

III. THE EXISTING ARCHAEOLOGICAL RECORD

A. EXCAVATED SITES

Nineteen farm and rural dwelling sites dating to the 1730-1830 period have been thoroughly excavated and fully reported in New Castle and Kent counties. These sites are listed in Table 14. Three of the sites, the Ferguson-Webber, A. Temple, and Moore-Taylor sites, date to the very end of the period under study, at the earliest, and the archaeological remains at these sites date overwhelmingly to the later nineteenth century and the twentieth century; these sites therefore will not be discussed further. The remaining 16 sites provide a large amount of data on the period.

Table 14. Excavated Historic Sites in Delaware, 1730-1830

Site Name	Dates	Property Type	Occupied by	Reference
Farm and Rural Dwelling Sites				
John Powell	1691-1735	farm	owner & tenant	Grettler et al. 1995
William Strickland	1726-1762	farm	owner	Catts et al. 1995
Augustine Creek S.	1726-1760	farm & workshop	owner	Bedell et al. 2001
Thomas Dawson	1740-1780	farm	owner & tenant	Bedell et al. 2002
Loockerman's Range	1740-1765	dwelling	tenant	Grettler et al. 1991 (Ph. II)
Augustine Creek N.	1750-1810	dwelling	tenant	Bedell et al. 2001
McKean/Cochran	1750-1830	farm	tenant & owner	Bedell et al. 1999
William Hawthorn	1750-1961	farm	owner	Coleman et al. 1984
Whitten Road	1750-1830	farm	tenant	Shaffer et al. 1988
Bloomsbury	1761-1814	farm	tenant	Heite and Blume 1998
Charles Robinson	1762-1781	farm	owner	Thomas et al. 1994
Benjamin Wynn	1765-1822	farm & workshop	tenant	Grettler et al. 1996
Darrach Store	1775-1860	store, dwelling	tenant	De Cunzo et al. 1992
Thomas Williams	1792-1920	dwelling	tenant	Catts and Custer 1990
Charles Allen	1800-1900	dwelling	tenant (?)	Basilik et al. 1988
H. Grant Tenancy	1800-1870	dwelling	tenant	Taylor et al. 1987
Ferguson-Webber	1820-1900	farm	owner	Coleman et al. 1983
A. Temple	1820-1950	farm	tenant	Hoseth et al. 1990
Moore-Taylor	1822-1937	farm	owner	Grettler et al. 1996
Other Site Types				
Ogletown Tavern	1740-1820	crossroads tavern	tenant	Coleman et al. 1990
Riseing Son Tavern	1750-1950	crossroads tavern	owner & tenant	Thompson 1987
Mermaid Blacksmith Shop	1760-1910	blacksmith shop		Catts et al. 1994
William Dickson	1780-1845	store		Catts et al. 1989
Sussex County				
Thompson's Loss & Gain	1720-1780	house	tenant	Guerrant 1988
Marsh Grass	1780-1820	farm	tenant	Thomas 1983

The John Powell Plantation in Kent County was occupied from about 1691 to 1735, first by John Powell and his family and then by unknown tenants (Figure 5). Powell was an immigrant from Maryland. He purchased the property where the John Powell Plantation Site is located in 1704, but he had probably been living there for many years. He and his wife, Ann, had seven children, and the report includes an analysis of the 1680 and 1687 censuses of Delaware and Kent County, showing that this was a larger than average household. John Powell died in 1716, and Ann followed in 1719; her will survives. The Powells seem to have been ordinary farmers, deeply in debt, and Ann's will lists no luxury goods. After 1719 the property belonged to absentee speculators, but artifacts indicated that it was occupied into the 1730s, so it must have been leased to tenants.

The John Powell Plantation Site was excavated by UDCAR in 1991 (Gretler et al. 1995), and more than 80 cultural features were found. At least six structures were identified within an area measuring 160 by 200 feet. The confusing remains of the house included a series of shallow pits and an 11x10-foot arrangement of sills laid in a shallow cellar. The other structures consisted of a large post building identified as a tobacco barn, a smaller post building, three rectangular pits that were identified as subfloor pits from outbuildings, and a well with wooden cribbing. The buildings were arrayed in a rough arc, without any evident plan. The only fences were highly irregular fragments that did not connect in any clear way. The site produced a large artifact assemblage, particularly rich in ceramics and glass tablewares, and a large but very fragmentary faunal assemblage (Table 15).

Table 15. Types of Analysis Performed at Excavated Sites in Delaware

Name	Types of Analysis							Reference
	Occup. Dates	Main Deposits	Ceramic MNV	Glass MNV	Faunal	Flotation & Floral	Soil Chem.	
John Powell	1691-1735	1691-1735	x	x	x	x	x	Grettler et al. 1996
Wm. Strickland	1726-1762	1740-1762	x	x	x	x	x	Catts et al. 1995
Aug. Creek S.	1726-1760	1750-1760	x	x	x	x	x	Bedell et al. 2001
Thos. Dawson	1740-1780	1745-1755	x		x	x		Bedell et al. 2002
McKean/Cochran	1750-1830	1750-1830	x	x	x	x		Bedell et al. 1999
Aug. Creek N.	1750-1810	1750-1770	x		x			Bedell et al. 2001
Wm. Hawthorn	1750-1961	none						Coleman et al. 1984
Whitten Road	1750-1830	1750-1830	x	x				Shaffer et al. 1988
Bloomsbury	1761-1814	1790-1810			x	x	x	Heite and Blume
Charles Robinson	1762-1781	1762-1781	x				x	Thomas et al. 1994
Benjamin Wynn	1765-1820	1765-1820	x	x	x	x	x	Grettler et al. 1996
Darrach Store	1775-1860	1805-1850	x		x		x	De Cunzo et al. 1992
Thos. Williams	1792-1920	1792-1840, 1880-1920	x		x	x	x	Catts and Custer 1990
H. Grant Tenancy	1800-1870	1800-1840			x		x	Taylor et al. 1987
Charles Allen	1800-1900	1820-1830	x		x			Basilik et al. 1988

Many of the artifacts came from the well, and flotation of well soil also yielded a large collection of seeds, most of them wild “weed” species.

2. *William Strickland Plantation Site, 1726-1762*

The William Strickland Plantation in Kent County was occupied by the family of William Strickland, who in the course of his life worked his way up from the bottom half of taxables in Kent County into the top 10 percent. Strickland seems to have been an immigrant from Maryland. His probate inventory and will both survive. At the time of Strickland’s death in 1754, his household was occupied by himself; his second wife, Rachel; the youngest of his three surviving daughters; and three Negro slaves, two men and one woman. Rachel quickly remarried, to Thomas Cahoon. She may have lived on at the plantation for a while, but it seems to have been abandoned by 1763, when the estate was divided among William Strickland’s grandchildren.

The William Strickland Plantation Site was excavated by UDCAR in 1990 (Catts et al. 1995). Remains included several partial post patterns identified as buildings, a smokehouse, and two wells (Figure 6). The only remains of the house were a chimney base and a large, shallow root cellar. A large pit near the house, identified as a possible unfinished cellar, suggests that Strickland may have been adding on to his house, or building a new one, when he died. The site produced a large, varied, and well-preserved collection of ceramics (229 vessels), mostly redware, white salt-glazed stoneware, delftware, Staffordshire slipware, and Westerwald blue and gray stoneware. The large

collection of animal bones was also well-preserved, providing the first good archaeological evidence on animal husbandry in Delaware. Pig and cattle predominated in the faunal collection, but there were also substantial quantities of sheep and horse (some clearly butchered) and a wide variety of wild species. A bone knife handle inscribed "As I am Thine So be thou Mine" was found on the site. Four forks and seven other knives were found, including one folding pocket knife. A total of 925 fragments of white clay tobacco pipes were found, quite a high total for a Delaware Valley site.

3. *Augustine Creek South Site, 1726-1760*

The Augustine Creek South Site was located in southern New Castle County, not far from Odessa. The site was established in the 1720s by Samuel Mahoe, a Huguenot from New York or

New Jersey. Mahoe identified himself in surviving documents as both a weaver and a yeoman. After he died in 1749, his widow, Henrietta, lived on the site for five years before remarrying. She went to court to have her husband's apprentice bound to herself, so she must have tried to carry on the family cloth business. There is no evidence that the Mahoes ever had any children. Otherwise they seem to have been an ordinary rural household; in the 1749 tax roll for St. Georges Hundred they were assessed for exactly the mean amount. In 1754 Henrietta married Thomas Wallace, apparently a neighbor. The site was abandoned around 1760, probably when the Wallaces moved away.

The site was excavated by Berger in 1997 (Bedell et al. 2001). Archaeological remains uncovered at the site included a cellar hole measuring 16 by 25 feet and two post buildings (Figure 7). One of the post buildings was in a part of the site identified as a separate cloth manufacturing area. Nearby pits contained a distinctive ashy fill with an artifact pattern strikingly different from the other features on the site. The soil in these pits also had an unusual chemical signature. The artifact assemblage, more than half of which came from the cellar, seemed to date primarily to the 1750s. The collection included a fairly large number of ceramic vessels, primarily redware and white-salt-glazed stoneware. A substantial collection of animal bone was also found, in a fair state of preservation. The report includes a study of 200 New Castle County probate inventories and an extended discussion of evidence on housing and farm plans from the Orphans' Court and tax records.

4. *Thomas Dawson Site, 1740-1780*

More than half of the Thomas Dawson Site in Kent County near Dover had been destroyed or badly disturbed by the time it was excavated by Berger in 1998 (Bedell et al. 2002). What remained consisted of two-thirds of a cellar hole and several pits (Figure 8). In the cellar hole clear remains of the walls survived, showing that they had been made of large wooden beams with clay nogging pressed between them. The beams rested on the earthen floor of the cellar. From the three surviving corners of the cellar, its size was measured as 11.8 by 13.6 feet. The cellar evidently belonged to the house of Thomas Dawson, who purchased the land in 1740 and died in 1754. Dawson's son sold the property in 1756, and from then until its abandonment in the 1770s the site was occupied by unknown tenants. A survey of the property made in 1745 shows a house, barn, shed, and malthouse on the property; the excavations produced no evidence of the malthouse, or of brewing or malting. The cellar and some of the pits contained artifacts dating primarily to the period of the Dawsons' ownership, including a large collection of ceramic vessels, mostly redware and white salt-glazed stoneware but with at least a few very elegant teaware vessels. A large collection of well-preserved animal bone was recovered as well. Thomas Dawson's probate inventory survives, and the report includes a discussion of 160 Kent County probate inventories and a comparison of probate inventories and archaeology as sources for the study of eighteenth-century material culture.

5. *Loockerman's Range Site, 1740-1760*

Loockerman's Range was a small tenant farm just north of Dover in Kent County. The site was found during the survey of the SR 1 corridor, but it eventually proved to be outside the highway right-of-way. The only work conducted at the site was therefore the Phase II testing carried out by UDCAR in 1989 (Gretler et al. 1991). However, aware that the site would soon be destroyed by construction associated with the nearby Dover Downs Speedway, the archaeologists conducted very thorough testing of the parts of the site they could reach. (Part of the site had apparently already been destroyed by construction.) The site had never been plowed, so all excavation was by hand. A total of 84 5x5-foot units were dug, probably as many as would have been included in a Phase III excavation. Six major historic features were found at the site: a brick-lined hearth, a root cellar, and four graves (Figure 9). The hearth and the root cellar were the only evidence of structures uncovered. Few artifacts were found in the features.

In the eighteenth century, the property belonged to the wealthy Loockerman family, who are known to have lived elsewhere. The site was presumably occupied by tenants. In the absence of documentary evidence, the site's date was derived entirely from artifacts. The ceramics on the site included "scratch blue" white salt-glazed stonewares, introduced in 1744, but no creamware. Plain white salt-glazed stoneware, plain and slip-decorated redware, delftware, Staffordshire combed slipware, and Whieldon wares were also found. Most of the artifacts were recovered from the topsoil in the immediate vicinity of the hearth and root cellar. On the basis of the distribution of architectural artifacts, especially window glass, the excavators estimated the dimensions of the house as 15 by 20 feet. Remains of coffins were noted in all of the graves, but most of the bones had been destroyed by the acidic soil. The only human remains found were parts of nine teeth from one grave, probably that of a six-year-old child.

6. *McKean/Cochran Farm Site, 1750-1830*

The McKean/Cochran Farm Site, on the Appoquinimink River near Odessa, in southern New Castle County, was occupied from the middle of the eighteenth century until about 1830. The first occupants were tenants, but between 1800 and 1810 the site may have been occupied by Letitia McKean, niece of the governor of Pennsylvania, and from 1814 until its abandonment it was the home of a wealthy farmer named Robert Cochran. The site was excavated by Berger in 1996 (Bedell et al. 1999), and two sets of buildings were found. The earlier structures, built around 1750, included a stone-lined cellar hole measuring 15 by 18 feet, two post barns, and a well (Figure 10). The later structures, built around 1790, included a stone-lined cellar hole measuring 18 by 28 feet and a very unusual dairy, built like a springhouse—on a site without a spring. Both sets of features produced substantial numbers of artifacts and bones, which can be analyzed as two separate collections, representing the 1750 to 1790 period and the 1790 to 1830 period, and identified in this document as “McKean/Cochran I” and “McKean/Cochran II.” The ceramic vessels from the earlier features included plain and slip-decorated redwares, delftware, and creamware, while those from the later features also included pearlware and a substantial amount of Oriental porcelain. The faunal collection, dating mostly to the later period, was the largest recovered in Delaware to date, and much of it was well preserved. Most of the bones came from cattle and pigs, but the collection also included a number of small, wild species, such as rabbit, opossum, raccoon, muskrat, catfish, shad, and five species of turtles. The report contains a comparison of ceramics from a group of sites in the Delaware Valley with those in the Chesapeake region and argues that after 1750 the regional patterns are distinctly different.

