth were recovered. Sex and biological affinity could not be estimated due to the infant's age. No pathology was observed on the fragmentary remains.

Burial 17

Feature 80:

Burial 17 contains the complete and well preserved remains of an infant, estimated to be less than 2 months of age. The infant was buried in a small coffin that was set within a larger casket, in the northwestern section of the cemetery. Found with the remains were red cloth fragments, metal wire, a piece of leather, and a red powder. SEM images taken of the red powder show alkanet root was the source of the color (see Figure 25-26). This powder dyed the bones of the cranium, legs and a few vertebrae. This same pigment was also found covering the bones of burial 35, a white female that was 38-45 years of age and was buried just northeast of this infant.

The remains are much too young for estimating biological affinity and sex. The developing deciduous teeth were recovered and are in good condition. The remains are unremarkable for pathology.

Burial 18

Feature 66:

Burial 18 contains the remains of a young Black adult male, estimated to be 23 to 27 years of age. This grave was located in the north-central section of the cemetery and was looted along with burial 11, another Black male. No skull was recovered and the remains show extensive postmortem damage. Ancestry was estimated using the post cranial bones that were recovered in fair condition. Found with the remains were buttons, a percussion cap and a general service button. Green staining is seen on the right scapula and T5.

Dentition: A single mandibular incisor was recovered and displays moderate wear and slight calculus deposits.

Pathology: Small Schmorl's depressions are present on T4-T6, T10-T12 and L1-L2. The left tibia has a small enthesophyte just inferior to the fibular facet and the left fibula has a faint line of a healed fracture at the distal joint.

Burial 19

Feature 96:

Identity: David Ford

Burial 19 (Figures 27-31) contains the complete and well preserved remains of a Black male, estimated to be 20 to 22 years of age. This individual is identified as David Ford based on comparison with the historical records. David Ford was a Black farmer from Kentucky who joined the Company C of the 38th U.S. Infantry. He died at Fort Craig Hospital on June 6, 1868, at 21 and a half years old. According to the Final Statement of his death, he died of tuberculated caries of the spine (Final Statement, Hospital Records). His spine was surgically dissected and possibly used for study or sent to a medical museum.

The grave was located in the northwestern section of the cemetery and is between burial 34, an older White soldier, and burial 15, a young Black soldier. He was buried supine in a wooden coffin with his arms to his sides and his head tilted to the right. Found with the remains were white glass buttons, corroded metal buttons, and general service buttons. Green staining is present on the right clavicle, right rib 1 and left rib 1.

Dentition: The teeth are well preserved and in good condition. The right and left M^1s were lost antemortem and only two of the remaining teeth are affected by carious lesions. The teeth also exhibit 1 periapical abscess and minimal calculus deposits. Enamel pearls are present on the mesial interproximal root surfaces of RM^3 and LM^3.

Pathology: The present vertebrae and rib bodies show severe destruction attributable to tuberculosis of the spine (Pott's disease). L4 and L5 have advanced lytic destruction of the vertebral bodies, affecting L5 superiorly and L4 superiorly, inferiorly and ventrally (Figure 29). The right and left ribs 6-12 have active, plaque-like subperiosteal bone formation combined with lytic resorption of the underlying cortical bone. These changes are affecting the visceral vertebral thirds of the ribs.

Autopsy: The thoracic spine from C7 to L3 was surgically dissected from the body by cutting through the ribs posteriorly (Figure 30) and transversely cutting through the neural arch and body of L3 (Figure 31). L3 is represented by the neural spine and the inferior articular

facets. The saw pathway was from right to left based on a fine skip-step indicating the direction of the cut.

Additional Information: The humeri have septal aperatures.

Burial 20

Feature 99:

Burial 20 contains the complete and well preserved remains of an infant, estimated to be 9 to 16 month of age. The burial is located in the north-central section of the cemetery, near other infant graves. Found with the remains were buttons, a medicine bottle, and ribbons. The ribbon, which was still adherent to the posterior parietal and occipital, has stained the cranium pink. The thoracic and lumbar vertebrae are also stained, either from the ribbon or some other fabric now decomposed.

The remains are much too young for estimating biological affinity and sex. The deciduous teeth were all present and in good condition. The deciduous upper canines have large tuberculum dentales and the second molars exhibit Carabelli's pits. The remains are unremarkable for pathology.

Burial 21

Feature 102:

Burial 21 contains the mostly complete and fairly well preserved remains of a premature baby, estimated to be 26 to 30 fetal weeks in age. The remains were buried in a coffee box above a grave that had already been exhumed previously. Found with the remains were buttons and a soft clump of wool. Pink fluorescent pigment stained the remains and also infiltrated the medullary space to also stain the trabeculae in long bones. The remains are much too young for estimating biological affinity and sex. No teeth were recovered and no pathological conditions were observed.

Burial 22

Feature 100:

Burial 22 contains the mostly complete but fragmentary remains of a young child, estimated to be 3.1 to 3.8 years in age. The burial was in the north-central section of the cemetery and was without a coffin or casket. Looting of this grave resulted in postmortem damage to several of the ribs, vertebrae and long bones. Found with the remains was a glass bottle fragment and a porcelain fragment. The right parietal was colored pink, presumably from red or pink fabric that had previously decomposed.

The remains are much too young for estimating biological affinity and sex. Deciduous teeth are all present and in good condition. The cranium exhibits active cribra orbitalia recognized by pinpoint porosity within the left and right upper orbits.

Additional Information: The cranium has three left pteryon ossicles and at least 5 left lambdoidal ossicles.

Burial 23 - Amputations

Feature 106:

This burial contains four amputated legs, two right and two left, without a coffin or casket. The pit was found in the northern portion of the cemetery next to the eastern wall. All four legs show evidence of trauma from gunshot wounds. Presumably these limbs are from those that were amputated from male soldiers during the Battle of Valverde. After the battle, on February 21, 1862, the Fort Craig Hospital was faced with more than 160 wounded men and it is documented that at least 5 required immediate amputations (Taylor, 1995). The amputations in this burial, along with those in burial 38 may represent these documented amputations.

Burial 23A: This is a complete and well preserved amputated right leg from a male, estimated to be 25 to 35 years of age. Age was estimated from the trace lipping seen on the femoral condyles and proximal tibia.

The leg was cut above the knee, 17.5 cm above the distal joint surface of the femur (Figure 32). The amputation left striations indicating that the leg was cut from the anterior

medial surface progressing posteriorly with a tiny terminal snap at the linea aspera (Figure 33). The leg was amputated due to damage caused by a gunshot wound to the back of the knee. The medial condyle of the femur has a semi-circular fracture that defines the pathway of the projectile, from left to right (Figure 34). Two minute metallic fragments are evident in the radiographs of the femur.

Burial 23B: This is a complete and well preserved amputated right leg of a male, estimated to be 30 to 39 years of age. Age was estimated from the trace lipping seen on the femoral condyles, proximal tibia and patella.

The leg was shattered in the upper mid diaphysis of the femur by a gunshot wound (Figure 35). The projectile entered anteriorly and exited posteriorly, causing multiple radiating fractures and fragmentation. The entrance has a diameter of 12.6 mm and is internally beveled. Tiny metallic particles are seen radiographically at the entrance margin as well as the distal femoral diaphysis.

Burial 23C: This is a complete and well preserved amputated left leg from a male, estimated to be 23-29 years of age. Age was based on the absence of arthritic lipping, the smooth and compact bone cortices and the epiphyseal lines, which are still evident radiographically.

The leg was presumably amputated at the upper diaphysis of the femur but this area is not represented. Amputation was due to a traumatic injury that fractured the mid-shaft of the femur, with radiating fractures extending 13 am below. This likely resulted from a projectile, although no lead particles were evident radiographically.

Burial 23D: This is a complete and well preserved amputated lower left leg from a male, estimated to be 23-34 years of age. Age was based on the absence of joint lipping and the complete closure of the distal tibia and fibula.

The leg was amputated below the tibial tuberosity due to a gunshot wound (Figure 36). Both the tibia and the fibula were shattered into multiple fragments. The impact site is on the lateral surface of the tibia just slightly above the mid-shaft. The wound is from a large caliber bullet that struck the lateral surface and progressed from left to right. The leg was cut 8 cm

above the bullet impact site from anterior to posterior with a slight downward inclination. Fine, radio-opaque metallic particles are evident along the fracture margins.

Burial 24

Feature 114:

Burial 24 (Figures 37-38) contains the complete remains of a White male, estimated to be 38 to 44 years of age. The cranium shows moderate postmortem fragmentation but the postcranial skeleton is well-preserved. This individual was buried in the southeastern corner of the cemetery just next to the enclosure wall. He was buried supine in a wooden casket with his right hand at his abdomen and his left hand at his left shoulder. He was buried in uniform and four infantry insignia buttons were recovered with his remains. Green staining is seen on the left hand phalanges.

Dental: The teeth are well preserved and in moderate condition. Seven teeth were lost antemortem and the remaining teeth, while not exhibiting carious lesions, did present with 5 periodontal abscesses and a perforating abscess of LP^1. Calculus deposits were minimal, wear was moderate, and periodontal bone resorption was moderately severe. Traces of dark staining from tobacco use are evident on the lingual aspects of teeth.

Pathology: This individual bears cervical vertebral abnormalities, a healed clavicular fracture, right leg enthesophytes, and slight osteoarthritis on several joints.

This individual has a cleft in the left posterior right arch of C1 (Figure 37). The C2 and C3 are completely ankylosed at their centra and neural arches (Figure 38). In addition, the dens of C2 is short in height and poorly defined.

The left clavicle has a healed overriding fracture that has shortened its length and distorted its curvature. This clavicle is 11 mm shorter than the right. A small enthesophyte is seen on the proximal right tibia and fibula.

The thoracic vertebrae have slight lipping of their bodies and the lumbar vertebrae have prominent osteophytes. The sacrum also has an osteophyte, present on the right sacroiliac joint.

Osteoarthritis in the form of periarticular lipping are seen in several joints, including those of the elbows and knees.

Additional Information: There are three ossicles at lambda. The thyroid cartilage is ossified. There are 13 thoracic vertebrae and ribs. The femora have Poirier's facets.

Burial 25

Feature 115:

Burial 25 contains the complete and well preserved remains of an infant, estimated to be less than 2 months of age. This infant was buried in the southeastern corner of the cemetery in a grave with a wooden marker and four wooden posts. Found with this infant was a glass bottle lip fragment, five pins and ribbon. The frontal and parietal bones of the cranium are stained a salmon pink, presumably due to the ribbons. The bone is of very good quality with excellent preservation. The remains are much too young for estimating biological affinity and sex. The developing deciduous teeth were recovered and are in good condition. The remains are unremarkable for pathology.

Burial 26

Feature 108:

Burial 26 (Figures 39-40) contains the complete and well-preserved remains of a White male, estimated to be 55 to 65 years of age. The grave was located next to the enclosure wall in the northeastern corner of the cemetery. This individual was buried supine in a wooden coffin with his arms at his sides. This is the oldest male in the series and the arthritic changes in his skeleton reflect a lifetime of active physical labor.

Dentition: This individual had lost all maxillary teeth and nine mandibular teeth antemortem. The maxillae have severe alveolar resorption to the depth of the palate. The six remaining mandibular teeth are well preserved but display moderate to heavy calculus deposits. Staining from tobacco use is seen on the lingual aspects of the remaining teeth.

Pathology: This individual has degenerative joint disease and an old injury to the left hand. Otherwise, no other pathological conditions are evident from the remains. Advanced osteoarthritis is seen on all vertebrae and is most severe on the lumbar vertebrae with large projecting osteophytes. Degenerative periarticular lipping and articular erosion is present on the joints of the shoulder, elbow, hips and knees.

The left hand has an old fracture of the scaphoid and trapezium that is well healed but associated with pronounced osteoarthritis. The previous break had fractured these bones in such a way that half of the scaphoid had broken and fused to the trapezium during healing. Both display abnormal morphology and osteoarthritis with eburnation at their articulation.

Additional Information: The xiphoid and thyroid cartilages are ossified and the clavicles have costoclavicular stress pitting. Stress lesions are also seen on the radial tuberosities of the radii.

Burial 27

Feature 104:

Burial 27 contains the complete remains of an infant, estimated to be 8 to 16 months of age. The remains are well-preserved but adipocere is seen on the right ilium, radius and ulna. The infant was buried supine in a casket with their head tilted to the right. The burial was found next to the enclosure wall in the northeastern corner of the cemetery. The remains are too young for estimating biological affinity and sex. The majority of the developing deciduous teeth were recovered and are in excellent condition. This infant is unremarkable for pathology but has an inca bone and at least 3 lambdoidal ossicles.

Burial 28

Feature 105:

Burial 28 contains the complete and well preserved remains of a child, estimated to be 3.8 to 4.3 years of age. The grave was located next to the enclosure wall in the northeastern

corner of the cemetery. This child was buried supine in a wooden coffin and was found with buttons, shoes, gold ribbons and a pin with fabric. The cranium was moderately fragmented postmortem, but the post-cranial skeleton is in excellent condition.

The remains are too young for estimating biological affinity and sex. The deciduous teeth and developing permanent teeth were recovered and are in good condition. The right and left dm^2s and M^1s exhibit Carabelli's cusps.

Pathology: This child shows signs of cribra orbitalia and active periostitis. The upper orbits display slight pinpoint porosity within the upper orbits. The tibiae exhibit active periostitis on the diaphyses, and the left fibula has a well circumscribed sub-periosteal lesion measuring 25 mm in diameter. The lesion is anterior and has active woven bone deposits.

Additional Information: The right clavicle has cortical excavations at the costoclavicular attachment.

Burial 29

Feature 97:

Burial 29 contains the mostly complete remains of a young child, estimated to be 3 to 4 years of age. The grave is in the northern section of the cemetery in the fourth row from the western wall. The child was originally buried in a coffin but the sides and lid are absent indicating looting activity in this grave. As a result, much of the skeleton suffers from postmortem breakage. Fragmentation is seen in the calvarium, splanchnocranium, vertebrae, ribs, arms and legs.

The remains are too young for estimating biological affinity and sex. The deciduous teeth and developing permanent teeth were recovered and are in good condition. The dm^2s exhibit Carabelli's cusps with attached apices. This child is unremarkable for pathology but the right frontal has marked venous impressions.

Burial 30

Feature 111:

Burial 30 (Figures 41-45) contains the complete remains of a White male, estimated to be 30 to 36 years of age. The skeleton is in fair condition but brittle, and there is postmortem breakage of the ribs, vertebrae and some long bones. This individual was buried supine in a wooden coffin next to the northeastern wall of the cemetery. He was buried with his hands to his sides and was found with a corroded metal button. The left rib 2 was stained green from the button.

Dentition: The teeth are well-preserved and in fair condition. Eight teeth were lost antemortem and the remaining teeth were affected by seven carious lesions and minimal calculus deposits. The dentition is stained from tobacco use and a small pipe facet was formed between the RC^1-RP^1 and RC1-RP_1 (Figure 43).

Pathology: The skeleton shows changes caused by a widespread chronic infection, possibly syphilis. The cranium has two small cavitations on the left frontal and the palate has some porous remodeling. Post cranially, numerous bones show extensive, active, subperiosteal bone formation (see Figure 44). The following areas are affected:

1. The visceral and lateral surface of right rib 9 and left ribs 9 and 10.
2. Subscapular fossae and the vertebral borders of the scapulae.
3. Distal halves of the humeri.
4. Diaphyses of the clavicles, radii, ulnae, femora, tibiae, and fibulas.
5. Metacarpals and proximal and middle phalanges of both hands (see Figure 45).

Also present are shallow Schmorl's depressions seen on T8-L4. The depression on T12 measures 14 mm transversely by 8 mm anteroposteriorly, with a maximum depth of 3 mm.

Additional Information: The thyroid cartilage is ossified. The clavicles have costoclavicular stress pits.

Burial 31

Feature 109:

Burial 31 contains the remains of White male, estimated to be 33 to 37 years of age. This grave is located next to the wall in the northeastern corner of the cemetery. The burial was looted and only the right leg remained in situ. The cranium is fragmented and several of the post cranial bones are missing, such as the humeri and left leg bones. The vertebrae, ribs, and right scapula were fragmented postmortem. Found with the remains was a catholic medallion of the Virgin Mary, buttons, and leather shoe fragments.

Dentition: Four teeth were lost postmortem and another four teeth were lost antemortem. The remaining teeth have no carious lesions, no abscesses and minimal calculus deposits. The teeth exhibit marked maxillary and manibular wear.

Pathology: The distal third of the left ulna has a well healed fracture with callous. The L5 has complete bilateral spondylolysis. Schmorl's depressions are seen on four thoracic vertebrae and L1 to L5.

Burial 32

Feature 116:

Burial 32 (Figure 46-48) contains the complete and well preserved remains of a Black female, estimated to be 40 to 49 years of age. Her grave was next to the enclosure wall in the southeastern corner of the cemetery. She was buried supine in a wooden coffin, wearing a dress with cameo buttons and small metal hooks.

Dentition: The condition of her dentition is fair. Six teeth have been lost antemortem and the remaining teeth display moderate to heavy calculus formation. Many teeth have severe carious lesions with complete destruction of the tooth crowns. Four teeth have periapical abscesses and two teeth are abscessing out. The RI^1 has a notch on the incisal edge of the tooth that could possibly be a "Seamstress" notch.

Pathology: The remains exhibit degenerative arthritic changes, enthesophyte formation and marked bone development and muscle ridging from a lifetime of strenuous activity. Degenerative changes, such as porosity and periarticular lipping, are widespread affecting the vertebrae and joints of the shoulders, arms, knees and ankles. Also, the right calcaneus has extreme osteophytic lipping of the calcaneo-cuboid joint.

Enthesophytes are present at the proximal ulna, right iliac crest, right patella, distal tibiae at the groove for the tibialis posterior and flexor digitorum longus, and the right calcaneus at the attachment of the Achilles tendon and plantar ligament. In addition to enthesophyte formation, the bones of the arms have very developed and sharply defined muscle markings for the pectoralis major, deltoid, triceps and pronator quadrates muscles (Figure 48). Development of the attachment sites for these muscles reflects very strenuous, repeated activity. One possible activity was service as a laundress, a job that was observed to be filled by women at Fort Craig (McKay, 1918:27). The legs also exhibit signs of strenuous activity. The linea aspera and gluteal attachments of the femora are well developed and the proximal halves of the tibiae show lateral bending.

Additional Information: The xiphoid cartilage is ossified.

Burial 33

Feature 150:

Burial 33 (Figure 59-57) contains the complete and well-preserved remains of a Black female, estimated to be 33 to 38 years of age. This burial was in the present cemetery entrance in the northwestern section of the cemetery. She was buried supine in a triangular-shaped casket with her right hand at her abdomen and left hand at her left shoulder. The skeleton displays widespread pathological changes and remodeling due to a treponemal disease (tertiary syphilis), possibly with other complications.

Dental: The teeth are well-preserved and only one tooth was lost postmortem. The anterior upper teeth have an overbite relative to the lower teeth. Seven teeth were lost antemortem and six teeth show advanced carious destruction. There is one periodontal abscess

and periapical abscesses are seen on the right P^1, P^2 and M^2 and the left M_2 and M_3. Calculus deposits were minimal to moderate and alveolar resorption is moderately severe.

Pathology: The cranium, mandible and postcranial skeleton show signs of an infectious disease that was widespread and active at death. Syphilis is implicated as the primary cause of the pathological changes. The skeleton primarily exhibits osteolytic lesions, but periostitis and osteomyelitis were also present on specific bones of the legs. See Table 3 for descriptions.

The frontal, parietal and occipital have numerous remodeled cavitations due to lytic destruction of the outer table and underlying diploë. The lesions are sunken, erosive and well circumscribed. The borders are well rounded and uniform in appearance with sloping edges and depressed centers (Figure 51). Lesions are also present on the palatine processes of the maxillae and metal spine of the mandible. These are osteolytic lesions that are moth-eaten in appearance and have ill-defined margins. The maxillary lesions are the result of pocketed destruction eroding the palatine processes and the nasal floor (Figure 52).

Cervical vertebrae three through six show extensive destruction of their centra. Most of the centrum of C3 has been destroyed and the remaining has fused to C2. The lesions are osteolytic, erosive, and have caused beginning kyphosis due to loss in vertebral body height. As secondary response to the destruction of the vertebral bodies, the facets show abnormal morphology and spicule formations. T6 and L2 also have osteolytic lesions. L2 has a deep lytic cavitation on the superior centrum and apposition of new bone with surface macroporosity.

The pelvic girdle is affected by multiple osteolytic lesions. Present on the sacrum are lytic perforations with periostitis, seen in sacral segments 4 and 5. The right os coxa has osteolytic defects on the auricular surface and iliac spine, and the left os coxa has a granulomatous lesion affecting the ischium.

The ribs have several circular, scalloped lesions and cavitation lesions (Figure 53). The lesions are associated with cancellous destruction, periostitis, and/ or distortion, such as irregularly modeled cortical bone. Right ribs 2, 3, and 5-11 and left ribs 1-3, 6-10, and 12 are affected.

The ventral and dorsal surfaces of the manubrium and body of the sternum show abnormal bone loss and bone formation. There are 7 osteolytic cavitations, involving both

cortical and cancellous bone, and sclerotic bone deposition covering the ventral and dorsal surfaces.

The clavicles show shallow depressions and abnormal shapes from destruction and loss of bone followed by remodeling. The left clavicle has an osteomyelitis-like lytic lesion that extends into the medullary area, surrounded by porotic, subperiosteal bone formation (Figure 54).

The scapulae show destruction of their lateral borders and scapular spines (Figure 55). The lateral border of the right scapula is destroyed by osteolytic lesions that are remodeled with smooth edges. The lateral border of the left scapula also has numerous remodeled osteolytic defects. Furthermore, both spines are affected by the same type of remodeled osteolytic lesions.

The humeri and radii display abnormal bone loss and bone formation. The left humerus is light in weight and has extreme cortical thinning and cancellous destruction resulting in a thin meduallary cavity and destruction of the proximal joint. The proximal joint shows osteolytic cavitations and joint erosion with remodeling. The left humerus also has a small, active osteolytic lesion at the head and medial mid-shaft.

The right radius appears normal with the exception of the radial tuberosity, which has osteolytic cavities that perforate into the medullary space. The left radius is more severely affected. The left radius has five osteolytic lesions perforating the proximal third of the shaft, with penetration into the medullary cavity; three are distinct sinuses. Active, woven bone also surrounds this portion of the shaft, but the bone has undergone much atrophy. There is a highly remodeled mid-shaft fracture with non-union of the proximal and distal halves. The broken mid-shaft has extensive bone loss and the pseudo-facet formed between the upper and lower portions is characterized by a small facet between two narrow points of bone (Figure 56-57).

Osteomyelitis is present on both femora. They exhibit swollen diaphyses from extensive subperiosteal bone formation and areas of active cavitation. The diaphyses have active woven and sclerotic bone deposition as well as sclerotic densification and cloaca.

The right patella has a small osteolytic defect, and tibiae and fibulae exhibit cortical expansions from periostitis. The right tibia has a large cavitation at the metaphysis below the medial condyle, and the left tibia has periostitis at the soleal line of the proximal diaphysis with cortical expansion and a central cloaca. Similarly, the right and left fibulae have osteomyelitis-like diaphyseal bone thickening and small cloaca.

Syphilis is implicated as the primary cause of the widespread pathological changes that appear to have been primarily lytic. There was also new bone formation from periostitis. It is also possible that she may have suffered from other conditions that caused sinus track formation in bones, such as osteomyelitis or tuberculosis.

Other Conditions: Complete fusion is present between C2 and C3, and L5 exhibits bilateral spondylolysis.

Table 3: Skeletal Lesions in Burial 33

Measurement Directions: AP- anterior to posterior, ML- medial to lateral, SI- superior to inferior

Bone	Lesion	Measurement	Description
Frontal	1	10 X 22 mm, AP/ML	Cavitation
	2	6 X 6 mm, AP/ML	Cavitation
	3	17 X 15 mm, AP/ML	Cavitation
	4	8 X 8 mm, AP/ML	Cavitation
	5	5 X 5 mm, AP/ML	Cavitation
Parietal	6	15 X 15 mm, AP/ML	Cavitation
	7	10 X 10 mm, AP/ML	Cavitation
	8	15 X 15 mm, AP/ML	Cavitation
	9	10 X 10 mm, AP/ML	Cavitation
	10	15 X 25 mm, AP/ML	Cavitation
	11	25 X 35 mm, AP/ML	Cavitation
	12	20 X 30 mm, AP/ML	Cavitation
	13	20 X 20 mm, AP/ML	Cavitation
	14	15 X 15 mm, AP/ML	Cavitation
Occipital	15	20 X 20 mm, AP/ML	Cavitation
Maxillae	16	15 X 20 mm, AP/ML	Osteolytic and erosive
	17	6 X 6 mm, AP/ML	Osteolytic defect associated with lesion 16
	18	6 X 6 mm, AP/ML	Osteolytic defect associated with lesion 16
Mandible	19	5 X 9 mm, SI/ML	Osteolytic and erosive
Cervical 3		-	Osteolytic, inferior centrum
Cervical 4		-	Osteolytic, superior and inferior centrum

Cervical 5	-	Osteolytic, superior and inferior centrum causing a defect
Cervical 6	-	Osteolytic, inferior centrum
Thoracic 6	8 X 8 mm, AP/ML	Osteolytic, superior centrum
Lumbar 2	12 X 12 mm, AP/ML	Osteolytic, superior centrum with associated apposition of new bone
	15 X 12 mm, AP/ML	Osteolytic, inferior and posterior centrum with associated apposition of new bone
Sacrum	-	Osteolytic, trabecular erosion, cortical perforation, woven bone deposition
R. Os Coxa	20 X 7 mm, AP/SI	Osteolytic lesion with 2 cortical defects, auricular
	20 X 22 mm, ML/SI	Osteolytic lesion, posterior superior iliac spine
L. Os Coxa	-	Granulomatous, cortical and cancellous destruction, ischium
R. Rib 2	8 X 18 mm, AP/ML	Circular, punched-out defect, remodeled, sternal end
	8 X 20 mm, AP/ML	Circular punched-out defect, remodeled, mid-shaft
R. Rib 3	3 X 3 mm, AP/ML	Circular cavitation, sternal end
R. Rib 5	5 X 15 mm AP/ML	Sloped, external lesion with cortical thinning, remodeled, sternal end
R. Rib 6	7 X 18 mm AP/ML	Cavitation visceral lesion, sternal end
R. Rib 7	7 X 7 mm AP/ML	Osteolytic circular lesion, sternal end
R. Rib 8	9 X 15 mm AP/ML	Incipient cavitation, mid-shaft
	-	Healed fracture with callous, vertebral 1/3
	-	Healed fractures with callous, sternal 1/3
R. Rib 9	-	Incipient external cavitation
	-	Incipient external cavitation

	-	Incipient external cavitation
	-	Well-healed fracture, vertebral 1/3
R. Rib 10	-	Cortical thickening associated with 3 open cavitations resembling cloaca, vertebral 1/3
	4 X 6 mm AP/ML	Cavitation, vertebral 1/3
	2 X 2 mm AP/ML	Cavitation, vertebral 1/3
	4 X 6 mm AP/ML	Cavitation, vertebral 1/3
	-	Periostitis distal to cavitations
R. Rib 11	2 X 2 mm AP/ML	External cloaca, mid-shaft
	2 X 2 mm AP/ML	Visceral cloaca, mid-shaft
L. Rib 1	-	Small perforation, inferior mid-shaft
L. Rib 2	-	Small healed lesion, inferior mid-shaft
L. Rib 3	-	Small external lesion, neck
L. Rib 6	-	Periostitis, vertebral ½
L. Rib 7	-	Periostitis, vertebral ½
	-	Incipient lytic lesion, neck
	-	Small perforation, vertebral 1/3
	-	Small perforation, vertebral 1/3
L. Rib 8	8 X 33 mm AP/ML	Circular lesion with defect, superior margin sternally
L. Rib 9	5 X 11 mm AP/ML	Visceral cloaca with external and inferior defects, vertebral end
	5 X 5 AP/ML	External cloaca, mid-shaft
	5 X 10 AP/ML	External circular cavitation, sternal end
L. Rib 10	-	Widespread cancellous destruction of entire rib, which is thin, lacking cancellous bone, and is markedly distorted by remodeling
L. Rib 12	3 X 4 mm AP/ML	Perforation at sternal end

	3 X 6 mm AP/ML	Perforation at sternal end
Manubrium	-	Osteolytic, right clavicular notch
	7 X 7 mm SI/ML	Osteolytic smooth pit, anterior
	-	Osteolytic with cortical perforation, notch for left rib1
	-	Osteolytic with cortical perforation, notch for right rib 1
	10 X 20 mm SI/ML	Large lytic cavitation, right inferior aspect
Sternal Body	8 X 8 mm SI/ML	Osteolytic, well circumscribed lesion, superior 1/3
	2 X 2 mm SI/ML	Osteolytic, well circumscribed lesion, inferior 1/3
R. Clavicle	-	Multiple shallow depressions, abnormal shape
L. Clavicle	12 X 12 mm SI/ML	Osteomyelitis like lesion with cloaca at conoid tubercle
R. Scapula	15 X 13 mm SI/ML	Circular defect at vertebral border
	82 X 15 mm SI/ML	Defect, vertebral border
	-	Inflammation, cortical bone loss, and defects, inferior angle
L. Scapula	8 X 8 mm SI/ML	Defect, vertebral border
	25 X 21 mm SI/ML	Defect, vertebral border
	3 X 3 mm SI/ML	Defect, inferior angle
	3 X 3 mm SI/ML	Defect, inferior angle
	3 X 3 mm SI/ML	Defect, inferior angle
R. Humerus	4 X 5 mm SI/ML	Osteolytic lesion, head
	-	Remodeled depression, distal posterior shaft
L. Humerus	20 X 25 mm SI/ML	Osteolytic, cortical bone loss, head
	6 X 4 mm SI/ML	Small cavity, medial shaft
R. Radius	-	Osteolytic lesion, cancellous destruction,

		woven bone deposition and 3 cortical defects, tuberosity
L. Radius	-	Remodeled pathological fracture with small pseudoarthrosis and non-union, mid-shaft
	-	Osteolytic defect, proximal 1/3
	-	Osteolytic defect, proximal 1/3
	-	Osteolytic defect, proximal 1/3
	-	Osteolytic defect, proximal 1/3
	-	Osteolytic defect, proximal 1/3
	-	Active woven and sclerotic bone deposition, proximal 1/3
R. Femur	-	Osteomyelitis
L. Femur	-	Osteomyelitis
R. Patella	10 X 10 mm SI/ML	Osteolytic defect, right superior angle
R. Tibia	21 X 12 mm SI/ML	Cavitation, medial condyle
L. Tibia	15 X 50 mm SI/ML	Periostitis with cloaca, proximal ¼ at soleal line
R. Fibula	-	Periostitis with cortical thickening and cloaca, diaphysis
L. Fibula	-	Periostitis with cortical thickening, proximal 1/3

Burial 34

Feature 152:

Burial 34 (Figure 58-59) contains the complete remains of a White male, estimated to be 38 to 45 years of age. Postmortem erosive damage was seen on the left cranial vault, lumbar vertebrae, several ribs, and the right ilium. This burial was next to David Ford (burial 9) in the northwestern section of the cemetery, in the third row from the western wall. He was buried

supine in a wooden coffin with his hands at his abdomen and head tilted to the left. Found with the remains were black and white shirt buttons.

Dentition: All teeth are present, well preserved and, despite having moderate to heavy calculus deposits, are in good condition. Tooth wear is moderate to heavy.

Pathology: The remains exhibit slight osteoarthritic lipping and Schmorl's depressions in the vertebrae, pitting on the right humerus, and a lesion on the left femur.

The centra of C4 to C7 have moderate lipping with near bridging due to ossification of the anterior longitudinal ligament. These changes suggest a habitual behavior that contributed to cervical arthritic changes. The thoracic and lumbar vertebrae also have slight lipping of the vertebral bodies. Schmorl's depressions are seen on T2 – T12 and L1 – L2. The depressions on the thoracic vertebrae are small. The largest depression is in L1, which has a transverse measurement of 19 mm by 4.5 mm anteroposteriorly, with a maximum depth of 4 mm.

The right humerus has three periarticular pits. The pits are adjacent to the greater tubercle, above the lesser tubercle and on the posterior surface of the proximal articulation. The left femur has an area of sclerotic bone deposition on the anterior mid-shaft measuring 24 mm superoinferiorly by 10 mm mediolaterally.

Additional Information: The manubrium, sternal body and xiphoid are united. Costal fusion is present between the first and second rib.

