Analysis of Faunal Remains Recovered From the Wye House Located in Talbot County, Maryland (18TA314)

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INTRODUCTION

Identifying the ethnicity of an historic site can often be a challenging puzzle with many interlocking pieces of information. Looking just at the presence and absence of certain artifacts is not always reliable since the archaeological record has demonstrated that African Americans and whites of varying economic backgrounds often owned or had access to the same possessions. To determine the presence of slaves on historic sites, historical archaeologists have looked not only to the documentary evidence and architectural remains but also to distinguishing patterns in the archaeological record that help to define the ethnicity of a site. Specifically, faunal remains from known and probable slave sites have been closely examined in order to identify possible consumption patterns in the slave diet.

One example of how faunal remains can provide information on slave diet is John Otto's classic study of faunal remains from Cannon's Point Plantation in Georgia. Otto analyzed and compared three assemblages (one belonging to a white overseer, one to slaves, and one to the white plantation owner) in order to define patterns of material culture specific to certain groups of people. He not only looked at the presence of species but also butchery marks, cuts of meat, and the differences in white and African cuisine. From his research, he defined slave assemblages has having a large percentage of chopped bone, the presence of mainly head and foot elements belonging to cattle and pigs, and a great diversity in the wild remains. Assemblages associated with whites included sawn bone, higher quality cuts of meat and smaller amounts of wild animals (Otto 1984).

Since Otto's analysis, archaeologists have taken a closer look at his findings and have continued to redefine the patterns in species distribution, elements distributions, and butchery techniques found on slave-related sites (Fashing 2005; Bowen 2008). From their analysis some broad patterns have begun to emerge in the faunal assemblages of slave sites, including the relative importance of beef and pork in the diet, and a higher degree of bone fragmentation than in the white-related assemblages. Although broad patterns in slave faunal assemblages have emerged, it must also be recognized that slaves established their subsistence strategies based on the unique context of their circumstances and the physical surroundings in which they lived. For example, a slave working in the field might have access to a different foodway system than slaves working in the house. Furthermore, their relationship to the white owner, their availability to procure their own food, and their association with a local market system are all variables influencing the faunal remains left in the archaeological record. As more slave-related faunal assemblages are analyzed the variability between sites will be better understood and interpreted. For this reason, the faunal analysis of known slave assemblages is crucial to the growing database of slave related studies.

In order to test some of the slave-related patterns found in faunal assemblages and to understand how subsistence patterns are formed, this report will examine faunal remains excavated from probable slave quarters and their surrounding yard. In the spring of 2009, Lisa Kraus and Dr. Mark Leone from the University of Maryland submitted for analysis faunal remains excavated from site 18TA314, historically known as the Wye House. Located along the Wye River in Maryland's Eastern shore, the site was originally settled in the 1650's by Edward Lloyd, a Welsh Puritan. In 1790 his great grandson built a plantation home which he owned until his death in 1796, when the estate was left to his son Edward V (Weeks 1984; Ydstie 2007).

The Wye House faunal material was excavated from an area known as the Long Green, a mile long strip of land stretching from the main house to the Wye River. Historically, the Long Green was the location of homes for the slaves and for work buildings like a blacksmith's and a carpenter's shop (Kraus 2009, Ydstie 2007). Specifically, the faunal material came from two primary features along the Green, both believed to have served as slave quarters. The first structure is referred to as the Tulip Poplar Building due to it's location under a large tulip poplar tree. Excavations took place both inside the walls of this small brick structure and in the yard that would have surrounded the house. The second building was a structure that served several purposes during its existence, including a corn crib before it was demolished in the 1940s. Excavations of the structure revealed a hearth located on the east end of the building, indicating that it once served a domestic function. (Kraus 2009).

An initial inspection of the Wye House bones revealed they were well preserved and largely intact. Based on the overall preservation, the lack of major recovery bias, and the large percentage of identifiable bones, both parties agreed all of the bones would be analyzed. In total, after the bones were mended within their own contexts, 1,964 bones were sorted, identified, and analyzed to provide some insights into the foodway patterns of the occupants who utilized the site (see Table 1). For analytic purposes of this report it was also agreed upon that the faunal material would be separated into three assemblages including the Tulip Poplar Building, the Yard Area, and the North Building. All three assemblages date to roughly the same period (1770-1830), so summary charts and tables are included in the appendix to show the combined data of the three assemblages.

The first section of this report will discuss the specific laboratory and analytical techniques that were used to examine the individual faunal remains recovered from the Wye House assemblages. The second section of the report will examine each assemblage separately and discuss the results of the faunal analysis including identified taxa, taphonomic influences on the bones, relative dietary importance of species, kill-off patterns, element distribution patterns of domestic mammals, and butchery evidence. Finally, concluding remarks will summarize the importance of the Wye House faunal remains to the study of early foodway patterns and the study of slave diet. The results from this analysis will also be compared to faunal remains uncovered from other slave sites in the Chesapeake.

Table 1
Wye House
Assemblage Analyzed

Assemblage	Identifiable Bone	Indeterminate Bone	Total Bone
Tulip Polar Building	480	762	1,242
Yard Area	34	72	106
North Building	274	342	616
TOTAL	788	1,176	1,964

RECOVERY METHODS

Quarter-inch screening is a standard technique used on prehistoric and historic period sites. As early as 1969, David Thomas demonstrated in his article on quantitative methods for faunal analysis that screening has an enormous positive influence on the recovery of bone, particularly the recovery of smaller or more fragile elements. The smaller the screen size, the better the recovery rate, but the amount of time required sifting through 1/8-inch screen must be considered. Flotation sampling and one-quarter-inch screening are a responsible compromise that allows comparison with a large number of sites that have been excavated similarly.

The bones from the Wye House assemblages are primarily from soil that had been screened through 1/4-inch steel wire mesh. While most of the faunal material was indeterminate, the presence of fish, turtle, birds, small mammals, medium mammals, and large mammal suggests that a fair sample of the original assemblage were recovered during excavation. Although the more durable elements, such as teeth and long bone shafts make up the greatest percentage of the assemblages, there were few element types that were completely absent.

LABORATORY TECHNIQUES

In the zooarchaeology lab, analysis of the bones from the Wye House assemblages began with sorting the faunal fragments into "identifiable" and "indeterminate" categories. The indeterminate bone—that which could not be taken at least to the taxonomic level of Order—was further sorted into broad taxon groupings such as fish, turtle, small mammal, medium mammal, and large mammal. Finally, within their taxon groupings, the bones were sorted into broad element categories such as long bones, teeth, ribs, and skull fragments. All of the indeterminate bones were then counted, weighed, and examined for evidence of burning, butchering, or other types of modification. This data was then entered into a custom-designed microcomputer program developed by Greg Brown and Dr. Joanne Bowen for Colonial Williamsburg's Department of Archaeological Research.

Each of the identifiable bones was assigned a "unique bone number." By working with comparative collections, created and maintained by Dr. Joanne Bowen and Susan Andrews, the "identifiable" bone fragments were identified to the lowest taxonomic level possible. The taxon, bone element, symmetry (side), location, weight, fusion state, tooth type and wear, relative age, butchering marks, and evidence of burning, weathering, and gnawing were recorded and entered into the computer program. Once entered, the data were manipulated to provide the summary information described in this report.

Once these steps were completed, all bones identified to either genus or species were laid out to determine the minimum number of individuals. MNIs were calculated for each assemblage separately by pairing comparable rights and lefts, taking into account size, state of fusion, tooth eruption, and general morphology. Before the bones were returned to their original bags, evidence of butchery and gnawing marks was recorded.

ANALYTIC TECHNIQUES

Relative Dietary Estimates. Zooarchaeologists have devised several methods of quantification to estimate relative dietary importance. These quantification methods include determining the Number of Identified Specimens (NISP), Minimum Number of Individuals (MNI), Useable Meat Weight totals, and Biomass estimates. The most common goal of these analyses is to identify the relative dietary importance, but zooarchaeologists have long debated their relative strengths and weaknesses (Wing and Brown 1979; Reitz and Cordier 1983; Grayson 1984). In our view, each measure provides a different measure of relative importance, and therefore we regularly compute all four estimates, a step that allows us to take advantage of the strengths of each, as well as to make the broadest possible comparisons of our data with the work of others.

NISP. At the simplest level, the Number of Identified Specimens (NISP) is used to calculate the relative abundance of any species within a faunal assemblage. After identification, all the bones within each species are added together to determine the frequency of fragments for each animal. Though still perhaps the most frequently used measure of abundance, this method has several shortcomings, most notably its assumption that the bones being counted are representative of the sampled population, and that each item is independent of every other item. There is no method, however, to demonstrate which bone fragments came from different individuals across an entire faunal sample. Other problems with this method include the unequal numbers of bones in different classes, differential preservation rates, uneven fragmentation rates that occur with different classes and sizes of animals, and misrepresentation of complete skeletons that are often intermixed with fragmented pieces from an indeterminate number of individuals (Grayson 1984).

From an interpretive standpoint, NISP represents only the number of fragments identified to taxon. It does not directly consider the differences in size and meat weight between various classes of animals. For this reason, as well as the potential biases described above, many zooarchaeologists have come to the conclusion that this technique alone cannot provide an accurate assessment of the relative dietary importance of various species.

MNI. One popular method for estimating species abundance is the method called Minimum Number of Individuals (MNI). While NISP attempts to calculate the maximum number of individuals on a site, MNI most often establishes the minimum number of animals by examining the most common element for each taxon. Taking into consideration differences in age, sex, and size for each taxon, the rights and lefts of each of the main elements are carefully matched. Once comparisons are completed, the individual MNI for each element is considered, and by taking into consideration gross size and age differences, a figure representing the entire animal is derived.

The MNI effectively corrects for the differential number of bones found in bird, mammal, and fish skeletons, as it also corrects for the presence of complete skeletons. But the thoroughness of the analyst, the units of aggregation, and the sample size all affect the interpretation of an MNI figure. Accurate estimations of dietary importance based on MNI require a large number of bones, since in small assemblages infrequently occurring animals are over-represented. As Grayson (1984) pointed out, MNI values are intimately tied to units of aggregation, and therefore, in small samples the least common species on a site will be overemphasized. While this problem is greatly diminished in larger samples, the MNIs, no matter how well executed, do not provide a true dietary estimate. For example, one deer and one fish are presented as equally important in dietary terms, despite the differences in pounds of meat (Grayson 1984). Since large and small taxa are given equal weight, this method produces a skewed picture of the relative dietary importance.

Usable Meat Weight. In the 1950s Theodore White introduced to the field a method that would translate MNIs into dietary estimates (White 1953). To obtain a rough estimate of the relative importance of different taxa, the MNI for a given taxon is multiplied by the average amount of usable meat derived from an estimate of meat yield. Average values used in this study are based on the average weight of modern wild birds, mammals, and turtles. Rough estimates are given for fish since their weight typically increases as they age. Since this method relies on MNI directly, usable meat weight estimates suffer from the same problems inherent in the MNI method. In small assemblages, particularly those where even the more frequently occurring taxa are represented by only one or two MNI, the least frequently occurring taxa are grossly inflated.

Biomass. The fourth technique that is quickly becoming a standard procedure in zooarchaeological analysis is known as the "biomass" or "skeletal mass allometry" method. Developed for zooarchaeology by Elizabeth Reitz and other scholars, this method is based on the biological premise that the weight of bone is related to the amount of flesh it supports. Since two dimensions of an animal grow in a relatively predictable exponential curve, an equation relating the two has been derived. Body size and body weight can then be determined from the size of a bone element, since a specific quantity of bone represents a predictable amount of tissue, which is roughly translated into a ranked dietary importance (Reitz and Cordier 1983; Reitz and Scarry 1985). This estimate, therefore, provides a balance to the NISP and MNI methods. It helps to counter the problem of interdependence, since it accounts for the presence/absence of partial and complete skeletons. An additional advantage is that it does not rely on thoroughness or assemblage composition, and fragmentation is not a problem. It does, however, require that each bone (or set of bones) be weighed individually.

In a later section biomass estimates are used, despite the fact that all of the early analyses by many zooarchaeologists are based on usable meat weight. Recent research by Bowen and others have shown biomass estimates to be far more consistent than meat weight estimates, particularly when large numbers of fish are present in assemblages (Bowen in Walsh et al. 1997). In general, it allows the weight of the fragments identified only to class to become part of the dietary estimates, it avoids the idiosyncrasies of the MNI method, and it circumvents the "averaging" problem that plagues any assemblage containing a large proportion of fish.

Taphonomy. There are many physical, chemical, and biological processes that modify the appearance of bones and affect the interpretations of faunal assemblages from archaeological sites. The study of these mechanisms is known as "taphonomy," or the study of environmental phenomena and processes that affect organic remains after death (Efremov 1940).

The determination of which cuts of meat are represented in a faunal assemblage begins with the careful analysis of taphonomic modifications. Identifying alterations resulting from natural processes such as temperature variation that can dry out, split, or otherwise degrade bone, carnivores and rodents that gnaw bone, and human feet that can further fragment bone, is the important first step. Equally important is identifying modifications resulting from cultural activities such as butchering and the burning of bones (Gifford 1981; Lyman 1987b; Bonnichsen and Sorg 1989; Johnson 1985).

During the identification phase of this project, burn marks, evidence of gnawing by carnivores and rodents, weathered appearance, and butchering evidence were recorded. For the Wye House faunal assemblages bones were recorded as "burned" only if they exhibited distinctive charring or scorched marks. Experiments on cooking bones, by either roasting or boiling, has shown that it often takes extreme temperatures to produce burn marks on a bone. The size and density of the bone combined with the temperature and type of cooking, influences the appearance of burn marks on bones (Pearce and Luff 1994).

Evidence of the bones being gnawed was apparent in the Wye House assemblages from puncture holes made by canine teeth or by specific gnawing patterns left on the surface of the bone. Carnivores such as dogs will typically gnaw on the soft ends of long bones to create channels that allow them to get at the marrow. Smaller bones belonging to fish, birds, and small mammals are easily broken and digested by carnivores, so there is rarely any evidence of carnivore gnawing on these bones. Gnaw marks left by rodents are distinguished by a characteristic pattern made by incisor teeth and therefore were recorded separately from carnivore marks.

Bones were recorded as having a weathered appearance if the surface of the bone was cracked or flaking. A weathered appearance on the surface of a bone can occur if bones are left in the open, where they can be exposed to extreme temperatures and the changing elements. Usually if bones are left exposed for a period of time, they are also susceptible to gnawing by animals and fragmentation due to the trampling of feet. Weathering can also occur when the chemistry of the soil has a direct influence on bone preservation. Generally speaking, the ideal ph for bone preservation is between 7.8 and 7.9 (Reitz and Wing 1999).

Finally, butchering leaves obvious taphonomic signs on the bone. Although most of the faunal material from the Wye House assemblages had probably been butchered, the majority of the faunal remains were highly fragmented resulting in bones too small to identify to species or to element.

Age Data. Another form of faunal analysis, the determination of the age at which an animal was slaughtered, is important because it provides data critical to the study of animal husbandry and agricultural economies. In general terms, "kill-off" patterns are determined by several aging techniques, including evaluating the relative size and characteristics of the bone, tooth wear, and the degree of fusion of the long bone epiphyses.

Essential for any study of animal husbandry, evidence for the age of slaughter is based on taxonomic and common name can be found in Table 2.

Before progressing to a detailed discussion of relative dietary importance, meat cuts, taphonomic processes, and husbandry patterns, it is necessary to briefly describe the habitat, availability, and economic importance of each animal. More in-depth information is available in the field guides, traveler's accounts, and wild game and livestock management texts listed in the bibliography.

FISH

Due to the proximity of the Wye River and the Chesapeake Bay, it is not surprising that several fish remains were identified from the Wye House assemblages. Fishing has long been important in the Chesapeake region and even as early as 1614 Ralph Hamor stated that:

> the rivers are plentifully stored with sturgeon, porpoise, bass, rockfish, carp, shad, herring, eel, catfish, perch, flat-fish, trout, sheepshead, drummers, jewfish, crevises, crabs, oysters, and diverse other kinds (Miller 1986:175).

Fish continued to play a vital role in the diet throughout the eighteenth century. Even as late as 1794, French visitor Mederic Moreau de Saint-Mery described the abundance of fish available at the town market in Norfolk:

> a weakfish weighing more than 20 pounds costs only 4 of 5 francs, and sometimes one that weight three times as much may be purchased for 1 dollar...Drumfish are also cheap. Sturgeon, which here weight up to 60 pounds, cost 6 French sous a pound, and one pays no more for little cod, which are sold alive and are delicious eating. Shad are innumerable. There are also perch, sea hog, herring, sole, plaice, flounder, mullet, trout, blackfish, eels, the cofferfish, the garfish, etc. In a word, fish are so abundant that the police are frequently obliged to order unsold fish to be thrown into the sea (Roberts and Roberts 1947:55).

The seasonal presence of fish in the river systems of the Chesapeake is influenced by several factors, including habitat, water salinity, water temperature, the amount of oxygen, and sources of food. Keeping all of these factors in mind, there are six main categories of fish that inhabit the Chesapeake waters—freshwater, estuarine, marine, anadromous, semianadromous, and catadromous. Generally freshwater fish can be found in waters with a salinity as high as 10%, while estuarine fish typically live in tidal waters with salinities that range from 0% to 30% and marine fish live in oceanic waters that have a salinity that is greater than 30%. Anadromous fish include those species that migrate from ocean waters to freshwater to spawn and semianadromous fish move from waters of higher salinity to waters of lower salinity to spawn. Finally, catadromous species are rare in the Chesapeake and include fish that migrate from freshwater habitats to the ocean for spawning (Murdy et al. 1997).

Gar. The identification of a vertebra and scales from the Tulip Poplar Building indicate the presence of gar (*Lepisosteus* spp.) in the Wye House assemblage. The gar belongs to an ancient group of predatory fish that are distinguished by their elongated, cylindrical body that is covered with diamond-shaped scales. Gars are also noted for having long beaklike jaws that contain sharp teeth of various sizes (McClane 1965). Only one species, the longnose gar (*Lepisosteus osseus*), is reported to still exist in the waters of the Chesapeake Bay. This gar can reach a length of six feet and typically spawns in shallow freshwater during May and June (Hildebrand and Schroeder 1972). Today, it is not considered a good eating fish, although its remains are frequently found in prehistoric and colonial faunal assemblages.

Table 2
Taxa Identified From Wye House

FISH Taxonomic Name	Common Name	Tulip Poplar Building	Yard Area	North Building
Class Osteichthyes	Bony Fish (Indeterminate)	X	X	
Lepisosteus spp.	Gar	X		
Morone americana	White Perch	X		X
Morone spp.	Temperate Bass	X		
Family Sparidae	Porgy	X		
REPTILES/AMPHIBIANS Taxonomic Name	**Common Name**	**Tulip Poplar Building**	**Yard Area**	**North Building**
Order Testudines	Turtle	X		
Family Kinosternidae	Musk or Mud Turtle	X		
Family Emydidae	Box or Water Turtle	X		
Chrysemys spp.	Slider or Cooter	X		
Terrapene carolina	Box Turtle	X		
Family Colubridae	Snake	X		
BIRDS Taxonomic Name	**Common Name**	**Tulip Poplar Building**	**Yard Area**	**North Building**
Class Aves	Bird (Indeterminate)	X		
Class Aves	Bird/Small Mam. (Indet.)	X		X
Goose spp.	Goose	X		
Meleagris gallopavo	Turkey		X	
Gallus gallus	Chicken	X	X	X
Ectopistes migratorius	Passenger Pigeon	X		X
Order Piciformes	Woodpeckers	X		
MAMMALS Taxonomic Name	**Common Name**	**Tulip Poplar Building**	**Yard Area**	**North Building**
Class Mammalia	Mammal (Indeterminate)	X	X	X
Class Mammalia I	Large Mammal (Indeterminate)	X	X	X
Class Mammalia II	Medium Mammal (Indeterminate)		X	X

X

Class Mammalia II	Small Mammal (Indeterminate)	X	X	X
Didelphis virginiana	Opossum	X		
Sylvilagus floridanus	Eastern Cottontail		X	
Ondatra zibethica	Muskrat	X		
Rat spp.	Rat	X		X
Mouse spp.	Mouse	X		X
Procyon lotor	Raccoon	X	X	X
Felis domesticus	Domestic Cat			X
Order Artiodactyla I	Sheep, Goat, Deer, or Pig	X	X	
Order Artiodactyla II	Sheep, Goat, or Deer	X		X
Sus scrofa	Domestic Pig	X	X	X
Odocoileus virginianus	White-Tailed Deer	X	X	
Bos taurus	Domestic Cattle	X	X	X
Ovis aries/Capra hircus	Domestic Sheep/Goat		X	X

X

Temperate Bass. The Tulip Poplar Building assemblage contains at least two bones that could only be identified as temperate bass (*Morone* spp.). Members of the temperate bass family include moderate to large-sized fish that occur in marine, brackish, and freshwater habitats. The two most prevalent species found in Virginia include the white perch (*Morone americana*) and the striped bass (*Morone saxtilis*) (Murdy et al. 1997).

White Perch. Three bones from the Tulip Poplar building and one bone from the Yard Area were identified as white perch (*Morone* Americana). Tolerating a wide range of salinities, the white perch is an abundant year-round resident found in all tributaries of the Chesapeake Bay. Preferring level bottoms of silt, sand, mud, or clay, white perch migrate to fresh or low-salinity waters of large rivers to spawn from April through June. After spawning, adults move back downstream toward the Bay to spend the summer feeding in richer waters, while the young gradually move down to join them. Due to their value as a food fish, white perch have long been one of the most important recreational and commercial fishes in the Chesapeake Bay (Murdy et al. 1997).

Porgy. A single tooth from the Tulip Poplar Building assemblage could only be identified to the family of porgy fish (Family Sparidae). Primarily marine fishes, members of the porgy family have very prominent conical or incisor-like teeth in the front of their jaws and molar-like teeth on the sides of their jaws. These teeth are used to crush mollusks and crustaceans for their carnivorous diet. In the waters of the Chesapeake four members of this family can be found including the scup (*Stenotomus chrysops*), spottail pinfish (*Diplodus holbrooki*), pinfish (*Lagodon rhomboids*), and the sheepshead (*Archosargus probatocephalus*). Of these fish, the scup and the sheepshead are the most common visitors to the Chesapeake, with the scup being more prominent in the lower Chesapeake and the sheepshead more prominent in the mid Chesapeake area. Due to the location of the Wye House and the geographic distribution of the different species, the tooth is probably from a sheepshead (Murdy et al. 1997).

As a summer visitor to the Chesapeake Bay, sheepshead can be found near jetties, wharves, pilings, shipwrecks, and other structures that become encrusted with barnacles, mussels, and oysters, their main prey. Often considered difficult to hook because of their speed in taking bait, anglers typically catch them using live crab bait while bottom fishing pilings and jetties. Sheepsheads are regarded as excellent food fish and are often mentioned in early descriptions of fish in the Chesapeake (Murdy et al. 1997). One of these descriptions was by Thomas Glover when he wrote in 1676 that:

> *In the Rivers are great plenty and variety of delicate Fish; one kind whereof is by the English called a Sheepshead, from the resemblance the eye of it bears with the eye of a Sheep: This fish is generally about fifteen or sixteen inches long, and about half a foot broad; it is a whole-some and pleasant fish, and of easie digestion* (Glover in Pearson 1942: 217).

REPTILES/AMPHIBIANS

Musk or Mud Turtle. At least 90 bones from the Tulip Poplar Building assemblage were identified as belonging to a musk or mud turtle (Family Kinosternidae). Preferring fresh or brackish waters, all musk or mud turtles have 2 pairs of musk glands beneath the border of the carapace. The secretions are very offensive, so they are also commonly called "stinkpots" (Behler and King 1979). For this reason, the turtle was probably just a visitor to the site, not the remains of a meal.

Box or Water Turtle. Two carapace fragments from the Tulip Poplar Building assemblage could only be identified to the family of box and water turtles (Family Emydidae). As the largest of the turtle families, there are 26 species known to inhabit the United States (Ernst and Barbour 1972) with at least ten species present in Maryland. Some of these species include the Eastern box turtle (*Terrapene carolina*), the bog turtle (*Clemmys muhlenbergi*), the wood turtle (*Clemmys insculpta*), diamondback terrapin (*Malaclemys terrapin*), Northern map turtle (*Graptemys geographica*), the spotted turtle (*Clemmys guttata*), the red-bellied turtle (*Chrysemys rubriventris*), and the painted turtle (*Chrysemys picta*).

