"AS WELL AS ANY BEERE": THE SEVENTEENTH-CENTURY BREWHOUSE AND BAKERY AT FERRYLAND, NEWFOUNDLAND

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"As well as any beere": The Seventeenth-Century Brewhouse and Bakery at Ferryland, Newfoundland

by

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Abstract

The research focus of this thesis is the seventeenth-century brewhouse and bakehouse structure in Ferryland, Newfoundland. The material culture, including ceramics, clay smoking pipes, and glass, and surviving architectural features are analyzed with the goal of understanding the use and occupation history of the structure.

The results of these analyses show that this brewhouse is the same "brewhouse room" mentioned in a 1622 letter. It is also determined the structure was built early in the 1620s, and that it stood for less than two decades before being dismantled to make room for another structure. Furthermore, although the archaeology of brewhouses is not well documented or understood, comparisons with two contemporaneous brewhouses suggests that the Ferryland structure is atypical for its time, which is a direct result of the circumstances for which it was constructed. Finally, questions about when and why the brewhouse was dismantled are answered.

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Chapter 1: Introduction

Since ongoing excavations began in 1992 the archaeology project at Ferryland, Newfoundland (Figure 1) has uncovered substantial remains of the seventeenth-century occupation known historically first as the colony of Avalon and later as the Pool Plantation. This settlement was one of the first permanent English settlements on the Newfoundland shore. For several decades the seasonal cod fishery had proven to be a lucrative trade for West Country merchants, which led to a desire to control access to the fishing grounds. George Calvert, a secretary for James I, was one of many who saw control of fisheries as a way to profit from it, and Ferryland was chosen to be the site of his estate in the New World. From this estate he planned on controlling, and by extension profit from, the fishery.

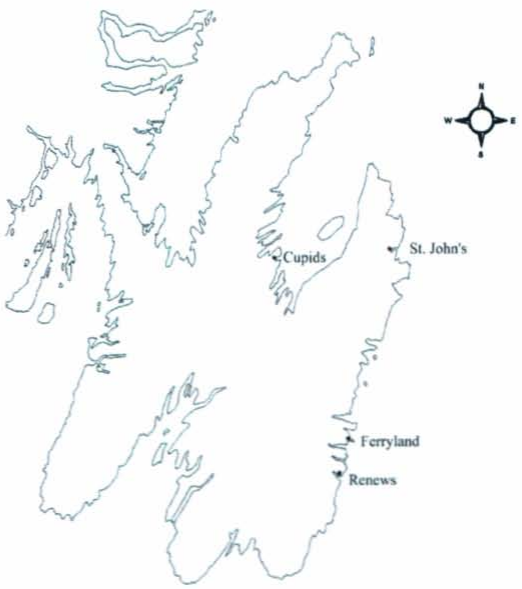

Figure 1: Map of the Avalon Peninsula showing Ferryland in relation to St. John's, Renews, and Cupids.

Among the buildings the early colonists erected was a "brewhouse room", which archaeology has shown also served as a bakery. One of many similar structures erected by colonists throughout the New World, the brewhouse was a vital part of their foodways. This building was small and utilitarian, and was specifically for providing beer and bread to the inhabitants of the settlement. This changed with the coming of Sir David Kirke in 1638, however. As part of his reorganization of the colony he had the brewhouse torn down and utilized the site for his own house. As such, the brewhouse slipped from memory until the 2001 excavation season uncovered its surviving features.

The research presented in this thesis is focused on this brewhouse, its architecture, and the associated material culture, including ceramics, glass, and clay smoking pipes. The data gleaned from this material is combined with data from other archaeological sites and the historic documentary record to construct an image of the past. Questions about how the brewhouse functioned, when it was built and dismantled, and changes in its occupational history are addressed.

Furthermore, during the background research for this project it was discovered that, despite frequent mentions in historical accounts, very few early modern brewhouses have been identified archaeologically. While this provided an opportunity to contribute to the archaeological knowledge of brewing and baking activities in colonial North America it has been determined that the Ferryland brewhouse may be an atypical example of such a structure. Without a proper comparative site there are still unanswered questions, though these are addressed as fully as possible.

This study is presented in five chapters, with a sixth offering a summary of and conclusions based on the findings in the preceding chapters. At the back is a series of appendices with information on the material culture and other findings related to this project.

Chapter 2 offers a brief historical sketch of the colony, its founding, changes that occurred, and its destruction at the hands of the French. Historical letters written from Ferryland are used to provide a glimpse of the early years of the colony and its construction as well as some of the events that affected its development.

Chapter 3 is a brief history of brewing and baking in England. It also discusses the dietary importance of beer and bread and its role in social relations, and provides some background on the brewing and baking processes.

Chapter 4 presents the research goals of this study and the theoretical background and approaches used to guide this research.

Chapter 5 is concerned entirely with the brewhouse at Ferryland. Topics addressed are documentary references to the structure, whether direct or indirect, a brief history of the excavation of the site, and an analysis and interpretation of the surviving architectural features including a conjectural reconstruction of the brewhouse. The material culture is likewise analyzed, with a focus on the ceramic, glass, and smoking pipe assemblages. Other artifacts are addressed as they relate to the study at hand. Finally, a reconstructed chronology of the structure's history followed by a brief summary are included as well.

Chapter 6 attempts to compare the Ferryland brewhouse with excavated brewhouses from Jamestown, Virginia, and Buckland Abbey in Devon, England. Problems with the comparisons are addressed, and observations about the similarities and differences are noted.

Chapter 7 summarizes all of the previous findings and presents the final conclusions derived there from. It also discusses some of the apparently atypical traits of the Ferryland brewhouse and presents arguments to explain why these traits exist, and how they relate to the organization of the colony and the changes that occurred.

Chapter 2: Historical Background

2.1 The colony of Avalon

The late sixteenth-to-early seventeenth century was one of great change for England. Trade with the Continent and the Mediterranean had introduced new ideas, new goods, and new demands, while domestically England was still coping with the aftermath of the Tudor reign. In the middle of all of this the English government and the new Stuart monarchs were attempting various projects to make England both more self-sufficient and more important in the global scheme (Horn 1994: 4). One such project was the exploration and colonization of new lands.

