FINAL REPORT FOR THE ARCHAEOLOGICAL TESTING AT THE WING FORT HOUSE, IN SANDWICH, MASSACHUSETTS

Prepared for

Wing Family of America

By

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I. INTRODUCTION

The Wing Fort House is a historic house in Sandwich, Massachusetts that is owned and operated by the Wing Family of America (WFA). It is the oldest house in New England that has been owned and inhabited continually by the same family since it was built in the 1640s. The property maintained by the WFA consists of the house itself, outbuildings, and four acres of grass and meadow. The property measures 275' along Spring Hill Road and 550' to the north of the road and the house itself is situated on top of a small knoll that overlooks the Spring Hill marshes and Cape Cod Bay **(Figure 1).** It has been restored and is maintained by the WFA and their caretakers who live on the adjacent property and is is operated as a historic house museum with education and preservation of the property as a historic resource being important aspects of its operation. The house was placed on the National Register of Historic Places in 1976.

As a result of a desire to learn more about the history of the property and its occupants and the need to continually maintain and improve the property for future generations, at various times in the past half decade the need has arisen to dig both beneath and adjacent to the house. In order to determine if any significant archaeological resources may be impacted by these activities, archaeological investigations have been conducted prior to, or during, the actual improvement activities. Prior to the August 2010 excavations, previous excavations had been carried out along the north side of the house adjacent to, and beneath, the sills, in the south yard to test a hypothesis that a certain fortification style may have been used at the site, and in the north yard to investigate a trash concentration encountered during the removal of an offending bush **(Figure 2)**.

The 2010 excavations on the north side of the Wing House were carried out to test the terrace adjacent to the house prior to landscaping that resulted in the removal of several inches of topsoil in order to facilitate drainage near the house. The testing consisted of the excavation of 46 50-x-50-cm-square (19" square) test pits. The total area excavated was 11.5 square meters (124 square feet). Testing began by excavating 50 cm test pits spaced one meter (3.3 feet) apart in a grid pattern measuring eight meters east to west by four meters north to south (26 x 13 feet). These test pits were excavated to a depth of 30 cm (12") below the ground surface. After the initial grid pattern was excavated, additional 50 cm squares were excavated adjacent to pits that had yielded potentially interesting findings (such as possible foundation stones or concentrations of wall plaster).

Excavation yielded evidence of foodways related structures and features dating to the eighteenth to early nineteenth centuries. The foundation for an 8 foot wide (north to south) by 18 foot long (east to west) possible dairy ell attached to the northeast corner of the house and a three foot wide brick-lined well with associated paving around it, were the two main findings. Associated with the ell was a large amount of brick, coal ash, and architectural debris as well as a fairly large assortment of faunal remains (bones) from cattle, pigs, sheep and chickens and ceramics dating from the seventeenth century (two fragments of a Bellarmine) and especially to the later eighteenth to early nineteenth centuries.

The ell is believed to have functioned as a dairy and cold storage room associated with the kitchen, and thus what we have found is a unique glimpse into the diet and foodways of the Wing household, specifically the household of Ebenezer to Joseph Wing periods (1700-1831). The construction of the dairy can be dated to the Ebenezer Wing period ca. 1700 when the original single-cell house was expanded to a salt box style house. The dairy was subsequently demolished during the Joshua Wing period ca. 1760 when the salt box was renovated to the present Georgian style. It appears that the

family at this time may have focused their economy on animal husbandry, possibly with a emphasis on sheep.

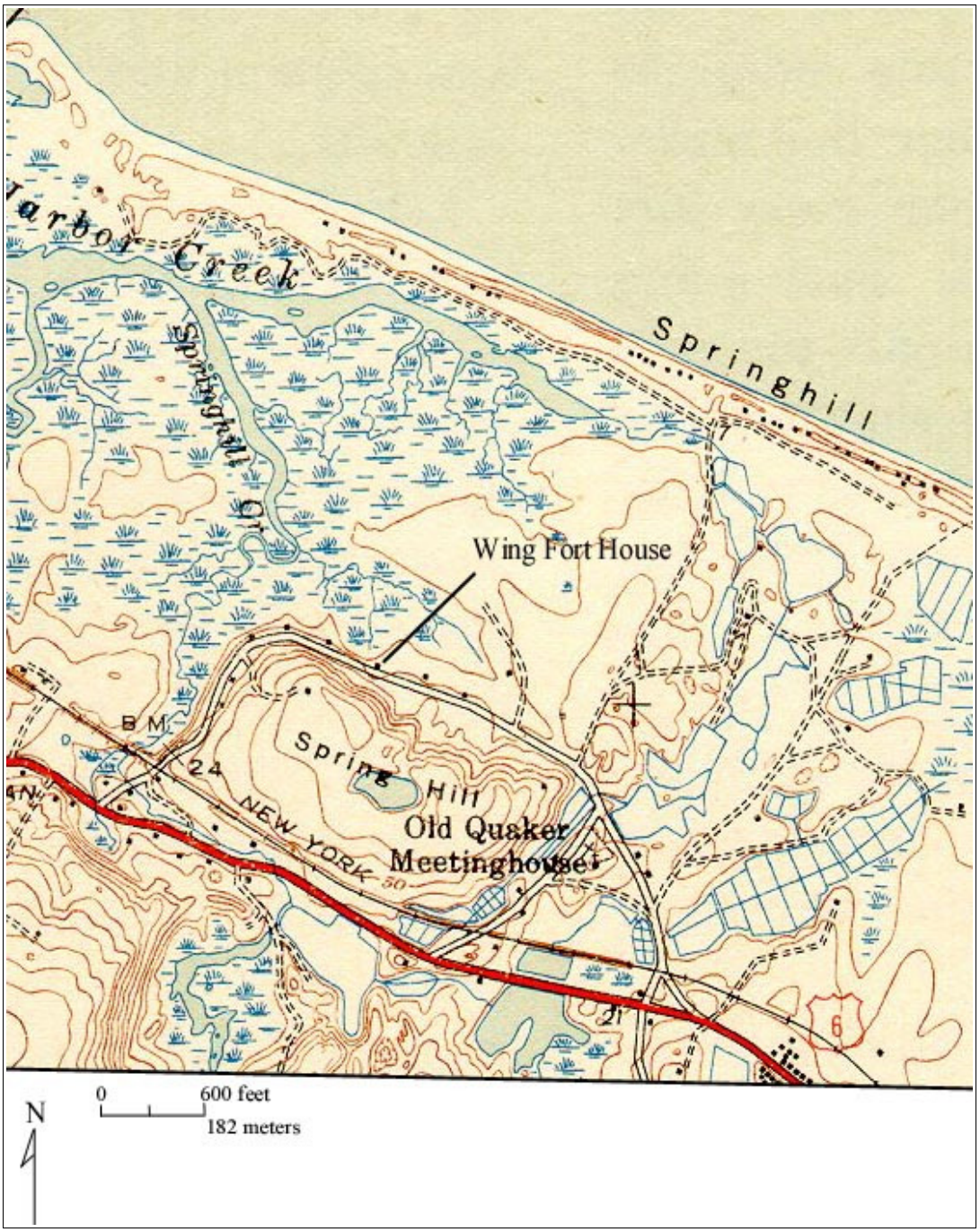


Figure 1. Location of the Wing Fort House on the 1943 USGS topographic map Sandwich quadrant

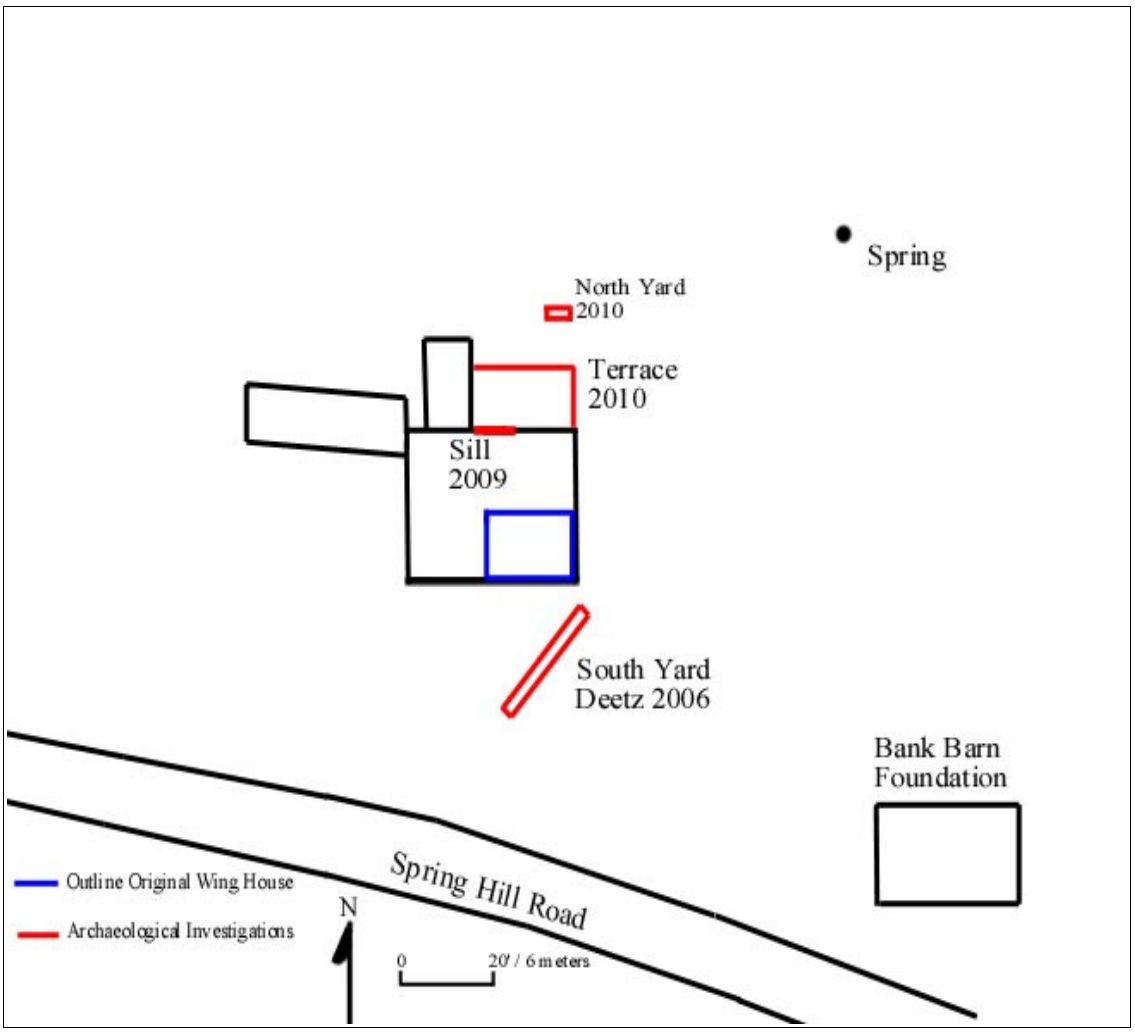


Figure 2. Locations of testing around the Wing Fort House

The well was constructed after the dairy ell had been removed and the house had received its Georgian face-lift, ca. 1760. It appears to have continued in existence until it was capped in the early to mid nineteenth century. It is constructed of specially shaped "well bricks" and indication that the person who had it built had the wherewithal to purchase these specialized bricks versus using fieldstone or just common bricks. The well had a poorly laid brick paving, made of recycled bricks from the earlier chimneys, around it on the south and slightly on the south east and north sides. Several of the bricks bear well worn upper surfaces indicating that they were exposed to the elements and that the well did not have a structure over it.

Other artifacts recovered from the excavations included a piece of a very well-made silver shoe buckle dating from the eighteenth century. The buckle is finely cast and was subsequently cut up to be remelted or to use as species currency. Evidence for tobacco and alcohol use (clay pipe fragments and wine bottle/ wine glass fragments) during the eighteenth century was common but was rare for the subsequent nineteenth century. It appears that the families who lived at the site in the nineteenth century were either moderate smokers and drinkers or that they did not deposit this sort of waste in this area.

The following report attempts to place the artifacts that have been recovered from all of the excavations around the house with in several contexts. First, they are placed within the context of the site itself. Next, the artifacts and findings are placed within the context of the history of the Wing Fort House. A comprehensive history of the various occupants of the house and their visibility in the historical record had to be constructed in order to accomplish this. The findings from the excavations were then placed within the larger context of the history of Sandwich and Cape Cod and finally, when appropriate, were placed within a larger state or national context. The archaeology that has been carried out at the Wing Fort House has allowed a fuller picture of the occupants of the house to be created. We now know more about what they ate, what sorts of material furnishings they surrounded themselves with and even how they dressed. When reading this report, be mindful of what the documentary record recorded about the Wings and what it did not record, then think about how much more we now know as a result of the evidence recorded in the ground and the fabric of the house itself.

II. ENVIRONMENTAL CONTEXT

Soils on Cape Cod are terminal deposits located at the southern end of the ice sheet that once covered New England. These soils rest on bedrock with depths to that bedrock ranging from 100 feet at the eastern edge near the Cape Cod Canal to 1000 feet at the western edge following the east to west slope of the bedrock (USGS http://pubs.usgs.gov/ha/ha730/ch_m/M-text2.html). Wetlands on Cape Cod are all post glacial developments. Fine-grained glacial-lake deposits overlay the bedrock and are in turn overlaid by coarse sand and gravel outwash (USGS http://pubs.usgs.gov/ha/ha730/ch_m/M-text2.html). The glacial lake deposits are related to Glacial Lake Cape Cod, which was formed at the end of the last ice age as the Cape Cod lobe of the retreating glacial receded north of the Sandwich moraine. The lake was formed in an arcuate (bow-shaped) lowland north of the moraine with the moraine impounding the southern side and the South Channel lobe of the glacier the eastern side (Skehan 2001:88). Glacial lake Cape Cod had two outlets which later became riverways: the Monument River in Sandwich and Whites Brook-Parker River (near the present day Bass River in Yarmouth).

The underlying aquifer on Cape Cod is recharged in part (45%) by the precipitation that percolates through the soil to it. The aquifer on Cape Cod is not flat but is composed of six low mounds that get higher as they get farther from the coast (USGS http://pubs.usgs.gov/ha/ha730/ch_m/M-text2.html). The aquifer mounds are separated by ocean inlets and narrows that act as discharge areas. Saltwater underlays the freshwater in the northern part of the Cape. For example, at Truro the freshwater zone is 200 feet thick while at mid-Cape it extends to the bedrock (USGS http://pubs.usgs.gov/ha/ha730/ch_m/M-text2.html).

The Town of Sandwich is located in the middle portion of Cape Cod (mid-Cape) and is bordered by Cape Cod Bay to the north, Barnstable to the west, Bourne to the east, and by Mashpee and Falmouth to the south. The northern portion of the town can be characterized by hilly topographic contours that are up to 200 feet above sea level composed of the Sandwich moraine. The central and southern sections are more level, with maximum above sea level height being 100 to 150 feet as a result of their creation as part of the Mashpee outwash plain. Drainages in the town consist of numerous marshes, creeks and streams with tidal marshes bordering the town's northern edge between the Sandwich moraine and Cape Cod Bay. Major drainages include Scusset River, and Mill, Dock, Old Harbor, Scorton and Spring Hill creeks. Ponds include Peters, Spectacle, Triangle, and Lawrence ponds as well as many smaller bodies of standing water. Generally the soils in Sandwich are sandy loams with good agricultural soils being located in the Old Scusset area of the northern part of town and on the Mashpee outwash plain in the south,.

The Wing Fort House itself sits on Eastchop loamy fine sand on a 3-8% slope (United Stated Department of Agriculture [USDA] soil designation 264B) **(Figure 3).** Eastchop soils are characterized as being very deep, gently sloping, and excessively drained located on outwash plains and low hills in glacial lake deposits. The stratigraphic profile of Eastchop soils is composed of approximately two inches of A0/ decomposing and decomposed organics. This layer overlays an approximately six inch thick topsoil (A) layer of very dark gray loamy sand that transitions to a yellow brown loamy sand. The Topsoil/ A horizon overlays a 19" thick layer of subsoil/ B1 horizon that is a yellow brown loamy fine sand that transitions to an olive yellow loose fine sand (B2 horizon). Below the B2 horizon the

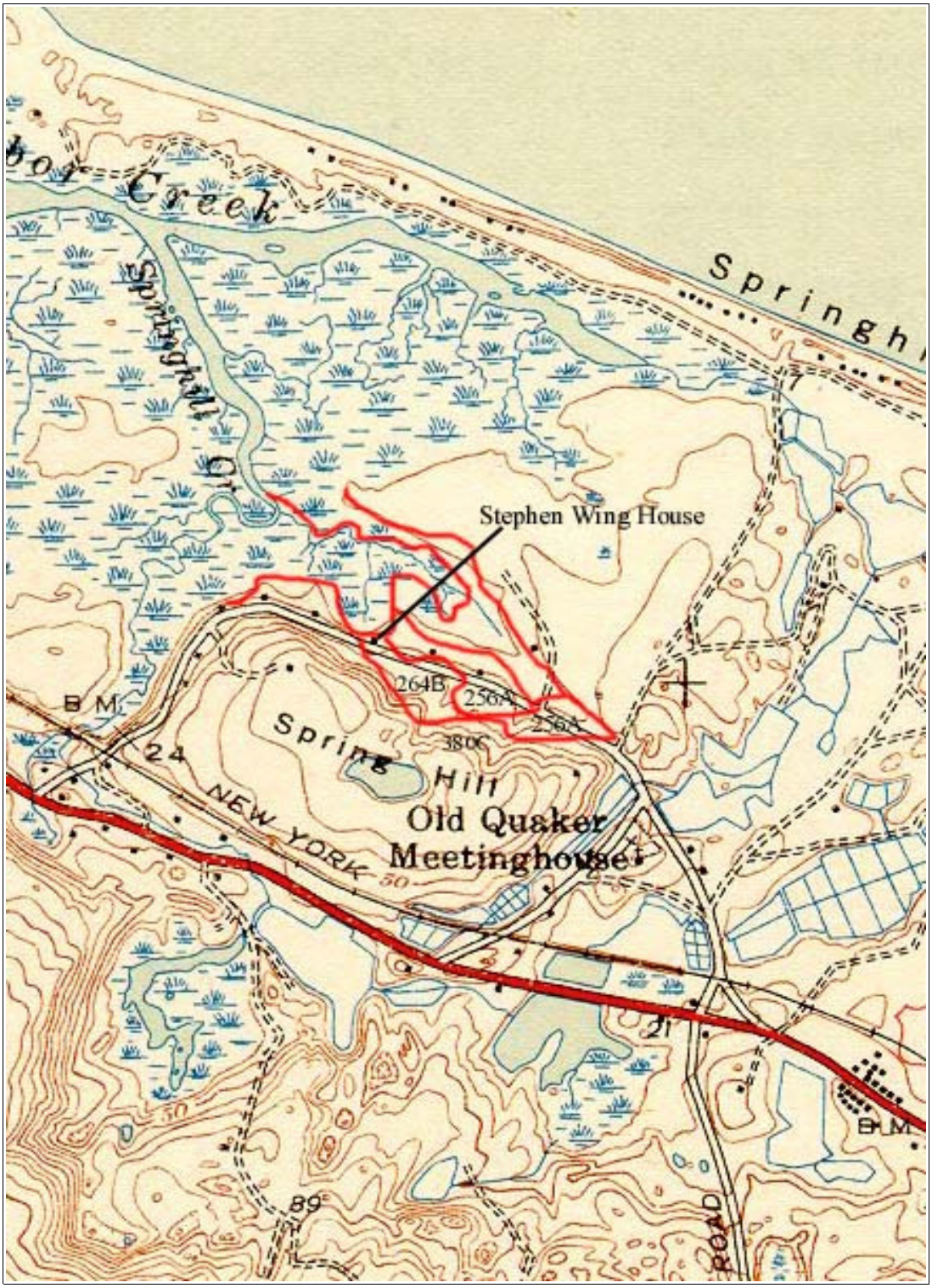


Figure 3. Locations of various soils around the Wing Fort House.
264B-Eastchop, 256A-Deerfield, 380C-Nantucket

substratum extends to a depth of 65" and is a loose fine sand (C1 horizon) that is light yellowish brown to olive brown in color. Depth to the water table is more than six feet. Eastchop soils are poorly suited to cultivated crops and hay or pasture due to their low available water capacity. The soil is also poorly suited to the development of woodlands due to the droughtiness. The most common trees that grow on Eastchop soils are stunted and poor quality eastern white pine, pitch pine, scarlet oak, and white oak. To the immediate east of the house are Deerfield loamy fine sands on 0-5% slope (USDA soil designation 256A soil). Deerfield soils are very deep, moderately well-drained soils in depressions, swales and low areas adjacent to streams and ponds. These soils are located on outwash plain and in areas of glacial lake deposits. The stratigraphic profile of Deerfield soils is composed of approximately three inches of A0/ decomposing and decomposed organics. This layer overlays an approximately ten inch thick topsoil (A) layer of very dark gray to dark brown loamy sand. The Topsoil/ A horizon overlays a 19" thick layer of subsoil/ B1 horizon that is a yellow brown loamy fine sand that transitions to an light yellowish brown loose fine sand (B2 horizon). Below the B2 horizon the substratum extends to a depth of 65" and is a loose sand and gravel (C1 horizon) that is light yellowish brown to olive brown in color. Depth to the water table is 1.5 to three feet in the winter to early spring. Deerfield soils are used as woodlands and are suited to cultivated crops and to hay and pasture. The most common woodland trees are white oak, pitch pine, scarlet oak, and red maple.

To the immediate south of the house on the south side of Spring Hill Road and continuing onto Spring Hill itself are Nantucket sandy loams on 8-15% slopes (USDA 380C soil designation). These soils are very deep, well-drained soils on small hills and ridges composed of ground moraines and glacial lake deposits. The stratigraphic profile of Nantucket soils is composed of approximately three inches of A0/ decomposing and decomposed organics. This layer overlays an approximately five inch thick topsoil (A) layer of very dark grayish brown to dark yellowish brown loamy sand. The Topsoil/ A horizon overlays a 22" thick layer of subsoil/ B1 horizon that is a yellow brown loamy fine sand that transitions to an light olive brown loose fine sand (B2 horizon). Below the B2 horizon the substratum extends to a depth of 65" and is a loose sand and gravel (C1 horizon) that is light olive brown in color. Depth to the water table is generally over six feet but a perched water table may exist in some areas. Nantucket soils are used as woodlands and are suited to cultivated crops and to hay and pasture. The most common woodland trees are pitch pine, eastern white pine, black oak, scarlet oak, and white oak.

Stephen Wing selected the location for his house based on the presence of an elevated piece of land surrounded by arable potential field and orchard lands. While the soils where the house is situated are not well suited for agriculture, the use of raised beds for a kitchen garden on the south side of the house and the use of the land to the immediate east, south and west for agriculture appears to have been a wise choice. The elevated position of the house would ensure that the house would stay high and dry while the fields around it remained well-watered. he must have been able to gauge the fecundity of the land based on the plant species that were growing in the area when he arrived and then selected the best place for his house based on his observations.

III. HISTORY OF THE WING FORT HOUSE

The Wing Fort House is believed to have been built by Stephen Wing (born 1620/ 21 at Flushing) who arrived in New England at age nine with his mother Deborah (Bachiler) Wing and siblings Deborah (born prior to October 12, 1609 and probably deceased by 1680), John (born prior to September 1, 1611 d. 1699), Daniel (b. 1616 d. 1697/98), Joseph (born at Hamburg November 5, 1618 and died young), Matthew (born after 1627 d.?), and other daughters (names unknown) born in the 1620s. Stephen's father was the second youngest son of the Reverend John Wing and is believed to have been born in in 1620 or 1621 in Sandwich, Kentshire, England before traveling at age three to Holland where he, his sister and mother lived in Flushing, Middleburgh. Flushing is in Zealand near Middleburgh and it is possible that they were living on the island of Walcheren, which contains both Flushing and Middleburgh (Schoen 1999).

John Wing is reported to have been the pastor of an English church in Middleburgh, Holland (Schoen 1999). The Reverend John died in 1630 and Deborah emigrated to New England in 1632 aboard the ship *William and Francis.* The ship sailed from London on March 9 and it appears that the widow Deborah and her children traveled with her father the Reverend Stephen Bachiler (for whom Deborah's Stephen was probably named), as well as members of the Bannister, Oliver, Woodford and probably the Dillingham families **(Appendix A)**. The ship arrived in Massachusetts Bay on June 5, 1632 and Deborah and her family settled at Saugus. They moved to Sandwich with the founding of the town in 1637.

Deborah Bachiler was the daughter of the Reverend Stephen Bachiler who was born in 1561 in Wherwell, Hampshire, England. Stephen began his study for a career as a reverend when he entered St. John's College, Oxford University on November 17, 1581 (Schoen 1999). He was admitted as a Bachelor of Arts on February 3, 1585/6, and became the vicar of The Church Of Holy Cross and St. Peter in Wherwell on July 17, 1587. He was cited in the Star Chamber in 1593 for having "uttered in a sermon at Newberry, very lewd speeches tending seditiously to the derogation of Her Majesty's government." (Schoen 1999). He maintained his position as vicar in Wherwell until 1605 when he was "ejected" as the vicar of this church and excommunicated from the Church of England (Schoen 1999). This was probably a direct result of King James' (1603-1625) proclamation that he would make Puritans conform "or harry them out of the Kingdom" (Schoen 1999). Obviously Stephen had issues with the course and nature of the church in England during Elizabeth's reign, indicating that in all likelihood he either was a Puritan or had Puritan leanings by this point in his life. In 1610 he appears as a "Clergyman of the County of Southampton" and in 1621 was in Suffolk (Schoen 1999). It is also believed that he traveled to Holland for at least part of the period between his excommunication in 1605 and his traveling to New England in 1630.

In 1629 Bachiler invested 100 pounds in "The Plough Company", a religious dissenter based colonizing society looking to invest in the New England adventure (Schoen 1999). Wing genealogist Raymond T. Wing believes that John was originally the leader of the Plough Company and former minister of the Society of Merchant Adventurers in Hamburg (Raymond Wing personal communication). Bachiler was elected pastor of the company. His daughter Deborah's husband John died in 1630 and she accompanied her father to Massachusetts Bay. It is recorded that he brought with him : Four hogsheads of peas, Twelve yards of cloth, Two hundred yards of list, Oaken furniture, and a collection box (Schoen 1999). Soon after arriving in Massachusetts Bay he was preaching in Lynn and came under suspicion of having independent ideas and not being willing to yield to the dictates of

others (Schoen 1999). On October 3, 1632 the General Court ordered that "Mr. Bachiler is required to forebear exercising his gifts as a pastor and teacher publicly in or pattent, unless it be to those hee brought with him, for his contempt for authority and until some scandles be removed." (Schoen 1999). He then went on to preach at Ipswich, Yarmouth and Newberry and possibly settled in Yarmouth on Cape Cod in 1637/ 38 (Schoen 1999). In 1637, his daughter Deborah accompanied the "10 men of Saugus" who settled Sandwich, thus parting ways with her father.

Bachiler was allowed permission by the General Court of Massachusetts to begin a plantation at what is now Hampton, New Hampshire in 1638 (Schoen 1999). He was subsequently excommunicated from the church at Hampton that he founded and complained to Governor Winthrop of Massachusetts Bay regarding his perceived nemesis the teacher at Hampton, Timothy Dalton "I see not how I can depart till I have, God forgive me, cleared and vindicated the cause and wrongs I have suffered of the church I yet live in; that is from the teacher (indeed) who hath done all and been the cause of all the dishonor that hath acrew'd to God, shame to myself, and griefs to all God's people. By his irregular proceedings and abuse of the power of the church in his hand by the major part cleaving to him, being his countrymen and acquaintance in old England. The teacher's act of his excommunicating me would prove the foulest matter, both for the cause alleged of that excommunication, and the impulsive cause (even wrath and revenge), and also the manner of all his preceding throughout to the very end; and lastly, his keeping me under bonds." (Schoen 1999).

Stephen Wing married Osheah Dillingham who was the the daughter of Edward Dillingham and Ursula/ Drusilla (Carter) Dillingham. Edward was baptized at Cottesbach, Leicestershire, England on December 6, 1595, probably living in the adjoining Bitteswell parish. Edward's parents were the Reverend Henry Dillingham and Oseth (maiden name unknown). Edward was identified as a "Gentleman Freeholder" in 1630 (Nichols History of Leicester Vol 4 Part 1 Page 42) and his father was the rector of Cottesbach. Edward named his eldest son after his father. Osheah had two brothers and a sister who were born and baptized in England and who subsequently traveled to New England with her. Her uncle John Dillingham had arrived in Massachusetts Bay with the Winthrop in 1630. Osheah was baptized at St. Mary's Parish, Cotesbach, Leicestershire, England on February 10, 1622 and her family arrived in Massachusetts Bay in 1632, most probably aboard the *William and Francis* along with Deborah Wing and her family. Edward, a Puritan son of a Church of England clergyman, may have emigrated to New England due to increasing intolerance towards the Puritans during the reign of Charles I (1625-1649). He died in Sandwich, Massachusetts on May 1, 1666. Osheah's mother Ursula was born at Kemston, Bedford, England on February 20, 1590 and died in Sandwich on February 6, 1655/56. They were married on February 14, 1614 in Cottesbach. Osheah's sister, Elizabeth, may have married Stephen Wing's brother, John.

Edward was noted as one of the "10 men of Saugus" who subsequently founded Sandwich in 1637 "April 3, 1637, it is also agreed by the Court that these ten men of Saugus, viz.,Edmund Freeman, Henry Feake, Thomas Dexter, Edward Dillingham, William Wood, John Carman, Richard Chadwell, William Almy, Thomas Tupper, and George Knott, shall have liberty to view a place to sit down, and have sufficient lands for three-score families, upon the conditions propounded to them by the governor and Mr. Winslow". He was arrested and censured in 1657 for sympathies towards the Quakers who were active in Sandwich at that time.

Stephen and Osheah were married in 1646 and Osheah's sister Elizabeth married Stephen Wing's brother John in 1645. Stephen & Osheah were fined by the Plymouth Colony court on 2 Mar 1646/7

because their first child Nathaniel, was born "at an unseasonable time" after they married, meaning that it was highly suspected that they had "known" each other prior to being formally married (PCR Volume 2: 112). Together the two had a total of three children:

Nathaniel, born before March 1646/7.
Ephraim, born 2 April 1649, buried 10 DEC 1649.
Mercy, born 13 November 1650, presumably died young.

Osheah died on April 29, 1654 and Stephen married Sarah Briggs on January 7, 1655. Sarah Briggs was the daughter of John Briggs and Catherine (maiden name unknown). Several John Briggs appear in New England in the seventeenth century and it is difficult to decipher which was he was. One John Briggs did arrive with a presumed relative named Thomas in 1635 aboard the ship *Blessing* that sailed from London in 1635. It was recorded that this John Briggs was 20 years old at the time. John Briggs of Sandwich died in 1640 with a substantial estate that included 13 planes, indicating that he was a carpenter or joiner. Apprenticeships in the seventeenth century generally started at age 14 and lasted for seven years making it unlikely that the John Briggs who arrived in 1635 at age 20 is the same John Briggs who died in 1640. There would not have been enough time for him to have finished his apprenticeship, establish himself , and have an estate as substantial as was recorded upon his death. A John Briggs, widower, was recorded in Norwich, Norfolk in England as having married Katherine Coote on June 19, 1632 (http://mhollick.typepad.com/slovakyankee/2010/11/john-briggs-of-sandwich-mass.html). This would have made him older than 20 when he arrived possibly with his wife and child or children and died in Sandwich in 1640. It is not recorded what happened to Sarah's mother after the death of her husband, she may have remarried, returned to England or passed away. Sarah was left one brown cow following her father's death (PCR 86). Together she and Stephen Wing had seven children:

Stephen Wing	b. 2 Sep 1656	d. 26 Mar 1676
Sarah Wing	b. 5 Feb 1658/59	d. 26 Aug 1720
John Wing	b. 25 Sep 1661	d. 21 Sep 1728
Abigail Wing	b. 1 May 1664	d. a 2 Dec 1700
Elisha Wing	b. 2 Feb 1668/69	d. 8 Jun 1752
Ebenezer Wing	b. 11 Jul 1671	d. 24 Feb 1738
Matthew Wing	b. 1 Mar 1674	d. 1724

Sarah Briggs Wing died on March 26, 1689 and Stephen Wing died in 1710.

Stephen Wing is very visible in the Plymouth Colony Records. He was appointed constable of Sandwich in 1655 and served on a jury in the following year. In that same year he sued Jonathan Fish, also of Sandwich, for a total of 12 pounds. Due to the fact that Stephen was on the jury at the time, he had his father-in-law acting in court in his place:

"Jan. 5, 1656. Upon a sight of a letter of attorney showed in Court, whereby it appeared that Mr. Edward Dillingham who [was] authorized to answer a suite commenced against Jonathan Fish by Stephen Wing of Sandwich, in an action of the case, to the damage of twelve pounds, the said Edward Dillingham came into the Court and acknowledge a judgment of six pounds in behalf of [from] the said Jonathan Fish, whereupon the said Stephen Wing rested satisfied; the attachment that was lay upon a mare belonging to the said Fish resting upon the same for the space of two months . The judgment above said to be paid for the quality, as well as quantities, according to the term of the bill of said

Stephen Winge hath unto the hand of said Jonathan Fish." (PCR volume 7: 79).

Regarding that other case that Stephen was involved in, it involved

"And whereas it doth appear alsoe that the said Edward Dillingham was authorized as an attorney in the behalf of the above said Jonathan Fish to answer a complaint made by John Green, in an action of the case, to the damage of 1 pound 13 shillings, the said Edward Dillingham acknowledge a judgment of 1 pound 13 shillings, where upon Stephen Winge, as attorney of the said John Green, rested satisfied." (PCR volume 7: 80)

Stephen Wing took the Oath of Fidelity in 1657 (PCR Volume 3: 78, PCR volume 8: 180) but in the following year he was called into court to answer charges of "tumultuous carriage at a Quaker meeting" (PCR Volume 3:130). He and the others were cleared in court, but several, Stephen not included, were fined 20s for not taking off their hats. In 1658 Stephen and eight other Quakers were denied the "Privileges of townsmen" and "had no power to act in town meeting until better evidence appears of their legal admittance." due to their failure to be included in the Sandwich congregation (as church membership was a legal requirement for privileges in a many New England towns) (PCR Volume 3: 153). The special quaker hunting marshal, George Barlow, reported Stephen to the Plymouth authorities in 1659 for refusing to assist him on three separate occasions in his harassment of Sandwich's Quakers, resulting in a total of one pound in fines for that year (PCR Volume 3: 173, PCR volume 8: 97). Stephen was on a committee in 1663 that offered support for Thomas Ewer, another Sandwich Quaker, when he was fined 18 pounds for cutting timber on Town lands (PCR 108). Stephen went on to be sworn to serve on a Grand Inquest in 1664 and 1671 (PCR Volume 4: 61; PCR Volume 5: 56) and went on to serve as a Surveyor of Highways and Town Clerk between 1669 and 1674. In 1681 he and two others were empowered on the town's behalf to make sale of a whale that was cast up on the shore.

Stephen's son Stephen served, and died, in King Philip's War in 1676. A force of seventy men (50 colonists and 20 Natives) from Plymouth Colony, under the command of Captain Michael Pearse, were attacked in Seekonk by the forces of the Narragansett sachem Canonchet on March 25, 1676. Among Pearse's troops were men from Sandwich. A total of 63 colonial troops (52 colonists and 11 Native) were killed in the battle including five from Sandwich: John Gibb, Daniel Bessey, Caleb Blake, Benjamin Nye, the first born son of Benjamin Nye, and Stephen Wing, first born of Stephen Wing (Arnold 1897: 219).

Ebenezer Wing and Elizabeth Backus (1700-1738) Period

Stephen Wing left "All that my messuage or Tennement both Dwelling House barn and out Housing together with all my Upland marsh meadow ground Orchards Garden feeding pastures closes yards and all other lands whatsoever situate lying and being within the Town of Sandwich." to his sons Ebenezer and Matthew **(Appendix B).** This document indicates that the farm at that time included orchards (probably located on the south side of Spring Hill Road), gardens (probably located on the south side of the house), feeding pastures (probably located to the east and west of the house), barn (probably located on the south side of the house), closes and yards (probably located close to the house), and outhousing (such as a dairy and sheds). Stephen probably transferred the property to Ebenezer and Matthew at this time because Ebenezer had just gotten married and this house may have been a gift to them. Whatever the circumstances of the transference, it appears to have come with a unwritten stipulation that Stephen be allowed to reside in the house until his death, which did not happen for another decade.

Ebenezer Wing was born July 11, 1671 and was made a freeman in Sandwich in 1700. He married Elizabeth Backus on February 23, 1698/99 and was listed as a husbandman. Elizabeth was born on January 5, 1671/ 72 in Wells, York County, Maine. She was the daughter of Francis Backus and Rebecca Cross. She died in 1758 at the age of 81. It is not known how a woman from Maine came to marry a man from Sandwich, but it is known that two of Elizabeth's siblings, Nathaniel who married Hannah Fessenden and Hannah Backus who married Benjamin Nye. It is possible that Ebenezer traveled to Maine to spread the word of the Quaker faith as his grandson Joseph is known to have done, and there he may have met his future wife.

Elizabeth was appointed guardian of her brother Daniel who was born 1691 upon their father's death. Elizabeth and Ebenezer sold land in Maine that had been left to them to Elizabeth's brother Nathaniel in 1719. Ebenezer and Nathaniel's wife Remember were named executor's upon Nathaniel's death in 1727.

Ebenezer and Elizabeth had six children together:

-Stephen Wing, born August 2, 1700 (eventually built a mill at Spring Hill Creek)
-Rebbecca Wing, born May 29, 1702
-Samuel Wing, born March 24, 1703/04
-Joseph Wing, born January 1705/05 died April 11, 1738, never married.
-Joshua wing, born September 9, 1706
-Sarah Wing, born March 4, 1708/09
-John Wing, born January, 1709 died October 28, 1720

When Ebenezer died in 1738, his will, executed in 1731, named his wife as executrix **(Appendix C).** Ebenezer's will left his house and the lands around it to his three sons Samuel, Joshuah, and Joseph and all his meadow land at Plowed Neck and one third of the meadow at Bass Creek, as well as the privilege to dry hay at Spring Hill Beach to his son Stephen. It is believed that during Ebenezer's period of occupancy that the house was enlarged to a salt-box style.

Joshua Wing and Elizabeth Hoxie Period (1738 – 1790)

Joshua Wing was born on September 9, 1706 and eventually inherited the house and lived there until his death in 1799. Little is known of Joshuah Wing aside from the fact that he married Mary Hoxie. Mary, born November 20, 1722, was the daughter of Solomon Hoxie and Elizabeth Wing. Elizabeth Wing was a distant cousin of Joshua Wing, being descended through the Reverend John Wing and Deborah Bachiler's son Daniel (Daniel to Daniel to Samuel to Solomon to Elizabeth) and was from Sandwich as well. The couple married on November 8, 1744. Joshuah Wing died on February 14, 1790 and Elizabeth died on November 17, 1810. The couple had four known children:

Sarah Wing b. 23 Sep 1745, d. 8 Dec 1765
Joseph Wing b. 25 Jul 1748, d. 25 Feb 1831
Elizabeth Wing b. 20 Dec 1750, d. 13 May 1793
Presbury Wing b. 26 Jun 1754, d. 6 Feb 1807

It is believed that during Joshuah's period of occupancy that the the house attained its present Georgian appearance. It is assumed that Joshuah was a husbandman who was fairly well off. It is believed that he was a Quaker. He left neither will no probate on file at the Barnstable County Courthouse. In a 1925

issue of the OWL it is recorded that in Joshua's will, dated 1779, he gave all of his property to his son Joseph while his other son Presbury is identified as living in North Falmouth(Owl MAR 1925, p. 2453).

Joseph Wing and Phebe Shove Period (1790– 1831)

It is believed that upon Joshuah's death the house was left to either Presbury or Joseph and that it eventually came into the hands of Joseph. Joseph was born in 1748 and died in 1831. He married Phebe Shove on October 1, 1778. Phebe was the daughter of Edward Shove of Dighton, Massachusetts and Phebe Osborn possibly of Rensselaer, New York. During the years 1796-1798 Joseph traveled extensively up the East Coast with David Sands, a well known and widely traveling Quaker preacher from Long Island, New York. Joseph's letters to Abraham Swift and Clementina Sands are reproduced in **Appendix D**. Joseph and Phebe did not have any children. Joseph died on February 25, 1831. While no will or probate is on file at the Barnstable County Courthouse, it is believed that the house passed to Joseph's brother Sylvanus upon Joseph's death in 1831. Phebe is reported to have died in 1833. Between 1787 and 1807 Joseph purchased numerous parcels of land on Patihawiset Neck, presumably in Sandwich (Barnstable County Grantee Records). He was described as a shop joiner in a division of land on 1810 (Barnstable County Grantor records 1810: Book 3, page 7)

Sylvanus Wing (1833 – c1835)

Sylvanus was the son of Presbury and the brother of the wide traveled Joseph. It is reported in the OWL that Sylvanus was given the house by his Uncle, Joshua (OWL 1925: 2493). It is believed that after the death of Joseph (1831) and Phebe Sylvanus (1833) traded properties with his brother, Joshua of North Falmouth.

Joshua Wing and Beulah Bowerman Period (c1835 – 1861)

Joshua, who first lived at Falmouth, is believed to have moved into the Fort House before the 1840 census, which places him in Sandwich and not Falmouth, possibly following an unrecorded property exchange with Sylvanus Wing. Joshua was born on May 15, 1781 and married Beulah Bowerman of Falmouth on February 14, 1805. They both had seats in the Quaker meeting house at Spring Hill (OWL 1917: 1705). The couple had six children:

Benjamin Wing b. Apr 2, 1807, d. Aug 15, 1833
Ezra Wing b. Nov 11, 1808, d. Mar 1, 1887
Hannah Wing b. Sep 9, 1810, d. Dec 11, 1850
Mary Shove Wing b. Aug 23, 1812, d. Feb 22, 1830
Presbury Wing b. Sep 12, 1815, d. Dec 16, 1881
Seth Bowerman Wing b. Apr 14, 1818, d. Sep 20, 1905

Joshua continued to purchase land on Patihawiset Neck between 1834 and 1839 as well as woodland and swamp at Spring Hill (Barnstable County Grantee Records). Joshua died on April 5, 1861 and Beulah died on October 15, 1867. Joshua left two versions of his will, one, one more recent that nullified the earlier one **(Appendix E)**. He left to his wife the use and improvement of the house; to his son Ezra one of his mahogany candle stands; to his granddaughter Mary a bed and bedstead with the bedding that belongs to it marked M and also a bedspread made by her aunts Mary and Hannah; to his son Presbury the brass clock (described in the other will as an eight day clock) and case and the family dwelling house, wood house and carriage house with the lot of land on which they stand with all the fruit trees thereon, and which is enclosed by the fence; to his son Seth a piece of salt marsh by the

harbor, a birch desk and book case standing in the east room (and a birch bureau in the other will), and his brass time piece; he left to all of his children his library of religious books (to be kept as they were for his children's benefit); and to his two sons Presbury and Seth whatever was left over.

Joshua's probate **(Appendix E)** shows that the house lot consisted of a house, barn, corn house, old shop (possibly located across the road opposite the barn), woodland, swamp, salt marsh, and meadow. Other notable items in the inventory include cows, a hog, horse and ox wagons, a stove, and carpenter tools (possibly associated with the old shop). The house lot probably looked very much like it was when a photograph was taken in the nineteenth century **(Figure 4)**. The old shop that was mentioned is visible in the photograph and this structure appears to be the one that was moved to the rear of the fort house and now stands attached to it and interpreted as a "summer kitchen". It is not known when this shop was built, but the fact that it was called an "old shop" in 1861 means that it was probably built during either the Ebenezer or Joshuah Wing periods.

Presbury Wing and Sarah Barker Period (1861 – 1881)

Joshua left his son Presbury the family house in 1861. Presbury was born on September 12, 1815 and married Sarah Barker from Nantucket who was born on January 29, 1808. Sarah was most probably a Nantucket Quaker. The couple did not have any children. Presbury brought the house and a three acre parcel of land from his brother Seth B. in 1877. The bounds of the land were as follows:

"Beginning at the SW corner of County road then going N to stake at the open ditch between his and Seth's land then E by the ditch to land of Seth at a ditch then S by the ditch to a stake then aforesaid line to corner of Barn yard then SW to County Road then West by road to first mentioned bound
3 acres with dwelling house and outbuilding" (Barnstable County Grantee records 1877: Book 126: 283). This deed interesting in that it indicates that there was an open ditch located apparently around at least two sides of the house in 1877. This ditch may have been for drainage.

Presbury died on December 16, 1881 and Sarah died on June 25, 1874. Presbury left the house, orchard on the north side of the road, his shares in the First National Bank of Yarmouth ($393.00) and land around the house to his sister-in-law Lydia Crocker. Lydia Crocker lived in Yarmouth, Nova Scotia and was married to Deacon William Crosby on January 6, 1811
(http://fcrosby.com/freeman/john_crosby_desc.pdf). Deacon William's family was originally from Mansfield Connecticut and could trace ancestry back to John wing, the original Stephen Wing's brother.

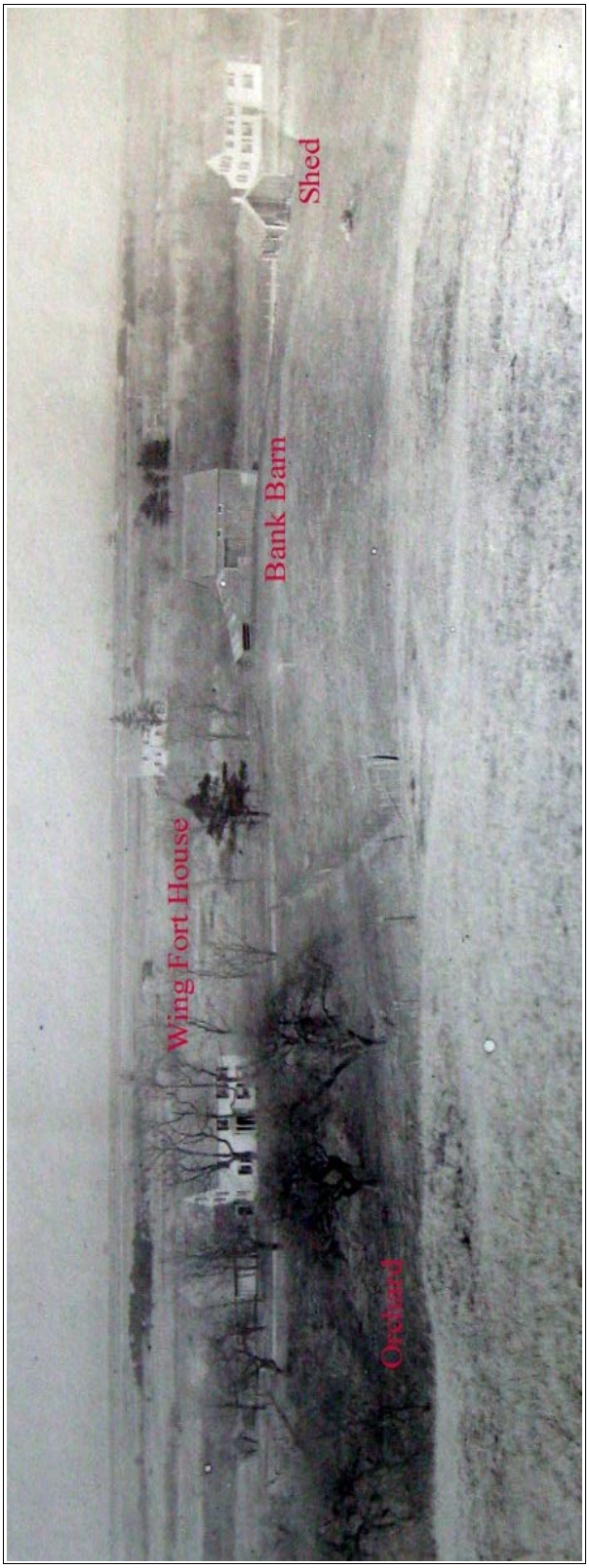


Figure 4. Late nineteenth century of the Wing Fort House property looking north

He also left his household goods to the legal heirs of his late wife and left the remainder of the estate to his brothers Ezra and Seth B. Wing.

Presbury's estate consisted of the house, cranberry bogs, orchard, meadow lands, woodland, barn, and 30 hens (Appendix F). The settling of his estate after his death Dr. G.E. White and H. Jackson were paid $65.00 and $23.00 respectively for professional and nursing services, L.H. Burgess was paid $32.00 for a coffin, box and robe and Roland Fish was paid for digging the grave. His total estate was valued at $1361.00.

Seth B. Wing and Cordelia Phinney Period (1881 – 1905)
Seth Bowerman Wing appears to have acquired the house at some point after his brother Presbury's death. Seth was born on April 14, 1818 and was married on November 28, 1845 to Cordelia Phinney. Cordelia was born in Hyannis on May 17, 1820. Seth built the present caretaker's house located to the east of the Fort House in 1841. After his brother's death he moved into the Fort House. The couple had three children:

Alvin Phinney Wing b. Oct 27, 1846, d. Jun 24, 1934
Charles Henry Wing b. Nov 9, 1850, d. Apr 16, 1917
Cora Maria Wing b. Jan 31, 1856, d. Jan 21, 1864

Cordelia died on April 21, 1903 and Seth B. died on September 20, 1905. Seth's estate indicated that he owned the two houses, cranberry bogs, woodlands, marshes, meadows and a barn. The house passed to his son Alvin Phinney Wing.

Alvin Phinney Wing and Elizabeth Turner Period (1905 – 1934)
Alvin Phinney Wing was born on October 27, 1846 and married Elizabeth Chipman Turner on July 23, 1872. Elizabeth was born in Charlestown, Massachusetts on June 5, 1848. Alvin and Elizabeth had two children:

Cora Marie Wing RN b. Feb 28, 1875, d. Sep 27, 1964
Mary Turner Wing b. Dec 22, 1891, d. Jan 14, 1899

Elizabeth died on June 16, 1916 and Alvin died after a long illness on June 24, 1934. His daughter Cora was named executrix. He bequeathed the shop on the south side of the road and the land that it was situated on to Bida M. Peterson of Sandwich. It possible that the shop was moved to the north side of the house at this time. The remainder of the estate, totaling $350.07 in personnel estate and $5075 in real estate to his daughter Cora. Included in the estate were the clock in the East Room of the house, tools in the shop, 130 cranberry boxes, the barn and 26 acres of land.

Cora Maria Wing (1934 – 1942)
After Cora sold the Fort House to the WFA, she moved in with a friend in the house next doors that her grandfather Seth B. had built in 1841. The WFA purchased this house for $5000 after Cora's death and the house next door became the Caretakers House after Cora's death in 1964.

IV. ARCHITECTURAL HISTORY

The original house built by Stephen Wing in the 1640s remained a single-cell structure at least until 1700. The house was made using a plank frame construction technique. While there was a diversity of origins for the carpenters and housewrights who resided in Plymouth Colony, the houses that were built in the early colonies were often designed and built by the farmers themselves and represent examples of vernacular architecture. Richard Candee (1967) was one of the first architectural historians to suggest that the Dutch origins of many of the early colonists had to be taken into account when considering the surviving and recorded architectural styles present. The First Comers who arrived in 1620 had spent a 12 year sojourn in Holland before arriving. For example, in the first decade of settlement in Plymouth colony, there were a total of 457 immigrants, 94 of whom had solely Dutch backgrounds and the ratios were even higher in the first years (Candee 1967: 11). and surely must have been influenced by the houses they saw and inhabited during that time. The first building erected in Plymouth was begun on December 25, 1620 when men were sent out "some to fell timber, some to saw, some to rive, and some to carry" the sawn boards, riven pale or clapboards, and other "stuff for building" indicating a strong possibility that the first house was plank framed (Candee 1967: 11). Subsequently a shed "wattled up with boughs" was built against one side of the first building (Candee 1967: 11). The building had a wooden or wattle and daub chimney added to it and a thatched roof, as it is known that a fire in the building "broke out of the chimney into the thatch" (Candee 1967: 15). Daubing was known to have been used somewhere on the buildings as in February of 1621 Winslow reported that a storm "caused much daubing of our houses to fall down" (Candee 1967: 15).

Constructing a house using vertical planks was a common feature of Dutch architecture in the early seventeenth century and one that appears to have been brought to New England by the colonists who had lived in Holland. Building a house using vertical planks involves the use of wide sawn boards used to cover a frame of widely spaced vertical timbers placed at the corners of the structure. The vertical planks are spiked to the horizontal sill and holes are drilled into the top plate and trunnels are driven in to secure them. Framed houses require more joints than planked houses and thus are more costly to build with regards to time and expense. Holes for casement windows were sawn possibly after erection and the frames were affixed to the boards.

This method of construction was rare in seventeenth century New England, being limited in the early decades to Plymouth Colony and the northern corner of Rhode Island (which was settled by colonists from Plymouth Colony). Over 90% of surviving structures in Plymouth Colony prior to 1725 were built in this manner (Candee 1967: 41). Vertical planked structures were known to have been built as early as 1622 in Plymouth. When the fort on what is now Burial Hill was constructed in 1622 it was described by a Dutch visitor as being "built of thick sawn planks stayed with oak beams" (Candee 1967: 18). All the documented Plymouth Colony houses of plank construction had boards that were 1 1/4" thick and had their edges half beveled together (Candee 1967: 45). The exterior of these structures were covered with clapboards and the interiors were not plastered but were often wainscoted at the edges of the vertical board with a molding plane, in manner identified during Lombard's excavations of the "Aptucxet Trading Post" in 1926-1927 (although it was not identified as such) (Lombard 1953). This indicates that this house was originally constructed as a vertical plank house which had plaster added to the interior at a later date.

In Massachusetts Bay the agreement for the building of the meeting house in Manchester, built in 1719, specified “that the house shall be planked and not studded” (Cummings 1979: 89). The highest

concentration of vertical plank houses is found to the North of Boston around Cape Ann but not one dates before 1680 (Cummings 1979: 89).

The walls of the house were not insulated either with the inclusion of wattle and daub walls or through the infilling of a space between inner and outer walls with brick nogging or any sort of grasses such as has been theorized for other early structures such as the Ezra Perry II house (aka Aptucxet Trading Post Museum) in Bourne (Lombard 1953). The interior of the vertical plank walls were whitewashed and the exterior was covered with horizontal clapboards, most probably of split oak. The roof is theorized to have been thatched with traces of that original thatch possibly having been identified in 2010 when the more modern siding on the exterior east wall was removed and the side was reshingled. The hearth is theorized to probably have had wattle and daubed walls on the south, west and north sides and the chimney hood would have been timber framed and wattle and daubed. The theory that the hearth and chimney were constructed in this way is based on the recovery of fragments of burned daub during the 2010 excavations and the lack of any daub on the main walls of the house. The south wall of the hearth would have acted as a windbreak for drafts entering the house from the door, which appears to have been located in relatively the same location that it is today.

Older interpretations of the changing nature of the architecture of the house theorized that that it was enlarged from the single-cell form to its present Georgian form in the eighteenth century through the addition of reused timbers from a nearby salt-box style house. The family lore records that Ebenezer Wing's son Stephen (b. 1700 d. 1765 m. 1728) built a salt box style house to the east of the Fort House (the present location of th caretaker's house) and that this was subsequently added on to the original single-cell house in the eighteenth century (http://familypedia.wikia.com/wiki/Stephen_Wing_%28Feb_1620-1710%29). This would have had to have occurred after Stephen's death in 1765 during the period when Joshuah Wing and his family occupied the house. Precedent exists in both the Massachusetts and Connecticut colonies for an evolution and expansion of a small square house to a larger central chimney style structure. In Massachusetts Bay, Abbott Lowell Cummings has noted that "a significant portion of surviving seventeenth century two-room, central-chimney houses…commenced life as dwellings of single-room plan. Clearly the immediate need for shelter under pioneer conditions…seems to have dictated for many of the settlers at every class and economic level a simple single-unit dwelling for a start, to be soon enlarged as their situation in life improved." (Cummings 1979:22). Cummings found that the earliest surviving houses of one room plan in Massachusetts Bay had been enlarged several times in their existence. The expansion began longitudinally and then laterally with a lean to addition to the rear (Cummings 1979:23). J. Frederick Kelly illustrates a good example of this with the Hempstead house (single-room structure built 1643) in New London, Connecticut (Kelly 1963:11).

Paul Chase, when he reviewed 17th century probates, found that in Plymouth Colony most houses through 1675, appear to have been of a single room design (Chase 1985: 60). Chase also noted that one-room houses appear to have been more common for individually with estates valued at or under 90 pounds, the amount which appears to mark the difference between the wealthy and the common people in seventeenth century Plymouth Colony (Chase 1985: 62).

Gervase Markham outlined his ideal plan for a fully functional, self contained farm in *The English Husbandman* (1613:8). Markham recommends that when selecting a location for a house the husbandman would not want to place his house on a high hill to look down on everyone (as this is

unprotected from the wind), but should locate it on "...some pretty hard knole of constant and firme earth" with tall trees around for protection from the wind and use for the livestock (Markham 1613: 8). The house should be located near a river or fresh running water, but no so near that it will get flooded, and that it should face south and east to take advantage of the sun. The entrance into the house would be located on the south or east sides. While Markham does not explicitly state it, an entrance on the south would be used on a small house where one would enter into the multi-function hall whereas an entrance on the east would result in an entrance into the hall as well but then entertainment in the parlor **(Figure 5).** Markham recommends laying out your farmyard in the following manner. On the south side, where one has the best defense against the north wind, it was recommended that the following be situated:

-garden
-orchard
-best rooms in house

The west side of the house is where the the following should be situated a large base court containing:

-outside dairy court
-outside kitchen court
-a fenced in base court with large pond where cattle may drink and horses can be washed
-dovecote

Buildings for the keeping of large domestic mammals, species that can weather the cold north wind, should be located on the north side of the base court (which is located on the west side of the house):

-stables
-ox house
-cow house
-swine cotes

While all of these building should be located on the north side, their windows and doors should be located on the south side to provide ease of access and warmth during the winter.

The following buildings should be located on the south side of the base court (which is located on the west side of the house):

-hay-barnes
-corn-barnes
-pullet-houses for Hens, Capons, Ducks, and Geese
-malting kilne and malting floors.