Burial 35

Feature 153:

Burial 35 contains the complete remains of a White female, estimated to be 38 to 45 years of age. This burial was in the northern section of the cemetery. She was buried supine in a wooden coffin with her arms crossed at her abdomen. Found with the remains was a center-fired cartridge. The cranium displays pronounced warping with postmortem breakage from ground pressure. The rest of the skeleton, however, is in good condition and strongly classifies this

individual as White. A deep red pigment is present on numerous bones and joint surfaces. The origin of this pigment is alkanet root, which was also found on the bones in burial 17.

Dentition: The teeth are present and well preserved. There is advanced absorption of the maxillary and mandibular anterior alveolus. The right maxilla shows antemortem loss of four teeth. The remaining teeth have three periodontal abscesses, four periapical abscesses, and moderate to heavy calculus deposits. Dark staining is present on the posterior dentition and the RM^2 has a protostylid.

Pathology: This individual has a well healed clavicular and rib fracture, osteoarthritis, and osteolytic activity at the pubis.

The left clavicle has a well healed mid-shaft fracture causing abnormal curvature relative to the right side. The left clavicle measures 8 mm less than the right. Also, the right rib 7 has a well healed old fracture, 5 inches from the sternal end.

Slight arthritic changes are noted on the facets and bodies of the vertebrae and on the joints of the elbows, knees and feet. The distal humeri and the proximal ulna show lipping of the joint margins. The distal femora also display lipping as do the proximal tibiae and the right patella. The patella shows the most pronounced changes with osteophytes and porosity on the joint surface. The first metatarsals and first phalanges also have arthritic lipping of the margins with joint surface porosity.

An unusual lytic response has caused resorption of the ventral and dorsal ramparts of the pubic bones (Figure 60). The ventral rim has gaps and the surface is undercut and porous. On the right ilium lytic response is also present along the inferior border of the acetabulum. Much bone resorption has affected the symphyseal face.

Additional Information: This skeleton has a retroarticular bridge on C1, an osteophyte on the dens of C2, costal fusion between ribs 1 and 2, and the xiphoid is ossified.

Burial 36

Feature 154:

Burial 36 contains the mostly complete remains of an infant, estimated to be less than two months of age. This was a late burial as it directly overlaid the intact grave of a soldier (burial 39). These graves were next to the northern wall in the central section of the cemetery. The infant had fine brown hair, 2 cm in length, and was buried with a safety pin, fabric and gold ribbon with netting. Preservation is fair; adipocere is seen on the pelvis and long bones of the arms and legs.

The remains are too young for estimating biological affinity and sex. The deciduous teeth were not recovered during excavation and this child is unremarkable for pathology.

Additional Information: The sternal end of the left 5^{th} rib is flared.

Burial 37

Feature 110:

Burial 37 contains the complete and well preserved remains of an infant, estimated to be less than 2 months of age. This infant was buried with other infants in the northeastern corner of the cemetery. Found with the remains were 2 corroded metal buttons from a coat sleeve, a white button, and a sheet or blanket.

The remains are too young for estimating biological affinity and sex. The deciduous teeth were well preserved and are in good condition. This infant is unremarkable for pathology.

Burial 38

Feature 130:

Burial 38 (Figures 61-62) contains the complete and well preserved remains of a young White male, estimated to be 15.5 to 17.5 years of age. The post-cranial skeleton has advanced fusion, relative to the dentition, and would suggest an older age of 17 to 19 years. The grave was in the northwestern section of the cemetery, in the third row from the western wall. He was buried supine in a wooden coffin with his hands at his side and head tilted to the left. There were no artifacts or clothing found with the remains.

Dentition: The teeth are all present and well-preserved. The third molars are still developing and are unerupted. The teeth are in great condition and only display minimal calculus and wear.

Pathology: Slight cribra orbitalia is present in both eye orbits, but otherwise this individual is unremarkable for pathology.

Additional Information: The C1 vertebra has retroarticular bridging. The clavicles have stress lesions at the attachment of the deltoids. The proximal humeri both display well-defined stress lesions for the teres major and latissimus dorsi.

Burial 39

Feature 131:

Burial 39 (Figures 63-65) contains the complete and well-preserved remains of a White male, estimated to be 18 to 20 years of age. The bones are in excellent condition with a few ribs and the sacrum displaying postmortem breakage. The grave is located under burial 36 (an infant) in the northern section of the cemetery, just next to the northern wall. He was buried supine in a wooden coffin with his arms at his side and his head tilted to the left. Found with the remains were glass buttons, general service buttons and two complete brogans. Green staining is present on the right temporal, parietal bones, right hand, and the sternal third of left rib 3. The cause of death of this individual was a gunshot wound to the head.

Dentition: The teeth are all present, well-preserved and in good condition. Carious lesions are seen in two teeth and calculus is minimal. The lingual aspects of the teeth are stained from tobacco use.

Pathology: The skeleton exhibits cribra orbitalia, a gunshot wound to the cranium and Schmorl's depressions. Cribra orbitalia, in the form of pinpoint porosity, is seen in the upper orbits. The cause of death was a gunshot wound to the posterior right vault from a large caliber bullet, which exited the frontal. A few minute lead particles are evident radiographically in the margins of the entrance and exit wounds. The cranium was autopsied.

The entrance was at the right asterion and has a maximum diameter of 20 mm. The entrance wound also has a single radiating fracture that extends from its anterior margin. It travels anteriorly from above the external auditory meatus and above the zygomatic arch. It then is directed slightly superiorly into the greater wing of the sphenoid and into the right aspect of the frontal bone, where it bifurcates and extends above the right eye orbit and also travels posteriorly, terminating at the autopsy cut.

The exit wound is in the frontal, approximately 20 mm above the superior margin of the left eye orbit. The defect has a diameter of approximately 26 mm. Only one radiating fracture extends from the exit wound. It travels inferiorly and slightly laterally into the left orbit and then travels medially in to the lachrymal.

Schmorl's depressions are present on multiple vertebrae. Depressions are noted on T6 through L5 and are small to medium. The largest depression is 30 mm transversely by 16 mm AP, seen on T9, with a depth of 2 mm. Slight anterior wedging is exhibited on T11 and T12.

Autopsy: The cranial vault has been autopsied with a transverse cut across the frontal bone and a more oblique cut across the parietals. The autopsy cut traverses both the entrance and exit wounds.

Additional Information: The thyroid cartilage is ossified and the clavicles exhibit stress pitting at the attachment of the costoclavicular ligaments.

Burial 40

Feature 132

Burial 40 (Figures 66-67) contains the partial remains of a male soldier, estimated to be 21 to 24 years of age. The grave is in the northeastern section of the cemetery and was looted. Missing from the remains are the skull, radii, ulnae, a majority of the hand bones, C1 and two thoracic vertebrae, the left tibia, and both fibulae and most of both feet. Found with the remains were multiple general service buttons and an undistorted 24 mm Minié ball.

Pathology: Two bones have been surgically amputated: the right humerus in two different locations (Figure 66) and the left femur (Figure 67). The removed sections of bone are not present and the exact reason behind these cuts is undetermined, but they are indicative of trauma. The right humerus has removal of the proximal joint and metaphysis with the cut bisecting the proximal third of the shaft. The distal shaft has a transverse cut across the epicondylar portion of the bone, which removed the distal joint. A skip indicates that the distal humeral was cut from back to front with a slight upward orientation. Several scalpel cuts are present on the posterior surface of the distal humerus near the amputation margin.

The left distal femur was amputated 9.6 mm above the distal joint, as measured using the right femur as a reference. Surface features indicate that the sawing began on the medial surface and progressed laterally and slightly downward with a trace termination snap along this lateral cut edge.

Additional Information: The L5 is sacralized and the clavicle show costoclavicular stress pitting. The humeri also show stress lesions at the attachments for the teres major (right only) and latissimus dorsi.

Burial 41

Feature 41:

Burial 41 (Figure 68-72) contains the complete remains of a White male, estimated to be 30 to 36 years of age. The skeleton was in good condition but postmortem breakage and erosion was present on the scapulae, ribs and portions of the long bones. This individual was buried supine in a wooden coffin next to the northern entry of the cemetery. Found with the remains was gauze or a thin fabric blanket over the torso, possibly indicating death occurred as a result of disease while under medical care. Skeletal evidence indicates an acute lung infection.

Dentition: The majority of teeth are present and well-preserved. Four teeth were lost antemortem, and their sockets have resorbed. Molars behind these sockets have drifted mesially and the maxillary first molars show slight over eruption. Seven maxillary teeth have gold fillings (see Figure 70); two in LI^1, LI^2, LM^2, LM^3, RM^2, RP_2. Fillings were confirmed in the

radiographs of the skull. In addition, the RI^1 has a mesial-occlusal pit, indicating that this tooth also had a filling, which has subsequently fallen out. The teeth also exhibited a periapical abscess and moderate to coalesced calculus formation.

Pathology: This individual exhibits evidence of deviated nasal bones (Figure 71), an acute lung infection (Figure 72), slight degenerative changes and Schmorl's nodes. The nasal bones and nasal spine show deviation toward the right side. Internally, there is a deformation of the vomer. Additionally, the superior nasal turbinate is greatly expanded, suggesting chronic inflammation.

New bone formation from slight to moderate periostitis is evident on right ribs 2-10. These changes are widespread and caused by a pleural cavity infection that was severe. Bone involvement indicates several weeks of duration. No changes are noted for the left side.

Slight degenerative lipping and porosity are seen in the right humerus, left and right acetabulae, patellae, proximal and distal right tibia, and sacral promontory. Further, Schmorl's depressions are present in T6, 8, and 9, and L3-5. The largest depression is seen in L5, which has a large oval-shaped depression that measures 32 mm transversely by 11 mm AP, with a maximum depth of 6.6 mm.

Additional Information: There are only 11 right and left ribs. The L5 is sacralized and fused to the sacrum. The manubrium is elongated and the xiphoid cartilage is ossified. Enthesophytes are seen on the proximal left fibula and both calcanei at the attachments for the Achilles tendon. MT1 proximal phalanx has a tubercle superiorly.

Burial 42

Feature 163:

Burial 42 contains the incomplete and looted remains of a Black male, estimated to be 20 to 24 years of age. The cranium is represented only by the right maxilla, malar and a partial left maxilla. The postcranial skeleton is missing the manubrium, sternal body, patellae, left fibula, two vertebrae and some hand and foot bones. The remaining skeleton is in good condition

despite postmortem breakage from looting activity. The humeri were in situ but the rest of the bones were tossed back into the grave. No artifacts were found with the remains.

Dentition: The dentition is represented by six teeth, which are well preserved and display no carious lesions, no abscessing, and have only slight calculus deposits.

Pathology: The remains are unremarkable for pathology.

Additional Information: The left scapula has an os acromiale and the clavicles exhibit costoclavicular stress pitting.

Burial 43

Feature 170:

Burial 43 (Figure 73-76) contains the complete and well-preserved remains of a Black male, estimated to be 21 to 24 years of age. This individual was buried supine in a wooden coffin with his arms crossed at the abdomen and head tilted to the right. The grave was next to the southern wall in the south-eastern corner of the cemetery. No artifacts were found with remains.

Dentition: The teeth were well-preserved and in good condition. The mandibular molars are congenitally absent and four teeth were lost antemortem. The remaining teeth have trace calculus deposits and only two carious lesions. The RM^3 has an odontome.

Pathology: The sacrum has a sixth sacral vertebra and complete, bilateral spondylolyis of L4 and L6 (Figure 75). Schmorl's nodes are also present on L1-L4. In addition, the left tibia has slight, localized, and healed periostitis on the middle third of the diaphysis. Finally, osteochondritis dessecans are notes on the left MT1.

Additional Information: The left ribs 1 and 2 have costal fusion (Figure 76), the xiphoid cartilage is ossified, and stress lesions are seen at the deltoid tuberosities and costoclavicular ligament attachments.

Burial 44

Feature 173:

Burial 44 contains the looted but mostly complete remains of a White male, estimated to be 40 to 49 years of age. This individual was buried in the southeastern corner of the cemetery and was found with snap buttons and wool fragments. The cranium exhibits postmortem fragmentation, but the postcranial skeleton is well-preserved.

Dentition: No teeth are present but, from the preserved maxillae and mandible, it is evident that 17 teeth were lost antemortem.

Pathology: Although the precise nature of this individual's death is undetermined, amputation of the right femur indicates a traumatic death. The proximal third of the right femur had been amputated (Figure 77). The femur was amputated 29.2 mm below the proximal joint by sawing from front to back with a medio-inferior and slight posterior inclination. As such, the left lateral edge is higher than the medial edge. The linea aspera has a terminal snap.

Additional Information: The manubrium and xiphoid are fused to the sternal body. The thyroid and costal cartilages are ossified.

Burial 45

Feature 177:

Burial 45 (Figure 78-79) contains the mostly complete remains of a White male, estimated to be 30 to 39 years of age. This individual was wrapped in a blanket and buried supine near the eastern wall of the cemetery. His head was tilted to the right and hands were at

his sides. The remains are in good condition, despite the scapulae and ribs having been fractured postmortem. Missing from the skeleton are the left and right patellae.

Dentition: The teeth are well preserved and in good condition. Three teeth have been lost antemortem, and one tooth, the RM^3, is present within the alveolar bone but has not erupted. Both the RM^3 and LM^3 are abnormally positioned mesial to the left and right M^2. The teeth exhibit minimal calculus deposits, and only one tooth is affected by carious lesions. Brown staining from tobacco use is present and trace pipe facets are seen in the canines and premolars.

Pathology: The remains exhibit Schmorl's depressions on T7 to L2 and slight degenerative changes throughout the skeleton. The right temporomandibular joint has slight erosion and periarticular lipping is seen on the distal humeri, left acetabulum, distal left femur, right calcaneus, and distal joints of the first metatarsals. Trace lipping is also seen on some vertebral bodies and their facets.

Additional Information: The styloid processes on the temporals are markedly elongated from ossifying stylohyoid ligaments. The thyroid and xiphoid cartilages are ossified.

Burial 46

Feature 112B:

Burial 46 contains the complete and well preserved remains of an infant, estimated to be 1.5 to 1.9 years of age. The infant was buried with an adolescent female (burial 47) next to the eastern wall of the cemetery. The infant was buried supine between the legs of burial 47. The head was tilted to the left and the hands were crossed at the abdomen. Found with the remains were artifacts associated with B47. The remains are too young for estimating biological affinity and sex.

Dentition: The deciduous teeth were well preserved and in good condition. The left and right dm^2 exhibit Carabelli's pits.

Pathology: Mild but active cribra orbitalia is seen within the upper orbits, but otherwise the remains are unremarkable for pathology.

Burial 47

Feature 112A:

Burial 47 contains remains of a White female estimated to be 13 to 14 years of age. The remains are in good condition but the cranium exhibits postmortem fragmentation. This individual was buried next to the eastern cemetery wall and was found supine with a young infant (burial 46) placed between her legs. This may indicate a familial relationship and/ or deaths occurring in close sequence, possibly associated with a similar cause. Found with the remains was a hair barrette, cloth, pins and woman cameo buttons. The sex estimate is based upon the associated artifacts and burial context. The buttons and pins caused extensive green staining of several upper body bones, such as those of the cranium, mandible, vertebrae, clavicles, scapulae, manubrium and ribs 1 and 2.

Dentition: The teeth are well-preserved and in good condition. The RI^{1} was lost postmortem but all other teeth are present. The third molars have not yet erupted and exhibit initial root cleft formation. There are no carious lesions or abscesses, but slight calculus deposits are noted.

Pathology: The lower and upper lumbar vertebrae display abnormal porosity on their anterior bodies, but otherwise she is unremarkable for pathology.

Additional Information: C1 has exhibits a retroarticular bridge, and C4 and C7 have clefts between their pedicles and bodies.

Burial 48

Feature 121:

Burial 48 contains a wooden amputation box with a left and right lower arm; presumably related to the Battle of Valverde. The box was buried in the north-central area of the cemetery, near infant and empty graves.

Left Arm: The left lower arm was amputated just above the wrist, at the distal 1/3 of the radius and ulna. Amputation was likely performed due to two gunshot wounds to the palm, which blew out the shafts and distal ends of the second through fourth metacarpals. The saw marks and bone spurs on the radius and ulna are consistent with antero-posterior cut with the hand pronated so that the radius was crossing the ulna.

Right Arm: The right arm was amputated just above the elbow, at the distal ¼ of the humerus. The cut was made anterior to posterior, 73 mm above the capitulum, and left medio-lateral striations and a posterior bone spur. The amputation was likely from the lower arm trauma affecting the radius and ulna. The distal radius exhibits signs of a gunshot wound to the lateral border, causing a defect in the radius and fractures of the radius and ulna.

Burial 49

Feature 90:

Burial 49 (Figure 80-82) contains the complete and well-preserved remains of a White male, estimated to be 40 to 47 years of age. The grave was found in the southwestern section of the cemetery, two rows from the western wall. He was buried supine in a wooden coffin with his hands at his sides. Found with the remains were clothing fragments, clothing buttons, general service buttons, and a Scottish comb. Slight green staining is present on the acromial and coracoid processes of the left scapula.

Ancestry of this burial was classified as being a Native American, yet morphological features indicated a European ancestry. A much more extensive analysis was thus undertaken by Dr. Richard Jantz to determine whether Native American affiliation could be supported. Samples of older Whites and Blacks, along with several additional Native American groups were analyzed as follows: Terry and Todd collection of 19th Century Blacks and Whites, Farringdon Street (17th century England), Norse (Medieval Norway), Blackfeet, Arikara, Zuni, Maya, and

recent Mexican Americans. The analysis was based on 36 measurements of the skulls and the posterior probabilities indicate considerable ambiguity. Overall, the affinity is clearly White. The resemblance to Native American's is due to his broad face and vault, something that also characterizes Whites of the 19th century and before.

Dentition: The teeth are well preserved and in poor condition. Five teeth were lost antemortem and the remaining teeth suffer from multiple carious lesions (n=19), a periapical abscess, and moderate dental calculus. Three of the teeth that were lost antemortem had abscessed out. There is severe crowding of the anterior mandibular dentition, resulting in lingual displacement of the RI_1 and labial displacement of the LI_1.

Pathology: This individual was osteopenic with cribra orbitalia, a healed mandibular fracture, Schmorl's depressions, and long bone periostitis. The long bones are light in weight and DEXA scan results indicate osteopenia. In addition, slight but active cribra orbitalia is present within the upper orbits, suggesting anaemia.

The right mandibular ramus exhibits abnormal morphology and an external furrow from an old fracture with associated drainage to the area (Figure 82). Associated with this trauma is a remodeled right glenoid fossae and mandibular condyle, which exhibit porosity and erosion. The right mastoid has three cloaca and the internal jugular path has spicule formations.

Slight Schmorl's depressions are present on T7 to T9, T11, and L1 to L4. Active periostitis is present on the arms and the right leg. Periosteal proliferations are seen on the distal left humerus, slight on the right distal humerus, on the distal radii and distal third of the right femur.

Additional Information: The cranium has a pterygoid ossicle. The thyroid and xiphoid cartilages are ossifies. Large costoclavicular pits are present. Enthesophytes are seen on the tubercles of left and right ribs 3 to 7. Enthesophytes are also present on the intertrochanteric line of both femora and on the left lateral malleolus of the fibula.

Burial 50

Feature 164:

Burial 50 contains the fragmentary and mostly complete remains of a Black male, estimated to be 17 to 19 years of age. He was buried supine in a wooden casket at the southeastern section of the cemetery. Found with the remains were several buttons, including trouser buttons. This skeleton seems to be much less well-preserved than the rest of the skeletal series. The cranium is highly fragmented and the scapulae, ribs, and vertebrae show postmortem breakage. Several other elements display postmortem damage and the bones are brittle and dry. Also, a greenish algae-like discoloration is noted on the anterior tibiae.

Cranial, postcranial and dental features indicate African ancestry. The cranial vault, although fragmentary and partially reconstructed, appears long and narrow and the occipital region is fairly dense. The nasal sill is blurred and in articulation with the mandible, the partial maxilla with dentition suggests a degree of prognathism. Dentally, the teeth are very large, with large, crenulated molars as well as marked canine distal accessory ridges and shoveled incisors with tuberculum dentales.

Dentition: Despite a highly fragmented cranium, the teeth are present and well-preserved. The third molars are still developing and their roots are ¾ complete. His dental health, however, is quite poor considering his young age. His teeth display numerous circular and destructive carious lesions. Caries have affected 13 of the 29 teeth, exhibiting a total of 23 carious lesions. In addition, 1 tooth was lost antemortem, 5 teeth have periapical abscessing, and calculus deposits are slight to moderate.

The teeth are markedly large and display many identifying morphological traits. The maxillary central incisors are shoveled and the lateral incisors are peg shaped. The upper incisors and canines have large tuberculum dentales and the mandibular canines have marked distal accessory ridges. The premolars are complex, the molars are crenulated, and the RM^1 has a parastyle.

Pathology: This individual exhibits Schmorl's nodes on T7 to T9 and T12. The largest is on T8, which measures approximately 17mm by 7 mm with a depth of 2.7 mm.

The left foot has several lytic lesions observed on the MT1, MT2, MT5, and the phalanges. The MT1 has a circular, scalloped shaped, osteolytic lesion with well defined and

rounded margins. This lesion is located just medial to the head. The articulating proximal and distal phalanges also have destruction of the heads and proximal articular surfaces. Similar lesions are also affecting the MT2 and MT5. All proximal phalanges have abnormally shaped distal articular surfaces, which are porous and reactive. Similarly, the intermediate and distal phalanges, which are fused together, also show destruction of the articular surfaces.

The first toe of the right foot is also affected by lytic activity. The MT1 has a periarticular pit just medial to the distal articulation. The articulating phalanx has three rounded and coalescing pits just medial to the head and the distal phalanx is affected similarly. In addition, the intermediate and distal phalanges 3-5 are fused.

The left hand shows a lytic pit on the trapezoid and capitate at their articulation. The lesion measures 5 mm by 5 mm and is reminiscent of the lesions affecting the feet. The lesions well-defined osteolytic pits with a scalloped morphology and rounded margins.

Burial 51

Feature117:

Burial 51 (Figure 83-84) contains the complete and well-preserved remains of a Black male, estimated to be 17 to 19 years of age. He was buried in a wooden coffin at the north-central portion of the cemetery, just next to the northern wall. He was found supine, in full uniform, with his hands crossed at his abdomen. From the uniform were brass buttons displaying an "I" insignia. These are from an infantry uniform, suggesting that this individual was from the African American 38th or 125th infantry, stationed at Fort Craig in 1866 and 1868. Green staining is present seen on the right ribs, L4, L5, and some left and right wrist and hand bones.

Dentition: The teeth are well-preserved and in poor condition, considering his young age. Three teeth were lost antemortem and the remaining teeth exhibit 15 carious lesions, 6 periapical abscesses, and slight calculus deposits.

Pathology: The L3 has a small Schmorl's node measuring 5 mm AP by 4 mm transverse with a depth of 2 mm. No other pathological conditions are noted.

Additional Information: The clavicles have large costoclavicular pits and robust conoid tubercles.

Burial 52

Feature 119:

Burial 52 contains the complete and well preserved remains of an infant, estimated to be less than 2 months of age. The infant was buried in a wooden coffin near the northern wall of the cemetery. The infant was buried supine, was covered with powdered lime, and was found with green and white fabric. The remains are too young for estimating biological affinity and sex.

Dentition: The deciduous teeth were well preserved and in good condition. The LC_1 and RI_1 were lost postmortem but the remaining deciduous teeth are present.

Additional Information: There is an ossicle at lambda and the baby was born with 11 thoracic vertebrae and ribs.

Burial 53

Feature 179:

Burial 53 contains the complete remains of an infant, estimated to be less than 2 months of age. This infant was buried in a wooden coffin next to the northern wall of the cemetery. Preservation was good but slight adipocere is present on the right and left legs. Found with the remains was a green and gold striped ribbon, a paperboard ribbon with thin copper petals and a pin. Copper staining is seen on 2 metacarpals and 4 hand phalanges. The remains are too young for estimating biological affinity and sex.

The deciduous teeth are present and well-preserved, and no pathological conditions were observed.

Burial 54

Feature 171:

Identity: Thomas Smith

Burial 54 (Figures 85-88) contains well-preserved remains of a Black male, estimated to be 18.5 to 20 years of age. Present on the cranium are remnants of desiccated periosteum and hair covers most of the cranial vault. The remains were identified as Private Thomas Smith of the 125th United States Colored Troops. He died at Fort Craig hospital of "inflammation of bowels" on March 21, 1866 (Final Statement, Hospital Records). He was 19 to 20 years old at death and stood 5'2" in height.

Burial 54 was found looted in the southeastern corner of the cemetery. The entire grave was excavated by looters and no bones were recovered in situ. Instead, all except the skull were dumped into the west end of the grave. Only the post cranial skeleton was recovered from the grave and the skull was absent. The skull was found at a different locale and was eventually reunited with the rest of the skeleton.

The skull was found in a paper bag that was dropped off anonymously. It was this skull which prompted the federal investigation into the looting activity occurring at the cemetery. It was through witness testimony that the skull was identified as Private Thomas Smith. In May 2009, at the Smithsonian's Museum of Natural History in Washington, D.C., the primary author was able to match the skull of Thomas Smith with his postcranial skeleton from burial 54. This was done by articulating the first cervical vertebra of burial 54 with the occipital condyles of the cranium (Figure 87). In addition, the color of C1 and cranial base are similar with distinct patterns of black mottling evident on both surfaces. The match was verified by Dr. Douglas Owsley who has stated that the, "articulation of these joint surfaces is sufficient for re-association."

Dentition: Teeth are well-preserved and in excellent condition. No dental pathology was found.

Pathology: The remains exhibit a healed coccyxgeal fracture. The coccyx had subsequently fused to the sacrum during healing and resulted in a marked left curvature of the inferior sacrum.

The skeleton also shows changes in the lower vertebrae consistent with tuberculosis. T10 has a round lytic lesion on the superior endplate measuring 5mm by 5mm with a depth of 5 mm. T12 has osteolytic destruction of the anterior body and inferior endplate (Figure 88). The lytic cavitation extends deep into the centrum and primarily affects the anterior half of the bone. The L1 has abnormal bone formation affecting the anterior-superior centrum with two areas of lytic response along the superior right margin of the body.

Additional Information: The os coxae have notches at their acetabular rims. Stress pits are seen at the deltoid attachments of the humeri and the costoclavicular attachments of the clavicles.

Burial 55

Feature 172:

Burial 55 (Figure 89-90) contains the complete and well-preserved remains of a White male, estimated to be 30 to 35 years of age. He was buried supine in a wooden casket with his hands at his side. The grave is located in the east-central section of the cemetery. A sheet or blanket was found with remains but no other artifacts were present. The bones are in excellent condition with postmortem breakage of some ribs and minor postmortem damage of the right scapula and left mandibular condyle. The cranial vault is low, broad and very rounded, which is unique in this series.

Dentition: The teeth are well-preserved and in fair condition. Five teeth were lost antemortem and the remaining teeth exhibit 4 carious lesions and slight to moderate calculus deposits. The RM^1 and RM^2 have complete crown destruction due to caries. The RM_3 is represented by a decaying root and the rest of the tooth had undergone complete carious destruction. There is trace staining from tobacco use.

Pathology: The thorax has 13 thoracic vertebrae and ribs, and a six segmented sacrum. The C1 is fused to the occipital condyles of the cranial base and T10 has a small Schmorl's depression on the inferior endplate.

Additional Information: The thyroid cartilage is ossified. The clavicles have costoclavicular stress pits and the sternum exhibits a marked sternal hiatus. The humeri have septal aperatures. There is a small enthesophyte on the medial condyle of the left femur and the right tibia has a squatting facet. The skeleton is fairly gracile with especially small ribs for a male.

Burial 56

Feature 174:

Burial 56 contains the complete and well-preserved remains of an infant, estimated to be 1.5 to 1.8 years of age. The infant was found disarticulated at the west end of an adult coffin. The wooden coffin, which was located in southwestern corner of the cemetery, also contained the remnants of a young adult that was likely previously relocated. This young adult, estimated to be 10 to 20 years old, is represented by a LI^1, a hyoid body, hand and foot bones, a patella, the coccyx, and the epiphyses of a fibula, iliac crest, and scapulae. This burial may have been similar to the adolescent and infant buried together in Feature 112 (burial 46 and burial 47). Found with the remains was a corroded metal button, red fabric or ribbon, and a piece of white glass. The remains are too young for estimating biological affinity and sex.

Dentition: The teeth are well preserved and in good condition. Three deciduous teeth were lost postmortem and the first molars are developing. Both the left and right dm^2 and the left and right M^1 exhibit Carabelli's pits.

Additional Information: The left basilar portion of the occipital has a notch in the coronal. The left ribs 1 and 2 exhibit costal fusion and are connected with a pseudoarthrosis.

Burial 57

Feature 195:

Burial 57 (Figures 91-92) contains the complete and well-preserved remains of a Black male, estimated to be 25 to 34 years of age. He was buried supine in a wooden coffin with his

hands at his sides. The grave was located in the northeastern corner of the cemetery. Found with the remains were clothing fragments, buttons, pillow shavings and remnants of cranial and pubic hair. Faint green staining is seen on the sacrum, distal humerus and the olecranon of the ulna.

Dentition: The teeth are well-preserved and in good condition. Seven teeth were lost antemortem and the remaining teeth exhibit 2 carious lesions, 3 periapical abscesses and slight to moderate calculus deposits. Dark staining from tobacco use is seen on several teeth. The lingual roots of LM^1 and LM^2 are not supported by alveolar bone. Instead these roots are bare within the oral cavity and have calculus deposits on the cementum.

Pathology: A shallow and healed depression fracture is present on the outer table of the right parietal. The depression measures approximately 18 mm by 13 mm. Also present is a Schmorl's depression on the T7 and periostitis on the necks of right ribs 9 to 11. In addition, the mid-shaft of the right tibia has abnormal bone formation from healed periostitis.

Slight degenerative changes are seen on some of the joints. The right mandibular condyle has a small area of porosity on the posterior surface. Lipping is present on T10, L4, and the proximal joint margins of the tibiae. The elbows also show slight degenerative changes.

Additional Information: The thyroid cartilage is partially ossified. The clavicles have costoclavicular stress pitting. The sacrum has 6 segments.

Burial 58

Feature 196:

Burial 58 (Figures 93-97) contains the complete and well-preserved skeleton of a White male, estimated to be 21 to 24 years of age. This individual was buried next to the enclosure wall in the northeastern corner of the cemetery. He was supine in a wooden coffin with his head tilted to the right and his hands at his abdomen. His left hip is slightly tilted and his left leg was crossing over his right leg. Found with the remains were buttons and brown and blue ribbed fabric. Also present was an abundance of cranial and pubic hair.

Dental: The teeth are well-preserved and in good condition. No teeth were lost antemortem and caries have affected 4 teeth. Two of the affected teeth were given gold fillings. The RM^2 (Figure 95) has a filling occlusally and the LM_2 (Figure 96) has a filling buccally. The maxillary filling has a maximum diameter of 2.6 mm with a recessed depth of 1 mm. The mandibular filling measures 0.9 mm across. The teeth also exhibit slight calculus deposits and dark staining from tobacco use.

Pathology: This individual exhibits Schmorl's depressions, a healed sacral fracture, and a malformation of the humerus. The Schmorl's depressions are seen on T8 to T10, T12, and L3 to L4. The sacrum shows evidence of an old fracture to the 5^{th} sacral vertebra. As a result, the sacrum tilts to the left. The coccyx was also involved in this fracture exhibits a posterior defect and a pseudoarthrosis with the sacrum. The distal right humerus has a malformation of the medial condyle, which is largely missing (Figure 97). This could be a congenital abnormality or the result of a childhood injury; no other bones show evidence of malformation.

Additional Information: The clavicles exhibit costoclavicular pitting. The left tibia has a slight enthesophyte at the soleal line.

Burial 59

Feature 199:

Burial 59 contains the complete and well preserved remains of a young infant, estimated to be 1.3 to 1.5 years of age. The infant was buried supine, in a wooden coffin, next to the enclosure wall at the northwestern section of the cemetery. Found with the remains were two buttons and brass clothing slips. The remains are too young for estimating biological affinity and sex.

Dentition: The teeth are well-preserved and in good condition. All deciduous teeth are present and the M1s are developing.

Pathology: The cranium exhibits active cribra orbitalia, evident by pinpoint porosity and active woven bone deposition within the upper orbits.

Burial 60

Feature 198:

Burial 60 contains the complete remains of a young child, estimated to be 4.8 to 8.4 months of age. Preservation is good, but the bones of the cranium, pelvis, ribs, scapulae and some long bones have been fractured postmortem. The infant was buried supine in a wooden coffin at the northwestern corner of the cemetery, amongst other infant graves. Found with the infant was a faded ribbon. The remains are too young for estimating biological affinity and sex.

