

The role of goat in English medieval husbandry and economy: current challenges and future directions

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This paper presents a summary of an on-going PhD project that aims to re-assess the role of goats in the medieval economy and society of England. Distinguishing between sheep and goats still is one of the most challenging issues in zooarchaeology; problems with identification must first be addressed. The most commonly used criteria for sheep/goat postcranial identification were published more than 40 years ago, while studies on the discrimination of teeth are much more recent. Nevertheless, they are all based on morphological differences whose assessment may be highly subjective. One of the goals of this research is to establish reliable criteria for distinguishing between sheep and goat by establishing the reliability of known morphological traits through the analysis of modern reference collections. Particular attention will be put on trying to translate morphological differences into biometrical indices in order to obtain a more objective tool for the proposed identification. Then, the newly prepared identification protocol will be applied to a number of identified sheep/goat medieval assemblages from England with the hope of clarifying the mystery of the under-representation of this animal. This paper presents a review of the current situation, in terms of the medieval context, followed by the methodological background, and outlines the ways in which this new work will be beneficial for future work in our field.

Keywords: goat, sheep, medieval England, morphology, biometry

Introduction

The study of goats has been largely disregarded by British archaeology. This neglect is partly due to problems in distinguishing goat remains from those of the more common sheep, and partly because of the perceived rarity of goats throughout British history. The similarity between the bones of sheep and goats complicates evaluation of the importance of goats in the English medieval economy and society, because accurate separation of the two species is challenging. The difficult process of identifying sheep/goat remains to species level is made even harder when dealing with a fragmented assemblage. As a result, zooarchaeologists frequently divide sheep and goat identifications into three groups (namely sheep, goat, and sheep/goat), a division which makes quantification and comparison with other species difficult (Noddle 1994: 118). To increase sample size and improve comparability, these *taxa* are often combined into one large sheep/goat group in many archaeological reports. This amalgamation of two species, that provided different products and were raised for diverse aims, has serious consequences in the evaluation of the medieval economy.

Background

Understanding a number of important historical and archaeological questions is dependent on our ability to identify goat bones appropriately. Both historical (Dyer 2004) and archaeological (Albarella 1997) sources indicate a gradual decline of this species in the course of the Middle Ages. This apparent reduction in goat numbers has stimulated the interests of many archaeologists and historians. However, despite different hypotheses having been raised, the dynamics, extent, and timing of such a phenomenon still require much clarification.

The medieval decline

Historical sources and archaeological data agree in attesting that the English goat population reached its zenith in the Early Medieval period, though it was not a continuous and simple process (Dyer 2004: 26). After this early period, goats suffered a steady decline and by the end of the Middle Ages the species became even rarer. Because of the wide distribution of sites in which a very low proportion of this animal has been documented, this scarcity of goats has been interpreted as a countrywide phenomenon (Albarella 1997: 26). A number of reasons for such a decline have been suggested. One hypothesis, for instance, takes into consideration the enclosure of common land that

occurred during the Medieval period. This restriction of grazing and foraging territory may have been an important factor in the decline of goat because of the eating habits of this animal. In fact, goats tended to destroy and damage hedgerows, whose function had become essential during this period (Albarella 1997: 26; Dyer 2004: 21). As a result, goats would have been seen as destructive animals, and they were kept far from forests, confined in mountainous areas. A confirmation of the restrictions goats were subjected to is given by historical documents. The majority of the documentary resources in which goats are mentioned are land grant clauses or documents regulating the use of pasture, in which it is stated that common pasture is permitted 'except for goats' (Dyer 2004: 21).

