A Report on the Analysis of Faunal Remains from the Brent Site (44ST0130)

Report Submitted to:

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Introduction

This report presents the analysis and interpretation of faunal remains recovered from the Brent site (44ST0130) near Aquia Creek in Stafford County, Virginia during the excavations conducted in 1997. The site, alternatively known as Woodstock Plantation, was occupied from ca. 1670 to 1700 by George Brent and his family. Brent was a wealthy tobacco planter who also ran a ferry and sawmill. In addition to agricultural activities, Brent acted as a surveyor for Stafford and Westmoreland Counties and practiced law with his brother, Robert, and William Fitzhugh, another wealthy Stafford County planter. A prominent member of the Stafford County community, Brent served as a major in the militia and captain of the Stafford Rangers, with whom he led an expedition against the Seneca in 1684. Among his many political accomplishments, Brent served as receiver-general for the region north of the Rappahannock in 1683, the king's attorney general in 1686 and 1687, and as a Burgess in 1688. By the time of his death in 1700, Brent had accumulated over 15,000 acres of land, due in no small part to his role as an agent for the Northern Neck proprietors.

This site, one of the earliest-excavated, if not the earliest, European sites in Stafford County, provides important insights into the nature of early-colonial life in northern Virginia and underscores the persistence of connections between Maryland and Virginia facilitated by the Potomac River, since Brent and some of his family from the previous generation had emigrated from Maryland. The faunal remains from the Brent site provide an opportunity to better understand the evolution of colonial diet in the northern reaches of the tidal Potomac Valley.

Methods

The assemblage was identified by Callie Bennett and Jennifer Synstelein using the comparative zooarchaeological collection housed in the Department of Anthropology at the

University of Tennessee, Knoxville. Fragments were identified to the lowest taxonomic level possible. Element, portion, and side of the bone was also recorded and all bone was weighed. Fragments that could not be identified to class were counted and weighed as unidentified. Bone modifications such as butchering marks, rodent and carnivore gnawing, burning, and root etching were also noted in order to better understand taphonomy on the site. Additionally, epiphyseal fusion was recorded for specimens in order to better understand age structure of the assemblage. The assemblage was then quantified using three standard zooarchaeological measures: number of identified specimens present (NISP), minimum number of individuals (MNI), and biomass.

NISP, number of identified specimens present, is simply a count of fragments. This measure, like all methods for quantifying faunal assemblages has both positive and negative aspects (Grayson 1984). Specifically, NISP has a tendency to be affected by numerous factors, including the ability to identify elements in different animals, laboratory techniques, cultural and natural site formation processes, and recovery methods (Reitz and Wing 1999:192). Despite the biases that come along with these data they are included in the analysis because of their ease of replication and standard use and presentation in zooarchaeological analyses.

MNI, minimum number of individuals, was calculated using the method outlined by White (1953) and taking age of the specimens into consideration, which results in a slightly more accurate estimate. Like NISP, however, this method also has biases that are affected by the same factors (Reitz and Wing 1999:195). In addition, the way in which the data are aggregated in the calculation of MNI can affect the result (Grayson 1984:90-92; Horton 1984:269). Due to the facts that few features were excavated and that the majority of the artifacts appear to represent a relatively short occupation from 1670-1700, all contexts were grouped together for the analysis.

The grouping of the entire assemblage was not only used for measure of taxonomic abundance, but also for skeletal part and age distribution analyses.

The final method used for the quantification of the faunal remains from 44ST0130 is the biomass measure obtained by using the allometric regression formulae described by Reitz and Wing (1999:72; see also Reitz and Cordier 1983; Reitz et al. 1987). This method relies upon the biological principle that bone weight and meat weight are correlated. In addition, this relationship is the same throughout time; therefore this method of meat weight estimation from bone weight has less potential room for error than other methods (Reitz and Wing 1999:227). However, like MNI, the way in which the units of excavation are grouped can affect the biomass. Despite this possible bias, all of the faunal remains were treated as one assemblage for the reasons stated above when calculating biomass. Additionally, other concerns with the use of biomass have been raised (Jackson 1989), however it is necessary to employ some form of dietary contribution calculation for species in order to conduct intrasite and intersite comparisons of the relative contribution of species to diet. Biomass appears to be the least biased of the methods available and it has the advantage of being comparable to the useable meat calculations employed in previous large-scale faunal analyses in the Chesapeake (Bowen 1980, 1994, 1996b, 1999; Miller 1984, 1988).

In addition to the measures of taxonomic abundance discussed above, a skeletal part frequency analysis was performed on the collection in order to address questions of taphonomy and preference for certain cuts of meat (Binford 1978; Reitz and Wing 1999:202-221; Klippel 2001). An analysis of skeletal part frequency, based on NISP, was performed where elements were assigned to five categories: head, axial, foot, front quarter, and hind quarter. The archaeological assemblage was then compared to a standard specimen of the same species using

percentages. Three species (*Bos taurus* (cow), *Sus scrofa* (pig), and *Odocoileus virginianus* (white-tailed deer) were analyzed using this method. *Ovis/Capra* (sheep/goat) were excluded from this analysis due to an extremely small sample size of only eight elements.