7. *Augustine Creek North Site, 1750-1810*

The Augustine Creek North Site was a small tenant farm or dwelling in New Castle County, opposite the Augustine Creek South Site. The site was discovered as part of the SR 1 project, but it eventually proved to lie mostly outside the highway corridor (Figure 11). Most of the site was therefore investigated only at the Phase II level. This investigation, conducted by Berger in 1996 (Bedell et al. 2001), included the excavation of a sample of the plowzone across the site and the use of a backhoe to clear some strips and search for features. The only historic feature found was a small cellar, measuring 5 by 10 feet, with a bulkhead entrance. One half of the cellar was excavated. The artifacts from the plowzone suggested a long occupation period for the site, about 1750 to 1810. The site was small, approximately 120 by 180 feet, and the number of artifacts found was not great, so the investigators believed it was a small tenant farm or residence. The site may have been occupied in two distinct periods, with a gap around 1780 to 1790. The cellar contained no creamware and was probably filled in before 1770. The site was located on sloping ground adjacent to wetlands along Augustine Creek, an unfavorable location, which suggests that the occupants were poor. In the nineteenth century, many of Delaware’s African Americans lived in rather similar, swampy terrain, so the investigators of the Augustine Creek North Site thought it may have been occupied by blacks, especially in the 1790 to 1810 period.

8. *William Hawthorn Site, 1750-1961*

The William Hawthorn Site, located along Naamans Road in New Castle County, was occupied continuously from the mid-eighteenth century until 1961. For most of that period the owners were

wealthy farmers, in the top 10 percent of Delaware residents by wealth. The probate inventories of two owners survive. The report includes an extended study of White Clay Creek Hundred tax records for the period 1777 to 1900. The authors show that, unlike the owners of the William Hawthorn Site, most Delaware taxpayers did not own much property. The William Hawthorne Site was excavated by UDCAR in 1982 (Coleman et al. 1984). The site had never been plowed, and all excavation was done by hand. Paradoxically, this may have limited the archaeological recovery at the site. No trash-laden features, such as privies, wells, or pits, were found, and the artifacts recovered from test unit excavations were mostly fragmentary and poorly preserved. The archaeologists were able to reconstruct the history of the main house in some detail. It began as a 21x29-foot log structure with stone foundations, and it was later given a frame addition 12 feet wide that formed an el extending 18 feet behind the house (Figure 12).

9. *Whitten Road Site, 1750-1830*

The Whitten Road Site in New Castle County was excavated by UDCAR in 1985 (Shaffer et al. 1988). Artifacts in the plowzone showed that the site was occupied for quite a long time, from perhaps 1750 until after 1820. However, the only buildings found on the site were three post-in-the-ground structures that were probably occupied during the eighteenth century (Figure 13). Such buildings could never have lasted for the entire span of the site's history. No trace remained of the buildings from the site's later years, although a well that was filled in after 1820 was found. No clear fences were identified, but there were a number of small postholes and a few short fence sections. Artifacts were recovered both from pits dating to the eighteenth century and from the well, so the collection represented the entire span of the site's history. The site yielded a large ceramic assemblage, mostly redware, creamware, and pearlware. The faunal remains recovered were very poorly preserved. A separate activity area was found about 75 feet from the main buildings, consisting of a possible post structure and a single large pit. The pits at the site contained a substantial number of bones and several tobacco pipe fragments, but very few ceramics; this collection therefore resembled the collection from the separate work area at the Augustine Creek South Site, which also produced few ceramics but many pipestems.

10. *Bloomsbury Site, 1761-1814*

The Bloomsbury Site, in Kent County, was a tenant farm occupied from the 1760s until about 1814 (Heite and Blume 1998). At least some of its occupants during this period were Native Americans, members of the Cheswold Lenape community. The report provides an extensive discussion on the history of this community and on the general question of small, partially assimilated Indian groups in the eastern United States. The discoveries at the Bloomsbury Site included two wells, several shallow pits, and a large artifact collection (Figure 14). In general, the artifacts were about what one would expect from a white tenant family of the same period. The ceramics included coarse earthenware pans and refined earthenware teacups, and well-preserved tin vessels were found in one of the wells. Numerous pieces of shoe leather from another well showed that one of the residents had made or repaired shoes. One type of artifact that may reflect American Indian culture was found, consisting of several pieces of glass that appeared to have been worked into tools. No house remains were encountered, but the excavators did recover four glass beads from the plowzone that might once have marked the corners of a dwelling measuring about 15 by 20 feet. Timbers from the wells were

tree-ring dated. Extensive analysis of soil chemistry was carried out, both on the general site soils and on some of the pits.

11. *Charles Robinson
Plantation Site, 1762-
1781*

The Charles Robinson Plantation, near Odessa in southern New Castle County, was the residence of a farmer known as Charles Robinson the younger and his family. The property was purchased by Robinson's father, Charles Robinson the elder, in 1737. The elder Robinson continued to be identified as "of St. Georges" until his death in

1746, however, so it seems unlikely that he ever moved to his property in Appoquinimink Hundred. Charles Robinson the younger probably settled on the Appoquinimink farm around 1762. He died in 1776, and his wife, Martha Garetson Robinson, followed in 1777. Probate inventories for both survive, and they show a well-equipped but not luxurious household. The Robinsons owned a female slave, 17 sheep, 13 cattle, and three horses, and they planted a large amount of wheat and some rye. They were heavily involved in cloth production; the inventory lists flax, wool, four spinning wheels, 45 pounds of flax thread, and nine yards of homespun cloth. The Robinsons' heirs were orphans, and the property was administered by the Orphans' Court before being sold to pay debts in 1779. A detailed description of the property, made for the court, survives. The farm included a log dwelling house, a log kitchen, a log barn with a shed stable attached, an open well, a caved-in well, an orchard with 50 trees, and a fenced garden.

The Charles Robinson Plantation Site was excavated by MAAR Associates in 1992 (Thomas et al. 1994). Archaeological remains included a stone-lined cellar hole measuring 23 by 26.5 feet, three post-in-the-ground outbuildings, several fencelines, and two wells (Figure 15). Stone is not common in the Odessa area, and the use of stone foundations in the area implies a strong preference for this material. It is interesting to note that there is little overlap between the outbuildings mentioned in the Orphans' Court assessment and those identified archaeologically. The assessors noted only log buildings, with the possible exception of the shed stable, whereas the only archaeological remains were postholes from frame structures. The number of wells does match. The large artifact collection included numerous ceramic vessels, which are extensively analyzed in the report. The most common wares were coarse red earthenwares, slip-decorated red earthenwares, and creamwares; vessels of white salt-glazed stoneware and porcelain were also found. There were documentary indications that

the property may have been occupied as late as 1813; however, as there was no pearlware found on the Charles Robinson Plantation Site, that occupation must have taken place at a different house. Teacups, saucers, and teapots were very well represented, as well as pans and dishes for kitchen use. A nearly complete iron kettle and numerous other items of kitchenware were also found.

12. *Benjamin Wynn House and Blacksmith Shop, 1765-1820*

The Benjamin Wynn House and Blacksmith Shop, located near Dover in Kent County, was a tenant farm occupied from 1765 until about 1800 by Benjamin Wynn, a blacksmith, and then by unknown

persons. The site was excavated by UDCAR in 1991 (Grettlar et al. 1996), and the main features found were a house, a blacksmith shop, and two wells. The house was defined by the excavators based on a small cellar and a very partial posthole pattern. The surviving evidence of the blacksmith shop consisted of two cellar holes that defined a rough rectangle measuring about 10 by 24 feet and several postholes that appeared to be associated with the cellars but did not define any clear pattern. The cellars were up to two feet deep and were filled with coal ash and other forge waste. As no nineteenth-century artifacts were found in the cellars, it is likely that they were filled in, and the forge

abandoned, before the last stage of the site's history. Little other forge-related material was found. The two buildings were located about 20 feet apart in a bent line (Figure 16). Both wells, one filled in the eighteenth century and one in the nineteenth, were located on the same side of the house, which investigators identified as the back yard. The highest plowzone artifact densities were in the front yard, between the two buildings, and a large trash pit was located directly in front of the forge. The artifacts recovered included a fair number of ceramic vessels and a small faunal collection. Flotation of soil from the wells and trash pits yielded a small assemblage of fruit and vegetable seeds.

13. *Darrach Store Site, 1775-1860*

The focal point of the Darrach Store Site was a brick structure located along a road just east of Duck Creek Landing in northern Kent County. From 1775 until 1805 this building was the site of a store operated by John White. Around 1805, it was converted to a tenant residence, and it was occupied until about 1860. The site was excavated by UDCAR in 1989 (De Cunzo et al. 1992). Most of the archaeological remains derived from the period of tenant occupancy, but the report includes an

extensive discussion, based on documentary research, of the White and Darrach families and the business of storekeeping in eighteenth-century Delaware. Excavations around the brick building located three wells, two privy pits, and several fencelines (Figure 17). More than half of the ceramic vessels from the site were redware, and the remainder were mostly creamware, pearlware, and whiteware. The excavators noted considerable variety in the ceramics, especially the locally made, slip-decorated earthenwares. These wares showed different decorating techniques, sizes, and shapes, and seem to have been made by several different potters. Even collections from single features filled in a rather short time showed this variety. The residents appear to have been intentionally accumulating a diverse collection of dishes.

14. *Thomas Williams Site, 1792-1920*

The Thomas Williams Site, near Glasgow in New Castle County, was occupied from about 1792 until 1920. During the period of concern to us, 1792 to 1830, the site was occupied by tenant farmers, the first of whom was probably a Welshman named Christopher Jones. Although Jones is known to have been a shoemaker, no archaeological evidence of his craft was found. The site was excavated by UDCAR in 1988 (Catts and Custer 1990). The only remains of the late eighteenth-century house on the site were two root cellars, one partly lined with stone, and a possible pier base (Figure 18).

The remains defined a structure measuring at least 22 by 16 feet. One of the root cellars contained a large number of artifacts dating to the 1792-1840 period, including creamware plates, pearlware

teacups, and two nearly intact redware jugs. Some of these ceramics were quite fine, which, as the authors note, calls into question the notion that tenants are necessarily poor. A four-post outbuilding measuring about 13 by 16 feet may also have dated to the early period.

15. *Charles Allen Site, 1800-1900*

The Charles Allen Site was a dwelling and cluster of outbuildings located just south of Christiana. The site was discovered during a sewer project, and excavations, carried out in 1985 by CHRS, Inc. (Basilik et al. 1988), were limited to a 60-foot-wide corridor. The site had never been plowed, but it had been used as a trash dump and much building stone had been robbed before the entire site was buried under more than a foot of clay. After the clay had been removed by machine, 57 5x5-foot units were excavated on the site, about 25 percent of the site area within the project corridor. The site yielded artifacts dating to the late eighteenth century and the entire nineteenth century. The stone foundations of the house measured 21.5 by 25.5 feet, with one exterior end chimney and a 12-by 14-foot addition; there was no cellar (Figure 19). The excavators suspected that this house had been built in the late eighteenth century and abandoned by 1820. A sealed deposit of artifacts dating to the 1820s was found within the foundation. This collection is analyzed in this historic context as “Charles Allen I.” A shallow, stone-lined well, a cobble-paved courtyard, and three outbuildings were also found. One outbuilding had stone foundations measuring 10.5 by 12.5 feet and a massive chimney base, and was probably a kitchen. The second outbuilding had been damaged by previous

sewer construction but probably measured about 10 by 15 feet. The third building was a small shed supported by a single stone under each corner; three of the supporting stones were still in place. The artifacts recovered from the site included a large number of ceramics dating to the 1820s and a substantial collection of late nineteenth-century bottles; the faunal assemblage was poorly preserved. It is not known who lived on the site, although the excavators thought the artifacts reflected occupants of a high social status. After 1804 the property belonged to Charles Allen, a blacksmith, carpenter, storekeeper, tavern keeper, and general entrepreneur, but he owned several other properties and may have lived elsewhere. The site's closest neighbors were the wealthy Lewden family, and the authors of the report made good use of the Lewdens' surviving business papers. These documents show that Charles Allen supplied hides and bark to the Lewdens' tannery, traded boards, scantling, and manure at their store, did repairs on their buildings, and served as a pallbearer for Jeremiah Lewden.

16. *H. Grant Tenancy Site, 1800-1870*

The H. Grant Tenancy was a small tenant farm located in northern New Castle County. The site was excavated by Thunderbird Associates in 1985 (Taylor et al. 1987). No documentary evidence of the site's occupants or dates was found, and the excavators assumed that the occupants were all tenants. The artifacts from the site suggested an occupation span from about 1800 or a little earlier to about 1870. A major problem with the artifact interpretation was a conflict between the mean ceramic dates of the deposits, all in the 1812 to 1820 range, and the terminus post quem, which were generally after 1840. The overall impression is of an early nineteenth-century assemblage, dominated by pearlware, with a minority of mid-nineteenth-century artifacts. It is also possible that the site was actually abandoned around 1840 and that some later trash was then dumped there. Another possibility is that the site's later occupants were poor, and either bought used dishes or used their older ones as long as possible. The largest feature on the site was a stone-lined cellar hole measuring 16 by 15.5 feet, with a shallow pit indicating an addition 6 feet wide on one end (Figure 20). Supports for a single interior chimney were present in the cellar. A stone-lined well 13 feet deep was found about 18 feet from the house. The fill was primarily rubble, but the waterlogged deposit at the bottom contained a nearly complete wooden bucket, fragments of other buckets or barrels, and cherry and peach pits. The report compares the decorative types in the ceramic assemblage at the site with those from a number of other rural sites dating to the first half of the nineteenth century, most of them in Virginia and Maryland. The comparison showed that the H. Grant Tenancy Site had a much higher than average percentage of decorated wares, even though it was assumed to have been occupied by a modest tenant household.

