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Summary

This paper details some of the information potentially available from the study of human bones and the way in which this information may be limited by various factors affecting the nature of an assemblage. Priorities for research on human remains in Wessex are suggested in the light of the present state of work and the potential of remains from the area.

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Research Priorities for Human Remains From Wessex*

1. Information available from the study of human bones

(A) Study of physical anthropological aspects of past human populations

(1) Demographic parameters: determination of age at death and sex of burials provides evidence concerning life expectancy in the past and on aspects of burial practices. For example lack of foetal or infant remains may suggest that they were disposed of outside formal cemetery areas; the different sexes or different age groups may have been treated in different ways by being interred with different grave goods or by being buried in different parts of the cemetery. Age and sex data also provide the essential background against which to interpret other anthropological data such as bone measurements, frequency of bony pathologies etc.

(2) Genetic aspects: study of the spatial distribution of inherited minor variations in skeletal form (non-metric traits) in a cemetery may enable groups of genetically related individuals to be discerned. Comparison of cranial measurements may provide information on mixing and movements of populations in the past - for example if a group from a village showed a cranial form distinct from that of individuals buried at cemeteries in settlements elsewhere in the region then this would suggest lack of mixing of the population from the village with those from surrounding settlements.

(3) Stature & physique: stature may be estimated from long-bone measurements, and an indication of the robusticity of build of an individual can be obtained from other post-cranial measurements.

(4) Pathologies: prevalences of bony and dental pathologies in an assemblage give indications of living conditions and dietary status, and can also contribute to our knowledge of the history of the various diseases which manifest themselves on bones. Information concerning diet, and exposure to toxic substances such as lead, may, if burial conditions are favourable, be obtained from chemical analyses of human bones.

While anthropological data are of interest for their own sake, the full potential of human remains for the study of past life-styles cannot be realised unless their analysis is integrated, not just with other aspects of environmental archaeology, but within the discipline of archaeology as a whole. For example, data on prevalences of particular pathologies in an assemblage of human bones would be of greater value for investigating archaeological problems if such data could be combined with other independent archaeological or historical data relating, for

*herein defined as the counties of Hampshire, Isle of Wight, Dorset, Berkshire & Wiltshire

example, to the social status of the individuals in question. Similarly changes in diet (inferred from human remains) over time might be correlated with technological innovations in, for example, subsistence strategies.

(B) Contribution to the interpretation of particular sites

A major way in which human remains can contribute here is in the study of ritual in antiquity. For example a study of the distribution of disarticulated human remains in a Neolithic communal tomb might be combined with a study of architectural aspects of, and artifacts from, the tomb in order to aid overall understanding of the ritual activities which occurred at the site. Internal organisation of cemeteries can be studied using human bones - for example the distribution of inherited skeletal traits might suggest kin groupings in a cemetery (as they did at the Romano-British cemetery at Poundbury, Dorset - Molleson et al. 1992). Study of cremated remains may provide insights into aspects of pyre technology (see below). Studies of pathologies may identify special sites such as war cemeteries.

Human remains from archaeological sites will potentially contribute to both categories (A) and (B), above, but the nature of the site and the human bone assemblage may suggest an emphasis on one or other category. Some aspects of a human bone assemblage which affect the quantity and type of data which may be obtained from it are discussed below.

(a) Size of assemblage. Large numbers of individuals (in the region of several hundred) are preferable for statistical comparisons (within or between sites) of demographic and measurement data and of data on prevalences of bony pathologies. The need for large assemblages is accentuated by the fact that only a sub-sample of an assemblage will prove suitable for the study of a specific feature. For example cranial form: firstly comparisons are generally only useful for adults, secondly male and female adults need to be considered separately, and thirdly only some adults will have skulls sufficiently undamaged to permit measurements to be taken. Thus the group of individuals suitable for analysis of cranial form may be very much smaller than the whole assemblage.

The size of an assemblage is thus a consideration of prime importance, however decisions concerning priorities for study of human remains must be made against the background of existing work and the nature of assemblages from the particular period and region in question. For example a handful of skeletons from Palaeolithic or Mesolithic contexts would be of great value given the paucity of remains known from these periods. In some areas large cemeteries may not exist from some periods due to the nature of ancient burial practices - for example the earlier Bronze Age in Wessex - in such instances considerations of size of assemblage do not apply in the same way as they would for periods for which large cemeteries are frequent; each site yielding but few individuals adds to the overall corpus of data, and data from more than one site needs to be combined to allow statistical analyses. Furthermore, even small collections of bone

may be of great value for understanding ritual practices at a site (e.g. at Danebury - Walker 1984).