Elements were assigned to the skeletal categories as follows. The head category counted the entire skull as one element, the mandible as two, hyoid bones, and the teeth. The axial category included the pelvis and all ribs and vertebrae, with the exception of caudal vertebrae. The foot category consisted of all elements including and below the metacarpals and metatarsals. The hind quarter category was represented by the femur, tibia, and patella. Finally, the front quarter category consisted of the scapula, humerus, radius, and ulna.

Determining the age at death for specimens in faunal collections can be used to address a variety of questions including herd management, specific harvest strategies, seasonality and production (Reitz and Wing 1999:178-179). In general, determining the age for most mammals is done through the examination of tooth eruption, tooth wear, and epiphyseal fusion. For the purposes of this report, only epiphyseal fusion of individual elements was examined for the three large mammals present on the site, *Bos taurus*, *Sus scrofa*, and *Odocoileus virginianus*. Caprines were excluded from age distribution analysis because there was only one caprine element able to be aged. The elements used in the age analysis included proximal and distal ends of long bones as well as vertebra, pelvis, and calcaneus fragments. The fusion of elements is not as specific as tooth eruption and wear, and often occurs within a time range of a few months and can be affected by various factors (Reitz and Wing 1999:75). For this analysis I relied upon the fusion data generated by Silver (1970), Schmid (1972:75), and Purdue (1983) to age individual specimens. Elements were then placed into one of three distinct age classes: early fusing (generally less than 12 months), middle fusing (generally 12-30 months), and late fusing

(generally 35-42 months) after Chaplin (1971: Table 10). The age ranges for these groups in months are only estimates, and as a result of the nature of epiphyseal fusion, it should be realized that the ages are relative and the actual age for a specimen may be slightly older or younger than indicated. However, the three groups do allow specimens to be assigned to a juvenile, subadult, or adult category, which can be useful in understanding harvest strategies and the multiple uses of livestock.

Taphonomy and Recovery

Prior to the analysis and interpretation of the faunal remains from the Brent site, the processes effecting the preservation of organic remains at the site must be addressed. Needless to say, these taphonomic processes can significantly bias the data, and affect what research questions can be asked and how to address them best. In general, bone preservation for this assemblage appears to be average for a collection in the Chesapeake region derived primarily from plow zone. The presence of small and delicate fish and mammal bones indicates that burial conditions were at least somewhat favorable for the preservation of bone. It is likely that the soil at the site was slightly acidic, which tends to be common in Chesapeake plow zones. Specifically plow zone in southern Maryland, which shares a similar geology with the area around the Brent site, tends to have a pH around 5.3 (Miller 1984:203-205). Based upon the condition of the faunal remains and general paucity of smaller species and more delicate elements, preservation bias does appear to be a factor affecting this assemblage, likely resulting in the loss of these types of fragments. However, without data on the actual soil pH at the site its effect on the preservation of bone is only speculative. Additionally, the low percentage of small-sized species and delicate remains may also stem from collection bias and a lack of fine-screening.

Another taphonomic process affecting the assemblage is plowing, particularly since the majority of the assemblage (99%) appears to have been recovered from plow zone. The major effect that plowing has on bone preservation is related to fragmentation. In general, assemblages from plow zone tend to be highly fragmented and tend to have an extremely high proportion of unidentifiable bones (Lyman and O'Brien 1987:495-497). This problem does not appear to manifest in the Brent assemblage when examining bone size, however. Bone weight was used as a proxy for size and the results indicate that, on average, fragments in the collection were relatively large, weighing around 2.3g per fragment (Table 1). This average bone size compares favorably to Mattapany (18ST0390), which was composed of fragments from both plow zone and features (Hatch 2014). The fact that a far greater number of fragments were derived from plow zone at the Brent site, compared to Mattapany, indicates that the fragments from Brent were quite large despite plowing. Due to the large size of fragments, only about 10% of the fragments recovered from the Brent site could not be identified to at least the class level.

Table 1: Average Bone Weights for the Brent Assemblage.

Avg. Fragment Weight (g)	2.298861
Avg. Fragment Weight Identified below Class (g)	6.158382
Avg. UID Fragment Weight (g)	1.181469

Heat alteration has the potential to significantly impact the analysis of faunal remains on a site. Burning usually occurs at temperatures up to 500°C and alters bone by removing the organic material; it generally changes the color of the bone to brown or black. Calcining of bone occurs at temperatures over 500°C and can shrink the bone and make it more brittle and prone to fragmentation; it usually changes the color of the bone to white or blue-gray (Lyman 1994:384-392; Reitz and Wing 1999:133). Of the 2,423 bone fragments recovered from entire site 375, or roughly 16%, showed evidence of heat alteration (Figure 1). Thirty-nine fragments were burned

and 336 fragments were calcined. Clearly, heat alteration does not play a significant role in the analysis due to the small proportion of bones exhibiting evidence of burning.

