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Ancient Monuments Laboratory
Report 66/88

A RE-ASSESSMENT OF THE SEX ATTRIBUTIONS OF SOME SKELETONS FROM BECKFORD, GLOUCESTERSHIRE.

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Summary

The attribution of sex to human skeletal material is re-examined in the light of the differences between sexing on grave goods and on anatomical grounds. The skeletons were from a pagan Anglo-Saxon cemetery.

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A Re-assessment of the Sex Attributions of Some Skeletons from Beckford, Gloucestershire

Introduction

The attribution of sex to human skeletal material relies upon the well-established observation that sexual dimorphism is present in the skeleton as well as in the whole individual. The literature on the subject is extensive with many different methods being proposed for making an attribution of sex. Debate has centred on the validity of the various criteria, the relative degree of confidence with which such attributions can be made and the problems of sexing infants, juveniles and sub-adults. In the present context, indeed in that of pagan Anglo-Saxon cemeteries in general, an additional factor is provided by the commmon practice of sexing individuals on the basis of grave goods. The weight which should be given to either source (bones or grave goods) is a matter for dispute. It is this consideration that has prompted the present re-assessment as differences exist on a number of individuals between the results obtained by Dr. Calvin Wells from the bones and those obtained from the grave goods. A second opinion from a human biologist was therefore sought.

Methods

On immature individuals (ie. those where skeletal growth and development are incomplete) there is a general consensus of opinion among workers that the sexual dimorphism in the skeleton is insufficiently marked for attempts at sexing to be justified (see, for example, El-Najjar and McWilliams 1978, Krogman 1962). For this reason sexing of juveniles was not attempted on this series by the present author. For adults differences in both size and shape were examined using standard methods (for details see, for example, Stewart 1979, Workshop of European Anthropologists 1980 or Brothwell 1981). Where possible the morphology of the pelvic bones was used for preference. All observations were made 'blind' in that comparison with the results given in Dr. Wells' report was undertaken only after examination of each skeleton had been completed.

Results

The results of both the present author's and Dr. Wells' analyses are listed in Table 1 below. More detailed comments on the sexing of each individual by the present author are given in Appendix 1.

Table 1. Results for Sexing

Burial No.	Present author	Wells' report
Cemetery A		
2	Male	Probably Female
17	Juvenile	Probably Male
Cemetery B		
5	?	? Female
53	Female	? Female
55	Female	? Male
70	? Male	Male
73	Female	? Male
75	? Male	? Male
85	Juvenile	? Female
93	Juvenile	?? Female

From the table it can be seen that there was concordance in the sexing of only one individual (B75), three were not sexed in the present study as they were juveniles (A17, B85 and B93), two were thought to be of the same sex, the difference of opinion being one of degree (B53 and B70)and in the remainder there was disagreement (A2, B5, B55 and B73).

Discussion

In discussing these results a number of points have to be considered. Why is there such a discrepancy between Dr. Wells' data and that of the present author? Are the results obtained from the human bones reliable? Should sexing based on anatomical grounds be given greater weight than that based on grave goods or vice versa?

To take first the differences between the human biologists' results. Unfortunately discussion is hampered by the fact that Dr. Wells gave only limited details of the methods which he used in his original report. This applies particularly to the three juveniles where no information is available at all and whom the present author did not even attempt to sex (see above). For B53 and B70 although the degrees of confidence were reversed it was felt that the reason was the same, namely the condition of the material which was very poor. Thus the present author felt that for B53 the size and shape of the bones allowed for a more unequivocal statement of sex than that of Dr. Wells whereas for B70 the reverse was the case. The same argument applies to B5 and B73 but for A2 and B55 a method of assessing the morphology of the pubic bone was available to this author but not to Dr. Wells (Phenice 1969). This last point should be emphasized: the original reports on the human bones by Dr. Calvin Wells were completed in 1967 and particularly for A2 and B55 recent advances in methodology were thought to be crucial.