Another hypothesis for the decline in goats is linked to population pressure during the 12th and 13th centuries in England. This population increase demanded that more fields be cultivated, and areas previously considered unsuitable for farming were reclaimed and used for agriculture. This phenomenon brought about a reduction of so-called 'waste land': areas that were not used for farming but devoted to communal grazing. At that time these areas were of primary importance to the maintenance of sheep and goats herds of both villages and estate staff (Noddle 1994: 121). In addition, during the Late Medieval period, a change in the function of goats may have occurred. While during the earlier periods goats were probably bred mainly for milk, in the 14th century, due to the greater emphasis being put on cattle dairying, the goat probably lost its role as an important milk producer. By this time, in fact, English cattle had developed the ability to release milk freely without the stimulation of calf, and this innovation may have reduced the demand of goats as dairy animals (Albarella 1997: 26; Noddle 1994: 121).

Besides these reasons, the habits and temperament of goats may have also played an important part in their decline. They are more difficult to drive than sheep and do not follow each other so readily. Differences in the behaviour of goats have been noted since the Roman period. Columella (Forster and Heffner 1954) and Varo (Hooper and Ash 1936), for instance, present a colourful picture of goats and describe the animals as a source of considerable problems. According to the authors, goats do not behave as a flock and they are very difficult to keep bounded in. In addition, they have destructive abilities: their teeth are considered injurious to all forms of growth,

and as a consequence many tenancy agreements forbade the keeping of goats (Albarella 1997: 26; Dyer 2004: 21; Grant 1988: 155; Noddle 1994: 119). Moreover, by taking into consideration the English climate and environment, sheep are generally much easier to raise than goats, which are inclined to warm climates and rocky habitats.

Yet, if the economic importance of these animals is considered, other reasons for the decline of the goat can be traced. The value of goat skin in producing tents, footwear, and other traded goods was well known since Roman times (Noodle 1994: 119; French 1970: 146) due to its peculiar characteristics of strength, flexibility, and appearance. Despite these advantages, during the Middle Ages sheep produced a more valuable product – wool (Grant 1988: 155). During the 13th century wool production in Britain expanded significantly, with flocks of sheep driving the British economy. In contrast, the nature of goat hair varies according to different factors, such as breeds. Except for the Angora and the Cashmere breeds (and their derivatives), which produce fibres more appreciated than wool (French 1970: 161), no other breeds are known which can supply fibre comparable or replaceable to wool. Moreover, the cultural image of goats has been always associated with a "bad reputation", another factor which may have contributed to their decrease. For instance, goat was not considered as a fully domesticated animal. Its smell and grotesque/ugly appearance concurred to build its negative image, and it provoked a strong reaction in many past European cultures. Goats were seen, in the minds of medieval people, as monstrous beasts and devils. 'They were regarded as lascivious, and the narrow eyes of the he-goat were believed to reflect its lustful thoughts' (Dyer 2004: 20-21).

What does the zooarchaeological data tell us?

The presence of goat during the Medieval period cannot be defined as either frequent - when the distinction was conducted on English medieval assemblages, goat seems to have been a minority species (Grant 1988: 155) – nor steady. In fact, while zooarchaeological data as well as historical resources for the Early Medieval period attest a higher presence of goat, archaeological records from Late Medieval and Post Medieval period reflect a sharp drop off in their numbers, which are all but absent. By looking back to the Late Saxon/Early Medieval period, the Domesday Book notes that goats were bred in large

numbers in some areas of the country (for instance Essex, Suffolk, and West Midlands) (Hallam 1988; Dyer 2004). A confirmation of what is stated in this text can be found in archaeological studies related to the Late Saxon period. On the other hand, during the Late and Post Medieval period, sites such as Exeter (Maltby 1979), North Elmham (Noddle 1980), Colchester (Luff 1993), Launceston castle (Albarella and Davis 1996), and Castle Mall (Albarella and Davis 2009) show a clear decrease of the number of goats (Albarella 1997: 26).