Box Turtle. A total of five elements from the Tulip Poplar Building assemblage were identified as the remains of a box turtle (*Terrapene carolina*). The box turtle is a small terrestrial turtle that normally inhabits open woodlands from March through October, but can also be found in pastures and marshy meadows. They forage during the cooler times of the day and avoid the heat by hiding under rotting logs, in mud, or shallow pools. As the temperature begins to drop in the fall, box turtles begin hibernation by burrowing into loose soil, sand, vegetation, or animal burrows. Omnivores, they consume roots, stems, leaves, fruit, seeds, mosses, insects, fish, frogs, toads, and carrion. (Behler and King 1979).

Slider or Cooter Turtle. There were four elements from the Tulip Poplar Building individual bone that can be "aged," i.e., a long bone that has one or more epiphyseal ends or a mandible having both the fourth premolar and one or more molars. Once the "age" has been determined for each individual bone, then they are aggregated to form the demographic structure of the dead herd, known as "kill-off," or slaughter patterns. As with so many other techniques in zooarchaeology, these methods require assemblages with large numbers of ageable bones and/or teeth.

Briefly, the process of epiphyseal fusion is based on general developmental morphology. There are three growth areas in a typical mammalian long bone: the shaft or diaphysis and epiphyses on either end, separated by cartilage that is progressively ossified as the epiphyses "fuse" to the shaft. The rate at which these epiphyses fuse varies, on either end of the same bone and among different elements. By noting which epiphyses are fused and which are not in animals of known age, the sequence of bone fusion can be determined. This sequence appears to be fairly consistent for a species, but can vary within different breeds of the same species. Epiphysial fusion can also be influenced with diet and environmental factors.

Even though the exact age at which these bones fuse can vary, the process and sequence of bone fusion remains the same and thus can serve as a guide to relative age. Following Raymond Chaplin, as outlined in The Study of Animal Bones from Archaeological Sites, the fused or unfused condition of the epiphyses of the limb bones from the Wye House assemblages were recorded whenever possible for cattle and swine (Chaplin 1971; Silver 1969).

Unfortunately, none of the three assemblages from the Wye House excavations contained sufficient numbers of teeth or long bones to accurately reconstruct kill-off patterns from mandibular tooth wear or epiphyseal fusion for any of the domesticates. Since the three assemblages date to roughly the same period (1770-1830) the assemblages were also combined to access kill-off patterns from long bone data. By combining the assemblages, some tentative interpretations were made about pig husbandry and are discussed in the section on kill-off patterns. Although they may only have a couple of bones, tables showing the long bone data for each of the three assemblages and the combined assemblage are provided in the appendix for future research (see Appendix B, Tables 23-31).

RESULTS OF THE FAUNAL ANALYSIS

TAXA IDENTIFIED

The following section provides a detailed description of each of the taxa found in the faunal assemblages from the Tulip Poplar Building, the Yard Area, and the North Building. Together the three assemblages produced a total of 1,964 bones identifiable to at least 23 different species. The species include three fish species, three turtle species, one snake, five bird species, and eleven mammal species. A list of each species by assemblage identified as slider/cooters (*Chrysemys* spp.). These turtles typically inhabit sluggish rivers, shallow streams, marsh areas, lakes, and ponds with aquatic vegetation. Some prefer soft bottom habitats while others use areas that support overhangs for sunning (Ernst and Barbour 1972).

Snake. Two vertebrae from the Tulip Poplar Building assemblage could only be identified as snake (Family Colubridae). By far the largest family of living snakes, colubrids contain approximately 1,500 species, which inhabit every possible ecological niche. The 25 species of nonpoisonous snakes that are found in Maryland can be found in a variety of habitats including trees, on the ground, beneath the ground, and in the water. Along with having diverse habitats, the snakes are diverse in the food they consume. Some species specialize in certain prey, while others are generalists, eating almost anything small enough to be swallowed (Behler and King 1979).

Given the vicinity of the Wye River, water snakes (*Nerodia* spp.) could have been a possible species present on the site. These snakes represent semi-aquatic reptiles that can be found in water, basking in the sun, or in tree branches. Another possible group of snakes that is quite common are the rat snakes (*Elaphe* spp.), large powerful constrictors that kill their prey by wrapping their bodies around it. One, the back rat snake (*Elaphe obsoleta*) crawls along the woodland floor, scaling trees in search of food (Conant 1975).

BIRDS

Although the Chesapeake Bay is the largest estuary in North America and the primary destination of literally millions of migratory waterfowl during the winter months, it is surprising that so few wild birds were identified. Birds, such as ducks, would possibly have been available to the slaves at certain times of the year if they had been allowed to hunt for them. Most of the identified fowl could have been year-round supplements to the diet of the inhabitants including geese, turkeys, and chicken.

Goose. A single bone from the Tulip Poplar Building assemblage was only identified as goose (Goose spp.), since there were not enough distinguishing attributes to determine the specific species. The size of the bone suggests it is probably from a domestic goose (*Anser anser*). The domestic goose is a rather large bird, weighing about seven pounds (Miller 1984), but considerably smaller, on the average, than its wild cousin the Canada goose (*Branta Canadensis*). Domestic geese were raised largely for their feathers, but could also be fattened and killed for food.

Turkey. Two bones recovered from the Yard Area were identified as the remains of a turkey (*Meleagris gallopavo*). The turkey is essentially a woodland bird. When Europeans first colonized North America, the turkeys inhabited wide forests, preferring wooded swamps and mature hardwood forests. As the land became cleared they adapted to open fields, savannas, and meadows as they foraged for insects, berries, and other foods (Bent 1963). In his description of the wildlife in Virginia, William Strachey remarked that "Turkeys there be great store wild in the woods like pheasants in England, 40 in company, as big as our tame here, and it is an excellent fowl, and so passing good meat as I may well say it is the best of any kind of flesh which I have ever yet eaten there" (Strachey in Haile 1998:683).

Wild turkeys were taken to Europe, domesticated, and reintroduced to North America (Bent 1963). Since they continued to breed with their wild progenitor, it is not surprising that no osteological distinction can be made between wild and domestic animals. For the purpose of this analysis, they have been considered wild and therefore have been included with wild fowl in the relative dietary estimates.

Chicken. Domestic chicken (*Gallus gallus*) were identified by thirteen elements from the Tulip Poplar Building assemblage, four bones from the Yard Area assemblage, and five bones from the North Building assemblage. During the eighteenth and nineteenth centuries, chickens could have been raised on most rural farms and some urban properties or they could have been easily obtained from a local market. They were easy to raise and though often kept in hen houses, they were also allowed to roam free. The chickens and their eggs were prepared in a number of ways: roasted, boiled, fried, broiled, and minced (Noel Hume 1978).

Passenger Pigeon. Two bones from the Tulip Poplar Building assemblage and seven bones from the North Building assemblage were identified as the remains of passenger pigeons (*Ectopistes migratorius*). Although they were declared extinct in the early twentieth century, passenger pigeons were once so numerous colonists reported that they darkened the skies as they passed. Passenger pigeons preferred a forested habitat, foraging in cultivated or open areas adjacent to the forest (Schorger 1973).

Woodpeckers. At least one bone excavated from the Tulip Poplar Building could be identified to the order of woodpeckers (Order Piciformes). In Maryland this order includes species such as the red-bellied woodpecker (*Melanerpes carolinus*), the Northern flicker (*Colaptes auratus*), red-headed woodpecker (*Melanerpes erythrocephalus*), and the pileated woodpecker (*Dryocopus pileatus*). All of these species have strong claws, short legs, and stiff tail feathers that allow woodpeckers to climb tree trunks. Their distinctive sharp bill enables them to chisel out insects, to prepare holes for nests, and to tap out territorial signals to rivals (National Geographic Society 1983).

WILD MAMMALS

All of the identified wild mammal species identified from the Wye House assemblages were native to Maryland in the eighteenth and nineteenth centuries and could have supplemented the diet of the slaves throughout the year.

Opossum. Opossum (*Didelphis virginiana*) was identified by one element from the Tulip Poplar Building assemblage. Known for their activity at night and for their frequency around swampy areas, opossums are common along the shores of the East Coast. The seasonal abundance of food, water, and the availability of den areas (Gardner

1982) can influence their presence in these habitats. The meat of the opossum was described by William Hugh Grove, a Virginian, in 1732 as "resembling Hog flesh, exceeding fat and Lusious" (Barnett and Gilliam 1989).

Eastern Cottontail. One bone from the Yard Area was identified as eastern cottontail (*Sylvilagus floridanus*). Eastern cottontails prefer a vegetative habitat of perennial grasses or a dense, low growing environment. They are herbivores, preferring grasses and a wide variety of plants that provide a basic nutritional balance (Chapman et al. 1982).

Muskrat. Excavations of the Tulip Poplar Building produced one bone identified as muskrat (*Ondatra zibethica*). Described by William Strachey as "proportioned like a water rat" (Strachey in Haile 1998:681), the muskrat is a semiaquatic mammal that is abundant in the marshes surrounding the Chesapeake Bay. Their presence in an area is usually marked by the occurrence of their homes, large mounds of vegetation. However, when muskrats live in streams and ponds they tend to build their dens in tunnels into the surrounding banks. Like the beaver, the muskrat has long been valued for its pelt but their high rate of productivity has enabled them to prosper in areas where their habitat has been maintained (Webster et al. 1985).

Raccoon. Raccoon (*Procyon lotor*) was identified by twelve bones from the Tulip Poplar Building assemblage, two bones from the Yard Area, and two bones from the North Building assemblage. The raccoon is a nocturnal carnivore that inhabits areas near water sources such as fresh and saltwater marshes, hardwood swamps, and flood plain forests. Omnivorous and opportunistic when it comes to finding food, it consumes both plants and animals. Since they are active throughout winter, these animals could have been hunted year-around (Webster et al. 1985).

White-Tailed Deer. White-tailed deer (*Odocoileus virginianus*) were identified by six bones from the Tulip Poplar Building assemblage and four bones from the Yard Area assemblage. White-tailed deer are herbivores that inhabit most environmental settings and consume a diversity of foods, selecting the most nutritional and tasty foods available. Their activity depends on a number of factors, including population size, season of year, and weather conditions (Hesselton and Hesselton 1982).

During the initial settlement period deer were quite prevalent, and large numbers of deer remains are typically found in early historic sites. Beginning in the mid-seventeenth century in the coastal region of the Chesapeake, deer populations declined, as evidenced by the decreasing number of bones found on archaeological sites from this time period (Miller 1984). Settlers looked to deer for subsistence and, to a lesser degree, for sport, which contributed to the decline of the deer population. The diminished deer population, coupled with the increasing utilization of pig and cattle, greatly curtailed the importance of deer in the diet.

COMMENSAL MAMMALS

Commensal mammals are those that live with another species and share its food, both animals possibly benefiting from each other through this association (Davis 1987). In the assemblages from the Wye House site, the commensal species, living in close proximity to humans, were not considered food remains.

Rat. The remains of rats (Rats spp.) were some of the most frequently identified elements with 88 bones from the Tulip Poplar Building assemblage and 182 bones from the North Building assemblage. There are many species of rat found in the eastern part of Maryland, including the marsh rice rat (*Oryzomys palustris*), the Allegheny woodrat (*Neotoma magister*), the roof rat (*Rattus rattus*), and the Norway rat (*Rattus norvegicus*). Due to the lack of a complete comparative collection of rat species, the rat bones were only identified to the broad category of rats, although the size of the bones suggests a robust species such as the roof rat or the Norway rat.

Considered Old World rats (*Rattus spp.*), both the Norway rat (*Rattus norvegicus*) and the roof rat (*Rattus rattus*) traveled on ships bound for the New World and quickly spread along the eastern coast of North America during the late eighteenth century. They feed on organic garbage, grains, plant material, and other animals including poultry, birds, rabbits, and even their young. Preferring to live close to humans where adequate food, water, and shelter are available to them, they are often found in homes, wood piles, compost heaps, farm dwellings, dumps, slaughterhouses, food-processing plants, animal stalls, and sewers (Webster et al. 1985). Regarded as vermin then as they are today, rats transmit plague and typhus, among other diseases, and consequently were at least part of the reason that cats were kept as pets in both urban and rural environments during the eighteenth and nineteenth century.

Mouse. One bone from the Tulip Poplar Building assemblage and two bones from the North Building assemblage were identified to the broad category of mice (Mouse spp.), since the comparative collection used for this report does not have a complete collection of mouse species. Mice, opportunistic mammals, can be found wherever there is food. In Maryland several species can be found including the Eastern harvest mouse (*Reithrodontomys humulis*), the deer mouse (*Peromyscus maniculatus*), the white-footed mouse (*Peromyscus leucopus*), and the house mouse (*Mus musculus*) (Webster et al. 1985).

Domestic Cat. Due to the large number of rat bones, it is not surprising that two bones from the North Building assemblage were identified as the remains of a cat (*Felis domesticus*). Cats were and still are often kept in homes and on farms to serve as mousers and ratters.

DOMESTIC MAMMALS

Brought over to the New World possibly with the first ship, but most certainly with the first shipments to Jamestown in early January 1608, livestock were present in the Chesapeake region very early (Barbour 1986 V.I:273; Dandoy 1997:13-14). Records hint that horses, swine, goats, sheep, and chickens were among the earliest newcomers, but by June 1610, Lord De La Warr had brought milk cows, oxen, goats, hogs, and poultry (Force 1947).

Pig. There were a total of one hundred and forty swine (*Sus scrofa*) elements identified from the Tulip Poplar Building assemblage, seven bones from the Yard Area, and fifty-eight bones from the North Building assemblage. Although the ranking of pork among early diets may be argued by some, it is clear that the domestic pig was an important food source from the initial years of settlement on through the twentieth century. A prolific breeder that thrived on mast, roots, and tubers in an open woodland setting, they were born in the spring and by the next winter had grown to a good slaughter weight. In comparison to cattle that provided only about 50-60% of dressed meat per individual after slaughter, swine provided 65-80% and its flesh when salted was perfect for use as a year-round source of preserved meat (Reitz, Gibbs, and Rathbun 1985; Bowen 1990a, 1990b).

Archaeologically swine are omnipresent, and in every faunal assemblage their remains account for a substantial proportion, either in terms of NISP, MNI, usable meat weight, or biomass. From the early years, pork contributed 10% of the biomass, by 1620-50 anywhere from 6 to 17%, by 1660-1700 an average of 11%, and throughout the eighteenth century on rural plantations anywhere from 12 to 17% (Walsh et. al. 1997:351).

Cattle. Domestic cattle (*Bos taurus*) were identified by thirty-nine elements recovered from Tulip Poplar Building, seven bones recovered from the Yard Area, and twelve bones recovered from the North Building. By 1608, and possibly earlier cattle arrived on Jamestown Island. They flourished in the woodland environment, and as early as the 1620s, herds had become so large that beef was able to become the mainstay of the colonists' diet, a pattern that stood firm throughout the colonial period (Miller 1984; Bowen 1990a). Throughout the colonial period cattle provided primarily meat, but also some milk and dairy products, and beginning in the late-seventeenth and early-eighteenth centuries they were used to plow fields (Miller 1984; Bowen 1994). In terms of their contribution to the meat diet, in c. 1610 cattle contributed 14% to the total biomass, by 1620-1650 anywhere from 37 to 57%, by 1660-1700 47%, and throughout the eighteenth century on rural plantations anywhere from 34 to 56% of the total biomass (Walsh et al. 1997:351). For a more complete discussion of cattle husbandry, see *Provisioning Early American Towns. The Chesapeake: A Multidisciplinary Case Study* (Walsh et al. 1997).

Sheep/Goat. A total of fifty bones from the Tulip Poplar Building assemblage, four bones from the Yard Area, and two bones from the North Building assemblage were identified as sheep (*Ovis aries*) or goat (*Capra hircus*) bones. These species, despite their outward appearance, are usually grouped together by faunal analysts because they are almost skeletally indistinguishable. None of the caprine remains in the assemblages, however, was suitable for such differentiation, and it is not clear which species was represented

Goats were introduced to the New World, possibly with the first arrivals, but certainly with the first supplies. Goats were hardy, they browsed on undergrowth, and they were better able to protect themselves from predators than sheep (Dandoy 1997; Walsh et al. 1997). With the first years of colonization, they supplied both milk and meat, but as fields were established and predators brought under better control, sheep were introduced in increasingly large numbers. By the mid-seventeenth century sheep had begun to replace most of the goats, though occasionally they still were raised primarily for their milk (Walsh et. al. 1997).

While pigs and cows were allowed to roam free, sheep never became really profitable since they were unable to defend themselves from predators and would not freely reproduce (Reitz 1987; Walsh et al. 1997). It was not until the 1690s that it became viable to raise sheep, because of the decline in the wolf population (Walsh 1988). While sheep were raised primarily for their wool, the by-product, mutton, remained a relatively small but important meat in the diet of individuals throughout the colonial period (Noël Hume 1978: Walsh et al. 1997).

TAPHONOMIC INFLUENCES

This section briefly describes each of the taphonomic influences and how the domestic mammal bones from each of the Wye House assemblages have been modified.

Tulip Poplar Building. A total of 229 domestic mammal bones were examined from the Tulip Poplar Building (see Table 3). Overall, these bones were in fair condition with minimal taphonomic modifications. In terms of burn marks, none of the identified domestic mammal bones display signs of having been burned. There are however, at least 28 indeterminate bones with scorch marks on the surface, suggesting the bones were probably burned during the preparation of food, not as the result of a large scale fire. As explained in the "Analytic Techniques" section of this report, it often takes extreme temperatures to produce burn marks on a bone so there may be bones in this assemblage that had been burned but do not exhibit a charred appearance.

A close inspection of the bones also revealed evidence of gnawing, predominately by a carnivore. Carnivores such as dogs will typically gnaw on the soft ends of long bones to create channels that allow them to get at the marrow. Smaller bones belonging to fish, birds, and small mammals are easily broken and digested by larger carnivores, so usually there is minimal evidence of carnivore gnawing on these bones. Based on the appearance of puncture marks and specific gnawing patterns, three cattle, five pig, and one sheep/goat bone appear to have been chewed by a carnivore.

Although most of the faunal material from the Tulip Poplar Building assemblage had probably been butchered, only bones that were identified to species and element were examined for evidence of butchering. For this reason, there may have been indeterminate bones that had also been butchered but were not recorded as butchered or included in the description of taphonomic influences. Cattle remains revealed the highest degree of butchery evidence with at least 12 bones that appeared to have been hacked with either an ax or a cleaver. In terms of other domestic mammals, there are also thirteen pig bones and five sheep/goat bones that demonstrate butchery evidence. The location of the hack marks on the domestic mammal bones from the Tulip Poplar Building assemblage will be discussed in the section on butchery patterns.

Table 3
Wye House/Tulip Poplar Building
Taphonomic Influences On Domestic Mammal Bones

Burned	Total	Count	Gnawed	Hacked	Weathered
Cattle	39	3	12	0	0
Pig	140	5	13	0	0
Sheep/Goat	50	1	5	0	0

Yard Area. The Yard Area assemblage produced a total of 18 domestic mammal bones that were examined for taphonomic influences (see Table 4). Like the Tulip Poplar Assemblage, none of the Yard Area domestic bones or the indeterminate bones exhibited any scorch marks or signs of having been burned. This does not conclusively mean that none of the bones had been burned. As mentioned previously, bones exposed to fire and heat do not always exhibit obvious marks. It often takes extreme temperatures to produce burn marks on a bone so there may be bones in this assemblage that had been burned but do not exhibit a charred appearance.

When looking for evidence of gnawing, it is apparent that two pig bones have been gnawed by a carnivore and one cow bone has been gnawed by a rodent. Rodents leave a distinctive gnaw pattern on the surface of the bone made by their sharp incisors. Carnivores also leave specific patterns on bones when they gnaw on the soft ends of long bones to create channels that allow them to get at the marrow.

Finally, although most of the faunal material from the Yard Area assemblage had probably been butchered, only bones that were identified to species and element were examined for evidence of butchering. From the identified domestic mammals, only six cattle bones and one domestic pig bone appear to have been hacked with either an ax or a cleaver. These specific bones and the location of the hack marks will be discussed in the butchery section.

Table 4
Wye House/Yard Area
Taphonomic Influences On Domestic Mammal Bones

Burned	Total	Count	Gnawed	Hacked	Weathered
Cattle	7	1	6	0	0
Pig	7	2	1	0	0
Sheep/Goat	4	0	0	0	0

North Building. A total of 72 domestic mammal bones from the North Building assemblage were examined for taphonomic influences (see Table 5). Like the other two Wye House assemblages none of the domestic bones or the indeterminate bones displays signs of having been burned. While the bones may have been exposed to fire or heat, it often takes extreme temperatures to produce burn marks on a bone so there may be bones in this assemblage that had been burned but do not exhibit a charred appearance.

When examining the material for gnawing, there are at least 18 bones from the North Building assemblage that have distinctive gnaw marks on the surface. While most of these bones appear to have been gnawed by a carnivore, at least four bones appear to have been gnawed by a rodent. With so many rat bones identified in this assemblage, it is not surprising to see the distinctive marks left by the incisor teeth of rodents.

In terms of butchering, nine cattle bones and at least seven pig bones appeared to have been hacked with either an ax or a cleaver. Although most of the indeterminate faunal material from the North Building had probably been butchered, only bones identified to species and element were examined for evidence of butchering. The specific bones and the location of the hack marks for the butchered North Building bones will be discussed in the butchery section.

Table 5
Wye House/North Building
Taphonomic Influences On Domestic Mammal Bones

Burned	Total	Count	Gnawed	Hacked	Weathered
Cattle	12	0	9	0	0
Pig	58	18	7	0	0
Sheep/Goat	2	0	0	0	0

RELATIVE DIETARY IMPORTANCE:
Individual Assemblages

The following section discusses the relative dietary importance of each taxon based on each of the four main quantification methods mentioned earlier in the "Analytic Techniques" section of this report. It must be realized that these are relative measures and they do not reflect anything absolute about the amount of meat provided. While each assemblage will be discussed separately, an additional table is included in Appendix A (Table 16), to show a summary with all of the assemblages combined.

Tulip Poplar Building. As the largest of the three assemblages, the Tulip Poplar Building assemblage produced a total of 1,242 bones, of which 38.6% are identifiable to at least twenty different species (see Table 6). As the NISP numbers reveal, indeterminate remains make up the largest percentage, totaling 61.4% of the assemblage. In terms of identifiable bones, the remains of domestic pigs account for 11.2% of the NISP figures, followed by the remains of a mud/musk turtle at 7.1%, rats at 7.0%, sheep/goat at 3.9%, and domestic cattle at 3.0%. The remaining identified species each contribute around 1% or less to the total NISP numbers.

When looking at the MNI values, the faunal assemblage from the Tulip Poplar Building produced at least twenty-one adults and one immature individual. All of the species were represented by one individual, with the exception of domestic pig which contribute two adults and one immature individual. In total, wild species account for 58.5% of the MNIs, while domestic species account for 31.5%.

Although there are more wild species, in terms of useable meat weight, domestic species make up the greatest percentage at 83.5% or 694.5 pounds of meat. Individually, domestic cattle are the greatest contributor to useable meat weight at 48.1%, followed by domestic pig at 30.1%, white-tailed deer at 12.0%, and sheep/goat at 4.2%.

When the bone weight is taken into account, domestic cattle contribute the greatest amount to the biomass percentages accounting for 26.2% of the total diet. Domestic pigs are the next significant contributor to biomass at 14.9%, followed by sheep/goat at 10.4%, and white-tailed deer at 3.6%. The remaining species each contribute less than 1% to the biomass totals. It must also be kept in mind that the figures for the identified mammals can be somewhat masked by the "other mammal" category, composed of indeterminate bones that are too fragmented to identify to species. Indeterminate medium mammal bones make up 18.5% of the biomass, while indeterminate mammal remains account for 11.0% and indeterminate large mammals make up 7.9%.