Building from experiences in Ireland the English turned their attention further west, to the "New World" of the American continent. Compared with other nations, England was a latecomer to the trans-Atlantic scene (Ibid. 2). Basque whalers had been regularly visiting the Strait of Belle Isle between Newfoundland and Labrador since at least the mid-sixteenth century (Tuck and Grenier 1989), while the Spanish were already claiming extensive colonial territories in Central America (Horn 1994: 4). Meanwhile, the French had established seasonal fishing stations in Newfoundland as early as 1541, when Jacques Cartier found Bretons fishing at Cap Rouge (Pope 2008:34).

English migratory fishermen, primarily from the West Country, started visiting the coast of Newfoundland as early as the first part of the sixteenth century following the voyages of John Cabot in 1497 (Cell 1982: 1), but it wasn't until the 1570s that it became a regular destination (Pope 2003: 14-16). Exploiting a seemingly endless supply of cod, these fishermen would set up shore stations from which they processed their catch. Dried

salt cod from Newfoundland would become a staple of English trade, and by the middle of seventeenth century a triangular trade evolved where salt cod from Newfoundland was shipped to the continent in exchange for commodities that were then sold in England (Pope 2004). However, for nearly the first century of its existence this trade would be small and underdeveloped (Cell 1969: ix; Pope 2003: 14). It wouldn't be until the end of the Spanish wars in 1604 that sufficient capital would be freed for ventures such as colonization (Cell 1969: 53). One positive aspect of this delay was that most of Newfoundland had been explored, charted, and studied by this time. Furthermore, the Avalon Peninsula was more or less firmly under English control by the early seventeenth century (Ibid. 52).

Permanent settlement was first proposed as a way to regulate the cod fisheries (Cell 1982: 3), although proprietary colonies faced opposition from West Country merchants (Matthews 2001: 158). Regardless, in 1610 the first group of colonists, commanded by John Guy and with a royal charter, arrived in Cupids (Cell 1982: 4). After a promising start, however, this colony soon went through a period of decline even though it persisted well into the seventeenth century (Ibid. 14; Gilbert 2003). Further colonization efforts were undertaken, including an attempt by Sir William Vaughan, who had received a charter which essentially gave him control of the entire southern Avalon (Cell 1969: 83). His colony at Renews was abandoned after only a few years (Ibid. 84).

Although Vaughan would remain an active supporter of colonization in Newfoundland, his personal involvement ended. Instead, he sold part of his interests in Newfoundland to Lord Falkland and later, in 1620, sold the other half to Sir George

Calvert (Figure 2) (Cell 1982: 26). Calvert, later made the First Lord Baltimore, would initiate another major colonization attempt.

Figure 2: George Calvert, First Baron Baltimore

At the time he purchased the grant from Vaughn, Calvert was serving as one of the principal secretaries to James I. Born about 1579, Calvert had a fairly typical early life for a member of the gentry. He was educated at Oxford, and following his graduation took the "Grand Tour" of Europe (Cell 1982: 16). Knighted in 1617, Calvert was named Secretary of State in 1619 and then elected MP of Yorkshire in 1620 (Ibid. 46). In these roles he became acquainted with some of the most powerful and influential men in the Jacobean government.

Calvert was no stranger to colonial ventures either. He was an investor in the Virginia Company, the New England Company, and the East India Company (Lahey

1998: 20). Calvert was also involved in colonial ventures in Ireland, having estates in counties Longford and Wexford, where he sponsored the construction of several impressive buildings (Mannion 2004).

Calvert wasted little time in taking advantage of his newly-acquired lands across the ocean. On June 26, 1621 twelve colonists, commanded by Captain Edward Wynne, set sail for Newfoundland. They arrived just over a month later, on August 4, 1621 in Ferryland to start construction on what Calvert named his "colony of Avalon" (Wynne 8/26/1621 in Pope 1993). Ferryland would not have been unknown to the English at this time, as archaeology has uncovered evidence of an English presence on the site since at least the 1560s and there is documentary evidence of Captain William Sayer serving as a Fishing Admiral there in 1597 (Gaulton and Tuck 2003: 188).

It has been suggested by at least one author that Calvert always intended his colony of Avalon to be a haven for Catholics in the New World (Cell 1969: 92). This is most likely not the case. Although Calvert himself was born a Roman Catholic, at the time of the Ferryland venture he was firmly entrenched in the Protestant establishment of James I's court. There would have been no reason for him to seek a Catholic haven across the Atlantic at the time of the Ferryland settlement.

Furthermore, the original Newfoundland Company believed that the best way to control and regulate, and therefore profit from, the fisheries was to establish a permanent settlement on the Newfoundland shores. It seems that Calvert subscribed to this belief, and this was his primary motivation for colonizing Newfoundland (Cell 1982: 17). In addition, Calvert, whose position at court was largely dependent on royal favor, needed to

expand and diversify his political and economic base if he wanted to maintain his accustomed lifestyle. His estates in Yorkshire and Ireland were part of this expansion, and Newfoundland was the next step (Krugler 2001).

When viewed as an economic decision, the choice of Ferryland for settlement makes sense. Ferryland is noted as being one of the coldest places on the Avalon Peninsula. Ferryland harbor, with the exception of the small inner harbor or "Pool", is not very well protected against the sea. Its beaches, however, were well suited for the drying of cod and it was because of this trait that Ferryland was already an established fishing station. The harbor was also very defensible against attacks from the Spanish, French, or Dutch (Gaulton and Tuck 2003: 189), further increasing its attractiveness as a site for a colony.

Whatever the reason that Ferryland was chosen as the place for settlement, Captain Wynne and his colonists soon set about building the infrastructure necessary for the colony's survival. Besides an extensive waterfront, Captain Wynne completed or began construction of several other structures. He wrote to Calvert detailing the results of his efforts:

> "Notwithstanding our diligent labour and extraordinary pains-taking, it was All Hallow Tide before our first range of building was fitted for an habitable being- the which being 44 foot of length and 15 foot of breadth… When I had finished the same with only one chimney of stonework in the hall, I went forward with our kitchen… We got home as much or as many trees that served us to palizado into the plantation about four acres of ground, for the keeping off of both man and beast… For addition of building, we have at this present a parlour of fourteen foot… besides a tenement of two rooms… The forge hath been finished this five weeks; the salt-work is now almost ready…We have also broken much

> ground for a brewhouse room and other tenements. We have a wharf in good forwardness…"
> -Wynne 8/26/1622 in Pope (1993)

In the same letter Wynne claims to have sown two acres of wheat, barley, oats, peas, and beans, as well as having a kitchen garden and three acres of hay. He also writes of reclaiming land so "that the whole may be made a pretty street" (Ibid.).