Also on the north side it was recommended that the buildings of "the inferior offices" be situated where the cold of the north wind will benefit them:

-kitchen
-buttery
-dairy

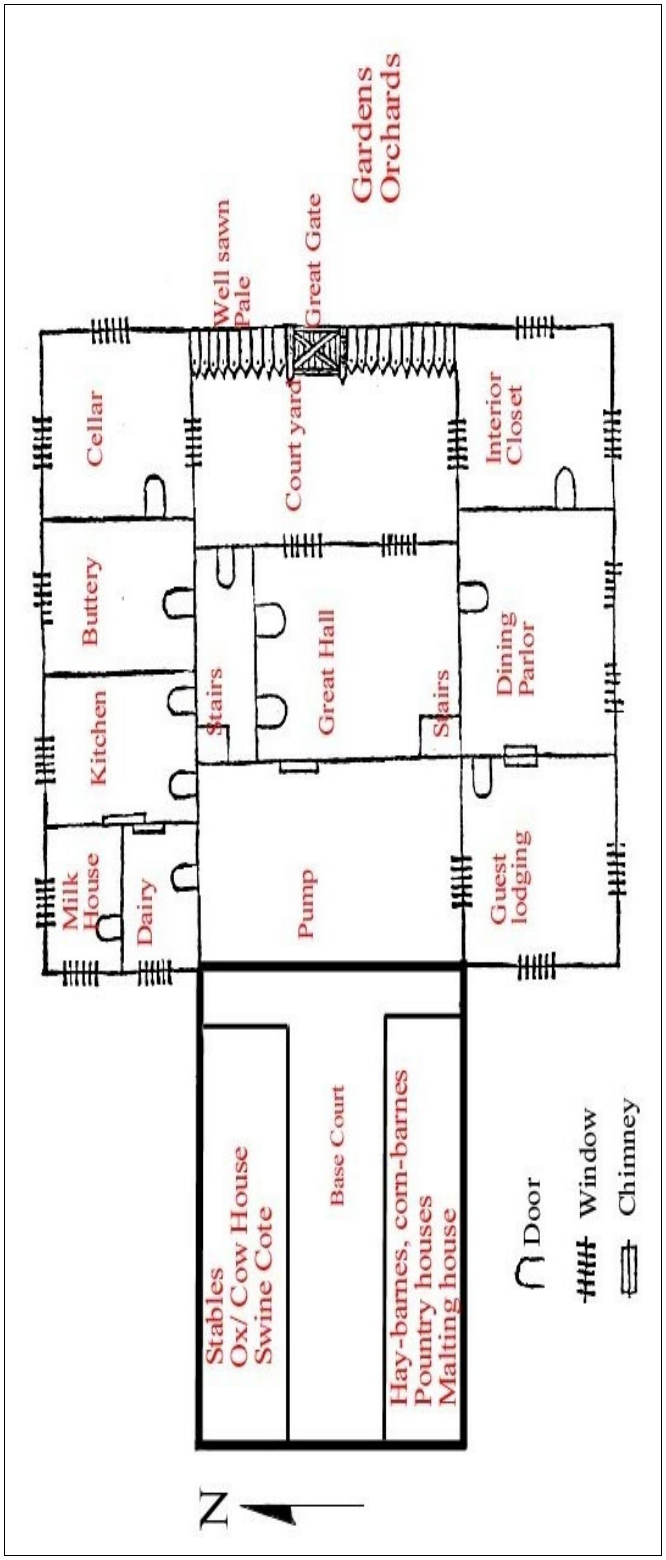


Figure 5. Seventeenth century idealized farm plan (Modified from Markham 1614)

Between the north and south sides of the base court, hovels (open sheds or shelters) to store peas in the upper part and in the lower part where tools such as carts, plows, harrows and their associated timber should be stored. It is theorized that Stephen Wing's house faced south, had orchards and gardens on

the south side and a barn to the south, at a right angle to the house, or to the west in the area of the present carriage house. Outbuildings may have been located to the south, north, or west depending on their functions.

Details preserved within the walls indicate that the house was not enlarged by means of reusing a preexisting salt box frame but that it was enlarged by adding on to the existing original single-cell, effectively encasing the former in the later **(Figure 6)**. The top plate visible at the front of the house in the attic indicates not reuse but just addition to the original house frame. At the west end of the house, also in the attic, the outline of a small rectangular window where a diamond pane casement window would have been located, is present in line with what would have been the apex of the salt box roof and just to the south of the present roof peak **(Figure 6)**. This later finding indicates that the roof line has been changed at least once between the original house and the present one. It appears that the the single-cell house was added on to by means of removing the roof and all the roofing frame except the east peak **(Figure 6)** and reusing these timbers in the subsequent salt-box style house. On the ground floor, the west wall (the hearth wall) was removed and what is hypothesized to have been a wattle and daub chimney above a simple hearth bay was replaced by a brick chimney. The north, south and east walls of the original house remained in place. The house was expanded to the west and south by means of the addition of a parlor to the west and a possible lean to kitchen/ pantry/ buttery wing to the north **(Figure 7)**. The presence of a small rectangular window in the west wall point to an early eighteenth century date of construction for the salt box period of the house. If the timbers from an earlier house had been reused in this after 1765, one would expect that this window would have been replaced with a more current window style such as double hung sash windows versus the diamond pane casement windows that would fit in this window. This would place it in the Ebenezer (b. 1671 d. 1738 m. 1699), possibly after the elder Stephen Wing deeded the house and land to him in 1700. The original deed is reported to be in the possession of a Society member but the contents were reported in the Annals of the Wing Family of America Incorporated Volumes 46-53 (as an aside the deed on exhibit in the Fort house purported to be the 1700 deed is actually a 1705 deed of undivided common lands to Stephen's grandson Stephen see **Appendix G**) . The expanded house would have been home to Stephen Wing, probably continuing to reside in what became the hall of the expanded house, Ebenezer and his wife Elizabeth (Backus) and their children Stephen (b. 1700 d. 1765), Rebbecca b. 1702 d. 1756), Samuel (b. 1704, d. 1793), Joseph (b. 1705 d. 1728), Joshua Wing (b. 1707 d. 1790), Sarah Wing (b. 1709 d.1790), and John (b. Jan 1710, d. 28 Mar 1728). When Stephen Wing died in 1710, his probate does not list any house or land in his possession, but it does indicate that he had a full house and barn load of material goods, enough for him to have lived on his own. The presence of Stephen Wing widower, a man who maintained his own household, within the larger household of his son Ebenezer, who legally owned the house explains the construction of the salt box in the early eighteenth century and the incorporation of the earlier single cell house, fairly unchanged sans the roof and hearth, within it. Timbers from the original house roof were subsequently reused in the salt box and a cellar was added beneath the northwestern portion of the kitchen.

Original 1640s roof peak, east end of house

Salt box top plate in attic South side

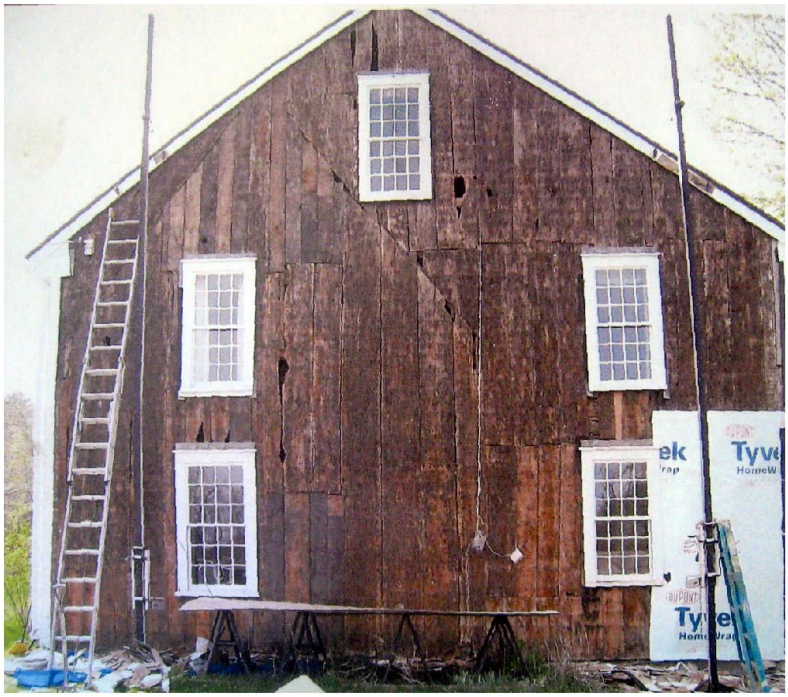
Salt box casement window opening and salt box roofline west end attic

Figure 6. Single cell and salt box details preserved in the attic of the Wing Fort House

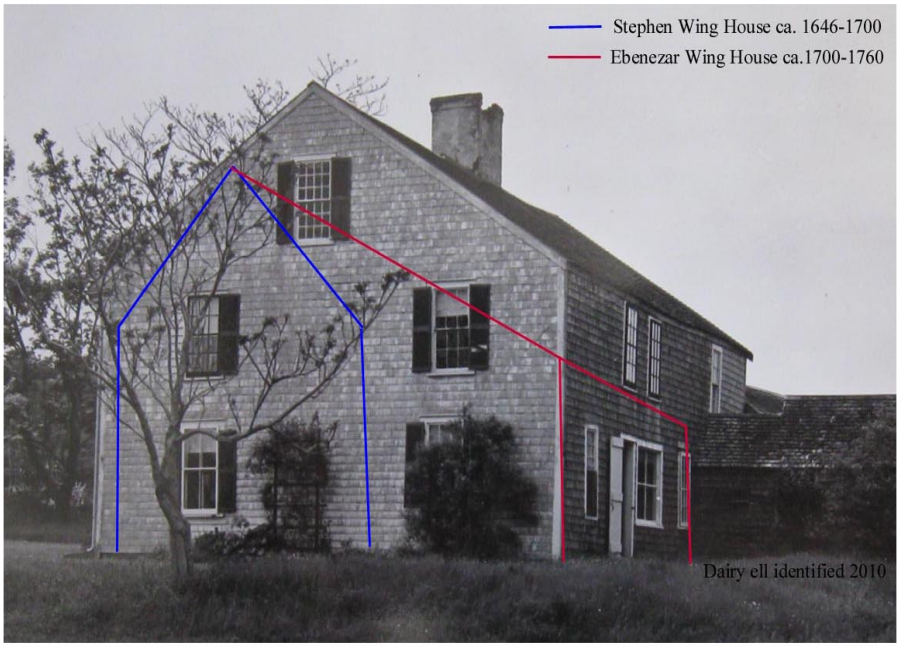
Joshuah Wing inherited the house from his father in 1738, married in 1744 and died in 1799. Joshuah appears to have expanded the house to the north, rebuilt the chimney, and created the symmetrical Georgian facade that exists to this day. Georgian architecture and the Georgian mindset originated in England in the late seventeenth century and had at its core a notion of symmetry and bilateral division (Deetz 1977: 111). Georgian style houses appear symmetrical from the exterior with a central doorway flanked by evenly spaced windows and a centrally placed window directly over the doorway (Deetz 1977: 111). It is in direct contrast to the older medieval and post medieval styles that were familiar to the the first English settlers to the New World and which survived into the early eighteenth century. It appears to have evolved out of the hall and parlor houses of the seventeenth century representing a continuation of the separation of the cooking and living spaces within the home. Pre-Georgian homes provided spaces that was used by the entire family, no individual spaces existed and artifacts from a variety of activities often existed within the same room. Often times, such as is the case of the Wing Fort House, the salt-box facade of the house was "Georgianized" to make it more symmetrical and less organic " ...almost as if the owners desired to present a more contemporary face to the world while retaining their comfortable older house behind it" (Deetz 1977: 112). At the Wing Fort House, the earlier casement windows were replaced with sliding sashes and the vertical plank doors were replaced with six panel doors like the one preserved in the attic. Georginiazation is also visible in the subdividing of larger rooms within the house to create specialized and more intimate spaces such as individual bedrooms or specialized rooms in the kitchen.

This individualization of the living space was also reflected in other aspects of the Georgian culture. Individual utensils- knives, forks and spoons-became standard and matched sets of ceramics containing a variety of forms -plates, saucers, cups, tureens, bowls- became common and more readily produced and available. Even food was individualized with smaller cuts of meat being common and foods distributed from a common pot becoming less socially acceptable. It is within this new and evolving individual-focused mindset that Joshuah Wing upgraded his house. The main core of the salt box remained but now the kitchen area was covered under the same roof as the the remainder of the house, creating a open space above what was the kitchen. This western half of this space served as a hall where the stairs from the kitchen ascend and where the stairs to the attic are located. The eastern half was added on to the pre-existing eastern room to make a larger space. A second cellar was added under the northeast corner of the kitchen with a bulkhead entrance on the east side. The ell located during the 2010 field season may have been added at this time as well. The house now measured 44.5' on the north and south sides by 31' on the east and west sides.

Following Joshua's death the core of the house remained the same with changes being focused on the area surrounding it. A carriage house was added to the western side in the nineteenth century, a shed (reportedly a former watch or clock maker's shop) was added to the north and the original barn, which was probably located on the south side of the house or possibly to the west of the house was replaced by a large barn to the east. The well which was identified in 2010, was dug in the nineteenth century as well.



East side of house with siding stripped 2010



1950s photo of house showing single cell and salt box incarnations

Figure 7. The evolving Wing House Top: Photo of stripped east side 2010
Bottom: Single cell and salt box house plans

V. POSTULATING THE FORT IN FORT HOUSE

As he was living in frontier conditions in an uncertain time, Stephen Wing's house may have also had a palisade around it such as those which are known to have existed at a number of other Massachusetts seventeenth century homesites. Medieval fortification was based on the principle of the wall and the keep, also known as the motte and bailey fortification. In the case of European and English defensive fortifications, a thick stone wall surrounded the town and provided a defense against attack. In the English colonies, a need for a quickly erected defense, an abundance of timber, and a less serious threat of all out attack by cannon fire, saw the replacement of the thick stone wall with tall timer palisades. While the materials were different, the principle remained the same- provide a safe place of refuge for a larger village population, keep the attackers outside, and provide a defensible fortification. The palisade would often surround an appreciable portion of a town with houses, gardens, a freshwater supply and livestock pens located within the walls. During the medieval period this was termed the bailey. Also within the palisade a secondary defensive fall-back location, the motte, was located. The motte became the blockhouse or fort of the seventeenth century fortification. Originally the motte was a tower or keep within which the village lord kept residence. It had its own outer defensive curtain, a wall with defensive towers, and its own provisions. If the town walls were breached, defenders could fall-back to the motte and hold out there. The motte was usually located on a higher piece of land than the bailey, providing a height advantage over potential attackers.

Machiavelli, in his 1520 treatise called The Art of War, described how fortification should occur in the age of cannons " of places strong by nature, that for this they must in these times either be surrounded by fens, or perched on a rock, for those that stand upon hills that be not much difficult to go up, be now-a-days considering the artillery and the caves most weak." The remedy for the latter is " to build in the plain, and to make the ditch that compasseth the city so deep that the enemy may not dig lower than the same where he shall not find water, which only is enemy to the caves." (Royal Military Academy 1893:95). In the case of Virginia, this seemed to be the key to fortification "The bold heights whose steep slopes gave security against the catapult, the beffroi, and the trebuchet, could give no such security against the cannon shot; and the new dangers of the mine made it necessary to come down from the hills, and to seek safety, not by rising above the ground, but by sinking into it." (Royal Military Academy 1893:95)

Ditches and ramparts would also be located adjacent to the external side of the wall " ditches are the first and the strongest defences of fortified places" (Royal Military Academy 1893:95). The throwing up of earth onto the exterior of the palisade allowed for a stronger wall that could be erected quickly and without as much seating for the palisade pales. The simplest, and most ancient form, of ditches were simple excavations without any revetment on the outer side. Later, the outer side was made steep and often set with masonry (Heck 1852:144). This was done so that invading attackers would fall into it and not be able to dig their way out back into the field. Ditches could be dry or filled with water. If they were dry, it was recommended that they be thickly set with caltrops, which were spiked tripod-shaped anti-personnel devices approximately three inches long. Caltops would always land with one spike pointing up with the idea being that this would be stepped on by men or horses. A single example was recovered from the Jamestown excavations in Virginia.

Gates into settlements were considered one of the weakest points of any defense. They had to be wide enough to facilitate the entry of wagons and carts, but small enough to be securely closed and

defended, essentially presenting a solid wall to attackers. In the history of the PeloponnesianWar, the Plataeans drove a spike of a spear into the bar of the gate so that the fleeing Thebans could not open it (Dale 1902: 92). At Wessagusset, it was recorded that the settlers spiked three of the four entrances into the town. It is likely that they drove spikes into the wooden cross bar that fastened the gate shut, making it impossible to open them.

In New England, seventeenth century fortifications such as those at Plymouth and at the Popham Colony, followed the motte and bailey principle of fortification. In Plymouth, an initial gun platform was erected on what they termed "the mount". This was subsequently replaced with the fort/ meetinghouse which had its own defensive works around it. At the Popham Colony, the administrative center of the colony (the lord's house), the president's house was located atop a high rocky outcrop within which defenders could retreat. On this outcrop were erected a palisade wall and cannon emplacements which could defend the town below.

In Virginia, possibly due to the fact that settlement was located on the relatively flat areas to the east of the "fall line" of the Virginia coastal plain, settlements did not have the advantage of high ground on which to situate forts/ mottes. This led to a different defensive structure than in New England. In Virginia palisaded towns, like Jamestown, were settlements surrounded by a palisade within which no one location was more heavily defended than another. The essentially lacked the motte, or to look at it in a wider sense, the palisaded community center became the fall-back/ hold-out location of the larger community. Unpalisaded habitation spread out beyond the initial fort in locations like Jamestown and Martin's Hundred with the palisaded initial settlement at the fort being the place where settlers could flee to seek refuge in time of attack.

Virginia archaeologists have also looked towards the English invasion of Ireland in the early seventeenth century, called the Plantation period (1600-1641), as a source of information on parallels to Virginian fortifications. Noel Hume, discussing parallels for the Martin's Hundred settlement in Virginia (c. 1622), succinctly boils down the argument for an Irish to Virginia connection "Lessons learned in Ireland during the Elizabethan years were learned and digested by British settlement planners in London...were packaged in London in colonizing kits...It made no difference where they got off; what they did, and what had to do it with, remained the same." (Noel Hume 1992:237). Two different but similar types of seventeenth century English fortifications have been identified in Ireland: the larger walled towns (triangular in shape like the Jamestown Virginia fort) and the personal fortified enclosure that generally contained the home of the settlement's leader (Noel Hume 1992:237). This fortified "bawn" as it was termed in Ireland (a term originally referring to an animal enclosure), was often located at the head of a settlement with a broad main street extending away from it. On either side of which were situated the meersteads (houselots) of the settlers, a layout very similar to Plymouth's Plantation, except that the bawn was replaced by the fort/ meetinghouse.

The defenses of Plymouth were begun on December 28, 1620 when Edward Winslow reported that "as many as could went to work on the hill where we purposed to build our platform for our ordnance, and which doth command all the plain and the bay, and from whence we may see far into the sea, and might be easier impaled, having two rows of houses and a fair street." (Heath 1963:42). It appears that the colonists had a plan for the colony, possibly based on a template for colonies in Northern Ireland. It is not known when the platform was completed and the ordinance was actually in place, because on January 17, 1621, Winslow related that after they had heard the "noise of a great many more [savages] behind the hill [over against our plantation], This caused us to plant our great ordnance in places most

convenient" (Heath 1963:42). It is likely that the ordinance was still on the Mayflower at this point because on February 21, 1621 Winslow reported that ". . . the master came on shore with many of his sailors, and brought with him one of the great pieces, called a minion [a cannon with 33 inch bore, firing 2 lb shot], and helped us to draw it up the hill, with another piece that lay on shore, and mounted them, and a saller [a misprint for saker, a cannon with 4 inch bore, firing a six pound shot], and two bases [small cannons with 13 inch bore, firing 2lb shot]" (Heath 1963: 50).

In March of 1622, after a challenge by the Narragansetts, the colonists decided that they should enclose the town within a palisade. This was likely part of their original plan for the town but it is interesting to note that they had inhabited their town for over a year at this point without a fear of attack or possibly a need to build a palisade By this point there were as many as 53 men (26 of the original Mayflower passengers, six young men, and 26 men who arrived in November 1621 aboard the Fortune)who could have worked on building the palisade In 1642, there is a description in the Plymouth Colony records of a palisade that was built in Plymouth. It was described as being "made of sharpened pales 102 feet long, buried 22 feet in the ground, and backed two against a third, and set >against a post and a Raile" (Candee 1969: 38). In light of the fact that we have no other descriptions of the first palisade, this one can serve as a working model for a strong possibility of how the town was originally impaled.

Bradford relates the following "But this (the Narragansett challenge) made them the more carefully to look to themselves, so as they agreed to enclose their dwellings with a good strong pale, and make flankers in convenient places with gates to shut, which were every night locked, and a watch kept; and when need required, there was also warding in the daytime. And the company was by the Captain's and the Governor's advice divided into four squadrons, and everyone had their quarter appointed them unto which they were to repair upon any sudden alarm. And if there should be any cry of fire, a company was appointed for a guard, with muskets, whilst others quenched the same, to prevent Indian treachery. This was accomplished very cheerfully, and the town impaled round by the beginning of March, in which every family had a pretty garden plot secured" (Morrison 1952: 97).

While Winslow states " In the mean time, knowing our own weakness, notwithstanding our high words and lofty looks towards them, and still lying open to all casualty, having as yet (under God) no other defence than our arms, we thought it most needful to impale our town; which with all expedition we accomplished in the month of February, and some few days, taking in the top of the hill under which our town is seated; making four bulwarks or jetties without the ordinary circuit of the pale, from whence we could defend the whole town; in three whereof are gates, and the fourth in time to be. " (Winslow 1841: 284).

The palisade appears to have been completed by March of the same year. Winslow relates that by early March "By this time our town is impaled; enclosing a garden for every family." (Winslow 1841: 286) and that "[We] came to this conclusion; that as hitherto, upon all occasions between them and us, we had ever manifested undaunted courage and resolution, so it would not now stand with our safety to mew up ourselves in our new-enclosed town . . ." (Winslow 1841: 286).

Following news from Virginia of the attacks by the Natives upon the English settlements thereon March 22, 1622, the Plymouth colonist decided it was time to build their fort to complement the palisade Bradford states "This summer they built a fort with good timber, both strong and comely, which was of good defense, made with a flat roof and battlements, on which their ordnance were mounted, and where they kept constant watch, especially in time of danger. It served them also for a

meeting house and was fitted accordingly for that use. It was a great work for them in this weakness and time of wants, but the danger of the time required it; and both the continual rumors of the fears from the Indians here, especially the Narragansetts, and also the hearing of that great massacre in Virginia, made all hands willing to dispatch the same" (Morrison 1952:111).

Edward Winslow places the construction of the fort in June 1622, which correlates well with Bradford's more general "this summer." Phineas Pratt and the six others who were with him arrived on May 31, 1622, placing him in the town 1) a few moths after the palisade was built and 2) right at the start of construction of the fort/meetinghouse. Pratt and the other remained in the town with the 60 other "lusty" men sent by Weston (who arrived in late July or early August), until the end of summer when the moved to Wessagusset. These 67 men may have helped construct the fort/ meetinghouse in Plymouth, as they were extra manual labor being fed out of the colony's stores. Winslow states "In the time of these straits, indeed before my going to Munhiggen [Monhegan], the Indians began again to cast forth many insulting speeches, glorying in our weakness, and giving out how easy it would be ere long to cut us off. Now also Massassowat {Massasoit] seemed to frown on us, and neither came or sent to us as formerly. These things occasioned further thoughts of fortification. And whereas we have a hill called the Mount, enclosed within our pale, under which our town is seated, we resolved to erect a fort thereon; from whence a few might easily secure the town from any assault the Indians can make, whilst the rest might be employed as occasion served. This work was begun with great eagerness, and with the approbation of all men, hoping that this being once finished, and a continual guard there kept, it would utterly discourage the savages from having any hopes or thoughts of rising against us. And though it took the greatest part of our strength from dressing our corn, yet, life being continued, we hoped God would raise some means in stead thereof for our further preservation" (Winslow 1841:295).

In August of 1622, the ship *Discovery* made port at Plymouth with John Pory, the just retired Secretary to the Governor and Council of Virginia aboard. Pory states that in August "Now concerning the quality of the people . . . their industry as well appeareth by their building, as by a substantial palisado about their [town] of 2700 foot in compass, stronger than I have seen any in Virginia, and lastly by a blockhouse which they have erected in the highest place of the town to mount their ordnance upon, from whence they may command all the harbour" (James 1997:11). Pory's description of the fort as a blockhouse, indicates that the structure may not have had a roof upon it, as he goes on to say that it was built to mount their ordinance upon, not within, as would be the case if it was roofed. On the other hand, the fort was not complete when Pory saw it in August; perhaps they had not put the roof on yet.

The colonists apparently were fairly single-minded in their construction of the fort, putting other needs such as planting and trade, second to the endeavor. In October 1622, Winslow states " By reason whereof (our own wants being like to be now greater than formerly, partly because we were forced to neglect our corn and spend much time in fortification, but especially because such havoc was made of that little we had, through the unjust and dishonest carriage of those people before mentioned [Weston's colonists], at our first entertainment of them,)..." (Winslow 1841:300). In total it took 10 months to finish the fort. Winslow, in March 1623, stated that "Now was our fort made fit for service, and some ordnance mounted; and though it may seem long work, it being ten months since it begun . . . amongst us divers seeing the work prove tedious, would have dissuaded from proceeding, flattering themselves with peace and security, and accounting it rather a work of superfluity and vainglory, than simple necessity" (Winslow 1841:335).

In September 1623, Emmanuel Altham, Captain of the Little James and one of the Merchant

Adventurers who had financed the settlement at Plymouth, visited and reported: “It is well situated upon a high hill close unto the seaside, and very commodious for shipping to come unto them. In this plantation is about twenty houses, for or five of which are very fair and pleasant, and the rest (as time will serve) shall be made better. And this town is in such manner that it makes a great street between the houses, and at the upper end of the town there is a strong fort, both by nature and art, with six pieces of reasonable good artillery mounted thereon; in which fort is continual watch, so that no Indian can come near thereabouts but he is presently seen. This town is paled about with pale of eight foot long, or thereabouts, and in the pale are three great gates” (James 1997: 24). Altham also states that the ordinance was mounted thereon, not therein, another indication that the fort had an unroofed gun deck.

Captain John Smith, who almost was the Plymouth colony's military leader, never visited the Plantation, but that did not stop him from describing it (most likely through the intelligence from someone else). Smith states in 1624 that “At New-Plimoth there is about 180 persons, some cattle and goats, but many swine and poultry, 32 dwelling houses, whereof 7 were burnt the last winter, and the value of five hundred pounds in other goods. The town is impaled about half a mile in compass. In the town upon a high mount they have a fort well built with wood, loam and stone, where is planted their ordnance; also a fair watchtower, partly framed, for the sentinel...” (Barbour 1986: 472). Smith is the only description that states that the fort was of wood, loam and stone (possibly referring to earthworks around the fort itself as well as the fort) and mentions a watchtower.

The final description of the fortifications and layout of Plymouth comes from the visiting Dutchman Isaac de Rasiere, chief Trading Agent for the Dutch West India Company and Secretary to the Director-General of New Netherlands who visited in 1627 and wrote a letter to Samuel Blommaert in 1628. De Rasiere states “New Plymouth lies on the slope of a hill stretching east towards the sea-coast, with a broad street about a cannon shot of 800 feet long, leading down the hill; with a [street] crossing in the middle, northwards to the rivulet and southwards to the land. The houses are constructed of clapboards, with gardens also enclosed behind and at the sides with clapboards, so that their houses and courtyards are arranged in very good order, with a stockade against sudden attack; and at the ends of the streets there are three wooden gates. In the center, on the cross street, stands the Governor's house, before which is a square stockade upon which four patereros are mounted, so as to enfilade the streets. Upon the hill they have a large square house with a flat roof, built of thick sawn planks stayed with oak beams, upon the top of which they have six cannon, which shoot iron balls of four and five pounds, and command the surrounding country. The lower part they use for their church, where they preach on Sundays and the usual holidays...” (James 1997: 75-76). It should be remembered that this description was originally written in Dutch and translated to English and it is unknown what may have been lost in translation.

It is not known exactly what the layout of the fortified plantation at Wessagusset (Weymouth) in 1623 was, but we do have a few tantalizing clues that help to illustrate. We know from Phineas Pratt's narrative that the plantation had a palisade, a fort and a court of guard, which may have been located within or near the fort. We also know that the entire Plantation was located near a swamp “Then they (the natives), having intent to make war, removed some of their houses to the edge of a great swamp near to the pale (palisade) of our plantation”, so the palisade was near the “great swamp”. Knowing that Pratt and the settlers had arrived a Plymouth when they had just completed their palisade and were in the process of building their fort, it should be safe to assume that they would have observed Plymouth's defenses and the situating of the town and may have attempted to emulate it. The hypothesis that the settlers at Wessagusset tried to copy Plymouth defensive strategies at least gives us a basis for

speculating on possible locations for the settlement.

Based on Pratt's narrative and Plymouth's defenses, the fort and palisade should be located in a location with the following characteristics:

-a relatively high location, the higher the better to give the high ground advantage like Plymouth had,
-located adjacent to a swamp, possibly to use the swamp as a natural earthwork making attack on the plantation more difficult at least from one side,
-possibly a location with a good view of the harbor, to look out for approaching ships (friendly or not),
-a location near reliable fresh water (possibly associated with the swamp).

The Wing Fort House meets all the precedents set by the plantations at Plymouth and Wessagusset regarding the ideal situation for a fort, fortified settlement or fortified house. It is located adjacent to wetlands to the north with a fresh water supply (the spring) located just to the northeast of the house and it is situated on a rise of land overlooking navigable water and Cape Cod Bay. While it is not being proposed that Stephen Wing built a fortified plantation consisting of multiple houses, roadways and gun platforms, he appears to have selected his homesite so that it was an ideal location for fortification.

The alternative to fortifying an entire town is the fortification of an individual house, essentially creating a blockhouse where the community can seek refuge during an attack. In Virginia, the fortified house was usually the home of the colony leader. It is believed that the concept of the fortified house came from the English experience in the English invasion of Ireland (1600-1640). In Ireland, local tribes would create fortified community bawns where kin were driven into and protected (Hodges 1993:209). The defensive vocabulary of community bawns flows into fortified houses and was transplanted to the New World as one of the defensive alternatives available to colonists (Hodges 1993: 210). The speed of warfare in the New World, forced planters to adopt the same attitudes towards defense that the Native Americans and Gaelic had adopted: Throw up military works when you need them tear the down when you don't to save labor (Hodges 1993: 213). Especially in Virginia where seventeenth century settlement was focused on the flat plain east of the Fall Line, the visual message sent by a fortified house's high profile on the cleared landscape, may have also provided a visual deterrent to attacking forces and a sense of security for the inhabitants.

The bawns in Ireland and the defensive works in the New World most often showed a preference for ditch set stockades over technically complicated post and rail works to defend against guerrilla warfare raids. The use of split rails solved three problems 1) how to build with green wood, 2) how to defend oneself rapidly, 3) how to flexibly fence with minimum effort (Hodges 1993: 211). While it is known that fortified houses were present in New England, the actual form is not known. In Virginia, the split-rail palisade surrounding the house had a maximum single side length of 240 feet, which was the distance that a seventeenth century firearm could accurately fire, with at least two corners ending in U-shaped, circular or curvilinear bastions which provide the maximum defense by muskets (Hodges 1993: 209-210).

Fortified houses existed in New England as well. Samuel Maverick reported in 1660 that there existed in Revere a building dating back to 1625 which he had fortified with a “a pallizado and flankers and gunnes, both belowe and above in them” (PMHS 1885: 236). In 1628, one house was described as

being in what would become Charleston, Ma., an “English palisadoed and thatched house” (Young 1846: 374). Reverend John Lathrop recorded that in 1634 all of the houses in Scituate were small, plain, “pallizadoe” houses (NEHGR 1856: 42). Plymouth Colony also had fortified houses, as evidenced in a 1647 court case where John Crocker's house was entered by someone “putting aside some loose pallizadoes” (Candee 1969: 38-39). On 5 Jan. 1635/6 John Washborne purchased a “house and palisado” from Edward Bompass in Plymouth Colony, “beyond Eagle Nest Creek,”[15] presumably on the “Duxborrow” side of Plymouth. James Skiffe, later of Sandwich, sold a house in 1637 in North Plymouth (then called Plaine Dealings) to George Clarke “The house being vnfinished is to haue a boarded chamber floore ouer the house and the house to be couered wth boardes and clap boarded to the floore and a partition to be made of clap board through the middest and the chimney to be daubed and three acrees of the said tenn acres to be enclosed wth pallasadoes except the vpper end thereof wch is to be hedged” (PCR volume 1: 26). Samuel Eddy sold to Richard Clough all his house and garden in Plymouth “wth all the boards pallysadocs in and about the said house and garden together “ (PCR Volume 1: 31). As late as the 1670s, houses were being palisaded. Mary Rowlanson described the attack on her house that resulted in her being taken captive

“At length they came and beset our house... The house stood upon the edge of a hill...About two hours (according to my observation in that amazing time) they had been about the house before they prevailed to fire it, (which they did with flax and hemp, which they brought out of the barn, **and there being no defence about the house, only two flankers at two opposite corners, and one of them not finished)** they fired it once, and one ventured out and quenched it, but they quickly fired it again, and that took.” (Rowlandson 1682:4). The type of defense described by Rowlandson was the same as defenses described elsewhere in Virginia and Massachusetts- a house enclosed with a palisade with two flanker at opposite corners **(Figure 8).**

This is the type of fortification that is here hypothesized to have been located around the Wing Fort House, if in fact, any fortification existed at all.

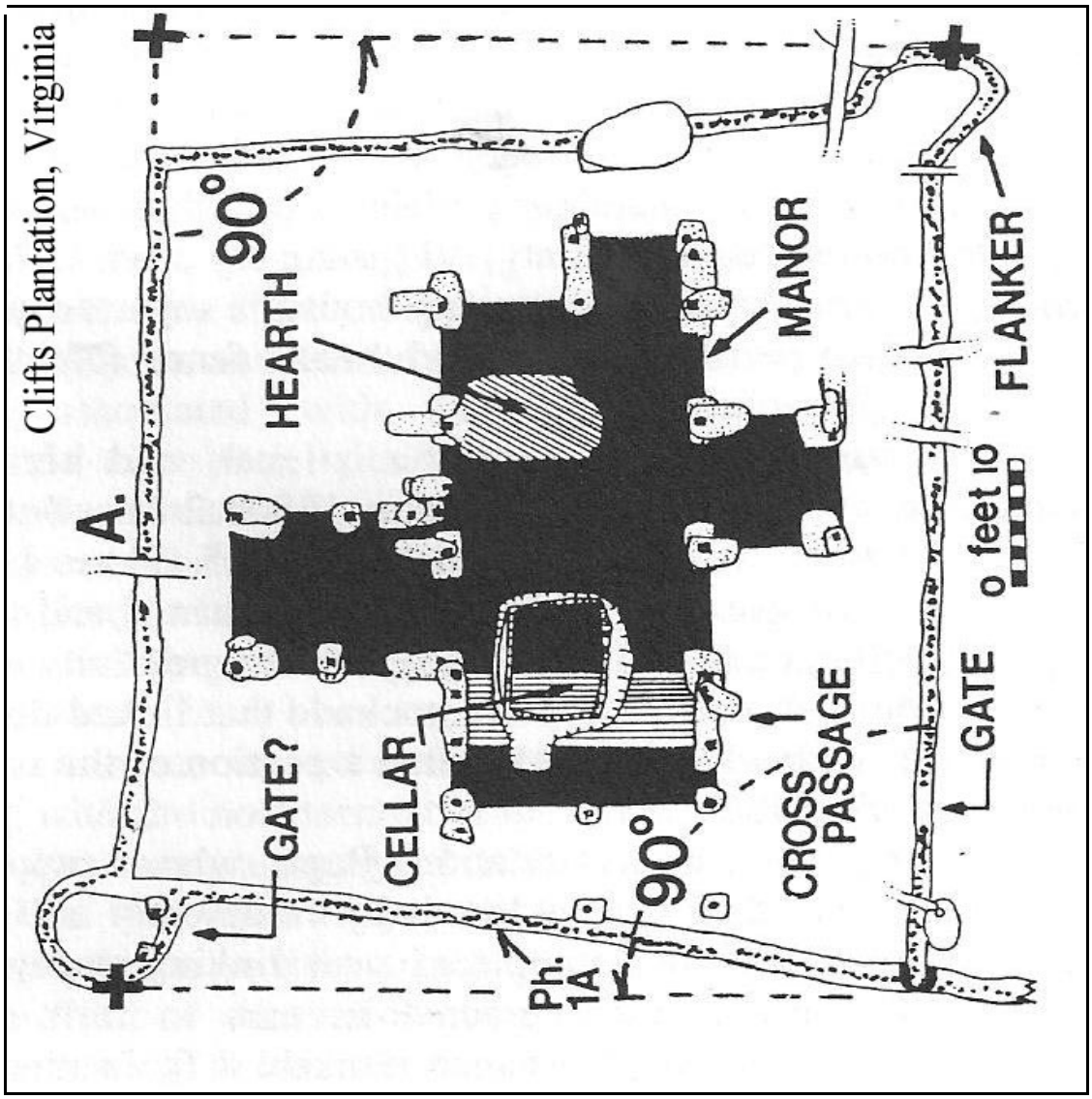


Figure 8. Fortified house in Virginia-Clifts Plantation

VI. PREHISTORIC CONTEXT

New England's prehistory is poorly understood relative to that of other regions in North America. For most of the prehistory in the region, river drainages, defined physiographic units within which human communities operated. This pattern follows from the longitudinal diversity of habitats that occur along drainages, forming ecologically unique wetland habitats, together with the transportation routes afforded by their watercourses. In the clearest examples, rivers provide access to maritime and upland resources at each end of the drainage, and to the diverse habitats in between. The exploitation of those habitats can be integrated into a seasonal round that differs at various historical moments.

The prehistory of southern New England is divided into seven periods, each identified by characteristic styles of projectile points, pottery and other artifacts. These periods are the Paleo-Indian (13,000-10,000 BP), Early Archaic (10,000-8000 BP), Middle Archaic (8000-6000 BP), Late Archaic (6000-3000 BP), Early Woodland (3000-2000 BP), Middle Woodland (2000-1000 BP) and Late Woodland (1000-350 BP). In addition to their artifacts, the periods are characterized by changing patterns of site location, activities and size. The final report for this project will contain a more detailed discussion of the prehistory of Massachusetts and how any prehistoric archaeology uncovered in the project area or immediately around it, relates to larger trends that have been observed regarding the Ancient native American settlement of New England.

New England has a rich and extremely interesting Pre-Contact period. Archaeology has contributed a great deal to our understanding of the Native history of New England, without it our picture of the past would, unfortunately be only a sketch. Unfortunately, archaeology can only give us only a bare bones look at the lives of the people who have lived in New England in the Pre-Contact past. We can never answer questions like what was a man thinking when he made a certain projectile point style, or what did a woman think about when she made a pot. We can only theorize and guess at these sort of details. But through archaeology, we have been able to learn when people first arrived in Southeastern Massachusetts and how they made a living.

Because archaeology relies on the material that is recovered from the soil, we are limited to how much we can ever really know about the most ancient people. So we must try to say something archaeologically meaningful from the scant bits of evidence that have survived. Unfortunately, the farther back in time we travel, the more scarce our evidence becomes. This is due to the fact that there were less people in the area in the past and some sites have been flooded by rising sea levels. Bearing this in mind, the following is a sketch of what happened in the past, always being added to and never complete.

Paleo-Indian Period 13,000-10,000 BP

Although there is new research being conducted all the time, the present theory is that the people who first settled in New England arrived in the New World during the end of the Wisconsin ice age, approximately 13,000 years ago. Before this time, New England and much of the northern half of the United States was covered by a mile and a half thick sheets of ice called glaciers. Ice ages are part of the Earth's natural warming and cooling cycle. Approximately 60,000 years ago for some unknown reason, the temperature dropped on Earth just a few degrees, just enough to cause the glaciers and ice caps located at the north and south poles to begin removing water from the oceans and growing. By approximately 20,000 years ago the edges of the northern ice sheet had reached its maximum extent, present day Martha's Vineyard and Nantucket, and began to recede. As the glaciers melted, they

dropped millions of tons of sand, gravel and boulders that had accumulated during their journey southward. All this material, the moraine and outwash soils, became the sandy hills, the drumlins, eskers and kames, and basically all the lower layers of soil that make up our landscape today. Mixed in with the moraine and outwash were glacial erratics, these are the large boulders, like Plymouth Rock, that dot our landscape today.

Following the retreat of the glaciers, the climate in southern New England was a southern tundra. It was cold, windy and barren and covered with large areas of wetlands. Scattered intermittently across the landscape were patches of grasses, shrubs such as sedge, alder and willow, and small stunted trees including spruce followed by birch and pine. There was also a lot more landscape than there is today because the oceans were approximately 300-400' feet lower than they are today. In New England, this meant that the coastline was up to 50 miles to the east of its present position. This left exposed large portions of land, like George's Banks, that are today underwater. The islands that we see today in many coastal harbors, were at this time hills on a barren landscape and many of the rivers that we know today were nothing more than springs or small streams.

The types of animals that were present at this time included some of the smaller species such as foxes and rabbits, but megafauna were also present. Megafauna is a term that describes the large breeds of animals that were present in New England after the last ice age. These included the mammoth, which existed on the tundra, the mastodon, which lived in the early forests, the horse, which later became extinct and was reintroduced by the Spanish in the 1500s, bears like the large Kodiak variety, beavers up to 6' long, bison, elk, caribou and musk ox, which disappeared fairly early.

In southeastern Massachusetts, sites that date to this period have been encountered in Plymouth on the Eel River and on the coast in Marshfield.. At these sites, the evidence of people living here after the last ice age has consisted predominantly of stone projectile points of a variety called the Paleo or fluted point. These points were generally made from exotic materials that were carried in by the inhabitants as they traveled from the west. These materials predominantly are very fine grained stones including cherts from New York and Maine and jaspers from Pennsylvania. Population densities have been estimated at approximately 5-12 people per 100 square kilometers. These people made their living by hunting and possibly scavenging the carcasses of the megafauna. The also hunted smaller game such as rabbits and they may have fished on the coast. The populations in New England at this time may have numbered no more than a few hundred. These people lived in small groups and traveled seasonally. They probably were not nomadic, but were following seasonally migrating herds. Paleo sites are often located on hilltops overlooking plains or were high on the shores of glacial lakes.

Archaeologically there is little evidence of the Paleo-Indian period on the Outer Cape. One of the reasons for the paucity of finds may be related to the fact that during this period the coastline was approximately 100 miles to the east and south of today's George's Banks with the result being that more attractive sites may have been located near the paleo-shore and are now flooded. No Paleo-Indian materials have been recovered in situ on the outer Cape, with one fluted point having been recovered from Eastham, constituting the total of the evidence on the Outer Cape for occupation at this time (Johnson 1997: 17). On the shore of the Bass River in Yarmouth, a cache of possible Paleo-Indian Eden blades of Mt. Kineo felsite from Maine was recovered from a tree fall (Dunford 1997: 32). It is more likely that these blades date to the Middle Woodland period and are not, in fact, Eden points.

By the end of the Paleo Period the environment in New England was stabilizing and life ways were

becoming fairly distinct. The megafauna were extinct by 10,000 years ago, probably due to a combination of hunting by the first settlers and climactic change. the forests were beginning to change to more pine and nut bearing hardwoods which created new habitats for animals and new food sources for people. While the Paleo Period can be seen as a time of initial colonization, the next period, the Early Archaic, can be viewed as a time of settling in and accommodation to life in New England.

Early Archaic 10,000-8,000 BP

The extinction of the megafauna and the changing climate led to a revamping of the Paleo-Native way of life around 10,000 years ago. The environment in the Early Archaic had warmed slightly and as a result, trees such as oaks, pitch pines, beeches and hazel began to flourish. It was during this time that the major rivers that are around today began to form as well and into these rivers anadromous fish species like salmon and herring began to run. This would have provided another food source for the inhabitants of New England. As New England began to become more forested, new mammalian species also would have moved into the area. These species would have included black bear, deer and moose.

The Early Archaic is one of the little understood periods of New England prehistory. Early Archaic sites tend to occur on a wide range of settings including hills sides with slopes over 15 degrees and hill tops. Some sites are situated on the same locations as Paleo sites while others appear alone in the landscape. Homes at this time have been theorized as being either of a longhouse shaped, as have been identified in Taunton, Massachusetts at the Titicut site, or as small pits dug into the sides of hills as have been identified in Connecticut and northern Massachusetts. It is unknown if the two forms of houses occurred simultaneously, were seasonally determined or represent different building traditions by different populations.

Evidence of the Early Archaic peoples' process of "settling in" is evidenced in their use of local volcanic materials such as rhyolite and felsite for tools and projectile points and their possible use of quartz for quick, expendable tools. Hunting during this period may have taken the for of spear throwing with the use of the atl-atl, a weighted stick that was held in the hand onto which a long spears was placed and launched from. The atl-atl was basically an extension of the throwers arm and it effectively increased the distance, force and accuracy of the throw.

Like the preceding Paleo-Indian period, little evidence exists for occupation on the Outer Cape during the Early Archaic. One bifurcate base point was recovered from the Chase Farm site in Eastham and a bifurcate base point base was recovered from the Nauset trail on the Cape Cod National Seashore (Dimmick 2006: 2). During the Early Archaic the sea levels were still approximately 25 meters below their present level but the Cape was covered by a mixture of oak and pine forest.

Middle Archaic 8,000-6,000 BP

While the Early Archaic was a time of transition from the Paleo-Indian nomadic way of life to a more sedentary and permanent situation, the Middle Archaic can be seen as a time of more normality and permanency. It still was a time of many changes though. Oceans remained approximately 29 feet lower than they are today but the rate of rise had slowed enough for estuaries to begin forming. the formation of estuaries led to the establishment and proliferation of shellfish beds. Shellfish first settled in the warmer southern waters and eventually moved northward as the sea level rise slowed and waters warmed.

By 7000 years ago, forests with the same basic composition as today began to be established. The use of heavy stone woodworking tools such as axes, adzes and gouges increased during this period, possibly indicating the construction of log canoes or at least an increase in woodworking. Evidence for hunting using atl-atls first appears at this time as well. In fact, the oldest burial in New England, 7500 years ago, was located in Carver, Massachusetts and contained two atl-atl weights of the whale-tail variety. Sites from this period are fairly common, indicating that people had begun to spread out over larger areas. It also indicates that there may have been more people in Massachusetts than before.

No Middle Archaic sites are known from the Outer Cape. On the Lower Cape, the Upper Mill Pond Site in Brewster's Stony Brook Valley yielded specialized tools, points, scrapers, hammerstones possibly used to harvest and process the more seasonally available resources of this time. The site lies on a kettle pond approximately 50 feet above sea level.

Late Archaic 6,000-3000 BP

The Late Archaic represents the period with the most identified and recorded archaeological sites in Massachusetts. This has been interpreted by many as indicating a very large number of people living in our area during this period, although archaeologists are not sure why this happened. The case may also be made that this proliferation of stone tools and sites may be more related to a wider variety of stone tools being manufactures for specific purposes and a wide variety of habitats being exploited as opposed to a population boom. The Late Archaic is also a time of greater diversification and specialization than was evident in the earlier periods. The tool kits of the people living on the south coast and its coastal forests differed from that of the people in Maine and further north. This in turn was similar but distinct from the inhabitants of the strictly boreal forests such as those in New York and inland Massachusetts.

Along coastal Massachusetts, the combination of stabilizing sea levels and estuary formation led to significant runs of anadromous fish by the Late Archaic. As a way of taking maximum advantage of these fish runs, Native people began using weirs in the rivers, streams and bays. In fact, one of the largest weirs found anywhere in the world was encountered in what was once Boston harbor. It is believed that the weir was constructed approximately 5000 years ago and covered several acres. Weirs of a smaller scale were undoubtedly employed in most of the bays, rivers and larger streams in southeastern Massachusetts.

Unlike the preceding periods, the Late Archaic is well represented on the Outer Cape, as is the situation everywhere in Southeastern Massachusetts. A number of Late Archaic shell midden sites were identified in the High Head section of Truro during McManamon's archaeological survey of the Cape Cod National Seashore, indicating possibly a greater use of shellfish during this period (McManamon 1984: 348). Other Late Archaic sites include a single Otter Creek projectile point, representing the Laurentian tradition, recovered during McManamon's Cape Cod National Seashore survey from site 19-BN-274 and another from Nickerson's Neck in Chatham (Mcmanamon 1984). Small Stemmed tradition sites are better represented on the Outer Cape with 20 of the sites identified by McManamon yielding Squibnocket Triangle and Small Stemmed points. Small Stemmed tradition sites occur in a wide variety of environmental settings. Susquehanna tradition sites, characteristic of the Transitional Archaic, have been identified in Orleans (the Coburn site), one possible Atlantic point, and seven Susquehanna/ Wayland Notched projectile points, and two Orient Fishtail points were recovered from McManamon's survey. All of these points are diagnostic of the Transitional Archaic period.

Early Woodland 3000-2000 BP

Following the Terminal Archaic is an ill-defined time labeled the Early Woodland by New England archaeologists. In the face of the date for the start of pottery production being back into the Late to Terminal Archaic and the absence of horticulture possibly until after 1000 A.D, some archaeologists, like Snow, do not view the designation of Early Woodland as a valid one (1980). They see no real change occurring that could be used to differentiate the Terminal Archaic and the next 1000 years. They merely see a continuation of tumultuous times that began after 3000 to 4000 years ago. In the words of Filios "... the chronological picture (for the Early Woodland) is more murky than previously suspected. ...the horizon markers (of this period) need to be reevaluated." (Filios 1989:87). Traditional horizon markers for the Early Woodland have included Vinette I pottery, which has been shown to have been produced before the Early Woodland, an absence of Small Stemmed points, which have been shown to have continued in use into the Early Woodland, and increased sedentism, which appears to have begun before the Early Woodland, and horticulture, which in New England was not intensively practiced until after 1000 A.D.

Some of the trends identified above, the decreased population and fragmentation, are based on the small number of Early Woodland sites that have been identified. This may be more a product of the criteria used to identify the sites, such as the presence of pottery and absence of Small Stemmed points, and number of Early Woodland sites may not be as small as thought. If one includes sites yielding Small Stemmed points but no pottery, as these may represent special purpose floral or faunal resource procurement task camps and not residential locations, the number of sites possibly attributable to the Early Woodland increases. Due to the increasingly long temporal use range for Small Stemmed points, their presence or absence can no longer be used as valid "datable" criteria to assign the site to one period or another. What is needed is more radiocarbon dates associated with specific materials. Until this occurs the Early Woodland will remain obscure and ill-defined.

A dramatic population collapse has traditionally been one of the defining characteristics of the Early Woodland. Filios (1989) came to a similar conclusion although her data shows a break in radiocarbon dates from 2700-2400 years B.P. possibly showing a population decline after 3800 years B.P. and a greater decline after 2800 years B.P. If there was in fact a population collapse, reasons for it have included climatic and environmental change, epidemics, the effects of plant and animal die-offs and socio-cultural factors. One of the main causes may have been if nut bearing trees, already in decline in the Terminal Archaic, were hit hard by plant disease or environmental change, then this may have caused a population reliant on this resource to die off. This would account for the drop in inland sites in the period. Alternately the populations living on the coast that focused their procurement strategies on river valley, estuarine and inshore resources may have remained relatively unscathed. These would be the Rossville and Lagoon point users, point styles that show a high concentration in coastal areas especially Cape Cod.

One of the most important Early to Middle Woodland sites excavated on the Outer Cape is the Carns Site on Coast Guard Beach in Eastham (Bradley 2005). This site yielded abundant evidence of Fox Creek phase occupation which were similar to sites in New York's Hudson valley (Dimmick 2006: 11). Seven other sites have been identified on the Cape Cod National Seashore dating to this period as well.

Middle Woodland 2000-1200 BP

This period is marked by a decrease in the number of exotic finished goods indicative of long-distance

trade, and by changes in mortuary practice (increase in secondary interments, less use of ocher, fewer grave goods, more variation in preparation of the dead). While the roots of ceramic and lithic variability are found in the preceding periods, more rapid variation in sequence through time and more regional variation characterize this period. Ceramics vary more in decoration and form. Lithic projectile points are less important in the tool kit, and bone and antler tools are preserved at some sites where matrix conditions are appropriate (Shaw 1996:84-87). By the end of the period there is evidence of maize horticulture (Thorbahn 1982).

Fox Creek and Steubenville bifaces characterize this part of the period. There is some overlap in time between the Fox Creek and Jack's Reef points during this part of the Middle Woodland. Fox Creek points are relatively rare in Eastern Massachusetts with few known from the outer Cape (Truro and Wellfleet) and Martha's Vineyard These points are diagnostic of the Middle Woodland Period, occurring from AD 400-700, and they are often found on multi-component sites (sites with multiple time periods represented) and area associated with the growing of corn and decorated ceramics. On Martha's Vineyard, they have been found in association with postmolds outlining an oval-shaped house measuring 16' in diameter (Towle 1986: 30). Other projectile point styles such as Greene points are considered as being used contemporaneously with Fox Creek points in the earlier period of their use while Jack's Reef points and Levannas (the triangular points that are the hallmark of, and only point style occurring in, the Late Woodland period). The people who used the Fox Creek points are believed to have been seasonally migrational, spending the summers on the coast and the winters further inland, and they show many of the cultural characteristics evident with southeastern Massachusetts' Native people at the time of Contact. Other types of artifacts commonly found associated with Fox Creek points include exotic lithics like New York state cherts and Pennsylvania jaspers, Saugus jasper, Blue Hills hornfels and Great lakes' copper.

Jack's Reef points continue to be used into the Late Woodland. Exotic lithic materials increase in the Middle Woodland, except in the Champlain drainage. Jack's Reef points are often made of non-local chert (Shaw 1996:92-93). Some lithic tool types, such as Rossville (Shaw 1996:90) and Small Stemmed (Hasenstab et al. 1990) continue into the Middle Woodland.

The Carns site, previously mentioned, contained a significant Middle Woodland component while three sites identified during McManamon's survey contained diagnostic Middle Woodland points and four sites contained diagnostic Middle Woodland pottery. Occupation of the Outer Cape appears to have had a significant coastal orientation to it, with most sites being located within one half kilometer of the ocean (Ingham 2004:20). This presumed coastal focus could also be a result of the other factors as well: much of the Outer Cape is coastal and thus more sites would be expected to be identified in coastal settings, the highest yield of natural resources are in coastal areas, and the collection/ survey bias caused by the Cape Cod National Seashore survey, which of course, was located in a coastal environment. Only a limited amount of archaeological fieldwork has been conducted on non-coastal sites on Cape Cod.

Late Woodland Period 1200-500 BP

This is the period just prior to European contact and as a result, many of the historical reports written by the early explorers to New England (Verrazanno, Gosnold, Pring, Smith) present one way of understanding the late Late Woodland period. Some of their observations may be able to be extrapolated back into the Pre-Contact past through the use of ethnographic analogy. These analogies can be created with more confidence as pertaining to the culture of the Late Woodland period than any

earlier one.

The ceramics of the Late Woodland period are often shell-tempered or made with fine grit temper and have thinner bodies and a more globular form than the earlier ceramics. The diagnostic projectile point of the Late woodland period is the triangular Levanna points and occasionally the Madison. This period is marked by an increasing importance in food production (maize, beans, squash, sunflower and other vegetables) in coastal or riverine zones, which begins by ca. 1100 BP on Martha's Vineyard (Ritchie 1969).

These decrease in projectile point styles and the increase in the reliance on horticultural crops, may be attributed to increasing numbers and densities of population at larger sites. While the occurrence of the "village" in southeastern Massachusetts continues to be debated, the affect of an increased reliance on corn, beans, squash and to a lesser degree gourds, sunflowers and tobacco, definitely led to a degree of sedentism not seen prior to this time (Hasenstab 1999; Kerber 1988).

Ceramics are often shell-tempered or made with fine grit temper and thinner bodied; there is a shift to globular forms, and the addition of collars, sometimes decorated with human faces. Elaborate collars similar to those of Iroquois ceramics are found in the Merrimack and Champlain drainages. Triangular projectile points (smaller Madison points or larger Levanna points) are diagnostic for this period. This period is marked by an increasing importance in food production (maize, beans, squash, sunflower and other vegetables) in coastal or riverine zones, which begins by ca. 1100 BP on Martha's Vineyard (Ritchie 1969).

These changes in assemblage, and by implication, adaptation, are attributed to increasing numbers and densities of population at larger sites. Research issues include the extent of permanency in Late Woodland settlements, the nature of such settlements (i.e., whether such settlements were villages; see Hasenstab 1999; Kerber 1988), the identification of horticulture with non-native plants and definition of the effects on humans. In addition, researchers might ask about the use of different ecozones, the reality of population growth, and whether or not climate change (e.g., the Little Ice Age), affected settlement and subsistence. There is some evidence of the development of long-distance exchange again, and some workers have suggested that a native beaver trade was developed before Contact. Regional differences are visible. In Vermont, there are fewer late Late Woodland sites than early Late Woodland. This may be a response to Iroquois settlement changes. In southern New England, horticulture did not replace existing gathering and hunting strategies, and large settlements did not replace small seasonal sites. Differential dependence on horticulture is likely to have affected society and politics. Cultural differentiation of the Iroquois from the Algonquin also presents research opportunities (Shaw 1996).

Numerous Late Woodland sites occur on the Outer cape with the best known and most extensively studied being the shell middens identified during Mcmanamon’s survey (Mcmanamon 1984). The shores of Salt Pond are known to have been the focus of Late Woodland to Contact Period Native settlement as well.

The Wing Fort House is situated on a small knoll overlooking the Spring Hill marshes and Cape Cod Bay. It had a high potential to contain evidence of Native occupation from any of the prehistoric periods discussed above.

VII. HISTORY OF THE TOWN OF SANDWICH

The first reference during the **Plantation Period (1620-1675)** to the area that later became Sandwich was a voyage that the Plimoth colonists made to Manamet (West Sandwich/ Bourne) was near the end of July in 1621. At this time a young boy by the name of John Billington became lost in the woods outside of the plantation and eventually ended up at Manamet. Both Bradford and Winslow relate these events (Morrsion 1984: 87, Young 1974: 217). Canacum, the sachem of Manamet, sent the boy to Aspinet, the sachem of Nauset (present day Eastham). From this trip, Winslow described Manamet as thus:

> "This town lieth from us south, well near twenty miles and stands upon a fresh river...It will bear a boat of eight or ten tons to this place. Hither the Dutch or French or both use to come. It is from hence to the bay of Cape Cod eight miles out of which bay it floweth into a creek some six miles almost direct to the town. The heads of the river and the creek are not far distant." (Young 1974:307).

