23. MEAT ON THE BLOOMSBURY TABLE

Beef was originally the favored meat on the site, but preference shifted to pork later in the occupation period. Faunal analysis provides a picture of a varied diet.

By Edward Otter

Bloomsbury animal remains were submitted to Edward Otter for identification and interpretation. Materials were recovered in 1/4-inch mesh screens and through flotation providing a sample of the smaller, more fragile remains that might be missed through dry screening alone.

Animal remains may provide important insights into historic period Native Americans in Delaware. There is reason to suspect variations from Euroamerican faunal assemblages of the same period (Reitz 1994, 1985). The nature of such variations cannot be predicted. This study, indeed, identifies variations of this faunal assemblage from those more commonly encountered in archaeological studies. With a lack of comparable sites of other acculturated Native Americans, these variations cannot be attributed to any specific factors. They may be personal choices or part of a broader cultural pattern.

METHODS

Analysis of faunal material from Bloomsbury followed standardized methods. This included manually sorting bone from other artifacts, macroscopic examination of bone, and tabulation of data. These data were then graphed, mapped, and considered in context of other sites of the region and period. Attributes collected from the bones for this study include: provenance, class, family, genus, species, side of element, element, portion of element, presence of butcher marks, type of butcher marks, presence of rodent gnawing, presence of carnivore gnawing, and color of bone due to burning. Occasional comments beyond these data sets were made.

The means of comparison used with these data are NISP (number of identified specimens) as defined by Grayson (1984), bone weight, and the percentages of NISP and bone weight. Of these measures, the most valuable is bone weight and percent of bone weight. There is a correlation between bone weight and animal biomass and the relative percent of bone weight for the species is an approximation of the relative weight of meat contribution to the diet. Allometric regression formulas can be used to estimate biomass (Wing & Brown 1979; Reitz *et al* 1987) and this has been done for this assemblage. However, for a class of animals, such as mammals, the relative percents of estimated biomass weight closely follow relative percents of bone weight since all use the same values in the formula. The major problem with the method is that the formulas average biomass and bone weight across the entire skeleton and do not account for more or less meaty portions.

MNI (minimum number of individuals) is not used for interpreting the site. The measure is included but its use is suspect since the means of acquiring meat at this site is unknown. Market systems invalidate the use of MNI since whole large animals, like cows, are not brought in. On the other hand, in situations where meat is produced and consumed at the site, MNI may have analytic value (Breitburg 1991).

Oysters were examined for seasonality information. Arbitrarily selected lower hinges were cleaned and dried. Visual examination of the hinge was then made under a low power binocular microscope and the season of death estimated.

Class	*Species*	*NISP*	*%NISP*	*Weight*	*%Weight*	*MNI*
Bivalve	Bay Scallop					
Bivalve	Oyster					
Bivalve	Clam					
Fish	Small Fish	2535	51.61	0	0.00	
Fish	Yellow Perch	25	0.51	0	0.00	
Fish	Minnow	1	0.02	0	0.00	1.00
Fish	Gar	2	0.04	0.1	0.00	1.00
Fish	Catfish	1	0.02	0.2	0.01	1.00
Fish	Large Fish	12	0.24	14.5	0.39	
Fish	I	1118	22.76	0.2	0.01	
Gastropod	T Snail	194	3.95	0	0.00	
Gastropod	Fingernail Clam	1	0.02	0	0.00	
Ind	Ind	117	2.38	3.7	0.10	
Lm	Pig	166	3.38	543.6	14.69	
Lm	Deer	1	0.02	2	0.05	1.00
Lm	Cow	46	0.94	1834.6	49.58	
Lm	Ind	561	11.42	899.4	24.31	
Lm	Sheep	9	0.18	66.5	1.80	
Lm	Artiodactyla	6	0.12	26.1	0.71	
Lm	Horse	3	0.06	248.1	6.71	1.00
Mm	Ind	1	0.02	0.2	0.01	
Mm	Rabbit	3	0.06	1.7	0.05	
Mm	Muskrat	7	0.14	3.2	0.09	
Mm	Ind	5	0.10	2.3	0.06	
Sm	Vole	1	0.02	0	0.00	
Sm	Rodent	4	0.08	0	0.00	
Lb	Ind	1	0.02	4.8	0.13	
Mb	Chicken	2	0.04	3.6	0.10	1.00
Mb	Ind	14	0.29	2.6	0.07	
Mb	Dom Duck/Mallard	1	0.02	1.6	0.04	1.00
Reptile	Turtle	27	0.55	11.1	0.30	
Reptile	Box Turtle	43	0.88	26.3	0.71	
Reptile	Diamond Back	1	0.02	1	0.03	1.00
Reptile	Snapping Turtle	2	0.04	2.6	0.07	1.00
Reptile	Musk Turtle	1	0.02	0.2	0.01	1.00
Amphibian	Toad	1	0.02	0	0.00	1.00
Lm	Human	2	0.04	1.3	0.04	
Total		4912	100	3700.2	100	

Table 1: Bloomsbury Faunal Assemblage
Lm = large mammal; Mm = medium mammal;
Mb = medium bird; Ind = indeterminable; Sf = small fish;

ASSEMBLAGE DESCRIPTION

A total of 4,717 bone fragments were submitted for analysis. The best represented class of animal by number was fish. However, by weight, large mammals were better represented. Present in minor amounts were bivalves, medium sized mammals, medium sized birds, reptiles, and small mammals. The medium mammals are wild animals such as muskrat. The reptiles were predominantly turtles of various types. Small mammals were uncommon.