B. DATA SETS FOR THE DESCRIPTION OF THE PAST

From these 16 sites we have obtained an enormous amount of data about life in eighteenth- and early nineteenth-century Delaware. Archaeologists sometimes want to put aside what they know about other sites and examine as closely as possible the one they are working on, trying to understand its own dynamic and its unique features. It is only through comparisons of sites, however, that we can obtain a greater breadth of knowledge about the culture of Delaware. This section presents several types of data from the excavated Delaware sites, including those most commonly compared across sites. It also addresses the limitations of the data and includes suggestions for further research.

1. Site Locations

Where people chose to build their houses had important impacts on how they lived, and their choices can help us understand what mattered to them. For example, the first European settlers in Delaware built their homes along the Delaware River and its navigable tributaries, displaying their orientation toward the Atlantic Ocean and the Old World. By the eighteenth century, however, many farms were built along roads, and most farm products on their way to market started their journey on a road. Where roads crossed navigable creeks, landings were established, and small towns grew up around the landings (Catts et al. 1989). This pattern of development promoted town growth and economic diversity and also distinguishes eighteenth-century Delaware from the Chesapeake and Carolina low country regions, where planters continued to build along navigable waterways and both their economies and their philosophies remained more strongly oriented toward the Atlantic.

It must be said that we do not yet have a very good understanding of how Delaware farmers of the 1730 to 1830 period chose sites for their farms. Farm sites of this period in Delaware are often associated with roads, but they are not necessarily close to them; the Thomas Dawson Site was about 250 feet from the road along which it seems to have been sited. Farms are often associated with rivers and creeks, but, again, they are not necessarily close to them; the McKean/Cochran Farm was

more than 300 feet from the Appoquinimink River, and the William Strickland Plantation was more than 1,500 feet from Mill Creek. Heite and Blume (1998) suggest an “expert system” for the siting and laying out of farms that includes three rules relevant to this problem:

- 1) The farmer’s house is best located on the edge of good agricultural soil, never in the middle of a good patch.
- 2) Let the livestock drink from a stream or spring if possible. It’s hard work to water the animals from a well.
- 3) Houses should be built on a place that drains fairly well.

These rules are useful, but hardly iron-clad. Rule number one, for example, is violated by the McKean/Cochran Farm and the William Strickland Plantation, and rule number two could encompass farms on which the house is hundreds of feet from the watering stream. The site survey data presented in Chapter II suggest that sites are indeed more common close to roads and streams, but not all sites are in such locations, and rules for finding those other sites simply escape us.

The placement of houses and farms can also help us understand the limitations under which many people lived. Heite and Blume (1995) have shown that many of the African American and Native American communities of nineteenth- and twentieth-century Delaware were located in swampy areas, places the dominant white farmers did not need for other purposes. Many tenant houses were built at the edge of farm fields, behind the owner’s house—that is, as far as possible from the owner without being out of sight (Siders 1997). Whether these patterns existed in the eighteenth century is not yet known, and more data on the location of tenant and African American sites from that period would be helpful.

This topic forms part of the Landscape theme described by De Cunzo and Catts (1990) (see also Section 3 below). In the present report, site location is discussed separately from issues of how individual properties were laid out. Data on site locations can be obtained from archaeological survey and from the locations of standing houses, while information on site layouts requires extensive excavation. An increase in our knowledge on this topic can come only from more systematic surveys.

2. *Architecture*

a. Houses

Housing is one of the most important parts of our material culture. Few objects so strongly shape the way we go about our lives. Houses may also be statements about our values. Many contemporary American houses, for example, are designed to give each occupant a great amount of privacy, and the idea of whole families living together in a single room may therefore seem somewhat disturbing. But privacy is a value of our culture and time. The desire to be alone was not shared by many people in the past, and in fact is not shared by many in the world today. Our houses also reflect our habit of separating our work from other parts of our lives. Our homes have separate

kitchens, for example, and those who work for pay at home often have separate offices or workshops. The appearance of our houses expresses our ideas about beauty and proper form. If we are to study people's lives using material objects, their housing is one of the first things we must consider.

The study of rural housing is dominated by standing buildings, but there are reasons for believing that standing houses are not a representative sample of the housing stock of the eighteenth and early nineteenth centuries (Carson et al. 1981; Chappell 1994). In order to obtain a balanced picture of past housing, it is necessary to study buildings that have been destroyed as well as those that survive. Archaeology can help us get a better understanding of the houses in which most people lived.

To date, the most salient archaeological finding about eighteenth-century Delaware houses has been their great variability (Table 16). The dozen or so eighteenth-century houses that have been excavated in the state are all remarkably different from one other. No two are alike. (Except perhaps for those that have left no trace at all.) The most substantial houses to have been excavated were those at the Charles Robinson Plantation, the William Hawthorn Site, the McKean/Cochran Farm, and the Charles Allen Site. Charles Robinson was a well-to-do farmer who styled himself "yeoman," and the remains of his house, built around 1762, consisted of stone foundations in a full basement

Table 16. House Remains at Rural Sites in New Castle and Kent Counties, 1730-1830

Site	Occupation Dates	House Dimensions*	Description of Remains
John Powell ¹	1690-1730	15x30?	Log sills in shallow cellar, 10x11 feet, plus shallow
Augustine Creek South ²	1726-1760	16x25	Full basement with traces of brick foundations
William Strickland ³	1726-1762	24x17	Partial post pattern with large root cellar
Thomas Dawson ⁴	1740-1760	12x14?	Wooden sills in deep basement, 11.8x13.6 feet
Loockerman's Range ⁵	1740-1765	?	Hearth and small root cellar
Whitten Road ⁶	1750-1800	24x16	8x16-foot post pattern with possible 16x16-foot addition, based on pits
McKean/Cochran I ⁷	1750-1790	15x18	Stone foundations in full basement, probable stone interior chimney
William Hawthorn ⁸	1750-1816	21x29	Stone foundations of two-story log house
Charles Robinson ⁹	1762-1781	23x26.5	Stone foundations in full basement
Benjamin Wynn ¹⁰	1765-1820	24x30?	Partial post pattern with 10x10-foot cellar and wooden chimney
Bloomsbury ¹¹	1761-1814	15x20?	Blue beads that may have marked dwelling corners
McKean/Cochran II ⁷	1790-1830	18x28	Stone foundations in full basement; one interior stone chimney
Thomas Williams ¹²	1792-1840	?	Two root cellars and one large post
H. Grant Tenancy ¹³	1800-1870	15.5x16	Stone foundations in full basement; addition 15.5x6 feet
Charles Allen ¹⁴	1800-1820	21.5x25.5	Stone foundations, end chimney, 10x14-foot addition

*Dimensions in feet. Sources: ¹Grettler et al. 1995; ²Bedell et al. 2001; ³Catts et al. 1995; ⁴Bedell et al. 2002; ⁵Grettler et al. 1991; ⁶Shaffer et al. 1988; ⁷Bedell et al. 1999; ⁸Coleman et al. 1984; ⁹Thomas et al. 1994; ¹⁰Grettler et al. 1996; ¹¹Heite et al. 1998; ¹²Catts and Custer 1990; ¹³Taylor et al. 1987; ¹⁴Basilik et al. 1988

1. Site Locations

Where people chose to build their houses had important impacts on how they lived, and their choices can help us understand what mattered to them. For example, the first European settlers in Delaware built their homes along the Delaware River and its navigable tributaries, displaying their orientation toward the Atlantic Ocean and the Old World. By the eighteenth century, however, many farms were built along roads, and most farm products on their way to market started their journey on a road. Where roads crossed navigable creeks, landings were established, and small towns grew up around the landings (Catts et al. 1989). This pattern of development promoted town growth and economic diversity and also distinguishes eighteenth-century Delaware from the Chesapeake and Carolina low country regions, where planters continued to build along navigable waterways and both their economies and their philosophies remained more strongly oriented toward the Atlantic.

It must be said that we do not yet have a very good understanding of how Delaware farmers of the 1730 to 1830 period chose sites for their farms. Farm sites of this period in Delaware are often associated with roads, but they are not necessarily close to them; the Thomas Dawson Site was about 250 feet from the road along which it seems to have been sited. Farms are often associated with rivers and creeks, but, again, they are not necessarily close to them; the McKean/Cochran Farm was

measuring 23 by 26.5 feet. The oldest section of the house at the William Hawthorn Site had stone foundations measuring 21 by 29 feet, but no cellar; written records tell us that it was two stories tall and made of logs. Two houses were identified at the McKean/Cochran Farm, both with stone foundations and full basements. The earlier house, built by tenants around 1750, measured 15 by 18 feet, and the later house, built between 1790 and 1800, measured 18 by 28 feet. The later house may have been the residence of Letitia McKean, a wealthy woman and niece of the governor of Pennsylvania. The house at the Charles Allen Site was abandoned by 1830 and had probably been built in the late 1700s. It had stone foundations measuring 21.5 by 25.5 feet, with a 12x14-foot addition on one end, but no cellar. None of these houses had a symmetrical, Georgian plan, with matching end chimneys, such as one would expect in a stylish residence of the period.

Smaller houses with cellars were found at two other sites. Samuel and Henrietta Mahoe's house at the Augustine Creek South Site also had a full basement, and it probably had a brick foundation, although almost all the bricks had been removed. This house was probably built in the 1720s, and it measured 16 by 25 feet. The house at the H. Grant Tenancy Site, built around 1800, included a stone-lined cellar hole measuring 16 by 15.5 feet with a shallow, unlined cellar measuring 6 feet by 15.5 feet along one edge.

The other Delaware houses were much less substantial than these seven. On the majority of these sites, evidence of the main house was actually meager. Eighteenth-century builders used several techniques that leave little or no trace on a plowed site. Sometimes wooden wall sills were laid directly on the ground, as in the cellar at the Thomas Dawson Site and at the John Powell Plantation. Log structures often had thin brick or stone foundations that were set in very shallow trenches or even directly on the ground surface. Frame buildings were sometimes raised on brick piers, small square foundation piles put under the corners and other structural points. These, too, were often set directly on the ground, and only rarely was one dug deep enough to survive plowing. Sometimes wooden blocks were used as piers instead of brick. Wooden blocks might be set in quite deep holes, or

on the surface. As a result of these techniques, the architectural remains at many Delaware sites are confusing and fragmentary. No foundations of any kind were found at the Bloomsbury Site, and

there was no trace of the later structures that must have stood at the Whitten Road Site. At the Bloomsbury Site, the size of the house has been estimated as 15 by 20 feet, based on a void among the other features of the site and the discovery of four blue glass beads in the plowzone that may once have marked the building corners, but under these circumstances we can only guess at the size and nature of the building. The Loockerman's Range Site had not been plowed, but even so the only remains of the tenant house that stood there were a hearth and a small root cellar. At the John Powell Plantation and Whitten Road sites, house dimensions were estimated from clusters of shallow pits that may actually have had nothing to do with the houses (Figure 21). At several sites the presence of houses has been surmised from groups of posts that do not really trace out good rectangular shapes, and it is difficult to imagine what construction technique could have produced these partial post patterns. Perhaps these houses were supported on wooden blocks set into the soil at differing depths. The deeper holes have survived and the shallow ones have been plowed away.

The use of wooden blocks and ground-laid wooden sills in house construction are techniques commonly referred to as "impermanent"—that is, houses built in these ways were not intended to last long. In eastern North America, wood placed in direct contact with the ground soon attracts termites and other destructive pests, and can be expected to rot away in a decade or two. The widespread use of these temporary techniques tells us that eighteenth-century farmers, who, after all, lived in a frontier society, were not all building for the future. They built to satisfy their immediate needs, perhaps thinking that permanent houses and barns could be constructed later, when their farms were cleared and they had managed to save some money (Chappell 1994). Another temporary building technique that does leave permanent traces in the ground is post-in-the-ground or "earthfast" building. In this technique, a house was framed around tall posts that were set into deep holes in the ground, much like a modern pole barn. The postholes were almost always deep enough to survive plowing, leaving a clear pattern for archaeologists to find.

The house at Thomson's Loss and Gain in Sussex County was built in this way, allowing us to measure its dimensions accurately as 18 by 24 feet (Figure 22) (Guerrant 1988). Earthfast buildings were also found at the McKean/Cochran Farm, Augustine Creek South, and Whitten Road sites.

Besides the great variety in construction techniques, these houses also came in widely varying sizes. The houses with securely known dimensions varied from 270 square feet (McKean/Cochran I) to 621 square feet (Charles Robinson). The house of Benjamin Wynn, a blacksmith, may have measured 720 square feet. Another interesting detail about the Delaware houses is the great variety in their dimensions. Post houses in the seventeenth-century Chesapeake region were almost all 18 or 20 feet wide, and they were constructed of pairs of posts that were either 8 or 10 feet apart; their lengths were therefore always some multiple of 8 or 10 (Carson et al. 1981; Kelso 1984). Henry Glassie (1975) studied a number of eighteenth-century frame houses in the Virginia Piedmont, and he was so impressed by the constant repetition of numbers divisible by 2 or 3 that he erected a whole theory of carpenters' thinking on the centrality of these numbers. There are no such numerical patterns in the excavated houses of Delaware. Some houses were measured in standard units, like the 15x18-foot house at the McKean/Cochran Farm, but others include such measurements as 11, 17, 26.5, and 11.8 by 13.6 feet.