This report fully supports the idea that the town lay between the two rivers at Bournedale. If the distances given by Winslow are compared to a modern map, then the present location is very near the present day Sagamore Bridge and Bournedale. The fresh river referred to by Winslow was the Manamet River and the creek that flowed to the town was the Monoscusset (Scusset). Following this voyage, the sachem of Manamet, Caunacum, and several other Natives from the southeastern Massachusetts area, signed a document dated September 13, 1621, making themselves subjects to King James of England (Morton 1855: 29)

The first European settlers in the area were servants set out from the Plymouth Plantation who were charged with manning a house established within the Native territory of Manamet. This trading house, also called the house at Aptucxet, was likely located near the mouth of the present day Cape Cod Canal (Chartier 1995). This initial settlement was likely short lived and no further settlement occurred until the 1638 settlement of Sandwich by families from Saugus. During the Plantation Period (1620-1675) settlement loci were located at Manamet and Pocasset with the first meetinghouse being in need of repairs in 1644 and the first gristmill in 1648 (Keene 1975 :29, 31). Two missionaries, Thomas Tupper, Benjamin Nye's father-in-law, and Richard Bourne, preached to the natives of Sandwich. Bourne's work focused on the Natives living at what was left of the Contact Period community of Manamet around Great Herring Pond in present day Bournedale. Bourne established a meetinghouse here on the south side of Great Herring Pond in the early seventeenth century (MHC 1984: 4).

The Town of Sandwich was established in 1637 and the bounds were laid out by Myles Standish and John Alden in the same year:

"Beginning, westerly, by the dividing line between the town of Plymouth and the said town of Sandwich, and on the east by the line which divides the town last mentioned from the town of Barnstable, which runs north-east to the sea; and southwest into the woods; and is bounded northerly by the sea; southerly partly by the dividing line between them and Suckanussett and partly by the Indians' land, according to the known and accustomed boundaries."

The western portion of Sandwich was settled during the **Colonial Period (1675-1775**) and County

Road, running along Buzzards Bay, was laid out in 1684 while other overland routes were also improved (MHC 1984: 5). Buzzards Bay harbors at Buttermilk Bay and Pocasset became important during this period while as early as 1676 the Monoscusset-Herring-Monument River drainage was explored as a possible location for a cross-isthmus canal linking Cape Cod Bay to Buzzards Bay. The Native community at Herring Pond was said to number 226 people over the age of 10 years in 1693, and this population was recorded as close to the same in 1764 (Shaw and Merrick 1982: 11). Overall, in Sandwich 136 heads of households (exclusive of Quakers) were recorded in 1730 and by 1765, 245 households and 1,449 individuals were recorded (MHC 1984: 6). Grist mills were established in North Sandwich by 1695 (Elijah Bourne) and at Monument (Elijah Perry 1739) with corn being the main crop grown and ground (MHC 1984: 6). While herring were caught in the Herring River and sheep were increasingly becoming the most important livestock, the most significant industry for the town was wood exportation. Both Natives and non-Natives engaged in this trade which harvested wood for lumber as well as pine pitch for turpentine, tar and pitch (MHC 1984: 6). A meeting house for the Christian Natives at Bournedale was built in 1765, eventually being moved to Cataumet and used as a Methodist church.

The **Federal Period (1775-1830)**, saw an increase in the role of shipping with a route for what would one day become the Cape Cod Canal being surveyed in 1824 and wharves being constructed at Buttermilk Bay and Red Brook Harbor (MHC 1984: 7). The population, as well as the role of industry grew during this time as well. Salt making gained in importance and a woolen mill and trip-hammer were built on the Herring River (MHC 1984: 8). The town was described by Wendell Davis in 1802 as a post town with light and unproductive soils in the peripheral areas but which had extensive tracts of woods composed of oak and pine which were being shipped to other areas that lacked wood for building, and a population of 2024 persons and 296 houses (per the 1790 census) (Davis 1802: 119, 124).

Davis goes on to describe the various villages of Sandwich: Scusset, the Village of Sandwich, Spring Hill, the Woods, Pocassett, and Monumet. Scussett was described as the western portion of the Town where the soil on the east side of the road through it is "good, well cultivated, and productive" while that on the west side is "far less so" (Davis 1802: 121). The Village of Sandwich was notable for a "large and beautiful pond of water in the centre", a grist and a fulling mill, a number of shops "for the different mechanick arts", the meeting house, two public inns and the principal houses of the village (Davis 1802: 121). Spring Hill was where the meeting house of the Friends, described as a "considerably numerous and respectable class of the inhabitants", is located (Davis 1802: 121).The Woods was described as several small settlements and a few valuable farms located around Snake and Hog ponds (Davis 1802: 122). Pocassett had its own a meeting house and a small number of families, excellent and plentiful oyster beds, and wild deer that are protected by a recent law regulating their hunting to certain times of the year and in certain manners (Davis 1802: 122). Finally, Monumet had a small collection of houses and a meeting house and a wide variety of fish in the Monumet River (Davis 1802: 122).

Davis described the people in the Spring Hill in greater detail than the other portions of town. He said that the principal employment of the people here was both maritime and agricultural and that the inhabitants were "substantial livers" (Davis 1802: 121). The inhabitants of Spring Hill generally occupy small farms and till them to the best advantage possible, due to the productive nature of the soils in this part of the town with a wide variety of grains being raised (Davis 1802: 121). In addition to the productive soils, the meadows and marshes in this part of the town were considered a great source of

wealth to the inhabitants, allowing them to keep large stocks of cattle for the winter and to sell upwards of 100 loads of salt hay to towns west of Sandwich (Davis 1802: 122). This area was also considered excellent for raising "sheep of the best kind" which were allowed to run free in the forests and plains and then sold in the month of October to drovers from the north and west for about $1.00 per head, with Sandwich sheep meat being much preferred by connoisseurs (Davis 1802: 122).

A wide range of sheep and deer were known to inhabit Sandwich and Wareham's extensive pine barrens in 1815(Collections of the Massachusetts Historical Society 1846: 290). The method of letting them roam in the barrens was not recommended as being the best though, as the fleece gets diminished by tangling in the underbrush and the flock was vulnerable to casualties caused by fires and predation by dogs and wild animals (Collections of the Massachusetts Historical Society 1846: 290). The total count of sheep in Wareham and Sandwich was estimated at approximately 2000 in 1815 (Collections of the Massachusetts Historical Society 1846: 290).

Other industries in the town included salt making (accounting for 25% of the annual income) and to a lesser degree fruit tree cultivation (of which there are found more than in any other part of the county) (Davis 1802: 122). One cider press, the only one on the Cape, is also located in Sandwich (Davis 1802: 122).

The **Early Industrial Period (1830-1870)**, was one of rapid growth in the area. The population increased to 4496 people in Sandwich, the highway network was improved and in 1848 the Cape Cod Branch of the railroad arrived in Bourne and Sandwich (MHC 1984: 9). Industries in the Bourne area of Sandwich included a nail factory at Bournedale in the 1830s, a woolen mill at Sagamore in 1831, shoe making, which began in 1853, cranberry production in the middle part of the century, and the export of wood. The wood industry was begun by the Perrys of Monument in the 18th century, and was expanded in the 19th century into the Head of the Bay area (Keene 1975: 64). From the heavily timbered Head of the Bay, large amounts of wood were shipped out along the Manamet River. The town was described by John Warner Barber, a well-known engraver and recorder of local history, in 1839 as follows:

"Sandwich is the most agricultural town in the county; the lands however in the extreme part of the township are light and unproductive There are numerous ponds, some of which are very large, which afford fine fishing and fowling: deer are also found in this vicinity. There are in the town 1 cotton mill, 1 woollen factory, a furnace, a nail factory, a number of carding-machines, ice., with an extensive manufacture of glass. There are 15 or 20 sail of coasting or fishing vessels belonging here, and a considerable quantity of salt manufactured. Population 3,579. The following is from the statistics published by the state in 1837. " Nail factory, 1; nails manufactured, 500 tons; value of the same, $57,500; hands employed, 20; capital invested, $13,500; glass manufactory, 1; value of glass manufactured, $300,000; hands employed, 250; capital invested, $250,000." (Barber 1839:51-52).

During the **Late Industrial Period (1870-1915)**, the town of Bourne became a separate entity. The town proper did not exist until 1883. Before that date, it was considered the eastern village of the town of Sandwich and it shared in the growth of the town. The economic base of Cape Cod as a whole and of Sandwich in particular blossomed in the early to mid nineteenth century. The growth of Sandwich began with the founding of the Sandwich Glass Company in 1825 (Lovell 1984:279). The economy in the next 25 years was further bolstered by the whaling industry, the arrival of the railroad in 1835, the flourishing of brick kilns and the establishment and growth of mills.

The peak of this economic growth was in the 1850s with most of the population working in the glass production, mills and maritime industries (Lovell 1984:319). The population began to decline in the 1860s foreshadowing the stagnation of the economy of the town. By 1870 the population had decreased to 3694 persons (Lovell 1984:319). Between 1860 and 1920 the Cape's population decreased by 26% (Brown 1995:204).

While the population of the town as a whole was beginning to decline, that of the western village declined slightly from 1870-1883, but it appears that this portion of Sandwich was more isolated from the general population trend affecting Sandwich and Cape Cod in general. The western village maintained its own share of town industry and economic growth. The Keith Car Company, which began in 1847 by making tools, axles and ironware, expanded its operations throughout the century and eventually focused its production on Pullman cars for the expanding railroad (Lovell 1984:394). Coupled with the growth of the Keith Company was the expansion of the railroad on Cape Cod and specifically its expansion to Woods Hole. The line traveled through the western village and contributed to the tourist trade beginning in the late nineteenth century (Lovell 1984:370).

The main industry in Sandwich was glass making, but by the 1870s this business was becoming increasingly unprofitable. This was the trend on all of the East Coast as the markets favored the glass producers in the Mid-West (Lovell 1984:381). The depression of 1874 with its financial panic and associated business depression, as well as the power of the unions in creating strikes among workers, marked the end of the Sandwich Glass Factory. The factory, which at its height employed 520 workers, placed a for sale sign outside of its main factory on October 16, 1888 (Lovell 1984:385). Out of work glass makers tried to form their own company, the Cooperative Glass Co., which had limited success until it too went under in 1911. The failure of the Sandwich Glass Factory was also paralleled by the Cape Cod Glass Works of Sandwich, which closed its doors in 1892 (Lovell 1984:388-389).

The railroad business peaked in the 1890s when Eben Keith was expanding his car works, but at the turn of the century Bourne, as well as Cape Cod faced an uncertain future. The population of Sandwich as a whole continued to decline until 1930 when it stabilized and grew (Lovell 1984:515). Bourne's population, while never as large as Sandwich's, grew throughout the century, especially after 1920 (Lovell 1984:515).

The economic base of Sandwich in the early years of the twentieth century was somewhat uncertain. Manufacturing, the marine industries and farming all experienced substantial losses. Industries continued to close down in town, many of which were reopened by new owners just to be closed down again. Industry always appeared to town planners to have the potential to save the town. The great boom times for Sandwich had been during the Sandwich Glass Company years, and it would appear that many saw the potential for a return to the glory years by encouraging new industry. The potential was never realized and industry never again played a major role in town economics.

The savior of Sandwich was the increase in tourism and summer residency in the early twentieth century. As early as 1903 summer residents paid seventy five percent of the town’s taxes (Lovell 1984:435). Along with this influx of tourists went the need to house all of them. Many towns along the west coast of Cape Cod were able to accommodate the tourists. Bourne participated in the building boom from the area around the presumed location of Aptucxet to the southern end of the Cape Cod Canal. Sandwich, on the other hand, was not as affected by the building boom because of the previous

population decline. Many of the new residents merely moved into vacant houses in the town (Lovell 1984:499).

The economic gain to the town was accompanied by a cultural loss felt by the year round inhabitants. The small town atmosphere was lost for several months out of the year as the summer residents returned. The local history of the town began to be researched, polished up and put on display for the summer residents. By 1930, two historical businesses formed the core of the historical tourism aspect of Bourne and Sandwich's tourist industry. The Sandwich Historical Society began to make the Sandwich glass industry the main thrust of its new museum in 1925 (Lovell 1984: 450). Agriculture remained important in the town during this period as well. The 1875 census of agriculture in Massachusetts (Table 1) indicated that milk cows, oxen and horses were the most valuable domestic

Table 1. Domestic species present in Sandwich 1875 (Source: Wright 1875: 418)

Species	Count	Value in dollars
Ducks	202	93
Geese	8	11
Guinea Fowl	2	2
Heifer	87	1526
Hens/ Chickens	8206	3450
Hogs	155	2470
Horses	193	19, 063
Lambs	46	116
Milk Cows	353	13, 415
Oxen	56	4210
Pigs	32	214
Sheep- Merino	10	50
Sheep- Saxony	22	125
Sheep	44	202
Steers	29	710
Turkeys	49	51

livestock, a fact that reflects the use of horses for transportation, oxen were used as beasts of burden, and dairy cows provided milk. Also present in the town were over 8,000 hens and chickens and almost 200 swine. The paucity of sheep (only 76 total) reflect the general malaise of the sheep industry at this time. These species made up an appreciable amount ($39, 305.00/ 32%) of Sandwich's total agricultural product for that year ($121, 880.00) (Table 2). Firewood, cranberries, ice and English hay were the other

Table 2. Main agricultural products and products from animal species in 1875 (Source: Wright 1875: 8)

Product	Amount	Value in dollars
Firewood		10, 425
Cranberries		14, 255

English Hay		15, 231
Ice	596 tons	1630
Beef	16, 600 lbs	1376
Manure	984 tons	5439
Milk	86, 630 gallons	17612
Veal	9480 lbs	947
Tripe	80 lbs	8
Chickens dressed	1915 lbs	432
Eggs	45, 893	9566
Feathers	20 lbs	10
Geese dressed	330 lbs	56
Turkey dressed	130 lbs	26
Other Poultry dressed	100 lbs	18
Mutton	340 lbs	57
Pork	37, 560 lbs	3758

main product based on the monetary amount that they contributed to the economy of the town, milk cows, eggs and beef were the principal products out of a wide range of animal products produced in that year.

The **Early Modern Period (1915-1940**) saw the completion of the Cape Cod Canal in 1935, significantly shortening the route from Buzzards Bay to points north. This period also saw the construction and improvement of roadways leading to Cape Cod, encouraging tourist traffic to Cape Cod and away from the Town of Bourne (MHC 1984:14). This led to some population decline and economic difficulties. Bourne did remain the most industrial town on Cape Cod during this period. The Keith Manufacturing Company as well as foundries at Bournedale and Pocasset provided the majority of the economic base for Sandwich and Bourne. Unfortunately, the Keith Company closed in the 1930s and the economic base of the town quickly shifted to cranberry growing, dairying and the tourist trade (MHC 1984:15).

VIII. ARCHAEOLOGICAL INVESTIGATIONS

South Yard Excavations

Between June 22 and July 20, 2006 Eric Deetz supervised archaeological testing near the southeast corner of the Wing Fort House. The purpose of this testing was to test the hypothesis that the house was fortified by means of the addition of flankers attached to the house at the east and west ends (in a manner similar to that found at the Hallows site in Westmorland County, Virginia) (Deetz n.d.). The southeast corner of the house was chosen as the location for the the test excavation as it was felt to be the least disturbed area around the house. A 25 foot long by two and one half feet wide test trench was excavated at a 45° angle beginning five feet to the south of the southeast corner of the house **(Figure 9)**. The southwestern end of the trench was 25' south of the south side of the house. The trench was

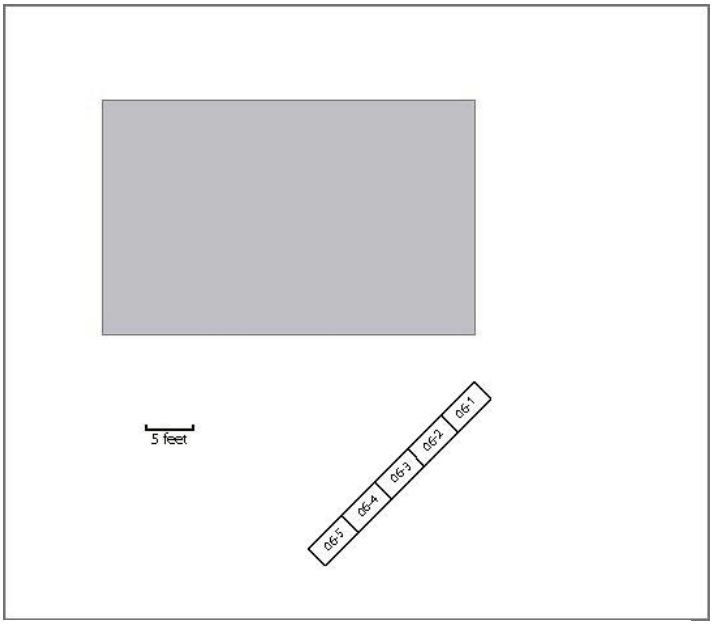


Figure 9. Location of Eric Deetz's 2006 excavations (graphic from Deetz n.d.)

subdivided into five five foot long segments and excavation was carried out by strata with all soil being screened through 1/4" hardware cloth screens.

Minimal disturbance from past terracing was identified but that were interpreted as intact stratigraphically separate layers were identified stratigraphically No evidence of any fortifications were identified. The testing was limited and the units were not completely excavated before they were backfilled so it is difficult to gauge what the findings represent. That being said, excavations did identify a degree of stratigraphic separation throughout the units. A total of 1717 artifacts were recovered (Table 3) and the majority of the material was

Table 3. Artifacts recovered from the south yard

Artifact	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**	**Level 6**	**Unknown**
Brick	132	282	41	8	24	23	14
Coal	3						17
Clay Pipe Bowl	2	3	9				
Clay Pipe Stem	6	25	10				
Buff Stoneware	1						
Westerwald Stoneware						1	
Batavian Porcelain			1				
N.D. Gravel temp.			1				
Creamware	13	14		1			
Jackfield	1	1	1				
Pearlware	1	3					
Redware	38	28	26				1
Slipware		1	1				
Tin-enameled		3	2				
White salt-glazed stoneware		1	1				
Bellarmine		4	1				
Flint			1				
Bone	8	30	20	3	6		
Shell							
Charcoal		2	30				2
Maize			1				
Machine made bottle	1						4
Hurricane chimney glass	8						
hand blown glass	1	7	4				
Flat Glass	41	48	20		4	2	
Brass Tack	3						
Brass button	1						
Brass clothing snap	1						
Brass chain	1						
Lead Kame		7	1			2	
Silver Button		1	1				
Barrel Hoop			1				
Iron flat fragment		1			4		
Iron Kettle		1					
Iron Chain		1					
Iron Hook	2	1					

Iron Fragment		3					
Horse Bit			1				
Hand Wrought Nails	37	143	12		3	2	5
Machine-cut nail	259	76	62	12			81
Wire Nail	18						5
Horseshoe nail		1					
Iron screw							1
Iron tine	1						
Wire fragments	3						1
Iron Buckle	1						
Iron Knife bolster	1						
Iron spring	1						
Daub?			1			20	
Paint Fragment							1
Totals	585	687	249	24	41	50	132

recovered from levels 1-3. More recent artifacts such as wire nails, coal, machine-made glass, hurricane lamp chimney glass and machine-cut nails were concentrated in Level 1. While older artifacts such as slipware (1675-1775), white salt-glazed stoneware (1720-1805), Bellarmine stoneware (1620-1700), North Devon gravel tempered ceramics (1675-1775), Batavian porcelain (1740-1780), hand-wrought nails (pre 1820), and lead window kames (pre 1740) were recovered from levels 2-3. This distribution of materials would suggest that Level 1 dates from the very late eighteenth, nineteenth to twentieth centuries while levels 2-3 date from the eighteenth century. The remaining levels, 4-6, had low occurrences of cultural material but nothing that would definitively date them to the seventeenth century, but based on their stratigraphic position, it is likely that that they do.

Level 1 appears to represent general yard scatter that accumulated during the very late eighteenth to twentieth centuries, possibly being impacted by terracing and landscaping activities, probably during the late nineteenth to twentieth centuries. Below this layer is what may be the original ground surface (Layer 2) which contained abundant amounts of architectural debris- brick, window glass, window leads, and hand-wrought nails. This layer likely dates to construction activities in the middle to late eighteenth century when the it is theorized that the salt box style house that was present was expanded and updated to the present Georgian facade through the replacement of the leaded casement windows, the shifting of the chimney stack to the north, and the raising of the roof. Level 3 may represent pre-Georgian construction occupation at the site, possibly with some evidence of the expansion of the original single-cell house to a salt-box style house (c. 1700). The clay recovered from Level 6 may represent clay that was used during the original chimney construction in the house c. 1646 while the daub recovered from Level 3 may represent the replacement of that daub chimney with a brick one (c. 1700).

The distribution of the clay pipes recovered supports the dating of these levels as well (Table 4).

Table 4. Clay pipes from the south yard distribution by depth

Clay Pipes	**Level 1**	**Level 2**	**Level 3**
7/64" Stem Bore 1650-1680		1/ 3.6%	1/ 4.8%
Thick Possible Belly Bowl			1/ 4.8%
6/64" stem bore 1680-1710	1/ 14.3%	4/ 14.4%	3/ 14.3%
Late 17th Century Heeled Bowl		1/ 3.6%	2/ 9.6%
5/64" stem bore 1710-1750	1/ 14.3%	**14/ 50%**	**5/ 23.8%**
1720-1820 Bowl Style	1/ 14.3%		1/ 4.8%
18th century heelless funnel	1/ 14.3%	2/ 7.2%	**5/ 23.8%**
4/64" stem bore 1750-1800	**2/ 28.6%**	6/ 21.4%	3/ 14.3%
Totals	7	28	21

Faunal remains were concentrated in levels 2 and 3, which correlates with the occupation of the house (Table 5). Few faunal remains were recovered from level 1, which is probably the result of the fact that

Table 5. Faunal remains from the south yard distribution by depth

Identification	Level 1	Level 2	Level 3	Level 4	Level 5
Medium Mammal	7	18	2	1	4
Swine		3	1		
Sheep			10		
Large Mammal	1	2	5		
Cattle		7	2		2
Totals	8	30	20	1	6

the house served more as a museum and historic house after it was purchased by the WFA in 1942 and ceased to be used as a farm or be regularly occupied. Swine and cattle remains were concentrated in Level 2, the middle to late eighteenth century, indicating a focus on those husbandry activities at this time, while sheep remains were concentrated in Level 3 which is postulated to date to the early to middle eighteenth century. Cattle remains show a slight separation by age correlated with depth with a older cattle (over 2.5 years) from Levels 2 and 5 and a between two years and 2.5 year old cattle from Levels 2 and 3, possibly indicating changing husbandry practices over time. Swine remains were concentrated in Levels 2 and 3 where the individuals were the individuals were probably killed when they were around 18 months old, the prime age for slaughter for swine. The sheep remains from which ages could be established were both over 2 years old, indicating a preference for mutton, probably as a result of the raising of sheep for wool and secondarily for meat versus raising them for meat first.

Sill Excavations

The sills located on the north side of the house were found to have deteriorated, due to soil buildup on that side of the house, to the point that they required complete replacement. The replacement of the sills occurred in July and August of 2009 under the supervision of David Wheelock the caretaker of the property. Sill replacement occurred beneath the keeping room floor (the northwest side of the house to the east of the summer kitchen) and at the northwest side of the house. An area was excavated to 50 cm to the south of the sill and beneath the sill to a depth of 50 cm. The soil was not screened and the artifacts recovered were found either on the ground surface beneath the keeping room floor or in the excavated soil from the trench for the sill. No horizontal or vertical controls were used and the entire collection has to be evaluated as a lumped assemblage from that area of the house.

A total of 1123 artifacts were recovered during the course of sill replacement Table 6. The majority of

Table 6. Artifacts recovered in 2006 during sill replacement

Artifact	**Count**
Brick	18
Mortar	29
Window glazing	2
Clay Pipe Bowl	4
Clay Pipe Stem	12
Porcelain	4
Westerwald Stoneware	2
Stoneware Buff	6
Fiesta ware	1
Creamware	22
Wheildon ware	1
Jackfield	2
Pearlware	20
Redware	108
Rockingham	1
Tin-enameled	2
White salt-glazed stoneware	4
Ironstone	194
Whiteware	46
Yelloware	17
Bone	140
Bone Button	1
Shell	21
Wood	5

Flint	1
Prehistoric Lithic	3
Slate Pencil	1
Machine made bottle	11
Hurricane chimney glass	35
Hand blown glass	3
Flat Glass	117
Glass Button	3
Brass Screw	1
Brass button	1
Brass clothing eye	1
Iron Axle Cap	1
Iron Button	1
Iron can fragments	31
Iron possible nail fragments	94
Iron flat fragment	6
Iron Chisel Ferrule	1
Tin flashing	11
Hand Wrought Nails	7
Machine-cut nail	126
Wire Nail	6
Totals	1123

the artifacts recovered predominantly date to the nineteenth and twentieth centuries with a smaller contribution by seventeenth and eighteenth century material. The earlier material consisted on hand wrought nails, several 7/64" and 8/64" pipe stem fragments, a fragment of turquoise colored tin-enameled ceramic, creamware, Westerwald stoneware, Wheildon ware and probably some of the redware. Most of the artifact were probably recovered from just north of the sill on the terrace and also from on top of the surface under the floor. The recovery of artifacts from the surface indicate that the floor may have been repaired or replaced in the nineteenth century thus exposing the ground surface beneath the floor and allowing refuse that was created while it was open to be deposited here.

Faunal remains found beneath the floor, especially the cat, rat, skunk,and woodchuck remains, were probably commensal species that were living, and dying, beneath the house (Table 7). Nine consumed

Table 7. Faunal remains from the sill excavations

	Count	MNI	Age
Commensal Species			

Cat	9	1	Adult
Rat	5	1	Adult
Skunk	2	1	Adult
Woodchuck	7	2	Adult/ Subadult
Medium Mammal	21		
Swine	19	2	over 2 years, under 2 years
Sheep	16	2	one over 4 years one under 16 months
Cattle	16	1	over 1 1/2 years but under 2 1/2 years
Chicken	32	3	one adult, one under 1 year
Duck	1	1	
Goose	3	1	
Heron	1	1	
Turkey	1	1	
Flounder	1	1	

species were present including at least four domestic species (cattle, sheep, swine, chicken) with the duck, goose and turkey being either wild or more likely domestic. The age of death profile indicates that the sheep and swine species were killed as young and old individual indicating that they were probably raised at the site. Only one young cattle was recovered but elements from across the body were present indicating that it too was most probably raised and butchered on site. Fourteen of the non-commensal species bones (12%) bore evidence of rodent gnawing, most probably from the rat and his kin that lived beneath the house and which may have been hunted by the cat (who by the way appears to have had a tumor on its hip). Seven of the cattle, sheep and swine bones (radius, vertebra, mandible, metatarsal, scapula) had been chopped to subdivide them after their initial butchery. Nine of the bones (femur, ribs, scapula, vertebra) from the same species had been sawn. Sawing is a more recent (middle nineteenth to twentieth century) technique that indicates that these cuts were probably purchased versus butchered at home. The chopped bones may have been butchered on the farm at any point before the house was purchased by the WFA, but they may have also been purchased before the middle nineteenth century.

North Yard Excavations

On June 19, 2010 a limited excavation was carried out at the Wing Fort House in Sandwich, MA. Excavations were focused on a possible privy location identified during the removal of a bush to the north of the house. The area of excavation was located 9.56 meters at 220º from the northeast corner of the extant house at the bottom of the terrace on which the the house is situated. The excavation was carried out in three sections. Section 1 was oriented north to south and measured 50 cm wide (east to west) by 1 meter long (north to south). Section 2's measurements and orientation was the same as Section 1's. It was added on adjacent to the east wall of Section 1, creating a 1 x 1 m square unit. Section 3 measured 50 cm wide (north to south) by 1 m (east to west) and was added onto the north wall of Sections 1 and 2 creating a 1.5 m long (north to south) by 1 m wide (east to west) unit. Sections 2 and 3 were added to Section 1 to locate the area where the possible privy was originally encountered.

Excavation revealed two thick soil horizons resting atop a relatively thin original buried A1 horizon (which in turn rested upon sterile subsoil). **Layer 1** consisted of a root mat (A0/ duff horizon) measuring 10 cm thick that was very dark brown (10YR2/2) in color. This root mat consisted of lawn grass, clover and dandelions. **Layer 2** was encountered from 10 to 20 cmbgs and consisted of a mottled dark brown (10YR 2/2) and dark yellow brown (10YR4/6) silty sand with roots and rootlettes. **Layer 3** was encountered from 20-30 cmbgs and consisted of soil with a greater degree of mottling of the same colors. Layers 2-3 were interpreted as redeposited soil placed here in the eighteenth to nineteenth centuries possibly during an episode of architectural change and landscaping. **Layer 4** was encountered from 30-40 cmbgs and was darker in the north half and wetter in the south half with less artifacts and more bone. This layer was interpreted as the original seventeenth century ground surface bearing small artifacts that had washed down from the the house yard. The darker nature of the soil was interpreted as being the result of the marshy condition of these soils. The B1 subsoil was encountered from 40-50 cmbgs and consisted of a dark yellowish brown (10YR4/6) wet sandy clay with moderate amounts of gravel) and no artifacts. The B1 was mottled with olive brown soil that probably represented iron staining caused by the high ground water associated with this soil type.

It appears that the removal of the bush that raised the possibility that a privy was located here, actually encountered 18th century refuse deposits, associated with filling episodes, that are located on top of the original marshy ground surface of this meadow land.

Artifacts recovered from the sections indicate that there has been 30 cm (1 foot) of fill placed on top of the original ground surface in this area. This fill appears to have been deposited in the late eighteenth to early nineteenth century and contained eighteenth and nineteenth century materials. The composition of the assemblage, architectural in nature, indicates that a major period or architectural change was going on at the site during this time probably dating to the eighteenth century creation of the Georgian facade of the house.

The artifacts recovered were very similar to those recovered elsewhere on the property (Table 8) with

Table 8. Artifacts recovered from the north yard excavation

Artifact	2009	2010
Brick		478
Batavian Porcelain		2
Clay Pipe Bowl		6
Clay Pipe Stem	2	8
Daub		4
Creamware	3	81
Wheildon ware	1	
Stoneware- Fulham		1
Stoneware	1	
Jackfield	1	4
Pearlware		22
Porcelain	1	4
Redware	9	268
Earthenware		4
Slipware		1
Tin-enameled		11
Stoneware- White salt-glazed	25	8
Whiteware		7
Bone	7	139
Shell		4
Charcoal		6
Seeds		6
Wood		1
Flat glass	3	25
Hurricane Chimney Glass		2
Etched drinking glass		1
Hand Blown Bottle		7
Mold Blown Bottle		2
Machine Made Bottle		2
Coal		75
Flint		1
Brass Tube Fragment		1
Brass Tack		1
Iron lumps		8
Iron flat fragment	1	9
Iron Buckle		1

Hand wrought nails		80
Machine-cut nails		3
Lead sheet fragment		1
Totals	59	1280

some artifacts (such as the Batavian porcelain and etched drinking glass) likely cross mending with others from the terrace and front yard. Artifacts were concentrated from 10 to 30 cm below the surface (Table 9) with this representing the main period of disposal c. 1750-1830. Material above this

Table 9. North yard artifact distribution by depth

Artifact	0-10 cm	10-20 cm	20-30 cm	30-40 cm
Brick	23	202	212	41
Batavian Porcelain		1	1	
Clay Pipe Bowl	2		3	1
Clay Pipe Stem		4	3	1
Daub				1
Creamware	4	30	44	3
Wheildon ware				
Stoneware- Fulham			1	
Stoneware				
Jackfield	1	1	2	
Pearlware	3	3	16	
Porcelain			4	
Redware	15	107	120	26
Earthenware		2	2	
Slipware				1
Tin-enameled		2	8	1
Stoneware- White salt-glazed		2	6	
Whiteware		4	2	1
Bone	10	21	59	49
Shell	1	2	1	
Charcoal		1	1	5
Seeds				6
Wood				
Flat glass		12	10	2
Hurricane Chimney Glass		1		
Etched drinking glass			1	
Hand Blown Bottle		4	1	
Mold Blown Bottle			1	1

Machine Made Bottle		1	1	
Coal	12	33	27	3
Flint				1
Brass Tube Fragment		1		
Brass Tack	1			
Iron lumps		1	6	2
Iron flat fragment		4	1	
Iron Buckle			1	
Hand wrought nails	1	32	35	12
Machine-cut nails			2	
Lead sheet fragment			1	
Totals	73	471	572	157

are mixed soils resulting from landscaping while that below it represents earlier 1640-c. 1750 occupation. These layers correspond well with the levels from the south yard:

South Yard	North Yard	Date
Level 1	0-30 cm	late 18th to twentieth centuries
Levels 2-3	30-40 cm	eighteenth century

Clay pipe distribution supports this separation of levels as well (Table 10). The faunal remains (Table 11)

Table 10. North yard clay pipe stem vertical distribution

Clay Pipes	0-10 cm	10-20 cm	20-30 cm	30-40 cm
8/64" Stem Bore 1620-1650		1		1
5/64" stem bore 1710-1750		1	1	
4/64" stem bore 1750-1800		1	2	
Totals		3	3	1

Table 11. North yard faunal remains vertical distributions

Identification	0-10 cm	10-20 cm	20-30 cm	30-40 cm
Mammal				28
Medium Mammal	9	13	36	17
Swine		6	6	1
Sheep			7	1
Large Mammal		1	1	
Cattle	1	1	8	1

Bird			1	
Fish				1
Totals	10	21	59	49

show a separation similar to that seen in the south yard with sheep first appearing in the profile deeper than cattle or swine. Cattle remains show a slight possible separation by age correlated with depth with an older cattle (over 2.5 years) from the 0-10 cm level and a between two years and 2.5 year old cattle from the 20-30 cm level, possibly indicating changing husbandry practices over time, but this is a very tenuous conclusion that needs to be tested further from other deposits across the site. Swine remains were concentrated in the 10-30 cm level where the individuals were the individuals were probably killed when they were around 18 months old, the prime age for slaughter for swine. The sheep remains from which ages could be established were both over 2 years old, indicating a preference for mutton, probably as a result of the raising of sheep for wool and secondarily for meat versus raising them for meat first. These findings were similar to those from the south yard.

Terrace Excavations

The 2010 excavations on the north side of the Wing House consisted of the excavation of 46 50 x 50 cm square (19" square) test pits **(Figure 10)**. The total area excavated was 11.5 square meters (124

Figure 10. Initial 50-cm-square test pit pattern looking west

square feet). Testing began by excavating 50 cm test pits spaced one meter (3.3 feet) apart in a grid

pattern measuring eight meters east to west by four meters north to south (26 x 13 feet) (Figure 10). These test pits were excavated to a depth of 30 cm (12") below the ground surface. After the initial grid pattern was excavated, additional 50 cm squares were excavated adjacent to pits that had yielded potentially interesting findings (such as possible foundation stones or concentrations of mortar) **(Figures 11 and 12).**

Figure 11. Initial 50-cm-square test pit pattern looking west

The August 2010 field work began by the laying out of a grid of one meter squares with the total area that was tested measured four meters north to south by nine meters east to west. Fifty-centimeter square test pits were shovel excavated at the south east corner of each one meter square with a total of 21 being excavated in this initial grid testing. Excavation extended from the surface to the top of the first soil change or was stopped when obstructions (such as rocks or bricks) or features were encountered. Average test pit depth was 30 cm and either deposits of mortar, slightly lighter soil or rocks and bricks were encountered at this depth in most cases. The second phase of testing was designed to investigate the concentrations of stones and bricks that were encountered during the initial testing.

Excavation in the eastern half of the terrace (extending from E1 to W1), revealed a layer of mortar that possibly resulted from a reconstruction of the chimney in the nineteenth century at 20 cmbgs in unit

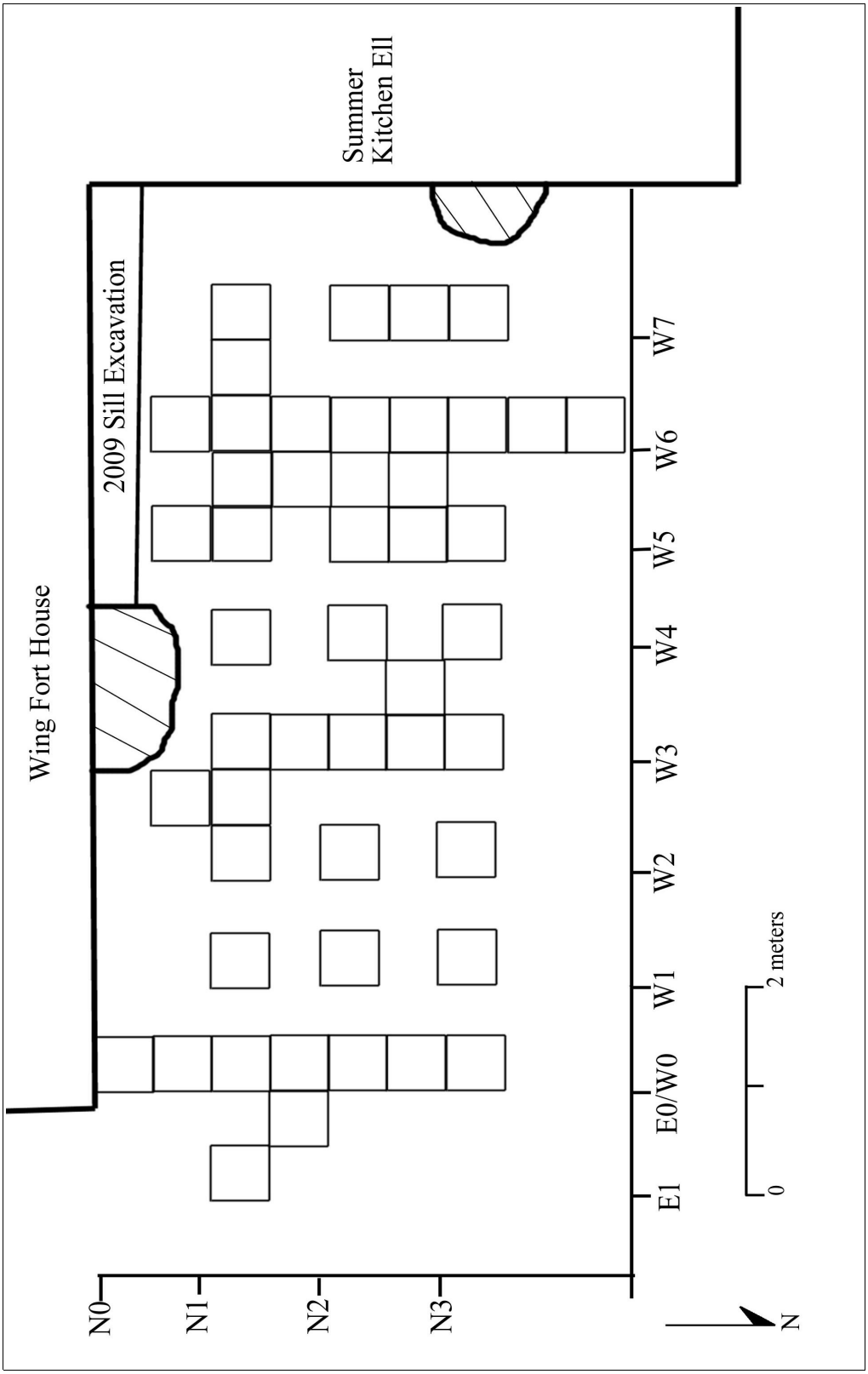


Figure 12. Plan of the testing of the terrace 2010

N1.5 E.5, just east of the east wall of the extant house. One heavily resharpened second half of the nineteenth century knife blade was recovered from within the mortar deposit. This mortar layer extended to a depth of 30 cmbgs and below this the soil was a consistent color with very few artifacts being recovered to a depth of 40 cmbgs. Below 40 cm the soil contained more gravel and rock but was consistently dark gray (10YR4/1) in color with more artifacts possibly dating to the seventeenth and early eighteenth centuries. below 50 cm the soil was mottled dark gray and dark yellowish brown (10YR4/6), a transition between the buried A horizon and the subsoil. Stratigraphically the-10 cm layer represents the present ground surface to the bottom of the root mat; 10-20 cm represents the nineteenth to twentieth century layer; 20-30 cm represents the middle to late eighteenth to nineteenth century level; 30-40 cm represents the eighteenth century level; 40-50 cm represents the seventeenth to eighteenth century level; 50-60 cm represents a transition between the seventeenth century and the prehistoric levels; below 60 cm represents the prehistoric subsoil level.

Excavation of unit **N1 E1** revealed deeper deposits that corresponded to those encountered in N1.5 E.5 **(Figure 13)**. The mortar concentration encountered to the west continued in this unit at a depth of 20

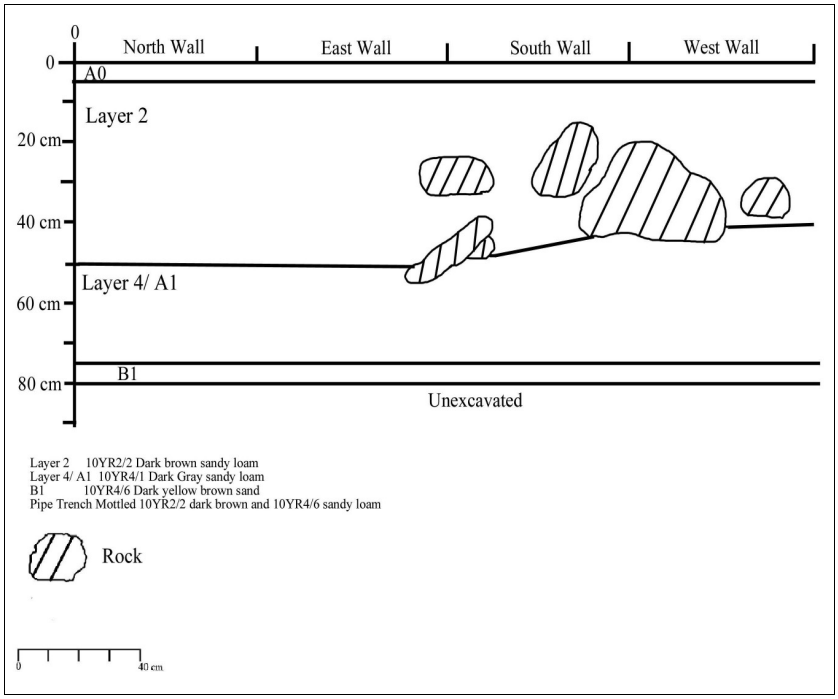


Figure 13. Test pit N1 E1 wall profile spread

cm and overlaid a nineteenth century level. The nineteenth to twentieth century level (0-20 cm) in N1.5 E.5, extended from 0 to 40 cm in N1 E1. This layer dipped from west to east, deeper in the east than the west, indicating that the original transition between the knoll on which the house sits and the lower land to the east, was originally more gradual than it appears today. It appears that the land, at least that on the edges of the knoll, were subjected to a degree of landscaping in the nineteenth century to highlight the knoll on which the house sits, visually raising it up more from the surrounding land. This appears to have been an active choice by the inhabitants to modify the landscape to set the house off from its surroundings. Below 40 cmbgs, the eighteenth to nineteenth century level encountered in N1.5 E.5 at 20-30 cm was found to extend from 40 to 50 cm in this unit. The eighteenth century layer (30-40 cm in N1.5 E.5) extended from 50-60 cm here and overlaid the seventeenth to eighteenth

century layer (40-50 cm in N1.5 E.5) extended from 60-70 cm here. The soil color from 50-70 cm was dark olive brown (2.5Y3/3). The subsoil was encountered at 75 cmbgs in unit N1 E1. The old topsoil to subsoil transition layer encountered in N1.5 E.5 at 50-60 cm was encountered in this unit at 70-80 cm with more gravel, especially in the north half of the unit. Several large rocks were encountered in the 20-40 cm layer, again probably related to landscaping in the nineteenth century which may have displaced stones from the dairy ell to the west.

A series of interconnected 50-cm-square test pits were excavated from the northeast corner of the house to 3.5 meters north of it. This series of test pits were excavated to investigate a south to north running line of stones that were felt to possibly represent a foundation **(Figures 14 and 15)**. N0 E0 was located adjacent

Figure 14. E00 line excavation

to the north wall of the extant house. The foundation was found to extend into the unit 40 cm to the north as a result of the placing of the cellar beneath the northeast corner of the house, possibly in the nineteenth century. The western half of the unit was extremely disturbed by a 25 cm wide portion of a trench dug in the twentieth century to install a plastic PVC pipe. This has resulted in a mixed deposit in that areas. The eastern half of the unit may also have been disturbed due to the fact that machine-cut nails were recovered from the surface to the bottom of the unit (50 cm). Unit N.5 E00 also revealed a disturbed profile. The subsoil was encountered at 50 cm in the eastern half of the unit and the pipeline trench continued to a depth of 90 cmbgs. The disturbance caused by the water pipe continued to the north to N2 E00. The entirety of unit N1 E00 appears to be disturbed by the pipe trench but on the west half of N1.5 E00 appears to be disturbed. The eastern half of this unit appears undisturbed beneath

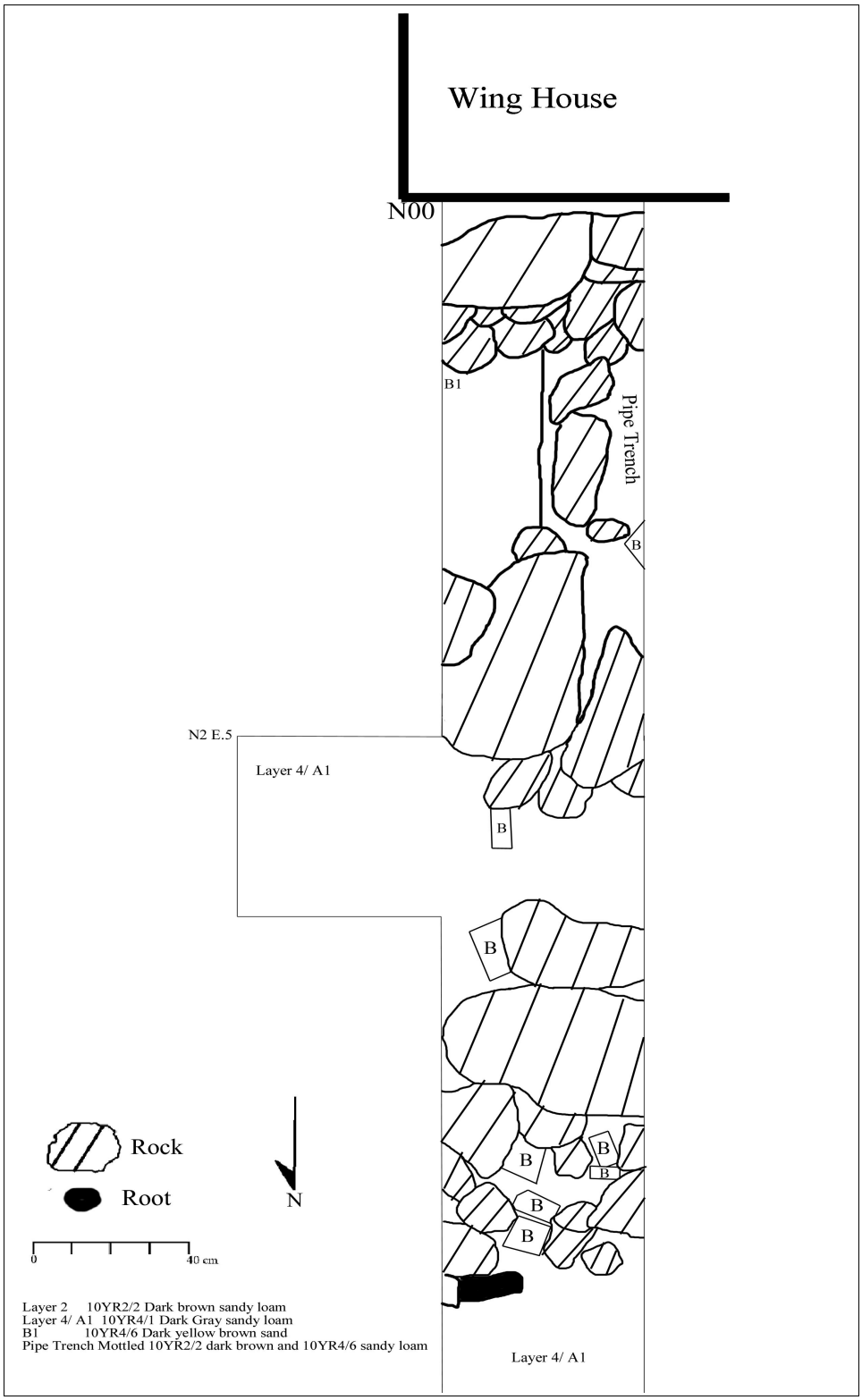


Figure 15. E00 line plan at 30 cm

30 cm where the pipe trench was clearly defined in the western half of the unit. The 30-50 cm level appears to represent a mixed layer dating from the eighteenth to nineteenth century level while below 50 cm it appears to be completely eighteenth century. The wall that was first suspected to be located along the E00 line appears to have been impacted by the installation of the waterline from N00 to the northern end of N1.5 **(Figures 16 and 17)**. It appeared to be intact from N2 to the northern edge of N3. The top of the stones were encountered at 40 cm bgs where they covered the entire floor of the unit. They extended to the north but went deeper to a depth of 60 cm by the time they ceased at N3. Their highest point was at the center of unit N2 E00. The soils above the stones in N2 E00 consisted of a nineteenth to twentieth century layer from 0-30 cm followed by a nineteenth century layer in the southern half and an eighteenth to nineteenth century layer in the north half to depth of 50 cm. Unit N2.5 E00 revealed predominantly nineteenth century remains, mixed with some eighteenth century material. the northern half of the unit revealed tumbled rocks and brick extending to a depth of 60 cm. A layer of mortar was encountered at 20 cm in the northwest corner of the unit. Another mortar layer was encountered in N3 E00 at a depth of 30 cm below a mottled layer of yellow brown (10YR6/6) and brown (10YR4/1) soil. Between 30 and 40 cm a high concentration of brick was encountered that gave way to an eighteenth to nineteenth century layer at 40 -60 cm an A/B transition at 60 cm. Excavation continued through the B1 horizon to a depth of 90 cm with no additional artifacts being recovered.

Test pits along the W1 line were excavated to 30 cmbgs where they encountered a transition to a lighter colored soil but were not excavated any further. All the deposits encountered in these units dated to the nineteenth to twentieth centuries. N2 W1 encountered foundation stones forming the north wall related to the ones identified in the E0 line that formed the east wall of the dairy ell. stones that limited the depth to which these units were excavated.

Excavation in the central portion of the terrace (W2-4) encountered extensive deposits of foundation Test pits along the W2 line were excavated to 30 cmbgs where they encountered a transition to a lighter colored soil but were not excavated any further. All the deposits encountered in these units dated to the nineteenth to twentieth centuries. **N2 W2** encountered foundation stones forming the north wall related to the ones identified in the E0 line that formed the east wall of the dairy ell **(Figures 18, 19, and 20)**. Along the W3 line the stone foundation appeared to end at the northern end of N2.5 W3 and only two stones were present in the floor of N3 W3 at 80 cmbs. These stones are interpreted as possibly representing a footing for an earlier outbuilding, possibly dating as early as the seventeenth century. The stones from what is interpreted as the west wall of the dairy ell were not removed but unit **N3 W3** provided a glimpse of the stratigraphy of this part of the terrace. A dark gray (10YR4/1) fine silty sand layer dating from the nineteenth to twentieth centuries extended from the surface to 30 cmbs. A very dry dark gray fine silty sand nineteenth century layer extended from 30 to 40 cmbs and capped an eighteenth to nineteenth century level that extended to 50 cm. At 50 cm a layer that was interpreted as a buried topsoil layer (buried A1) was encountered and it extended to 60 cm where it transitioned to a B1 dark yellowish brown (10YR4/6) subsoil.

Figure 16. E00 line profiles Left: West wall, Right: East wall

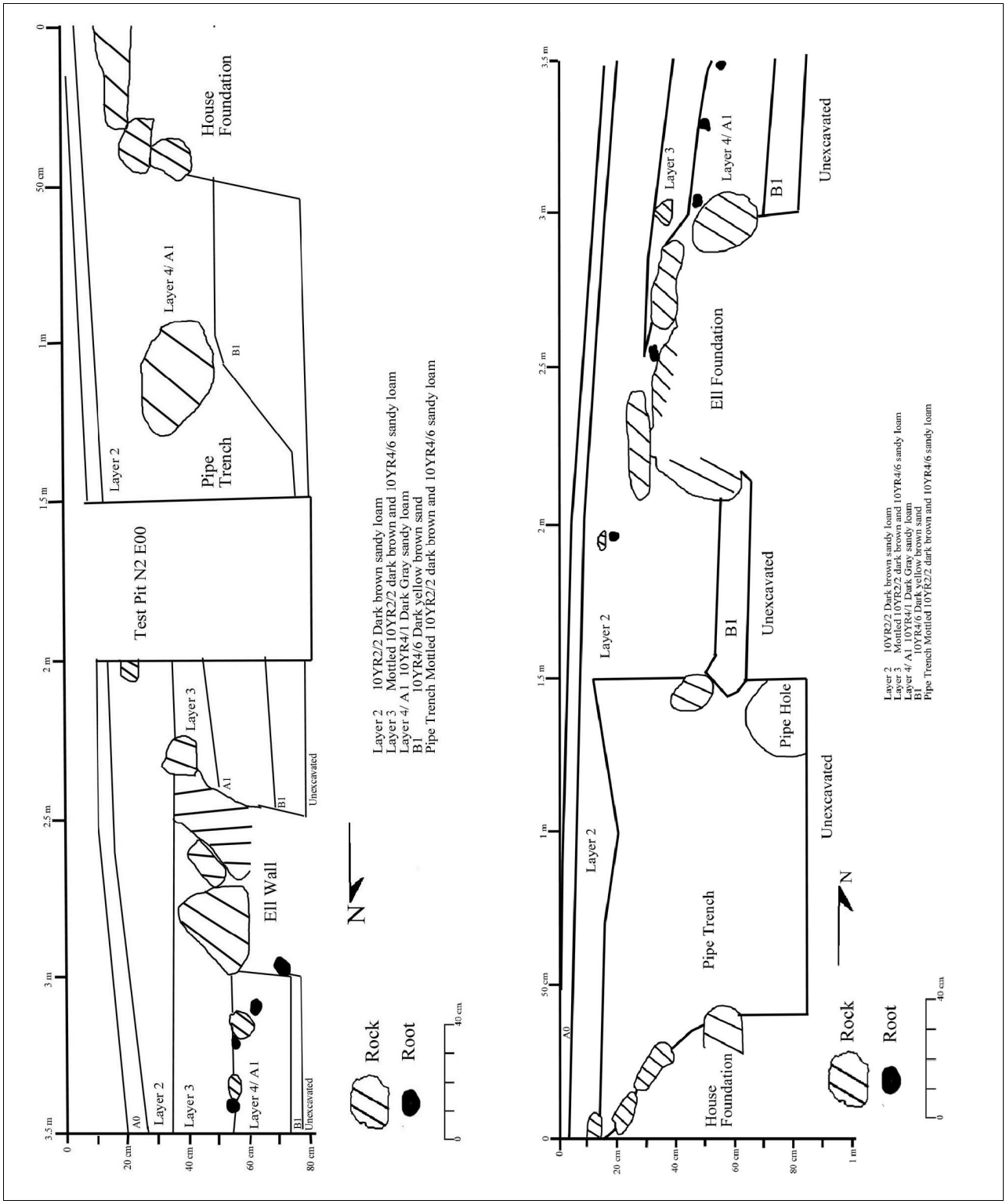


Figure 17. E00 line profiles. Left: East wall, Right: West wall

Figure 18. West 3 line foundation

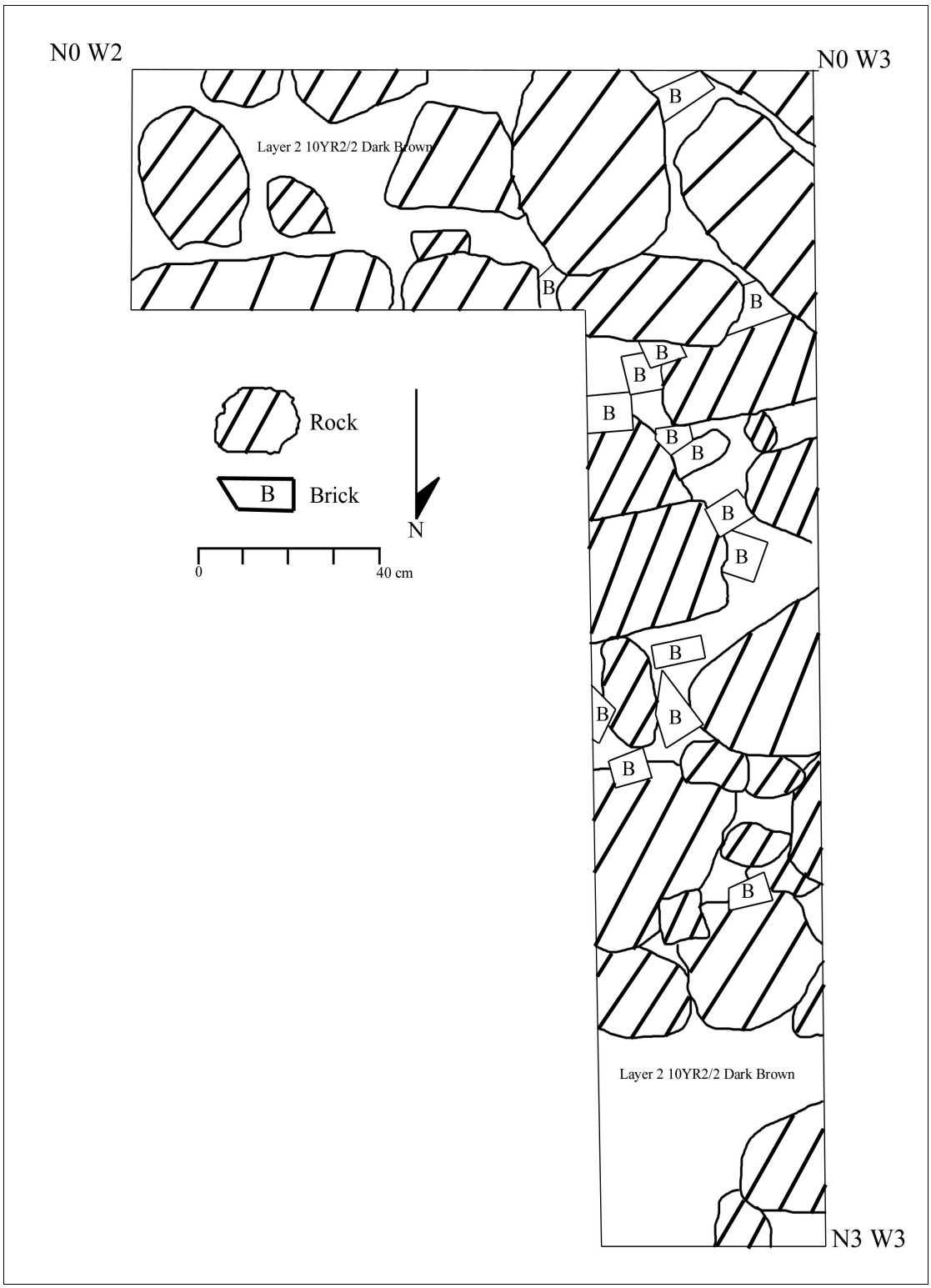


Figure 19. W# line plan at 30 cm

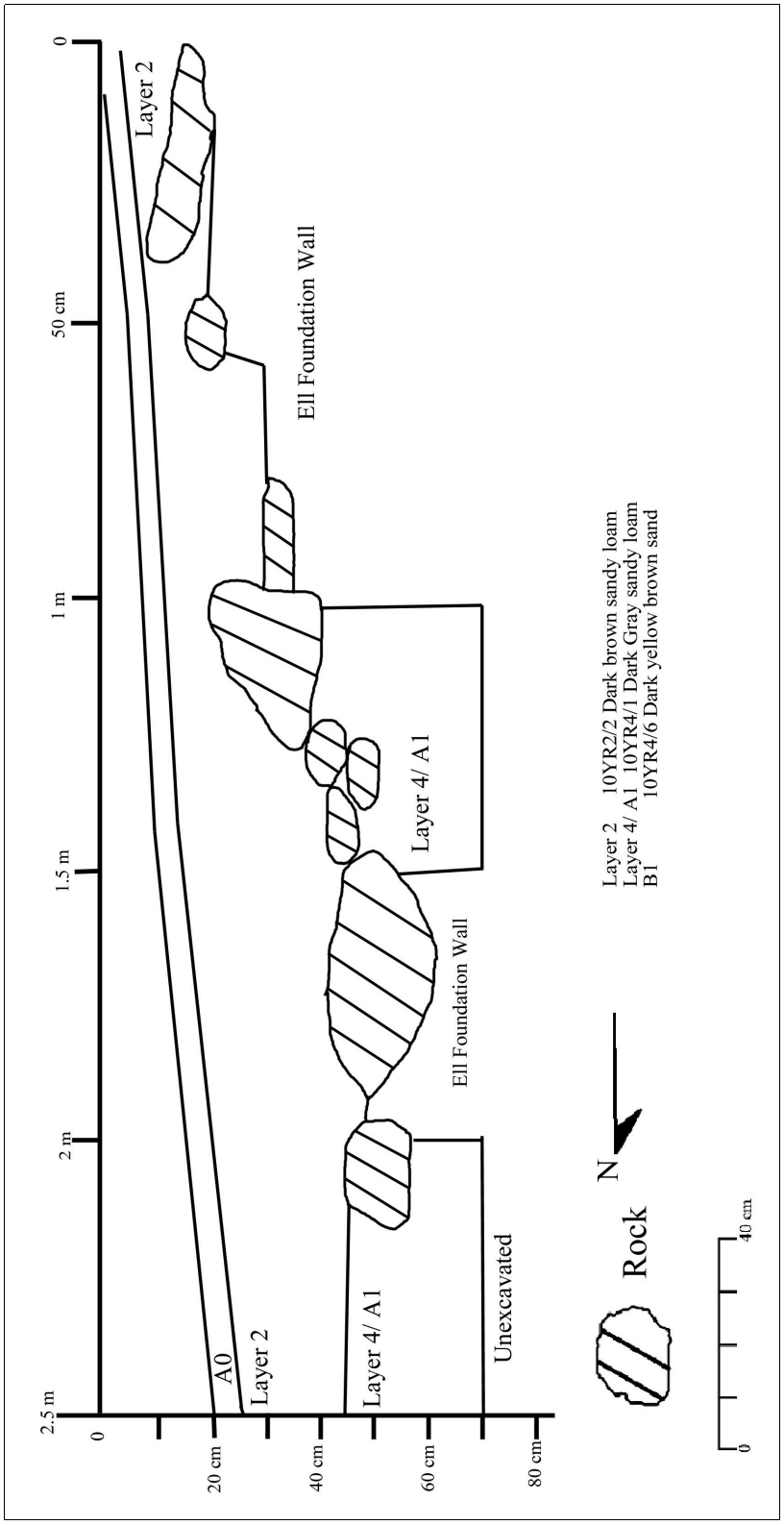


Figure 20. W3 line East wall profile

Excavation in the western portion of the terrace (W5-W7) revealed the presence of a eighteenth century well and possible nineteenth century layer of paving to the south and east of it **(Figure 21, 22 and 23).** A creamware plate (1762-1810) was found at 35 cm in the northeast third of the unit under some of the foundation rocks. This indicates that at least this stone was positioned after creamware came into use, 1762 at the earliest. A redware chamberpot, probably dating to the early nineteenth century, was found in the southwest quarter of the unit in the 20-30 cm level among the rocks.