Despite this general decline in the prevalence of goat, the distribution of body parts presents a more intriguing situation. There is a scarcity of goat bones and teeth, but equally there is a much greater abundance of horncores (Albarella 2003: 80). Horncores are easily distinguishable bones, and the over-representation of these elements may be related to an identification bias. However, a similar trend is not present when other easily identifiable bones, like metapodials, are considered. A trade in goat horncores existed during medieval times, but, since goat bones are rare on English sites of every kind, this has led to the presumption that horncores may have been traded with overseas countries. However, if horns and horncores were indeed traded, a record of these arrangements does not appear in the documents. On the contrary, a trade in hides and skins is well known and documented during the Medieval period. Horncores may have been imported attached to their skins, but a goat skin processed in this manner is likely to retain the foot bones and hoof as well (Schmid 1969 and Prummel 1978 in Noddle 1994: 120), and this material is missing from the archaeological record. This anomaly may suggest long distance trade, in which it would have been useful to eliminate as much weight as possible in order to render the goods easily storable and tradable. Following this supposition, the part of the skin that could have been suitable to be discarded were the foot bones, which were not considered a valuable source of working material, unlike horncores, often from large male specimens, which were especially useful (Albarella 2003: 80-81).

What do the historical sources tell us?

Historical documents can also give researchers clues and evidence about human-animal relationships during this time. The integration of both zooarchaeological and historical evidence is necessary particularly in the study of the Medieval and Post Medieval period. These kinds of sources are more frequent, and their

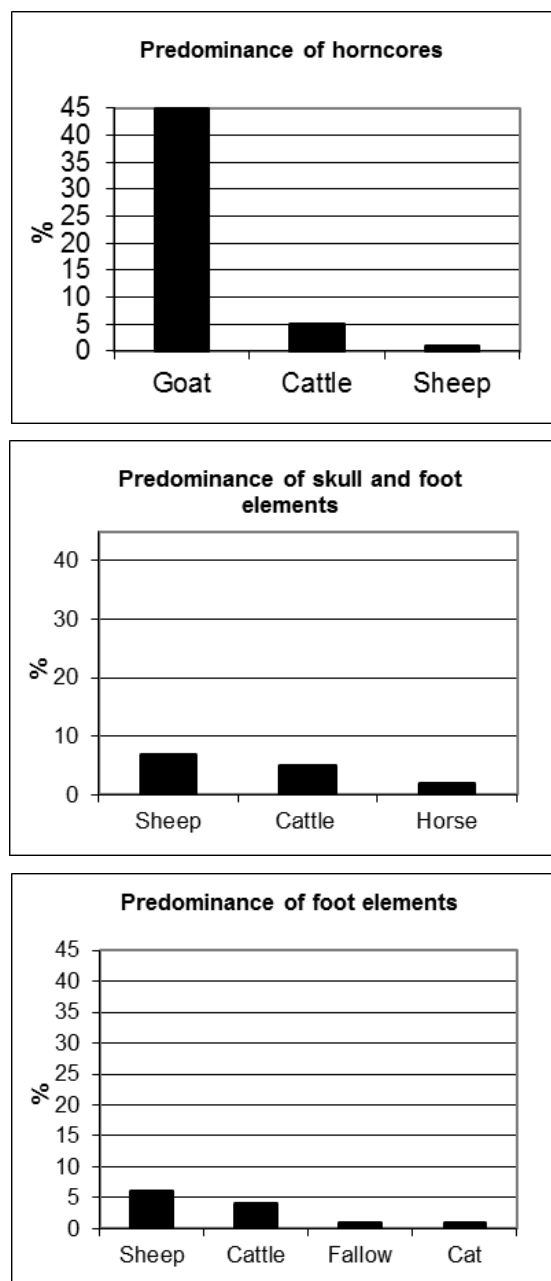


Figure 1 Medieval and post-medieval sites in England: predominance of horncores; predominance of skull and foot elements; predominance of foot elements (image from Albarella 2003; reproduced with permission).

inclusion prevents isolation, from the reality of other sites (Albarella 1999: 872; Thomas 2002: 17). However, archaeological and historical sources do not always agree with each other, and they provide a complex situation in the case of goat.

