Human Skeletal Remains from Excavations at Brimstone Hill Fortress National Park, St. Kitts, West Indies, July 1996

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Introduction

Excavations sponsored by The Center for Field Research (Earthwatch), The Brimstone Hill Fortress National Park Society and the University of Tennessee, Knoxville at the Brimstone Hill Fortress National Park during July 1996 uncovered the skeletal remains of two individuals at site BSH 2. One individual, Burial 1, was encountered as part of an intact burial extruding into excavation unit 204-205N/100-101W. The second individual is represented by a single proximal femoral epiphysis recovered from Level 2 of excavation unit 212-213N/100-101W.

Excavations were undertaken at BSH 2, located between the Orillon and Magazine Bastions, in order to explore an area identified by a 1791 map of the fortress as a habitation and/or work area for African slaves. The 1791 map also indicates that the fort's hospital was located at the Orillon Bastion. A marked graveyard is situated on the south side of the bastion with marked graves around the base of the bastion (Schroedl 1997) To the immediate west of BSH 2 at least two marked graves were noted indicating the use of this area for burials, potentially to dispose of individuals who died in the nearby hospital. Although BSH 2 is not indicated as a burial ground on either the 1791 map or current maps, considering the site's proximity to known graves and a former hospital, Burial 1 at BSH 2 is probably not an isolated feature.

Methods and Materials

The cranial portion of Burial 1 was encountered during excavation of unit 204-205N/100-101W. The unmarked grave was orientated east-west with the cranium extruding from the east wall of the unit and the remainder of the skeleton, which was not excavated, extending east. A large fragment from the cranial vault consisting of a small portion of the left parietal and most of

the right parietal and occipital was initially recovered from the unit. Subsequent excavation recovered additional cranial vault fragments including portions of both temporals, as well as facial elements, the mandible, cervical vertebrae and all maxillary and mandibular dentition (32 teeth). Cranial vault elements including the occipital and the right parietal and temporal exhibit deterioration ranging from slight erosion of the inner and outer table to perforations through the bone. These fragmentary remains were carefully packed and sent to the University of Tennessee, Knoxville for reconstruction and analysis.

The single femoral head which represents the second individual was not recognized as human on site and was shipped to University of Tennessee, Knoxville along with faunal remains for identification and analysis. During this process, Dr. Walter Klippel, recognized the element as human, and it was analyzed along with the other human skeletal material from BSH 2.

At the University of Tennessee, Knoxville, the remains from Burial 1 at BSH 2 were carefully unpacked and sorted on metal trays. Due to the friability of the bone, some fracturing occurred during the excavation process resulting in fragmentary remains. Reconstruction consisted of attempting to match the broken edges or sutures of the fragments. When corresponding pieces were identified, they were glued together using Duco® cement. This process allowed for reconstruction of most of the face, a large portion of the cranial vault and almost the entire mandible. However, the reconstructed vault exhibits warpage due to post-depositional forces. As a result, critical fragments are missing or warped preventing a complete reconstruction and attachment of the facial elements to the reconstructed vault portion.

Further assessment of the erosion of the cranial vault revealed a line demarcating the eroded region from the intact portion indicating that the perforations and erosion of the inner and

outer tables were due to taphonomic influences resulting in degeneration of the bone. While this type of deterioration is similar in appearance to pathological lesions, this region does not reflect a pathological condition.

Application of standard skeletal biological criteria to cranial remains allows for estimation of sex, age and ancestry. In this instance, the morphology of the reconstructed remains provided evidence as to sex and ancestry while evaluation of dental attrition (wear) allowed for estimation of age. Age for the solitary proximal femoral epiphysis was estimated by a size comparison with material of known age.

Description of Human Skeletal Material

Burial 1 - Male, 25-35 years, European ancestry. The estimation of sex is based on a square chin, prominent occipital protuberance, large mastoids and overall cranial robusticity. Such characteristics are indicative of males (Bass 1995). Ancestry is assessed based on a narrow nasal aperture, parabolic dental arcade and lack of alveolar prognathism. These morphological features are characteristic of individuals of European ancestry (Bass 1995). Age is estimated based on attrition (wear) of the mandibular molars. Evaluation of the left and right mandibular molars reveal slight dentine exposure on the first and second molars and wear facets on the third molar. According to Brothwell (1981), this wear pattern is associated with individuals aged 25-35 years.