Dentition: The teeth are well-preserved and in good condition. The LM^1 and RM^1 have been lost postmortem, but the LM_1 and RM_1 are present and developing. The lm^1 and rm^1 exhibit Carabelli's cusps with a free apex.

Burial 61

Feature 201:

Burial 61 contains the complete and well preserved remains of a young infant, estimated to be 1.75 to 2 years of age. The infant was buried supine in a wooden coffin at the northwestern corner of the cemetery, amongst other infant graves. Found with the remains was a faded ribbon. The remains are too young for estimating biological affinity and sex.

Dentition: The teeth are well-preserved and in good condition. One deciduous tooth was lost postmortem, but the remaining deciduous teeth and permanent M1s are present. Carabelli's cusps are seen on the left and right dm^1 and M^1.

Pathology: The cranium exhibits cribra orbitalia, evident by pinpoint porosity within the upper orbits. In addition, the anterior shafts of the radii and ulnas exhibit active periosteal proliferations.

Additional Information: An inca bone is present in addition to at least 3 other lambdoidal ossicles.

Burial 62

Feature 207:

Burial 62 (Figures 98-101) contains the nearly complete remains of a White male, estimated to be 30-36 years of age. He was buried supine in a wooden coffin in the Southeastern section of the cemetery. Found with the remains were metal buttons. Preservation is not as good as the other skeletons in this series. The bones are dry, brittle, and postmortem breakage is seen on several ribs.

Dentition: The teeth are well preserved and in good condition. Four teeth have been lost antemortem and their sockets are completely resorbed. The remaining teeth exhibit 4 carious lesions, 2 periapical abscesses, and slight calculus deposits. The carious lesions on PM_1 and PM_2 have caused severe decay of the tooth crowns with exposure of the pulp chambers.

Pathology: This individual exhibits some degenerative changes, a healed maxillary fracture, a healed clavicular fracture, and multiple healed or healing right rib fractures.

Slight degenerative changes in the form of lipping are present on the right sides of the proximal ulna, acetabular margin, distal femur, patella, and proximal tibia. The vertebrae also show lipping and porosity of the centra and articular facets. In addition, the temporomandibular joints have small areas of erosion and porosity.

The left maxilla has a healed fracture of the frontal process along the nasal border. The left clavicle also has a well healed fracture of the acromial end of the shaft causing abnormal curvature and shape (Figure 100). Fractures are also seen on the right ribs 2 and 4 through 6. These fractures are anatomically aligned, indicating that they occurred at the same time. The fractures of ribs 4 and 5 show final stages of union, with remodeling still in progress (Figure 101). The descriptions of the fractures are presented below in Table 4.

Table 4: Right Rib Fractures for Burial 62

Bone	Location	Description
Rib 2	Midshaft	Well healed with callous.
Rib 4	Sternal 1/4	Healing fracture with callous anteriorly and woven bone deposition posteriorly where break is easily seen.
Rib 5	Sternal 1/4	Healing fracture with callous formation and woven bone deposition.
Rib 6	Midshaft	Healing fracture with callous formation and woven bone deposition.

Additional Information: The xiphoid and thyroid cartilages are ossified and the clavicles have large costoclavicular pits. The right MC5 is markedly curved, showing strong dorsal convexity.

Burial 63

Feature 208:

Burial 63 contains the complete and well preserved remains of a young infant, estimated to be 0.8 to 1.3 years of age. The infant was buried supine, in a wooden casket, in the southwestern section of the cemetery. Found with the remains was teal or aqua blue fabric, pink or red ribbon, a corroded metal button, a pin, and black laced leather shoes. The shoes are metal-tipped and measure 99 mm in length by 47 mm in width. Slight red staining from the ribbon is seen on the frontal and anterior parietals. The remains are too young for estimating biological affinity and sex.

Dentition: The deciduous teeth and permanent M1s are present, well-preserved, and in good condition. The lc^1 and rc^1 have very large tuberculum dentales, and the m^2s exhibit Carabelli's cusps and an extra distolingual cusp or cusp 5. Present on the LM_1 is cusp 7.

Additional Information: The basilar body of the occipital displays bilateral clefts. There are 3 lambdoidal sutural bones.

Burial 64

Feature 91:

Burial 64 (Figures 102-106) contains the complete and well-preserved remains of a White male, estimated to be 30 to 39 years of age. This individual was buried in the southern section of the cemetery, in the second row from the western wall. He was buried supine in a wooden coffin with shield nickels covering his eyes and his hands crossed at the abdomen. A relatively intact uniform jacket with two brass general service Calvary "C" buttons were found with the remains, as well as trouser buttons and a coffin pillow. The buttons caused several bones to display green staining at and around the orbital bones, the left clavicle, distal right and left radii and ulnae, both hands, left and right ilia, and the sacrum. This individual died as a result of trauma to the chest.

Dentition: The teeth are well-preserved and in fair condition. Two teeth were lost antemortem and of the remaining teeth, 9 exhibit caries and 3 have periapical abscesses. Slight calculus deposits are seen on all dentition. The right PM^1, PM^2 and M^1 have severe carious destruction of the crown and associated abscessing with buccal perforations.

Pathology: This individual shows evidence of sharp force trauma to the sternum, Schmorl's depressions, spondylolysis, and degenerative changes.

A perimortem bladed cut extends vertically down the ventral face of the sternal body's left edge (Figure 104). The cut removed a small section of the second sternebrae's border, just inferior to their third costal notch, and then runs downward and slightly medially for a total distance of 42 mm. This same sharp-edged cut sliced into the left edge of the manubrium, taking off a small inferior portion of the left first costal notch (approximately 9 mm in length). These cuts were made by a very sharp thin blade.

Schmorl's depressions are seen on T7 to T9 and L2. The L5 has unilateral spondylolysis (Figure 105). The line of fracture is unusual in that it extended vertically through the left superior articular facet. The fracture does not affect the inferior facet, although it is reduced in size relative to the right side.

Slight degenerative changes have affected several bones. Joint porosity is seen on the articular facets of C6 and T1 through T9, the left acetabulum, and the right scapula. T1 through T9 also show lipping on the centra. Lipping is also seen on the proximal and distal articulations of the left radius, and both left and right tibiae and the patellas. The left scaphoid and capitates also have degenerative changes.

Additional Information: The thyroid cartilage is ossified. The C1 vertebra has incomplete closure of the left vertebral foramen and the left rib 12 is markedly smaller than the right. The clavicles exhibit costoclavicular pitting. The femoral head are abnormally shaped with elongated articular surfaces (Figure 106).

Burial 65

Feature 92:

Burial 65 (Figures 107-111) contains the complete and well preserved remains of a White male, estimated to be 37-43 years of age. This individual was buried next to the wall in the northern section of the cemetery. This individual was buried supine in a wooden coffin with his hands crossed at the abdomen and his head turned to the left. He was buried in uniform evident from the uniform fragments, 8 brass corroded buttons and 3 general service buttons recovered with the remains. There is green staining on the distal right ulna, left vertebral centra of C5, right rib 5, and a few bones of the feet. The death of this individual was by a gunshot wound to the head.

Dentition: All teeth are present except for the LM^2, which was lost postmortem. The anterior teeth are crowded, particularly in the mandible. There is moderate alveolar resorption and the LM^1 has a slight over-eruption. Heavy tobacco staining is seen on the lingual surfaces of all teeth and there are three shallow pipestem grooves, two on the left (Figure 109) and one on the right. The first pipe facets are between the LC^1-LP^1 and LP_1-LP_2, the second between LI^2-LC^1 and LC_1-LP_1, and the third between RI^2-RC^1 and RC_1-RP_1. The upper and lower groove facets are offset, indicating that he was shifting his jaw slightly to clench the pipe. Mesial interuption grooves are seen on his LI^2 and RI^2.

Pathology: This individual has a gunshot wound to the cranium, vertebral osteoarthritis, Schmorl's depressions, and a well healed fracture of rib 11.

This individual died of a gunshot wound to the head. The bullet entered at the superior occipital squama (Figure 110), traveled sharply upward, and exited the right parietal (Figure 111), causing keyhole defects with both internal and external beveling. The gunshot caused multiple radiating fractures from the entrance, segmenting the much of the cranial vault. The entrance diameter measured at 15mm and the exit diameter could not be measured. Much of the right parietal was missing, only a small, externally beveled (20mm) segment of the exit location was recovered.

Vertebral arthritis is minimal with slight lipping seen on the edges of the C6 and C7 centra. Anterior wedging and macroporosity is seen in C7. The thoracic vertebrae exhibited Schmorl's depressions on the centra of T6 and T9-T11.

The right rib 11 has a well healed sternal end fracture. The bone has remodeled at the area, with sclerotic thickening and slight evidence of callous. Associated with the fracture is a marked impression for the intercostal muscles sternally at the costal line.

Additional Information: The thyroid and xiphoid cartilage are ossified. The remains exhibit a sternal hiatus and moderately developed deltoid tuberosities.

Burial 66

Feature 212:

Burial 66 contains the well-preserved and complete remains of a White male, estimated to be 35 to 42 years of age. This individual was buried in a rectangular wooden casket in the southern section of cemetery, in the third row from the western wall. Found with the remains were coat and shirt buttons, a cork, clothing fragments and a suspender buckle.

Dentition: The teeth are well-preserved and in good condition. Four teeth were lost antemortem, and the RM_3 is unerupted and possibly impacted. The remaining teeth show three periapical abscesses and slight calculus deposits. The LP^1 and RP_2 have severe tooth crown

decay with exposure of the pulp cavity. A possible pipe facet is present on the left side, involving the P^1 and C_1, and the teeth are stained from tobacco use.

Pathology: This individual exhibits a healed nasal fracture and a well-healed left distal ulnar fracture. In addition the temporomandibular joints and mandibular condyles have slight erosion and porosity. Schmorl's nodes are seen on T7 through T10.

The symphyseal portions of both pubic bones were dissected out as a unit for undetermined reason, and then were buried with the remains (Figure 112). Perhaps this dissection was initiated in order to study overlying soft tissue pathology. The bones were sectioned from the pelvis sawing from superior to inferior.

Additional Information: The Hamates are congenitally malformed.

Burial 67

Feature 202:

Burial 67 contains the complete remains of a young infant, estimated to be 2.4 to 8.2 months of age. The infant was found buried under a concrete marker next to the enclosure wall in the northwestern corner of the cemetery. The remains are in good condition, but the bones of the skull are extremely porous, fragile and light in weight.

Dentition: The teeth are well-preserved and in good condition. The LM^1 was lost postmortem, but otherwise all deciduous teeth are present and the remaining M1s are present and developing.

Summary:

The individuals that were buried at the Fort Craig Post Cemetery died from a variety of causes, including blunt force trauma, sharp force trauma, gunshot wounds, and disease or natural causes. The majority of the deaths were associated with trauma incurred during the Battle of Valverde, but many individuals also died from disease. The remains of all individuals buried at the cemetery were to be exhumed and moved to national cemeteries during the late 19th Century, but as it was discovered in 2005, 67 burials remained within the soil. Excavation of the cemetery unearthed 22 infants, 4 children, 7 adolescents, and 31 adults. Also excavated were two "surgeon"s pits" containing amputated limbs, and the remnants of adults who had been previously removed. Having described each of these burials individually, it is appropriate to summarize the skeletal sample as a whole. This summary will include a discussion of the skeletal preservation, diseases, perimortem injuries, congenital anomalies, autopsies, dental health, and the skeletal identifications that were made.

Skeletal Preservation:

In general, the skeletal preservation seen in this series is phenomenal. While a casket barrier protected the majority of individuals, those without coffins, such as burial 4, were also found to be complete and well preserved. Only 8 of the 67 burials showed signs of less than favorable preservation and, surprisingly, only two of these were infant burials (burials 16 and 36). Infant burial 16, along with adult burial 31, are in fair condition but show extensive fragmentation. The second infant, burial 36, has adipocere affecting the pelvis and the long bones of the arms and legs. The remaining burials exhibit postmortem fragmentation and have light and brittle bones (burials 30, 50 and 62) or show evidence of erosive taphonomic lesions (burials 34 and 41).

The best preserved skeletons are characterized by having uncompromised cortical bone and no postmortem fragmentation. This condition was observed in 19 of the 22 infants, 5 of the 7 adolescents, and 18 of the 30 adults. In addition, the incomplete burials 9 and 40, and the

"surgeon's pits" (burials 23 and 48) were also in excellent condition. In summary, the quality of the bones in this skeletal series is superb.

Excavation in this skeletal series was efficient in that, for the majority of the burials, all skeletal elements were recovered. The only incomplete burials were from looted burials (burials 11, 40 and 42), and burial 9, which contained the remnants of a previously disinterred individual. Missing from the looted burials were long bones, vertebrae, and the cranium or cranial fragments. Postmortem fragmentation was also seen in burials 11 and 42 as a direct result of the looting activity.

Coffin Types:

All but three adult burials were interred in wooden funerary boxes. These included burials 4, 23 and 48. Burial 4 was the only known Hispanic or Native American found within the cemetery, and burials 23 and 48 were amputated limbs. As for the other individuals, they were buried in wooden caskets (n=8) or coffins (n=29; see Table 5). Looking only at these coffins, the preference appears to have been for coffins over rectangular caskets. However, when we consider the cemetery as a whole, including the empty funerary boxes (see Table 6), we begin to see a pattern emerge. The center of the cemetery contains the majority of the caskets, which switches to coffins as you move outwards. Of the caskets with bodies, only one individual (burial 24) shows direct evidence of being a soldier. The other individuals, besides the Black female (burial 33), were either soldiers or residents at Fort Craig. The coffins are associated with 13 soldiers, many of which were buried in uniform. The remaining 14 coffins contain individuals that were either soldiers or residents, including one black and two white females.

Like adults, infants and children were primarily buried within coffins (n=14) or caskets (n=7; see Table 7). Only one infant (burial 22) was found without an associated funerary box. Four others were buried in atypical deposits. Burial 21, for example, was buried within a wooden coffee box and burials 46 and 56 were found within adult coffins, having been buried with the associated adult. In addition, the infant in burial 17 was found in a coffin that was set within a larger casket. This pattern was also seen in the empty coffin of feature 87.

Table 5: Adult Funerary Boxes

	N	Burial Numbers
None	2	4, 23
Ammunition Box	1	48
Triangular	5	33, 42, 50, 54, 55
Casket Shaped	3	9, 24, 66
Coffin Shaped	29	5, 6, 7, 13, 15, 18, 19, 26, 30, 31, 32, 34, 35, 38, 39, 40, 41, 43, 44, 45, 47, 49, 51, 57, 58, 62, 64, 65

Table 6: Empty Funerary Boxes

	N	Burial Numbers
Triangular	1	Feature 164
Casket Shaped	83	Features: 1-4, 7, 9-18, 22-24, 28, 29, 31-45, 47, 48, 52, 55, 71-75, 78, 83, 101, 107, 113, 122-124, 127, 128, 133, 135, 136, 141, 143-145, 143, 149, 151, 155, 157, 160, 161, 166, 169, 175, 176, 178, 182, 191, 192, 203, 209, 211, 216, 217, 219, 220
Coffin Shaped	41	Features: 30, 50, 54, 58-65, 67-70, 76, 77, 84-86, 88, 89, 93-95, 98, 103, 118, 120, 125, 126, 134, 137-140, 142, 146-148, 156, 158, 159, 162, 165, 167, 168, 180, 181, 183-190, 193, 194, 196, 197, 200, 204-206, 210, 213-216, 218

Table 7: Infant and Child Funerary Boxes

	N	Burial Numbers
None	1	22
Coffee Box	1	21
Triangular	4	1, 2, 25, 63
Casket Shaped	7	8, 12, 16, 27, 29, 36, 67
Coffin Shaped	10	3, 10, 20, 28, 37, 52, 53, 59, 60, 61
Coffin Within a Larger Coffin	4	17, 46, 56, Feature 87*

* Empty Coffin

Age at Death:

This assemblage is mainly composed of infant (n = 22), young adult (n = 17), and middle adult remains (n = 13). This is not surprising as the population at Fort Craig consisted of young soldiers and local residents. High infant mortality would be expected from local residents as Fort Craig's sanitation was poor and disease was rampant. In addition, we would expect many young adults among the sample because the mid-nineteenth century recruitment standards required that recruits be between 21 and 35 years of age. Adolescents between 18 and 20 years of age were also allowed to enlist so long as they provided evidence of guardian consent (Sledzik and Sandberg, 2002).

Children and older adults were virtually absent in this assemblage. There were 4 children (burials 22, 28, 29 and 60) and one older adult (burial 26). The children most probably died from the diseases circulating at Fort Craig. Burial 8 has evidence of a marked treponemal disease. The older adult, who was estimated to be 55 to 65 years old, only contained 6 mandibular teeth, which suggests that he was not a soldier at the time of death. Not only was he too old for service, but he lacked the essential dentition necessary for biting the paper off the ends of cartridges (Sledzik and Sandberg, 2002).

Skeletal Health:

A summary of the skeletal and dental conditions observed in the Fort Craig skeletal samples are listed in Table 8. The infants and children in the series do not exhibit much pathology skeletally. Many of the infants undoubtedly died from illnesses, but only three burials exhibit signs of stress or disease. Burial 8 has changes resembling a treponemal disease, burial 22 has active cribra orbitalia, and burial 28 has both cribra orbitalia and active leg periosteitis. These individuals, although unhealthy, lived long enough to develop markers of stress and/or disease on the skeleton. Thus, it is possible that they were healthier than many of infants in this sample who exhibited no stress markers and who died at a younger age.

The childhood health of the adults appears to have been moderate for most individuals evident by the number of enamel hypoplasias. At least one enamel hypoplasia is present in 22 of

the 37 permanent dentitions. The most severe case was seen in burial 66, who had a total of 20 hypoplasias. Burials 13 and 66 also show a high number of hypoplasias; 10 and 12 respectively. In the majority of cases, however, less than four hypoplasias were seen in the adult dentitions. Measurement of the hypoplasias may be seen in Appendix 16.

Overall, the individuals in this series show evidence of disease and/or stress, trauma, congenital conditions, and histories of marked physical activity (see Table 5). Disease and stress are marked by skeletal lesions as well as the periosteal inflammatory responses. Seen in this sample is evidence of tuberculosis (n = 3), an acute lung infection (n = 1), and syphilis (n = 3). In addition, periosteitis and cribra orbitalia were present on a number of individuals. Periosteitis was seen on 13 skeletons, not including those individuals mentioned above, and cribra orbitalia in 10 individuals. Periosteitis and cribra orbitalia were concurrent in 5 individuals. In addition to these conditions, gout-like cavitations were seen in the feet of two individuals, and there are other traumatic and congenital skeletal changes.

There are multiple indicators of trauma in this series, both antemortem and perimortem. The antemortem conditions consist of healed factures of the nose, mandible, ribs, clavicles, radius, ulnae, hand, sacrum and coccyx (see Table 5). Additionally, burial 57 has a healed depression fracture on the right parietal and 3 individuals exhibit spondylolysis of their L5. A fourth individual (burial 43) has spondylolysis of their L4 and L6 vertebrae. The antemortem trauma is distributed among 16 adults, 4 of which also exhibit perimortem injuries that may have contributed to or led to their death. These include burials 5, 6, 62 and 65.

Table 8: Skeletal and Dental Conditions Observed Among the Fort Craig Skeletal Sample

	Total	Burial Number
Tooth pipe facets	5	6, 30, 45, 65, 66
Dental fillings	2	13, 41, 58
Tooth notches	2	7, 32
Tobacco staining	14	4, 5, 6, 13, 24, 26, 30, 39, 45, 55, 57, 58, 65, 66
C1 retroarticular bridge	5	6, 13, 35, 38, 47
C1 fused to cranium	1	55
C1 cleft	4	13,15, 24, 64
C2 enthesophyte	2	11, 35
C2, C3 fusion	2	24, 33
C4 cleft	1	47

C7 cleft	2	7, 47
11 thoracic vertebrae and ribs	1	52
13 thoracic vertebrae and ribs	1	55
Basilar notch	2	56, 63
Sacralized L5	1	40
6 segmented sacrum	6	7, 13, 41, 43, 55, 57
Costal fusion between rib 1 and 2	4	34, 35, 36, 56
Humeral septal aperatures	2	19, 55
Ossified thyroid	17	4, 5, 6, 7, 11, 13, 24, 26, 30, 44, 45, 49, 55, 57, 62, 64, 65
Ossified xiphoid	15	4, 7, 13, 26, 32, 34, 35, 39, 41, 43, 44, 45, 49, 62, 65
Sternal hiatus	2	55, 65
Manubrium fused to sternal body	4	4, 34, 44, 65
Costoclavicular Stress Lesion	20	4, 5, 13, 14, 15, 26, 28?, 30, 39, 40, 42, 43, 49, 51, 54, 55, 57, 58, 62, 64
Humeral stress lesions	5	5, 38, 40, 43, 54
Radius Stress Lesion	2	4, 26
Ulna stress lesion	1	5
Schmorl's nodes	19	5, 6, 14, 18, 30, 31, 34, 39, 41, 43, 45, 49, 50, 51, 55, 57, 58, 64, 65
Poirier's facets	3	6, 14, 24
Squatting facets	1	55
Enthesophytes	10	4, 11, 14, 15, 18, 32, 41, 49, 55, 58

	Total	Burial Number
Limb periosteitis	8	13, 14, 15, 28, 43, 49, 57, 61
Rib periosteitis	4	13, 15, 19, 57
Cribra orbitalia	11	4, 13, 14, 20, 28, 38, 39, 46, 49, 59, 61
TB	3	4, 19, 54
Gout like cavitations	2	7, 50
Cranial depression fracture	1	57
Facial trauma	3	4, 6, 62
Nose Fracture	2	4, 66
Mandibular fracture	1	49
Rib Fracture	5	4, 6, 35, 62, 65
Clavicle fracture	2	35, 62
Pelvic trauma	1	6
Spondylolysis	4	4, 31, 33, 43

Radial Fracture	1	11
Parry Fracture	4	4, 5, 31, 66
Fibula fracture	1	18
Hand Fracture	2	7, 26
Sacral fracture	1	58
Coccygeal fracture	2	54, 58
Sharp Force Trauma	1	5
GSW	2	39, 65
Syphylis	3	8, 30?, 33
Perimortem trauma deaths	8	5, 6?, 39, 40, 44, 62?, 64, 65
Autopsied	4	5, 14, 39, 66
Acute lung infection	1	41

Burial 5, identified as Private Levi Morris, has a healed parry fracture and died of an axe wound to the back. Burial 6, who likely died in the hospital, has 7 healing rib fractures and healed fractures of the face and pelvis. Burial 62 has perimortem healing rib fractures, and exhibits healed fractures of the maxilla and clavicle. Finally, burial 65, who died from a gunshot wound to the head, also had a healed rib fracture from an earlier injury. In addition to these individuals, perimortem trauma is also noted in another 4 cases; burials 39, 40, 44 and 64.

Burial 64 shows evidence of sharp force injury to the chest from a blade, and Burial 39 exhibits a gunshot wound to the head. The individuals in burials 40 and 44 underwent and died from surgical long bone amputations. The amputated limbs were buried with the decedents in their coffins. Although the causes of the amputations are unknown, trauma is a likely explanation. Burial 40 contains a right humerus that was amputated twice, and the individual in burial 44 suffered a right leg amputation at the proximal third of the femur.

Other conditions seen in this series that may be indicative of physical stress are listed in Table 5. These include non-degenerative vertebral ankyloses, schmorl's nodes, poirier's facets, squatting facets, enthesophytes, and stress lesions of the clavicle, humerus, radius, and ulna. Also listed are various congenital abnormalities, such as accessory ribs, vertebral clefts, and costoclavicular fusions, as well as general observations of skeletal variation, such as retroarticular bridges and thyroid and xiphoid ossifications.

Autopsies:

Autopsy or surgical dissection is evident in 5 individuals. The head was autopsied in burials 14 and 39, the back was autopsied in burial 5, and the pubis was cut in burial 66. The head autopsies followed standard procedure for removing the brain, cuts were made along the cranial vault from the frontal to occipital in order to remove the calvarium from the cranial base and retrieve the brain. In burial 14, who had cranial vault porosity, subperiosteal bone formations on the tibiae, and no evidence of trauma, autopsy may have been precipitated by interest in a disease process. Alternatively, brain trauma or malfunction of some sort could be cause for autopsy. Autopsy in burial 39 was clearly related to trauma, evident by the gunshot wound to the head. Similarly, the autopsy in burial 5, identified as Private Levi Morris, was intended to investigate the trauma caused by an axe wound to the back. In this case, the sternum and upper ribs were cut to open the chest cavity anteriorly.

In burial 19, identified as David Ford, surgical cuts were made to the back; the ribs were cut posteriorly and the L3 was cut transversely. The thoracic spine from C7 to L3, which contained tubercular caries, was removed for autopsy or medical study. The dissected spine is not represented among the remains. The final example of autopsy or surgical dissection is seen in the pubic bones of burial 66. Surgical cuts were made anteriorly at the pubis from superior to inferior. Both pubic bones were dissected together for unknown reasons.

Dental Health:

The dental health of these individuals is what would be expected without dental care. Although there were strict dental standards for potential enlistees, once in the army dental care was not provided. Not only were soldiers without dentists, but they were without toothbrushes as well. As a result, dental health became worse and the only treatment available was tooth extraction by untrained surgeons or stewards. It was not until 1872 that dentists were officially appointed to serve in army units (Hyson et al., 2008).

Considerable dental problems were seen in this skeletal series, including caries, antemortem tooth loss, tooth abscessing, and calculus (see Appendix 16). Caries affected 58.3%

of the *adult* permanent dentitions that were scored and carious lesions were seen in 16.2% of the total number of teeth. There are several dentitions (n = 15) that are in good condition, but the majority of these are from younger individuals. Of the extreme cases with rampant caries, burial 49 has 19 erosive carious lesions out of his 27 teeth, and burial 50 has 23 circular caries out of his 29 teeth. The latter individual is estimated to be a young black male, only 17 to 19 years of age. None of the mentioned carious lesions were filled. In fact, only 3 individuals in this sample exhibit dental fillings.

Dental fillings were seen in burials 13, 41 and 58. Burial 13 has amalgam fillings and burials 41 and 48 have gold fillings. Burial 13 has two mandibular amalgam fillings, one in the left first molar and one in the right first molar. The most popular amalgam filling in the Civil War made of tin, silver and mercury. These fillings were sturdy, but oxidized in the mouth, turning the teeth black (Glenner and Willey, 1998). Case in point, the teeth in burial 13 have blackened around the sites of the fillings.

The most popular fillings during the Civil War were gold, as seen in burials 41 and 58. Gold was viewed as the best filling material because it's strong, easily placed, and doesn't negatively affect the other teeth or tissues (Glenner and Willey, 1998). Burial 41 has a total of 6 gold fillings, all within the maxillary dentition, and burial 58 has 2 gold fillings on a right and left molar. In comparison, 3 of the 30 confederate soldiers excavated from the Battle of Glorieta Pass, New Mexico, exhibited tooth fillings. These fillings were all made of gold and were apparently placed as a gold foil (Owsley, 1994). In the east, however, 3 individuals from the Battle of Wilderness have fillings made of thorium, tin, and amalgam (Glenner and Willey, 1998). Thus, gold appears to have been available and preferred in the southwest. However, as dentists were not allowed to practice dentistry in the army until 1872, tooth extraction was common.

Antemortem tooth loss was high, but not unexpected. Tooth loss was seen in 69% of the adult sample. The mean number of tooth loss is roughly 6 teeth. However, there are three individuals with a significant amount of tooth loss: burial 6 has lost 16 teeth, burial 26 has lost 25 teeth, and burial 44 has lost 17 teeth. When we remove these from the calculation, the mean number of antemortem tooth loss is 4, which better describes this sample. Tooth loss, whether occurring naturally or extracted manually, is often time associated with progressive caries that have given rise to abscesses.

Periapical abscesses, where inflammation and pus drainage occurs at the apex of the tooth, was seen in 50% of individuals, which is roughly 6% of the teeth examined in this series. This represents a significantly high number of individuals with dental problems. In addition, calculus build-up, which can lead to periodontal disease and abscesses is seen in almost every individual. Mild to moderate calculus is present on 97% of the adults and 65% of the 908 teeth scored. Moderate to heavy calculus is present 69% of the adult dentitions, but only affects 18% of all teeth.

In addition to the dental pathology noted in this series, many dentitions also exhibit markers of tobacco use, such as tooth pipe facets and staining. The most prevalent marker is tooth staining, which is visible on 14 individuals. In addition, 5 of those with tobacco stained teeth also exhibited tooth pipe facets. The youngest individual with tobacco staining is from burial 39 who, estimated to be between 18 and 24 years old. The majority of those with tobacco staining are between 30 and 40 years of age. Likewise, those with tooth pipe facets are older in age, mostly between their late 30s to early 40s. The facets are seen between the canines and premolars of their left or right dentition.

Identifications:

Through skeletal analysis, historical research and testimonies in court, a total of three individuals were identified in this series. The first was Private Thomas Smith (burial 54), whose identification was initially and officially stipulated in court based on witness testimonies during a looting investigation. Subsequent association of his skull with the rest of his body, and the skeletal analysis of the remains at the Smithsonian Institution in Washington D.C., further supported this identification. Thomas Smith was a Private of the 125th United States Colored Troops who died at the age of 19 or 20 at the Fort Craig post hospital from "inflammation of bowels." Skeletally, he also exhibited evidence of tuberculosis.

Levi Morris (burial 5) and David Ford (burial 19) were also identified. These soldiers were identified through comparison of the historical documents to the skeletal remains. Both Levi Morris and David Ford were stationed, died, and buried at Fort Craig. Additionally, they

are unaccounted from other national cemeteries and are not among those listed as being disinterred from Fort Craig.

Levi Morris was a 27 year old Black male from Company B of the United States 9th Calvary. He died from an axe wound to the back during a quarrel with a fellow company member. He was treated in post hospital and his condition was documented daily. Subsequent to his death, he was autopsied and his injuries were described in detail. The details of his injuries and his age and race profiles are concordant with the skeletal remains in burial 5. Burial 5 is a 25 to 27 year old Black male showing evidence of autopsy, sharp force trauma to the back, and injured ribs that are consistent with those described in Morris' autopsy.

David Ford was a 21 to 22 year old Black male of Company C in the United States 38th Infantry. He died at Fort Craig from tuberculated caries of the spine and his back was subsequently autopsied. Matching this description are the remains in burial 19. Burial 19 contained a 20 to 22 year old Black male with tuberculosis of the spine. In addition, the thoracic spine of this individual was surgically dissected from C7 to L3. The vertebrae were extracted and not buried with the body.

The three identified remains were "Buffalo Soldiers" who served in the New Mexico Southwest. In July of 2009, the remains of Thomas Smith, Levi Morris and David Ford were given an honorable burial in the Santa Fe National Cemetery. The previous June, the remaining individuals were also laid to rest in the Santa Fe National Cemetery.

Conclusion:

A few of the primary intentions of this project were to: 1) attempt to identify the excavated skeletal remains, 2) honorably re-inter the remains in the Santa Fe National Cemetery, and 3) to provide a report detailing the osteology of the skeletal series. During the past few years, the remains were analyzed, three individuals were identified, and the remains were re-buried in the Santa Fe National Cemetery. This report fulfills one of the final goals of this project, which is to present in detail the skeletal biology of soldiers and residents who subsisted and died at Fort Craig in the late 19th Century. This skeletal series is one of only two samples of 19th century soldiers that were analyzed from New Mexico. In 1987, 30 confederate soldiers were excavated from Glorieta Pass, which is roughly 20 miles east of Santa Fe (Owsley, 1994). In this project, 67 burials were excavated representing Union soldiers, local residents and infants. All data is presented in this report to allow for future research involving this unique and well preserved series.