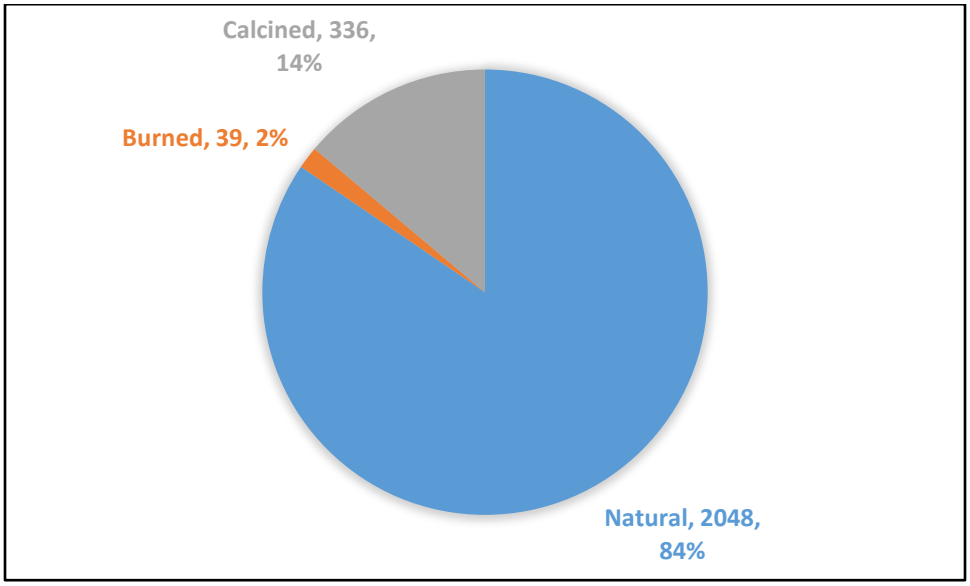

Figure 1: Heat Altered Bone in the Brent Assemblage.

Recovery strategy is exceedingly important in the analysis of any faunal collection, particularly in terms of the richness of the assemblage and the number of identifiable fragments. All soils on this site were dry-screened through ¼" mesh. While ¼" dry-screening does not capture the smallest bone fragments, such as small fish, bird, and mammal bones, it does serve to recover the majority of the larger species. As such, the recovery methods using during the excavations at the Brent site should allow for a relatively unbiased representation of larger animal species such as *Bos taurus*, *Gallus gallus* (chicken), or *Sus scrofa*. However, smaller species, which tend to be composed primarily of fish and birds, will likely be underrepresented in this assemblage. Despite this, the Brent assemblage does contain some specimens from smaller species such as *Rattus rattus* (black rat), *Morone americana* (white perch), and *Anura* (frogs). Despite screening, however, the average fragments size at Brent, as represented by weight, is still relatively large. For example, the Hallowes site (44WM0006), which was not

screened, had an average fragment weight of 2.25g, slightly less than the average fragment weight at the Brent site (Hatch, McMillan, and Heath 2013). Clearly, ¼" screening is preferable to no screening at all and will generally better represent the richness of a faunal assemblage. Despite screening, however, the average bone size at Brent was still high, indicating that preservation was good at the site and fragmentation was low. The lack of bone fragmentation may be due to less intensive plowing due to the site's location near a cemetery, or some of the lower strata in the test units might have represented relatively undisturbed midden contexts.

Results

The faunal assemblage from the Brent site consisted of 2,423 fragments, 2,326 (96%) of which were recovered from test unit strata, likely representing plowzone or midden layers, with 69 fragments recovered from shovel tests and 28 recovered from feature fill. For the purposes of this report all of the faunal remains are combined regardless of their context and the results of their analysis are presented due to the fact that feature sample size is so small as to be insignificant in the interpretation of this assemblage (Table 2).

Table 2: Taxonomic Abundance Measures for the Brent Site Assemblage.

	NISP	%	MNI	%	Weight (g)	%	Biomass (kg)	%
Mammalia								
Bos taurus	61	3%	2	8%	1878.43	34%	23.2496	32%
cf. Bos taurus	19	1%			329.32	6%	4.851279	7%
Sus scrofa	82	3%	3	12%	474.44	9%	6.738499	9%
cf. Sus scrofa	10	0%			31.83	1%	0.592315	1%
cf. Ovis aries	1	0%			4.56	0%	0.103055	0%
Ovis/Capra	6	0%	1	4%	68.08	1%	1.174134	2%
cf. Ovis/Capra	1	0%			20.88	0%	0.405282	1%
Ovis/Capra/Odocoileus	2	0%			0.77	0%	0.020789	0%
cf. Ovis/Capra/Odocoileus	16	1%			33.57	1%	0.621378	1%
Felis domesticus	16	1%	1	4%	38.01	1%	0.694877	1%
cf. Felis domesticus	23	1%			10.21	0%	0.212874	0%
Ursus americanus	1	0%	1	4%	11.67	0%	0.240084	0%
Odocoileus virginianus	23	1%	1	4%	179.64	3%	2.81166	4%
cf. Odocoileus virginianus	15	1%			68.11	1%	1.174599	2%
Procyon lotor	1	0%	1	4%	3.66	0%	0.084554	0%
Sylvilagus	4	0%	1	4%	3.26	0%	0.07619	0%
cf. Sylvilagus	1	0%			0.1	0%	0.003311	0%
Sciurus carolinensis	1	0%	1	4%	0.46	0%	0.013076	0%
cf. Sciurus carolinensis	1	0%			0.02	0%	0.000778	0%
Sciurus	4	0%			1.1	0%	0.028658	0%
Rattus rattus	1	0%	1	4%	0.33	0%	0.009698	0%
Rattus	14	1%			2.94	0%	0.069424	0%
Muridae	1	0%			0	0%	0	0%
Artiodactyla	16	1%			30.75	1%	0.574197	1%
UID Mammalia	1426	59%			2114.59	38%	25.86447	35%
cf. UID Mammalia	5	0%			1.15	0%	0.029828	0%
Aves								