The well extended from the north end of unit N1.5 W6 to the south half of N2.5 W6, east into N2 W5.5, and west in unit N2 W6.5. The brick paving associated with the well was located on the south side from units N1 W5.5 to the southern edge of the well in N1.5 W6 and from N1 W5.5 to the eastern half of N1.5 W7 measuring a total of 1.75 meters (5.7 feet) east to west and one meter north to south. The well was approximately eight feet deep and still contained water **(Figure 24).** It appears to have extended around the eastern side of the well for approximately 50 cm and may have done the same on the west. It extended around the northern side of the well approximately 75 cm and overlaid the area that was originally excavated for the well shaft. Large rocks, probable foundation stones for the dairy ell, were located to the immediate east of the brick paving. Large rocks were also present on the south side of the brick paving paralleling the north wall of the extant house.

A total of 20 50-cm-square units were excavated around the well to investigate the paving and its relationship to the standing structures and demolished ell. Most of the units were excavated until they reached the brick surface or a concentration of larger stones associated with ell. Unit **N.5 W5** was the southeasternmost of the units excavated around the well. It was excavated to a depth of 35 cm at which point it encountered a concentration of foundation stones, brick, creamware, pearlware and machine-cut nails thus dating this level to the nineteenth century. Unit **N1 W5** was excavated to a completed depth of 40 cm at which point it encountered the B1 subsoil. Above the subsoil a mixture of eighteenth and nineteenth century artifacts were found from 20-40 cm with the majority of the eighteenth century pieces being recovered from 30-40 cm. Few stones were encountered in this unit with tow large ones being located in the western quarter of the unit. Unit **N2 W5** was excavated to30 cmbgs where it encountered a concentration of brick and stones. Excavation ceased at 30 cm and the material recovered was a mixture of eighteenth to twentieth century being recovered. One piece of possible seventeenth century North Devon Gravel-Free ceramic was also recovered.

Unit **N2.5 W5** consisted of a 30 cm thick dark gray (10YR4/1) fine silty sand layer that overlaid three large stones. Above the stones a mixture of nineteenth and twentieth century artifacts were recovered. Below the rocks a few artifacts, consisting of cattle and swine faunal remains and three pieces of pseudo-Jackfield redware were recovered, dating this layer tot he eighteenth to nineteenth centuries.

Unit **N3 W5** consisted of a 30 cm thick dark gray (10YR4/1) fine silty sand layer that overlaid stones and one piece of architectural wood The dark gray layer consisted of a mixed layer of nineteenth to twentieth century artifacts.

Unit **N1 W5.5** consisted of a 20-30 cm thick dark gray (10YR4/1) fine silty sand layer that overlaid the edge of the brick paving surrounding the well in the unit's south half. A mixture of nineteenth and twentieth century material was recovered above the brick paving. Excavation ceased at 35 cm when the bricks were removed and collected.

Brick Paving and Stone steps
Looking South

Brick Paving and Well
Looking North

Figure 21. Western portion of terrace brick paving and well

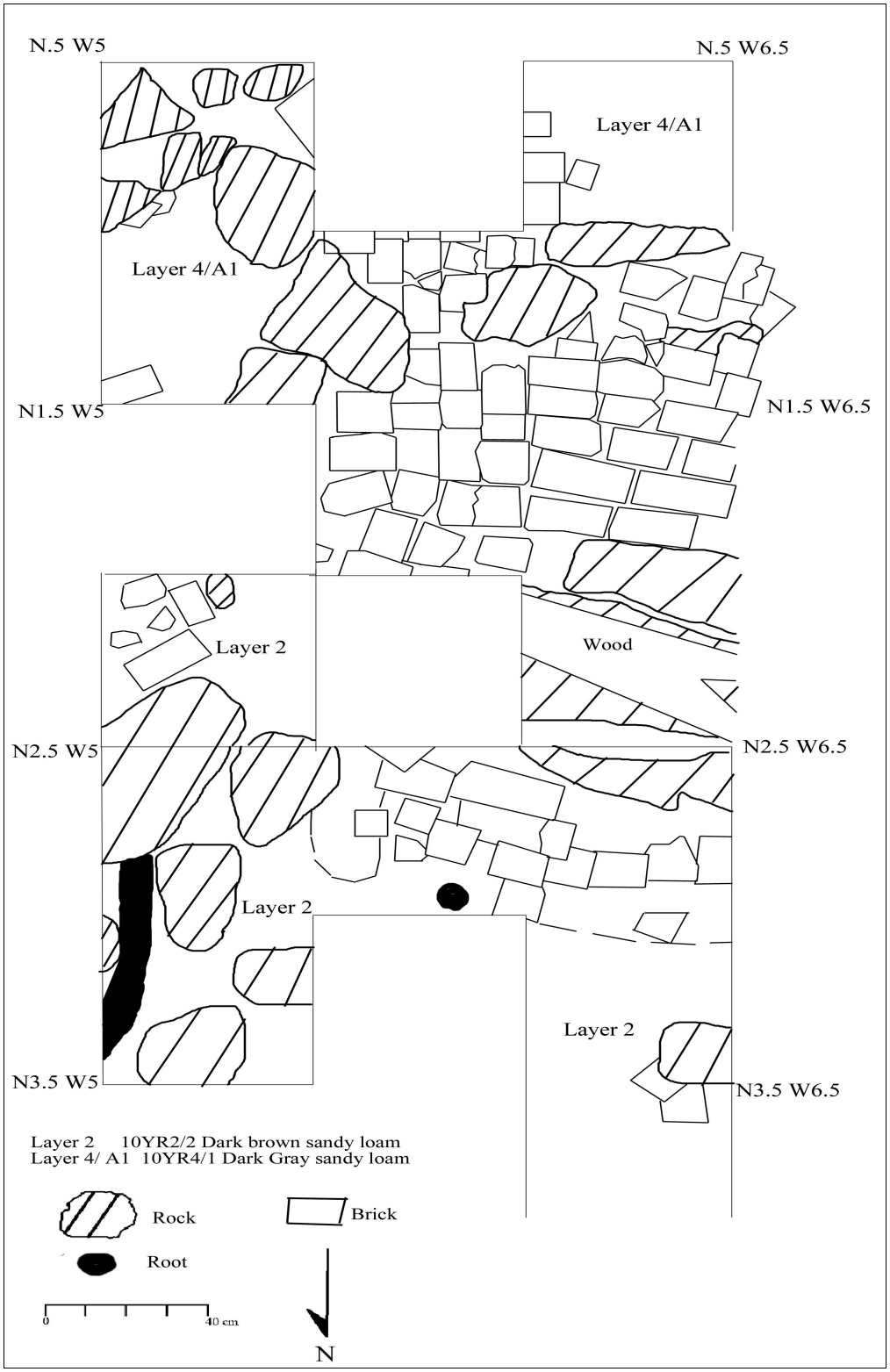


Figure 22. Well and brick paving plan at 30 cm

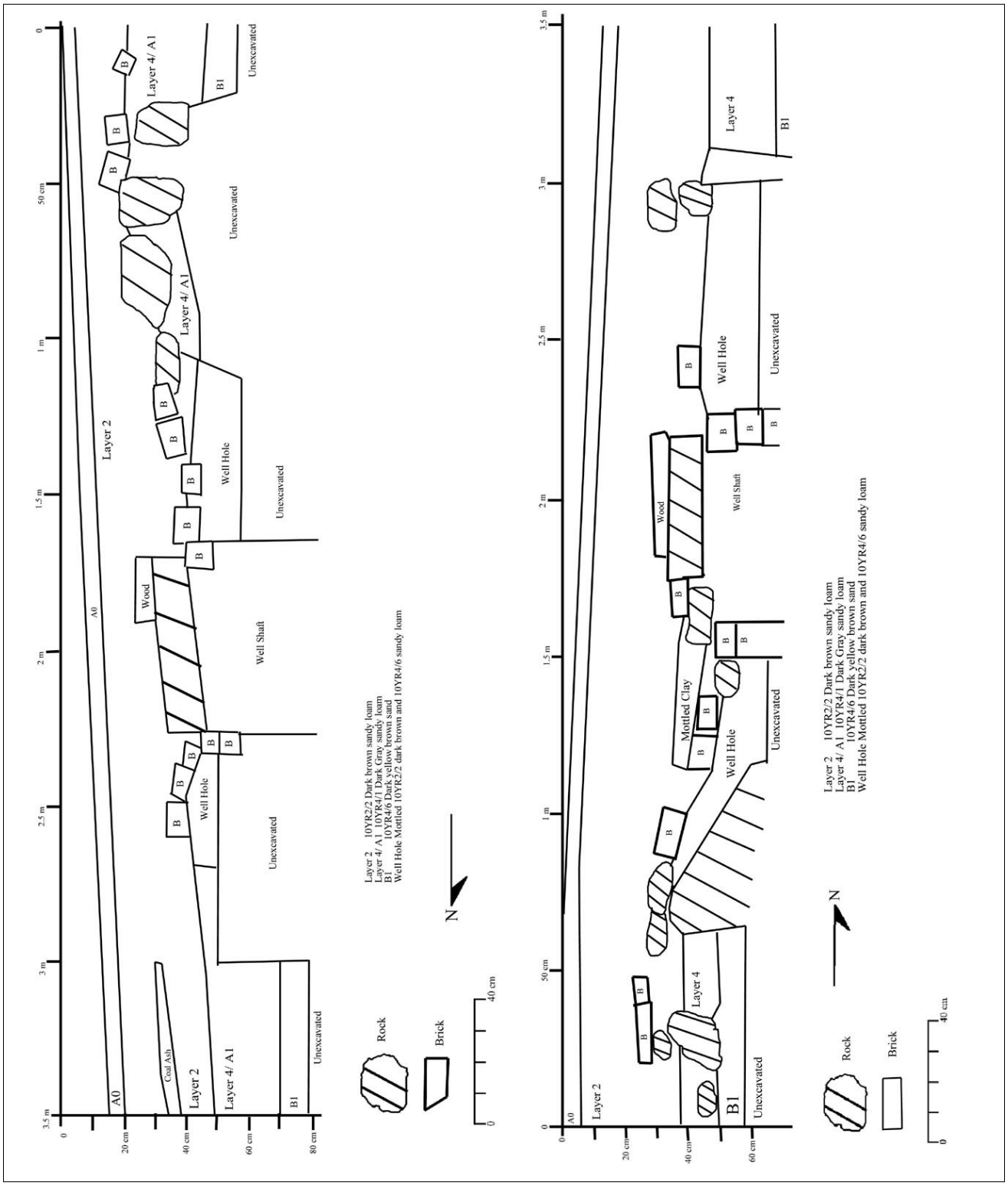


Figure 23. W6 Profiles Left: West wall, Right: East wall

Figure 24. View down the well shaft.

Unit **N1.5 W5.5** consisted of a 30-40 cm thick dark gray (10YR4/1) fine silty sand layer that overlaid the edge of the brick paving surrounding the well. The paving sloped towards the well and was poorly laid in a haphazard fashion. The brick treatment around the well indicates either that it was laid as an afterthought or as a stopgap measure to deal with slump associated with settling of the soils around the well. The fill immediately above the bricks lacked ceramics diagnostic of the last quarter of nineteenth century, indicating that it was buried before that time, possibly during the Joshua and Beulah Period (c1835 – 1861). Below the brick paving, a mixture of eighteenth and nineteenth century artifacts were found giving a date of ca. 1830 as a date when the brick paving was laid, a date corresponding well with the occupation of the house by Joshua and Beulah Wing. Prior to the laying of the bricks the well may have been enclosed or may have grass surrounding it.

Unit **N2.5 W5.5** consisted of a 30 cm thick dark gray (10YR4/1) fine silty sand layer that overlaid the edge of the brick paving surrounding the well. Artifacts recovered from 0-30 cm consisted of a mixture

of nineteenth to twentieth century materials.

Unit **N.5 W6** consisted of a 20 cm thick dark gray (10YR4/1) fine silty sand layer that overlaid a dark olive brown layer that extended from 20-30 cm in the south half of the unit. The north half of the unit contained a quantity of broken and poor quality bricks sitting on pale yellow sand. The dark olive brown soil had been encountered elsewhere on the site and was found to be indicative of the eighteenth century occupation. An eighteenth century shoe buckle was found in the northeast corner of the southern half of the unit, south of the bricks. Artifacts from above the bricks consisted of a mixture of nineteenth and twentieth century artifacts. Below the bricks from 30-50 cm the soil was olive brown in color and overlaid several larger rocks that had been covered by the bricks. The rocks rested in turn on the B1 subsoil. The stones were found to possibly represent the remains of a series of granite steps leading down to the well. Excavation continued into the subsoil but no artifacts were recovered below 50 cmbs.

Unit **N1 W6** consisted of a 30 cm thick dark gray (10YR4/1) fine silty sand layer that overlaid the brick paving surrounding the well. The paving sloped towards the well and was poorly laid in a haphazard fashion. The fill above the bricks lacked ceramics diagnostic of the last quarter of nineteenth century, indicating that it was buried before that time, possibly during the Joshua and Beulah Period (c1835 – 1861). Below the brick paving, a mixture of eighteenth and nineteenth century artifacts were found giving a date of ca. 1830 as a date when the brick paving was laid, a date corresponding well with the occupation of the house by Joshua and Beulah Wing. Two larger rocks were found in this unit as well and it appears that the bricks and brick fragments were placed around and between these preexisting stones. The stones rested in the olive brown eighteenth century level and appear to have been part of a series of steps leading down to the well. B1 soil was encountered below 50 cmbs and the stones rested on the B1 subsoil.

Unit **N1.5 W6** consisted of a 38 cm thick dark gray (10YR4/1) fine silty sand layer that overlaid a six centimeter thick layer of yellow brown clay that in turn overlaid the brick pavement encountered in other units. Upon removal of the brick paving, fragments of a redware chamberpot were encountered in association with charcoal and mortar. From 40-50 cm the north half of the unit had a heavy concentration of brick adjacent to the edge of the well within the hole that had been dug to install the well shaft. Excavation in the well shaft hole continued to 60 cm. Artifacts recovered consisted of a mixture of eighteenth and nineteenth century material above 50 cm and eighteenth century material below 50 cm.

Unit **N2 W6** consisted of a 30 cm thick dark gray (10YR4/1) fine silty sand layer that overlaid the granite stones capping the well shaft. On top of the granite was a a large piece of wood, possibly architectural in origin. The artifacts recovered from 0-30 cm consisted of a mixture of early and later nineteenth century material.

Unit **N2.5 W6** consisted of a 25-30 cm thick dark gray (10YR4/1) fine silty sand layer that overlaid the top of the well bricks and the shaft dug to build the well. At 25 cmbs the soil to the north of the well was mottled with more clay than that on the south side above the well bricks. Upon reaching 30 cm the north half was found to consist of light yellow clay around the bricks. At 40 cm the clay gave way to more dark gray (10YR4/1) soil with some bricks in the well shaft fill. Only eighteenth century artifacts were recovered from 30-40 cmbs while mostly eighteenth century with a few machine-cut nails, was recovered from 25-30 cmbs.

Unit **N3 W6** encountered 35 cm thick dark gray (10YR4/1) fine silty sand layer that overlaid a dark olive brown (2.5Y3/3) layer containing eighteenth century artifacts.

Unit **N3.5 W6** consisted of a 30 cm thick dark gray (10YR4/1) fine silty sand layer that overlaid a five centimeter thick coal ash deposit. The artifacts from 0-30 cm and from the ash layer consisted of a mixture of nineteenth and twentieth century artifacts with ironstone being present, indicating a late nineteenth century date of deposition. A mixture of eighteenth and nineteenth century artifacts were recovered from 30-50 cm while only eighteenth century material was recovered from 50-60 cm. The excavation stopped at 60 cm but was still within the well shaft at this point.

Units **N1 W6.5** and **N1 W7** consisted of a 30 to 35 cm thick dark gray (10YR4/1) fine silty sand layer that overlaid a portion of the brick paving around the well. The artifacts recovered from 0-30 m were a mixture of nineteenth and twentieth century materials.

Units **N2 W7** and **N3 W7** were excavated to a depth of 30 cm and encountered only the dark gray nineteenth to twentieth century layer.

Unit **N2.5 W7** consisted of a 30 cm thick dark gray (10YR4/1) fine silty sand layer that overlaid a mottled layer of dark gray and very dark gray soils to a depth of 40 cm. From 40-60 cm the soils were dark olive brown in color but contained a mixture of eighteenth and nineteenth century artifacts. Nineteenth century artifacts were recovered from 30-40 cm while a mixture of nineteenth to twentieth century artifacts were recovered from 0-30 cm.

Excavations in the eastern third of the terrace identified the eastern wall foundation of a previously unknown norther ell/ dairy or cold storage room and undisturbed seventeenth to eighteenth century living surfaces **(Figures 25 and 26)**. The ell is believed to have been added in the early eighteenth century when the house was expanded from a single room structure to a salt box style house. The profile of the house is believed to have been similar to the Comfort Starr house New Haven, Connecticut, including the attached ell **(Figure 27 and 28).** The southern two thirds of this eastern foundation had been previously disturbed by late twentieth century installation of a PVC pipe out of the eastern cellar. Further evidence of the ell was identified in the central portion of the terrace where the northern wall foundation was identified. The western wall foundation of the ell was identified in the western portion of the terrace. The ell measured 8 feet wide (north to south) by 18 feet long (east to west) and appears to have been destroyed in the last half of the eighteenth century when the house was upgraded to its present Georgian style. A late eighteenth century well was encountered in the western third as well. Access to the well appears to have initially been by a set a granite steps that led down from the northern wall of the house, possibly where a door as originally located (although no evidence of such a door is evident in the extant northern wall of the house). A roughly laid brick paving was laid around the well in the nineteenth century while the well appears to have been capped and the terrace

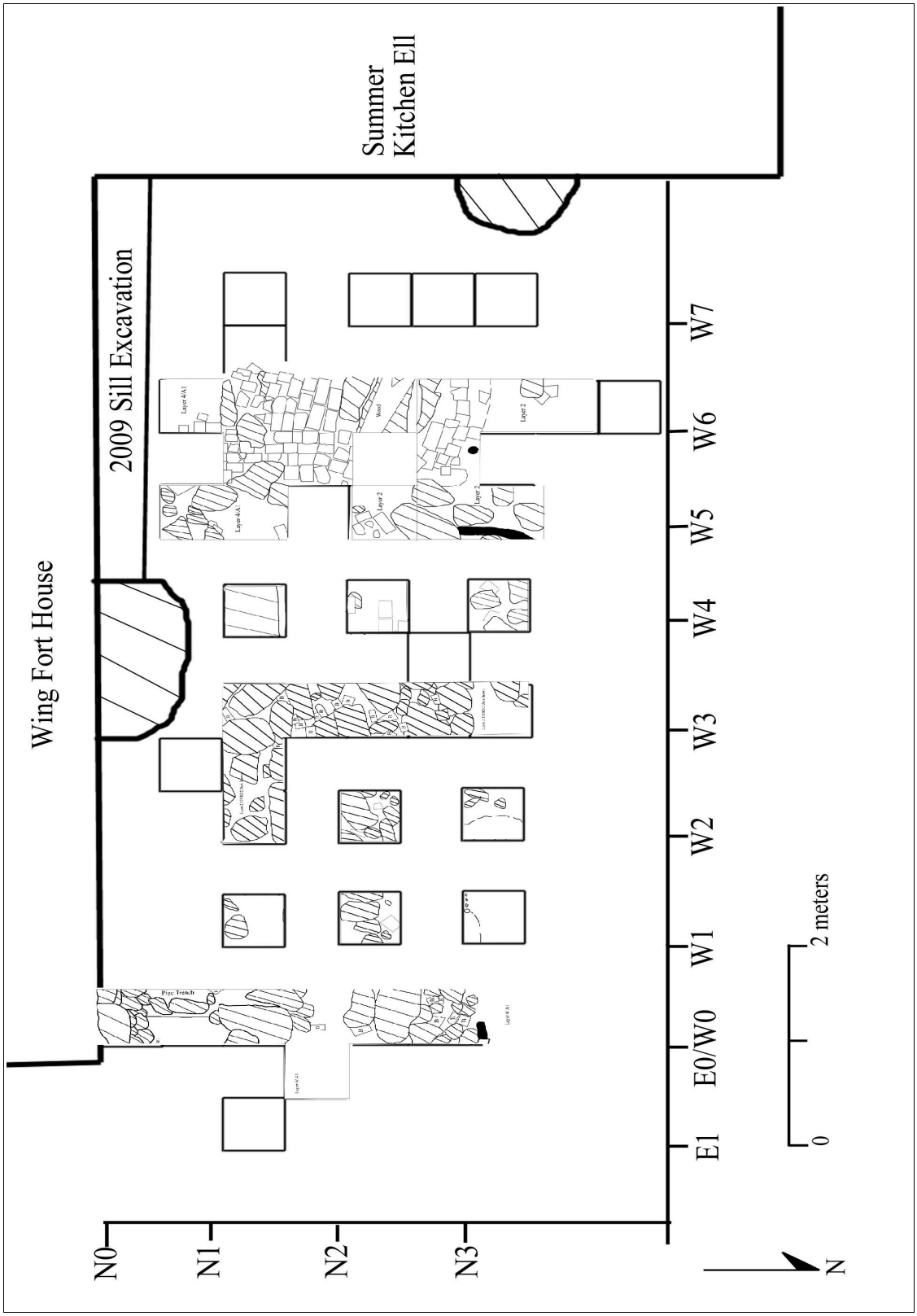


Figure 25. Terrace excavation testing plan showing identified features

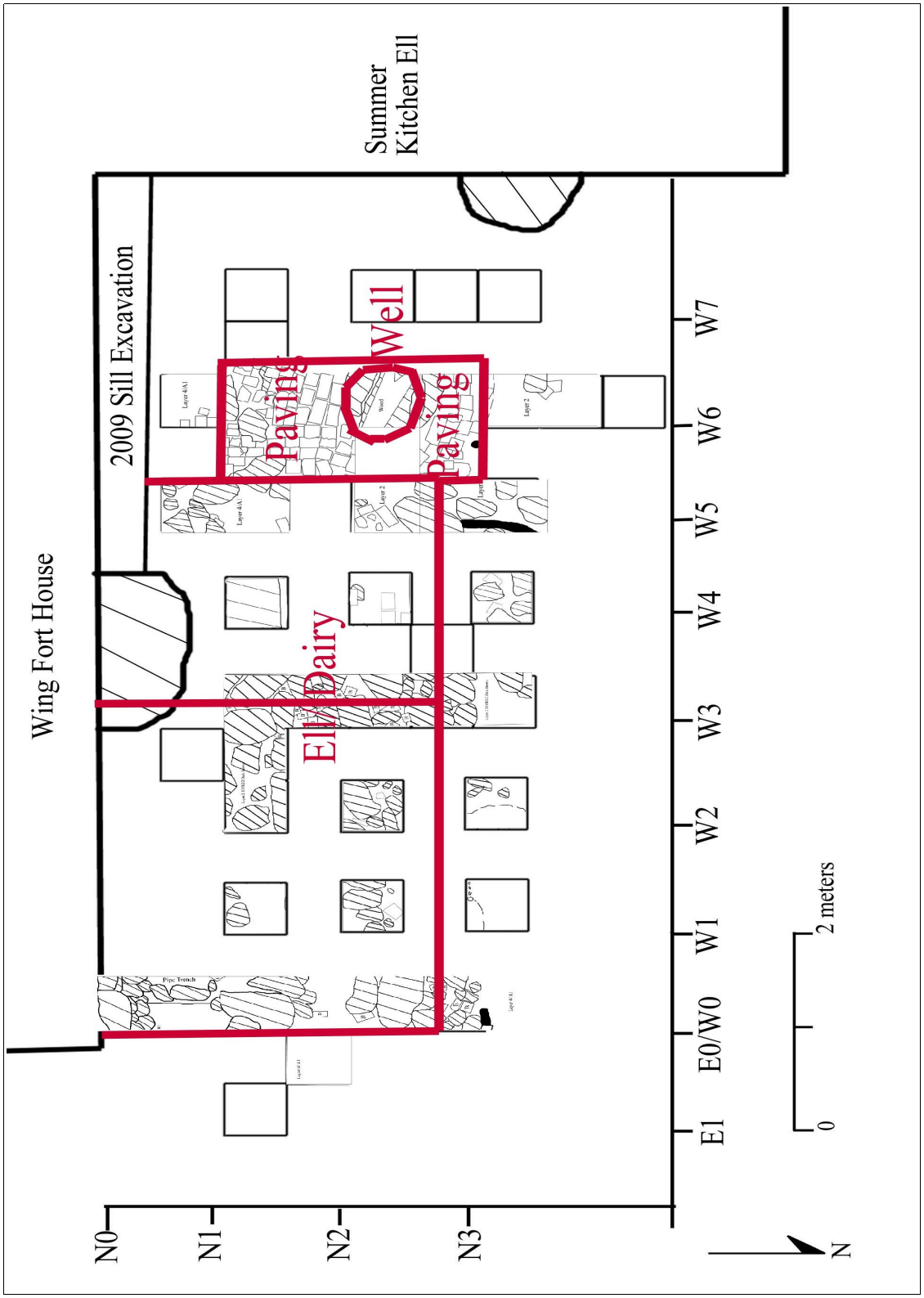


Figure 26. Terrace excavation testing plan showing identified features, identified ell/ dairy, well, and well paving outlined in red

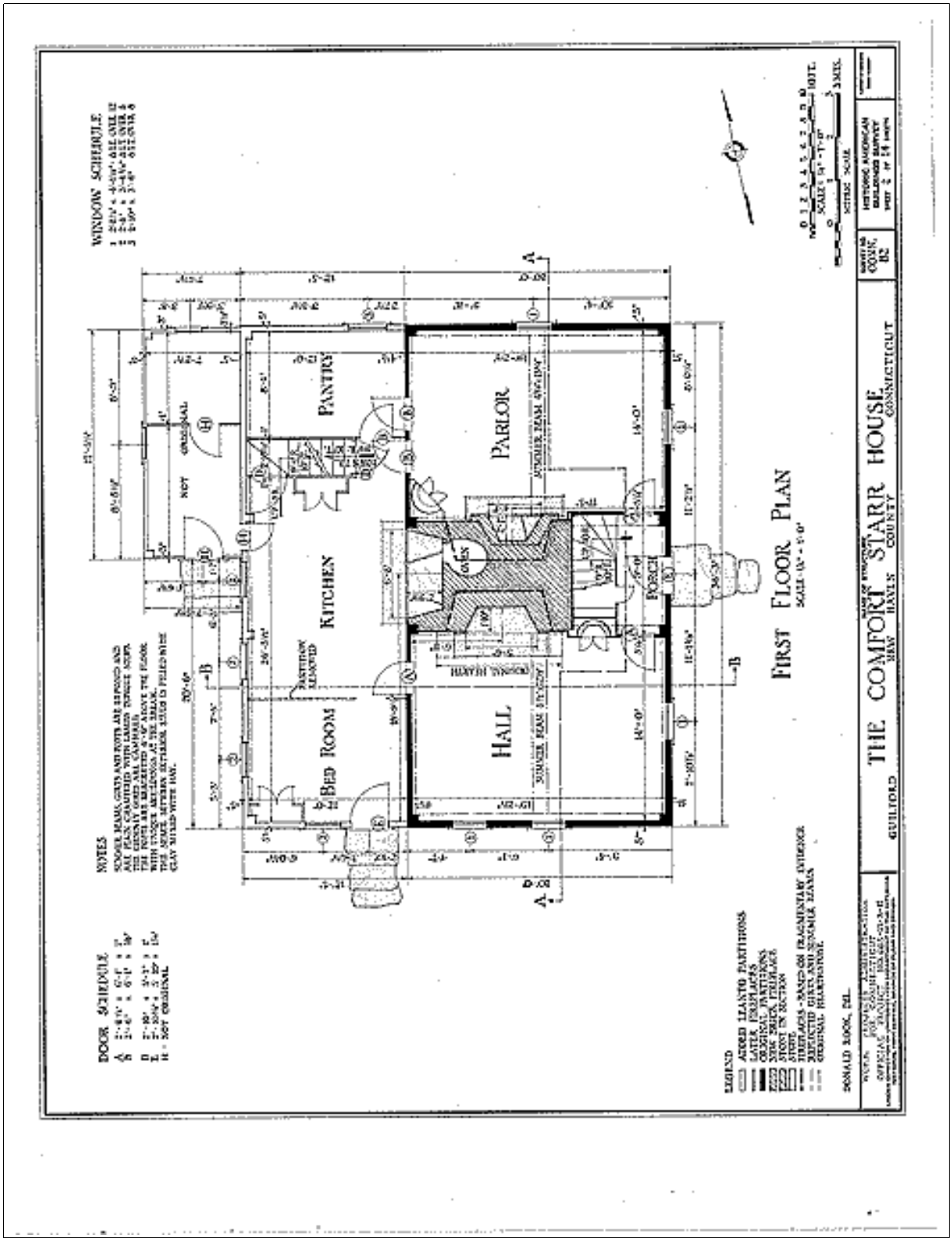


Figure 27. Plan of the Comfort Starr house showing attached ell at rear

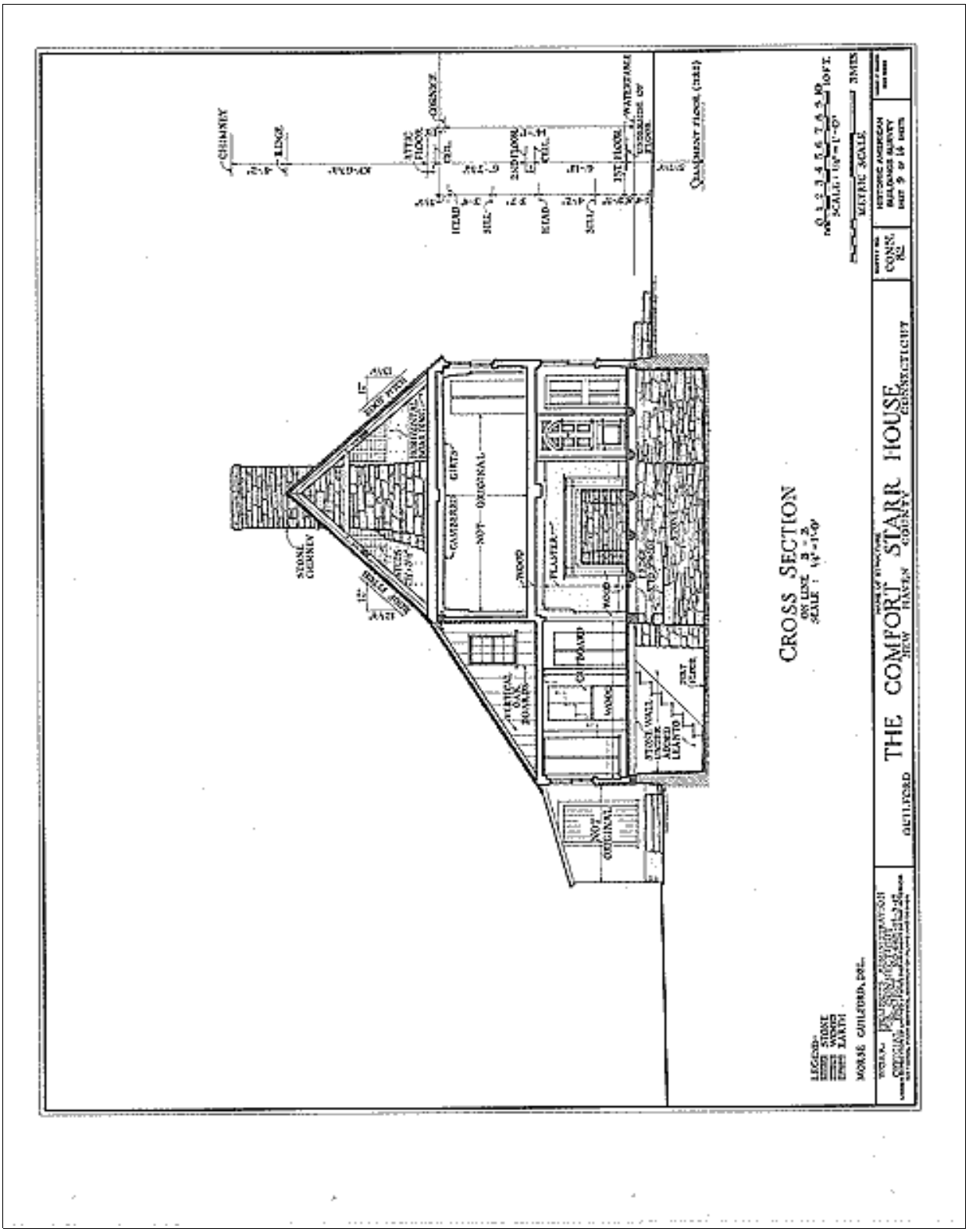


Figure 28. Profile vie of the Comfort Starr house showing attached ell at rear

was leveled with fill in when the house was again expanded to the present Georgian style (ca. 1760). The date of destruction can be established with confidence due to the fact that certain ceramic types commonly found later in the nineteenth century, are missing from the deeper, demolition deposits.

The well may have been constructed at the same time as the ell but it is hypothesized that it was in fact constructed c. 1760 when the house was expanded. It was subsequently capped in the early to mid nineteenth century. It is constructed of specially shaped "well bricks" and indication that the person who had it built had the wherewithal to purchase these specialized bricks versus using fieldstone or just common bricks. The well had a poorly laid brick paving, made of recycled bricks from the earlier chimneys, around it on the south and slightly on the south east and north sides. Several of the bricks bear well worn upper surfaces indicating that they were exposed to the elements and that the well did not have a structure over it. The analysis of the artifacts from the terrace excavations are discussed further in the following chapter.

IX. ARTIFACT ANALYSIS

A total of 23,625 artifacts were recovered from the August 2010 excavations on the terrace. Architectural materials (brick, mortar, nails, flat glass) made up the majority of the artifacts recovered with ceramics and faunal remains being abundant as well. Excavation was carried out by means of trowel and shovel and units were excavated in five to 10 cm (2-4") levels following the natural stratigraphy. Research questions for large scale farmstead archaeology sought to delineate patterns of farm development; the variety of farm sizes, buildings, dates of construction and arrangement of buildings; typicality in terms of size, wealth, and resources of each farm; the incremental fashion in which most farms achieved this organization; the prevalence in the 19th-century of a rearrangement of farm buildings; and the recurring patterns of spatial organization and activity usage (Beaudry 2001-2002: 130). At rural homesites where farming does not appear to have been the main economic focus, focus can be placed on landscape archaeology research questions as well, such as those proposed by Adams (1990). These include studying such things as when and if forests were cleared, why and where were roads built, what subsistence farming practices, if any, were used, were draft animals used for manual labor, what changes to the woodlots of the farm occurred once coal and oil became widely used, and what crops were planted (Adams 1990: 93).

Rural homesite archaeology can examine the larger question of what was happening at rural homesites in an age when agricultural economics was being replaced by industrial economics, market dependence, and a potential decline in rural self-sufficiency. Homesites, like farmstead sites, represent the culmination of years of occupation, adaptation and change and should be thought of in these terms (Catts 2001-2002: 145). Beaudry advocates a system where we stop thinking in terms of potsherds and start thinking in terms of landscapes, to not think of just individual features at a site, but to think of the entire feature system (Beaudry 2001-2002: 139). This view goes hand-in-hand with the views of other archaeologists such as Wade Catts who see nineteenth century rural places as needing to be examined for evidence of long-term change through the development of land use histories for the entire farm (Catts 2001-2002: 150). One noticeable improvement to the Wing dwelling was the construction of the terrace in the rear of the house, a similar landscape feature was identified and investigated at a rural home site in Hopkinton (Donohue et al 2000). In 1842 a book entitled *Cottage Residences* discussed the aesthetics of domestic architecture linking the design of a house to the economic circumstances, personal interests, and family life of its owners. Aside from urging the installation of items for convenience and comfort in the house, it also linked the house and its grounds through landscape features (Garvin 2001). One such feature was a terrace off of a house. The results of the field testing of the terrace fill suggests that it a natural terrace on which the house was built was landscaped in the first quarter of the nineteenth century. A structure like a terrace and landscaping around the house may have been an attempt to project an image of greater affluence. Beaudry stated that ideological factors resulted in the manipulation of the domestic landscape as a means of social display (Beaudry1986:38). The terrace would have visually set the house upon a pedestal and erased the traces of the well and north ell, especially when viewed from the road running to the south of it and would have been just a form of social display.

Other important areas for research include looking at long term change within the rural homesite as a reflection of the changes that occurred within the larger society during the era of the Industrial Revolution; examining ethnic and class differences of the occupants within the context of the dynamics of rural society; examining the roots of modern communities in the past; and using sites to create

micro-histories, site biographies and ethnographies that will lead to a broader understanding of rural and agricultural culture and society (Klein and Baugher 2001-2002: 167). Klein and Baugher came up with a potential framework for identifying, evaluating, testing and preserving nineteenth century farmstead sites, and their approach can be extended to any type of rural homesite. They advocate first developing historic contexts by identifying the theme, time period, and geographic limits of the site, and defining the type of site. Archaeological investigations should involve survey and testing of all components of the site, excavating large areas within the entire site, using remote sensing within areas outside of the core, giving equal attention to areas with and without large artifact densities, and using the full range of historical sources, including literature, paintings, agricultural journals and publications, and oral history (Klein and Baugher 2001-2002: 168-169).

One of the research questions for this project involves the degree to which this family was involved with the local market economy. This question revolves partially around the Wing's degree of self-sufficiency. The nature and degree of rural inhabitants be they farmers or laborers, self-sufficiency rests not on economics but on attitudes. Rural inhabitants could and did often produce their own food, fuel, and furniture but no one really believes that they were totally self-sufficient. The stereotypical New England Yankee, self-sufficient, independent, relying on no one but themselves, the view that has been often presented for colonial farmers, is more of a romantic notion of the idealized American. Rural inhabitants in the nineteenth century, especially those who lived only a few miles outside of the center of town like the Wings did, must have sold agricultural products to pay their taxes and procure the range of high utility commodities such as imported ceramics. Food, firewood, and clothing do not survive well archaeologically and the most common artifacts we are generally left with to investigate socio-economic position are often those which specifically had to be produced at the markets- glass, ceramics and metal items. In many ways this does not make consumer goods purchased at the market a good indicator of the overall standard of living enjoyed by the people who used them. Overall, it has been found that consumer produced goods accounted for only a small percentage of total household expenditure in the nineteenth century (Friedlander 1991; Klein 1991). However, if the purchase of consumer goods, thus relatively lower degree of self-sufficiency, was a high priority for inhabitants of any economic level, then this should be reflected in a high occurrence of such items in an assemblage. If, on the other hand, the purchase of matched sets of ceramics or of the finer or finer looking tea sets was not a high priority of the inhabitants, if they were more interested in helping their families or in having time to spend in communal projects, then the percentage, quality and types of market-produced goods present at a site may reflect this.

Stewart-Abernathy, in his study of the nineteenth century Ozark farmsteads, hypothesized that the choices of manufactured goods present at an archaeological site reflects the support of a family version of social reality and that they indicate an allegiance to the local community and to the world in terms that kept the local community strong (Stewart-Abernathy 1986: 102). It as also been suggested that the acquisition of consumer goods is the common thread that has held Americans together from its founding (Carson 2006).

Housing, as opposed to clothing and other more perishable elements of culture, is usually well represented and more visible archaeologically, and some see housing as the most sensitive indicator of class in 19th century America (Soltow 1992: 131). Other classes of material culture, ceramics, glass, faunal remains, etc., can be used to better understand the lifestyles of the inhabitants versus their use as status indicators. Catts and Custer (1990: 227) found that 450 square feet formed a convenient dividing line between the houses of the poor and those of the middle class. The Wing house floor size was over

450 square feet, making it above the dividing line between middle class and poor. The examination of the size, structure and layout of the Wing's house, can provide insight into the social class and real status of this industrial period agricultural family. Conversely, some investigators see status as best indicated by social status followed by the quality of the house or residential area (neighborhood) (Spencer-Wood 1984: 35).

During the Victorian Period, architectural styles changed so that individuals had their own rooms, specialized rooms for children appeared and special ritual and presentation rooms appeared. Some of these changes were the result of the Industrial Revolution which often led to men, who were up to this point the leaders of the home and family, being away from home working in the new burgeoning industries. This led to women taking control of the day to day workings of the home, thus creating two world spheres, the home and workplace, where once, in the more rural pre-industrial times, they were both one and the same. In preindustrial times, the family often had to make what it needed to survive, with the rise of industry, men could now go to jobs that produced goods and services while the remainder of the family stayed at home. The idea was also created that the work world (the public sphere of life) was a rough place full of temptation, vice and violence where men had to do whatever it took to survive. Women, being weak and delicate creatures (as the wisdom of the time believed) needed to be defended and protected from this world. It was logical that they and the children would remain at home while the men went out, confronted and conquered the new Industrial Age. The emerging middle-class, which soon became the ideal for the lower class and the rungs on the ladders of power for the upper class, began to look at itself and the nuclear family as the backbone of society.

The Victorian Age recognized women's new roles as house managers and created the ideology of the "cult of domesticity", the virtues of which were extolled in many aspects of popular culture of the time. The cult of domesticity was a belief that women, as keepers of the home, were also viewed as being the keepers of purity, piety and domesticity. The home became a man's refuge from the dog eat dog world of industry and became the showplace for status, affluence and the ideals that women were relegated as the keepers of. This led to the creation of ritual rooms in the house in which the ideals could be showed off and savored. These rooms included the parlor and dining rooms. These rooms were located on the first floor of the house and were rooms which were visible to the public and thus a place to display your real or desired status. The parlor was the room where afternoon tea parties were held and as it was a showplace of the home, it was often the most luxuriously furnished room in a middle-class house. The parlor essentially served as the area where class members aspired to make their claims to refined gentility and the afternoon tea was an important showplace for the family's social status (Di Zerega Wall 1991: 79). By the early 19th century, meals had taken on the form of ritual and were considered as a time to affirm the moral values of the family and a good dining room was seen as a space that reinforces the spiritual unity of the family (Di Zerega Wall 1991: 80). Concurrent with the appearance of dining rooms and parlors is an increased attention to table settings including glass and ceramic dishes. This included and elaboration over time of the types, and quality of vessels used in meals which was reflected in the decorative styles, the amount of decoration and the relative cost of ceramics (Klein 1991: 79). As has been shown by George Miller's work on cream-colored ceramic pricing (1991), ceramic prices dropped between 1810 and 1850 as plain creamwares were replaced by edged, dipped, and painted wares in the 1780s. These wares were subsequently replaced by transfer printed wares following the War of 1812. By the 1830s as the price of transfer printed wares dropped and a greater variety of vessel forms and sizes increased, these wares had become the most popular type for both tea and table (Klein 1991: 80). The creation of a separate north kitchen and attached ells on the north side of the house reflect this idea of the importance of seperating the woman's worl from

the man's world.

Architectural Class

This class of artifacts is composed of artifacts related to the construction kitting out of the structures that stand or have stood on the site. It consists of the following sub-classes: Daub, brick, mortar, nails, window glass, window leads, and iron hardware.

Daub

Daub is clay that has been mixed with some combination of soil, sand, dung, and straw. Daub is essentially a mixture of three components: binders (such as clay, lime, chalk, or limestone dust) form the base and hold the other components together; aggregates (aka temper such as earth, sand, or crushed stone or chalk) give the daub its bulk while the final component, reinforcement (hay, straw, hair) holds the components and gives flexibility and control shrinkage (Pritchett 2001). The daub is mixed, often by foot (animal or human) and is then thrown and smeared onto wattle (interwoven thin branches and saplings) which forms the shape of what is being daubed. Once dry, the daub was often whitewashed with lime to provide protection from rain. Wattle and daub was used for walls as well as chimneys. Because the vertical plank walls of the Fort House were never daubed, then it is likely that the daub was used on the chimney/ smoke hood over the hearth. This wattle and daub chimney was probably replaced when the house was expanded from its single-cell to a salt-box style.

A total of 34 pieces of tan to gray brown clay and daub were recovered from around the house. Fragments were recovered from the south yard (n=21), the north yard (n=4), and the east (n=5) and west (n=4) sides of the terrace **(Figure 29)**. Several pieces showed voids where the straw that was used as a reinforcement, had rotted away. The colors of the daub indicates it was burned or was in contact with heat, supporting the theory that it was used in the chimney. The clay recovered may be unburned daub or it may be clay that was used to putting up the brick chimney in the early eighteenth century. The clay was recovered from the south side of the house.

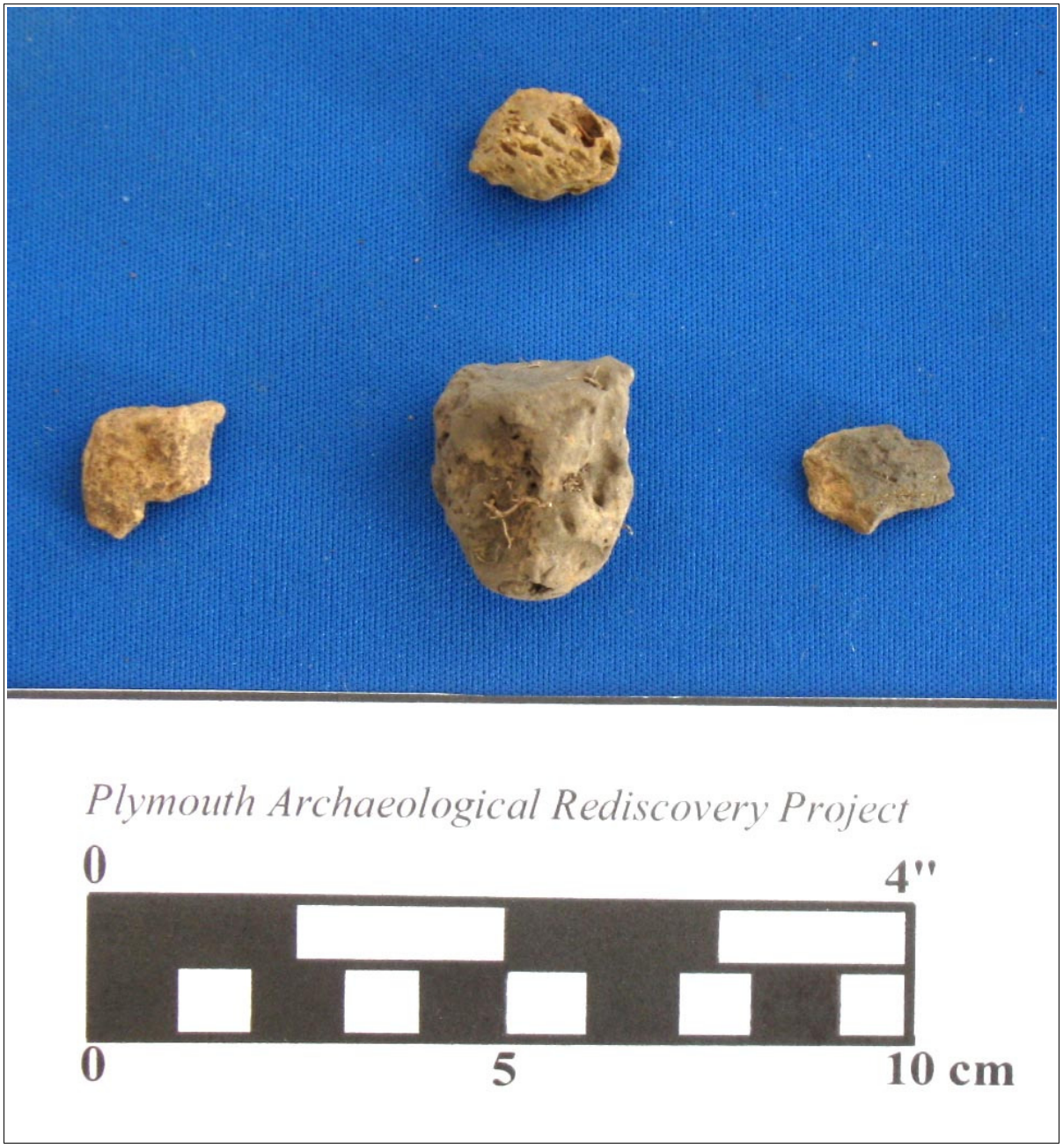


Figure 29. Possible daub recovered from the terrace

Brick

While bricks are often used for foundations and walls, at the Fort House the bricks recovered appear to have come from at least two incarnations of the chimney and hearth stack. The first brick chimney is believed to have been built when the single-cell house of Stephen Wing was expanded into a salt-box style house in the early eighteenth century. This was at least partially replaced when the roof line was changed to create the Georgian structure seen today in the last quarter of the eighteenth century. Some of the bricks removed during the raising of the roof were reused to create a paving in front of the brick well that was discovered during the 2010 excavations. Specially shaped well bricks bearing beveled ends were used to construct the well. A total of 7864 bricks and brick fragments have been recovered

as a result of the excavations around the house (South Yard: 524 pieces; Sill: 18 pieces; North Yard: 478 pieces; Terrace: 6844 pieces) with the greatest number coming from the 2010 terrace excavations (n=6844 pieces, 50 pounds).

The dimensions of seventeenth and eighteenth century bricks were legally regulated. As early as 1625 there was a law in England stating the dimensions for bricks being 9" by 4 1/2" by 3" high (22.9 x 11.4 x 7.6 cm), which was very similar to the 1700 dimensions for statute (a.k.a common) bricks which was 9 x 4 1/2 x 2 1/4" (22.9 x 11.4 x 5.7 cm)(Cummings 1979:118). The Massachusetts bay Colony set regulations on brick sizes in 1679, stating that the molds for bricks must be 9" long, 4 1/2" wide and 2 1/4" high, but, as William Leybourn observed in 1668, molds of such size seldom produced bricks of such size due to drying and burning (Cummings 1979:118).

The firing of a single brick clamp results in three different types of bricks: Clinker- those that lie closest the fire which have a glaze on them; those that lie next in the clamp which are of second quality; Samuel or Sandal-bricks- those that lie at the outside of the clamp and which are soft and will dissolve in the weather (Neve 1736).

The bricks used for the Fort House were likely made locally. As early as 1629, clamps were established in Salem, Massachusetts for the manufacture bricks and roof tiles, while in the same year there is a singular, unique record of 10,000 bricks being imported into the colony (Cummings 1979:119).

Measurable bricks from the Allerton Cushman Site in Kingston, Massachusetts (c1650-1690), ranged in width from 9 to 11.5 cm , 4.8 to 6.1 cm in height, and 17 cm long. The single measurable brick from the the Ezra Perry II (Aptucxet Trading Post Museum Site) in Bourne (c. 1670-1720) measured 10 cm wide, 6.35 cm high, and 20 cm long. Later sites, such as the Lot Harding House in Truro, Massachusetts (1746 to present) had bricks measuring 8.6 to 10.9 cm wide, 4.3 to 5.7 cm high and 18.2 to 18.8 cm long and the Duxbury Second Meeting House (1708-1785) bricks were 8.5 to 11 cm wide, 4.3 to 6.2 cm high, and 14 cm long. All of these bricks roughly fit within the known seventeenth and eighteenth century brick regulations.

A total of 132 of the fragments recovered from the Fort House were measurable in at least one dimension (length, width, or height) . The Fort House bricks averaged 16.5 to 19.7 cm long (6.5 to 7.7 inches), 7 to 11 cm wide (2.7 to 4.3 inches) and 3.7 to 6 cm high (1.5 to 2.4 cm). Brick sizes were distributed evenly around the house with no concentrations of any one size in any one area. The majority of the brick fragments were recovered from o-30 cm(n=4641) with lesser amounts from 30-40 cm (n=1449), 40-50 cm (505), and 50-60 cm (n=91).

Bricks such as these were made of local clay mixed with sand, gravel, and even larger pebbles and small rocks to act as aggregates to give strength to the clay. The molding process was begun by drenching a wooden mold into water and then placing it on a table covered with a thin layer of sand. The mold was then filled with a large glob of clay and a board was run either vertically or horizontally across the upper face to level the mold off. The mold was then removed and the brick was paled in the sun to dry before it was fired. Firing bricks involved stacking them up in a specific manner, building what is referred to as a clamp. Wood was placed within the clamp, around the bricks, and the whole thing was set on fire and allowed to burn until the bricks were hard. Bricks that were fired close to the heat source tend to be blackened on their faces that faced the fire, often bearing a vitrified, glass-like surface finish, while those that were farther from the direct heat were more evenly colored. The bricks

that were closest to the flames tended to warp and often deformed to some degree. The bricks from the Fort House bore evidence of the sand covered table on one side (moderate to heavy sand being present), the strike to the opposite face to level the clay (most commonly a horizontal strike and rarely vertical), grass impressions on the struck face (from being placed either on the grass or more probably on a straw covered board to dry, the straw ensuring the brick did not stick to the board) , and some vitrification and deformation (resulting in one brick being 3.5 cm thick at one end and 5 cm thick at the other).

The bricks that were used to make the well were of a much finer quality than those used in the chimney. These bricks may have been imported. These bricks measured 18 to 18.5 cm long, 14.8 to 15 cm wide and 4.5 to 4.7 cm thick. It is believed that these bricks date to the late eighteenth century, making the well contemporary with the rebuilding of the house at that time.

Mortar

Associated with the brick were fragments of shell-tempered or shell-lime mortar. A total of 7450.5 grams (16.4pounds) of shell mortar was recovered. All of this mortar came from the terrace and sill areas. The majority of it was found in the eastern half of the terrace area, possibly indicating that this area was used for removing the mortar from old bricks when the salt-box's chimney was dismantled. Local sources of limestone that could be calcined to produce lime, were difficult to find in Massachusetts. Edward Johnson reported in 1650 that “the country affords no lime, but what is burnt of Oyster-shells” (Cummings 1979: 122). As Johnson reported, people burned sea shells to produce lime which was mixed with the clay to produce mortar. Lime was necessary for the mortar to make it waterproof, as without lime, a good rainstorm would wash the mortar out of the masonry and the whole construction would soon come crashing down. The shells that were reduced to lime came from a variety a sources. In 1694 a large storm resulted in a plethora of shells on the beach. Local officials soon declared that none of the shells, nor any of the lime that was subsequently made from the shells, could be shipped out of Lynn under punishment of a fine (Jenison 1976: 22). Shells were also mined from Native American shell middens such as was done in 1667 by Thomas Batt, a Hide tanner in Boston. Batt used a Native shell midden located on the west side of Beacon Hill to create the lime pits he used for dehairing hides (Jenison 1976: 22). Another source of shells were live shellfish beds. This practiced was discouraged due to the harm done to the shellfish, as such was the case in 1728 in providence, Rhode Island where oyster beds were being raided (Jenison 1976: 22). By the early eighteenth century, local lime sources had been discovered and shell lime was less often used, as evidenced by a 1724 decree that mussels in Massachusetts Bay should no longer be used for making lime or anything else except for eating and bait (Fiske 1922: 36).

