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Vertebrate Fauna From Reynolds Tavern, Annapolis

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Abstract. A vertebrate sample recovered from the Reynolds Tavern, Annapolis, Maryland, was studied. The vertebrate sample contained 6,398 fragments weighing 20,220.2 gm and the remains of an estimated 110 individuals from three features. Two of the features were trash pits deposited during the eighteenth century and were associated with the William Reynolds family. During part of this time a tavern and hat shop also operated on the property. The third feature was a privy filled during the middle of the nineteenth century and associated with a bank. The eighteenth century trash pits produced a sample of 5,089 bones and 56 individuals while 1,309 bones and 54 individuals were recovered from the mid-nineteenth century bank privy. The trash pits appear to reflect Reynolds' occupation as a hat maker as well as domestic or tavern related food consumption. The privy appears to contain materials associated with the disposal of vermin and trash from social functions.

For many years faunal remains recovered from historic sites were left unstudied. Perhaps it was assumed that historic period use of animals was well understood from written accounts and/or that there was such uniformity in the use of animals, especially in urban settings, that little new could be learned through zooarchaeological study of animal remains from documented sites. Over the years, zooarchaeological studies have been conducted at some sites in spite of this understanding. The evidence these studies provides is that written accounts do not provide the same kind of information about historic period animal use available from the archaeological record. It is also apparent that the use of animals was more variable than written accounts suggest. This variability is only slowly being understood although it is clear from these studies that ethnicity, temporality, geographical location, and economic conditions influenced the decisions which result in the recovered faunal record. However, few patterns have been defined, in large part because samples are still limited. It is therefore always useful to study additional faunal assemblages in order to expand our knowledge of animal use during the historic period.

As with other regions of the country, very few faunal assemblages have been studied from Annapolis, Maryland. One of the studied assemblages is from the Calvert House, excavated by Anne Yentsch and studied by Reitz (1988). When the taxa identified in the Calvert House collection are summarized, there are two distinct patterns associated with the two periods of occupation (Table 1; Reitz 1988). The data from Period 3 (circa 1730s) features are characterized by extensive remains of domestic mammals and birds. Wild birds, particularly Canada geese and turkeys, were also a significant portion of the animals recovered from Period 3 deposits, as were fishes. The

Period 4 data (1765-1784) are influenced by the high percentage of commensal taxa recovered from one of the Period 4 features. Due to the influence of vermin on the data, it appears that domestic individuals were less commonly used during Period 4 than during Period 3. However, the percentage of wild individuals increases in the Period 4 collection and the variety of wild individuals also is greater.

There are fewer differences in the element distribution and age data from the two periods. Element distributions indicate that much of the carcass, particularly elements not associated with meaty cuts, were common on the Calvert property during both periods (Table 2; Reitz 1988). In the Period 3 assemblage, bones from the head and feet constituted 78% of the pig elements identified, 47% of the cow elements, and 36% of the caprine elements identified. In the Period 3 collection body elements constituted 22% of the pig elements, 54% of the cow elements, and 64% of the caprine elements. In the Period 4 assemblage, bones from the head and feet were also common. They constituted 76% of the pig elements identified, 53% of the cow elements, and 63% of the caprine elements identified. In the period 4 collection body elements constituted 24%of the pig elements, 47% of the cow elements, and 37% of the caprine elements. Data on the age of death for domestic livestock from Calvert indicate extensive use of immature domestic animals during both periods (Table 3; Reitz 1988). In the Period 3 assemblage, an estimated 49 % of the artiodactyl individuals were juveniles or subadults at death.

In analyzing the Calvert data several possible explanations were identified. It seemed that the Period 3 data might be reflecting the Calvert family's high social status in the community and that there was little difference between urban and rural subsistence in the Chesapeake region (Miller 1984; Reitz 1988). Compared to other Chesapeake

data, the information suggested that the general trend defined by Miller for domestic livestock to increase through time continued into Period 3, but might have been reversed in Period 4. Such a reversal might reflect reduced circumstances for the post-war Calvert household, the city, or the region as a whole. Alternatively, the materials might simply have been soldiers' rations deposited during the war itself rather than after it.

In order to explore these possibilities further, additional data from Annapolis were needed. Excavation of the Reynolds Tavern site in Annapolis provided an opportunity to learn more about animal use in the city.

METHODS

Field work at the Reynolds Tavern was conducted by Historic Annapolis, Inc., under the direction of Anne Yentsch in 1982 and Richard J. Dent in 1983-84. The site is located on Church Circle in Annapolis, Maryland. During excavation, faunal materials were recovered using ¼ -inch screen. Materials from three features were identified. Features 103/130 and 107 were trash pits associated with William Reynold's occupation of the property. Reynold's had his residence on the lot. He operated a tavern and a hat business on the property between 1755 and 1766. Feature 106 was a privy which dates to the mid-nineteenth century. This feature may have been associated with the bank which operated on this same parcel of land and has been in use ca. 1812. A list of the samples examined for this study are included in Appendix A.

The vertebrate materials recovered were examined using standard zooarchaeological methods. All identifications were made by Jennifer Freer using the

comparative skeletal collection of the Zooarchaeological Laboratory, Department of Anthropology, University of Georgia. Bones of all taxa were counted and weighted to determine the relative abundance of the species identified. A record was made identified by elements. Age, sex, and bone modifications were noted when observed. Butchering marks, such as cutting, slicing, or hacking, were recorded and, where preservation allowed, measurements were taken following the guidelines established by Angela von den Dreisch (1976). These are presented in Appendix B as a contribution to the growing data base on the size of colonial livestock. Minimum Number of Individuals (MNI) were determined based on paired elements and age. In calculating MNI, faunal materials recovered from the three features were considered discrete analytical units.

While MNI is a standard zooarchaeological quantification medium, the measure has several problems. MNI is a measure which emphasizes small species over large ones. This is easily demonstrated by a hypothetical sample which consists of four rats and only one cow. While four rats represent a larger number of individuals, one cow will supply substantially more meat. A further problem with MNI is the assumption that the entire individual was utilized at the site. From ethnographic evidence we know that this is not necessarily the case, particularly in regard to larger individuals and for animals utilized for special purposes (Thomas 1971; White 1953). This is an especially relevant issue when dealing with historic samples where marketing of processed meat products was substantial, but the exact extent unknown. Additionally, MNI is influenced by the manner in which the data from the archaeological proveniences are aggregated during analysis. The aggregation of separate samples into one analytical whole (Grayson 1973), allows for a conservative estimate of MNI while the “maximum distinction” method

applied when analysis discerns discrete sample units results in a much larger MNI. Furthermore, some elements are simply more readily identified that others and the taxa represented by these elements may appear more significant in the species list than they were in the diet.

Biomass determinations attempt to compensate for problems encountered with MNI. Biomass provides information on the quantity of meat supplied by the animal. The predictions are based on the allometric principle that the proportions of body mass, skeletal mass, and skeletal dimensions change with increasing body size. This scale effect results from a need to compensate for weakness in the basic structural materials, in this case, bone. The relationship between body weight and skeletal weight is described by the allometric equation:

$$\underline{Y}=a\underline{X}^{\underline{b}}$$

(Simpson et al. 1960; 397). Many biological phenomena show allometry described by this formula (Gould 1966, 1971). In this equation, $\underline{X}$ is the skeletal weight or a linear dimension of the bone, $\underline{Y}$ is the quantity of meat or the total live weight, $\underline{b}$ is the constant of allometry (the slope of the line), and $\underline{a}$ is the Y-intercept for a log-log plot using the method of least squares regression and the best fit line (Casteel 1976; Wing and Brown 1979; Reitz and Cordier 1983; Reitz et al. 1987). A given quantity of bone or a specific skeletal dimension represents a predictable amount of tissue due to the effects of allometric growth. Values for $\underline{a}$ and $\underline{b}$ are obtained from calculations based on data at the Florida State Museum, University of Florida. The allometric formulae used here are presented in Table 4. Biomass was determined using the same analytical units defined when estimating MNI.

Biomass and MNI are subject to sample size bias. Casteel (1978), Grayson (1979), and Wing and Brown (1979) suggest a sample size of at least 200 individuals or 1400 bones for a reliable interpretation. Small samples frequently will generate a short species list with undue emphasis on one species in relation to others. It is not possible to determine the nature or the extent of the bias, or correct for it, until the sample is made larger through additional work.

The presence or absence of elements in an archaeological sample provides data on butchering and animal husbandry practices. The elements recorded from Reynolds Tavern were summarized into categories by body parts. Head category includes only teeth. The forequarter category includes the scapula, humerus, ulna, and radius. Carpals and metacarpals are recorded under forefeet. The hindfeet include the tarsals and metatarsals. The feet contain bones identified only as metapodials and phalanges which could not be assigned to one of the other categories. The hindquarter category includes the innominate, sacrum, femur, and tibia. In order to provide a better image of the elements identified and their location on a carcass, the elements identified for artiodactyls have been presented visually (Figures 1-10). In these figures, loose teeth are not illustrated. Bones identified only as feet are illustrated on the right hind foot. The location of ribs and vertebrae is approximate.

Modifications to bones can indicate butchering methods as well as the degree of exposure the bones endured before being buried. Modifications have been classified as burns, cuts, saw marks, hack marks, and rodent and carnivore gnawing. Burned bone may result from exposure to fire when a cut of meat is roasted. Burns may also be inflicted if bones are burned intentionally or unintentionally after discard. Cuts are small

incisions across the surface of bones. These marks were probably made by a knife as meat was removed from bone before or after the meat was cooked. Cuts may also be left behind if attempts are made to disarticulate the carcass at joints. Some marks that appear to be made by human tools may actually be abrasions inflicted after the bones were discarded, but distinguishing this source of small cuts requires access to higher powered magnification than was available during this study (Shipman and Rose 1983). The presence of saw striations indicates that the bone has been sawed, presumably before the meat was cooked. Hacks closely resemble cut marks in their shape and irregularity but are deeper and wider. They may indicate the use of a cleaver rather than a knife to dismember the carcass. Use of a cleaver would result in bone splinters and probably larger cuts of meat than a saw. Rodent and carnivore gnawing indicates that bones were not immediately buried after disposal. While burial would not assure an absence of gnawing exposure of bones fore any length of time might result in gnawing. Gnawing by rodents, and particularly by carnivores, would result in loss of an unknown quantity of discarded bone. Carnivores could include a variety of animals, such as opossums, dogs, foxes, raccoons, and cats. It is presumed that domestic dogs and cats were the primary carnivores involved in modifying the Reynolds collection, although other agents might also have been involved.

Relative ages of the species identified were noted based on observations of the degree of epiphyseal fusion for diagnostic elements. When animals are young their bones are not fully formed. Along the area of growth the shaft and the end of the bone, the epiphyses, are not fused. When growth is complete the shaft and epiphyses fuse. While environmental factors influence the actual age at which fusion is complete (Watson

1878), elements fuse in a regular temporal sequence (Gilbert 1980; Schmid 1972; Silver 1963). During analysis, bones identified were recorded as either fused or unfused; the bones were then placed into one of the three general categories based on the age in which fusion generally occurs. This is more informative for unfused bones which fuse in the first year or so of life and for fused bones which complete growth at three or four years of age than for other bones. An element which fuses before or at eighteen months of age and is found fused archaeologically could be from an animal which died immediately after fusion was complete or many years later. The ambiguity inherent in age grouping is somewhat reduced by recording each element under the oldest category possible. Attempts to age animals are particularly relevant to an historic site. Indications of an animal's age may provide data concerning animal husbandry practices such as the utilization of younger animals for food and older animals for nonfood by-products or slaughter of older animals after their usefulness as draft, wool, or dairy production is over.

Evidence of age and sex was also noted if present. Spurs on the tarsometatarsus of Galliformes indicate male birds. Hens in laying condition are indicated by medullary deposits on bones (Rick 1975). Medullary bone is a source of calcium for females while laying eggs.

