had also been discarded in the privy, along with fragments of an annular bowl, stoneware storage vessel and porcelain tea cup. A domestic assemblage is indicated, supported by the presence of the food remains. One goal of the artifact analysis, however, is to distinguish any deposits of broken store goods which may be present. Thus, the ceramics were inspected for evidence of use. Fifteen of the sixteen vessels from which enough was recovered to determine use exhibited wear marks. In addition to use surface scratching and footrest abrasion, two slip-trailed redware "pie" plates exhibited charring indicative of use in cooking.

In summary, then, Privies 132 and 148 were related in placement, form, dates of use, and in the kinds of materials discarded in them. Privy 148 was a little larger and appeared less carefully constructed. Privy 132 was more perfectly rectangular in shape and carefully lined with sands and gravels. Both still contained fecal matter, thus although one or both may have been cleaned out and reused, at one point they were finally closed out when full. Both also contained primarily food waste, broken ceramics, and architectural materials, along with small quantities of bottle and tableware glass, clothing, and other miscellaneous items.

Privy 132 contained only two-thirds the number of artifacts in Privy 148, although it yielded more than four times the number of bones. Privy 148, however, contained more than eight times the number of shell fragments. These differences asides, both privies were clearly used for discarding unpleasant-smelling and rodent-attracting food waste in sealed contexts far from the house.

The privies contained more similar ceramics, although Privy 148's fill produced more than twice the number of ceramic sherds. Slip-trail decorated redware plates and bowls are numerous in both deposits, as are redware storage and food preparation vessels. The store's tenants also broke a few creamware and pearlware plates and threw them into the two privies, or at least pieces of them, as in general the identifiable vessels are represented by only one or a few sherds. Finally, the use wear analysis of the ceramics revealed that both privies received vessels broken during household use and did not serve as repositories of accidentally broken wares from the store's inventory.

In conclusion, Privies 132 and 148 were both in use, or at least filled for the last time, in the last decade of the eighteenth or first decades of the nineteenth century. Privy 148 may have been dug or at least filled for the last time beginning a few years earlier than Privy 132. The Phase III excavations did not locate the privies used by later residents of the store.

Trash Pit: Feature 139

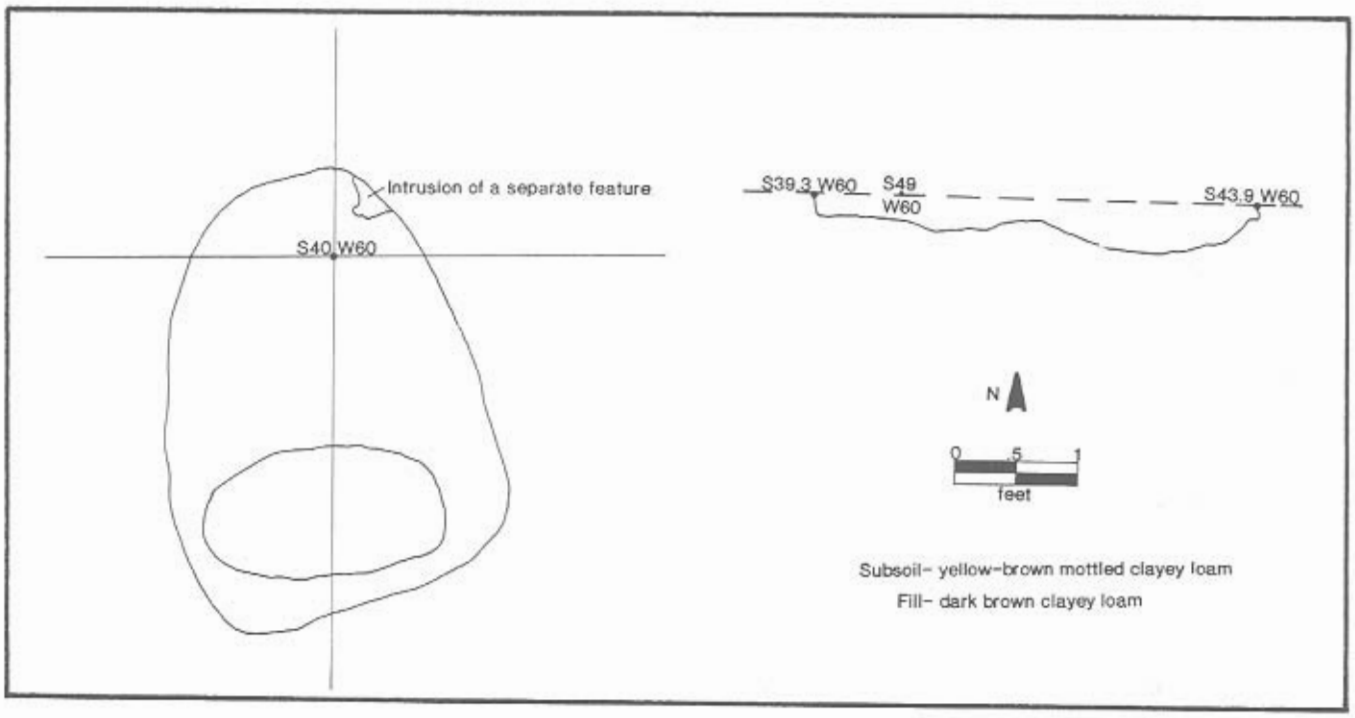
The truncated remains of a comparatively large shallow trash pit were discovered 40' southeast of the store's southeast corner in the inner yard. The oblong feature appeared as a 3' x 3.6' stain in the subsoil (Figure 42). Filled with a medium brown clayey loam, the pit bottomed out on a slightly irregular floor 0.4' below subsoil (Figure 42). The feature yielded somewhat elevated chemical levels - pH (6.7), phosphate (48), magnesium (161), and calcium (930). The food waste deposited in the pit probably accounts for these elevated readings.

The intact basal portion of the pit yielded 21 artifacts and 4.5 ounces of brick. The 11 shells and five bones formed 76% of the collection. Thus, as with the privies, the trash pit was dug principally to handle smelly, unsanitary food waste. The other artifacts, especially the ceramics, are also similar to those from the privies, and indicate a similar deposition period. Two redware sherds, one undecorated creamware sherd, four undecorated pearlware sherds, and one porcelain sherd form the ceramic assemblage. One blown olive glass wine bottle sherd and a fragment of a lamp chimney complete the collection.

Midden (Features 108, 108A, 108B, and 108C)

Seventy feet southeast of the store, separated from it and the wells and outbuildings by fences, and behind the privies, lay the only large midden preserved below the plow zone at the Darrach site (Features 108, 108A, 108B, and 108C) (Figure 26). Its main area consisted of a rough oval approximately 35' long and 15'-20' wide,

FIGURE 42
Feature 139, Plan View and East Wall Profile



oriented north to south. A "C"-shaped component extended to the west (Figure 43). Covering an area of almost 925 square feet, the midden yielded the largest artifact assemblage of any feature excavated at the site.

