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Cover Page Footnote
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ANALYSIS OF FAUNAL REMAINS FROM QUEEN ANNE SQUARE, NEWPORT, RHODE ISLAND

Timothy S. Young

Queen Anne Square, Newport, Rhode Island, is a northeastern coastal site. This report presents the results of the analysis of faunal remains from three features representing different 18th-century households. The data show a heavy dependence on domestic animals. All three features contain over 90% domestic animals by biomass. The site closely resembles southeastern sites in percentages of cow and pig MNI. It also resembles other northeastern sites, however, in its high percentage of caprine MNI. This is probably indicative of an intermediate dietary pattern. There are also differences among the features; these can be attributed either to the economic status of the site's occupants or to Newport's economic deterioration after the Revolutionary War.

La Place Queen Anne à Newport (Rhode Island) est un site côtier du Nord-Est. Cet article fait le bilan des résultats de l'analyse des restes fauniques de trois contextes représentant différents ménages du XVIII[e] siècle. Les données font voir leur forte dépendance des animaux domestiques. En fonction de la biomasse, les trois contextes renferment plus de 90% d'animaux domestiques. Le site dans son ensemble ressemble étroitement à ceux du Sud-Est quant aux pourcentages de vaches et de cochons (NMI). Il ressemble aussi à d'autres sites du Nord-Est, mais pour son fort pourcentage de caprins (NMI). Cela est probablement l'indication d'un régime alimentaire intermédiaire. Il exsiste aussi des différences entre les contextes, différences qui peuvent être attribuées à la situation économique des occupants du site ou à la dégradation économique de Newport après la Guerre de la Révolotion.

Introduction

The northeast has for some time been the focus of historical subsistence studies (e.g., Bowen 1975; Pendery 1984). Although quantification methods have been used in the faunal analyses, there is a need for comparable quantified data. In this paper, the Queen Anne Square data have been quantified in a manner identical to that employed for several sites in the southeast. The results show that the quantification method (biomass) used for the Queen Anne Square site suggests a heavier dependence on domestic animals than has been demonstrated by other quantification methods used in northeastern faunal analyses. The southeastern sites are similar to the Queen Anne Square site in the heavy use of domestic animals. There are obvious differences in subsistence strategies between the northeast and the southeast.

In 1620 the Pilgrims set sail for the New World, settling at Plymouth, and from that time European settlements spread along the northeastern coast of North America. Newport, Rhode Island, was first settled in 1639 by Englishmen, many of whom were from London. Newport is located on the east shore of one of the many islands in Narragansett Bay, approximately three miles from the ocean (FIG. 1). The English emigrants first settled in a swampy, low-lying area (Mrozowski 1981: 9). This location helped Newport's early development, because the livestock that were so important to early settlements could feed on marsh grass that surrounded the area (Mrozowski 1981: 9). Although the native marsh grass was not as nutritional as English grasses (Bidwell and Falconer 1925: 19), it was adequate until English grasses were planted (Mrozowski 1981: 9). Newport's population grew until the middle of the 18th century. At that time its economy suffered setbacks brought on not only by the high inflation that resulted from Newport's support of the British wars with France and Spain but also by the occupation of Newport by British troops (Mrozowski 1981: 17).

Queen Anne Square is an urban historical site excavated in Newport between November, 1977, and January, 1979, by Stephen A. Mrozowski (1981) for the Newport Redevelopment Agency and the Rhode Island Historic Preservation Commission. Faunal remains were recovered from three features, all of which appeared to be filled privies. The features were dated using the mean

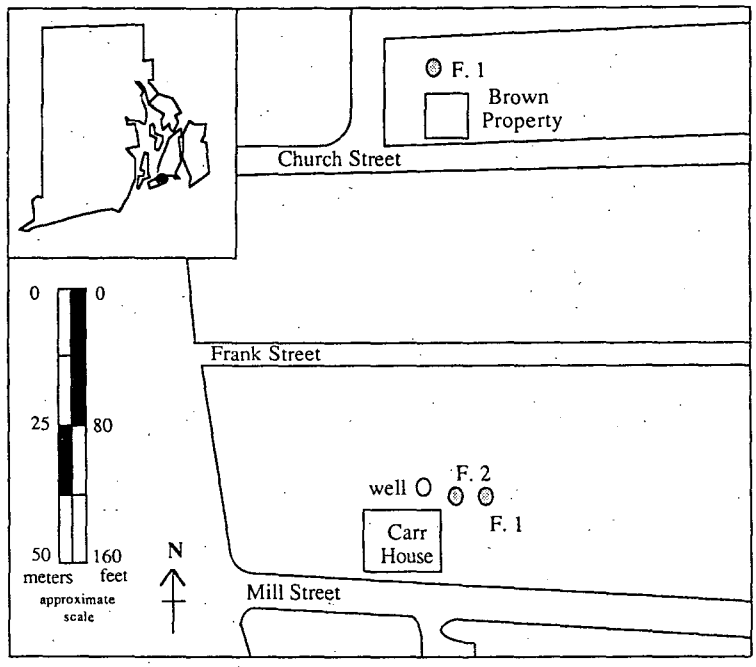

Figure 1. Queen Anne Square overview and plan showing the locations of the Brown Property and Carr House sites.

ceramic date of the sherds included in the privy fills (Mrozowski 1981: 41).

Calculation of the mean ceramic dates made it possible to link each feature with individual households. The Brown Property, Feature 1, was located on the property of James Brown, a merchant. It was associated with residential occupation during the early 18th century. The Carr House, Feature 1, was associated with the occupation of the site by William Tate, a blacksmith, and his wife Mary Tate, a seamstress. Its fill dated to the mid-18th century. The Carr House, Feature 2, was associated with the household of John Yeomans, who rented and later bought the property from Trinity Church. Its fill dated to the late 18th century. Both features at the Carr House were filled during occupations characterized by mixed residential and commercial activities (Mrozowski 1981: 29-31).

