Zooarchaeological Evidence from the Mount Pleasant Site (44OR219): Faunal Remains from the Root Cellar, Kitchen Cellar, and Site Strata 7

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February 1, 2002

Introduction

The Mount Pleasant site (44OR219) was the childhood home of James Madison, Jr. The site was first occupied by the Madison family in 1732 (Reeves 2001). The plantation was occupied by the Madisons until 1760 when the family moved into the mansion at Montpelier.

Archaeological excavations revealed the remains of a large root cellar, a kitchen cellar, and post holes associated with a post-in ground structure located to the south of the kitchen. The results of the analysis of zooarchaeological remains for these three samples are presented below.

Methods

Vertebrate remains were identified using standard zooarchaeological methods. In conformity to these methods, specimens are identified to the lowest possible taxonomic level. All identifications of the materials reported here were made by Barnet Pavao-Zuckerman. A list of the samples reported here is attached as Appendix A.

A number of primary data classes are recorded. Specimens are identified in terms of elements represented, the portion recovered, and symmetry. The Number of Identified Specimens (NISP) is determined. Those specimens that cross-mend are counted as single specimens. However, NISP is not determined for the Vertebrata and Shell categories as these specimens are generally too fragmented to accurately count. All specimens (including Vertebrata and Shell) are weighed to provide additional information about the relative abundance of the taxa identified. Indicators for sex, age at death, and modifications are noted where observed. Skeletal measurements are recorded following the guidelines established by Angela von den Driesch (1976) and are presented in Appendix B.

The Minimum Number of Individuals (MNI) is estimated based on paired elements and age. Some molluscan fragments are present in the samples studied, but MNI was not estimated for invertebrate remains. It is not known how these molluscs relate to the site's total molluscan component. While MNI is a standard zooarchaeological quantification method, the measure has several well-known biases. For example, MNI emphasizes small species over larger ones. This can be demonstrated in a hypothetical sample consisting of twenty squirrels (*Sciurus* spp.) and one cow (*Bos taurus*). Although twenty squirrels indicate emphasis on the exploitation of squirrel, one cow would supply more meat. Further, some elements are more readily identifiable than are others. The taxa represented by these elements may therefore be incorrectly perceived as more significant to the diet than animals with less distinctive elements. Pig (*Sus scrofa*) teeth, readily identified from very small fragments, exemplify this situation. Conversely, some taxa represented by large numbers of specimens may present few paired elements and hence the number of individuals for these species may be underestimated. Turtles (Testudines) are good examples of this last problem. MNI for these animals will usually be underestimated relative to the number of specimens.

On occasion, the MNI for an organism is smaller than the MNI for a corresponding higher taxonomic level. For instance, it is possible that the MNI for the squirrel genus (*Sciurus* sp.) could be five while the MNI for the gray squirrel species (*Sciurus carolinensis*) is only one. In these cases the MNI for the higher taxonomic category (in this case, genus) is included on the species list and used in subsequent calculations.

Biomass estimates attempt to compensate for some of the problems encountered with MNI. Biomass refers to the quantity of tissue that a specified taxon might have supplied. Predictions of biomass 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 material, in this case bones and teeth. The relationship between body weight and skeletal weight is described by the allometric equation:

$$Y = aX^b$$

(Reitz and Wing 1999). In this equation, X is specimen weight, Y is the biomass, b is the constant of allometry (the slope of the line), and a is the Y-intercept for a log-log plot using the method of least squares regression and the best fit line (Casteel 1978; Reitz and Cordier 1983; Reitz, et al. 1987; Wing and Brown 1979). Many biological phenomena show allometry described by this formula (Gould 1966, 1971) so that a given quantity of skeletal material or a specific skeletal dimension represents a predictable amount of tissue or body length due to the effects of allometric growth. Values for a and b are derived from calculations based on data at the Florida Museum of Natural History, University of Florida, and the University of Georgia Museum of Natural History. Allometric formulae for biomass estimates are not currently available for amphibians or lizards so biomass is not estimated for these groups.