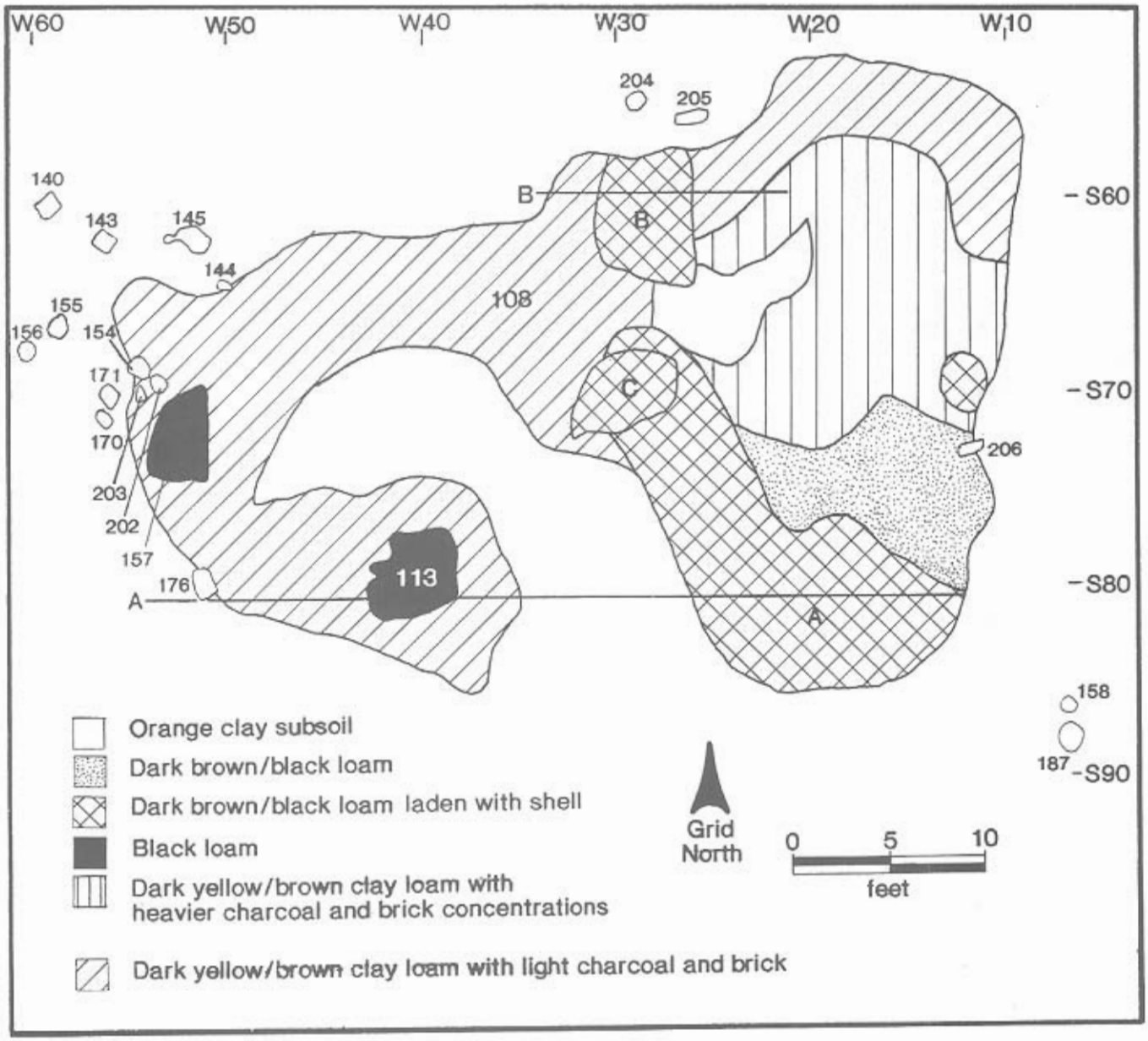
Soil types distinguish several subareas in the midden. The main midden contained principally a dark yellowish-brown clayey loam with concentrations of fragmented and eroded brick and of charcoal. A band of very dark brown to black, organic-rich loam bounded this to the south. Dark yellowish-brown clayey loam with comparatively little charcoal and brick extended to the north and in a band across the western portion of the midden. The western and southwestern portions of the midden also contained two larger patches of black, organic-rich loam (Feature 113). The midden floor sloped gently into subsoil only to a depth of about 0.3'. It gently undulated inn dips and rises, with only small differences in depth in localized areas. Deposits of black, very organic loam lay in several of these small, shallow, circular, post mold-sized dips. Similar features occurred in a random pattern around the midden's perimeter (Figure 43).

Stratigraphy and surface oyster shell concentrations distinguished three other subareas within the midden. Feature 108A extended to a maximum depth of 1.5' below subsoil, with a roughly bowl shaped profile (Figure 44; Plate 11). A thin deposit of gravelly, light brownish-gray clay containing fragments of brick and flecks of charcoal lined the feature. A thicker deposit (up to 0.8' thick) of the very dark yellowish-brown clayey loam comprising most of the midden's fill overlay this. The uppermost stratum consisted of oyster shells in a dark brown to black organic loam. In the northwestern corner of Feature 108A, Feature 108C was merely a denser concentration of shell in the same organic matrix.

Feature 108B, appearing on the surface as a rectangular area of shell along the northern edge of the midden, measured 5' in width by 7.5' in length. Its stratified fill extended to a maximum of 0.8' below subsoil

FIGURE 43

Plan View of Midden, Features 108-108C



(Figure 45). At the base lay the dark yellowish-brown clayey loam; above this in a deposit thicker at the western end was the dark brown to black organic soil full of oyster shell.