Two northeastern sites and four southeastern sites are compared with Queen Anne Square. The two northeastern sites, although different from an ecological and cultural point of view, were chosen because they represent some of the only published quantified data similar to the Queen Anne Square data. The four southeastern sites were chosen because they best represent a southeastern urban dietary pattern. The sites compared represent upper, middle, and lower class households that span the 18th century through the early 19th century. They functioned as residential, commercial, or mixed residential and commercial areas in an urban setting. The exception is the Mott Farm Site, which was chosen because the age data for faunal specimens were determined in the same manner as Queen Anne Square. It is important to note that class differences seem to be less important than region in showing dietary patterns (Rietz 1986: 56).

The northeastern sites are in New Hampshire and Rhode Island. At Portsmouth, New Hampshire, four sites were compared to demonstrate that differences in the socioeconomic status of the individual could be determined through an analysis of faunal remains (Pendery 1984). The high-status site was that of Dr. Hall Jackson, a physician; it dated to the late 18th century. Two

middle class sites were associated with craftsmen, and both dated to the mid-18th century. The low-status site was not used in this paper because MNI was not reported for it. Mott Farm in Portsmouth, Rhode Island, was a rural farm; deposits dated to the mid-18th century were included in the faunal analysis (Bowen 1975).

The four southeastern sites, three from Charleston, South Carolina, and one from Savannah, Georgia, are used to show regionality of diets in terms of domestic animals. McCrady's Tavern operated in Charleston from the 1770s through the late 19th century (Zierden et al. 1982). A longroom was added to the tavern in 1788; most of the deposits studied were from the late 18th century. Lodge Alley was an area of mixed commercial and residential activities (Zierden, Calhoun, and Paysinger 1983). The site was probably occupied by low-status individuals in the 18th and 19th centuries. Faunal remains recovered during the Charleston Convention Center project were associated with mixed commercial and residential activities from the late 18th and early 19th centuries (Honerkamp, Council, and Will 1982). The Savannah site is Telfair, an early 19th-century urban site. Telfair was a residential and commercial area dating from the late 18th century to the mid-19th century (Honerkamp, Council, and Fairbanks 1983).

Methods and Materials

Standard zooarchaeological methods were used during analysis. The identifications were made by the author using the comparative skeletal collection in the Zooarchaeology Laboratory at the University of Georgia (UGA). The bones of all taxa were weighed and counted in order to estimate relative amounts of the identifiable species. Notes were made of the elements identified and of modifications to the bones. Mammal and bird measurements were taken following von den Driesch (1976). The Minimum Number of Individuals (MNI) was determined for each feature using age, sex, and size as criteria. In determining MNI the materials for each feature were evaluated separately.

MNI is a standard zooarchaeological quantification method; it has, however, several drawbacks. MNI is a representation of the number of animals, not their meat contribution. For example, a site may have an MNI of seven cows (*Bos taurus*) and seven cod (Gadidae). The seven cod could not contribute as much meat as seven cows, yet they are equally represented in terms of MNI.

Furthermore, MNI makes it appear as though the whole animal was used. This is unlikely, particularly at an urban historical site such as Queen Anne Square, where cuts of meat could be purchased. Another problem is that easily identified skeletal elements may result in a higher MNI for animals characterized by such skeletal elements. The morphology of pig (*Sus scrofa*) teeth, for example, is very diagnostic. Further, if the element identified is not paired and a large amount of that element is found, the conservative estimate of the number of individuals is one. For example, a large number of herring (Clupeidae) vertebrae may be found (e.g., n = 22), but because they are not paired elements and the number of vertebrae found does not exceed the total number found in a herring, the MNI is one.

Biomass is defined as a conservative estimate of the available meat and as an analytical technique resolves many of the problems of MNI. Biomass can provide information on the quantity of meat supplied by the identified bones. The quantity of meat can be predicted because of the allometric principle of proportion. Body mass, skeletal mass, and skeletal dimensions all change with increasing size according to the equation:

$$Y = a X^b$$

(Simpson, Roe, and Lewontin 1960: 397). In this equation X is the skeletal weight or linear dimension of the bone; Y is the quantity of meat or the total live weight; b is the constant of allometry (the slope of the line); and a is the y-intercept for a log-log plot using the method of least squares regression and the best fit line (Wing and Brown 1979; Reitz and Cordier 1983; Reitz et al. 1987). A given quantity of bone, or a specific skeletal dimension, represents a predictable amount of meat resulting from the effects of allometric growth. Values for a and b were obtained from calculations of data at the Florida State Museum, the University of Florida, and the UGA Zooarchaeology Laboratory. The allometric values used for this paper are found in Table 1.

Table 1. Allometric constants used in calculating biomass*

Faunal Category	*N*	*y*-intercept	Slope	r^2
	Bone Weight to Body Weight			
Mammal	97	1.12	0.90	0.94
Bird	307	1.04	0.91	0.97
Turtle	26	0.51	0.67	0.55
Osteichthyes	393	0.90	0.81	0.80
Serranidae	18	1.51	1.08	0.85
Pleuronectiformes	21	1.09	0.89	0.95

*Key to abbreviations: Formula is $Y = aX^b$; where Y is biomass; X is bone weight, a is the y-intercept; and b is the slope; N is the number of observations (Wing and Brown 1979; Reitz and Cordier 1983; Reitz et al. 1987).

The value for X can be either the archaeological weight of the bone or the linear measurement of a skeletal dimension such as those defined by von den Driesch (1976). If X is the archaeological weight of the bone, then the term *biomass* is used. Biomass is a conservative estimate of the available meat. If X is a linear measurement of a skeletal dimension, then the term *live weight* is used. This does not imply that the whole animal was used, but is an estimate of the size of the animal.

Both MNI and biomass can be biased by sample size. A sample should have at least 200 individuals from 1,400 identifiable specimens or the sample is probably too small for reliable interpretation (Wing and Brown 1979: 119). Sample size bias is also dependent upon the length of time the site was occupied as well as the geographical location. If a site were occupied for a short period of time a smaller sample could be an accurate reflection of what occurred at the site.