Table 6

Wye House/Tulip Poplar Building
Summary of Faunal Remains

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Class Osteichthyes (Bony Fish)	27	2.1	—	—	—	—	0.16	0.4
Lepisosteus spp. (Gar)	10	0.8	1	4.5	5.0	0.6	0.06	0.1
cf. *Lepisosteus* spp. (Gar)	1	0.0	—	—	—	—	0.05	0.1
Morone Americana (White Perch)	3	0.2	1	4.5	1.0	0.1	0.01	0.0
Morone spp. (Temperate Bass)	2	0.1	—	—	—	—	0.00	0.0
Family Sparidae (Porgy)	1	0.0	1	4.5	1.0	0.1	0.01	0.0
Order Testudines (Turtle)	17	1.3	—	—	—	—	0.11	0.3
Family Kinosternidae (Musk/Mud Turtle)	88	7.0	1	4.5	0.4	0.0	0.32	0.9
cf. Family Kinosternidae (Musk/Mud T.)	2	0.1	—	—	—	—	0.03	0.0
Family Emydidae (Box or Water Turtle)	2	0.1	—	—	—	—	0.04	0.1
Chrysemys spp. (Slider or Cooter)	4	0.3	1	4.5	3.0	0.3	0.11	0.3
Terrapene carolina (Box Turtle)	2	0.1	1	4.5	0.3	0.0	0.06	0.1
cf. *Terrapene carolina* (Box Turtle)	3	0.2	—	—	—	—	0.07	0.2
Family Colubridae (Snake)	2	0.1	1	4.5	0.0	0.0	0.00	0.0
Class Aves (Bird)	9	0.7	—	—	—	—	0.06	0.1
Class Aves/Mammalia III (Bird/ Small Mammal)	18	1.4	—	—	—	—	0.12	0.3
Goose spp. (Goose)	1	0.0	1	4.5	7.0	0.8	0.02	0.0
Gallus gallus (Chicken)	10	0.8	1	4.5	2.5	0.3	0.16	0.4
cf. *Gallus gallus* (Chicken)	3	0.2	—	—	—	—	0.05	0.1
Ectopistes migratorius (Passenger Pigeon)	2	0.1	1	4.5	0.5	0.0	0.01	0.0
Order Piciformes (Woodpeckers)	1	0.0	1	4.5	0.0	0.0	0.01	0.0
Class Mammalia (Mammal)	400	32.2	—	—	—	—	3.70	11.0
Class Mammalia I (Large Mammal)	29	2.3	—	—	—	—	2.66	7.9
Class Mammalia II (Medium Mammal)	256	20.6	—	—	—	—	6.23	18.5
Class Mammalia III (Small Mammal)	6	0.4	—	—	—	—	0.07	0.1
Didelphis virginiana (Opossum)	1	0.0	1	4.5	8.0	0.9	0.05	0.1
Ondatra zibethica (Muskrat)	1	0.0	1	4.5	2.0	0.2	0.04	0.1
Rats spp. (Rats)	88	7.0	1	4.5	0.0	0.0	0.10	0.3
Mouse spp. (Mouse)	1	0.0	1	4.5	0.0	0.0	0.00	0.0

Table 6 Cont'd.
Wye House/Tulip Poplar Building
Summary of Faunal Remains

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Proycon lotor (Raccoon)	7	0.5	1	4.5	15.0	1.8	0.16	0.4
cf. *Proycon lotor* (Raccoon)	5	0.4	—	—	—	—	0.08	0.2
Order Artiodactyla I (Sheep, Goat, Deer, or Pig)	2	0.1	—	—	—	—	0.13	0.3
Order Artiodactyla II (Sheep, Goat, or Deer)	3	0.2	—	—	—	—	0.21	0.6
Sus scrofa (Pig)	106	8.5	2/1	13.6	250.0	30.1	4.75	14.1
cf. *Sus scrofa* (Pig)	34	2.7	—	—	—	—	0.29	0.8
Odocoileus virginianus (White-Tailed Deer	3	0.2	1	4.5	100.0	12.0	0.71	2.1

cf. *Odocoileus virginianus* (White-Tailed Deer)	3	0.2	—	—	—	—	0.53	1.5
Bos taurus (Domestic Cow)	32	2.5	1	4.5	400.0	48.1	7.95	23.7
cf.. *Bos taurus* (Domestic Cow)	7	0.5	—	—	—	—	0.84	2.5
Ovis aries/Capra hircus (Domestic Sheep or Goat)	43	3.4	1	4.5	35.0	4.2	3.16	9.4
cf. *Ovis aries/Capra hircus* (Domestic Sheep or Goat)	7	0.5	—	—	—	—	0.34	1.0
Totals	1242	100.0	21/1	100.0	830.7	100.0	33.50	100.0
Fish	44	3.2	3	13.5	7.0	0.8	0.45	0.5
Reptiles/Amphibians	120	15.8	4	18.0	3.7	0.3	0.63	1.6
Wild Birds	3	0.2	2	9.0	0.5	0.0	0.02	0.0
Domestic Birds	14	1.0	2	9.0	9.5	1.1	0.23	0.5
Wild Mammals	20	1.4	4	18.0	125.0	14.9	1.57	4.4
Domestic Mammals	229	18.1	4/1	22.5	685.0	82.4	17.33	51.5
Commensals	89	7.0	2	9.0	0.0	0.0	0.10	0.3
Wild	187	20.6	13	58.5	136.2	16.0	2.67	6.5
Domestic	243	19.1	6/1	31.5	694.5	83.5	17.56	52.0
Identified	480	38.6	21/1	100.0	830.7	100.0	20.39	61.4
Indeterminate	762	61.4	—	—	—	—	13.11	38.6
Totals	1242	100.0	21/1	100.0	830.7	100.0	33.50	100.0

Note:
*NISP= Number of identified specimens
*MNI=Minimum number of individuals. "1/1" under MNI means 1 adult, 1 immature; "1" means 1 adult.
*Percentages for wild and domestic categories do not add up to 100%. These numbers do not include commensals, indeterminate bones, and Artiodactyla I and II.
*Rats and mice are not included in the wild or domestic categories since they are typically considered commensal animals and not the remains of food.

Yard Area. Excavations of the Yard Area surrounding the Tulip Poplar Building produced one hundred and six bones identified to at least eight different species (see Table 7). Like the other faunal assemblages, indeterminate remains are the most frequently recorded bones making up 67.9% of the NISP figures. The remaining 32.1% of the NISP total consists mainly of domestic pig bones (6.6%), the remains of cattle (6.5%), white-tailed deer bones (3.7%), sheep/goat remains (3.7%), and chicken bones (2.8%). All other identified species contribute less than 2% to the NISP totals.

The MNI values reveal that wild species account for 24.9% with each wild mammal contributing one adult individual. The MNI counts for the domestic species include two adult chickens, one adult turkey, two adult sheep/goats, one adult cow, two adult pigs and one immature pig.

The presence of at least nine individuals, accounts for domestic species making up 85.9%

of the meat weight percentages. Individually cattle contribute the greatest amount at 47.0%, followed by domestic pig at 29.4%, sheep/goat at 8.2%, turkey at 0.8%, and chicken at 0.5%. White-tailed deer was another significant contributor to the meat weight totals making up 11.7%.

The biomass results reveal that adult cattle dominated the overall diet of the individuals who utilized the yard, by making up 52.0% of the biomass percentage. White-tailed deer are the second greatest contributors with 9.4%, followed by domestic pig at 8.2%, and sheep/goat with 2.4%. As mentioned previously, the domestic mammal and white-tailed deer biomass figures can be somewhat masked by the "other mammal" category, composed of indeterminate mammal bones that are almost certainly mostly cattle, pig, sheep/goat, or deer which are simply too fragmentary to identify to species. Indeterminate medium mammals make up 9.3%, indeterminate mammal remains make up 7.3%, and indeterminate large mammal remains make up 2.0%.

Table 7
Wye House/Yard Area
Summary of Faunal Remains

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Class Osteichthyes (Bony Fish)	4	3.7	—	—	—	—	0.02	0.3
Meleagris gallopavo (Turkey)	2	1.8	1	8.3	7.5	0.8	0.12	1.8
Gallus gallus (Chicken)	3	2.8	2	16.6	5.0	0.5	0.03	0.4
cf. *Gallus gallus* (Chicken)	1	0.9	—	—	—	—	0.00	0.0
Class Mammalia (Mammal)	35	33.0	—	—	—	—	0.46	7.3
Class Mammalia I (Large Mammal)	1	0.9	—	—	—	—	0.13	2.0
Class Mammalia II (Medium Mammal)	26	24.5	—	—	—	—	0.59	9.3
Class Mammalia III (Small Mammal)	6	5.6	—	—	—	—	0.07	0.1
Sylvilagus floridanus (Eastern Cottontail)	1	0.9	1	8.3	2.0	0.2	0.01	0.1
Proycon lotor (Raccoon)	2	1.8	1	8.3	15.0	1.7	0.08	1.2
Order Artiodactyla I (Sheep, Goat, Deer, or Pig)	1	0.9	—	—	—	—	0.12	1.8
cf. Order Artiodactyla I (Sheep, Goat, Deer, or Pig)	2	1.8	—	—	—	—	0.16	2.5

Table 7 Cont'd.
Wye House/Yard Area
Summary of Faunal Remains

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Sus scrofa (Pig)	7	6.6	2/1	25.0	250.0	29.4	0.52	8.2
Odocoileus virginianus (White-Tailed Deer	4	3.7	1	8.3	100.0	11.7	0.60	9.4
Bos taurus (Domestic Cow)	5	4.7	1	8.3	400.0	47.0	2.51	39.4
cf.. *Bos taurus* (Domestic Cow)	2	1.8	—	—	—	—	0.80	12.6
Ovis aries/Capra hircus (Domestic Sheep or Goat)	4	3.7	2	16.6	70.0	8.2	0.15	2.4

Totals	106	100.0	11/1	100.0	849.5	100.0	6.36	100.0
Fish	4	3.7	—	—	—	—	0.02	0.3
Reptiles/Amphibians	0	0.0	—	—	—	—	0.00	0.0
Wild Birds	0	0.0	—	—	—	—	0.00	0.0
Domestic Birds	6	5.5	3	24.9	12.5	1.3	0.15	2.2
Wild Mammals	7	6.4	3	24.9	117.0	13.6	0.69	10.7
Domestic Mammals	18	16.8	5/1	41.5	720.0	84.6	3.98	62.6
Commensals	0	0.0	—	—	—	—	0.00	0.0
Wild	11	10.1	3	24.9	117.0	13.6	0.71	11.0
Domestic	24	22.3	8/1	66.4	732.5	85.9	4.13	64.8
Identified	34	32.1	11/1	100.0	849.5	100.0	5.12	79.9
Indeterminate	72	67.9	—	—	—	—	1.24	19.5
Totals	106	100.0	11/1	100.0	849.5	100.0	6.36	100.0

Note:
*NISP= Number of identified specimens
*MNI=Minimum number of individuals. "1/1" under MNI means 1 adult, 1 immature; "1" means 1 adult.
*Percentages for wild and domestic categories do not add up to 100%. These numbers do not include indeterminate bones and Artiodactyla I and II.

North Building. With 616 bones, the North Building assemblage is represented by at least ten different species (see Table 8). As with most faunal assemblages, the indeterminate bones account for the highest NISP percentage at 55.2%. The remaining 44.8% of the NISP is divided among the identified species with rats contributing the most number of bones making up 29.5% of the NISP. Other significant contributors include domestic pig at 9.3% and domestic cattle at 1.9%. All of the remaining species contributed less than 1% to the NISP totals.

In terms of MNIs, at least fourteen rats, one mouse, and one cat account for the commensal species making up the greatest percentage at 65.6%. All remaining species contribute one adult individual each with the exception of domestic pigs which are represented by two adults.

The domestic species dominate the meat weight percentages at 97.2%, with wild species only contributing 2.3% to the overall figures. The biomass numbers also show that the domestic species were the main contributors to the overall diet with cattle at 22.7%, pig at 19.5%, and sheep/goat at 2.2%. Potentially masking these percentages are the indeterminate medium mammal bones that make up 18.2%, and large indeterminate mammal bones that make up 19.9% of the biomass percentage.

Table 8
Wye House/North Building

Summary of Faunal Remains

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Morone Americana (White Perch)	1	0.1	1	4.1	1.0	0.1	0.00	0.0
Class Aves/Mammalia III (Bird/ Small Mammal)	4	0.6	—	——	——	——	0.04	0.1
Gallus gallus (Chicken)	5	0.8	1	4.1	2.5	0.3	0.17	0.8
Ectopistes migratorius (Passenger Pigeon)	4	0.6	1	4.1	0.5	0.0	0.03	0.1
cf. *Ectopistes migratorius* (Passenger Pigeon)	3	0.4	—	——	——	——	0.03	0.1
Class Mammalia (Mammal)	185	30.0	—	——	——	——	1.86	9.1
Class Mammalia I (Large Mammal)	35	5.6	—	——	——	——	4.09	19.9
Class Mammalia II (Medium Mammal)	115	18.6	—	——	——	——	3.73	18.2
Class Mammalia III (Small Mammal)	3	0.4	—	——	——	——	0.04	0.1
Rats spp. (Rats)	180	29.2	14	58.3	0.0	0.0	1.22	5.9
cf. Rats spp. (Rats)	2	0.3	—	——	——	——	0.01	0.0
Mouse spp. (Mouse)	1	0.1	1	4.1	0.0	0.0	0.00	0.0
cf. Mouse spp. (Mouse)	1	0.1	—	——	——	——	0.00	0.0
Proycon lotor (Raccoon)	2	0.3	1	4.1	15.0	2.2	0.12	0.5
Felis domesticus (Domestic cat)	2	0.3	1	4.1	0.0	0.0	0.13	0.6
Order Artiodactyla II (Sheep, Goat, or Deer)	1	0.1	—	——	——	——	0.05	0.2
Sus scrofa (Pig)	54	8.7	2	8.3	200.0	30.5	3.81	18.6
cf. *Sus scrofa* (Pig)	4	0.6	—	——	——	——	0.19	0.9
Bos taurus (Domestic Cow)	7	1.1	1	4.1	400.0	61.1	2.63	12.8
cf.. *Bos taurus* (Domestic Cow)	5	0.8	—	——	——	——	2.03	9.9
Ovis aries/Capra hircus (Domestic Sheep or Goat)	1	0.1	1	4.1	35.0	5.3	0.19	0.9
cf. *Ovis aries/Capra hircus* (Domestic Sheep or Goat)	1	0.1	—	——	——	——	0.08	1.3
Totals	616	100.0	24	100.0	654.0	100.0	20.44	100.0
Fish	1	0.1	1	4.1	1.0	0.1	0.00	0.0
Reptiles/Amphibians	0	0.0	—	——	——	——	0.00	0.0
Wild Birds	7	1.0	1	4.1	0.5	0.0	0.01	0.0
Domestic Birds	5	0.8	1	4.1	2.5	0.3	0.17	0.8
Wild Mammals	2	0.3	1	4.1	15.0	2.2	0.12	0.5
Domestic Mammals	72	11.4	4	16.4	635.0	96.9	8.93	43.4
Commensals	186	30.0	16	65.6	0.0	0.0	1.37	6.5

Table 8 Cont'd.
Wye House/North Building
Summary of Faunal Remains

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Wild	10	1.9	3	12.3	16.5	2.3	0.13	0.5
Domestic	77	12.2	5	20.5	637.5	97.2	9.10	44.2

Identified	274	44.8	24	100.0	654.0	100.0	10.72	52.6
Indeterminate	342	55.2	—	—	—	—	9.72	47.4
Totals	616	100.0	24	100.0	654.0	100.0	20.44	100.0

Note:
*NISP= Number of identified specimens
*MNI=Minimum number of individuals. "1/1" under MNI means 1 adult, 1 immature; "1" means 1 adult.
*Percentages for wild and domestic categories do not add up to 100%. These numbers do not include commensals, indeterminate bones, and Artiodactyla I and II.
*Rats, nice, and cats are not included in the wild or domestic categories since they are typically considered commensal animals and not the remains of food.

RELATIVE DIETARY IMPORTANCE:
Individual Features

The following section examines each of the features associated with the Tulip Poplar Building. The complete summary tables for each Feature can be found in Appendix A, Tables 17-22.

Feature 6. A total of three bones were recovered from Feature 6 including one pig bone, one bone identified only as a medium mammal, and one bone identified to the Artiodactyla I category that includes sheep/goat, deer, and pig remains. In this small assemblage, domestic pig contributes the greatest amount to the meat weight and at least 19.7% to the biomass totals. Like the larger assemblages, it must also be kept in mind that the mammal figures can be somewhat masked by the "other mammal" category, composed of indeterminate bones that are too fragmented to identify to species. The indeterminate medium mammal bone accounts for 54.5% and the Artiodactyla I bone accounts for 25.6% of the biomass (see Appendix A, Table 17).

Feature 11. Feature 11 produced a total of 93 bones, with at least 87 bones identified as the remains of a single rat. The remaining bones include four indeterminate fish scales and two bones identified as the remains of a temperate bass. Since rats are considered commensal animals, not typically the remains of food, they are not included in the useable meat weight totals. Rats are included in the biomass percentages, accounting for 95.2% of the total biomass represented in the assemblage (see Appendix A, Table 18).

Feature 12. Six bones were identified from Feature 12 including two bones identified as the possible remains of a bird/small mammal, two bones identified as just mammal remains, one woodpecker long bone, and one domestic cow bone. The presence of the single cow bone accounts for cow contributing the greatest amount to the meat weight totals and the biomass percentages for Feature 12. While the single woodpecker represents 12.8% of the biomass totals, the indeterminate remains account for a total of 49.9% (see Appendix A, Table 19).

Feature 18. Feature 18 produced a total of 19 bones with only one bone identified to the species of domestic pig. The indeterminate bones include one fish scale, eight mammal remains, and nine medium mammal bones. As mentioned previously, these "other mammal" categories can often mask the contribution of a species to the biomass totals. While domestic pigs account for 13.4% of the biomass totals, the indeterminate mammal and medium mammal remains most certainly contain pig remains too fragmented to identify (see Appendix A, Table 20).

Feature 21. A total of 25 bones were recovered from Feature 21 with 18 bones recorded as indeterminate fish, turtle, bird/small mammal, medium mammal, and mammal. Six species represent the identifiable bones including sheep/goat, domestic pig, raccoon, opossum, chicken, and box/water turtle. Within the identifiable bones, domestic pigs contribute 62.3% to the useable meat weight totals and 33.0% to the biomass figures. Opossum is the next highest contributor to the biomass at 4.9%, followed by sheep/goat and chicken at 3.1%, box/water turtle at 2.2%, and raccoon at 1.9%. Like the larger assemblages, it must also be kept in mind that the identifiable mammal figures can be somewhat masked by the "other mammal" category, composed of indeterminate bones that are too fragmented to identify to species. The indeterminate medium mammal bone accounts for 45.0% and the mammal bones account for 5.1% of the biomass (see Appendix A, Table 21).

Feature 25. Feature 25 produced nine bones, all identified as the remains of a sheep/goat (see Appendix A, Table 22).

KILL-OFF PATTERNS

Aging methods were employed to help understand the husbandry techniques that underlay the availability of food. There is a direct relationship between the agricultural economies and how livestock are bred, raised, and slaughtered. In subsistence farming, animal husbandry focuses on raising livestock to serve multiple purposes. For example, a farmer might raise cattle for milk, meat, and draft uses, or sheep for both their wool and their meat. The farmers typically raise the livestock to provide for their own household's needs, and only after their needs are met is any surplus sold. On the other hand, specialized farming focuses on raising livestock to produce a product directly for market, and the focus shifts to managing livestock to produce the greatest profit. Since this is best accomplished by focusing on a single product from an animal, commercially-oriented farming has developed very specialized farms with highly developed breeds that will most efficiently produce a product: dairy cows to produce milk, beef cattle to produce meat.

In the Chesapeake, the specialized production of livestock evolved directly out of the region's plantation economy. Livestock first arrived with the earliest of settlers at Jamestown but by as early as the 1620s herds of cattle and swine were thriving within a woodland environment. Domestic herds were doing so well that in 1619 John Pory wrote that cattle "do mightily increase here, both kine, hogges and goates, and are much greater in stature, than the race of them first brought out of England "(Tyler 1946:213).

By the late seventeenth and early eighteenth century, the once lush environment was slowly disappearing. Forests, where cattle, swine, and horses once thrived, had been cut down to make way for tobacco and corn fields. As tobacco farming increased, soil began to be depleted of nutrients. Some planters then purchased lands to the west, while others shifted their focus to wheat, a crop that required plowing. As farming changed, animal husbandry patterns also evolved. For example, sheep, which thrive in enclosed pastures, began to appear in ever larger numbers.

References from the late seventeenth century indicate that tobacco farming, corn planting, and overgrazing of cattle and sheep, led to the decline in the health of livestock. New zooarchaeological evidence suggests the significant shift in size came in the early eighteenth-century, but as early as 1688, John Clayton wrote in a letter that the cattle "have little or no Grass in winter, so that… [they] are pinned and starved, and many that are brought low and weak, when the Spring begins, venture too far into the Swamps after the fresh Grass, where they perish; so that several Persons lose ten, twenty or thirty heads of Cattle in a Year" (Force 1947:25-26; Arbuckle 1999).

By the early eighteenth century, more cattle, pigs, and sheep were raised for profit, and in response planters began to shift to more aggressive animal husbandry techniques that would reduce the time needed to fatten livestock. At least dairy cows and their calves were kept in pastures with sheep, fattening techniques were pursued, and in a more profitable period of time, livestock could be sent to the emerging urban and foreign markets (Bowen 1996; Walsh et al. 1997).

Kill-off patterns from sites in the Chesapeake reflect the changes that occurred in the animal husbandry techniques (Bowen 1994; Walsh et al. 1997). Slaughter ages of cattle from sites dating from the early seventeenth century have shown that typically 51% of the cattle population were killed when they were approximately four years and older. By the late seventeenth century, the number of cattle being killed at greater than four years of age increased to 68%. This pattern has been attributed to grass feeding, where it takes about four years for cattle to reach their mature slaughter weight. As animal husbandry techniques were refined in the eighteenth century, cattle elements from faunal assemblages include larger percentages of younger individuals aged between 36-48 months. This probably reflects the more specialized form of cattle husbandry that allowed the cattle to mature to a slaughter weight at less than four years of age (Bowen 1996; Walsh et al. 1997).

The kill-off patterns for pigs from sites from the seventeenth century show that during the first half of the century, almost half the population of slaughtered swine was roughly less than a year old. Over the next hundred and fifty years, this number decreased until by the last half of the eighteenth century only 19-28% of the killed pigs were approximately less than a year old. In contrast, pigs between the ages of 12-24 months increased from 11-17% in the seventeenth century to 31-38% in the late eighteenth century. Again, this change reflects a shift in pig husbandry patterns in response to the introduction of commercial markets and the increase of specialized farming (Bowen 1996; Walsh et al. 1997).

Finally, little is known about the slaughter patterns of caprines (sheep/goats) in the first half of the seventeenth century due to the fact that so few caprine bones have been excavated. Sites dating from the second half of the seventeenth century and the early half of the eighteenth century, however, have produced a substantial amount of sheep/goat bones for the purpose of kill-off analysis. Data from these sites indicates that caprines in the Chesapeake were being raised primarily for meat since most of the individuals were killed approximately during their second and third years of age. As the century progressed, assemblages show a dramatic increase of older individuals, indicating that sheep were being increasingly raised for their wool (Walsh et al. 1997).

Based on what has been previously studied about animal husbandry patterns in the late eighteenth and early nineteenth centuries, the kill-off patterns from the Wye House assemblages should reflect the subsistence-oriented animal husbandry that was being practiced by first the early colonists and later, by plantation owners. To accurately assess the kill-off patterns from an assemblage, large numbers of elements are needed in proportions that are roughly equal to that of a normal skeleton. Unfortunately, while the individual assemblages did produce some ageable swine, cattle, and sheep/goat bones, the assemblages did not produce enough bones to make any conclusive statements about the kill-off patterns. When the assemblages were combined together, there were at least 23 swine bones analyzed for long bone epiphyseal fusion. Although this is a small number of bones, some generalizations have been made in the following paragraphs about the kill-off patterns for pigs. For the purpose of future comparative work, the epiphyseal fusion tables for cattle, swine, and sheep/goat are included in Appendix B (Tables 23-31) for the individual assemblages and the combined assemblage.

Pig Kill-Off Patterns

Pig husbandry developed in the eighteenth and nineteenth centuries from subsistence-oriented practices that combined the use of open woodlands and pens to more commercially-oriented practices that increasingly used stys and fattening methods. Slaughter ages have varied, but typically pigs were killed either at 8-10 months or at 18-24 months of age. Historians and zooarchaeologists specializing in British agriculture have stated that pigs under 12 months have been the target slaughter age for subsistence farming, and the 18-24 month population as being the target age for slaughtering pigs intended for sale (Walsh et al. 1997). Pigs that were slaughtered at a younger age had been born in the spring, allowed to mature throughout the summer and then during the fall fattened and slaughtered as soon as temperature dropped. Those slaughtered at 18 months had been kept over the winter, allowed to fatten over the summer to a more mature weight, and then slaughtered the next fall.