The goat is more frequently mentioned in some of the eleventh-century Domesday Book records than one would expect from its occurrence in the archaeological assemblages (Albarella 1999: 873). Despite the fact that the

Domesday Book may originally have enquired about demesne (piece of land attached to a manor and retained by the owner for their own use) animals throughout England, in the surviving part of this historical source, live-stock statistics are confined to eight counties (Dyer 2004: 24). As a result, the Domesday Book should not be considered as representative of the whole country. Nevertheless, it still raises questions: is the discrepancy in the presence of goat due to an over-estimation in the Domesday Book, or rather are zoo-archaeologists under-recording goat bones from animal bone assemblages? It is clear that the overall role that the goat played in English medieval husbandry is still far from clear.

The limits of the methodology

Any attempt to address problems of the underrepresentation of goats in archaeological assemblages is connected to issues related to the identification of sheep and goat bones and teeth. Medieval bone assemblages have been studied by a great variety of researchers possessing highly variable skills in identifying sheep and goat bones. Sheep/goat distinction remains a growing area of zooarchaeological research, and although the most commonly used criteria for sheep/goat postcranial identification were published more than 40 years ago (Boessneck *et al.* 1964; Kratochvíl 1969), more recent publications (have expanded both the identification criteria and general awareness of the issue (Balasse and Ambrose 2005; Buitenhuis 1995; Halstead *et al.* 2002; Fernandez 2002; Gillis *et al.* 2011; Helmer 2000; Prummel and Frisch 1986; Zeder and Pillar 2010; Zeder and Lapham 2010). The publication by Boessneck *et al.* (1964) is the best known and most widely used work focused on distinguishing between sheep and goat through cranial and post-cranial bones morphology. In their paper, the authors study modern adult skeletons of domestic sheep and goats and point out the most evident morphological differences between the species. However, despite the international importance attributed to this piece of work, it is well known among zooarchaeologists that some of the criteria are more reliable than others. In addition, not all the skeletal parts are included in the study—for example the tibia, which is completely neglected because it is considered lacking of diagnostic traits (Boessneck *et al.* 1964: 99).

Five years later, Kratochvíl (1969) published a paper focused specifically on the morphology of distal tibia. In his work he shows how useful

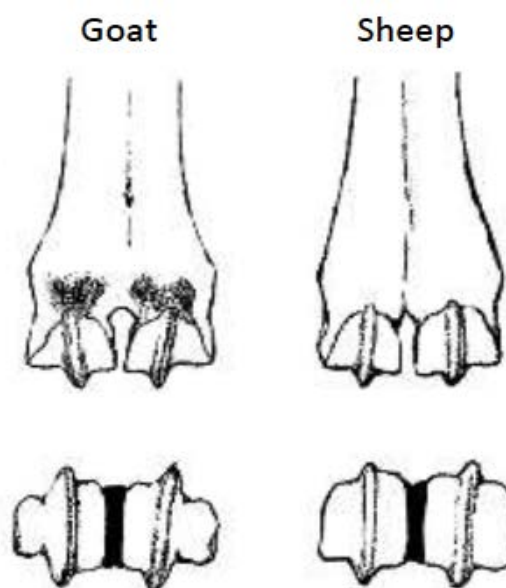


Figure 2 Morphological differences in the distal metacarpal (image redrawn by author; after Boessneck 1964, figure 72 & abb.70).

this skeletal part can be for separating sheep from goats. His observations were made by looking firstly at modern materials, and he then applied his findings to archaeological material in order to ascertain if the traits were visible and usable in an archaeological context. This study, along with the similar Boessneck *et al.* (1964) paper, is one of the most useful publications for all zooarchaeologists who have to deal with sheep/goat differentiation.