The Feature 108 complex obviously served as a dumping area for Darrach Store occupants. Architectural debris, organic waste, food remains, and other household artifacts all ended up there. These dumping activities resulted in elevated soil chemical levels across the complex. The pH and calcium levels were highest, a factor of the oyster shell concentrations in Features 108A and 108B, from which the soil samples were taken. The pH

FIGURE 44

Features 108A and 113, South Wall Profile

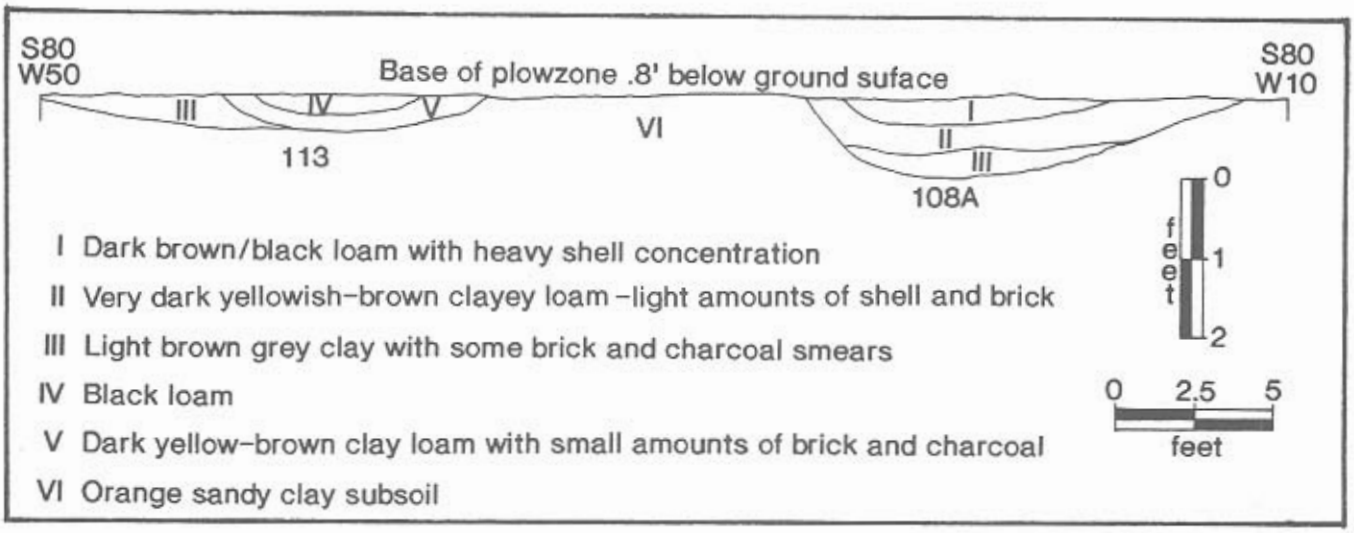
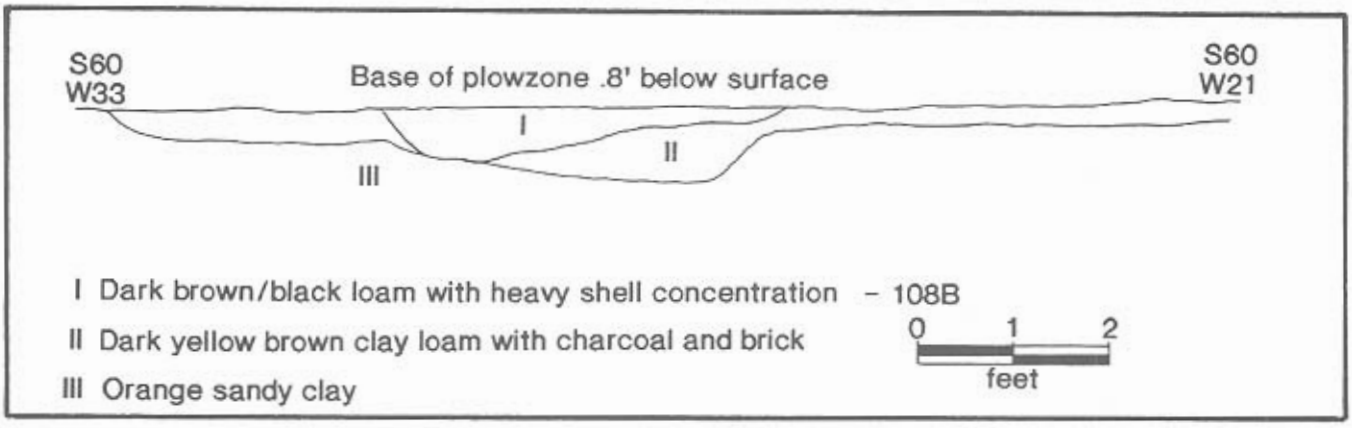


FIGURE 45

Feature 108B, North Wall Profile



ranged from 7.8-8.0, calcium from 4700-6100; both were among the highest readings obtained from the site. Magnesium levels also exceeded the subsoil average, but less dramatically, ranging between 106 and 162 (compared to an average of 75 for the subsoil samples). Most surprising, however, are the phosphate levels. Despite the rich organic appearance of the soils, phosphate levels did not exceed 115. These compare, for example, to a reading of 1305 from the privy (Feature 132). Neither did potassium levels exceed the subsoil average of 50 as expected given the visible presence of substantial quantities of wood charcoal in the midden soils.

Amaranth and the spores were identified in the six flotation samples processed from Features 108A and 108B. In general, the light fractions resembled those of the privy assemblages rather than the wells'. Corn hulls, flakes of oyster shell, tiny snail shells, slivers of bone, and other unidentifiable seeds were all present.

