Abstract

Many taphonomic processes have the potential to preferentially remove certain bones from the archaeological record. This introduces bias into element frequencies. Unless this bias is recognised and accounted for, there is considerable potential for the misinterpretation of archaeological faunal assemblages.

Destructive taphonomic processes are largely mediated by bone density. Knowledge of a bone's density can therefore be used to assess the likelihood that it will survive in the archaeological record. Previous researchers have produced bone density values for a range of taxa and skeletal locations. These are often based on small samples or are otherwise flawed. This thesis develops a measurement method based on photodensitometry and produces density data for 95 well-provenanced modern sheep skeletons. It focuses on the variation of bone density according to the age of an animal.

Analysis of this data shows that bone density is extremely variable between very similar individuals. Bone density is not affected by the method used to deflesh the specimens. Male sheep appear to have higher skeletal densities than castrates. Differences in bone density between breeds may reflect different animal management regimes. Bone density is shown to vary according to the age of an animal in a non-linear manner.

The data produced by this project were used to assess the taphonomic histories of the assemblage from Çatalhöyük, Turkey. It is apparent that internal areas at the site have been subject to lower levels of taphonomic destruction than external areas. It is suggested that carnivore gnawing is largely responsible for this discrepancy. Taphonomic destruction has not significantly altered the age profile of the archaeological material.

Density data were not able to explain fully the observed element frequencies at Çatalhöyük. This suggests that other variables (bone size or direction of force) also contribute significantly to the ability for a bone to survive taphonomic destruction.