Biomass estimates can be biased because the archaeological bone weight is used. Bone can be altered both before and after it has been deposited; such changes may add or subtract from the weight of the bone and consequently the biomass estimate. For example, burning would decrease the weight of the archaeological bone and reduce the biomass estimate; mineralization would increase the weight of the archaeological bone and inflate the biomass estimate. Since biomass estimates are biologically based and more conservative than other methods of estimating meat contributions, however, they are probably a more realistic method of estimating meat contribution by taxa.

The age of the identified species was estimated by determining if the epiphysis of an identified element was fused or not. Bone growth in young mammals occurs between the epiphysis (the articulating surface of the bone) and the diaphysis or shaft of the bone. During growth the epiphysis and the diaphysis remain unfused; when growth has stopped, the epiphysis and the diaphysis fuse. Elements fuse in regular temporal sequence (Silver 1963; Schmid 1972; Gilbert 1980), but diet and environmental factors influence the actual age at which fusion occurs. The fusion data can be summarized into three categories. Elements identified were noted as either fused or unfused in the age category where fusion normally occurs. This is most successful with Artiodactyls for unfused bones that fuse before the first year of life and fused bones that fuse at 42 months. Intermediate bones are more difficult to interpret. An element that fuses at 18 months of age and is found fused could be from an animal that died immediately after fusion or many years later. The ambiguity is reduced by recording the element in the oldest category possible.

The vertebrate species were summarized into faunal categories. Domestic mammals included pig (*Sus scrofa*), cow (*Bos taurus*), sheep (*Ovis aries*), and goat (*Capra hirca*). Because sheep and goat are similar osteologically, any bone that could not be identified to the specific level and that was similar to sheep or goat was assigned to the sub-family caprine. MNI was determined for the sub-family caprine rather than for the species sheep or goat because the MNI for caprine was greater than the total for sheep and goat. It was assumed that some elements were included in both the specific and the sub-family categories. Squirrel (Sciuridae), rabbit (Leporidae), and deer (*Odocoileus virginianus*) were the wild mammals identified. The only domestic bird was chicken (*Gallus gallus*). Wild bird included cor-

Table 2. Species list from Queen Anne Square, Brown Property, Feature 1.

		MNI			Biomass	
Faunal Category	Count	#	%	Wt (gms)	kg	%
UID Mammal	368	-	-	1377.01	17.58	32.5
Rattus norvegicus	7	2	12.4	2.71	0.06	0.11
R. rattus	2	1	6.3	0.92	0.02	0.05
Canis familiaris	1	1	6.3	26.19	0.50	0.9
Felis domesticus	54	1	6.3	44.47	0.80	1.5
Artiodactyl	6	-	-	14.16	0.29	0.54
Sus scrofa	17	2	12.4	185.23	2.89	5.4
Bos taurus	37	4	25.0	2298.16	27.88	51.6
Caprine	16	2	12.4	80.64	1.37	2.5
Capra hirca	1	-	-	2.79	0.07	0.13
Ovis aries	8	-	-	88.80	1.49	2.83
UID Bird	10	-	-	20.18	0.31	0.58
Phasianidae	2	-	-	2.62	0.05	0.08
Gallus gallus	3	1	6.3	1.76	0.03	0.06
Meleagris gallopavo	1	1	6.3	8.52	0.14	0.27
UID Fish	46	-	-	31.29	0.48	0.89
Labridae	6	1	6.3	2.26	0.03	0.06
Invertebrate	-	-	-	7.92	-	-
UID Crab	2	-	-	0.59	-	-
UID Bone	-	-	-	57.26	-	-
TOTAL	587	16		4253.48	53.99	

morants (Phalacrocoracidae), turkey (*Meleagris gallopavo*), Canada goose (*Branta canadensis*) and several shore bird species. The marine resources identified were fish and turtle. A sea turtle was identified as Cheloniidae. It was probably an Atlantic ridley (*Lepidochelys kempi*) because the morphology of the ulna was very similar to the comparative specimen. The other species from the Cheloniidae family were not available for comparison so the specimen could not be specifically identified. The fish were identified to family. Fish families were herrings (Clupeidae), cods (Gadidae), temperate basses (Percichthyidae), sea basses (Serranidae), wrasses (Labridae), mackerels (Scombridae), and flounders (Pleuronectiformes, Bothidae). Commensal (i.e., non-food) species include dogs (*Canis familiaris*), cats (*Felis domesticus*), toads (Bufonidae), and rats, including the Norway rat (*Rattus norvegicus*) and the roof rat (*R. rattus*). It is assumed that the commensal species were not consumed.

Results and Discussion

None of the features at Queen Anne Square individually contained a large enough sample to be considered alone using Wing and Brown's number of individuals as a criterion. Each feature, however, was considered separately anyway because it was associated with a different household and a different time period (TABS. 2-4). The Carr House, Feature 2, had the highest MNI (65 individuals), the most bones (7,682 fragments), and the largest number of different taxa (35). All three features contained commensal species.

Table 3. Species list from Queen Anne Square, Carr House, Feature 1.