	NISP	%	MNI	%	Weight (g)	%	Biomass (kg)	%
Gallus gallus	16	1%	2	8%	16.15	0%	0.256707	0%
cf. Gallus gallus	11	0%			9.15	0%	0.153071	0%
Meleagris gallopavo	8	0%	2	8%	36.81	1%	0.543286	1%
cf. Meleagris gallopavo	3	0%			2.75	0%	0.051262	0%
cf. Branta canadensis	1	0%	1	4%	1.15	0%	0.023186	0%
Anas crecca	1	0%	1	4%	0.94	0%	0.0193	0%
Phasianidae	6	0%			3.55	0%	0.064671	0%
cf. Phasianidae	5	0%			1.8	0%	0.034858	0%
Anatidae	15	1%			23.13	0%	0.355959	0%
cf. Anatidae	1	0%			0.31	0%	0.007033	0%
Passeriformes	1	0%			0.12	0%	0.002965	0%
UID Aves	88	4%			34.53	1%	0.512577	1%
cf. UID Aves	19	1%			6.88	0%	0.118088	0%
Osteichthyes								
cf. Carcharhinidae	1	0%	1	4%	2.13	0%	0.241216	0%
Lepisosteus osseus	86	4%	1	4%	32.25	1%	0.469611	1%
cf. Lepisosteus osseus	3	0%			0.57	0%	0.019371	0%
Lepisosteus spp.	4	0%			0.68	0%	0.022268	0%
cf. Aplodinotus grunniens	2	0%	1	4%	0.42	0%	0.020474	0%
Morone americana	3	0%	1	4%	0.41	0%	0.01314	0%
Morone	3	0%			0.71	0%	0.020727	0%
cf. Morone	4	0%			0.54	0%	0.016515	0%
Ictalurus	5	0%	1	4%	1.76	0%	0.034138	0%
Catostomidae	1	0%			0.2	0%	0.008014	0%
UID Osteichthyes	89	4%			11.15	0%	0.20811	0%
cf. UID Osteichthyes	1	0%			0.04	0%	0.002176	0%
Reptilia								
Kinosternidae	21	1%			8.17	0%	0.129178	0%
Testudines	22	1%			14.26	0%	0.187612	0%
Amphibia								

	NISP	%	MNI	%	Weight (g)	%	Biomass (kg)	%
Anura	1	0%	1	4%	0.06	0%		
UID	251	10%			51.64	1%		
Total	2423		25		5570.14		73.18012	

The analysis of the faunal remains revealed that the top five most abundant species, based upon NISP, were *Lepisosteus osseus* (longnose gar), *Sus scrofa, Bos taurus, Felis domesticus (cat), and Odocoileus virginianus*. The MNI calculation revealed a total of at least 25 individuals represented in the assemblage. The most abundant species, based upon MNI were *Sus scrofa, Bos taurus, Gallus gallus,* and *Meleagris gallopavo* (turkey). The biomass calculation showed *Bos taurus, Sus scrofa, Odocoileus virginianus,* and *Ovis/Capra* to be the top species contributing to diet on the site. Clearly, these three different measures of taxonomic abundance show some variation in terms of the most important dietary contributors in the assemblage. However, it should be noted that, in general *Bos taurus*, *Sus scrofa*, and *Odocoileus virginianus* appear to be the major sources of meat based upon all of the taxonomic abundance measures. As discussed above, all three of these measures have advantages and disadvantages stemming from aggregation, post-depositional processes, and variation in calculation. Therefore, while all of these data are presented, the following discussions will rely mainly on biomass when addressing dietary contribution as it is one of the least biased measures of the three.

At least 24 distinct species were identified in the faunal assemblage from the Brent site. However, as many as five of these species (Felis domesticus (cat), Rattus rattus (rat), Muridae (rodent), Passeriformes (perching birds), and Anura (frogs)) are commensal, meaning that inhabitants of the site would likely have not eaten them and that their presence in the assemblage probably results from natural processes or processes not related to diet. From the overall analysis of the faunal assemblage it appears that residents of the site relied primarily upon beef and pork for their meat diet, with venison and sheep or goat as important supplements. Indeed, beef and pork account about 79% of the total biomass if unidentified and commensal species are removed. It should be noted that domestic species account for 85% of the total biomass, while wild species

account for the remaining 15%. Most of the wild biomass stems from the venison represented in the collection, but at least six fish species, three bird species, three small mammal species, and turtle also contribute to non-domestic biomass. The composition of the wild assemblage indicates that the occupants of the site took advantage of the available local resources, particularly fish and waterfowl in the nearby Aquia Creek, albeit on a limited basis. The heavy reliance on domestic species may indicate that wild game had been reduced due to colonization in the area, or it could simply indicate a cultural preference for domestic meat and the ability of a wealthy planter, such as George Brent, to control large herds of livestock in the early colonial period.

