

Report on the human bones found at the Portmahomack Drainage Site

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By

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Report

**Burial A:** Apart from the skull and cervical spine, few bones were retrieved from Burial A (see inventory and chart). The skeleton was that of a young adult. The sex was ambivalent, but possibly male and it was not possible to calculate stature. Non-metrical variations were few.

**Sex and Age:** The bones were gracile and the skull was rounded, the supraorbital margins sharp and the external occipital protuberance was small. The guttering on the axillary border of the scapula faced obliquely. These female characteristics, however, were counterbalanced by marked, although not large, mastoid processes, a posterior root of the zygomatic process which extended well over the external auditory meatus to the beginning of a temporal ridge and on the mandible, the symphysis mentis was square and there was an indication of flaring gonial angles. In the scapula, the maximum length (36.8 mm) of the glenoid fossa was only just below the cut off point for the male (37 mm).

The wear pattern on the teeth placed the age between 17 and 25, there was no evidence of suture closure, on the vault, which normally starts between 15 to 40 and the basi-occipital synchondrosis had united (occurs between 18 and 25). The absence of the diaphysial as well as the epiphysial areas of the clavicle suggested that the epiphysis might have been separate, but the epiphysis at the distal end of the tibia was united and this occurs between 16 and 20.

It is suggested, therefore, that the skeleton was probably a young male adult in late teens or early twenties where the secondary sexual characteristic had not completely formed.

**Pathology and non-metrical morphological variations:** There did not appear to be any pathological conditions, fractures present being made post mortem. The non-metrical variations were few.

**Skeleton B**

The bones from Burial B included intrusive bones from the right lower arm of a taller, more gracile and younger individual which has been separately recorded as Skeleton B(i). Skeleton B was represented by fragmented bones of the cranium, three cervical, twelve thoracic and three lumbar vertebrae, ribs, a fragment of sternum, both humeri and the bones of the lower left arm. It was that of a female of probably in the late thirties at the time of death and about five feet two inches in height. The fragmented nature of the bones and distortion of the skull prevented measurements being taken and available non-metrical variations were few. There was evidence of lesions of the intervertebral discs in the thoracic spine, and of a congenital condition of the base of the skull.

**Sex and Age** were determined using the criteria given by Bass (1987) for the skull and age from dental attrition (Brothwell 1981) which indicated between twenty-five and thirty-five at death. The sagittal and coronal sutures, however, were almost completely obliterated, the meningeal markings were deep and depressions for Pacchionian bodies were present which suggested an age nearer forty.

**Pathology:** Schmorles nodes were seen on both surfaces of T6 and on the inferior surfaces of T7 and T8 which indicated pressure from prolapsed intervertebral discs. The presence of slight osteophytes round the margins of the facets on the transverse processes of T10 was probably age-related.

On the skull a broken bony protruberance was found immediately behind the mastoid process on the right condylar portion of the occiput, in the region of the rectus capitis lateralis. It was 22mm long by 11mm from front to back and 7.3 from side to side with a well established cellular bone surrounded by cortex. The right transverse process of the atlas was enlarged, had a lateral bridge and the upper surface, including the condylar facet, was broken. There could have been a bony union between the occiput and the atlas at this point. The foramen magnum has been reconstructed, but did not look abnormal. The unresorped calcification of myositis ossificans from severe trauma to the right rectus capitis lateralis would not have had this cellular structure. Unfortunately, it was not possible to measure the basal angle, but occipitalization of the atlas does not, necessarily, produce platybasia (Oasonoff 1988:3519). The axis and the third fourth and fifth cervical vertebrae were missing, so it was not possible to ascertain whether compensatory changes had taken place in them. There were no other abnormalities seen in the skeleton available and the lower extremities were missing, so the malformations of the metatarsals indicative of some congenital conditions could, not be found.

### **Skeleton B(i)**

Skeleton B(i) was represented by a right radius, right ulna and right first and second carpal bones. The bones were gracile and, if female, the height was about five feet six to five feet five. If male, the height was about five feet seven inches. In the radius, the epiphysis of the distal end had only just started to unite with the shaft which indicated an age at death of between sixteen and nineteen. Union had not started in the distal epiphysis of the ulna which suggested the younger end of the range .