An additional factor which might also be mentioned here is the question of whether or not the cemetery has been excavated in its entirety. Even if a cemetery was entirely excavated the bone assemblage rarely represents all interments which were made as some burials are generally destroyed by later activities at a site. It is rare for cemeteries to be excavated to their full extent and generally the proportion of the whole cemetery which was excavated is not known with any accuracy. Thus, although the value of an assemblage is somewhat increased if most or all of the cemetery area was excavated, it should not be thought of as a significant disadvantage if this was not the case.

(b) Preservation and completeness of burials. The quantity and reliability of all classes of information which can be obtained is reduced if the bones are poorly preserved. Demographic data probably suffers least in this respect, measurements and pathological data the most. For very poorly preserved and incomplete burials a brief scan of the material in order to produce a short note on the state of the bone for the excavation report may be all that is merited.

In some cases problems with the state of the material may be partially overcome if a suitable approach is adopted, for example at the Anglo-Saxon cemetery at Empingham II, Leicestershire, the bones were highly fragmented and not well preserved; it was decided to concentrate on a study of dental measurements, variations and pathologies, in this way data on demographic, genetic, pathological and dietary aspects were gleaned from the remains even though the bones (as distinct from the teeth) did not merit detailed study. It should be noted that obtaining dietary information from chemical analyses of bone is not generally feasible for poorly preserved remains.

(c) Articulated skeletons versus disarticulated material. Once bones from several individuals are mixed it is not generally feasible to disentangle them. Anthropological data relate to individuals; reliable data on demographic, genetic, pathological and dietary aspects can almost never be obtained from an isolated bone, thus the quantity and reliability of such data is severely compromised for disarticulated material in which the bones cannot be resolved into discrete skeletons. Redeposited or stray bone from grave fills or "bone dumps" is of limited value - at most a brief scan for unusual features is all that is required by way of specialist study. Thus, for material recovered as articulated skeletons great effort should be made to ensure no mixing of individuals occurs at the excavation or post-excavation stage - i.e. an articulated skeleton should be boxed separately from any material recovered from the grave fill and if there is more than one articulated skeleton in a grave they should be recovered and boxed separately.

Although the study of remains which have become disarticulated as a result of post-burial disturbance is a low priority, the same does not apply to bones which are disarticulated because

they were deliberately deposited that way in antiquity; these bones are of value since they may reveal much about ancient burial practices.

(d) Dating. Clearly the closer the dating the better, but the minimum which is normally required is dating to period in the historical era (i.e. Romano-British, Anglo-Saxon, Mediaeval or Post-Mediaeval) and preferably to sub-period for prehistoric material (e.g. early Bronze Age, middle Iron Age etc). Bone which is less firmly dated than this is not a priority and may not be worthy of specialist attention. With the exception of material from the Post-Mediaeval period, dating to within less that a few centuries is frequently not possible, other than for material relating to documented disasters - e.g. burials from plague pits or maritime catastrophes such as the sinking of the Mary Rose.

(e) The value of cremations versus inhumations. The study of cremations may reveal data on funerary practices. For example the colour and spectroscopic properties of the fragments may indicate the approximate temperature to which the bone was exposed and in some cases differential firing of different parts of the body may indicate the position of the corpse on the pyre. The weight of fragments present gives an indication of the thoroughness with which the bone was collected from the pyre for burial.

Due to the fragmentation and distortion undergone by cremated remains the anthropological data which can be gained from them is severely limited compared with that from inhumations. Generally speaking no useful cranial or post-cranial measurement data can be obtained; systematic recording of non-metric variation is not merited and little useful data on bony pathologies can be gained. Estimates of age at death may be possible but with less precision than for inhumations, and it may be possible to determine the sex of an individual but with less reliability than for inhumed remains.