Faunal Category	Count	MNI		Wt (gms)	Biomass	
		#	%		kg	%
UID Mammal	1565	-	-	3402.44	39.68	44.79
Leporidae	1	1	3.3	1.02	0.03	0.03
Sciuridae	2	1	3.3	0.78	0.02	0.02
UID Rodent	1	-	-	0.22	0.007	0.008
Rattus spp.	1	1	3.3	0.08	0.003	0.003
Canis familiaris	1	1	3.3	23.36	0.45	0.51
Artiodactyl	25	-	-	65.97	1.14	1.29
Sus scrofa	58	4	13.4	682.11	9.34	10.55
Odocoileus virginianus	2	1	3.3	19.99	0.39	0.44
Bos taurus	50	2	6.8	1697.70	21.23	23.96
Caprine	96	4	13.4	716.23	9.76	11.01
Capra hirca	3	-	-	9.49	0.20	0.224
Ovis aries	17	-	-	280.19	4.19	4.73
UID Bird	30	-	-	17.98	0.28	0.32
Phalacrocoracidae	4	1	3.3	7.55	0.13	0.15
Anatidae	3	-	-	3.94	0.07	0.08
Branta canadensis	4	1	3.3	16.12	0.26	0.29
Gallus gallus	8	1	3.3	11.32	0.19	0.21
Meleagris gallopavo	5	1	3.3	21.45	0.33	0.37
Passeriformes	2	1	3.3	0.11	0.003	0.003
Cheloniidae	1	1	3.3	0.71	0.03	0.03
Bufonidae	1	1	3.3	0.03	0.001	0.001
UID Fish	36	-	-	82.91	0.69	0.78
Clupeidae	2	1	3.3	0.68	0.009	0.001
Gadidae	10	2	6.8	7.12	0.08	0.09
Labridae	22	4	13.4	7.22	0.09	0.10
Pleuronectiformes	6	1	3.3	0.92	0.01	0.01
Invertebrate	-	-	-	194.79	-	-
UID Bone	-	-	-	152.6	-	-
TOTAL	1956	30		7425.03	88.613	

Although each feature at Queen Anne Square showed individual differences, comparison of faunal categories among the features indicated a basic pattern (TAB. 5). Domestic animals dominated the faunal collection, with cow being the most prominent in that category. Domestic mammals contributed 27% to 50% of the individuals and 92% to 95% of the biomass. Wild birds and fishes were also consumed, but to a lesser degree.

When biomass was considered for each taxon, cow was the most prominent in all the features. The range for cow among the Queen Anne Square features was from 21% to 51%, while caprines and pigs alternated in prominence among the features. At the Carr House, in Features 1 and 2, caprines were utilized more than pigs, but at the Brown Property, in Feature 1, pigs were utilized more than caprines in terms of biomass.

Table 4. Species list from Queen Anne Square, Carr House, Feature 2.

		MNI			Biomass	
Faunal Category	Count	#	%	Wt (gms)	kg	%
UID Mammal	4242	-	-	6465.18	70.72	53.94
UID Rodent	1	-	-	0.08	0.003	0.002
Rattus norvegicus	1	1	1.5	0.52	0.01	0.007
Felis domesticus	54	1	1.5	29.10	0.55	0.42
Artiodactyl	68	-	-	69.50	1.20	0.92
Sus scrofa	89	4	6.1	445.04	6.36	4.85
Bos taurus	91	3	4.6	2386.02	28.83	21.99
Caprine	173	12	18.5	695.53	9.51	7.25
Capra hirca	15	-	-	95.60	1.60	1.22
Ovis aries	27	-	-	286.22	4.28	3.26
UID Bird	148	-	-	85.49	1.17	0.89
Phalacrocoracidae	53	2	3.15	96.72	1.31	1.01
Ardeidae	11	3	4.6	2.58	0.05	0.04
Anatidae	22	-	-	21.36	0.33	0.25
Branta canadensis	14	2	3.15	30.90	0.46	0.35
Colinus virginianus	1	1	1.5	0.17	0.002	0.001
Gallus gallus	33	5	7.7	39.15	0.57	0.43
Meleagris gallopavo	9	2	3.15	32.01	0.48	0.37
Rallidae	1	1	1.5	0.11	0.003	0.002
Charadriidae	1	1	1.5	1.42	0.03	0.02
Scolopacidae	5	1	1.5	0.40	0.009	0.007
Columbidae	4	1	1.5	0.78	0.02	0.02
Passeriformes	1	1	1.5	0.11	0.003	0.002
UID Turtle	2	-	-	1.60	0.04	0.03
UID Fish	2439	-	-	412.72	2.91	2.22
Clupeidae	5	2	3.15	0.54	0.007	0.006
Gadidae	46	8	12.3	19.52	0.19	0.14
Perchichthyidae	3	2	3.15	1.08	0.01	0.008
Serranidae	2	1	1.5	0.84	0.02	0.02
Labridae	99	7	10.8	38.61	0.35	0.27
Scombridae	7	2	3.15	3.17	0.04	0.03
Pleuronectiformes	10	1	1.5	1.72	0.02	0.02
Bothidae	1	1	1.5	0.32	0.005	0.005
UID Crab	4	-	-	2.44	-	-
Invertebrate	-	-	-	18.06	-	-
UID Bone	-	-	-	164.74	-	
TOTAL	7682	65		11449.35	131.092	

Table 5. Summary of faunal categories at Queen Anne Square.

	MNI		Biomass	
Faunal Category	#	%	kg	%
Brown Property, Feature 1				
Domestic Mammals	8	50.0	32.14	95.31
Domestic Birds	1	6.2	0.03	0.09
Wild Birds	1	6.2	0.14	0.42
Marine Resources*	1	6.2	0.03	0.09
Commensal Species	5	31.4	1.38	4.09
TOTAL	16		33.72	
Carr House, Feature 1				
Domestic Mammals	10	33.3	40.33	95.2
Wild Mammals	3	10.0	0.44	1.0
Domestic Birds	1	3.4	0.19	0.5
Wild Birds	4	13.3	0.72	1.7
Marine Resources†	9	30.0	0.22	0.5
Commensal Species	3	10.0	0.45	1.1
TOTAL	30		42.35	
Carr House, Feature 2				
Domestic Mammals	19	29.2	44.70	91.5
Domestic Birds	5	7.7	0.54	1.1
Wild Birds	15	23.1	2.44	5.0
Marine Resources*	24	37.0	0.64	1.3
Commensal Species	2	3.0	0.56	1.1
TOTAL	65		48.88	

*Fish only.
†Fish and Sea turtle only.

The element distributions are reported in Figure 2. The head elements of cow, pig, and caprine were generally most prevalent in these historical faunal samples. The extensive number of caprine forequarters and forefeet in the Carr House, Feature 1, however, might represent purchased meat. The deer, also in Carr House, Feature 1, was represented by a right distal tibia fragment and an occipital bone with both condyles still present.