In general, the bone and shell was not in a good state of preservation. There were obvious signs of chemical corrosion and physical erosion. Few bones were burned. The taphonomic conditions at the site indicate that small, fragile elements may have been lost from the assemblage. The fragile bones that were recovered were taken from features where preservation was better than the site in general.

Five forms of large mammal were present. These include cow, pig, sheep, horse, and deer. Cow was the best represented large mammal species with 1,834.6 grams (49.5% of large mammal bone weight). Pig was second most common with 543.6 grams. Horse ranks third with 248.1 grams. Sheep bone weighed 66.5 grams, and deer weighed 2. Unidentified artiodactyla were represented by 26.1 grams and there were 899.4 grams of indeterminable large mammal bone.

Medium sized mammals were represented by 16 fragments. Muskrat and rabbit were the only species identified. Muskrat was represented by 3.2 grams of bone while rabbit bone weighed 1.7 grams. 2.5 grams identified as medium sized mammal could not be identified to species.

The only small mammal identified at this site was a vole. Three other fragments of small mammals could not be identified.

Birds were represented by 18 fragments. One large bird bone of unidentified species was found. Two chicken bones with a weight of 3.6 grams were present as was one duck bone weighing 1.6 grams. There were 14 fragments of medium sized bird bones that could not be identified to species.

Reptiles were represented by 74 fragments. Amphibians were represented by a toad. The rest were from turtles. Box turtle was best represented with 43 fragments weighing 26.3 grams. There were two fragments of snapping turtle and one fragment each of diamond back terrapin and musk turtle.

Fish remains were common with 3,694 fragments. These were primarily from small fish and included scales, ribs, and vertebrae which are not usually diagnostic to the species level. Catfish, gar, and yellow perch were identified. A fragment from a very small fish, like a minnow, was found, as were undiagnostic elements from a large fish like a sheepshead or drum.

Shellfish remains were predominantly oysters. Hard shell clams were present but in smaller numbers.

FEATURE ASSEMBLAGES

The faunal material analyzed was from 20 separate proveniences and from plowzone. There were three proveniences associated with the east well: east well construction, east well use, and east well fill. Likewise there were three proveniences associated with the west well: west well construction, west well, and west well fill. The other 14 proveniences were pit features of various types.

FEATURE 2

Feature 2 contained four faunal elements. Two were fragments of deciduous cow teeth. Two fragments were indeterminable large mammal fragments.

FEATURE 3

Four elements were recovered from this feature. They include three large mammal skull fragments and one pig tooth.

FEATURE 10

Three faunal elements were recovered from feature 10. These include one horse phalange and two indeterminable large mammal bone fragments.

FEATURE 11

Feature 11 was a large shallow pit (mean ceramic date 1785.83). This feature yielded 88 bone fragments. Fifty six of these were large mammal remains including five pig teeth, one pig metapodial fragment, a piece of a cow tibia, and a sheep innominate fragment. Fish accounted for 21 bones. Catfish and yellow perch were the only species identified. Diamond back terrapin and box turtle comprised the three reptile bones. All six medium sized bird bones were indeterminable to species.

Animal	NISP	% NISP	Weight %	Weight	MNI
Pig	166	3.38	543.6	14.69	5.00
Deer	1	0.02	2	0.05	1.00
Cow	46	0.94	1834.6	49.58	1.00
Indeterminate	561	11.42	899.4	24.31	
Sheep	9	0.18	66.5	1.80	1.00
Artiodactyla	6	0.12	26.1	0.71	
Horse	3	0.06	248.1	6.71	1.00

Table 2: Large Mammals

Animal	NISP	% NISP	Weight	% Weight	MNI
Rabbit	3	0.06	1.7	0.05	1.00
Muskrat	7	0.14	3.2	0.09	1.00
Indeterminate	6	0.12	2.5	0.07	

Table 3: Medium Sized Mammals

	Animal		NISP	% NISP	Weight	% Weight	MNI
large bird	Ind	1	0.02	4.8	0.13		
medium bird	Chicken	2	0.04	3.6	0.10	1.00	
medium bird	Ind		14	0.29	2.6	0.07	
medium bird	Dom Duck/ Mallard	1	0.02	1.6	0.04	1.00	

Table 4: Birds

Animal		NISP	% NISP	Weight	% Weight	MNI
Turtle		27	0.55	11.1	0.30	
Box Turtle	43	0.88	26.3	0.71		
Diamond Back 1	0.02	1	0.03	1.00		
Snapping Turtle	2	0.04	2.6	0.07	1.00	
Musk Turtle	1	0.02	0.2	0.01	1.00	
Toad		1	0.02	0	0.00	

Table 5: Reptiles and Amphibians

FEATURE 14

A total of 17 bone fragments were recovered from feature 14. These include two pig teeth. All of the other fragments were indeterminable to species.

FEATURE 15

Feature 15 (mean ceramic date 1796.78) was a pot shaped hole that contained 3,224 bone fragments. Most of these (3,200) were from fish. Of these there were four vertebrae fragments and one ray. The remainder were scale fragments. The fish from which these scales came were small. At least 1060 of the scales were ctenoid; coming from perchiform fishes such as yellow perch.