The presence of shells in mortar should not be taken as absolute proof of the use of shell lime motor though. Shells may have been added to mortar as a filler or an aggregate, or may have accidentally been mixed into the mortar (Jemison 1976: 24). many of the shells in the mortar from the second meeting house are burned, indicating with a high likelihood that the mortar was mixed with shell lime.

Cement

One piece of stone, identified as possibly cement was recovered from N3 W3 at the 20-30 cm level. This piece has a smooth surface but resembles cauliflower. It may be an eccentric shape or it may be part of a sculpture. It is believed to date to the twentieth century.

Nails

Hand-Wrought Nails

A total of 768 hand-wrought nails or hand-wrought nail fragments were recovered (Table 12). The overall total included nail shank fragments with intact heads and 213 complete hand-wrought nails (Tables 12 and 13). Hand-wrought nails were made by specific craftspeople called "nailers" in the

Table 12. Nail size and count distribution

	Hand Wrought Rose Head	Hand Wrought T-Head	Machine cut	Wire
Brad/ 1.5 cm	0 / 0 / 0 /1*			0 / 0 / 0 / 2
2d/ 2 cm	0 / 0 / 0 / 2		0 / 0 / 0 / 5	1 / 0 / 0 / 9
2d / 2.5 cm	0 / 0 / 0 / 5	0 / 0 / 0 / 1	0 / 0 / 0 / 60	0 / 0 / 0 / 9
3d/ 3 cm	3 / 0 / 1 / 16	0 / 0 / 0 / 9	6 / 22 / 0 / 88	0 / 3 / 0 / 304
3d/ 3.5 cm	1 / 0 / 0 / 32	0 / 0 / 0 / 1	52 / 7 / 1 / 1013	3 / 0 / 0 / 115
4d/ 4 cm	1 / 0 / 0 / 6	0 / 0 / 0 / 3	3 / 0 / 0 / 8	0 / 0 / 0 / 7
5d/ 4.5 cm	1 / 0 / 0 / 9	0 / 0 / 0 / 6	1 / 0 / 0 / 6	7 / 1 / 0 / 103
6d/ 5 cm	1 / 0 / 1 / 8	0 / 0 / 0 / 8	2 / 0 / 0 / 20	0 / 0 / 0 / 53
7d/ 5.5 cm	0 / 0 / 0 / 7	0 / 0 / 0 / 4	0 / 0 / 0 / 6	0 / 0 / 0 / 5
7d/ 6 cm	2 / 2 / 0 / 9	0 / 0 / 0 / 9	1 / 1 / 0 / 13	9 / 0 / 0 / 7
8d/ 6.5 cm	1 / 0 / 1 / 15	0 / 0 / 0 / 11	1 / 0 / 0 / 54	2 / 1 / 0 / 31
9d/ 7 cm	7 / 1 / 0 / 15	0 / 0 / 0 / 4	1 / 0 / 0 / 29	0 / 1 / 0 / 25
10d/ 7.5 cm	0 / 0 / 0 / 4	0 / 0 / 0 / 2	2 / 1 / 0 / 12	0 / 0 / 0 / 2
12d/ 8 cm	0 / 0 / 0 / 1	0 / 0 / 0 / 2	2 / 1 / 0 /7	1 / 0 / 0 / 6
12d/ 8.5 cm			0 / 0 / 0 / 1	
16d/ 9 cm	0 / 0 / 0 / 1		1 / 0 / 0 / 0	0 / 0 / 0 / 2
20d/ 9.5 cm			0 / 0 / 0 / 1	
20d/ 10 cm	0 / 0 / 0 / 1		0 / 1 / 0 / 0	
30d/ 11 cm	0 / 1 / 0 / 0		0 / 0 / 0 / 1	
30d/ 11.5 cm			0 / 0 / 0 / 1	
Totals	17 / 4 / 3 / 130	0 / 0 / 0 / 60	72 / 33 / 1 / 1325	23 / 6 / 0 / 680

*South Yard / Sill / North Yard / Terrace

Table 13. Nail fragment distribution

Location	Hand Wrought	Machine Cut	Wire	Totals
Whole	14 / 4 / 3 / 192*	73 / 38 / 1 / 1325	23 / 6 / 0 / 681	110 / 48 / 4 / 2198
Fragments With Heads	124 / 2 / 71 / 255	250 / 76 / 3 / 2224	0 / 0 / 0 / 23	374 / 78 / 74 / 2502
Shanks	64 / 1 / 6 / 32	147/ 48 / 15 / 706	0 / 0 / 0 / 21	211 / 49 / 21 / 759
Totals	202 / 7 / 80 / 479	470 / 162 / 19 / 4255	23 / 6 / 0 / 725	695 / 175 / 99 / 5449

seventeenth and eighteenth centuries. Nailers took long thin rods of iron and hand formed each individual nail. The resulting nail is distinctive from later machine-made nails in that the shank of the former is square in cross-section and tapers to a sharp point. The heads of hand-wrought nails are large and broad, often with four distinct blows of the headers hammer visible, giving them a distinctive "rose head" appearance. T-headed hand wrought nails are believed to have been used in the later part of the eighteenth century and are probably associated with the Georginization of the earlier salt box house during the Joshua Wing period before 1800. Similar nails can be found in the attic of the Fort House being used to hold hinges onto a Georgian door.

A total 4906 machine-cut nails and spikes and 754 wire nails were recovered from unit excavation (Table 12). The shanks of machine-cut nails are rectangular in cross-section, which is a result of the cutting of nail blanks from a flat sheet of iron versus hand hammering each nail. Machine cut nails initially were individually headed but later, by the 1820s, had roughly rectangular machine-stamped heads. While hand-wrought nails and spikes were produced since ancient times, by the late eighteenth century they were replaced by partially machine cut nails between 1790 and 1825, with the machine cutting the nail shanks and a human finisher applying the heads by hand. By 1825 machines had been developed to crudely make the heads and by 1840 the heads and shanks were completely machine-made. Machine-cut nails continue to be produced until the present time. Eventually, by 1890s, round-shanked wire nails, which were first produced in the 1850s, began to dominate the nail market, replacing the machine-cut nails and continuing in use to this day (Table 12).

Both whole nails, nail shank fragments and nail shanks with heads attached were recovered (Table 13). A minimum number count of nails based on a count of the whole nails and the nail shanks with heads attached gives a figure of 4700 nails being present in the collection. The majority of these are machine-cut nails (n=3549) and wire nails (n=704). This distribution shows that an appreciable amount of work was being done on the house in the nineteenth into the twentieth century, possibly being related to the construction of the ell that was identified during the 2010 field season.

Nails are designated by their "penny" size, which refers to how much it costs to purchase 100 of each nail size. A two penny nail would cost two pennies to purchase 100 while a 10 penny nail, due to its larger size, would cost 10 pennies to purchase 100. The abbreviation "d" is used for penny, thus a "10 penny" nail is abbreviated "10d". The "d" used in the abbreviation comes from the Roman word for a coin, denarius, thus the "d". Fourteen sizes of hand-wrought nails were identified at the site. These range in size from small brads 30d nails. The majority of the nails were of the 3d (1 1/4" long) size (Table 14).

Table 14. Nail size distribution by type

Nail Type	Size range	Hand Wrought	Machine cut	Wire
Brad	1.4 cm/ .5"	5	5	12
2d	2.3-2.9 cm/ 1-1.1"	6	60	9
3d	3-3.5 cm/ 1.2-1.4"	63	1189	425
4d	3.7-4 cm/ 1.5-1.6"	10	11	7

5d	4.2-4.3 cm/ 1.7”	16	7	111
6d	5-5.3 cm/ 2”	29	28	58
7d	5.7 cm/ 2.2”	22	15	16
8d	6.6 cm/ 2.6”	28	55	34
9d	7 cm/ 2.75”	27	30	26
10d	7.6 cm/ 3”	6	15	2
12d	8.2 cm/ 3.25”	3	11	7
16d	8.9 cm/ 3.5”	1	2	2
20d	10.2 cm/ 4”	1	1	0
30d	11.4 cm/ 4.5”	1	2	0

Nail sizes correspond to their uses, with smaller nails used for fastening thinner wood and larger nails used for fastening thicker wood. A modern day rule of thumb is that in fastening sheathing, shingles, clapboard, etc., the nail should be at least three times longer than the thickness of the sheet or board being fastened. This means that the 2d to 6d nails, th majority of those recovered, were being used for fastening wood that was .3 to .6” thick, which would be appropriate for clapboards or shingles. The larger nails would have been used for larger pieces of wood. It is generally recommended that 8d nails should be used to nail 1” stock, sheathing, rough flooring and window and door trim. The use of 10d nails is limited to toenailing frames, and framing in general. Other sizes used in framing are 16d, 20d and 60d. Small nails like 3d to 8d are used for nailing clapboards and wood shingles with the smallest size used on lathe as well. Larger stock, such as 2-3” thick pieces, are nailed with 16-60d nails. The paucity of hand wrought nails of 10-30d size may be related to the use of treenails/ trunnels and the vertical plank construction used for the the earliest phases of the house.

Other Metal Fasteners

Along with the nails and nail fragments, several other types of fasteners were recovered. A total of 14 flat (n=10) and round headed (n=1) wood screws and screw shank fragments were recovered, predominantly from the terrace. These screws all appear to be machine-made with machine-cut heads, dating them to after 1856. Before 1846, screws were hand made by blacksmiths. They bore blunt ends and V-shaped slots on their heads that were often cut off center. T.J. Sloan invented a machine to machine-make screws in 1846 but until 1856 the slots continued to be hand cut. After 1856 they slots, which were now squared at their bases, were machine-cut.

Several carriage bolts (N=3), a bolt with a nut attached, a washer, and several U-nails or staples (n=6) were also recovered. All are believed to date after 1850 at the earliest. Fragments of three hinges (one strap hinge, one cast iron rectangular hinge, and one other hinge) were recovered **(Figure 30)**. The cast

Figure 30. Iron hinges recovered from the terrace

iron hinge dates to after 1871 when hinges of this type were first made. Two pintle fragments, the pintle being the stationary vertical pin on which the strap hinge that is attached to the door or gate is hung, were recovered from the terrace. These pintles may have originally been on the back door of the salt-box or single-cell house. They are heavily corroded and impossible to date. 24 pieces of tin flashing from the roof and 11 pieces of lead flashing, probably from around the chimney, were also recovered from the terrace. Finally several fragments of white and dark green paint were recovered from the terrace and south yard. These probably date to the twentieth century.

Flat Glass and Window Leads

A wide variety of colors of flat glass were recovered, ranging from clear to dark olive. It is believed that the darker glass (the aqua, dark aqua, light olive, and olive) was used with the older Fort House (17th-late eighteenth century) while the lighter glass (the light aqua and clear) date to after 1800. The range of glass colors is likely related to windows being replaced during the life of the house and to the lack of consistency in color for hand made window glass due to variations in impurities and manufacturing. All of the quarrels, the small diamond-shaped panes used to make a seventeenth to early eighteenth century window, would not have come from the same manufacturer and the salt-box may have reused some of the earlier windows. This would have led to a variety of shades of green being present even in one window.

A total of 1726 pieces of flat glass were recovered from around the Fort House (Table 15). The

Table 15. Flat glass recovery

Color	Terrace	Sill	North Yard	South Yard	Total
Dark Aqua	20	30	6	9	65
Aqua	499	37	4	52	592
Light Aqua	525	20	11	38	594
Clear	209	30	2	2	254
Very Light Aqua	194				194
Light Olive	10		2	1	13
Olive	13			1	14
Light Green				11	11
Totals	1470	117	25	114	1726

majority of these were colored dark aqua, aqua, light aqua, very light aqua, or clear. These colors are believed to date to the nineteenth to twentieth centuries. At the Samuel Fuller Site in Kingston, Massachusetts (1830-1890) the predominant flat glass colors were aqua and clear with a small amount of olive colored glass as well. Several of the fragments with shades of olive bore patination, attesting to a certain degree of age for them, making them older than the aqua glass. Associated with the darker glass are three pieces of lead originally sued to hold the diamond-shaped quarrels in place. A total of 13 pieces of lead kame was recovered, four pieces from the terrace and nine from the south yard **(Figure 31)**. The terrace pieces were recovered from N1.5 E00 from 40-50 cm and from N.6W6 from 20-30 cm. The pieces from the south yard were recovered from levels 2 (n=7) and Level 6 (n=2). These window kames are H-shaped in profile and are commonly found on houses dating to the seventeenth to early eighteenth century. They were eventually replaced with casement windows bearing rectangular panes similar to those found in houses today. The window leads were eventually removed and the lead melted as evidenced by the fragments of twisted lead kame that were recovered. Six window leads were recovered from the Ezra Perry II (Aptucxet Trading Post Museum Site) in Bourne. All of them are of the standard H shape and at least 2 have the following printed on the interior :"W.M. 1675 I.P.". This is the manufacturers printing to insure quality control. These turned leads in generally date from the seventeenth into the first half of the eighteenth century (Hume 1969:233). The leads from the Fort House were opened but did not contain any printing. The leaded windows that these leads were used in were most probably the first house and the subsequent salt box. When the house was Georgianized the old casement windows were removed and the newer style sash

Figure 31. Window leads. Top: leads recovered from the south yard; Bottom: Leads recovered from the terrace

pieces had nails through them indicating their use for construction purposes. Two larger pieces of wood were also encountered during fieldwork, one over the well and one to the north and east of it. these were not collected as they appeared to represent larger timbers. Most of the wood fragments were probably deposited when the ell was demolished in the late eighteenth to early nineteenth century.

Glass

Glass artifacts that were expected to be encountered included flat glass from windows, mirrors, picture frames and lanterns, curved glass from bottles and hurricane lamp chimneys, pressed glass from candlesticks, oil lamps, tablewares, and decorative items and buttons. Glass fragments were analyzed in much the same way as the ceramics with vessel types and manufacturing techniques being identified and cross mending within and between contexts being attempted. An low occurrence of patent medicines, fairly ubiquitous artifacts from sites occupied from the middle nineteenth to early twentieth centuries, representing a shift from herbal remedies among rural inhabitants for those provided by medical science, may indicate the degree of reliance on home and local remedies versus the purchasing of quack cures that were mostly alcohol by the inhabitants of the site.

Color can be used as a dating tool for glass (Stelle 2001). Clear lead glass was first produced in the 1770 and continued to the present day. Lead glass was used for table wares such as pressed glass, wine and drinking glasses and lamps. Clear soda-lime glass was first used in 1860 and continues to the present. Soda-lime glass was used for bottles. Solarized glass, glass with a purple, pink or amethyst tint to it (a result of manganese being added to the glass) was first produced in 1880 and continued until 1918. Dark olive green "black" glass, which was only used for wine bottles, was produced until 1870.

Different classes of vessel glass were distributed unevenly, in most cases, around the house (Table 16).

Table 16. Distribution of vessel glass

Type	South Yard	North Yard	Terrace	Sill	Total
Drinking	3/ 11.5%	1/ 7.7%	10/ 2.7%	3/ 6.1%	17
Hand Blown	1/ 3.9%	7/ 53.8%	102/ 27.1%		110
Hurricane Chimney	8/ 30.8%	1/ 7.7%	152/ 40.3%	32/ 65.3%	193
Machine Made	4/ 15.4%	2/ 15.4%	53/ 14.1%	8/ 16.3%	67
Mold Blown	10/ 38.5%	2/ 15.4%	49/ 13%	3/ 6.1%	64
Lamp			8/ 2.1%	3/ 6.1%	11
Pressed			3/ .8%		3
Totals	26	13	377	49	465

Drinking glass fragments from two vessels were recovered from the south yard and accounted for the highest concentration of that type of glass around the house. The south yard had the lowest occurrence of hand blown glass, which was concentrated on the terrace and in the north yard. Hand blown bottles were predominantly wine bottles although other forms were present as well. Hurricane lamp chimney glass (post 1859) was found around the house but was concentrated at the sills and on the terrace with a lower but significant occurrence in the south yard. The north yard had the lowest occurrence of this vessel glass indicating a pre 1859 date of deposition in that area. Machine made bottle glass (dating

after 1907) was found in equal concentrations around the house and represent deposition in the twentieth century possibly especially after the site had been purchased by the WFA. Mold blown glass, being composed of possible mold blown wine bottle glass from the nineteenth century, was concentrated in the south yard but also occurred in all other contexts. Lamp glass from a white glass light globe was recovered from the terrace and sill area and pressed glass, dating after 1860, was recovered from the terrace.

Drinking

A total of 17 drinking glass fragments representing a minimum of five vessels were recovered from the excavations. Vessel 1 was a drinking glass with a wheel etched floral decoration on the exterior **(Figure 32)**. This vessel had a diameter of 10 cm and was similar to a vessel recovered from the Narbonne

Figure 32. Wheel etched drinking glass from the terrace

House in Salem where they were dated to 1750-1800, placing these in the Joshuah Wing period. Noel Hume says that wheel etched vessels were popular in the eighteenth century with most dating between 1780 and 1820 (Hume 1969: 194). Fragments of the wheel etched cup were found in three of the four locations (the sill being the only one where it was not found). One wine glass stem and foot was recovered from the terrace and from the south yard. This wine glass had a folded rim around the base and the stem shape itself dates it to the first half of the eighteenth century **(Figure 33)**. One drinking glass with a faceted body was recovered from the terrace and sill area. This glass had a 10 cm diameter body and a 5 cm wide 8-sided base. It probably dates to the late eighteenth to nineteenth century. A plain clear drinking glass with a 10 cm diameter body and a six centimeter base was recovered from the terrace. It probably dates from the nineteenth to twentieth century. A thick based possible goblet, aqua in color with a blue glass applied stem above it, was also recovered from the terrace **(Figure 34)**. This

Figure 33. Wine glass stem and foot recovered during Deetz's excavations in the south yard

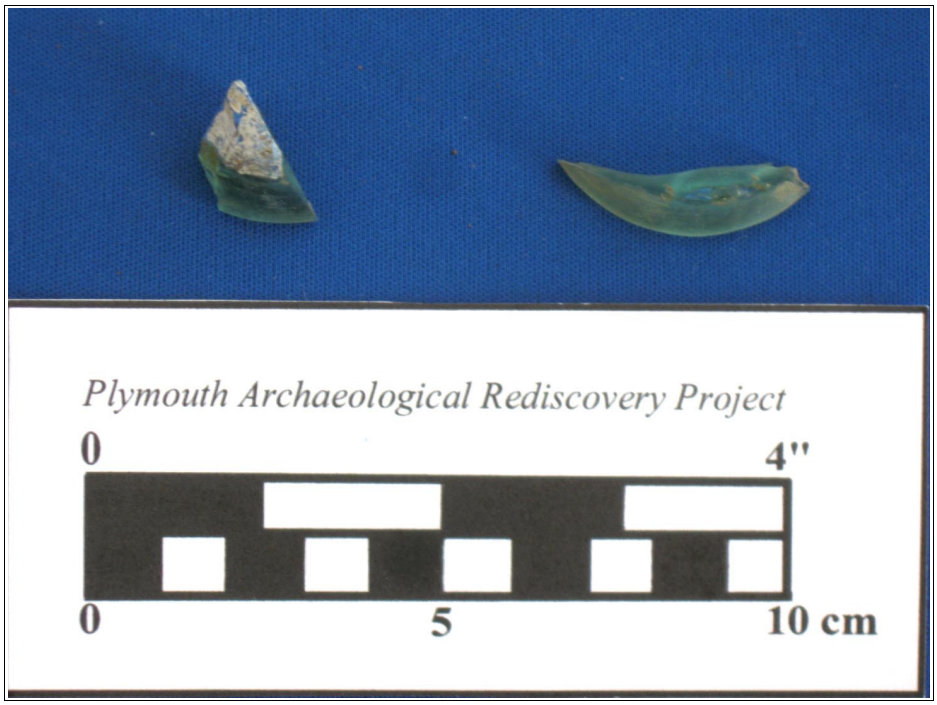


Figure 34. Thick green drinking glass/ goblet recovered from the terrace
vessel probably dates from the eighteenth century.

Hand Blown

A total of 110 hand blown bottle fragments representing a minimum of 12 vessels were recovered (Table 17). Wine bottles and possible wine bottles compose most of the bottled identified. The body

Table 17. Hand-blown bottle glass

Number	Color	Diameter	Location	Type
1	Aqua	Unknown	North yard	Wine
2	Dark Aqua	Unknown	North Yard, Terrace	Pharmaceutical
3	Dark Green	10 cm	East Half Terrace	Wine?
4	Dark Olive	12-14 cm	Terrace	Wine
5	Dark Olive	14-22 cm	East Half to Central Terrace	Wine
6	Green	14 cm	Terrace	Wine
7	Light Green	Unknown	South Yard	Case
8	Light Olive	14 cm	South yard, Terrace	Wine?
9	Milky Clear	4 cm	Central to West Half Terrace	Pharmaceutical
10	Olive	8-10 cm	East Half Terrace	Case
11	Olive	10-12 cm	Central to West Half Terrace	Case
12	Patinated	18 cm	Terrace	Wine?

Diameters indicate that these bottles probably date to the eighteenth century. Case bottles, square bodied bottled that were often shipped and stored in wooden cases with dividers creating separate compartments for each bottle, are often associated with the shipment of refined spirits such as gin (hence their other name "Dutch Gin Bottles"). These date from before 1640 (when globular wine bottles were first produced) to the early nineteenth century, but the ones from the Fort House probably date from the seventeenth to eighteenth century. The pharmaceutical bottles are small round bodied bottles used to store any type of liquid medicine or infusion. These date from the seventeenth to nineteenth centuries. The one from the Fort House probably date from the eighteenth century.

Molded

Fifty-one (51) fragments of mold blown bottles were recovered, predominantly from the terrace (n=36/ 70.6%), and from the south yard (n=9/ 16.1%%) and the remainder from the north yard and sill. Mold blown bottles are essentially bottles that are made by putting a gather of molten glass into a mold, blowing it up and snapping off the blowpipe at the base, and hand finishing the neck and rim. Bottles were made this way before the use of automatic bottle machines in 1903. Bottles bearing rough pontil scars on the base generally date before the Civil War while those with smooth bases date after the Civil War.

A minimum total of 12 mold blown bottles were identified (Table 18). The bottles were found to date

Table 18. Mold Blown glass vessels

Number	Color	Diameter	Type	Date
1	Aqua		Oval Shaped Balsam	1850-1900

2	Aqua		Square Bottle Medicinal	1850-1900
3	Aqua		Embossed Medicinal	1840-1870
4	Clear		Thin	
5	Aqua	6 cm	14-sided Tonic	Late 1840s to 1860s
6	Dark Aqua	5 cm	Pharmaceutical	1840 to 1890
7	Dark Green	12 cm	Embossed on base	1840 to 1870
8	Dark Olive	6 cm	Diamond decorated Inkwell	1820s to 1830s
9	Dark Olive	8 cm	Embossed "Townsend"	1840-1870
10	Light Aqua	5 cm	Panelled Pharmaceutical	1840 to 1890
11	Light Green	8 cm		
12	Clear		Molded ribs	

to the middle to late nineteenth century and represent the typical medicinal bottles of that period. One inkwell was also identified, Bottle 8. Bottle 9 is embossed "...NSEND" on the exterior. This is a Townsend Sarsaparilla bottle. Samuel Townsend of Albany, New York, began selling his Sarsaparilla in 1839 and it continued to be produced in bottles of this form until 1870. Sarsaparilla is made from extracts of the roots of plants from the genus Smilax which was mixed with alcohol and sold as a medicine. It was believed to help treat blood related illnesses.

Machine-made

A total of 28 fragments of machine-made glass were recovered, predominantly from the terrace (n=15) with the remainder coming from around the house. All of the machine-made vessels date after 1903 and the forms consisted of bottles, a vial, a canning jar and a vase (Table 19). The vessels represent

Table 19. Machine made bottle glass

Number	Color	Diameter	Type
1	Aqua		Bottle
2	Clear		Squared
3	Clear		Small Vial
4	Clear	8 cm	Canning Jar embossed "...UBULAR"
5	Clear	1.5 cm	Small Vial
6	Clear	8 cm	Canning Jar
7	Clear	13 cm high	Panelled Bottle
8	Clear		Thin, embossed IH
9	Light Aqua		Panelled
10	Solarized	10 cm	Bottle

11	Blue and white	6 cm	Vase
12	Clear		Bottle

Kitchen wares (the canning jars), patent medicines (the panelled bottles), medicines (the vials), and possible mineral water or soda bottles **(Figure 35)**. Color can be used as a dating tool for glass (Stelle 2001). Clear lead glass was first produced in the 1770 and continued to the present day. Lead glass was used for table wares such as pressed glass, wine and drinking glasses and lamps. Clear soda-lime glass was first used in 1860 and continues to the present. Soda-lime glass was used for bottles. Solarized glass, glass with a purple, pink or amethyst tint to it (a result of manganese being added to the glass) was first produced in 1880 and continued until 1918.

Pressed

Pressed (a.k.a molded) glass was a style of glassware that developed in the early 19th century when glass making changed from being a craft to being a factory-based process, thus making fancy-looking glass vessels available to a mass-market. By the mid-nineteenth century, this glassware was the most inexpensive type of ware produced such as cup plates like those produced by the Sandwich Glass Company. Two pressed glass vessels were recovered from the terrace. One is a wide lobed saucer while the other is cup plate with serration around the edge. These vessels date from c. 1840 to the late nineteenth century **(Figure 36)**.

Lighting Equipment

Household lighting evolved slowly since the colonizing of New England in 1620. Early settlers used rush and oil lamps as well as candles. Before the late eighteenth to early nineteenth century, these remained the most common lighting devices. With the start of the whaling boom in the late eighteenth century, whale oil lamps became popular in people's homes. Whale oil lamps disappeared with the discovery of oil and the invention of the Drake well in 1859 and the subsequent production of kerosene oil lamp burners after 1860. In association with these kerosene lamps, were thin, clear glass chimneys used on top of the lamps. Eventually, electricity and the light bulb replaced kerosene lamps in the late nineteenth and early twentieth century.

A total of 194 fragments from an unknown number of hurricane lamp chimneys were found around the house with the highest concentration being on the terrace **(Figure 35)**. Eight fragments were found in the south yard in level 1, one fragment was found in the north yard from 10-20 cm, and the remainder was found on the terrace and in the area of the sills. Most of the fragments from the terrace (n=127) were found between 0 and 20 cm below the surface.

Figure 35. Machine made bottle glass from the terrace

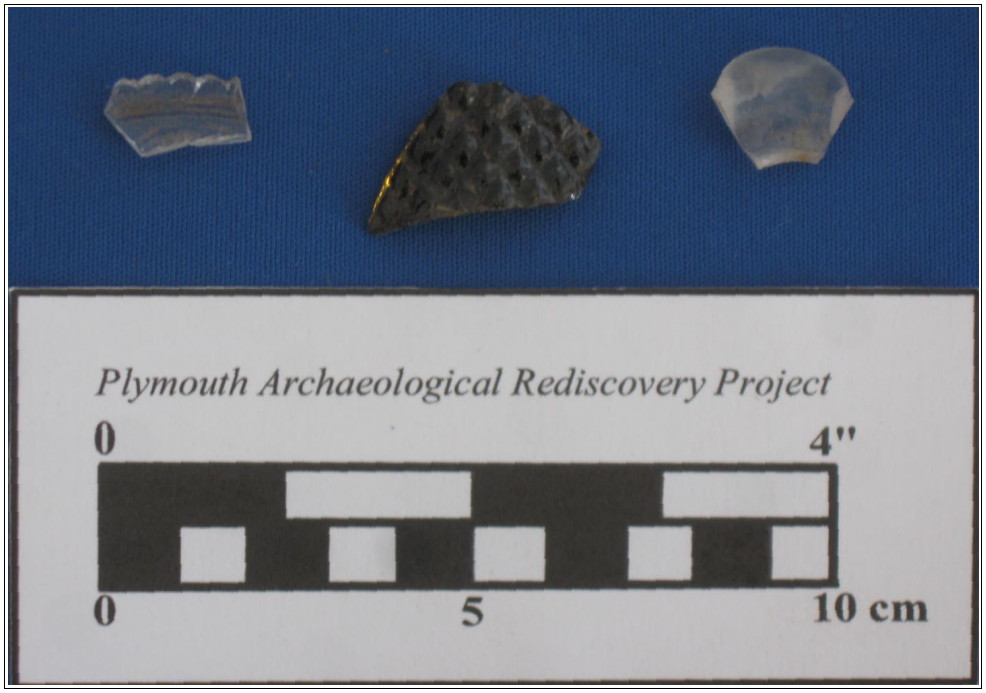


Figure 36. Molded glass from the terrace

Eleven fragments from what appears to be a twentieth century white glass ceiling lighting fixture globe were found on the western half of the terrace. These fragments were found between 0 and 30 cm below the surface.

Fuel Byproducts

Two types of fuel byproducts were recovered: coal and charcoal. A total of 2516 fragments of burned coal were recovered from the terrace (n=2421), south yard (n=20) and the north yard (n=75) totaling over 2421 grams (8.8 lbs). The coal from the north yard was recovered from 0-30 cm and that from the south yard came from Level 1. The coal from the terrace came mainly from 0-30 cm (n=2202) with scattered pieces being recovered deeper. One concentration of coal was encountered on the terrace at N3.5 W6 where it appears to represent an ash tip from a stove located in the summer kitchen to the west.

A total of 280 fragments of charcoal were recovered. The majority of the charcoal (n=240) was recovered from the terrace where it was fairly evenly split between the extreme eastern edge of the terrace (E1 to W1) and the central and western portion. The charcoal was concentrated closer to the house, generally within one meter of it. Most was found below 30 cm (n=147/ 61.3%) and probably dates to the eighteenth century. Charcoal was concentrated in level 3 in the south yard where it may have been associated with an earlier ash dump in that area. The charcoal from the north yard was concentrated from 30-40 cm below the surface, again associated with the eighteenth century.

Sewing Items

Three thimbles were recovered from the terrace **(Figure 37)**. Two of these are iron tailor thimbles,

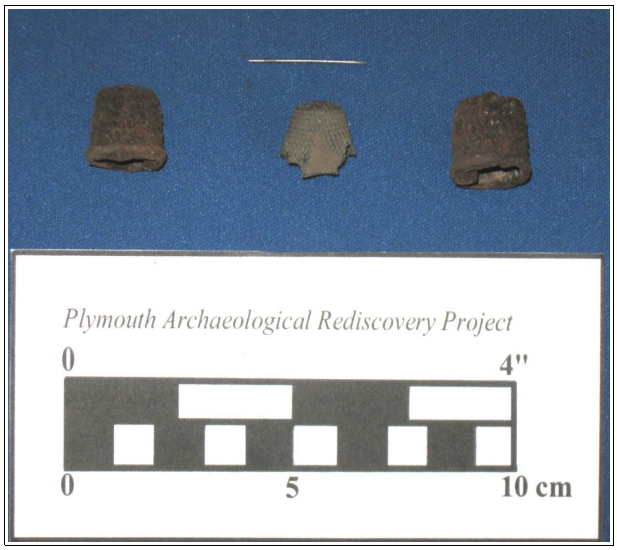


Figure 37 Sewing equipment from the terrace

that fit further down the finger and do not have a top to them. These were used with the side of your finger to push a needle through coarser cloth and leather. These thimbles were recovered from units N1.5 E00 and N3 E00 at 0-20 and 15-20 cm below the surface. They measure 1.3 and 17 cm in diameter and date from the nineteenth century. The third thimble was made of brass and was of a topped variety and was found in N3 W7 from the 0-20 cm level. It is 1.2 cm in diameter and dates to the nineteenth century. Also found was a silver needle shank. It was found in unit N1.5 W6 at 45-50 cm below surface and may date to the eighteenth century.

Buttons

A total of 24 buttons were recovered from around the house with three from the north yard and five from the sill **(Figure 38)**. The remaining 16 were recovered from the terrace. Four classes of buttons were recovered: silver, brass, glass, and iron (Table 20).

Table 20. Recovered buttons

Type	Location	Description	Diameter	Date	Type
Silver	South Yard	Faceted button cap	1.5 cm	1726-1776	Man's Vest
Silver	South Yard	Cast button with starburst and flower on face	1.7 cm	1726-1776	Man's Coat
Brass	Terrace West	Hemispherical button cap with weave pattern	2.4 cm	1837-1865	Man's Coat
Brass	Terrace Central	Stamped with 6 pointed star, “GRANGE/ LONDON stamped on back	1.2 cm	1800-1830	Woman's Dress
Brass	Terrace West	Flat round button	1 cm	1837-1865	Woman's Dress
Brass	Terrace West	Pressed button with 4 holes		1837-1865	Man's Pants
Brass	Terrace Central	Stamped flower marked	1.2 cm	1800-1830	Woman's dress

		“GRANGE/LONDON” on rear			
Brass	Sill	Tin-washed disc	1.3 cm	1837-1865	Woman's Dress
Glass	Terrace West	White	1.7 cm	1850-1900	Underwear
Glass	Terrace West	White	1 cm	1850-1900	Underwear
Glass	Terrace West	White	1 cm	1850-1900	Underwear
Glass	Terrace West	2 White with hatched rim	1 cm	1850-1900	Underwear
Glass	Terrace West	White	.8 cm	1850-1900	Underwear
Glass	Terrace West	Black round face copper loop	1.5 cm	1850-1900	Man's Shirt
Glass	Terrace Central	Brown and white round with iron loop	1.5 cm	1850-1900	Man's Shirt
Glass	Sill	Black square raised design brass loop	1.5 cm	1900+	Woman's Coat
Glass	Sill	White	1 cm	1850-1900	Underwear
Glass	Sill	White	.9 cm	1850-1900	Underwear
Iron	Terrace Central	4 hole flat	1.5 cm	1850-1900	Man's Shirt
Iron	Terrace West	Two piece domed	1.9 cm	1830-1900	Man's Coat
Iron	Terrace West	Stamped	1.7 cm	1830-1900	Man's Pants

The silver buttons date to the Joshuah Wing period and represent elements from a man's , possibly Joshuah's, attire. The use of silver versus a “silver-looking” pewter indicates a higher status of the household than some of his neighbors. During the nineteenth century buttons became more democratic and had a wider variety of uses. Underwear commonly had numerous buttons (think Union suit) and these are commonly found on archaeological sites. There were also many buttons from women's dresses, men's shirts and a few from coats of both sexes.

Clothing Hooks and Eyes

Four brass clothing eyes and one brass clothing hook were recovered from the terrace. They were probably used on women's dresses **(Figure 39)**. These date to the nineteenth century. Eyes were found in the eastern and western sections of the terrace while the hook came from the central portion. Clothing snaps, probably dating to the late nineteenth to twentieth century, were recovered from the south yard and from the eastern portion of the terrace. The one from the south yard is brass while the other is iron.

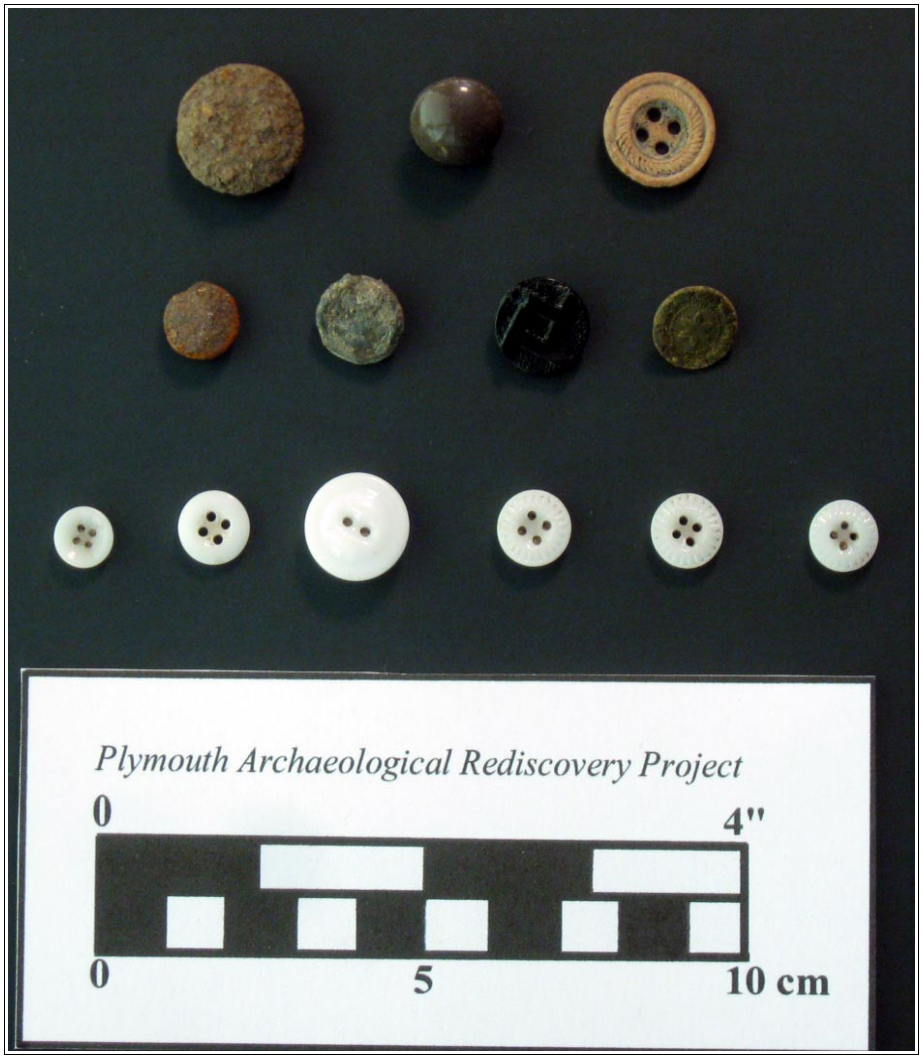


Figure 38. Buttons recovered from the terrace

Figure 39. Clothing hook and eyes recovered from the terrace

Cufflinks

Fragments of two different types of cufflinks were recovered from the terrace. One silver cufflink that was 1.4 cm diameter, bearing an incised flower on the face. The shape of the cufflink is octagonal and these have been found to date to the first half of the eighteenth century (Noel Hume 1969: 89). The second cufflink is represented by a single glass cameo bearing the profile of a man on it's face. This cameo was 1 cm wide. This cufflink probably dates to the nineteenth century.

Shoes

Seventeen fragments of at least one but probably more than one leather shoe were recovered on the terrace **(Figure 40)**. Ten fragments of the heel and eyelettes were recovered from the eastern portion of the terrace, five fragments of a stitched heel were recovered from the western portion, and one eyelette was recovered from both the western and central portions. These shoe fragments date to the nineteenth century.

Figure 40. Shoe fragments recovered from the terrace

Suspender Hangers

Two suspender hangers were recovered from the central and eastern portions of the terrace **(Figure 41)**.

They measure between 3.3 and 3.5 cm wide. One was made of brass and had a patent date of 1900 on the reverse and one was iron.

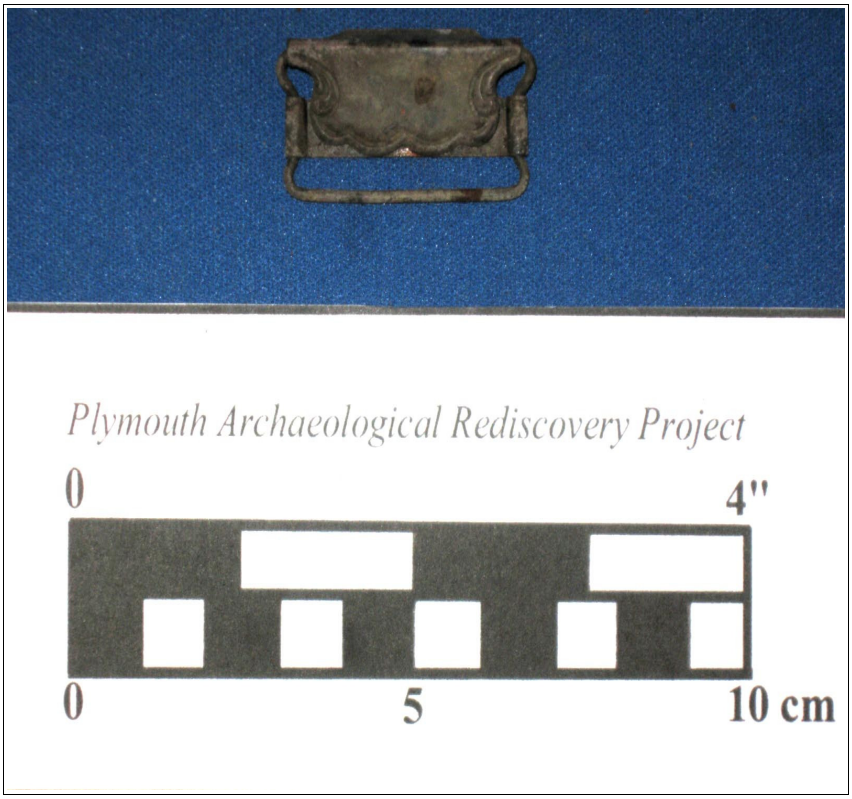


Figure 41. Suspender part recovered from the terrace

Buckles

Buckles were used on hats, shoes, knees, belts, and harnesses in the eighteenth century (they were not used on hats until the later seventeenth century). After about 1815, the use of shoe, knee and hat buckles went out of fashion and were then used for belts and harnesses. A total of eleven buckle and buckle fragments were recovered (Table 21). During the eighteenth century the material that your shoe

Table 21. Recovered buckles

Material	Location	Type	Size
Brass	Terrace West	Shoe- Plain Oval	5.6 x 4.8 cm
Iron	Terrace East	Shoe- Toothed fork	5 cm wide
Silver	Terrace East	Shoe- Cast	6 cm wide
Iron	Terrace East	Knee- Plain	2.7 x 2.1 cm
Iron	Terrace Central	Belt- Small	2 x 2.6 cm
Iron	Terrace Central	Harness Medium	3.5 x 5 cm
Iron	Terrace East	Harness Medium	4.8 x 3.4 cm

Iron	Terrace East	Knee-Plain	2.7 cm
Iron	South yard	Belt- Small?	Fragment
Iron	North Yard	Belt- Small	3 x 3.1 cm
Iron	Terrace West	Harness Large	7.5 x 6 cm

Buckles were made of reflected your social class. Cast silver were used by the gentry, brass and copper by those below them, pewter on the those below them, and iron on the simple laborer's feet (Noel Hume 1969: 86). The recovery of brass and especially the silver buckles from the terrace, both of which date to the eighteenth century, indicate that Joshuah Wing was a man of means who showed off his wealth by his shoe buckles. It is presumed that following his death, the silver buckle was cut up and used for specie due to its silver content. The iron shoe buckle is not a complete buckle but is merely the inner toothed fork of a buckle of unknown material. Other buckle types that were found include harness buckles, smaller belt buckles and possible knee buckles **(Figure 42)**. The harness buckles may date to the eighteenth or nineteenth century.

Jewelry

A total of eight jewelry related items were recovered from the terrace and south yard. Two glass beads, one round and blue and one black and faceted, were found on the terrace **(Figure 43)**. The blue bead, which was 1.1 cm long, was found in the western section of the terrace. The black bead, which was 1.7 cm long, was found in the central portion. Both probably date to the nineteenth century. One possible ringstone made from black glass with flecks of gold coloring in it was also recovered from the western terrace. This "stone" was 1 cm in diameter and had a ridge around the bottom of it allowing it to be seated into a ring from the rear. An almost complete piece of costume jewelry, a gold colored pin with glass "jewels", was found in the western portion of the terrace **(Figure 44).** Also in the western part of the terrace were pieces that may have come from two jewelry boxes. Two small lengths of chain, one with small links and one with elongated links, may have originally held the top two jewelry boxes up. One other section of brass chain was also found in the south yard. A brass clasp with incised flowers was also recovered from the western portion of the terrace and may have been on a jewelry box as well. The co-occurrence of all these jewelry related and potential jewelry related items in the western section of the terrace make sit more probable that they date to the nineteenth century and were from one household.

Figure 42. Buckles recovered from the terrace. Top Row: Knee Buckles, Middle Row: Shoe buckles; Bottom Row: Harness Buckles

Figure 43. Glass beads recovered from the terrace

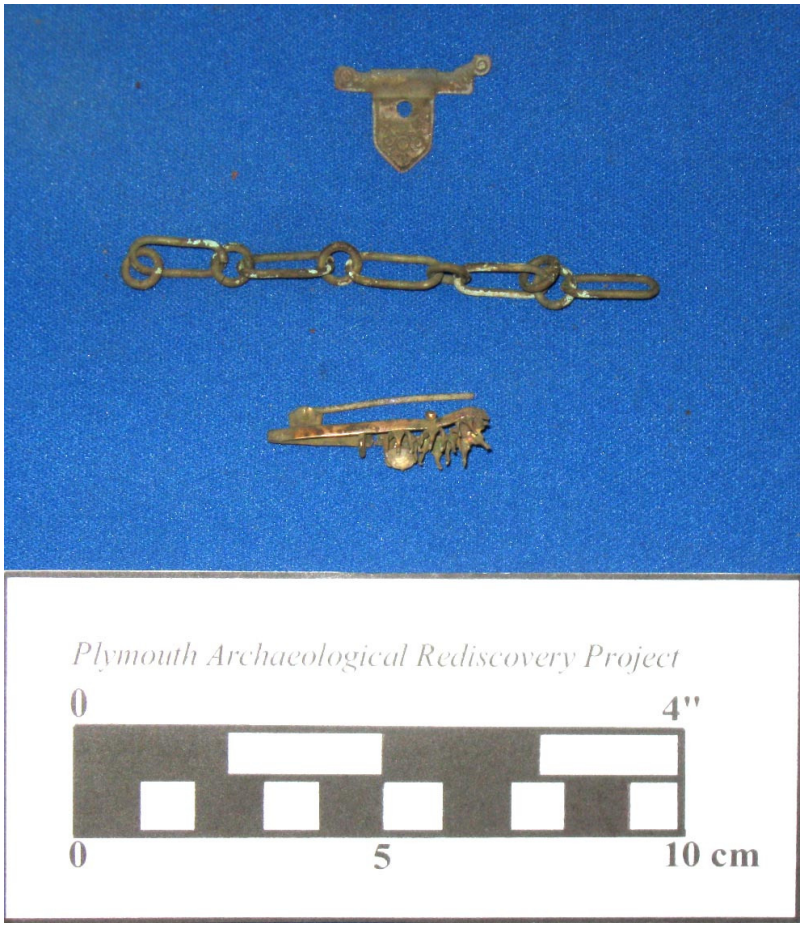


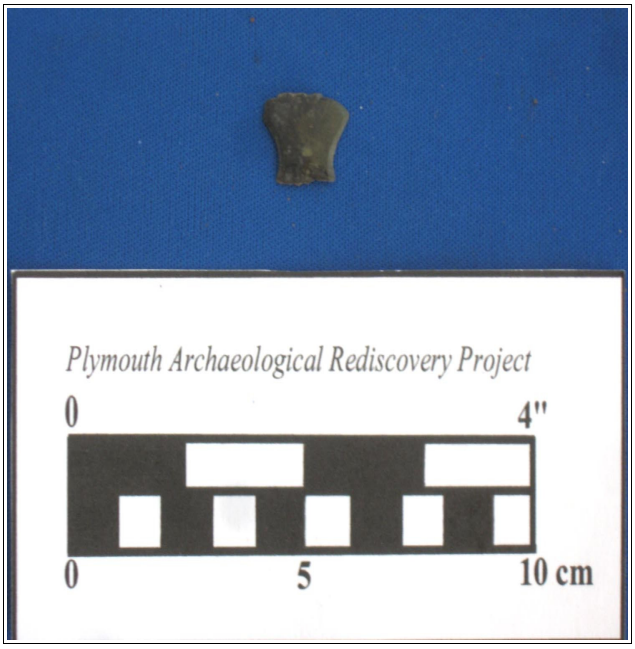
Figure 44. Possible jewelry box hardware and jewelry from the terrace

One other artifacts that is more decorative than jewelry related is a thin strip of brass bearing a stamped floral decoration. This piece was found in the central portion of the terrace and may have decorated a

jewelry box **(Figure 44)**.

Evidence of Literacy

One thick brass fragment of what is probably a book clasp was recovered from the eastern half of the terrace at the 40-50 cm level **(Figure 45)**. Book clasps were used to keep books closed and were



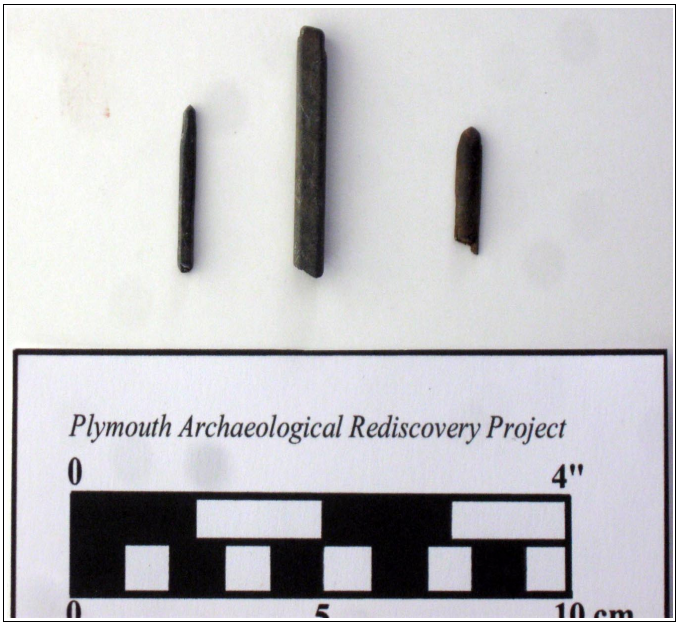


Figure 45. Book clasp and slate pencils recovered from the terrace

especially used on bible and devotional books during the fifteenth to early eighteenth century. The fragment of the possible clasp is 1.7 cm wide and is bevelled on the edges.

Four fragments of slate pencils were recovered from the western terrace (n=2), sill, and eastern terrace sections **(Figure 45)**. These pencils averaged .5 cm thick and were found in the upper, nineteenth century, layers. Slate pencils were used to write on slate tablets, often by children practicing letters. The slate pencil was replaced by wooden pencils with lead (and later graphite) cores after the Civil War.

Home Furnishings

Nine brass tacks that had 1 cm diameter heads and were 1.5 cm long, were recovered from the east and central portions of the terrace, the south yard and the north yard. These tacks were probably used either on a chair or more probably on a truck or chest dating to the nineteenth century. These tacks held fabric or leather onto the chest or trunk. Also found in association with the tacks, in the central portion of the terrace, was an iron chest lock of the type used on wooden chests or trunks and may have been used on the same chest as the tacks ((**Figure 46**).

Figure 46. Trunk lock and brass tacks from terrace

Other items that relate to household furnishings include a brass knob from a cabinet was recovered from the central portion of the terrace. This knob would have been used on a drawer or cabinet door and a cast brass clock key bearing a four leaf clover **(Figure 47)**. The clock key was found in the western portion of the terrace from the 0-10 cm level. It probably dates to the nineteenth century. A silver watch winding pin was recovered from the same location as the clock key (**Figure 47).**. It probably dates to the nineteenth or twentieth century.

From the kitchen, numerous metal items related to preparing consumption of meals were recovered. Two links from two different hearth chains were recovered, one from the south yard (an elongated

Figure 47. Home furnishing artifacts from the terrace. Top: Brass pull; Bottom: Left brass clock key, right silver watch winding pin.

oval link) (**Figure 48**) and one from the western portion of the terrace. The link from the south yard is

Figure 48. Hearth chain link recovered during Deetz's excavations in the south yard.

the same as the chain that is currently in the hall chimney. Six kettle fragments, including one leg, were recovered from the eastern terrace, south yard and western portion of the terrace (**Figure 49**). One

Figure 49. Kettle fragments recovered from the terrace

fragment from the western portion appears to have red paint on the interior which indicates that at some point that kettle ceased to be used for food and was subsequently reused to hold paint, probably in the

nineteenth century. This vessel was at least 34 cm in diameter (12”). The one kettle fragment from the eastern terrace was recovered from the 45-50 cm level indicating that it probably dates to the eighteenth century. Several (n=12) probable hoop fragments from barrels in which foods and liquids were stored or shipped were recovered from the terrace and the south yard.

Fragments from five knives were recovered from the south yard, eastern terrace, and western terrace (n=3) **(Figure 50)**. Two of the knives, one from the south yard and one from the western portion of the terrace, were of a forged bolster variety. Forged bolster knives, where the blade is forged together with the bolster which fits into a hollow handle, were made from the seventeenth to early eightenth century. Two of the other knives are slab handled knives where the handle portion of the metal blade is sandwich between two handle pieces. The handles pieces are often made of bone. One bone handle slab was recoevred from the western terrace, which may have come from a folding pocket knife versus a table knife. The other knife bears traces of a bone slab handle. The remaining knife is a blade from a slab handle knife that was recovered from the eastern half of the terrace. It appears to have been resharpened extensively and eventually broke just below the junction of the handle and tang. It probably dates to the nineteenth to twentieth century.

One rough cast pewter spoon handle, possibly from a Puritan style spoon, was recovered from the central portion of the terrace. Puritan spoons were very plan and had handles that expanded slightly from the bowl to the terminus. They were first made in the mid-seventeeth century but continued to be made until the 1790s. Finally, one iron cup handle was found in the eastern half of the terrace.

Tools

Two fragments of brass rulers were recovered from the central portion of the terrace **(Figure 51)**. Both appear to be of the same type and both bear the numbers hand incised on them. Many fragments (n=412) of what were probably once thin iron buckets were found. Fragments of both the body as wellas the rim and handles were found and in one case the handle appears to have been purposefully straitened to be used for another purpose. Fragments were found in the south yard (n=6), north yard (n=4), sill (31), and across the terrace (n=371). The one bucket rim that was measurable measured 26 cm (10 “) in diameter. Other tool fragments from the western portion of the terrace include an ax wedge, a brass possible tool ferrule, a small pulley fragment, an iron ferrule, and an iron possible crank handle and half of the handle from a well bucket **(Figure 52)**. Several tool fragments were found in the eastern half of the terrace as well including a brass possible ferrule, a wrought wedge, an iron sickle blade fragment, a triangular iron file fragment and a Z-shaped possible crank handle. A possible pitchfork tine was found in the south yard and a possible tool bolster was found in the sill.

Miscellaneous Metal Fragments

Miscellaneous brass fragments that were found included flat fragments, half round tube like fragments, a spring, and a relatively recent pipe hanger. Other iron fragments included wire fragments, L-shaped pieces, L and J-shaped hooks, a small axle and axle cap, bottle cap, screw cap, cotter pin, spring fragments, flat fragments, a sardine can key, thick flat pieces of iron, and concreted iron lumps.

Figure 50. Knives recovered from the terrace

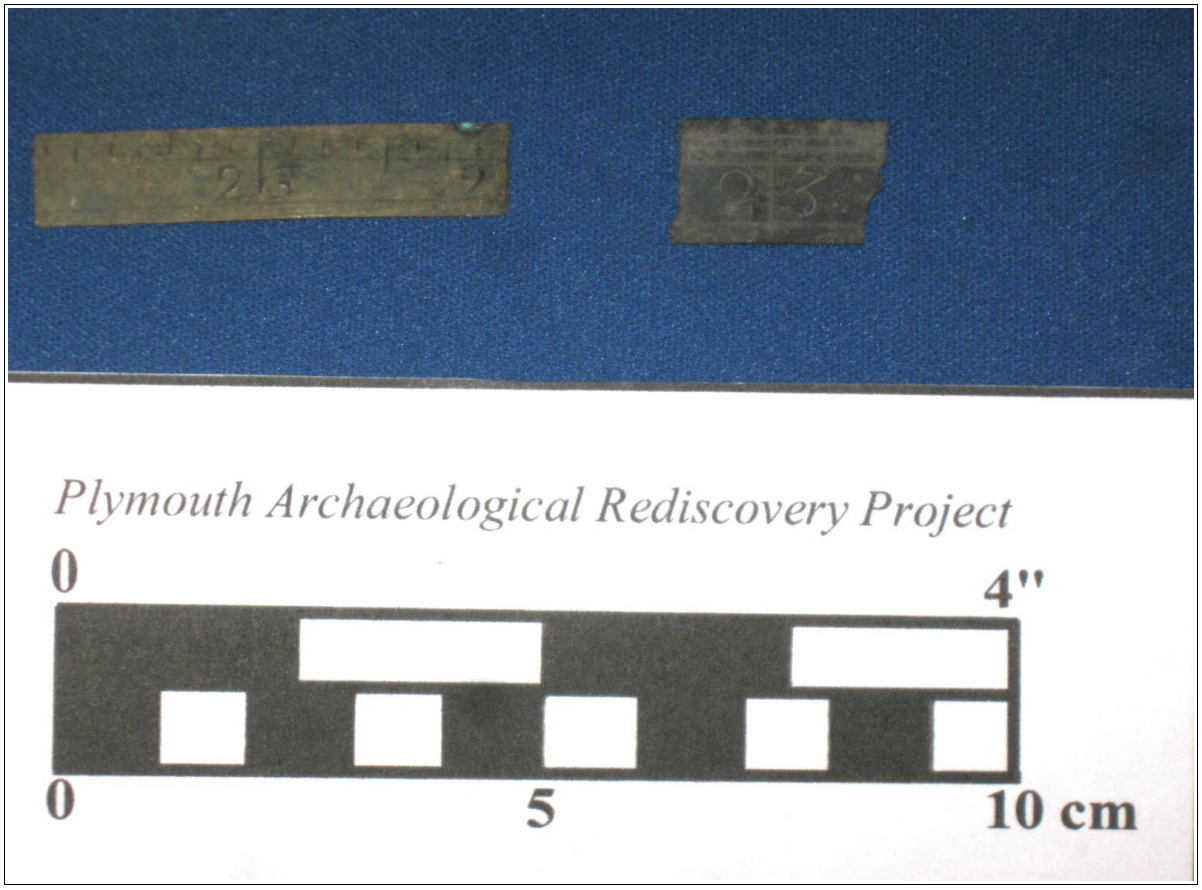


Figure 51. Ruler fragments recovered from the terrace

Procurement and Husbandry

This artifact class consists of those artifact that relate to how the people who lived at the site got their food and managed their crops and livestock. It included horse equipment, firearms equipment, faunal remains, floral remains, and shellfish remains.

Horse Equipment

Little evidence related to the use of horses was recovered from the excavations. Four horseshoe nails,short flat nails with rounded tip and blunt heads were recovered from the eastern half of the terrace at the 20-30 and 45-50 cm levels, and from the south yard in level 2. One horse bridle bit fragments was recovered from the south yard in Level 3 ((**Figure 53**). Horses were used for pulling carriages and for transporting individual riders. Oxen would have been used for the heavy manual labor required to pull wagons, stone sleds, and plows.