In order to summarize the data, the species list was reduced into several categories based on vertebrate class and husbandry practices. Domestic mammals include Old World rabbit (Oryctolagus cuniculus), pigs (Sus scrofa), cows (Bos taurus), and sheep or goats (Caprine, Capra hircus, Ovies aries). These latter animals are generally combined due to the difficulty in distinguishing between them. Domestic birds were chickens

(Gallus gallus). Wild birds include ducks (Anas spp.), Canada geese (Branta canadensis), and turkeys (Meleagris gallopavo). Canada geese and turkeys may actually belong in the category of domestic birds. According to the American Poultry Association (1874) standards of excellence for these two species had been established by the mid-eighteenth century. Wild mammals included cottontail (Sylvilagus spp.), and raccoon (Procyon lotor). Aquatic reptiles included a diamondback terrapin (Malaclemys terrapin). Commensal taxa included Old World rats (Rattus spp.), dogs (Canis familiaris), cats (Felis domesticus), and a song bird (Muscicapidae). It should be noted that only biomass for those taxa for which MNI had been determined is included in the summary table. For example, biomass for Galliformes in Feature 103/130 is not included in the summary, while biomass for chicken (Gallus gallus) is (Tables 5, 6).

RESULTS, EIGHTEENTH CENTURY, FEATURES 103/130 AND 107

Feature 103/130 was an eighteenth century trash pit associated with Reynolds Tavern. This small sample contained 4,355 bones weighing 16,047.0 gm and the remains of an estimated 41 individuals, and 96% of the biomass. Cows (Bos taurus) and sheep (Ovis aries) were the most abundant domestic mammals. In this case MNI was estimated for sheep and for goat rather than for Caprine because both the subfamily and specific analytical combinations suggested six individuals. Since the specific identification is preferred, the subfamily estimate is not used in the case of this feature, for the record, however, if MNI for the subfamily was to be used it would be six individuals also. Domestic birds contributed an additional 17% of the individuals. Wild mammals

constituted 12% of the individuals but less than 1% of the biomass. Element distributions (discussed below) suggest that some of these animals may not have been consumed. Wild birds included a dabbling duck (Anas spp.), a diving duck (Aythya spp.), a Canada goose (Branta canadensis), and turkeys (Meleagris gallopavo). Fishes comprised 7% of the individuals and included a temperate bass (Morone spp.), a sheepshead (Archosargus probatocephalus), and one very large black drum (Pogonias cromis). The only possibly commensal taxon was a song bird (Muscicapidae), which might have been consumed.

Only a few bones were identified for each of the artiodactyl species in Feature 103/130 (Table 7; Figures 1-4). In the case of pigs, bones from the head and feet constituted 71% of the elements identified. Head and feet bones contributed 67% of the cow elements identified. Head and feet bones contributed 51% of the caprine elements identified. The goat was identified from a tibia. No head elements were identified for the sheep, but feet bones constituted 24% of the elements. The distribution of goat and sheep elements reflects identifiably more than it does original use of the carcass. Body elements constituted 30% of the pig elements, 33% of the cow elements, 49%of the caprine elements, and 76% of the sheep elements in the Feature 103/130 collection.

An interesting aspect of the Feature 103/130 collection is the large number of metapodials identified. These were primarily referred to the UID Small Mammal category. Most of the UID Small Mammal metapodials were probably from a small carnivore, although a more specific identification could not be made. In the UID Small Mammal category, 52 bones were metapodials, 34 were caudal vertebrae, and 33 were phalanges. Three metapodials, two caudal vertebrae, and one phalanx were identified as UID Carnivore. Grey fox (Urocyon cinereoargenteus) was represented exclusively by

metapodials and 17 of the raccoon (Procyon lotor) fragments were metapodials. By way of contrast, none of the cottontail (Sylvilagus spp.) or Old World rabbit (Oryctolagus cuniculus) elements were metapodials. In the case of the cottontail, 12 bones were from the forelimbs or hindlimbs and one was a mandible. The Old World rabbit was identified form a tibia.

Less than 3% of the Feature 103/130 sample had been modified (Table 8). Forty-three percent of the modified bones were burned. Cuts and hacks accounted for the remaining 57% of the modifications. No gnawed or sawed bones were observed.

Only a few of the individuals identified in Feature 103/130 were young (Tables 9-12). Of the ageable bones, 43% of the pig bones were unfused, 29% of the cow bones were unfused, 41% of the caprine bones were unfused, and 21% of the sheep bones were unfused. Juvenile and subadult individuals comprised 39% of the artiodactyls. Pigs included two individuals less than 18 months of age at death and two individuals older than 30 months of age. Three of the cow individuals were less than 18 months of age when they died, four were older than 24 months, and one was an adult at death. The goat was older than 24 months of age when it died. Two of the sheep were less than 28 months of age at death, one was older than this, and two were adults. Ten of the Unidentified Bird bones were from immature animals as were three of the chicken bones. No medullary bone was observed but Galliformes tibiotarsus was pathological.

Feature 107 was the other eighteen century trash pit associated with Reynolds Tavern. This sample was smallest studied, containing 734 bones weighting 1,527.00 gm and the remains of an estimated 15 individuals (Tables 13, 14). Domestic mammals were identified, although 20% of the individuals were wild birds. These included two ducks

(Anas spp.) and a turkey (Meleagris gallopavo). A diamondback terrapin (Malaclemys terrapin) was also identified. No commensal taxa were identified.

Only a few bones were identified for each of the artiodactyl species in Feature 107 (Table 15; Figures 5-7). In the case of pigs, bones from the head and feet constituted 94% of the elements identified. Head and feet bones contributed 100% of the cow elements identified. Head and feet bones contributed 63% of the caprine elements identified. The caprine elements included two sheep (Ovis aries) tarsals. Only seven artiodactyl body elements were recovered form Feature 107. These constituted 6% of the pig elements and 38% of the caprine elements.

Less than 3% of the Feature 107 sample had been modified (Table 16). The only modifications observed were cut marks, many of which may actually have been inflicted by cleavers rather than by knives. No burned, sawed, or gnawed bones were observed.

Many of the individuals identified in Feature 107 were young when they died (Tables 17-19). Of the ageable bones, 38% of the pig bones were unfused, 25% of the cow bones were unfused, and 20% of the caprine bones were unfused. Juvenile and subadult individuals comprised 57% of the artiodactyls. Pigs included an individual less than 24 months of age at death and one adult. One of the cow individuals was less than 36 months of age when it died and the other was older than 18 months of age at death. One caprine was less than 16 months of age when it died, one was less than 30 months of age and one was older than 18 months of age when it died. The sheep was of indeterminate age since the two bones identified to this taxon were both tarsals. One of the Unidentified Bird bones was from an immature animal.

RESULTS, MID-NINETEENTH CENTURY, FEATURE 106

Feature 106 was a mid-nineteenth century privy associated with a bank which operated on the Reynolds property. The privy sample was small, containing 1,309 bones weighing 2,646.20 gm and the remains of an estimated 54 individuals (Tables 20, 21). The most common animals in Feature 106 were Old World rats (Rattus spp.), which contributed 33% of the individuals. Chickens were the second most common animal in the privy, comprising 22% of the individuals. Domestic mammals contributed only 11% of the individuals, although 58% of the biomass. Although wild animals are not a major percentage of the collection, both rabbit (Sylvilagus spp.) and squirrel (Sciurus spp.) were present. Wild birds included a duck (Anas spp.), Canada goose (Branta canadensis), and a turkey (Meleagris gallopavo). Fishes comprised 11% of the individuals and included herrings (Clupeidae), temperate bass (Morone spp.), and sheepshead (Archosargus probatocephalus).

Only a few bones were identified for each of the artiodactyl species in Feature 106 (Table 22; Figures 8-10). In the case of pigs, head and feet bones contributed 47% of the sample. Head and feet bones contributed 16% of the cow elements and 33% of the caprine elements. By contrast, 53% of the pig elements, 84% of the cow elements, and 67% of the caprine elements were from the body.

Less than 4% of the Feature 106 sample had been modified. The most common modification was related to sawing. In spite of the large number of rats recovered from Feature 106, only three bones had been gnawed by rodents (Table 23). One bone button was identified from bag number 218. No bones had been burned.

Many of the individuals identified in Feature 106 were young (Tables 24-26). The dog (Canis familiaris) was a puppy and three of the cats (Felis domesticus) were young kittens. Of the ageable bones, all of the pig bones were unfused, 50% of the cow bones were unfused, and 57% of the caprine bones were unfused. Juvenile and subadult individuals comprised 100% of the artiodactyls. Pigs included one individual less than 30 months of age at death and one individual less than 42 months of age. The cow was between 18 and 42 months of age at death. One caprine was less than 16 months of age when it died and two were between 12 and 42 months of age when they died. Thirty-four of the Unidentified Bird bones were from immature animals, 13 of the Galliformes bones were immature, and 22 of the chicken (Gallus gallus) bones were immature. Four of the chickens were juveniles at death. At least two of the chicken individuals were males and one was a female.

DISCUSSION

For different reasons Features 106 and 103/130 are not interpreted as evidence of routine domestic activity. In the case of Feature 106, we know that the lot was occupied by a bank when this feature was being filled. The privy contained a wide range of animals typical of a domestic deposit, however the high percentage of commensal taxa suggests that the privy was primarily used to dispose of unwanted animals. Even though rats might be anticipated in large numbers in privies, in Feature 106 it seems unlikely that the rats were alive since so few bones were gnawed. At the Calvert house, where live rodents were associated with bone debris from one of the features, a large percentage of

the faunal assemblage was gnawed. If the Feature 106 rats were alive than presumably more of the privy bone would also have been gnawed.

Identification of chickens, pigs, cows, and caprines indicates that some food refuse was deposited in the privy. The high percentages of elements from the body in Feature 106 compared to the percentages of such elements found at Calvert, for example, indicates that few non-meaty elements were discarded in this feature. This suggests that bones associated with non-meaty cuts may have been discarded elsewhere on the property, or were never there at all. It is possible that much of the meat from artiodactyls was prepared elsewhere, or purchased in units which did not require additional processing. Fowl, particularly chicken, may have figured prominently in the meals served at the bank. Such meals might have been social occasions associated with bank or community functions rather than the result of domestic activities.

In the case of Feature 103/130, both domestic and commercial disposal activities are suggested. Commercial activities are indicated by the observation that 3% of the bones were small mammal metapodials. These small mammals were probably small carnivores. Since metapodials, caudal vertebrae, and phalanges are often left in hides or skins, it is possible that this trash pit was used to dispose of refuse from Reynolds' hat shop. Due to the difficulty in identifying these metapodials, only two of the estimated 41 individuals were associated with this activity. The entire Feature 103/130 collection is not from the hat shop. Probably most of the assemblage is the result of dometic or tavern related activities. If the fox and raccoon are removed from consideration, the percentages of domestic and wild individuals estimated for Feature 103/130 are very similar to those from Period 3 deposits at the Calvert House. Element distribution for pig and caprine

indicates that some animals were slaughtered on the property. Cow feet seem slightly over-abundant in the Feature 103/130 sample. Unexpectedly juvenile or subadult individuals constituted only 38% of the artiodactyls, which shows that a large number of older animals were being consumed. This is substantially less than either in the Period 3 collection at the Calvert House or in collections from Charleston, for example.

Feature 107 is the smallest, and therefore the least reliable, of the samples. The summary of the materials from this trash pit is very similar to that for the Period 3 Calvert House sample. Distribution of elements suggests that some butchering was taking place on the property. All of the artiodactyl individuals were juveniles or subadults. This contrasts sharply with the age structure of the artiodactyls in Feature 103/130. The contrast serves to remind us that a single feature may not reflect the variety of activities taking place at a site and that multiple examples must be studied before conclusions can be drawn. When the juvenile and subadult individuals from Features 103/130 and 107 are combined, 54% (13) of the artiodactyl individuals were subadult or juvenile, which is a more typical distribution of young animals.

CONCLUSION

With this example of the hazards of drawing conclusions from too few examples immediately before us, the conclusions from the Reynolds Tavern study are limited. It appears that Feature 103/130 contains evidence of the hat shop which operated there and that a signature of non-domestic activities may be visible in Feature 106. However, there is less evidence that the animal foods eaten by customers in the tavern or by the Reynolds

family were substantially different from those consumed at the Calvert house in Period 3. This may mean either that a general Annapolis urban subsistence pattern to which Calvert, Reynolds, and the taverns' patrons conformed is emerging or that Calvert, Reynolds, and the tavern patrons occupied a similar economic niche which is reflected in the faunal remains. Additional work will be necessary in order to explore these possibilities further.