Large mammal bones in feature 15 totaled 17. Pig was represented by five fragments, four teeth and a cuneiform. One cow tooth was present. The remaining large mammal remains were indeterminable to species. Also present in this pit were two turtle fragments, one from a snapping turtle, and one muskrat mandible.

FEATURE 16

The only bone item found in Feature 16 was a portion of a left cow mandible.

FEATURE 17

A total of 80 bone fragments were taken from this feature. Half of these (40) were from box turtles. Cow and pig were both represented by two fragments. Pig by teeth and the cow by humerus fragments. One fragment of a sheep pubis was present. There were two fish scales and the remaining pieces were unidentified large mammal fragments.

FEATURE 22

There were 24 bone fragments in Feature 22. Of these, 19 were large mammal remains. Pig accounted for most of these with 18 mandible and tooth fragments. One large mammal bone was indeterminable to species. The remaining five fragments were fish scales.

FEATURE 32

Feature 32 contained 29 bone fragments. Of these, eleven were indeterminable large mammal fragments. Cow was represented by an ilium fragment and a mandible fragment. There were 14 fragments from pig, all from the head. Three of these were teeth. Also present were one sheep tibia fragment and one piece of box turtle carapace.

FEATURE 45 (ASHY FILL)

One hundred six bone fragments were recovered from the ashy fill. Large mammals contributed most of these with 61 fragments. One bird bone was present as was one medium sized mammal bone. Fish contributed 26 bones and 17 fragments were indeterminable to the class level. Large mammal species identified include cow with one foot fragment and pig with nine teeth fragments. The only medium sized mammal bone was a muskrat jaw. Yellow perch was the only fish identified.

FEATURE 46

Five bone fragments were recovered from this feature. The only species identified was pig with one fragment. Three other bones were from unidentified large mammal. One piece of turtle was present.

THE PUMP

The pump feature yielded 35 fragments of bone. Most of these, 32, were from large mammals. There was one medium sized mammal bone that could not be identified to species and there were two gar scales. Cow was the best represented large mammal with 6 fragments, all teeth. Pig was represented by three fragments, two teeth and a metacarpal. One deer tooth fragment was present and the remaining large mammal bones could not be identified to species.

EAST WELL CONSTRUCTION

Seventy-seven bone fragments were recovered from this provenance. Large mammals contributed 43 of these fragments.

Fish bones totaled 25 and there were two bones from medium sized mammals and one from reptiles. Of the large mammals, pig was the best represented with eleven fragments. Nine of these were teeth fragments but there was also a scapula fragment and a phalange.