Firearms Equipment

A total of eight fragments of English flint and one complete gunflint were recovered from the south yard, terrace and sill areas. The complete gunflint measured 2.2 x 1.7 cm and was of a blade variety, a type typically used after the later seventeenth century. One core fragment from which flakes and blades were struck from was found in the south yard. Flint was also used to start fires, such as hearth fires, in

Figure 52. Miscellaneous iron recovered from the terrace. Well bucket handle located at extreme right.

Figure 53. Horse bit recovered from the south yard during Deetz's excavations

the seventeenth through nineteenth centuries. The flint was gray in color, meaning that it likely came from an English versus French source. Gunflints arrived in New England with the first explorers and continued in use until the later nineteenth century when flintlock firearms were replaced by cap fired pieces.

Faunal Remains

David Landon's study of the seventeenth through nineteenth century provisioning systems in Boston came to the following conclusions regarding urban versus rural butchery, body part representation and kill-off patterns. Landon found broad similarities in the taxonomic representation in all the assemblages with domestic mammals dominating the mammalian portion of the assemblage and a variety of domestic and wild birds and marine resources. It was hypothesized, and verified, that wild fauna may be better represented in the rural assemblages versus the urban ones (Landon 1996:117). Reitz, working in the southeast, found that urban assemblages had a greater range of domestic species, more domestic birds, fewer wild mammals, fewer reptiles, fewer fish and a wider variety of commensal species (Reitz 1986:54-56). Landon found that deer and opossum were present in one urban assemblage but many more were recovered from rural assemblages. Twelve different wild bird species were present in the rural assemblages versus only five in the urban ones. Landon's second hypothesis was that urban assemblages would have exotic species present due to trade connections in the city. This hypothesis was not supported as no exotic species were identified. For domestic species, Landon found that sheep were better represented in the urban assemblages than in the rural ones, a finding supported by the body part representation at the urban sites as well. He identified this as an urban versus rural dietary difference, probably the result of small farmers selling excess animals in urban

markets.

Body Part Representation

The basic premise of the study of body part representation was that there was a degree of spatial separation of different processing stages in urban areas and this orientation towards the exchange of meat cuts will be evident in the body part representation (Landon 1996:119). If, in a rural context, certain parts were removed from the butchery process early before the animals got to thee urban markets, then these elements should be present in the rural assemblage and absent from the urban assemblages. Landon found that this hypothesis was supported for sheep and cattle where metapodials and phalanges were under represented in the urban deposits. The idea that meatier elements would be over represented was also supported by the cattle and sheep remains. For theses species, more upper fore and hind limbs were present in the urban deposits. This did not hold true for swine remains. In general though, Landon found that the evidence for differential body part representation between urban and rural contexts was not very strong (Landon 1996:119).

Butchery Patterns

There are three steps to the butchery process: primary, secondary and tertiary. Primary butchery involves the killing, bleeding, evisceration and skinning of the animal. This stage does not show up well on the bones with the only evidence being skinning cuts around the ends of the metapodials. Secondary butchery involves the division of the carcass into major portions. This generally involves removing the head, splitting the carcass into two halves and dividing the halves into cuts. Tertiary butchery is the consumption phase. This may involve smashing bones to remove marrow, chopping the mandible to remove the tongue or cutting meat off of the bones. Landon's hypothesi regarding butchery patterns were that in urban areas animals will be divided into smaller more standardized portions and that there would be clear evidence for the differential use of various body parts, basically that there would be more secondary and tertiary butchery marks in urban deposits (Landon 1996: 120). No evidence was found to support Landon's first hypothesis and no evidence was found to show that urban butchery was more standardized than rural. The types of tools used to butcher was also found to be the same in urban and rural assemblages and variable due to the size of animal butchered. The only difference was found in the butchery marks related to skinning where Landon found the rural assemblages to contain more skinning marks, a possible indicator of greater desire to have a complete skin. The final conclusion relating to butchery patterns was that urban butchers did little in the way of butchery and that most of the carcass division was done on the urban houselot, with only the feet of cattle and sheep being removed by the butcher.

The pattern of butchery from the 17th to 19th century changed as more standardized meat cuts became commonplace. Essentially new ways of creating certain cuts of meat were introduced and become evident archaeologically on the swine humerus and femur and cattle scapulas.

Kill-off Patterns

Landon found that seasonal slaughter patterns were similar for both urban and rural contexts (Landon 1996: 122). It is believed that as specialized husbandry to supply meat to urban markets increased, urban assemblages will become dominated by younger individuals. Age profiles including older individuals may show evidence of different husbandry practices with age of slaughter being based on use. Essentially, animals raised for meat are slaughtered before adulthood but after they have attained maximum meat weight, for example 18-24 months for swine. Cattle and sheep remains showed that they were not being raised solely for meat at this time. It does appear that some animals were culled

from the herd and sold for urban markets. It would be expected that urban assemblages would contain more young animals and rural ones more older and young. Unfortunately, Landon failed to find any clear evidence of this difference in his study (Landon 1996:123). The cattle all appear to be very old or very young while the swine ages appear to be fairly consistent at approximately 18-24 months with a few younger and older present. Sheep appear to have slaughtered at a wide variety of ages with no real pattern. Seasonally it has been shown by Bowen in her study of the Sheffield, Connecticut husbandry system that slaughter was closely tied to the agricultural cycle. Swine and cattle, both large animals that took time to butcher and preserve, were found to have been killed in the coldest months while lambs and calves were killed in the summer and adult sheep in the late summer and fall. This finding was supported by Landon's study of micro growth patterns seen in the teeth from the various assemblages.

Landon did not find that specialized husbandry designed to supply the urban market by the rural farm was evident archaeologically. The decisions as to which individuals were culled had more to do with rural conceptions of the value and use of domestic animals as opposed to market demands. Essentially it was found that rural values shaped the urban market and not the other way around.

Shellfish

A total of 213 fragments of shell representing eight species were recovered from the terrace, sill, and north yard (Table 22). No shell fragments were recovered from the south yard. Three of the species

Table 22. Shellfish recovered

Species	Terrace	North Yard	Sill
Moon Snail	1		
Forest Snail	1		
Crepidula	1		
Crustacean	1		
Oyster	15		
Quahog	31	3	2
Soft-Shell Clam	34	1	1
Surf Clam	91		18
Unidentified	13		
Totals	188	4	21

recovered (moon snail, forest snail, and the boat shell [*Crepidula*]) were probably not consumed but either arrived at the site attached to other species or, in the case of the forest snail, were living at the site. One of the remaining species, the unidentified crustacean probably represents the consumption of a species such as rock crab or lobster and its subsequent disposal into a fire where it was calcined. The remaining species, oyster, quahog, surf clam and soft-shell clam, are all believed to have been consumed with some possibly having been mixed with the mortar to add temper.

The Northern Quahog (*Mercenaria mercenaria*) is one of the most common shellfish remains from archaeological sites. Quahogs are found within sheltered bays and estuaries with a salinity of at least 10

parts per thousand, preferring to live in a sandy firm bottom that can provide attachment points for its young (Chesapeake 1988: 86). This large bivalve has a dark purple "eye" one inner edge of each shell, and as the quahogs grows and the shell thickens, so too does the eye. Quahogs can attain a maximum length of 10.9 centimeters long (Amos 1986:402).

Oyster

The Eastern Oyster (*Crassostrea virginica*) is a species with fairly demanding requirements for growth and reproduction. Oysters need a salinity of at least 5 parts per thousand and as a result are found at estuary mouths and even several miles up rivers where there is considerable mixing with seawater (Cake 1983: 37). Along with their salinity requirement, oysters are one of only two bivalves from the site that require firm substrate, preferably one with a minimum of 50 percent clutch to anchor onto. The clutch can be in the form of rocks, shells, gravel, shell hash, or old oyster beds (Chesapeake 1988: 86). They can grow up to 20.5 centimeters long, or longer if you believe the seventeenth century reports, and occur in water intertidally to 12.2 meters deep (Amos 1986 406). Oysters are preyed upon by oyster drills and whelks (Chesepeake 1988: 86).

Soft Shell Clam/ Surf Clam

Soft-shelled clams (*Mya arenaria*) and Surf clams (*Spisula* solidissima) represent the most common bivalve recovered from the site. Both species lives in sandy, sandy-mud or sandy clay substrates of bays and inlets intertidally to depths of up to 9.1 meters, generally preferring stiff sands and mud. Soft-shell clams average from 7-150 millimeters long with most of them being under 100 millimeters and adults can number from six to eight per square foot, burrowing up to 30 centimeters into the sand. Surf clams grow up to 20 cm long and prefer coarse to fine sand substrates. Predators for both include the moon snail, the oyster drill and the blue crab.

Shellfish fragments were concentrated on the terrace and the sill area. They were unevenly distributed across the terrace with most occurring either in the eastern or western halves (Table 23). They were also

Table 23. Shellfish species distribution on the terrace by area and depth

Species	East	Central	West
Oyster 0-30 cm	7		
30+ cm	8		
Quahog 0-30 cm	4		23
+30 cm	4		
Soft Shell Clam 0-30 cm	2	1	6
+30 cm	23		2
Surf Clam 0-30 cm	7	4	11
+30 cm	43	9	17
Totals 0-30 cm	20	5	40
+30 cm	78	9	19

separated to a degree by depth (Table 23). Oysters were concentrated in the eastern half of the terrace but were evenly distributed between above 30 cm and below 30 cm. Oysters are believed to have been used as temper/ aggregate in the mortar and their occurrence correlates with the mortar distribution. Quahogs were concentrated in the west half of the terrace above 30 cm. This makes it likely that they area more associated with the nineteenth century occupation versus the earlier ones. Soft shell clams in contrast were concentrated in the east half and from below 30 cm, making it possible that they are more closely associated with the eighteenth century occupation. Surf clams were concentrated in the east and west halves with most of those in the east half being located deeper than 30 cm while slightly more of those in the west half were below 30 cm. This indicates that surf clams were probably consumed equally in both the eighteenth and nineteenth centuries. All of these species could be collected a short walk from the Fort House at Spring Hill Beach. The first mention of livestock in Plymouth Colony was in March of 1623 when Edward Winslow, one of the leading men in Plymouth Colony, desired to make chicken soup for the ailing Native sachem Massasoit. At this time Winslow sent a messenger back to Plymouth to get a bottle of drink and "also for some chickens to make him (Massasoit) broth" But when the messenger returned with the chickens. "he (Massasoit) would not have the chickens killed, but kept them for breed." (Winslow 1623: 34). In September, Emmanuel Altham was visiting the colony and he noted that "here is belonging to the town six goats, about 50 hogs and pigs and diverse hens." (James 1963: 24).

Vertebrate Faunal Remains

Cattle

The first cattle did not arrive in Plymouth until the following year when Edward Winslow returned from England with three heifers and a bull (Bradford 1984: 141). It is not known exactly when sheep first arrived in Plymouth, although it is suspected that Myles Standish brought them back from England in 1625. The first reference to sheep is in 1627 in a trade between Standish and Abraham Pierce where Standish traded Pierce two ewe lambs for Pierce's share in a cow (PCR Vol 1 1627: 15). In 1627, the Plymouth Adventure was bought from their Merchant Adventurer backers in London by several of the

chief men of the Plantation, afterwards known as the Undertakers. Following this purchase, the colony agreed to stay together for a period of five years to repay the Undertakers. To this end the entire stock of the company was divided. This included the cattle, goats and swine " At a publique court held the 22th of May it was concluded by the whole Companie, that the cattell wch were the Companies, to wit, the Cowes & the Goates should be equall devided to all the psonts of the same company & soe kept untill the expiration of ten yeares after the date above written & that every one should well and sufficiently pvid for there owne pt under penalty of forfeiting the same.

That the old stock with halfe the increase should remaine for comon use to be devided at thend of the said terme or otherwise as ocation falleth out, & the other halfe to be their owne for ever. " (PCR Vol 1: 9). There were a total of 22 goats and 17 cattle recorded.

The cattle of England were described in very Anglicentric terms by Harrison in 1587 as being the best in all the world with horns that were fairer and larger, spanning three feet tip to tip, than anywhere else. Harrison also stated that the cattle in England were larger than any other with the average ox standing as tall, presumably at the head, as the average man (Harrison 1994: 306). Almost thirty years later, in 1614, Markham echoed these sentiments in a slightly more reserved way when he described the cattle of the seventeenth century. While the concept of "breeds" of cattle was such as the Holsteins, Gurnseys, etc. that we have today was not in use in the seventeenth century, animals from certain areas were noted as being physically different and possessing of different qualities. Markham noted three main types of cattle the black, the red and the pied or spotted. Black cattle were said to be found primarily in Yorke-shire, Darby-shire, Lancashire, and Stafford-shire and it was preferred that the black cow be all black, with only the udder being allowably white (Markham 1614:43). Red cattle were found in Somerset-shire and Gloucester-shire and pied cattle were found only in Lincoln-shire. The areas above noted were identified as the places were the best cattle came from. The ideal milk cow was identified as having a " stately shape, bigge, round, and well buckled together is every member, short joynted, and most comely to the eye" (Markham 1614: 42). Googe added that cows should be "high of stature, and long bodied, having great udders, broad forehead, faire hornes, and smooth" (Googe 1614:: 121). The ideal draught cattle was to be " exceeding tall, long and large, leane, and thin thighed, strong hooved, not apt to surbaite" (Markham 1614:42). Googe elaborated on this and stated that male cattle, whether they were bulls or oxen should be:

"large, (with) well knit, and sound limbs, a long, and large, and deepe sided body, blacke horned, broad foreheaded, great eyed and blacke, his eares rough and hairy, his calves to be large and wide, his hippes blackish, his neck well brauned and thicke, his dewlappe large, hanging downe from his necke to his knees, his shoulders broad, his hide not hard or stubborne in feeling, his belly deepe, his legges well sette, full of sinewes, and straight, rather short then long, the better to sustaine the waight of his bodie, his knees straight and great, his feete one farre from the other, not broad, not runing in, but easily spreading, the hayre on all his body thicke and short, his tayle long, and big hayred." (Googe 1614: 121). Both authors noted that when breeding a heifer or cow that the bull should be of the same color as the cow, so as not to mix the qualities of the types (Markham 1614: 43)

Cows were seen as having two main uses, for dairy and for breed with red cows being known for their high milk production and black cows for their "ability to bring forth the goodliest calves" (Markham 1614: 44). All types of cows were believed to be most productive from age three to 12 years old with the advice being given that one should not breed a heifer under three, that older cows give more milk and that after 12 years old the cows were no longer good for breeding (Googe 1614: 121). Each year the farmer was advised to sort his stock so that the old cows that were bareine or unfit for breeding could be put away, sold or used for the plow in the same way that oxen were (Googe 1614: 121).

Putting the bull to the cows and heifers was recommended to be done in the fall and it was noted that on average the farmer could expect one bull to be able to service 20 cows and heifers with some towns and small communities having one bull that was used communally by all (Googe 1614: 122). After the cows and heifers have calved in the spring, it was recommended that the calves be sorted into those males that would be brought up as bulls and those to be gelded for steer or oxen and the females which would be brought up for breeding stock and milk and those that would be spayed for service or meat (Markham 1614: 44; Googe 1614: 221). It was recommended that any gelding or spaying to be done be done in the spring or fall when the flies were dormant and the calves were about three months old (Googe 1614: 122). Training of the gelded males that were to be raised as oxen began at the earliest when they were about three years old but no later than five years (Googe 1614: 123).

The cattle present in 1627 in Plymouth included black, red, white-backed and white-bellied varieties. The black cattle may have been of a breed or similar to those today called Kerrys. Kerry cattle are descended from ancient Celtic cattle and were originally Native to County Kerry Ireland (Christman, Sponenberg and Bixby 1997: 30). While Kerrys were not imported into England from Ireland until the 1800s, the native English breed of black cow may originated from the same ancient Celtic stock.

The white backed cow and the white bellied calf that were mentioned in the cattle division may be what we consider distinct breeds today, but more likely they are black cattle with white markings. It was once common for black cattle such as the Kerrys to be born with patches. The presence of white on the black cattle is a dominant genetic characteristic and thus shows up fairly regularly. Today for the standardization of the breed, white markings are not accepted for registration of an animal and as a result the presence of white markings on black cattle such as Kerrys is not encouraged. Black cattle in general were believed to be very hardy types that could survive in low forage areas and were prodigious breeders.

The red cattle were probably from the southwestern section of England in the Devon area and to its immediate east. These probably are of the breed today called Milking Devons. Red cattle were believed to be hardy and excellent milk producers.

As the century progressed, other colors of cattle show up in the probate records such as brown, white, pied, staved, brindled and white faced. Some of these may be genetic variants of the initial stock, such as the brown, staved and white faced, while others may be the result of new stock being transported into the colony from England or other colonies. By far the most common color in the 17th century was the black cattle.

Cattle were very important to the lives of the dairy loving English and within a decade of their initial arrival, they became an important trading commodity with the Massachusetts Bay Colony. It was determined soon after the arrival of these settlers that a good profit could be made selling them cattle and corn. New meadows were laid out to the north of Plymouth at what is now Marshfield and it appears from the dramatic increase in the number and frequency of occurrence of cattle in the probate records, that many people believed that this would soon prove financially beneficial to any who could raise a few cattle. By 1638 livestock prices had risen dramatically in Plymouth Colony with the average cow selling for between 20-28 lb a piece, a cow calf for 10 lb, a milk goat for 3-4 lb and female kids for 30-40 s (Bradford 1984: 302).

Unfortunately, as is always the case, what goes up must come down, and dramatically so for Plymouth Colony. By the 1640s, the Great Migration to the Massachusetts Bay Colony had been reduced to barely a trickle with the threat of civil war looming in England. With a dramatic decrease in the number of people arriving in New England came a dramatic decrease in the number of cattle and kine that were

desired by persons in Massachusetts Bay and as a result, a dramatic drop in cattle prices. By 1640 the price for a cow had dropped to an average of 5 lb while goats were now selling for 8-10 shillings instead of 3-4 pounds (Bradford 1984:310). A good example of this was a cow that belonged to Isaac Allerton which the colony was using to settle a debt. The colony valued the cow at 25 lb initially, but by the time agreement was reached concerning the settlement, the cow was worth 4 pounds 15 shillings (Bradford 1984: 312). This dramatic fall in prices is recorded as having a devastating effect on the economy of Plymouth Colony that appears to have thrown itself full force into supplying Massachusetts Bay.

Swine

No seventeenth century writer encountered thus far ever took note of any particular area of England as the home of an exceptional or even mentionable breed of swine. It appears that due to their ubiquitous and unexceptional nature, swine specific types of swine deserved no real mention. What were considered worthy of mention were the characteristics of a good swine, their uses and their feeding. Unlike cattle or sheep, swine served on main purpose, to live to die to be eaten.

Markham described the best qualities of the swine as " long and large of body, deepe sided, and deepe bellied, thicke thighes, and short legs, for though the long legged Swine appeare a goodly beast, ... and is not so profitable to the Butcher: high clawe, thicke necke, a short and strong groyne, and a good thicke chine well set with strong bristles: the colour is best which is all of on peece, as all white, or all sanded, the pyed are the worst and most apt to take the meazels, the blacke is tollerable, but our Kindgome through his coldnesse findeth them seldome." (Markham 1614: 88). Summarizing Markham, a good swine should be short and stout of all one solid color such as white or tan.

Swine were well known for their propensity to devour just about everything and to root up the ground in search of roots, tubers and the like. They were also well known for being " greedy, given much to roote up grounds, and teare downe fences, he is very lecherous, and in that act tedious and brutish: he is subject to much anger." (Markham 1614: 88). This tendency for swine to root up ground and tear down fences would later prove to be one of the grievances that the Natives in New England had against the English, but as can be seen it was a problem for the English as well. This led to laws in England as well as Plymouth stating when swine were required to have a ring placed through their nose which was cinched with a twitcher, making it painful for the swine to push its snout forcefully into the ground. For swine that still were a problem even when ringed, yokes were sometimes required. These yokes fit over the swine's neck much like an oxen yoke and made it difficult for the swine to fit through shall spaces between fence pales or under fences. Ringing seems to have been a common practice from September to January while yoking occurred more often in September and February (Stuart :5). Swine were often fed in the morning then brought out either by families or by a hog master who tended a town pack to the either old fields, marshes to feed on sedges, rushes, or berries or in the fall to the mast forests for nuts, during the day and then brought back to the safety of the sty at night (Markham 1614: 89; Harrison 1587: 312).

Sows were ready to be bred at approximately 1 year old and for up to seven years after she will bring forth one to two litters a year (Markham 1614: 89: Googe 140). Bores were mature enough to service sows at six months, but more commonly they began at one year old (Googe 1614: 140). Boars were kept by individual families, but it was also common practice for towns to have community boars in much the same way as was done with bulls as it was felt that one boar could serve 10 sows (Googe 1614: 122).

After farrowing, males and some females (called spayd-guilts) were gelded or spayed because it was

felt that these would "make goodly Hogs, which are excellent Bacon and Porke." (Markham 1614:89). The females were also felt to produce more grease in their bodies. This grease could be processed to make lard which "we make some, though very little, because it is chargeable; neither have we such use thereof as is to be seen in France and other countries, sith we do either bake our meat with sweet suet of beef or mutton and baste all our meat with sweet or salt butter, or suffer the fattest to baste itself by leisure." (Harrison 1994: 312). Young shoates, were felt to make the sweetest porke and were often slaughtered at ¾ to one year old (Markham 1614: 89). It was recorded that most slaughtering was started in November and continued through Shrovetide (late February) (Stuart :7).

The meat from slaughtered swine was sometimes eaten green, often smoked and preserved for the rest of the year and, according to Harrison in the late 16th century, was often used to make brawn. Generally tame boars which were fed and cared for up to two years specifically for the purpose, were believed to make the best brawn, but great barrow hogs were also used, producing better meat that was easier to digest (Harrison 1994:312, 314). Brawn was a type of prepared meat that Harrison noted was not generally known to those off the island. It is made with the forepart of the boar which contained a great deal of fat had its bone cut out and each piece was wrapped up with bulrushes or osiers then boiled in a pot or cauldron together until tender. Afterwards they were cooled and put it into a closed vessel with ale or beer mixed with verjuice and salt and let lie until used (Harrison 1994:314). This was commonly eaten from November through February, especially at Christmastime (Harrison 1994: 313).

Sheep

Sheep were considered by many to be the most cherished type of livestock in all of England to the point that it was made illegal to export any without royal permission (Harrison 1994:311). The first offense for exporting sheep out of the country was the forfeiture of all possessions, one year in prison and the severing of the left hand that was summarily nailed up in market place. Punishment for the second offense was death (Harrison 1994: 310). These were multi-purpose animals with their fleece being used once only for cloth and worsteds, but by the late 16th century for mockadoes, a wool cloth, baize, velures, or velvet, and grograines, a coarse fabric of mohair (Harrison 1994: 309).

Other uses for sheep were for meat, for dung to manure the soil and for milk which was often added to cheese made with cow's milk to make it remain moist and crisp longer (Harrison 1994: 310, 311). Googe summed up their utility when he stated that "Sheepe doth both with his fleece apparrell us, and with his milke and wholesome flesh nourish us" (Googe 1614: 130). Raising sheep was considered a business until itself in England with some sheep masters having over 20, 000 sheep at one time (Harrison 1994: 310).

Like cattle, different regions of England were known for producing different types of sheep. Those with a curious fine wool were found Herefordshire, about Lempster side; those of very little of bone, blacke faces, and able to beare a very little burthen were to be found in Worstershire, joining upon Shropshire. Sheep of better bone, shape and burthen with a courser and deeper stapel were found in the CotsallCotsall hills. Large boned pasture sheep of the best shape and deepest staple wool much courser than others were found in the part of Nottinghamshire, excepting the Forrest of Sherwood. The largest sheep, but ones with not the best Wool, with long and naked legges and bellies and the coarsest staple were found in Lincolneshire, especially in the Salt Marshes. Reasonably big boned sheep, with a rough and hairy staple were found in Yorkshire and Northward. Finally, sheep with very little and the worst staple were found in Wales, these were praised as the sweetest mutton though (Markham 1614: 64-65)

It was recommended that ewes be selected for breed when they were two years old and that any that are

past three years should not be meddled with (Googe 1614: 130). The ewe should have a large body, be deep wooled, and thicke over all the body, especially around the necke and the head, and with a good store upon the belly. It was recommended that the necke be long, the belly large, the legs short, although the sheep of England were known to be long legged, and the tail could be short or very long depending on where they came from. (Googe 1614: :130 Best :6). It was also recommended that the ewes, be dodded or hornless either naturally or through burning, because it was felt that dodded sheep were easier for the shepherd to handle, that they brought forth the best lambs with the least amount of trouble and that they were less prone to infestations by lice and other pests (Best 1641:6-7; Markham 66-67).

The ideal ram was described as one large of body in every general part, with a long body, and a large belly, a broad, round, and well rising forehead, a cheerful large eye, straight short nostrils, and a very small muzzle (Markham 1614 66-67). Some authors like Markham, felt that rams should be dodded as well, as this made them better breeders, while others like Googe felt that the ram must have his horns great, winding inward, and bending to the face (Markham 1614 66-67: Googe 130). Googe felt that in places that were wet, stormy and wild, rams with the largest horns were able to defend themselves better against the storm or tempest and possibly predators, as a rule of thumb, Googe stated that therefore in cold and stormy countries, the horned rams were best whereas in mild and gentle climates, the polled or dodded were better (Googe 1614: 130).

Ewes were bred when they reached over the age of two or three and continued to be bred until the reached age eight or ten (Googe 1614: 131; Markham 1624: 68)). Rams began their service after four or five years of age and continued to approximately age seven when they were felt to "decay" and their "mouths breake" (Googe 1614: 131; Markham 1624: 68). The usual ratio of rams to ewes in a flock was recommended at either 25, 30 or even 40 ewes to one ram (Best 1641: 4, 27-28).

Sheep occurred in a significantly smaller percentage of the probates than either cattle or swine. Their occurrence appeared rather sporadic throughout the century as well, beginning in the 1630s at 38.9% then dropping to 8% in the 1640s, rebounding to 29.5% in the 1650s, dropping to 18% in the 1660, achieving their highest level of occurrence in the 1670s at 73.7% before dropping slightly in the 1680s to 65.4%. The erratic nature of their occurrence in the records probably has to do with the nature of sheep raising in the early 17th century in Plymouth Colony. The occurrence of sheep in the probates and the overall use of sheep appear to have been the result of selective raising by those that owned them. Less egalitarian in who owned them than cattle or swine, sheep were raised by a smaller percentage of the population. For example, the only sheep known to have existed in Plymouth Colony in the 1620s belonged to Captain Myles Standish, who may have brought them back of his own particular in 1625, and who traded only two to another resident in the 1620s. Judging by the historical references by Markham, Googe and Harrison, sheep were considered important to those in England as a source of wool first, possibly meat second and milk third. In Plymouth Colony where there were no fulling mills before the later part of the century, people who were raising sheep were doing so more for their own benefit as opposed as part of a larger economy. Unlike beef and pork, lamb and mutton was not salted and preserved for the winter, it was eaten green soon after it was slaughtered. As a result, when looking at the culture of Plymouth Colony in the early part of the century, sheep can be seen as a perishable foodstuff raised by relatively few people who used them for themselves or possibly sold them for meat. By the later part of the seventeenth century and especially into the 18th century, the raising of sheep commercially was viewed as a possible source of revenue for towns such as Plymouth. The towns who wanted to begin to develop a wool market in southeastern Massachusetts soon set aside large pasture lots for the use of any in town who wanted to take invest sheep in this venture.

Sheep were first imported into Plymouth Colony is 1625, presumably by Myles Standish following his 1625 trip to England. Aside from this anecdotal evidence based on his sale of sheep to Abraham Pierce, little other information is available for the use and history of sheep in Plymouth Colony. Royal permission was granted in 1629 to ship 140 cattle, sheep, horses and goats from Southampton, England to Massachusetts Bay and when the Winthrop fleet arrived in 1630 they came bearing sheep. The Winthrop fleet sheep, because the left England at Southampton, were probably what would be considered of the Wiltshire breed today. Wiltshires can be described as being " horned sheep, with large head and eyes, Roman-nosed, long faced, wide nostrils, horns falling back behind their ears, chest wide and deep, back straight, legs long, and bones large" (Salm 1892). They fatten well and are good wool producers, being the largest of the fine, medium length wool sheep. The next recorded shipment of sheep to Massachusetts Bay was in 1631 when five sheep, eight heifers, and a calf were shipped from Barnstable in Devonshire, England, in 1633 when 34 Dutch sheep were imported, and in 1635 when 88 Dutch ewes arrived (Salm 1892). Dutch sheep were " rather large, white faced, no horns, long legged, and with a light fleece... mixed Holland and English origin, from the lowlands of Holland and the Texel." (Salm 1892). Even distant locations such as Piscataqua and Norridgewock were recorded in 1635 as having 92 sheep (Salm 1892). By 1640 it was recorded that there were 1000 sheep in the whole colony (Salm 1892). Other breeds that were common in New England were the Romney Marsh, the Herefordshire, the Norfolk, and the old Southdown or Sussex sheep.

Wiltshire sheep gave a fleece that was seldom more than two pounds in weight while the beasts themselves weighed between 150 and 200 pounds. The Romney Marsh sheep from southern Kent had long, thick hearts, broad foreheads crowned with a shock of wool, flat-sided and wide at the loin with narrow breasts, large feet with large bones. They thrived in the winter with little additional feed aside from a little hay and were well adapted to harsh conditions. Their wool was long and coarse (Salm 1892). Herefordshire sheep were a small breed weighing an average of 56 pounds with light bones with soft fine wool (Salm 1892). Norfolk and Suffolk sheep were long and slender with black or mottled faces and legs. They had long, thin faces with strait horns on the ewes and wethers and great curling horns on the rams. Their wool was short and fine that could be made into coarse cloth. They could survive on a variety of pastures and were a good mutton sheep. Sussex (Southdown) sheep were dusky or black and small with long, thin necks with fine black wool (Salm 1892).

The English Civil War (1642-1651) essentially cut the colonies off from many of its English suppliers, forcing them to rely on themselves for the goods they needed. In order to encourage the propagation of sheep in the Colony, Massachusetts Bay ruled in 1654 that no ewes or ewe lambs could be transported out of the country under a penalty of 5 pounds a piece and no rams or wethers could be killed until they were two years old (Salm 1892). The courts recognized the fact that the colony could not rely on any other country as a source of cloth goods, and encouraged households to spin wool, cotton, flax and hemp for their own use with the goal be to spin 30 weeks a year and produce 3 pounds per week of linsey, cotton, or woolin under penally of 12d per pound short (Salm 1892). Selectmen of the towns were empowered to create and order sheep commons and in 1656 sheep were assessed at 10s per head in order to encourage more people to own more sheep (Salm 1892). By the end of the century towns were producing enough homespun cloth that surplus was being created for trade and export (Salm 1892). This was especially true on Nantucket. The first fulling mill in America was erected in Rowley, Massachusetts in 1643. Fulling is the step in the making of woolen cloth that involves cleaning and thickening the wool, essentially producing clean felt at the end. Fulled cloth is smaller, thicker, waterproof and more durable than other cloths. Fulling involves three steps: scouring, milling, and stretching. Scouring involves placing the dirty wool, water, and fuller's earth into a fulling mill, a

simple mill consisting of one or more large wooden hammers (fulling stocks) that pounded the wool. The stocks could be of two types, vertical, which just scoured the wool, and hanging or driving stocks which beat the wool at an almost horizontal angle, turning and tumbling the wool as it was beaten. The head of the stock was triangular with notches at the end to help turn the wool. Further pounding milled the cleaned wool and felted it. Felting was used for short staple wool used for woolens but not for the worsteds, which were made from long-stapled wool. Once the felt was removed from the mill, it was stretched on wooden frames called tenters using L-shaped tenterhooks and allowed to dry. Benjamin Nye was granted permission to build a fulling mill at Spring Hill on August 8, 1675 "The Towne hath given Benjamin Nie liberty to build a Fulling Mill upon a river comonly called Spring Hill river, provided it doth not damnify the country rode. And Benjamin Nie hath liberty to keep up a mill in the said place as long as he shall see cause to keep up a Fulling Mill in the said place." (NFA 1903: 25). It has been theorized that while he was granted permission to build one here, he may have eventually built on at his residence on Old County Road instead. As far as is known the first mill to be erected at Spring Hill was in 1717 when permission was granted by the town for a saw mill to be erected on the brook at Spring Hill. The first mill on the brook appears to have been built in 1742 when Samuel Wing was granted "the liberty to erect a grist mill on Spring-hill river" (Deyo 1890: 273). One tenter hook was recovered from the excavations in the south yard at the Wing Fort House, probable evidence of a Wing fulling mill on Spring Hill Brook in the eighteenth to nineteenth centuries **(Figure 54)**.

Following the end of the English Civil War, the wool industry in the colonies continued, especially in the production of hats and stockings, but little effort was made to increase flocks or increase production of local homespun products for export. The American Revolution had the affect of making it a Patriotic obligation to wear colonial versus imported woolens and did to promote an increase in wool production in the colonies. On September 5, 1774 the General Congress that the merchants "...to import no more goods, and all the people to use their utmost endeavors to improve the breed and increase the number of sheep by killing as few of them as possible, and not exporting them, but selling on moderate terms to their neighbors who might need them." (Salm 1892). This, and various local

Figure 54. Tenter hook from Deetz's excavations in the south yard.

recommendations, resulted in 20, 000 less sheep being killed the following year than in 1774 (Salm 1892). Due to the fact that many colonial farmers left the farm to fight in the Revolution, the character of American sheep suffered during this period and resulted in a massive importation of new sheep from abroad following the cessation of hostilities with 229, 904 being imported from a variety of countries (Salm 1892). By 1800 the average New England farmer had the following in livestock: one or two horses, from one to two yoke of oxen, and from ten to twenty sheep (Salm 1892). Sheep fed on grass in the spring to fall and in the winter on hay, corn, turnips, potatoes, carrot, and pods, straw of beans and peas, and cornstalks with the average cost of keeping a sheep was $1.50- $2.00 per year and the cost of eight sheep being equal to one cow and the average weight being 12 pounds per quarter (Salm 1892)

At the turn of the century, sheep raising was still focused on the level of the small farmer. Each farmer had a certain number which were sufficient to provide for domestic use and little attention was paid to improvement. Between 1800- 1810 can be seen as a decade of visible progress in American sheep husbandry. Continued hostilities, a virtual Cold War, with England led Americans to rely on themselves to industrialize the woolens industry and begin to produce finer cloths from the same sheep that formerly were used for homespun. Another factor that was limiting sheep production on a larger scale was the lack of an American market for mutton. Tench Coxe recorded in 1794 that mutton was considered fit for "seminaries of learning and poorhouses" but that it was also consumed by the richer classes in the cities and towns but not popular with the mass of the populous (Salm 1892). The greater appreciation of mutton would have to wait until a better breed was introduced that produced both

mutton and wool. The breed that eventually did that was the Merino which was first brought to America from Spain in1785 and was introduced into Massachusetts in 1801 and were being sold at $30.00 per pair (Salm 1892). Merinos had an average weight of 270 to 300 pounds and produced 3 pounds of wool. It is estimated that by 1810 there were about 7, 000,000 sheep in America with Massachusetts having 399, 182 (Salm 1892).

The War of 1812 and its embargoes caused Americas Woolens industry to both grow and become static. Domestic use increased as less goods were imported but exportation was all but halted by Britain's blockading of various ports where American goods were formerly shipped (Salm 1892). This also caused an increased appreciation for Merino sheep which prices rising from $100.00 to $1000.00 for a single animal that could be crossed which a farmers on hand flock (Salm 1892). Wool prices concomitantly rose from $1.00 to $2.00 per pound.

Woolen trade with Britain was always an important factor controlling the raising of sheep in America. When trade was good more sheep were raised, when trade flagged, often so too did Americans interest in sheep. The tariff of 1824 encouraged American woolen manufacture and 2,288 Saxony sheep were subsequently imported in 1826 to improve the American stock (Salm 1892). But the market became flooded and the benefits of the tariff were essentially neutralized with wool and Saxony prices rapidly dropping from $30.00 per head top as little as $6.00 (Salm 1892). The Tariff of 1828 revived interest in Saxony again and enterprising farmers threw their efforts into raising sheep versus crops. The result seemed inevitably ironic, wool prices crashed from 45 cents to 29 cents by 1829. This latest crash proved fatal to the Saxony, who never again gained any appreciable amount of popularity. In 1830 there were 350, 082 sheep in Massachusetts, mostly Saxony Merino crosses (Salm 1892). By 1840 there were 378, 226 sheep in Massachusetts and flocks rarely exceeded 200 or 300 head on a farm with most farms having far fewer (Salm 1892). In 1845 there were 105, 428 Merinos and crosses and 33, 875 Saxonies, in 1855 there were 95, 548 Merinos and crosses and only 6,800 Saxonies (Salm 1892). The total value of wool produced in 1845 was $923, 420 while in 1855 it was $464, 889 (Salm 1892). This period from 1845 to 1855 also marks the switch from a fine-wool to a coarse-wool and mutton focus in the sheep industry, principally as a result of the 1846 tariff which was disastrous to the fine wool industry (Salm 1892). Before that date American factories were producing broadcloth equal in quality to any from the Old world but America could not compete in terms of labor costs to the established Old World mills and the production of broadcloth was abandoned (Salm 1892). The factories now shifted to making medium and coarse fancy cashmeres which required long, coarse staple wool, thus fine wool sheep were now valued only for their meat and not their wool. The Civil War increased the demand for both coarse and fine woolens, thus increasing the value of sheep and their wool and the sheep population in Massachusetts increased from 123,445 in 1860 to 169,442 in 1865 (Salm 1892). After the war there was a demand for a new woolen, combing wool which has long, moderately fine staple and strong fiber. Massachusetts, which never was a strong supplier of wool, suffered from this shift, and by 1875 the sheep population dropped to 55, 140 with most of the required wool now being provided by the West (Salm 1892).

At the same time that the wool market was breathing its last gasps in Massachusetts, the mutton and lamb industry was increasing as consumption of these increased. Southdowns were the preferred breed and Shropshire or Oxford Down rams were crossed to add size and wool without detracting from "the splendid mutton qualities, aptitude to fatten, quiet disposition, and perfection of form for the butcher, with tendency to twins, and great capacity for milk found in properly bred Southdowns" (Salm 1892). Other breeds that were favored were a cross of Cotswold, Leicester, or Lincoln, which provided size of

carcass and length of staple. By the 1890s, the most profitable branch of Massachusetts sheep raising was the growing of early lambs for market with lambs being dropped from January 1 to March 15(Salm 1892).

Domestic Species in the Probates

The occurrence of cattle in probates dating between 1630 and 1680 begins with only 50% of the probates showing cattle present in the household in the 1630s but within a decade had doubled to 100%. This was due to trading with the Massachusetts Bay Colony in the 1630s and the resulting collapse in the cattle stock market in the early 1640s. Following the 1640s, the occurrence of cattle remained fairly level for the rest of the century, dropping slightly to 97.1% in the 1650s but then returning to close to 100% in the 1660s.

Neither in England nor New England did swine ever serve any dual purpose. Swine were raised to eat and while some by-products such as bristles and lard were made use of, this does not seem to have occurred on a regular basis. Swine were present in the probate records fairly frequently with the highest incidences being in the 1630s, when they occurred in 88.9% of the probates, and 1670s, when they occurred in 100% of the probates. The years between the 1630s and 1670s saw the occurrence of swine drop sharply to 60% in the 1640s, rise to 72.3% in the 1660s, and then drop from 1670s 1005 to 72% in the 1680s. It is not known why there was such fluctuation in the occurrence of swine in the probates.

The majority of the swine whose ages were either recorded or can be surmised from their designations, such as "shoates", "suckling" or the use of the term"young" in the probates, indicate a preference for pigs under one year old as opposed to those known to be over one year old. This was the case in all decades except the 1630s where older adult individuals occurred at a ratio of 2.2: 1 over 1 year old to under one year old. This may be the result of the early attempts to build up the breeding stock to raise animals for sale to Massachusetts Bay. For the remainder of the seventeenth century, the ratios of under one year to over one year was fairly consistent at 1: .4, except for the decades of the 1650s and 1680s when it rose to 1: .8 and 1 : .7 respectively. The occurrence of so many young individuals indicates that the prime age of slaughter was probably over one year old, possibly closer to the ideal of 18 months. Bowen noted that when single farrowing was common in a husbandry system, then the age of slaughter is usually around 9-10 months. When the sows were double farrowing in the spring and fall, the age of slaughter is closer to 18 to 24 months (Bowen 1986: 26).

The occurrence of poultry, primarily in the form of hens and cocks but also three turkeys and 4 geese, was high in the 1630s but then dramatically dropped off in the succeeding decades. This is probably not the result of a true decrease in the importance of poultry to New England colonists, but is more likely the result of those who were taking the inventory not being concerned with accounting every bit of poultry. They may have been subsumed under the heading "In small things forgotten" which was often used.

To summarize the use of animals in England it can be stated that in terms of livestock, cattle ranked first, with sheep being a close second, swine were numerous and widespread, goats were raised by those who lived in wild places and could not raise cattle. Cattle were raised for meat, milk and as draught animals. The average or recommended ratio of one bull to 20 cows and a cow could be expected to be bred and produce milk from three to 12 years old. The typical English farm, following these practices, would have possibly one bull, several cows or 3 to 12 years old, several heifer or unbred cows under the age of three, and several oxen over the age of five used for labor and steer under the age of five being trained as oxen or raised for meat.

Swine were raised for meat and some lard with sows being bred from one year old to about seven or eight with one boar servicing ten sows. Young swine under one year old were slaughtered for pork and older hogs above two years old were used for brawn. The typical farm would have some sows aged from one to seven, numerous gelded and spayed barrow hogs raised for meat, possibly one boar, and young shoates under 1 year old raised for pork.

Sheep were multi purpose being raised for wool, milk and meat. Ewes could be bred at two years old, but it recommended that one wait until they were over three. They then continued lambing once a year until age eight or ten. Rams were deemed fit for servicing ewes at four to five years old and continued to about seven years old or until their "mouths broke" with one ram servicing 25-40 ewes. The typical number owned by a sheepmaster could number from just a few to over 20, 000 depending on the reason for raising them. Several rams would be present for breeding and wethers would also be present in the flock to determine when the ewes were in heat and ready to be bred. Sheep under 2 years old may have been eaten as well as older sheep raised for mutton.

A wide variety of species were recovered from around the house (Table 24). The highest concentration of

Table 24. Species Comparison by fragment count

Species	Terrace	South Yard	North Yard	Sill
Mammal	6		28	
Mouse	8			
Rat				5
Cat				9
Woodchuck				7
Skunk				4
Medium Mammal	683	32	76	24
Sheep	148	12	8	16
Swine	270	4	13	19
Deer	2			
Large Mammal	86	8	2	
Cattle	165	11	17	16
Bird	34		1	
Killdeer	2			
Chicken	54			32
Duck	1			1
Goose				3
Turkey	1			1
Heron				1

Fish	5		1	
Cod	3			
Bass	12			
Tautog	2			
Winter Flounder				2
Painted Turtle	1			
Snapping Turtle	1			
Totals	1484	67	146	140

were recovered from the terrace where they were fairly evenly split as to what depth they were found at (Table 25). It appears from the remains of the rats, cat, woodchuck and skunk, that the space under the

Table 25. Species by depth

Species	0-30 cm	30-60 cm
Mammal	5/ .8%	1/ .1%
Mouse	8/ 1.2%	
Medium Mammal	272/ 42.1%	411/ 49.2%
Sheep	63/ 9.7%	85/ 10.1%
Swine	164/ 25.4%	106/ 12.7%
Deer	2/ .3%	
Large Mammal	24/ 3.7%	62/ 7.4%
Cattle	56/ 8.7%	109/ 13.1%
Bird	14/ 2.2%	20/ 2.3%
Killdeer		2/ .2%
Chicken	31/ 4.8%	23/ 2.5%
Duck		1/ .1%
Turkey		2/ .2%
Fish	1/ .2%	4/ .5%
Cod		3/ .4%
Bass	3/ .6%	9/ 1%
Tautog	1/ .2%	1/ .1%
Painted Turtle	1/ .2%	
Snapping Turtle	1/ .2%	
Total	646	839

house was accessible at least to a degree to wild animals. They may have entered through the bulkhead located on the east side of the house. Alternately, the skunk and the woodchuck may have been consumed by the inhabitants, although neither show any butchery marks on their surfaces. They may have been processed in such a way that resulted in the lack of marks or the cut marks could have occurred on the missing bones from the individuals. It appears more probable that they are commensal species that just happened to die beneath the house.

The remaining faunal on the terrace and in the sill area appears to have been deposited one the ell, which was probably a dairy, was removed when the architecture of the house evolved from a salt box to the Georgian style (c. 1760s). The faunal remains recovered from the upper levels of the terrace most probably date to between c.1770 and the twentieth century while those below approximately 30 cm are hypothesized to date to the period of reconstruction or slightly earlier. The remains from the north and south yards are also theorized to date to approximately the same period as the lower levels of the terrace. None of the faunal remains can be reliably dated to the seventeenth to early eighteenth century.

David Landon published an extensive study of faunal remains from rural versus urban archaeological sites in and around Boston, Massachusetts (Landon 1996). Landon used collections from four historical sites in Massachusetts which spanned the years 1630 to 1825: the Winslow Site in Marshfield (1650-1700), the Paddy's Alley/ Cross Street (late 17th to early nineteenth century), the Wilkinson Backlot site (1650-1825), and the Spencer-Pierce-Little site (late eighteenth century) (Landon 1996: 19-28).

Landon's analysis focused on differences in rural versus urban assemblages in terms of butchery patterns, ages and seasons of slaughter and how these differences reflected how fauna were raised, butchered and consumed in and around Boston. Landon focused more on broader patterns of urban supply and distributions versus the ethnicity and socioeconomic examinations commonly carried out with faunal remains (Landon 1996: 2).

The amount of meat consumed by occupants of a site has been found to be reflective of the relative wealth of the occupants of the site (Landon 1996: 1). Unfortunately, the amount of preserved (boneless) meat consumed at a site can not be controlled for though. This has been determined to be a potential source of difficulty in interpreting the amount of meat consumed by the occupants of a site (Landon 1996: 2).

In terms of body part representation, Landon found that the taphonomic history of an assemblage influenced the pattern of body part representation in the assemblage. Taphonomically, the assemblages from the Wing Fort House showed a moderate amount of post-use damage- canine chewing and rodent gnawing were present.

The evidence of butchery and consumption marks on the faunal remains indicate the occupants purchased their meat cuts versus raising their own animals. Similar elements showed similar butchery evidence between species. Sawing is presumed to have been used by the professional butcher to subdivide the larger carcass into salable parts, representing primary, secondary butchery. These parts were then further subdivided by chopping, into more manageable sized pieces for roasting or boiling, which represents tertiary butchery. The occurrence of chop versus saw marks in the three assemblages may indicate that the post-deposition assemblage was subject to a greater degree of post-professional

butchery subdivision than the occupation or abandonment assemblages. The paucity of cut marks on the elements indicates a likely preference for boiled versus roasted meats. Boiling bone-in meat would relieve the bone of its meat while adding all the fats and grease present in the meat and bone into the stew, broth or soup. As the meat is removed from the bone by means of boiling, there would be a lack of marks caused by knives on the bones.

Landon found in his analysis that the largest (the trunk, consisting of the scapula, ribs, vertebrae, and pelvis) and meatiest elements of the body (humerus, and femur) logically had the highest percentage of butchery evidence (Landon 1996: 61). Saw marks were found to show an increase in frequency of occurrence over time in all of the urban and rural assemblages studied, rising to 75% by the end of the nineteenth century. Landon interpreted this as coinciding with the rise in the production of standardized and discrete cuts of meat that characterized the butchering industry by the end of the nineteenth century and continues today (Landon 1996: 65). The butchery marks present on the Wing Fort House bone are all represented by examples from Landon's work as well: chopping of the mandible to remove the tongue and jowl meat; lateral splitting of the vertebral column representing initial subdivision of the carcass and further subdivision into cuts; the subdivision of the scapula to create steaks or roasts; finer scale subdivision of the humerus again into cuts; horizontal sawing of ribs to produce slabs; sawing of the pelvis with the proximal end of the femur possibly articulated as one cut; and the subdivision of the tibia and its possible articulation with the distal end of the femur (Landon 1996 68-95).

Excavations in the early 1970s in downtown Plymouth by Plimoth Plantation on the lot located between Main and School streets (C-13A site), encountered three privies that were filled between 1790 and 1835. Faunal remains from this site indicate a possible shift in the use of domestic species over time. Cattle use remained constant but the use of swine showed a continuous and steady decline in the popularity with an inverse rise in the popularity of sheep (Anonymous 1974). The shift from swine to sheep was interpreted as possibly being a result of the gradual deforestation in the Plymouth area with the result being a shift in husbandry approaches to grazing versus foraging species.

Domestic Mammals

Cattle

Two hundred and nine fragments of cattle bones representing a minimum of two individuals were recovered from around the house. The two individuals present were aged under 15 months and over 2 ½ years. There was at least one calf and one older individual represented in the combined cattle remains from around the house. Separating the cattle remains from the four excavation areas results in a distribution of 11 fragments from the south yard (16.4% of the total faunal remains from that area), 109 pieces from the terrace (7.3% of the total faunal assemblage in that area), 17 fragments from the north yard (11.6% of the total faunal assemblage from that area), and 16 pieces from the sills (11.4% of the total faunal assemblage from that area). The relative contribution of cattle to the assemblages around the house indicates remarkable consistency in the percentage of the total that was represented by cattle remains.

The consumers at the Fort House (one calf and one older individual) was similar to cattle remains from the Harlow Old Fort House. At this site the inhabitants consumed meat from one calf, one young cattle of the ideal under 2 years old maximum meat time, and 1 older cattle, possibly a cow over three years who was no longer producing. Joann Bowen in 1994 concluded an in depth study of Chesapeake versus Plymouth Colony foodways and found that this was a common pattern in the eighteenth to

nineteenth centuries (Bowen 1994:157). Looking at Bowen's 1994 work, this would indicate that either the inhabitants of the house were practicing a livestock management program consistent with a combination dairying and beef production or that they were purchasing meat from a market that was providing such. Dairying practices lead to a selling of young bull calves for veal and of older cows not producing milk whereas beef production sees few veal calves and more animals being killed at the prime age of slaughter, 18-24 months (Bowen 1994:26).

The cattle skeletal elements present in the assemblage at the Fort House indicate that the inhabitants were most probably raising consuming their own cattle verses purchasing cuts of meat from a butcher. The majority of the elements were from the extremities (head, lower limbs) versus from the trunk (the meatiest part) especially in the south and north yards (Table 26). These are the elements that yield the

Table 26. Cattle elements present

Element	Terrace	South Yard	North Yard	Sill
Extremities	**30**	**10**	**15**	**5**
Maxilla	2	7		
Mandible	15	2	4	1
Cranial				
Ulna	1			
Radius	6		2	
Carpal			2	
Metacarpal			4	
Tibia	4			
Fibula				
Tarsal				
Astragelous		1		
Calcaneus				
Metatarsal				2
Phalanges	2		3	2
Trunk	**76**	**1**	**0**	**9**
Axis vertebra	1			
Cervical Vertebra		1		
Thoracic Vertebra	3			
Lumbar Vertebra	2			1
Sacrum	1			
Caudal Vertebra				
Ribs	62			5
Scapula				1
Humerus				2
Pelvis				

Femur	7			
Patella				

least amount of meat and are often discarded during butchery. The remains from the terrace and sill were more equally split between trunk and extremity elements, except in the case of the terrace where rib fragments contributed the most to the elements present, disproportionately skewing the representation of the trunk elements and highlighting possibly significant contribution that ribs made to the diet during the period of occupation. The cattle assemblage from the Harlow House in contrast indicates that the consumers in the house were purchasing their meat cuts rather than raising their own cattle and slaughtering them. Only one element from a cattle head was recovered, while there were numerous thorax or main body fragments and less lower leg elements. The lower occurrence of elements such as the head and feet and the high incidence of body elements indicates that the consumers in the household either disposed of the less meaty elements such as the head and feet elsewhere, or that these elements were not as commonly purchased.

The occurrence of cattle remains indicates that the inhabitants of both the Wing Fort House and the Harlow Old Fort House both enjoyed a moderate to slightly high standard of living. They were able to afford a range of cattle ages from calf (possibly veal) to beef and possibly older/ senile cow. They distribution of elements recovered indicates that they raised their own cattle.

Many of the cattle bones recovered showed evidence of either butchery or scavenger modification (Table 27). Butchery modification was represented by cutting, chopping and sawing. Chopping and

Table 27. Bone modifications

Modification	Terrace	South Yard	North Yard	Sill
Chopped	17		3	3
Cut	1			
Sawn	3			2
Burned	2			1
Rodent Gnawed				
Canine Chewed	1			

sawing represent the initial division of the carcass into two halves along the head to tail midline and subsequent segmenting of these halves into cuts. Saw marks were concentrated on vertebra, ribs and at one humerus head. Sawing is a technique that was widely used in the later nineteenth century and continues to the present day. the presence of saw marks on these bones indicate that they date to this period. Sawn bones were recovered from 30-40 cm in N1E1 and in N3.6 W6 at 30-40 cm and 60-70 cm. Cut marks were located only on the ribs. Generally, cut marks occur throughout the history of people eating meat and the same can be said with chop marks, but sawing only came into widespread use in the late eighteenth to nineteenth centuries, although it is known to have had limited application during the middle to late seventeenth century. Until the modern day there was wide variation in butchery practices depending on the individual butcher and the animal being butchered.

Chew marks are evidence of carnivore activity at a site. Cats, skunks, dogs, foxes and coyotes often

chew bones to digest the upper and lower ends where nutrients are concentrated. The chew marks in the assemblage appear to be from large ones such as foxes or dogs. The presence of chew marks indicates that at least part of the assemblage was exposed to these animals and was not buried. The general absence of canine and rodent chew marks on the cattle bones may indicate that they were buried soon after being deposited..

Pig

Three hundred and six fragments of pig bones representing a minimum of two individuals were recovered from around the house. The two individuals present were under two years old, as evidenced by the degree of epiphiseal fusion on the ends of some of the bones. It is believed that both the individuals present were probably approximately 18 months old, the prime age for slaughtering. This may indicate that the sows that bore these pigs had a spring and fall farrowing (Bowen 1994: 26)

The pig skeletal elements present in the assemblage seem to indicate that the consumers in the house were raising their own and slaughtering them. As can be seen in Table 28 which shows the number of

Table 28. Recovered swine remains

Element	Terrace	South Yard	North Yard	Sill
Extremities	**68**	**4**	**10**	**9**
Maxilla			1	
Mandible	49	4	9	5
Cranial	1			2
Ulna	6			
Radius	1			
Carpal	1			
Metacarpal	1			
Tibia				
Fibula	4			
Tarsal				
Astragelous	1			
Calcaneus				
Metatarsal				
Phalanges	4			2
Trunk	**96**	**0**	**3**	**9**
Axis vertebra				
Cervical Vertebra	3			1
Thoracic Vertebra				1
Lumbar Vertebra	2			1
Sacrum				
Caudal Vertebra			1	
Ribs	66		1	6
Scapula				
Humerus	17		1	
Pelvis	7			
Femur	1			
Patella				

individual specimens present (NISP) which is a tally of the number of pieces of bone present, shows that the highest occurrence of elements in the north and south yards are from the extremities while on the terrace and the sill, either trunk elements dominate the assemblage, or else there is and even distribution.

Just as in the case of the cattle remains, the higher occurrence of elements such as the head and feet and the somewhat lower incidence of body elements indicates that the consumers in the household were probably raising, butchering and consuming the swine at the site. The swine bones from the Harlow Old Fort House that the occupants of that house were doing much the opposite, they were purchasing cuts versus raising their own swine. The Harlow household in circa 1840 preferred the best cuts of pork as well as beef: those coming from the main body and upper limbs (vertebra, humerus, femur, scapula, pelvis). Some of the lower limb cuts were present in approximately half the amounts as the high quality cuts.

Many of the pig bones recovered showed evidence of either butchery or scavenger modification (Table 29). Butchery modification was represented by cutting, chopping and sawing. Sawing was evident on

Table 29. Modification on swine remains

Modification	Terrace	South Yard	North Yard	Sill
Chopped	2			2
Cut	1			
Sawn	1			5
Burned	3			
Rodent Gnawed				5
Canine Chewed				

one element from 10-20 cm on the terrace and on five elements from the sill. This supports the idea that the sill artifacts were collected from the upper layers around the sill. Chop marks were present only on sill and terrace bones while burning was evident only on terrace bones and rodent gnawing only on sill bones. The presence of burned bones on the terrace are probably the result of the deposition of hearth waste in this area. The presence of the rodent gnawing at the sill indicates that rodents were gnawing bones under the floor of the house.

Chop marks represent the initial division of the carcass into two halves along the head to tail midline and subsequent segmenting of these halves into cuts. Cut marks on the mandible represents cutting through of the tendons, ligaments and muscles to remove the jaw and subsequently the tongue which was later consumed. Generally, cut marks occur throughout the history of people eating meat and the same can be said with chop marks, but sawing only came into widespread use in the late eighteenth to nineteenth centuries, although it is known to have had limited application during the middle to late seventeenth century. The presence of an appreciable number of saw marks on bones from the sill bones indicates that the animal was likely butchered during the nineteenth to twentieth centuries. Unfortunately, the absence of saw marks does not mean that the animal was not butchered at this time.

Until the modern day there was wide variation in butchery practices depending on the individual butcher and the animal being butchered.

On the swine bones, it appears that it was twice as common to chop the carcass than it was to saw it. The saw marks were centered on the ribs and vertebrae, with only one saw mark being found on a long bone (femur) indicating a preference for the use of the saw in both primary (vertebrae and pelvis) and secondary (ribs, pelvis and femur) butchery areas. The swine consumed at the site were butchered in the following way. First the head was removed and the carcass was split down the center by means of a cleaver or hatchet and mallet or saw to produce two halves. This step in the butchery process is evidenced by the chop marks below the dorsal process, the upper spine, on the chest (thoracic) vertebrae. The halves were then butchered separately but probably in similar fashion.

Sheep

One hundred and eighty-four fragments of sheep bones representing a minimum of two individuals were recovered, both being over 24 months but under 36 months old. By contrast, of the sheep remains from the Harlow Old Fort House , two were under two years old (probably much younger and representing lambs) while the other two were over five and one half years old. The occupants of the Harlow Old Fort House appear to have consumed sheep at the prime age of slaughter (under two years) and as mutton. The occupants of the Wing Fort House appear to have been consuming somewhat older sheep, possibly those that were no longer producing good wool.