One of the most interesting points about the Queen Anne Square site as a whole is the contrast between the faunal data recovered from there and elsewhere in the northeast. As a northeastern site, the collection could be expected to conform to the general northeastern dietary pattern observed at other sites. When percentages of cow and pig individuals (MNI) from Queen Anne Square are compared with data from other northeastern sites, there does not appear to be much in common. In the three Queen Anne Square collections, cows range from 3% to 25% of the individuals. For the three sites from Portsmouth, New Hampshire, the cows range from 23% to 62% of the individuals (Pendery 1984). The range for pig MNI at Queen Anne Square is 6% to 13% of the individuals while pigs contributed 12% to 29% of the individuals at Portsmouth. When Queen Anne Square was compared to the Charleston Convention Center site and other sites from Charleston and Savannah, the sites seemed similar (TAB. 6; Honerkamp, Council, and Will 1982: 321; Honerkamp, Council, and Fairbanks 1983: appendix III, table 3; Zierden et al. 1982: 92; Zierden, Calhoun, and Paysinger 1983: 100). For example, the percentages for cow and pig in the Convention Center sample are 18% and 14%, respectively. In this respect the collection from Queen Anne Square seems to have a more "southeastern" character.

These, however, are some of the only characteristics that Queen Anne Square shares with the southeastern collections. Caprine is a major component in most northeastern sites, as is evident by comparing the range of percentages of caprines at the three sites: Queen Anne Square 13% to 19%; Portsmouth 25% to 50%; and Convention Center 2%. Other Charleston and Savannah collections had cow, pig, and caprine percentages similar to those at the Convention Center.

To a certain extent the pattern at Queen Anne Square followed Miller's description of the frontier strategy in the Chesapeake Bay area (1984), although very few sheep were found there. Miller states that the reason his Chesapeake Bay sites might not have more caprines was because of the time required to care for them and predation by wolves (Miller 1984: 232). Miller's interpretation applies, however, to a frontier situation, and the Queen Anne Square deposits are dated to 100 years after Newport had been settled. Predators probably would have been reduced or eliminated by that time.

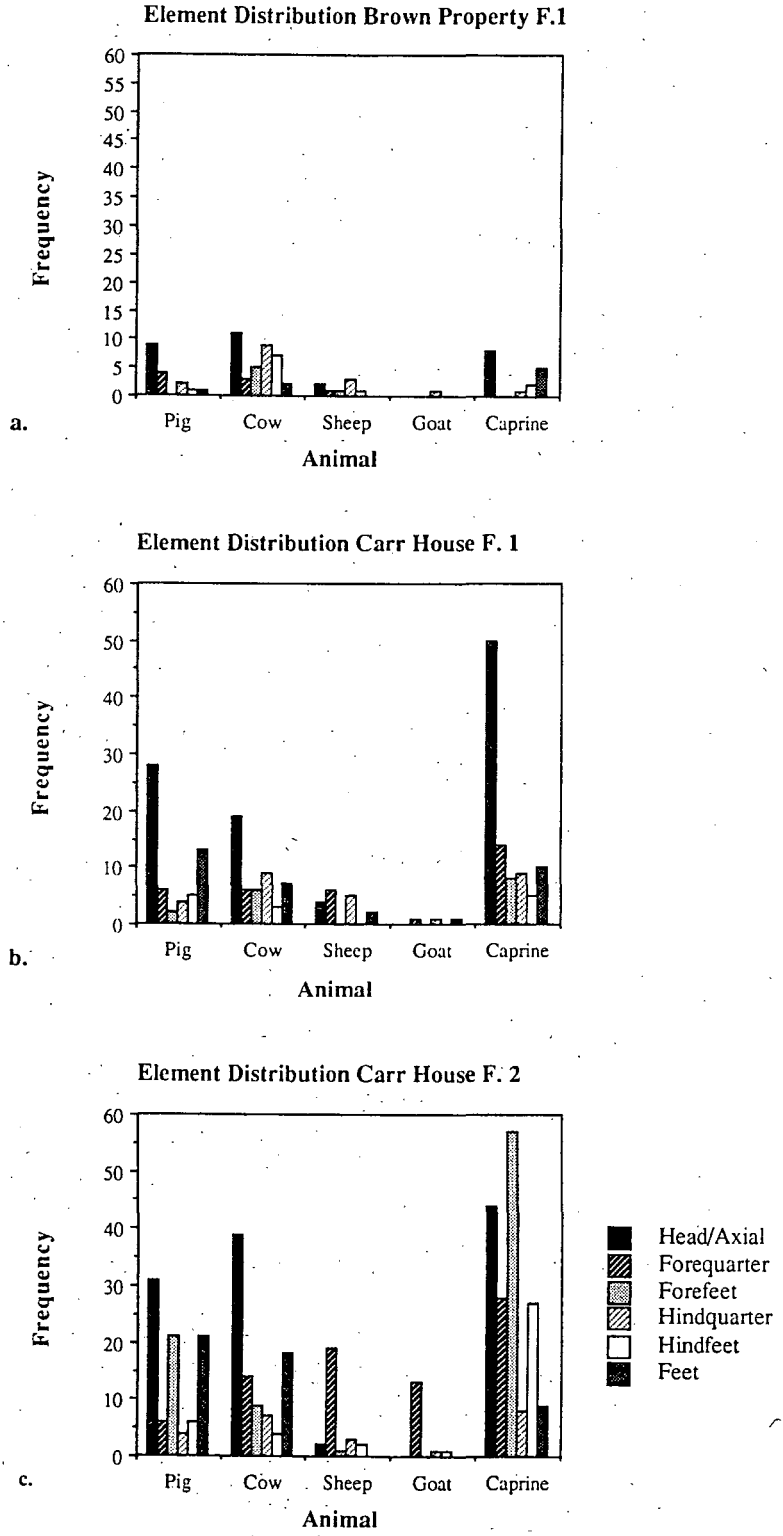

Figure 2. Comparative element distributions for faunal remains from a) Brown Property, Feature 1; b) Carr House, Feature 1; and c) Carr House, Feature 2.