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REFERENCES CITED

American Poultry Association
1874 American Standard of Excellance.

Casteel, Richard W.
1978 Faunal Assemblages and the "wiegemethode" or Weight Method. Journal of Field Archaeology 5:72-77.

Dreisch, Angela von den
1976 A Guide to the Measurements of Animal Bones from Archaeological Sites. Peabody Museum Bulletin No. 1

Gilbert, B. Miles
1979 Mammalian Osteology. Modern Printing Co., Laramie.

Gould, S.J.
1966 Allometry and size in Ontogeny and Phylogeny. Biological Review of the Cambridge Philosophical Society 41: 587-640.

1971 Geometric Similarity in Allometric Growth: A Contribution to the Problem of Scaling in the Evolution of Size. The American Naturalist 105(942): 113-137.

Grayson, Donald K.
1972 On the Methodology of Faunal Analysis. American Antiquity 38(4): 432-439.

1980 On the Quantification of Vertebrate Archaeofauna. In Advances in Archaeological Method and Theory, vol. 2, edited by M.B. Schiffer, pp. 199-237. Academic Press, New York.

Miller, Henry M.
1984 Colonization and Subsistence Change on the 17th Century Chesapeake Frontier. Ph.D. dissertation, Michigan State University. University Microfilms, Ann Arbor.

Reitz, Elizabeth J.
1988 Vertebrate Fauna from Eighteenth Century Annapolis, The Calvert House, Site. Ms. On file, Department of Anthropology, University of Georgia, Athens, GA.

Reitz, Elizabeth J., and Dan Cordier
1983 Use of Allometry in Zooarchaeological Analysis. In Animals in Archaeology: 2. Shell Middens, Fishes and Birds. Edited by C. Grigson and J. Clutton-Brock, pp. 237-252. BAR International Series 183, London.

Reitz, Elizabeth J., I.R. Quitmyer, H.S. Hale, S.J. Scudder, and E.S. Wing
1987 Application of Allometry to Zooarchaeology. American Antiquity: 52(2): 304-317.

Rick, Ann M.
1975 Bird Medullary Bone: A Seasonal Dating Technique for Faunal Analysis. Canadian Archaeological Association Bulletin 7: 183-190.

Schmid, Elizabeth
1973 Atlas of Animal Bones for Prehistorians, Archaeologists, and Quarternary Geologists. Elsevier Publishing, Amsterdam.

Shipman, Pat and J. Rose
1983 Evidence of Butchery and Hominid Activities at Torralba and Ambrona: An Evaluation Using Microscopic Techniques. Journal of Archaeological Science 10(5): 465-474.

Silver, I.A.
1963 The Ageing of Domestic Animals. In Science in Archaeology, D. Brothwell and E. Higgs, eds., pp. 250-268. Praeger, New York.

Simpson, George G., A. Roe, and R.C. Lewontin
1960 Quantitative Zoology. Harcourt, Brace, and Co., New York.

Thomas, D.H.
1971 On Distinguishing Natural from Cultural Bone in Archaeological Sites. American Antiquity 36:366-371

Watson, J.P.N.
1977 The Interpretation of Ephyseal Fusion Data. In Research Problems in Zooarchaeology. Edited by D.R. Brothwell, J.D. Thomas, and J. Clutton-Brock, pp.97-102. University of London Institute of Archaeology Occasional Publication NO. 3.

White, T.E.
1953 A Method of Calculating the Dietary Percentages of Various Food Animals Utilized by Aboriginal Peoples. American Antiquity 19(2): 396-398.

Wing, Elizabeth S, and Antoinette B. Brown
1978 Paleonutrition: Method and Theory in Prehistoric Foodways. Academic Press, New York.

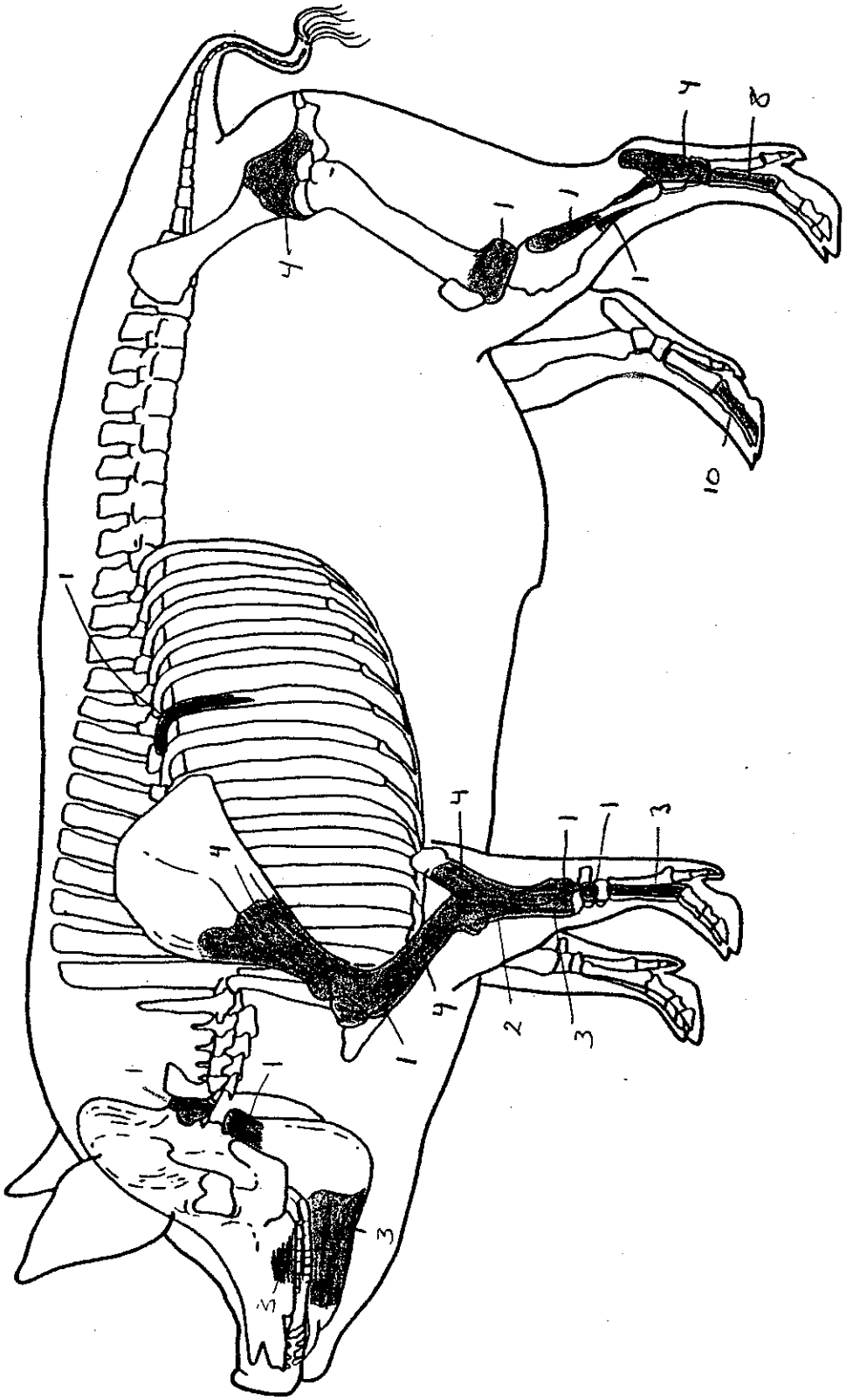
FIGURES FOR FEATURE 103/130

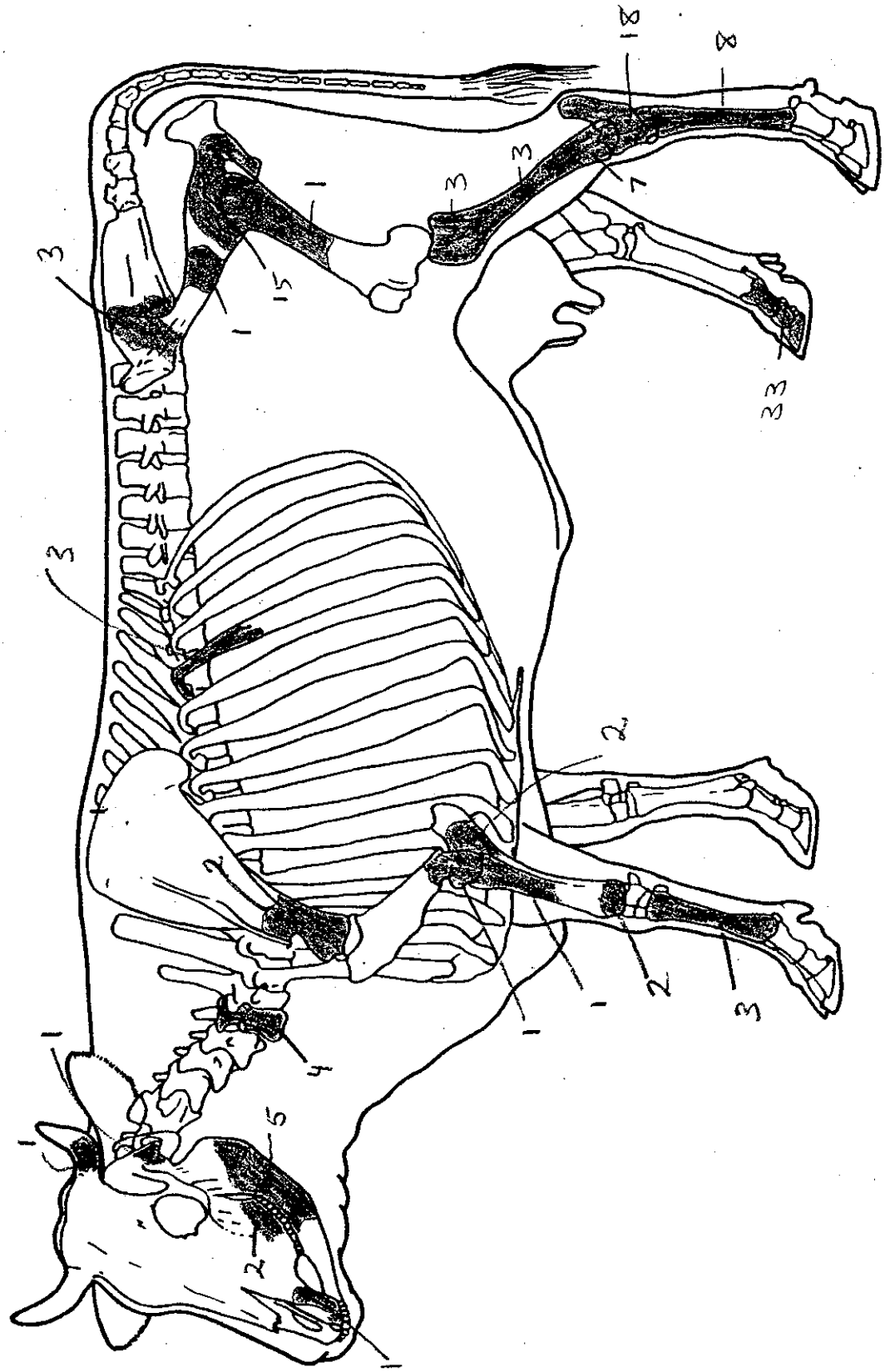
FIGURE 1: Sus scrofa, N=88. Not shown are 27 teeth.