Dentition: The dentition associated with Burial 1 provides evidence regarding the health, diet and nutritional status of the individual. Slight to moderate supra-gingival calculus (mineralized plaque) accumulations are present on most teeth. Carious lesions are present on the occlusal surfaces of the right mandibular second molar and the left and right maxillary second and

third molars. For the mandibular dentition, interproximal lesions were observed on the mesial surface of the right first molar, distal surface of the left first premolar, both the mesial and distal surface of the left second premolar and the mesial surface of the left first molar. For the maxillary dentition, interproximal lesions were noted on the mesial surface of the right first molar, on the distal surface of the right second premolar and on the distal surface of the left canine. The high frequency of dental caries (13 lesions on 32 teeth) may indicate a diet high in sugar as such diets have been demonstrated to be cariogenic (Hillson 1996).

Both left and right mandibular canines and first premolars, the left maxillary canine and both maxillary first premolars each exhibit at least one linear enamel hypoplasia (LEH), a shallow horizontal groove across the labial surface of the tooth (Goodman and Rose 1990). A moderate concentration of calculus on the right maxillary canine prohibits observation of any hypoplasias on this particular tooth. Each hypoplasia represents the temporary disruption of enamel production during the development of the dentition indicating a period of physiological stress during the growth of the individual. Physiological insults which result in linear enamel hypoplasias include inadequate nutrition and serious or chronic illness during childhood (Goodman and Rose 1991).

An interesting feature of the dentition associated with Burial 1 is a pipe-stem groove formed by wear facets on the right maxillary lateral incisor and both right maxillary and mandibular canines. Such wear facets are the result of holding a clay pipe clenched between the maxillary and mandibular teeth; hence, the name pipe-stem groove. This conclusion is supported by the discovery of numerous clay pipe fragments during the Brimstone Hill Fortress excavations (Ahlman and Schroedl 1997).

Associated artifacts: Several artifacts were recovered in the vicinity of Burial 1, including two fragments of creamware which dates to 1762-1820, one fragment of plain pearlware and one fragment of blue-hand painted pearlware both dating to 1780-1830, one fragment of glass and two wrought nails, one of which is a rosehead. Several fragments of faunal material associated with the bone button making industry were also retrieved from the fill surrounding Burial 1. The creation of the midden into which the burial seems to intrude has been dated to 1780-1820 and possibly until 1830 (Ahlman and Schroedl 1997) indicating that the burial probably occurred during that period.

Disturbed Human Skeletal Material - Subadult, 10-15 years. The single femoral head recovered from Level 2 of excavation unit 212-213N/100-101W represents a subadult since the proximal epiphysis had yet to unite with the femoral diaphysis (shaft). Comparison of the epiphysis from BSH 2 with femoral epiphyses and diaphyses of individuals of known age indicates an age range of 10-15 years. Sex and ancestry cannot be assessed for this single element out of context. The solitary femoral head most likely represents a disturbed burial.

Summary and Conclusions

The human skeletal remains recovered from BSH 2 represent two separate individuals. The cranial remains excavated from Burial 1 represent a male of European ancestry aged 25-35 years who was most likely interred in this area sometime between 1780-1820. The temporal evidence in conjunction with the demographic profile supports the conclusion that these remains most likely represent a British soldier serving at Brimstone Hill Fortress. The subadult remains (femoral head) could not be assessed with regards to sex or ancestry limiting any inferences which can be drawn concerning this individual.

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References Cited

Ahlman TA and Schroedl GF (1997) Artifacts Recovered during Archaeological Investigations at the Brimstone Hill Fortress National Park, St. Kitts, West Indies, July 1996. Report submitted to the Brimstone Hill National Park Society, St. Kitts, West Indies.

Bass WM (1995) *Human Osteology: A Laboratory and Field Manual.* Missouri Archaeological Society, Columbia.

Brothwell DO (1981) *Digging Up Bones.* Third Edition, British Museum & Oxford University Press, London and Oxford.

Goodman AH and Rose J (1990) Assessment of systematic physiological perturbations from dental enamel hypoplasias and associated histological structures. *Yearbook of Physical Anthropology* 33:59-110.

Goodman AH and Rose J (1991) Dental enamel hypoplasias as indicators of nutritional status in Kelly MA and Larsen CS (eds.) *Advances in Dental Anthropology.* Wiley-Liss, New York pp.279-293.

Hillson S (1996) *Dental Anthropology.* University Press, Cambridge.

Schroedl GF (1997) A Report on the July 1996 Archaeological Investigations at the Brimstone Hill National Park, St. Kitts, West Indies. Report submitted to the Brimstone Hill National Park Society, St. Kitts, West Indies. .