Table 6. Comparison of northern and southern sites (% of MNI).

	Cow	Pig	Sheep/Goat
Northern sites			
Queen Anne Square	5–25	6–13	13–18
Portsmouth* (3 sites)	23–62	12–29	25–50
Southern sites			
Charleston Convention Center†	18	14	2
Telfair‡	10	12	3
Lodge Alley§	16	13	7
McCrady's Longroom**	13	13	5

*Pendery 1982
†Honerkamp, Council, and Will 1982
‡Honerkamp, Council, and Fairbanks 1983
§Zierden, Calhoun, and Paysinger 1983
**Zierden et al. 1982

Age distribution is an important factor in determining if animals were used other than as food resources. When Queen Anne Square (FIG. 3) is compared to Mott Farm (Bowen 1975), it becomes clear that cow and pig were used in a similar way. This is especially interesting because Mott Farm is a rural site, where Queen Anne Square is urban. At Mott Farm there was a pattern of slaughtering cows over $3\frac{1}{2}$ years, pigs under 2 years, and sheep between $1\frac{1}{2}$ and 2 years of age. In the Queen Anne Square sample the same general pattern occurred for cow and pig. For caprine elements, however, the age range was completely reversed between the features in the Carr House. Twenty percent of the Feature 1 caprine elements were from animals under 10 months of age at death, while in Feature 2, 29% of the caprine elements were from animals older than $3\frac{1}{2}$ years at death. This is a distinct difference.

The high percentage of older caprine elements in Feature 2 indicates that these animals were allowed to reach full maturity. This suggests that caprines were being used for their products (wool or dairy) and later slaughtered. The high percentage of young caprine elements and the high number of forequarters and forefeet in Feature 1 suggest that caprines were primarily for consumption. Age range for sheep and goat are not discussed, because very few elements were identified for each species.

One interpretation of the historical documents concludes that slaughtered cattle were mainly old cows or worn-out oxen (Bidwell and Falconer 1925: 108). This is not at all what is found at Queen Anne Square or Mott Farm. The cows at both sites were about $3\frac{1}{2}$ years old when they were slaughtered. The same source also concludes that sheep were raised primarily for wool and not as a food source (Bidwell and Falconer 1925: 110). Both the Mott Farm and the Queen Anne Square data suggest that caprines were eaten. The Carr House, Feature 2, indicates the primary purpose for caprine was consumption, in direct contrast to the earlier interpretation. The archaeological evidence does concur with Bidwell and Falconer's conclusions about the consumption of pig. Both indicate that pigs were slaughtered at about 2 years of age. It is clear that commercial livestock raising and marketing of meats in urban contexts affected the traditional animal husbandry patterns of rural New England. This is a topic requiring further research before proper interpretations of faunal remains from both urban and rural contexts can be made.

The most frequent form of bone modification was burning, followed by cutting (TAB. 7). Since none of the commensal species showed evidence of being burned, it is possible that the non-commensal bones were burned during cooking. Interestingly, the only feature that contained sawed bone was the Carr House, Feature 2, the oldest feature of the three. Also noteworthy was the cow scapula gnawed by rodents. It had gnaw marks covering the entire element.

Data on sex and the size of the animals were also recorded. There was only one element that could be sexed. It was a cormorant premaxilla containing medullary bone. Medullary bone indicates a female and only occurs during the egg-laying season. Bone measurements are reported in Table 8.

There are many differences in the ceramics contained in the features, a factor Mrozowski links to the economic status of the individuals