Thus the anthropological data obtainable from cremations is, for practical purposes, limited to estimating age and sex (although with less reliability than is the case for inhumations) but they may provide information on funerary ritual. For periods where both inhumation and cremation are practised the priority is for inhumations so that reliable anthropological data can be retrieved, although the cremations should not be completely neglected - when both rituals are practised there is no reason to suppose that data from inhumations is representative of the population as a whole and despite the difficulties, comparisons between contemporaneous inhumations and cremations are of interest. Cremated bone is much more resistant to destruction in the soil than unburnt bone and hence may be the only human remains surviving in regions with acidic and/or very free draining soils, and for some periods cremation was the only burial ritual practised - in these circumstances cremations are clearly important as they are the only source of burial data.

Although the nature of the assemblage, as discussed above, is important for determining research priorities, the study of human remains needs to be integrated within the study of the past as a whole, so criteria for deciding priorities for site handling will also depend on the quantity and quality of the other archaeological and historical evidence concerning the site.

Examples of the general points made in this introductory section are given in the sections below on the various archaeological periods in Wessex.

2. Human remains in Wessex

(a) General

Chalklands are conducive to good bone preservation. The Wessex area contains one of the largest blocks of chalklands in north-west Europe, thus the area has a large number of sites with potentially very good preservation of human bones, hence the importance of the region in the study of human remains.

As well as resulting in good preservation of human bone, which facilitates conventional anthropological studies, bones from the chalklands may be particularly suitable for studies of ancient diet using trace element analyses. Although additional work is needed to assess fully this potential, some studies of this nature have been carried out in the Wessex area, for example lead was studied at Poundbury (Waldron 1988a); the population as a whole showed quite high levels, and it may have been that lead ingestion was a cause of some of the bone pathologies found. Strontium was studied at Ulwell (Mays 1989) and this suggested that individuals buried in different grave types at this early Anglo-Saxon site may have had different diets. Levels of strontium and many other trace elements are rather higher in marine than in terrestrial foods, thus individuals consuming significant quantities of sea foods (such as shellfish) might be expected to show higher bone strontium levels. Hence there is potential for trace element studies of human bone to contribute to investigations into the use of marine resources by, for example, comparing bones from coastal with those from inland sites.

The potential of human remains can only be fulfilled if careful excavation and recording techniques are used, and the importance of adequate long-term storage facilities must be emphasised, so that their research potential can be realised by future workers and reproducibility of results obtained in the past can be checked. This last is fundamental to the scientific basis of the study of human remains.

(b) Specific periods

(i) Palaeolithic & Mesolithic. The scarcity of human remains from these periods, and the potential for those from the Palaeolithic for shedding light on human evolution and the arrival of human groups in Britain, mean that should such material be encountered it would be of great importance.

(ii) Neolithic. At present the human remains from the Wessex Neolithic comprise about 200 individuals. Important sites for which bone reports have been published include Fussell's Lodge, Wiltshire (inhumed bones representing a minimum of 53 individuals - Brothwell & Blake 1970). Most human bones recovered from Neolithic sites in Wessex have been in the form of disarticulated inhumed remains from communal tombs. The potential of this material for studying ritual is very great. For example Shanks & Tilley (1982) analysed the distribution of bones at Fussells Lodge (amongst other sites) using theoretical approaches derived from anthropology and sociology in order to attempt to understand ritual at the site. They argued that the distribution of bones suggested that ritual was being used to deny social divisions and emphasise social cohesion. As well as a sophisticated theoretical approach, this type of work requires detailed data on the spatial location of individual bones within the tomb.

(iii) Bronze Age. At present about 900 burials of Bronze Age date are known from the Wessex area, of which about three-quarters are cremations. Bone reports on major sites include that on the remains from Simons Ground, Dorset (cremated remains of 136 individuals - Hazzeldine 1982). Bronze Age burials in Wessex are mainly under barrows occurring singly or in small cemeteries. Many burials are rather poorly preserved and incomplete, and many of the bone reports are inadequate; in addition many barrows have suffered from the depredations of antiquarians. Thus, although numbers of burials from each site excavated will generally be small, the acquisition of further burials, particularly inhumations, from the Wessex Bronze Age is a priority.

(iv) Iron Age. Remains representing approximately 500 individuals are known from the Wessex Iron Age, the great majority of burials are inhumations. Bone reports on important assemblages include that on the remains from Danebury, Hampshire (inhumed remains of a minimum of 70 individuals - Walker & Hooper 1984) and Gussage All Saints, Dorset (53 inhumations - Keepax 1979). Most Wessex Iron Age burials are found in small groups (usually on settlement sites), so in this respect similar comments apply as for the Bronze Age.