The sheep skeletal elements present in the assemblage seem to indicate that the consumers in the house were raising their own sheep and then slaughtering them. As can be seen in Table 30, more elements

Table 30. Recovered sheep remains

Element	Terrace	South Yard	North Yard	Sill
Extremities	**19**	**8**	**7**	**7**
Maxilla	11			
Mandible		8	2	2
Cranial	3			
Ulna				
Radius	1		1	1
Carpal				
Metacarpal				
Tibia	2		4	4
Fibula				
Tarsal				
Astragelous				
Calcaneus	2			
Metatarsal				
Phalanges				
Trunk	**40**	**4**	**1**	**1**
Axis vertebra				
Cervical Vertebra	5			
Thoracic Vertebra	9			
Lumbar Vertebra	2			

Sacrum				
Caudal Vertebra				
Ribs	3			
Scapula	17			
Humerus	2	4		
Pelvis	1		1	1
Femur	2			
Patella				

from the trunk were present on the terrace while in all of the other areas elements from the extremities were most common. Elements from the terrace indicate that there was a preference for fore leg (cervical vertebra, scapula, humerus, radius) and hind leg (lumbar vertebra, pelvis, femur and tibia) over ribs.

Many of the sheep bones recovered showed evidence of either butchery or scavenger modification (Table 31). Butchery modification was represented by sawing and chopping. One bone in both the

Table 31. Bone modifications on sheep remains

Modification	Terrace	South Yard	North Yard	Sill
Chopped	5		1	2
Cut				
Sawn	1			1
Burned	3			
Rodent Gnawed				3
Canine Chewed	1			

terrace and sill had been sawn, the one from the terrace coming from 10-20 cm and the one from the sill probably coming from the upper levels as well. Burned fragments on the terrace indicate the disposal of hearth debris in this area. The gnaw and chew marks on the bones were done by two different classes of animals. Gnaw marks are the result of rodents gnawing bones to reduce their incisor tooth size and gain nutrients from the bones. As rodent incisors continue to grow throughout their lives, they must continually gnaw objects such as bones to wear their teeth down. the gnaw marks on the cattle bones appear to have been made by small rodents such as rats and possibly squirrels. Chew marks are evidence of carnivore activity at a site. Cats, skunks, dogs, foxes and coyotes often chew bones to digest the upper and lower ends where nutrients are concentrated. The chew marks in the assemblage appear to be from small carnivores such as skunks or cats and not large ones such as foxes or dogs. The presence of gnaw and chew marks indicates that the assemblage was exposed to these animals and was not buried. These animals may have gnawed and chewed the bones prior to their being deposited within the cellar if this material was initially thrown into a yard and then redeposited here. It is more likely though, due to the absence of dog and larger carnivore chew marks and the presence of a wide variety of elements (meaning none were taken away by scavengers) that the material

was deposited on the surface under the house or were brought in by animals.

Other Species

Most of the other species that were recovered were represented by only a few bones and indicate that they probably represent a small contribution to the overall diet. The fish were probably caught locally while the turkey, goose, and duck were more likely to be domestic versus wild. The killdeer, deer, and turtle remains were likely caught locally. The deer remains were concentrated in the upper levels of the terrace so they were probably deposited in the nineteenth century The only other species that was well represented was the chicken. Chicken bones were recovered from the sill and from the terrace and were concentrated in the upper levels of the site, dating them to the nineteenth to twentieth century.

Faunal Summary

The faunal assemblage from the site consisted of mostly domestic species with a few wild one being present. The cattle, sheep and swine domestic species were raised throughout the eighteenth and nineteenth century occupation of the site. These species were raised on site and the deposits in the south and yards represent mostly butchery waste while those on the terrace represented butchery and consumption waste. The age distribution of the the domestic mammal indicates that swine were butchered at the prime age of 18 months while sheep were butchered when they were over two years old and possibly under three years indicating that they were probably raised for meat and wool. The cattle remains indicate that they were being raised for dairy purposes and to a lesser extent for meat. Wild species made up only a minor component. Wild species such as the woodchuck, skunk, mouse, rat and cat represent commensal species that inhabited the same space as people, often unobserved or literally living beneath the under the house.

Ceramic Analysis

Clay Pipe Analysis

Clay tobacco pipes are, to the archaeologist, two things, one of the most commonly occurring objects on colonial sites and easily dated by their makers' marks and bowl styles. The stem bores of tobacco pipes gradually became smaller over the centuries since they were first produced in England. The stems of the pipes were slowly lengthened over time and as a result the bore of the stems became smaller with those from the 1580-1620 period are predominantly of a 9/64" bore while those of 1650-1680 are predominantly of a 7/64" bore. J.C. Harrington discovered this reduction sequence when he worked with clay pipes from Jamestown in the 1950s and it has been refined
over the years.

9/64" 1580-1620
8/64" 1620-1650
7/64" 1650-1680
6/64" 1680-1710
5/64" 1710-1750
4/64" 1750-1800

This dating by stem bores was initially believed to be the answer to the problem of dating sites. Of course, dating artifacts is never as easy as Harrington and Binford felt that it could be. In reality, the dates for the different pipe stem bores represent the specific periods of greatest popularity for those sizes, so there is a degree of over lap with all of these sizes. When the 7/64" were in their greatest popularity, there were still 8/64" being made, and later in their period of popularity there were 6/64"

being made. For example, Hume shows a chart on which he estimates the percentages of production at different time periods for different bore diameters:

Date range	9/64”	8/64”	7/64”	6/64”	5/64”	4/64”
1620-1650	20%	59%	21%			
1650-1680		25%	57%	18%		
1680-1710			16%	72%	12%	
1710-1750				15%	72%	13%
1750-1800				3%	20%	74%

These percentages all represent the popularity of the sizes at the median date of production. In the early years of the different size’s production there would have been a greater percentage of the earlier sizes bores. As one moves through the production period the earlier sizes would be phased out and the next smaller size would begin towards the middle to end of the period, moving into the next period. But one can assume that there was never any regularity to the production outputs by various producers in the different times for the different bores. What this means is that just because you find a pipe stem bearing a 9/64” stem bore, it does not necessarily follow that the site was occupied between 1580 and 1620, it is just as likely to have been occupied between 1580 and 1650. Pipe stem bore dates are just one tool that the archaeologist uses to date a site, not the only means.

Bearing in mind the imprecision of stem bores as an absolute dating tool, what can be accomplished using these stem bores is to see when the range of activity at the site occurred. Sites with small percentages of 9/64” stems, large percentages of 8/64” stems and a small percentage of 7/64” stems can be assumed to have their maximum period of occupation between the 1620 to 1650 period.

Another method that can be used to help to date a site is the establishment of median dates. By taking the median dates for each of the pipe stem bores, multiplying this by the number of fragments of each bore, adding all of the resultant answers together and finally dividing them by the total number of measurable fragments, the median date of occupation at the site can be hypothesized. This will result in a median date based on the assumption of pipe makers strictly adhering to the changes in pipe length in a given period.

Median dates such as these do help somewhat when attempting to determine if the site dates to a specific possible owner’s period of occupation. For example, if one believes that the site is that of a farmer who the documents say lived at his home from 1635-1687, the median occupation date of the site based on the documents is 1661. If one looks at the pipe stems and uses the formula and the median date is 1740, then the researcher becomes suspicious of the plausibility of the site being that specific farmer’s house. Of course, a good archaeologist is not merely going to look only at the clay pipes to interpret or date a site, they will look at all the artifacts from the site and then be more confident in assigning a specific site to a specific occupant.

The bowl styles which would date to this period are outlined by Hume (Hume 1969:302) (Figure x). The styles from England have been studied extensively by Adrian Oswald in his monumental work on the Bristol pipe makers (Oswald 1975). The pipe bowls from this period would be characterized by a diminutive size, but not as small as those from the 1580-1620 period. Their bowls tilt forward away from the smoker and they usually have rather larger heels which are the portions of the bowls on the

underside. Later bowls became larger and the heels shrunk until late in the seventeenth century they sometimes have disappeared altogether. The clay pipes from a site dating from 1635-1650 would be expected to be composed of large bored stems mainly of the 8/64" variety and small sized bowls similar to those shown in Hume's work. Using his work, the various bowls and many bowl fragments found at a site can be used to support or refute the chronology of the site or features based on the stem bore diameters. In it most basic sense, clay pipe bowl sizes increased throughout the seventeenth century. Along with the increased bowl size went a change in shape. The earliest bowls are small bulbous "belly" bowls with relatively narrow bowl openings. Over time the bowls remained bulbous but then grew larger and the diameter of their bowl openings increased (Figure x).

The distribution of clay pipes from the 2006 dig in the front yard, the 2009 excavations related to the replacement of the sills and the 2010 excavations on the terrace indicate changing patterns of refuse distribution over time (Table 32) **(Figure 55)**. These changing patterns are related to the changing

Figure 55. Clay tobacco pipes recovered. Top: Sill; Bottom: Terrace

Table 32. Clay Pipe Distribution

	Sill	South Yard	North Yard	Terrace
9/64" 1580-1620				2/ 2.7%
8/64" 1620-1650	2/ 16.7%		2/ 20%	
7/64" 1650-1680	6/ 50%	2/ 4.8%		
6/64" 1680-1710		9/ 21.4%		5/ 6.8%
5/64" 1710-1750	1/ 8.3%	20/ 47.6%	5/ 50%	26/ 35.6%
4/64" 1750-1800	3/ 25%	11/ 26.2%	3/ 30%	40/ 54.8%
	12	42	10	73

architectural character (footprint) of the Wing House. The earliest pipe stems (8/64" and 7/64" 1620-1680) are concentrated in the area excavated for the replacement of the sills in the northeast corner of the terrace and under the house. This indicates that the earliest location of refuse disposal related to the structure that composed the original Stephen Wing house, was concentrated under what is now the rear of the house. The next period of activity, 1680-1750, was concentrated in the south yard which is the only location where 6/64" stems were found and which yielded the highest occurrence of 5/64" stems. During this period it is believed that the house evolved into a salt box style possibly with more activity occurring in front versus behind it or with more activity occurring around the house and being related to the architectural changes that occurred- pipes being disposed of during the renovations. The last period (1750-1800), as represented by the 4/64" stem bore tobacco pipes, was fairly evenly represented around the house. The house is believed to have been renovated again c. 1760 to create its present form and the pipe distribution may reflect this.

Ceramic Analysis

Ceramic analysis focused on functional and temporal analysis of the recovered wares. Functional analysis includes the identification of the types of vessels present as well as how the wares can be used as socio-economic indicators. Ceramics in general have the potential to yield information on market distribution systems, food processing, preparation, consumption and other aspects of foodways behavior. Ceramics were also used for status display and possibly ideological statements (Spencer-Wood 1984: 33). The ceramics recovered from nineteenth century sites are assumed to largely have been acquired from those that were available at the local market economy with some percentage possibly being acquired as gifts, heirlooms or through some form of secondary recycling. The ceramics that are recovered archaeologically are the result of consumer choices of goods available in the market and the loss and selective discard patterns of the past inhabitants of the site (Spencer-Wood 1984: 33, 34). The types and styles of ceramics used by a household are influenced by an indeterminate number of interrelated factors including site location, availability of goods, occupation, ethnicity, economic level, social status, family status, religious and political affiliation and individual preferences (Spencer-Wood 1984: 34).

As a way of understanding the interrelationships between features and anomalies identified during the field work attempts were made to cross-mend sherds of vessels from various contexts across the site. Assemblages recovered from intact feature contexts were analyzed to determine a likely date of deposition for the material and to determine their probable function as part of the working household. It

was hoped that enough feature contexts can be identified to examine the changing nature of the household overtime and to compare these changes to larger local, regional, and national trends.

In general, extraneous material comforts such as decorative, although not necessarily expensive, pressed glass, floral painted versus undecorated ceramics and the presence of tea wares indicates an economic expenditure towards indulgence, something more than just the penultimate basic needs, versus subsistence or utility. One can easily do with wooden bowls and no tea, so the presence of items such as fashionable decorated ceramics and tea wares must indicate a desire for something more than the basic necessities of life by the inhabitants of a site. For example, in the 1840s hand-painted pearlwares were nearly twice as expensive as undecorated pieces and transfer-printed wares were over twice as expensive (Miller 1991). By purchasing transfer-printed wares versus undecorated wares, the inhabitants (especially the women who were the primary purchasers of such goods) may have been trying to say something about their real or perceived status. The expenditure of household funds on items such as the latest in consumer goods is difficult to reconcile with a desire for self-sufficiency during the Victorian Age, it was not possible to aspire to be both self-sufficient and socially respectable.

Ceramics in Plymouth Colony

In an attempt to move beyond mere description when reporting ceramic occurrences from archaeological excavations (e.g. "15 pieces of creamware, 4 pieces of pearlware and one piece of ironstone were recovered") to an explanation of why they occurred, Dr. James Deetz formulated a series of propositions regarding the use and distribution of ceramics in Plymouth Colony between the years 1620 and 1835 (Deetz 1972). Deetz's propositions were based on ceramics recovered from numerous excavations he directed while at Plimoth Plantation in the 1950s to late 1960s. He stressed the relationship between behavior and its material products and how the acquisition, use and ultimate disposal of artifacts such as ceramics, all resulted from certain aspects of the lifeways of their owners (Deetz 1972: 15). Deetz's propositions were as follows:

1) Ceramics are a functional component of a cultural system
2) Three successive cultural systems were operative in New England in the period 1620-1835
3) In all three cultural systems the presence of ceramics is a function of four factors: availability, need, function, and social status
4) Ceramics in Plymouth will exhibit a threefold division in time, corresponding to the three successive cultural systems in operation in New England (1620-1660, 1660-1760, 1760-1835), and within each time period there will be greater internal consistency than between time periods.
5) The pattern of ceramic use for the first period will reflect ceramic usage of the Stuart yeomen foodways subsystem as well as that of the first settlers of Plymouth.
6) Ceramics of the second period will show differences in terms of use and type, reflecting divergences from the parent culture. They will also exhibit strong conservative tendencies in stylistic and functional trends.
7) Ceramics of the third period will show a greater homogeneity and will reflect a more structured pattern of use than those of the earlier period 1760-1835 shows major shift in pottery types
8) There will be a marked increase in the rate of change in ceramic types during the third period, and domestically produced ceramics will decrease in relative quantity.

The colonists who settled in Plymouth arrived with the baggage of their medieval heritage and their Stuart yeoman ways. They were not totally representative but were basically less prosperous Stuart yeomen and husbandmen. They were conservative, potentially self-sufficient, and greatly influenced by religious attitudes. This way of life continued relatively unchanged and unchallenged for nearly a generation until the Puritan Revolution in the 1640s led to dramatic reduction in emigration. This lead to depressed economic conditions, shortages of imported goods and a cultural isolation that led to a slow but steady divergence from the earlier yeomen lifeways.

The century between 1660 and 1760 saw the isolated New Englanders develop a distinctive Anglo-American folk culture that was different from the English culture in the motherland. After 1760 and until 1835, American culture was impacted by the emergence of a Georgian tradition, which was Deetz's third period.

The Georgian tradition was characterized by symmetrical cognitive structures, homogeneity in material culture, progressive and innovative world view, and an insistence on order and balance that permeates all aspects of life and contrasted sharply with earlier medieval tradition (Deetz 1972: 18). This Georgian tradition was truly the first popular culture in America and served to dissolve regional boundaries and reanglicized the American culture.

Three general groups of ceramics were identified by Deetz as having been excavated in Plymouth Colony:
Group 1 Fine imported wares
Frenchen stoneware, scraffito, delftware, marbled slipware, trailed slipware,
mottled ware, agateware, Wheildon type wares, Jackfield type wares, porcelains,
creamware, pearlware
Group 2 coarse imported, undecorated wares
Borderware, North Devon gravel-tempered wares, undecorated redwares
Group 3 Coarse domestic redware
undecorated and later slip-painted and trailed types

Deetz's first period (1620-1660) was characterized by a low occurrence/ minimal need for ceramics within the Stuart yeoman foodways system. Wares that occur during this period were limited to Group 1 Frenchen stonewares, Group 2 Borderwares and undecorated redwares. Ceramics were limited to their use in dairying and as drinking vessels.

Deetz's second period (1660-1760) saw a marked increase in the occurrence of fine imported ceramics of Group 1(delftware, combed slipware, Westerwald stoneware predominantly, supplemented by supplemented by mottled ware, dipped white stoneware, North Devonshire scraffito ware), a decrease in Group 2 Borderwares with a concomitant increase in North Devon Gravel Tempered wares, and a growing increase in the use of Group 3 domestically produced redwares. Ceramics were still used for dairying, but by 1650 there was a marked shift in balance of power from the clergy to the merchants at which was indicative of growing trend toward secularization of certain aspects of the growing aspects of culture (Deetz 1972: 27). Supplies were arriving in renewed quantities after the 1660 Restoration, and a greater variety of European ceramics being used in the colonies is not surprising. Another change was the increasing reliance on ceramics as flatwares, dishes and plates, versus their earlier use as hollowares

Finally, the third period was characterized by a complete replacement of all the earlier types by the developing English refined earthenwares- creamware and then pearlware. The Georgian world view was of a more orderly relationship between man and his artifacts could account for it as well possibly creating a situation where there was now one plate, one cup, and one chamberpot relationship per person. Ceramic usage now conformed more closely to conform more closely to our 21st century concepts of the place of ceramics in culture (Deetz 1972: 32).

Method

Analysis began with the identification of the ware (creamware, whiteware, pearlware, redware, etc.). Minimum vessel counts will be generated for each class and a functional analysis of the types of vessels (cups, bowls, saucers, etc.) were carried out. Additionally, the types of decorations (undecorated, hand-painting, transfer printing, etc.) present on the wares were examined and compared to determine if any matched sets are present or if the vessels present appear to be mis-matched sets. The presence of matched sets over mis-matched pieces may help to better assess the socio-economic status of the household over time. Matched sets may indicate a desire by the inhabitants to own proper service sets and likely indicate that the individuals purchased the pieces specifically for the motif and with the desire to have a matched set. Mis-matched vessels may indicate that the pieces were either purchased with no real desire for the order and propriety implied by matched sets, that the pieces were purchased piece meal over an extended period of time, which may have resulted in the inability to find matching pieces when the time came to purchase another piece. Alternately, mis-matched sets may be a sign that the pieces were donated to the family and were not purchased at all. This would be especially true if the pieces were found to show a time lag between the occupation of the site and the types of ceramics present (i.e. older ceramics donated to a poorer family from a middle class family after that style had gone out of fashion).

There are three general classes that ceramics fall within, being distinguished by the amount of time that they have spent in the kiln. These are earthenwares, stonewares and porcelain with each being higher fired and thus more water-resistant. Earthenware and stoneware were recovered from the Site Examination testing. No porcelain was recovered, possibly reflecting the lower class status of the inhabitants of this site. Earthenwares can be characterized as being a ceramic class composed of glacial or alluvial clays that have been fired in a kiln at temperatures not exceeding 1200 degrees Celsius. Before the firing, the body may be, but was not always, covered with a powdered or later, a liquid lead oxide glaze. This glaze fused to the body and created a waterproof, glass-like surface.

Different paste textures, decorative techniques, and glazes produced different types of earthenware identified by the distinctions: redware; tin-enameled; slipware; North Devon gravel-tempered and gravel-free wares, slipware, and refined earthenwares such as creamware, pearlware, whiteware and ironstone. Some of these varieties have distinct temporal ranges, while others continued in production virtually unchanged for centuries.

The ceramic forms were identified following Beaudry's Potomac Typological System (Beaudry 1988). Milk pans are over 10" in diameter and are similar in shape to the pans and were used for cooling milk, as wash basins and probably for cooking (Beaudry 1988:65). Mugs are single handled, strait sided drinking vessels, taller than wide, and ranging from 1 gill (1/4 pint) to over 2 quarts (Beaudry1988:60). Cups differ from mugs mainly in their size, being only of a pint in capacity. Pots, also called butter pots, are large cylindrical or slightly convex-sided vessels, taller than wide, with some of their possible uses being for souring cream, storing butter and lard (Beaudry 1988:66). A basin is defined as an open

vessel with convex sides of greater width than depth, having a brim or everted lip and used for washing, shaving and dining, was found almost complete (Beaudry 1985:63).

Overall, ceramics were unequally distributed around the various incarnations of the Wing Fort House (Table 33). The greatest number of fragments and the widest variety of wares were recovered from the

Table 33. Recovered ceramics

Ceramic	North Yard	South Yard	Sill	Terrace	Date Range
Stephen to Ebenezar Periods c.1640-1738		**7/ 4.6%**		**6/ .2%**	
Stoneware- Bellarmine		5/ 3.9%		2/ .08%	1500-1700
North Devon Gravel Free				1/ .04%	1600-1700
North Devon Gravel Tempered		2/ 1.3%		3/ .1%	1680-1750
Joshua Period 1738-1790	**141/ 31.1%**	**52/ 34.2%**	**39/ 9.1%**	**502/ 20.5%**	
Slipware	1/ .2%	2/ 1.3%		3/ .1%	1675-1770
Stoneware- Westerwald	1/ .2%	1/ .7%	2/ .5%	6/ .2%	1575-1775
Porcelain- Batavian	2/ .4%	1/ .7%		5/ .2%	1740-1780
Stoneware- White-Salt Glazed	33/ 7.3%	2/ 1.3%	4/ .9%	24/ 1%	1720-1770
Stoneware- Fulham	1/ .2%			2/ .08%	1690-1775
Stoneware- Nottingham				1/ .04%	1700-1810
Tin-Enameled	11/ 2.4%	5/ 3.3%	2/ .5%	22/ .9%	1640-1800
Wheildon	3/ .7%		1/ .2%		1740-1770
Creamware	84/ 18.6%	28/ 18.3%	22/ 5.1%	413/ 16.9%	1762-1820
Jackfield	5/ 1.1%	8/ 5.2%	2/ .5%	10/ .4%	1740-1790
Staffordshire				2/ .08%	
Stoneware- Buff Bodied		1/ .7%	6/ 1.4%	14/ .57%	
Joseph to Joshua Periods 1790-1861	**29/ 6.4%**	**4/ 2.6%**	**66/ 15.4%**	**423./ 17.3%**	
Porcelain- Canton				4/ .16%	1790-1835
Pearlware	22/ 4.9%	4/ 2.6%	20/ 4.7%	155/ 6.3%	1780-1840
Whiteware	7/ 1.6%		46/ 10.7%	264/ 10.8%	1820-1900+
Presbury to Cora Periods (1861-1942)	**0**	**0**	**212/ 46.2%**	**99/ 4%**	
Yelloware			17/ 4%	32/ 1.3%	1840-1900+
Rockingham			1/ .2%	53/ 2.2%	1850-1950
Ironstone			194/ 45.2%	12/ .5%	1840-1930
Stoneware- Albany Slip				2/ .08%	1805-1920
Terra cotta				1/ .04%	
Other ceramics	**283/ 62.5%**	**93/ 61.2%**	**112/ 26.1%**	**1418/ 57.9%**	
Porcelain	6/ 1.3%		4/ .9%	15/ .6%	
Porcelain- Overglaze Decoration				1/ .04%	
Redware	277/ 61.1%	93/ 60.8%	108/ 25.2%	1386/ 56.6%	

Earthenware				16/ .7%	
Totals	453	152	429	2449	

terrace, sill and north side of the house, but ceramics made up the largest percentage of the total ceramic assemblage in the North Yard and Sill areas (Table 34). Ceramics made up the smallest

Table 34. Distribution of ceramic remains

	North Yard	South Yard	Sill	Terrace
Total Artifact Count	1280	1777	1185	21, 124
Percentage Ceramics	35.40%	8.60%	36.20%	11.60%
# of Ceramic Types	12 types	12 types	14 types	26 types

percentage of the total assemblage in the south yard, which is not surprising because people have a general tendency to dispose of their rubbish behind their homes (commonly the north side) versus in the front yard (commonly the south side). So while people tend to think of the seventeenth century as a hard, nasty, almost brutish period when people were more concerned with Indian attacks and just surviving the winter, it was not. People were living a lifestyle that would be difficult for most of us to adapt to, but they were concerned about personal and familial presentation and to this end, they appear to have had qualms about throwing their trash in their front yards where they would be receiving visitors to their homes. This sense of presentation continued to evolve throughout the seventeenth and into the eighteenth century coming to full fruition with the Georgianization of the home in the middle eighteenth century. Therefore, it was not surprising to find the widest variety of ceramic types and to find ceramics making up larger percentages of the assemblage on the south side of the house.

The types of ceramics was also differentially distributed, as can be seen in Table 33. Ceramics potentially dating to the earliest occupation were only found in the south yard and on the terrace. the made up a larger percentage of the assemblage in the south yard than on the terrace where they made only a minor contribution to the assemblage. Ceramics from the Joshuah Wing period (1738-1790) were most common in the south and north yards and on the terrace. Their occurrence in the north yard may be a result of landscaping activities that removed soil from the north yard and redeposited it in the south yard during the architectural renovation that occurred in the mid-eighteenth century. Ceramics from the Joseph and Joshua Wing periods (1790-1861) were concentrated on the terrace and in the sill area while the ceramics from the final period, the Presbury to Cora periods were concentrated in the area of the sill. This final distribution is somewhat skewed due to the recovery of numerous pieces of the same ironstone plate in the area of the sills.

Earthenware

Redware

Redware is the largest and most commonly occurring type of earthenware encountered on European Colonial sites. Redware itself has not received a great deal of careful and scholarly work to tightly date them. Apart from Laura Watkins' paramount work and Sarah Turnbaugh's 1985 treatise on the subject, there has not been much follow up work done to continue the scholarship. As a result, while redware makes up the greatest percentage of the assemblages looked at, they can not be closely dated, and must be given limited weight to the amount they can contribute to the identification of an early seventeenth century site. What can be said about them relates primarily to their glaze colors.

Studying the English ceramic traditions which formed the precedent for colonial potters work, Turnbaugh identified 12 redware traditions in England which she felt were perpetuated by New England potters (Turnbaugh 1985:216-217). Her date ranges for wares made in England date from ca. 1200 to 1795, and those in New England from ca. 1650 to 1815. Turnbaugh identified seven types of decorative styles, based on post-firing glaze color and decoration, with several sub-types for four of the larger types (Table 35). Several Charlestown potters are known including John Parker, who, in

Table 35. Turnbaugh redware types

Type	Color Munsell	Decoration	Date
1a Yellow to Red Glazed	2.5YR3/6 to 5YR 4/8-5/8 to 7.5YR 5/6-5/8 (Dark red to yellow red to strong yellow brown)	Glaze Only	1650-1800
1b Yellow to Red Glazed Slipware	Same as 1a	Yellow slip decoration Metropolitan Style	1685-1800
1c Yellow to Red Glazed Slipware	Same as 1a	Yellow/ dark yellow slip with copper specks Wanfried Style	1685-1800
1d Yellow to Red Glazed Slipware	Same as 1a	Yellow slip limited to bands at rim and base Astbury Style	1763-1800
2a Olive Glazed	2.5Y 5/4- 4/4 to 5Y 7/6 to 5/6 (Olive brown to olive yellow)	Glaze Only	1650-1800
2b Olive Glazed Slipware	Same as 2a	Yellow Slip Decoration	1685-1800
3a Ferruginous Black Glazed	10YR5/1-3/1 (reddish gray to dark reddish gray)	Cistercian Style	1685-1735
4a Black Glazed	5YR2/1-2/2 to 7.5YR2/0 - 2/1 (black to very dark reddish brown)	Jackfield Style	1685-1715
4b Black Glazed Slipware	Same as 4a	Yellow slip Wrotham Style	1685-1735
5a Mottled Glazed	2.5YR4/6 -2/0 (mottled red to dark reddish brown to dusky red to black)	English Manganese Mottled Ware Style	1725-1815
6a Bright Green Glazed	10GY5/4-4/4 (Yellowish green)	Tudor Green/ Borderware Style	1650-1750
7a Yellow Glazed Slipware	2.5Y4/6 -7/6 (light olive brown to yellow)	yellow slipware with sponge-splashed brown design elements	1763-1800

1750, is known to have sold to Barnstable and Harwich as well as Duxbury and Daniel Parker Jr. in 1832 (Watkins 1968: 45). Additionally it is known that Noah Bradford, son of Noah Bradford , potter, of Kingston, Massachusetts, operated a pottery in Barnstable from 1819-1830 that he had bought from Prince Nye (Watkins 1968: 45). People on Cape Cod also received pottery from Long Island in New York (Watkins 1968: 27).

A total of 1864 fragments of redware representing 76 vessels were recovered. The majority of these fragments were recovered from the terrace (Table 33) with other fragments being recovered from all other locations **(Figure 56)**. In all the areas of excavation, except the sills, redware made up an average of 60% of the total ceramic assemblage. Vessels forms included chamberpots, pans, pots, cups, mugs, drinking pots, bowls, a bottle, and a teapot (Table 36). The periods of use for the various glaze colors is

Table 36. Redware vessel forms organized by Turnbaugh types

Form	1a 1650-1800	1b 1685-1800	1c 1685-1800	2a 1650-1800	4a 1685-1715	5a 1725-1815	7a 1763-1800
Chamberpot	8	3		1	2	3	
Pan	5	1	3	1	1	1	
Mug	1			1	1		
Cup	6				2	1	1
Drinking Pot	3		1			1	1
Bottle	1						
Bowl	3				3		1
Pot	4					1	1
Tea Pot					1		
Unknown	3					1	
Totals	34	4	4	3	10	8	4

so wide in most types thatthey can not be assigned to any one period of occupation In the case of Types 4a, 5a, and 7a though they can be assigned to the Stephen to Ebenezar period for Type 4a, and the Joshua to Joseph periods for types 5a and 7a. Most of the types were encountered in all the excavation contexts but Type 1b was only recovered from the south and north yards. Redwares were very utilitarian and the vessels recovered indicate that they were being used for food storage (pot) , dairying

Figure 56. Redware recovered. Top: Sill; Bottom: Terrace around well

(pot and pan), food consumption (bowl), liquid serving and consumption (tea pot, bottle, cup, mug, drinking pot), and hygiene (chamber pot). One additional class of vessels not discussed above are nineteenth to twentieth century flowerpots. These were unglazed and a total of 11 individual vessels were recovered from the terrace and sill area. These may have com from the use of the "summer kitchen" as a potting shed at some point during the very late nineteenth to twentieth century.

Tin-enameled

Tin-enameled wares (also called tin-glazed, or delftware) were produced in Spain, France, Portugal, Holland and England. At present it seems that wares from England comprise the vast majority of these wares found on early seventeenth century English colonial sites. Tin-enameled wares are semi-soft bodied earthenwares that were decorated with blue, orange, green and yellow painted glaze and were

covered with a tin glaze or a lead glaze with tin added. This gave a white glaze to the vessel reminiscent of oriental porcelain, which they appear to have imitated. The most common vessels for the early seventeenth century are chargers, flat broad platters, with floral or pomegranate decorations in the center and blue dash decoration along the rims (Hume 1969:108). These were made from ca.1620 to 1720. As with other ceramic types that lasted for a long period, the decoration of this ware degraded throughout the century as demand and availability of them increased. Apothecary or drug pots were also made in England. These were rather tall and narrow vessels painted in bands on the exterior, often in blue, orange and purple (Hume 1969:205). These were produced from ca. 1580 to 1640. They were replaced by plain white pots of a squatter shape later in the century.

A total of 30 fragments of tin-enameled representing eight vessels were recovered **(Figure 57)**. All had

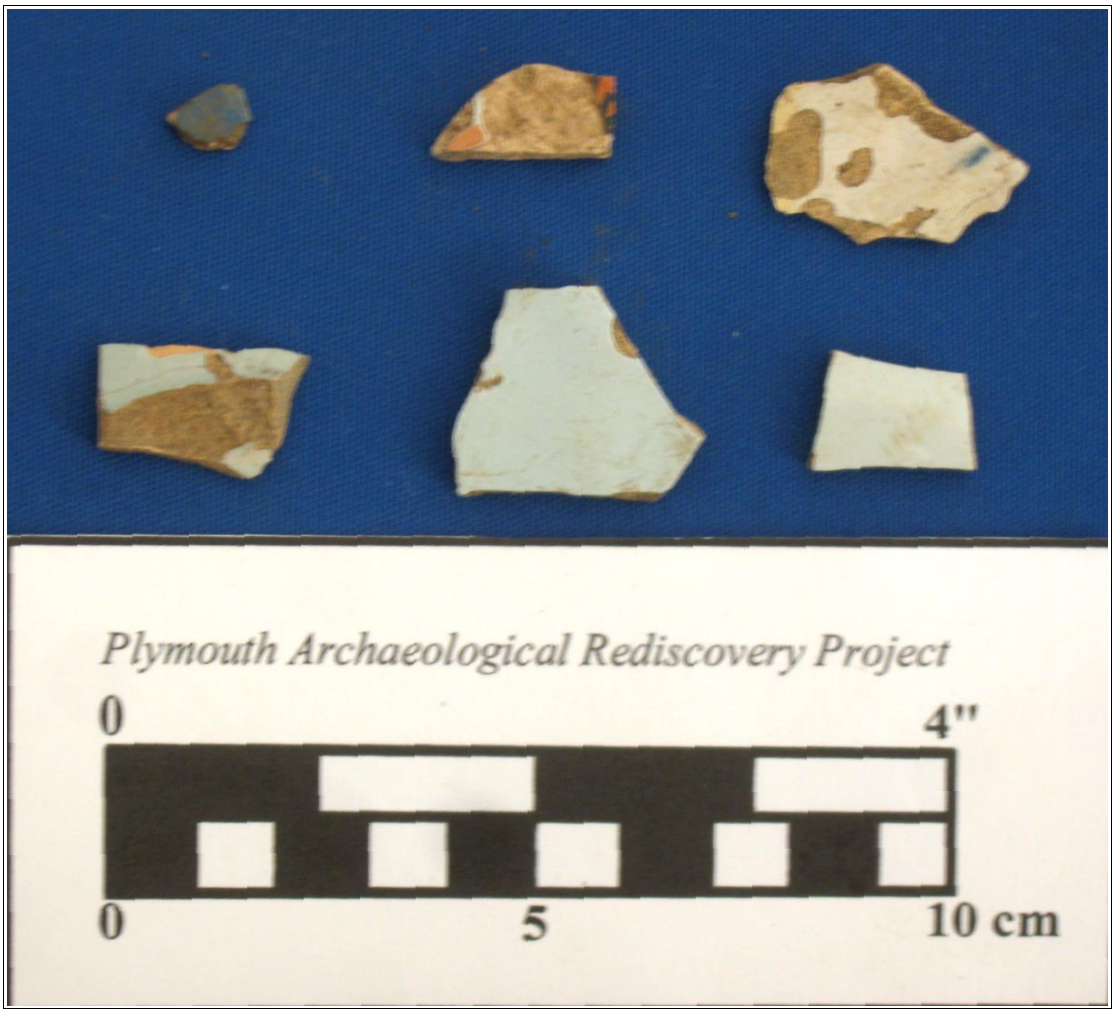


Figure 57. Tin-enamaled ceramics recovered from the terrace

light buff colored pastes. The first vessel has a white tin-enamel with sparse light blue decoration on the interior. It is probably a plate and was recovered from the southwestern portion of the terrace. The second vessel had a very light bluish white enamel and no visible decoration. It may also represent a plate and was recovered from the central portion of the terrace. The third vessel was a footed plate with

a light bluish white enamel and no visible decoration. This vessel was found in the western portion of the terrace. The fourth vessel is a possible place with bluish white enamal and no visible decoration. This was found in the central section. The fifth vessel was recovered from the eastern portion and had a light bluish white enamel and a hand painted blue line at the edge of the rim. The vessel form was a plate. The final vessel has a very light bluish white to white enamel with and interior decoration of orange flowers and black lines. This vessel may be English and decorated in the Wan-Li pattern. It was recovered from the western portion of the terrace. Vessels forms were limited to those used for food consumption (bowl, saucer, and plate), liquid consumption (cup), and hygiene (chamber pot). Decoration was limited to blue hand painting on one bowl and one plate and orange and black hand painting on one plate. While most of the base glazes on the the vessels were white to blue white in color, one vessel bore a turquoise glaze with black hand painting. Fragments of a very similar vessel were recovered from the Joseph Howland site in Kingston (1675-1730) and from the Ezra Perry II site (Aptucxet Trading Post Museum site) (1675-1730) in Bourne. It may be Spanish or Mediterranean in origin. This vessel would date to the Stephen or Ebenezar Wing period while the other vessels date to the seventeenth to eighteenth century.

Slipware

Slipwares are ceramics with an earthenware base and coated with a yellow lead glaze which is decorated with brown trailed or combed decoration. This ceramic type was produced first by the Romans but became popular during the reign of Charles I (1630-1685). Slipware produced in the Staffordshire region of England were exported to the North American colonies from the late seventeenth century until the American Revolution (c.1675-1775). It is a thin, buff-bodied was coated with slips and decorated with trailed, combed and marbled designs. By the late seventeenth century, exported slipware was generally used by less affluent classes of society (poor to middle class) as well as in taverns and as a general rule, finely executed decorated examples date earlier than more coarsely decorated ones. Vessel forms included drinking vessels (cups, tygs, mugs, posset pots, puzzle jugs) and dishes/ plates, as well as a wide variety of other forms that are less commonly recovered archaeologically (bowls, drug jars, honey pots, teapots, jugs, candlesticks, chamber pots) (Noël Hume 1970)

A total of four fragments of slipware representing two vessels were recovered. The majority of these fragments were recovered from the terrace with other fragments being recovered from the north and south yards. The vessel forms present were limited to one cup and one pan.

North Devon Gravel Tempered

North Devon Gravel Tempered Ware was produced in the North Devon region of England. It is identified by its heavy gravel temper (15-30% of the paste) and its thick, compact paste which is generally red to pink in color, often with a gray core. Vessels are often glazed with an apple green to mottled yellow-green lead glaze. Vessels of a wide variety of forms were produced including milk pans and butter pots, which are the most common form recovered archaeologically. It was produced from the early seventeenth century into the nineteenth century, but commonly appears on North American sites in the third quarter of the seventeenth. It disappears from American sites c. 1750 to 1750. North Devon merchants from Bideford and Barnstaple succeeded in making this ware the most common utilitarian and dining wares in many areas of Britain and the New World. North Devon wares were eventually eclipsed by Buckley-type earthenwares in the eighteenth century.

A total of four fragments of North Devon gravel-tempered ware representing one vessel were

recovered. The majority of these fragments were recovered from the south yard with other fragments being recovered from the terrace **(Figure 58)**. Vessels forms were limited to one milk pan.

Figure 58. North Devon wares. Top and Middle Bottom: North Devon gravel tempered; Left and Right Bottom: North Devon gravel free

North Devon Gravel Free

The West Country of England, mainly around the towns of Barnstable, Biddeford and Great Torrington also produced a type of earthenware that has come to be known as North Devon gravel free ware. This ware is easily distinguished by the color of the exterior versus the interior. The exterior was fired in an oxidizing atmosphere in the kiln and as a result it attains an orange or red. These vessels were fired upside-down in the kilns, with result being the interior having been fired in a reducing atmosphere, free from oxygen. As a result the interior is often a gray fired body with a mottled yellow to olive brown

glaze (Cranmer 1992:85). These vessels have long been thought to have only been produced during the late seventeenth century, but their recovery from sites such as the Plymouth trading post at Pentagoet (ca. 1629), Martin's Hundred in Virginia (1622) and from the wreck of the Sea Venture (1609) pushes their dates of manufacture back into the first quarter of the century (Cranmer 1992:85). Their recovery from sites throughout the century shows that they were produced for a long time range. Most of the vessels take the form of baluster jars. These vessels have a constricted neck on which a paper or cloth cover could be tied. It is theorized that these vessels were shipped either empty or filled with pickled fish to the colonies.

A total of two fragments of North Devon gravel-free ware representing one vessels were recovered **(Figure 58)** These fragments were recovered from the terrace (Table x). Vessels forms were limited to one baluster jar.

Staffordshire Mottled ware

Staffordshire mottled ware is a buff bodied English earthenware with a mottled colored exterior glaze and a light colored interior glaze that dates to the early eighteenth century. Two fragments, one from a teapot and one from a bowl were recovered from the western portion of the terrace.

Jackfield

Jackfield was produced in England between 1745 and 1790. It is easily recognized by its purple or gray paste covered with a black glossy glaze. Jackfield ware was produced in Shropshire after 1750 by Maurice Thursfield and by Thomas Wheildon in Staffordshire (Noel Hume 1969: 123). Wheildon's Jackfield has red body and glossier glaze. The principal ware produced in Jackfield were tea wares and pitchers and they are common in America on sites dating to the 1760s (Noel Hume 1969: 123).

A total of 25 fragments of Jackfield were concentrated in the western portion of the terrace (n=9) and the south yard (n=8), but it was also found in the north yard (n=5) and in the eastern half of the terrace (n=3). Vessel forms were limited to one teapot and one bowl.

Wheildon Ware

Josiah Wedgewood, who eventually created creamware, partnered with Thomas Wheildon and the team produced a green clouded glaze cream bodied ware between 1750 and 1775 (Noel Hume 1969: 124). These wares eventually lost their popularity when cream colored wares were perfected by Wedgewood in 1762.

A total of five fragments of Wheildon ware were recovered from the terrace, sill area and the north yard. These fragments all came from one bowl.

Creamware

While English folk and Colonial settlers were content to use redwares for their utilitarian needs, there was always a market for "white wares", beginning with the importation of Oriental porcelain. But porcelain was expensive and the availability was limited, which lead to the development of tin-glazed soft-bodied delft wares which copied the motifs and forms of the more expensive porcelains. By the middle eighteenth century, the English's quest for a less expensive light-glazed ware similar to Chinese porcelain was brought one step closer by Josiah Wedgewood's perfection of Creamware in 1762 (Noel Hume 1970:125). This ceramic type was not pure white, but had a light to deep yellow tint to the glaze and pooled green in the crevices of the vessels. Creamware was produced until 1820 and was generally

replaced by a whiter "pearlware" that began production in the late 18th century. Early Creamware had a deep yellow tint which, by 1775, was refined to a lighter yellow by the use of kaolin clays in the manufacturing process. Decoration on Creamware was limited to some molding, and hand painting and transfer printing to a much smaller degree. Miller and Hunter (1990) summarized Creamware edge treatments thus:

1750-1775 Molded Whieldonware
1766-1790 Queen's ware
1766-1820 Royal Pattern
1765-1790 Feather edge

A total of 547 fragments of creamware representing 16 vessels were recovered **(Figure 59)**. The majority of these fragments were recovered from the with other fragments being recovered from the north and south yards, and the terrace. Vessels forms were limited to those used for food consumption (plates and saucers), liquid serving and consumption (cup), and hygiene (chamber pot). Four of the vessels bore molded decoration, including on plate with a molded feather edge, dating them to 1765-1790 and three of the plates bore Queen's Edge patterns, dating them to 1766 to 1790 and placing both in the Joshuah Wing period.

Pearlware

Pearlware is said to be the most common type of ceramic encountered on early 19th century sites (Noël Hume 1970:130). Whereas when the glaze of creamware pooled green in the crevices of the foot ring on the bottoms of vessels, pearlware pooled blue. Pearlware was used on a wide variety of forms from chamberpots to eggcups but it is most frequently encountered in the form of plates and saucers decorated with blue or green shell edging around their interior rims. Decoration on Pearlware also took the form of cup and mugs decorated with annular bands on the exterior. These "annular wares" were produced from approximately 1795-1815 (Noël Hume 1970:131).

Decorative techniques used on Pearlware, and eventually Whiteware, are more temporally sensitive than the wares themselves. Blue or green shell edge-decorated wares first appear in Wedgewood's 1775 and Leeds' 1783 pattern books and became one of the standard products of the Staffordshire potteries in the nineteenth century. This is believed to be due to the fact that they are the least expensive decorative table ware available (Miller and Hunter 1990). Initially both green and blue were used on the edges, but by 1840 green-edged had become rare with blue shell-edged remaining in production until the 1860s. By the later part of the nineteenth century the production of shell-edged wares had

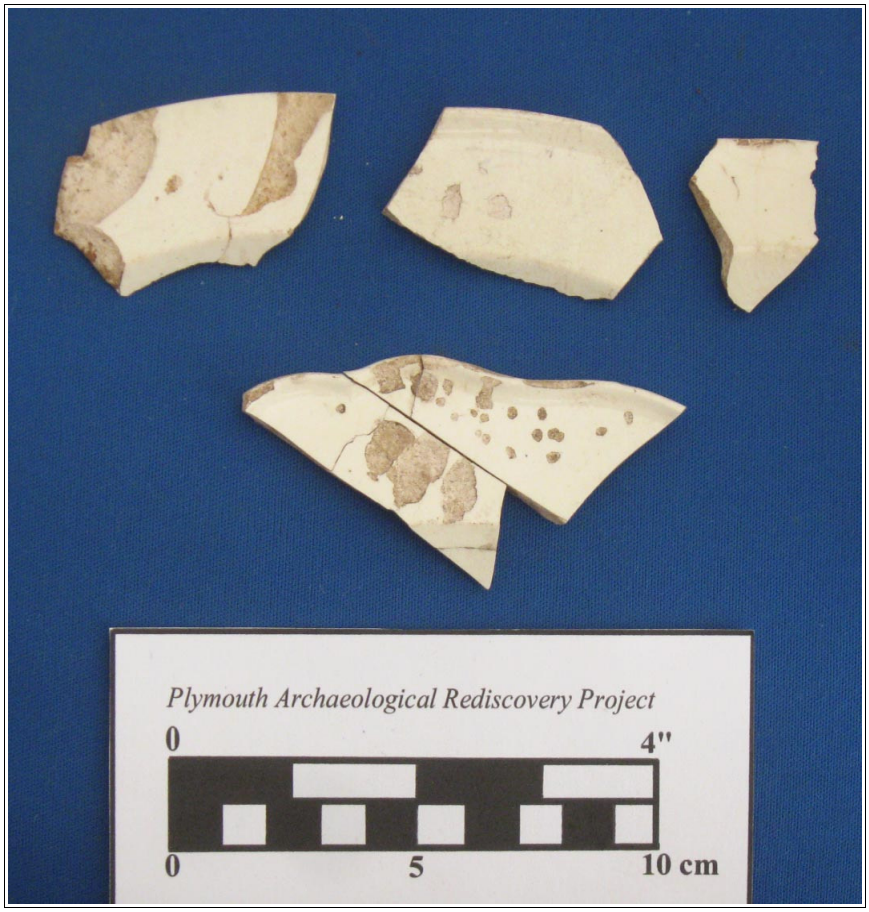


Figure 59. Creamware recovered from the terrace

discontinued but blue-edging, edging that was just blue but that lacked the earlier molded edging, continued until the 1890s. Miller and Hunter summarized the production of blue and green edging in 1990:

1780-1810 Rocco Style, irregular scalloped rim and undecorated center
1800-1840 Evenly scalloped Shell Edge
1820-1840 Embossed Edge
1840-1870 Unscalloped Shell Edge with impressed pattern
1850-1890 Unscalloped and unmolded Shell Edge

Three pearlware plates were recovered that had blue or green edges **(Figure 60)**. One plate had a scalloped edge and was molded in a Rocco style (1780-1810) while the other plates had evenly scalloped edges (1800-1840). Most of the fragments were recovered from the western portion of the terrace.

Figure 60. Edged pearlware recovered from the terrace

Pearlware, and later whiteware, were also decorated by hand-painting. Two general types were used: thin-lined and broad-lined (Price 1979). Prior to 1835 polychrome hand-painted designs were executed in mustard yellow, mocha brown and burnt orange, but after 1835 brighter colors such as grass green, golden yellow, red and powder blue were used. The singular use of blue painted designs, intended to mimic porcelain designs, occurred on earthenware from 1775-1840 and was eventually replaced by transfer printing by 1815. After 1820 until approximately 1830, blue floral designs were executed with a bolder stroke and are easily distinguished from the earlier technique.

A total of 70 fragments of blue hand painted pearlware representing nine vessels were recovered **(Figure 61)**. Just over half of the fragments (n=36) were recovered from the east half of the terrace, 31 were recovered from the western half of the terrace and the remaining pieces were from the north and south yards. Vessels forms included 11 vessels used for food consumption (plate), liquid serving and consumption (tea tea cups and saucers), and hygiene (chamber pot). These vessels date from 1775-1840 and belong to the Joseph and Joshua periods.

Figure 61. Blue hand painted pearlware recovered from the terrace

A total of five fragments of brown and white hand painted pearlware representing one vessel was recovered. These fragments were recovered from the western half of the terrace and from the north yard. The vessel forms recovered was a tea saucer and probably dates prior to 1835.

A total of 42 fragments of polychrome hand painted pearlware representing seven vessels were recovered **(Figure 62)**. These fragments were all found on the terrace, chiefly in the western half. Vessels forms included seven vessels used for liquid serving and consumption (tea cups/ bowl and saucers). These vessels date from after 1835 .

Whiteware

Pearlware was replaced in approximately 1820 by a very white refined earthenware commonly called whiteware. Whiteware continues to be produced today. Plain, undecorated whiteware was produced throughout the century, starting after 1820 and was considered the cheapest version of this type of whiteware. Blue and black florals covering most of the decorated surface predominated on hand-painted whitewares in the first quarter of the nineteenth century. Slightly later, a finer sprig pattern in

Figure 62. Polychrome hand painted pearlware from the terrace

either monochromatic or polychromatic forms was produced until around 1890 with polychromes more popular, but less common, from 1830 to 1850 (Miller 1987). Blue edging, similar in execution and design to that used on pearlware, continued on whitewares most commonly with unscalloped unmolded or impressed rims, overall much simpler than the earlier pearlware versions.

Two mocha decorated whiteware vessels were recovered **(Figure 63)**. One bore exterior blue and

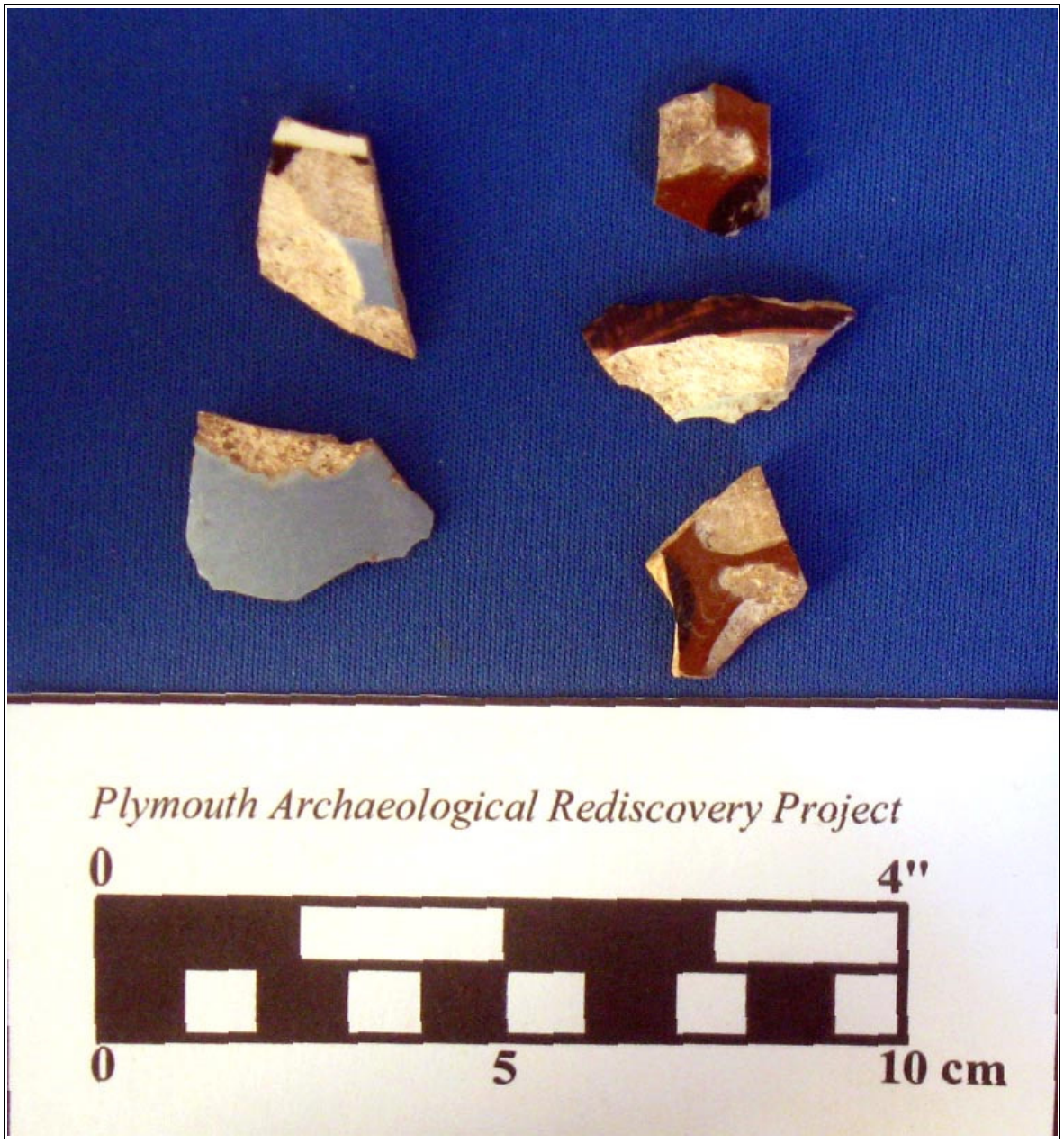


Figure 63. Mocha decorated ceramics from terrace

brown mocha on a tan background with two interior brown bands. This was a probable pitcher. It was recovered from the western portion of the terrace. the second vessel bore a light blue band and a narrow brown band around the body with an band of tan and brown worm mocha. The vessel form was a bowl and the fragments were recovered from the central portion.

Transfer printing was the decorative technique that replaced hand-painting after the 1830s (Table 6). This technique was first used in 1797 with the first colors being blue, black and sepia and was followed by red, yellow in 1848 and then brown and green in 1852 (Miller 1965). The earliest patterns were Chinese until 1805 when the development of copper plate engraving allowed the creation of finer lines

and more variation in color tone. After 1830 the quality of design and color intensity declined and multicolor underglazing was developed in 1848. Color is considered the most temporally sensitive property of this decorative technique. The following table (compiled by Stelle:2001) outlines the temporal changes in transfer printing in the nineteenth century (as described by Miller 1987, Esary 1982, Sonderman 1979, and McCorvie 1987):

Table 37. Transfer-printing color date ranges and periods of maximum popularity.

Type	**Date Range**	**Maximum Popularity**
Dark Blue	1820-1860	1820-1830
Light Blue	1826-1831	1827-1828
Blue and Painted	1840-1860	
Red	1829-1850	1829-1839
Brown	1829-1850	1829-1839
Green	1829-1850	1829-1839
Black	1830-1850	
Purple	1829-1860	1829-1839
Purple and Painted	1840-1860	
Gray and Painted	1840-1860	
Red and Green	1832-1838	
Scenic Flow Blue or Black	1840-1860	1840-1849
Flowery Flow	1870-1879	

A total of 123 fragments of whiteware decorated with transfer printing, representing 21 vessels were recovered **(Figure 64)**. The majority of these fragments were recovered from the western half of the terrace (n=94) with other fragments being recovered from the eastern part of the terrace (n=25) and the north yard (n=4). Vessels forms consisted of those used for food consumption (tureen, sugar dish, bowl), liquid serving and consumption (tea tea cups, saucers, tea pot), and hygiene (wash basin and toothpaste pots).

Black transfer printing decorated a total of three vessels from the terrace. One vessel was a pot lid with the letters "...RN/ ...ON" present on it. Pot lid were used on small pots, similar to cold cream jars or marmalade pots, containing anything from toothpaste to anchovy paste. These vessels date from the late quarter of the nineteenth century. This vessel fragment was recovered from the southwestern corner of the excavation area. Two other fragments came from a first to second quarter of the nineteenth century Staffordshire child's mug. These mugs bore allegorical verses or scenes of children playing. These fragments were recovered from the southwestern portion of the terrace and bore the letters "CUP" and "D". The three other black transfer printed vessels consisted of two bowls and one possible tableware lid. All of these fragments except for one were recovered from the southwestern portion of

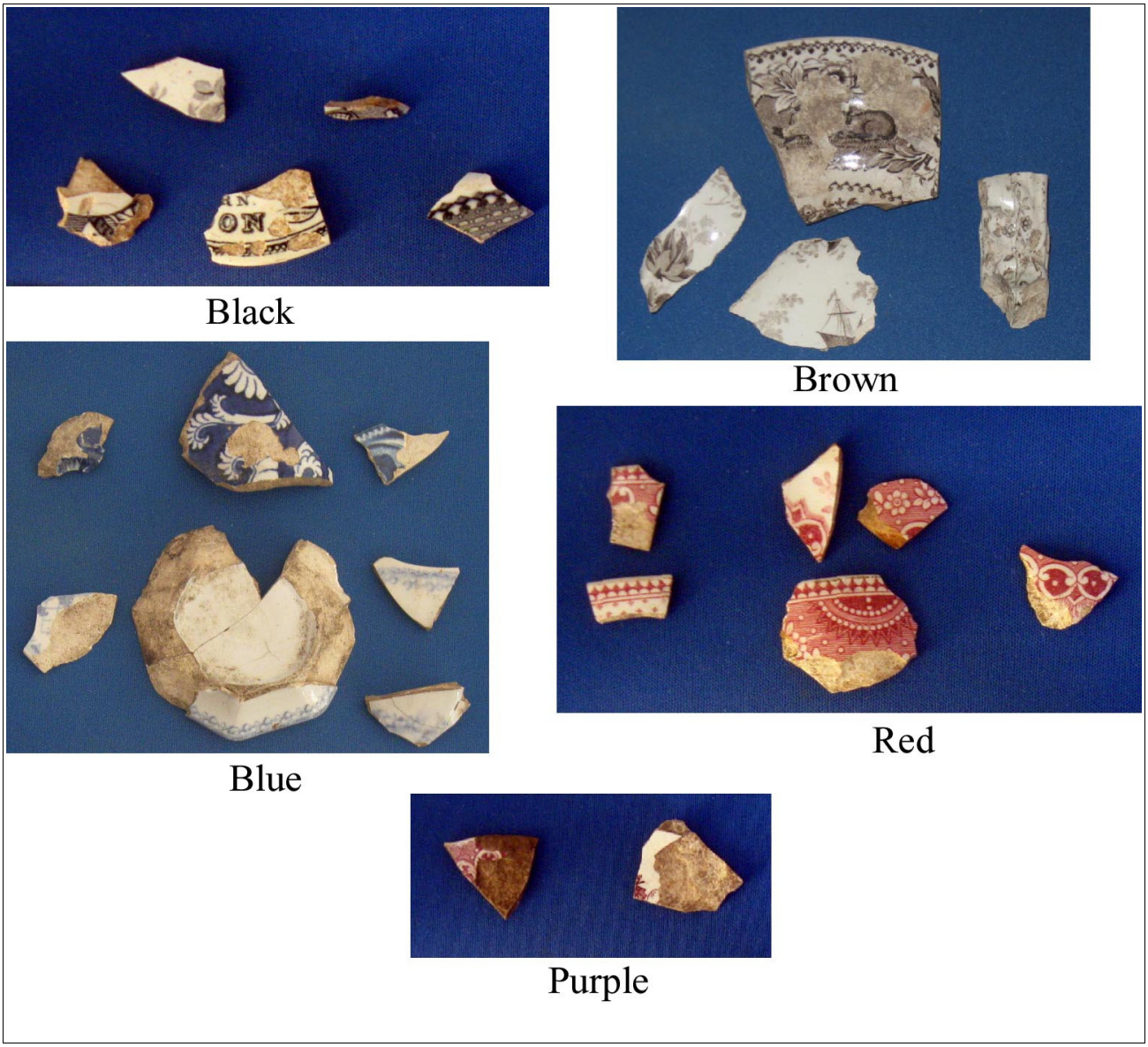


Figure 64. Transferprinted whitewares from the terrace

the terrace. The other piece came from the central portion of the terrace.