In 1986, Prummel and Frisch published a study which aimed not just to present a selection of morphologic criteria from the known literature, but also to contribute to identification methodology by proposing several new traits on the pelvis for establishing the sex (not the taxon), and on the distal metapodials for determining the body side of animals (Prummel and Frisch 1986). The authors tested the criteria on archaeological material from two big north-east European archaeological assemblages, and chose those which were shown to be more valid and reliable.

All the above investigations are mainly focused on the observation of postcranial elements, but during the following years several researchers worked on studies aimed to identify morphological features on sheep and goat teeth. One of the most widely used methods for discriminating milk lower teeth for sheep and goat is the one proposed by Payne (1985). In this publication, several traits on different teeth are suggested as to be very diagnostic for separating the two *taxa*. In 2000, following

Payne's research, Helmer (2000) decided to focus his attention on permanent lower teeth and published a paper in which he proposes diagnostic traits present on permanent lower teeth as on P3 and P4.

A more complete study of the morphology on non-deciduous teeth in sheep and goat was provided in 2002 by the research of Halstead *et al.* In their paper the authors study a wide sample of mandibles of sheep and goats of different breeds and establish criteria by looking at permanent lower teeth and mandibles. More recently, all the post-cranial and cranial criteria have been subjected to various refinements and verifications. For instance, in the papers by Zeder and Pilaar (2010) and Zeder and Lapham (2010) the reliability of morphological differences in cranial and post-cranial bones in sheep and goat is discussed by using modern specimen data and by taking into consideration the criteria developed by previous studies. But, it is with the publication by Gillis *et al.* (2011) that a first attempt at an assessment of teeth criteria on archaeological material is made. Gillis tested the traits on a very unusual archaeological assemblage made of almost-complete specimens of sheep and goats from burials at a Middle Eastern site.

Despite these contributions, methodological problems still affect the ability of zooarchaeologists to make a correct identification. Many of the adopted criteria have been established by analysing goat specimens from many different parts of the world. As a result, not all of the criteria are applicable to British populations. For instance, the samples are often composed of Middle Eastern and Mediterranean animals, as well as animals from other modern breeds; this mixture of populations does not allow for identification of which characteristics are breed-specific. Moreover, many zooarchaeologists find that the usefulness of identification criteria is not evenly distributed across different regions. A further problem is that many criteria are based on morphological differences whose assessment may be highly subjective, because they are linked to the nature of the sample. For example, no studies have yet investigated the morphology of immature bones of sheep and goat, whose distinction is still quite problematic. Additionally, the level of conservation (a high fragmentation degree affects the possibility of identification) and the experience and skills of the researcher will also influence the outcome of the studies. It is therefore very difficult to compare sites reliably and to obtain an accurate overview of the importance of the

goat in different regions and different time periods. This is especially problematic if the existing archaeological reports do not present two distinct categories for the two *taxa*, combined frequently in a 'sheep/goat' class. This combination increases the sample size, and it provides a general idea of the exploitation of these animals, but it does not help in understanding the different management strategies adopted (Buckley *et al.* 2010: 13).

More recently, to overcome the limits inherent to the morphological method and provide a tool that can permit an unambiguous assignment, several non-morphological studies have been carried out. A first attempt of using molecular methods was carried out by Loreille and colleagues in 1997. mtDNA was extracted from a small sample of ovicaprid bones from an archaeological assemblage in order to establish if they belonged to a sheep or a goat (Loreille *et al.* 1997). The results show that this kind of analysis can be useful not just for the proposed distinction, but that it can be used as a confirmation or negation of the identification made according to the observation of the morphological criteria.

Bar-Gal and colleagues proposed a further study on DNA in 2003. The study applied ancient DNA analysis on caprine bones from a Neolithic site in Israel in order to discriminate between sheep and goat (Bar-Gal *et al.* 2003). The results were successful and indicated the potential of this new method. However, this biomolecular method has many drawbacks that also must be taken into consideration. For example, DNA can survive only in specific conditions. In fact it has a limited life according to different physiological factors. Usually, only small quantities of DNA can be extracted from archaeological material, and it is often in a degraded state. Moreover, the procedure must be carried out carefully in order to avoid contamination, which can affect the results. Finally, it is a destructive method that requires much time and money in order to be accomplished.