Photographs

Figure 1, B4

Figure 2, B4

Figure 3, B4

Figure 4, B4

Figure 5, B5

Figure 6, B5

Figure 7, B5

Figure 8, B5

Figure 9, B6

Figure 10, B6

Figure 11, B6

Figure 12, B7

Figure 13, B7

Figure 14, B8

Figure 15, B8

Figure 16, B13

Figure 17, B13

Figure 18, B13

Figure 19, B14

Figure 20, B14

Figure 21, B15

Figure 22, B15

Figure 23, B15

Figure 24, B15

Figure 25, B17

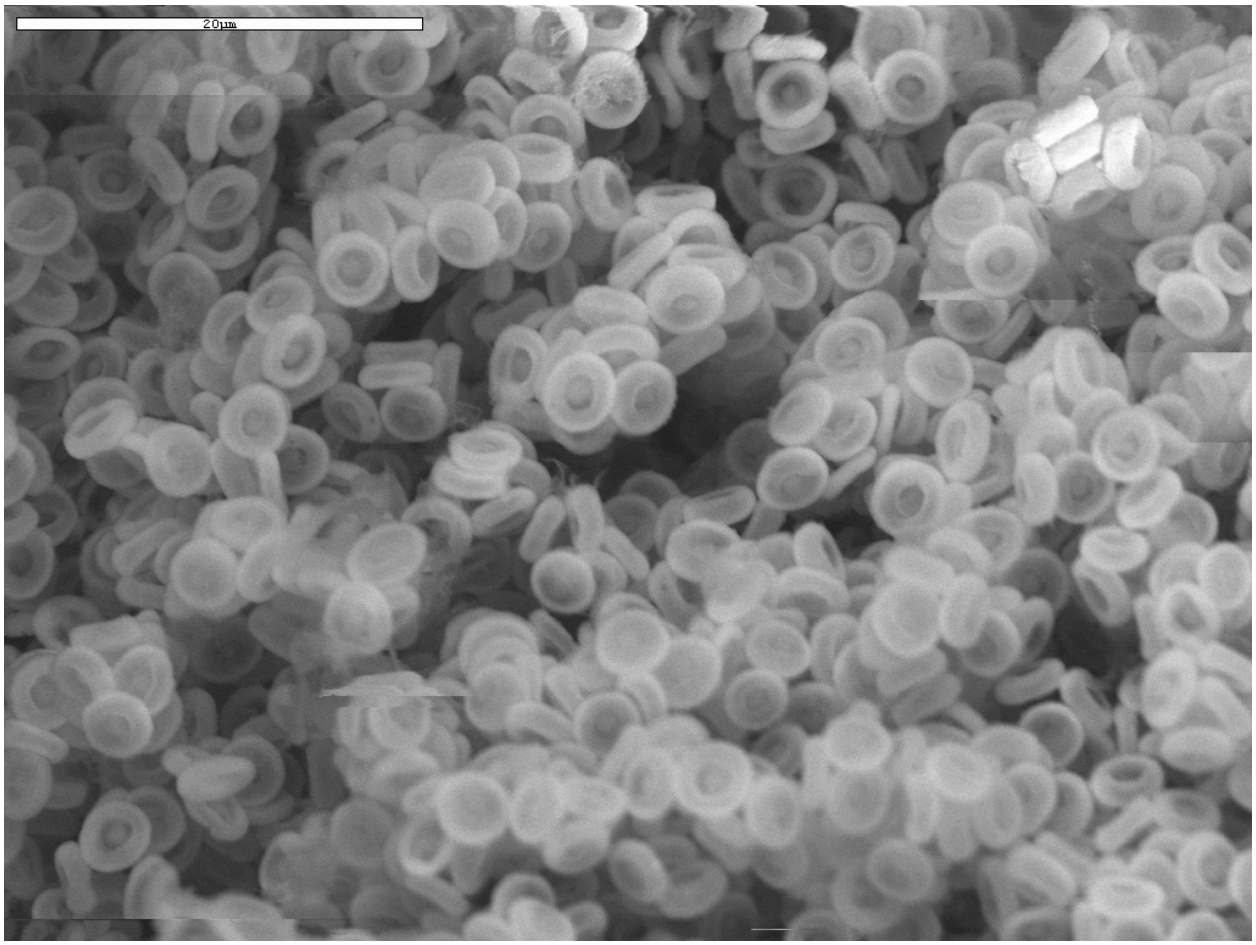

Figure 26, B17

Figure 27, B19

Figure 28, B19

Figure 29, B19

Figure 30, B19

Figure 31, B19

Figure 32, B23

Figure 33, B23

Figure 34, B23

Figure 35, B23

Figure 36, B23

Figure 37, B24

Figure 38, B24

Figure 39, B26

Figure 40, B26

Figure 41, B30

Figure 42, B30

Figure 43, B30

Figure 44, B30

Figure 45, B30

Figure 46, B32

Figure 47, B32

Figure 48, B32

Figure 49, B33

Figure 50, B33

Figure 51, B33

Figure 52, B33

Figure 53, B33

Figure 54, B33

Figure 55, B33

Figure 56, B33

Figure 57, B33

Figure 58, B34

Figure 59, B34

Figure 60, B35

Figure 61, B38

Figure 62, B38

Figure 63, B39

Figure 64, B39

Figure 65, B39

Figure 66, B40

Figure 67, B40

Figure 68, B41

Figure 69, B41

Figure 70, B41

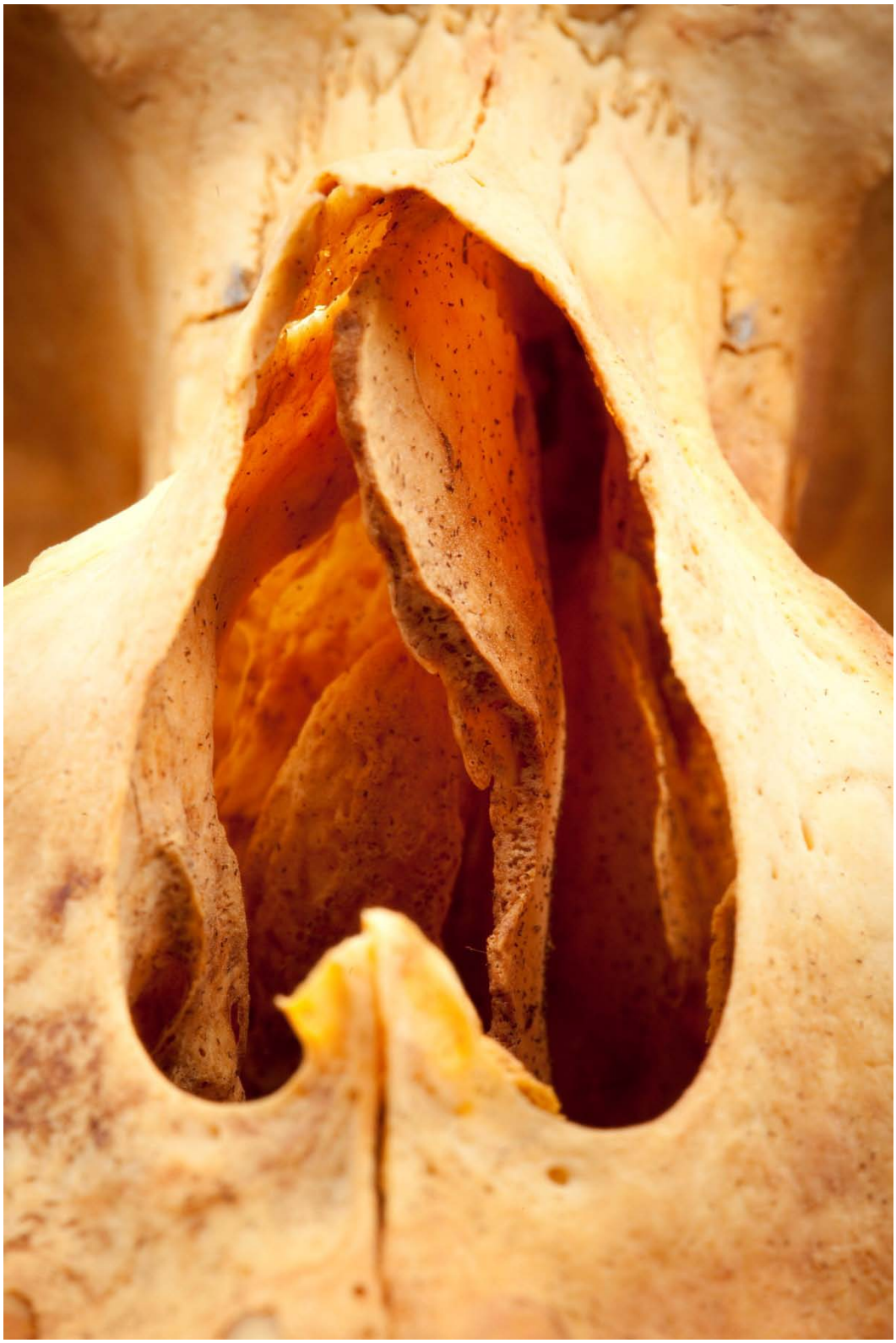

Figure 71, B41

Figure 72, B41

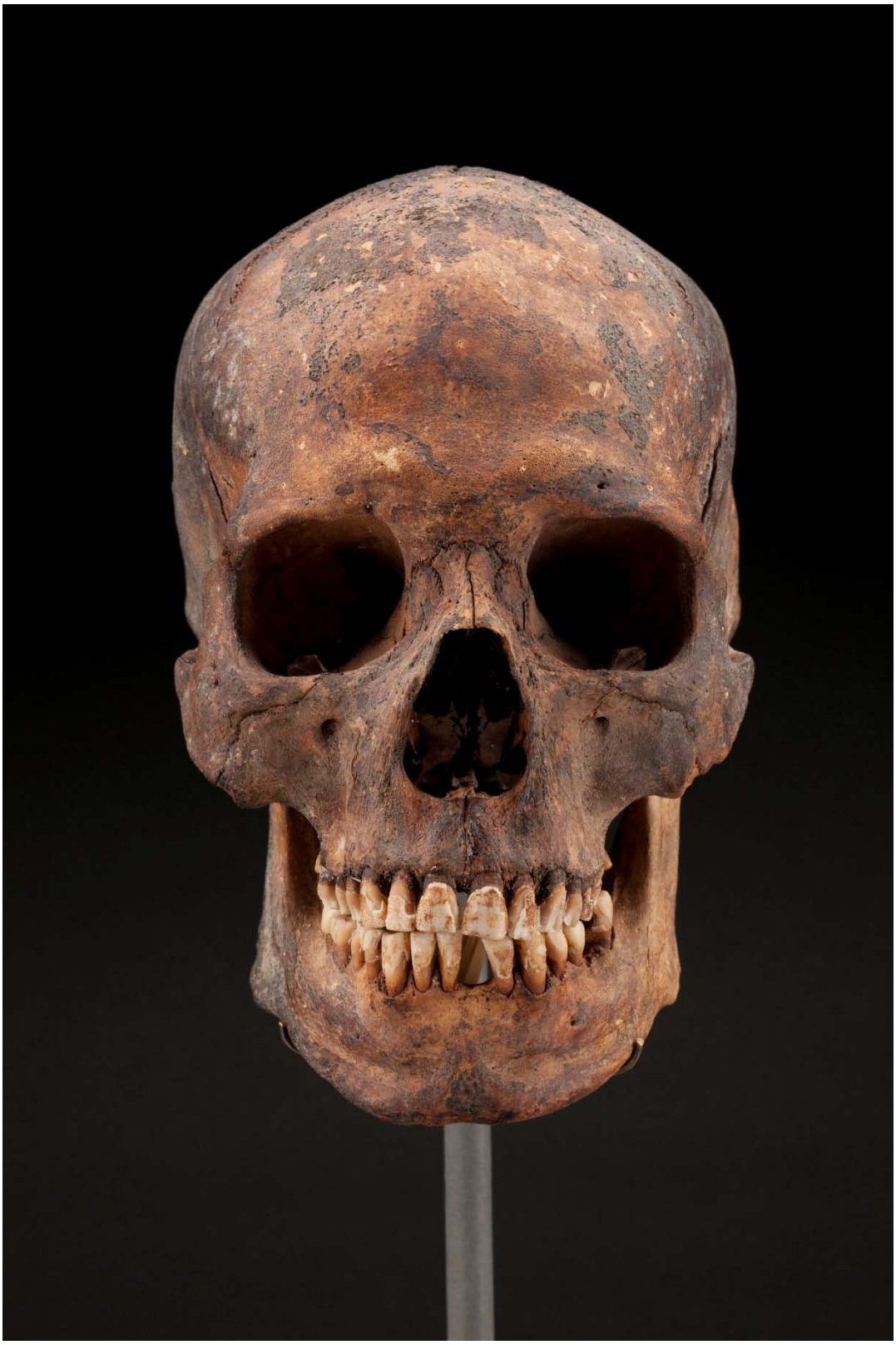

Figure 73, B43

Figure 74, B43

Figure 75, B43

Figure 76, B43

Figure 77, B44

Figure 78, B45

Figure 79, B45

Figure 80, B49

Figure 81, B49

Figure 82, B49

Figure 83, B51

Figure 84, B51

Figure 84, B51

Figure 85, B54

Figure 86, B54

Figure 87, B54

Figure 88, B54

Figure 89, B55

Figure 90, B55

Figure 91, B57

Figure 92, B57

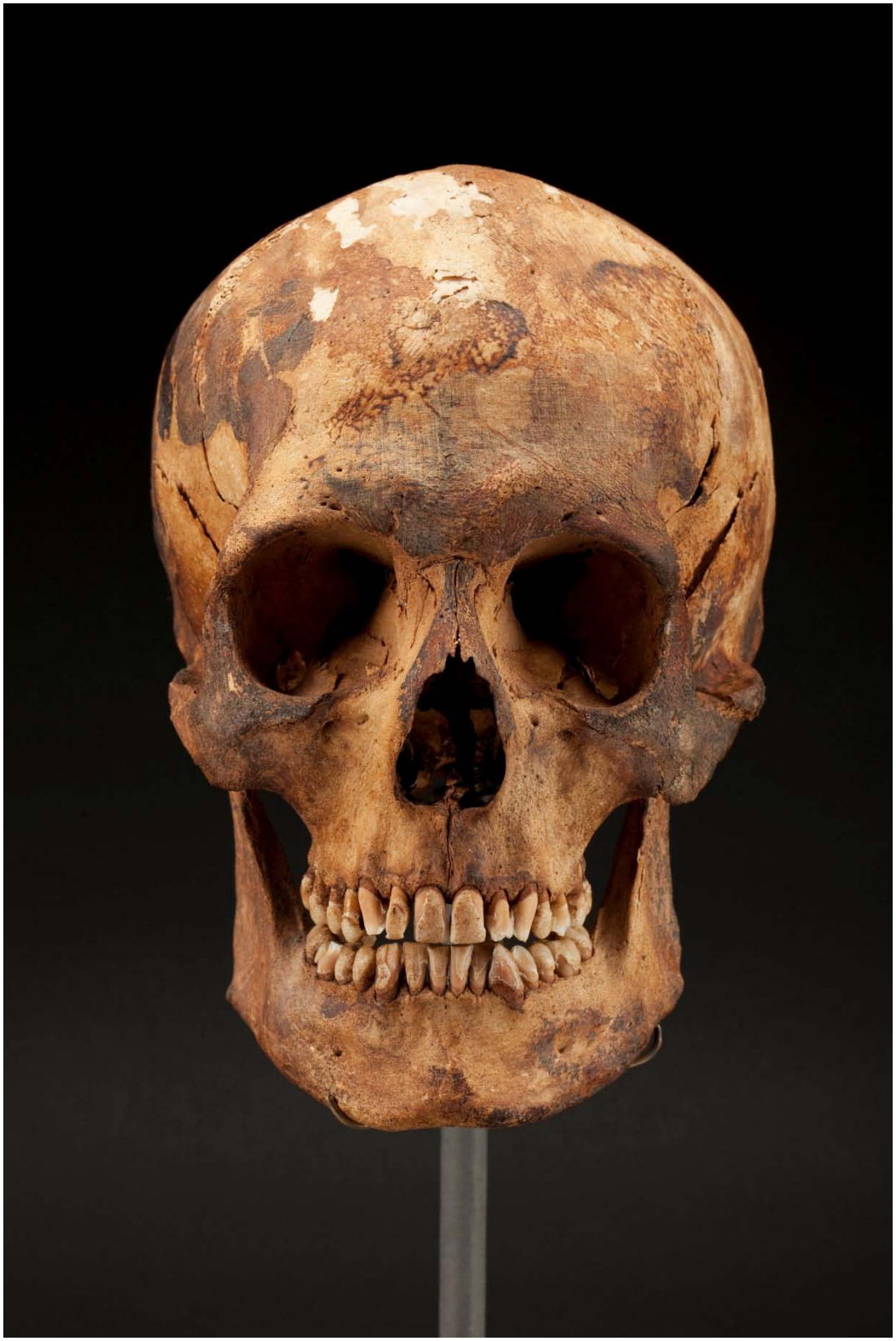

Figure 93, B58

Figure 94, B58

Figure 95, B58

Figure 96, B58

Figure 97, B58

Figure 98, B62

Figure 99, B62

Figure 100, B62

Figure 101, B62

Figure 102, B64

Figure 103, B64

Figure 104, B64

Figure 105, B64

Figure 106, B64

Figure 107, B65

Figure 108, B65

Figure 109, B65

Figure 110, B65

Figure 111, B65

Figure 112, B66

Appendix

Appendix 1: Bones Associated with Empty Coffins

Feature	Unit	Bones Recovered
2	beside coffin	capitate, intermediate manual phalange, MT5
	fill within coffin	hamate, proximal manual phalange, proximal pedal phalange, 3 distal manual phalanges, intermediate cuneiform
	-	T10
3	-	mandibular RP2, 3 cervical vertebrae, lunate, 3 proximal, 2 intermediate and 3 distal manual phalanges
7	fill within coffin	1st coccygeal vertebra
11	coffin	very large mandibular RC with large tuberculum dentale, large mandibular LI2, hyoid with body and greater horn, rib 1, 2 distal and 1 intermediate manual phalanges
14	-	intermediate pedal
17	casket	large maxillary RC1 with marked LEH, cuboid, navicular, medial cuneiform, lateral cuneiform, MT2, MT5, 2 proximal pedal phalanges
	coffin	C3 or C4, rib 11, sternal rib fragment, hamate, left and right capitates, scaphoid, MC1, MC4, right and left MC5, right and left 1st proximal manual phalange, 1 proximal and intermediate manual phalange
18	coffin fill	mandibular RP2 with a mesial cervical carious lesion, hyoid, 1st coccygeal vertebra, manubrium, sternal rib fragment, capitate, lunate, trapezoid, MC1-5, 1st proximal manual phalanx, proximal manual phalanx, 1st distal manual phalanx,
	coffin fill	6 fragments of a femur that was fractured antemortem, MT5, cuboid, intermediate cuneiform, navicular, right and left 1st proximal and distal pedal phalanges, 4 proximal, 4 intermediate and 4 distal phalages
28	coffin	hyoid body and left horn, which are fused, ossified thyroid fragment, talus, unidentified fragment
30	-	trapezium, proximal 1st manual phalange
31	coffin	Sternal body, MC3, MC5, proximal manual phalange, animal fragment
33	coffin	Cranial fragment, maxillary RI1, capitate, MC1-5, 2 proximal, 1 intermediate, and 1 distal manual phalanges
35	coffin	mandibular LI1, RI2, maxillary LC, LP with occlusal carious lesion, hyiod with body and left horn fused, 1st coccygeal vertebra, hamate
	-	1st distal manual and pedal phalange, patella, lateral cuneiform, 4 proximal, 6 intermediate and 3 distal pedal phalages

Feature	Unit	Bones Recovered
36	coffin	hyoid body, ossified thyroid fragment, 3 fused coccygeal vertebrae, rib 12, lunate, triquetral, 2 intermediate and 2 distal manual phalanges, 2 proximal, 1 intermediate and 1 distal pedal phalage
37	coffin	proximal, intermediate and distal manual phalange
39	coffin	1
39	coffin	pisiform, 1st proximal pedal phalange, cut animal vertebral body
40	coffin	maxillary LP2, I2, hyoid greater horn, rib 1, rib 12, intermediate manual phalange, navicular
41	coffin	maxillary RI1 shoveled
44	coffin	2 lumbar vertebrae, rib 9 and 12, proximal pedal phalange
45	coffin	ossified thyroid, manubrium, 1st coccygeal vertebra, distal 3/4 humerus, proximal and distal pedal phalangesm, unidentified animal bone fragment with one cut edge
48	coffin	hamate, trapezium, MC1, 1st proximal pedal phalange, 3 proximal, 5 intermediate and 1 distal pedal phalange, 3 pedal sesamoids
55	grave	mandibular LI2 and RM2, rib 1, MC1, MC4 and MC5 with an enthesophyte on the lateral border, proximal manual phalange, proximal manual phalange with a button of sclerotic deposition on the dorsal surface, 3 intermediate proximal phalanges
60	coffin	intermediate manual phalange
62	coffin	2nd and 3rd coccygeal vertebrae fused, intermediate and distal pedal phalange, 2 sesamoids
68	coffin	Maxillary LI1, hyoid greater hornm hamate, distal pedal phalange, sesamoid
69	coffin	1st distal pedal
70	coffin	intermediate manual
72	coffin	ossified thyroid fragment, T2 or T3, 1st coccygeal vertebra, distal manual phalange
73	coffin	intermediate manual and proximal pedal phalange
75	coffin	hyoid greater horn, rib 1, scaphoid, distal manual phalange
76	coffin	distal manual phalange
77	coffin	manubrium, 2 distal manual phalanges, navicular, 2 intermediate pedal phalanges, sesamoid
78	coffin	hyoid greater horn, rib 12, distal manual phalange, MT5, proximal 1st proximal pedal phalange, 4 left and right proximal pedal phalanges
87	coffin	3rd, proximal 3/4
88	coffin, exposed by backhoe stripping	tibia, fibula, cuboid, navicular, medial, intermediate and lateral cuneiform, MT1-5, left and right 1st proximal and distal pedal phalanges, proximal pedal phalanges 2-5

Feature	Unit	Bones Recovered
89	coffin	hyoid greater horn, T3, MC1-5, 1st distal manual phalange, patella, left and right tarsals (calcaneus, talus, navicular, cuboid, medial and intermediate cuneiforms)
	coffin	MT1-5, left and right proximal and distal pedal phalanges, 4 proximal pedal phalanges, 8 intermediate pedal phalanges, 6 distal pedal phalanges, sesamoid
93	coffin	ossified costal cartilage, rib 12, intermediate manual phalange, 1st distal manual phalange, 2 distal manual phalanges
94	coffin	C1
98	coffin	hyoid body and unfused left greater horn, ossified costal cartilage, 1st proximal pedal phalange, unidentified ossified pience of tissue
101	coffin	maxillary LI2, LC, LP1, LP2, LM3, RM3, mandibular LI1, LI2, LC, clavicle, rib 1 with costal ossification, tibial plateau fragment
103	coffin	1st coccygeal vertebra, unfused 1st sternabrae, proximal manual, patella
120	coffin	cut cattle bone
123	feature fill	maxillary LI1 and LI2 with marked shoveling and calculus, maxillary LC with calculus, maxillary LP3 with calculus
	feature fill	partially ossified thyroid, hyoid body, 2nd and 3rd fused coccyx, rib 2 and 12, hamate, intermediate manual phalange, 1st distal manual phalange, distal manual phalange, unidentified ossified piece of tissue
124	coffin	unidentified fragments
125	coffin	intermediate manual phalange, intermediate cuneiform,3 intermediate pedal phalanges, 1st distal pedal phalange, 4 distal pedal phalanges, 3 sesamoids
126	coffin	intermediate pedal
134	surface	proximal and intermediate manual phalange
137	coffin	mandibular RP4, cervial vertebra, hyoid greater horn, lunate, proximal pedal phalange, sesamoid
138	partial coffin	trapezoid, 1st proximal and distal manual phalange
141	coffin	C1 with retroarticular bridge
144	looted coffin	intermediate manual phalange
146	coffin	hyoid with horns fused to body, animal vertebral fragment
147	coffin	hyoid greater horn, rib 1, 2 ossified costal cartilage fragments
148	coffin	hyoid greater horn
156	coffin	medial cuneiform, intermediate and distal pedal phalange
159	coffin	thoracic vertebra, proximal manual phalange
161	coffin	hyoid greater horn

Feature	Unit	Bones Recovered
169	coffin	temporal petrous fragment, maxillary LM2 with a buccal cervical carious lesion
181	coffin	rib 1
183	coffin	C1-3
184	coffin	C2
188	coffin	hyoid body and right horn, rib 1, sternal body and xiphoid fused- body has an extra sternabrae and inferior 1/3 is tilted to the left, left and right pisiform, sesamoid
190	coffin	mandibular LP2, RC, RI2, triquetral, proximal pedal phalange
190	coffin	mandibular RC
191	coffin	left and right rib 12
192	coffin	manubrium
194	coffin	hyoid greater horn
200	coffin	MC2 and unidentified ossified piece of tissue
203	coffin	complete and ossified
203	coffin	hyoid with fused greater horns, C1-2
206	coffin	cervical vertebra
210	coffin	1st distal manual
213	coffin	ossified thyroid, hyoid with fused greater horns, C1-2
215	coffin	hyoid body, ossified half thyroid, C1, T1
216	coffin	hyoid greater horn
220	coffin	vertebral cervical arch, rib 1 and 12, lunate
152/153?	found on surface	L1 or 2. Doesn't belong to B34 or B35.

Appendix 2: Cranial Measurements

	Cranial Measurements (GOL - GLS) for Burials 4 - 33														
	4	5	6	7	13	13*	14	15	15*	19	24	26	30	32	33
GOL	174	184	186	188	188	188	184	178	178	177	-	186	189	173	164
NOL	173	179	182	185	184	184	178	176	175	175	-	184	184	172	162
BNL	99	100	105	100	105	106	96	110	109	96	-	107	102	100	91
BBH	140	127	142	138	136	136	133	133	133	126	-	141	135	123	125
XCB	136	137	141	140	145	145	145	133	132	135	-	132	153	121	128
XFB	121	119	124	122	123	124	-	112	111	121	-	115	129	106	107
WFB	96	105	94	92	107	103	100	94	93	100	-	92	93	94	86
ZYB	133	139	129	122	133	133	137	130	130	130	-	128	-	125	123
AUB	120	124	120	119	129	129	130	118	119	114	-	119	135	110	113
ASB	106	110	114	118	114	114	116	107	107	101	-	108	126	100	104
BPL	96	104	93	89	94	95	92	114	114	98	-	-	90	101	94
NPH	69	68	64	79	68	69	65	64	66	65	-	-	70	64	62
NLH	51	51	49	53	50	50	50	48	50	48	-	50	51	45	45
JUB	118	120	109	102	117	117	117	121	120	119	-	108	-	112	104
NLB	26	27	23	22	23	22	24	35	35	25	22	27	24	25	25
MAB	65	65	55	56	62	62	63	69	68	61	-	-	-	61	-
MAL	55	59	48	54	47	47	52	60	59	54	-	-	-	57	53
MDH	27	24	31	33	33	33	24	24	23	29	-	27	30	24	28
OBH	34	37	38	40	36	36	35	34	32	38	-	33	35	30	32
OBB	41	39	39	38	41	41	39	42	42	43	-	38	39	40	38
DKB	21	29	24	22	21	22	23	26	25	26	-	22	22	24	18
NDS	11	11	12	13	14	13	11	10	9	8	-	16	-	9	11
WNB	9.4	8.6	8.9	7.8	8.1	6.8	7.5	13.9	13.5	10.7	-	10.4	11.7	8	8.3
SIS	4.9	4.3	5.8	6.7	7.6	7.2	4.8	4.9	3.9	3.3	-	5.6	-	2.2	5.1
ZMB	100	98	95	83	91	91	94	101	100	97	95	91	86	82	85
SSS	26	22	27	24	20	21	22	25	23	24	-	25	19	23	20
FMB	99	104	99	93	100	101	101	104	103	105	-	94	97	99	90
NAS	16	19	19	17	23	22	18	19	18	20	-	23	16	20	16
EKB	99	104	98	93	99	98	99	105	106	104	-	94	98	98	89
DKS	12	8	14	12	16	15	13	14	13	19	-	13	11	15	11
IML	34	43	30	31	37	37	38	40	41	36	-	31	-	41	36
XML	55	58	52	48	58	58	59	58	57	52	-	51	-	53	50
MLS	13	14	9	11	11	11	12	13	13	11	-	11	-	10	10
WMH	24	23	20	25	25	26	24	23	25	16	22	22	22	23	20
GLS	2	3	4	3	3	3	4	3	3	2	-	1	4	2	3

* repeat measurements for intra-observer error

	Cranial Measurements (STB - MAN) for Burials 4 - 33														
	4	5	6	7	13*	13	14	15*	15	19	24	26	30	32	33
STB	118	115	117	119	125	125	-	108	107	118	-	115	130	105	107
FRC	114	111	117	110	117	116	114	99	99	108	-	114	118	103	101
FRS	25	26	28	26	28	27	28	21	21	25	-	28	28	22	22
FRF	47	51	56	43	49	52	53	41	40	55	-	58	51	46	46
PAC	114	120	116	110	115	116	116	107	107	101	-	114	112	100	110
PAS	27	26	27	18	24	24	28	23	23	20	-	24	24	21	25
PAF	58	66	53	61	60	56	62	61	58	48	-	60	59	52	45
OCC	96	85	99	105	89	92	93	97	99	101	-	106	98	91	85
OCS	25	30	29	35	30	30	31	29	28	31	-	27	34	29	27
OCF	52	42	62	46	55	56	45	56	62	54	-	47	61	45	44
FOL	37	35	38	36	36	36	37	35	35	41	-	36	39	36	33
FOB	27	23	29	32	32	32	31	32	32	29	-	33	32	26	26
NAR	93	98	95	95	100	100	93	97	97	98	-	100	98	93	86
SSR	95	100	93	94	95	96	91	102	104	100	-	95	90	96	86
PRR	100	108	95	100	100	101	98	112	114	109	-	-	94	105	95
DKR	83	84	81	83	87	87	82	87	89	89	-	85	84	83	74
ZOR	82	84	77	80	84	85	79	87	90	82	-	82	82	81	71
FMR	79	80	77	78	77	80	75	78	79	78	-	78	82	72	70
EKR	73	76	67	72	72	74	70	74	77	73	-	71	77	69	64
ZMR	71	78	64	70	75	77	68	77	81	76	-	70	72	73	64
AVR	82	86	-	83	85	86	78	92	92	87	-	-	-	83	-
BRR	126	118	123	120	119	120	120	113	113	113	-	125	124	107	114
VRR	129	118	126	120	121	121	123	115	116	117	-	127	124	111	118
LAR	107	99	108	111	104	104	104	100	99	105	-	109	104	100	98
OSR	41	36	46	37	38	38	39	46	45	36	-	42	43	39	36
BAR	13	10	19	19	18	17	14	21	20	16	-	17	10	16	11
GNI	34	36	29	35	29	-	31	38	-	32	38	-	-	31	
HML	32	32	29	30	28	-	30	33	-	27	32	26	-	32	28
TML	13	14	12	9	13	-	11	14	-	13	10	12	-	13	11
GOG	96	95	106	93	107	-	107	84	-	94	85	96	-	83	89
CDL	118	119	114	109	116	-	120	112	-	112	119	120	-	105	109
WRB	36	43	27	29	34	-	32	38	-	41	36	33	-	33	30
XRH	58	58	61	72	61	-	63	64	-	54	62	64	-	65	53
MLT	79	87	73	72	82	-	79	88	-	89	77	78	-	74	81
MAN	109	114	128	124	112	-	115	106	-	115	114	110	-	122	131

* repeat measurements for intra-observer error

	Cranial Measurements (GOL - GLS) for Burials 34 - 66													
	34	38	41	43	45	49	51	54	55	58	62	64	65	66
GOL	187	180	178	173	185	186	35	-	182	181	190	174	180	185
NOL	184	178	176	169	179	182	174	-	181	177	185	169	177	182
BNL	102	102	101	103	103	103	98	99	90	92	102	96	95	104
BBH	135	140	135	130	143	132	127	123	121	131	137	130	127	143
XCB	140	140	140	123	140	144	136	-	155	141	142	137	129	141
XFB	-	124	119	105	118	118	116	-	127	113	126	116	116	123
WFB	86	96	91	87	97	95	93	97	98	85	97	88	88	92
ZYB	126	123	130	123	128	136	-	124	132	122	126	124	127	127
AUB	118	118	126	115	124	130	120	112	126	122	125	117	117	123
ASB	111	105	112	106	112	117	105	-	125	110	119	109	106	115
BPL	89	96	86	99	92	97	103	97	86	83	88	91	88	92
NPH	74	68	75	68	72	71	63	63	69	70	70	66	66	69
NLH	54	49	56	51	50	50	45	47	55	52	50	48	50	49
JUB	110	109	110	109	111	115	112	112	114	105	111	105	108	108
NLB	26	19	23	26	22	24	24	22	23	23	23	23	23	24
MAB	59	58	62	58	59	60	67	59	63	58	63	55	56	59
MAL	51	52	49	52	51	51	53	52	53	43	49	49	49	50
MDH	34	28	32	28	29	30	24	26	25	25	28	26	25	25
OBH	38	38	39	32	36	34	34	34	37	35	37	33	33	36
OBB	38	39	42	37	38	39	41	39	42	37	40	36	38	37
DKB	24	23	20	24	20	24	25	28	20	20	18	20	19	20
NDS	14	10	9	12	13	13	10	13	10	13	12	12	11	13
WNB	7.4	8.6	4.6	9.7	7.6	10	7.2	10.6	7.8	7.4	7.8	7.8	6.9	9.9
SIS	4.7	3.8	3	6.5	4.4	4.9	3.9	4.2	4.8	3.7	5.1	3.8	3.9	7.2
ZMB	86	87	91	97	85	98	91	91	89	86	96	87	90	90
SSS	26	24	20	24	18	25	25	24	27	18	24	17	21	23
FMB	98	94	100	93	94	100	98	101	100	92	98	92	90	93
NAS	20	17	20	19	18	16	19	22	21	19	18	16	15	18
EKB	96	95	99	95	91	101	98	98	99	91	97	90	91	92
DKS	11	15	15	10	14	10	18	14	13	9	11	9	11	12
IML	28	35	36	35	41	26	35	36	33	32	33	32	34	34
XML	47	52	54	53	59	48	56	51	51	53	51	50	53	52
MLS	10	10	10	13	12	9	11	9	11	10	11	10	11	12
WMH	22	24	25	27	28	25	22	22	21	24	24	21	23	22
GLS	4	3	3	4	4	4	3	2	3	4	4	4	3	2