Two fragments of what appear to be the same light purple colored transfer printed plate or saucer were recovered from opposite sides of the terrace.

Six brown transfer printed vessels were recovered from the terrace One was a saucer with an interior transfer printed design of a sailing ship, another was a saucer with an interior floral and rabbit transferprint, a third saucer bore an interior design of a Grecian urn, and the final saucer bore a dark transfer print of floral garlands on the interior rim. The handle from a possible teapot was recovered, decorated with delicate flowers and an interior and exterior decorated bowl was also recovered. These vessels were spread across the terrace with two from the eastern portion, one from the center and three from the western portion. None appear to bear matching patterns.

Fragments of one red transfer printed cup were recovered mainly from the western portion of the terrace, although two pieces were also recovered from the central portion. All appear to have come from one vessel that bore interior an exterior geometric and floral decoration.

Fragments from five light to dark blue transfer printed vessels were recovered from the terrace. Two fragments of a bold dark blue Gothic transfer printed possible pitcher were recovered from the central and western portions. This vessel bore large white floral decoration on a dark blue background on the exterior and some dark blue decoration on the interior possibly at the neck and rim of the vessel. Two fragments of dark blue decorated blue on white saucer were recovered from the western portion of the terrace. Three fragments of the lid for a blue transfer printed tableware lid, possibly an oval shaped tureen, were recovered from the central portion of the terrace while several pieces of a light blue decorated possible teapot or pitcher were recovered from the eastern portion. Fragments from a light blue decorated saucer were recovered from the western portion of the terrace.

Fragments of uncolored whiteware vessels were also recovered. A total of nine vessels used for food consumption (plate, bowl) and liquid consumption (cup, mug, saucer) were identified.

Ironstone

Ironstone is a high-fired earthenware that approaches, but never quite reaches the hardness of stonewares. Ironstone was developed to compete with the whiteware market. With the final development of thin whiteware, the thicker ironstone was relegated to products such as plates, pitchers and bowls, chamber pots and other heavy utilitarian wares. Ironstone was first introduced by Charles Mason of Staffordshire, England in 1813 and was shipped to American markets by 1842. Ironstone was decorated in the same ways as Whiteware. Additionally it was often left plain or molded with leaves, ribs, or flowers. Plain wares were produced for the entire time span of Ironstone production, whereas molded ironstone with sharp angles, and hexagonal or octagonal body forms were popular from the 1840s through the 1880s. After 1860 embossed plant elements became popular and in the 1860s and 1870s, luster decorated “tea leaf” patterns were popular (Kovel 1973).

A total of 206 fragments of ironstone representing five vessels were recovered **(Figure 65)**. All of these fragments were recovered from the western half of the terrace. Vessels forms included one pitcher, one plate, one cup, one mug and one chamberpot.

Figure 65. Ironstone recovered from the terrace

Yelloware

Yelloware is earthenware produced to replace the unfashionable redware, as a new kitchen utility ware. It has a hard, pale yellow body that is covered with a yellow or a clear glaze and often with blue, black or brown and white bands. It may also have a blue, green, or black dendritic mocha decoration,or a dark mottled brown glaze. The annular decoration with or without the mocha was produced from 1840-1900.

Clear-glazed yelloware was produced in many utilitarian forms including bowls, plates, jugs, and bottles. Yelloware was introduced to America from England in the latter 1820s and eventually was produced by various firms in New Jersey, Pennsylvania, Ohio, Vermont, New York, and Maryland from the 1840s to the 1850s (Leibowitz 1985). The maximum popularity of yelloware was in the period from 1860-1870. Even though its popularity waned by 1900, it was continually produced into the 1930s. English-made yelloware has a yellow glaze, while American-made yelloware has a clear alkaline glaze. Four temporal trends have been identified for yellowares (Leibowitz 1985):

1830	Plain no decoration, no foot formation, no lips, hand thrown
1840	Annular banded and dendritic (mocha) decoration
1850-1870	Coarse, heavy yelloware predominantly in the Midwest, cream and buff color to rich canary yellow
1860-1900	Pressed or molded yelloware, scenes and floral decoration

Fragments from two yelloware vessels were recovered **(Figure 66)** A plain bowl was recovered from across the terrace. A molded possible bowl was recovered from the western and eastern portions of the terrace. This vessel would date to 1860-1900.

Rockingham

Rockingham or Bennington-glaze yelloware has a thick brown, mottled glaze and a molded body and was most popular in America from 1840 to 1900. Rockingham was first produced by English potters in the Swinton District after 1788 with teapots being the most common form (Spargo 1926:170). By 1830, English potters had immigrated to American and began producing a larger variety of this type of ware. The center of production was Bennington, Vermont. From 1847 through 1865 the most common technique for applying the glaze was by spattering it on with a paddle, the result being that no two pieces appear the same.

Fragments of two Rockingham vessels, one chamberpot and one teapot lid were recovered **(Figure 67)**. The chamber pot bore an exterior molded flute decoration that is often seen on ironstone chamberpots of the late nineteenth century. Fragments of this vessel were recovered principally from the western section but one piece was found in the eastern. The teapot lid was molded and thinner than the chamberpot. Fragments from this vessel were recovered from the eastern and from the central and western portions.

Terra cotta

Terra cotta is a name for heavy thick unglazed pottery used in the late nineteenth to twentieth century for drain pipes. One fragment of a terra cotta drain pipe was recovered from the western half of the terrace

Figure 66. Yellowware recovered from the terrace

Figure 67. Rockingham recovered from the terrace

Stoneware

Stoneware can be described as a ceramic type that is made of alluvial or glacial clays which is fired in a kiln at temperatures of 1200 to 1400 degrees Celsius. Firing the clays at these temperatures produces a dense, vitrified, waterproof body of a gray, brown or buff color. Vessels were often glazed by throwing handfuls of salt into the kiln at the peak of firing. This imparted a salt glaze, giving the exterior surface a waterproof glaze with an orange peel like texture.

Stoneware products often took the form of heavy, utilitarian objects such as mugs, jugs, crocks, churns, pitchers, inkwells and oil lamps. Four general types of surface treatments can be present on stoneware: Unglazed/Plain, Salt-Glazed, Albany-Slipped and Bristol. Unglazed stoneware is considered relatively rare (Stelle 2001). Salt glazing was commonly used in all periods of production and was often used in combination with Albany Slip, with salt glazing generally being less popular after the 1860s (Zilmer 1987:35). Albany Slip is described as a hard, chocolate brown glaze produced by natural clays found in the Albany region of New York (Stelle 2001). Bristol glaze consists of a white to off-white hard and glossy glaze often used in combination with Albany slip on the exterior of "whiskey" jugs before 1920, but also was used on jars and crocks. It was common after 1890.A total of 25 fragments of nineteenth century buff-bodied stoneware were recovered. The majority (n=12) were recovered from the central portion of the terrace with other fragments being recovered from the western (n=6) and eastern (n=6) portions of the terrace and the south yard (n=1). Vessel forms were limited to food storage (pot and pot lid), ornamental (flowerpot), and liquid storage (jug) **(Figure 68).**

Figure 68. Nineteenth century stoneware recovered from the terrace

Bellarmine

Brown slip covered salt glazed stoneware had been produced in eastern Europe since at least the 1400s

and was used chiefly for shipping and storing commodities (Turnbaugh 1985:16). Primarily these were produced in two centers in the Rhineland of Germany; Frenchen and Westerwald. The Frenchen region mainly produced wares with a distinctive iron oxide stained slip with a salt glaze on a brown stoneware body. The best known of these was the Baartmannkrug or Bellarmine bulbous jugs produced since the early 16th century. The Baartmannkrugs are noted for the medallions on their bodies, often with a coat of arms identifying where they were produced, and a molded bearded mask on the neck. Over time the medallions became completely abstract, no longer referring to any region but being merely decorative and the masks became grotesque caricatures of their original selves. A site dating to the early seventeenth century would contain Baartmannkrugs with well-molded medallions of specific cities and naturalistic masks. This region also produced plain globular jugs of various capacities.

A total of seven fragments of Frenchen stoneware, a Bellarmine, representing one vessel, a bottle was recovered. The majority of these fragments were recovered from the south yard **(Figure 69)** with other fragments being recovered from the terrace. One stone bottle was identified in Stephen Wing's probate of 1710, and it may be this bottle which could have been discarded following his death.

Westerwald

The second type stoneware common in the eighteenth century were German ceramics produced in the Westerwald region. These were most commonly made in the form of jugs that were decorated with cobalt blue and a salt glaze on a gray stoneware body. Over time the finely executed decorations and lines on Westerwald vessels became degraded. By the late seventeenth and especially the eighteenth century, they were distinctly debased. After approximately 1660 manganese was also used in conjunction with cobalt in the decoration of these vessels (Hume 1969:281). German stoneware is found on American sites dating to the eighteenth century before the American Revolution.

A total of 12 fragments of Westerwald Stoneware representing two vessels were recovered **(Figures 70 and 71)**. The majority of these fragments were recovered from the eastern and western portions of the terrace with other fragments being recovered from the south yard. Vessels forms were limited to one chamberpot and one mug. A fragment from what may be a pewter lid that would have been affixed to the top of the mug was recovered in the western half of the terrace.

White Salt-Glazed Stoneware

While Germany was the best known stoneware producer in the 17th and 18th centuries, other countries, especially England, began to try their hand at this craft as well. The most important development in England's stoneware industry was the perfection in 1720 of a thin bodied white salt-glazed stoneware. This ware became common tableware by the middle 18th century and soon took away much of the trade

Figure 69. Bellarmine fragments Left: Fragments recovered from the south yard during Deetz's excavations; Right: South yard fragments shown in their relative positions on complete Bellarmine

Figure 70. Stoneware recovered. Top: Stoneware recovered from the north yard; Bottom: Stoneware recovered from the sill

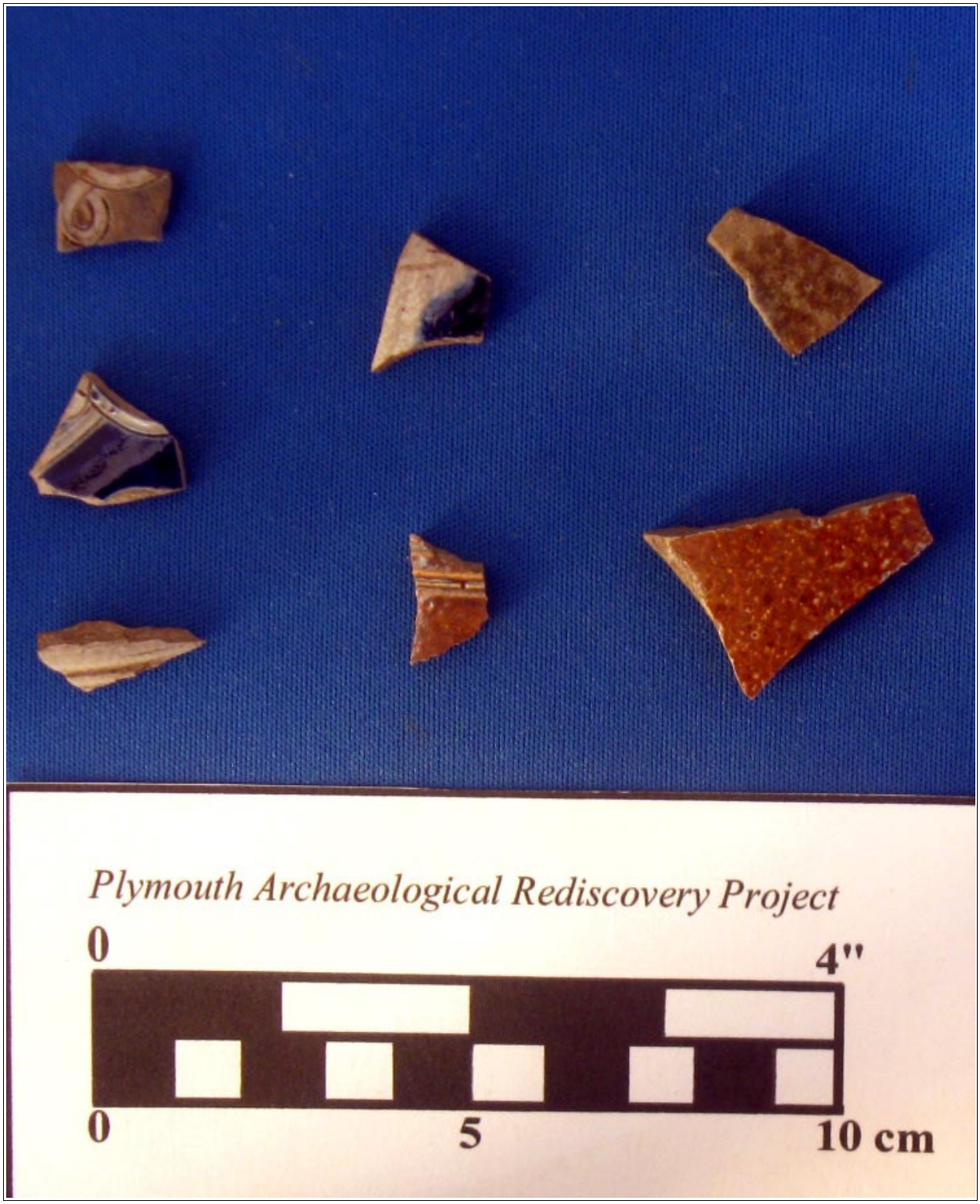


Figure 71. Stoneware recovered from the terrace. Left Side: Westerwald; Center Top: Debased Westerwald; Center Bottom: Nottingham; Right Side: Bellarmine

from the tin-enameled producers (Noël Hume 1970:115). Common shapes included plates with molded rim decorations and cup and saucers with a scratch blue decoration. This later decorative technique became popular in the mid 18th century, especially in the third quarter.

A total of 63 fragments of white salt-glazed stoneware representing nine vessels were recovered. The majority of these fragments were recovered from the north yard (n=33) and from the western portion of the terrace (n=19) with other fragments being recovered from the eastern portion (n=6), the central portion (n=3), and the south yard (n=2). Vessel forms included those used for food consumption (bowl, plate) and liquid serving and consumption (cup, mug, saucer). Included in the assemblage was one plate molded with a dot, diaper, and basket pattern dating to 1740-1770 **(Figure 70 and 72)**. Pieces of this vessel were found on the terrace and in the north yard.

English Brown Stoneware

The English stoneware type that truly kicked off Britain's entry into the stoneware market was produced by John Dwight of Fulham England in 1671. It is believed that Dwight was modeling his stoneware on the products of Germany's Rhineland and his best known products were small drinking mugs with reeded necks (Noël Hume 1970:112). Ceramics of this type of brown English stoneware continued to be made in England and America until circa 1775.

A total of three fragments of English Bron/ Fulham Stoneware representing one vessel was recovered from the central portion of the terrace and the north yard. The vessel form was a mug.

Nottingham Stoneware

Another potter began his own variety of stoneware in England in the late seventeenth century. James Morley, who was sued in 1685 by Dwight, began making a smooth brown stoneware with a glossy surface in the form of mugs, bowls, pitchers and double handled loving cups (Noël Hume 1970:114). While these wares were made initially in Nottingham, they were also produced throughout the 18th century in Burslem and other locations in Staffordshire and Derbyshire as well as Swinton in Yorkshire (Noël Hume 1970:114). products of Nottingham are readily identifiable by a thin white to gray line separating the body and the glaze.

A total of 1 fragments of Nottingham stoneware representing one vessels was recovered from the eastern half of the terrace **(Figure 71)**. The vessel form is a possible mug or cup.

Porcelain

Porcelain is the final class of ceramic. Porcelains are ceramics that have been fired to such high temperatures, over 1400 degrees Celsius, that they vitrify or become glass like. Ceramics of this type were produced in China as early as 1000 B.C.. It was not until 1708/ 09 that a porcelain industry was developed in Europe (Turnbaugh 1985:19). In lieu of the scarcity and high price of Chinese porcelains, many potters began experimenting with other ceramic type, such as tin-enameled, creamware, pearlware and white-salt-glazed stoneware, that mimicked porcelains whiteness and decorative

Figure 72. White salt glazed stoneware plate with dot and diaper pattern from the north yard

elements. total of 40 fragments of porcelain representing six vessels were recovered **(Figure 73)**. The majority of these fragments (n=23) were recovered from the western portion of the terrace with other

fragments recovered from the eastern and western portions. both were decorated with orange interior hand painting. One saucer with interior blue fine hand painting was recovered from the western portion. This vessel is probably Ch'ing or Qing porcelain. One saucer with possible overglaze hand painting was recovered from the eastern and western portions. One very white saucer was recovered from the eastern and western portions and one undecorated holloware was recovered from the western portion.

Batavian Ware Porcelain

Batavian Ware, also called Capuchin ware or Cafe au lait, is the western name for porcelain of the early Manchu Dynasty under the Kangxi (1662-1722), Yongzheng (1723–1735), Qianlong emperors (1735–1796) with the main period of export being between 1700 and 1780. This ware appears on Anglo-American sites after 1740 (Deagan 2002). It ware was imported by Dutch merchants through the Dutch trading station at Batavia (now Jakarta) and other ports. Due to the Dutch's preference for this type of ware, it has become most closely associated with the port at Batavia. Batavian Ware is underglazed brown on the exterior with blue or orange underglaze hand paint floral motifs. The red hand painted decoration was called "Iron Red and Gilt" and is also referred to as "Rouge de Fer". It is considered typical of the type of decoration during the reign of the Kangxi Emperor (1662-1722). It was made specifically for the European market and its motifs were eventually imitated by English manufacturers such as Meissen and Leeds and produced in less expensive forms for the mass market called Batavia Ware.

A total of eight fragments of Batavian ware porcelain was recovered from three of the four excavation areas- the south yard (n=1), the terrace(n=5), and the north yard (n=2) **(Figure 73)**. A minimum of three vessels were recovered- one tea cup (n=2 fragments) and two saucers (n=6 fragments) , all with the same orange Rouge de Fer hand painted decoration. Saucer fragment were recovered from the north (n= 1) and south (n=1) yards and from the western (n=3) and eastern (n=1) portions of the terrace. Tea cup fragments were recovered from the eastern portion of the terrace and from the north yard. Batavian Ware fragments were found in the 20-50 cmbs levels in the western portion of the terrace and slightly deeper in the eastern section (50-60 cm). They were recovered from the 10-30 cm levels in the northern yard and from level 3 (depth unknown) in the south yard.

The saucer fragments had rim diameters between 10 and 12 cm while the cup had a rim diameter of 8 to 10 cm. Body diameters for two fragments were estimated at 14 and 16 cm possibly indicating the presence of a larger saucer. These ceramics most likely date to the Joshua Wing (b. 1707 d. 1790) occupation of the house. The rarity of these artifacts in the archaeological record at New England sites and their relative expense of purchase indicate a better than most household at the time of their use.

Figure 73. Porcelain recovered. Top: Chinese Porcelain from the north yard; Bottom Left and Center: Batavian Porcelain from the terrace; Bottom Right: Chinese Porcelain from the terrace

Ceramics Summary

The use of ceramics by type and by period can be seen in Table 38. Utilitarian duties (dairying, hygiene)

Table 38. Ceramic occurrence by use classes

Ceramic Type	Dairying	Serving	Hygiene	Decorative
Redware	18	21	17	11
Tin-Enameled		1	1	
Slipware		1		
N. Devon Gravel	1			
N. Devon Free	1			
Staff. Mottled				
Jackfield		2		
Wheildon		1		
Creamware		4	1	
Pearlware		8	1	
Ironstone		3	1	
Whiteware		11	3	
Rockingham		1	1	
Yelloware		3		
White salt glazed		4		
Bellarmine		1		
English brown		1		
Nottingham		1		
Westerwald		1	1	
Porcelain		2		
19th century Stoneware	3			1
Totals	23	135	27	12

were carried out using redwares while most of the other wares were used to serve and consume liquids and solids (cups, plates, saucers). Redware was used in Plymouth Colony from its founding up until approximately 1860 for many purposes. White salt-glazed stoneware and later creamwares began to replace redwares on the dinner table and the redwares were relegated under the bed and in the dairy house. This trend continued in the nineteenth century until metal eventually replaced redware in the dairy and finer wares replaced them under the bed.

The dairying class of ceramic vessel forms included butter pots and milkpans. Butter pots were used to hold butter after it had been churned and milkpans were used to let milk settle after it was collected so that the cream, which was used to make butter, could rise to the top and be skimmed off. The presence of these vessels in the cellar indicates either that the cellar was being used to process milk into butter and possibly cheese, that these vessels were being stored here and subsequently broke or that these vessels were deposited at the same time as the animal bones and as a result represent trash from elsewhere redeposited here.

The serving class included vessels that were used for serving both liquids and solids. Vessels for serving liquids included one pitcher, cups, bowls and mugs Vessels for serving solids included just

plates. No platters or dishes were identified. Among the serving vessels were several matching saucers and cups and two teapots of various types of ceramics. These vessels represent tea services. Serving tea became popular among the upper class in the late seventeenth century in England and gained popularity in the eighteenth century in New England. By the nineteenth century, tea drinking and tea sets were no longer signs of social status but more just common items in persons homes. Status though tea sets in the nineteenth century was demonstrated through the use of finer ceramics such as porcelain over the plainer and less expensive ones such as whiteware and pearlware.

The hygiene class is represented by redware chamber pots. These types of vessels are often encountered archaeologically and redware is a very common material for them.

The decoration class is represented by flowerpots. Flowerpots were common ceramic forms made out of low fired redware in the eighteenth century to today. Noël Hume states that is hard to date flowerpots due their simple utility of form (1970). The essential form of the flowerpot, a truncated cone, has remained virtually unchanged throughout the years. Differences are to be seen in the manner in which the rims are finished and their manufacturing techniques.

X. CONCLUSION

Since 2006 excavations have been carried out at various locations around the Wing Fort House. The 2006 excavations by Eric Deetz sought to examine a hypothesis regarding the "Fort" in the fort house while the excavations carried out in 2009 and 2010 were done so prior to and during earthmoving operations that would potentially disturb the unexplored archaeological record. This report sought to bring together various lines or evidence- geneological and historical research, architectural, environmental studies and archaeological research in order to create a more complete picture of the life and changes in the Wing house holds between c. 1640 and the present. Archaeological field work has suceeded in identifying tantilizing evidence of the earliest Wing ocupation as well as a limited amount of evidence regarding the earlier Native inhabitants of the site. A fuller picture of the occupation and changes wrought unto the Wing house after it passed from Stephen wing's hands has also come to light as a result of historical and archaeological evidence. It would appear from the historical reord that Stephen Wing's desire was to keep living until his dying day in the house that he built, and he even went to the extreme of having his house encapsulated within his son's larger salt box style house that is belived to have been built soon after his son acquired the property in 1700. Stephen wing essentially created an inlaw apartment within his son Ebenezar's house.

Ebenezar, it is hypothesized, was responsible for the construction of the dairy ell built on the north side of the house as part of hist salt box expansion. Excavation in 2010 yielded evidence of foodways related structures and features dating to the eighteenth to early nineteenth centuries. The foundation for an 8 foot wide (north to south) by 18 foot long (east to west) possible dairy ell attached to the northeast corner of the house and a three foot wide brick-lined well with associated paving around it, were the two main findings. Associated with the ell was a large amount of brick, coal ash, and architectural debris as well as a fairly large assortment of faunal remains (bones) from cattle, pigs, sheep and chickens and ceramics dating from the seventeenth century (two fragments of a Bellarmine) and especially to the later eighteenth to early nineteenth centuries.

The ell is believed to have functioned as a dairy and cold storage room associated with the kitchen, and thus what we have found is a unique glimpse into the diet and foodways of the Wing household, specifically the household of Ebenezer to Joseph Wing periods (1700-1831). The construction of the dairy can be dated to the Ebenezer Wing period ca. 1700 when the original single-cell house was expanded to a salt box style house. The dairy was subsequently demolished during the Joshua Wing period ca. 1760 when the salt box was renovated to the present Georgian style. It appears that the family at this time may have focused their economy on animal husbandry, possibly with a emphasis on sheep.

From the archaeological and the historical record, it can be stated with certainty that the Wing family had a standard of living that was better off than most of their neighbors during the eighteenth and nineteenth centuries. Joshuah Wing apparently wore silver shoe buckles and buttons within the home that he too expanded into a larger, grander structure. Subsequently his descendants landscaped the grounds around the house, probably in an attempt to gentrify the property further and make it more of a gentry farm. The family appears to have continually farmed the land and used the profits from their labors to purchase the latest in imported ceramics. Their husbandry practices appear to have had a strong focus on sheep husbandry, probably as a result of the fluctuating, but potentially profitable wool industry between 1775 and the later part of the nineteenth century.

The excavations that have been carried out to date have allowed a unique glimpse into the unrecorded lives of this important family. It is recommended that in the future care should continue to be exercised

whenever any earthmoving activities, even activities as simple as planting gardens, trees or erecting fencelines, are to be carried out, that a trained archaeologist be secured to conduct the initial testing in the areas scheduled for development and improvement. The WFA is in possesion of a unique, significant, and fragile historical resource and every effort should be made to protect what lays beneath both the standing house and its surrounding lawns. There is a strong possibility that evidence of some type of fortification exists around the house and efforst should also be undertaken in the future to locate those traces and determine their potential and the best way to protect and preserve them.

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Appendices

Appendix A
Record of the *William and Francis* 1632

The William and Francis left London March 9, 1632 with Master Mr. Thomas, landing New England on June 5, 1632.

Passengers:
Rev. Stephen Bachiler (71 years of age) and his third wife, Helena; his widowed daughter, Deborah Wing, and her three sons, Daniel, John, and Stephen; also three Sanborne grandsons (Stephen, John, and William).

Charles Banks Topo lists the following Passengers:
Bachiler, Stephen, from Barton Stacey or Wherwell, Hampshire, aboard the William and Francis, bound for Lynn, MA. Ref: Pope & Savage. 36 pg 60 & 64.
Banister, John, from Yorkshire, aboard the William and Francis. Ref: Plough Co. 36 pg 189.
Oliver, Thomas, from Bristol, Gloucestershire, aboard the William and Francis, bound for Boston. Ref: Savage. 36 pg 56.
Woodford, Thomas, from Essex, aboard the William and Francis, bound for Boston and Roxbury. Ref: Banks Mss. 36 pg 54.

Appendix B
Will of Stephen Wing 1700

I, Stephen Wing of the Town of Sandwich in the County of Barnstable in New England, being aged and weak of body yet through ye mercy of God of Disposing mind and memory and calling to mind ye...uncertainly of this Transistory Life I am Desirous according to my Duty to set things in order before God shall Call me thence. And therefore Do make this my Last Will and Testament hereby Revoking and Depannelling all former Will and Wills by word or writing heretofore by me made and Do here by Constitute and Declare this to be my Last Will and Testament in manner and form following viz; my Desire is to commit my Soul to God in Jesus Christ who gave it and m y body to Decent Burial at our Friends Burying place at Spring Hill when God shall please to c all me Hence: And as Touching my Worldly Estate which God hath beyond my Deserts bestowed on my Will is to Dispose of it as followeth;

My Will is that all my Debts in Right or Conscience to any man Due Together with my funeral Charges shall be first Discharged by my Exectrshere after named in Convenient Time out of my estate.

Item. I Will and bequeath unto my Son Nathaniel Wing Ten pounds Item. I will and bequeath unto my son Elisha Wing Ten pounds Item. I will and bequeath unto my daughter Sarah Gifford fifty shilling Item. I will and bequeath unto my daughter Abigail Twenty Shilling Item. I will and bequeath unto my son John Wing my great Dripping pan and spitl. Item. I will and bequeath unto my Grandson Jeremiah Gifford Twenty Shillings and each Legacy t o be paid in Two years after my Decease. Finally my will is and I do hereby Constitute and appoint my Two sons viz: Ebenezer Wing and Matthew Wing joint Execrs to this my last will and Testament to administer upon my said Estate and to pay my Debts and Legacus according to this my will.

In witness whereof I have hereunto set my hand and seal this Second day of December Anna Dom 1700....Stephen Wing

Signed Sealed and declared to be his last will and testament in presence of STEPHE SKIFF, DANI EL ALLEN, JASHUB WING, WM BASSETT.

Appendix C
Stephen Wing Deed to Matthew and Ebenezar 1700 (On display at the Wing Fort House)

To all people to whom these purposes shall come Stephen Wing of the Town of Sandwich in the County of Barnstable in the province of Massachusetts Bay in New England forthwith xxx be known yee that I this Stephen Wing for and in consideration of that love and good will and natural affection that I can and have unto my grandson Stephen Wing as son of my son Ebenezar Wing of the same Town of Sandwich and for diverse good causes and considerations as hereunto xxx have given granted conveyed asigned sett over and confirmed and by xxx personally do fully convey and absolutely give grant convey asign sett over and confirm unto said Stephen Wing my grandson his heirs and asigns forever all that my right title and justifiable that I now have in all and any of the Common and undivided lands within ye Town of Sandwich aforsaid and willing do I mett and convey aforesaid of it both now of possession accome and belong to me or from Goodman Enfield or else James Coach (?) of Sandwich proponents to on all or and or that Town of Sandwich at a meeting of the Town on the five and twentieth day of June 1702.or else of reasons of the Town if reasons hereto coming and I may appears with all and singular due profits and priviledges and appurrtenances hereunto belonging to me in anywise appertaining to have and to hold all that my right fills and conveys in all doth Common and undivided lands in the Town and Township of Sandwich aforesaid with all the profits priviledges and apputenances thereunto belonging or in anyways appertaining unto same do I Stephen Wing and to only one alone sole purpose unto Benefit and Choice of him Stephen Wing my grandson his heirs and assignes forever freely personally and quietly will out any xx of reclaim or challenges or considerations of me do I Stephen Wing do order my heirs or offspring to that xxx and I Stephen Wing do order my heir executor administrators or offspring nor any other person or persons by us forever or in over or any of our names all any person or persons heretofore may lay claims challenges or demands in or to all portions or any part of any rights wills use or possesions before all sections of rights wills claims testaments use possession and demands thereof use and convey of to be hereby excluded and forever defamed by xxx, only it is to be decided that my son Ebenezar Wing shall manage and improve all given and granted promised unto Stephen Wing my grandson until he shall arrive to the age of one and twenty years, and then and to enjoy forever after the profits and enjoy the same as aforesaid. In Witness whereof I have hereunto set my sign and seal this nineteenth day of May in the fourth year of his Majestey's reign Annon Domini one thousand seven hundred and five.

Signed sealed and sett STEPHEN WING
In presence of
William Bassett
Jedediah Hoxie

Sandwich that same 19th day of May that the above named
Stephen Wing personally appeared and acknowledged the above
witnes testament to this his seal and deed

Before me Stephen Skiffe Justice of Peace

Appendix D
Stephen Wing's Probate Inventory 1710

An Inventory of all and Singular those Goods, Chattle, Rights and (Crodits?) of Stephen Wing late of Sandwich who died the 24th Day of April 1710 Taken and appriased by we the undersigned the 8th day of May 1710:

	lb-s-d
Imprimis To his wearing clothes wooling and linen all att	2-00-00
It To some linen things + Two old Blankets + and old small rug all att	1-00-00
It To a cover Bolster 2 pillows 2 coverlets and 60 sheets Monmouth 8 card all att	6-00-00
It To 4 Cuffs and a box at	1-00-00
It To a Tramill and iron firetongs and shiv + Iron hook att	00-12-00
It to a brass Little Brass Skillet + old warming pan att	00-14-00
It To an iron Kettle 6 s; an Iron old pot both att	00-11-00
It To Seven old Pewter things all att	00-08-00
It To Brass scales and 2 weights att	00-02-00
It To 2 Jars and 1 Stone jug att	00-02-06
It To a Copper Pott + 5 old Tin thing all att	00-02-00
It To Sizers Looking Glass + candlestick all at	00-02-06
It To 2 knives old iron branding iron old hatchett + How all at	00-04-00
It To a pair of Stillyards att	00-15-00
It To a Bible and old Books att	00-08-06
It To 2 Tables 3 small tubbs old dripping + earthenware and pewter all att	00-04-00
It To 4 wheel Rings one axelrod pin 2 cable rings and 1 wedge all att	00-10-00
It To 2 trunks and 4 old chains all att	00-05-00
It To 3 old beast rods and one Cod Cannow att	00-04-00
It To new Cow in Ebenezars Hands att	02-02-00
It To 2 year old vantage Heifer and a crowbarr in Nath. Wing att	02-00-00
It To one old chain more in Nath. Wing hand att	00-06-00
It To money due from Elisha Wing supposed 1: at seven pound	07-00-00
A debt due from said Elisha to Ebenezar Wing	02-02-00
It To an old 6s harness + Curlin Rods + paw cork + hay all att	00-08-00
It To one old 6s and a fork and pewter pott	

Ebezar Wing Executor to the Last Will + Wm Bassett
Testament of Stephen Wing late of Sandwich Daniel Allen
deceased- Before Barnabas Lothrop Esq Judge of the
Probate of Wills + within the County of Barnstable Did testify as in ye
presence of God that the above written is a true Inventory of the estate
of the Deceased so far as the Known and that if any Thing Else that is
material shall yet further come to his Knowldege he will also bring
it to the inventory.

Attest William Bassett Reg. tr

Appendix E
Ebenezar Wing's Will 1731

I Ebenezar Wing Senior of the Town of Sandwich in the County of Barnstable in the colony of Massachusetts bay In New England husbandsman being in tolerable health of body and of Disposing mind and memory through the goodness of God but calling to mind the uncertainly of this Transistory Life and the certainty of Approaching death: do make and ordain this to be my last will and testament hereby annulling and disallowing all other and former will or wills Testament or Testaments by me heretofore made ratifying and confirming this and no other to be my last will and testament and prinipally and first of all I Recommend my soul to God that gave it and my body to a decent civilian burial at the direction of my executor hereafter named and as for the Temporal state wherewith wherewith hath pleased God to bless me in this life I give devise thereof for the manner and form as follows that is to say

Impris My will is that all my just debts and funeral charges be paid out from my personnal estate by my executor of here named

Item I will and bequesth unto my son Stephen and to his heirs and asignes forever all my hall and fresh meadow with all my boggs or any meadow at plowed Neck so called in Sandwich and also one third part of my meadow at Bass Creek with the priviledge to dry hay on Spring Hill beach and a way to cart it from thence and I do hereby also confirm unto him his heirs and asignes forever all that his father Stephen Wing gave him by Deed

It. I will and bequeth in equal proportion to my three sons Samuel, Joshua, and Joseph and to their heirs and asignes forever all my housing and other buildings, land, meadow and (???) I late of Wm. (Brand?) or Nathaniel forever which is not before disposed of I make this my will and if one of my thre sons do happen to dye and leave no child of my Body lawfull begot then those that survive shall inherit equally the real estate which is herein bequeathed to Deceased sons and others in like manner if two of the three sons should be taken away be death the one of the three surviving shall inherit the portion of the real estate which therein bequeathed unto the deceased sons

It. I will and Bequeath unto my daughter Rebeccah the sum of thirty pounds in current money to be paid by my executor within one year of my decease besides all that she has had already

It. I will and bequeth unto my daughter Sarah the sum of fifty pounds in current money to be paid by my executor within one year of my decease and if my personnel estate should not suffice to pay my last debts and funeral expenses and the legacies to my two daughetrs therewith that is given shall be paid by my sons Stephen, Samuel, Joshua and Joseph in equal proportion

It. I will and bequeth unto my beloved wife Elizabeth the use and improvement of all the real estate which I have above in this will Bequethed to my sons Stephen, Samuel, Joshua and Joseph so long as she remains my widow and to also leave all my personnel estate at the disposal and in the possession of my wife as long as she remains my widow and if my wife should marry again it is my will that she should have the improvement of one third part of my personnel estate that remains at her second marriage during her natural life and the remaining part of my personnel estate after her third is taken out shall be equally divided among all my real estate that shall Legally presentany of ymas are presented at that time together with my wifes third part after her decease to be divided in the same

manner and do hereby contribute and appoint my wife Elizabeth sole executor of this my last will and testament for itself whereof I have hereunto set my hand and sealthe fifth day of january ano dominus one thousand seven hundred and thirty one signed sealed and delivered to be his last will and testament in the presence of Benjamin Swift
Humphrey Wadey
Sarah Wadey

Barnstable Is the foregoing will presented for probate by the Executrix therein named Benjamin Swift, Humphrey Wadey and Sarah Wadey Witnesses to the will have hereunto affirmed that they said Ebenezar Wing the subscriber to this testamant signed and heard him publish and disposed the same to his last will and testament and that when he did he was of sound mid and memory according to dispose it. xxx and that they set their hands as witnesses thereof in xxx Sandwich May 5th 1738 Coram N. Bourn Judge Probate approved

Appendix F
Letters of Joseph Wing 1796

Bulletin of the Friends Historical Society of Philadelphia Volumes I-II 1906-1908
Biddle Press, Philadelphia, PA.

113-166
Letters from Joseph Wing
1796-1798

Sandwich, II mo 12, 1796—

Esteemed Friend. Abram Swift (Who had moved from Sandwich to Nine Partners, Duchess Co, New York)

I had a very Lonesome journey after I left Oblong all the way alone clear home which Rendered it very Disagreeable. Since that i have been a Longer one than that was, which was to hallifax & this Novia scotia & if thou would wish to know how i got there, there was fore that Requested Friends care which was braught from the monthly meeting of Nantucket up to the Quarter, which after being Deliberated on was Thought best to appoint a Committee to visit them, which was Done & it fel to my lot to be one of the Fore—it took about Nine weaks. We Sailed from Bedford in the Eighth month, & in ten Days landed at hallifax & after a visit there hired horses & Rhode to Anipolis a hundred & thirty miles, wheir we had many meetings among the people at larg.

Some of the oppertunities I believe will not easily be forgotten by them Nor us Nither.

There is many Seaking people in Them parts & haveing accomplished our appointment their, we hired a vessel & Endeavored to Reach home again & after beating fifteen Days, we gave up the prospect of Gitting thro by water & landed at the head of pennabscet bay where we parted.

Jethro Mitchel & William Roatch Jun'r went directly on. & James Davis & I went to See the young Convinced people where David Sands & I was the Summer before—

We had many precious oppertunities amongst them which Rendered our viset very agreable to us— they at broad Cove drew up a Request & sent on by us to the Monthly meeting to hold a mid weak meeting, which I Expect will be granted. & think that it will be but little while before they will hold a preparative meeting— Some of these begin to apear very Brile— we visited another meeting which was sat up by & thro' the Convince merit of David, where things was in good order among them. & heard From two other meetings that was sat up in like manner, where they seam to Do well. & when i got home i Received a letter from David Sands wrote Last of 7th month from London, Just before he Embarked for hollen & Germany & said that he haith Sent a thousand books to the people of the Eastern parts, which is got to Boston. His health is much better than it haith been.

I may inform thee that there were Seven of the Followers of Timothy Davis I Requested at our last monthly meeting & more is Expected & we have a prety Deal of that kind of agreable Service to Do which I hope will Increase.

Dont forget that Joseph Wing will be very glad to receive a line from thy hand— So haveing nothing more to Communicate at this time- with a Salletation of affectionate love

Joseph Wing.

Sandwich in Barnstable Countie
The 8 of 12 mo 1798.

Dear Friend Joanna Swift. these may inform thee thy Exceptable Communication of 10 mo 4th Came Safe to hand, altho Nearly two months from the Date their of ;(Missing in manuscript)

I may inform thee that it haith been my lot to travel twice thro Novi scotia since I saw thee, the first time I believe I have given thee the perticulers of before: & the last viset Was in Company with John Wigham.

I was gon from My own home three months to a day & traveld by land & water 1775 miles, in many places where Never a Friend traveld before—

Sometimes traveld from 12 to 17 miles between houses & had the advantage of a foot parth with marked trees to Gide us. Sometimes got but two meals a Day & them were Corse tu: These were Walks Not very pleasant to the Natural part, but so it is & it is Not best that we should have Smooth things all the time: we had once to lay in the bottom of a Small bote & coverd us with our Sales, once laid on the beach by the Side of a Fier &had our Saddle bags to lay our heads on & our Great Coats & Misketers to Cover us. & once Expected to have laid in the woods without the advantage of Fier or victuals & had Come to a Conclusion in what manner it should take place, but Jest before Daylight left us. we saw a lite which proved to be a hous to our great joy & Satisfaction— So the Great Master is pleased at times to try us with the Site of Danger & then from time to time Doth preserve us from it—: in this Dessolate Wilderness there was many kinds of Wild Varmants which had been known to pray upon people: but after a long travel of this kind, to have got amongst our Friends again & Come to Set Down in a Meeting with them. I could compare it to a man that had been Kept on very Short alowance of Food & then New what it was to abound To give thee the perticulers of this Journey is more than could be Comprised in a letter— I may inform the that their is a good prospect of their being two meetings of Friends Set up in them parts & I may inform the that when I Traveld with David Sands their hath such a Convincement taken plase that their haith been five meetings Set up within the Compas of Vasselborough monthly meeting since David went away & three others in Different plases in the Eastern Countrie.

Three New meeting houses is built this Somer past within the Compas of Vasselborough monthly meeting, each of them 40 feet long by 30 wide that meeting of Vasselborough is as much of a Favored meeting as i know & I Dont Know but it is owing to Such a Great Field of labour that they have to go thro.

Five meetings under the care of Committees & Such a larg Number of Requesters that their is Committees Continually in Exercise— But I cant give thee such an encouraging account of any of the little meetings in the old Settlements here.

Soon after the Return of Timothy Davis to Society, we had a Larg number that Returned back with him,

that our meetings was much crowded with that very Exceptable labor, of Restoring of backsliders to unity agane— But that seems to be got thro' with at the present.

So take our meetings here together it is a low time in Society: yet their is a Remnant in all our meetings which i believe is under a proper Exercise for the prosperity of Truth: but the Groth & increas of Society apears to be in the Eastern Countrie. I think we have Good Reason to Expect a larg body of Friends to be gathered in them parts—
Their is one meeting set up about 70 miles below Vasselborough & their is Some Expectation of a Nother being Set up in time about 30 miles below that. Wheir Daniel Haviland traveld the Somer past. Whose Labors With his brother Roggers haith I believe been much to the Satisfaction of the honest hearted ones. I was Layd up with a Sore When Daniel & companion was heer that I did not Git out to meeting: But having got wel when Rogger & his companion Came I was in company with him & his Companion about two weaks— went with them to Nantucket Whom I think haith been much Favoured in his labours in these parts—

Now to give thee some acount of the Deaths that haith been in these parts Peleg Hoxie & two Daughters, one of them was wife to Jashub Wing the other Single—on Scoten Neck the old Neger by the Name of peter which was thought to be more than a hundred: Ann Wing Mother to John Wing, at the Seder Swamp the widdo mary Hoxie the old widdo Anne Allen mother-in-law to Georg Allen paul wings Second Son Zacheus, Timothy Davis & his brother Nathan & his Daughter Mary— I dont Recollect any others at present—

Paul Wing haith Married his two Daughters Hephziba & beulah, one to a man in Salem the other to a man in Lynn Removed about a month since & apear to be married very wel. Stephen Wing haith maried his two Eldest Daughters one to David (?) illeys Son the other to Edward Shoves son at Barcley. My neighbor Ebenezer Wing haith buried his wife— * * Give my love to Tripp Mosher when thou sees him & tel him that i have jest Received a letter from Jacob Taber of Vasselborough informing of their Jest Receiving Five Requests from persons that live at the west pond to joyn the Society.

With that love which is not Subject to Chainge I bid thee Fare wel

Joseph Wing.

Journal of the Life and Gospel Labors of David Sands with Extracts from his Coorespondance
1848, Collins and Brother, New York.
.
217:
Joseph Wing to Clementina Sands.

Sandwich, 6th mo. 29th, 1798.

Dear Friend—

Having thee and thy dear children so fresh in remembrance at this time, I felt a freedom to communicate a few lines, in a sense of that love which changeth not. To give thee a particular account of all my travels since I saw thee, would swell this to a large bulk; but I may just inform thee that it hath been my lot to travel twice through Nova Scotia— the last time was with John Wigham. I was three months from home, and travelled by land and water one thousand seven hundred and seventy-five miles. Some part of the journey was very fatiguing. Once we laid at night on the sea-beach, by the side of a fire, and had our saddle-bags to lay our heads on, with our greatcoats to cover us, (amongst swarms of musquitoes.) Once we lay in the bottom of our boat; and on another occasion we expected to have lain in the woods, without the advantage of fire or victuals ; but just before daylight left us we reached a house. But, fatiguing as it was, I have felt a great satisfaction in it, firmly believing that it will be the lot of those who travel in the work of the ministry, to visit that land oftener than it has been visited. And I thought there was a perceivable growth in some places since last year, or since I was there before : and I do believe that there will be meetings set up in several places in that land. And I think I have very satisfactory information of the growth of our Society in our Eastern country; in particular, where the lot of thy dear companion, David Sands, was cast.

Five meetings are now set up within the compass of Vassalborough monthly meeting, since he was there; and two in other monthly meetings. Those within the compass of Vassalborough are, Sidney, Holywell, Bristol, Broadcove, Camden, and the East Ponds. Three meeting-houses are building this summer, thirty feet wide and forty feet long; that at Bristol I think will need an addition in a few years. The information I gave in regard to the spreading of truth, where David had travelled, was thought by some to have been rather exaggerated, especially by those who were ready to take him by the shoulders and haul him home, or push him across the Atlantic Ocean. Such judges as these, who presume to get into Moses' seat, without being in his spirit, I think must be very dangerous persons as to the progress of truth. I trust I shall see one of them in a few days, and if I do, he will hear the truth told him.

But to return, and give thee some further account of our travels. When we had gone through the howling deserts of Nova Scotia, and had reached that meeting at Vassalborough, I could compare my feelings to those of a man who had travelled on such a small allowance of food, that he was almost ready to faint. My pen is not capable of setting forth the wide difference there was to be felt. We had a highly favored meeting; indeed, never to be forgot by me. Here are now five meetings, under the care of committees, and so many requests for membership, that they (the concerned Friends) are almost always travelling. Such an exercise of labor I believe is not to be found upon the Continent. I have at times been ready to conclude that it is owing to the great extent of their labors here that they are so much favored. The meeting of Camden, which is within six miles of the place where David Sands embarked, is about seventy miles from Vassalborough. I have visited those meetings twice since I parted with David, greatly to my own satisfaction, although nearly five hundred miles from where I

live. At this meeting of Vassalborough, lives our dear friend, Remington Hobby, who has had a double share of labor in those parts. I believe he is more than half his time from home, ever since David left. He has a fine family of children. Micajah Dudley, a minister, who was convinced of our principles by David Sands, has been removed by death. His labors will be greatly missed. Vassalborough is more than three hundred miles from our yearly meeting. We have a number of members who live four hundred miles beyond them.

I may inform thee that I saw the man last summer who commanded the vessel when David Sands and I were cast away. We were glad to meet. I must now take leave of thee, and bid thee most affectionately farewell,

Joseph Wing

Appendix G
Joshuah Wing's Will and Inventory 1857

Joshua Wing July 24, 1857
Be it remembered that I Joshua Wing of Sandwich in the County of Barnstable and State of Massachusetts, being at this time through Divine favour of Sound disposing mind and memory do think proper considering the uncertainty of my existence in this life to make this my last Will & Testament in manner and form as follows; hereby revoking all former Wills by me made.
1st I constitute and appoint my sons, Presbury Wing & Seth B. wing Executors to this my last Will & Testament and authorize and empower them after my decease to sell, such Real & Personnel estate as they may deem best, sufficient to pay all my just debts, funeral expenses and the expenses of settling my estate, reserving the household furniture. The rest and residue of my estate then remaining whether real or personnel of whatever description it may be, or wherever found I give the improvement of it to my beloved wife Beulah wing during her natural life, and it is my wish that my son Seth B. wing should improve the real estate for her benefit as he has heretofore done for me if convenient for him. And I enjoin it upon my executor to be kind to her & see that she has good care taken during her life.

2nd I give & bequeath to my son Presbury Wing my dwelling house, wood & carriage house & houselot of land on which said building stand with the fruit trees standing on said lot as the same is now enclosed with fence; to him & his heirs & asignes forever.

3rd I give & bequeath to my son Seth B. wing my Birch desk, Bookcase, and the best Birch Bureau standing in the east part of the house to him his heirs and asignes forever.

4th I give & bequeath unto my son Presbury Wing my eight day clock and case to him his heirs & asignes forever.

5th I give and bequeath unto my son Ezra Wing one of my Mahogoney light stands to him & his heirs and asigne forever.

6th I give & bequeath to my Grandaughter Mary Alvin Wing daughter of Ezra wing one bed, Bedstead, Bedding & Bedspread all marked with the letter M to her & her heirs and asignes forever, reserving in all the aforesaid bequeaths to my wife the improvement of the same during her natural life as before married provided he lives after my decease & it is my will that my said Library of religious books be kept together as they now are that my children may have them to read & be profited thereby.

7th I give and bequeath unto my sons Presbury, & Seth B. wing after the decease of my wife as aforesaid, all the residue and remainder of my estate not previously disposed of in this testimony of whatever description it may be or wherever found, to be equally divided between them to them their heirs and asignes forever.

In testimony whereof I have hereunto set my hand and seal & publish and declare this to be my last Will and Testament in the presence of the witnesses named below this twenty fourth day of July in the year of our Lord eighteen hundred and fifty seven.

Signed, sealed, published and declared by the said
Joshua Wing as for his last Will and Testament in presence

of us, who in his presence, and in the presence of each
other, and at his request have hereunto subscribed our
names as witnesses

Charles Gifford
Lemuel Gifford
Russell Fish

Inventory of the estate of Joshua Wing late of Sandwich in the County of Barnstable Viz:

Real estate	
Dwelling House, sheds, carriage house and lot	300.00
Barn and yard	200.00
13 acres Pasture and Tillage land South of road	375.00
5 Boards Black Grass marsh "Head of Old Harbor"	150.00
4 Boards Salt Grass marsh "Beach meadow"	4.00
1 1/2 Boards Salt Grass marsh "at the Bass wood tree"	35.00
6 Boards English Swamp & Fresh Meadow (Home)	150.00
60 acres Wood land (Song Lot)	150.00
11 acres Wood land (Memmy Lot)	5.00
2/3 Corn House 30.00 1/3 Old Shop 5.00	35.00
Personal Estate	
2 Cows 38.00 1/2 Hog 7.00	45.00
6 tons English and Marsh hay	36.00
6 bushels Rye a 5/-	5.00
1/2 ox waggon 12.50 1 wagon/ cover/ harness 5.00	17.50
1 horse waggon (open) 3.00 1 saddle 1.50	4.50
2 chains 1.50 1 yoke .25 Fork .50	2.25
Rope .25 2 pairs of hay poles .50	.75
1 Cart body 3.00 1 Bog chain 1.00	4.00
1 Grindstone 1.00 1 pair of old wheels .75	1.75
Carpenters Tools 3.00 Shop Hatchet 1.00	4.00
Other tools in Shop not ennumerated in the above	2.50
Total amount of Stock and out door movables	123.75
Amount of Stock & out door Movables brought forward	123.75
7 Beds 42.00 7 Bedsteads 6.00	48.00
12 pairs sheets 3.60 6 do. Pillow cases .60	4.20
6 Pairs of Bolster cases .75 12 Bed quilts 8.00	8.75
4 comforters 2.00 2 Bedspreads .67	2.67
4 Yarn Comforters 4.00 4 Bed blankets 3.00	7.00
1 Toilet Table Looking Glass & trunk etc.	1.25
5 trunks 3.00 1 stand .75 1 Waiter .5	4.25
1 Looking glass front chamber .50 Stand Bowl & Pitcher 1.75	2.25
6 chairs 2.00 1 light stand .50 & chaiss stuffed 2.00	4.50
7 Common chairs 1.25 1 Case of Drawers 2.50	3.75

1 pair candlessticks (Brass) .33 Carpets and Mats 2.50	2.83
3 chests 2.25 1 Looking glass & 2 Stands .75	3.00
1 Desk & Book case (West Bedroom)	3.50
1 Trunk and 1 Chair	.25
Sundry articles in the Garret 1.25 do. Back Room 2.00	3.25
Kitchen Stove and Fixtures 2.00 2 tables 1.00	3.00
West Front Room 1 Eight day Clock	12.00
5 Table cloths 2.50 8 towels 2.50 3 Samp (sampler?) .75	5.75
3 Flat irons .50 Crockery & Tinware in Buttery 4.50	5.00
1 Cheese safe 1.50 Crockery and glassware in closet 4.00	5.50
Knives, forks & spoons 3.00 Desk, Bookcase etc. E. Room 5.00	8.00
1 table .75 1 Sofa 2.00 5 chairs .75 1 stuffed 1.50	5.00
1 Arm Chair .75 1 Looking Glass .75	1.50
Total Furniture & in door Moveables	145.20
Total Value of Personal estate	268.95
Real	1404.00
Personal	268.95
Amount	1672.95

Enos B. Dillingham
Joseph Hoxie Appraisers
Edward W. Ewer

Joshua Wing 1857 (Earlier version of will)
Know all men by these presents that I Johua Wing of Sandwich in the County of barnstable and State of Massachsuetts, husbandman, do make and publish this my last will and Testament
1st My will is that all my just debts and funeral charges shall be, by my executors herein after anmed, paid out of my estate as soon after my decease, as may by them be found convenient, using for this purpose first, such of my personel property, otherwise dispose of, as can, in the the judgement of my said executors, be spared without injury to the family, and next such real estate as can best be spared.
2nd I give and bequeth to my beloved wife Beaulah during her natural life, or so long as she may remain my widow, the improvement of one third part of the remainder of my real and personnel estate.
3rd I give and bequeth to my son Ezra Wing one of my mahogony candlestands
4th I give and bequeth to my granddaughter Mary Elvira Wing a bed and bedstead with the bedding that belongs to it marked M- also a bedspread made by her aunts mary and hannah
5th I give and bequeth to my son Presbury Wing his heirs and assignes my brass clock and case, also my dwelling house, wood house and chauise house with the lot of land on which they stand with all the fruit trees thereon, and which is enclosed by the fence around it as it now stands.
6th I give and bequeth to my son Seth B. Wing his heirs and asignes a piece of salt marsh lying near town harbor, if not before disposed of. Also, my birch desk and book case standing in the east room, and my brass time piece.
7th My will is that my library of religious books be kept as they now are, that my children may read them and be benefited thereby.
8th I give and bequeth to my two sons Presbury Wing and Seth B. Wing, their heirs and asignes all the rest and residue of my real and personnel estate of whatever kind and wherever found. not otherwise

disposed of to be divided equally between them.
9th I do nominate and appoint my said two sons Presury Wing and Seth B. Wing to be the executors of this my last will and testament, hereby revoking all other Wills that ever I have made.
In testimony whereof I the said Joshua Wing have hereunto subscribed my name and affixed my seal, this twenty fifth day of 1857.

Appendix H
Will and Probate Inventory of Presbury Wing 1881

Know all men by these presents that I Presbury Wing of Sandwich in the County of barnstable and Commonwealth of Massachusetts, being of sound mind and memory, do make and publish this my last will and testament.

I will that my just debts and funeral charges be paid.

I give to my sister-in-law Lydia B. Crocker the improvement during her natural life of my dwelling-house with the buildings attached to it, and the house-lot, bounded on the south by the county road; on the west by a line running from said road parallel with the house, twenty-feet from the same, to the North side of the kitchen garden; on the north by the line of said garden to a line on the east of the house, parallel to it, and twenty feet from it; and on the East by the last named parallel line to the road first mentioned.

also my orchard lying above the county road.
I give to Lydia Crocker my clock, and three shares capital stock standing in my name in the First National bank of Yarmouth.
I give to the legal heirs of my late wife Sarah B. Wing my household goods
I give to my brothers Ezra Wing and Seth B. Wing my real estate subject to the above named improvements by Lydia B. Crocker.
I appoint Sylvia B. Crocker my executrix.
In testimony whereof I the said Presbury Wing have to this my last will and Testament (revoking all former wills by me made) subscribe my name and affixed my seal this nineteenth day of the tenth month in the year of our Lord One thousand eight hundred and eighty-one

Presbury Wing

Signed sealed and declared by the said
Presbury Wing to be his last will and
Testament in presence of us who at his
request have subscribed our names as witnesses
hereunto

Paul Wing
Sara Wing
Joseph Wing

Presbury Wing 1882 February 24
Alvah Holway, Joseph Ewer, Lemuel Nye executors

9 acres Woodland	25.00
7 acres Homestead and orchard	150.00
House and outbuilding	350.00
	525.00

Household Furnishings	131.50
Wearing apparrel	20.00
Farming Tools	1.50
1 ton of English hay	20.00
30 hens	9.00
3 shares bankstock	393.00
	575.00
	1100.00 total

GE white Dr. for professional services	65.00
H. jackson Nursing	23.00
L.H. Burgess Coffin, Box, Robe	32.00
Roland Fish Digging Grave	2.00

Seth B. Wing
Alvin and Charles Wing executors

Personal property	36.00
Real estate	1325.00
Total	1361.00

Appendix I
Inventory of Seth Wing

House	250.00
18 1/2 acres land	150.00
2 1/2 acres Cranberry bogs	300.00
29 acres woodlands	25.00
5 acres woodlands Sols gatr	10.00
11 acres marshlands	25.00
4 acres marsh, meadow, uplands (Homestead piece)	15.00
Barn	100.00
Presbury Wing Place House and land about 3 acres	450.00
	1325.00

Kitchen furniture	2.00
Dining room furniture	2.50
Pantry Room Furniture	3.00
Bed room furniture	1.00
Sitting room furniture	2.50
Parlor room furniture	15.00
Parlor Chamber Furniture	5.00
East Chamber Furniture	5.00
	36.00

Appendix J
Probate of Alvin Phinney

Bequethed to Bida M. Peterson of Sandwich
Building on the south side of the road across from the barn called the shop with all the contents of the building and land it stands on
and extra land adjoining

Rest of estate left to Cora Wing
Estate 350.07 Personal
5075.00 real
Cora executrix November 7, 1934
John T. McHenry Undertaker 220.25

Furnishings	East room including the clock	88.00
	Dining Room	15.00
	West Front Room	152.50
	Kitchen	218.00
	East Chamber Front	10.00
	Back Chamber Front	5.00
	South Chamber Front	15.00
	West Chamber Front	3.00
Tools in shop		5.00
130 old Cranberry boxes		10.00
Grindstone, Cultivator, Plough, screen		3.00
		350.07
Homestead Dwelling		2500.00
Barn and outbuildings		500.00
4 acres of land		175.00
Shop		100.00
22 acres of land including bog		1800.00
		5075.00

Appendix K
Artifact Catalog