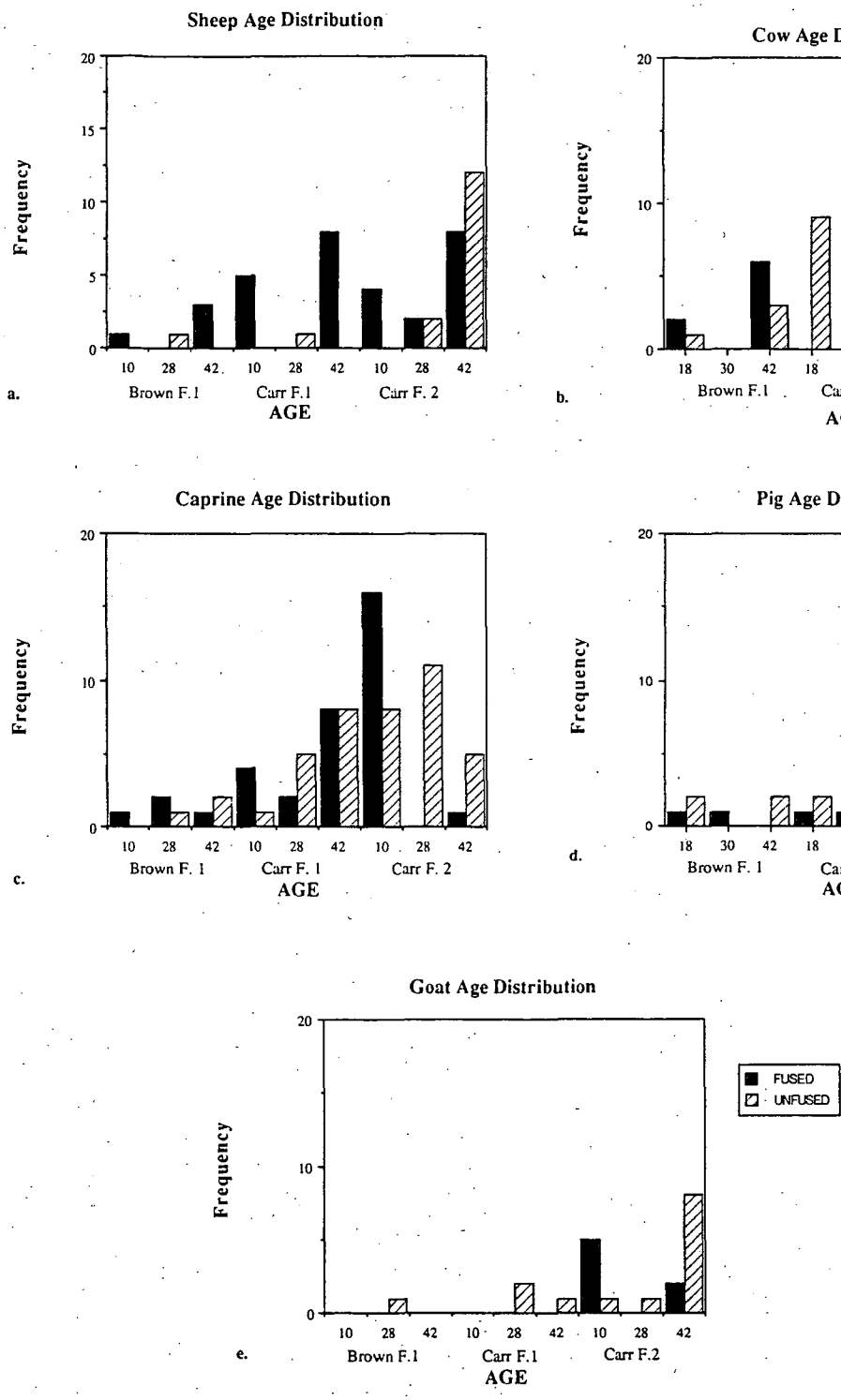

Figure 3. Comparative age distribution (in months) for cow, pig, sheep, caprine, and goat.

Table 7. Bone modifications in Queen Anne Square assemblages.

Faunal Category	Dog Gnawed	Rodent Gnawed	Burned	Cut	Hacked	TOTAL
Brown Property, Feature 1						
UID Mammal	7	-	34	6	3	50
Dog	1	-	-	-	-	1
Goat	-	-	-	2	-	2
Invertebrate	-	-	1	-	-	1
UID Bone	-	-	5	-	-	5
TOTAL	8		40	8	3	59
Carr House, Feature 1						
UID Mammal	4	-	54	39	33	130
Artiodactyl	-	-	2	-	-	2
Pig	-	-	2	1	2	5
Cow	-	1	-	5	2	8
Caprine	1	-	2	8	1	12
Sheep	-	-	-	3	-	3
UID Bird	-	-	1	-	-	1
UID Fish	-	-	3	-	-	3
Wrasses	-	-	1	-	-	1
Flounders	-	-	1	-	-	1
TOTAL	5	1	66	56	38	166
Carr House, Feature 2						
UID Mammal	24	272	84	48	22	450
Pig	-	3	1	2	-	6
Cow	-	2	-	3	1	6
Caprine	-	1	7	3	1	12
UID Bird	-	2	1	-	-	3
Cormorant	-	1	1	-	-	2
Duck	-	-	1	-	-	1
Pheasant	-	-	1	-	-	1
Chicken	-	-	2	-	-	2
UID Fish	-	18	1	-	-	19
TOTAL	24	299	99	56	24	502

who filled them (Mrozowski 1981: 63). There are also differences in pollen and parasites contained in the features; these also are attributed to class differences (Reinhard, Mrozowski, and Orloski 1986: 35). These differences might also be a result of different recovery techniques, taphonomic processes, or differences in commercial versus residential use patterns. The faunal assemblages also show differences among features that can be attributed to class. The Brown Property, Feature 1, has a higher percentage of cow biomass when compared to either of the Carr House features. Both features from the Carr House are similar in the high percentage of caprine biomass compared to the Brown House. Yet these features differ in the age at death and element distribution of the caprine remains contained within them. This suggests animal hus-

Table 8. Measurements* of faunal materials at Queen Anne Square.

Faunal Category	Element	Dimension	Measurement (mm)
Brown Property, Feature 1			
Sus scrofa	2nd Phalanx	GL	25.9
		SD	12.1
Bos taurus	Humerus	Bp	90.1
		Bd	82.2
		BT	90.2
	Magnum	GB	41.1
	Metacarpal	Bd	67.2
		Bp	66.1
	Femur	Bd	78.9
	Astragalus	GB	50.3
		GLm	56.1
	1st Phalanx	Bd	25.2, 28.2
		Bp	31.1
Caprine	1st Phalanx	GL	36.1, 21.1, 36.1
		Bd	9.1
Ovis aries	Metacarpal	Bp	21.0
	Tibia	Bp	38.5
	Metatarsal	Bp	19.0
Gallus gallus	Scapula	Dic	9.9
Carr House, Feature 1			
Bos taurus	Tibia	Bp	103.0
Sus scrofa	Humerus	Bd	39.9
	Astragalus	GLl	29.1, 30.2
Caprine	Astragalus	GLl	28.8, 26.1
		GLm	27.0, 24.4
Ovis aries	Humerus	Bd	32.4, 32.1, 25.9, 25.2
	Femur	Bd	38.0
		Bp	43.0
	Astragalus	GLl	27.1
		GLm	28.5
Gallus gallus	Radius	GL	57.9
		SC	1.8
		Bd	4.2
Meleagris gallopavo	Humerus	Bp	32.1
Carr House, Feature 2			
Bos taurus	Metatarsal	Bd	56.5
Ovis aries	Humerus	Bd	27.1, 22.0, 26.2
	Femur	Bp	38.0, 41.0
		Bd	33.2, 34.2
		GL	167.8, 176.4
		GLC	172.4
		SD	16.1
Capra hircus	Humerus	Bd	25.9, 30.0