The species identified from Mt. Pleasant are summarized in faunal categories based on vertebrate class. This summary contrasts the percentage of various groups of taxa in the collection. These categories are Fish, Turtle, Wild Bird, Domestic Bird, Wild Mammal, Domestic Mammal, Commensal. In order to make comparisons of MNI and biomass estimates possible the summary tables include biomass estimates only for those taxa for which MNI is estimated.

While commensal animals might be consumed, they are commonly found in close association with humans and their built environment. The presence of commensal animals is either actively encouraged by humans for reasons other than for food (e.g., pets), or must be tolerated by humans (e.g., pest species). Large rodents such as squirrel (*Sciurus* spp.) might also be commensal but are not put into the Commensal category because their body size is large enough that they could have been exploited as a food resource.

The presence or absence of elements in an archaeological assemblage provides data on animal use such as butchering practices and transportation costs. The artiodactyl elements identified at Mt. Pleasant are summarized into categories by body parts. The Head category includes only skull fragments, including antlers and teeth. The atlas and axis, along with other vertebrae and ribs, are placed into the Vertebra/Rib category. It is likely the Head and Vertebra/Rib categories are under-represented because of recovery and identification difficulties. Vertebrae and ribs of deer-sized animals cannot be identified as pig, deer, or caprine unless distinctive morphological features support such identifications. Usually they do not, and specimens from these elements are identified only to class, Mammalia. Forequarter includes the scapula, humerus, radius, and ulna. Carpal and metacarpal specimens are presented in the Forefoot category. The Hindfoot category includes tarsal and metatarsal specimens. The Hindquarter category includes the innominate, sacrum, femur, and tibia. Metapodiae and podiae which could not be assigned to one of the other categories, as well as sesamoids and phalanges, are assigned to the Foot category.

Relative ages of the artiodactyls identified are estimated based on observations of the degree of epiphyseal fusion for diagnostic elements and tooth eruption data (Severinghaus 1949). When animals are young their elements are not fully formed. The area of growth along the shaft and the end of the element, the epiphysis, is not fused. When growth is complete the shaft and the epiphysis fuse. While environmental factors influence the actual age at which fusion is complete (Watson 1978), elements fuse in a regular temporal sequence (Gilbert 1973; Purdue 1983; Schmid 1972). During analysis, specimens are recorded as either fused or unfused and placed into one of three categories based on the age in which fusion generally occurs. Unfused elements in the early-fusing category are interpreted as evidence for juveniles; unfused elements in the middle-fusing and late-fusing categories are usually interpreted as evidence for subadults, though sometimes characteristics of the specimen may suggest a juvenile. Fused specimens in the late-fusing group provide evidence for adults. Fused specimens in the early- and middle-fusing groups are indeterminate. Clearly fusion is more informative for unfused elements which fuse early in the maturation sequence and for fused elements that complete fusion late in the maturation process than it is for other elements. An early-fusing element that is fused could be from an animal that 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. Tooth eruption data (Hilson 1986) are also recorded and used to estimate the ages of artiodactyl individuals when possible.

The sex of animals is an important indication of animal use; however, there are few diagnostic indicators of sex. Males are indicated by the presence of spurs on the tarsometatarsus of turkeys and antlers on deer. Male turtles are indicated by a depression on the plastron to accommodate the female during mating. Male swine are identified by their extremely large canine teeth. Females are recognized by the absence of these features. Female birds may also be identified by the presence of medullary bone (Rick 1975).

Modifications can indicate butchering methods as well as site formation processes. Modifications are classified as cut, hacked, calcined, burned, carnivore-gnawed, rodent-gnawed, and metal-stained. While NISP for specimens identified as Vertebrata is not included in the species lists, modified Vertebrata specimens are included in the modification tables. Burned specimens may result from exposure to fire when a cut of meat is roasted. Burns may also occur if specimens are burned intentionally or unintentionally after discard. Calcined bones are the result of two possible processes. Burning at extreme temperatures can cause calcination and is usually indicated by blue-gray discoloration. However, calcification, the deposition of calcium salts, can occur in shell deposits, resulting in hardened bone that is virtually indistinguishable from calcined bone. Both calcination and calcification may have occurred in this assemblage, but no attempt was made to distinguish between them.