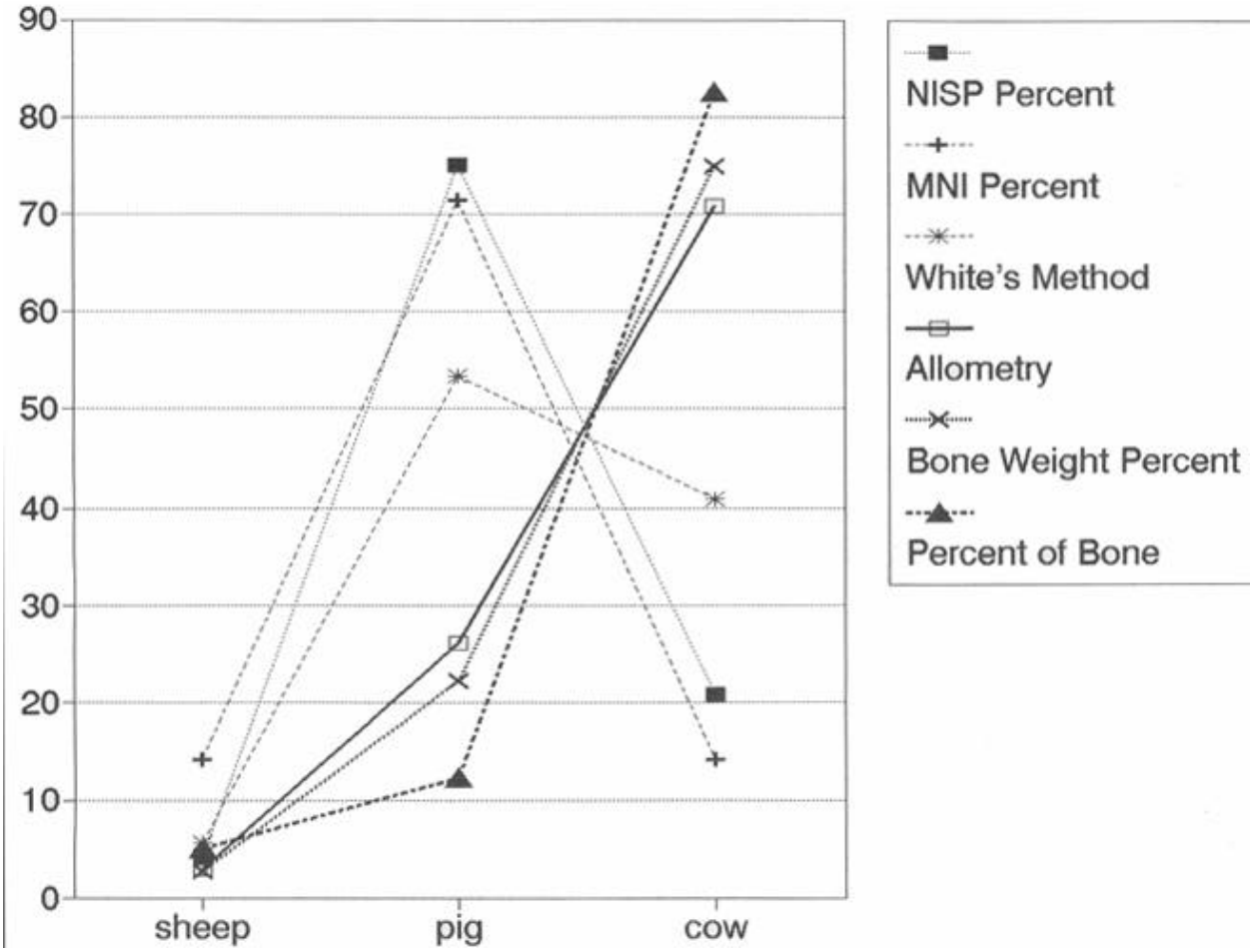


Figure 127
Calculations of meat

When archæologists attempt to quantify and evaluate the meat used on a site, they resort to different statistical methods, which Otter describes in this chapter. The differences among these methods can be visualized using this graph. See pages 305-307 for an explanation of the various methods, which often produce conflicting results.

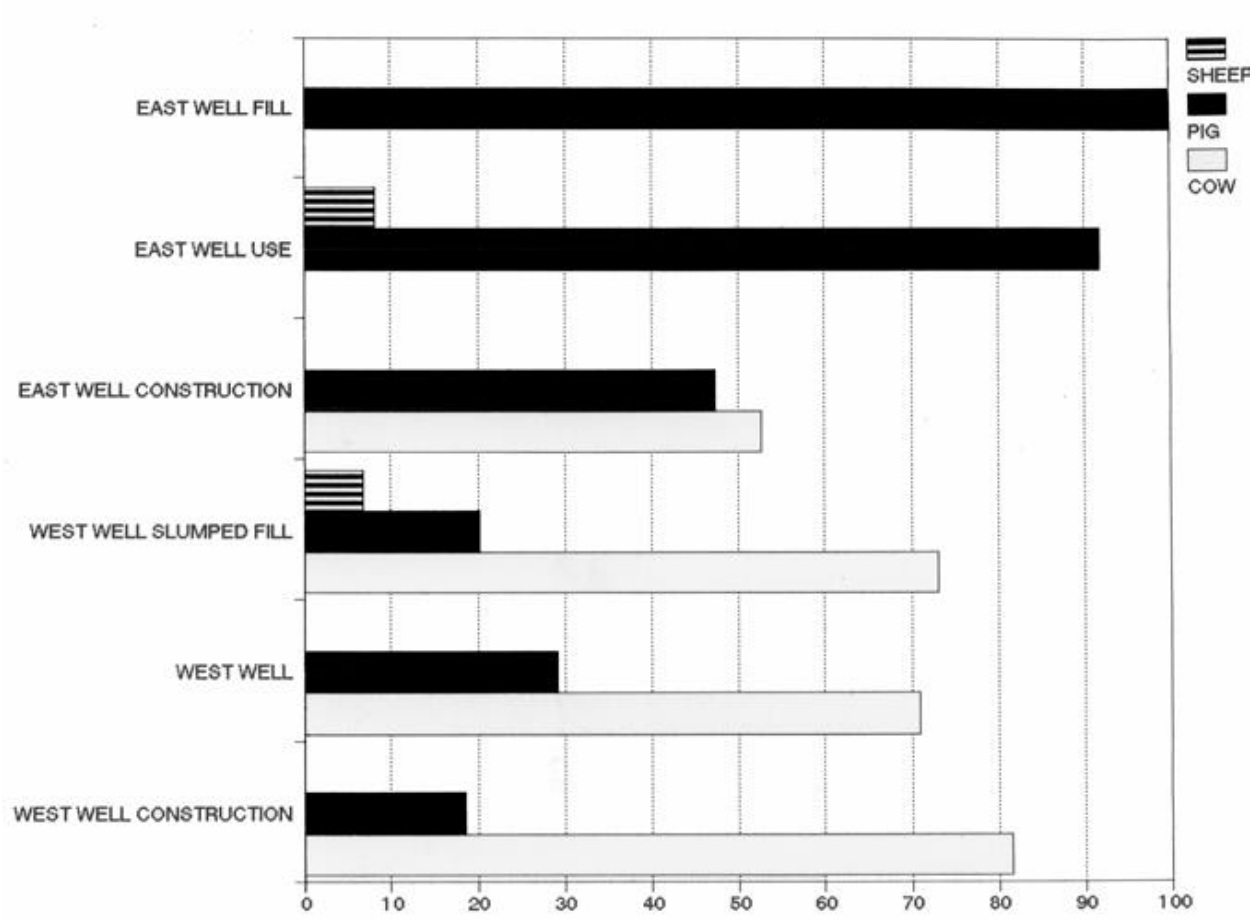


Figure 128
Changes in meat preference through time

Relative quantities of swine and cattle changed through time. These six deposits span the whole life of the site, and illustrate the change. Mutton is found only in the relatively late site components; the west well slumped fill apparently is one of the latest deposits on the site because it accumulated over time as the filled-in well slumped.

