

Recovery and Analysis of *Jamestown Rediscovery* South Churchyard Burials from the 1999 Field Season

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Abstract

Osteological analysis of two South Churchyard burials excavated during *Jamestown Rediscovery's* 1999 field season offered insight into the age, sex, ancestry, and pathology of these individuals. Burial 4 (JR316F) contained the remains of a male Euro-American, aged 50-59 years old at the time of his death. The skeletal remains of a 40-49 year old Euro-American female were uncovered in Burial 5 (JR320F). The skeletons also provided potential evidence for daily activities such as horseback riding, strenuous labor, and tobacco-pipe smoking.

1. Introduction

Two burials were excavated during the 1999 field season of the APVA's *Jamestown Rediscovery* project (Burials 4 and 5). They were located within seven feet of one another, in parallel alignment, and 69° west of north. Douglas Owsley and Rebecca Kardash examined the burials *in situ* on September 9, 1999. Chip Clark documented the burials with 35 mm color slides. Following complete excavation, each set of remains was then inventoried and examined to determine the number of elements present, age, sex, ancestry and evidence of skeletal and dental pathology. Douglas Owsley, Karin Bruwelheide and Rebecca Kardash conducted the osteological analysis on June 5 and 6, 2000.

2. Burial 4 (JR316F-400)

2.1 *Burial Recovery*

The *in situ* examination of Burial 4 revealed the nearly complete skull and post-cranial skeleton of an adult male, probably of middle age, with the remains of a hexagonal wood coffin (Figure 1). The skeleton was oriented on a northwest-southeast axis with the head to the northwest. The face was tilted to the northeast. The individual was fully extended and resting on his back with the face up. The right humerus was positioned tightly against the sideboard of the coffin. Both arms were slightly flexed at the elbows. The left hand rested on the left ilium and the right hand was higher and positioned over the middle of the pelvic cavity. The palmar surfaces of both hands were down.

Preservation of this skeleton is poor—a condition likely due to the presence of a wood coffin with thick boards that did not allow for adequate drainage. The coffin has a hexagonal shape and 73 coffin nails have been identified (Figure 2). Although the headboard and upper sideboards appear to be relatively complete, the wood near the lower extremities is not as well preserved. This lack of preservation may account for the better condition of the bones of the legs, as compared to those of the upper body. The upper arms are especially deteriorated.

There is no evidence that this was a shroud burial. No staining from shroud pins was apparent and there was moderately wide spacing between the knees and ankles, an observation supporting the inference that the burial was not wrapped in a shroud.

The skeleton had five buttons associated with it; each originally served to fasten clothing. Three buttons were present in the right pelvic region. One brass button measuring 24 mm across was resting immediately inferior to the distal end of the right ulna. A 26 mm in diameter white brass button was on the neck of the right femur. Another button was located on the anterior-superior spine of the right innominate; it measured 16 mm across. A fourth button, 20 mm in diameter, was located under the metacarpals of the right hand and the phalanges of the left hand, but above the sacrum. It is a composite button made of wood with a copper alloy face. The fifth button, located in the right pelvis regions, is brass. It measured 17 mm in diameter and was found in the acetabulum of the left *os coxae*, resting on the head of the left femur.

This burial dates post-1750 based on the presence of a white brass button associated with the skeleton.

2.2 Osteological Analysis

Age: 50-59 years
Sex: Male
Ancestry: Euro-American

This burial is the incomplete skeleton of a white male aged 50 to 59 years. The cranium is fragmented and in poor condition. The intact portion of the cranium is represented by the anterior vault, partial parietals and most of the face. Separate but present are the temporals and fragments of the occipital. The mandible is nearly complete but essentially edentulous. The bones show postmortem breakage with pronounced erosion of the outer table. Only a few cranial measurements were possible due to the fragmentary and distorted condition of the cranium, but those taken are fairly accurate.

The postcranial skeleton is incomplete and exhibits postmortem breakage with erosion of the outer cortices. All of the bones have been treated with preservative.