Study of depositions of partial burials or individual skulls on Iron Age sites gives insight into Iron Age ritual practices; careful records of the spatial distribution of human bones recognised during excavation should be made. Additions to this corpus of material will aid interpretation of the archaeological evidence for Iron Age ritual on its own merits, rather than, as has often been the case previously, interpretations being forced into the framework provided by the

Classical and Irish texts.

(v) Romano-British. Remains of more than 2000 individuals (the great majority inhumations) have been excavated from this period in Wessex, but this total is dominated by collections from cemeteries at the towns of Dorchester and Winchester. Hence a priority is to obtain Romano-British remains from other settlements in the area so that these major sites can be placed in their regional context. Bone reports on major assemblages include that on the remains from Poundbury Camp, Dorset (c1050 inhumations - Molleson et al. 1992).

An important focus of Romano-British studies of human bones in Wessex is comparison of urban and rural sites in order to assess the effects of urbanisation and Romanisation on the inhabitants of the area.

The effects of changes in settlement patterns on factors such as diet and disease are of particular interest. Technological changes associated with this era resulted in exposure of human populations to new risks - for example the widespread use of lead created the risk of lead ingestion and poisoning, an aspect which can be investigated directly by chemical analysis of human remains (e.g. Waldron 1988a).

(vi) Anglo-Saxon. As above, comparisons between urban and rural sites must be seen as a priority. Remains from the Saxon period are somewhat fewer than from Romano-British contexts, most are inhumations and assemblages from urban sites make up only a relatively small proportion of the total. Bone reports include that on Ulwell, Dorset (57 inhumations - Waldron 1988b).

Attempts have been made to investigate social organisation using analyses of variability in grave goods from pagan Anglo-Saxon sites, however little seems to have been done to integrate anthropological data from human remains into this type of work in order to provide data on the way in which an individual's health, diet and life-style varied with social status.

(vii) Mediaeval. Relatively few Mediaeval cemetery sites are known from Wessex compared with other areas and few bone reports on more than a few skeletons have been published. The great majority of the bones we do have come from Winchester; examination of more bones from elsewhere is needed to put the Winchester material in its regional context. Questions of the relationship between settlements (large urban centres, smaller towns and rural settlements) are of interest, as are questions of social status, for example comparisons between burials of well-to-do benefactors in a religious foundation with those of lower social classes buried elsewhere might be relevant here.

Decisions concerning research priorities should be made not just in the light of the nature of the human bone and other archaeological evidence, but also taking into account any historical evidence related to the site. For example there is frequently documentary evidence relating to friaries and other religious foundations; this may include names of individuals buried within the buildings. Such documentary evidence can enable us to define more closely the social class to which the individuals represented by the excavated human remains belong.

Although, of course, the availability of documentary evidence should not be permitted to dictate archaeological research as archaeological evidence can cast light on many areas of Mediaeval life not adequately covered by documentary sources.

(viii) Post-Mediaeval. Little work has been done on human remains from this period in Wessex. The highest priority is the study of skeletal remains for which biographical information such as name, age at death etc is available, in the form of grave markers or coffin plates, and can be associated with particular skeletons. The value of such collections cannot be stressed too highly as they enable human bone specialists to test their existing methodologies and develop new ones.

Most cemetery populations are a result of the action of various causes of mortality on a population over a long period of time. However in the later Mediaeval and Post-Mediaeval periods (and occasionally from earlier contexts) what may be termed "catastrophe samples" may be recovered. These are collections of individuals deriving from a very narrow time span, often sharing a common cause of death. Examples of "catastrophe samples" are individuals interred in plague pits and those from maritime disasters such as the sinking of the Mary Rose. The special nature of these assemblages lends them particular importance, as they can shed light on aspects which cannot be investigated using most cemetery samples. For example plague pit assemblages can be used to study of demographic profile of individuals dying of plague and the bones from the Mary Rose provide insights into the health and life-style of seafarers of the Tudor period.

Other types of bone assemblages requiring special consideration also exist, for example cemeteries associated with leper hospitals. Since skeletons showing leprosy are fairly rare finds in most cemetery excavations, collections of this type are of considerable value.

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