Cuts are small incisions across the surface of specimens. Knives probably made these marks as meat was removed before or after the meat was cooked. Cuts may also be left on specimens when disarticulating the carcass at joints. Some marks that appear to be made by human tools may actually be abrasions inflicted after the specimens were discarded, but distinguishing this source of small cuts requires access to higher powered magnification than is currently available (Shipman and Rose 1983). Hack marks are evidence that some larger instrument, such as a cleaver, was used. Presumably, a cleaver, hatchet, or ax would be used to dismember the carcass before the meat was cooked. These marks give clues as to how the carcasses were butchered, and to what end the modifications were inflicted.

Gnawing by rodents and carnivores indicate that specimens were not immediately buried after disposal. While burial would not insure an absence of gnawing, exposure of specimens for any length of time might result in gnawing. Rodents would include such animals as squirrels, mice, and rats. Carnivores would include such animals as dogs and raccoons. Gnawing by carnivores and rodents would result in loss of an unknown quantity of discarded material. Kent (1981) demonstrates that some bone gnawed by carnivores such as dogs may not necessarily leave any visible sign of such gnawing and yet the specimens would quite probably be moved from their original context.

Specimen count, MNI, biomass, and other derived measures are subject to several common biases (Casteel 1978; Grayson 1979, 1981; Wing and Brown 1979). In general, samples of at least 200 individuals or 1400 specimens are needed for reliable interpretations. Smaller 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.

Feature 54

Feature 54 is interpreted as a large root cellar located to the south of the detached kitchen at Mount Pleasant (Reeves 2001). There was probably not a structure above the root cellar. The cellar likely served as an unlined covered yard storage pit. The root cellar was backfilled sometime in the 1740's possibly using architectural remains from a burned structure to the west, and from a new cellar dug for the replacement structure, as well as with household trash. The fill contained large quantities of rock rubble, melted glass, and bone.

Results

The zooarchaeological assemblage from Feature 54 is fairly small, with a minimum of 16 individuals identified from 263 identifiable specimens (Table 1). The small sample size of the assemblage limits the interpretations that can be made concerning vertebrate resource use at Mount Pleasant.

Specimens were identified from a wide variety of taxa, including both wild and domestic resources. Two wild birds, including duck (Anatinae), and the extinct passenger pigeon (*Ectopistes migratorius*) were represented in the Feature 54 assemblage. Six wild mammals species were identified and contribute over 15 percent of the biomass of the assemblage for which MNI was estimated (Table 2). Six domestic animal individuals, including one chicken (*Gallus gallus*), two pigs (*Sus scrofa*), two cows (*Bos taurus*), and one sheep (*Ovis aries*) were identified. Two specimens are identified only to the subfamily Caprinae, as the bone fragments could not be distinguished as belonging to either domestic sheep or domestic goat (*Capra hirca*). Domestic taxa contribute the bulk of the biomass of the assemblage. Commensal taxa include those taxa that may have been consumed but are likely either to have become incorporated into the archaeological record either by accident, or were used for a purpose other than as a food resource, such as for protection, transportation, or pack. Commensal taxa in the Feature 54 assemblage include one frog or toad, and a carnivore. The carnivore individual is placed in the Commensal category because it is likely that this specimen, a canine fragment, was from a domestic dog.

Pig skeletal elements are fairly well distributed across the skeleton (Table 3). The large quantity of Head elements is attributed to the large numbers of teeth and tooth fragments in the pig assemblage. The deer assemblage is not large enough to make statements concerning skeletal completeness in the Feature 54 assemblage. Cow elements were identified from almost all skeletal portion categories, suggesting a high degree of skeletal completeness at the site. The caprine and sheep assemblage is of insufficient size for examination of skeletal portion representation.