Further research on houses in early Delaware should proceed in at least two directions. The sample of excavated houses is still small, and much could be gained simply by accumulating more examples. The absence of clear patterns in the data obtained so far may simply mean that we do not have enough data to work with. Further research may show that different types and sizes of houses are associated with different ethnic groups or different regions or different kinds of households. The uncovering of more house remains is therefore an important goal in itself. More could also be done toward understanding what kinds of houses would have left the remains we find in the ground. Research in the architectural literature from America and Europe, and on actual structures, could help. House remains at the McKean/Cochran Farm and the Darrach Store Site raised a simple question that has proved difficult to answer: does a basement divided into two rooms by a structural wall imply that the first floor was similarly divided? Unfortunately, architectural historians tend not to pay much attention to basements, and their books rarely mention them. To answer this and other questions about what kinds of houses stood over the foundations we uncover will therefore require more than the perusal of a few books on architecture. The effort, however, should be made, because it must be admitted that we have only the vaguest understanding of the building techniques implied by different kinds of foundations.

b. Other Buildings

In general, the archaeological evidence of outbuildings on eighteenth-century farms is even less substantial than the evidence of houses. On some sites barns were built as post structures, which leave clear remains (Bedell et al. 1999; Shaffer et al. 1988), but we can safely say that most eighteenth-century outbuildings have disappeared without a trace. Written records, as discussed in Chapter I, tell us that outbuildings were common, and we simply do not find structural remains on archaeological sites in the same numbers.

The archaeologically identified barns in the eighteenth-century sample from Delaware were mostly rather small, less than 20 by 30 feet, and they were all built on one level. Large, Pennsylvania-style bank barns were not introduced into Delaware until after 1800 (Herman 1987), and, to judge from the archaeology, they were not common until after 1830. Besides post barns, the outbuildings excavated on archaeological sites have included the stone foundations of a dairy at the McKean/Cochran Farm, a smokehouse with posts and a shallow basement at the William Strickland Plantation, a smithy with cellars up to three feet deep at the Benjamin Wynn Site, and a kitchen and shed with stone foundations at the Charles Allen Site (Table 17).

Table 17. Outbuilding Remains at Rural Eighteenth-Century Sites in New Castle and Kent Counties

Site	Occupation Dates	Number of Outbuildings	Dimensions*	Description of Remains
John Powell ¹	1691-1735	5	20x40 18x12 4x12 7x11 10x15	Two partial post patterns (a third partial post pattern not identified as a building is also present), three pits identified as basements (two of them doubtful)
Augustine Creek S. ²	1726-1760	2	17x19 14x24	Earthfast kitchen or barn and weaving shed, each with six post holes
William Strickland ³	1726-1762	4	10x12 15x25 13x15 20x26	Three partial post patterns; 10x12 feet smokehouse has complete four-post pattern and shallow basement; 15x25-foot structure is possible kitchen/quarter
Whitten Road ⁴	1750-1800	2	10x22 10x28	Earthfast barns, with six and eight posts
McKean/Cochran I ⁵	1750-1790	2	18x20 19x25	Earthfast barns, with six and nine posts
Charles Robinson ⁶	1762-1781	2 or 3	12x12 13x20 30x?	Two partial post patterns; one row of four large posts interpreted as the center line of a building
Benjamin Wynn ⁷	1765-1820	1	16x24	Smithy with cellars and partial post pattern
McKean/Cochran II ⁵	1790-1830	1	11x13	Dairy with stone foundations
Charles Allen ⁸	1800-1820	3	10.5x12.5 10x15 4x4	Kitchen with stone foundations and chimney; shed with stone foundations; shed with a stone under each corner
H. Grant Tenancy ⁹	1800-1870	1	10.6x5.8	Shallow, very regular, rectangular pit
Darrach Store ¹⁰	1805-1860	2	15x20 10x17	Post sheds

*Dimensions in feet. Sources: ¹Grettlar et al. 1995; ²Bedell et al. 2001; ³Catts et al. 1995; ⁴Shaffer et al. 1988; ⁵Bedell et al. 1999; ⁶Thomas et al. 1994; ⁷Grettlar et al. 1996; ⁸Basilik et al. 1988; ⁹Taylor et al. 1987; ¹⁰De Cunzo et al. 1992

The study of outbuildings on Delaware farms brings one face to face with a peculiar archaeological anomaly: the numerous patterns of posts found on eighteenth-century sites that seem almost, but not quite, to define a building. A majority of the post buildings that have been proposed for Delaware sites are of this type. Two such buildings were proposed by the excavators of the John Powell Plantation Site (see Figure 5). Outbuilding V, identified as a tobacco house, consisted of three large

corner posts, with one post along one of the long sides and three along the other; the southeast corner post was missing. Since this building measured about 20 by 40 feet, one might have expected it to have more impressive foundations than it actually had. Outbuilding IV, a smaller post building, was quite far from rectangular and was also missing one corner. Another post pattern very similar to the one designated Outbuilding IV was also present (shown in the center of Figure 5, below the house), and the site report does not say why the excavators did not also designate it as a structure. The excavators of the Benjamin Wynn Site (see Figure 16) interpreted two collections of posts as a house and a smithy, but their reconstructions do not inspire confidence. The presence of cellars shows that both buildings did, in fact, exist, but other details of the structures are uncertain at best. Similar partial post patterns were found at the William Strickland Plantation, Charles Robinson Plantation, and Thomas William sites, as well as at the Marsh Grass Site in Lewes (Thomas 1983).

What do these confusing foundations mean? Taken at face value, they suggest buildings constructed in a truly haphazard way, without regular spacing between structural members, and possibly with foundations made in more than one way. Would anyone really put up a building with wooden blocks under three corners and a brick pier under the fourth? If so, it seems to be a Delaware phenomenon, since such structures have not been identified at sites in the Chesapeake region. But if these patterns are not building foundations, what are they? They certainly have roughly the right size and shape to be outbuildings, and they are in the locations we would expect. Sometimes, as at the Benjamin Wynn and Thomas Williams sites, they correspond to small cellars and other strong evidence of buildings. At present, we certainly have no criteria for distinguishing which groups of posts might represent buildings, and each observer must interpret the evidence from these sites for himself or herself.

A similar problem is presented by shallow pits that have been interpreted as buildings. Sometimes these interpretations are fairly convincing, as with a very regular, flat-bottomed rectangular pit at the H. Grant Tenancy Site. Several sorts of outbuildings would leave a shallow pit as their only remains. At the William Strickland Plantation Site, a small pit was convincingly identified as a smokehouse in part because it was surrounded by four posts defining a 10x12-foot rectangle; if this structure had been supported by brick piers, only the pit would have survived. Shallow pits can be made in many other ways, however, and the interpretation that any particular pit was a building is far from certain. Even more problematic is the interpretation of overlapping groups of shallow pits as house remains, as at the John Powell Plantation and the Whitten Road Site. What kind of house would leave a group of shallow pits as its only remains? More thought about the kinds of structures that might produce these remains is needed, and more research on whether such structures existed, before either the partial post patterns or the shallow pits can be accepted as building remains.

3. *Landscape*

Architecture is only one component of the environment people shape for themselves. Humans modify their landscape in many other ways. The arrangement of barns and farmyards, the building of fences, the cutting or planting of trees, the construction of roads, and the plowing of fields all shape people's lives, and these activities are all guided by cultural norms. These activities also often leave traces archaeologists can uncover, and the study of these traces is usually called landscape archaeology (Kelso and Most 1990).

The importance of imposing order on the landscape to some people in the eighteenth century is well illustrated by an essay written in 1786 by Benjamin Rush, a Philadelphia intellectual who was a regular correspondent of Benjamin Franklin and Thomas Jefferson. Rush divided the farmers of the Delaware Valley into three “species” (Herman 1994). At the bottom of this hierarchy Rush placed the rough frontiersman, his rude cabin and half-cleared fields symbolizing his lawless, ignorant nature. At the top was the model farmer, a civilized man whose belief in education, law, and religion was reflected in his straight fences, completely cleared fields, large barn, and embrace of new agricultural technology. In between was the norm, a sort of middling civilized state. This ethic equated progress with ordering the landscape, and implied a strong equation between that order and the creation of wealth. Texts like Rush’s essay, however, do not tell us whether anyone actually lived in the way he described. By studying, through archaeology and landscape architecture, the layout and siting of farms, and reconstructing the historic landscape, we can determine the extent to which farmers actually adopted the ideas of Rush and other progressive intellectuals.

To study the landscape of the farm, archaeologists employ the tools of spatial analysis. On a plowed site like most of those that have been excavated in Delaware, spatial archaeology has two dimensions: the distribution of artifacts in the plowzone and the distribution of features beneath it. The distribution of plowzone artifacts reflects, although indirectly, both the organization of the activities in which the artifacts were used and the pattern of refuse disposal. The mapping and excavation of features provide several types of spatial data. The locations of buildings, fences, wells, privies, ditches, and other permanent structures can be determined directly. Also, the refuse deposits found in features provide further information about the location of activities and the pattern of trash disposal. The fullest understanding of the landscape of the site is derived from combining these two dimensions of spatial data.

To date, the farm plans that have been uncovered in Delaware seem mostly random. Good examples are provided by the John Powell, William Strickland, and Charles Robinson plantations; enough evidence of outbuildings and fences was found at these three sites to give us some idea of what the farms looked like when they were occupied. Six structures were identified at the John Powell Plantation Site (see Figure 5), arranged in a rough arc. The only fences were three small fragments, unconnected at both ends and not defining anything in particular. The William Strickland Plantation Site was similar (see Figure 6): a cluster of buildings not aligned with each other and not arranged in any particular way. At the Charles Robinson Plantation, the outbuildings and wells were all on the same side of the house, so they may have been behind it, but they did not align with the house or define any kind of courtyard. The most regular plan yet uncovered was at the McKean/Cochran Farm, where the later features and buildings seemed to describe a courtyard behind the house. However, even there the excavators found brick concentrations in the “courtyard” that may have been the remains of now vanished outbuildings, and the original appearance may have been much less orderly than the reconstruction in Figure 23 indicates.

The distribution of artifacts in the plowzone can supply other clues as to how the space on a farm was used. On a number of historic farm sites, the highest plowzone artifact densities have been found in working yards. For example, at the John Powell Plantation Site, high artifact densities were found in the inner yard between the house and Outbuilding IV (Figure 24). Similar distributions have been found at the McKean/Cochran Farm, Augustine Creek South, Whitten Road, and Charles

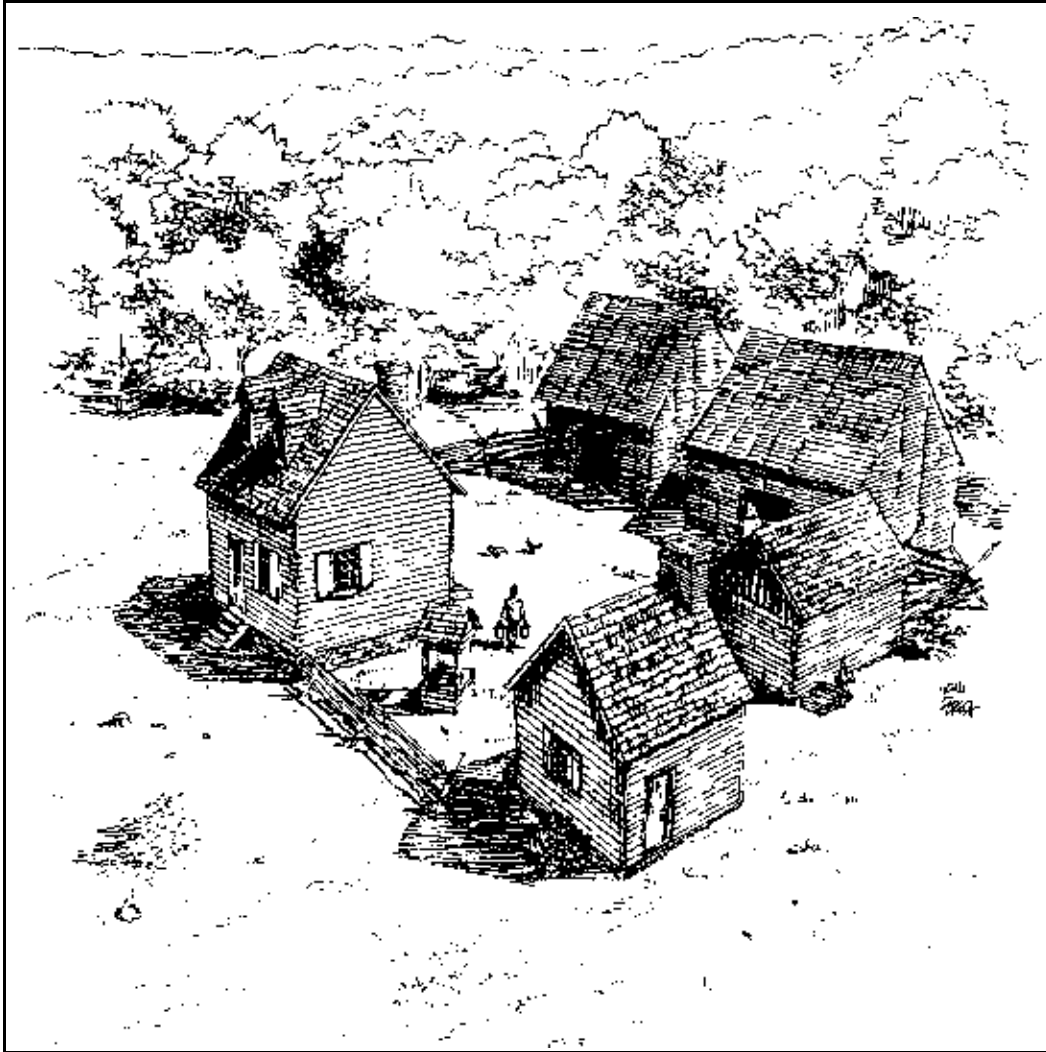


FIGURE 23: Reconstruction of the McKean/Cochran Farm, circa 1797

Robinson Plantation sites, as well as at the seventeenth-century Richard Whitehart Plantation (Grettlar et al. 1995) and Arlington, a large seventeenth- to nineteenth-century farm site on Virginia's Eastern Shore (Bedell and Lucchetti 1988). These distributions suggest that a good deal of trash on these sites was trampled into the earth of the yard where it fell. On the other hand, the artifact distribution at the William Strickland Plantation suggested that some trash was disposed of over fences, not in the central yard.