	Cranial Measurements (STB - MAN) for Burials 34 - 66													
	34	38	41	43	45	49	51	54	55	58	62	64	65	66
STB	-	123	111	106	117	113	117	-	121	108	116	110	111	118
FRC	116	111	106	99	112	111	106	103	111	111	112	108	105	110
FRS	27	27	22	20	29	23	22	21	23	24	26	26	26	25
FRF	45	48	45	49	53	50	57	40	45	51	54	44	44	50
PAC	118	118	113	107	121	115	112	-	111	111	108	103	-	119
PAS	26	25	28	23	30	21	25	-	23	23	20	18	-	25
PAF	63	62	65	58	59	59	58	-	58	54	49	60	-	58
OCC	92	96	95	90	95	92	94	-	102	100	107	101	-	100
OCS	32	23	23	26	31	28	23	-	35	30	36	28	-	29
OCF	56	46	46	42	60	57	43	-	45	48	55	65	-	50
FOL	38	41	42	36	34	39	31	37	33	38	40	35	45	42
FOB	30	31	34	30	27	32	29	24	-	32	33	31	37	32
NAR	94	92	94	-	96	94	89	96	88	88	95	87	88	93
SSR	89	94	89	-	92	95	92	96	88	85	91	84	87	90
PRR	94	100	94	-	98	100	100	103	91	92	94	94	93	96
DKR	78	83	83	-	82	82	81	84	77	75	83	73	76	80
ZOR	74	81	79	-	80	82	76	81	69	74	78	75	75	77
FMR	74	77	75	-	79	77	71	75	67	68	79	72	73	77
EKR	67	70	69	-	72	72	66	70	64	66	73	67	66	71
ZMR	62	72	69	-	73	70	67	72	61	68	68	68	66	67
AVR	76	81	80	-	78	83	85	83	69	78	79	75	75	80
BRR	117	119	116	-	126	115	116	111	113	114	118	113	111	123
VRR	121	120	121	-	129	115	123	-	118	118	120	114	-	126
LAR	105	104	102	-	105	100	109	-	108	106	108	106	-	109
OSR	44	49	46	-	37	47	38	38	35	41	47	43	50	50
BAR	18	21	20	-	17	16	12	13	8	18	19	17	16	20
GNI	37	31	28	33	30	30	35	32	28	29	35	30	30	32
HML	32	30	27	34	31	32	29	29	27	29	34	30	30	30
TML	33	12	11	12	14	14	12	12	9	13	11	11	10	12
GOG	102	88	106	92	108	105	83	93	83	99	100	97	96	97
CDL	112	102	124	98	100	117	108	111	-	105	110	110	108	120
WRB	27	28	32	34	33	31	29	37	25	29	29	32	34	32
XRH	65	60	69	66	61	69	57	50	62	67	66	59	64	65
MLT	73	70	78	68	73	66	78	64	82	72	70	70	82	80
MAN	125	127	119	116	125	129	124	105	117	124	129	126	109	111

Appendix 3: Zobeck's Post-Cranial Measurements

1. Clavicle maximum length (CML)
2. Clavicle anterior/posterior midshaft diameter (CSD)
3. Clavicle superior/inferior midshaft diameter (CVD)
4. Scapula maximum height (SML)
5. Scapula maximum breadth (SMB)
6. Scapula spine length (SLS)
7. Scapula supraspinous length (SSL)
8. Scapula infraspinous length (ISL)
9. Scapula glenoid cavity breadth (GCB)
10. Scapula glenoid cavity height (GCH)
11. Scapula gelonoid to inferior angle (GIL)
12. Manubrium length (MML)
13. Mesosternal length (MSL)
14. Sternabra 1 width (S1W)
15. Sternabra 3 width (S3W)
16. Humerus maximum length (HML)
17. Humerus proximal epiphyseal breadth (BUE)
18. Humerus maximum midshaft diameter (MDS)
19. Humerus minimum midshaft diameter (MDM)
20. Humerus maximum vertical diameter of the head (MDH)
21. Humerus epicondylar breadth (EBR)
22. Humerus least circumference of the shaft (LCS)
23. Radius maximum length (RML)
24. Radius maximum diameter of the head (RDH)
25. Radius anterior/posterior diameter of the shaft (RSD)
26. Radius medial/lateral diameter of the shaft (RTD)
27. Radius neck shaft circumference (MCS)
28. Ulna maximum length (UML)
29. Ulna physiological length (UPL)
30. Ulna maximum breadth olecranon (BOP)
31. Ulna minimum breadth olecranon (MBO)
32. Ulna maximum width olecranon (WOP)
33. Ulna olecranon-radial notch (ORL)
34. Ulna olecranon-coronoid length (OCL)
35. Ulna anterior/posterior shaft diameter (UAD)
36. Ulna medial/lateral shaft diameter (UMD)
37. Ulna least circumference of the shaft (ULC)

38. Sacrum anterior length (SAL)
39. Sacrum anterior/superior breadth (SAB)
40. Sacrum anterior breadth S1 (SMB)
41. Innominate height (INH)
42. Iliac breadth (ILB)
43. Pubis length (PUL)
44. Ischium length (ICL)
45. Femur maximum length (FML)
46. Femur bicondylar length (FOL)
47. Femur trochanteric length (FTL)
48. Femur subtrochanteric anterior/posterior diameter (APD)
49. Femur subtrochanteric medial/lateral diameter (MLD)
50. Femur anterior/posterior midshaft diameter (APS)
51. Femur medial/lateral midshaft diameter (MLS)
52. Femur maximum vertical diameter of head (VHD)
53. Femur maximum horizontal diameter of head (HHD)
54. Femur anterior/posterior diameter lateral condyle (APL)
55. Femur anterior/posterior diameter medial condyle (APM)
56. Femur epicondylar breadth (FEB)
57. Femur bicondylar breadth (BCB)
58. Femur minimum vertical diameter of neck (VDN)
59. Femur circumference at the midshaft (FCS)
60. Tibia condylo-malleolar length (TML)
61. Tibia proximal epiphyseal maximum breadth (BPE)
62. Tibia distal epiphyseal maximum breadth (BDE)
63. Tibia anterior/posterior diameter at nutrient foramen (APN)
64. Tibia medial/lateral diameter at nutrient foramen (MLM)
65. Tibia position of the nutrient foramen (CFL)
66. Tibia circumference at the nutrient foramen (PCN)
67. Fibula maximum length (BML)
68. Fibula maximum diameter midshaft (FMD)
69. Calcaneus maximum length (CLL)
70. Calcaneus middle breadth (CMB)

Appendix 4: Postcranial Skeleton

		Clavicle						Scapula					
		CML		CSD		CVD		SML		SMB		SLS	
B	F	L	R	L	R	L	R	L	R	L	R	L	R
4	20	138	133	11	11	10	10	150	153	97	97	130	131
5	25	148	149	14	15	12	12	167	167	102	103	140	137
6	27	-	-	-	-	-	-	-	-	-	-	-	-
7	26	161	159	13	13	14	14	158	159	106	105	141	140
11	46	-	-	13*	-	14*	-	-	-	-	-	-	-
13	57	160	164	16	15	10	11	-	152	111	112	148	148
14	53	146	137	15	12	9	9	161	157	98	95	141	126
15	79	154	150	14	16	12	13	167	166	103	103	140	140
18	66	156	157	11	11	10	10	173	-	99	-	127	-
19	96	148	145	14	14	10	11	166	168	107	108	139	139
23A	106	-	-	-	-	-	-	-	-	-	-	-	-
23B	106	-	-	-	-	-	-	-	-	-	-	-	-
23C	106	-	-	-	-	-	-	-	-	-	-	-	-
23D	106	-	-	-	-	-	-	-	-	-	-	-	-
24	114	-	133	-	9	-	11	-	158	-	92	-	131
26	108	151	147	10	12	10	9	-	161	103	104	136	136
30	111	138	135	12	12	11	12	-	-	99	-	129	129
31	109	-	156	-	12	-	9	-	-	-	110	-	147
32	116	148	144	12	12	8	8	-	156*	-	102	-	136
33	150	132	-	11	-	7	-	-	152	-	-	-	-
34	152	157	157	10	10	11	12	-	-	103	105	138	142
35	153	135	143	12	9	10	9	155	-	100	99	125	127
38	130	148	147	14	13	10	9	167	168	108	108	141	-
39	131	144	142	11	12	10	10	159	155	98	97	131	130
40	132	148	150	11	10	10	10	157	-	101	104	132*	134*
41	121	164	165	12	14	11	9	-	174	115	114	148	148
42	163	150	150	12	12	8	8	146	-	-	-	128	-
43	170	133	134	11	12	11	10	153	153	97	99	135	137
44	173	146	-	13	-	9	-	-	148	-	96	131	134
45	177	157	158	11	11	14	14	164	165	112	110	147	145
49	90	144	140	10	9	12	12	169	170	104	102	137	134
50	164	153	153	12	13	10	11	-	-	-	-	-	-
51	117	143	139	11	13	14	12	148*	-	100	100	133	134
54	171	142	139	12	11	9	10	159	159	99	101	134	139
55	172	159	154	13	13	8	8	162	162	101	100	133	133
57	195	157	163	14	15	9	9	168	171	104	105	136	137
58	196	-	143	-	9	-	13	153	-	104	106	144*	148
62	207	-	143	-	16	-	11	-	156	-	103	-	143
64	91	138	135	13	15	8	9	152	152	99	102	127	128
65	92	159	155	13	13	9	9	160	161	100	99	130	136
66	212	155	155	15	14	10	9	162	169	112	110	147	142

* measurement is estimated

		Scapula										Sternum	
		SSL		ISL		GCB		GCH		GIL		MML	
B	F	L	R	L	R	L	R	L	R	L	R	L	R
4	20	52	55	111	112	26	25	35	37	135	136	-	-
5	25	55	58	129	128	28	28	39	38	137	134	-	-
6	27	-	-	-	-	-	-	-	-	-	-	-	-
7	26	54	51	116	118	27	28	37	438	143	145	60	61
11	46	-	-	-	-	-	-	-	-	-	-	-	-
13	57	-	51	-	109	27	29	37	37	-	149	51	-
14	53	57	49	113	114	28	28	39	39	139	134	54	-
15	79	52	(55)	123	124	30	30	40	41	149	149	46	-
18	66	56	-	135	-	26	-	41	-	149	-	46	-
19	96	59	64	121	121	29	29	38	40	144	141	52	-
23A	106	-	-	-	-	-	-	-	-	-	-	-	-
23B	106	-	-	-	-	-	-	-	-	-	-	-	-
23C	106	-	-	-	-	-	-	-	-	-	-	-	-
23D	106	-	-	-	-	-	-	-	-	-	-	-	-
24	114	-	53	-	115	24	24	35*	35	129	129	-	-
26	108	-	55	120	123	29	31	37	37	145	143	52	-
30	111	-	-	117	-	27	-	-	-	131	-	51	-
31	109	-	-	-	-	-	26	-	39	-	138	-	-
32	116	-	-	-	114	27	27	36	35	-	145	54	-
33	150	-	-	-	-	25	25	33	32	-	129	(42)	(42)
34	152	53	51	-	-	29	30	39	41	-	-	(53)	-
35	153	55	-	111	-	26	29	36	37	133	-	44	-
38	130	51	50	136	(131)	28	28	37	39	147	152	-	-
39	131	54	52	123	121	27	28	36	37	136	137	-	-
40	132	47	-	123	-	28	29	37	38	147	-	47	-
41	121	58	62	-	124	29	29	39	40	-	153	70	-
42	163	45	-	112	-	24	24	37	36	127*	-	-	-
43	170	43	45	118	120	29	29	35	37	139	141	45	-
44	173	-	64	-	98	28	28	41	40	134	131	56	94
45	177	49	52	124	124	27	26	36	35	151	151	52	-
49	90	54	55	132	128	29	29	40	40	145	145	51	-
50	164	-	-	-	-	29	29	40	40	-	-	-	-
51	117	(43)	(45)	(108)	-	26	25	37	347	135	-	40	-
54	171	58	54	113	116	27	27	39	40	136	137	46	-
55	172	48	48	123	121	26	28	37	38	143	145	46	-
57	195	56	53	126	127	28	31	39	40	142	145	43	-
58	196	43	-	117	114	27	27	37	38	147	145	39	-
62	207	-	56	-	110	27	27	39	40	-	143	48	-
64	91	44	45	121	116	27	29	36	37	136	136	46	-
65	92	56	57	122	117	27	28	38	38	146	146	52	48
66	212	48	50	123	132	30	32	42	43	152	155	47	-

* measurement is estimated

		Sternum						Humerus					
		MSL		S1W		S3W		HML		BUE		MDS	
B	F	L	R	L	R	L	R	L	R	L	R	L	R
4	20	-	-	32	-	37	-	303	304	49	50	22	24
5	25	97	-	44	-	21	-	326	325	50	50	28	28
6	27	-	-	-	-	-	-	323	324	-	-	-	-
7	26	108	-	24	-	34	-	338	338	51	53	24	25
11	46	-	-	-	-	-	-	304	-	46	-	22	23*
13	57	(123)	-	33	-	37	-	344	344	52	54	23	24
14	53	86	-	24	-	29	-	318	316	55	53	23	23
15	79	85	-	25	-	25	-	372	379	52	54	25	26
18	66	-	-	-	-	-	-	313	-	49	-	21	-
19	96	(95)	-	24	-	28	-	348	350	49	52	20	21
23A	106	-	-	-	-	-	-	-	-	-	-	-	-
23B	106	-	-	-	-	-	-	-	-	-	-	-	-
23C	106	-	-	-	-	-	-	-	-	-	-	-	-
23D	106	-	-	-	-	-	-	-	-	-	-	-	-
24	114	81	-	29	-	36	-	279	285	46	45	21	22
26	108	108	-	27	-	30	-	312	318	52	54	24	25
30	111	-	-	-	-	-	-	325	332	51	53	22	24
31	109	-	-	-	-	-	-	-	-	-	-	-	-
32	116	86	-	24	-	27	-	317	317	46	45	24	24
33	150	(91)	(91)	22	22	29	29	295	300	47	46	22	23
34	152	(90)	-	31	-	48	-	317	322	53	55	22	23
35	153	-	-	-	-	-	-	297	302	50	51	21	22
38	130	101	-	26	-	32	-	311	317	49	49	20	20
39	131	-	-	-	-	-	-	320	325	49	50	22	23
40	132	112	-	26	-	35	-	313	-	48	-	22	-
41	121	102	-	27	-	37	-	352	356	49	49	24	25
42	163	-	-	-	-	-	-	304	310	44	45	21	22
43	170	114	-	36	-	27	-	318	316	50	50	23	23
44	173	28	30	304	311	53	52	22	22	15	17	48	48
45	177	99	-	29	-	43	-	327	328	50	50	25	26
49	90	116	-	27	-	36	-	317	326	53	54	22	23
50	164	106	-	27	-	29	-	327	330	51	51	21	23
51	117	96	-	23	-	30	-	322	324	51	51	22	23
54	171	75	-	21	-	23	-	312	316	49	49	26	25
55	172	120	-	27	-	32	-	329	340	51	51	22	23
57	195	104	-	27	-	28	-	340	345	52	53	23	24
58	196	112	-	22	-	31	-	341	341	51	52	20	22
62	207	83	-	27	-	28	-	319	322	51	53	22	24
64	91	89	-	27	-	36	-	304	310	53	53	21	22
65	92	117	-	23	-	34	-	323	324	48	48	20	21
66	212	107	-	26	-	34	-	336	338	52	53	24	26

* measurement is estimated

		Humerus								Radius			
		MDM		MDH		EBR		LCS		RML		RDH	
B	F	L	R	L	R	L	R	L	R	L	R	L	R
4	20	20	20	42	43	65	66	64	70	229	237	23	-
5	25	21	21	44	44	63	762	79	78	251	254	26	26
6	27	-	-	-	-	-	-	-	-	243	243	-	-
7	26	18	18	47	48	59	60	64	65	250	253	25	25
11	46	18	18*	42	45*	58	-	68	-	-	-	-	22
13	57	19	18	47	48	61	62	65	66	253	-	23	23
14	53	18	18	48	49	64	63	65	64	249	246	24	(26)
15	79	21	22	47	48	63	64	71	75	279	283	25	26
18	66	16	-	44	-	61	-	58	-	254	257	23	25
19	96	18	18	45	45	60	61	60	63	251	251	23	23
23A	106	-	-	-	-	-	-	-	-	-	-	-	-
23B	106	-	-	-	-	-	-	-	-	-	-	-	-
23C	106	-	-	-	-	-	-	-	-	-	-	-	-
23D	106	-	-	-	-	-	-	-	-	-	-	-	-
24	114	15	16	41	41	59	59	62	66	217	222	22	23
26	108	187	18	47	50	59	61	63	67	247	248	23	24
30	111	19	19	48	48	-	-	63	65	-	249	-	-
31	109	-	-	-	-	-	-	-	-	236	233	24	24
32	116	17	15	40	48	58	58	66	62	235	239	21	22
33	150	16	16	42	40	57	57	89	89	-	230	-	19
34	152	16	16	47	50	55	58	58	60	238	242	24	24
35	153	15	16	44	44	58	61	57	63	215	218	22	22
38	130	19	19	45	47	64	62	60	63	243	247	23	23
39	131	19	19	44	45	60	63	63	65	235	238	24	23
40	132	18	-	44	-	57	-	65	-	-	-	-	-
41	121	17	12	44	45	62	63	66	66	266	267	24	244
42	163	16	16	41	42	56	56	62	62	235	235	21	22
43	170	15	16	46	46	61	61	62	63	250	251	25	25
44	173	61	61	60	62	231	232	22	22	12	12	15	16
45	177	17	17	47	47	57	58	67	67	247	248	22	23
49	90	19	19	49	49	64	65	65	68	230	238	25	25
50	164	17	18	46	47	66	65	59	62	(261)	262	(25)	(25)
51	117	18	18	44	45	65	65	65	65	243*	252*	-	23
54	171	22	21	44	44	62	61	77	76	232	233	24	24
55	172	16	17	47	46	57	58	59	61	240	240	22	22
57	195	20	20	47	48	69	69	67	72	266	266	26	26
58	196	17	17	47	47	63	-	60	60	242	244	24	24
62	207	18	18	47	48	59	58	64	67	238	241	23	24
64	91	17	16	48	47	56	56	60	60	224	221	22	23
65	92	16	16	45	46	61	61	61	61	247	250	21	22
66	212	18	18	49	49	63	65	67	68	249	249	22	22

* measurement is estimated

		Radius						Ulna					
		RSD		RTD		MCS		UML		UPL		BOP	
B	F	L	R	L	R	L	R	L	R	L	R	L	R
4	20	11	12	15	16	49	48	252	-	220	-	26	-
5	25	15	16	18	18	59	56	275	-	238	-	29	-
6	27	-	-	-	-	-	-	261	264	-	-	-	-
7	26	13	12	16	17	47	48	264	266	233	238	26	25
11	46	-	-	-	-	-	-	-	-	-	-	-	-
13	57	13	14	16	17	50	50	267	272	240	245	26	27
14	53	13	13	17	17	48	52	261	262	232	232	28	27
15	79	14	14	16	17	55	57	296	301	266	272	27	29
18	66	11	12	14	14	48	43	272	274	244	242	26	28
19	96	12	12	13	14	49	49	274	277	243	245	29	27
23A	106	-	-	-	-	-	-	-	-	-	-	-	-
23B	106	-	-	-	-	-	-	-	-	-	-	-	-
23C	106	-	-	-	-	-	-	-	-	-	-	-	-
23D	106	-	-	-	-	-	-	-	-	-	-	-	-
24	114	11	11	14	15	42	43	237	243	213	216	24	26
26	108	12	13	17	18	48	48	266	269	238	239	25	25
30	111	14	-	16	-	45	45	261	-	233	-	26	-
31	109	12	11	14	15	50	44	262	260	231	231	26	27
32	116	13	11	16	16	43	40	253	256	223	224	24	25
33	150	-	10	-	13	-	43	-	247	-	221	-	(24)
34	152	11	12	15	15	45	45	252	-	224	-	26	27
35	153	10	10	15	18	48	46	238	239	203	206	26	26
38	130	11	11	16	16	45	45	265	269	236	238	27	27
39	131	12	12	14	15	53	50	251	257	222	225	-	25
40	132	-	-	-	-	-	-	-	-	-	-	-	-
41	121	13	12	16	16	51	46	280	-	256	255	23	23
42	163	11	12	12	13	4	49	256	258	227	227	27	26
43	170	11	11	15	15	50	50	270	275	239	242	26	27
44	173	47	47	251	254	221	222	25	25	24	24	27	24
45	177	12	12	15	16	49	47	262	266	233	235	25	24
49	90	11	12	16	16	50	48	251	255	217	225	-	26
50	164	13	13	15	16	52	-	-	282	-	251	-	28
51	117	13	13	16	16	50	51	257*	265*	226	234	-	28
54	171	14	13	16	17	57	58	256	254	225	253	28	28
55	172	11	12	14	14	44	41	253	256	225	228	24	23
57	195	14	14	16	15	54	50	286	287	258	258	28	31
58	196	12	12	14	15	50	50	258	260	227	229	25	24
62	207	13	13	16	17	50	50	255	-	225	231	25	-
64	91	11	11	16	16	45	47	238	240	210	211	24	24
65	92	12	12	13	14	42	41	265	267	2377	238	26	25
66	212	12	12	16	16	47	48	265	269	237	236	26	27

* measurement is estimated

		Ulna											
		MBO		WOP		ORL		OCL		UAD		UMD	
B	F	L	R	L	R	L	R	L	R	L	R	L	R
4	20	19	-	26	-	33	-	21	-	14	-	16	-
5	25	25	-	30	-	39	-	30	-	17	-	20	-
6	27	-	-	-	-	-	-	-	-	-	-	-	-
7	26	20	19	25	24	35	35	25	24	15	13	17	16
11	46	-	-	-	-	-	-	-	-	-	-	-	-
13	57	23	22	24	24	37	35	22	23	15	14	19	17
14	53	22	22	23	23	38	(35)	25	23	14	14	17	18
15	79	25	26	25	25	36	38	26	27	15	16	18	19
18	66	20	21	23	23	34	34	23	25	13	13	15	15
19	96	18	19	23	-	38	-	23	-	12	14	15	16
23A	106	-	-	-	-	-	-	-	-	-	-	-	-
23B	106	-	-	-	-	-	-	-	-	-	-	-	-
23C	106	-	-	-	-	-	-	-	-	-	-	-	-
23D	106	-	-	-	-	-	-	-	-	-	-	-	-
24	114	18	19	23	24	34	35	23	20	13	11	15	14
26	108	20	21	26	24	34	35	24	25	13	13	17	19
30	111	20	-	24	-	35	-	-	-	-	-	-	-
31	109	21	20	27	26	34	34	22	22	13	12	15	16
32	116	19	19	25	25	33	33	21	22	13	13	17	18
33	150	-	18	-	23	-	28	-	(22)	12	11	16	16
34	152	18	20	24	25	37	36	25	27	11	11	16	17
35	153	20	24	25	25	36	35	25	23	11	14	16	16
38	130	20	21	25	26	34	35	24	24	13	13	16	17
39	131	19	20	23	22	37	35	22	23	13	14	16	17
40	132	-	-	-	-	-	-	-	-	-	-	-	-
41	121	18	19	26	25	32	39	23	23	14	13	16	16
42	163	20	25	25	22	33	34	23	22	13	12	16	16
43	170	21	22	26	24	39	38	23	25	14	15	17	17
44	173	38	35	27	24	38	35	25	25	13	13	19	18
45	177	20	20	24	25	36	35	22	21	15	15	17	16
49	90	20	19	25	22	37	37	25	27	14	14	16	16
50	164	-	21	-	25	-	(39)	-	(26)	-	13	-	17
51	117	21	22	23	24	36	(38)	(24)	24	12	13	16	17
54	171	24	23	25	23	37	37	25	25	15	16	19	18
55	172	18	18	25	26	32	33	21	18	13	12	16	15
57	195	23	23	26	26	39	40	24	26	14	16	18	16
58	196	20	20	25	25	35	35	23	25	13	11	15	14
62	207	19	20	25	23	36	39	23	24	14	16	19	20
64	91	17	17	23	25	36	35	23	23	12	13	15	16
65	92	17	16	22	21	36	36	24	23	13	13	15	15
66	212	20	22	27	27	36	36	22	23	14	14	17	18

* measurement is estimated

		Ulna		Sacrum			Os Coxa				Os Coxa			
		ULC		SAL	SAB	SMB	INH		ILB		PUL		ICL	
B	F	L	R				L	R	L	R	L	R	L	R
4	20	38	-	79	99	47	200	202	155	153	-	-	-	-
5	25	48	-	100	103	48	207	204	147	149	-	-	-	-
6	27	-	-	-	-	-	-	-	-	-	-	-	-	-
7	26	38	40	98	117	48	221	221	159	157	-	-	-	-
11	46	5	-	95	99	55	-	-	-	-	-	-	-	-
13	57	40	38	136	117	51	231	-	172	-	-	-	-	-
14	53	35	35	103	-	-	221	218	155	155	-	-	-	-
15	79	35	38	(108)	117	51	216	217	148	150	-	-	-	-
18	66	38	38	-	-	-	213	212	154	152	-	-	-	-
19	96	32	33	104	116	56	210	210	-	147	-	-	-	-
23A	106	-	-	-	-	-	-	-	-	-	-	-	-	-
23B	106	-	-	-	-	-	-	-	-	-	-	-	-	-
23C	106	-	-	-	-	-	-	-	-	-	-	-	-	-
23D	106	-	-	-	-	-	-	-	-	-	-	-	-	-
24	114	35	35	99	106	46	206	208	156	152	86	79	83	74
26	108	38	40	117	119	50	213	215	-	149	-	-	-	-
30	111	-	-	107	-	5-	217	217	152	-	-	-	-	-
31	109	35	37	98	111	52	211	210	147	151	90	89	89	89
32	116	35	37	100	111	(51)	202	202	156	157	-	-	-	-
33	150	-	37	100	113	48	193	190	150	155	-	-	-	-
34	152	31	-	114	119	51	225	-	154	-	-	-	-	-
35	153	37	39	115	114	54	205	202	157	160	86	92	82	79
38	130	37	39	106	(111)	51	-	222	-	164	-	-	-	-
39	131	39	41	117*	96*	55	219	216	158	154	81	85	91	90
40	132	-	-	94	113	(45)	216	213	154	156	-	-	-	-
41	121	39	40	104	141	53	240	236	168	168	100	102	100	100
42	163	38	37	95	102	49	200	197	136	134	81	83	82	79
43	170	39	39	(98)	104	54	211	212	160	159	-	-	-	-
44	173	39	39	96	95	45	207	202	150	150	-	91	82	88
45	177	40	38	139	118	56	214	215	146	146	-	-	-	-
49	90	38	40	109	122	59	219	217	160	162	-	-	-	-
50	164	-	40	-	-	-	-	205	-	148	-	-	-	-
51	117	40	42	96	-	54	199	200	140	135	-	-	-	-
54	171	43	41	98	89	48	201	202	134	132	86	88	92	91
55	172	32	35	110	112	43	208	210	154	156	-	-	-	-
57	195	40	40	119	104	56	208	210	-	153	-	-	-	-
58	196	35	32	107	113	55	212	213	159	158	-	-	-	-
62	207	39	44	106	119	55	217	222	161	161	-	-	-	-
64	91	35	35	93	110	47	199	200	151	148	-	-	-	-
65	92	36	36	100	100	47	215	215	155	158	90	87	89	85
66	212	(42)	38	114	121	56	234	233	174	172	-	-	-	-

* measurement is estimated

		Femur											
		FML		FOL		FTL		APD		MLD		APS	
B	F	L	R	L	R	L	R	L	R	L	R	L	R
4	20	487	412	417	411	405	398	28	27	32	33	30	31
5	25	463	462	460	458	437	435	28	28	32	32	32	31
6	27	475	472	474	471	-	-	-	-	-	-	-	-
7	26	487	484	483	482	460	460	31	31	31	31	31	31
11	46	423	-	418	-	405	-	27	-	29	-	31	-
13	57	477	482	472	479	448	453	29	29	30	30	31	30
14	53	442	433	440	431	417	407	26	25	30	31	27	27
15	79	529	522	526	517	504	494	30	29	33	33	34	35
18	66	441	442	440	441	429	432	25	24	33	33	26	26
19	96	479	482	477	478	453	451	25	25	30	30	30	29
23A	106	-	-	-	-	-	-	-	-	-	-	-	-
23B	106	-	-	-	-	-	-	-	-	-	-	-	29
23C	106	-	-	-	-	-	-	-	-	-	-	-	-
23D	106	-	-	-	-	-	-	-	-	-	-	-	-
24	114	413	413	409	410	388	389	25	25	31	30	28	28
26	108	435	433	433	430	410	404	26	26	30	30	30	30
30	111	-	-	-	-	-	-	30	30	32	31	-	-
31	109	-	433	-	429	-	410	-	24	-	32	-	26
32	116	435	434	432	430	420	417	25	25	28	27	29	28
33	150	415	416	413	415	392	397	25	25	33	35	-	-
34	152	449	450	447	447	427	430	26	26	29	31	27	26
35	153	405	406	402	402	382	380	25	25	33	32	26	24
38	130	-	443	-	438	413	418	26	25	32	31	28	27
39	131	459	455	455	452	445	431	27	27	33	32	27	27
40	132	-	431	-	430	-	423	25	25	30	31	28	27
41	121	482	483	479	478	465	463	28	29	33	32	30	30
42	163	410	406	404	400	387	382	25	25	29	28	27	27
43	170	455	453	453	451	436	430	25	24	33	31	30	31
44	173	427	-	422	-	409	-	27	-	30	-	29	28
45	177	471	476	466	472	436	445	26	26	31	33	31	30
49	90	445	450	443	4448	420	423	31	29	33	33	26	27
50	164	461	461	455	455	432	433	25	26	29	30	26	26
51	117	489*	481*	482	475	455	448	26	27	29	30	29	29
54	171	440	440	435	438	416	419	26	27	33	32	27	27
55	172	456	454	448	450	447	445	26	26	34	34	26	23
57	195	480	481	476	476	451	451	27	26	32	33	30	30
58	196	456	453	454	451	435	432	27	27	27	28	28	28
62	207	464	473	460	468	443	447	29	29	31	28	31	31
64	91	441	440	440	439	414	416	26	26	31	31	29	28
65	92	457	456	454	452	439	440	27	27	34	35	29	29
66	212	501	495	499	492	479	472	29	29	32	32	31	30