Cow was represented by three fragments, two teeth and a phalange. The medium sized mammal bones were from rabbits. No species of fish was identified but 2 scales were identified as ctenoid. The one reptile bone was from a snapping turtle. Six bone fragments were indeterminable to the class level.

EAST WELL USE (1798-1806)

This provenance yielded seven bone fragments. Six fragments were from large mammals. The other bone was from a chicken. Large mammals were represented by four pig bones, two teeth a humerus fragment, and an astragalus. Also present was one sheep tooth. The other large mammal bone could not be identified to species.

EAST WELL FILL

There were 154 bone fragments recovered from the east well fill. Of these 120 were from fish. Nineteen fragments were from large mammal. Pig was the only species of large mammal identified with three teeth fragments. One fragment of rabbit was the only medium sized mammal bone present. Reptiles were represented by a toad ilium and a piece of carapace from a musk turtle. Two rodent incisors were found. The remaining 10 fragments could not be identified to the class level.

WEST WELL BEGINNING (1767)

This provenance produced 21 bone fragments. Sixteen of these were large mammals and five were unidentified turtle shell fragments. Of the large mammals, pig was best represented with seven fragments of jaw and teeth. One cow humerus fragment was also present. Eight fragments could not be identified to the species level.

WEST WELL

The west well yielded 280 bone fragments. These include 65 large mammal pieces, 178 fish bones, five turtle pieces, two bones from medium sized birds, and three fragments from medium sized mammals. This was the only feature to contain small mammal remains which consist of three fragments. Large mammal species identified in this provenance include cow with 11 fragments and pig represented by 14 bones. Muskrat was the only medium sized mammal identified and a vole was the only small mammal identified. Yellow perch were represented by 18 fragments. No species of bird or turtle was identified.

WEST WELL SLUMPED FILL

The west well slumped fill yielded 111 bone fragments. All but one of these fragments was from fish. Cow was represented by seven fragments including head, shoulder, rib, and rump portions. Pig was represented by 12 pieces. These include mandible and teeth and one scapula fragment. One element of sheep and one from horse were also present. The remainder were unidentified large mammal bones.

DIETARY RECONSTRUCTION

Figure 129, page 310, shows the relative percents of bones of different classes of animals per proveniences. By bone count, it can be seen that the most varied assemblages came from the deep features such as wells. This is probably due to taphonomic conditions within those features. By bone weight large mammals comprised over 90 percent of every provenance.

There is an interesting contrast between some proveniences when the percentage of large mammal domesticates is examined. The highest percentage of cow is found in the west well and the highest percentage of pig is found in the east well. When we look at the assemblages from the West well construction, its use, then fill and include the East well construction, use and fill materials, we can see a trend (Figure 128). At first, beef is more common and through time pig becomes more important. How much of this difference is personal preference or related to socio-economic factors, or chance, can not be determined. Feature 22 and Feature 3, Feature 14 also show a high percentage of pig. The pump, Feature 2, Feature 17, Feature 11, Feature 32 and the ashy fill show high percentages of cow. Perhaps this may provide a clue to the temporal placement of these features.

Estimates of the relative value of the different animals in the diet can be made on MNI, NISP, bone weight and calculations of biomass or meat weight. MNI may be the least accurate measure where market situations exist and whole animals are not brought into the site and consumed there. NISP and the relative percents of NISP as a measure of relative abundance does not account for breakage or that various animals have more or less bones than other animals. Bone weight and the relative percent of bone weight is believed to be a fair representation of the relative abundance of animals at a site. In Figure 127 it is seen how the relative representation of pig and cow are differentially indicated among these various measures. Estimates of biomass

based on allometry trend along the same as bone weight percents as do estimates of meat weight based on bone percentage per cut (Figure 128).

Based on weight estimates, occupants of the Bloomsbury site had a preference for large domesticated mammals as food. Beef was the most commonly consumed meat. There were 46 elements of cow identified at the site with a bone weight of 1,834.6 grams. There is an estimated 16,158.51 grams of biomass (allometric scaling). Elements recovered include rear leg, hip, rib, front leg, shoulder and head. That is, most of the carcass.

Pork was present in the diet. This is indicated by 166 elements. However, these weighed only 543.6 grams and were primarily from portions of the animal that have a low meat to bone ratio (feet, shoulder, front leg, head). Of the 166 total elements, 101 were from the feet and head, including teeth. Allometric scaling estimates 5,967.43 grams of pig biomass.

Sheep was a minor component in the diet at Bloomsbury. There were nine elements with a total weight of 66.5 grams. An estimated 705.22 grams of biomass were estimated with allometry. Deer was clearly a minor component with only one fragment present. Horse elements totaled three and weighed 248.1 grams. It is uncertain if horse was consumed or whether these fragments are present as a disturbed horse burial.