Although plowzone artifact densities are higher in some parts of every site than in others, it is important to note that some artifacts are found in all parts of the site. In particular, they are found, usually in quantity, on every side of the dwelling house. The space around most farmhouses in Delaware today is divided into an ornamental front yard, facing the nearest road, and a working back yard. The front yard is usually grass, often with ornamental trees and flowers. The outbuildings are clustered in the back yard. This pattern is old enough to be spoken of as "traditional" (Heite 1983), but the archaeological evidence shows that it was not the norm in the eighteenth century. Looking at the plans of the excavated eighteenth-century farms, it is often difficult to tell which side of the

house is the front and which the back. When the front can be identified, it often turns out, as at the Benjamin Wynn tenant farm and the McKean/Cochran Farm, that large trash pits and substantial deposits of sheet refuse are right outside the front door. Archaeology shows us that the arrangement of space we see on farms today is a more recent development, probably of the Victorian period (Garrison 1991).

The size of the plowzone sample used to generate distribution maps varied from one percent at the Augustine Creek South to 100 percent in the core area of the Whitten Road Site. No detailed statistical study of the variation in results has been carried out, and such a study would probably be helpful. The impression one gets from a perusal of the published reports is that there is little difference in the information provided by the five percent sample excavated at the McKean/Cochran Farm Site and the larger samples. Even the one percent samples excavated at the Augustine Creek North and South sites contain much useful information. In planning their excavations, archaeologists should be aware that in most cases the only use that will be made of plowzone data will be statistical, and therefore a statistically valid sample will be adequate for most purposes. The only example known to the author of important nonstatistical data from plowzone contexts in Delaware comes from the discovery of four blue beads in the plowzone at the Bloomsbury Site, which Heite and Blume think may have defined the corners of a house.

Although most of the farm plans uncovered in Delaware resemble one another, one farm revealed a different plan. This unique plan was found by Ron Thomas (1983) and his collaborators at the Marsh Grass Site near Lewes in Sussex County. This site, occupied from about 1780 to 1820 by

unknown tenants, consisted of a post-in-the-ground house and a yard (Figure 25). The rectangular yard, which measured 96 by 118 feet, was surrounded by a ditch and a hedge. The house was near one corner of the yard, and there were concentrations of artifacts in two of the other corners that the excavators believed might have been the remains of outbuildings. This yard is strikingly different from the rather random agglomerations of buildings and fence fragments found on other Delaware farms of this period. However, it does not represent a new style of building, but a very old one. The yard resembles the “tofts” found in the open field villages of medieval Europe. In these communities each villager owned two kinds of property, strips of land in the open fields around the village and a toft, a fenced or hedged yard containing a house, garden, and outbuildings. It is hard to guess how such a farm came to be built in the marshy country around Lewes, especially so late in the eighteenth century, but its presence reminds us that every community includes individualists whose behavior does not conform to the standards of their neighbors.

4. *Diet*

One of the main areas of research in historical archaeology is foodways: what did people in the eighteenth century eat? Written records can certainly tell us much about diet, but not necessarily

everything we want to know. Probate inventories show that the farmers of eighteenth-century Delaware grew grain primarily (see Chapter I), and that they also had gardens and orchards and raised a variety of animals. Ceramic vessels and other kitchen implements can sometimes provide information about what people ate, and about how they ate it. Direct archaeological evidence of diet comes chiefly in the form of animal bone. Eighteenth-century sites typically yield thousands of pieces of animal bone, although often much of the bone is too poorly preserved to be identifiable. Bones can be used to study meat in the diet as well as stock-raising practices and other matters. Plant remains are much scarcer. Recovery of plant remains depends for the most part on soil flotation, although sometimes peach pits and other large remains may be found during hand excavations. Two important problems limit what archaeologists have been able to learn about plant foods in the eighteenth century. First, the seeds and grains recovered from flotation are not necessarily representative of the plant foods eaten. Some foods, such as cherries and squash, contain large seeds that may survive, whereas others, such as lettuce, do not. Second, recovery of plant remains at rural Delaware sites has simply not been very successful, and the data available for the study of plant foods are still very limited.

a. Faunal Remains

The animal bones from archaeological sites can provide data on several different aspects of the interactions between people and animals, including what animals people exploited, and how; which animals people ate, what parts of the animals were eaten, and something about how they were cooked and served; and how farmers managed their herds and flocks. The remains of wild animals provide information on hunting and fishing. The remains of non-food species, such as dogs and cats, tell us what kinds of pets people kept, and the ways used to dispose of dog and cat bones show how people felt about their animal companions.

Faunal analysis has been a regular part of historical archaeology for more than 20 years, and detailed analyses have now been done on the collections from several Delaware sites (Table 18). The number of bones recovered from these sites, and the condition of the bones, have varied widely. The acidic soil of Delaware is harsh on bone, and bones survive well only if they are buried (below the reach of the plow) in deposits where oyster shell and wood ash have raised the pH into the basic range. This typically means that most well-preserved bone will be recovered from deep features such as wells and cellar holes. Shallow pits may preserve ceramics and metal objects, but usually not bone. For example, at the Whitten Road Site, the archaeologists recovered more than 11,200 ceramic sherds and were able to identify more than 380 vessels, but they recovered only 800 pieces of bone and were able to identify only 34 of them to the species level. Of the 10 sites included in Table 18, only three really had the kind of large, well-preserved collections faunal analysts prefer to deal with: the William Strickland Plantation, Thomas Dawson, and McKean/Cochran Farm sites. The other collections are too small and poorly preserved to sustain a high level of analysis.

Another problem with faunal analysis as a tool for understanding the past is that different analysts use widely varying techniques and present their results in quite different ways. Some analysts simply give the number of pieces of bone found, a number called the Total Number of Fragments, or TNF. The TNF is the most common number given for small or highly fragmentary collections. TNF values are not necessarily a good measure of the amount of bone found, however, because the same

Table 18. Faunal Remains from Delaware Farm and Rural Dwelling Sites, 1730-1830

Analyst Method Site	UDCAR				Marie-Lorraine Pipes					E. Otter
	NISP	NISP	NISP	TNF	MNU	MNU	MNU	MNU	MNU	TNF
	John Powell	Wm. Strickland	Darrach Store	Benj. Wynn	Aug. Crk. S	Thomas Dawson	McKean/ Cochran I	Aug. Crk. N.	McKean/ Cochran II	Blooms- bury
Mammal										
Cattle	470	987	81	156	178	296	133	39	208	46
Pig	700	1,139	74	120	143	426	135	42	452	166
Sheep/Goat	106	249	12	26	43	60	86	23	95	9
Horse	241	95	4	99	8	10	9	1	9	3
Dog	191	75	1	23	1	3	4	.	5	.
Cat	.	3	3	.	2	1	6	1	27	.
Deer	205	99	.	.	.	3	1	.	1	1
Rabbit	3	3	1	.	1	20	12	2	29	3
Raccoon	34	2	.	2	.	2	3	.	2	.
Squirrel	.	21	1	.	4	37	1	.	19	.
Opossum	3	3	2	.	.	5	4	.	5	.
Muskrat	.	2	39	.	.	.	.	.	43	7
Woodchuck	.	3	.	.	.	.	.	.	2	.
Rat	.	3	28	.	.	1	16	.	96	.
Mink	.	.	.	.	.	.	.	.	2	.
Rodent	.	.	.	.	.	.	18	.	24	5
Small	.	76	.	.	18	46	21	5	77	.
Medium	.	4,672	.	.	.	48	53	.	128	1
Large	.	530	.	.	72	32	10	25	21	561
<i>Subtotal</i>	<i>1953</i>	<i>7,962</i>	<i>246</i>	<i>426</i>	<i>470</i>	<i>989</i>	<i>512</i>	<i>138</i>	<i>1,246</i>	<i>802</i>
Bird										
Chicken	.	8	.	.	18	51	64	5	129	2
Turkey	.	3	.	.	1	.	3	.	8	.
Goose	.	10	11	.	.	2	17	2	50	.
Duck	.	.	.	.	.	5	5	.	22	1
Pigeon	.	.	.	.	1	1	15	1	19	.
Blue Jay	.	.	.	.	.	.	.	.	8	.
Woodpecker	.	.	.	.	.	.	.	.	2	.
Medium	.	.	.	.	.	.	.	.	.	14
Unidentified	61	.	69	17	29	43	35	7	120	1
<i>Subtotal</i>	<i>61</i>	<i>21</i>	<i>80</i>	<i>17</i>	<i>49</i>	<i>102</i>	<i>139</i>	<i>15</i>	<i>358</i>	<i>18</i>
Fish										
Catfish	5	61	2	.	7	4	17	.	69	1
Perch	1	14	1	.	.	11	.	.	.	25
Gar	.	.	.	.	.	.	.	.	.	2
Shad	.	.	.	.	44	.	9	.	53	.
Striped Bass	.	.	.	.	5	1	.	.	15	.
Drum	.	.	.	.	.	271	.	.	1	.
Cod	.	.	.	.	.	.	1	.	.	.
Unidentified	14	95	2	1	619	194	238	65	129	3,666
<i>Subtotal</i>	<i>20</i>	<i>170</i>	<i>5</i>	<i>1</i>	<i>675</i>	<i>481</i>	<i>265</i>	<i>65</i>	<i>267</i>	<i>3,694</i>

Table 18. Faunal Remains from Delaware Farm and Rural Dwelling Sites, 1730-1830 (continued)

Analyst Method Site	UDCAR				Marie-Lorraine Pipes					E. Otter
	NISP	NISP	NISP	TNF	MNU	MNU	MNU	MNU	MNU	TNF
	John Powell	Wm. Strickland	Darrach Store	Benj. Wynn	Aug. Crk. S	Thomas Dawson	McKean/ Cochran I	Aug. Crk. N.	McKean/ Cochran II	Blooms- bury
Reptile										
Snapping Turtle	5	.	.	228	.	2	1	.	12	2
Box Turtle	7	42	.	.	.	.	.	.	6	43
Terrapin	81	2	.	.	.	.	.	.	.	.
Diamondback Turtle	.	38	.	.	.	.	.	.	.	1
Blanding's Turtle	.	.	.	.	.	.	1	1	4	.
Musk Turtle	.	.	.	.	.	.	.	.	.	1
Wood Turtle	.	.	.	.	.	1	.	.	.	.
Pond Slider	.	.	.	.	.	.	.	.	2	.
Soft-Shell Turtle	.	.	.	.	.	.	.	.	1	.
Unidentified Turtle	212	33	9	.	3	11	6	.	10	27
<i>Subtotal</i>	<i>305</i>	<i>115</i>	<i>9</i>	<i>228</i>	<i>3</i>	<i>14</i>	<i>8</i>	<i>1</i>	<i>35</i>	<i>74</i>
Amphibian										
Unidentified Frog	.	18	.	.	1	1	.	.	.	1
<i>Subtotal</i>	.	<i>18</i>	.	.	<i>1</i>	<i>1</i>	.	.	.	<i>1</i>
Bone										
Unidentified	4,816	.	381	317	1	.	1	.	2	117
TOTAL	7,155	8,286	721	989	1199	1,587	925	219	1,910	4,706

amount of bone broken into smaller pieces would provide a higher count. Many analysts therefore prefer to determine the smallest number of bones (skeletal elements) that could have produced the recovered bone fragments. Most of the analysis done on Delaware historic sites has been performed by the laboratory at UDCAR or by Marie-Lorraine Pipes, who has analyzed the collections from sites excavated by Berger. Pipes and the UDCAR laboratory employ slightly different techniques for calculating the number of bones, a value UDCAR calls NISP (Number of Identifiable Specimens) and Pipes calls MNU (Minimum Number of Units). The main difference is that Pipes groups more elements together, especially from skulls and jaws, making her counts slightly lower. There are also other, more minor differences in technique that affect the counts; for example, Edward Otter, who did the faunal analysis for the Bloomsbury Site, considers pig and sheep to be large mammals, while UDCAR and Pipes consider them medium mammals. Because of these technical differences, no attempt has been made to combine the data from the different sites into a single average distribution.

Yet another common way of quantifying animal bones is to compute the Minimum Number of Individuals, or MNI. The MNI is the smallest number of animals of a particular species that could have produced the recovered bones. The calculation of MNIs has been a common part of UDCAR's practice, so these numbers are available for several Delaware sites, including John Powell, William Strickland, and Darrach Store. Pipes believes that MNIs are of questionable value for redeposited,

highly fragmentary material such as that recovered from most rural archaeological sites, and she has calculated them only for the Thomas Dawson Site. When they can be calculated with a reasonable degree of confidence, MNIs are very useful for studying stock-raising practices.