* measurement is estimated

		Femur											
		MLS		VHD		HHD		APL		APM		FEB	
B	F	L	R	L	R	L	R	L	R	L	R	L	R
4	20	29	28	44	45	44	45	61	61	64	64	82	82
5	25	28	29	46	46	46	47	67	68	65	65	79	81
6	27	-	-	-	-	-	-	-	-	-	-	-	-
7	26	27	27	48	49	48	48	67	68	65	65	86	86
11	46	26	-	43	-	43	-	59	-	62	-	78	-
13	57	27	27	46	46	46	46	65	65	66	67	84	84
14	53	27	26	46	47	46	47	63	63	64	66	82	84
15	79	28	30	48	49	48	49	69	68	67	69	82	82
18	66	27	26	44	45	44	45	64	65	61	62	78	80
19	96	26	24	45	45	45	45	65	64	62	62	870	81
23A	106	-	-	-	-	-	-	-	-	-	-	-	-
23B	106	-	39	-	-	-	-	-	64	-	67	-	90
23C	106	-	-	-	-	-	-	-	-	-	-	-	-
23D	106	-	-	-	-	-	-	-	-	-	-	-	-
24	114	27	26	43	44	42	42	59	60	58	60	76	74
26	108	26	26	48	48	47	48	62	63	66	66	79	80
30	111	-	-	48	48	48	49	-	-	-	-	-	-
31	109	-	26	-	46	-	46	-	62	-	62	-	82
32	116	25	24	40	41	40	40	62	61	58	57	72	72
33	150	-	-	44	43	43	43	59	58	59	57	77	75
34	152	27	28	51	51	51	50	64	65	66	67	85	85
35	153	27	27	44	44	43	44	62	60	60	62	78	79
38	130	25	24	-	48	(48)	48	(66)	64	-	64	-	-
39	131	29	29	46	46	46	47	69	68	69	65	77	74
40	132	28	27	42	42	42	42	-	58	-	56	-	75
41	121	28	27	49	49	48	48	64	64	64	63	88	84
42	163	26	25	41	42	42	41	58	59	58	58	77	76
43	170	28	27	49	48	49	49	65	66	65	64	83	83
44	173	27	26	46	-	46	-	66	65	68	64	86	86
45	177	23	24	46	46	46	46	63	62	66	66	80	80
49	90	30	29	51	52	50	52	61	61	61	62	85	85
50	164	25	25	46	46	46	46	68	68	63	63	81	81
51	117	23	22	44	45	45	46	65	66	65	64	82	84
54	171	27	28	45	45	45	45	64	63	60	60	77	77
55	172	32	31	45	46	45	46	66	63	65	64	79	81
57	195	27	26	48	48	48	49	70	70	70	70	84	86
58	196	25	25	47	48	47	48	65	65	64	63	79	79
62	207	27	26	46	47	46	47	65	64	64	63	82	81
64	91	25	24	46	47	45	46	61	62	62	62	77	79
65	92	31	29	45	47	45	44	62	67	66	67	81	81
66	212	30	29	50	50	50	51	67	67	67	67	86	86

* measurement is estimated

		Femur						Tibia					
		BCB		VDN		FCS		TML		BPE		BDE	
B	F	L	R	L	R	L	R	L	R	L	R	L	R
4	20	76	77	31	31	90	91	342	345	77	77	54	52
5	25	75	76	34	34	95	93	375	370	79	78	50	49
6	27	-	-	-	-	-	-	-	-	-	-	-	-
7	26	83	82	34	33	90	90	395	397	81	81	53	52
11	46	71	-	32	-	91	-	363	361	72	72	51	49
13	57	79	79	34	35	91	90	390	395	80	80	58	55
14	53	78	79	32	31	85	85	364	360	79	80	53	53
15	79	80	80	33	32	98	100	463	458	80	81	57	55
18	66	73	73	29	28	83	83	380	-	75	-	51	-
19	96	76	79	31	32	86	84	379	386	76	76	51	51
23A	106	-	-	-	-	-	-	-	378	-	-	-	52
23B	106	-	(85)	-	-	-	94	-	(385)	-	80	-	53
23C	106	-	-	-	-	-	-	-	-	80	-	-	-
23D	106	-	-	-	-	-	-	-	-	-	-	53	-
24	114	71	69	32	30	88	74	337	338	73	71	47	46
26	108	75	76	29	29	90	89	362	360	77	77	51	48
30	111	-	-	32	33	-	-	-	-	-	-	-	-
31	109	-	76	-	31	-	81	-	348	-	75	-	50
32	116	67	66	28	27	84	83	362	362	69	69	47	47
33	150	68	67	30	30	-	-	333	334	70	70	-	46
34	152	78	80	34	34	85	85	364	364	78	80	57	56
35	153	71	70	30	30	83	80	-	326	75	74	52	50
38	130	-	81	31	32	84	83	367	368	-	80	-	51
39	131	84	84	32	31	88	87	373	372	75	75	55	53
40	132	-	68	25	27	89	85	361	-	72	-	50	-
41	121	75	77	34	34	94	91	412	415	79*	80	54	53
42	163	71	71	28	28	83	82	347	348	74	74	44	44
43	170	77	79	34	33	91	91	363	364	79	79	51	50
44	173	75	74	31	-	87	88	360	363	77	76	55	54
45	177	78	79	31	31	86	86	380	386	76	77	52	50
49	90	79	79	34	34	88	88	342	345	79	79	57	55
50	164	78	78	34	33	83	82	385	379	79	79	53	51
51	117	77	77	31	31	82	85	380	378	80	77	52	52
54	171	71	73	30	340	86	86	332	336	71	73	49	45
55	172	75	77	30	30	93	88	391	393	78	76	52	51
57	195	83	86	36	37	89	90	399	398	82	83	55	53
58	196	76	74	33	33	83	83	372	365	77	76	52	49
62	207	77	80	33	33	90	90	376	380	77	77	51	51
64	91	75	77	34	34	84	84	348	340	75	75	53	51
65	92	77	78	35	31	93	90	388	388	78	78	54	52
66	212	82	83	35	34	95	95	385	386	81	81	56	57

* measurement is estimated

		Tibia								Fibula			
		APN		MLM		CFL		PCN		BML		FMD	
B	F	L	R	L	R	L	R	L	R	L	R	L	R
4	20	36	35	24	22	1077	107	95	95	344	341	15	16
5	25	36	35	28	27	128	133	105	102	372	371	16	16
6	27	-	-	-	-	-	-	-	-	-	-	-	-
7	26	36	37	24	24	130	129	100	101	390	388	14	15
11	46	34	30	26	25	116	119	93	92	348	345	15	16
13	57	36	37	27	27	119	1277	102	101	390	394	15	17
14	53	35	33	26	26	95	103	103	96	363	258	13	15
15	79	38	38	32	31	159	166	108	109	443	444	18	17
18	66	31	-	23	-	121	-	88	-	372	-	14	-
19	96	33	32	20	21	130	142	90	88	370	372	12	12
23A	106	-	38	-	26	-	-	-	102	-	369	-	17
23B	106	-	36	-	27	-	122	-	101	-	382	-	17
23C	106	38	-	26	-	126	-	102	-	-	-	16	-
23D	106	-	-	-	-	-	-	-	-	-	-	13	-
24	114	33	32	24	24	112	116	92	93	323	325	15	15
26	108	35	32	25	24	115	130	93	90	352	350	15	15
30	111	33	33	24	24	125	-	94	93	379	-	14	-
31	109	-	33	-	23	-	98	-	91	-	337	-	14
32	116	32	32	23	24	112	116	91	90	360	357	13	13
33	150	(30)	29	23	24	108	104	85	87	330	331	13	14
34	152	35	36	25	25	105	114	100	98	356	358	14	14
35	153	30	25	23	23	112	105	85	80	323	324	14	14
38	130	32	33	24	24	128	126	93	93	352	362	16	15
39	131	35	32	25	25	130	124	95	92	360	357	16	15
40	132	33	-	25	-	116	-	92	-	-	-	-	-
41	121	35	34	25	25	137*	126	94	98	400	407	14	13
42	163	30	27	23	23	120	118	82	83	-	343	-	13
43	170	31	31	24	22	113	125	92	88	-	360	-	14
44	173	33	32	23	22	124	118	91	91	357	356	15	15
45	177	32	34	27	25	122	132	95	97	370	378	14	14
49	90	37	32	25	24	112	115	90	94	336	342	14	15
50	164	34	34	25	25	129	119	95	97	373	370	15	16
51	117	34	34	28	28	116	116	98	100	365	366	17	17
54	171	33	31	26	25	108	103	94	93	328	331	14	15
55	172	34	34	21	21	131	121	89	89	386	386	14	17
57	195	37	33	27	24	130	142	104	94	389	388	14	15
58	196	33	32	24	24	118	118	90	89	-	361	13	13
62	207	35	38	29	29	134	133	104	106	360	364	15	15
64	91	32	32	24	26	117	115	90	91	340	336	14	14
65	92	35	34	25	23	117	130	95	93	373	379	15	16
66	212	38	38	25	26	137	130	102	105	378	377	16	16

* measurement is estimated

		Calcaneus			
		CLL		CMB	
B	F	L	R	L	R
4	20	78	80	43	44
5	25	75	75	43	42
6	27	-	-	-	-
7	26	87	88	43	45
11	46	74	74	40	41
13	57	87	86	47	47
14	53	77	77	44	44
15	79	88	88	46	46
18	66	79	79	39	-
19	96	75	75	40	40
23A	106	-	85	-	41
23B	106	-	84	-	48
23C	106	78	-	(43)	-
23D	106	75	-	43	-
24	114	72	76	39	40
26	108	78	79	39	41
30	111	82	82	42	-
31	109	-	-	-	-
32	116	71	71	37	37
33	150	-	65	-	37
34	152	77	77	42	43
35	153	74	76	42	42
38	130	79	80	43	45
39	131	82	-	44	46
40	132	-	-	-	-
41	121	82	82	44	44
42	163	69	71	37	41
43	170	74	77	42	42
44	173	76	78	41	42
45	177	80	82	46	47
49	90	-	82	-	47
50	164	80	80	42	43
51	117	77	79	41	41
54	171	75	75	41	40
55	172	80	81	40	42
57	195	84	85	44	44
58	196	79	79	41	41
62	207	80	78	44	45
64	91	80	81	40	40
65	92	81	81	45	45
66	212	81	82	44	44

* measurement is estimated

Appendix 5: Infant Skeletal Measurements

		Lesser Wing Sphenoid				Greater Wing Sphenoid			
		L	R	L	R	L	R	L	R
B	F	L		W		L		W	
01	5	-	-	-	-	-	-	-	-
02	8	26.5	29	16.2	17	49.6	49.7	28.3	27.4
03	19	19.3	-	12.6	12.4	-	36.5	21.6	21.2
08	51	25.6	26.9	14.9	15	-	42.7	23.2	21.4
10	49	-	-	-	-	-	-	-	-
12	56	-	-	-	-	40.8	-	27.4	27.4
16	81	-	-	-	-	40.9	-	27.4	27.4
17	80	-	-	-	-	-	-	-	-
20	99	34.2	-	17.3	16.6	50.9	51.5	24.1	25.5
21	102	11.8	10.8	8.1	7.6	21.9	21.7	14.1	14
22	100	-	-	-	-	-	48.8	-	25.5
25	115	16.7	16.3	10.1	10.1	33.1	33.9	21.7	20.8
27	104	30.9	-	14.2	13.5	53.2	52.9	25.7	25.6
28	105	-	-	-	-	63.2	-	28.8	25.5
29	97	-	-	-	-	-	-	-	-
36	154	13.4	14.5	8.6	9.5	27.3	27.4	17.4	17.5
37	110	20.7	-	11.3	11.3	31	29.2	21	19.7
46	112B	20.9	-	17.2	17.6	57.8	-	27.2	27.1
47	112A	-	-	-	-	-	-	-	-
52	119	25.1	-	11	10.5	41.1	41.1	13.4	12.5
53	179	16.3	16	11.5	11.6	32.9	34.1	20.9	20.7
56	174	-	-	-	-	-	-	-	-
59	199	24.3	22.4	13.8	15.8	-	48.7	-	23.1
60	198	-	-	-	-	-	-	22.3	-
61	201	-	-	-	-	-	-	-	-
63	208	-	29.3	-	15.3	48.7	-	24.8	-
67	202	-	-	-	-	35	-	22.8	22.3

*Measurements skewed due to pathology

		Sphenoid Body		Petrous of Temporal				Basioccipital	
		M		L	R	L	R	M	
B	F	L	W	L		W		L	W
01	5	-	-	41.7	42.4	23.7	20	12.3	13.8
02	8	-	-	-	-	-	-	15.7	21.8
03	19	-	-	41.1	40.4	21.7	20.4	12.2	14.7
08	51	-	-	47.2	48.2	22.2	22.9	14	17
10	49	-	-	-	-	-	-	-	-
12	56	-	-	-	54.4	-	24.9	14.5	18.9
16	81	-	-	-	54.4	-	24.9	-	-
17	80	-	-	36.8	-	22.5	-	13.4	14.4
20	99	-	-	-	-	-	-	-	-
21	102	-	-	21.9	22	15	17	9.6	8.7
22	100	-	-	52.9	-	20.2	-	17.6	28
25	115	-	-	39.8	40.2	17.5	17.6	12.1	14.5
27	104	-	-	-	-	-	-	13.5	20.2
28	105	-	-	-	-	-	-	19.3	26.5
29	97	-	-	-	-	-	-	19.5	25.7
36	154	-	16.5	27.5	28.4	18.4	17.4	9	11.5
37	110	9.5	16.2	35.5	34.5	16.4	15.5	11	12.8
46	112B	13.8	26.3	48	47.8	-	-	15.9	21.8
47	112A	-	-	-	-	-	-	-	-
52	119	-	-	44.5	44.6	16.6	17.3	12.2	15.7
53	179	-	-	34.6	36	20.8	20.8	11.5	13.3
56	174	-	-	-	-	-	-	14.7	23
59	199	-	-	-	-	-	-	16.4	21.2
60	198	-	-	-	-	24.5	23	13.4	18.2
61	201	-	-	-	-	-	-	14.5	22.5
63	208	-	-	-	-	-	-	14	21.1
67	202	20.4	21.2	47.7	48.2	22.8	23.6	14.6	17.3

*Measurements skewed due to pathology

		Zygomatic				Maxilla			
		L	R	L	R	L	R	L	R
B	F	L		W		L		H	
01	5	-	-	-	-	24.2	22	25.7	25.4
02	8	34.4	33.5	30	27.1	26.2	25.6	39.8	41
03	19	23.4	23.7	19.7	19.7	-	-	24.9	24.2
08	51	29.9	30.1	24.4	24.4	23.4	23.3	32.9	32.3
10	49	-	-	-	-	-	-	-	-
12	56	33.8	33.8	27.5	36.5	24.9	25	25.3	26.6
16	81	-	-	-	-	-	-	-	-
17	80	24.2	-	21.3	-	-	-	-	-
20	99	35.4	33.7	29	28.3	27.1	33.5	34.6	36.3
21	102	19	18.7	14.5	14.8	15	14.5	18.7	18
22	100	41.9	-	35.6	-	27.3	27.3	49.5	-
25	115	25.5	26	19.6	20.7	22.9	22.2	23.3	23.5
27	104	32.4	33	26.5	27.3	24	23.7	34.7	35.1
28	105	42.2	38.7	31.9	31.3	30.1	29.1	45.7	-
29	97	-	-	-	-	27.8	-	-	-
36	154	20.1	20.6	16.8	17.1	17.3	17.1	19.8	19.6
37	110	23.7	23	19.5	19.3	21	20.5	21.1	21.1
46	112B	-	35	30.7	30.3	25.3	26.9	29.4	30
47	112A	-	-	-	-	-	-	-	-
52	119	25.3	25.2	22.6	22.9	22.2	-	28.8	29
53	179	23.1	24.8	20.5	21.9	22.1	21.4	22.8	-
56	174	-	35	-	27.7	25.8	25.5	37.6	36.9
59	199	-	36.4	29.1	27.3	26.1	26	34.4	37.2
60	198	-	30	-	28.1	-	24.7	39.1	38.1
61	201	38.3	37.2	31.2	30.6	28.1	27.6	-	40.8
63	208	33.3	34.2	25	26.2	24.3	32.3	36.1	38.4
67	202	-	-	-	-	23.2	25.7	-	-

*Measurements skewed due to pathology

		Maxilla		Mandible					Clavicle
		L	R	L	R	L	R	M	L
B	F	W		L		W		FL	L
01	5	22	25.2	42	40.7	15.8	17.4	54.6	45.8
02	8	32.4	32.9	46.1	45.6	26.3	25.7	68.5	57.2
03	19	-	-	35.4	34.4	17.6	17.4	50.3	40.6
08	51	28.5	28.6	40	37.9	22.4	21	58.6	49
10	49	-	-	-	-	-	-	-	-
12	56	29.7	31.1	-	40.2	25.5	24.2	60.9	-
16	81	-	-	-	-	-	-	-	-
17	80	-	-	34.9	-	18.9	17.3	50.3	42
20	99	30.1	30.4	46.6	44.8	22.3	23.3	68.6	56.9
21	102	17.3	-	24	23.7	11.4	10.4	33.2	29.3
22	100	34.4	-	59.3	56.8	29.3	31	86	74
25	115	24.9	25.2	35.4	35.4	18.1	18.7	48.5	43.3
27	104	29	29.8	43.8	44	21.4	21.3	64.7	57.6
28	105	-	32	54.3	50.9	30	28.1	81.6	70.7
29	97	-	30.2	-	-	31.1	31.2	-	73.3
36	154	21.2	20.9	28.3	30.3	12.8	13.7	41.2	35.3
37	110	21.8	24.1	30	30.1	13	14.6	42	36.8
46	112B	35.1	32.5	-	47	25.3	25.8	73	60.3
47	112A	-	-	-	-	-	-	-	-
52	119	27.9	-	35.8	37	18.5	18.6	55.2	47.6
53	179	-	-	34.8	33.1	15.23	15.8	45.9	40.9
56	174	30.2	31.6	45.4	42.6	29.1	27	70.8	55.8
59	199	32	32.1	-	47.6	-	23.9	72.7	61.6
60	198	-	30.4	46.4	46.2	-	23.5	67	54.1
61	201	31.1	31.5	46.9	48.7	24.8	25.4	69.8	58
63	208	29	31.9	43	44.2	24.1	23	64.7	54.2
67	202	-	-	-	-	-	-	-	-

*Measurements skewed due to pathology

		Clavicle			Scapula					
		R	L	R	L	R	L	R	L	R
B	F	L	D		L		W		SP	
01	5	46	4.2	3.9	-	32.6	-	30.2	-	33.9
02	8	56.5	5	4.9	52.5	51.8	38.3	38.5	46.1	45.3
03	19	40.7	3.8	3.3	33.5	33.7	26	-	29.8	-
08	51	49.1	4.9*	4.4*	40.1	39.4	-	32.7	-	38
10	49	-	-	-	-	-	-	-	-	-
12	56	54.2	-	6.3	49	48.84	36.7	37	41.3	41.6
16	81	-	-	-	-	-	-	-	-	-
17	80	42.5	3.7	3.4	33.2	33.6	29.7	29.5	-	-
20	99	57.1	5.4	5.7	50	49	34.8	36	40.3	41.2
21	102	-	2.6	-	20	-	18	-	18.4	-
22	100	73.4	5.8	6.9	-	-	-	-	-	-
25	115	43.7	3.7	3.9	34	32.9	27.8	27.9	30	31.4
27	104	56.9	4.5	4.3	48.6	49.6	38.2	37.4	444.5	44.3
28	105	71	7.2	6.5	72.7	69.2	50.4	50.5	56.5	58.6
29	97	73.4	6.2	6.2	-	74.2	-	53.6	-	57.5
36	154	34.4	3.5	2.2	28	28	23	23.7	26	26.4
37	110	36.4	2.7	3	29.5	30	24	23.7	27.5	28.2
46	112B	61.4	6.9	6.8	57.8	54.6	38.1	39.6	44.2	47.9
47	112A	-	-	-	-	-	82.4	-	104	-
52	119	47.9	4.8	4.7	39.2	38.4	31.2	31.1	34.9	35.8
53	179	41.5	3	3.3	-	32	-	25.8	-	28
56	174	-	6.4	-	52.8	-	39.3	-	44	-
59	199	61.4	5.4	5.8	51.7	50.1	38.8	-	46.3	-
60	198	56.1	4.8	5.1	44.9	-	34.9	-	40.7	-
61	201	58.7	6.2	6.3	54.4	55	39.4	39.3	47.2	47.9
63	208	54.7	4.9	5.3	51	51.7	37	36	42.8	44.2
67	202	46.4	4.2	-	-	-	-	-	-	-

*Measurements skewed due to pathology

		Ilium				Ischium		Ischium	
		L	R	L	R	L	R	L	R
B	F	L		W		L		W	
01	5	-	-	-	-	-	-	-	-
02	8	52.4	52.6	46	45.8	29.4	29.1	21.8	20.6
03	19	32.2	32.3	29.8	29.6	16.7	16.9	11.6	-
08	51	39.2	39.7	-	36.1	23.1	23.2	14.9	15.4
10	49	-	-	-	-	-	-	-	-
12	56	-	51	-	44.3	-	28.8	-	18.5
16	81	-	-	-	-	-	-	-	-
17	80	-	-	-	-	-	-	-	-
20	99	51.67	51.5	46.3	47	30.7	30.1	20.4	19.9
21	102	-	-	-	-	8.4	-	6.2	-
22	100	-	-	-	-	-	-	-	-
25	115	33.4	33	31.1	31.7	19.3	19.1	12.4	12.3
27	104	49.8	50.8	44.9	44.7	28.8	28.8	19.8	19.4
28	105	73.6	72.4	71.5	72	47.2	46.2	28.9	30.5
29	97	53.5	55.2	68.5	68.7	43.3	43.5	29	27.7
36	154	-	-	-	-	-	-	-	-
37	110	28.9	29	26.7	27	15.2	15.5	10.3	10.8
46	112B	57.7	58.1	53.6	54	34.2	34.7	53.6	54
47	112A	121	-	102	-	-	-	-	-
52	119	37.2	37.6	34.2	34.4	19.3	19.3	12.8	12.4
53	179	-	-	-	-	16	16.1	11.1	11.1
56	174	-	56.2	-	48.7	35.2	35.2	22.1	21.7
59	199	54.6	55	52.1	52	33.8	33.4	22.8	22.5
60	198	46.1	-	42.5	42.4	-	-	-	-
61	201	57.3	56.1	53.6	52.6	35.2	34.7	23	22.8
63	208	51.1	51.6	46.2	46.3	-	30.1	19.8	20.3
67	202	-	-	-	-	-	-	-	-

*Measurements skewed due to pathology

		Pubis		Humerus					
		L	R	L	R	L	R	L	R
B	F	L		L		W		D	
01	5	-	-	68.2	68.6	16.9	16.7	6	5.9
02	8	27.4	27.6	96	95.9	22.5	22.4	9.7	9
03	19	14.9	14.8	60.3	61	15.5	15.5	5.1	4.9
08	51	-	-	74.3*	74.7*	19.3*	19.3*	8.7*	8.6*
10	49	-	-	-	-	-	-	-	-
12	56	24.5	24.7	88.9	89	22.8	22.5	-	9.6
16	81	-	-	63.3	-	15.6	-	6.1	-
17	80	-	-	60	59.6	15.8	14.9	6	5.4
20	99	24.7	24.6	99.5	97.3	25.1	24.4	8.5	8.9
21	102	-	-	41.9	-	10.5	-	4.1	-
22	100	37	-	-	-	-	-	-	-
25	115	15.5	15.2	65.4	65.1	15.8	15.7	5.6	5.7
27	104	244.4	23.5	94.8	95.2	20.7	21.2	7.2	7.6
28	105	38.8	38.5	136.5	137	29.9	29.3	12.1	12.1
29	97	38	38.6	-	135.7	-	26.9	12.6	12.4
36	154	-	-	52.8	52.8	13	13.6	5.8	5.2
37	110	12.4	11.8	56.9	57.3	14.6	14.3	4.7	4.44
46	112B	-	29.2	99	100	24.5	-	11.4	12
47	112A	-	-	-	267	-	-	-	-
52	119	18.2	18.4	68.7	69.2	16.8	16.8	5.9	5.6
53	179	-	-	59.5	60.6	15	18.8	5.33	5.2
56	174	29.7	29.6	101.9	101.8	25	25.3	9.9	9.5
59	199	29.4	29.1	99.3	100.3	23.4	23.6	9.9	10.1
60	198	-	-	85.5	86.9	-	21.4	7.5	7.3
61	201	30.9	31.1	107	108.9	23.2	23.2	11.4	10.7
63	208	28.1	28	88.3	88.4	-	23.4	9.1	8.5
67	202	-	-	75.2	74.8	18.8	-	6.3	6

*Measurements skewed due to pathology

		Ulna				Radius			
		L	R	L	R	L	R	L	R
B	F	L		D		L		D	
01	5	60.5	61	4.9	4.9	52.1	52	4.7	4.6
02	8	81.1	81.8	6.3	6	72.9	73	6	6.2
03	19	55.8	56	4.1	4	49.2	49.18	3.9	3.7
08	51	61.6*	61.4*	8.3*	7.3*	50.3*	53.4*	7.8*	7.6*
10	49	-	-	-	-	-	-	-	-
12	56	74.2	74.6	-	6.3	-	68	-	6.2
16	81	60.3	-	4.1	-	53.8	-	4	-
17	80	56.4	56.4	4.9	4.6	48.8	-	4.2	-
20	99	81.1	82.3	6.5	6.5	75.4	76	5.8	6.4
21	102	39.4	-	3	-	35.5	-	2.6	-
22	100	-	-	-	8.5	-	-	-	-
25	115	60	59.8	4.8	4.8	52.4	52.0	3.7	3.8
27	104	79.2	79.1	5.6	5.6	69.9	68.8	5.2	5.1
28	105	108	110	7.8	8.1	100	100	8.7	8.5
29	97	-	-	-	-	-	-	-	-
36	154	50	50.3	4.4	4	-	44.4	3.6	3.7
37	110	52.2	52.3	3.4	2.7	45.9	46	3.2	3.1
46	112B	86.1	86.1	8.3	8.2	74.2	-	8.2	-
47	112A	-	-	-	-	186	-	-	-
52	119	65	64.7	4.5	4.5	57.3	57.1	4.3	4.6
53	179	-	54.1	-	4	-	47	-	-
56	174	87.4	88.5	6.6	6.7	77.3	78.2	6.7	7.1
59	199	86.2	86.3	5.9	6.6	76.4	76.6	6.7	6.5
60	198	-	-	-	-	-	67.6	-	5.5
61	201	89.3	90.4	8	7.9	78.6	78.9	6.87	6.8
63	208	75.7	76.2	6	5.8	66.6	67	5.9	5.6
67	202	67.7	67.9	5.9	5.3	-	-	5.4	5.1

*Measurements skewed due to pathology

		Femur						Tibia	
		L	R	L	R	L	R	L	R
B	F	L		W		D		L	
01	5	81.6	81.6	-	20.8	7.2	7.4	68.2	69.7
02	8	119	119.5	32.3	32.8	10.4	10.5	95.3	95.3
03	19	70.1	70.2	15.6	15.4	6.6	7.2	59.2	59.4
08	51	89.4*	89.4*	22.9*	22.7*	9.6*	9.3*	71*	72.2*
10	49	100.7	-	26.1	-	8.9	-	80.4	80.2
12	56	-	107	-	29.9	-	10	90.3	90.9
16	81	73	-	15.3	-	6.2	-	-	-
17	80	70	-	-	-	6.8	-	-	-
20	99	119	121.5	31.8	33.9	9.7	9.6	96	95.6
21	102	-	-	11.7	-	-	4.8	-	-
22	100	-	-	46.5	46	15	-	-	-
25	115	74.8	74.4	19.7	19.4	6.3	6.4	66.1	65.7
27	104	121.7	120.7	28.9	27.6	9	8.7	99.5	99.5
28	105	19	19	44.2	45.4	14.7	14.5	15	15
29	97	-	-	-	-	-	-	-	-
36	154	57.6	-	-	-	-	-	-	51
37	110	64.5	64.2	14.5	15.4	5.4	5.8	55.8	56.1
46	112B	125.2	125.1	34.7	35	11.9	12.2	98.6	100.5
47	112A	360	356	-	-	-	-	295	-
52	119	81.5	81.9	22.1	21.5	6.3	67.2	70.5	70.8
53	179	-	66.5	-	17.3	-	5.9	-	56.6
56	174	126.4	125.6	34.7	36.2	11.5	10.5	104.2	104.2
59	199	127.6	127.9	30.9	32.7	11.5	11.6	105.5	106.8
60	198	104.8	-	27.2	-	9.2	8.7	87.2	85.4
61	201	139	138.7	35.2	35.22	11.2	11.4	113.6	113.7
63	208	110	110.3	30.7	31.1	9.4	9.6	84.4	84.6
67	202	86.6	86.4	-	-	7.7	7.7	72.8	72.7

*Measurements skewed due to pathology

		Tibia		Fibula			
		L	R	L	R	L	R
B	F	D		L		D	
01	5	7.5	7.1	-	-	-	-
02	8	10.7	10.7	92.6	92.8	5.2	5.4
03	19	7.1	7	-	-	3.4	3.6
08	51	10.8*	11.3*	-	-	-	-
10	49	9.2	9.3	75.8	77	4.6	4.7
12	56	10.4	10.3	-	86.1	-	5.3
16	81	-	-	-	-	-	-
17	80	-	-	-	-	-	-
20	99	10.3	10	92	92	5.9	5.5
21	102	-	4	36.7	36.6	2.4	2.3
22	100	15.5	-	-	-	-	-
25	115	7.1	6.6	61.7	61.6	4.3	3.7
27	104	9	9.2	93.1	-	4.4	4.3
28	105	13.8	13.9	14.6	14.6	7.3	7
29	97	-	-	-	-	6.8	6.4
36	154	-	-	-	-	-	-
37	110	5.44	5.2	52.9	53.4	2.9	2.9
46	112B	11.5	12.2	-	100.5	6.6	6.5
47	112A	291	-	290	-	288	-
52	119	6.9	6.7	67.4	67.2	3.3	3.4
53	179	6.7	6.6	55.8	-	3	-
56	174	10.9	10.8	101	101.6	6.1	5.6
59	199	11.5	11.2	102.1	103	5.3	5.8
60	198	10	11	82.2	-	5.3	-
61	201	10.9	10.4	107.6	107.8	6.2	6
63	208	9.4	9.2	84.3	83.5	4.55	4.42
67	202	8.8	8.7	-	-	-	-

*Measurements skewed due to pathology

Appendix 6: Maxillary Tooth Development

		Age Estimation		Right							Left						
B	F	Eruption	Development	M2	M1	m2	m1	c	i2	i1	i1	i2	c	m1	m2	M1	M2
1	5	Birth +/- 2m	1.8m	-	-	3	4	4	5	5	5	-	-	-	3	-	-
2	8	1yr +/- 4m	8.4m	-	2	6	8	5	11	10	10	11	5	8	7	2	-
3	3	Birth +/- 2m	<1.8m	-	-	1	3	3	5	5	5	5	3	3	1	-	-
8	51	6m +/- 3m	2.4 - 4.8m	-	-	4	5	-	7	7	7	7	-	5	4	-	-
12	56	6m - 9m	8.4m	-	1	4	7	7	10	10	10	-	7	7	4	-	-
17	80	Birth +/- 2m	<1.8m	-	-	2	4	4	5	-	5	-	4	4	2	-	-
20	99	1yr +/- 4m	9.6m - 1.3yr	-	4	6	9	7	11	11	11	11	7	9	6	4	-
22	100	3yr +/- 1yr	3.1 - 3.8yr	-	6	14	14	14	14	14	14	14	14	14	14	6	-
25	115	Birth +/- 2m	<1.8m	-	-	2	4	3	5	5	5	5	-	4	-	-	-
27	104	1yr +/- 4m	8.4m - 1.5yr	-	4	7	11	10	-	11	11	-	10	11	7	4	-
28	105	4yr +/- 1yr	3.8 - 4.3yr	1	7	13	14	14	14	14	14	14	14	14	13	7	1
29	97	3yr +/- 1yr	3.2 - 4.1yr	-	7	12	13	12	14	14	14	14	-	13	12	7	-
37	110	Birth +/- 2m	<1.8m	-	-	2	4	4	5	5	5	5	4	4	2	-	-
46	112B	1.5yr +/- 2m	1.5 - 1.9yr	-	5	9	7	10	11	11	11	11	10	7	9	5	-
52	119	Birth +/- 2m	1.8 - 2.4m	-	-	2	5	4	6	6	6	6	4	5	2	-	-
53	179	Birth +/- 2m	<1.8m	-	-	1	3	4	5	5	-	5	4	4	1	-	-
56	174	1.5yr +/- 2m	1.3 - 1.75yr	-	4	7	9	10	11	11	11	11	10	9	7	4	-
59	199	1yr +/- 4m	1.3 - 1.5yr	-	-	6	11	10	11	12	12	11	10	11	6	4	-
60	198	6m - 9m	4.8 - 8.4m	-	-	4	7	5	9.5	9.5	9.5	9.5	5	7	4	-	-
61	201	1.5yr +/- 2m	1.75 - 2yr	-	4	8	11	-	12	12	12	12	10	11	8	4	-
63	208	1yr +/- 4m	0.8 - 1.3yr	-	4	6	9	10	-	11	-	11	10	9	6	4	-
67	202	6m +/- 3m	2.4 - 4.8m	-	-	2	4	4	6	7	7	6	4	4	-	-	-