Green staining is present on several bones of the right hand including the hamate, lesser multangular, greater multangular, capitate, two proximal phalanges,

and the second and third metacarpals. Other locations of possible staining, characterized by dark brown or green discoloration, are the internal surface of the anterior right ilium and the ventral aspects of the left and right femoral heads. These stains are likely attributable to the metal buttons recovered with the burial. The stain on the anterior right ilium measures approximately 43 mm S-I by 33 mm A-P.

Age is based on antemortem loss of the mandibular dentition with advanced resorption of the alveolar bone. Thinning of the cranial bone and slight degenerative changes noted on the postcranial skeleton support an older age assessment.

Sex is based on features of the skull and pelvis. Despite its poor condition, this skeleton is more robust than the female identified as Burial 5 (JR320D). The cranium is moderate in size and larger than the cranium of the female. The moderately narrow greater sciatic notch and flat auricular surfaces of the innominates and the marked curvature of the sacrum are all features associated with males. Additionally, the femoral heads are large, which also suggests this individual is a male.

Caucasian ancestry is based on a moderately narrow interorbital width, a sharply defined inferior nasal border, a narrow nasal cavity width, a v-shaped palate and lack of alveolar prognathism.

2.21 Dentition

The left and right maxillae are partially represented and in poor to fair condition. Maxillary teeth present include the left central and lateral incisors, canine, first and second premolars and the right central and lateral incisors and canine. The left first molar has been lost antemortem and the socket has completely resorbed. The right maxillary first and second premolars and first and second molars were also lost antemortem with complete remodeling of the sockets. Periodontal abscessing is evident on the left central and lateral incisors and canine. Fairly pronounced alveolar resorption has occurred for all tooth sockets present in the maxillae.

In the mandible, with exception of the right second and third molars, all teeth have been lost antemortem and there is complete resorption of the sockets. Alveolar resorption for the two remaining teeth is pronounced with the distance between the cemento-enamel junction of the second molar and the alveolar margin measuring 8.5 mm. Carious lesions are noted on the buccal and interproximal surfaces of the right second mandibular molar and on the adjacent interproximal surfaces of the left maxillary central and lateral incisors.

The maxillary anterior teeth show slight to advanced levels of lingual surface wear. The wear is especially pronounced on the lingual surfaces of the right and left central incisors and right canine. Due to the antemortem loss of the anterior mandibular teeth, the cause of this wear is uncertain but reflects malocclusion or the use of pipes for smoking tobacco.

The dentition exhibits several hypoplasias indicating periods of physiological stress during early childhood. Slight to moderate levels of calculus are present on the teeth, but the roots are poorly preserved and may not reflect actual levels of calculus.

2.22 Functional Morphology

There is marked elongation of both acetabulae and the superior rims appear buttressed and reinforced. Porosity is present on the superior margins and acetabular joint surfaces. Porotic changes are more evident on the left side and superior elongation is more marked on the right. The acetabular fossa, the attachment site for the ligamentum teres, exhibits evidence of superior relocation which is supported by porosity on the articular lunate surfaces within the acetabulae. Both femoral necks have large Poirier's facets. These changes likely reflect a history of frequent horseback riding for this individual.

2.23 Pathology

Distortion of the left mandibular condyle is moderately severe due to the loss of mandibular teeth and subsequent remodeling. Corresponding changes in the temporo-mandibular joint are present. There is arthritis on the occipital condyles. Additional degenerative changes are noted on the vertebrae in the form of slight lipping of the articular facets and vertebral bodies. This evidence suggests that the individual under study engaged in strenuous labor. The first and second lumbar vertebrae have slight small Schmorl's nodes centrally located on their superior endplates. The other bodies of the lumbar vertebrae are fragmentary but show slight concavity of their endplates.

A small round area of lytic destruction is present on the superior ventral aspect of the right femoral neck. This lesion measures 6 mm in diameter and is 5 mm in depth. The cavitation is smooth-walled with a well-defined margin. A proximal hand phalanx has a small lytic cavitation on the margin of the proximal joint. It measures approximately 5 mm in length and 2 mm in width. Its cause is unknown.