Calvert's claim to Newfoundland was made official when he was awarded a patent late in 1622. He would then receive a royal charter in March of the next year, which granted him palatine powers over his colony (Cell 1969: 93; Howley 1979: 95-96). Calvert's charter was different from others of the period, such as the one for Virginia, in that it did not make the Oath of Supremacy a requirement for new colonists (Lahey 1998: 21). In practical terms, this made Calvert's colony of Avalon the most religiously tolerant of England's new colonies, as the Oath of Supremacy was designed to deter Catholics and others who were not followers of the state religion (Ibid. 22).

More colonists arrived in Ferryland on May 22, 1622 under the command of Captain Daniel Powell (Howley 1979: 101). Despite appearing weary of Ferryland's reportedly cold winters he too shared Captain Wynne's optimism about the colony even as he requested permission to settle colonists in nearby Aqueforte, writing to Calvert that:

> "The land whereon our Governor hath planted, is so good and commodious, that for the quantity, I think there is no better in many parts of England. His house, which is strong and well contrived, standeth very warm… No cold can offend it, although it be accounted the coldest harbour in the land."
> -Powell 7/28/1622 in Pope (1993)

The years of 1624 and 1625 were pivotal for George Calvert and the history of Ferryland. During 1624 the court of James I and Charles I was becoming increasingly hostile to "popery", or suspected sympathy to the Vatican and the Roman Catholic faith (Mannion 2004: 14). The failure to secure a marriage to the Spanish Infanta only flamed these passions. Calvert, who was a strong advocate for the proposed match and already suspected of Catholic sympathies, decided that court life no longer suited him. He resigned his secretary position in 1625, and openly declared his conversion to Catholicism at the same time. He retained the favor of Charles I, however, who awarded him the title of Baron Baltimore in the Irish peerage and granted him further estates in Ireland (Ibid. 14-15; Cell 1969: 93).

It was also during this period that Captain Edward Wynne departed from Ferryland (Cell 1969: 93). The lack of documentary evidence from this period leaves the exact reasons for his departure unknown. Calvert apparently felt Wynne had misrepresented and mismanagement the colony, but it is also possible that his departure was due to failing health (Lahey 1998: 24; Miller et al 2011). Whatever the reason, Wynne's departure left the colony without strong leadership, and although Calvert initially intended to go to Ferryland to oversee the colony personally, he was forced to remain in England (Mannion 2004: 16). In his stead Calvert dispatched Sir Arthur Aston, but difficulties securing ships and supplies delayed Aston's departure until late 1625 (Cell 1969: 93). In the meantime Calvert retired to his Irish estate in Wexford (Mannion 2004: 16).

Despite the apparently promising start, the colony took a downhill turn around this time (Cell 1982: 53). It was so bad that in 1627 Calvert wrote to Lord Wentworth, saying that:

> "It imports me more than in Curiosity only to see; for I must either go and settle it in a better Order than it is, or else give it over and lose all the Charges I have been at hitherto for other Men to build their fortunes upon. And I had rather be esteemed a Fool by some for the Hazard of one Month's Journey, than to prove myself one certainly for six Years past, if the business be now lost for the want of a little Pains and Care."
> -Calvert 5/21/1627 in Pope (1993).

As mentioned previously, Calvert had intended to venture to Newfoundland in 1625 (Mannion 2004: 16), but court politics had prevented this. Instead he had to wait until 1627 before he could visit the land that he had so desired to see. Baltimore arrived in the summer 1627, and spent roughly two months there (Ibid. 29; Cell 1982: 53). Whatever he saw during his brief visit left Calvert determined to return, this time permanently. In 1628 Calvert returned to Ferryland, this time bringing with him most of his family and forty other settlers, who were mostly Catholic (Cell 1982: 54; Lahey 1998: 29).

It is clear that whatever pleasure Calvert had derived from his first visit, the time between late 1628 and mid 1629 proved to be more than he could handle. He found himself forced to defend the colony from a French attack in late 1628 (Howley 1979: 111-112), and the winter of 1628-1629 was particularly harsh (Ibid. 114; Cell 1969: 94-95). Calvert described his tribulations in a letter to Charles I:

> "... from the middest of October to the middest of May there is a sad face of winter upon all this land, both sea and land so frozen for the greatest part of time as they are not penetrable, no plant or vegetable thing appearing out of the earth until it be about the beginning of May, or fish in

> the sea, besides the air so intolerable as it is hardly to be endured… I am determined to commit this place to fishermen that are able to encounter storms and hard weather and to remove myself with some 40 persons to your Majesties dominion of Virginia…"
> -Calvert 8/19/1629 in Pope (1993)

Compounding his problems were continuing stories about his popish leanings and religious misconduct carried to England by Erasmus Stourton (Cell 1969: 94; Prowse 1895: 106), conflicts with the migratory fishermen (Miller et al 2011), and a general decline in the cod fishery around the same time (Pope 2004: 124).

Calvert left Ferryland in the spring of 1629 (Tuck 1996: 22). At first travelling south to Virginia, Calvert was refused permission to settle after declining to take the Oath of Supremacy, and returned to England to seek a grant for a new colony in the Chesapeake (Howley 1979: 115). George Calvert died before this patent was granted in 1632, but his sons Cecil and Leonard would go on to found the colony of Maryland (Gaulton and Tuck 2003: 211). It was later reported by Cecil Calvert that his father had invested between £20,000 and £30,000 in the colony (Cell 1982: 55), though one contemporary observer suggested a slightly more modest sum of £12,000 (Davies 8/24/1652 in Pope 1998).