Later, in their paper published in 2005, Balasse and Ambrose focused their attention on isotopes analysis. They present the results of a study on stable carbon isotope ratios tested on modern sheep and goat mandibles from Kenya (Balasse and Ambrose 2005). The identification of these two species by using the carbon isotopes is based on the assumption that sheep and goat have different feeding behaviour. Sheep is a grazing animal and eats grass; goat is defined as a browsing animal,

whose diet is based on herbs, bushes and trees. As a consequence, according to their different diets, the value of $^{13}\text{C}/^{14}\text{C}$ (naturally present on grass and bushes in different quantities) should be different in both *taxa*. Despite the interesting results of this work, presented as an additional tool that can be combined with the morphological method for separating the two species, the disadvantages must be also highlighted. First of all, this method can be applied only to areas dominated by ^{14}C grassland environment. Secondly, this kind of analysis is expensive and time consuming. Finally, it is a destructive method. It requires the extraction of the tooth from the mandible and further damage to the specimen made by sampling in various positions on the crown of the tooth.

Very recently, a successful attempt using collagen peptide analysis was made by Buckley *et al.* (2010). They extracted a collagen peptide able to distinguish between sheep and goat in modern specimens of different breeds, and then they tested the presence of these markers on Neolithic animal bone assemblages from Turkey. The molecular method has potential and also some advantages over the other non-morphological methods. For example, the collagen peptide markers are not subjected to degradation as with DNA, and there is not such a high danger of contamination as with DNA. Moreover, the method appears to be easy, quick, and cheap, and it requires a small amount of sample.

Even though these molecular methods have potential, most of the time they do not represent an accessible tool because of their high cost. In fact, in a normal research environment there are rarely economic resources that can be invested in isotopes or DNA studies. In addition, these analyses are time consuming, and they require particular laboratories, specialists, and scientific instruments that also have a cost and are not always easy to engage.

Future development of the research: what can be done?

Having outlined the methodological and archaeological issues surrounding goat identification, we can now turn to issues surrounding the identification and importance of goats in medieval England.

Developing new criteria

In order to effectively distinguish between sheep and goat bones in English medieval contexts, reliable criteria need to be established for their identification in relevant archaeological assemblages. This goal will be achieved by checking current morphology-based methods through the analysis of modern reference collections composed of northern European sheep and goat breeds. Special attention will be given to the translation of morphological differences in biometrical indices, in the pursuit of a more objective identification tool.

Analysis of a large collection of modern British goat and sheep skeletons would be ideal but, while modern reference collections of sheep are widely available, the situation is very different for goat. Consequently the attention should be focused on collections which host complete goat and sheep skeletons deriving from central/northern European breeds. The collection of modern reference material hosted at the “Julius Khàn Museum” in Halle has already been studied for this project. In addition, the goat and sheep specimens included in the modern reference collection of the Zooarchaeology Lab at the Christian Albrechts Universität of Kiel (Germany) and those incorporated in the zoology collection hosted by the Natural History Museum of Berlin (Germany) have been added during the data collection study. Although not ideal, specimens from central/northern European breeds have been chosen because they represent a better proxy to British material than the typically used Mediterranean and Near Eastern specimens. In addition, smaller collections of British goat and sheep skeletons will also be analysed. The collection hosted at the English Heritage Office in Fort Cumberland, Portsmouth has already been visited, and the modern reference collections present at the Zooarchaeology Lab of the University of York and at the National Museum of Cardiff will be included in the study. Preference is given to Shetland and Soay breeds as they are thought of as representative of an early stage in the evolution of the modern commercial sheep from the wild ancestor (Clutton-Brock *et al.* 1990: 3), more similar in size and shape to the medieval animals.