PLATE 11

Features 108, 108A and 108B

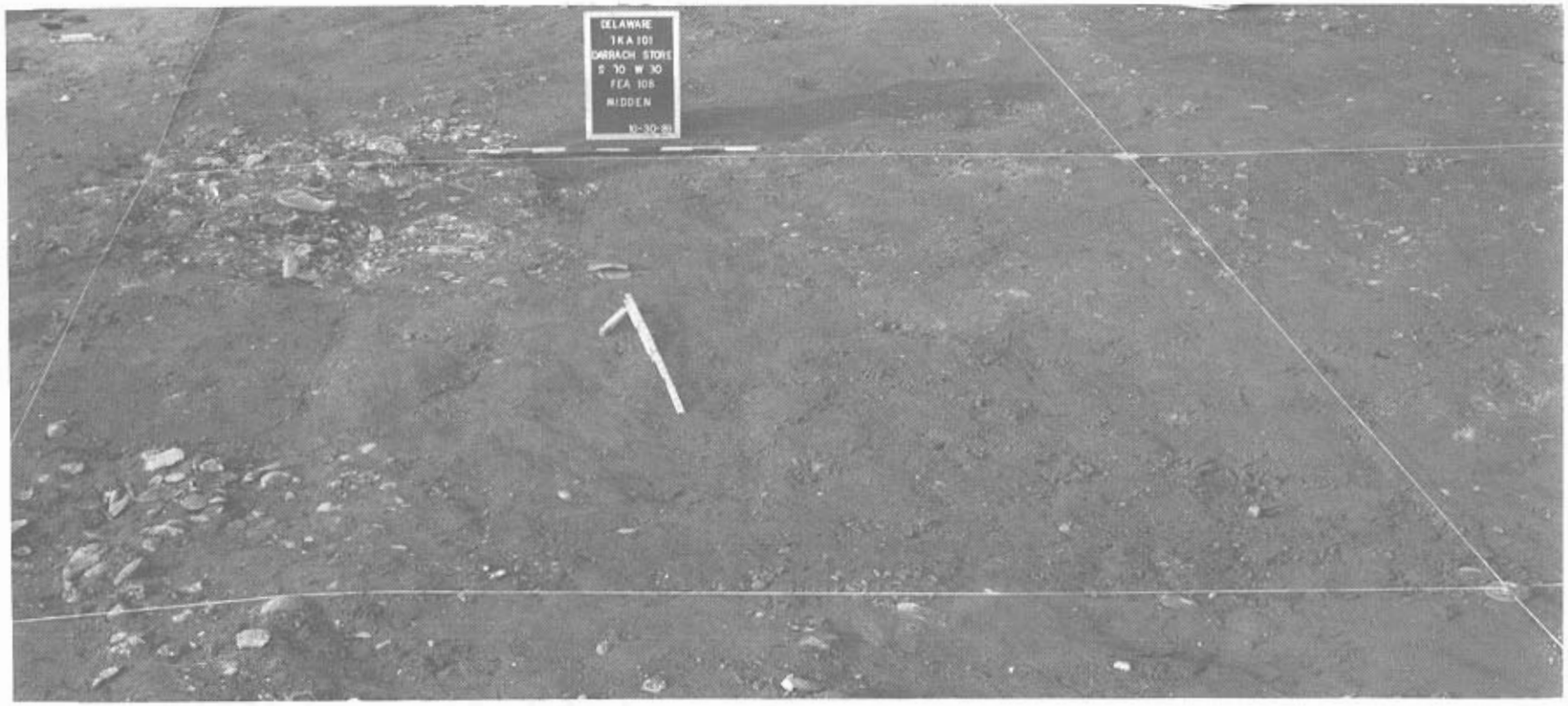


TABLE 47

CERAMIC CROSSMENDS, MIDDEN COMPLEX (FEATURES 108 -108C)
LIST OF FEATURES WITH CERAMICS CROSSMENDS WITH MIDDEN FEATURES

Feature Number	No. of Vessels With Mends	Identification
108 - 108C	15	Midden
202	1	Postmold at Edge of Midden
132	4	Privy
148	7	Privy
51	2	Well Robber's Trench
99	2	Well
230	2	Gully
75	1	Roasting Pit
42	1	Early Fence Posthole
20	1	Post/Pier Hole
127	1	Fence Posthole
131	1	Fence Posthole
56	1	Fence Posthole
118	1	Fence Posthole
Total	40	

To a certain extent, the Feature 108 middens represent an anomaly. It is not that a midden of large areal extent is unexpected at a site such as Darrach. On the contrary; they are quite common on eighteenth and even nineteenth century sites in Delaware, especially in low-lying areas (Shaffer et al. 1988; Catts, Hodny, and Custer 1989). Thus, this low-lying, perhaps somewhat swampy area gradually filled by the addition of household trash constitutes a regular feature of the rural domestic landscape of historic Delaware. The irregularities of the Darrach midden's floor, however, suggest disturbance such as that caused by animals. This suggests an animal pen or enclosure. The irregular pattern of mostly very ephemeral post molds and possible post holes around the midden's perimeter, however, does not strongly support an interpretation of a firmly secured animal pen. Neither do the low phosphate levels or the whole oyster shells, which presumably would have been crushed by the animals' trampling. They could, of course, have been dumped in the midden after it was no longer used for penning livestock.

Some evidence also exists for the presence, and burning, of a structure in the vicinity, particularly the brick and charcoal, and especially the roughly 15' x 15' concentration at the center of the main midden. Arguing against this interpretation, however, is the lack of evidence of burning in situ. The subsoil beneath and around the midden exhibited no evidence of fire-hardening or discoloration, as did that underlying the fire pits (see below).

The midden artifact assemblage, while not completely resolving the question of the midden's ultimate origins or multiple uses, has illuminated both the features' temporal relationship to other elements of the Darrach cultural landscape and the household strategy of the store's occupants in the eighteenth century. Crossmend analysis (Table 47) revealed that fragments of 14 vessels ended up in more than one of the four major subareas of the midden complex, Features 108, 108A, 108B and 108C. Thus the four features are interpreted to be contemporaneous, and the assemblages from them are considered as one collection in the following analyses.

TABLE 48

ARTIFACT TOTALS, MIDDEN FEATURES

Feature	108 #	108 %	108A #	108A %	108B #	108B %	108C #	108C %	Total
Ceramics	151	25.3	346	30.2	127	22.2	37	10.7	661
Bottle Glass	6	1	65	5.7	15	2.6	9	2.6	95
Glass Tableware	--	--	--	--	--	--	10	2.9	10
Window Glass	8	1.3	140	12.2	2	.3	32	9.2	182
Other Glass	1	.2	2	.1	--	--	--	--	3
Nails	9	1.5	27	2.4	6	1.0	9	2.6	51
Brick	3 lbs.		22.75 lbs.		4.5 lbs.		.25 lbs.		30.5 lbs.
Other Architectural	3	.5	7	.6	--	--	1	.2	11
Other Metal	4	.7	16	1.4	--	--	--	--	20
Bone	17	2.8	126	11.0	22	3.8	104	30.3	269
Shell	399	66.7	412*	36.0	400	69.9	145	41.8	1356
Other	--	--	5	.4	--	--	--	--	5
TOTALS	598	22.5	1146	43.0	572	21.5	347	13	2663

Note: The shell collected constituted only a sample of the total.

Two thousand six hundred sixty-three artifacts (1356 or 51% of them shells) were recovered from the midden complex (Features 108, 108A, 108B and 108C). Unevenly distributed among its individual features, both in frequency and type, cultural material was densest (even excluding the shell) in the shell middens (Features 108A, 108B and 108C) (Table 48). Over forty percent of the feature's material culture collection came from shell midden 108A, with an additional one-third recovered from the other two shell middens (108B and 108C). Shells, almost exclusively oyster, accounted for between 36% and 69.9% of the midden's collections, most densely concentrated in 108B. A sample of the shells was collected, consisting of all left halves, or valves, and right halves and fragments were discarded. With the exception of food bone in 108C (104 elements or 30% of the collection from that sub-feature) and 108A (126 elements but only 11% of the collection), and of window glass (140 sherds) and brick (22.75 lbs.) in 108A, ceramics were the only other numerous artifact category in the midden. The 661

TABLE 49

ARTIFACTS, MIDDEN COMPLEX (FEATURES 108 - 108C)

Type	Artifact Counts	Subtotal	Total
CERAMICS			
Redware	447		
Tin-Glazed	2		
Creamware			
Undecorated	190		
Whieldon	3		
Pearlware			
Undecorated	4		
Annular	4		
Painted	11		
Transfer Printed	2		
Whiteware			
Undecorated	2		
Stoneware			
Nottingham	27		
White Salt Glazed	8		
Scratch Blue	1		
American	1		
Porcelain			
Oriental Export	1		
Bone China	2		
Subtotal		705	
GLASS			
Bottle			
Blown Olive	14		
Blown Aqua	8		
Blown Amber	3		
Molded Olive	52		
Molded Amber	1		
Molded Clear	8		
Molded Brown	1		
Molded Aqua	8		
Tableware			
Tumbler	9		
Stemware	1		
Other Glass	1		
Subtotal		106	

TABLE 49 (Cont.)