As mentioned above, the pig bones from the combined Wye House assemblages had only a few ageable pig bones that could be used for kill-off data. Large numbers of bone are needed for more accurate interpretations, so only some generalizations will be made about possible pig husbandry patterns.

Table 9
Kill-Off Pattern Based on Long Bone Fusion
Domestic Pig

Assemblage	0-12 Months	12-24 Months	24-36 Months	36-42 Months	>42 Months	Number Of Bones
Combined Assemblages						
	53.0%	0.0%	46.7%	0.0%	0.0%	23

As Table 9 shows, 53% of the pigs from the combined assemblages were killed within their first year of life, and 46.7% were killed roughly within the third year. While this kill-off pattern is consistent with subsistence farming, the data may also be an indication that the occupants of the site were practicing an even more specific type of animal husbandry. Could they have been systematically slaughtering the younger swine and allowing the older individuals to live as breeders? Although it is not possible to prove this at this time, the complete absence of older individuals in the faunal assemblages does raise some interesting questions regarding the husbandry practices for swine.

ELEMENT DISTRIBUTION AND CUTS OF MEAT

Many historical zooarchaeologists have focused their analysis of faunal remains on determining the social and economic status of households (Schulz and Gust 1983; Lyman 1987a; Crader 1984; Crader 1990; Reitz 1987; Bowen 1992). By looking at the presence or absence of various cuts of meat in an assemblage, they have concluded the presence of feet and heads, which are considered less valuable cuts, are indicators of low social and economic status. Consequently, the presence of fleshier cuts of meat, indicated by body elements, is considered to be more valuable and therefore, an indicator of a household with high status (Crader 1984; Miller 1984). Bowen (1992; 1994), however, demonstrated that preferences for heads and feet as cuts of meat have changed throughout history. For example, heads, particularly those of swine and calves, were often considered to be delicacies and therefore could not necessarily be considered a less valuable cut of meat.

In general, zooarchaeologists have not been able to identify distinctive characteristics of ethnic groups or high- and low-status diets (Bowen 1992; 1994). Particularly in seventeenth- and eighteenth-century assemblages, "low" and "high" quality cuts of meat are found intermingled in both high- and low-status assemblages. In his comparisons of known high-status and low-status seventeenth-century sites in Virginia, Henry Miller found very few differences in the distribution of particular elements. Similar species and cuts of meat were present in similar proportions on both types of sites, and in both, elements from "high-quality" cuts made up the majority of the bones (Miller 1984:360).

In studies of slave diet, where the assumption has been that slaves (presumably "low status") were provided the cuts of meat the white owners did not like, attempts have been made to demonstrate that "low-status" cuts such as the heads and feet were the cuts of meat most commonly consumed. Diana Crader looked for the presence of different cuts of meat to define the status of slave households associated with Monticello. In her comparative study of slave households associated with Thomas Jefferson's household and a slave household, she found a greater number "low-quality" cuts in the slave assemblage and a greater number of "high-quality" cuts in the main household assemblage. But like Miller, Crader found both high-quality cuts in the slave assemblage and low-quality cuts in the main household assemblage (Crader 1984, 1990).

The following paragraphs will examine the element distribution figures for the domestic mammal remains excavated from the three assemblages from the Wye House. Like the kill-off data, large numbers of bones are needed to accurately evaluate the element distribution patterns. Due to the small size of the Yard Area and the North Building assemblages, all three of the assemblages were also combined in order to generate more bones and a more accurate view of the element distribution patterns. While the data for each individual assemblage will be shown in the following tables, the element distribution patterns will be discussed using the results of the combined data.

Cattle Element Distribution

When the Wye House assemblages were combined together they still only produced a total of 58 cattle elements, a relatively small sample for the purpose of element distribution analysis. As Table 10 shows, while all parts of the cow are represented in the assemblage, body parts and elements from the head are represented in higher than normal percentages. It is surprising that so few foot bones were identified in the assemblages since those elements are very dense and tend to survive even in acidic soil conditions. Overall this pattern suggests that the occupants who utilized the structures and yard had access to the entire animal, both meaty and lower quality elements. While the low percentage of foot bones suggests the occupants of this site had less access to cattle foot bones, it may also be the result of the small sample size.

Table 10
Element Distribution for Cattle Remains

	Head	Body	Feet

	No.	%	No.	%	No.	%	NISP
Cattle Normal		**29.7**		**42.2**		**28.1**	
Combined Wye Assemblages	**22**	**37.9**	**31**	**53.4**	**5**	**8.6**	**58**
Tulip Poplar	17	43.6	17	43.6	5	12.8	39
Yard Area	1	14.3	6	85.7	0	0.0	7
North Building	4	33.3	8	66.7	0	0.0	12

Pig Element Distribution

A total of 205 swine elements were analyzed from the Wye House when the three assemblages were combined together. As Table 11 shows, the distribution of the excavated pig elements is almost in the same proportions as the normal distribution of bones in a pig skeleton. Body and foot elements contribute the same percentage to the element distribution with 37.1%, followed by teeth and bones from the head at 25.9%. This pattern indicates that the occupants of the site had access to the entire animal, both meaty and the lower quality cuts of meat, and may have been raising the animals themselves.

Table 11
Element Distribution for Domestic Pig Remains

	Head		Body		Feet		
	No.	%	No.	%	No.	%	NISP
Pig Normal		**28.2**		**34.5**		**37.3**	
Combined Wye Assemblages	**53**	**25.9**	**76**	**37.1**	**76**	**37.1**	**205**
Tulip Poplar	36	25.7	67	47.9	37	26.4	140
Yard Area	3	42.9	2	28.6	2	28.6	7
North Building	14	24.1	7	12.1	37	63.8	58

Sheep/Goat Element Distribution

When the assemblages were combined, a total of 56 sheep/goat bones were analyzed (see Table 12) for element distribution patterns. Although this is a relatively small sample size, some generalizations can be made about the distribution pattern. Bones from the foot were the most frequently identified elements making up 50% of the assemblage, nearly double to what is found in the normal skeletal distribution. Teeth and bones from the head also make up a greater than normal percentage at 39.3%, while body elements were identified in less than normal proportions at 10.7%. While the distribution pattern suggests that the occupants had access to the entire animal, they appear to have had access to the head and foot elements more than the meatier body elements. This may be a result of the small sample or it may indicate the type of rations supplied to the slaves of the Wye House.

Table 12
Element Distribution for Domestic Sheep/Goat Remains

	Head		Body		Feet		
	No.	**%**	**No.**	**%**	**No.**	**%**	**NISP**
Pig Normal		**29.7**		**42.2**		**28.1**	
Combined Wye Assemblages	**22**	**39.3**	**6**	**10.7**	**28**	**50.0**	**56**
Tulip Poplar	22	44.0	5	10.0	23	46.0	50
Yard Area	0	0.0	0	0.0	4	100.0	4
North Building	0	0.0	1	50.0	1	50.0	2

BUTCHERING AND CUTS OF MEAT

Although every zooarchaeologist must deal with butchery on a daily basis when analyzing faunal remains, few working with historical sites have dealt with butchery-related problems in print. With notable exceptions such as Lyman (1987b, 1996) and Crader (1990), zooarchaeologists have tended to leave their observations as only a laboratory function. Yet butchering data holds fascinating information on the transformation in foodways that occurred during the eighteenth and early nineteenth centuries, along with the commercialization and industrialization of food production, distribution, processing, and consumption of foods.

As faunal assemblages have come through Colonial Williamsburg's Zooarchaeology Laboratory, it has become apparent that a fundamental change occurred in butchering techniques during the seventeenth, eighteenth, and early nineteenth centuries. By working closely with the archaeologists to create tightly dated assemblages, we have had the opportunity to observe when the butchering technique shifted from chopping to sawing and formulate ideas on how and why this change occurred.

In his illustrative encyclopedia, Diderot (1978) depicts butchers in the seventeenth century with cleavers, knives, and broad axes, but no saws. Drawings of markets and butcher shops from eighteenth-century London also show broad axes and cleavers, not saws. Saws begin to appear only during the late eighteenth century or early nineteenth century. In fact, the earliest evidence of a saw is a 1799 drawing of Philadelphia, where a butcher is holding a saw (Bowen and Manning 1993).

Characteristic of eighteenth century assemblages, the butchered bones from the Wye House assemblages were all hacked with a chopping instrument. Overall the bones from swine, sheep/goat, and deer were chopped in similar forms to the butchering patterns recorded for cattle bones. One major difference, however, is that long bones tended to be slightly more complete in the pigs, sheep/goat, and deer since their bones are relatively smaller in size. Given the fundamental similarity in approach to butchering, the following butchering descriptions have been generalized, with any exceptions noted.

Butchery evidence is presented in this report in a descriptive form. Future research, where these patterns are combined with fragmentation studies, might lead to a better understanding of cookery methods. Was meat cooked in relatively complete pieces, possibly indicating roasting? Or were elements highly fragmented, and cooked as "one-pot" meals, either as pottages or other dishes that tend to be prepared in large pots? What cooking vessels can be correlated with the recovered bone remains?

While butchery research in zooarchaeology has been conducted for many decades, assumptions are based on what might seem to be rather naïve notions about nutrition, cooking methods, and economic well being. John Yellen's research conducted during the 1970s showed the ¡Kung Bushmen chopped up bones to extract marrow, then all were placed in the pot to cook what have been referred to as "one-pot" meals (Yellen 1977). In fact, the size of the chopped bone was directly related to the size of the cooking pot. Others have taken this research and generalized it to conclude highly fragmented bones indicate individuals were so poor they wrenched all possible nutrition from the bones by extracting marrow (Otto 1984).

The following section will examine each assemblage and discuss the butchered domestic mammal bones.

Tulip Poplar Building

Cattle: When the cattle remains were examined, there are at least seven vertebrae predominately split with an ax or cleaver longitudinally along the axis, either along the center line or along either side of the centrum. This is typical of a modern method of butchering the carcass into two halves. Two ribs appeared to have been hacked parallel to the vertebral column just below the articulation of the rib to the vertebra. This was probably done in order to separate the rib section from the vertebra. There is also one rib that appears to have been hacked parallel to the vertebral column just below the articulation of the rib to the vertebra. This was probably done in order to separate the rib section from the vertebra. The assemblage also has one scapula chopped below the neck and through the blade itself. The goals of this cut seems to have been to sever the shoulder from the front leg, and secondly to bisect the shoulder itself. Finally, in terms of butchered long bones there are one radius, one tibia, and one femur. All of the bones represent a shaft fragment suggesting the cuts were made below the proximal epiphysis through the shaft or above the distal epiphysis through the shaft. Experiments conducted by students and staff members working in Colonial Williamsburg's Zooarchaeological Lab have demonstrated the ease with which these cuts can be made. One hit of a cleaver is enough to snap the long bone in two. These cuts are part of the primary butchering process, not simply cuts made by those attempting to release marrow from inside the shaft.

Pig: A total of 13 pig bones were recorded as having been butchered in the Tulip Poplar Building assemblage, including one vertebra chopped with an ax or a cleaver along the side of the centrum. A scapula was also chopped just below the glenoid and through the shaft probably in an attempt to sever the shoulder from the front leg. An ax or a cleaver was also used to butcher one femur, one radius, two humerii, one tibia, one ulna. Most of these cuts were made below the proximal epiphysis through the shaft or above the distal epiphysis through the shaft. There were also a few bones that had been butchered mid-shaft. In addition to chopped long bones, there is also one radius that was sawn below the proximal end in the middle of the shaft. Finally, there are four bones from the foot that have been chopped, probably in an attempt to separate the foot from the leg bones.

Sheep/Goat: Five sheep/goat bones were identified from the Tulip Poplar Building assemblage as having been butchered. These bones include one humerus bone that was hacked with either an ax or a cleaver just above the distal end of the shaft. Other hacked bones include one phalange bone, one calcaneous, one metacarpal, and one metatarsal. Both metapodials were hacked just below the proximal end and through the shaft.

Yard Area

Cattle: Six cattle bones from the Yard Area were identified as having been butchered, including two ribs. One rib was hacked using an ax or a cleaver and includes a center section of the rib shaft. The other rib section, also a center portion of the shaft, has been sawn with a hand saw on both sides. In addition to the ribs, there are also two vertebrae that have been hacked with either an ax or a cleaver, longitudinally along the axis. The remaining two bones are radius bones both hacked just below the proximal end and then through the shaft.

Pig: One pig innominate from the Yard Area assemblage appeared to have been butchered by either an ax or a cleaver. It was hacked just above the acetabulum and then through the ilium.

North Building

Cattle: The North Building assemblage produced at least nine bones that all appear to have been hacked with either an ax or a cleaver. These bones include two mandible fragments that have been hacked just behind the symphysis, the anterior portion of the mandible where the left and right sides are joined together. Other butchered bones include one thoracic vertebrae cut along the dorsal side, three ribs cut in midshaft, and one scapula cut along the side of the blade. Butchered long bones include one tibia and one femur, both cut just below the proximal end and just above the distal end through the shaft. This cut with the middle of the shaft would have resulted in a substantial cut of meat.

Pig: Butchered pig remains include one mandible fragment hacked just behind the symphysis and at least two foot bones cut just above the distal end. There are also two tibias and two humerii hacked with either an ax or a cleaver. Three of the long bones are shaft pieces with no proximal or distal end. The remaining long bone contains the distal end and has been hacked through the shaft.

CONCLUDING REMARKS

As the database of faunal remains from slave sites increases, zooarchaeologists will continue to reexamine and redefine patterns in the species distribution, the element distribution, and the butchery practices typically observed in slave–related assemblages. As mentioned in the introduction of this report, although broad patterns have emerged in the analysis of slave sites, slave provisioning in the Chesapeake was directly related to the local ecology, the availability of land suitable for growing tobacco, and social relations of production, which by the 18th century had evolved from indentured servitude to enslaved African-Americans on both small and larger plantations. Keeping these factors in mind, the following paragraphs will discuss some of the broad patterns that have emerged in the faunal analysis of slave-related sites in the Chesapeake region and then examine how the Wye House assemblages fit into the patterns.

Overall, analysis of faunal remains has shown that throughout the Chesapeake area, the elite consumed a diet composed of predominantly beef, followed by pork, mutton, and very small amounts of wildlife. Little was known about the middling planter and enslaved African-Americans until the late 1980s, when Stephen Atkins analyzed an immense and well preserved assemblage from the House for Families, the slave quarters at Mount Vernon (1994). Using biomass estimates, Atkins showed Washington's slaves consumed more pork than beef, and wildlife contributed 24% to their meat diet. In addition, he found the bones to be so highly fragmented it was assumed they represented the one-pot meal Otto described. When examining element distribution, he found that slaves consumed even meaty cuts from pigs, cattle, and sheep.

Several years later faunal remains associated with the main household at Mount Vernon were analyzed. As anticipated, the data showed meats consumed in the main house were very different. Washington's household consumed proportionately more beef and mutton than pork and less wildlife than their slaves. The bones were also relatively complete in comparison to bones from the slave assemblage, indicating more roasts were consumed in the main house. Similar to the slave assemblage, it was apparent that they consumed every part of the animal – heads, feet, and main body parts.

The evidence revealed in the Mount Vernon study became the "pattern" for the Chesapeake region. It was assumed slaves in the region consumed a diverse diet, including all species found in planter assemblages, but in different proportions, specifically greater quantities of wildlife, pork, and chicken, and lesser quantities of beef and mutton. Additionally it was believed that slaves prepared chopped up the bones so the meat could be prepared in a one-pot meal such as hominy.

In 2005, after a number of slave-related and middling planter assemblages were analyzed, Maria Fashing examined faunal data from 14 mid-eighteenth-century elite, middling planters, and slaves sites in the Chesapeake. Her research suggested that on a region-wide basis, wildlife was not what distinguished slave meat diets from their owners. Using biomass estimates, Fashing found the elite consumed less than 10% wildlife, and middling planters followed suit, consuming less than 10% wild. The analysis of the enslaved African-American assemblages was striking in that they were not consistent like the elite and middling assemblages. There were are at least two patterns – in some assemblages wildlife contributed 20 to 25% of the biomass, while in other assemblages, like the Wye House assemblage, wildlife contributed less than 10%. While some of the variability in the slave assemblages may be the result of preservation, recovery methods, or sample size, Fashing concluded that the owner's control could also account for variability in wildlife consumption.

Fashing's most significant finding was the relative importance of beef and pork among elite and middling planters and their slaves. Her research shows that on elite sites beef contributed anywhere from 55% to 70%, and pork only 20% to 30 % of the diet. Data for middling planters revealed that beef contributed at least 50% and many over 70% of the total biomass, while pork ranked a distant second typically contributing 20% of the biomass. On slave sites, two distinct patterns emerged. For slaves living on the large plantation, pork ranked higher, contributing 50% to 60% to the meat diet, and beef contributing only 30%. In the assemblages associated with slaves living on middling plantations, proportions of meat are very similar to their owners, with beef contributing anywhere from 60% to 75% of the biomass (Fashing 2005).

When the biomass percentages for the Wye House combined assemblage are compared to other slave sites used in Fashing's study it is interesting to see how the site fits into the overall patterns of slave provisioning. As Table 13 shows, in the Wye House assemblage, cattle make up 54% of the total domestic biomass, while pig contributes 31.2%. Although the Wye House would be considered a large plantation, the percentage of beef and pork are more similar to what has been found at slave sites related to smaller plantations, middling farmers, and to elite sites. On smaller plantations and middling farms, slaves probably would have lived and worked in close proximity to their owners, while on larger plantations slaves lived in separate quarters, away from their owner. From Fashing's study, a slave's relationship to his owner appears to have had a direct influence on their diet. If similarity in diet is any measure, one would suspect owner and slave to have had a closer relationship with each other on a middling farm than on the larger plantations, where the physical distance between owner and slave no doubt translated into social distance. So, if the slaves at the Wye House plantation were living in their own quarters, separate from the owner, why does the Wye House assemblage differ from what has been found in other slave assemblages from plantations?

To help address this question, it must be kept in mind that what planters provided for their slaves, and what slaves managed to procure on their own is a product of the slave/owner relationship. On larger plantations where pork typically played a more important role, pork would probably have been provided as the main meat ration. Additionally, plantation owners from these sites may have also allowed their slaves to raise their own pigs, increasing the amount of pork in the diet. Could the lower percentage of pork in the Wye House assemblage suggest the slaves were not allowed to raise their own pigs? Or, does this simply indicate that beef was the main meat ration for slaves living on the Wye plantation? To help answer these questions, in the future it would be interesting to compare faunal material related to the main house with faunal analysis from the slave quarters

Table 13
Relative Dietary Importance of Pork and Beef at Slave Sites Based on Percentage of the Domestic Biomass

Sites	Large Plantation or Small Plantation/Middling Farm	Pig	Cattle
Wye House Combined Assemblages	**Large Plantation**	**31.2%**	**54.0%**
Rich Neck	Large Plantation	59.8%	32.4%
House for Families	Large Plantation	51.3%	31.5%
Kippax	Large Plantation	53.8%	35.1%
Wilton Period	Large Plantation	60.3%	29.2%
A.P. Hill	Small Plantation/Middling	39.3%	59.7%
Palace Lands	Small Plantation/Middling	24.2%	65.4%
Site 44JC851	Small Plantation/Middling	24.0%	74.8%

(Agbe-Davis 1999; Andrews 1997a, 2000, 2004; Atkins 1994; Brown 1999; DAACS 2009)

In addition to the biomass percentages of beef and pork, a higher percentage of wild species in a faunal assemblage was once believed to be an indicator of a slave site. Fashing examined this theory in her thesis on pattern analysis and determined that the percentage of wild species in faunal assemblages did not distinguish slave meat diets from their owners (2005). Instead, her study found that while the rank of wildlife classes in elite faunal assemblages is highly variable, the rank of wildlife classes in the slave and middling farmer/slave diet may be patterned.

As Table 14 shows, most of the faunal assemblages from middling farmer/slave sites have mammals as the most important wild species, reptiles ranked second, and fish third. In most of the analyzed slave assemblages fish were the dominant wildlife class with mammals and birds coming in as second and third. Reptiles, which not even make a presence in some of the slave assemblages, appear to be the least important class.

When the wildlife classes from the Wye House assemblage were ranked for dietary importance, mammals ranked first, reptiles ranked second, fish ranked third, and wild birds ranked last. This pattern is most similar to the middling farmer/slave sites and A.P. Hill, a slave site associated with a small plantation or middling farm. In all of these assemblages, mammals were ranked as the most important wildlife class. Most of the wild mammals from the Wye House assemblage were small mammals, such as opossum, cottontail, muskrat, and raccoon, animals that are easily trapped and could have been caught near their quarters. There were however, also some deer remains, suggesting that deer may have been given as an occasional ration or that the slaves may have been allowed to hunt larger game to supplement their rations.

Table 14
Relative Dietary Importance of Wildlife Classes
Based on the Rank of Biomass Estimates
"Wild 1" is most important, "Wild 4" is least important

	Wild 1	Wild 2	Wild 3	Wild 4
Wye House Combined Assemblages	**Mammals**	**Reptiles**	**Fish**	**Bird**
Slave Sites Related to Large Plantations				
Rich Neck Slave Quarter	Fish	Mammal	Reptile	Bird
House for Families	Fish	Bird	Mammal	Reptile
Kippax	Mammal	Fish	Bird	N/A
Wilton	Fish	Mammal	Bird	N/A
Slave Sites Related to Small Plantations/Middling Farms				
A.P. Hill	Mammal	Reptile	Fish	Bird
Palace Lands	Fish	Bird	Mammal	Reptile
Site 44JC851	Fish	Mammal	Bird	N/A
Middling Farmer Sites/Slave Sites				
Site 44JC1067	Fish	Reptile	Bird	N/A
Moore Hoff Farm	Mammal	Bird	Fish	Reptiles
Gloucester Period B	Mammal	Reptile	Fish	Bird
Gloucester Period C	Mammal	Reptile	Fish	Bird
Elite Sites				
South Grove	Fish	Mammal	Reptile	Bird
Brush-Everard Site	Bird	Fish	Mammal	Reptile
Ferry Farm	Mammal	Reptile	Fish	Bird

(Agbe-Davis 1999; Andrews 1997a 1997b, 2000, 2001, 2004; Atkins 1994; Brown 1999; DAACS 2009; Walsh et al. 1997)

When compared to the other slave assemblages, the Wye House assemblage is also disimilar since fish ranked third in the wildlife dietary importance. With the nearby location of the Wye River, it is surprising that so few fish bones were uncovered in the slave assemblages. This raises the question, were the slaves on the Wye plantation allowed to fish in the nearby waters to supplement their diet?

Although historical documents have indicated some slaves supplemented their diet by fishing and hunting wild game, faunal analysis does not allow us to determine if this was done with or without their owner's permission, or whether it was part of their daily rations. What we can see in the faunal analysis of slave-related sites is the diversity of species and the overall contribution of wild species to the diet.

Another final pattern that has appeared to demonstrate differences between elite and slaves sites is related to butchery. John Otto first discovered this in his comparison between elite and slave faunal assemblages. In his interpretation he found the bones from the plantation house were typically sawn, while the slave quarter bones were predominately chopped into smaller pieces. Although fragmentation of bones can occur due to the pH levels in the soil and the trampling of feet, Otto concluded fragmentation was a cultural difference between the two assemblages. He believed the sawn bones indicated the higher status of the white-owners, who roasted evenly-sawn cuts of meat, and the chopped bones represented the slaves who ate stews or hominy out of bowls. (1984).

Although Otto's interpretation of cultural and status-related behavior was revolutionary thinking at the time, further research of faunal assemblages from slave and white sites has refined some of his conclusions (Bowen 1990; 1995). For example, research on butchery has shown saws were not used by English colonists to butcher meat until sometime in the early nineteenth century. Sawn bones excavated from early sites have usually been found to be intrusive material from later occupants. Also, although butchery evidence can not be used directly to infer cuisine, Otto's observations of highly chopped bones in the slave-related assemblage are indirect evidence that slaves were preparing "one-pot meals," a method of cooking that may be based on African traditions. This manner of cooking bones would presumably involve the breaking of bones into pieces small enough to fit in a cooking pot for the preparation of stews.