3. Burial 5 (JR-320D-500)

3.1 *Burial Recovery*

An *in situ* examination of Burial 5 revealed the skull and postcranial skeleton of an adult female with the remains of a hexagonal wooden coffin (Figure 3). The individual was fully extended in a northwest-southeast orientation and resting on her back. The head was oriented to the northwest and the face to the southeast. The right arm was extended at the side and the hand was pronated with the palm on the upper right femur. The left arm was at an obtuse angle with the left elbow

in contact with the sidewall of the coffin. The femora are complete and the patellae are resting on the distal condyles. The left foot is collapsed vertically and the metatarsals are straight. The right foot is deviated medially.

The preservation of this individual ranges from fair to good. The better preservation of this individual may be related to the greater deterioration of the coffin wood. The coffin has a hexagonal shape and 50 associated nails are present. The burial appears to have been in a shroud, as evidenced by five stains from copper alloy pins.

On the basis of its close proximity, parallel alignment and similar grave-shaft fill as Burial 4, the individual in Burial 5 was likely interred in the late 18th century. On its own, however, Burial 5 contained no temporally diagnostic artifacts.

3.2 Osteological Analysis

Age: 40-49 years
Sex: Female
Ancestry: Euro-American

This burial is the incomplete skeleton of a white female aged 40 to 49 years. The skull is represented by a nearly complete cranium and mandible. The bones of the midface are detached and cannot be reconnected to the vault due to erosion and loss of the zygomatic arches and the frontal processes of the molars and maxillae. The cranial vault exhibits exfoliation of the outer table, especially on the frontal and the anterior portion of the parietals. Measurements of the cranial vault were recorded. The postcranial skeleton is primarily represented by eroded long bones, several partial vertebrae and a partial pelvis.

Five oval-shaped greenish-brown metallic stains from shroud pins are present on the cranial vault. Two stains are located on the superior aspect of the frontal. The best defined of these is located on the left half of the superior frontal immediately anterior to the coronal suture. It measures 30 mm A-P by 14 mm transverse. The other stain is located 20 mm to the right of bregma and extends onto the right parietal. A third small area of green discoloration measuring 37 mm S-I by 17 mm A-P is present on the middle of the left parietal. A larger stain measuring 46 mm by 28 mm is located at the juncture of the right lambdoidal and squamosal sutures on the posterior right parietal. A fifth stain measuring 37 mm by 17 mm is located on the left occipital squamous below the lambdoidal suture.

The facial bones are represented by poorly preserved maxillae and malars. The mandible is mostly complete and in fair condition. Green discoloration is noted on the lingual surface of the anterior mandibular body and the root of the left lateral incisor. An area of brown discoloration and green staining is present on the inferior surface of the right horizontal ramus.

The postcranial skeleton is represented by eroded long bones, first and second cervical vertebrae, three cervical vertebral bodies (3-6), thoracic vertebrae 10-12,

lumbar vertebrae 1-5, and a partial pelvis. Partial left and right clavicles are present as are some bones from the hands and feet. However, these bones are eroded and in fair to poor condition. The major long bones shafts are mostly complete but eroded and joint surfaces are only partially represented. The skeleton has been treated with preservative, but is extremely fragile.

Sex is based on features of the skull and pelvis. Overall, the cranium is gracile. Small mastoids and malars, lack of supraorbital brow ridge development, sharp superior rims of the orbits, and moderate development of the nuchal ridge all indicate the sex of a female. The mandible is gracile with a relatively obtuse gonial angle, small mandibular condyles and a rounded mental eminence. The innominate have wide greater sciatic notches, deep pre-auricular sulci, raised auricular surfaces and relatively small acetabulae, all of which are associated with females.

Age is based on degenerative changes noted on the vertebrae and long bone joint surfaces. Although the teeth are mostly present, moderate to severe alveolar resorption has occurred and some teeth have been lost antemortem. The cancellous bone spacing is relatively compact indicating little loss of bone density.

While there are few indicators of ancestry present, the cranium has a low forehead, a low vault height, small malars and a relatively narrow nasal width. The zygomaxillary sutures show recurvature and the transverse palatine suture is irregular. These features are typical of Colonial-period Europeans.

Three-dimensional coordinates were collected from landmarks present on the intact cranial vault by Stephen Owsley of the National Museum of Natural History. A set of cranial measurements were calculated based on these coordinates.