Type	Artifact Counts	Subtotal	Total
ARCHITECTURAL			
Window Glass	182		
Nails			
Wrought	6		
Cut	33		
Wire	1		
Spike	3		
Unidentifiable	11		
ARCHITECTURAL (Cont.)			
Mortar	7		
Subtotal		243	
Brick	30.5 lbs		
METAL			
Buckle	2		
Key	1		
Curtain Holder	1		
Plough Ring	1		
Barrel Hoop	1		
Buttons	3		
Straight Pin	1		
Unidentifiable	8		
Subtotal		18	
BONE			
Cow	26		
Pig	17		
Horse	4		
Turtle	6		
Sheep	1		
Fish	1		
Rat	1		
Bird	1		
Unidentifiable	212		
Subtotal		269	
SHELL			
Oyster	1328		
Clam	13		
Unidentifiable	15		
Subtotal		1356	

TABLE 49 (Cont.)

Type	Artifact Counts	Subtotal	Total
MISCELLANEOUS			
Tobacco Pipe Stem	1		
Coal	2		
Shovel Handle	1		
Unidentifiable	2		
Subtotal		6	
Total			2703

ceramic sherds form between 10.7% and 30.2% of the assemblages from the four midden components. Thus, despite the ceramic crossmends evidencing the contemporaneity of the midden components, differential deposition of material types is apparent within the complex. Architectural remains concentrated in 108A, south and southwest of the portion of 108 exhibiting the greatest concentration of brick and charcoal, while food bone appeared in quantities only in association with the shell in 108A and 108C.

Aside from the ceramics, the nails have the greatest utility in dating the midden deposits (Table 49). The one identified wire nail is an anomaly, the only definitely late nineteenth century artifact from the middens. The majority of the nails are cut, post c. 1790, suggesting the middens were in use when the outbuildings and addition to the store were constructed, probably at John Darrach's death in 1805, and are contemporary with the nearby privies. A copper alloy shutter clamp was recovered from Feature 108 and may also be related to the constuction of the addtion (Plate 12). The cut nails, of course, only establish a TPQ for the deposit. Assuming the middens do not represent a single, very short term deposit, the nails do not preclude the middens' development beginning with the store's initial occupation and continuing through the early nineteenth century.

The small assemblage of bottle and tableware glass from the middens, as from across the site, indicates a reliance on other types of containers and drinking vessels, or at least suggests a high value ascribed to glassware and thus its careful curation. Only one blown-in-mold case bottle and a tumbler can be reconstructed from the smattering of sherds from the middens. The basal portion of the case bottle is missing, however enough was present to identify a thinly mold-blown bottle of bubbly light olive green glass with a short neck, and fairly wide mouth with a fire-polished lip. Although generally associated with spiritous liquors, case bottles also served as containers for oils, medicinal concoctions and other liquid products in eighteenth and early nineteenth century households (McKearin and Wilson 1978: 224). The deep aqua glass tumbler resembles those produced in the "South Jersey tradition" in the late eighteenth and early nineteenth centuries (McKearin and McKearin 1948: Plate 12; 41).

Glimpses of the material components of other aspects of White's and Darrach's tenants' lives and activities can be caught from the middens as well. The few buckles, buttons and straight pin, appearing as they do in the midden and in such small numbers, probably came from the tenants' or storekeepers' clothing rather than from store inventory (although perhaps indirectly so, via the tenants' purchase, use, and discard of the items). The shovel handle, barrel hoop, and plow or other equipment ring are not anomalies within the documented commercial, shipping and agricultural context of the store and Duck Creek community, but in isolation are not especially illuminating of the occupants' daily round of activities.