To more closely examine the pattern of bone fragmentation between elite and slave sites, the fragmentation of the domestic animal bones from the Wye House assemblages were compared with bones from elite and other slave sites in the Chesapeake region. For the purpose of this fragmentation study, the individual long bones, including the scapula, humerus, ulna, radius, innominate, femur, and tibia, were singled out because they are considered the "meaty" elements and would presumably be chopped into smaller pieces for cooking. The long bones were counted and then divided by the total weight of the bones to reach an average gram weight for each specimen.

As Table 15 shows, the average weight for cattle bones from the Wye House assemblage was considerably greater than what was found in the slave assemblages from large plantations. With 29.3 grams being the average weight, the cattle remains appear to be more like what has been found on smaller plantations or elite sites. Pig remains from the Wye House assemblage also weighed more on average than compared to the slave sites. Does this indicate that the slaves on the Wye plantation were eating larger cuts of meat and less "one-pot" meals?

Table 15
Fragmentation Analysis
Average Weight of Individual Cow and Pig Body Elements in Grams

	Average Weight of Cattle Body Elements	Average Weight of Pig Body Elements
Wye House Combined Assemblages	**29.3g**	**9.3g**
Slave Sites Related to Large Plantations		
Rich Neck Slave Quarter	8.9g	5.5g
House For Families	9.1g	8.6g
Slave Sites Related to Small Plantations/Middling Farms		
A.P. Hill	16.1g	2.8g
Site JC851	42.9g	3.7g
Elite Sites		
Thomas Everard	28.2g	12.6g
Curles Neck Plantation	34.5g	15.9g

(Agbe-Davis 1999; Andrews 1993; 2000, 2004; Atkins 1994)

Whether the majority of bones from slave-related sites are highly chopped is not, in and of itself, solid ground for the interpretation of how slaves prepared their food. However, when used in conjunction with other artifact analysis and site interpretation a better understanding of slave foodways can be gained. For example, an analysis of the ceramic forms from the Wye House site could help to support the interpretation of slaves eating stews and other liquid-based meals. For example, in the Rich Neck artifact assemblage the ratio of hollow to flat forms was slightly greater than two to one. Specifically, there were a total of 33 bowls and saucers identified in the ceramics and only 15 plates or dishes. When the artifacts and the highly fragmented bones are interpreted together, they provide a strong case to support the idea that the slaves at Rich Neck were practicing "one-pot" cooking.

In conclusion, when the faunal remains from the Wye House assemblage are compared to other slave, elite, and middling farm/slave site from the Chesapeake region, it is apparent that the slave sites do not necessarily fit neatly into the patterns of what has been seen in assemblages from other slave sites associated with large plantations. The importance of beef over pork in the biomass percentages, the ranking of wildlife classes in the biomass, and the fragmentation of the cattle and pig bones all suggest the assemblage is more similar to slave sites from smaller plantations or middling farms. As faunal remains from slave sites are continuing to be analyzed from the Chesapeake, a database for analysis is continuing to be complied. Together with documentary and other archaeological evidence, faunal analysis of slave sites will provide not only useful information on slave subsistence, but hopefully provide a better understanding on the social and cultural importance of food in the life of a slave, and the how the relationship with the owner affected the rations given to slaves.

References

Agbe-Davis, Anna

1999 *Archaeolgical Excavation of a Small Cellar on Rich Neck Plantation.* Colonial Williamsburg Archaeological Reports.

Andrews, Susan Trevarthen

1993 *Who Went to Market?: An Urban and Rural, Late 18th Century Perspective Based on Faunal Assemblages from Curles Neck Plantation and the Everard Site.* Unpublished M.A. Thesis, Department of Anthropology, College of William and Mary, Williamsburg.

1997a *Faunal Analysis of the Kippax Plantation Site (44PG462), Prince George County, Virginia* Report submitted to the Center for Archaeological Research, College of William and Mary.

1997b *Faunal Analysis of Moore Hoff Farm (44PW600), Prince William County, Virginia.* Report submitted to the Center for Archaeological Research, College of William and Mary.

2000 *Faunal Analysis of A.P. Hill (44CE326), Caroline County, Virginia.* Report submitted to Cultural Resources Incorporated, Williamsburg, Virginia.

2001 *Faunal Analysis of Site 44GL394, Gloucester, Virginia.* Report submitted to Cultural Resources Incorporated, Williamsburg, Virginia.

2004 *Analysis of Faunal Remains from Site 44JC1067 and 44JC851.* Report submitted to Cultural Resources Incorporated, Williamsburg, Virginia.

Arbuckle, Benjamin

1999 "Interpretations of Size Change in Cattle in the Colonial Chesapeake." Senior Thesis, College of William and Mary, Williamsburg.

Atkins, Stephen Charles

1994 *An Archaeological Perspective on the African-American Slave Diet at Mount Vernon's House for Families.* Unpublished M.A. Thesis, Department of Anthropology, College of William and Mary, Williamsburg.

Barbour, Philip L. (editor)

1986 *The Complete Works of Captain John Smith (1580-1631).* 3 volumes. The Institute of Early American History and Culture, University of North Carolina Press, Chapel Hill.

Barnett, Virginia L., and Jan K. Gilliam
1989 *Food in Eighteenth-Century Chesapeake: Experts Relating to Food from Primary Sources.* Unpublished manuscript, John D. Rockefeller, Jr. Library, Colonial Williamsburg Foundation.

Behler, John, and F. Wayne King
1979 *The Audubon Society Field Guide to North American Reptiles and Amphibians.* Alfred A. Knopf, New York.

Bent, Arthur Cleveland
1963 *Life Histories of North American Gallinaceous Birds.* Dover Publications, Inc., New York. Reprint of 1932 edition.

Bonnichsen, Robson, and Marcella Sorg
1989 *Bone Modification.* Orono, Maine, Center for the Study of the First Americans, Institute for Quaternary Studies, University of Maine.

Bowen, Joanne
2008 "The Chesapeake Landscape and Slave Provisioning." Paper presented To Society of Historical Archaeology.

1990a *A Study of Seasonality and Subsistence: Eighteenth-Century Suffield, Connecticut.* Ph.D. dissertation, Brown University.

1990b "The Social Importance of Pork in the Southern Diet." Paper presented to the Society for Historical Archaeology, Richmond.

1992 "Faunal Remains and Urban Household Subsistence in New England." In *The Art and Mystery of Historical Archaeology*, edited by Anne Elizabeth Yentsch and Mary C. Beaudry. Department of Archaeology, Boston University, Boston.

1994 "A Comparative Analysis of the New England and Chesapeake Herding Systems." In *The Historic Chesapeake: Archaeological Contributions*, edited by Paul A. Shackel and Barbara J. Little, pp. 155-168. Smithsonian Institution Press, Washington, D.C.

1995 *Beef, Venison, and Imported Haddock in Colonial Virginia: A Preliminary Report on the Analysis of Faunal Remains from Jordon's Journey (44PG302).* Report prepared for the Virginia Department of Historic

Resources. Report on file with Colonial Williamsburg Foundation.

1996 "Foodways in the 18th-Century Chesapeake." In *The Archaeology of 18th Century Virginia,* edited by Theodore R. Reinhart. Special Publication 35, Archaeological Society of Virginia.

Bowen, Joanne, and Elise Manning
1993 *Harpers Ferry and Bones That Talk: Acquiring Meat in a Changing World.* Manuscript on file, Colonial Williamsburg Zooarchaeology Laboratory, Williamsburg, Virginia.

Brown, Gregory J.
1999 *Zooarchaeological Analysis of the Wilton Site (44HE493), Henrico County, Virginia.* Report submitted to Center for Archaeological Research, College of William and Mary.

Chaplin, R. E.
1971 The Study of Animal Bones from Archaeological Sites. Seminar Press, New York.

Chapman, Joseph, and George A. Feldhamer
1982 *Wild Mammals of North America: Biology, Management, and Economics.* Baltimore, The John Hopkins University Press.

Conant, Roger
1975 *A Field Guide to Reptiles and Amphibians of Eastern and Central North America*. Houghton Mifflin Co., Boston.

Crader, Diana
1984 "The Zooarchaeology of the Storehouse and the Dry Well at Monticello." *American Antiquity* 49(3):542-558.

1990 "The Slave Diet at Monticello." *American Antiquity* 55(4):690-717.

Dandoy, Jeremiah
1997 *Goats in the 17th Century Chesapeake*. Manuscript on file, Department of Archaeological Research, Colonial Williamsburg Foundation.

Davis, Simon J.M.
1987 *The Archaeology of Animals.* Yale University Press, New Haven.

Diderot, Denis
1978 *Diderot Encyclopedia: The Complete Illustration.* Abrams, New York.

Digital Archaeologcial Archive of Comprative Slavery
http://www.daacs.org/resources/sites/PalaceLandsQuartr/background.html

Retrieved July 2009.

Efremov, J.A.
1940 "Taphonomy: New Branch of Paleontology." *Pan-American Geologist* 74:81-93.

Ernst, Carl H., and Roger W. Barbour
1972 *Turtles of the United States.* University Press of Kentucky, Lexington.

Fashing, Maria Therese
2005 *Recognizing Variability in Eighteenth-Century Plantation Diet Through Pattern Analysis.* Unpublished M.A. Thesis, Department of Anthropology, College of William and Mary, Williamsburg.

Force, Peter
1947 *Tracts and Other Papers, Relating Principally to the Origin, Settlement, and Progress of the Colonies of North America, from the Discovery of the Country to the Year 1776.* Originally published in 1844. Reprinted, Peter Smith, New York.

Gardner, A.
1982 "Virginia Opossum, *Didelphis virginiana.*" In *Wild Mammals of North America,* edited by J. Chapman and G. Feldhamer, pp.3-36. The Johns Hopkins University Press, Baltimore.

Gifford, Diana
1981 "Taphonomy and Paleoecology: A Critical Review of Archaeology's Sister Disciplines." In *Advances in Archaeological Method and Theory*, Vol. 4:365-438, edited by Michael B. Shiffer. The University of Arizona Press, Tucson.

Grayson, Donald K.
1984 Quantitative Zooarchaeology: Topics in the Analysis of Archaeological Faunas. Academic Press, Orlando.

Haile, Edward Wright (editor)
1998 Jamestown Narratives: Eyewitness Accounts of the Virginia Colony. Roundhouse, Champlain, Virginia.

Hesselton, William T., and RuthAnn Monson Hesselton
1982 "White-Tail Deer, *Odocoileus virginianus*." In *Wild Mammals of North America*, edited by Joseph A. Chpman and George A. Feldhamer, pp. 878-901. The John Hopkins Univeristy Press, Baltimore.

Hildebrand, Samuel F., and William C. Schroeder
1972 *Fishes of Chesapeake Bay.* T.F.H. Publications, Inc., Neptune, New Jersey.

Johnson, Eileen
1985 "Current Developments in Bone Technology." In *Advances in Archaeological Method and Theory*, Vol. 8, edited by Michael B. Schiffer, pp. 157-235. Academic Press, Inc., New York.

Kraus, Lisa
2009 Personal Communication.

Lyman, R. Lee
1987a "On Zooarchaeological Measures of Socioeconomic Position and Cost-Efficient Meat Purchases." *Historical Archaeology* 21(1):58-66.

1987b "Archaeofaunas and Butchery Studies: A Taphonomic Perspective." In *Advances in Archaeological Method and Theory*, edited by Michael B. Schiffer, Vol. 10, pp. 249-337. Academic Press, New York.

1996 "Feeding Colonial Boston: A Zooarchaeological Study." *Historical Archaeology* 30 (1).

Maltby, Mark
1979 *Faunal Studies on Urban Sites: The Animal Bones from Exeter 1971-1975.* Exeter Archaeological Reports Volume 2. Department of Prehistory and Archaeology. University of Sheffield.

McClane, A.J.
1965 *McClane's Field Guide to Freshwater Fishes of North America.* Holt, Rinehart and Winston, New York.

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

1986 "Transforming a 'Splendid and Delightsome Land': Colonists and Ecological Change in the Chesapeake 1607-1820. Journal of the Washington Academy of Sciences 76(3):173-187.

Murdy, Edward O., Ray Birdsong, and John A. Musick
1997 *Fishes of Chesapeake Bay*. Smithsonian Institution Press, Washington, D.C.

National Geographic Society
1983 *Field Guide to the Birds of North America.* National Geographic Society,

Washington, D.C.

Noël Hume, Audrey
1978 *Food.* Colonial Williamsburg Archaeological Series No. 9. Colonial Williamsburg Foundation, Williamsburg.

Otto, John S.
1984 *Cannon's Point Plantation, 1794-1860: Living Conditions and Status Patterns in the Old South.* Academic Press, New York.

Pearce, John, and Rosemary Luff
1994 "The Taphonomy of Cooked Bone." In *Whither Environmental Archaeology?* Oxbow Books, Exeter.

Pearson, John C.
1942 "The Fish and Fisheries of Colonial Virginia, First Installment." *William and Mary Quarterly* 22 (3):213-220

Reitz, Elizabeth J.
1987 "Vertebrate Fauna and Socioeconomic Status." In *Consumer Choice in Historical Archaeology,* edited by Suzanne Spencer-Wood, pp. 101-119. Plenum Press, New York.

Reitz, Elizabeth J., and Dan Cordier
1983 "Use of Allometry in Zooarchaeological Analysis." In *Animals and Archaeology*: 2. *Shell Middens, Fishes and Birds*, edited by Caroline Grigson and Julia Clutton-Brock, pp. 237-252. B.A.R. International Series 183, London.

Reitz, Elizabeth J., and C. Margaret Scarry
1985 "Reconstructing Historic Subsistence with an Example from Sixteenth-Century Spanish Florida." *Special Publication Series, Society for Historical Archaeology No. 3. Society for Historical Archaeology,* Ann Arbor.

Reitz, Elizabeth and Elizabeth Wing
1999 *Zooarchaeology.* New York, Cambridge University Press.

Reitz, Elizabeth J., Tyson Gibbs, and Ted A. Rathbun
1985 "Archaeological Evidence for Subsistence on Coastal Plantations." In *The Archaeology of Slavery and Plantation Life*, edited by Theresa Singleton, pp.163-191. Academic Press, New York.

Roberts, Kenneth, and Anna M. Roberts (editors)
1947 *Moreau de St. Mery's American Journey {1793-1798}.* Doubleday &

Company, Inc., Garden City, New York.

Schorger, A.W.
1973 *The Passenger Pigeon: Its Natural History and Extinction.* University of Oklahoma Press, Norman.

Schulz, Peter, and Sherri Gust
1983 "Faunal Remains and Social Status in 19th Century Sacramento." *Historical Archaeology* 17(1):44-53.

Silver, I.A.
1969 "The Aging of Domestic Animals." In *Science in Archaeology*, edited by Donald Brothwell and Eric Higgs, pp. 250-267. Thames and Hudson, London.

Thomas, David Hurst
1969 "Great Basin Hunting Patterns: A Quantitative Method for Treating Faunal Remains." *American Antiquity* 34(4):393-401.

Tyler, Lyon Gardiner (editor)
1946 *Narratives of Early Virginia 1606-1625.* Barnes and Noble, New York.

Von den Driesch, Angela
1976 *A Guide to the Measurement of Animal Bones from Archaeological Sites.* Peabody Museum Bulletin 1, Harvard University.

Walsh, Lorena
1988 *Study of Plantation Management.* Unpublished manuscript on file, Department of Archaeological Research, Colonial Williamsburg Foundation, Williamsburg.

Walsh, Lorena, Ann Smart Martin, and Joanne Bowen
1997 *Provisioning Early American Towns. The Chesapeake: A Multidisciplinary Case Study.* Unpublished report prepared for the National Endowment for the Humanities. Manuscript on file, Department of Archaeological Research, Colonial Williamsburg Foundation, Williamsburg.

Webster, David, James F. Parnell, and Walter C. Biggs, Jr.
1985 *Mammals of the Carolinas, Virginia, and Maryland.* University of North Carolina Press, Chapel Hill.

Weeks, Christopher

1984 *Where Land and Water Intertwine: An Architectural History of Talbot County, Maryland.* Johns Hopkins Press.

White, T.E.

1953 "A Method of Calculating the Dietary Percentages of Various Food Animals Utilized by Aboriginal Peoples." In *American Antiquity* 18:396-398.

Wing, Elizabeth, and Antoinette Brown

1979 *Paleonutrition: Method and Theory in Prehistoric Foodways.* Academic Press, New York.

Ydstie, John

2007 "Plantation Dig Reveals Md. Town's Painful Past," from *National Public Radio* website. Originally broadcast on October 20, 2007, copy of program on www.NPR.org.

Yellen, John

1977 "Cultural Patterning in Faunal Remains: Evidence from the ¡Kung Bushmen." In *Experimental Archaeology*, edited by Daniel Ingersoll et. al. Columbia University Press, New York.

APPENDIX A.
Summary Charts

Entire Assemblage/All Contexts Combined
Individual Features from the Tulip Poplar Building

Table 16
Entire Assemblage/All Contexts Combined
Summary of Faunal Remains

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Class Osteichthyes (Bony Fish)	31	1.5	—	—	—	—	0.17	0.3
Lepisosteus spp. (Gar)	10	0.5	1	2.2	5.0	0.5	0.06	0.1
cf. *Lepisosteus* spp. (Gar)	1	0.0	—	—	—	—	0.05	0.0
Morone Americana (White Perch)	4	0.2	2	4.4	2.0	0.2	0.01	0.0
Morone spp. (Temperate Bass)	2	0.1	—	—	—	—	0.00	0.0
Family Sparidae (Porgy)	1	0.0	1	2.2	1.0	0.1	0.01	0.0
Order Testudines (Turtle)	17	1.8	—	—	—	—	0.11	0.2
Family Kinosternidae (Musk/Mud Turtle)	88	4.4	1	2.2	0.4	0.0	0.32	0.5
cf. Family Kinosternidae (Musk/ Mud Turtle)	2	0.1	—	—	—	—	0.03	0.0
Family Emydidae (Box or Water Turtle)	2	0.1	—	—	—	—	0.04	0.0
Chrysemys spp. (Slider or Cooter)	4	0.2	1	2.2	3.0	0.3	0.11	0.1
Terrapene carolina (Box Turtle)	2	0.1	1	2.2	0.3	0.0	0.06	0.1
cf. *Terrapene carolina* (Box Turtle)	3	0.1	—	—	—	—	0.07	0.1
Family Colubridae (Snake)	2	0.1	1	2.2	0.0	0.0	0.00	0.0
Class Aves (Bird)	9	0.4	—	—	—	—	0.06	0.1
Class Aves/Mammalia III (Bird/ Small Mammal)	22	1.1	—	—	—	—	0.15	0.2
Goose spp. (Goose)	1	0.0	1	2.2	7.0	0.8	0.02	0.0
Meleagirs gallopavo (Turkey)	2	0.1	1	2.2	7.5	0.8	0.12	0.2
Gallus gallus (Chicken)	18	0.9	2	4.4	5.0	0.5	0.33	0.5
cf. *Gallus gallus* (Chicken)	4	0.2	—	—	—	—	0.05	0.0
Ectopistes migratorius (Passenger Pigeon)	6	0.3	1	2.2	0.5	0.0	0.04	0.0
cf. *Ectopistes migratorius* (Passenger Pigeon)	3	0.1					0.03	0.0
Order Piciformes (Woodpeckers)	1	0.0	1	2.2	0.0	0.0	0.01	0.0
Class Mammalia (Mammal)	620	31.5	—	—	—	—	5.54	9.9

Class Mammalia I (Large Mammal)	65	3.3	—	—	—	—	6.39	11.4
Class Mammalia II (Medium Mammal)	397	20.1	—	—	—	—	9.74	17.4
Class Mammalia III (Small Mammal)	15	0.7	—	—	—	—	0.13	0.2
Didelphis virginiana (Opossum)	1	0.0	1	2.2	8.0	0.9	0.05	0.0
Sylvilagus floridanus (Eastern Cottontail)	1	0.0	1	2.2	2.0	0.2	0.01	0.0
Ondatra zibethica (Muskrat)	1	0.0	1	2.2	2.0	0.2	0.04	0.0
Rats spp. (Rats)	268	13.6	18	40.0	0.0	0.0	1.29	2.3
cf. Rats spp. (Rats)	2	0.1	—	—	—	—	0.01	0.0
Mouse spp. (Mouse)	2	0.1	1	2.2	0.0	0.0	0.00	0.0
cf. Mouse spp. (Mouse)	1	0.0	—	—	—	—	0.00	0.0
Proycon lotor (Raccoon)	11	0.5	1	2.2	15.0	1.7	0.32	0.5
cf. *Proycon lotor* (Raccoon)	5	0.2	—	—	—	—	0.08	0.1
Felis domesticus (Domestic Cat)	2	0.1	1	2.2	0.0	0.0	0.13	0.2
Order Artiodactyla I (Sheep, Goat, Deer, or Pig)	3	0.1	—	—	—	—	0.23	0.4
cf. Order Artiodactyla I (Sheep, Goat, Deer, or Pig)	2	0.1	—	—	—	—	0.16	0.2
Order Artiodactyla II (Sheep, Goat, or Deer)	4	0.2	—	—	—	—	0.25	0.4
Sus scrofa (Pig)	167	8.5	2/1	6.6	250.0	28.4	8.34	14.9
cf. *Sus scrofa* (Pig)	38	1.9	—	—	—	—	0.45	0.8

Table 16
Entire Assemblage/All Contexts Combined
Summary of Faunal Remains

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Odocoileus virginianus (White-Tailed Deer	7	0.3	1	2.2	100.0	11.3	1.22	2.1
cf. *Odocoileus virginianus* (White-Tailed Deer)	3	0.1	—	—	—	—	0.53	0.9
Bos taurus (Domestic Cow)	44	2.2	1	2.2	400.0	45.5	11.94	21.3
cf.. *Bos taurus* (Domestic Cow)	14	0.7	—	—	—	—	3.33	5.9
Ovis aries/Capra hircus (Domestic Sheep or Goat)	48	2.4	2	4.4	70.0	7.9	3.38	6.0
cf. *Ovis aries/Capra hircus* (Domestic Sheep or Goat)	8	0.4	—	—	—	—	0.40	0.7
Totals	1964	100.0	44/1	100.0	878.7	100.0	55.85	100.0
Fish	49	2.5	4	8.8	8.0	0.8	0.30	0.4
Reptiles/Amphibians	120	6.1	4	8.8	3.7	0.3	0.74	1.0
Wild Birds	10	0.5	2	4.4	0.5	0.0	0.08	0.1
Domestic Birds	25	1.3	4	8.8	19.5	2.1	0.52	0.7
Wild Mammals	29	1.5	5	11.0	127.0	14.3	2.25	3.6
Domestic Mammals	319	16.2	5/1	13.2	720.0	81.8	27.8	49.6
Commensals	275	14.0	20	44.0	0.0	0.0	1.43	2.5
Wild	208	10.6	15	33.0	139.2	15.4	3.37	5.1
Domestic	344	17.5	9/1	22.0	739.5	83.9	28.32	50.3
Identified	788	40.1	44/1	100.0	878.7	100.0	33.54	60.3

Indeterminate	1176	59.9	—	——	——	——	22.31	39.7
Totals	1964	100.0	44/1	100.0	878.7	100.0	55.85	100.0

Note:
*NISP= Number of identified specimens
*MNI=Minimum number of individuals. "1/1" under MNI means 1 adult, 1 immature; "1" means 1 adult.
*Percentages for wild and domestic categories do not add up to 100%. These numbers do not include commensals, indeterminate bones, and Artiodactyla I and II.
*Rats and mice are not included in the wild or domestic categories since they are typically considered commensal animals and not the remains of food.

Table 17
Summary of Faunal Remains
Wye House
Feature 6

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Class Mammalia II (Medium Mammal)	1	33.3	—	——	——	——	0.19	54.5
Order Artiodactyla I (Sheep, Goat, Deer, or Pig)	1	33.3	—	——	——	——	0.09	25.6
Sus scrofa (Pig)	1	33.3	1	100.0	100.0	100.0	0.07	19.7
Totals	3	100.0	1	100.0	100.0	100.0	0.35	100.0
Fish	0	0.0	—	——	——	——	0.00	0.0
Reptiles/Amphibians	0	0.0	—	——	——	——	0.00	0.0
Wild Birds	0	0.0	—	——	——	——	0.00	0.0
Domestic Birds	0	0.0	—	——	——	——	0.00	0.0
Wild Mammals	0	0.0	—	——	——	——	0.00	0.0
Domestic Mammals	1	33.3	1	100.0	100.0	100.0	0.07	19.7
Commensals	0	0.0	—	——	——	——	0.00	0.0
Wild	0	0.0	—	——	——	——	0.00	0.0
Domestic	1	33.3	1	100.0	100.0	100.0	0.07	19.7
Identified	2	66.6	1	100.0	100.0	100.0	0.16	45.3
Indeterminate	1	33.3	—	——	——	——	0.19	54.5
Totals	3	100.0	1	100.0	100.0	100.0	0.35	100.0

Note:
*NISP= Number of identified specimens
*MNI=Minimum number of individuals. "1/1" under MNI means 1 adult, 1 immature; "1" means 1 adult.
*Percentages for wild and domestic categories do not add up to 100%. These numbers do not include indeterminate bones and Artiodactyla I and II.