Chicken, duck, rabbit, muskrat, shellfish, and turtles all played minor roles in the diet. Fish appear to have been consumed in moderate amounts and were the best represented form of wild food. Of the 3,694 elements, most were scales. Yellow perch was identified by scales and white perch and sunfish are likely present. Two gar scales were found and there were some fragments of unidentified large fish. These may be from sturgeon but no fragments could be certainly identified as sturgeon. Fishing occurred mostly in brackish water, possibly with traps. This nicely accounts for the quantity of small perchiform fishes (traps capture only fish small enough to enter). The large fish probably are from the Delaware bay but how they were acquired by the occupants is unknown.

Fowl was not common at Bloomsbury. With only two chicken bones present, it seems plausible that chickens were not raised at the site. Wild fowl were apparently not hunted and consumed in any quantity either. In fact, hunting does not seem to have been a important activity for the site inhabitants. Few remains of wild animals were present. Of wild mammals, only deer, muskrat and rabbit were identified. There is only one element of deer. Muskrat was most common with seven element and there were three rabbit teeth.

LARGE DOMESTICATES

Estimates of biomass or meat weight have been made on archaeologically derived faunal material since the 1950's (White 1953). White's method based on minimum numbers of individuals and average weights of animals has largely been abandoned in favor of other methods, primarily allometric scaling.

Allometric scaling is based on biological principles of animal growth. However, regression formulas used in allometry are based on whole animals and do not account for the inequitable distribution of meat on a skeletal frame.

A variant method of estimating meat weight that has not received much professional review or acceptance is a percentage method. Various portions of an animal's anatomy are recognized as having more meat or less meat. Using percentage values of edible portions of different meat cuts provided through nutritional studies (Atwater and Woods 1896) the meat representation indicated by the specific cuts present at a site can be estimated.

Using values from Table 6 it is clear that the percent of pork on the site is not as high as indicated by NISP, bone weight or allometry. Most of the pork bones are from the head, the area with the most bone and least meat. There are 493.4 grams of bone (and teeth) from the head with a calculated 721.3 grams of edible meat. There are another 23.27

	Bone weight	*%*	*nisp*	*%*	*mni*	*%*	*allo-metry*	*%*	*percent method*	*%*	*white*	*%*
sheep	66.50	2.73	9	4.0724	1	14.29	705.22	3.09	348.35	5.10	90	5.6604
pig	543.60	22.30	166	75.113	5	71.43	5967.43	26.14	844.00	12.35	850	53.459
cow	1827.80	74.97	46	20.814	1	14.29	16158.51	70.77	5642.20	82.55	650	40.881

Table 7: Representation of large domesticates based on various methods

grams of bone from the shoulder with an estimated biomass of 71.6 grams. Feet were also represented with 18.3 grams of bone and an estimated edible portion of 51.5 grams. Totaled, this is an estimated 844 grams of pork meat.

Calculations on beef indicate that there were 2,161.8 grams of meat from the rump, 923.28 grams from the shoulder area, and 61.38 grams from the ribs. Meat from the foreshank weighed an estimated 1,145 grams, and the hind shank provided an estimated 251.46 grams. An estimate of meat from the head is 1,100 grams (based on an estimated 65% bone content for the head).

While this method of meat weight estimation needs additional review, it has the advantage of providing meat weights on a per-cut basis rather than on the entire animal. This aids in the examination of status when meat cut analysis (Shultz & Gust 1983) is performed. Rather than just counting the numbers of different cuts, the amount of relative amount of meat provided by those cuts can be calculated and compared.

Table 7 compares the estimates of animal representation of the three major domesticated animals found at Bloomsbury (Figure 127). MNI and NISP show a representation heavily in favor of pig. Calculations of animal weight following White's method (1953) lessens the representation of pork but still shows it better represented than cow. Bone weight, allometry, and the percent method show cow as better represented than pork.

ECONOMIC STATUS

Economic status can be estimated through faunal analysis. Two primary methods are by examining the species present and the cuts of meat of cow, and to a lesser degree pig. The most common method is through meat cut analysis following work by Peter Schultz and Sheri Gust (1983).

MEAT CUT REPRESENTATION

The distribution of cow elements shows a number of cuts considered higher status. However, when meat percents are calculated based on the bone percentage method, lower valued cuts, shank and head portions are seen as providing almost as much meat as the rump shoulder, and ribs. An estimated 3,146.46 grams of meat were calculated from the rump, shoulder and ribs while 2,496.46 grams of meat were from the head and shank elements. This suggests a middle class status.

Cow	% bone	*Mutton*	% bone	*Pig*	% bone
Chuck	19.9	Hind leg	17.4	Head	68.4
Chuck ribs	13.3	Loin	9	Loin	16.6
Flank	3.8	Neck	27.2	Ham (fresh)	42.4
Loin	12.6	Shoulder	21.5	Ham (smoked)	12.7
Neck	28.4			shoulder	32.5
Plate	16.7			feet	35.5
Ribs	20.2				
Round	8.5				
Rump	18.5				
Fore shank	36.5				
Hind shank	54.8				
Shoulder clod	14.6				
Fore quarter	19.8				
Hind quarter	16.3				

Table 6: Percentage of meat on different butcher cuts (Atwater and Woods 1896)

Pig elements were mostly from the head and feet. Of the 166 total elements, 101 were from the feet and head, including teeth. Hams are the meatiest and most expensive pig cuts. There were no ham bones identified. The distribution of pork cuts represented at the Bloomsbury site is unusual (in terms of reported sites) and cannot be interpreted in regards to status.