With these caveats made, Table 18 does nevertheless show a common pattern for the 10 sites. Cattle and pigs provide the bulk of the meat in every case. Sheep (or possibly goat) bones were found on every site and were common on most of them. Horse bones, in many cases butchered, were found on all the sites, indicating that horse meat was commonly eaten. The eating of horse seems to have declined over time, since the highest count was at the John Powell Plantation Site (1691-1735) and the sites from after 1760, except for the Benjamin Wynn Site (1765-1820), all produced low counts. Chicken bones were identified on all of the sites where the bird bones were analyzed in detail (they were not analyzed on some of the UDCAR sites), and turkey and goose were also common. Overall, domestic animals provided the great majority of the meat eaten. Dog and cat bones were common, but showed no evidence of butchering, so these animals were probably not eaten. On the other hand, the bones turned up in the same trash pits as the kitchen scraps, so people did not treat the corpses of their pets with special sentiment.

The wild meat came from a wide variety of mostly small animals. Squirrel, rabbit, and raccoon were the most common wild mammals. The only sites to yield many deer bones were the John Powell and William Strickland plantations, which are two of the earliest in the sample. At the John Powell Plantation, occupied between 1691 and 1735, the 205 deer bones came from at least three different adults, making up a substantial percentage of the total meat on the site. The bones from the William Strickland Plantation included a deer skull that had been mounted as a trophy. Otherwise, small animals predominated. Turtle bones were found on all sites and included a large variety of species. The most common fish were catfish, perch, and shad, all of which can be taken with a hook and line in many Delaware streams. The wild food came mostly from animals that men and boys could catch in their spare time, without any kind of elaborate gear. Hunting and fishing seem to have been common pastimes rather than economically central activities. The one common wild food that may have been collected by professionals was shellfish. Oyster and clam shells were found at all of the sites, including those, such as Thomas Dawson and the Augustine Creek sites, that were miles away from any oystering grounds. These collections span the period from 1691 to 1840, but the only changes over time are the rapid decline in deer and a slow rise in muskrat, which first becomes common in the collections from the Darrach Store (1805-1840) and the later features at the McKean/Cochran Farm (1790-1830).

The Delaware faunal evidence shows that beef and pork were the most common meats on all farms, with some sheep and horse and an occasional meal of catfish or squirrel stew. The changes over the period from 1700 to 1830 are quite minor: less horse, less deer (which was being hunted nearly to extinction in much of the east), and more muskrat. The bones from the Bloomsbury Site, which was occupied for much of its history by American Indians, are not strikingly different from those found on white-occupied sites. Throughout this period the meat on all the sites in the sample was butchered in the traditional way, that is, hacked with knives and cleavers into large chunks suitable for roasting or stewing. There is no evidence of a change in the traditional diet, nor of any major differences between people of different ethnic or cultural backgrounds.

To advance our knowledge of eighteenth-century foodways, what is most needed are large, well-preserved, tightly dated collections. A collection that could be associated with a household of known composition would be particularly valuable. A poorly preserved collection might be worth investigating if it came from a tightly dated context, but mixed deposits that might include animals slaughtered in many different decades would not be particularly valuable even if well preserved. No faunal collection from a site occupied by African Americans has been identified, and even a very fragmentary collection from such a site would also be valuable.

The only sites providing detailed data on stock raising are the William Strickland Plantation and Thomas Dawson sites, although some information can be gleaned from the smaller collections on other sites. (MNI analysis was not carried out on the collection from the McKean/Cochran Farm.) On these sites pigs were mostly butchered as adolescents, between nine months and 18 months of age, although some specimens were younger than six months and others as old as two years. Many writers on colonial agriculture maintain that it was customary to slaughter most of the year's new pigs at a single occasion in November (Earle 1898; Fletcher 1950; Jensen 1986:37). However, the archaeological data suggest a more complex and variable approach. If most of the pigs were killed at once, more of them ought to be of the same age; the wide range in ages implies that many pigs were slaughtered during the year as meat was needed. A November slaughter may have been an ideal, or an important tradition, but real life on these farms was not so well regulated. Cattle and sheep were mostly slaughtered as adults. The cattle bones therefore do not match the pattern that would be expected from a commercial dairy farm, since dairy farmers kill or sell off most of the male cattle when they are still young. Although most Delaware farmers in the 1730 to 1830 period engaged in some dairying, the cattle bones suggest that they remained generalists, also committed to producing grain and beef. However, since the amount of useful data on herd management is still so small, these conclusions must be very tentative, and more data would be very helpful.

b. Plant Remains

Meat was only a minor part of the diet of many eighteenth-century people. Bread was the staff of life, and it was supplemented by a variety of fruits and vegetables. Archaeological data on plant use come mostly from soil flotation, which can lead to the recovery of charred grains, seeds, and nut fragments. Soil flotation has been carried out at several rural Delaware sites, but in a rather limited way for the most part. Some evidence of plant foods has been obtained, but it has been very limited. Of course, people use plants for many purposes beyond food, such as for medicine, clothing, and ornamentation. Table 19 shows which plants have been found on the sites where flotation has been used; because the sample sizes are so variable and the numbers so low, no quantification has been attempted. In general, the best deposits were found at the bottom of wells, especially at the John Powell Plantation and Bloomsbury sites.

Table 19 actually provides very little data on eighteenth-century diets. Corn and wheat were found on many sites, but the bare fact that these grains were grown and eaten is well known from written records, and the archaeological remains found to date provide no detail about how they were raised or prepared. Peach pits were found on eight of the 10 sites in the table. Since only about 10 percent of Orphans' Court assessments mention peach orchards (Bedell et al. 2001), the archaeological data do show that the eating of peaches was more common than one might have guessed from the written

records. The other fruit remains probably show that the eating of seasonal wild fruits was a common (and no doubt much-anticipated) activity, but small seeds like those of raspberries and blueberries can be transported by birds, small mammals, and even strong winds, and may have been introduced into archaeological assemblages in many ways (Miller 1988; Minnis 1981). The seeds of dozens of different wild annuals (“weeds”) were found in some deposits, most of them no doubt naturally introduced. Table 19 includes three weed species that have commonly been eaten in more recent times, but the presence of their seeds shows only that they were growing in the vicinity of the farm and does not prove that they were eaten or otherwise used.

Table 19. Remains of Food Plants from Delaware Farm Sites, 1730-1830

	John Powell	Wm. Strickland	Aug. Crk. S.	Thomas Dawson	McKean/ Cochran I	Benj. Wynn	Blooms- bury	McKean/ Cochran II	H. Grant Tenancy	Darrach Store
Grains										
Corn	x	x	x	x	x	.	x	x	.	x
Wheat	.	.	x	x	.	.	.	x	.	.
Bean	.	.	.	.	.	.	x	.	.	.
Fruit Seeds										
Peach	.	x	.	x	x	x	x	x	x	x
Grape	.	.	.	.	.	x	x	.	.	.
Blueberry	x	.	.	.	.	.	x	.	.	x
Raspberry	x	.	.	.	x	x	x	.	.	x
Cherry	.	.	.	x	.	.	x	.	x	.
Elderberry	.	.	.	.	.	.	x	x	.	.
Vegetable Seeds										
Tomato	.	.	.	.	.	x	.	.	.	.
Squash	.	.	.	.	.	x	.	.	.	.
Nut Shell										
Hickory	x	.	.	.	.	x	.	.	.	.
Walnut	x	.	.	.	x	x	.	.	.	x
Pecan	.	.	.	.	.	x	.	.	.	.
Unidentified	.	x	.	.	.	.	x	.	.	.
“Weeds”										
Pokeweed	x	.	x	.	.	x	x	.	.	x
Purslane	.	.	x	.	x	x	x	x	.	x
Dock	.	.	.	.	.	.	x	.	.	x

A great many plant species that we know were used in the eighteenth century are missing from Table 19. No grains but corn and wheat have been found, although the probate inventories mention rye, barley, oats, and buckwheat. There are no apple seeds, even though we know apple orchards were very common and cider one of the main drinks. Flax was a nearly universal crop, and flaxseed was exported from Philadelphia, but none of these dense, oily seeds have been found. Only the Benjamin Wynn Site yielded vegetable seeds.

Despite the large number of wells that have been excavated, and despite the many organic-rich soil strata that have been sampled, archaeology has added very little to our knowledge of plant foods and gardening in eighteenth-century Delaware. Since written records are also not particularly informative about these topics, our knowledge remains limited. We know that most people in rural

Delaware had gardens, but we do not know what plants they grew, how much variability there was between different gardens, or how much gardening practices changed over time. Further flotation studies will certainly be helpful, adding to the trickle of data, but we should not expect great revelations. Since most of these sites have been plowed, other techniques, such as phytolith study, will not be helpful. Perhaps studies around surviving eighteenth-century houses, where the gardens have not been plowed, will help (Kelso and Most 1990), but these will mostly be properties of the elite; the gardens of poor and ordinary farmers remain elusive.

5. *Artifacts*

From every excavation of an eighteenth-century site archaeologists bring back thousands of artifacts. What are they good for? We usually refer to the objects and artifacts people have left behind as their “material culture.” The phrase “material culture” implies that objects reflect, or are part of, the culture of the people who use them, and that they can therefore be used to study that culture. Humans do, indeed, have a very rich and complex relationship with the material objects they make and use. We have an enormous variety of tools, for getting food, building shelter, delivering babies, and every other practical purpose. We also have objects with no immediate practical purpose, things we call art, or magic, or status symbols, or, in the late twentieth century, “collectibles.” The two categories merge more often than not, and many things with clear practical functions, such as clothes and houses, also serve to fill our lives with beauty and meaning. People’s material possessions can therefore tell us much about them, from the kind of work they do to their ideas about beauty, politics, and the structure of the universe.

We must be careful, however, about imparting too much meaning to archaeological finds. People choose some objects carefully, investing a great deal of themselves in the choice, but they pick up other things simply because they are available or inexpensive. The wishes of people in Delaware were not the most important factor driving European industry, so some of the objects we dig up may reflect the tastes, not of the Delawareans who owned them, but of consumers in London or Amsterdam. People in Delaware may simply have had little choice. Changes in transatlantic trading patterns and British business practices may have had major impacts on the goods available for purchase in Delaware. We must also keep constantly in mind that what we find is a small subset of what was once owned by the occupants of the site, and not necessarily a particularly representative subset. Missing objects made of wood, cloth, pewter, or silver, if we had found them, might have changed our view of the site and its occupants completely.

a. Ceramics

The most common artifacts on most eighteenth-century farm sites are sherds of pottery. They are the main means by which we date sites, and since they make up the bulk of most plowzone collections, the distribution of ceramics is the chief means by which we determine the size of sites and define activity and disposal areas. The most common ceramic type from all the sites in our sample is coarse red earthenwares, although redware is rivaled toward the end of the period by pearlware. Some redwares were imported into the colonies, but by 1730 many were also being made in the Delaware Valley, and by 1800 most coarse redwares found on Delaware sites were probably

locally made. Certain types, such as slip-decorated pans and dishes and “petaled” bowls shaped like Chinese porcelain bowls, became local specialities and can usually be identified.

Counts of potsherds are useful for many purposes, but we can get closer to the ceramics actually used by the residents by calculating the Minimum Number of Vessels (MNV). The calculation of ceramic MNVs has been a regular feature of historic excavations for more than a decade, resulting in a large body of data that can be used to study daily life in the past. There are some difficulties with these counts, most of them caused by problems in the artifact collections. Many of the deposits investigated to date are secondary, or redeposited, and the ceramic vessels are typically highly fragmentary. When the vessels are less than 10 percent complete, identifications are not altogether reliable. Also, certain kinds of vessels, especially edge-decorated plates and handpainted teawares, are much easier to identify from small fragments than coarse red earthenware crocks and pans. Therefore, MNV tables usually exaggerate the number of decorated vessels compared to the number of undecorated coarse earthenware vessels. However, all of the sites excavated in Delaware to date have this difficulty, to a greater or lesser extent, so comparisons of the ceramic vessels from these sites should have considerable validity.

MNV data have been used in Delaware in various ways. Several of the reports written by UDCAR archaeologists use simple statistical tests, such as difference of proportion, to compare the collections from Delaware sites with one another. These tests have turned up some differences. For example, the household of John Powell, a property owner, had a greater investment in tablewares and decorated ceramics than the tenants who later occupied his site or the tenants at the late seventeenth-century Richard Whitehart Plantation (Table 20). However, there are difficulties with the data on which this statistical approach has been based. One problem with comparisons between the excavated eighteenth-century sites is that after 1720 the ceramics industry changed very rapidly, so that other distinctions between collections are likely to be obscured by temporal differences even if the collections being compared are only a decade apart in age. All of the differences between the ceramic vessels from the William Strickland Plantation and those from the John Powell and Richard Whitehart plantations, as shown in Table 20, could be the result of changes over time. Any differences caused by class, ethnicity, or individual preference would be obscured. Since many of the larger collections, such as those from the cellars at the McKean/Cochran

Table 20. Ranked Ceramic Vessel Frequencies and Difference of Proportion Tests, William Strickland, John Powell, and Richard Whitehart Plantations

TEAWARE	Frequencies	Tests		
		P	S	
Strickland (S)	20%	W	1.57	2.45
Powell (P)	9%	P		1.81
Whitehart (W)	0%			
TABLEWARE		P	S	
Powell	57%	W	2.10	0.46
Strickland	38%	P		2.77
Whitehart	32%			
KITCHEN/ STORAGE		P	S	
Whitehart	68%	W	3.05	2.93
Strickland	38%	P		0.84
Powell	31%			
TOILET		P	S	
Strickland	6%	W	0.68	1.26
Powell	2%	P		0.22
Whitehart	0%			

Statistically significant values in bold. Source: Grettler et al. 1995

Farm, seem to derive from periods of 30 to 50 years, comparison of these collections with those from other sites raises even more problems. Other examples of these site comparisons are found in the reports on the William Strickland Plantation and Darrach Store sites.