Table 18
Summary of Faunal Remains
Wye House
Feature 11

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Class Osteichthyes (Bony Fish)	4	4.3	—	—	—	—	0.01	4.7
Morone spp. (Temperate Bass)	2	2.1	1	50.0	1.0	100.0	0.00	0.0
Rat spp. (Rat)	87	93.5	1	50.0	—	—	0.10	95.2
Totals	93	100.0	2	100.0	1.0	100.0	0.11	100.0
Fish	6	11.4	1	50.0	1.0	100.0	0.01	4.7
Reptiles/Amphibians	0	0.0	—	—	—	—	0.00	0.0
Wild Birds	0	0.0	—	—	—	—	0.00	0.0
Domestic Birds	0	0.0	—	—	—	—	0.00	0.0
Wild Mammals	0	0.0	—	—	—	—	0.00	0.0
Domestic Mammals	0	0.0	—	—	—	—	0.00	0.0
Commensals	87	93.5	1	50.0	—	—	0.00	95.2
Wild	6	11.4	1	50.0	—	—	0.01	4.7
Domestic	0	0.0	—	—	—	—	0.00	0.0

	NISP No.	NISP Pct.	MNI	MNI Pct.	Meat Weight Lbs.	Meat Weight Pct.	Biomass Kg	Biomass Pct.
Identified	89	95.6	2	100.0	1.0	100.0	0.10	95.2
Indeterminate	4	4.3	—	——	——	——	0.01	4.7
Totals	93	100.0	2	100.0	1.0	100.0	0.11	100.0

Note:
*NISP= Number of identified specimens
*MNI=Minimum number of individuals. "1/1" under MNI means 1 adult, 1 immature; "1" means 1 adult.
*Percentages for wild and domestic categories do not add up to 100%. These numbers do not include commensals, indeterminate bones, and Artiodactyla I and II.
*Rats are not included in the wild or domestic categories since they are typically considered commensal animals and not the remains of food.

Table 19
Summary of Faunal Remains
Wye House
Feature 12

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Class Aves/Mammalia III (Bird/ Small Mammal)	2	33.3	—	——	——	——	0.01	15.7
Order Piciformes (Woodpeckers)	1	16.6	1	50.0	——	——	0.01	12.8
Class Mammalia (Mammal)	2	33.3	—	——	——	——	0.02	34.2
Bos taurus (Domestic Cow)	1	16.6	1	50.0	400.0	100.0	0.03	37.1
Totals	6	100.0	2	100.0	400.0	100.0	0.07	100.0
Fish	0	0.0	—	——	——	——	0.00	0.0
Reptiles/Amphibians	0	0.0	—	——	——	——	0.00	0.0
Wild Birds	1	16.6	1	50.0	——	——	0.01	12.8
Domestic Birds	0	0.0	—	——	——	——	0.00	0.0
Wild Mammals	0	0.0	—	——	——	——	0.00	0.0
Domestic Mammals	1	16.6	1	50.0	400.0	100.0	0.03	37.1
Commensals	0	0.0	—	——	——	——	0.00	0.0

	NISP No.	NISP Pct.	MNI	MNI Pct.	Meat Weight Lbs.	Meat Weight Pct.	Biomass Kg	Biomass Pct.
Wild	1	16.6	1	50.0	—	—	0.01	12.8
Domestic	1	16.6	1	50.0	400.0	100.0	0.03	37.1
Identified	2	33.3	2	100.0	400.0	100.0	0.04	49.9
Indeterminate	4	66.6	—	—	—	—	0.03	49.9
Totals	6	100.0	2	100.0	400.0	100.0	0.07	100.0

Note:
*NISP= Number of identified specimens
*MNI=Minimum number of individuals. "1/1" under MNI means 1 adult, 1 immature; "1" means 1 adult.
*Percentages for wild and domestic categories do not add up to 100%. These numbers do not include indeterminate bones and Artiodactyla I and II.

Table 20
Summary of Faunal Remains
Wye House
Feature 18

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Class Osteichthyes (Bony Fish)	1	5.2	—	—	—	—	0.06	17.7
Class Mammalia (Mammal)	8	42.1	—	—	—	—	0.06	17.1
Class Mammalia II (Medium Mammal)	9	47.3	—	—	—	—	0.18	51.7
Sus scrofa (Pig)	1	5.2	1	100.0	100.0	100.0	0.05	13.4
Totals	19	100.0	1	100.0	100.0	100.0	0.35	100.0
Fish	0	0.0	—	—	—	—	0.00	0.0
Reptiles/Amphibians	0	0.0	—	—	—	—	0.00	0.0
Wild Birds	0	0.0	—	—	—	—	0.00	0.0
Domestic Birds	0	0.0	—	—	—	—	0.00	0.0

	NISP No.	NISP Pct.	MNI	MNI Pct.	Meat Weight Lbs.	Meat Weight Pct.	Biomass Kg	Biomass Pct.
Wild Mammals	0	0.0	—	——	——	——	0.00	0.0
Domestic Mammals	1	5.2	1	100.0	100.0	100.0	0.05	13.4
Commensals	0	0.0	—	——	——	——	0.00	0.0
Wild	1	5.2	—	——	——	——	0.06	17.7
Domestic	1	5.2	1	100.0	100.0	100.0	0.05	13.4
Identified	1	5.2	1	100.0	100.0	100.0	0.05	13.4
Indeterminate	18	94.6	—	——	——	——	0.30	86.5
Totals	19	100.0	1	100.0	100.0	100.0	0.35	100.0

Note:
*NISP= Number of identified specimens
*MNI=Minimum number of individuals. "1/1" under MNI means 1 adult, 1 immature; "1" means 1 adult.
*Percentages for wild and domestic categories do not add up to 100%. These numbers do not include indeterminate bones and Artiodactyla I and II.

Table 21
Summary of Faunal Remains
Wye House
Feature 21

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Class Osteichthyes (Bony Fish)	3	12.0	—	——	——	——	0.01	0.5
Order Testudines (Turtle)	1	4.0	—	——	——	——	0.00	0.0
Family Emydidae (Box or Water Turtle)	1	4.0	1	16.6	——	——	0.02	2.2
Class Aves/Mammalia III (Bird/ Small Mammal)	1	4.0	—	——	——	——	0.01	0.7
Gallus gallus (Chicken)	1	4.0	1	16.6	2.5	1.5	0.03	3.1
Class Mammalia (Mammal)	6	24.0	—	——	——	——	0.05	5.1
Class Mammalia II (Medium Mammal)	7	28.0	—	——	——	——	0.44	45.0
Didelphis virginiana (Opossum)	1	4.0	1	16.6	8.0	4.9	0.05	4.9

Procyon lotor (Raccoon)	1	4.0	1	16.6	15.0	9.3	0.02	1.9
Sus scrofa (Pig)	2	8.0	1	16.6	100.0	62.3	0.32	33.0
Ovies aries/Capra hircus (Domestic Sheep/Goat)	1	4.0	1	16.6	35.0	21.8	0.03	3.1
Totals	25	100.0	6	100.0	160.0	100.0	0.96	100.0
Fish	3	12.0	—	—	—	—	0.01	0.5
Reptiles/Amphibians	2	8.0	1	16.6	—	—	0.02	2.2
Wild Birds	0	0.0	—	—	—	—	0.00	0.0
Domestic Birds	1	4.0	1	16.6	2.5	1.5	0.03	3.1
Wild Mammals	2	8.0	2	33.3	23.0	14.2	0.07	6.8
Domestic Mammals	3	12.0	2	33.3	135.0	84.1	0.35	36.1
Commensals	0	0.0	—	—	—	—	0.00	0.0
Wild	7	28.0	3	50.0	23.0	14.2	0.10	9.5
Domestic	4	16.0	3	50.0	137.5	85.6	0.38	39.2
Identified	7	28.0	6	100.0	160.0	100.0	0.47	48.2
Indeterminate	18	72.0	—	—	—	—	0.51	51.3
Totals	25	100.0	6	100.0	160.0	100.0	0.98	100.0

Note:
*NISP= Number of identified specimens
*MNI=Minimum number of individuals. "1/1" under MNI means 1 adult, 1 immature; "1" means 1 adult.
*Percentages for wild and domestic categories do not add up to 100%. These numbers do not include indeterminate bones and Artiodactyla I and II.

Table 22
Summary of Faunal Remains
Wye House
Feature 25

	NISP		MNI		Meat Weight		Biomass	
	No.	Pct.	MNI	Pct.	Lbs.	Pct.	Kg	Pct.
Ovies aries/Capra hircus (Domestic Sheep/Goat)	9	100.0	1	100.0	35.0	100.0	1.89	100.0
Totals	9	100.0	1	100.0	35.0	100.0	1.89	100.0
Fish	0	0.0	—	—	—	—	0.00	0.0
Reptiles/Amphibians	0	0.0	—	—	—	—	0.00	0.0

Wild Birds	0	0.0	—	—	—	—	0.00	0.0
Domestic Birds	0	0.0	—	—	—	—	0.00	0.0
Wild Mammals	0	0.0	—	—	—	—	0.00	0.0
Domestic Mammals	9	100.0	1	100.0	35.0	100.0	1.89	100.0
Commensals	0	0.0	—	—	—	—	0.00	0.0
Wild	0	0.0	—	—	—	—	0.00	0.0
Domestic	9	100.0	1	100.0	35.0	100.0	1.89	100.0
Identified	9	100.0	1	100.0	35.0	100.0	1.89	100.0
Indeterminate	0	0.0	—	—	—	—	0.00	0.0
Totals	9	100.0	1	100.0	35.0	100.0	1.89	100.0

Note:
*NISP= Number of identified specimens
*MNI=Minimum number of individuals. "1/1" under MNI means 1 adult, 1 immature; "1" means 1 adult.
*Percentages for wild and domestic categories do not add up to 100%. These numbers do not include indeterminate bones and Artiodactyla I and II.

APPENDIX B
AGE DISTRIBUTION DATA FOR WYE HOUSE
Entire Assemblage/All Contexts Combined
Tulip Poplar Building Contexts
Yard Area Contexts
North Building Contexts

Table 23
Age Distribution Based on Epiphyseal Fusion
Entire Wye House Assemblage/All Contexts Combined
***Sus scrofa* (Domestic Pig)**
N=23

Age of Fusion - 0 to 12 Months		
Bone and Epiphysis	**Fused**	**Not Fused**

Scapula	0	1
Innominate	0	2
Humerus - distal	1	1
Radius - proximal	2	0
Second phalange - proximal	4	4
	7	8
Percent of Age Range	46.7%	53.3%

Age of Fusion - 12 to 24 Months

Bone and Epiphysis	Fused	Not Fused
Metacarpal	0	2
First phalange - proximal	0	0
Tibia - distal	2	0
	2	2
Percent of Age Range	50.0%	50.0%

Age of Fusion - 24 to 36 Months

Bone and Epiphysis	Fused	Not Fused
Calcaneus	0	0
Metatarsal	0	1
Fibula - distal	0	0
	0	1
Percent of Age Range	0.0%	100.0%

Age of Fusion - 36 to 42 Months

Bone and Epiphysis	Fused	Not Fused
Humerus - proximal	0	0
Radius - distal	0	1
Ulna - proximal	0	1
Ulna - distal	0	0
Femur - proximal	0	0
Femur - distal	0	1
Tibia - proximal	0	0
Fibula - proximal	0	0
	0	3
Percent of Age Range	0.0%	100.0%

Source of Fusion Ages: Silver 1969; Chaplin 1970; Maltby 1979.

Table 24
Age Distribution Based on Epiphyseal Fusion
Entire Wye House Assemblage/All Contexts Combined
***Bos taurus* (Domestic Cattle)**
N=1

Age of Fusion - 0 to 12 Months

Bone and Epiphysis	Fused	Not Fused
Scapula	0	0
Innominate	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Age of Fusion - 12 to 24 Months

Bone and Epiphysis	Fused	Not Fused
Humerus - distal	0	0
Radius - proximal	0	1
First Phalange - proximal	0	0
Second Phalange - proximal	0	0
	0	1
Percent of Age Range	0.0%	100.0%

Age of Fusion - 24 to 36 Months

Bone and Epiphysis	Fused	Not Fused
Metacarpal	0	0
Tibia - distal	0	0
Metatarsal	0	0
Metapodial	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Age of Fusion - 36 to 48 Months

Bone and Epiphysis	Fused	Not Fused
Humerus - proximal	0	0
Ulna - proximal	0	0
Ulna - distal	0	0
Radius - distal	0	0
Femur - proximal	0	0
Femur - distal	0	0
Tibia - proximal	0	0
Calcaneus	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Source of Fusion Ages: Silver 1969; Chaplin 1970; Maltby 1979.

Table 25
Age Distribution Based on Epiphyseal Fusion
Entire Wye House Assemblage/All Contexts Combined
***Ovis aries/Capra hircus* (Domestic Sheep or Goat)**
N=13

Age of Fusion - 6 to 10 Months

Bone and Epiphysis	Fused	Not Fused
Scapula	0	0
Innominate	0	0
Humerus - distal	1	0
Radius - proximal	1	0
	2	0
Percent of Age Range	100.0%	0.0%

Age of Fusion - 12 to 36 Months

Bone and Epiphysis	Fused	Not Fused
Ulna - proximal	0	1
Ulna - distal	0	0
Metacarpal	1	0
Femur - proximal	0	1
Tibia - distal	0	0
Metatarsal	0	0
Metapodial	0	1
Calcaneus	0	0
First Phalange - proximal	0	0
Second Phalange - proximal	3	2
	4	5
Percent of Age Range	44.4%	55.6%

Age of Fusion - 36 to 42 Months

Bone and Epiphysis	Fused	Not Fused
Humerus - proximal	0	0
Radius - distal	1	0
Femur - distal	0	1
Tibia - proximal	0	0
	1	1
Percent of Age Range	50.0%	50.0%

Source of Fusion Ages: Silver 1969; Chaplin 1970; Maltby 1979.

Table 26
Age Distribution Based on Epiphyseal Fusion
Tulip Poplar Building/Wye House
***Sus scrofa* (Domestic Pig)**

N=16

Age of Fusion - 0 to 12 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Scapula	0	1
Innominate	0	2
Humerus - distal	1	1
Radius - proximal	2	0
Second phalange - proximal	3	1
	6	5
Percent of Age Range	54.5%	45.5%

Age of Fusion - 12 to 24 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Metacarpal	0	1
First phalange - proximal	0	0
Tibia - distal	1	0
	1	1
Percent of Age Range	50.0%	50.0%

Age of Fusion - 24 to 36 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Calcaneus	0	0
Metatarsal	0	0
Fibula - distal	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Age of Fusion - 36 to 42 Months		
Bone and Epiphysis	**Fused**	**Not Fused**
Humerus - proximal	0	0
Radius - distal	0	1
Ulna - proximal	0	1
Ulna - distal	0	0
Femur - proximal	0	0
Femur - distal	0	1
Tibia - proximal	0	0
Fibula - proximal	0	0
	0	3
Percent of Age Range	0.0%	100.0%

Source of Fusion Ages: Silver 1969; Chaplin 1970; Maltby 1979.

Table 27
Age Distribution Based on Epiphyseal Fusion
Tulip Poplar Building/Wye House

Ovis aries/Capra hircus (Domestic Sheep or Goat)
N=11

Age of Fusion - 6 to 10 Months

Bone and Epiphysis	Fused	Not Fused
Scapula	0	0
Innominate	0	0
Humerus - distal	1	0
Radius - proximal	1	0
	2	0
Percent of Age Range	100.0%	0.0%

Age of Fusion - 12 to 36 Months

Bone and Epiphysis	Fused	Not Fused
Ulna - proximal	0	1
Ulna - distal	0	0
Metacarpal	1	0
Femur - proximal	0	1
Tibia - distal	0	0
Metatarsal	0	0
Metapodial	0	1
Calcaneus	0	0
First Phalange - proximal	0	0
Second Phalange - proximal	3	1
	4	4
Percent of Age Range	50.0%	50.0%

Age of Fusion - 36 to 42 Months

Bone and Epiphysis	Fused	Not Fused
Humerus - proximal	0	0
Radius - distal	1	0
Femur - distal	0	0
Tibia - proximal	0	0
	1	0
Percent of Age Range	100.0%	0.0%

Source of Fusion Ages: Silver 1969; Chaplin 1970; Maltby 1979.

Table 28
Age Distribution Based on Epiphyseal Fusion
Yard Area/Wye House

Bos taurus (Domestic Cattle)
N=1

Age of Fusion - 0 to 12 Months

Bone and Epiphysis	Fused	Not Fused
Scapula	0	0
Innominate	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Age of Fusion - 12 to 24 Months

Bone and Epiphysis	Fused	Not Fused
Humerus - distal	0	0
Radius - proximal	0	1
First Phalange - proximal	0	0
Second Phalange - proximal	0	0
	0	1
Percent of Age Range	0.0%	100.0%

Age of Fusion - 24 to 36 Months

Bone and Epiphysis	Fused	Not Fused
Metacarpal	0	0
Tibia - distal	0	0
Metatarsal	0	0
Metapodial	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Age of Fusion - 36 to 48 Months

Bone and Epiphysis	Fused	Not Fused
Humerus - proximal	0	0
Ulna - proximal	0	0
Ulna - distal	0	0
Radius - distal	0	0
Femur - proximal	0	0
Femur - distal	0	0
Tibia - proximal	0	0
Calcaneus	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Source of Fusion Ages: Silver 1969; Chaplin 1970; Maltby 1979.

Table 29
Age Distribution Based on Epiphyseal Fusion

Yard Area/Wye House
***Ovis aries/Capra hircus* (Domestic Sheep or Goat)**
N=1

Age of Fusion - 6 to 10 Months

Bone and Epiphysis	Fused	Not Fused
Scapula	0	0
Innominate	0	0
Humerus - distal	0	0
Radius - proximal	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Age of Fusion - 12 to 36 Months

Bone and Epiphysis	Fused	Not Fused
Ulna - proximal	0	0
Ulna - distal	0	0
Metacarpal	0	0
Femur - proximal	0	0
Tibia - distal	0	0
Metatarsal	0	0
Metapodial	0	0
Calcaneus	0	0
First Phalange - proximal	0	0
Second Phalange - proximal	0	1
	0	1
Percent of Age Range	0.0%	100.0%

Age of Fusion - 36 to 42 Months

Bone and Epiphysis	Fused	Not Fused
Humerus - proximal	0	0
Radius - distal	0	0
Femur - distal	0	0
Tibia - proximal	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Source of Fusion Ages: Silver 1969; Chaplin 1970; Maltby 1979.

Table 30
Age Distribution Based on Epiphyseal Fusion

North Building/Wye House
Sus scrofa (Domestic Pig)
N=7

Age of Fusion - 0 to 12 Months

Bone and Epiphysis	Fused	Not Fused
Scapula	0	0
Innominate	0	0
Humerus - distal	0	0
Radius - proximal	0	0
Second phalange - proximal	1	3
	1	3
Percent of Age Range	25.0%	75.0%

Age of Fusion - 12 to 24 Months

Bone and Epiphysis	Fused	Not Fused
Metacarpal	0	1
First phalange - proximal	0	0
Tibia - distal	1	0
	1	1
Percent of Age Range	50.0%	50.0%

Age of Fusion - 24 to 36 Months

Bone and Epiphysis	Fused	Not Fused
Calcaneus	0	0
Metatarsal	0	1
Fibula - distal	0	0
	0	0
Percent of Age Range	0.0%	100.0%

Age of Fusion - 36 to 42 Months

Bone and Epiphysis	Fused	Not Fused
Humerus - proximal	0	0
Radius - distal	0	0
Ulna - proximal	0	0
Ulna - distal	0	0
Femur - proximal	0	0
Femur - distal	0	0
Tibia - proximal	0	0
Fibula - proximal	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Source of Fusion Ages: Silver 1969; Chaplin 1970; Maltby 1979.

Table 31

Age Distribution Based on Epiphyseal Fusion
North Building/Wye House
Ovis aries/Capra hircus (Domestic Sheep or Goat)
N=1

Age of Fusion - 6 to 10 Months

Bone and Epiphysis	Fused	Not Fused
Scapula	0	0
Innominate	0	0
Humerus - distal	0	0
Radius - proximal	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Age of Fusion - 12 to 36 Months

Bone and Epiphysis	Fused	Not Fused
Ulna - proximal	0	0
Ulna - distal	0	0
Metacarpal	0	0
Femur - proximal	0	0
Tibia - distal	0	0
Metatarsal	0	0
Metapodial	0	0
Calcaneus	0	0
First Phalange - proximal	0	0
Second Phalange - proximal	0	0
	0	0
Percent of Age Range	0.0%	0.0%

Age of Fusion - 36 to 42 Months

Bone and Epiphysis	Fused	Not Fused
Humerus - proximal	0	0
Radius - distal	0	0
Femur - distal	0	1
Tibia - proximal	0	0
	0	1
Percent of Age Range	0.0%	100.0%

Source of Fusion Ages: Silver 1969; Chaplin 1970; Maltby 1979.