The chicken individual was subadult at death, evidenced by a poorly ossified tibiotarsus. One pig individual was less than 27 months old at the time of death (Table 4). The other pig individual was at least 24 months old at death. One deer individual was under 23 months old at the time of death, as evidenced by an unfused distal tibia (Table 5). The age of another deer individual was at least 26 months. One cow individual was older than 6 months old at death, and the other cow individual was not younger than 12 months old (Table 6). The sheep individual was at least 4 months old at death (Table 7).

The presence of one large canine indicates that at least one of the pig individuals was male. No other evidence for sex was found in the Feature 54 assemblage.

Cut marks were observed on a pig proximal ulna and distal humerus, and on a cow rib fragment and lumbar vertebra (Table 8). One mammal fragment exhibited a hack mark. Although the most common modification in the assemblage is calcination, just under 7 percent of bone from the Feature 54 assemblage was modified by heat. The presence of four carnivore-gnawed specimens indicates that bone refuse remained on the ground surface long enough for carnivores, such as dogs, to chew them.

Discussion

The root cellar assemblage indicates that the Madison family at Mount Pleasant relied on both domestic and wild resources. While domestic resources likely contributed the bulk of the meat of the diet, wild resources, particularly mammals, were likely also important to the subsistence strategy at Mount Pleasant. The skeletal element distribution of artiodactyls indicates that entire carcasses of pig and cattle were exploited at the site. The recovery of hindquater and forequarter elements associated with meatier portions of the carcass, as well as the recovery of less useful foot elements indicates that butchering of domestic animals occurred at Mount Pleasant. The presence of subadult chicken, pig, and cow individuals is also indicative of a classic animal husbandry strategy. The animals are killed just as they reach adult size because after this point energy put into the animal is not returned in additional meat. Even with the limited sample size of the assemblage it can be generally stated that, in the mid-eighteenth century, the Madison family relied on domestic animals that they raised themselves, as well as on locally available wild taxa.

Feature 42

Feature 42 is interpreted as a stone-lined kitchen cellar located to the north of the large root cellar (Feature 54) at Mount Pleasant (Reeves 2001). The presence of burned artifacts indicates that the kitchen burned while still in use. Wine bottle fragments suggest that the cellar was used to store wine, and personal items found in the cellar rubble may suggest that an enslaved African-American servant resided in the kitchen.

Results

The zooarchaeological assemblage from Feature 42 is larger than the Feature 54 assemblage, with a minimum of 31 individuals identified from 776 identifiable specimens (Table 9). Despite the larger size of the Feature 42 assemblage, the sample size is still too small to allow detailed interpretation of human vertebrate exploitation strategies at Mount Pleasant.

Specimens in the Feature 42 assemblage were identified from a wide variety of taxa, including both wild and domestic resources. Two wild birds, including duck (Anatinae), and turkey (*Meleagris gallopavo*) were represented in the Feature 42 assemblage. Eight wild mammals species were identified but contribute just over 3 percent of the biomass of the assemblage for which MNI was estimated (Table 10). Eleven domestic animal individuals, including five chickens (*Gallus gallus*), five pigs (*Sus scrofa*), and one cow (*Bos taurus*) were identified. Domestic taxa contribute the bulk of the biomass of the assemblage. Commensal taxa in the Feature 42 assemblage include one frog or toad (Anura), a bobwhite quail (*Colinus virginianus)*, a chipmunk

(*Tamias striatus*), a white-footed mouse (*Peromyscus* sp.), a house mouse (*Mus musculus*), a human (*Homo sapiens*), and a dog (*Canis familiaris*).

One tooth fragment was identified as a human upper molar. The molar may have evidence of dental caries. However, a human osteologist should examine the tooth before this determination is made. The tooth may have been extracted in response to the decay, possibly explaining its presence in the kitchen cellar. Another tooth was only provisionally identified as human (cf. *Homo sapiens*). It could not be positively identified by the researcher as human because of a combination of human-like, and non-human like traits, as well as because of lack of access to adequate human comparative materials. The enamel quality and thickness, the root pattern, and plaque are indicative of human. However, the cusp pattern appears more complex than is typical for human teeth. Comparison with non-human skeletal material excludes animals such as pig (*Sus scrofa*), raccoon (*Procyon lotor*), or bear (*Ursus americanus*) as possible sources for the tooth. A trained human osteologist should examine this tooth as well.