The approach taken by Berger has emphasized the comparison of large groups of sites rather than site pairs, and has relied less on precise statistics (Tables 21 and 22). The main result of this analysis has been to point up the overall similarity in the collections from rural Delaware Valley sites, both in the wares and in the types of vessels found. It can be seen from Table 21 that coarse earthenwares are the most common vessels on all of the rural eighteenth-century sites except the Thomas Dawson Site; and when we consider that refined vessels are easier to identify and are therefore over-represented, the preponderance of coarsewares becomes even greater. On urban and tavern sites, refined wares compose a larger part of the assemblage, which one would expect, since many of the coarseware forms were used in dairying and other farm work. Toward the end of the eighteenth century, and especially early in the nineteenth, the percentage of refined vessels climbs. This change is caused primarily by an increase in the number of refined vessels, especially creamware and pearlware plates, bowls, and teawares, rather than a decrease in the importance of coarse earthenwares. In the Delaware Valley, coarse earthenwares remained important well into the nineteenth century. A comparison with a group of sites in the Chesapeake region shows that in Virginia and Maryland coarse earthenwares had nearly disappeared by 1800, and decorated earthenware pans and dishes, a traditional European form maintained by Delaware Valley potters, had been completely abandoned (Bedell et al. 1999:87-90).

Table 21. Ceramic Vessels from Delaware Valley Sites, by Ware Type

Site	Date	Type	Coarse Earthenwares	Coarse Stonewares	Refined Wares	Porcelain	Total Number of Vessels
John Powell ¹	1690-1735	Farm	72.5	.	27.5	.	51
John Tyndall ²	1720-1740	Farm	69.5	5.7	22.4	2.3	174
Wm. Strickland ³	1726-1764	Farm	65.5	4.4	25.8	4.4	229
Augustine Creek S. ⁴	1726-1760	Farm	54.4	1.2	43.0	1.0	309
Thomas Dawson ⁵	1740-1780	Farm	46.8	0.8	52.7	4.7	405
Old Swedes ⁶	1757-1768	Town Parsonage	51.2	.	38.4	10.5	86
Augustine Creek N. ⁴	1750-1770	Tenant Farm	68.0	2.0	30.0	.	50
McKean/Cochran I ⁷	1750-1790	Tenant Farm	52.5	.	37.0	10.5	200
New Market St. ⁸	1765-1775	Urban Privy	26.8	0.7	54.9	17.6	403
Charles Robinson ⁸	1760-1782	Farm	57.2	2.1	35.8	4.9	528
Ogletown Tavern ⁹	1740-1820	Crossroads Tavern	38.7	.	61.3	4.5	375
Benjamin Wynn ¹⁰	1765-1822	Tenant Farm	45.4	0.5	53.7	0.5	218
Whitten Road ¹¹	1760-1830	Tenant Farm	61.5	1.6	33.3	3.6	384
Darrach Store ¹²	1775-1860	Tenant House	58.6	1.6	35.9	4.0	251
McKean/Cochran II ⁷	1790-1830	Farm	30.8	1.2	51.8	16.2	517
Thos. Williams I ¹³	1792-1840	Tenant Farm	23.5	.	67.8	8.7	174
Charles Allen I ¹⁴	1800-1830	Dwelling	25.3	2.4	61.8	11.2	249
7 th & Arch Streets ¹⁵	1800-1820	Urban Households	23.7	1.1	64.5	10.7	262

Sources: ¹Grettlar et al. 1995; ²Berger 1986; ³Catts et al. 1995; ⁴Bedell et al. 2001; ⁵Bedell et al. 2002; ⁶LeeDecker et al. 1990; ⁷Bedell et al. 1999; ⁸Thomas et al. 1994; ⁹Coleman et al. 1990; ¹⁰Grettlar et al. 1996; ¹¹Shaffer et al. 1988; ¹²De Cunzo et al. 1992; ¹³Catts and Custer 1990; ¹⁴Basilik et al. 1988; ¹⁵Dent et al. 1997

The vessel forms identified at our group of Delaware Valley sites are compared in Table 22. It is somewhat difficult to compare the types and functions of vessels among sites, because different ceramic analysts use different terms for vessels and classify them in different ways. However, one can compare a substantial number of Delaware Valley sites using the outputs of only two laboratories. The ceramics from the John Powell, William Strickland, Ogletown Tavern, Benjamin Wynn, Whitten Road, and Darrach Store sites were all analyzed at UDCAR, while those from the John Tyndall, Augustine Creek South, Augustine Creek North, Old Swedes Parsonage, McKean/Cochran Farm, and 7th & Arch Streets sites were all analyzed at Louis Berger & Associates, Inc. There are some differences in the results from these two organizations. For example, Berger analysts identify many more porringers than UDCAR does, and UDCAR analysts classify as plates many redware and slipware vessels that at Berger would probably be called dishes. Nevertheless, the overall approach is similar enough to make the comparison valid, within certain limits. Table 22 shows the vessels identified in the reports from these sites. The table includes two other sites, the Charles Robinson Plantation, where the ceramics were analyzed by Betty Cosans Zeebooker of Philadelphia, and the Charles Allen Site. The Charles Allen Site was excavated by CHRIS, Inc. The approach taken by Cosans and the CHRIS approach seem to be similar to that taken by the University of Delaware, although a single site is not enough for a detailed comparison. A more serious problem with the vessels from the Charles Robinson Plantation is the uncertainty about where they came from. The site is less than a mile from the town of Odessa, and so many vessels were found at the site, including 46 teapots, that one wonders if someone perhaps hauled a few wagonloads of trash to the site and dumped them in Robinsons' cellar hole. However, the overall pattern of ceramics from the site seems to match that of other sites in the sample. The report on the ceramics from the New Market Street Privy in Philadelphia, included in Table 21, is not sufficiently detailed for the vessels to be included in Table 22 (Cosans 1981). The only site without teacups and saucers was the John Powell Plantation, which was abandoned by 1735; tea drinking and the associated vessels seem to have been nearly universal by the 1740s. It was common for the tea *équipage* to be the finest ceramics in the household. For example, nine of the 10 Oriental porcelain vessels found at the William Strickland Plantation were teawares, as were seven of the nine scratch-blue stoneware vessels. Likewise, most of the porcelain and handpainted pearlware vessels from the later deposits at the McKean/Cochran Farm (1790-1830) were teawares. Tea drinking was a status-enhancing activity and an important way of entertaining guests, and Delaware farm families seem to have wanted to put on a good show.

The work done to date has established a general pattern of ceramics that one would expect to find on farm sites of the 1730 to 1830 period. Still, much remains to be learned. Many of the artifact-rich features excavated to date have contained redeposited material of several different periods, setting limits on its analytical usefulness. Tightly dated secondary deposits remain valuable from any type of site, especially if they can be associated with a well-documented household. Also, our material comes largely from white farmers of middle to upper-middle status, and collections from poor tenant or minority households would still be very useful. Unfortunately, collections from such sites are likely to be small and poorly preserved; the excavators of Bloomsbury (Heite and Blume 1998), a site occupied by Native American tenant farmers, decided that their collection was simply too fragmentary for MNV analysis. A well-preserved collection from such a household would be a particularly important find. A collection from a truly high-status household would also contribute a good deal, since no such site has been thoroughly excavated in the state.

Table 22. Ceramic Vessels from Selected Delaware Valley Sites

		John Powell ¹	John Tyndall ²	Wm. Strickland ³	Aug. Creek S. ⁴	Thomas Dawson ⁵	Aug. Creek N. ⁴	McKean/ Cochran I ⁶	Old Swedes ⁷
Tea	Cup	.	5	19	30	34	2	13	11
	Saucer	.	11	10	37	24	1	19	6
	Teapot	.	.	3	8	9	1	1	4
	Misc.	.	.	1	5	5	.	.	.
Table	Plate	7	10	26	6	3	1	2	17
	Bowl	.	3	24	18	19	1	12	8
	Porringer	1	22	4	18	9	1	10	1
	Pitcher	1	.	.	.	.	.	.	1
	Platter	.	.	3	.	.	.	2	.
	Misc.	.	.	.	4	8	.	8	.
Non-Tea	Mug	15	15	.	30	14	8	7	.
Drinking	Cup	5	4	10	3	.	.	.	.
	Mug/jug	.	2	41	.	3	.	16	.
	Punch bowl	.	.	.	1	.	.	.	.
Storage	Jar	8	11	4	20	9	1	10	.
	Pot	.	.	13	.	.	.	.	.
Food	Milk pan	7	.	23	20	17	1	15	11
Prep- aration	Pipkin	.	.	.	1	.	.	1	1
	Colander	.	.	.	.	.	.	1	.
Multi- Function	Dish	.	9	8	21	11	4	10	15
	Pan	1	8	.	23	9	1	14	2
	Jug	4	.	.	4	6	1	5	.
	Bottle	1	1	.	.	.	.	.	.
	Large bowl	3	12	15	.	2	.	2	3
Sanitary	Chamber	.	.	9	3	2	.	3	6
	Ointment	1	1	4	.	.	1	1	.
	Drug jar	.	.	1	.	.	.	.	.
Other	Toy	.	.	1	.	.	.	.
Unid.	Hollow	.	23	20	52	223	.	50	31
	Flat	.	.	.	.	.	.	.	4
	Unid.	.	.	.	.	.	.	.	19
Total		54	174	237	309	405	24	202	140

Table 22. Ceramic Vessels from Selected Delaware Valley Sites (continued)

		Ogletown Tavern ⁸	Benj. Wynn ⁹	Whitten Road ¹⁰	Charles Robinson ¹¹	McKean/ Cochran II ⁶	Charles Allen I ¹²	Darrach Store ¹³	7 th & Arch ¹⁴
Tea	Cup	30	32	37	58	64	26	23	32
	Saucer	11	32	12	52	71	8	5	39
	Teapot	2	9	5	46	15	5	2	8
	Creamer	.	.	.	.	.	.	1	.
	Misc.	.	.	.	.	10	.	8	1
	Cup/sm. bowl	5	.	18	.	.	.	.	.
Table	Plate	59	26	21	36	89	52	33	46
	Dish	14	.	1	.	1	.	.	5
	Bowl	32	25	23	27	54	27	19	19
	Porringer	1	3	.	.	5	.	.	3
	Pitcher	5	1	.	6	4	12	1	6
	Platter	4	3	.	4	.	.	.	1
	Misc.	.	2	2	1	7	.	2	5
Non-Tea	Mug	46	6	5	8	18	3	4	11
Drinking	Cup	39	.	10	.	.	.	.	.
	Punch bowl	3	1	.	.	.	.	.	.
Storage	Jar	1	11	32	34	15	.	1	4
	Pot	10	.	1	.	.	1	14	.
Food	Milk pan	7	6	1	5	30	16	2	1
Preparation	Colander	.	.	.	.	1	.	.	.
	Cooking pot	6	.	.	.	.	.	2	.
Multi-Function	Dish	8	27	73	91	14	.	18	8
	Pan	4	17	.	90	21	.	12	9
	Jug	5	6	.	9	7	3	4	4
	Bottle	2	.	.	1	.	3	.	.
	Large bowl	20	13	13	54	1	4	22	4
Sanitary	Chamber pot	12	1	9	6	2	6	2	14
	Basin	.	.	.	.	.	.	.	3
	Ointment pot	1	.	.	.	.	1	.	.
Activities	Toy	.	.	.	.	2	.	.	10
	Flowerpot	.	.	.	.	.	.	.	4
Unid.	Hollow	22	8	47	.	.	.	22	.
	Flat	23	.	6	.	.	.	.	.
	Unid.	3	.	68	.	.	79	54	10
Total		375	229	384	528	431	249	251	252

Sources: ¹Grettlter et al. 1995; ²Berger 1986; ³Catts et al. 1995; ⁴Bedell et al. 2001; ⁵Bedell et al. 2002; ⁶Bedell et al. 1999; ⁷LeeDecker et al. 1990; ⁸Coleman et al. 1990; ⁹Grettlter et al. 1996; ¹⁰Shaffer et al. 1988; ¹¹Thomas et al. 1994; ¹²Basilik et al. 1988; ¹³De Cunzo et al. 1992; ¹⁴Dent et al. 1997

Simply noting the ware type and form of a vessel, of course, hardly describes it completely or exhausts its information potential. The investigators of the Darrach Store Site (De Cunzo et al. 1992) pointed out that although the ceramics identified at the site represented rather few forms, there was a very great variety within the vessel forms. For example, 18 slip-decorated redware dishes or “pie plates” were identified, all roughly the same size and shape. However, they had been decorated with three different techniques in several different patterns, and their edges had been modified with several different cogging tools. The impression is that the residents were intentionally seeking variety. On the other hand, the scratch-blue white salt-glazed stoneware teaware vessels from the Augustine Creek South Site were so similar to each other as to effectively comprise a set. These details, not included in simple comparisons such as those presented in Table 22, can have an important bearing on how we understand the residents of a site and interpret their consumer habits.