SPECIES REPRESENTATION

The examination of species representation is generally couched in a wild/domestic dichotomy. Sites from the highest and lowest economic positions contain the greatest amount of wild foods. Sites with few wild foods, like Bloomsbury, are usually seen as middle class.

When examining domestic animals, sites occupied by the poorer segments of society generally contain large amounts of pig in comparison to cow. Current research by the author suggests that fowl (both wild and domestic) is found in greater quantity on sites of higher status families. A simplistic explanation is that the occupants of Bloomsbury were not so poor they needed to eat pork nor were they well enough off to afford chicken. An interesting observation of the oyster shells is that they do not bear the ridging characteristic of shallow water beds. This suggests that the oysters were obtained from deep water deposits, probably from commercial oystermen. Also the oysters were taken in low salinity regimes of the upper bay and river.

These observations suggest at least a middle class status for the site occupants. This is in keeping with the relative lack of fowl at the site. This is in opposition to pork which is often seen in higher percentages on sites of lower class households. Thus the diet is interpreted as an expression of middle class financial means.

The relatively low representation of pork at Bloomsbury has been suggested as representing the marketing of pork products produced at the site. This seems to be unlikely given the lack of good ham bones. Producers tend to keep at least some of the better product for their own consumption. Another aspect of marketing pork is that it requires up-front expenditures for salt and barrels. While pork is the most cheaply produced domestic meat, a factor in the association of low economic standing and pork remains, there are costs associated with marketing. Thus, even if pigs from Bloomsbury were being marketed, it substantiates an economic standing of at least middle class for the the site occupants.

FOODWAYS TRADITIONS

The occupants of the Bloomsbury site are documented as probable descendants of Native Americans. This raises questions of acculturation that can be examined through faunal studies. One of the more noticeable aspects of cultural identity is the cuisine. The reported traditional Native American diet consisted largely of deer, squirrel, and raccoon, with lesser amounts of fowl (turkey, pigeon, quail), turtles, fish, and shellfish. Prehistoric sites such as Cole Site (Doms, *et al* 1985), Wilgus (Custer, Stiner & Watts) provide evidence for this.

It seems obvious that most of the Native American foodways, at least in meat consumption, had been lost or abandoned by the site occupants. Deer was the staple in the prehistoric diet. Deer was almost completely absent here. Turkey and other birds are common on prehistoric sites, but not here. A diversity of wild game is generally expected on prehistoric sites. Limited use of wild game is shown here.

The use of turtles of various types is not necessarily a prehistoric pattern since Euroamerican sites of the seventeenth and eighteenth centuries also show a variety of turtles (Lev-Tov 1992; Grettler et al 1995). This is also true of muskrats and rabbits. African American sites often show a higher incidence of pig and fowl, primarily chicken (Crader 1984; Bowen 1993).

The food assemblage from Bloomsbury most closely fits with a Euro-American pattern. A significant difference, however, is the distribution of pig elements.

The relative lack of pork cuts generally salted and smoked is conspicuous. It seems that the faunal assemblage recovered from Bloomsbury is not a mixture of Native American and other cultural traditions. Rather, it appears that a new dietary pattern was developed. This new pattern is largely based on the Euro-American model with some variation. The reasons for proposing this new pattern are speculative, at best. Perhaps salt/smoked pork was avoided as a way of showing separation from the African-American diet. The exclusion of wild game may have been an attempt to separate from the stigma of being an Indian.

SEASONALITY

An attempt was made to examine seasonality through the faunal remains. Yellow perch scales and oyster shells were the only means available. Both shells and scales can be studied for growth annuli and estimates of season of death made. Unfortunately, the material is in a poor state of preservation. The few shells analyzed indicate oyster were collected in the fall, winter, and spring. Yellow perch appear to have been taken in the spring. (Since most scales present are from Feature 15 this may provide a season for that feature filling).

It might be reasoned that seasonal exploitation of wild resources derived from earlier Native American traditions might survive. However, seasonal variations in hunting and gathering is predicated on the seasonal availability of resources. Therefore, any similarity in the seasonal use of yellow perch by prehistoric Americans and historic persons is likely due to the fact that yellow perch are more commonly caught in that season.