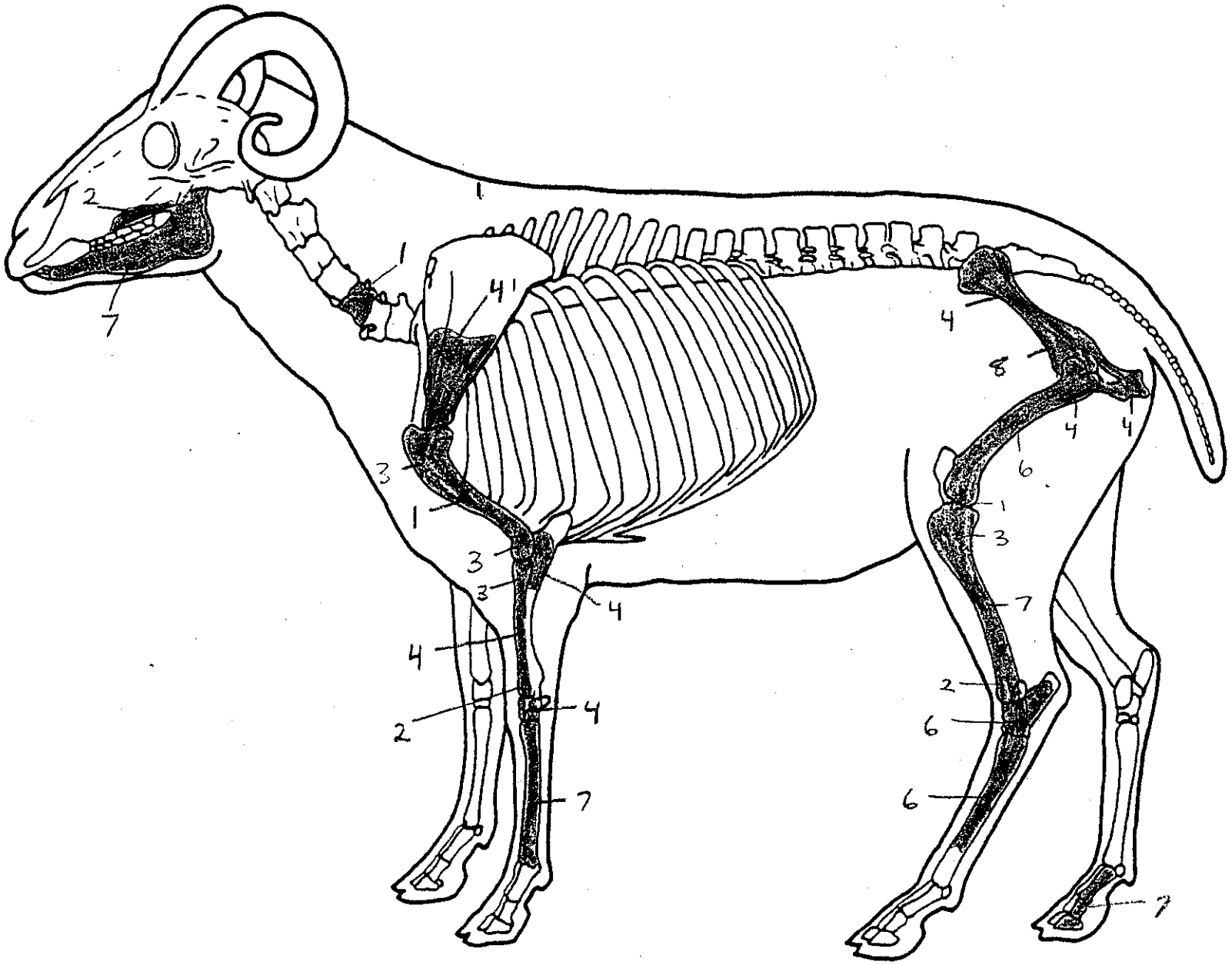
FIGURE 2: Bos taurus, N=148. Not shown are 28 teeth.

FIGURE 3: Caprine, N=131. Not shown are 28 teeth.

FIGURE 4: Ovis aries, N=21. No teeth identified.



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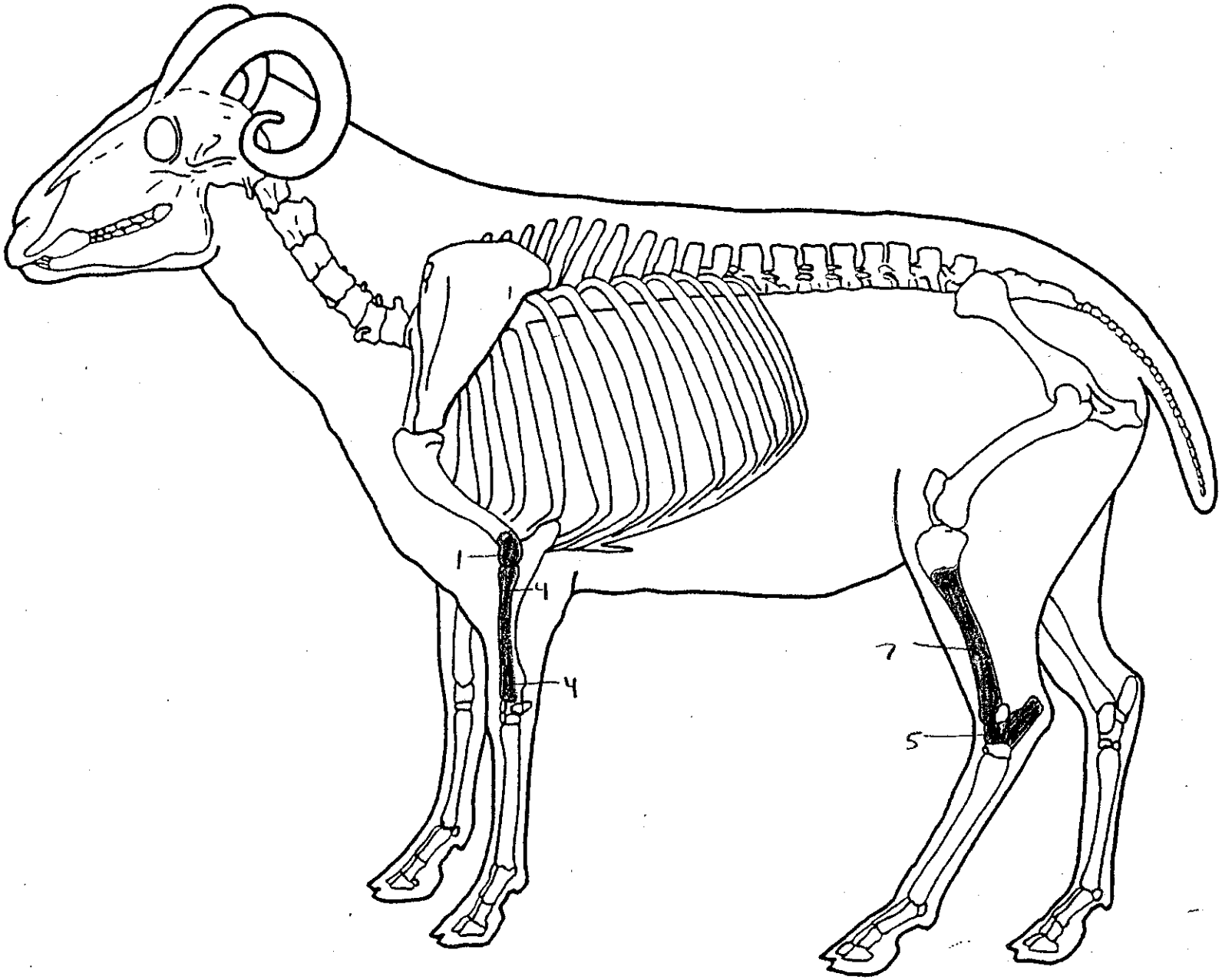
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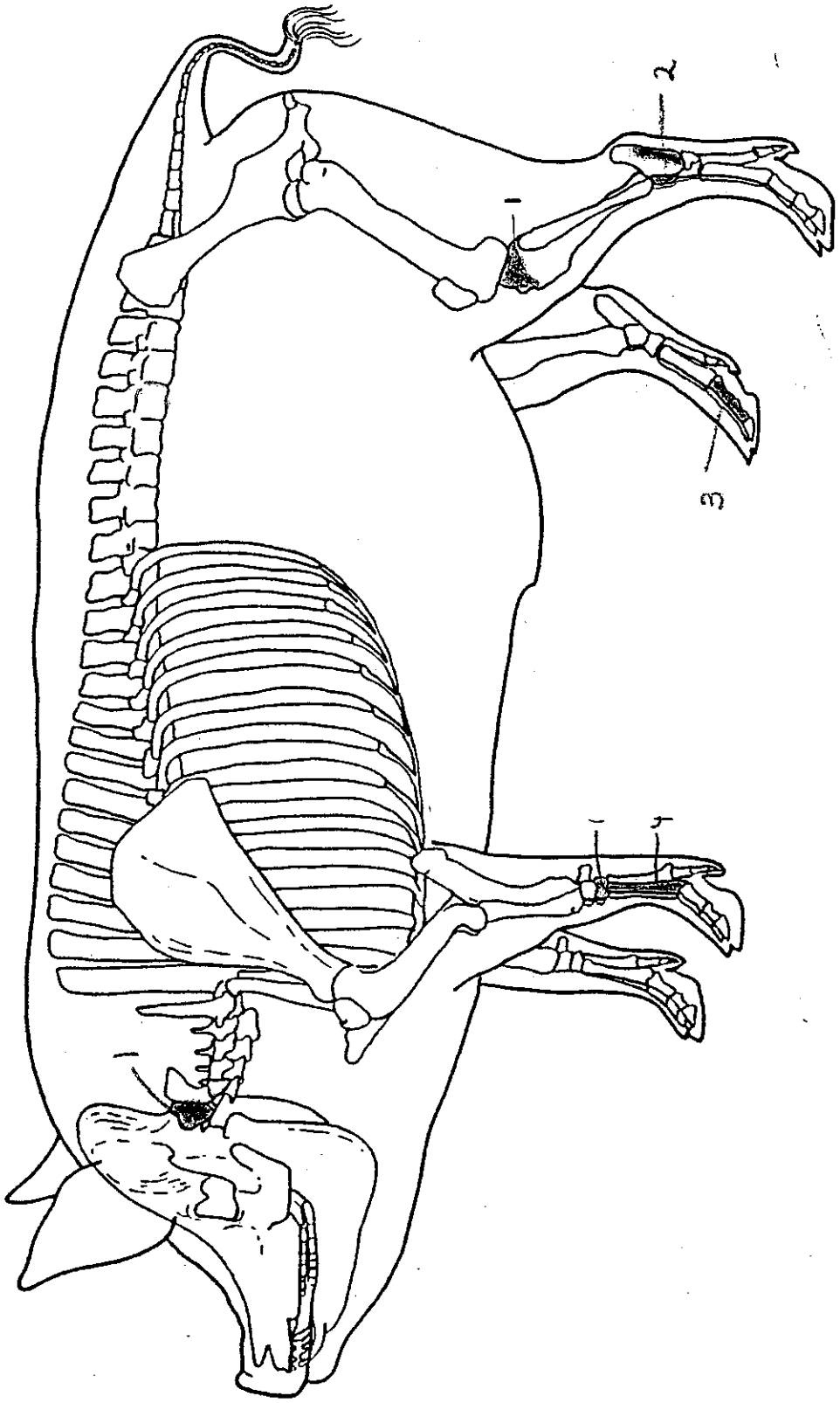
FIGURES FOR FEATURE 107

FIGURE 5: Sus scrofa, N=18. Not shown are 6 teeth.

FIGURE 6: Bos taurus, N=15. Not shown are 6 teeth.