PLATE 12

Copper Alloy Shutter Clamp Recovered from Midden, Feature 108

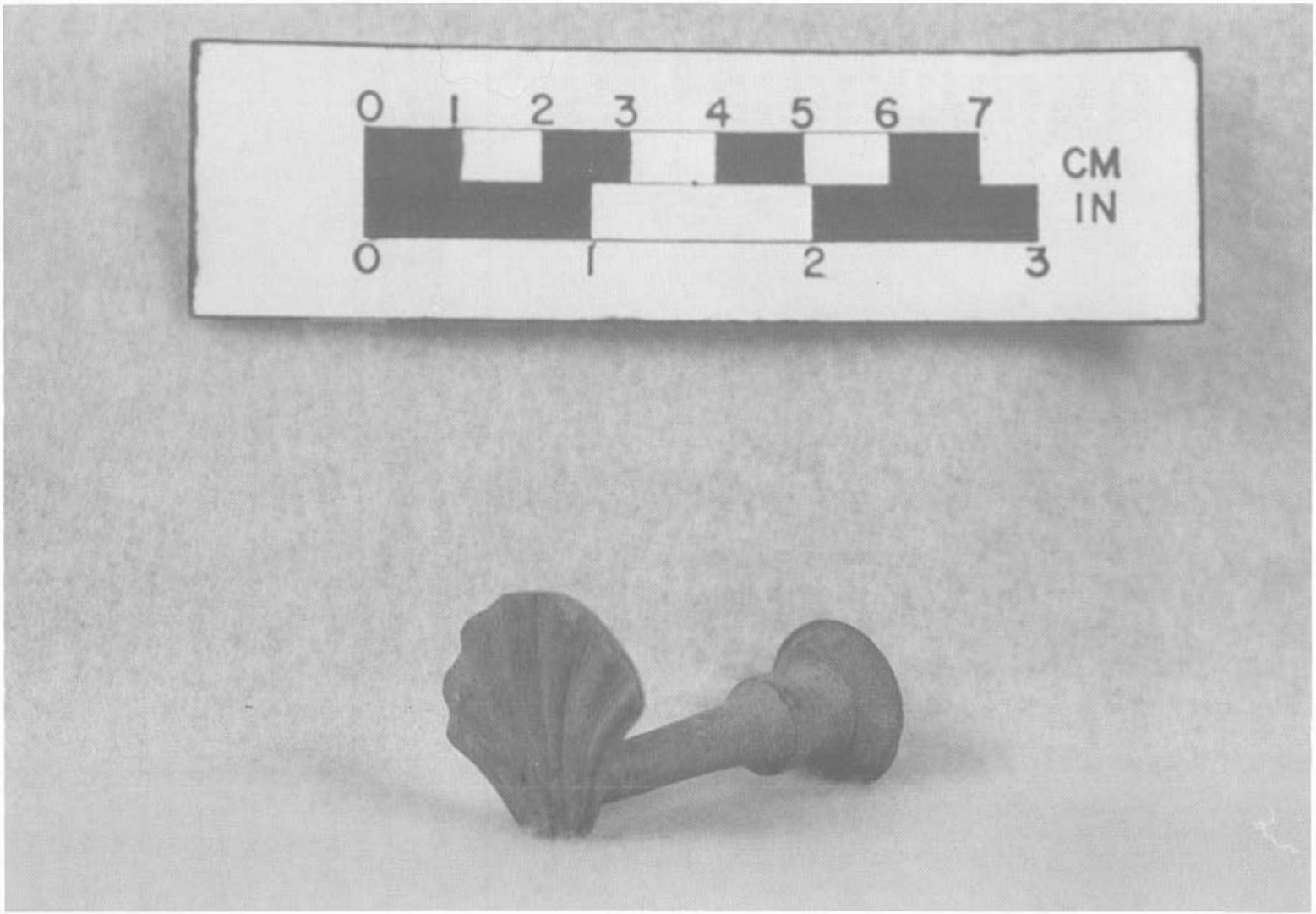


TABLE 50

MEAN CERAMIC DATE, MIDDEN COMPLEX (FEATURES 108 - 108C)

South Number	Number of Sherds	Mean Date	Total
81	447	1800	804600
22	174	1791	311634
13	4	1810	7240
84	2	1900	3800
46	27	1755	47385
16	4	1753	7012
36	3	1760	5280
20	4	1805	7220
17	9	1805	16245
43	4	1759.5	7038
2	2	1860	3720
11	2	1808.5	3617
24	1	1749	1749
25	16	1771	28336
18	2	1788	3576
86	1	1837.5	1837.5
49	2	1686	3372
39	1	1730	1730
TOTAL	705		1265391.5
MEAN DATE = 1794.88			
TOTAL	258		461498.5
EXCLUDING REDWARE			
MEAN DATE = 1786.01			
EXCLUDING REDWARE			

The mean ceramic date 1794.88 (1786.01 excluding redwares) computed from the middens' assemblages (Table 50) is earlier than those from the other features presented thus far. The 670 ceramic sherds from the midden complex represent a minimum of 62 identifiable vessels (Table 51). Two-thirds (40 vessels) are redware vessels, just under 20% are creamware (12) and another 10% stoneware (6), with a few pearlware vessels (4) forming the balance. Summarizing the vessel list (Table 51), the ceramic types and forms consisted of:

11 Slip decorated redware bowls or other hollowware forms
4 Slip decorated redware drape molded plates or platters
4 Glazed redware bowls, tableware forms
5 Glazed redware bowls, kitchenware forms
1 Glazed redware milk pan
5 Glazed redware storage pots
10 Unidentifiable glazed redware vessels
5 Creamware plates
1 Whieldon plate
1 Creamware serving vessel

TABLE 51

CERAMIC VESSELS, MIDDEN COMPLEX (FEATURES 108-108C)

Vessel Number	Description
4	Trailed slip decorated redware bowl with copper oxide decoration
5	Slip decorated redware bowl
6	Slip decorated redware plate or platter
7	Slip decorated redware bowl with copper oxide decoration; finely potted tableware form
10	Slip decorated redware plate or platter
16	Trailed slip decorated shallow redware bowl
17	Trailed slip decorated shallow redware bowl
21	Slip decorated redware plate or platter with coggled rim
25	Slip decorated redware bowl with copper and manganese decoration
33	Slip decorated redware bowl
35	Slip decorated redware bowl with copper decoration
38	Slip decorated redware bowl; finely potted tableware form in the Philadelphia style
39	Slip decorated redware plate or platter with coggled rim
41	Slip decorated redware bowl with copper decoration; Philadelphia style
47	Slip decorated redware bowl with copper and iron decoration; Philadelphia style
55	Unidentifiable redware hollowware vessel
57	Redware storage pot
62	Unidentifiable redware vessel
69	Redware storage pot
74	Unidentifiable redware hollowware vessel
76	Redware milk pan
77	Unidentifiable redware vessel
79	Redware bowl; kitchenware vessel
83	Redware bowl
85	Redware bowl
86	Unidentifiable redware vessel
87	Redware storage pot
88	Redware bowl; kitchenware vessel
92	Redware bowl; kitchenware vessel
93	Redware storage pot
94	Redware bowl; tableware vessel
95	Redware bowl
97	Redware bowl; kitchenware vessel
99	Unidentifiable redware hollowware vessel
100	Redware bowl; kitchenware vessel

TABLE 51 (cont.)

Vessel Number	Description
101	Unidentifiable redware vessel
102	Redware storage pot
103	Redware bowl; tableware vessel
104	Unidentifiable redware hollowware vessel
106	Redware bowl
120	Creamware Royal edge plate
127	Creamware Royal edge plate
132	Creamware Royal edge plate
118	Creamware plate with molded edge
119	Lid to creamware serving vessel
121	Creamware cream pot
116	Creamware teapot
122	Creamware tea cup
125	Probable creamware plate
126	Creamware tea cup
128	Unidentifiable creamware hollowware vessel
117	Whieldon plate with molded barley rim
175	Hand painted pearlware tea cup
173	Hand painted pearlware hollowware vessel
146	Annular pearlware hollowware vessel
179	Hand painted pearlware saucer
112	English Brown Stoneware (Nottingham) mug
115	English Brown Stoneware (Nottingham) jug
142	White salt-glazed stoneware plate with molded barley rim
141	White salt-glazed stoneware saucer
210	White salt-glazed stoneware teaware vessel with enamelled overglazed hand painted floral design
209	Debased scratch blue stoneware tea cup

1 Creamware cream pot
1 Creamware teapot
2 Creamware tea cups
1 Unidentifiable creamware vessel
1 Hand painted pearlware tea cup
1 Hand painted pearlware saucer
1 Unidentifiable hand painted pearlware vessel
1 Annular pearlware sugar or cream pot
1 English brown stoneware mug
1 English brown stoneware jug
1 White salt-glazed stoneware plate
1 White salt-glazed stoneware saucer
1 Debased scratch blue stoneware tea cup
1 Enamel overglaze hand painted white salt-glazed stoneware teaware vessel

TABLE 52

CERAMIC FUNCTIONAL FORMS, MIDDEN COMPLEX (FEATURES 108 - 108C)