While Calvert left Ferryland and significantly decreased his financial support for the colony he did not entirely abandon it (Gaulton and Tuck 2003: 211). He initially left a man by the name of Hoyle as governor, and after Hoyle's mysterious removal from the colony Sir William Hill was appointed to the same role (Cell 1969: 95). Hill was still in residence when Sir David Kirke arrived in the spring of 1638.

2.2 The Pool Plantation

Born to a merchant family, David Kirke had made a name for himself as both a leader of men and as a merchant. He first came to prominence by leading a privateering expedition against French North America in 1627 (Howley 1979: 118; Kirke 1871: 61-66). He later led a campaign in 1629 which captured Quebec and much of France's North American possessions, which he held until forced to relinquish them in 1632 (Cell 1969: 113; Howley 1979: 119; Kirke 1871: 72, 89). Following these victories and using the capital gained as a result, Kirke became deeply involved in the triangular sack trade between England, Newfoundland, and the European continent (Pope 2004).

In November of 1637 Charles I granted Kirke and a group of court favorites, including the Marquis of Hamilton and the Earls of Pembroke and Holland, control of Newfoundland on the charge that the Baltimores had abandoned the colony (Cell 1969: 115; 1982: 56; Howley 1979: 120). Besides giving them control over Ferryland and the surrounding areas, the grant gave them the power to tax the fish caught by foreign vessels. Kirke was selected to oversee the business aspects of the venture. He arrived in Ferryland in the spring of 1638 along with a group of about one hundred men (Howley 1979: 120; Pope 2004: 101).

George Calvert had been investing for the long term at Ferryland, and his fears of having his investment profit someone else were realized in the person of Sir David Kirke (Pope 1998: 63). Kirke immediately dispossessed Sir William Hill of the "Mansion House" and other sundries, including "six or seven horses, 3 chaires, a table board, and an old bedstead (Pope 2004: 147)". Though Kirke had some of the existing infrastructure

removed, including the brewhouse and forge, the excellent waterfront facilities and cleared pasture fit into Kirke's plans for the renamed "Pool Plantation". He also invested considerably into the colony, including the construction of a new dwelling (which also included a tavern) for himself or some of his family on the site of the old brewhouse (Gaulton and Tuck 2003: 212-214).

Kirke turned a failing proprietary colony into a successful mercantile venture. Besides taxing foreign vessels, Kirke collected rents on fishing rooms and stages, sold tavern licenses and encouraged the growth of the fishery through the acquisition of boats, laborers, and other necessary infrastructure (Prowse 1895: 148; Pope 2004: 412). He also used his established merchant contacts to reinforce and expand trade. Later Kirke was accused of monopolizing commodities such as salt and alcohol and charging inflated prices for them (Pope 2004: 140).

Kirke's success did not go unnoticed, and neither did his unwavering support for Charles I. During the English Civil War he offered asylum in Newfoundland for the embattled monarch, and was rumored to be raising men and ships in support of the Royalist cause (Howley 1979: 121). He was recalled to England in 1651 by the Interregnum government to answer to these charges as well as to answer a lawsuit filed by Cecil Calvert, Second Baron Baltimore, over possession of the Ferryland colony (Cell 1969: 121; Pope 1998: 65). The court eventually found in favor of the Calverts in 1661, but Sir David Kirke died in 1654 while imprisoned at "the suite of Lord Baltimore" (Pope 1998: 65; Gaulton and Tuck 2003: 209). However, his widow and sons refused to leave and maintained proprietorship of the colony (Gaulton and Tuck 2003: 209). The Calverts

would continue to claim control over Ferryland until the eighteenth century, when it was decided that because of a want of actual occupation and possession their claim had lapsed (Prowse 1895: 133).

The years following the death of Sir David Kirke until 1673 were for the most part uneventful. Lady Sara Kirke maintained control over her late husband's interests, and has been called "North America's first woman entrepreneur" (Gaulton and Tuck 2003: 209). She is believed to have died around 1680 (Ibid. 210). Following her death her sons remained prominent in the Newfoundland commerce (Pope 2004).

This period of relative calm was shattered on September 4, 1673, when Dutch warships attacked the colony in retaliation for the loss of New Netherlands a few years before. They plundered and razed the waterfront, causing considerable financial losses. However, the colony soon rebounded (Gaulton and Tuck 2003: 209-210). A French attack in 1694 was repelled through the determined efforts of William Holman (Prowse 1895: 213). A more devastating attack occurred in the fall of 1696, when French and native forces under the command of de Brouillon, the French governor of Placentia, sacked and plundered the colony. The colonists were deported and all of the buildings destroyed (Ibid. 216; Tuck 1996: 23). Some settlers were sent to England, while others were detained in Placenta over the winter, possibly in hopes of extracting ransom for them. Included in this second group were the three sons of David Kirke, all of whom died during the winter of 1696-1697 (Gaulton and Tuck 2003: 210). When settlers returned to Ferryland they rebuilt, but the focus of the settlement moved onto the mainland and away from the Pool (Tuck 1996: 23).

The early colonial history of Ferryland is a story of an initially successful proprietary colony that fell onto hard times when its proprietor lost interest in it. Its fortunes rebounded under the mercantile control of Sir David Kirke, and apparently remained stable even after his deportation and death. It would take an attack by the French to completely destroy the colony, but even then it survived in a new form. Within this greater framework of history is the story of the brewhouse. This building was a small, utilitarian structure, considered not important enough to be mentioned more than once in the surviving correspondence between Ferryland and the home country. Before the story of the brewhouse can be told, it is necessary to understand a little about brewing and baking and the importance of these activities in the seventeenth century.

Chapter 3: Brewing and Baking

3.1 Introduction

Alcohol is the world's most commonly used drug, and the drinking of it is often part of a highly ritualized social event (Smith 2008: 1). Today alcoholic beverages are considered a luxury. They are subjected to regulations and laws that control the alcoholic content, methods of distribution, and even who are allowed to consume such drinks. It is something of a surprise, then, to learn that in the early modern period such drinks were a mainstay of the English diet. They were consumed by people of all ages and all levels of society on a daily basis. At one time ale, and later beer, was one of the primary sources of nutrients for many people. It was viewed as much a food as drink, and considered a necessity (Sambrook 1996: 2).