APPENDIX C
BONE MEASUREMENTS

Key to Bone Measurements
From
A Guide to the Measurement of Animal Bones From Archaeological Sites
By Anglea Von Den Driesch

Scapula

- GLp – Greatest length of the Processus articularis
- LG – Length of the glenoid cavity
- BG – Breadth of the glenoid cavity
- SLC – Smallest length of neck of scapula

Humerus

- Bd – Greatest breadth of the distal end
- SD – Smallest breadth of the diaphysis

Radius

- GL – Greatest length
- Bp – Greatest breadth of the proximal end
- Bd – Greatest breadth of the distal end
- SD – Smallest breadth of the diaphysis

Ulna

- SDO – Smallest depth of the olecranon

Femur

- SD - Smallest breadth of the diaphysis

Tibia

- Bd – Greatest breadth of the distal end
- SD – Smallest breadth of the diaphysis

Calcaneous

- GL – Greatest length
- GB – Greatest breadth

Metacarpal

- GL – Greatest Length
- Bp – Greatest breadth of the proximal end
- SD - Smallest breadth of the diaphysis
- Bd – Greatest breadth of the distal end

Phalanx I

- GL – Greatest Length
- Bp – Greatest breadth of the proximal end
- SD – Smallest breadth of the diaphysis
- Bd – Grestest breadth of the distal end

Phalanx II

- GL – Greatest Length
- Bp – Greatest breadth of the proximal end
- SD – Smallest breadth of the diaphysis
- Bd – Grestest breadth of the distal end

Phalanx III

- DLS – Greatest diagonal length of the sole
- Ld – Length of the dorsal surface
- MBS – Middle breadth of the sole

Table 32
Wye House/All Contexts
Bone Measurements

INV#/Context	Taxon	Element	Description	Measurement (mm)
229/U42LC	*Sus scrofa*	Radius	SD	17.7
264/U17LA	*Sus scrofa*	Radius	BP	33.3
			SD	24.2
373/U6LA	*Sus scrofa*	Radius	Bp	30.6
401/U8LC	*Sus scrofa*	Ulna	SDO	27.9
306/U8/21LE	*Sus scrofa*	Humerus	SD	16.5
			Bd	32.2
230/U42LC	*Sus scrofa*	Tibia	Bd	25.4
302/U28LH	*Sus scrofa*	Tibia	SD	19.4
393/U17LB	*Sus scrofa*	Tibia	SD	21.2
			Bd	33.5
488/U33LL	*Sus scrofa*	Tibia	SD	17.5
184/U42LC2	*Sus scrofa*	Phalanx I	GLpe	36.0
			Bp	19.1
			SD	18.9
			Bd	19.4
185/U42LC2	*Sus scrofa*	Phalanx I	GLpe	34.5
			Bp	16.4
			SD	13.8
			Bd	15.9
245/U42LC	*Sus scrofa*	Phalanx I	SD	14.0
			Bd	14.5
382/U6LA	*Sus scrofa*	Phalanx I	GLpe	22.8
			Bp	10.2
			SD	8.3
			Bd	7.1
428/U23LA	*Sus scrofa*	Phalanx I	GLpe	26.4
			Bp	14.2
			SD	10.6
			Bd	10.1
375/U6LA	*Sus scrofa*	Phalanx II	GL	28.8
			Bp	18.8
			SD	15.9
			Bd	15.5
508/U33LL	*Sus scrofa*	Phalanx II	SD	14.5
			Bd	15.8
262/U10LD	*Sus scrofa*	Phalanx III	DLS	30.1
			Ld	13.1
			MBS	25.9
274/U26LF	*Sus scrofa*	Phalanx III	DLS	20.4

			Ld	17.3
			MBS	9.4

INV#/Context	Taxon	Element	Description	Measurement (mm)
308/U8/21LE	*Sus scrofa*	Phalanx III	DLS	26.9
			Ld	22.5
			MBS	11.5
263/U10LD	*Bos taurus*	Femur	SD	37.7
			15c	32.2
167/U20F25	*Ovis aries/ Capra hircus*	Radius	GL	153.9
			Bp	38.6
			SD	22.4
			Bd	36.1
165/U20F25	*Ovis aries/ Capra hircus*	Humerus	Bd	38.1
166/U20F25	*Ovis aries/ Capra hircus*	Metacarpal	GL	128.5
			Bp	29.3
			SD	19.1
			Bd	30.6
168/U20F25	*Ovis aries/ Capra hircus*	Phalanx I	GL	42.8
			Bp	14.6
			SD	13.5
			Bd	14.9
169/U20F25	*Ovis aries/ Capra hircus*	Phalanx I	GL	42.6
			Bp	14.9
			SD	13.7
			Bd	15.6
320/U10LE	*Ovis aries/ Capra hircus*	Phalanx I	Bp	16.5
			SD	15.5
331/U4LE	*Ovis aries/ Capra hircus*	Phalanx I	GL	24.7
			Bp	11.6
			SD	11.2
			Bd	9.3
536/U6LB	*Ovis aries/ Capra hircus*	Phalanx I	GL	37.1
			Bp	12.4
			SD	12.4
			Bd	15.6
170/U20F25	*Ovis aries/ Capra hircus*	Phalanx II	GL	24.7
			Bp	12.4
			SD	11.9
			Bd	14.4
289/U26LF	*Ovis aries/ Capra hircus*	Phalanx II	GL	24.7
			Bp	11.4
			SD	8.9
			Bd	9.7
171/U20F25	*Ovis aries/ Capra hircus*	Phalanx III	DLS	33.0
			MBS	22.4

			Ld	22.4

INV#/Context	Taxon	Element	Description	Measurement (mm)
562/U1LA	*Odocoileus Virginianus*	Scapula	SLC	24.7
			GLP	40.1
			LG	29.4
			BG	27.1
358/U8/21LI	*Odocoileus Virginianus*	Calcaneous	GL	93.0
			GB	30.9

APPENDIX D
LIST OF BONES BY CONTEXT

Table 33
Faunal Remains from Wye House

YARD AREA

Context: UNIT1 LEVELA

UBNo.	Taxon	Sym	Element	NISP	Wgt
43	Class Mammalia		Indeterminate	6	3.1
563	Order Artiodactyla I	I	Rib	1	5.3
562	*Odocoileus virginianus*	L	Scapula	4	32.4

Context: UNIT1 LEVELC

UBNo.	Taxon	Sym	Element	NISP	Wgt
102	Class Mammalia		Indeterminate	6	2.4
101	Class Mammalia II		Limb bone	3	1.1
194	*Sus scrofa*	I	Carpal or tarsal	1	1.3
193	cf. *Bos taurus*	I	Rib	1	25.3

Context: UNIT2 LEVELA

UBNo.	Taxon	Sym	Element	NISP	Wgt
435	*Meleagris gallopavo*	R	Tarsometatarsus	1	1.1
436	*Meleagris gallopavo*	R	Tarsometatarsus	1	5.8
433	*Gallus gallus*	L	Tarsometatarsus	1	0.9
162	Class Mammalia II		Limb bone	2	3.3
439	cf. Order Artiodactyla I	I	Humerus	1	5.1
437	*Bos taurus*	A	Cervical vertebra	1	21.2
438	*Bos taurus*	A	Cervical vertebra	1	12.2
434	*Bos taurus*	I	Radius	1	67.5

Context: UNIT4 LEVELA

UBNo.	Taxon	Sym	Element	NISP	Wgt
28	Class Osteichthyes		Vertebra	4	0.6
388	cf. *Gallus gallus*	L	Humerus	1	0.2
387	*Gallus gallus*	I	Radius	1	0.3
386	*Gallus gallus*	R	Radius	1	0.1
30	Class Mammalia		Limb bone	2	3.7
31	Class Mammalia		Indeterminate	5	1.5
29	Class Mammalia III		Rib	1	0.4
389	*Sylvilagus floridanus*	L	Scapula	1	0.4
391	*Procyon lotor*	L	Innominate	1	2.1
390	cf. *Bos taurus*	I	Rib	1	19.4

Context: UNIT4 LEVELB

87	Class Mammalia		Indeterminate	2	4.7
301	cf. Order Artiodactyla I	I	Humerus	1	2.4
300	*Bos taurus*	R	Upper molar 3	1	9.0

UBNo.	Taxon	Sym	Element	NISP	Wgt

Context: UNIT4 LEVELD

4	Class Mammalia		Indeterminate	7	2.8
7	Class Mammalia		Indeterminate	1	0.3
345	Class Mammalia		Indeterminate	3	4.8
2	Class Mammalia I		Cranium	1	5.9
3	Class Mammalia II		Cranium	6	3.4
5	Class Mammalia II		Limb bone	8	12.7
6	Class Mammalia III		Limb bone	1	0.2
343	*Sus scrofa*	L	Innominate	1	9.4
344	*Sus scrofa*	R	Innominate	1	5.3

Context: UNIT4 LEVELE

95	Class Mammalia		Indeterminate	3	1.0
93	Class Mammalia II		Vertebra	1	2.3
92	Class Mammalia II		Limb bone	6	9.2
94	Class Mammalia III		Limb bone	4	1.0
323	*Procyon lotor*	R	Ulna	1	1.4
329	*Sus scrofa*	I	Molar	1	0.6
326	*Sus scrofa*	R	Upper molar 1	1	4.6
325	*Sus scrofa*	R	Upper molar 2	1	5.1
331	*Sus scrofa*	I	First phalanx	1	1.4
324	*Bos taurus*	L	Radius	1	48.4
332	*Ovis aries/Capra hircus*	I	Carpal or tarsal	1	1.4
328	*Ovis aries/Capra hircus*	I	Phalanx	1	3.8
330	*Ovis aries/Capra hircus*	I	Phalanx	1	0.8
327	*Ovis aries/Capra hircus*	I	Second phalanx	1	1.2

TULIP POPLAR BUILDING

Context: UNIT6 LEVELA

371	*Gallus gallus*	R	Scapula	1	0.6
34	Class Mammalia		Indeterminate	4	1.9

157	Class Mammalia		Indeterminate	13	5.2
153	Class Mammalia I		Rib	1	4.5
156	Class Mammalia II		Vertebra	5	3.3
33	Class Mammalia II		Rib	12	6.6
154	Class Mammalia II		Rib	1	2.4
155	Class Mammalia II		Limb bone	4	6.8
384	Class Mammalia III		Tooth	2	0.8
32	Class Mammalia III		Rib	1	0.8
376	*Sus scrofa*	R	Upper incisor	1	1.6
378	*Sus scrofa*	I	Incisor	1	0.6

UBNo.	Taxon	Sym	Element	NISP	Wgt
379	*Sus scrofa*	I	Canine	1	0.6
373	*Sus scrofa*	R	Radius	1	5.3
377	*Sus scrofa*	R	Metacarpal II	1	0.9
372	*Sus scrofa*	R	Femur	1	2.9
261	*Sus scrofa*	I	Carpal or tarsal	1	1.9
383	*Sus scrofa*	I	Carpal or tarsal	1	4.4
381	*Sus scrofa*	I	First phalanx	1	0.9
382	*Sus scrofa*	I	First phalanx	1	0.9
375	*Sus scrofa*	I	Second phalanx	1	2.5
380	*Sus scrofa*	I	Second phalanx	1	0.5
385	cf. *Ovis aries/Capra hircus*	L	Ulna	1	1.1
374	cf. *Ovis aries/Capra hircus*	L	Femur	1	3.4

Context: UNIT6 LEVELB

22	Class Osteichthyes		Indeterminate	4	0.7
547	*Morone americana*	L	Frontal	1	0.2
548	*Morone americana*	L	Interopercular	1	0.1
546	Order Testudines		Carapace	1	1.8
545	cf. *Terrapene carolina*	I	Carapace	1	0.4
544	*Terrapene carolina*	I	Plastron	1	0.9
21	Class Aves		Rib	1	0.2
19	Class Aves		Limb bone	3	1.3
20	Class Aves/Mammalia III		Limb bone	2	0.8
542	cf. *Gallus gallus*	A	Sternum or sternabrae	1	0.3
23	Class Mammalia		Indeterminate	13	12.6
24	Class Mammalia		Indeterminate	58	25.3
16	Class Mammalia I		Vertebra	2	2.6
15	Class Mammalia I		Limb bone	4	23.6
18	Class Mammalia II		Cranium	8	9.1
17	Class Mammalia II		Limb bone	12	21.7
543	cf. *Procyon lotor*	I	Carpal or tarsal	2	0.5
524	*Sus scrofa*	I	Lower incisor	1	1.6
525	*Sus scrofa*	I	Lower incisor	1	1.3
526	*Sus scrofa*	I	Canine	1	0.5
538	*Sus scrofa*	I	Carpal or tarsal	1	1.4
540	*Sus scrofa*	I	Phalanx	1	0.8
534	*Bos taurus*	I	Premolar	1	2.6

531	cf. *Bos taurus*	I	Molar	1	1.1
535	*Bos taurus*	R	Astragalus	1	72.5
533	*Ovis aries/Capra hircus*	L	Lower incisor	1	0.3
528	*Ovis aries/Capra hircus*	I	Lower molar	2	1.1
532	*Ovis aries/Capra hircus*	I	Molar	1	1.0
529	*Ovis aries/Capra hircus*	R	Upper molar 1 or 2	1	1.7
530	*Ovis aries/Capra hircus*	L	Upper molar 2 or 3	1	3.4
527	*Ovis aries/Capra hircus*	R	Lower molar 2 or 3	1	4.1
537	*Ovis aries/Capra hircus*	I	Main metatarsal	1	1.7
539	*Ovis aries/Capra hircus*	I	Carpal or tarsal	2	2.9
541	*Ovis aries/Capra hircus*	I	Carpal or tarsal	2	2.5
536	*Ovis aries/Capra hircus*	I	First phalanx	1	4.0

UBNo.	Taxon	Sym	Element	NISP	Wgt
Context: UNIT8 LEVELC					
123	Class Mammalia II		Limb bone	3	2.4
402	Class Mammalia II.		Limb bone	1	2.6
401	*Sus scrofa*	L	Ulna	1	11.5
403	*Ovis aries/Capra hircus*	L	Malar	1	1.3
Context: UNIT8 LEVELE					
315	*Ovis aries/Capra hircus*	I	Lower incisor	1	0.6
Context: UNIT8/21 LEVELE					
46	Class Osteichthyes		Spine	1	0.7
47	Class Mammalia		Indeterminate	4	2.0
109	Class Mammalia		Indeterminate	2	1.3
44	Class Mammalia II		Rib	1	4.2
45	Class Mammalia II		Limb bone	3	6.4
307	*Sus scrofa*	R	Upper incisor	1	1.1
306	*Sus scrofa*	R	Humerus	1	41.6
308	*Sus scrofa*	I	Third phalanx	1	1.5
309	*Bos taurus*	A	Cervical vertebra	1	17.4
311	cf. *Bos taurus*	I	Scapula	1	14.7
310	cf. *Bos taurus*	I	Tibia	1	17.3
Context: UNIT8/21 LEVELF					
179	cf. *Gallus gallus*	L	Mandible	1	0.5
178	*Gallus gallus*	R	Coracoid	1	1.2
164	Class Mammalia		Indeterminate	5	3.7
163	Class Mammalia II		Cranium	1	4.0
129	Class Mammalia II		Limb bone	1	12.8
177	*Sus scrofa*	L	Molar	1	0.9
1	*Sus scrofa*	R	Main metatarsal	1	2.9
175	*Bos taurus*	L	Upper premolar 3	1	11.3
176	*Bos taurus*	L	Upper molar 1	1	16.4

Context: UNIT8/21 LEVELG

268	cf. *Sus scrofa*	R	Radius	1	2.6

Context: UNIT8/21 LEVELH

340	Family Emydidae	I	Carapace	1	0.6
339	Family Colubridae	A	Vertebra	1	0.2
158	Class Mammalia I		Limb bone	1	4.4
161	Class Mammalia II		Cranium	1	1.3
159	Class Mammalia II		Limb bone	6	6.7
160	Class Mammalia II		Limb bone	1	2.9
341	Order Artiodactyla II	L	Radius	1	6.4
342	*Bos taurus*	L	Upper molar 2 or 3	1	5.2

UBNo.	Taxon	Sym	Element	NISP	Wgt

Context: UNIT8/21 LEVELI

359	Family Colubridae	A	Vertebra	1	0.1
361	Goose spp.	R	Scapula	1	1.2
363	cf. *Gallus gallus*	R	Femur	1	1.7
362	*Gallus gallus*	R	Tarsometatarsus	1	0.7
105	Class Mammalia		Limb bone	3	5.9
106	Class Mammalia		Indeterminate	2	1.0
107	Class Mammalia		Indeterminate	3	0.8
360	Rat spp.	I	Incisor	1	0.2
358	Order Artiodactyla II	R	Mandible	1	2.6
365	cf. *Sus scrofa*	I	First phalanx	1	0.8
357	*Odocoileus virginianus*	L	Calcaneus	1	23.3
364	*Bos taurus*	I	Incisor	1	2.0

Context: UNIT9 LEVELD

190	*Bos taurus*	A	Cervical vertebra	3	32.5

Context: UNIT10 LEVELA

49	Class Mammalia		Indeterminate	8	15.3
48	Class Mammalia I		Limb bone	1	12.4
445	Order Artiodactyla I	I	Scapula	1	1.7
446	*Odocoileus virginianus*	R	Upper molar 1 or 2	1	2.2
442	*Bos taurus*	R	Upper premolar 1	1	7.2
444	cf. *Ovis aries/Capra hircus*	A	Parietal	1	5.6
443	*Ovis aries/Capra hircus*	R	Upper molar 2	1	6.0

Context: UNIT10 LEVELB

73	Class Osteichthyes		Spine	1	0.2
126	Class Osteichthyes		Spine	1	0.1

128	Class Osteichthyes		Indeterminate	1	<0.1
558	*Lepisosteus* spp.		Scale	2	0.2
559	Family Sparidae		Tooth	1	0.3
423	*Chrysemys* spp.	I	Carapace	2	2.3
421	*Gallus gallus*	A	Cervical vertebra	1	0.4
72	Class Mammalia		Indeterminate	26	21.6
127	Class Mammalia		Indeterminate	23	19.1
133	Class Mammalia		Indeterminate	1	1.5
70	Class Mammalia I		Vertebra	3	9.8
552	Class Mammalia II		Cranium	1	2.4
422	Class Mammalia II		Tooth	1	0.5
553	Class Mammalia II		Tooth	2	1.3
125	Class Mammalia II		Rib	1	3.6
71	Class Mammalia II		Limb bone	9	28.0
124	Class Mammalia II		Limb bone	11	16.5
560	*Procyon lotor*	L	Ulna	1	1.5
418	*Sus scrofa*	I	Lower incisor	1	0.8

UBNo.	Taxon	Sym	Element	NISP	Wgt
555	*Sus scrofa*	I	Lower incisor	2	1.2
554	*Sus scrofa*	R	Lower incisor	2	1.5
417	*Sus scrofa*	I	Premolar	1	0.5
561	cf. *Sus scrofa*	L	Innominate	1	0.7
412	*Sus scrofa*	L	Metacarpal II	1	0.6
415	*Sus scrofa*	R	Metacarpal IV	1	1.8
413	*Sus scrofa*	R	Metacarpal V	1	0.5
411	*Sus scrofa*	R	Metatarsal III	1	1.1
414	*Sus scrofa*	R	Metatarsal IV	1	0.9
416	*Sus scrofa*	I	Second phalanx	1	1.9
419	*Sus scrofa*	I	Third phalanx	1	2.7
404	*Bos taurus*	I	Incisor	1	2.1
405	*Bos taurus*	L	Upper premolar 1	1	6.8
406	*Bos taurus*	L	Upper premolar 2	1	8.0
556	*Bos taurus*	R	Lower premolar 2	1	9.1
407	*Bos taurus*	I	Molar	1	4.4
408	*Bos taurus*	A	Thoracic vertebra	1	11.7
409	*Bos taurus*	A	Thoracic vertebra	1	16.7
410	cf. *Bos taurus*	A	Thoracic vertebra	1	4.7
557	*Bos taurus*	A	Thoracic vertebra	1	1.8
322	cf. *Ovis aries/Capra hircus*	L	Frontal	1	3.9
550	*Ovis aries/Capra hircus*	R	Upper molar 1 or 2	1	7.0
551	*Ovis aries/Capra hircus*	L	Upper molar 2 or 3	1	6.8
549	*Ovis aries/Capra hircus*	R	Lower molar 3	1	8.9
420	*Ovis aries/Capra hircus*	I	Main metatarsal	1	2.5

Context: UNIT10 LEVELD

14	Class Osteichthyes		Indeterminate	2	0.1
13	Class Mammalia		Indeterminate	2	0.6
262	*Sus scrofa*	I	Third phalanx	1	1.8

UBNo.	Taxon	Sym	Element	NISP	Wgt
263	*Bos taurus*	L	Femur	1	76.9
Context: UNIT10 LEVELE					
112	Class Mammalia II		Limb bone	2	1.9
321	*Ovis aries/Capra hircus*	R	Calcaneus	1	3.9
320	*Ovis aries/Capra hircus*	I	First phalanx	1	4.0
Context: UNIT10 LEVELF					
108	Class Mammalia II		Limb bone	1	1.7
192	Class Mammalia II		Limb bone	1	7.3
191	*Bos taurus*	I	Main metatarsal	1	45.6
Context: UNIT17 LEVELA					
53	Class Mammalia		Indeterminate	5	4.4
267	Class Mammalia		Indeterminate	1	1.2
52	Class Mammalia II		Vertebra	1	1.1
51	Class Mammalia II		Rib	1	4.0
50	Class Mammalia II		Limb bone	2	6.5
266	*Sus scrofa*	R	Occipital	1	3.4
264	*Sus scrofa*	L	Radius	1	38.8
265	cf. *Sus scrofa*	L	Tibia	1	2.9
Context: UNIT17 LEVELB					
392	*Lepisosteus* spp.	I	Scale	2	0.2
57	Class Mammalia		Indeterminate	9	3.0
58	Class Mammalia		Indeterminate	1	1.3
54	Class Mammalia I		Limb bone	2	14.0
56	Class Mammalia II		Vertebra	2	3.2
55	Class Mammalia II		Limb bone	9	11.7
396	*Sus scrofa*	R	Upper premolar 3 or 4	1	0.8
395	*Sus scrofa*	I	Molar	1	1.8
394	*Sus scrofa*	L	Upper molar 2	1	3.9
393	*Sus scrofa*	R	Tibia	1	26.1
397	*Ovis aries/Capra hircus*	R	Lower molar 3	1	0.7
Context: UNIT17 LEVELD					
151	Class Osteichthyes		Indeterminate	1	0.4
650	*Lepisosteus* spp.	I	Scale	2	0.3
659	Order Testudines		Carapace	1	1.8
683	Order Testudines		Indeterminate	11	0.5
675	Family Kinosternidae	R		1	<0.1
674	Family Kinosternidae	A	Mandible	1	0.1
669	Family Kinosternidae	A	Vertebra	11	0.7
677	Family Kinosternidae	L	Innominate	0	0.1

UBNo.	Taxon	Sym	Element	NISP	Wgt
678	Family Kinosternidae	R	Innominate	1	0.1
664	Family Kinosternidae	A	Carapace	1	0.7
665	Family Kinosternidae	A	Carapace	1	0.2
667	Family Kinosternidae	A	Carapace	6	1.1
668	Family Kinosternidae	A	Carapace	12	2.5
663	Family Kinosternidae	I	Carapace	15	6.5
666	Family Kinosternidae	I	Carapace	21	7.6
660	Family Kinosternidae	I	Plastron	4	4.7
661	Family Kinosternidae	I	Plastron	2	3.2
662	Family Kinosternidae	I	Plastron	3	2.7
676	Family Kinosternidae	L	Scapula	1	0.1
681	Family Kinosternidae	L	Coracoid	1	0.1
682	Family Kinosternidae	R	Coracoid	1	0.1
670	Family Kinosternidae	L	Humerus	1	0.2
671	Family Kinosternidae	R	Humerus	1	0.2
679	Family Kinosternidae	L	Radius	1	<0.1
680	Family Kinosternidae	R	Radius	1	<0.1
672	Family Kinosternidae	L	Femur	1	0.1
673	Family Kinosternidae	R	Femur	1	0.1
658	*Terrapene carolina*	A	Carapace	1	1.9
152	Class Mammalia		Indeterminate	69	28.0
148	Class Mammalia I		Tooth	1	0.8
656	Class Mammalia I		Indeterminate	1	9.8
147	Class Mammalia II		Rib	21	6.3
150	Class Mammalia II		Rib	2	0.7
149	Class Mammalia II		Limb bone	19	27.7
654	cf. Class Mammalia II		Limb bone	5	23.9
625	*Procyon lotor*	R	Mandible	1	3.8
653	Order Artiodactyla II	I	Premolar	1	1.1
637	*Sus scrofa*	I	Lower incisor	2	0.8
633	*Sus scrofa*	I	Molar	1	0.6
634	*Sus scrofa*	L	Upper molar 3	1	7.3
632	*Sus scrofa*	R	Lower molar 2	1	2.1
641	cf. *Sus scrofa*	A	Vertebra	26	6.3
640	*Sus scrofa*	A	Cervical vertebra	8	4.1
639	*Sus scrofa*	A	Thoracic vertebra	6	1.5
648	*Sus scrofa*	A	Sacrum	1	0.7
642	cf. *Sus scrofa*	I	Rib	3	1.0
647	*Sus scrofa*	R	Innominate	1	1.4
644	*Sus scrofa*	I	Scapula	1	0.5
630	*Sus scrofa*	L	Scapula	1	12.1
643	*Sus scrofa*	L	Scapula	1	1.0
645	*Sus scrofa*	R	Scapula	1	0.8
638	*Sus scrofa*	L	Humerus	2	2.7
649	*Sus scrofa*	I	Limb bone	3	1.4
636	*Sus scrofa*	I	Carpal or tarsal	1	1.1
635	*Sus scrofa*	R	Carpal or tarsal	1	1.2

UBNo.	Taxon	Sym	Element	NISP	Wgt
646	*Sus scrofa*	I	First phalanx	2	1.1
652	cf. *Odocoileus virginianus*	L	Femur	3	28.3
655	*Bos taurus*	I	Meatus acusticus internus	1	10.6
628	*Bos taurus*	L	Upper molar 3	1	22.9
627	*Bos taurus*	L	Upper molar 1 or 2	1	29.7
629	*Bos taurus*	R	Lower molar 1 or 2	1	6.8
626	*Bos taurus*	L	Metacarpal	1	77.0
657	*Ovis aries/Capra hircus*	L	Incisor	1	0.4
631	*Ovis aries/Capra hircus*	L	Calcaneus	1	7.8
651	*Ovis aries/Capra hircus*	R	Third phalanx	1	1.4