Functional Forms	Vessel Counts	Subtotal	Total
TABLEWARE			
Redware			
Flatware	4		
Hollowware	15		
Creamware/Whieldon			
Flatware (Plates)	6		
Serving Hollowware	1		
Stoneware			
English Brown			
Nottingham Mug	1		
White Salt Glazed Plate	1		
Subtotal		28	
TEAWARES			
Creamware			
Tea pot	1		
Tea Cups	2		
Cream Pot	1		
Pearlware			
Painted Tea Cup	1		
Painted Saucer	1		
Annular Cream Pot	1		
Stoneware			
White Salt Glazed Saucer	1		
Painted Hollowware	1		
Debased Scratch Blue Tea Cup	1		
Subtotal		10	
KITCHENWARES			
Redware		6	
STORAGE			
Redware	5		
English Brown Stoneware	1		
Subtotal		6	
TOTAL			50

Fifty identifiable vessels can be categorized according to their probable function in their owners' households (Table 52). Most problematic are the redwares, especially the slip decorated and finely potted hollowware vessels, the single most numerous type in the assemblage. Most of these vessels' sizes remained indeterminate, thus it is unclear whether the assemblage consists mostly of individual serving sized bowls or larger serving, preparation, or cooking vessels. The typical Philadelphia-style trailed slip bowls with the distinctive curved lip are generally larger serving vessels. These vessels could also have been used in the kitchen in food preparation, however. In either case, domestic redwares, decorated and undecorated, dominated the kitchen, pantry, and table of the store's tenants in the late eighteenth century. Creamware plates supplemented the redware forms, perhaps in fact complementing them, as the drape-molded coggle-rimmed, slipped redware plates may include individual service plates as well as larger serving platters. Teawares were exclusively English import stoneware, creamware and pearlware, which although representing a technological progression through the eighteenth century, may have all been owned by a single family on the eve of the nineteenth century.

The foregoing, of course, assumes the store's residents acquired, used, broke, and threw away the ceramics discarded in the midden, and that they are not store merchandise broken in transit or during unpacking. To determine this, the vessels were examined for evidence of wear on the footring or base, rim, and interior. Thirty-three vessels were complete enough to identify the presence of use wear. Twenty-eight exhibited definite evidence of use; however, given the fragmentary nature of the remainder, they too may have been used prior to their breakage and discard in the midden.

Finally, the ceramic crossmend analysis assisted in establishing temporal relationships among the site's features. Forty vessels crossmend, fifteen of them among the four subfeatures of the midden complex (Table 47). In addition to the two nearby privies, in use contemporaneously with the midden, and the wells and gully, which likely contain redeposited materials, vessels from the midden crossmend mostly with others from fence post holes. The majority are associated with the main northeast/southwest trending fence which divided the yard, but a few are closer to the store and one is a post hole of the earliest fenceline on the site (see below, Fencelines).

The 57 identifiable bones and the 1356 shells from the midden complex illuminate the foodways and thus domestic economic strategy of the late eighteenth and early nineteenth century Darrach Store households. Seventeen percent of the identifiable bone from the features was recovered from the middens (Table 53). Bones from domesticated cows, pigs and sheep account for 77% of the specimens; the remainder represent species also present in features across the site. Only the beef and pork bones, however, exhibit butchering marks, and thus are clearly food waste. Surprisingly given the open nature of the middens, only one bone evidenced gnaw marks.

The whole oyster shells collected from the middens number 991; 603 of these are right shells, and 388 are left shells. Thus, the store's households and perhaps their guests consumed a minimum of 388 oysters, in addition to a minimum thirteen clams. A sample of 100 oyster shells from Features 108 (18), 108A (32), 108B (21), and 108C (29) were randomly selected for analysis by Keith Doms, employing the analytical techniques described in the Methodology section of this report.

Interest in the oysters centered on their role in the local foodways system of the Duck Creek area in the late eighteenth and early nineteenth centuries. Thus analysis focused on determining the type of environment from which the oysters were harvested, the season of harvest, the age at harvest, and the method of opening. The environment leaves its marks on the oyster's shell in the forms of sponge bore holes (indicative of a higher salinity environment out in the Delaware Bay), mudworm holes (indicative of a tidal mudflat environment such as in Duck Creek near the landing and store), and ribbing (caused by ultraviolet action on the shell of oysters in shallow or tidal water). The 100 sampled oysters point strongly to exploitation of oyster beds out in Duck Creek very near the store. Three-quarters of the shells came from the lowest salinity regime (I or freshest water), indicating an inland locale, and another 20 were from salinity regime II. Eighty-eight percent exhibited mudworm holes, further evidence of oysters harvested on the tidal mudflats along Duck Creek. In addition, just over one-half exhibited ribbing of the shell. Mary Emily Miller, in her study of the Delaware oyster industry, notes an 1822 map showing

TABLE 53

FAUNAL REMAINS, MIDDEN COMPLEX FEATURES (108 -108C)

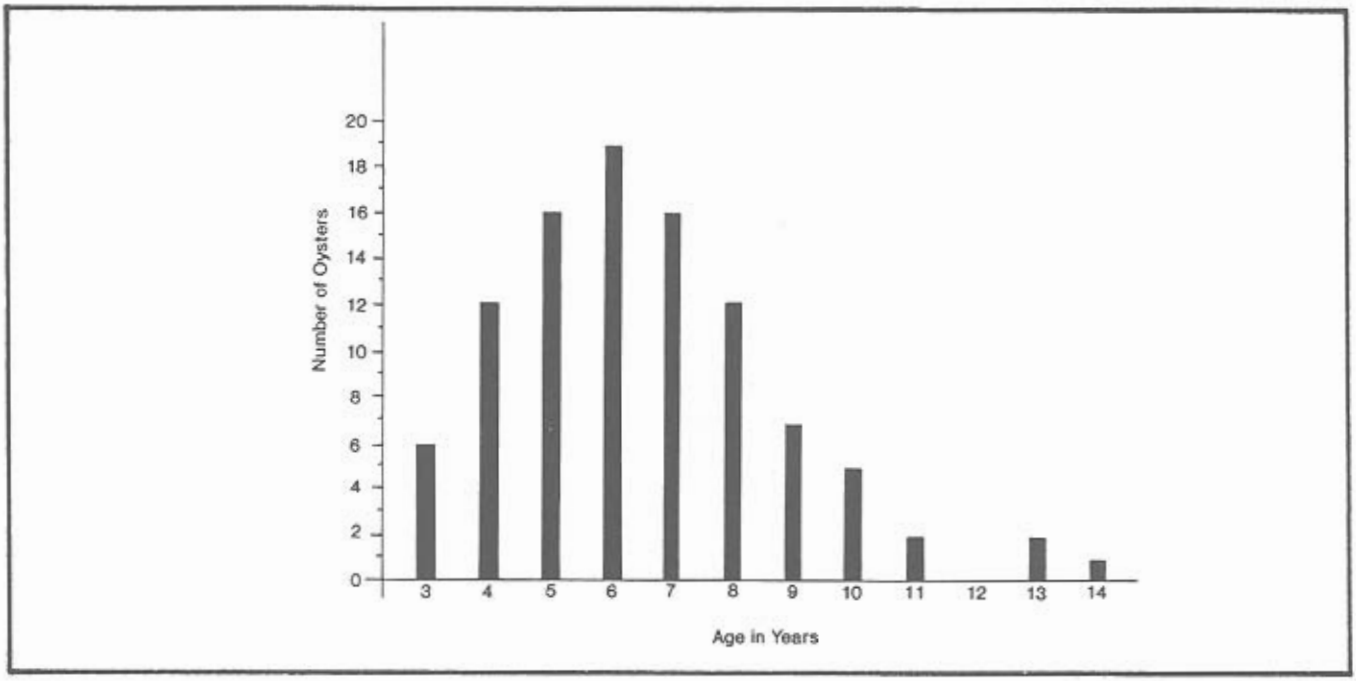
Animal	No. of Spec.	% of F. 108	% of Total As.	MNI F. 108	MNI Total As.	Elements Represented	Cut	Gnawed
Cow	26	46	8	3	4	All Elements	Yes	No
Pig	17	30	5	2	3	All Elements	Yes	Yes
Sheep	1	2	<1	1	1	L. Tibia	No	No
Horse	4	7	1	1	1	2nd Phalanx RI_1, RI^1 Mandible with Six Teeth	No	No
Bird	1	2	<1	1	?	Tarsusmetatarsus	No	No
Turtle	6	10	2	1	1	2 Scapula 2 Unidentified Fragments 2 Plastron Fragments	No	No
Rat	1	2	<1	1	3	Radius	No	No
Fish	1	2	<1	1	3	Skull Fragment	No	No
Total	57	101	16+	11	17			