Bread also was a staple of the early English diet. Ranging from dense, heavy barley breads to refined pastries, bread was eaten by every segment of society and at almost every meal. It was, essentially, the cheapest and easiest way to fill an empty stomach (Sim 1997: 72). Therefore, like beer, bread was considered a necessity.

3.2 Brewing in England

It is unknown how old the art of brewing is, or when and how it spread. Archaeological studies suggest that it developed independently in several different regions at different times (Smith 2008: 29). Egypt and Babylon especially stand out as centers of brewing activity in the ancient world (Lovett 1981: 8). However, it is unknown

when brewing reached England. It may have been introduced at the time of the Roman conquest, though regional traditions most likely existed beforehand (Ibid.).

For most of early English history the primary alcoholic beverage was ale (Clark 1983: 3). During this time period "ale" was brewed from malt and yeast, and was often infused with spices to improve its flavor. Ale such as this was a sweet, thick, and cloudy beverage, much different than the types brewed today (Clark 1983: 24). Andrew Boorde noted in 1542 that ale "must be fresshe and cleare, it must not be ropy nor smoky". Furthermore he claimed that ale should not be drunk under five days of age (Furnivall and Barnes 1870: 256). Because it was easy to brew and required no specialized equipment beyond a kettle, referred to as a "copper", the actual quality varied depending on the skill of the brewer (Clark 1983: 23-24, 96).

Other alcoholic beverages also existed, including cider (made from apples), perry (made from pears) and mead (made from honey), but these were regional drinks generally confined to the West of England, particularly Sussex, Worcester, and Kent (Clark 1983: 95; Sim 1997: 46). Wine was also consumed, but because it had to be imported from the Continent and spoiled quickly, it was an expensive commodity and generally consumed only by the upper classes (Clark 1983; Sim 1997). Various sumptuary laws reinforced this practice (Clark 1983: 96).

Up until the end of the sixteenth century most of the brewing was done at home by the women of the household. And because ale spoiled quickly, brewing was often a weekly chore (Anderson 1971: 89; Bennett 1996; Sim 1997: 51). Most housewives brewed only enough for their family, but occasionally supplemented their income by

selling excess ale to neighbors, passersby, and travelers (Clark 1983; Bennett 1996; Sim 1997: 52).

Though most brewing was done at home for the family, public drinking establishments existed and were subjected to regulations (Clark 1983). The first laws controlling such establishments appeared during the reign of Ethelbert in 616, and in 1189 London passed a law that all alehouses where to be built of stone (Ibid. 20-21). Despite this, it appeared that most ale-selling was done by women who either sold surplus ale from their regular brewing or who occasionally brewed for sale to supplement the family income. Large-scale commercial brewing of alcoholic beverages would not appear until the fourteenth century, but with the exception of London it was not until the introduction of beer during the fifteenth century that commercial breweries became fully established (Bennett 1996; Clark 1983: 31).

Beer was a transplant from the Continent, first arriving with Dutch immigrants during the late 1300s. Domestic brewing of beer started around the 1430s (Bennett 1996: 79). By the 1560s there were a large number of beer brewers in London and Canterbury, who were mostly of Dutch or German descent (Thirsk 1978: 93). There was at first considerable resistance to beer. It was viewed as a foreigner's drink, unfit for an Englishman (Bennett 1996: 79). Andrew Boorde wrote that the use of hops was unhealthy (Sim 1997: 50), and that "ale for an Englishman is a natural drink", while beer was "a natural drink for a Dutch man" (Clark 1983: 96, Furnivall and Barnes 1870: 256). As late as 1612 a treatise on health advised that ale was the most nourishing of drinks, being fit for everyone, while beer should only be consumed by the healthy (Sambrook

1996: 135). In spite of these claims, by the Jacobean period beer had become the preferred drink (Clark 1983: 96). This was especially true in the south where the environment was more suited for the growing of hops, a main ingredient of beer (Sambrook 1996: 134; Sim 1997: 50).

The hop plant (*Humulus lupulus* L.) is believed to have been first cultivated in the ninth century, although wild hops had been used for various purposes before that (DeLyser and Kasper 1994). The addition of hops to beer creates a somewhat different drink. Whereas ale was often sweet, cloudy, and thick, beer was bitter, clear, and thin. Ale spoiled fairly quickly, while the best beers could last up to a year if properly stored.

Beer possessed several distinct advantages over ale. As mentioned in the previous paragraph beer, especially if brewed in March and October, lasted much longer than ale (Anderson 1971: 86; Sim 1997: 55). Beer was also cheaper than ale, as more beer than ale could be brewed from a similar quantity of malt. Gervase Markham, writing in 1615, states that a quarter (eight bushels) of good malt could produce three hogsheads of beer, roughly equivalent to 162 gallons. A half quarter of the same malt, however, only produced fourteen gallons of good ale (Best 1986: 205-207). In the late eighteenth century one author claimed that a bushel of good malt will produce ten gallons of good beer, but stated that the greater the quantity of malt used in a brewing the better the beer will be (Hughes 1796). In an era of rising grain costs, this would have certainly made beer more attractive and economical to both the brewer and the consumer (Clark 1983: 97; Sim 1997: 56; Thirsk 2007: 59-61).

Despite these advantages, beer also had several disadvantages. First, it was more complicated to brew, requiring a longer period of time and closer supervision (Sim 1997: 52). Second, it required more specialized equipment that was often beyond the means of a typical housewife (Bennett 1996: 88-89; Sambrook 1996: 109). While ale required little more than a kettle to boil water and a couple of pans for cooling and fermenting, beer brewing ideally needed two kettles of different sizes, specialized furnaces, and various tuns and vessels for cooling, fermenting, and aging (Clark 1983: 100-101; Bennett 1996: 87; Sambrook 1996: 137; Sim 1997: 52).

The need for specialization led to the increased development of commercial breweries. The first brewer's guild in London was established in 1420, and by the Interregnum period brewers in the city were introducing new flavors and names for different styles of beer (Bennett 1996: 73; Thirsk 2007: 115). Between the Restoration and the end of the seventeenth century, commercial breweries had come to dominate the market (Clark 1983: 183; Bennett 1996: 145), though home brewing persisted well into the nineteenth century in some areas (Sambrook 1996: 4). It was also by this time that old-fashioned ales had mostly disappeared, though the term ale was recycled to refer to light, high-quality beers (Clark 1983: 97).