A skeletal part frequency analysis for the assemblage was performed for identified fragments from *Bos taurus*, *Sus scrofa*, and *Odocoileus virginianus*. As explained above, this analysis quantified fragments from different portions of the skeleton and compared their occurrence on the site with what should be expected from a typical specimen. The skeletal part frequency analysis for *Bos taurus* showed that meaty portions, particularly front and hind quarters were present in far greater than expected proportions (Table 3). Head and foot portions were at roughly expected levels, while axial portions were much lower than expected. Of particular note is the fact that 21 of the 24 elements in the head category were teeth, illustrating the greater survivability and ease of identification for these elements. The particularly high proportion of hind quarter fragments may indicate a preference for cuts of meat from that portion of the cow, which would include roasts. The presence of high proportions high utility skeletal portions illustrates that the best parts of the cow were being consumed with frequency at the site.

Table 3: Skeletal Part Frequency for *Bos taurus* in the Brent Assemblage.

Bos taurus	**Head**	**Foot**	**Axial**	**Front Quarter**	**Hind Quarter**
Observed Count	24	26	11	6	13
Observed %	30%	33%	14%	8%	16%

Expected %	21%	37%	36%	4%	3%

The analysis for *Sus scrofa* revealed significantly higher than expected proportions of head and front quarter and hind quarter portions with significantly lower than expected foot and axial portions (Table 4). The higher than expected proportion of head fragments is not entirely unexpected due to the fact that *Sus scrofa* teeth are not only numerous in an individual, but also easily identifiable and resistant to degradation due to their structure. Indeed, of the 42 elements in the head category, all are teeth. The lack of foot parts in this assemblage is also unexpected for the same preservation reasons. In general, *Sus scrofa* foot portions are dense and resistant to decay. The low proportion of foot parts, in combination with high proportions of meaty elements from the front and hind quarters, may indicate that prime cuts were preferred at the site. Alternatively, it may also indicate that the faunal remains recovered at the site primarily stem from the disposal of food waste and that a butchering area, with more low utility portions could be present elsewhere on the site.

Table 4: Skeletal Part Frequency for *Sus scrofa* in the Brent Assemblage.

Sus scrofa	**Head**	**Foot**	**Axial**	**Front Quarter**	**Hind Quarter**
Observed Count	42	17	6	11	16
Observed %	46%	18%	7%	12%	17%
Expected %	21%	50%	24%	3%	2%

Finally, the analysis of skeletal parts from *Odocoileus virginianus* also has a relatively small sample of 38 fragments (Table 5). Nevertheless, the skeletal portion analysis revealed that all portions were represented with a significantly high proportion of front and hind quarter parts. A low proportion of axial and foot parts, combined with a roughly expected amount of head parts appears to indicate a preference for the meatier parts of deer. This pattern mirrors that of the other two major mammals in the assemblage, seemingly confirming a preference for the higher

utility portions at this site. Whether the increased presence of these high utility portions stems from distinct disposal patterns in the form of separate butchering areas or is indicative of the preference of the planter family and socioeconomic status is more difficult to discern without more data.

Table 5: Skeletal Part Frequency for *Odocoileus virginianus* in the Brent Assemblage.

Odocoileus virginianus	**Head**	**Foot**	**Axial**	**Front Quarter**	**Hind Quarter**
Observed Count	8	7	6	9	8
Observed %	21%	18%	16%	24%	21%
Expected %	19%	44%	31%	3%	3%

An age distribution analysis for the assemblage was also performed for identified fragments from *Bos taurus*, *Sus scrofa*, and *Odocoileus virginianus*. As noted above, this analysis relied on epiphyseal fusion data generated for these three species and placed elements in one of three categories, early, middle, and late fusing. While this method is not as precise as aging based upon tooth wear patterns, it does allow elements to be defined as juvenile, sub-adult, or adult, which can be very useful in helping to determine age at death and, by extension, differing uses for animals. Age distribution analysis for *Bos taurus* revealed that the assemblage for this species was composed primarily of adult and sub-adult animals, but that a significant proportion was from the younger age classes, whether sub-adult or juvenile (Table 6 and Table 7). This pattern, in addition to the prominence of prime cuts of beef, seem to indicate that the Brents were consuming high quality beef at the site. While a sample size of 24 for the age distribution is somewhat small, the results of this analysis, when combined with the skeletal part analysis is suggestive.

Table 6: Age Distribution for *Bos taurus* in the Brent Assemblage.

Bos taurus, n=18	**Early**	**Middle**	**Late**
%Fused	39%	22%	6%
%Unfused	0%	22%	17%

Table 7: Elements Used in Age Distribution Analysis for *Bos taurus* in the Brent Assemblage.