Pig skeletal elements are fairly well distributed across the skeleton (Table 11). The large quantity of Head elements is attributed to the large numbers of teeth and tooth fragments in the pig assemblage. The deer assemblage is not large enough to make statements concerning skeletal completeness in the Feature 42 assemblage. Cow elements were identified from almost all skeletal portion categories, suggesting a high degree of skeletal completeness at the site.

At least four chicken individuals were subadult at death, and one individual was an adult. One pig individual was less than 12 months old at the time of death (Table 12). At least two pig individuals were at least 24 months old at death. The age of the deer individual cannot be determined as proximal metapodials fuse before birth (Table 13). The cow individual was less than 18 months old at death (Table 14).

The presence of two large canines indicates that at least one of the pig individuals was male. No other evidence for sex was found in the Feature 42 assemblage.

Cut marks were observed on a chicken coracoid, two pig mandibles, distal radius, and humerus shaft fragment (Table 15). Burning is the most common modification in the assemblage. Just over 3 percent of bone from the Feature 42 assemblage was modified by heat. The presence of carnivore- and rodent- gnawed specimens in the sample indicates that bone refuse remained on the ground surface long enough for carnivores and rodents to gain access to them.

Discussion

Despite the small sample size of the assemblage, it can be interpreted with some certainty that the Madison family at Mount Pleasant relied on both domestic and wild resources in their subsistence strategy. Domestic resources appear to have contributed the bulk of the meat of the diet, and wild resources, particularly mammals, were likely an important supplement to the subsistence strategy at Mount Pleasant. The skeletal element distribution of artiodactyls and the presence of subadult chicken, pig, and cow individuals is indicative of an animal husbandry strategy. Domestic animals were raised, killed, and butchered near the place of consumption at Mount Pleasant and diet was supplemented by the exploitation of indigenous resources.

Site Strata 7

The zooarchaeological remains from Site Strata 7 discussed below were collected from a single post hole associated with the post-in-ground structure located to the south of the kitchen. The sample size of the assemblage is too small to allow any interpretations of human behavior (Table 16). Only one bone fragment could be identified beyond mammal. The single pig specimen is an almost complete adult mandible. Unfortunately, the canine was not recovered so it is not possible to determine the sex of the individual.

Conclusion

Faunal remains from Features 54 and 42, as well as Site Strata 7 indicate that subsistence at Mount Pleasant is characterized by primary reliance on domestic animals raised on the plantation, and supplemented by use of local wild indigenous resources, particularly deer and small mammals such as rabbit and squirrel. The assemblages demonstrate reliance on terrestrial resources over aquatic resources; however, the presence of one fish specimen and several turtle specimens indicate some use of aquatic environments for subsistence needs. There is evidence that many domestic animals were killed prior to full maturity, indicating the utilization of an energy- efficient animal husbandry strategy.

References Cited

Casteel, R. W.

1978 Faunal Assemblages and the "Wiegemethode" or Weight Method. *Journal of Field Archaeology* 5:71-77.

Driesch, A. v. d.

1976 *A Guide to the Measurement of Animal Bones from Archaeological Sites*. Peabody Museum of Archaeology and Ethnology Bulletin1, Harvard University, Cambridge.

Gilbert, B. M.

1973 *Mammalian Osteo-archaeology: North America*. Missouri Archaeological Society, Columbia.

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, D. K.

1979 On the Quantification of Vertebrate Archaeofaunas. In *Advances in Archaeological Method and Theory, Volume 2*, pp. 199-237. vol. 2. Academic Press, Inc, New York.

1981 The Effects of Sample size on Some Derived Measures in Vertebrate Faunal Analysis. *Journal of Archaeological Science* 8(1):77-88.

Hilson, S.

1986 *Teeth*. Cambridge University Press, New York.

Kent, S.

1981 The Dog: An Archaeologist's Best Friend or Worst Enemy- the Spatial Distribution of Faunal Remains. *Journal of Field Archaeology* 8(3):367-372.

