Professional Zooarchaeology Group (PZG) Minutes

Biometry, Cotswold Archaeology, Cirencester, 28th June 2008

On Saturday, 28th June 2008 13 members of PZG met at the headquarters of Cotswold Archaeology, located just outside Cirencester, where we were welcomed by Sylvia Warman. The meeting was on the subject of metrics, to help our understanding of some aspects of research and everyday use of bone measurements.

After a brief health and safety tour of the building we started the meeting with a talk by Zoe Hazell of English Heritage on MoRPHE (Management of Research Projects in the Historic Environment). Although this deviated slightly from the topic of metrics, it was a good opportunity for an introduction to a new set of guidelines of relevance to those working in both research and commercial sectors. MoRPHE is considered to be a more flexible alternative to MAP2, helping projects be cost effective, better managed and comprehensively commissioned, with the aim that it will help develop expertise and good practice. A number of questions were initiated at the end of the talk, largely relating to the practicalities of commercial units disclosing details of project management, which could be construed as sensitive information. The introduction of issue and risk logs was well received, and seen as a good way of allowing for contingency plans.

The MoRPHE document and relevant guidance notes can be downloaded from http://www.english-heritage.org.uk/publications (search free publications for the keyword 'MoRPHE'). Free training days have been organised, further details of which can be found by emailing morphe@english-heritage.org.uk .

Second on the agenda was a talk on the sheep measurement project by Fay Worley of English Heritage. To begin a background to the project was given by Bas Payne who was involved in the sheep / goat measurement working party (S/GMWP) set up in the 1980's with the aim of producing a set of reproducible and meaningful measurements. Bas Payne was to ask other members of the working group if it would be acceptable to publish the results on this website, to aid dissemination of such valuable data. He also introduced the Medieval Wool Project, a wide ranging experiment with the aim of testing the effect of nutrition, sex, castration and breeding on the timing of tooth wear, eruption, fusion, size and shape of sheep bones to aid the interpretation of medieval sheep populations. To do this two groups of shetland sheep were kept, one on improved pasture, with additional hay fed ad lib in winter and the other on unimproved pasture with a minimum of extra hay given in winter.

The resulting assemblage of c.350 skeletons is now being analysed by a team from English Heritage. Fay Worley talked about the metrical analysis of the sample. The aim was to find a number of reproducible, useful measurements based on the earlier work by the S/GMWP. Much of the work was carried out by Peter Popkin who took numerous measurements on the 350 skeletons, then looked at their reproducibility and usefulness. The results of a questionnaire distributed to PZG members earlier in the year regarding techniques used to

measure bones were summarised by Fay, which revealed a 0.5 – 1% variation in results. A further test was carried out over lunch to investigate this further, the results were collated by Fay at the end of the day and gave a less than 2% variation in most measurement with the exception of the calcaneus BS measurement which gave a greater 4% variation between members, and several people noted that it was not easy to take. Comments at the end of the talk were very positive, the importance of a baseline was recognised and this was generally seen to be a valuable resource. One note of caution was sounded regarding the danger of making the vast quantities of data already existing incompatible with new measurements developed.

This latter point was addressed to some extent by the next talk given by Richard Thomas of the University of Leicester on the use of log ratios and wither heights. Wither heights are widely recognised to be easy to calculate, although little thought is given to restrictions in the resulting data: in terms of replicating errors inherent in the indices used; not taking into account changes in the width or breadth of the bones; and only using them for the major domestic species, when size changes may just as well be occurring in wild species and domestic birds. To this end, he advocates the use of log ratios, through which a number of different measurements can be compared with a known standard. Problems were noted in obtaining a standard, but the general usefulness of a statistical measure that can be used to compare measurements taken in different planes from different bones was widely recognised. During the discussion, it was suggested that some note be made of left and right bones to reduce bias introduced if the same individual was represented by many bones in the assemblage, and that other methods should still be used for comparison.

Next on the agenda was an agreement of the topic for the next meeting at Nottingham University on January 17th, which is to be on the use of statistics. Suggestions for themes of future meetings were also taken, of which sexual dimorphism (possibly to be held at Sheffield), genetics (possibly Dublin or Cambridge), a general taphonomy (including the identification of cremated bone) session (Bournemouth), and the use of GIS were put forward.

The penultimate talk was given by Tessa Pirnie from the University of Sheffield on work done so far for her PhD on duck and goose exploitation, looking at the origins of domestic husbandry of wild fowl from the Iron Age to Medieval period using biometric analysis, by taking a vast range of measurements on a wide number of duck and goose species. She noted problems in defining wild and domesticated species through size and shape ranges, although the smallest species of wild birds were distinct from domestic and larger species. Discussion afterwards noted problems in standardising the von den Driesch measurements, which have a large potential for error on such small bones, particularly when factors such as the angle that callipers are held at make such a difference. To counter this, it was suggested that some work on inter-person variation (similar to that discussed above by Fay Worley) should be carried out to allow measurements that are not as useful as others to be discarded.

The final topic was on the use of discriminant analysis on pig tooth measurements to distinguish populations of animals from one another. The talk was given by the host Sylvia Warman, who undertook a project comparing measurements of premolar and molar teeth from three populations of pigs – the Durrington Wall assemblage, a wild pig population and those from a modern breed – using discriminant analysis. Although results were inconclusive, there were definite groupings that allowed the wild pig and modern populations to be distinguished. Problems were noted in the timing of eruption of the third premolar, which was noted as valuable for non-metric traits when most pigs are traditionally killed at an earlier age. Cautions were given against comparing modern and archaeological assemblages, though it was useful for distinguishing between such populations.

Thanks were given to Sylvia Warman for hosting the meeting and making it such an enjoyable day.

Minutes contributed by Matilda Holmes

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