Table 8. Continued

Faunal Category	Element	Dimension	Measurement (mm)
Carr House, Feature 2 (Cont.)			
Phalacrocoracidae	Scapula	Dic	18.9
	Coracoid	GL	90.0
	Humerus	Bp	29.0
		Bd	17.2
Ardeidae	Ulna	GL	49.5
	Carpometacarpus	GL	34.2, 26.2
		Bp	7.4, 6.0
Anatidae	Humerus	Bp	24.1, 24.2
	Carpometacarpus	GL	51.1
		Bp	10.1
		Did	5.9
	Femur	Bp	10.1
		GL	48.0
		SC	3.2
		Lm	46.4
		Bd	10.0
Branta canadensis	Femur	Bp	19.9
	Tarsometatarsus	Bd	17.2
Phaesianidae	Coracoid	GL	58.4
		Bd	25.9
	Carpometacarpus	GL	19.2
		Bp	4.5
Meleagris gallopavo	Scapula	Dic	21.1
	Humerus	Bd	29.8
	Carpometacarpus	GL	70.1
Gallus gallus	Scapula	Dic	10.2, 11.0
	Humerus	Bp	18.8
		Bd	14.6
	Ulna	GL	64.0
	Carpometacarpus	Bp	10.9
	Femur	Bp	16.2
		Bd	15.0, 14.8
	Tarsometatarsus	Bd	12.2, 13.0
Scolopacidae	Carpometacarpus	GL	27.8, 27.0
		Bp	6.2, 5.0

*Measurements follow those of von den Driesch (1976)

bandry (Carr House, Feature 1) versus consumption (Carr House, Feature 2).

The economic condition of the whole city deteriorated in the mid-18th century because of the occupation by British troops. The higher status Brown House, Feature 1, dates to an earlier time period (early 18th century), before the economic decline of Newport. The two features at

the Carr House that were linked to lower-status households are contemporary (mid- to late-18th century), dating to after the economic decline. It is difficult to say whether the differences in cow and pig biomass are because of status of the individual or the overall economic decline of Newport.

Conclusion

Because Queen Anne Square is a northeastern site, it should resemble the Portsmouth sites. The Queen Anne Square site, however, resembles the southeastern sites of Charleston and Savannah in the similar percentages of cow and pig individuals and in the heavy dependence on domestic animals.

Cow and pig were slaughtered at approximately the same age at both Queen Anne Square and Mott Farm. The age at which caprines were slaughtered varied between the features at the Carr House. It is thought that this represents different uses of caprines by the individuals who filled these features.

The differences between the features at the Carr House site and the differences between the Carr House and the Brown Property can be attributed to the status of the individuals who occupied these sites. The Brown House was owned by a merchant before the British occupation of Newport, and the sample from there had higher levels of cow biomass. The Carr House, Feature 1, was associated with the occupation of the site by a blacksmith in the mid-18th century. The Carr House, Feature 2, was linked to the late 18th-century household of John Yeomans. Both features at the Carr House site post-dated the British occupation of Newport and had increased caprine biomass compared to the earlier faunal assemblage from the Brown site. Because of Newport's deterioration after the British occupation, class distinctions might have broken down. The differences both within the sites and between sites compared could be attributable to differences in residential and commercial use patterns. They might also be a result of different recovery techniques or taphonomic processes. More Newport sites should be examined before definite conclusions are drawn. The dietary pattern for meat consumption for Queen Anne Square in general, however, seems to be intermediate between the northeastern and southeastern examples with which it was compared.

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References

Bidwell, Percy Wells, and John J. Falconer
1925 *History of Agriculture in the Northern United States 1620-1860.* Lord Baltimore Press, Baltimore, MD.

Bowen, Joanne
1975 Probate Inventories: An Evaluation from the Perspective of Zooarchaeology and Agricultural History at Mott Farm. *Historical Archaeology* 9: 11-25.

von den Driesch, Angela
1976 *A Guide to the Measurements of Animal Bones from Archaeological Sites.* Peabody Museum Bulletin 1. Harvard University, Cambridge, MA.

Gilbert, B. Miles
1980 *Mammalian Osteology.* Modern Printing Co., Laramie, WY.

Honerkamp, Nicholas, R. Bruce Council, and Charles H. Fairbanks
1983 *The Reality of the City: Urban Archaeology at the Telfair Site, Savannah, Georgia.* General Services Administration, Atlanta, GA.

Honerkamp, Nicholas, R. Bruce Council, and M. Elizabeth Will
1982 An Archaeological Investigation of the Charleston Convention Center Site, Charleston, South Carolina. Report submitted to the U. S. Department of the Interior, National Park Service, Atlanta, GA.

Miller, Henry M.
1984 Colonization and Subsistence Change on the 17th-Century Chesapeake Frontier. Ph.D. diss., Michigan State University, East Lansing.

Mrozowski, Stephen A.
1981 Archaeological Investigations in Queen Anne Square, Newport, Rhode Island: A Study in Urban Archaeology. M.A. thesis, Brown University, Providence, RI.

Pendery, Steven R.
1984 The Archaeology of Urban Foodways in Portsmouth, New Hampshire. In *Foodways in the*

Northeast, ed. by Peter Benes, 9-27. Dublin Seminar for New England Folklife: Annual Proceedings 1982. Boston University Scholarly Publications, Boston.

Reinhard, K. J., S. A. Mrozowski, and K. A. Orloski
1986 Privies, Pollen, Parasites and Seeds: A Biological Nexus in Historical Archaeology. *MASCA Journal* 4(1): 31-36.

Reitz, Elizabeth J.
1986 Urban/Rural Contrast in Vertebrate Fauna from the Southern Atlantic Coastal Plain. *Historical Archaeology* 20(2): 47-58.

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

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

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

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

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

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

Zierden, Martha, J. Calhoun, and E. Paysinger
1983 *Archaeological Investigation at Lodge Alley.* Archaeological Contributions 5. The Charleston Museum, Charleston, SC.

Zierden, Martha, E. Reitz, M. Trinkley, and E. Paysinger
1982 *Archaeological Excavation at McCrady's Longroom.* Archaeological Contributions 3. The Charleston Museum, Charleston, SC.

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