Purdue, J. R.

1983 Epiphyseal Closure in White-Tailed Deer. *Journal of Wildlife Management* 47(4):1207-1213.

Reeves, M.

2001 Archaeological Findings at the Mount Pleasant Site: 1987-2001. Report-in-progress on file at Montpelier Station, Virginia.

Reitz, E. J. and D. 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, Oxford.

Reitz, E. 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.

Reitz, E. J. and E. S. Wing
1999 *Zooarchaeology*. Cambridge University Press, New York.

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

Schmid, E.
1972 *Atlas of Animal Bones for Prehistorians, Archaeologists, and Quaternary Geologists*. Elsevier, Amsterdam.

Severinghaus, C. W.
1949 Tooth Development and Wear as Criteria of Age in White-Tailed Deer. *Journal of Wildlife Management* 13(2):195-216.

Shipman, P. 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.

Watson, J. P. N.
1978 The Interpretation of Epiphyseal 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 Publications 3.

Wing, E. S. and A. B. Brown
1979 *Paleonutrition: Method and Theory in Prehistoric Foodways*. Academic Press, New York.

Table 1. Mt. Pleasant, Feature 54: Species List

		MNI			
Taxa	**NISP**	**#**	**%**	**Weight, g**	**Biomass, kg**
Anura	1	1	6.25	0.03	
Frog/Toad					
Anatinae	1	1	6.25	0.31	0.01
Duck					
Gallus gallus	6	1	6.25	6.42	0.11
Chicken					
Ectopistes migratorius	1	1	6.25	0.12	0.00
Passenger pigeon					
Mammalia	173			241.25	3.67
Didelphis virginiana	1	1	6.25	3.94	0.09
Opossum					
Sylvilagus sp.	1	1	6.25	0.33	0.01
Cottontail rabbit					
Sciurus carolinensis	1	1	6.25	0.07	0.00
Gray squirrel					
Sciurus niger	1	1	6.25	0.97	0.03
Fox squirrel					
Carnivora	1	1	6.25	0.05	0.00
Carnivore					
Artiodactyla	8			17.09	0.34
Even-toed ungulate					
Sus scrofa	34	2	12.50	252.98	3.83
Pig					
Odocoileus virginianus	6	2	12.50	141.59	2.27
White-tailed deer					
Bos taurus	19	2	12.50	649.63	8.94
Cow					
Caprinae	2			2.85	0.07

Sheep or goat

Mt. Pleasant, Feature 54: Species List, cont'd

		MNI			
Taxa	**NISP**	**#**	**%**	**Weight, g**	**Biomass, kg**
Ovis aries	1	1	6.25	20.75	0.40
Sheep					
Vertebrata				18.76	
Shell	6			2.63	
TOTAL	263	16		1359.77	19.76

Table 2. Mt. Pleasant, Feature 54: Summary Table

	MNI		Biomass	
	#	%	kg	%
Wild Bird	2	12.5	0.01	0.1
Domestic Bird	1	6.3	0.11	0.7
Wild Mammal	6	37.5	2.40	15.3
Domestic Mammal	5	31.3	13.17	83.9
Commensal	2	12.5	tr.	tr.
Total	16		15.69	

Table 3. Mt. Pleasant, Feature 54: Element Distribution Table

	Pig	Deer	Cow	Caprine and *Ovis aries*
Head	18	1	1	1
Vertebra/Rib	0	0	8	1
Forequarter	4	0	6	0
Forefoot	2	0	0	1
Foot	3	0	2	0
Hindfoot	5	1	1	0
Hindquarter	2	4	1	0
Total	34	6	19	3

Table 4. Mt. Pleasant, Feature 54: Epiphyseal Fusion for Pig

	Unfused	Fused	Total
Early Fusing:			
Humerus, distal		1	1
Scapula, distal			
Radius, proximal			
Acetabulum		2	2
Metapodials, proximal		5	5
1st/2nd phalanx, proximal		2	2
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			
TOTAL	1	11	12