Appendix 7: Mandibular Tooth Development

Age Estimation		Left							Right						
Eruption	Development	M2	M1	m2	m1	c	i2	i1	i1	i2	c	m1	m2	M1	M2
Birth +/- 2m	1.8m	-	-	3	5	4	5	6	6	5	4	5	4	-	-
1yr +/- 4m	8.4m	-	2	6	8	6	11	11	11	11	6	8	7	2	-
Birth +/- 2m	<1.8m	-	-	1	3	3	5	5	5	5	3	3	1	-	-
6m +/- 3m	2.4 - 4.8m	-	-	4	4	5	7	9	9	7	5	4	4	-	-
6m - 9m	8.4m	-	1	5	7	6	7	10	10	7	6	7	5	1	-
Birth +/- 2m	<1.8m	-	-	-	4	4	5	5	-	-	4	4	2	-	-
1yr +/- 4m	9.6m - 1.3yr	-	3	6	9	7	11	11	11	11	7	9	6	3	-
3yr +/- 1yr	3.1 - 3.8yr	-	5	14	14	14	14	14	14	14	14	14	14	5	-
Birth +/- 2m	<1.8m	-	-	3	4	3	5	5	5	-	3	4	3	-	-
1yr +/- 4m	8.4m - 1.5yr	-	-	7	11	10	-	12	12	11	10	11	7	-	-
4yr +/- 1yr	3.8 - 4.3yr	2	-	14	14	14	14	14	14	14	14	14	-	-	2
3yr +/- 1yr	3.2 - 4.1yr	-	7	-	13	12	13	14	14	13	12	12	12	8	-
Birth +/- 2m	<1.8m	-	-	2	2	4	5	5	5	5	4	3	2	-	-
1.5yr +/- 2m	1.5 - 1.9yr	-	5	6	9	11	11	11	11	11	10	9	6	4	-
Birth +/- 2m	1.8 - 2.4m	-	-	3	5	-	5	6	-	5	4	5	3	-	-
Birth +/- 2m	<1.8m	-	-	1	3	4	5	5	5	5	4	4	1	-	-
1.5yr +/- 2m	1.3 - 1.75yr	-	4	7	10	9	12	-	-	12	9	10	7	4	-
1yr +/- 4m	1.3 - 1.5yr	-	4	7	11	10	-	11	11	-	10	11	7	4	-
6m - 9m	4.8 - 8.4m	-	1	5	6	5	7	10	10	7	5	6	5	2	-
1.5yr +/- 2m	1.75 - 2yr	-	-	8	11	10	12	13	13	12	10	11	8	-	-
1yr +/- 4m	0.8 - 1.3yr	-	3	6	9	9	10	10	10	10	9	9	6	3	-
6m +/- 3m	2.4 - 4.8m	-	1	2	4	4	7	7	7	7	4	4	2	-	-

Appendix 8: Deciduous Crown Height Measurements

		Left Maxillary					Left Mandibular				
Burial	Feature	i1	i2	c	m1	m2	m2	m1	c	i2	i1
1	5	5.92*^	4.67*^	3.93*^	4.5*^	3.87*^	3.41^	4.34^	3.88^	5.56^	5.30^
2	8	7.1	6.28	7.38	6.24	6.22	5.74	6.93	6.94^	6.23	5.62
3	19	5.69^	4.94^	3.74^	4.11^	3.27^	3.01^	3.94^	3.64^	4.38^	4.91^
8	51	6.9	6.32	-	5.38^	5.23*^	5.02^	5.54^	5.51^	6.6	5.86
12	56	6.24	5.19*	6.81*	5.5*	5.07*	4.9	4.73	6.26	6.37	5.62
17	80	4.92^	5.13*^	4.25^	3.63^	-	-	4.28^	4.12*	5.28^	5.36^
20	99	6.5	6.06	7.27	5.48	5.25	5.79	5.81	7	5.84	5.04
22	100	5.6	5.3	6.6	4.8	5.5	5.78	5.9	7	5.8	4.8
25	115	5.61^	4.94^	3.8*^	3.93^	3.55*^	3.26^	3.92^	3.33^	4.18^	4.88^
27	104	6.28	-	7.08	54.38	5.39	5.15	5.95*	7.02	6.41*	5.28
28	105	6.1	6.5	5.4	5.3	5.8	5.9	5.7	6.7*	5.7	-
29	97	6.26	6.6	6.7	6	6.1	5.8	6.1	6.8	6.1	5
37	110	4.8^	3.92^	3^	3.83^	-	-	4*^	3.07^	3.46^	4.16^
46	112B	7.31	6.37*	7.98	5.53	5.55*	6.69	7	6.87	6.47*	6.2*
52	119	6.14	5.39	4.5^	4.17^	-	3.42^	4.36^	3.66*	5.4	5.72
53	179	4.72^	4.54^	3.19^	3.93^	-	-	4^	3.43^	4.4	4.45
56	174	6.05	5.94*	7.22*	5.8	5.98	6.75	-	7.69	6.85	-
59	199	6.47	6.7	6.84	6	6.22	6.23	6.32	7.3	-	6.59
60	198	6.25	5.59	6.3^	5.49	4.96^	5.04^	5.73	5.86^	6.82	5.4
61	201	6.68	5.96	7.67	5.88	5.83	6.23	6.62	7.74	6.72	5.53
63	208	6.48*	6.02	6.69*	5.61*	5.76	5.96	6.25	6.31	5.69	4.92
67	202	6.99*	5.97*	4.88*^	5.34	4.14*^	4.04^	5.05^	4.62	6.19	6.03

* Right Tooth Measurement; ^ Crown is Still Developing

Appendix 9: Deciduous Buccolingual Tooth Measurements

		Left Maxillary					Left Mandibular				
Burial	Feature	i1	i2	c	m1	m2	m2	m1	c	i2	i1
1	5	4.5*	3.67*	-	7.31*	7.63*	6.5	4.66	-	2.58	3.53
2	8	5.55	4.6	5.65	7.08	9.88	9.25	6.52	-	4.17	3.93
3	19	4.26	3.91	-	6.94	-	-	4.86	-	-	3.26
8	51	5.51	4.48	-	8.64	8.09*	7.57	6.15	-	4.15	4.04
12	56	4.41	3.92*	5.71*	7.65*	8.59*	7.56	5.73	4.32	4.18	3.26
17	80	3.82	4.06*	-	6.51	-	-	5.31	-	3.32	3.6
20	99	4.94	4.58	5.77	8.17	9.17	8.32*	6.28	4.67	4.09	3.29
22	100	4.7	4.6	5.6	7.6	8.2	8.3	6.7	5.3	4.1	3.7
25	115	4.51	4.02	-	6.93	-	5.95	4.3	-	-	3.21
27	104	4.75	-	6	7.65	9.17	7.96	6.44*	5.15	3.96*	3.51
28	105	4.8	5.2	5	8.5	8.9	8.6	6.6	4.9*	4	-
29	97	4	4.84	5.2	7.4	9.5	7.9*	6.7	4.8	4.1	3.8
37	110	-	-	-	6	-	-	4.8*	-	-	-
46	112B	5.46	5.29*	5.8	8.79	10.13*	9.4	6.91	4.47	5.11*	4.12*
52	119	4.5	4.42	-	7.2	-	7.45	5.65	-	3.47	3.47
53	179	4.03	3.51	-	6.8	-	-	5.82	-	2.7	2.78
56	174	4.83	4.7*	5.82*	8.13	9.46	8.34	6.56	5.2	4.29	-
59	199	5.6	5.3	5.8	8.5	9.35	8.36	7.39	5.4	-	4.36
60	198	4.86	4.93	5.77	9.05	8.48	7.45	6.27	4.51	4.53	3.91
61	201	5.1	4.85	6.13	7.81	9.44	8.18	7.09	5.09	4.33	3.81
63	208	4.71*	4.73	5.62*	8.68*	9.28	8.44	6.63	4.76	3.96	3.39
67	202	5.07*	4.41*	-	7.97*	7.37*	-	5.99	-	3.52	3.55

* Right Tooth Measurement

Appendix 10: Deciduous Mesiodistal Tooth Measurements

		Left Maxillary					Left Mandibular				
Burial	Feature	i1	i2	c	m1	m2	m2	m1	c	i2	i1
1	5	6.5*	5.09*	-	6.18*	7.4*	8.67	6.91	-	4.42	3.92
2	8	6.59	4.92	6.85	9.23	8.69	10.35	7.99	5.91	4.36	3.72
3	19	6.45	5.14	-	5.96	-	-	6.89	-	4.4	4.29
8	51	7.2	5.31	-	7.2	9*	9.32	7.44	4.86	4.8	4.4
12	56	5.6	4.12*	6.19*	7.14*	7.89*	8.97	7.66	5.29	4.76	3.88
17	80	6.05	4.84*	-	6.04	-	-	7.07	-	4.13	3.98
20	99	5.53	4.48	6.69	6.76	8.17	9.88*	7.8	5.5	3.86	2.99
22	100	6	4.8	5.8	6.3	9.2	10.1	6.9	5.6	4	3.7
25	115	6.23	4.76	-	5.877	7.17*	8.05	6.47	-	4.06	4.18
27	104	5.61	-	6.42	6.63	8.36	9.44	7.46*	5.69	4.39*	3.19
28	105	5.7	5	5.5	6.5	9	9.7	8.2	5.7*	4.3	-
29	97	6.1	5.53	5.93	6.8	8.6	9.98*	7.9	5.6	4.9	3.6
37	110	6.1	4.26	-	6.32	-	-	6.13*	-	4.42	4.25
46	112B	6.9	6.21*	5.46	7.32	11.36*	11.05	8.02	6.18	5.32*	4.59*
52	119	6.7	5.29	-	6.4	-	8.99	7.31	-	4.43	4.26
53	179	6.02	4.51	-	6.17	-	-	6.43	-	42	4
56	174	6.04	4.91*	5.85*	6.8	8.8	10.38	7.74	5.95	4.71	-
59	199	5.8	4.5	6.35	6.63	8.56	9.79	6.94	5.42	-	3.89
60	198	5.79	4.96	6.36	7.23	7.92	9.77	8.67	5.73	4.86	3.6
61	201	5.99	4.3	6.19	6.49	8.57	10.32	7.19	5.9	4.33	4.09
63	208	6.31*	5.04	6.3*	7.2*	8.9	10.37	8.42	6.11	4.22	3.73
67	202	7.24*	5.73*	6.31*	6.98*	-	-	7.52	5.25	4.91	4.55

* Right Tooth Measurement

Appendix 11: Maxillary Dental Morphology

Burials:	B4	B5	B6	B7	B11	B13	B14	B15	B19	B30	B31	B32	B33	B34	B35	B38
Winging	3	3	-	3	-	3	3	3	3	-	-	3	3	3	-	3
Diastema	1	1	-	0	-	0	0	0	1	-	-	1	0	0	-	0
LCI1	-	0	-	1	2	1	1	0	1	-	1	1	2	1	2	1
SI1	-	2	-	0	6	2	0	2	1	-	-	1	3	-	-	1
SI2	-	1	-	3	6	4	1	1	1	-	-	0	2	-	1	2
DSI1	-	1	-	0	3	4	1	2	1	-	-	1	2	0	4	0
DSI2	-	0	-	0	0	3	0	0	0	-	-	0	2	0	0	0
PTI2	-	0	-	1,2	0	0	0	0	0	-	-	0	0	0	0	0
IGI1	-	0	-	0	0	0	0	0	0	-	0	0	0	0	-	0
IGI2	-	0	-	0	0	m	0	0	0	-	0	0	0	0	m	m
TDI1	-	2	-	0	0	3	1	4	1	-	-	0	4	0	0	0
TDI2	-	2	-	0	0	5	0	3	0	-	-	0	5	0	0	0
TDC	-	0	-	5	-	4	1	5	0	0	-	2	0	0	1	0
CDAR	-	0	-	0	-	3	0	4	0	0	-	2	0	-	0	0
PM1AC	-	0	-	0	-	0	0	1	0	0	-	0	0	-	0	0
PM2AC	-	0	-	0	-	-	0	1	0	0	-	-	0	-	0	0
MCM1	-	5	-	5	-	4	4	5	-	4	-	5	5	5	5	5
MCM2	-	4	3.5	4	-	4	4	5	5	4	-	5	4	-	4	5
MCM3	4	3	-	4	-	4	4	4	3.5	-	-	4	3	-	2	3.5
HCM1	-	5	-	4	-	5	5	5	-	5	-	5	5	-	5	5
HCM2	-	3.5	3.5	4	-	4	5	3	3.5	2	-	5	3.5	-	-	4
HCM3	3.5	0	-	4	-	3.5	3	3	3	-	-	2	3	-	0	3.5
C5M1	-	0	-	0	-	0	0	3	-	0	-	0	0	-	0	0
C5M2	-	0	0	0	-	0	0	4	0	0	-	0	0	-	0	0
C5M3	4	0	-	0	-	0	0	1	0	-	-	0	3	-	0	0
CBM1	-	0	-	5	-	5	2	7	-	3	-	0	1	-	0	1
CBM2	-	0	0	4	-	0	0	0	0	0	0	0	0	0	-	]0
CBM3	-	0	-	0	-	0	0	0	0	-	-	0	0	-	-	0
PSM1	0	0	0	0	-	0	0	0	-	0	0	0	0	-	0	0
EEM1	0	0	0	2	0	0	1	0	-	0	0	0	0	0	0	0
EEM2	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0
EEM3	-	0	-	2	-	0	1	0	0	-	0	0	0	0	0	0

Burials:	B39	B41	B42	B43	B45	B47	B49	B50	B51	B54	B55	B57	B58	B62	B65	B66
Winging	3	3	-	3	-	3	3	-	3	3	3	3	3	3	4	3
Diastema	0	0	-	0	-	0	0	-	0	0	0	1	0	0	0	0
LCI1	2	3	-	1	-	0	2	1	2	0	0	3	2	0	0	1
SI1	0	-	-	1	-	1	1	2	1	0	1	2	1	1	1	-
SI2	0	6	-	2	-	2	1	6	1	2	1	0	1	0	1	-
DSI1	2	0	-	0	-	2	2	0	0	2	0	0	-	0	0	-
DSI2	0	0	-	0	-	1	0	0	0	2	0	0	-	0	0	-
PTI2	0	0	-	0	-	0	0	0	0	0	0	0	0	0	0	0
IGI1	0	0	-	0	-	0	0	0	0	0	0	0	m	0	0	0
IGI2	m	0	-	0	-	0	0	0	0	0	0	0	0	m	m	0
TDI1	0	0	-	0	-	2	1	3	1	2	0	0	0	0	0	1
TDI2	0	0	-	0	-	1	0	3	2	2	1	0	0	0	0	1
TDC	0	4	3	0	-	1	0	4	4	4	0	0	1	0	4	1
CDAR	0	0	4	3	-	3	3	0	4	0	2	0	-	1	0	-
PM1AC	0	-	0	1	0	0	1	0	0	1	0	0	0	0	0	-
PM2AC	0	0	0	0	0	1	-	0	1	1	0	0	1	0	0	-
MCM1	5	5	5	-	5	5	5	5	5	5	-	5	5	6	5	-
MCM2	4	4	4	-	5	5	5	4	5	4	4	4	3.5	4	5	-
MCM3	3	3.5	-	3	3.5	3	-	-	4	4	4	3	-	0	5	-
HCM1	5	5	5	-	5	4	5	5	5	5	-	4	5	5	5	5
HCM2	4	5	4	-	3.5	2	-	4	3.5	1	4	4	3.5	6	5	-
HCM3	3.5	0	-	0	3.5	0	-	-	2	0	2	2	-	0	3.5	0
C5M1	0	0	-	-	1	0	0	0	0	2	-	0	0	0	0	-
C5M2	0	0	0	-	0	0	-	3	0	2	0	0	5	0	0	-
C5M3	0	0	-	0	0	0	-	-	0	1	0	0	-	0	1	-
CBM1	3	0	-	-	0	0	0	0	0	0	-	0	0	7	7	-
CBM2	3	0	2	-	0	0	0	0	0	0	0	0	0	4	0	-
CBM3	0	0	-	0	-	0	-	-	0	0	0	0	-	0	0	-
PSM1	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	1
EEM1	0	0	0	-	0	0	-	0	0	0	-	0	0	0	0	0
EEM2	0	0	-	-	-	0	0	0	0	0	0	0	0	0	0	0
EEM3	0	0	-	0	0	0	-	-	0	0	0	0	-	0	0	0

Appendix 12: Mandibular Dental Morphology

Burials:	B4	B5	B6	B7	B11	B13	B14	B15	B19	B30	B31	B32	B33	B34	B35	B38
SI1	-	0	-	0	-	-	0	0	1	0	-	0	0	-	1	0
SI2	-	0	-	0	0	-	0	0	1	0	-	0	1	-	1	1
PM1C	-	2	3	1	6	5	1	1	1	1	1	0	2	0	0	2
PM2C	-	2	0	2	-	4	3	1	1	1	-	2	2	0	1	0
CDAR	-	-	0	-	-	-	0	5	0	0	-	-	0	-	0	0
AFM1	-	-	0	0	-	-	1	2	-	1	-	-	-	-	0	0
LGPM1	-	Y	-	+	-	-	Y	+	Y	+	-	-	-	-	-	Y
RGPM1	-	+	-	-	-	-	-	-	Y	-	-	Y	-	-	+	Y
LGPM2	-	X	-	X	-	Y	X	Y	Y	-	-	-	X	X	-	+
RGPM2	-	Y	-	X	-	Y	X	+	+	+	-	-	-	X	X	+
LGPM3	X	X	-	-	-	Y	X	X	X	+	-	-	-	X	Y	-
RGPM3	X	+	-	-	-	Y	X	+	+	+	Y	-	-	-	-	-
PSM1	-	0	-	0	-	-	0	0	0	0	0	-	-	0	-	0
DWM1	-	0	-	0	-	-	0	2	-	0	-	-	-	-	-	0
TCM1	-	-	-	0	-	-	1	0	-	0	-	-	-	-	-	0
TCM2	-	0	-	0	-	-	0	0	0	0	-	1	0	-	-	0
TCM3	-	0	-	-	-	0	0	0	0	0	-	0	-	-	-	-
C5M1	-	5	-	-	-	-	5	5	4	0	-	-	-	-	4	5
C5M2	-	4	-	0	-	-	0	4	0	0	-	4	0	-	-	0
C5M3	-	4	-	-	1	3	4	3	4	0	-	-	-	-	4	-
C6M1	-	0	-	0	-	-	0	0	0	0	-	-	-	-	0	0
C6M2	-	0	-	0	-	-	0	1	0	0	-	0	-	-	0	0
C6M3	-	0	-	-	0	0	3	3	0	0	-	-	-	-	2	-
C7M1	-	0	-	0	-	-	4	1	0	0	-	-	-	-	0	0
C7M2	-	0	-	0	-	-	0	1	0	0	-	2	-	-	0	0
C7M3	-	3	-	-	0	5	0	1	0	0	-	-	-	-	0	-
EEM1	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0	0
EEM2	0	0	-	1	0	0	1	0	0	0	0	0	-	0	0	0
EEM3	0	0	-	-	0	0	1	0	0	0	0	-	0	0	0	-

Burials:	B39	B41	B42	B43	B45	B47	B49	B50	B51	B54	B55	B57	B58	B62	B65	B66
SI1	0	-	-	0	-	0	0	0	-	0	0	0	1	0	0	-
SI2	0	1	-	0	-	1	0	1	-	1	0	1	1	0	0	-
PM1C	2	0	-	-	4	2	0	8	5	3	0	0	2	1	6	-
PM2C	3	3	-	-	3	3	0	-	2	9	0	0	4	-	9	-
CDAR	0	-	-	-	-	0	1	4	-	3	0	2	-	0	-	-
AFM1	-	0	-	-	-	1	-	-	-	1	-	1	0	-	0	-
LGPM1	-	-	-	-	-	Y	-	-	-	Y	-	-	Y	-	+	-
RGPM1	-	-	-	-	-	-	Y	-	-	Y	-	Y	Y	-	X	-
LGPM2	-	X	-	X	+	Y	+	-	-	X	-	-	X	Y	X	-
RGPM2	+	X	-	+	+	Y	-	-	-	+	-	+	X	+	X	-
LGPM3	Y	X	-	-	Y	-	-	Y	-	-	-	-	-	-	X	-
RGPM3	Y	X	-	-	X	-	-	+	Y	-	-	-	-	+	X	-
PSM1	0	-	-	-	-	-	-	-	-	1	-	0	0	-	0	-
DWM1	-	-	-	-	-	0	-	-	-	-	-	0	0	-	0	-
TCM1	-	-	-	-	-	0	-	-	-	1	-	0	0	-	0	-
TCM2	0	1	-	0	1	0	-	-	-	0	-	0	0	0	0	-
TCM3	0	1	-	-	0	-	-	0	0	0	-	-	-	0	0	-
C5M1	3	-	-	-	-	5	-	-	-	4	-	5	5	-	5	-
C5M2	0	-	-	0	0	0	-	-	-	0	-	0	4	0	0	-
C5M3	4	4	-	-	5	-	-	5	4	3	-	-	-	0	5	-
C6M1	-	-	-	-	-	0	-	-	-	0	-	1	0	-	0	-
C6M2	0	-	-	0	0	0	-	-	-	0	-	-	2	0	0	-
C6M3	2	-	-	-	0	-	-	0	3	0	-	-	-	0	0	-
C7M1	-	-	-	-	-	0	-	-	-	0	-	2	4	-	0	-
C7M2	0	-	-	0	0	0	-	-	-	0	-	2	0	0	0	-
C7M3	0	-	-	-	0	-	-	2	3	0	-	-	-	0	0	-
EEM1	0	-	-	-	-	0	0	0	0	0	-	1	0	-	0	0
EEM2	0	0	-	0	0	0	0	0	-	0	-	1	0	0	0	0
EEM3	0	0	-	-	0	-	-	0	0	0	-	-	-	0	0	0

Appendix 13: Maxillary Tooth Wear

Burial	Feature	M3	M2	M3	P2	P1	C	I2	I1
04	20	3	5	5	5	-	5	5	5
05	25	2	3	4	2	2	3	3	4
06	27	-	1	7	-	-	7	-	-
07	26	1	2	2	3	3	4	2	3
11	46	-	5	5	-	-	-	5	5
13	57	2	3	4	-	2	3	4	4
14	53	1	2	-	2	2	2	2	3
15	79	1	1	2	2	2	2	2	2
19	96	1	3	-	3	2	2	2	2
24	114	-	-	5	5	4	4	5	5
26	108	-	-	-	-	-	-	-	-
30	111	-	2	2	2	2	2	-	-
31	109	3	3	6	4	4	5	5	-
32	116	1	2	3	-	3	4	-	4
33	150	1	2	3	-	-	2	-	2
34	152	3	3	5	4	4	4	3	4
35	153	3	-	3	2	2	-	-	-
38	130	-	1	2	1	1	2	1	2
39	131	1	2	3	2	2	2	2	4
41	129	3	3	4	-	-	4	4	5
42	163	-	2	2	2	-	3	-	-
43	170	1	-	4	3	3	4	3	3
45	177	1	3	3	3	3	5	-	5
47	112A	-	1	2	1	1	2	2	-
49	90	-	3	3	2	2	3	2	2
50	164	-	1	1	1	1	2	2	2
51	117	1	-	-	-	1	1	1	2
54	171	1	1	1	1	1	2	1	2
55	172	1	-	-	1	1	2	3	3
57	195	1	2	-	-	3	-	4	4
58	196	-	1	1	1	-	2	2	2
62	207	2	2	2	3	3	2	2	3
64	91	2	3	-	2	3	4	3	4
65	92	3	3	3	2	1	2	3	2
66	212	-	4	5	5	6	6	5	5

Burial	Feature	I1	I2	C	P1	P2	M1	M2	M3
04	20	5	5	5	6	6	6	4	3
05	25	4	3	4	4	3	4	3	2
06	27	-	-	-	-	-	-	2	-
07	26	4	1	3	2	2	2	2	1
11	46	-	-	-	3	-	5	-	-
13	57	3	3	2	2	-	4	3	2
14	53	3	2	2	2	2	2	2	1
15	79	2	2	2	2	2	2	1	1
19	96	1	1	1	1	1	-	2	1
24	114	-	5	4	4	5	-	-	4
26	108	-	-	-	-	-	-	-	-
30	111	-	-	3	-	-	-	2	-
31	109	5	5	4	3	3	5	3	3
32	116	4	4	3	-	-	-	-	1
33	150	2	2	3	2	2	-	-	4
34	152	4	3	4	4	3	4	3	3
35	153	4	3	2	3	4	4	3	2
38	130	2	1	2	1	1	2	1	-
39	131	4	2	3	3	2	4	2	1
41	129	5	4	4	4	3	4	3	3
42	163	-	-	3	2	-	-	-	-
43	170	3	2	3	2	2	3	-	1
45	177	5	5	5	4	3	-	-	2
47	112A	2	2	2	1	1	2	1	-
49	90	3	2	3	3	3	3	3	-
50	164	2	2	2	1	1	1	1	-
51	117	2	1	1	1	1	1	1	1
54	171	2	1	2	1	1	1	1	1
55	172	3	2	2	1	1	-	1	1
57	195	4	3	2	-	1	1	1	1
58	196	2	2	2	1	1	1	1	-
62	207	-	3	2	3	2	2	2	-
64	91	4	4	4	-	-	-	3	2
65	92	3	4	4	2	2	3	-	3
66	212	5	5	-	-	4	5	4	3

Appendix 14: Mandibular Tooth Wear

Burial	Feature	I1	I2	C	P1	P2	M1	M2	M3
04	20	-	6	5	6	6	6	5	4
05	25	1	-	-	-	3	7	-	-
06	27	5	3	3	2	2	-	-	-
07	26	3	3	3	2	-	3	3	-
11	46	-	-	-	-	-	-	-	-
13	57	4	4	3	3	3	4	3	2
14	53	3	2	2	2	2	3	2	1
15	79	3	2	2	2	2	2	1	1
19	96	2	2	1	1	2	3	2	1
24	114	5	4	3	3	3	5	4	4
26	108	-	-	5	3	-	-	-	-
30	111	4	3	3	3	2	2	-	2
31	109	-	4	5	-	4	4	3	3
32	116	4	4	3	2	2	-	2	-
33	150	-	1	3	1	2	-	3	-
34	152	4	4	3	3	3	4	3	3
35	153	3	4	2	2	3	4	4	3
38	130	2	1	2	1	1	2	1	-
39	131	4	2	3	2	2	4	2	1
41	129	4	3	3	3	3	-	3	3
42	163	-	-	-	-	-	-	-	-
43	170	-	2	3	3	2	-	3	-
45	177	4	4	4	3	3	4	3	2
47	112A	2	2	2	1	1	2	1	-
49	90	2	2	2	3	3	4	2	-
50	164	2	2	1	1	1	-	-	1
51	117	2	1	1	1	-	-	-	1
54	171	2	1	2	1	1	1	1	1
55	172	3	2	3	2	2	-	-	1
57	195	3	2	2	1	1	-	-	-
58	196	2	2	2	1	1	1	1	-
62	207	3	2	2	-	-	-	3	2
64	91	4	4	4	4	3	-	2	3
65	92	4	4	4	4	4	4	3	3
66	212	-	4	5	3	4	-	-	5

Burial	Feature	M3	M2	M3	P2	P1	C	I2	I1
04	20	4	5	7	6	6	7	6	6
05	25	-	-	7	-	-	-	-	1
06	27	-	-	7	3	2	3	4	5
07	26	-	2	-	2	2	3	3	3
11	46	-	-	-	-	-	4	5	4
13	57	3	4	5	-	3	4	4	5
14	53	1	2	-	2	2	2	2	3
15	79	1	1	-	2	2	2	2	3
19	96	1	2	3	2	2	2	2	2
24	114	3	4	5	3	-	-	-	5
26	108	-	-	5	5	5	6	-	-
30	111	3	2	-	-	3	4	3	4
31	109	3	5	5	4	4	5	5	-
32	116	-	-	-	-	3	3	3	4
33	150	-	-	-	1	1	1	1	1
34	152	3	4	6	4	4	4	4	4
35	153	3	3	3	3	2	2	2	3
38	130	-	1	2	1	1	2	1	2
39	131	1	2	3	2	2	2	2	4
41	129	2	3	-	2	2	3	3	4
42	163	-	-	-	-	-	-	-	-
43	170	-	3	4	3	3	4	4	4
45	177	2	3	-	3	4	4	4	4
47	112A	-	1	2	1	1	2	2	2
49	90	-	-	3	2	2	2	2	2
50	164	1	-	-	1	1	1	2	2
51	117	-	-	-	1	1	1	1	2
54	171	1	1	1	1	1	1	1	2
55	172	-	-	-	3	2	2	3	3
57	195	-	1	1	2	1	1	2	3
58	196	-	1	1	1	1	2	2	2
62	207	2	-	-	3	3	2	2	3
64	91	2	3	3	2	3	4	3	4
65	92	2	3	3	2	1	2	2	2
66	212	-	5	6	-	5	6	-	5

Appendix 15
Key for Dental Inventory and Pathology
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Caries

Crown

1-Pit or slight fissural start of lesion
2-Lesion ranging from more than degree 1 to <1/2 of surface
3-Destruction of ½ or more of surface, yet not complete
4-complete destruction of tooth surface

Root

5Caries involving root (neck caries). Use with any of the above

Abscess

1-no pathology evident
2-periodontal abscess with destruction on alveolar ridge
3-periapical abscess with perforation of cortex or destruction of bone
4-tooth abscessed out
5-antemortem loss/bone resorbed

Calculus

1-None
2-Flecks
3-Moderate
4-Coalesced
5-Heavy
6-three dimensional

Appendix 16: Dental Pathology

B	F	N	NC	NTC	AMTL	EH	PO Abs	Per Abs	Abs out	2-3 Cal	4-5 Cal	6 Cal
4	20	31	0	0	0	0	11	0	0	11	18	0
5	25	32	0	0	0	1	0	0	0	17	15	0
6	27	15	0	0	16	0	0	3	2	8	1	1
7	26	28	2	2	4	0	0	0	0	14	14	0
11	46	16	0	0	0	2	0	0	0	6	10	0
13	57	29	7	5	3	10	0	0	0	15	7	0
14	53	33	7	6	0	9	0	3	0	23	7	0
15	79	31	2	2	1	9	0	0	0	27	4	0
18	66	1	0	0	0	0	0	0	0	1	0	0
19	96	30	2	2	2	5	0	1	0	23	0	0
22	100	20	0	0	0	1	0	0	0	0	0	0
24	114	24	0	0	7	4	5	1	2	24	0	0
26	108	6	0	0	25	0	0	1	1	0	6	0
28	105	16	3	3	0	0	0	0	0	0	0	0
29	97	22	5	4	0	0	0	0	0	0	0	0
30	111	20	5	5	8	2	0	0	2	14	0	0
31	109	28	0	0	4	0	0	0	0	27	0	0
32	116	26	7	6	6	0	0	4	2	15	5	0
33	150	24	8	6	7	12	1	5	0	19	3	0
34	152	32	0	0	0	3	0	0	0	10	22	0

B = burial number; F = feature number; NC = number of carious lessions; NTC = number of teeth with carous lesions; AMTL = antemortem tooth loss; EH = number of enamel hypoplasias.

B	F	N	NC	NTC	AMTL	EH	PO Abs	Per Abs	Abs out	2-3 Cal	4-5 Cal	6 Cal
35	153	28	0	0	4	3	3	4	0	19	9	0
38	130	32	0	0	0	0	0	0	0	11	1	0
39	131	32	2	2	0	8	0	0	0	20	10	0
41	121	30	15	8	4	1	1	1	0	19	7	0
42	163	6	0	0	0	1	0	0	0	5	1	0
43	170	26	2	2	4	2	0	0	0	21	2	0
44	173	0	0	0	17	-	0	6	0	-	-	-
45	177	28	2	1	3	4	0	0	0	25	1	0
47	112A	32	0	0	0	0	0	0	0	19	7	0
49	90	27	19	14	5	1	0	1	3	20	4	0
50	164	29	23	13	1	0	0	5	0	25	0	0
51	117	29	15	10	3	0	0	6	3	6	0	0
54	171	32	0	0	0	0	0	0	0	2	0	0
55	172	27	4	4	5	6	0	3	0	23	3	0
57	195	24	2	2	7	0	0	3	0	18	5	0
58	196	28	4	4	0	2	0	0	0	28	0	0
62	207	27	4	4	4	0	0	2	0	24	0	0
64	91	30	12	9	2	9	0	3	0	25	2	0
65	92	31	0	0	1	0	0	0	0	23	0	0
66	212	28	3	3	4	20	0	3	1	22	1	0

B = burial number; F = feature number; NC = number of carious lessions; NTC = number of teeth with carous lesions; AMTL = antemortem tooth loss; EH = number of enamel hypoplasias.