FIGURE 7: Caprine, N=14, and Ovis aries, N=2. Not shown are 3 Caprine teeth.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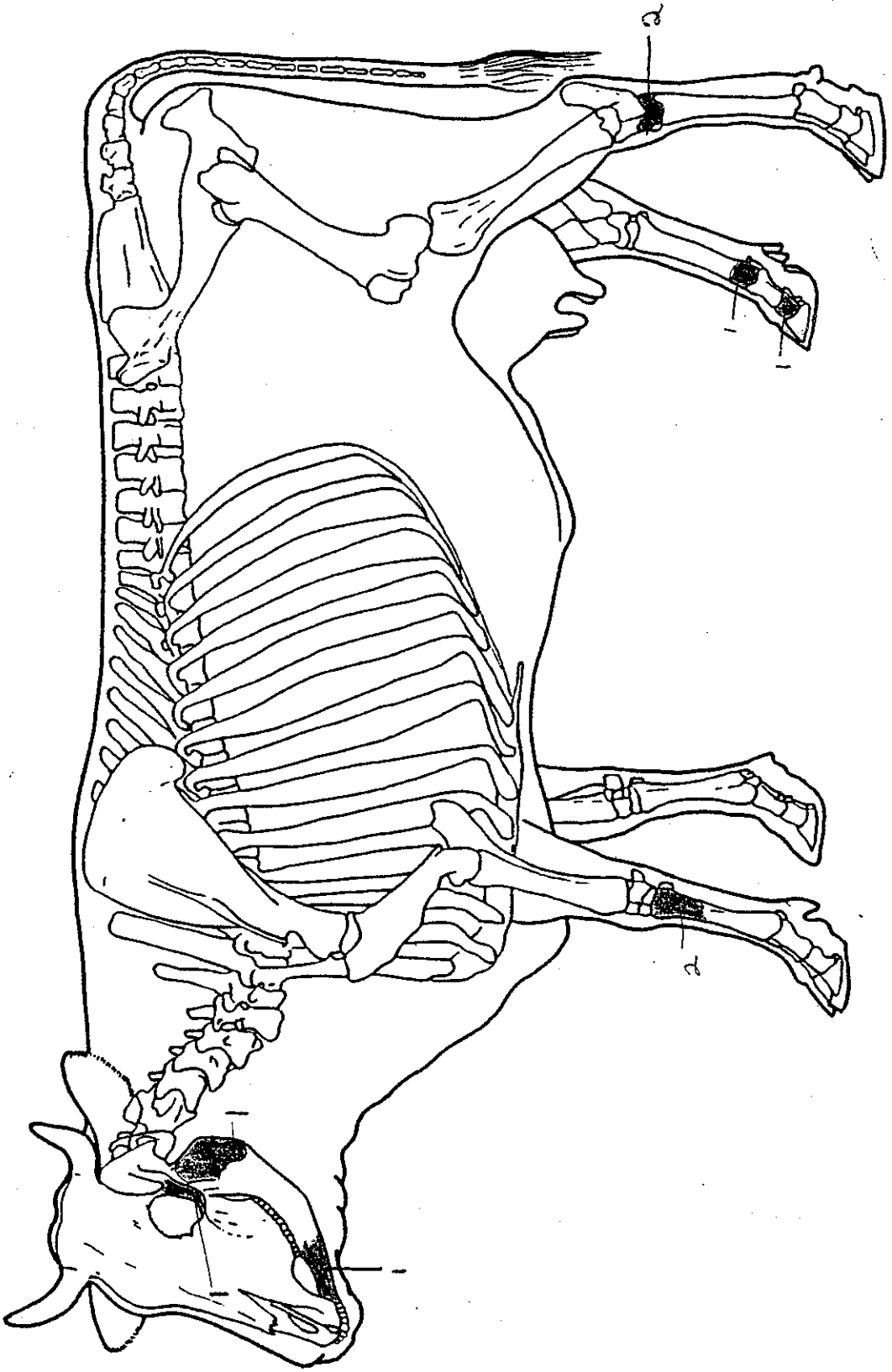

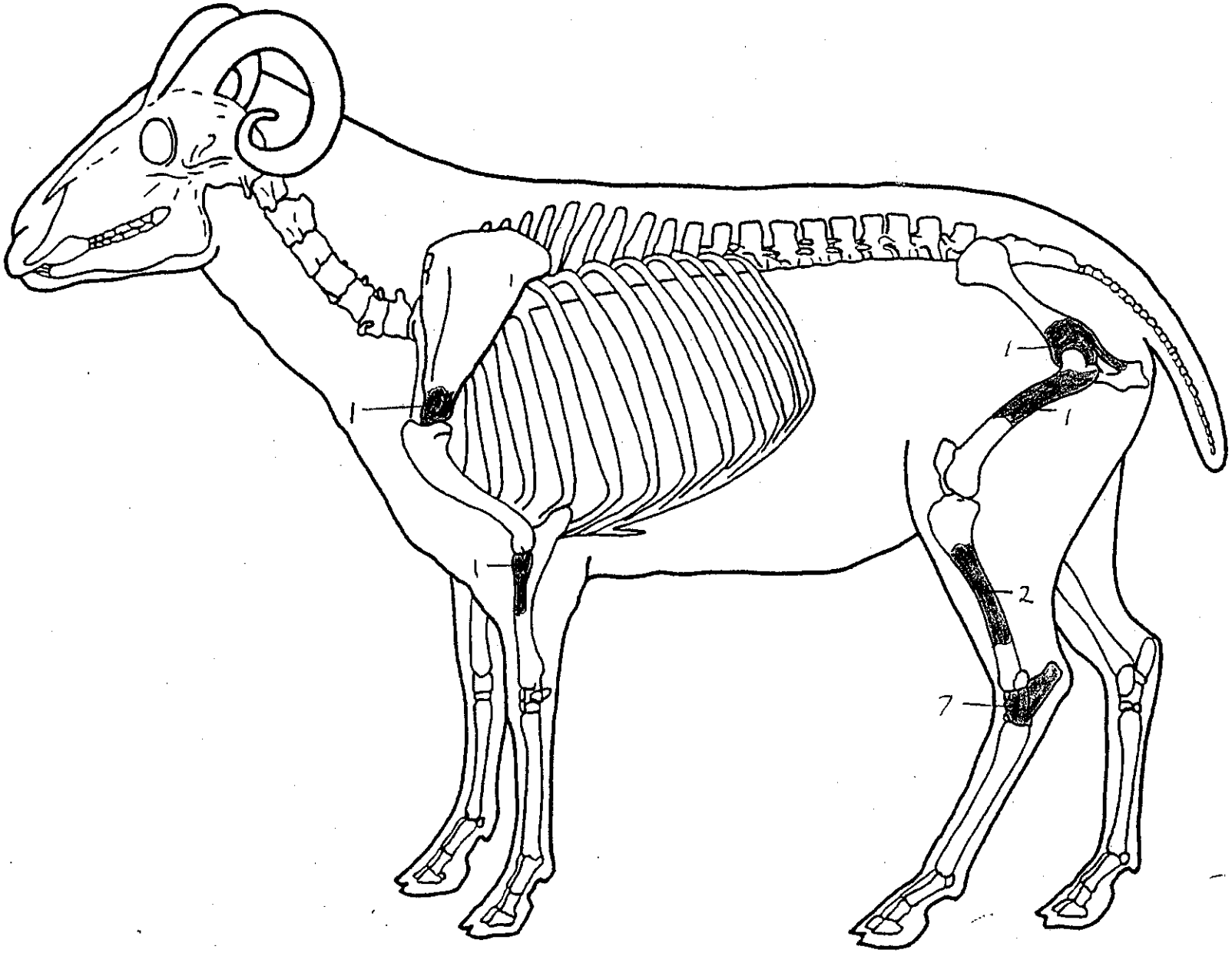
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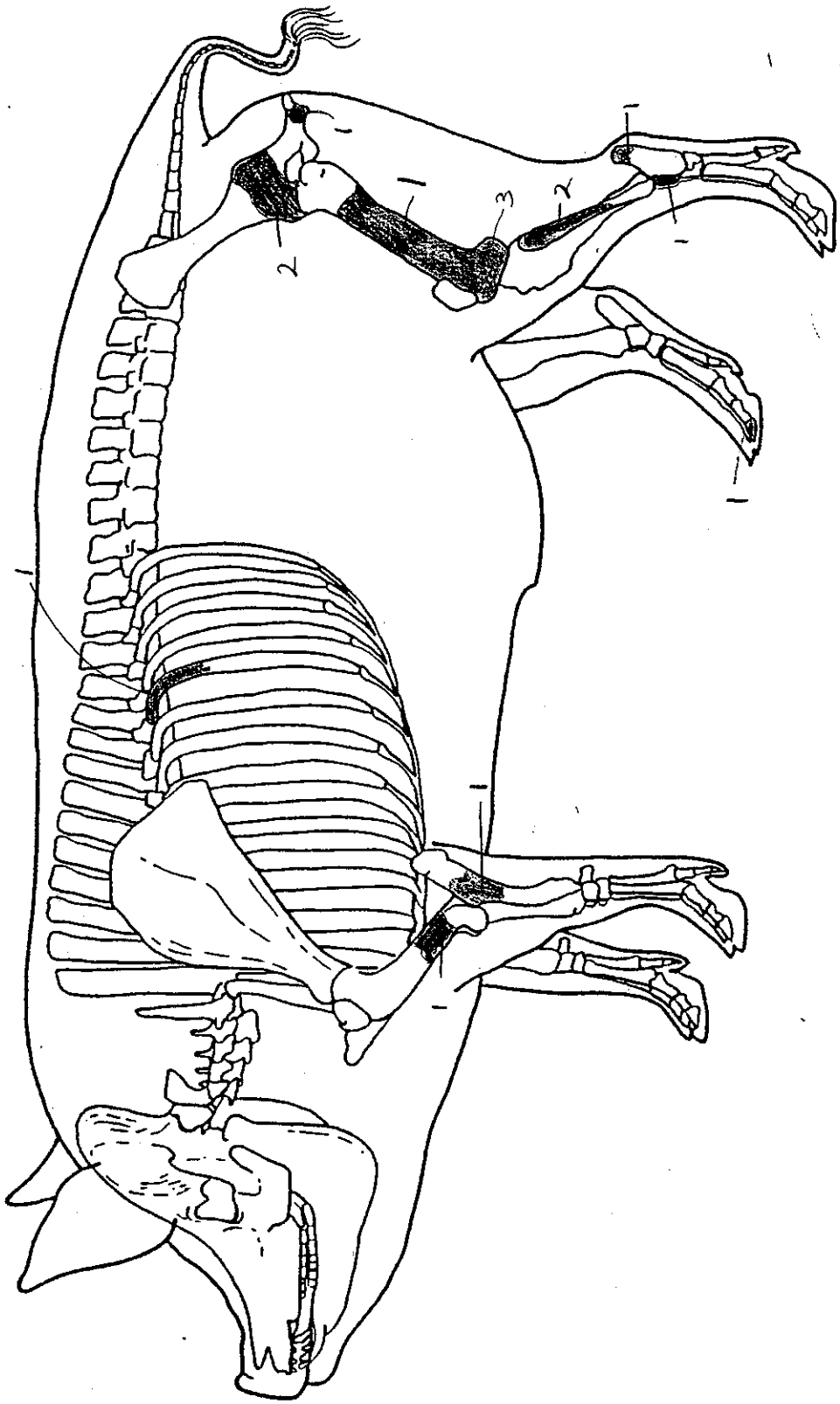
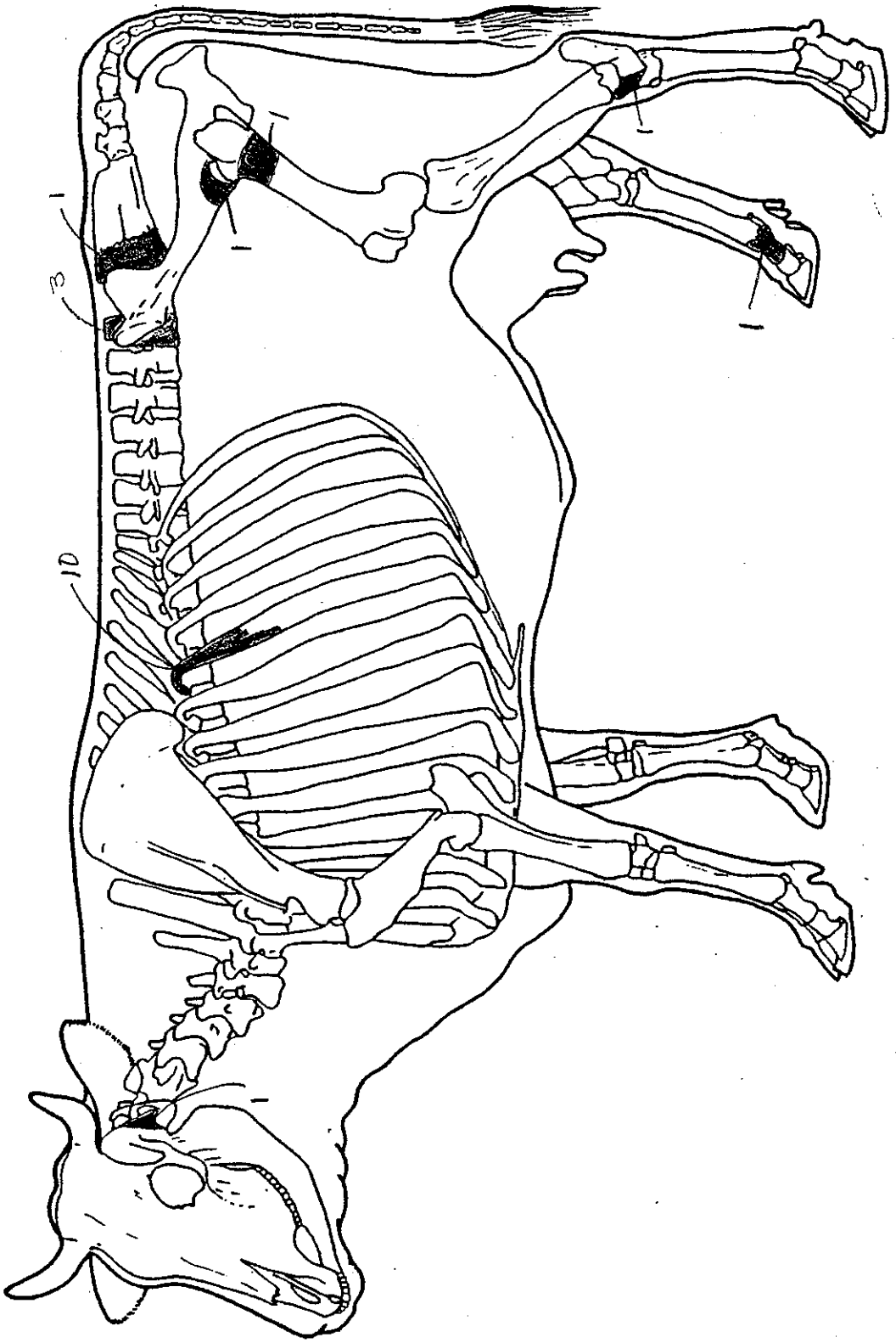
FIGURES FOR FEATURE 106

FIGURE 8: Sus scrofa, N=19. Not shown are 4 teeth.