Element	**Fused**	**Unfused**	**Age at Fusion (months)**
Acetabulum	2		6-10
Proximal Metacarpal	2		Fused before birth
Proximal Metatarsal	1		Fused before birth
Distal Humerus	1		12-18
Proximal Tibia	1	2	42-48
Proximal Femur		1	42
Proximal Calcaneus	1	2	36-42
Distal Metacarpal	2		24-36
Distal Metapodial		3	24-36

The age distribution analysis for *Sus scrofa* showed all age classes were represented in the assemblage and that the majority were likely sub-adults (Table 8 and Table 9). Out of a total of twenty-three elements that could be aged, only one could be definitively placed in the late-fusing, or adult, category. While the fused early stage elements and the unfused late stage elements could be related to adults or juveniles, respectively, based upon the composition of the remainder of the assemblage it is likely that they are related to sub-adult specimens. However, like the age distribution analysis for *Bos taurus*, the sample size for *Sus scrofa* was small and the results should be viewed as suggestive rather than conclusive. The age distribution analysis for *Odocoileus virginianus* revealed that no juveniles were present and that a large proportion of the assemblage was likely adult animals (Table 10 and Table 11). Again, however, the sample size was small, consisting of only seven fragments that could be aged.

Table 8: Age Distribution for *Sus scrofa* in the Brent Assemblage.

Sus scrofa, n=19	**Early**	**Middle**	**Late**
%Fused	32%	26%	5%
%Unfused	11%	5%	21%

Table 9: Elements Used in Age Distribution Analysis for *Sus scrofa* in the Brent Assemblage.

Element	**Fused**	**Unfused**	**Age at Fusion (months)**

Element	Fused	Unfused	Age at Fusion (months)
Acetabulum	2		12
Proximal Metacarpal	2		Fused before birth
Distal Humerus	1		12-18
Proximal Radius	1	1	12
Distal Scapula		1	12
Proximal Tibia	1		42
Vertebral Pad		3	48-84
Distal Radius		1	42
Distal Metapodial	3		24-27
Distal Metatarsal	2		24-27
Distal Tibia		1	24

Table 10: Age Distribution for *Odocoileus virginianus* in the Brent Assemblage.

Odocoileus virginianus, n=7	Early	Middle	Late
%Fused	71%	14%	14%
%Unfused	0%	0%	0%

Table 11: Elements Used in Age Distribution Analysis for *Odocoileus virginianus* in the Brent Assemblage.

Element	Fused	Unfused	Age at Fusion (months)
Acetabulum	4		8-11
Proximal Metacarpal	1		Fused before birth
Proximal Ulna	1		26-42
Distal Tibia	1		20-23

Discussion

Generally, the faunal assemblage from the Brent site is highly typical of a late-17th-century assemblage due to the relatively high reliance on pork and beef, coupled with a small, but significant, presence of wild species (Miller 1984:283-300; 1988:181-186; Bowen 1996b:95-97). Clearly, domestic species were the primary contributors to diet on the site, but the Brent family also exploited food resources from the surrounding area in the form of deer, fish, waterfowl, and small mammals. While the composition of the faunal assemblage from the Brent site supports previously defined dietary patterns in the Chesapeake region, the faunal remains do

reveal important patterns concerning changing livestock husbandry and dining practices through the analysis of the skeletal portions present on the site and the age at slaughter of the specimens. The livestock husbandry practices at the Brent site, as suggested by the faunal remains, reflects a shift in plantation management seen throughout much of the Chesapeake region in the late-17th century.

On average, faunal assemblages dating from the 1660-1700 period in the Chesapeake region contain 65% beef, 22% pork, and 5% venison, with an average of 9% of the meat represented by the assemblage coming from wild species (Miller 1984:294; Bowen 1996b:100). The Brent assemblage generally fits this pattern quite well, though with a slightly increased amount of wild meat, stemming primarily from an increase in venison. Venison accounts for approximately 9% of the edible biomass at the Brent site, indicating that deer played a significant role in feeding the people who lived at the site, but that the increased amount of venison was not drastically different from the average of contemporaneous sites in the region. Indeed, the contribution of wild species, in general, ranges from 5% to 15% on sites dating to this period, which places the Brent site just within the expected range. Interestingly, despite the site's proximity to water, fish contributed little to diet, accounting for only about 2% of the total meat represented by the assemblage.

The presence of the variety of fish species at this site, including *Carcharhinidae* (shark), longnose gar, white perch, and *Ictalurus* (catfish) can be attributed to the site's location near the Potomac River and along Aquia Creek. The mix of brackish and fresh water in this area acts as the perfect environment for these species. During the course of his dissertation, Henry Miller found that proximity to water played a large role in the amount and types of fish present on sites during the 17th century (Miller 1984:333-340). The fish species present at the Brent site

correspond with Miller's findings, showing a mix of species that thrive in both fresh and salt water environments, and perhaps even indicating rare visitors to the Aquia Creek area, such as sharks.