Table 5. Mt. Pleasant, Feature 54: Epiphyseal Fusion for Deer

	Unfused	Fused	Total
Early Fusing:			
Humerus, distal			
Scapula, distal			
Radius, proximal			
Acetabulum		1	1
Metapodials, proximal		1	1
1st/2nd phalanx, proximal			
Middle Fusing:			
Tibia, distal	1	1	2
Calcaneus, proximal			
Metapodials, distal		1	1
Late Fusing:			
Humerus, proximal			
Radius, distal			
Ulna, proximal			
Ulna, distal			
Femur, proximal			
Femur, distal			
Tibia, proximal			
TOTAL	1	4	5

Table 6. Mt. Pleasant, Feature 54: Epiphyseal Fusion for Cow

	Unfused	Fused	Total
Early Fusing:			
Humerus, distal		2	2
Scapula, distal			
Radius, proximal		1	1
Acetabulum		1	1
Metapodials, proximal			
1st/2nd phalanx, proximal			
Middle Fusing:			
Tibia, distal			
Calcaneus, proximal			
Metapodials, distal			
Late Fusing:			
Humerus, proximal			
Radius, distal			
Ulna, proximal			
Ulna, distal			
Femur, proximal			
Femur, distal			
Tibia, proximal			
TOTAL		4	4

Table 7. Mt. Pleasant, Feature 54: Epiphyseal Fusion for Sheep

	Unfused	Fused	Total
Early Fusing:			
Humerus, distal			
Scapula, distal			
Radius, proximal		1	1
Acetabulum			
Metapodials, proximal			
1st/2nd phalanx, proximal			
Middle Fusing:			
Tibia, distal			
Calcaneus, proximal			
Metapodials, distal			
Late Fusing:			
Humerus, proximal			
Radius, distal			
Ulna, proximal			
Ulna, distal			
Femur, proximal			
Femur, distal			
Tibia, proximal			
TOTAL		1	1

Table 8. Mt. Pleasant, Feature 54: Modification Table

	Cut	Hacked	Calcined	Burned	Carnivore-Gnawed
Mammalia	1	1	10		
Artiodactyla			1		
Sus scrofa	2				2
Odocoileus virginianus				1	2
Bos taurus	2			1	
Vertebrata			4	1	
TOTAL	5	1	15	3	4

Table 9. Mt. Pleasant, Feature 42: Species List

		MNI			
Species	**NISP**	**#**	**%**	**Weight, g**	**Biomass, kg**
Osteichthyes	1	1	3.23	0.02	0.00
Fish					
Anura	3	1	3.23	0.19	
Frog/Toad					
Testudines	7			1.75	0.05
Turtle					
Chelydra serpentina	2	1	3.23	1.52	0.04
Snapping turtle					
Emydidae	2	1	3.23	0.94	0.03
Box and water turtle family					
Aves	37			9.27	0.15
Bird					
Anatinae	1	1	3.23	0.29	0.01
Duck					
Colinus virginianus	1	1	3.23	0.06	0.00
Bobwhite quail					
Gallus gallus	30	5	16.13	14.89	0.24
Chicken					
Meleagris gallopavo	2	1	3.23	4.35	0.08
Wild turkey					
Mammalia	408			522.78	7.35
Sylvilagus sp.	1	1	3.23	0.71	0.02
Cottontail rabbit					
Rodentia	14			0.29	0.01
Sciurus sp.	19	5	16.13	5.73	0.13
Squirrel					
Sciurus carolinensis	4			1.85	0.05
Gray squirrel					