FIGURE 9: Bos taurus, N=19.

FIGURE 10: Caprine, N=9.

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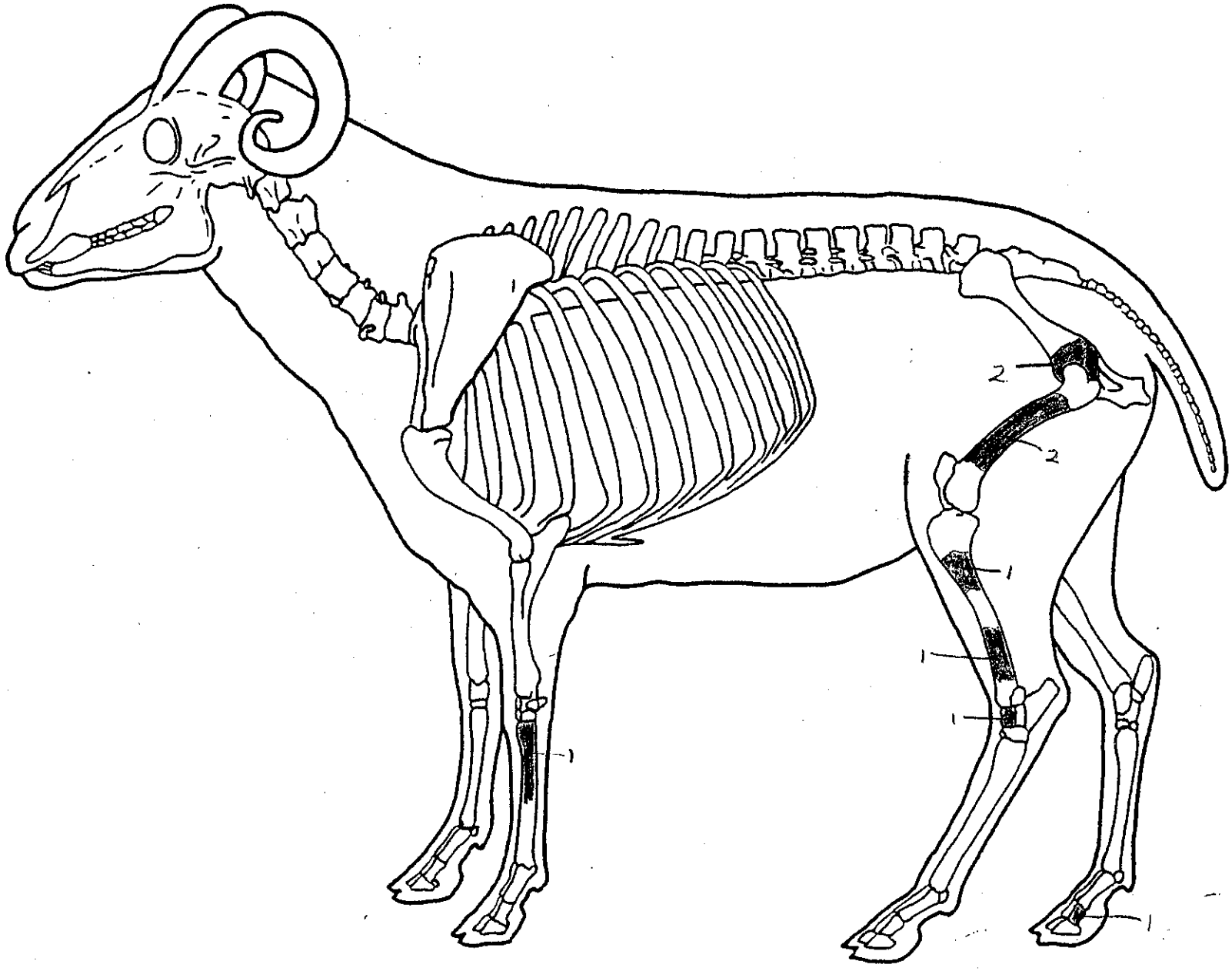
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Table 1. Summary of Calvert House Data*.

	1728-1748		1748-1784	
	MNI	%	MNI	%
Domestic Mammal	34	42.0	58	19.2
Domestic Bird	14	17.3	28	9.3
Wild Mammal	1	1.2	19	6.3
Wild Bird	17	21.0	66	21.9
Turtle			3	1.0
Fishes/Blackfish	12	14.8	58	19.2
Commensal Taxa	3	3.7	70	23.2
Total	81		302	

*(Reitz 1988).

Table 2. Calvert House, Head, Body, Feet Summary*.

	Head		Body		Feet	
	#	%	#	%	#	%
PIG						
Period 3	83	60.6	30	21.9	24	17.5
Period 4	300	52.7	136	23.9	133	23.4
Calvert House, Total	383	54.3	166	23.5	157	22.2
COW						
Period 3	10	10.1	53	53.5	36	36.4
Period 4	161	31.9	237	47.0	106	21.0
Calvert House, Total	171	28.4	290	48.1	142	23.6
CAPRINE						
Period 3	34	29.8	73	64.0	7	6.1
Period 4	195	41.9	170	36.6	100	21.5
Calvert House, Total	229	39.6	243	42.0	107	18.5

*(Reitz 1988).

Table 3. Summary of Calvert MNI*.

	Period 3		Period 4	
	#	%	#	%
	PIG			
Juvenile	3	27.3	6	30.0
Subadult	1	9.1	5	25.0
Adult	7	63.6	2	10.0
Indeterminate	—		7	35.0
Total	11		20	
	COW			
Juvenile	3	30.0	2	9.5
Subadult	1	10.0	10	47.6
Adult	1	10.0	4	19.0
Indeterminate	5	50.0	5	23.8
Total	10		21	
	CAPRINE			
Juvenile	3	25.0	4	23.5
Subadult	5	41.7	5	29.4
Adult	4	33.3	4	23.5
Indeterminate	—		4	23.5
Total	12		17	

*(Reitz 1988).

Table 4. Allometric Values Used in This Study.[a]

Faunal Category	N	log a	b	r^2
Biomass, kg, from Bone Weight, kg				
Mammal	97	1.12	0.90	0.94
Bird	307	1.04	0.91	0.97
Turtle	26	0.51	0.67	0.55
Snake	26	1.17	1.01	0.97
Chondrichthyes	17	1.68	0.86	0.85
Osteichthyes	393	0.90	0.81	0.80
Non-perciformes	119	0.85	0.79	0.66
Siluriformes	36	1.15	0.95	0.87
Perciformes	274	0.93	0.83	0.76
Serranidae	18	1.51	1.08	0.85
Centrarchidae	38	0.76	0.84	0.80
Carangidae	17	1.23	0.88	0.86
Sparidae	22	0.96	0.92	0.98
Sciaenidae	99	0.81	0.74	0.73
Pleuronectiformes	21	1.09	0.89	0.95

[a]The allometric formula is $Y=aX^b$, where Y is biomass, X is bone weight, a and b are scaled constants, N is the number of observations used in the regression, and r^2 is the proportion of total variance explained by the regression model (Reitz and Cordier 1983; Reitz et al. 1987).

Table 5. Reynolds Tavern: Feature 103 Species List.

	COUNT	MNI		WT, GMS	BIOMASS	
		#	%		KG	%
UID Mammal	2605			1941.2	23.948	12.6
UID Small Mammal	123			41.0	0.744	0.4
UID Large Mammal	557			4006.1	45.967	24.2
Oryctolagus cuniculus	1	1	2.4	1.0	0.026	0.01
Old World rabbit						
Sylvilagus spp.	13	3	7.3	9.0	0.190	0.1
Cottontail						
UID Carnivore	6			4.2	0.096	0.1
Canidae	1			2.2	0.053	0.03
Dog family						
Urocyon cinereoargenteus	17	1	2.4	7.7	0.165	0.1
Gray fox						
Procyon lotor	21	1	2.4	11.2	0.231	0.1
Raccoon						
Artiodactyl	145			872.6	11.661	6.2
Sus scrofa	88	4	9.8	857.5	11.478	6.1
Pig						
Bos taurus	148	8	19.5	6289.4	68.984	36.4
Cow						

Table 5. Reynolds Tavern: Feature 103 Species List. (cont.)

	COUNT	MNI		WT, GMS	BIOMASS	
		#	%		KG	%
Caprine	131			1113.0	14.516	7.7
Sheep/Goat						
Capra hircus	1	1	2.4	17.5	0.346	0.2
Goat						
Ovis aries	21	5	12.2	312.5	4.628	2.4
Sheep						
UID Bird	233			144.5	1.886	1.0
Anatidae	5			8.0	0.151	0.1
Duck family						
Anas spp.	5	1	2.4	3.0	0.055	0.03
Dabbling duck						
Avthya spp.	1	1	2.4	1.1	0.022	0.01
Diving duck						
Branta canadensis	3	1	2.4	9.4	0.157	0.1
Canada goose						
Galliformes	6			18.0	0.283	0.1
Fowl-like birds						
Gallus gallus	90	7	17.1	128.2	1.691	0.9
Chicken						

Table 5. Reynolds Tavern: Feature 103 Species List. (cont.)

	COUNT	MNI		WT. GMS	BIOMASS	
		#	%		KG	%
Meleagris gallopavo	15	2	4.9	41.7	0.609	0.3
Turkey						
Muscicapidae	2	1	2.4	0.4	0.009	tr
Song birds						
UID Turtle	5	1	2.4	8.2	0.129	0.1
UID Fish	96			69.2	0.913	0.5
Morone spp.	1	1	2.4	0.2	0.007	tr
Temperate bass						
Sparidae	7			12.2	0.156	0.1
Porgy family						
Archosargus probatocephalus	2	1	2.4	3.0	0.044	0.02
Sheepshead						
Sciaenidae	1			3.2	0.092	0.05
Drum family						
Pogonias cromis	3	1	2.4	18.4	0.336	0.2
Black drum						
UID Vertebrate				69.4		

Table 5. Reynolds Tavern: Feature 103 Species List. (cont.)

	COUNT	MNI		WT, GMS	BIOMASS	
	#	#	%		KG	%
Decapoda	1			0.1		
Crabs						
Crassostrea virginica	1			1.7		
Oyster						
TOTAL	4355	41		16047.0	189.576	

Table 6. Reynolds Tavern: Feature 103 Summary.

	MNI		BIOMASS	
	#	%	KG	%
Domestic Mammal	19	46.3	85.463	95.9
Domestic Bird	7	17.1	1.691	1.9
Wild Mammal	5	12.2	0.586	0.7
Wild Bird	5	12.2	0.843	0.9
Reptile	1	2.4	0.129	0.1
Fishes	3	7.3	0.387	0.4
Commensal Taxa	1	2.4	0.009	0.01
TOTAL	41		89.108	

Table 7. Reynolds Tavern: Feature 103 Elements Identified.