Additionally, the assemblage appears to contain *Pogonias cromis* (black drum), originally miscataloged as *Aplodinotus grunniens* (freshwater drum). While it is within the realm of possibility for freshwater drum to appear in the assemblage, it is highly unlikely considering that its range is west of the Appalachian Mountains. Rather, the presence of black drum is much more likely considering that its range encompasses the site and its skeletal elements can easily be mistaken for freshwater drum.

Of the wild species, deer contributed the most to the meat diet at the Brent site, accounting for approximately 9% of the edible biomass, well over half of the edible wild biomass represented by the assemblage. Although the percentage of deer biomass at the Brent site is almost double the average for contemporaneous sites, the sites dating between 1660 and 1700 in Miller's database range from about 2% to 8% (Miller 1984:403-411). Indeed, the Phase II assemblage from the Clifts Plantation, located in Westmoreland County and dating between 1685 and 1705, yielded a little over 8% deer (Bowen 1980:209). Therefore, while the proportion of deer biomass at the Brent site is still somewhat outside of the expected range, based on previous studies, it is not exceedingly large. Other than the vagaries of sampling, the increased proportion of deer at the site could be due to the surrounding natural environment or it could be a result of cultural interactions with neighboring Patawomeck Indians, whose primary village was located downriver the Brent site until the 1660s.

By the time that George Brent established his plantation near Aquia Creek, the surrounding area had already been settled by his aunt and uncle, Margaret and Giles Brent, more

than two decades earlier (Steiner 1962). Although George did not enter into a true wilderness, void of European settlement, he would have been part of a geographical community that was near the frontier, particularly when he first moved to Virginia, around 1670. The fact that his plantation was located far upstream of the navigable portions of Aquia Creek would have also contributed to his isolation. The less dense settlement in the northern portion of Stafford County, when compared to the longer-settled areas in the lower reaches of the Potomac and James River Valleys could have led to a slightly higher deer population in the area since agricultural practices had not as intensively altered the environment. Additionally, a less dense European population in the area would have led to less pressure on the deer population, making their numbers more plentiful and their harvest easier. Finally, it is worth noting that the average contribution of deer to faunal assemblages dating from 1660 to 1700 in the Chesapeake is derived from data collected primarily at sites located in the longer- and more densely-settled areas around St. Mary's City and Jamestown, clearly leading to biases that have to be examined when analyzing sites in areas with different historical contexts.

Another factor that could have contributed to the higher than average proportion of venison in the assemblage is the possibility of trade with Native Americans at the site. Archaeologists and historians working in the Chesapeake have long recognized the importance of intercultural trade during the 17th century, particularly with regard to food, in some cases venison (Miller 1984:349-351; Mouer: 1993:115; Bowen 1996a:30; Anderson 2004:222; Lapham 2005; Hatch 2012; LaCombe 2012:70-71). There is a strong likelihood that at least a portion of the venison present on the site arrived by way of trade with Native Americans, specifically members of the nearby Patawomeck tribe,. However, determining this with any certainty is difficult with only the faunal remains. Examining skeletal portions present on the site

in addition to the mortality profile has proven useful for this purpose on other sites (Lapham 2005:77-104; Hatch 2012).

In this case, all part categories for deer are present with the particularly meaty hind quarter and fore quarter portions present in far greater than expected percentages. The mortality profile indicates that no juveniles were present on site and that it is likely that only adult specimens are represented. The presence of all part categories for deer on the site indicates that they arrived at the site complete and were processed there. The high proportion of hind quarter and fore quarter parts may either indicate a preference for that particular section, or the transportation of quarters to the site independent of the rest of the carcass. However, this is a pattern that is also noted for cow and pig elements, indicating that it could be a result of taphonomic processes favoring dense elements, some of which occur in the quarters. The absence of juveniles at the site clearly indicates a preference for larger, more mature, animals, but this may also be due to taphonomic processes. Overall, small sample size, taphonomy, and lack of a distinct pattern of carcass transport and preference make it difficult to determine with any certainty if the venison on the site derived from Anglo-Indian trade or hunting by the colonists. However, previous research, and common sense, dictates that some of this meat almost certainly derived from cross-cultural interactions due to the relatively close proximity and known interaction of the Brent family with the Patawomecks as well as documented instances of colonists employing Indians to hunt deer (Steiner 1962; Miller 1988:186).

The pattern of edible domestic biomass at the site shows that beef, pork, and mutton are present in proportions that are generally expected for sites dating between 1660 and 1700 in the Chesapeake. In general, beef dominates the assemblage, accounting for over 60% of the biomass, with pork being the next most significant contributor, making up about 16%, and mutton

providing a small amount, 4%. Average contributions to meat diet in assemblages for cows, pigs, and sheep/goats for this period are 65%, 22%, and 2%, respectively (Miller 1984:294; Bowen 1996b:100). These proportions indicate a meat diet primarily consisting of domestic species, likely raised at the site. Although the biomass measurements appear to indicate a monotonous diet primarily consisting of beef, Bowen argues that the way in which the food was prepared would have been in keeping with the high cuisine of the day in the form of fancy preparations (Bowen 1996b:103).