3.3 The Brewing Process

An understanding of the brewing process is necessary to understand how and why brewhouses were constructed. All brewing required a source of heat, water, malt, and yeast. Beer further required hops, and other ingredients were added according to local

custom and personal preference. Regardless of who made the drink and what style it was, however, the basic process remained the same.

Like all trades, brewing has its own set of jargon and specialized terminology. Here are some quick definitions, all adapted from Sambrook (1996), except where noted:

Malt is the term used for grain which had been allowed to start germination, but had the process stopped. Germination starts the conversion of proteins and starch stored in the grain to sugar. Barley was the primary grain used in malting, though oats, corn, wheat, and rye were also used. Malt was coarsely ground before use in brewing.

Liquor is the term used by brewers to describe the hot water used for mashing.

The *mash* is the mixture of ground malt and liquor. The addition of the liquor to the ground malt restarts the conversion of starch and protein into fermentable sugars. This process is called mashing.

The *wort* is the liquid that results from the mashing process.

Fermentation is the process by which yeast converts sugars into alcohol and carbon dioxide.

A *copper* is simply a kettle that was used for boiling the water. Coppers ranged in size from forty gallons for domestic use to over to four hundred gallons in some brewhouses (Allan 2006: 264; Sambrook 1996: 33).

Additionally, brewing required various tubs and other containers for cooling, mashing, fermenting, and storage. These are referred to as tuns, vats, and other terms.

Brewing is a deceptively simple process, but brewing, especially beer, required a fair amount of skill (Sim 1997:53). The liquor was heated in a copper. Once the liquor

was boiling it and the malt were poured together into a mash tun. After mashing for a couple of hours the resulting wort was run off and allowed to cool (Hughes 1796; Sambrook 1996: 90). For ale, yeast and spices were added, and the mixture left to ferment (Clark 1983: 100). When fermentation was complete the excess yeast was skimmed off and the ale transferred to other container for storage or consumption (Clark 1983: 100). The excess yeast (called *alebarm*) was saved by the brewers and either used in the next brewing or in the making of bread (Sim 1997: 49).

For beer, however, the wort was run into another copper and boiled again, this time with added hops (Clark 1983: 101; Sambrook 1996: 91). At the same time, a second copper of liquor was already boiled and added to the mash (Sambrook 1996: 90). This would be followed by a third copper of liquor. It was this ability to run multiple liquors through the same malt that made beer cheaper.

The second boiling added the flavor of the hops and released the resins that acted as a preservative (Clark 1983: 97). From this the wort was run into the cooling and fermenting tubs (Hughes 1796; Sambrook 1996: 92). The finishing steps were the same for beer as for ale. Because beer kept longer, however, it was allowed to age to enhance its flavor. This is especially true for March and October beers, which were sometimes allowed to age for a month or more before consumption (Sim 1997: 50). The spent mash was then often fed to swine (Clark 1983: 103; Sim 1997: 48).

3.4 Ale and Beer in the Seventeenth-Century Diet

Ale and beer were an important part of the English diet during the early modern period. It was generally the safest and most common drink available to a large segment of society. As Gervase Markham puts it in his 1615 book *The English Housewife,* beer was with what everyone "shall maintain his family the whole year" (Best 1986: 205).

In an age when sanitation was suspect, ale and beer could be drunk in relative safety (Lovett 1981: 9; Sambrook 1996: 2). There was a general distrust of drinking water during that time. Though not universal (Thirsk 2007: 13-14), this distrust pervaded society. In his dissertation *A Dyetary of Helth,* originally written in 1542, Andrew Boorde warns that water is not a wholesome drink and bad for an Englishman. He rates different sources of water, with rain water being preferred and standing water to be avoided (Furnivall and Barnes 1870: 253).

Besides being safer to drink than water, ale and beer were more nutritious (Horning 2009: 119). Three pints of ale would have provided a young boy with a quarter of the calories he needed, plus all of the major nutrients except fat. It was also an excellent source of vitamin B. And because beer prices rose slowly in comparison to grain prices, it was cheaper (Sim 1997: 57).

There were other drinks available besides alcoholic ones. Water, as mentioned above, was considered unhealthy and was frequently contaminated (Sambrook 1996: 2). Milk was an option, and one contemporary observer noted that those who regularly consumed milk looked healthier than those brought up on wine and beer. Andrew Boorde gave mixed views on milk, writing that milk and whey made many "rude and beastly

people" of the poor in Wales, yet later he states that milk was a good restorative and for old men and children (Furnivall and Barnes 1870: 127, 267; Thirsk 2007: 13-14). However, at the time most milk went into the production of butter and cheese and was therefore not commonly drunk. Whey and buttermilk often were consumed, however, especially by the poor (Clark 1983: 112-113; Sim 1997: 54; Thirsk 2007: 272). Tea and coffee would not be introduced until late in the seventeenth century; it would not be until the next century that they became a regular part of the English diet (Sambrook 1996: 4; Sim 1997: 46).

There are repeated accounts of immigrants to North America having to deal with a lack of ale and beer and being forced to drink water. Perhaps most famously, the Pilgrims who settled Massachusetts Bay landed at Plymouth because of their "victuals being much spent, especially our beer…" (DeLyser and Kasper 1994; Smith 1998: 10). William Wood, when speaking of the Plymouth colony, touted its water as the best on earth but even he would "not dare prefer it to a good beer" (McWilliams 1998; Smith 1998: 11). At the Cupids colony the death of Edward Garton in January of 1613 was attributed to his drinking of water during the cold winter (Cell 1982: 11; 1969: 70). Writing from Ferryland, Captain Edward Wynne noted that the water was "both clear and wholesome" (Wynne 8/17/1622 in Pope 1993). Nicholas Hoskins, also of Ferryland, wrote about a spring near the colony from which they "freely drank, and it did quench my thirst as well as any beer" (Hoskins 8/18/1622 in Pope 1993). Immigrants to the Massachusetts Bay colony were advised in the 1630s to bring barley, hop-roots, and

copper kettles with them (McWilliams 1998). Likewise, in the early 1620s immigrants to Jamestown were advised to bring malt and other brewing supplies (Horning 2009: 120).