	Pig	Cow	Caprine	Goat	Sheep
Head	35	37	37		
Vertebra/Rib	1	6	1		
Forequarter	19	8	24		9
Forefeet	4	3	11		
Feet	10	33	7		
Hindfeet	13	26	12		5
Hindquarter	6	33	39	1	7
TOTAL	86	146	131	1	21

Table 8. Reynolds Tavern: Feature 103 Modifications Observed.

	BURNED	GNAWED		SAWED	CUT	HACKED
		RODENT	CARNIVORE			
UID Mammal	32				3	
UID Small Mammal	1					
UID Large Mammal	9				16	1
Raccoon					1	
Artiodactyl					3	
Pig	3				2	
Cow					9	14
Caprine	1				9	1
Sheep						2
UID Bird	3					
Canada Goose					1	
Chicken	—				2	—
TOTAL	49				46	18

Table 9. Reynolds Tavern: Feature 103 Fusion, Pig.

	UNFUSED	FUSED	TOTAL
EARLY FUSING:			
HUMERUS, DISTAL	2		2
RADIUS, PROXIMAL		2	2
ACETABULUM		4	4
METAPODIALS, PROXIMAL	1	8	9
PHALANX, PROXIMAL	5	3	8
MIDDLE FUSING:			
TIBIA, DISTAL	1		1
CALCANEUS, PROXIMAL	1		1
METAPODIALS, DISTAL	1	7	8
LATE FUSING:			
HUMERUS, PROXIMAL	1		1
RADIUS, DISTAL	1		1
ULNA, PROXIMAL	3		3
ULNA, DISTAL	1		1
FEMUR, PROXIMAL			
FEMUR, DISTAL	1		1
TIBIA, PROXIMAL			
TOTAL	18	24	42

Table 10. Reynolds Tavern: Feature 103 Fusion, Cow.

	UNFUSED	FUSED	TOTAL
EARLY FUSING:			
HUMERUS, DISTAL		1	1
RADIUS, PROXIMAL		1	1
ACETABULUM		7	7
METAPODIALS, PROXIMAL	3	2	5
PHALANX, PROXIMAL	1	28	29
MIDDLE FUSING:			
TIBIA, DISTAL	1	7	8
CALCANEUS, PROXIMAL	3	1	4
METAPODIALS, DISTAL	6	2	8
LATE FUSING:			
HUMERUS, PROXIMAL			
RADIUS, DISTAL	2		2
ULNA, PROXIMAL	1		1
ULNA, DISTAL			
FEMUR, PROXIMAL	3	1	4
FEMUR, DISTAL			
TIBIA, PROXIMAL	1	2	3
TOTAL	21	52	73

Table 11. Reynolds Tavern: Feature 103 Fusion, Caprine.

	UNFUSED	FUSED	TOTAL
EARLY FUSING:			
HUMERUS, DISTAL		3	3
RADIUS, PROXIMAL		3	3
ACETABULUM	1	3	4
METAPODIALS, PROXIMAL		12	12
PHALANX, PROXIMAL	4		4
MIDDLE FUSING:			
TIBIA, DISTAL	2	2	4
CALCANEUS, PROXIMAL	1		1
METAPODIALS, DISTAL		1	1
LATE FUSING:			
HUMERUS, PROXIMAL		3	3
RADIUS, DISTAL	1	1	2
ULNA, PROXIMAL	2		2
ULNA, DISTAL			
FEMUR, PROXIMAL	6	2	8
FEMUR, DISTAL	2	1	3
TIBIA, PROXIMAL	3	1	4
TOTAL	22	32	54

Table 12. Reynolds Tavern: Feature 103 Fusion, Sheep.

	UNFUSED	FUSED	TOTAL
EARLY FUSING:			
HUMERUS, DISTAL		1	1
RADIUS, PROXIMAL		4	4
ACETABULUM			
METAPODIALS, PROXIMAL			
PHALANX, PROXIMAL			
MIDDLE FUSING:			
TIBIA, DISTAL	1	6	7
CALCANEUS, PROXIMAL	2	2	4
METAPODIALS, DISTAL			
LATE FUSING:			
HUMERUS, PROXIMAL			
RADIUS, DISTAL	1	2	3
ULNA, PROXIMAL			
ULNA, DISTAL			
FEMUR, PROXIMAL			
FEMUR, DISTAL			
TIBIA, PROXIMAL			
TOTAL	4	15	19

Table 13. Reynolds Tavern: Feature 107 Species List.

	COUNT			WT, GMS	BIOMASS	
		#	%		KG	%
UID Mammal	599			762.8	10.332	46.8
UID Small Mammal	4			2.2	0.053	0.2
Artiodactyl	12			80.4	1.364	6.2
Sus scrofa Pig	18	2	13.3	82.4	1.394	6.3
Bos taurus Cow	15	2	13.3	381.9	5.543	25.1
Caprine Sheep/Goat	14	3	20.0	125.1	2.030	9.2
Ovis aries Sheep	2			13.9	0.281	1.3
UID Bird	40			17.4	0.275	1.2
Anas spp. Duck	4	2	13.3	2.1	0.040	0.2
Galliformes Fowl-like birds	4			11.0	0.181	0.8
Gallus gallus Chicken	3	1	6.7	6.6	0.114	0.5

Table 13. Reynolds Tavern: Feature 107 Species List. (cont.)

	COUNT	MNI		WT, GMS	BIOMASS	
		#	%		KG	%
Meleagris gallopavo	1	1	6.7	3.4	0.062	0.3
Turkey						
Malaclemys terrapin	3	1	6.7	1.7	0.045	0.2
Diamondback terrapin						
UID Fish	9			3.9	0.089	0.4
Sparidae	1			2.2	0.033	0.1
Porgy family						
Archosargus probatocephalus	4	2	13.3	19.5	0.244	1.1
Sheepshead						
Tautoga onitis	1	1	6.7	0.5	0.015	0.1
Tautog						
UID Vertebrate	—	—		10.0	—	
TOTAL	734	15		1527.0	22.095	

Table 14. Reynolds Tavern: Feature 107 Summary.

	MNI		BIOMASS	
	#	%	KG	%
Domestic Mammal	7	46.7	8.967	94.5
Domestic Bird	1	6.7	0.114	1.2
Wild Mammal				
Wild Bird	3	20.0	0.102	1.1
Reptile	1	6.7	0.045	0.5
Fishes	3	20.0	0.259	2.7
Commensal Taxa				
TOTAL	15		9.487	

Table 15. Reynolds Tavern: Feature 107 Elements Identified.

	Pig	Cow	Caprine
Head	7	9	3
Vertebra/Rib			
Forequarter			2
Forefeet	5	2	
Feet	3	1	
Hindfeet	2	3	7
Hindquarter	1	—	4
TOTAL	18	15	16

Table 16. Reynolds Tavern: Feature 107 Modifications Observed.

	BURNED	GNAWED		SAWED	CUT	WORKED
		RODENT	CARNIVORE			
UID Mammal				13		
Artiodactyl				1		
Pig				1		
Cow				2		
Sheep				1		
TOTAL				16		

Table 17. Reynolds Tavern: Feature 107 Fusion, Pig.

	UNFUSED	FUSED	TOTAL
EARLY FUSING:			
HUMERUS, DISTAL			
RADIUS, PROXIMAL			
ACETABULUM			
METAPODIALS, PROXIMAL		2	2
PHALANX, PROXIMAL	1	2	3
MIDDLE FUSING:			
TIBIA, DISTAL			
CALCANEUS, PROXIMAL			
METAPODIALS, DISTAL	1	1	2
LATE FUSING:			
HUMERUS, PROXIMAL			
RADIUS, DISTAL			
ULNA, PROXIMAL			
ULNA, DISTAL			
FEMUR, PROXIMAL			
FEMUR, DISTAL			
TIBIA, PROXIMAL	1	–	1
TOTAL	3	5	8

Table 18. Reynolds Tavern: Feature 107 Fusion, Cow.

	UNFUSED	FUSED	TOTAL
EARLY FUSING:			
HUMERUS, DISTAL			
RADIUS, PROXIMAL			
ACETABULUM			
METAPODIALS, PROXIMAL		2	2
PHALANX, PROXIMAL		1	1
MIDDLE FUSING:			
TIBIA, DISTAL			
CALCANEUS, PROXIMAL			
METAPODIALS, DISTAL	1		1
LATE FUSING:			
HUMERUS, PROXIMAL			
RADIUS, DISTAL			
ULNA, PROXIMAL			
ULNA, DISTAL			
FEMUR, PROXIMAL			
FEMUR, DISTAL			
TIBIA, PROXIMAL			
TOTAL	1	3	4

Table 19. Reynolds Tavern: Feature 107 Fusion, Caprine.

	UNFUSED	FUSED	TOTAL
EARLY FUSING:			
HUMERUS, DISTAL			
RADIUS, PROXIMAL		1	1
ACETABULUM		1	1
METAPODIALS, PROXIMAL			
PHALANX, PROXIMAL			
MIDDLE FUSING:			
TIBIA, DISTAL			
CALCANEUS, PROXIMAL	1	2	3
METAPODIALS, DISTAL			
LATE FUSING:			
HUMERUS, PROXIMAL			
RADIUS, DISTAL			
ULNA, PROXIMAL			
ULNA, DISTAL			
FEMUR, PROXIMAL			
FEMUR, DISTAL			
TIBIA, PROXIMAL			
TOTAL	1	4	5

Table 20. Reynolds Tavern: Feature 106 Species List.

	COUNT	MNI		WT, GMS	BIOMASS	
	#	#	%		KG	%
UID Mammal	296			280.6	4.200	10.9
UID Small Mammal	74			34.6	0.639	1.7
UID Large Mammal	90			379.7	5.514	14.3
Sylvilagus spp.						
Cottontail	1	1	1.9	0.5	0.014	0.04
Sciurus spp.						
Squirrel	2	1	1.9	2.1	0.051	0.1
Rattus spp.						
Old World rat	166	18	33.3	66.1	1.143	3.0
Canis familiaris						
Dog	65	1	1.9	109.5	1.801	4.7
Felis domesticus						
Cat	83	4	7.4	131.5	2.123	5.5
Artiodactyl	28			305.8	4.536	11.7
Sus scrofa						
Pig	19	2	3.7	227.2	3.474	9.0
Bos taurus						
Cow	19	1	1.9	499.2	7.054	18.3

Table 20. Reynolds Tavern: Feature 106 Species List. (cont.)

	COUNT	MNI		WT, GMS	BIOMASS	
		#	%		KG	%
Caprine Sheep/Goat	9	3	5.6	133.8	2.157	5.6
UID Bird	229			86.4	1.181	3.1
Anas spp. Duck	1	1	1.9	0.5	0.011	0.03
Branta canadensis Canada goose	2	1	1.9	5.2	0.092	0.2
Galliformes Fowl-like birds	40			44.3	0.643	1.7
Gallus gallus Chicken	141	12	22.2	245.2	3.051	7.9
Meleagris gallopavo Turkey	9	2	3.7	47.0	0.679	1.8
UID Turtle	1	1	1.9	1.0	0.032	0.1
UID Fish	8			2.0	0.052	0.1
Clupeidae Herring family	3	1	1.9	0.8	0.025	0.1
Morone spp. Temperate bass	21	4	7.4	6.0	0.122	0.3

Table 20. Reynolds Tavern: Feature 106 Species List. (cont.)

	COUNT	MNI		WT, GMS	BIOMASS	
		#	%		KG	%
Sparidae	1			1.2	0.019	0.05
Porgy family						
Archosargus probatocephalus	1	1	1.9	1.2	0.019	0.05
Sheepshead						
UID Vertebrate	—	—		34.8	—	
TOTAL	1309	54		2646.2	38.634	

Table 21. Reynolds Tavern: Feature 106 Summary.