Key:

No. = Number
L. = Left
R. = Right
F. = Feature
As. = Assemblage
MNI = Minimum number of individuals
RI^1 = Right Incisor, upper
RI_1 = Right Incisor, lower
Spec. = Specimens

FIGURE 46

Age at Harvest, Sample of 100 Oysters, Midden Features 108-108C



oyster beds off Bombay Hook, only a few miles east of the Darrach Store along Duck Creek. She also found evidence of the harvesting of good oysters from the inland creeks during the eighteenth and nineteenth centuries (Miller 1962:102).

The age at harvest of the sampled oysters exhibits a normal, unimodal bell curve (Figure 46), indicating a healthy, unstressed population not depleted by over-harvesting. Neither very young, small oysters nor very old, tough oysters were harvested, with 75% between the ages of four and eight years at harvest.

The method of opening was clearly distinguishable on 37 of the oyster shells. Twenty-eight had been broken over a dull blade to facilitate inserting the shucking knife, the traditional opening method in the Delaware and Chesapeake region (Doms, personal communication 1990). The others had been shucked.

During the eighteenth and early part of the nineteenth centuries, no legislation prevented harvest of Delaware oysters year round (Miller 1962). Thus, the seasons during which the sample oysters were harvested should have been mostly a function of traditional foodways practices. Considering first the midden sample as a whole, the distribution of harvest seasons was:

Fall - (September, October, November)	31
Late Fall/Early Winter - (December)	14
Winter - (January, February)	20
Late Winter/Early Spring - (March)	1
Spring - (April, May)	18
Summer - (June, July, August)	12
Unidentifiable	4

Consumption appears to have dropped only in March (Late Winter/Early Spring). This may indicate the midden deposits date to a single 11 (or fewer) month period beginning between April and May and ending the following January or February. To assist in evaluating this data on season of harvest, the oysters sampled from each midden subfeature (108, 108A, 108B, and 108C) were also studied separately. The distribution of oysters harvested in each season does vary between these separate portions of the larger midden (Figures 47-50). In all four midden areas, the greatest number of oysters had been harvested in the fall. Only Feature 108C also contained several shells from oysters harvested in the summer. Features 108A and 108B contained larger numbers of shells from oysters consumed in the spring, and all except Feature 108 also had many shells from oysters harvested in the winter. These data indicate that none of the individual features represent the dumping of shells from a single event, for example New Year's dinner, as all four contained the remains of oysters harvested over at least a 10 month period. Both the number and seasonal distribution of oyster shells from the midden and indeed across the site demonstrate a reliance on oysters as an important local food source around the year.

The analysis of oyster shells recovered from historical archaeological sites is not yet a common method of investigating the occupants' foodways and domestic strategy. Only a few comparative studies exist. A sample of fifty shells from a single late eighteenth century planting bed at the Peyton-Randolph house in Williamsburg, Virginia was analyzed by the University of Delaware Center for Archaeological Research. Oysters from fresher water were most common in that sample as well, and all had been opened by breaking the distal end (as the majority from the Darrach sample). This assemblage, however, seems to have resulted from a single, short term deposition. Almost all of the oysters in the sample had been harvested in the late fall or winter (Doms and Custer n.d.).

Also dating to the same period as the Darrach assemblage but from a different context are the oyster collections from the c. 1780-1820 privy deposits in Wilmington (Beidleman, Catts, and Custer 1986). Six of these features yielded 30 or more shells each. Oysters from salinity regime I (or freshest water) predominated in all assemblages except one in which the majority of the oysters had been acquired from salt water (salinity regime IV). Two other assemblages exhibited bimodal distributions, with secondary peaks of salt water oysters (salinity regime IV). Thus, the urban market-oriented acquisition and distribution system for oysters in the late eighteenth and early nineteenth centuries appears to differ from that in rural central Delaware, as oysters were also commercially harvested out in Delaware Bay. Mudflat oysters were, however, the most common type identified in the assemblages (Beidleman, Catts, and Custer 1986:129).

The pattern of seasonal harvest also differs between the Duck Creek and Wilmington assemblages. In the city, oysters appear most popular during the winter and spring, a welcome source of fresh food. Consumption dropped precipitously in summer and fall in Wilmington (Beidleman, Catts, and Custer 1986:129). At the Darrach site, conversely, the greatest number of shells in the sample represented fall harvest. Although the sample size both of oysters and of sites is too small to support a valid generalization, nevertheless, differences in the foodways systems of the urban and rural Delaware population in the early federal period are suggested.

Other Features Associated with Midden Features 108, 108A, 108B, and 108C

Feature 113: Charcoal and Organic-Rich Area within Feature 108

Feature 113 appeared as a roughly rectangular stain of dark grayish-brown, organic-rich loam with charcoal flecks and decomposing brick in the southwestern portion of Feature 108 (Figure 43). Measuring 3.6' x 2', the organic loam lay in a .25' deep depression, underlain by a 0.1' deposit of the yellowish-brown clayey loam of Feature 108. It contained no evidence of an in situ fire. No cultural material was present aside from the flecks of crumbling brick.