Vast quantities of beer were shipped to the new colonies. In Massachusetts Bay, the *Talbot* arrived in 1628 with four hogsheads, while in 1630 the *Arabella* shipped 10,000 gallons of beer overseas. However, despite the quantity that was being shipped it would prove impractical. Even beer spoiled on such long trips, and there were also problems with leakage, spillage, and the fact that beer took up large volumes of space and was expensive to ship (Clark 1983: 103; McWilliams 1998). It is therefore no surprise that settlers from Virginia to Newfoundland regularly built a brewhouse to supply their needs.

3.5 Beer and Society

Besides being an important part of the English diet, alcohol also played a role in the social and economic life of the early modern world. As noted at the beginning of this chapter, the consumption of alcohol often takes place under highly ritualized social contexts, and controlling the supply of alcohol could be viewed in terms of power relations (Horning 2009: 114). Changes in the social structure in England would affect how and where alcohol was consumed (Clark 1983).

Prior to the English Reformation, much of the public drinking was done as part of religious festivals and feast days (Clark 1983: 151). During the Reformation, however, there was a concentrated attack on the institutions and fraternities that hosted these events, and most were abolished and dissolved (Ibid; Horning 2009: 118). After this,

most of the social aspects of communal drinking moved to alehouses or similar institutions (Clark 1983: 153). By 1577 a survey revealed over 17,000 drinking establishments in England (Ibid: 2).

Because ale was such an important part of the diet it could play a role in labor negotiations. In the years following the Black Death, field workers often received an allowance of ale as part of their daily wages, and also as part of a harvest feast at the end of the season (Clark 1983: 24-25). This changed as more of the English countryside was converted over to pasture or enclosed into smaller parcels, but day laborers and craftsmen continued to receive such allowances (Ibid: 33). Servants in upper-class households also continued to receive such allowances as part of their wages (Sambrook 1996: 5).

The English government recognized the importance of ale and beer to the diet and took steps to regulate it. The first such attempt was the Assize of Ale in 1266, which sought to regulate the price of ale by pegging it to the price of grain (Clark 1983: 24). Other legislation would follow.

The control of alcohol also played a role in colonial power relations. In Ireland, prior to English colonization, open hospitality, which included providing alcohol to ones guests, was a way of demonstrating wealth and influence. The English colonizers took advantage of this fact. In 1574 Walter Devereux, Earl of Essex, accepted the hospitality of Brian Mac Phelim O'Neill and used it as an opportunity to seize him and his wife and massacre two hundred of his retainers. By using their traditions against them, Essex had sent a clear message to the Gaelic leadership about the power of the English colonizers (Horning 2009: 117-118).

In Newfoundland, one of the ways that Sir David Kirke sought to control and profit from the Pool Plantation was through the control of alcohol. He maintained a virtual monopoly on the import of wine and sold tavern licenses to the other settlers (Pope 2004: 412; Prowse 1895: 148). Additionally, the archaeological investigation of the "Kirke house" at Ferryland suggested that one of its functions was as an inn or tavern (Gaulton 2006). These activities were included among the list of complaints filed against Kirke by aggrieved residents of Ferryland (Howley 1979: 121).

3.6 Bread and Baking

Bread was also a staple food for the English (Anderson 1971: 88-89). In the late Medieval and early modern period the typical meal for a laborer in the field was bread, cheese, and ale (Clark 1983: 24). The main meal of the day consisted of bread and pottage (Anderson 1971: 89; Sim 1997: 7). Each family required at least one loaf of bread per person, per meal. This amount remained true throughout all levels of society (Sim 1997: 8). It is easy to understand why bread was so important, and why grain shortages could lead to riots and civil disorder.

Bread could be, and was, made from a variety of grains. Wheat was considered the best kind of flour (Ibid.), but barley was the mainstay for most people (Thirsk 2007: 3). Rye and oats were also used in the making of bread, as were mixtures of different grains. What kind of bread was preferred varied according to regional tastes. For example, the north demonstrated a consistent and long-lasting preference for oatbread

(Ibid.). These early breads were often of a very dense consistency, much different from the refined breads of today (Sim 1997: 8).

By the seventeenth century the types of bread available had multiplied, and the different kinds were often related to a social class. Referring back to *The English Housewife,* Gervase Markham discusses three kinds of bread. The first type, described as the "best and principal bread", is manchet. Manchet was made from the whitest and most refined flour, and was more expensive to make and less filling when consumed (Best 1986: 209-210; Sim 1997: 9).

It more likely that the other two types of bread Markham describes would be more common. Cheat bread, which should be made from wheat but could be made from any grain, was the middling type of bread, and was probably for everyday use. The lowest type of bread was brown bread, which is made from barley, peas, and a peck of wheat or rye. This bread is for the servants, being the "coarsest bread for man's use" (Best 1986: 210).

Bread in the seventeenth century had several other uses. Bread made from ground-up beans was fed to horses, though the very poor might also find themselves eating it (Sim 1997: 8). Bread was also used to preserve meats and other goods. Markham writes about the preparation of "pastes" for the preservation of dishes intended to be eaten over a period of time. Things such as venison, boar, bacon, swans, and the like were to be "baked in a moist, thick, tough, coarse, and long lasting crust", while poultry and lamb should be "baked in a good white crust, somewhat thick" (Best 1986: 96). Baking meat in such a way would have been a cheap and convenient method to keep it

moist for extended consumption (Sim 1997: 23). However, because of the long cooking times required for the meat, this "pastry" was likely unappetizing (Thirsk 2007: 108).

The process of baking bread was fairly simple. Once the dough was prepared, the bread was placed in an oven to cook. Ovens were usually made of brick, stone, or clay, and were very often built into the sides and rear of a fireplace (Sim 1997: 22). To heat one, a fire was built inside and when it reached the correct temperature the ashes were brushed out before the bread was placed in (Ibid; Oliver 2005: 110). Bread, pastries, and pies could all be cooked in such an oven. Other methods also existed, some of which had the advantage of being cheaper, such as the bakestone (Sim 1997: 22).