### **Skeleton C**

Skeleton C was represented by a very fragmented and distorted skull, a practically complete spine and thorax, but only the bones of the left humerus and radius and both ulnae of the upper extremity and right os innominatum and left femur of the lower limb. The bones were those of a young male of between nineteen and twenty-five and about five foot six or seven in height. Evidence of late pre-natal stress was indicated by the presence of multiple wormian bones in the skull and among other non-metrical variations a sternal foramen was noted. The presence of a large, healed lytic lesion on the surface of the 'twelfth thoracic vertebra and Schmorle's nodes on others suggest lesions of the intervertebral discs. Dental health, however, appeared excellent.

**Sex and Age:** Sex was determined using the criteria given by Bass (1987) for the sexual dimorphism of the pelvis and skull. Age was calculated, from the formula given by Brothwell (1981) for the wear pattern on the teeth. This lay between the seventeen to twenty five range, but polishing was only evident on the first molar, suggesting that the age was more likely to lie in the late teens - a conclusion supported by the very early degree of fusion of the epiphyses of the pelvis. The sharp supraorbital margin and some ambivalence in the measurements of the articular surfaces of the long bones was also typical of a young adult where sexual dimorphism was not complete.

**Non-metrical variations and pathology:** The fragmented nature and distortion of the partially reconstructed skull precluded cranial measurements. It was not, therefore, possible to see if there was any connection between the basi-occipital length and the large number of wormian bones (nine loose bones and indications of possibly more in the sutures of the skull). Little is known of the aetiology and genetics of wormian bones, but it is known that they can appear as the result of deliberate deformation of the skull (Ossenberg 1970) and Bennett (1965) has suggested that they may be the result of foetal stress either just before or shortly after birth. A congenital anomaly occurred in the sternum where a foramen was noted in the third segment of the body, the result of irregular union of two (rather than the usual one) centres of ossification.

Dental health was excellent. There was, however, evidence of lesions of the intervertebral discs in the twelfth thoracic and the second, third lumbar vertebrae. Schmorle's nodes or depressions on the surfaced of the bodies of the vertebrae are the result of pressure due to a

prolapse of the intervertebral disc and an extrusion of the soft, jelly-like nucleus pulposus. A healed lytic lesion (20.2mm x 10.2mm in area and 5mm deep) was found in the centre of the anterior portion of the superior surface of the fifth lumbar vertebra. It was larger than the other Schmorle's nodes and, had caused a slight bulge on the anterior surface of the body. Schmorle's nodes are unusual in young adults are usually the result of trauma such as heavy lifting, falling from a height etc. (Mann and. Murphy 1992).

## **Burial D**

Burial D consisted of bones from at least three skeletons:

1. Bones of a young female adult of between sixteen and twenty which consisted of part of left frontal bone, the right and part of the left maxilla of the skull; the right humerus and lower end of ulna, the right os innominatum and parts of the right fibula. These bones either articulated with or were part of bones from Skeleton C and are shown with cross hatching on chart C.
2. **Skeleton Di:** These consisted of the fifth lumbar spine, the first segment of the sacrum, the pelvis, the femora and the patellae of a female of between thirty and thirty four. These bones all articulated with each other. There were slight osteophytes round the margin of the fifth lumbar vertebra whose size suggested that the bones might belong to skeleton B but direct articulation was not possible.
3. **Skeleton Dii:** This was represented by a right femur and a patella of a mature adult, possibly male and age unknown. There was considerable platymeria present which may have been due to the presence of a flange on the lateral surface of the upper part of the shaft.

In addition there were bones of both upper and lower extremities from two different mature adult skeletons which were too worn to be definitely allocated to either Di or Dii (see charts for unallocated bones (a) D and (b) D).The smaller metacarpals and the phalanges with slight osteophytic growth probably belonged, however, to Skeleton Di.