Following on from this is the question whether or no attributions of sex based on skeletal material are reliable. The degree of confidence with which a skeleton may be sexed depends entirely upon the relative completeness and condition of that skeleton. Krogman (1962) obtained results of 100% for the entire skeleton, 95% for the pelvis alone, 92% for the skull alone and 98% for the skull and pelvis together or the long bones and pelvis together. However the rate was only 80% for long bones alone. More recently Meindl *et al* (1985) have reported an actual error rate of only 3% (6% overall were not sex-distinctive) on skeletons of known age and sex from the United States and work on the bones from Christ Church, Spitalfields (Adams and Reeve 1987) indicated that less than 10 individuals of 390 named interments were sexed wrongly. The problem with the Beckford material is that it is very poorly preserved and there is little doubt that sexing reliability drops rapidly with incompleteness of material and poorness of preservation.

Whether or no sexing based on anatomical grounds should be given greater weight than that based on grave goods is a moot point since in neither case is there any possibility of obtaining proof positive as to the result (i.e. in either case there is no means of checking the accuracy of the results since there are no written records for the period). That said it is an obvious truism that the bones do provide the only direct evidence for sex. Further the work of various authors on the accuracy of sexing bones (see previous paragraph) indicates that where skeletons are relatively complete and well-preserved then the methods currently employed by human skeletal biologists are very accurate indeed. Problems only arise where, as in the present case, material is incomplete and/or poorly-preserved. Where such doubts remain perhaps the best solution is to tabulate the results in a manner similar to that employed for the material from Portway, Andover

(Table V, p.68 in Cook and Dacre (1985)) and leave the drawing of conclusions to the reader. Finally it should be noted that there is a growing body of data from pagan Anglo-Saxon cemeteries where there is conflict over the results for sexing for a proportion of individuals from the cemetery. This seems, as stated, only to affect a proportion of individuals (see for example, Cook and Dacre 1985, Hirst 1985). Perhaps then the onus is on human skeletal biologists to provide more detailed descriptions of the methods they employ and on archaeologists to re-examine the assumptions that link grave goods so strongly with sex.

Appendix 1. Comments on the Sexing of Individual Skeletons

Cemetery A

2

A fairly complete skeleton with the bones relatively well preserved. Although the skull was fairly gracile other bones were more robust, the morphology of the innominate bones (greater sciatic notch, acetabulum and pubis) and the dimensions of the right scapula, humeri and femora all suggested male sex.

Right scapula, length of glenoid fossa: 38 mm
Humeri: Maximum head diameter: 47 / 47 mm (right / left)
Epicondylar width: 65 mm
Femora: Maxium head diameter: 49 / 48 mm (right / left)

Conclusion: Male

17

This was a juvenile skeleton with an age estimate of c.11-12 years. An attribution of sex was not attempted.

Cemetery B

5

The bones from this skeleton were extremely fragmentary and there were few indicators of sex available. It was noted that a fragment of frontal bone (skull) had a very slight supra-orbital torus and sharp edges to the orbits (female characteristics). However the bones were fairly robust with thick cross-sections which might indicate a male. Given the contra-indications and the poor state of the bones this was a skeleton for which there was insufficient evidence for an attribution of sex to be made.

Conclusion: ?

53

This skeleton was not originally listed as a query, however since it was examined it was included in the results. Skull, mandible and general skeletal morphology together with the right humerus head diameter (40 mm) were all strongly indicative of a female, more so, it was felt, than Dr. Wells' assessment would suggest.

Conclusion: Female

55

The bones were in very poor condition and were extremely fragmentary. Although the bones were fairly large and robust and the cranial pieces were fairly thick in cross-section the following features indicated a female: supra-orbital torus absent, orbital edges sharp, pre-auricular sulcus on a pelvic fragment, morphology of a pubic fragment and dimensions of the left humerus and a femoral head.

Humerus: Epicondylar width: 58 mm
Femur: Maxiumum head diameter: 45 mm

Conclusion: Female

70

The bones of this skeleton were very fragmentary but their robust nature suggested that they might have been male.

Conclusion: ? Male

73

The bones were fragmentary but the morphology of the skull pieces, in particular with a virtually non-existent supra-orbital torus and unmarked mastoid processes, together with the overall small size and gracility of the post-cranial bones suggested a female.

Conclusion: Female

75

A very fragmentary skeleton with little evidence for sex. Skull and mandible morphology and the robust nature of the bones suggested an attribution as male.

Conclusion: ? Male

85

The very fragmentary remains of a juvenile skeleton. Sexing not attempted.

93

The very fragmentary remains of a juvenile skeleton. Sexing not attempted.

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