Appendix 17: Crown Height Measurements

Left Maxillary

Burial	Feature	I1	I2	C	P1	P2	M1	M2	M3
05	25	11.1	10.8	11.5	8.3	7.3	7	8	7
06	27	-	-	-	-	-	7.7*	-	-
07	26	10	9.5	10.5	9.5	8.9	7.5	8	7.8
11	26	9.8*	7.7*	9.9*	7.2	-	6.7	6.5	-
13	57	10.7	10.4	9.9	7.7	7.6*	7.9*	8.1	7.8
14	53	11.3	9.4	10.5	7.5	6.7	6.3	6.9	6.6
15	79	11.9	11.4	11.9	9.9	8.2	7.8	7.8	7.2
19	96	10.6	9.9	11.2	8.6	8.2	-	7.4	7.2
28	105	-	-	-	-	-	7.4*	-	-
29	97	9.4	6.8*	7.6*	-	-	8.1	-	-
30	111	-	-	10	8.3	7.9	7.2	7.1	7.2
32	116	9.8	7.7	8.2	6.8*	-	6.5*	7.3*	5.7
33	150	11.4	9.3	9	6.7	7.2	7.1*	-	5.8
35	153	-	7.3	8	7.2*	7.3*	-	-	5.9
38	130	11.5	9	9	8.9	8	7.9	7.1	5.4
39	131	12.2	9.8	11.5	8.2	8	6.5	7	7.9
41	121	8	6.8	9.3	7	7	6.3	6.9	5.3
42	163	-	-	10.6*	7.9	6.8*	7.6*	-	-
43	170	11.2	10.9	9.8*	-	7.3	-	-	6.6
45	177	-	-	-	7.6	7.7	6.2	-	6.9
47	112A	11.4	10	10.2	8.1	7.3	6.7	7.7	6.7
49	90	1	8.9*	9.2	7.8*	6.9	6.2	8.1	-
50	164	12.3	10.3	11	7.1	7.6	6.7	17.7	-
51	117	11.6	10.9	11.9	9.8	9.8	7.2	8.4	8.5*
54	171	11.7	10.3	11	8	7.5	6.4	7.3	7.2
55	172	10.2*	7.8*	9.8	7.3	7.4	-	6.8	6.7
57	195	10.2*	9	10*	7.6*	7.5	7.4*	7.9	6.6
58	196	10.8	9.3	10.3	7.5	6.8	7.1	7.2	-
62	207	9.7*	9.6*	9.6	7.6	7.3	7.9	7.3	6.5*
65	92	10	7.5	8.8	7	7	6.9	6.7*	6.8
66	212	7	6.3	6.9*	5.2*	5	5.8	7.2	6.1

* Right Maxillary; # Too Worn; - Tooth Absent or Compromised.

Left Mandibular

Burial	Feature	M3	M2	M1	P2	P1	C	I2	I1
05	25	5.9	6.6	5.7#	7.5	8.4	12.4	10.2	8.8
06	27	-	-	-	7.8	7.6	10*-	6*-	7.3*-
07	26	-	7.5	7.2	8.3	8.8	11.4	8.4	9
11	26	4.8	5	5.6	5.5	6.4	9.5*	8.6*	-
13	57	6.6	5.7	5.6	8	7.7	10.2	9.2	8.5
14	53	6.9	7.5	6	6.5	7.6	10.9	9	8.3
15	79	7.5	8.2	7.7	8.8	10.1	13.3	10.7	9.3
19	96	6.2	6.1	5.2	7*	9.2	10.6*	9.1	8.9
27	104	-	-	5.3	-	-	-	-	-
29	97	-	-	7.5	-	-	7.1*	7.5	8
30	111	8.3	8.8	7.7	8.5	7.6	10.3	8.4	7.9
32	116	-	6	-	7.3	7.9	10	8	7.1
33	150	-	6.1	-	7.2	6.8	10.2*	9.8	10.5*
35	153	4.9	-	-	-	7	8.8	8.8*	8.9
38	130	-	7.7	7.9	8.7	9.1	10.2	9.1	8.9
39	131	7.5	6.7	5.7	7.5	8.8	12.4	10.3	9.4
41	121	5.7	4.8	-	7	7	9.9	8.3	7
43	170	-	7.3*	-	7.7	7.6*	11	10.2	8.1*
45	177	5.9	5.4	5.6	7.4	8.6	9.4	8.5	7.8
47	112A	-	8	7.5	8*	8.9	10.9	10.1	9.2
49	90	-	6.7	5.6	6.3	6.8	10	9.2	9.1
50	164	6.1	-	-	7.5	8.3	12.2	9.7	9.7
51	117	8	-	-	9.1	9.8	12.5	9.5	9.4
54	171	7.8	7.7	7	8	8.9	10.6	9.6	8.4
55	172	7.8	-	-	7.4	7.3	10.2	9.1	8
57	195	-	7.3*	6.6*	6.8	7.6	11.1	8.3	7.4
58	196	-	7.3	7.6	8.7	7.8	10.9*	9.9*	8.8*
62	207	6.6*	6.8*	-	-	6.9	10.7	9.6	8.5
65	92	5.7	6.1	6.7	6.2	7.3	10.3	8.6	8.8
66	212	4.7	3.5	2.9	5.2	7	9.6	7.1	7.1*

* Right Mandibular; # Too Worn; - Tooth Absent or Compromised.

Appendix 18: Buccolingual Tooth Measurements

Left Maxillary

Burial	Feature	I1	I2	C	P1	P2	M1	M2	M3
04	20	6.3^	5.2^	7.2^	8.1^	7.9^	9.8^	9.4^	9.5^
05	25	8	7	8.7	9.9	9.9	11.6	11.5	11.1
06	27	-	-	-	-	-	-	10.9*	-
07	26	7	4.6	8.6	8.4	8.5	11.2	11.5	10.7
11	46	8.2*	6.1*	7.9*	7.8	-	11.6	12.6	-
13	57	7.4	6.9	7.5	8.4	6.6*	11.2*	11.1	10.9
14	53	7.6	6.6	8.8	9.7	9.2	10.8	11	11.2
15	79	7.5	7	9	10.5	9.9	11.9	11.6	11.5
19	96	7.5	6.7	9.4	10.3	10.2	-	12	11.4
20	99	-	-	-	-	-	8	-	-
27	104	-	-	-	-	-	8.8	-	-
28	105	-	-	-	-	-	10.1*	-	-
29	97	5.5	-	6.2	-	-	10.4	-	-
30	111	-	-	7.1	8.3	9.1	10.9	10.9	10.8
31	109	7.2	6.4	7.9	9.5	9.8	11.2	11.5	11.4
32	116	6.5	5.8	7.9	8.5*	-	10.5*	10.4*	10.7
33	150	7.7	6.6	8.4	9.2	9.8	11.2*	10.6*	10.6
34	152	7.8	6.5	8.3	8.6	9	10.6	10.6	11.3
35	153	6.4	5	6.7	8.3	8.3*	11	-	10
38	130	7.5	6.3	7.7	9	9.6	11.7	11	7.9
39	131	7	6.2	8.4	9	9.7	12.1	12.9	12.9
41	121	7.1	6.2	8.3	8.4	9.2	11	12.1	10.5
42	163	-	-	9.2*	9.6	9.2*	-	-	-
43	170	7	6.4	8.6*	-	9	-	-	10.7
45	177	-	-	-	8.9	9.4	11.7	10.5	11.3
46	112B	-	-	-	-	-	-	-	-
47	112A	6.9	5.9	7.7	9.1	9.1	10.4	9.9	9.3
49	90	6.9	5.5*	8.1	9.2*	9.8	11.5	12	-
50	164	7.2	5.7	8.3	8.9	9.4	12.1	11.8	-
51	117	6.9	7.1	9.8	10.8	11	11.9	12.6	11.9
54	171	7.3	6.8	8.4	10	10.6	12.1	12.2	11.5
55	172	6.4*	5.7	7.7	8.3	9.1	-	9.5	10
56	174	-	-	-	-	-	9.3	-	-
57	195	7.8*	6.6	9.8*	10.2*	10	11.7*	11.9	10.8
58	196	7.2	-	-	8.8	9.6	12.5	11.9	-
59	199	-	-	-	-	-	9.3	-	-
61	201	-	-	-	-	-	10	-	-
62	207	7.4*	7	8.9	8.9	9.2	11.5	11.9	10.7*
63	208	-	-	-	-	-	8	-	-
65	92	7.5	6.3	8.8	8.8	9.4	11.1	12.2*	10.2
66	212	7.5	6.3	9.3*	8.7*	8.8	10.9	10.6	11.4

* Right Maxillary; # Too Worn; - Tooth Absent or Compromised; ^ Measurement at CEJ. Left Mandibular

Burial	Feature	M3	M2	M1	P2	P1	C	I2	I1
04	20	8.1^	8.4^	8.4^	7^	6.5^	7.3^	5.5^	5.4^
05	25	10.2	11.2	11.4	9	8.9	8.5	6.7	6.2
06	27	-	-	-	7	6.8	7.5*	6*	5.6*
07	26	-	10.2	10	7.9	7.2	7.6	5.8	5.8
11	46	9.7	10.4	10.6	8.4	7.5	8.4*	6.6*	-
13	57	10.6	9.8	10.5	8	7.6	7.1	6	6
14	53	10.3	10.5	10.9	8.3	8.2	7	6.3	6.1
15	79	10.9	11.3	10.6	9.4	8.3	8.9	5.3	6
18	66	-	-	-	-	-	-	-	6.3*
19	96	10.8	11.1	10.6	8.9*	8.6	8.7*	6.4	5.8
20	99	-	-	7.4	-	-	-	-	-
26	108	-	-	10*	7.4*	6.8	7.1	-	-
29	97	-	-	9.9	-	-	-	-	4.9
30	111	9.5	9.5	9.5	7.7	7.3	8.3	6	5.9
31	109	10.9*	10.7*	10.6	8.3	7.9	7.7	6.2	-
32	116	-	9.8	-	7.9	7.7	7.2	5.9	5.2
33	150	10	9.8	-	7.9	7.5	6.9*	6.2	5.8*
34	152	10.3	9.7	10	8.5	7.5	8.9	6.1	6.1
35	153	10.1	9.5	10.2	7.6	7	6.6	5.9	5.5
38	130	-	10.6	11.5	8.5	7.8	7.8	6.4	6
39	131	10.1	10.1	11.1	8.2	7.3	7.6	6.1	6.1
41	121	10.4	10.2	-	8.3	7.3	7.5*	6.2	6.1
43	170	-	10.2*	-	-	-	8.3	6.1	6.3
45	177	10.7	10.5	10.1	8.7	-	8.2	-	-
46	112B	-	-	10.1*	-	-	-	-	-
47	112A	-	9.4	9.4	8.6*	7.9	7	6.7	5.8
49	90	-	10.4	10.4	8.6	8.3	6.9	6.2	5.6
50	164	10.6	-	-	7.8	8.1	8	6.2	6
51	117	11.7	-	-	9.8	8.8	8.4	6.2	5.6
54	171	10.9	11.3	10.7	9.1	8.2	7.8	6.2	5.9
55	172	9.3	-	-	7.9	7	7.2	5.8	5.6
56	174	-	-	8.5	-	-	-	-	-
57	195	-	10.4*	10.8*	8.7	9.1	8.7	6.7	6.3
58	196	-	9.5	10.3	7.9	7.4	8*	6.6*	5.8*
59	199	-	-	8.2	-	-	-	-	-
62	207	9.1	9.9	-	-	8.9	7.3	6.2	6.1
63	208	-	-	7.2	-	-	-	-	-
65	92	10	10	10.2	8.6	7.5	8.3	6.4	5.7
66	212	9.8	10.3	11.7	8.1	7.1	8.3	6.5	6.5

* Right Mandibular; # Too Worn; - Tooth Absent or Compromised; ^ Measurement at CEJ.

Appendix 19: Mesiodistal Tooth Measurements

Left Maxillary

Burial	Feature	I1	I2	C	P1	P2	M1	M2	M3
04	20	5.4^	3.9^	5.9^	4.2^	4.6^	7.6^	7.2^	6.6^
05	25	9	6.9	7.7	7.4	6.5	10.3	9.3	7.9
06	27	-	-	-	-	-	-	8.7*	-
07	26	7.5	4.4	7	6	5.7	9.8	10	9.5
11	46	8.9*	6.5*	6.6*	6.9	-	10.1	9.4	-
13	57	9.5	7	7.3	6.7	8.3*	10.3*	8.9	9.6
14	53	8.6	6.9	8	6.7	6.6	10.2	9.3	8.3
15	79	9.5	7.3	8.3	7.6	6.9	11.6	11.3	9.7
18	66	-	-	-	-	-	-	-	-
19	96	8.9	7.1	7.9	7.8	6.7	-	10.3	8.4
20	99	-	-	-	-	-	8	-	-
27	104	-	-	-	-	-	8.5	-	-
29	97	8.3	7	7.6	-	-	11.1	-	-
30	111	-	-	7.2	7	6.5	10.1	9	9.5
31	109	7.1	6.6	7.5	6.9	6.8	10	9.2	7.9
32	116	8.3	7.1	7.6	6.8*	-	11.2*	9.9*	8.9
33	150	9.5	8.3	7.9	6.7	7.1	10*	9.6*	8.8
34	152	7.7	5.5	7.4	6.5	6.1	9.1	8.7	8.4
35	153	8.2	5.8	7	6.2	6.3*	10.2	8.9	7.9
37	110	-	-	-	-	-	10.2*	-	-
38	130	8.8	6.4	7.4	7	6.8	10.9	10.6	10.8
39	131	9.9	7.5	8.3	6.8	6	10.1	9.4	8.3
41	121	8.4	5.8	7.5	5.9	6.5	11.4	9.7	7.5
42	163	-	-	7.9*	7.5	7.2*	10.7*	-	-
43	170	9.2	6.8	8.7*	-	6.6	-	-	9.1
45	177	-	-	-	6.5	5.8	10.5	8	8
47	112A	8.5	6.6	7.5	7.1	6.7	10.3	9.9	7.9
49	90	9	5.9*	7.8	6.9*	6.3	10.7	10	-
50	164	10.4	5.6	8.5	7.2	7.4	11.5	11.2	-
51	117	8.8	7.3	8.6	8.4*	7.6	11.5	11.7	9.5
54	171	8.4	6.1	7.5	6.9	6.8	10.3	10.3	8.6
55	172	7.7*	6	6.6	6.3	6.5	-	10.8	8.5
56	174	-	-	-	-	-	9.4	-	-
57	195	8.9*	7.9	7.6*	6*	7.3	10.9*	10.6	8.6
58	196	-	-	7.3	6.3	6.2	10.6	9.6	-
59	199	-	-	-	-	-	9.4	-	-
61	201	-	-	-	-	-	9.1	-	-
62	207	7.8*	7.3*	7.8	6.9	6.3	11.7	9.3	7.5*
63	208	-	-	-	-	-	7.8	-	-
65	92	8.4	6.3	7.5	6.9	6	10.4	9.6*	9.7
66	212	7.7	6.1	8.1*	5.9*	6.4	9.6	10.6	7.4

* Right Maxillary; # Too Worn; - Tooth Absent or Compromised; ^ Measurement at CEJ. Left Mandibular

Burial	Feature	M3	M2	M1	P2	P1	C	I2	I1
04	20	7.4^	8.2^	8.6^	4.8^	4.4^	5.2^	3.7^	3.2^
05	25	10.3	11	11.2	7.4	7.4	7.7	6.2	5.2
06	27	-	-	-	6.1	5.3	6.5*	5.1*	4.3*
07	26	-	10.6	10.5	7	6.8	6.6	5.3	5
11	46	10.4	10.5	10.3	6.5	6.8	6.8*	6.2*	-
13	57	11	9.9	11.5	6	7.1	7	6.2	5.4
14	53	11.2	10.3	11.2	6.7	6.6	6.9	6.1	5.6
15	79	11.5	12.7	12.4	8.2	7.8	7.6	6.2	5.7
18	66	-	-	-	-	-	-	-	5.2*
19	96	11.5	11.3	11.2	7.7*	7.9	7.3*	6.5	5.4
20	99	-	-	8.9*	-	-	-	-	-
26	108	-	-	10*	6.3*	5.8	6.3	-	-
29	97	-	-	11.2	-	-	7	5.9	5.4
30	111	10	9.9	10	7	7	6.4	5.7	5.2
31	109	8.3*	10.3*	10.5	7.1*	6.9*	7	5.5	-
32	116	-	10.4	-	7.4	6.9	6.7	5.5	4.7
33	150	-	-	-	6.8	6.3	6.6*	6.4	6.4*
34	152	11.4	9.5	10.1	7.3	7.3	6.9	5.5	4.5
35	153	9.5	10.4	10.2	6.7	6.7	6.4	5.7	5.3
38	130	-	11.7	11.2	7	7.5	6.9	6	5.5
39	131	11.2	10	11.1	6.9	7	6.6	6.6	5.7
41	121	11.3	10.7	-	6.2	6.2	6.7*	5.8	5
43	170	-	10.8*	-	-	-	7.5	6.7	5.4*
45	177	11.8	10.3	11.1	6.6	6.7	-	-	-
46	112B	-	-	10.2*	-	-	-	-	-
47	112A	-	10.5	11.2	6.9*	6.8	6.6	6.2	5.6
49	90	-	11.5	11.7	7.1	7.2	7	5.9	5.4
50	164	12.2	-	-	8.9	8	8.3	6.6	6.3
51	117	13.5	-	-	8.4*	8.7	-	-	-
54	171	11.6	10.9	11.4	6.7	7.2	6.9	6.1	5.3
55	172	12	-	-	7	6.2	5.8	5.6	5.1
56	174	-	-	9.1	-	-	-	-	-
57	195	-	-	10.5*	7.6	7.7	7.4	6.2	4.5
58	196	-	11.4	10.8	6.6	6.3	6.5*	5.8*	4.7*
59	199	-	-	9.1	-	-	-	-	-
62	207	10.3*	11.4*	-	-	7.2	7.5	6.5	5.7
63	208	-	-	9	-	-	-	-	-
65	92	11.2	10.7	10.6	6.8	6	6.9	5.8	5.5
66	212	11	11.3	10.7	7.6	6.4	7.3	5.4	4.4*

* Right Mandibular; # Too Worn; - Tooth Absent or Compromised; ^ Measurement at CEJ.

Table 1: Age Distribution of the Skeletal Sample

	Age	Number of Burials	Burial Numbers
Infant	Birth to 3 years	22	1, 2, 3, 8, 10, 12, 16, 17, 20, 21, 25, 27, 36, 37, 46, 52, 53, 56, 59, 61, 63, 67
Child	3 to 12 years	4	22, 28, 29, 60
Adolescent	12 to 20 years	7	15, 38, 39, 47, 50, 51, 54
Young Adult	20 to 35 years	17	5, 13, 14, 18, 19, 30, 31, 33, 40, 41, 42, 43, 55, 57, 58, 62, 64
Middle Adult	35 to 50 years	13	4, 6, 7, 11, 24, 32, 34, 35, 44, 45, 49, 65, 66
Old Adult	50 + years	1	26

Table 2: Burial 5 Rib Trauma

Bone	Location	Direction	Description & Intepretation
Rib 2	56 mm from head end	left to right	The cut penetrated 14 mm into the rib but did not sever it.
Rib 3	53 mm from head end	left to right	Completely severed the rib head and neck from the body
Rib 4	40 mm from head end	left to right	Complete separation of the rib head with cut passing through the neck of the rib
Rib 5	-	left to right	Head end is severed off and this piece is not represented.
Rib 6	-	left to right	Tiny nick at the tubercle representing the inferior end of the cut to the upper ribs

Table 3: Skeletal Lesions in Burial 33

Measurement Directions: AP- anterior to posterior, ML- medial to lateral, SI- superior to inferior

Bone	Lesion	Measurement	Description
Frontal	1	10 X 22 mm, AP/ML	Cavitation
	2	6 X 6 mm, AP/ML	Cavitation
	3	17 X 15 mm, AP/ML	Cavitation
	4	8 X 8 mm, AP/ML	Cavitation
	5	5 X 5 mm, AP/ML	Cavitation
Parietal	6	15 X 15 mm, AP/ML	Cavitation
	7	10 X 10 mm, AP/ML	Cavitation
	8	15 X 15 mm, AP/ML	Cavitation
	9	10 X 10 mm, AP/ML	Cavitation
	10	15 X 25 mm, AP/ML	Cavitation
	11	25 X 35 mm, AP/ML	Cavitation
	12	20 X 30 mm , AP/ML	Cavitation
	13	20 X 20 mm, AP/ML	Cavitation
	14	15 X 15 mm, AP/ML	Cavitation
Occipital	15	20 X 20 mm, AP/ML	Cavitation
Maxillae	16	15 X 20 mm, AP/ML	Osteolytic and erosive
	17	6 X 6 mm, AP/ML	Osteolytic defect associated with lesion 16
	18	6 X 6 mm, AP/ML	Osteolytic defect associated with lesion 16
Mandible	19	5 X 9 mm, SI/ML	Osteolytic and erosive
Cervical 3		-	Osteolytic, inferior centrum
Cervical 4		-	Osteolytic, superior and inferior centrum
Cervical 5		-	Osteolytic, superior and inferior centrum causing a defect
Cervical 6		-	Osteolytic, inferior centrum
Thoracic 6		8 X 8 mm, AP/ML	Osteolytic, superior centrum
Lumbar 2		12 X 12 mm, AP/ML	Osteolytic, superior centrum with associated

		apposition of new bone
	15 X 12 mm, AP/ML	Osteolytic, inferior and posterior centrum with associated apposition of new bone
Sacrum	-	Osteolytic, trabecular erosion, cortical perforation, woven bone deposition
R. Os Coxa	20 X 7 mm, AP/SI	Osteolytic lesion with 2 cortical defects, auricular
	20 X 22 mm, ML/SI	Osteolytic lesion, posterior superior iliac spine
L. Os Coxa	-	Granulomatous, cortical and cancellous destruction, ischium
R. Rib 2	8 X 18 mm, AP/ML	Circular, punched-out defect, remodeled, sternal end
	8 X 20 mm, AP/ML	Circular punched-out defect, remodeled, mid-shaft
R. Rib 3	3 X 3 mm, AP/ML	Circular cavitation, sternal end
R. Rib 5	5 X 15 mm AP/ML	Sloped, external lesion with cortical thinning, remodeled, sternal end
R. Rib 6	7 X 18 mm AP/ML	Cavitation visceral lesion, sternal end
R. Rib 7	7 X 7 mm AP/ML	Osteolytic circular lesion, sternal end
R. Rib 8	9 X 15 mm AP/ML	Incipient cavitation, mid-shaft
	-	Healed fracture with callous, vertebral 1/3
	-	Healed fractures with callous, sternal 1/3
R. Rib 9	-	Incipient external cavitation
	-	Incipient external cavitation
	-	Incipient external cavitation
	-	Well-healed fracture, vertebral 1/3
R. Rib 10	-	Cortical thickening associated with 3 open cavitations resembling cloaca, vertebral 1/3

	4 X 6 mm AP/ML	Cavitation, vertebral 1/3
	2 X 2 mm AP/ML	Cavitation, vertebral 1/3
	4 X 6 mm AP/ML	Cavitation , vertebral 1/3
	-	Periosteitis distal to cavitations
R. Rib 11	2 X 2 mm AP/ML	External cloaca, mid-shaft
	2 X 2 mm AP/ML	Visceral cloaca, mid-shaft
L. Rib 1	-	Small perforation, inferior mid-shaft
L. Rib 2	-	Small healed lesion, inferior mid-shaft
L. Rib 3	-	Small external lesion, neck
L. Rib 6	-	Periosteitis, vertebral ½
L. Rib 7	-	Periosteitis, vertebral ½
	-	Incipient lytic lesion, neck
	-	Small perforation, vertebral 1/3
	-	Small perforation, vertebral 1/3
L. Rib 8	8 X 33 mm AP/ML	Circular lesion with defect, superior margin sternally
L. Rib 9	5 X 11 mm AP/ML	Visceral cloaca with external and inferior defects, vertebral end
	5 X 5 AP/ML	External cloaca, mid-shaft
	5 X 10 AP/ML	External circular cavitation, sternal end
L. Rib 10	-	Widespread cancellous destruction of entire rib, which is thin, lacking cancellous bone, and is markedly distorted by remodeling
L. Rib 12	3 X 4 mm AP/ML	Perforation at sternal end
	3 X 6 mm AP/ML	Perforation at sternal end
Manubrium	-	Osteolytic, right clavicular notch
	7 X 7 mm SI/ML	Osteolytic smooth pit, anterior
	-	Osteolytic with cortical perforation , notch for left rib1

	-	Osteolytic with cortical perforation, notch for right rib 1
	10 X 20 mm SI/ML	Large lytic cavitation, right inferior aspect
Sternal Body	8 X 8 mm SI/ML	Osteolytic, well circumscribed lesion, superior 1/3
	2 X 2 mm SI/ML	Osteolytic, well circumscribed lesion, inferior 1/3
R. Clavicle	-	Multiple shallow depressions, abnormal shape
L. Clavicle	12 X 12 mm SI/ML	Osteomyelitis like lesion with cloaca at conoid tubercle
R. Scapula	15 X 13 mm SI/ML	Circular defect at vertebral border
	82 X 15 mm SI/ML	Defect, vertebral border
	-	Inflammation, cortical bone loss, and defects, inferior angle
L. Scapula	8 X 8 mm SI/ML	Defect, vertebral border
	25 X 21 mm SI/ML	Defect, vertebral border
	3 X 3 mm SI/ML	Defect, inferior angle
	3 X 3 mm SI/ML	Defect, inferior angle
	3 X 3 mm SI/ML	Defect, inferior angle
R. Humerus	4 X 5 mm SI/ML	Osteolytic lesion, head
	-	Remodeled depression, distal posterior shaft
L. Humerus	20 X 25 mm SI/ML	Osteolytic, cortical bone loss, head
	6 X 4 mm SI/ML	Small cavity, medial shaft
R. Radius	-	Osteolytic lesion, cancellous destruction, woven bone deposition and 3 cortical defects, tuberosity
L. Radius	-	Remodeled pathological fracture with small pseudoarthrosis and non-union, mid-shaft
	-	Osteolytic defect, proximal 1/3

	-	Osteolytic defect, proximal 1/3
	-	Osteolytic defect, proximal 1/3
	-	Osteolytic defect, proximal 1/3
	-	Osteolytic defect, proximal 1/3
	-	Active woven and scletotic bone deposition, proximal 1/3
R. Femur	-	Osteomyelitis
L. Femur	-	Osteomyelitis
R. Patella	10 X 10 mm SI/ML	Osteolytic defect, right superior angle
R. Tibia	21 X 12 mm SI/ML	Cavitation, medial condyle
L. Tibia	15 X 50 mm SI/ML	Periosteitis with cloaca, proximal ¼ at soleal line
R. Fibula	-	Periosteitis with cortical thickening and cloaca, diaphysis
L. Fibula	-	Periosteitis with cortical thickening, proximal 1/3

Table 4: Right Rib Fractures for Burial 62

Bone	Location	Description
Rib 2	Midshaft	Well healed with callous
Rib 4	Sternal 1/4	Healing fracture with callous anteriorly and woven bone deposition posteriorly where break is easily seen
Rib 5	Sternal 1/4	Healing fracture with callous formation and woven bone deposition
Rib 6	Midshaft	Healing fracture with callous formation and woven bone deposition

Table 5: Adult Funerary Boxes

	N	Burial Numbers
None	2	4, 23
Ammunition Box	1	48
Triangular	5	33, 42, 50, 54, 55
Casket Shaped	3	9, 24, 66
Coffin Shaped	29	5, 6, 7, 13, 15, 18, 19, 26, 30, 31, 32, 34, 35, 38, 39, 40, 41, 43, 44, 45, 47, 49, 51, 57, 58, 62, 64, 65

Table 6: Empty Funerary Boxes

	N	Burial Numbers
Triangular	1	Feature 164
Casket Shaped	83	Features: 1-4, 7, 9-18, 22-24, 28, 29, 31-45, 47, 48, 52, 55, 71-75, 78, 83, 101, 107, 113, 122-124, 127, 128, 133, 135, 136, 141, 143-145, 143, 149, 151, 155, 157, 160, 161, 166, 169, 175, 176, 178, 182, 191, 192, 203, 209, 211, 216, 217, 219, 220
Coffin Shaped	41	Features: 30, 50, 54, 58-65, 67-70, 76, 77, 84-86, 88, 89, 93-95, 98, 103, 118, 120, 125, 126, 134, 137-140, 142, 146-148, 156, 158, 159, 162, 165, 167, 168, 180, 181, 183-190, 193, 194, 196, 197, 200, 204-206, 210, 213-216, 218

Table 7: Infant and Child Funerary Boxes

	N	Burial Numbers
None	1	22
Coffee Box	1	21
Triangular	4	1, 2, 25, 63
Casket Shaped	7	8, 12, 16, 27, 29, 36, 67
Coffin Shaped	10	3, 10, 20, 28, 37, 52, 53, 59, 60, 61
Coffin Within a Larger Coffin	4	17, 46, 56, Feature 87*

* Empty Coffin

Table 8: Skeletal and Dental Conditions Observed Among the Fort Craig Skeletal Sample

	Total	Burial Number
Tooth pipe facets	5	6, 30, 45, 65, 66
Dental fillings	2	13, 41, 58
Tooth notches	2	7, 32
Tobacco staining	14	4, 5, 6, 13, 24, 26, 30, 39, 45, 55, 57, 58, 65, 66
C1 retroarticular bridge	5	6, 13, 35, 38, 47
C1 fused to cranium	1	55
C1 cleft	4	13,15, 24, 64
C2 enthesophyte	2	11, 35
C2, C3 fusion	2	24, 33
C4 cleft	1	47
C7 cleft	2	7, 47
11 thoracic vertebrae and ribs	1	52
13 thoracic vertebrae and ribs	1	55
Basilar notch	2	56, 63
Sacralized L5	1	40
6 segmented sacrum	6	7, 13, 41, 43, 55, 57
Costal fusion between rib 1 and 2	4	34, 35, 36, 56
Humeral septal aperatures	2	19, 55
Ossified thyroid	17	4, 5, 6, 7, 11, 13, 24, 26, 30, 44, 45, 49, 55, 57, 62, 64, 65
Ossified xiphoid	15	4, 7, 13, 26, 32, 34, 35, 39, 41, 43, 44, 45, 49, 62, 65
Sternal hiatus	2	55, 65
Manubrium fused to sternal body	4	4, 34, 44, 65
Costoclavicular Stress Lesion	20	4, 5, 13, 14, 15, 26, 28?, 30, 39, 40, 42, 43, 49, 51, 54, 55, 57, 58, 62, 64
Humeral stress lesions	5	5, 38, 40, 43, 54
Radius Stress Lesion	2	4, 26
Ulna stress lesion	1	5
Schmorl's nodes	19	5, 6, 14, 18, 30, 31, 34, 39, 41, 43, 45, 49, 50, 51, 55, 57, 58, 64, 65
Poirier's facets	3	6, 14, 24
Squatting facets	1	55
Enthesophytes	10	4, 11, 14, 15, 18, 32, 41, 49, 55, 58

	Total	Burial Number
Limb periosteitis	8	13, 14, 15, 28, 43, 49, 57, 61
Rib periosteitis	4	13, 15, 19, 57
Cribra orbitalia	11	4, 13, 14, 20, 28, 38, 39, 46, 49, 59, 61
TB	3	4, 19, 54
Gout like cavitations	2	7, 50
Cranial depression fracture	1	57
Facial trauma	3	4, 6, 62
Nose Fracture	2	4, 66
Mandibular fracture	1	49
Rib Fracture	5	4, 6, 35, 62, 65
Clavicle fracture	2	35, 62
Pelvic trauma	1	6
Spondylolysis	4	4, 31, 33, 43
Radial Fracture	1	11
Parry Fracture	4	4, 5, 31, 66
Fibula fracture	1	18
Hand Fracture	2	7, 26
Sacral fracture	1	58
Coccygeal fracture	2	54, 58
Sharp Force Trauma	1	5
GSW	2	39, 65
Syphylis	3	8, 30?, 33
Perimortem trauma deaths	8	5, 6?, 39, 40, 44, 62?, 64, 65
Autopsied	4	5, 14, 39, 66
Acute lung infection	1	41

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