	NNI		BIOMASS	
	#	%	KG	%
Domestic Mammal	6	11.1	12.685	58.1
Domestic Bird	12	22.2	3.051	14.0
Wild Mammal	2	3.7	0.065	0.3
Wild Bird	4	7.4	0.782	3.6
Reptile	1	1.9	0.032	0.1
Fishes	6	11.1	0.166	0.8
Commensal Taxa	23	42.6	5.067	23.2
TOTAL	53		21.848	

Table 22. Reynolds Tavern: Feature 106 Elements Identified.

	Pig	Cow	Caprine
Head	4	1	
Vertebra/Rib	1	13	
Forequarter	2		
Forefeet			1
Feet	1	1	1
Hindfeet	4	1	1
Hindquarter	7	3	6
TOTAL	19	19	9

Table 23. Reynolds Tavern: Feature 106 Modifications Observed.

	BURNED	GNAWED		SAWED	CUT	WORKED
		RODENT	CARNIVORE			
UID Mammal	1			2	2	1
UID Lg Mammal				5	3	
Artiodactyl				6	1	
Pig	1			2	2	
Cow				9	3	
Caprine					2	
Galliformes	1					
Chicken	—		2	—	4	—
TOTAL	3		2	24	17	1

Table 24. Reynolds Tavern: Feature 106 Fusion, Pig.

	UNFUSED	FUSED	TOTAL
EARLY FUSING:			
HUMERUS, DISTAL			
RADIUS, PROXIMAL			
ACETABULUM			
METAPODIALS, PROXIMAL			
PHALANX, PROXIMAL			
MIDDLE FUSING:			
TIBIA, DISTAL			
CALCANEUS, PROXIMAL	1	1	
METAPODIALS, DISTAL			
LATE FUSING:			
HUMERUS, PROXIMAL			
RADIUS, DISTAL			
ULNA, PROXIMAL			
ULNA, DISTAL			
FEMUR, PROXIMAL	1	1	
FEMUR, DISTAL	3	3	
TIBIA, PROXIMAL	-	-	
TOTAL	5	5	

Table 25. Reynolds Tavern: Feature 106 Fusion, Cow.

	UNFUSED	FUSED	TOTAL
EARLY FUSING:			
HUMERUS, DISTAL			
RADIUS, PROXIMAL			
ACETABULUM			
METAPODIALS, PROXIMAL			
PHALANX, PROXIMAL		1	1
MIDDLE FUSING:			
TIBIA, DISTAL			
CALCANEUS, PROXIMAL			
METAPODIALS, DISTAL			
LATE FUSING:			
HUMERUS, PROXIMAL			
RADIUS, DISTAL			
ULNA, PROXIMAL			
ULNA, DISTAL			
FEMUR, PROXIMAL	1		1
FEMUR, DISTAL			
TIBIA, PROXIMAL			
TOTAL	1	1	2

Table 26. Reynolds Tavern: Feature 106 Fusion, Caprine.

	UNFUSED	FUSED	TOTAL
EARLY FUSING:			
HUMERUS, DISTAL			
RADIUS, PROXIMAL			
ACETABULUM		2	2
METAPODIALS, PROXIMAL		1	1
PHALANX, PROXIMAL	1		1
MIDDLE FUSING:			
TIBIA, DISTAL			
CALCANEUS, PROXIMAL			
METAPODIALS, DISTAL			
LATE FUSING:			
HUMERUS, PROXIMAL			
RADIUS, DISTAL			
ULNA, PROXIMAL			
ULNA, DISTAL			
FEMUR, PROXIMAL	1		1
FEMUR, DISTAL	1		1
TIBIA, PROXIMAL	1		1
TOTAL	4	3	7

Appendix A. Reynolds Tavern Bag Numbers Studied.

Feature 103:		FEATURE 106:		FEATURE 107:
204	282	211	281	2
206	283	213	282	4
212	284	216	283	5
213	286	218	286	6
214	287	219	285	12
221	291	223	288	13
225	292	228	292	27
227	295	234	296	45
231	296	237	301	54
232	297	240	303	75
233	300	242	308	79
235	303	244	309	272
236	319	247	313	278
241	328	248	316	336
243	332	250	320	345
245	333A	252	329	347
246	334	253	330	349
252	342	254	333B	351
253	344	255	334	352
257	354	256	335	
258	366	268	346	
268	371	273	363	
270	372	274	364	
271	373	276	367	
278	375	278	369	
281	376			

Appendix B. Reynolds Tavern Measurements.

Taxon	Element	Dimension	Measurement, mm
Sus scrofa	Astragalus	Bd	23.5
		GLm	49.8
	Radius	Bp	30.1
	Scapula	BG	25.5
		GLP	35.2
		LG	27.7
		SLC	20.9, 23.0
	Ulna	BPC	21.0, 26.1
Bos taurus	Astragalus	Bd	38.2, 39.2, 39.38, 45.5
		Dl	32.52, 33.5, 35.06, 39.0
		Dm	33.2, 35.1, 36.2, 40.1
		GLl	57.64, 61.54, 62.20
		GLm	53.92, 56.06, 56.2, 62.7
	Calcaneus	GB	39.1
		GL	123.9
	Cubonavicular	GB	48.1, 56.5, 57.0
	Humerus	Bd	70.3
	Metacarpus	Bd	52.48
		Bp	52.52, 56.5, 57.6
		GL	185.52
		SD	29.0
	Metatarsus	Bd	57.2
		Bp	41.92, 52.50
		GL	235.0
		SD	30.7
	Radius	BFp	74.9
		Bp	79.1
	Tibia	Bd	56.7, 58.2, 56.7, 59.8
		Bp	81.5, 84.4
		Dd	41.5, 42.5, 42.7, 42.9, 44.9
		GL	334.0
		SD	33.2
	Ulna	BPC	48.7
Caprine	Astragalus	Bd	17.8, 20.4, 20.7
		Dl	15.3, 16.8, 17.5
		Dm	15.8, 17.7
		GLl	27.0, 31.3, 31.7
		GLm	25.6, 29.9, 31.0
	Cubonavicular	GB	22.9
	Humerus	Bd	30.3, 39.9
	Metacarpus	Bd	25.3
		Bp	22.7, 22.7, 23.3, 23.7, 24.9, 25.2, 25.9
	Metatarsus	Bp	19.6, 20.5, 22.1, 23.0, 23.7
	Radius	Bp	31.6, 33.3
	Scapula	SLC	17.8, 22.9

Appendix B. Reynolds Tavern Measurements. (cont.)

Taxon	Element	Dimension Measurement, mm	
Caprine	Tibia	Bd	27.1, 28.9
		Bp	43.5
		Dd	23.1
	Ulna	BPC	17.3, 17.5, 18.2, 21.6
Capra hircus	Tibia	Bd	28.90
		Dd	22.40
Ovis aries	Calcaneus	GB	20.72
		GL	60.9, 63.86, 65.38
	Humerus	Bd	31.9
	Radius	Bd	30.38
		BFd	24.94
		Bp	24.4, 28.9, 32.1, 33.4
	Tibia	Bd	26.5, 26.8, 28.94, 30.18, 30.2, 39.8
		Dd	22.2, 22.3, 23.3
		SD	15.0, 15.98
Branta canadensis	Carpometacarpus	Bp	26.6
		Did	15.1
		GL	111.7
	Scapula	Dic	19.5
Gallus gallus	Carpometacarpus	Bp	10.1, 10.4, 10.7, 10.88, 11.0, 11.08, 13.10, 13.28
		Did	5.9, 6.1, 6.5, 6.7, 7.16, 7.2, 8.22, 8.5, 8.64, 9.54
		GL	34.92, 35.2, 35.3, 35.4, 36.66, 42.32, 42.46
	Coracoid	Bb	13.24, 13.32, 13.6, 14.02
		Bb	14.10, 15.26, 15.94, 15.98, 17.72 , 17.78
		BF	11.1, 11.2, 11.72, 11.86, 11.9, 11.94, 12.26, 12.3, 14.12, 14.38
		GL	50.6, 53.5, 54.02, 55.2, 55.4, 56.14, 57.0, 59.22, 59.76, 61.94 65.06
		Lm	48.1, 51.2, 51.62, 52.06, 52.26, 53.08, 54.8, 56.24, 56.38, 59.0, 60.16, 62.32
	Femur	Bd	10.1, 12.5, 13.3, 13.6, 14.9, 15.0, 15.1,17.2, 17.34, 18.0, 19.7, 19.76
		Bp	12.4, 13.3, 14.1, 14.6, 14.6, 14.8, 15.04, 15.4, 17.62, 17.8 18.0, 18.28, 18.38, 18.4
		Dd	12.0, 12.5, 12.6, 12.7, 14.18, 14.6, 14.9, 15.4, 16.02, 17.86, 17.9

Appendix B. Reynolds Tavern Measurements. (cont.)

Taxon	Element	Dimension	Measurement, mm
Gallus gallus	Femur	Dp	9.6, 10.6, 11.24, 12.7, 13.0, 13.38, 15.32, 19.7
		GL	74.5, 74.7, 80.6, 88.28, 92.9, 93.26, 93.28
		Lm	69.4, 69.8, 75.53, 82.0, 85.9, 86.1, 86.22, 86.78
		SC	5.50, 6.1, 6.5, 6.6, 7.4, 7.6, 9.4, 9.46
	Humerus	Bd	13.4, 13.9, 13.9, 14.0, 14.82, 15.5, 16.16, 16.22, 16.54
		Bp	17.8, 17.9, 18.1, 18.2, 18.5, 19.0, 19.2, 20.08, 20.74, 21.04, 21.36, 21.52, 22.0, 22.02
		GL	68.72, 72.98, 76.7, 78.0
		SC	6.5, 6.8, 7.38, 7.4, 7.66, 7.82, 7.88
	Radius	Bd	6.9, 7.16
		GL	62.28, 68.5
		SC	3.4, 3.62
	Scapula	Dic	10.6, 11.0, 11.5, 11.6, 11.96, 12.13, 12.24, 12.5, 12.74, 13.06, 13.4, 13.5, 13.6, 13.7, 13.94
	Tarsometatarsus	Bd	11.6, 12.3, 13.44
		Bp	11.00, 12.50, 13.62, 15.64, 15.88, 16.78
		GL	79.36, 84.84, 85.38
		SC	6.40, 8.34
	Tibiotarsus	Bd	10.0, 10.1, 10.1, 10.2, 10.4, 10.5, 10.5, 10.9, 11.0, 11.0, 11.3, 11.4, 12.1, 13.42, 13.7, 14.28, 14.9, 15.8, 16.6, 16.7
		Dd	10.5, 10.7, 11.0, 11.0, 11.0, 11.2, 11.7, 12.42, 13.0, 13.56, 14.38, 14.7, 14.9, 15.0, 15.24, 16.2
		Dip	13.3, 13.4, 15.4, 18.0, 18.4, 18.7, 20.7, 23.0, 23.82, 25.86, 26.24
		GL	104.9, 114.74, 120.5, 124.98, 125.06, 136.92
		La	101.4, 111.04, 115.7, 120.58, 121.22, 132.0
		SC	6.0, 6.04, 7.0, 7.8, 7.88, 8.54, 8.56
	Ulna	Bp	7.50, 8.1, 8.2, 8.3, 8.4, 8.6, 8.9, 9.32, 9.4, 9.54, 9.9

Appendix B. Reynolds Tavern Measurements. (cont.)

Taxon	Element	Dimension Measurement, mm	
Gallus gallus	Ulna	Did	7.0, 7.7, 7.9, 8.0, 8.2, 8.2, 8.7, 8.82, 9.1, 9.42, 10.04, 10.2, 10.78, 10.84, 11.0, 11.8, 12.6
		Dip	10.6, 11.1, 11.1, 11.6, 11.9, 12.0, 12.1, 12.72, 14.26, 14.34, 14.52
		GL	51.4, 65.2, 65.6, 66.6, 68.6, 75.88, 78.6, 79.22
		SC	4.0, 4.0, 4.44, 5.04, 5.3, 5.68, 5.86, 6.14
Meleagris gallopavo	Carpometacarpus	GL	66.0
	Humerus	Bd	23.44, 28.1
		Bp	29.8, 31.04, 32.0
		GL	117.12
		SC	11.18
	Radius	Bd	9.88
	Tarsometatarsus	Bd	18.5
		Bp	22.5
	Tibiotarsus	Bd	19.9
		Dd	19.2
	Ulna	Bp	14.38
		Did	14.94
		Dip	20.86
		GL	117.2
		SC	7.04