Context: UNIT23 LEVELA

UBNo.	Taxon	Sym	Element	NISP	Wgt
431	*Morone americana*	R	Preopercular	1	0.4
64	Class Aves/Mammalia III		Limb bone	2	1.4
424	*Gallus gallus*	I	Ulna	1	0.9
65	Class Mammalia		Indeterminate	15	11.1
59	Class Mammalia I		Vertebra	1	7.2
99	Class Mammalia I		Vertebra	1	5.7
61	Class Mammalia I		Limb bone	1	4.9
432	Class Mammalia II			1	7.6
60	Class Mammalia II		Vertebra	1	2.9
63	Class Mammalia II		Rib	1	0.7
62	Class Mammalia II		Limb bone	11	13.7
427	*Sus scrofa*	L	Metacarpal II	1	0.9
425	*Sus scrofa*	R	Metacarpal V	1	1.4
426	*Sus scrofa*	L	Metatarsal V	1	1.5
428	*Sus scrofa*	I	First phalanx	1	2.3
430	cf. *Ovis aries/Capra hircus*	I	Molar	1	1.2
429	*Ovis aries/Capra hircus*	L	Upper molar 1 or 2	1	1.5

Context: UNIT26 LEVELE

UBNo.	Taxon	Sym	Element	NISP	Wgt
86	Class Mammalia II		Cranium	1	2.2
85	Class Mammalia II		Limb bone	1	3.6
305	Class Mammalia III		Indeterminate	1	0.6
304	*Ondatra zibethica*	I	Humerus	1	1.6

Context: UNIT26 LEVELF

UBNo.	Taxon	Sym	Element	NISP	Wgt
141	Class Osteichthyes		Vertebra	2	2.8
79	Class Osteichthyes		Scale	2	<0.1
143	Class Osteichthyes		Indeterminate	3	0.4
281	cf. *Lepisosteus* spp.	R	Exoccipital	1	1.6
280	*Lepisosteus* spp.	A	Vertebra	1	0.5
279	*Lepisosteus* spp.	I	Scale	1	0.1
583	*Lepisosteus* spp.	I	Scale	2	0.4
297	Class Reptilia		Vertebra--other	1	3.1

UBNo.	Taxon	Sym	Element	NISP	Wgt
594	Order Testudines	I	Carapace	2	2.7
296	Family Kinosternidae	A	Furculum	1	0.8
592	cf. Family Kinosternidae	I	Plastron	1	0.5
593	cf. Family Kinosternidae	L	Plastron	1	0.5
295	*Chrysemys* spp.	A	Carapace	2	4.1
591	cf. *Terrapene carolina*	I	Carapace	1	1.2
142	Class Aves		Limb bone	4	1.0
579	Class Aves		Limb bone	1	1.0
83	Class Aves/Mammalia III		Limb bone	5	2.1
144	Class Aves/Mammalia III		Limb bone	6	1.7
269	*Gallus gallus*	L	Humerus	1	2.7
578	*Gallus gallus*	R	Humerus	1	0.4
270	*Gallus gallus*	L	Cuneiform	1	0.3
581	*Ectopistes migratorius*	R	Radius	1	0.1
580	*Ectopistes migratorius*	L	Femur	1	0.2
84	Class Mammalia		Indeterminate	48	37.1
145	Class Mammalia		Indeterminate	55	25.8
590	Class Mammalia		Indeterminate	1	2.1
78	Class Mammalia I		Cranium	2	13.7
140	Class Mammalia I		Cranium	2	6.4
138	Class Mammalia I		Limb bone	3	20.2
565	Class Mammalia I		Limb bone	1	20.7
82	Class Mammalia II		Vertebra	7	6.2
139	Class Mammalia II		Vertebra	2	4.7
80	Class Mammalia II		Rib	4	4.7
136	Class Mammalia II		Rib	5	12.0
81	Class Mammalia II		Limb bone	21	34.1
137	Class Mammalia II		Limb bone	17	27.6
589	Class Mammalia III		Scute	1	0.1
582	Mouse spp.	R	Innominate	1	<0.1
287	*Procyon lotor*	A	Atlas	1	0.6
292	cf. *Procyon lotor*	A	Cervical vertebra	1	1.4
585	cf. *Procyon lotor*	A	Thoracic vertebra	1	1.2
584	*Procyon lotor*	I	Carpal or tarsal	2	0.7
282	*Sus scrofa*	L	Temporal	1	11.1
284	*Sus scrofa*	I	Occipital	1	5.3
570	*Sus scrofa*	L	Occipital	1	3.2
571	*Sus scrofa*	L	Mandible	1	1.9
574	*Sus scrofa*	R	Upper incisor	1	1.7
572	*Sus scrofa*	R	Lower incisor	1	3.1
573	*Sus scrofa*	I	Canine	1	0.4
294	*Sus scrofa*	L	Upper canine	1	3.3
278	*Sus scrofa*	I	Premolar	1	0.7
276	*Sus scrofa*	I	Molar	1	1.0
277	*Sus scrofa*	I	Molar	1	2.1
275	*Sus scrofa*	R	Lower molar 2	1	2.5
576	*Sus scrofa*	R	Lower molar 1 or 2	1	1.4

588	cf. *Sus scrofa*	I	Scute	1	0.5
273	*Sus scrofa*	R	Scapula	1	3.0
575	*Sus scrofa*	I	Carpal or tarsal	1	0.8
586	*Sus scrofa*	I	Carpal or tarsal	1	1.3
587	*Sus scrofa*	I	Carpal or tarsal	1	1.9
285	*Sus scrofa*	I	Second phalanx	1	1.2
274	*Sus scrofa*	I	Third phalanx	1	0.8
271	*Bos taurus*	A	Thoracic vertebra	1	28.9
564	*Bos taurus*	A	Thoracic vertebra	1	12.1
567	*Bos taurus*	A	Thoracic vertebra	1	6.9
566	*Bos taurus*	A	Caudal vertebra	1	12.1
283	cf. *Bos taurus*	I	Rib	1	6.8
568	*Bos taurus*	R	Ulnar carpal	1	8.9
272	*Bos taurus*	I	First phalanx	1	4.4
286	cf. *Bos taurus*	I	First phalanx	1	1.6
569	*Ovis aries/Capra hircus*	R	Mandible	2	3.5
293	cf. *Ovis aries/Capra hircus*	I	Incisor	1	0.4
288	*Ovis aries/Capra hircus*	L	Astragalus	1	3.6
577	*Ovis aries/Capra hircus*	I	Metapodial	1	1.8
289	*Ovis aries/Capra hircus*	I	Second phalanx	1	1.8
290	*Ovis aries/Capra hircus*	I	Second phalanx	1	1.6
291	cf. *Ovis aries/Capra hircus*	I	Third phalanx	1	1.5

Context: UNIT26 LEVELG

319	cf. *Terrapene carolina*	A	Carapace	1	1.8
318	*Gallus gallus*	L	Ulna	1	0.9
122	Class Mammalia		Indeterminate	1	0.1

UBNo.	Taxon	Sym	Element	NISP	Wgt
121	Class Mammalia II		Rib	4	3.5

Context: UNIT26 LEVELH

303	*Sus scrofa*	R	Humerus	1	10.3
302	*Sus scrofa*	R	Tibia	1	19.0

Context: UNIT26 LEVELI

10	Class Osteichthyes		Spine	1	0.2
9	Class Mammalia		Indeterminate	9	4.9
111	Class Mammalia		Indeterminate	3	1.4
12	Class Mammalia I		Limb bone	2	8.5
11	Class Mammalia II		Vertebra	2	3.8
110	Class Mammalia II		Rib	2	3.1
8	Class Mammalia II		Limb bone	7	7.9
370	Class Mammalia II		Limb bone	1	3.0
368	Class Mammalia III		Tooth	1	0.5
367	cf. *Procyon lotor*	R	Maxilla	1	0.5
366	*Procyon lotor*	R	Lower molar 1	1	0.2

369	*Odocoileus virginianus*	L	Astragalus	1	13.2

FEATURES ASSOCIATED WITH THE TULIP POPLAR BUILDING

FEATURE 6

Context: UNIT26 F6

314	Class Mammalia II		Indeterminate	1	9.3
312	Order Artiodactyla I	R	Innominate	1	4.0
313	*Sus scrofa*	A	Lumbar vertebra	1	3.0

FEATURE 11

Context: UNIT18 F11

622	Class Osteichthyes		Rib	1	<0.1
621	Class Osteichthyes		Scale	3	0.1
624	Morone spp.	R	Ceratohyal	1	<0.1
623	Morone spp.	R	Angular	1	<0.1
620	Rat spp.	I	Frontal	1	0.1
595	Rat spp.	L	Mandible	1	0.4
596	Rat spp.	R	Mandible	1	0.4
619	Rat spp.	I	Tooth	2	0.1
614	Rat spp.	A	Vertebra	18	<0.1
615	Rat spp.	A	Vertebra	12	0.8
617	Rat spp.	A	Atlas	1	<0.1

UBNo.	Taxon	Sym	Element	NISP	Wgt
613	Rat spp.	A	Caudal vertebra	10	0.2
611	Rat spp.	I	Rib	2	<0.1
597	Rat spp.	L	Innominate	1	0.3
598	Rat spp.	R	Innominate	1	0.3
603	Rat spp.	L	Humerus	1	<0.1
618	Rat spp.	I	Femur	2	0.1
599	Rat spp.	L	Femur	1	0.3
605	Rat spp.	L	Femur	1	0.1
600	Rat spp.	R	Femur	1	0.3
604	Rat spp.	R	Femur	1	0.1
601	Rat spp.	L	Tibia	1	0.3
606	Rat spp.	L	Tibia	1	<0.1
602	Rat spp.	R	Tibia	1	0.3
607	Rat spp.	L	Calcaneus	1	<0.1
608	Rat spp.	R	Calcaneus	1	<0.1
609	Rat spp.	L	Astragalus	1	<0.1

610	Rat spp.	R	Astragalus	1	<0.1
612	Rat spp.	I	Carpal or tarsal	7	0.2
616	Rat spp.	I	Phalanx	16	0.1

FEATURE 12

Context: UNIT17 F12

88	Class Aves/Mammalia III		Limb bone	2	0.5
317	Order Piciformes	R	Femur	1	0.4
89	Class Mammalia		Indeterminate	2	0.9
316	cf. *Bos taurus*	I	Incisor	1	1.0

FEATURE 18

Context: UNIT26 F18

74	Class Osteichthyes		Vertebra	1	2.5
77	Class Mammalia		Indeterminate	8	2.5
76	Class Mammalia II		Cranium	4	1.8
75	Class Mammalia II		Limb bone	5	6.7
298	*Sus scrofa*	I	Second phalanx	1	1.9

FEATURE 21

Context: UNIT26 F21 LEVELA

440	Class Reptilia	A	Carapace	1	0.9
131	Class Aves/Mammalia III		Limb bone	1	0.3
132	Class Mammalia		Indeterminate	1	0.2
130	Class Mammalia II		Limb bone	4	18.0
441	*Sus scrofa*	R	Scapula	1	5.3

UBNo.	Taxon	Sym	Element	NISP	Wgt

Context: UNIT26 F21 LEVELB

25	Class Osteichthyes		Scale	3	0.1
338	Family Emydidae	I	Carapace	1	0.6
334	*Gallus gallus*	L	Femur	1	1.6
27	Class Mammalia		Indeterminate	5	1.9
26	Class Mammalia II		Limb bone	3	5.0
333	*Didelphis virginiana*	A	Atlas	1	2.0
337	*Procyon lotor*	A	Cervical vertebra	1	0.7
335	*Sus scrofa*	R	Humerus	1	11.0
336	*Ovis aries/Capra hircus*	I	Second phalanx	1	1.2

FEATURE 25

Context: UNIT20 F25

165	*Ovis aries/Capra hircus*	L	Humerus	1	24.1
167	*Ovis aries/Capra hircus*	L	Radius	1	48.8
172	*Ovis aries/Capra hircus*	L	Fused carpal 2 + 3	1	1.8
166	*Ovis aries/Capra hircus*	L	Main metacarpal	1	26.3
173	*Ovis aries/Capra hircus*	I	Carpal or tarsal	1	1.0
168	*Ovis aries/Capra hircus*	I	First phalanx	1	4.8
169	*Ovis aries/Capra hircus*	I	First phalanx	1	4.4
170	*Ovis aries/Capra hircus*	I	Second phalanx	1	2.2
171	*Ovis aries/Capra hircus*	L	Third phalanx	1	2.0

NORTH BUILDING

Context: UNIT28 LEVELG

135	Class Mammalia		Indeterminate	4	1.7
91	Class Mammalia II		Vertebra	2	3.4
90	Class Mammalia II		Limb bone	1	3.4
134	Class Mammalia II		Limb bone	3	8.2
399	*Sus scrofa*	R	Lower molar 1	1	1.9
398	*Sus scrofa*	R	Lower molar 2	1	11.6
400	cf. *Ovis aries/Capra hircus*	L	Femur	1	3.4
299	*Ovis aries/Capra hircus*	I	Main metatarsal	1	9.1

Context: UNIT28 LEVELH

100	Class Mammalia II		Limb bone	1	1.2

UBNo.	Taxon	Sym	Element	NISP	Wgt

Context: UNIT28 LEVELI

146	Class Mammalia		Indeterminate	4	3.3
174	*Sus scrofa*	L	Mandible	1	14.6

Context: UNIT33 LEVELL

450	*Gallus gallus*	R	Quadrate	1	0.1
449	*Gallus gallus*	R	Coracoid	1	0.5
448	*Gallus gallus*	R	Femur	1	2.1
451	*Gallus gallus*	L	Fibula	1	0.3

UBNo.	Taxon	Sym	Element	NISP	Wgt
447	*Gallus gallus*	R	Tibiotarsus	1	7.1
452	*Ectopistes migratorius*	L	Coracoid	1	0.2
455	*Ectopistes migratorius*	L	Coracoid	1	0.3
453	*Ectopistes migratorius*	L	Ulna	1	0.8
454	*Ectopistes migratorius*	L	Tibiotarsus	1	0.3
42	Class Mammalia		Indeterminate	79	43.8
36	Class Mammalia I		Rib	1	4.7
35	Class Mammalia I		Limb bone	15	93.0
494	Class Mammalia I		Indeterminate	1	7.1
40	Class Mammalia II		Cranium	3	5.1
38	Class Mammalia II		Vertebra	2	5.9
37	Class Mammalia II		Rib	2	7.4
39	Class Mammalia II		Limb bone	33	63.8
41	Class Mammalia III		Limb bone	2	0.7
480	Rat spp.	L	Premaxilla	2	0.3
481	Rat spp.	R	Premaxilla	3	0.8
475	Rat spp.	L	Mandible	7	3.3
478	Rat spp.	L	Mandible	2	0.6
476	Rat spp.	R	Mandible	8	4.8
477	Rat spp.	R	Mandible	5	1.6
479	Rat spp.	I	Canine	1	0.1
484	Rat spp.	A	Cervical vertebra	1	0.2
485	Rat spp.	L	Innominate	5	2.2
486	Rat spp.	R	Innominate	5	1.6
487	Rat spp.	R	Innominate	1	0.1
482	Rat spp.	L	Scapula	1	0.1
483	Rat spp.	R	Scapula	2	0.3
472	Rat spp.	L	Humerus	6	1.6
470	Rat spp.	R	Humerus	1	0.4
471	Rat spp.	R	Humerus	1	0.3
474	Rat spp.	L	Ulna	2	0.4
473	Rat spp.	R	Ulna	2	0.3
461	Rat spp.	L	Femur	1	0.8
462	Rat spp.	L	Femur	3	1.1
463	Rat spp.	L	Femur	2	1.1
464	Rat spp.	L	Femur	3	1.5
465	Rat spp.	L	Femur	1	0.5
458	Rat spp.	R	Femur	1	0.8
459	Rat spp.	R	Femur	2	1.2
460	Rat spp.	R	Femur	6	2.3
466	Rat spp.	L	Tibia	7	3.1
467	Rat spp.	L	Tibia	3	0.8
468	Rat spp.	R	Tibia	4	1.8
469	Rat spp.	R	Tibia	3	0.8
457	*Procyon lotor*	A	Axis	1	1.5
456	*Procyon lotor*	R	Innominate	1	3.8
497	*Sus scrofa*	A	Temporal	1	2.8

496	*Sus scrofa*	I	Molar	1	1.1
493	*Sus scrofa*	A	Atlas	1	5.7
491	*Sus scrofa*	L	Ulna	1	7.8
506	*Sus scrofa*	L	Metacarpal II	1	1.1
498	*Sus scrofa*	L	Metacarpal IV	1	8.8
501	*Sus scrofa*	L	Metacarpal IV	1	7.5
488	*Sus scrofa*	R	Tibia	1	22.5
492	*Sus scrofa*	R	Calcaneus	1	9.5
502	*Sus scrofa*	L	Metatarsal III	1	7.7
503	*Sus scrofa*	L	Metatarsal III	1	3.6
500	*Sus scrofa*	L	Metatarsal IV	1	7.3
499	*Sus scrofa*	R	Metatarsal IV	1	7.3
504	*Sus scrofa*	I	Carpal or tarsal	2	3.9
505	*Sus scrofa*	I	Carpal or tarsal	1	1.7
507	*Sus scrofa*	I	Carpal or tarsal	1	3.1
511	*Sus scrofa*	I	Phalanx	1	1.6
508	*Sus scrofa*	I	Second phalanx	1	3.6
509	*Sus scrofa*	I	Second phalanx	1	1.3
510	*Sus scrofa*	I	Second phalanx	1	0.4
495	*Bos taurus*	R	Lower molar 1 or 2	1	11.9
490	*Bos taurus*	I	Femur	1	23.7
489	*Bos taurus*	R	Tibia	1	14.7

Context: UNIT42 LEVELC

260	*Morone americana*	R	Preopercular	1	0.1
119	Class Aves/Mammalia III		Limb bone	4	2.0
354	cf. *Ectopistes migratorius*		Humerus	1	0.7
355	cf. *Ectopistes migratorius*		Tibiotarsus	2	0.9
98	Class Mammalia		Indeterminate	8	11.1
120	Class Mammalia		Indeterminate	68	39.8
114	Class Mammalia I		Rib	2	16.7
113	Class Mammalia I		Limb bone	14	144.1
118	Class Mammalia II		Cranium	3	3.1
253	Class Mammalia II		Cranium	1	5.8
96	Class Mammalia II		Vertebra	6	9.0
116	Class Mammalia II		Vertebra	5	12.2
115	Class Mammalia II		Rib	3	12.3
97	Class Mammalia II		Limb bone	6	12.5
117	Class Mammalia II		Limb bone	34	68.0
356	Class Mammalia III		Vertebra	1	0.7

UBNo.	Taxon	Sym	Element	NISP	Wgt
218	Rat spp.	A	Cranium	2	0.7
224	Rat spp.	A	Cranium	1	0.2
214	Rat spp.	L	Premaxilla	1	0.2
215	Rat spp.	L	Maxilla	2	0.6
216	Rat spp.	R	Maxilla	2	0.5
202	Rat spp.	L	Mandible	4	2.3
203	Rat spp.	L	Mandible	2	0.8

204	Rat spp.	L	Mandible	1	0.4
205	Rat spp.	L	Mandible	1	0.5
349	Rat spp.	L	Mandible	1	0.4
206	Rat spp.	R	Mandible	2	0.9
228	cf. Rat spp.	A	Cervical vertebra	1	0.3
208	Rat spp.	L	Innominate	5	2.1
348	Rat spp.	L	Innominate	1	0.3
209	Rat spp.	R	Innominate	2	1.1
210	Rat spp.	R	Innominate	1	0.1
347	Rat spp.	R	Innominate	1	0.4
207	Rat spp.	L	Scapula	1	0.3
221	Rat spp.	L	Humerus	1	0.3
222	Rat spp.	R	Humerus	4	1.2
223	Rat spp.	R	Humerus	1	0.2
217	Rat spp.	L	Ulna	3	0.5
195	Rat spp.	L	Femur	1	0.7
196	Rat spp.	L	Femur	2	1.3
197	Rat spp.	L	Femur	5	2.4
198	Rat spp.	L	Femur	3	1.3
199	Rat spp.	R	Femur	1	0.5
200	Rat spp.	R	Femur	1	0.7
201	Rat spp.	R	Femur	5	2.0
346	Rat spp.	R	Femur	1	0.7
219	Rat spp.	L	Tibia	7	2.6
220	Rat spp.	L	Tibia	1	0.4
350	Rat spp.	L	Tibia	1	0.4
211	Rat spp.	R	Tibia	1	0.8
212	Rat spp.	R	Tibia	5	2.1
213	Rat spp.	R	Tibia	1	0.3
226	cf. Rat spp.	I	Carpal or tarsal	1	<0.1
225	Mouse spp.	L	Radius	1	0.1
227	cf. Mouse spp.	I	Tibia	1	0.1
257	*Felis domesticus*	L	Tibia	1	5.2
258	*Felis domesticus*	I	Carpal or tarsal	1	0.5
259	Order Artiodactyla II	L	Scapula	1	2.1
251	*Sus scrofa*	A	Sphenoid	1	1.7
240	*Sus scrofa*	R	Meatus acusticus internus	1	1.3
241	*Sus scrofa*	I	Lower premolar	2	1.6
244	*Sus scrofa*	L	Lower premolar 2	1	0.6
243	*Sus scrofa*	I	Molar	1	1.5
242	*Sus scrofa*	L	Upper molar 2	1	4.8
230	*Sus scrofa*	L	Humerus	1	7.9
229	*Sus scrofa*	L	Radius	1	9.7

UBNo.	**Taxon**	**Sym**	**Element**	**NISP**	**Wgt**
232	*Sus scrofa*	R	Metacarpal IV	1	4.2
236	cf. *Sus scrofa*	R	Metacarpal IV	1	2.7
231	*Sus scrofa*	R	Tibia	1	9.3
233	*Sus scrofa*	R	Astragalus	1	13.3

234	*Sus scrofa*	R	Metatarsal II	1	2.1
351	*Sus scrofa*	R	Metatarsal III	1	4.8
235	*Sus scrofa*	I	Carpal or tarsal	1	1.0
237	*Sus scrofa*	I	Carpal or tarsal	2	11.9
248	cf. *Sus scrofa*	I	Carpal or tarsal	2	4.3
255	*Sus scrofa*	I	Carpal or tarsal	1	2.4
352	*Sus scrofa*	I	Carpal or tarsal	1	1.3
247	*Sus scrofa*	I	Phalanx	1	1.4
254	*Sus scrofa*	I	Phalanx	1	5.5
245	*Sus scrofa*	I	First phalanx	1	3.0
353	*Sus scrofa*		Second phalanx	1	1.9
246	cf. *Sus scrofa*	I	Second phalanx	1	1.9
256	*Sus scrofa*	I	Second phalanx	1	0.9
238	*Bos taurus*	R	Mandible	1	46.7
239	*Bos taurus*	R	Mandible	1	27.0
249	*Bos taurus*	I	Incisor	1	1.9
252	cf. *Bos taurus*	A	Thoracic vertebra	1	9.5
250	cf. *Bos taurus*	I	Scapula	1	15.3

Context: UNIT42 LEVELC2

69	Class Mammalia		Indeterminate	8	6.7
104	Class Mammalia		Indeterminate	14	7.2
68	Class Mammalia I		Limb bone	2	6.6
67	Class Mammalia II		Rib	1	2.5
66	Class Mammalia II		Limb bone	3	16.4
103	Class Mammalia II		Limb bone	6	5.6
188	Rat spp.	L	Mandible	1	0.4
513	Rat spp.	L	Mandible	1	0.1
512	Rat spp.	R	Mandible	2	0.9
515	Rat spp.	R	Innominate	2	0.9
519	Rat spp.	L	Humerus	1	0.2
520	Rat spp.	L	Humerus	1	0.3
187	Rat spp.	L	Femur	1	0.9
516	Rat spp.	L	Femur	1	0.5
517	Rat spp.	L	Femur	1	0.4
518	Rat spp.	L	Femur	1	0.2
189	Rat spp.	R	Femur	1	0.5
514	Rat spp.	L	Tibia	2	0.6
522	*Sus scrofa*	R	Upper incisor	1	1.2
523	*Sus scrofa*	I	Molar	1	2.0
186	*Sus scrofa*	A	Cervical vertebra	1	7.1
521	*Sus scrofa*	L	Metatarsal V	1	1.8
184	*Sus scrofa*	I	First phalanx	1	7.3
185	*Sus scrofa*	I	First phalanx	1	3.8
183	*Bos taurus*	A	Thoracic vertebra	1	41.0

UBNo.	Taxon	Sym	Element	NISP	Wgt
180	cf. *Bos taurus*	I	Rib	1	68.6
181	cf. *Bos taurus*	I	Rib	1	11.6

182	cf. *Bos taurus*	I	Rib	1	20.1