Skeletal part analysis for both cows and pigs at the site indicated that meatier portions from the front and hind quarters were favored well above their expected proportions. These meatier elements represent higher quality cuts of meat, such as roasts, and may indicate that the wealthy Brent family was dining on choice cuts from domestic animals that may have been prepared as individual cuts or roasted, as was becoming more fashionable in the late-17th century, replacing traditional soups and stews. The presence of greater than expected head portions for pigs may also indicate fashionable dining practices, since meat from the head was considered a delicacy for much of the colonial period (Bowen 1996b:116-119).

In addition to the parts present on the site, the age of cows and pigs at slaughter also indicates the high quality of the meat consumed by the Brent family. Age profiles based on epiphyseal fusion for both cows and pigs indicate that most specimens were either juveniles or sub-adults, generally indicating that they were under 35 months in age. While 35 months is slightly older than the prime age for swine, whose traditional ages of slaughter are between four months and one year, it is a prime age for beef. The younger age of cattle in the assemblage indicates that these animals were being raised specifically for meat, rather than for dairying or work. The slightly older pigs in the assemblage are likely indicative of the typical colonial

method for raising pigs, where they would have been left to roam free in the woods. These semi-feral swine would probably have grown slower than swine raised in farmyard pens and fed a fattening diet. As such, it probably took slightly longer for Chesapeake swine to reach an appropriate weight for harvest, helping to explain the slightly older ages for the specimens in this assemblage. Despite the slightly older than ideal ages of the pigs in the assemblage, the Brent family clearly made an effort to harvest younger animals, but after they had achieved an appropriate size.

Conclusions

Overall, the faunal assemblage from the Brent site conforms to patterns recognized at previously-analyzed sites dating from 1660-1700. Reliance on domestic mammals, primarily cows and pigs, combined with a small proportion of wild game, particularly deer and fish, has been noted at sites from this time period and are clearly seen at the Brent site (Miller 1984, 1988; Bowen 1996b). Slight variation in this assemblage, in terms of a lower proportion of fish biomass, in spite of the location of the site near the water, likely stem from recovery methods. Indeed, without the use of fine-screening most fish remains are not recovered. Nevertheless, fish would have probably played a significant role in the diet of the Brent family even though wild species only made up around 15% of the edible biomass in the sample. Larger species, such as cow, pig, and deer show little evidence of issues related to recovery or taphonomy, however, and are more reliable in terms of interpreting diet at this site.

Large mammals at the Brent site reveal evidence about agricultural and landscape management practices, social interaction, as well as diet. The high proportions of juvenile and sub-adult pigs and cattle indicate that the Brents preferred prime aged livestock on their table. In order to achieve this, they would have had to practice relatively strict herd management, keeping

track of their animals and carefully selecting animals for slaughter. In particular, the younger age of cows suggests that these animals were raised solely for meat rather than dairying or work. The fact that pigs were slightly older than what is considered desirable for penned animals, reveals that it took longer for swine to mature to a suitable size in the woodland pasture system that was employed in the Chesapeake region during the 17th century.

The young age of the large domestic species within the Brent assemblage coupled with the higher than expected occurrence of high utility parts indicate a distinct preference for better quality and fashionable cuts of meat at the site. The Brents probably dined on individual cuts of meat that had been roasted or prepared in the latest fashions. This would have been in stark contrast to traditional consumption practices, which focused on soups and stews, often utilizing lower quality cuts of meat to a higher degree (Bowen 1996b:103). The fashionable dining practices of the Brent family was both influenced by and reflected their high socioeconomic status, signaling to others that they were knowledgeable about the latest dining fashions in the 17th-century Atlantic world.

Another potential indicator of their status comes from the slightly higher than average presence of deer in the assemblage. While these animals were available in the environment surrounding the site and could have been harvested by members of the Brent household, they might also have been hunted by local Native Americans for the Brent family. The preference for meaty skeletal parts and older, presumably larger, seems to indicate a directed harvest and consumption strategy. The hiring of local Native hunters was also a relatively common practice among the wealthy in the 17th-century Chesapeake, which would have been in keeping with the Brent's status (Miller 1988:186). If they Brent family was hiring local Native Americans to hunt deer, then it is likely that the hunters would have been members of the Patawomeck tribe. The

primary village of the Patawomeck tribe was located at Indian Point, along Potomac Creek, approximately nine miles away from the Brent site until the 1660s. By the mid-1660s many Patawomecks had been killed by disease and European attacks, leading to the abandonment of the village at Indian Point (Rice 2009:134-135). Nevertheless, members of the tribe still resided in the area and would have been available to be employed as deer hunters for the Brents in the 1670s, 80s, and 90s.

While the faunal assemblage from the Brent site is relatively typical for its time and place, it still provides important information on life in the Potomac Valley during the late-17th century. Its association with one of the few Catholic-associated 17th-century sites in Virginia has the potential to provide important comparative data in terms of determining if and how the consumption and display practices of Catholics in the region were different from Protestants. Additionally, it reveals evidence of changing herd management practices and dining practices as society began to shift away from folk traditions to courtly traditions. Finally, the faunal remains from the Brent site help to illuminate the ways in which the Brent family interacted with their natural environment as well as the society and people in the region.

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