After a critical analysis of the previous studies on morphological differences between sheep and goat, a selection of the most diagnostic features has been made. Each of those have been recorded and scored as consistent with *Capra*, *Ovis*, *Capra*-like, *Ovis*-like, or not

clearly identifiable. This assessment will be applied to archaeological material as well. This will allow not just an estimation of which are likely to be the most reliable morphological features for the distinction between sheep and goat, but it will also create a list of the traits most useful for English archaeological samples. The ability to distinguish between the two *taxa* is highly subjective, not just because of the experience of the researcher, but it is also dependent on the kind of material the researcher is looking at (important factors such as breed, age, and sex are known to heavily influence the morphology and the size of the animals). In consideration of the obstacle, an attempt will be made to translate morphological differences into biometrical indices (e.g., Payne 1969 for distal metacarpals).

A first attempt to translate morphological traits into biometrical indices was conducted by Boessneck, Müller, and Teichert in 1964. Even though their paper, previously mentioned, essentially focused on identifying morphological traits and describing them in a standardize way, they also tested some biometrical indices on modern reference material. For instance, by looking at the different shape of the collum scapulae in sheep and goat they suggested an index based on two measurements, showing this method to be effective (Boessneck *et al.* 1964: 59). Another index they found reliable was based on two measurements taken on the condyle and on the articular facet of the os malleolare in the calcaneum (Boessneck *et al.* 1964: 105).

The biometrical study done by Payne on distal metacarpal (1969) is the first work completely focused on morphometry that has been published with the specific aim of distinguishing sheep from goats. In this paper the author suggests two measurements that can be taken on the distal articulation of this skeletal part in order to discriminate the two *taxa*. He applies the protocol to a modern collection in which the specimens had a known age and sex, and later to archaeological material from sites of different periods located in England and Greece. The author notes that there is not a great separation between the two species, but the absence of an overlap between the two groups makes the study a success. Payne also points out that different elements should be taken into consideration when a study of this kind is conducted, namely when the goal is to discriminate sheep from goat by trying to translate morphological differences into measurements. For example, one important element mentioned by the author is the frequency of which the skeletal part chosen

appears in archaeological assemblages; how, and to what extent, these elements are affected by bias is another aspect that he suggests must be considered. In addition, Payne claims that the separation obtained once the measurements are plotted should be clear, demonstrable, and easily reproduced by other researchers. Moreover, the difference on which the separation is built should be capable of measurement, and applicable not just to adult but also to immature specimens (Payne 1969: 295).

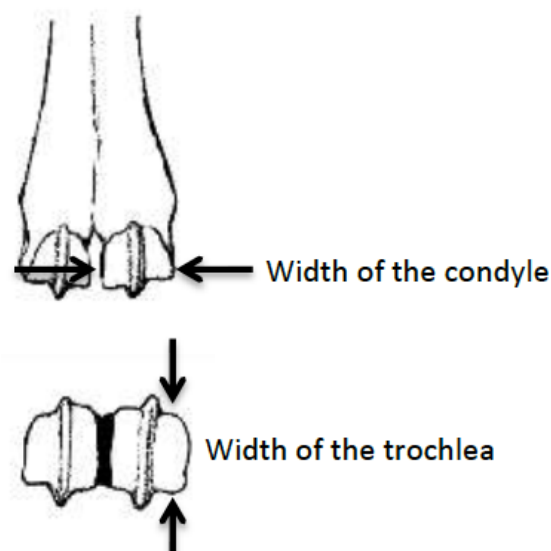


Figure 3 Measurements taken on distal metacarpal (image redrawn by author; after Payne 1969, figure 1).