3.21 Dentition

The left and right maxillae are eroded and the anterior tooth sockets are only partially present. The left maxillary central and lateral incisor and canine sockets are not visible due to erosion. Maxillary teeth present include the left central incisor, canine, second premolar and first molar and the right central incisor, canine and first molar. The right central incisor is represented by the crown only. The left and right second and third molars, the right second premolar and the left first premolar have been lost antemortem with complete or near complete resorption of the sockets. The left and right first molars have large periapical abscesses that have penetrated the floor of the maxillary sinuses. The mostly remodeled socket of the right second molar also shows an abscess that penetrated the sinus cavity. The left maxillary first molar has a small carious lesion on its buccal surface.

The mandible is better preserved than the maxillae and a majority of the teeth are represented. Teeth present include the left canine, first and second premolars and first and second molars and the right central incisor through the second molar. The left central incisor was lost antemortem and the socket shows complete

resorption. The left and right third molars were also lost antemortem and both sockets are partially resorbed. The left central incisor has been lost postmortem. Two teeth, the right central incisor and the left canine, have lost their crowns postmortem and are represented by their roots only.

Eight mandibular teeth were scored for carious lesions. The crown of the left second molar was completely destroyed by caries. The remaining carious teeth have interproximal and root lesions. The pattern of destruction reflects moderately advanced resorption of the gums, which has exposed the tooth roots allowing decay to occur. The most severe root lesion is on the left first molar. This cavity has undermined the crown on the distal interproximal surface resulting in pulp exposure and abscessing.

Moderate levels of calculus are noted on the teeth. Deposits on the lingual surfaces of the mandibular dentition are coalesced around the tooth roots indicating moderate to severe resorption of the alveolar bone.

Diastemas measuring approximately 3 mm in width are present between the mandibular canines and first premolars. These spaces developed from habitually holding a pipe stem between these sets of teeth. The mandibular dentition has multiple pipe facets characterized by pronounced mesial and distal notching of several tooth crowns. Four pipe facets are present. A large facet is formed by distal-occlusal wear on the right canine and mesial wear on the right first premolar. A second smaller facet is formed by distal wear on the right lateral incisor and mesial edge wear on the right canine. A third pipe facet is indicated by pronounced mesial edge wear on the left first premolar. A fourth facet is formed by moderate distal wear of the left second premolar and slight mesial wear on the occlusal surface of the left first molar. On the maxillary dentition, only the left second incisor has marked distal wear indicative of a pipe facet.

3.22 Functional Morphology

This individual has moderately pronounced nuchal ridge development. This feature in combination with the cervical vertebral arthritis may indicate a repetitive strenuous activity involving the use of the neck muscles.

Superior expansion, thickening and notching of the superior acetabular rims and joint surfaces, similar to the morphology evident in the innominates of Burial 4 (JR316F), is present.

3.23 Pathology

Trace lipping is present on the posterior margin of the joint surface of the right proximal humerus. The left and right acetabulae have slight marginal lipping with porosity present on both joint surfaces and margins. The left and right femoral heads both have trace lipping on their margins. Although a majority of the proximal joint surface rims on the tibiae are eroded, the small portion of rim present shows trace lipping, as do the margins of the distal articular surfaces.

Several bones of the feet show slight degenerative changes characterized by slight lipping and porosity of the joint surfaces and margins. The right navicular has several small enthesophytes along the inferior surface of its body and inferior joint margin. Both the left and right tali show small extensions of bone on their distal calcaneal articular (sustentaculum) surfaces. The right calcaneus shows corresponding enthesophyte development.

Slight to moderate arthritic degeneration is evident on the vertebrae present. The most severe changes are noted on the bodies of the cervical vertebrae.

4. Conclusion

The skeletons analyzed were incomplete; however vital information was gleaned from the analysis. They represent a male and female both of European ancestry from the 18th century occupation of Jamestown. Changes in the acetabulae of both individuals and arthritic changes in the cervical vertebrae of Burial 5 (JR320D) provide potential evidence for horseback riding and strenuous labor. The data collected from these two burials adds to a growing database of Colonial American skeletal samples. In addition, they provide a glimpse into the life of middle to late 18th-century Jamestown inhabitants.