CONCLUSION

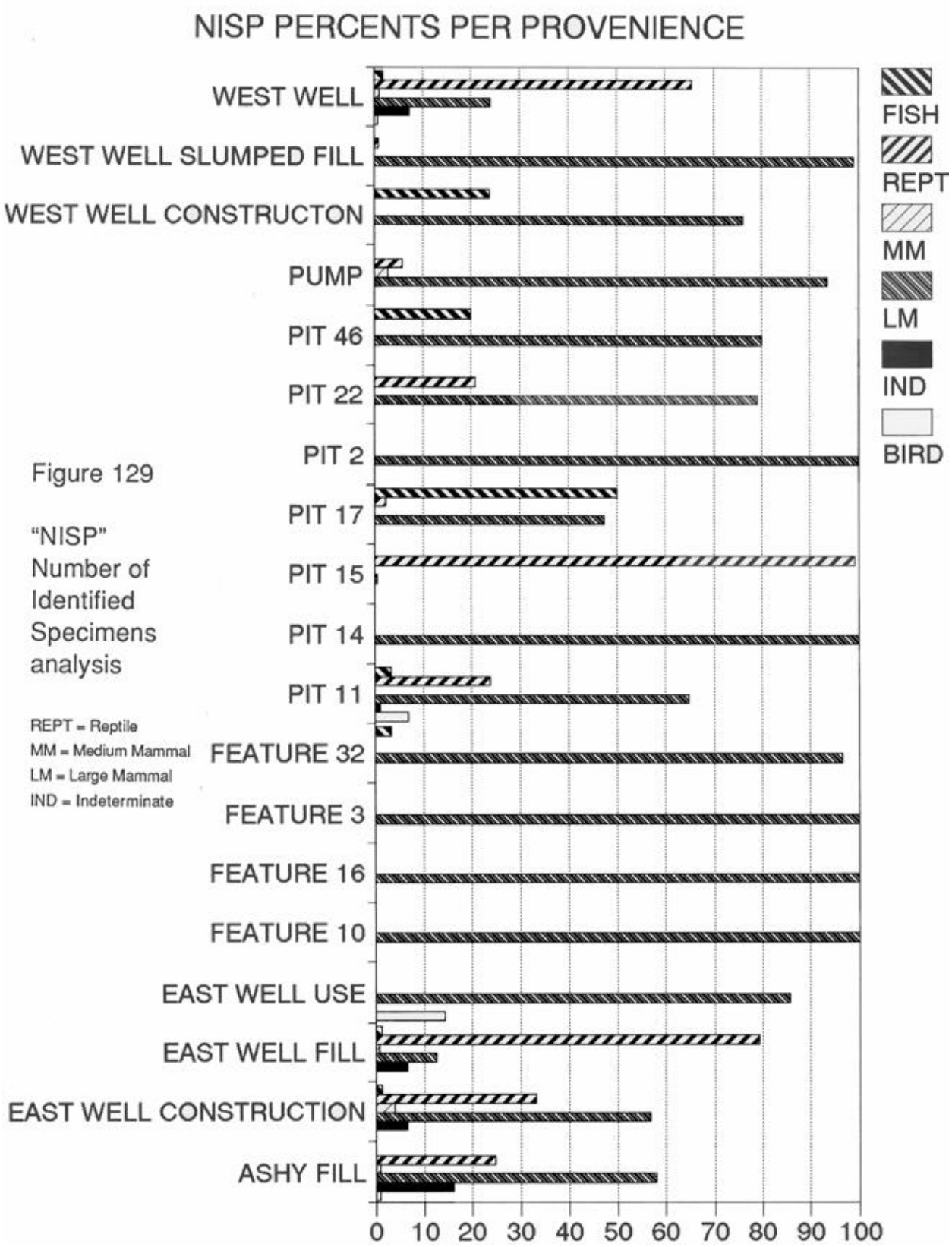
Occupants of the Bloomsbury site depended heavily on large domesticated animals for the meat portion of their diet. Cow seems to have been the preferred animal with pork second. Fish and turtles were minor but probably regular components and other wild game and fowl, including chicken, were not commonly consumed.

Based on the types of meat consumed and the cuts of beef, it is interpreted that the occupants were of middle class means. A caveat needs to be attached to this because there were some aspects of this assemblage that did not resemble assemblages of other cultural groups. Cultural factors may have influenced the selection of meats more than economics.

Faunal analysis from the Bloomsbury site material has raised some interesting questions about historic period native American life in Delaware. One of the more curious questions raised is, Where's the bacon? Pork was an important food item because of its preservation qualities. It can be preserved by salting and smoking better than any other animal. Pigs also are relatively inexpensive to raise. On many sites, especially those of lower economic status, pork is the primary meat consumed. Of the elements recovered only the feet and shoulder portions are salted and smoked. Heads are consumed fresh or used for sausage or puddings (head cheese, scrapple). It seems that the site occupants did not keep preserved pork meat.

The non-storage of salt/smoked pork may be related to another phenomenon noted for this assemblage. That is the low number of rodent bones and rodent gnawing marks. The only species of rodent identified was a vole. The other four elements might be from this same vole. No rats or mice elements were found. Generally on sites of this period scavenging rodents are common. This lack of rodents may indicate a form of refuse disposal and food storage that did not attract scavenging rodents.

Additional sites of historic Native Americans need to be examined to determine if cultural based patterns are present or if the variations seen at Bloomsbury are idiosyncratic. The process of acculturation is complex. Various components of life can be chosen to symbolize divergent points. Foodways are a cultural component that has been used by different peoples to convey solidarity or separation.


NISP PERCENTS PER PROVENIENCE
WEST WELL
WEST WELL SLUMPED FILL
WEST WELL CONSTRUCTON
PUMP
PIT 46
PIT 22
PIT 2
PIT 17
PIT 15
PIT 14
PIT 11
FEATURE 32
FEATURE 3
FEATURE 16
FEATURE 10
EAST WELL USE
EAST WELL FILL
EAST WELL CONSTRUCTION
ASHY FILL
0 10 20 30 40 50 60 70 80 90 100
FISH
REPT
MM
LM
IND
BIRD
Figure 129
"NISP" Number of Identified Specimens analysis
REPT = Reptile
MM = Medium Mammal
LM = Large Mammal
IND = Indeterminate