This approach which, as already said, has been proved successful for the metacarpals, has been applied by a number of researchers to bones from archaeological sites, proving the reliability of this approach (Onar *et al.* 2008; Rowley-Conway 1998). The same methodology will be applied in this study to a number of cranial and post-cranial bones with the hope that once diagnostic ratios based on modern samples with known age, sex, and breed are obtained, this data will permit a more objective evaluation of identification in an archaeological assemblage.

Archaeological application

Since one of the main aims of this research is to try to re-evaluate the role that goat played during the medieval period in England, the newly prepared identification protocol will be then tested on a number of sheep/goat medieval assemblages. By taking into consideration that faunal remains from towns are more likely to reflect the species kept in the surrounding countryside (Dyer 2007: 34) and that assemblages for monasteries and castle have been excluded because representative of

high status society whose economy and eating habits represent just a small and narrow part of the reality investigated, sites have been chosen on the basis of a variety of criteria, of which the most important is their potential contribution to the research questions.

One most promising site is that of King's Lynn in Norfolk. This site has been identified as a priority, particularly because of the unusually large number of goat bones originally identified by Barbara Noddle (1977). In her report she stated, 'The considerable population of goats in King's Lynn at all periods is by no means unique' (Noddle 1977: 397). This interesting and unusual condition calls for verification.

The assemblage of Flaxengate in Lincoln represents another potentially useful case study, particularly because of some interesting chronological trends in the species' frequencies that have been observed by O'Connor (1982). An increase in sheep/goat percentages starts immediately after the Norman Conquest and continues in later times (Albarella and Pirnie forthcoming) with two defined peaks. One peak falls in the 13th century, where the increase in the presence of sheep/goat is understandable because it is linked to the development of the wool industry that occurred in England at that time. An earlier peak, on the other hand, is quite interesting: it occurred during the 10th century. For this increase in the presence of sheep/goat bones, the author suggests different hypotheses that would be interesting to test. One of these hypotheses takes into consideration the possible influence of environmental pressures, which might have caused an increase in the relative presence of sheep/goats and a parallel diminution in the relative presence of cattle. However, a gradual decrease of grazing land or livestock impoverishment cannot explain the phenomenon completely, especially when the nature of the investigated area is considered; Lincoln is far from being a poor and marginal farming zone. Moving from these considerations, the author suggests another answer to the phenomenon, which, in his opinion is more likely to be related to social or economic forces. During the 10th century, Lincoln developed into a major settlement and it recorded an increase in human population that seems to grow side by side with the relative presence of sheep/goats. The growth of the city probably required an input of livestock who were brought into the town (O'Connor 1982: 47).

The assemblage for Woolmonger Street in Northampton also has an abundance of sheep/goat bones and a wide chronological span (Armitage 1999), thus it offers another potentially valuable example for checking trends in the relative proportions of sheep and goat. This site already has high sheep/goat frequencies in the late Saxon and Saxon-Norman levels, which continue to increase into the Medieval period (Albarella and Pirnie forthcoming).

Conclusion

'Many historical essays and books begin with the claim that their subject has been neglected, but in the case of medieval goat this really is the case. The evidence is scattered and thin, and although historians and archaeologists have devoted some space to this animal there is no study of any length' (Dyer 2004: 20).

This quote emphasises the reason why additional work is required and necessary in order to clarify the existing puzzle around the neglected goat. Notable contributions can be offered by a study, as the one discussed in this article, in which modern data can improve our understanding of the past. This project can throw a new light on the presence of goat in medieval cities, and it can be seen as a contribution to clarifying the role that this species played in medieval England. This clarification will be possible because a new assessment of the relative presence of this animal is going to be made through the study of English medieval archaeological assemblages. In combination with this archaeological study and review, current hypotheses concerning the trade and the decline of goat will be tested and refined. These results can then be interpreted in light of the wider archaeological and historical record for medieval England, expanding our knowledge of this period. In addition, the new osteometric criteria will be applicable beyond the Middle Ages, with the potential of being a useful objective tool utilisable for sheep and goat identification purposes.

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