Sciurus niger	3			1.41	0.04
Fox squirrel					

Mt. Pleasant, Kitchen Cellar (SS#'s 5,6,9): Species List

		MNI			
Species	**NISP**	**#**	**%**	**Weight, g**	**Biomass, kg**
Tamias striatus	2	1	3.23	0.26	0.01
Chipmunk					
Peromyscus sp.	1	1	3.23	0.05	0.00
White-footed mouse					
Mus musculus	1	1	3.23	0.02	0.00
House mouse					
cf. *Homo sapiens*	1			1.53	0.04
Possible human					
Homo sapiens	1	1	3.23	1.42	0.04
Human					
Carnivora	1			0.17	0.01
Carnivore					
Canis familiaris	1	1	3.23	0.33	0.01
Dog					
Procyon lotor	2	1	3.23	5.03	0.11
Raccoon					
Artiodactyla	4			6.14	0.13
Even-toed ungulate					
Sus scrofa	178	5	16.13	742.39	10.08
Pig					
Odocoileus virginianus	2	1	3.23	12.75	0.26
White-tailed deer					
Bos taurus	17	1	3.23	316.85	4.69
Cow					
Vertebrata				104.61	
Shell	30			23.55	

TOTAL	776	31	1781.15	3562.30

Table 10. Mt. Pleasant, Feature 42: Summary Table

	MNI		Biomass	
	#	**%**	**kg**	**%**
Fish	1	3.2	tr.	tr.
Turtle	2	6.5	0.07	0.4
Wild Bird	2	6.5	0.09	0.6
Domestic Bird	5	16.1	0.24	1.5
Wild Mammal	8	25.8	0.52	3.3
Domestic Mammal	6	19.4	14.77	93.7
Commensal	7	22.6	0.07	0.4
Total	31		15.76	

Table 11. Mt. Pleasant, Feature 42: Element Distribution Table

	Pig	Deer	Cow
Head	53	0	4
Vertebra/Rib	4	0	1
Forequarter	6	0	2
Forefoot	29	1	0
Foot	55	1	5
Hindfoot	26	0	2
Hindquarter	5	0	3
Total	178	2	17

Table 12. Mt. Pleasant, Feature 42: Epiphyseal Fusion for Pig

	Unfused	Fused	Total
Early Fusing:			
Humerus, distal	1		1
Scapula, distal	1		1
Radius, proximal			
Acetabulum			
Metapodials, proximal			
1st/2nd phalanx, proximal		19	19
Middle Fusing:			
Tibia, distal		1	1
Calcaneus, proximal			
Metapodials, distal	14	8	22
Late Fusing:			
Humerus, proximal	1		1
Radius, distal	1		1
Ulna, proximal			
Ulna, distal			
Femur, proximal			
Femur, distal	1		1
Tibia, proximal			
TOTAL	19	28	47

Table 13. Mt. Pleasant, Feature 42: Epiphyseal Fusion for Deer

	Unfused	Fused	Total
Early Fusing:			
Humerus, distal			
Scapula, distal			
Radius, proximal			
Acetabulum			
Metapodials, proximal		1	1
1st/2nd phalanx, proximal			
Middle Fusing:			
Tibia, distal			
Calcaneus, proximal			
Metapodials, distal			
Late Fusing:			
Humerus, proximal			
Radius, distal			
Ulna, proximal			
Ulna, distal			
Femur, proximal			
Femur, distal			
Tibia, proximal			
TOTAL		1	1

Table 14. Mt. Pleasant, Feature 42: Epiphyseal Fusion for Cow

	Unfused	Fused	Total
Early Fusing:			
Humerus, distal			
Scapula, distal			
Radius, proximal	1		1
Acetabulum		1	1
Metapodials, proximal			
1st/2nd phalanx, proximal	1	3	4
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			
TOTAL	4	4	8

Table 15. Mt. Pleasant, Feature 42: Modification Table

	Cut	Calcined	Burned	Carnivore-Gnaw	Rodent-Gnaw	Metal-Stained
Aves					1	
Gallus gallus	1				1	
Mammalia	8	4	13	2	1	
Sus scrofa	4			2	7	
Bos taurus						1
Vertebrata		4	3	1	1	
TOTAL	13	8	16	5	11	1

Table 16. Mt. Pleasant, SS#7: Species List

		MNI			
Taxa	**NISP**	**#**	**%**	**Weight, g**	**Biomass, kg**
Mammalia	4			1.55	0.04
Sus scrofa	1	1	100.00	106.18	1.75
Pig					
TOTAL	5	1		107.73	1.79