One of the most obvious weaknesses in our knowledge of eighteenth-century Delaware is our ignorance of foodways. We have no clear understanding of what people ate or how they prepared food. Careful study of ceramics, through archaeological and historical research, can add to our knowledge of this subject. Documentary research is helpful in determining the most common functions of the various vessel forms we unearth, and detailed study of the vessels themselves can yield information on their role in the household’s diet. A start was made on this research in Berger’s report on the Thomas Dawson Site (Bedell et al. 2002), which suggests that the large earthenware pans found on most Delaware Valley sites are related to making porridges, puddings, and other sweetened bread and grain products. That report also includes a discussion of one particular vessel form, the porringer, and its role in the dietary changes of the eighteenth century.

b. Glass

Glass of any kind is not particularly common on eighteenth-century archaeological sites in Delaware. Glass dominates many late nineteenth-century collections but in the earlier period it is much less common than ceramics. Its study can still be quite important. Table glass from archaeological sites, especially stemmed glass, can be used in reconstructing the table settings of these farm families and understanding the degree of sophistication in their table manners (Table 23). Pharmaceutical bottles can help us track the spread of commercial medicines. Window glass provides important architectural information. It has been found on all of the excavated eighteenth-century sites, even those occupied by poor tenants, indicating that by 1750 almost every house in Delaware had at least one window.

Glass MNV lists have been generated for several Delaware sites. The practice has not been quite as common as calculating MNVs for ceramics, but we still have a substantial group of lists. The lists are mostly rather short, with many fewer vessels than the ceramic vessel lists from the same sites. A comparison of glass from the Delaware sites with the early nineteenth-century deposits from the privies at the 7th and Arch Streets Site in Philadelphia shows how relatively sparse these collections are. Little analysis has been performed on these lists, but even a quick glance reveals some interesting results. Drinking glasses were identified on all the sites except Benjamin Wynn, and that site yielded two “unidentified tablewares” that were probably drinking glasses of some kind. Since drinking glasses are not common items in probate inventories, their presence on so many

archaeological sites is an important discovery, both about eighteenth-century culture and the limitations of probate inventories as sources (Bedell et al. 2002).

Wine bottles, although represented on all of these sites, are not particularly common. Archaeologists who have worked in Delaware and in the Chesapeake region have noted that eighteenth-century Delaware sites yield only a small fraction of the wine bottle glass that would be expected on a Chesapeake site (Bedell et al. 1999). The author personally excavated more wine bottle glass from one early eighteenth-century pit at Bacon's Castle in Surry County, Virginia, than has been reported from all of the eighteenth-century Delaware sites put together. It is not clear whether this difference reflects cultural preferences or trading patterns, but the difference is striking.

Table 23. Glass Vessels from Selected Delaware Valley Sites

Vessel Type	John Powell ¹	Wm. Strickland ²	Aug. Creek S. ³	McKean/Cochran I ⁴	Whitten Road ⁵	Benj. Wynn ⁶	McKean/Cochran II ⁴	7 th & Arch ⁷
Drinking Glass								
Tumbler	.	1	2	7	.	.	4	45
Stemmed	6	3	3	3	2	.	3	12
Bottle								
Wine	4	20	12	7	16	9	14	14
Square Case	1	.	2	.	5	1	1	.
Flask	1	.	.	.	.	.	.	.
Pharmaceutical	.	5	.	.	2	.	.	1
Vial	.	.	3	7	.	.	11	15
Conical Ink	1	.	.	.	.	.	.	.
Snuff	1	.	.	.	.	.	1	.
Other Mold-Blown	1	1	.	.	.	8	.	.
Unid. Bottle	.	3	6	3	.	.	9	17
Other								
Candlestick	.	1	.	.	.	.	.	.
Lamp Chimney	.	.	.	.	.	2	.	1
Unid. Tableware	.	.	.	2	.	2	5	1
Unidentified	.	2	.	.	1	.	4	6
Total	15	35	28	29	26	23	52	113

Sources: ¹Grettlar et al. 1995; ²Catts et al. 1995; ³Bedell et al. 2001; ⁴Bedell et al. 1999; ⁵Shaffer et al. 1988; ⁶Grettlar et al. 1996; ⁷Dent et al. 1997

c. *Clothing and Personal Items*

Clothing is one of the most important parts of material culture, but little of it remains for archaeologists to uncover. From eighteenth-century sites, however, we do recover buttons, buckles, and other clothing accessories made of metal, bone, and wood. From these small items we can learn a fair amount about the clothes worn by the occupants of the site, especially the men. Decorative cuff links found on the Thomas Dawson Site, some with paste stones, suggest stylish dressing, and elaborate brass shoe buckles support this impression. Similar buttons and buckles were found at the

William Strickland Plantation and the Augustine Creek South Site. Exactly how common such dressing was it is difficult to say, because many site reports do not describe small finds in any detail, and few reports represent these data in tables. An archaeologist who wants to know if a site yielded gilt buttons, carved shoe buckles, mirror glass, or a comb must usually read through the entire artifact analysis chapter hoping these artifacts are mentioned, or, failing that, plow through the entire artifact inventory. A simple list of the identifiable small finds from each site, such as in Table 24 (from the Thomas Dawson Site), would greatly facilitate this kind of analysis without great effort on the part of the report's authors. The extremely thorough discussion of the small finds from the Bloomsbury Site provided by Heite and Blume (1998) is a model of the treatment of these artifacts, but even that discussion might benefit from a table of this kind. The question is important, because buttons, buckles, and similar items can be significant evidence of consumer behavior. Clothing was a much larger component of people's expenditure than ceramics, which are the artifacts most commonly used in discussions of consumption (LeeDecker 1991). One of the most debated questions about the eighteenth century is whether people were changing their purchasing habits, or perhaps even undergoing a "consumer revolution," and knowledge of how they dressed could be crucial in answering this question (see Chapter IV).

Table 24. Small Finds from the Features at the Thomas Dawson Site

Personal		Clothing	
Coins	9	Gilt Buttons	9
Mirror Glass	2	Brass Buttons	20
Watch Crystal	1	Pewter Buttons	4
Pendant	1	Tombac Buttons	2
Comb Fragment	1	Bone Button	1
Activities		Button Inlays	5
Jews Harp	1	Brass Cuff Links	2
Clay Marble	1	Inlaid Cuff Links	2
Dividers/Calipers	1	Misc. Fasteners	3
Whetstone	1	Shoe Buckle	18
File	1	Other Buckles	3
Shovel	1	Kitchen	
Sickle	1	Knives	17
Drill Bit	2	Fork	2
Punch	2	Spoons	3
Misc. Tool Parts	2	Utensil Handle	6
Horse Shoes	7	Jar/Can Lid Pieces	16
Horse Tack	14	Sewing Related	
Stirrups	3	Straight Pins	39
Harrow Tooth	1	Sewing Needles	4
Furniture		Scissors	2
Decorative	7		

d. Tools

Tools are not common in archaeological deposits. At the McKean/Cochran Farm, which yielded more than 35,000 artifacts, only 20 identifiable hand or farm tools and tool parts were found, about .06 percent of the total. Metal tools were carefully maintained in the eighteenth century—oiled, repaired, resharpened, rehafted—and they might be kept in use for decades. Tools from archaeological contexts reflect the work being done around the farm, but usually in such a general way that they tell us nothing definite or new. The tools most important to their owners were

probably maintained with the most care, so any tools we find may not reflect the chief activities on the farm. For example, no plowshare has been recovered from a Delaware farm site. Among the more common tools in archaeological contexts are sickles, hoes, claw hammers, chisels, shovels, and axes, all things one might find on any farm or, indeed, in almost any house. Heite and Blume (1998) report that the differing agricultural regimes in Delaware and the southern Chesapeake are reflected in the agricultural tools recovered, with Delaware sites yielding more sickles and Chesapeake sites more hoes. (Hoes were used extensively in tobacco production.) This simple insight suggests that more might be learned from the distribution of tools if the collections from all of the Delaware sites could be compared. Not all of the reports list the tools recovered, however, so no such tables could be prepared without wading through the artifact inventories for all of the excavated sites.

Tools for sewing, especially straight pins, thimbles, and scissors, have been found on most sites. Again, these finds usually tell us no more than that some resident of the site was making or repairing clothes, something we would have guessed anyway. There are differences between the quantity of sewing items recovered from sites—for example, the Thomas Dawson site yielded more pins and needles than the Augustine Creek South Site—but what these differences mean is uncertain.

e. Artifact Patterning

The concept of distinctive artifact patterns, introduced by Stanley South (1977), has largely been abandoned by historical archaeologists, including all of those working in Delaware. South's original notion was to divide the artifacts from a site into functional categories, such as architectural, kitchen, and personal, and to compare sites based on the percentage of artifacts in the different categories. South defined patterns appropriate to a few categories of sites: the "Carolina Pattern," based on a group of small farm sites in the North and South Carolina Piedmont, and the "Frontier Pattern." When other archaeologists began applying the concept to a wide range of sites in other parts of North America, however, it did not work out very well. After comparing the artifacts from the "Rising Son" Tavern Site in Delaware to a group of other domestic and tavern sites, Timothy Thompson (1987:113) concluded that "the distribution of percentages of artifacts within South's Functional Types showed no clear patterning that could be correlated with site function, time, economic status or setting." The main problem seems to be that archaeological artifact collections represent only a sample of the total artifacts that were used on the site. How this sample is generated depends on details of the site's history both during and after occupation, so no two collections are comparable in a rigorous, mathematical way. Charles Orser (1989) has also criticized South for relying on a "whole culture" concept that gives insufficient attention to geographic setting, functional differences, change over time, and, especially, variations in the quality of social relations. South's functional categories are still used in many artifact tables, but few people think they have an inherent meaning.

Nevertheless, there may in fact be important cultural differences that are reflected in the number of different kinds of artifacts found on archaeological sites. The difference in the quantity of wine bottle glass found on Delaware and Chesapeake sites, discussed above, is one such difference. Delaware sites also yield fewer tobacco pipes than Chesapeake sites, although the difference is not as pronounced. South (1988) has said that his ideas have been misused, and that he never intended his "patterns" to be seen as static constructs divorced from social relations and economic function. The point, he writes, is to use these patterns in the record to understand the cultural processes that

may have produced them. Perhaps this endeavor could still be pursued. Further analysis may turn up other differences between other groupings of sites, so the technique may yet prove to be of value. Certainly the tabulation of site artifacts according to South's categories is as convenient as any other known method, and it may prove useful, so the practice of including an artifact function table in each site report should be encouraged.

6. *Soil Chemistry*

The presence of a farm changes the chemistry of the soil on a site in ways that can still be detected 250 years later, even after decades of modern agriculture. Archaeologists working in Delaware have used soil chemistry to study several sites, primarily as a tool for understanding the use of space around the farm. The main analyses performed on the majority of sites have been to determine soil pH, and phosphorus, potassium, calcium, and magnesium content, which are those provided by a standard agricultural laboratory. Tests from the topsoil and the subsoil do not always yield the same results; in general, tests from the top of the subsoil seem to have worked better (Grettlar et al. 1996; Shaffer et al. 1988). Because all farm sites are characterized by high levels of these elements, soil chemistry can even be used to detect sites, and to define their borders (Heite and Blume 1995). Analyses have been performed at the John Powell, William Strickland, Augustine Creek South, Whitten Road, Charles Robinson, Bloomsbury, Benjamin Wynn, Darrach Store, and H. Grant Tenancy sites, as well as at several nineteenth-century sites and the seventeenth-century Richard Whitehart Plantation.

The interpretation of the results associates high concentrations of certain elements with particular activities. High phosphorus concentrations are interpreted as having been caused by human or animal wastes, and high potassium levels by burning or disposal of wood ash. Calcium and magnesium are thought to derive most commonly from oyster shell, and therefore to represent either trash disposal or the liming of gardens. Because each element could derive from more than one activity, interpretation of concentrations depends on relating them to the plan of features on the site, and to artifact distributions (Figure 26). For example, a high calcium concentration in an area with high artifact counts may represent trash disposal, but in an area with few artifacts it may imply the presence of a garden. At the Richard Whitehart Plantation (Grettlar et al. 1995:71), the investigators argued rather convincingly that the outbuildings without an accompanying phosphorus concentration were not used for keeping animals, a useful piece of information about the site.

In practice, soil chemistry data often seem only to confirm what has been suspected from other data; high phosphorus concentrations around fenced enclosures are said to represent animal pens, while similar concentrations near buildings represent human waste. Negative soil chemical data do not seem to change interpretations; for example, no concentration of phosphorus was noted around the privies at the Moore-Taylor farm, but this did not lead the investigators to question whether the features were privies (Grettlar et al. 1996:83). It is not clear why archaeologists have been so tentative in their use of soil chemistry data. Perhaps it is because rigorous, statistical comparisons of soil chemistry data with site use in different soil conditions have not been made, but it may simply be that use of the process is still rather new and therefore unfamiliar. The most ardent supporter of soil chemistry among archaeologists working in Delaware is probably Edward Heite, but at the Bloomsbury Site the data from the general chemical analysis of the site (as opposed to the features;

see below) were used only to confirm the locations of activity areas suggested by the distribution of artifacts and features (Heite and Blume 1998).

An interesting use of soil chemistry has been made at the Bloomsbury and Augustine Creek South sites to study the soil in pit features. In both cases the pit fill was found to have a strikingly different chemical profile from the surrounding subsoil. At Bloomsbury, high levels of phosphorus and calcium, along with a high pH, were interpreted as evidence of soap manufacture or liming skins. At Augustine Creek South, very high levels of calcium and phosphorus were interpreted as evidence of cloth processing or dye manufacture. A major difficulty with interpreting these chemical profiles is that many different industrial processes made use of wood ash, lime, and urine as ingredients, so elevated levels of phosphorus and calcium could derive from many activities. Still, the encouraging findings of these two studies suggest that more work could be done in this area.