Though the increase in the number of houses with chimneys during this period meant that more people could have ovens, it was more common to have a communal oven (Thirsk 2007: 217, 234). Private ovens appear to have remained relatively rare until the eighteenth century, though again this varies with the time and place being referred to (Ibid. 234, 247). On many estates and in private dwellings, the bakehouse was often combined with or located adjacent to the brewhouse (Driver et al 2008: 119; Sim 1997: 49). Both trades required supplies of grain, water, and yeast. Leftover yeast from brewing was often used for baking bread (Sim 1997: 49; Thirsk 2007: 232). And because both structures required fire, both were often placed away from the main dwellings so that risk of catastrophic fire was reduced (Furnivall and Barnes 1870: 239; Allan 2006: 261).

3.7 Conclusion

Despite changing preferences and different fads and fashions in the foodways of the seventeenth century, ale, and later beer, and bread remained at the core of English foodways. They were, relatively speaking, cheap sources of nutrition and available to everyone. Both had a role to play in the social order of the period (Bennett 1996: 9). A steady supply of beer, especially, was very important to the early colonists in North America, and many of the new colonies took steps to guarantee a sufficient supply. The construction of a brewhouse seemed to have been the preferred method, and such structures were found in many of the early colonies, including George Calvert's colony of Avalon.

Chapter 4: Theoretical Background and Research Questions

4.1 Theoretical Background and Approach

Archaeology is a social science which is concerned with the study of the human past through the artifacts left behind. Historical archaeology is a sub discipline which is focused on the more recent past, broadly from the development of written records and more specifically on the period from about the fifteenth century onward (Deetz 1996; Orser 2004). The ability to refer to written documents is what grounds historical archaeology, creating a tangible link to past lives.

Using the documentary record creates its own unique set of problems. Documents are themselves artifacts. They contain their own biases and inaccuracies due to the selective and incomplete recording of data (Henry 1991), and are often written to serve a purpose. The documentary record is not a time machine to the past (Leone 1988: 27). It cannot be seen or used as objective evidence of the past. Yet documents are still an invaluable tool to the historical archaeologist. They offer a window to the past that an archaeologist would be foolish to ignore. The question then becomes how to find a way to reconcile the historical documents and the archaeological record.

One such attempt was Stanley South's (1977) Artifact Pattern Recognition approach. By sorting artifacts into categories based on form and function, South sought to create an objective, quantitative method for the comparison of different sites. His method, however, removed much of the human element from historical archaeology. Documents, while not discarded outright, lost much of their importance. The end result was an archaeology that had "become void of all cultural context" (Leone 1986: 432) and

reduced historical archaeology to "a most dry and impersonal sort of economic history" (Beaudry et al 1996: 274).

Another approach is what Bruce Trigger terms "historical interpretation", in which archaeological finds are examined in relation to historical, ethnographic, and any other sort of written record that pertains to the same time, place, or social group (Trigger 1996: 510). This approach is roughly analogous to "middle range theory" as advocated by Lewis Binford (1987). The key difference is that the documentary record is not a living ethnography. Though more alive than the archaeological record, documents are nonetheless dead (Leone 1988: 29).

This means that the archaeological and documentary records from the same site are not necessarily complimentary or analogous to each other (Leone and Crosby 1987: 398). Because each set of data was created separately, at different times, and for different reasons they must be viewed as two different epistemologies (Leone 1988: 33; Leone and Crosby 1987: 399). Furthermore, both the archaeological record and the documentary record are biased (Spencer-Wood 1987: 3). Instead of looking to the documentary record for confirmation, the archaeologist should be looking for similarities and differences between the two sources of knowledge. This isolates the ambiguity in the data and allows for more meaningful interpretations (Leone and Crosby 1987: 401-402). In order to make such interpretations, additional theory is required.

Of particular use in historical archaeology is consumption theory. Consumption theory is the body of knowledge that deals with consumers and consumer behavior. It draws from the fields of sociology, psychology, anthropology, and economics (Groover

2003; Henry 1991: 3). Because one of the goals of archaeology is to determine behavior patterns associated with material things, consumption theory can have a broad range of applications (Henry 1991: 11). Though reconstruction is impossible, archaeologists can construct, infer, and conjecture patterns to fit the evidence (Trigger 1996: 508).

Consumption is divided into four aspects: choice, acquisition, use, and disposal. Consumers, the individual or organization who acquires goods and services for use (Henry 1991: 3), makes choices based on real and perceived needs. Needs are determined by both internal and external factors (Ibid. 4). Internal factors include hunger, the desire for shelter, warmth, etc. External factors include social influences, marketing, and the like (Ibid.).

Needs are divided into two types: necessities and luxuries (Weatherhill 1996: 14). A necessity is defined as something necessary for the maintenance of life. This is a rather abstract and broad definition (Ibid. 15). First, people include more than just physical comforts when determining necessities (Ibid. 16). Second, necessities change over time. A good example of this is beer for the seventeenth-century English. As discussed previously, they viewed beer as necessary for life whereas today it is typically considered a luxury.

Choice is not unlimited (Horn 1994: 295). Therefore, both choice and acquisition are affected by the availability of goods. This is not to say that individual variation didn't exist (Ibid.). In the sixteenth and seventeenth centuries the number and amount of goods available to the English increased (Thirsk 1978), which created a large number of new choices for the consumer. New goods and services served as an engine of change,

enabling social groups to refashion their identity and to engage in a dialogue about change (McCracken 1990: 135). And because consumption is linked to production, what is produced can also influence choices that are made (Wurst and McGuire 1999).

Following the acquisition of goods there is a period of use. Different goods have different use-life cycles. Durable goods, such as ceramics, furniture, and glass, have a long life cycle. Consumable goods such as food and fuel have short life cycles. However, the life cycle of both classes can be extended through lateral cycling, i.e. recycling, reuse, conversion to a new function, or cut short through loss or breakage (LeeDecker 1991).

Post-use deposition is what creates the archaeological record. Disposal is also a part of consumer behavior, as socio-cultural influences and other factors influence disposal patterns (Deetz 1996; Henry 1991; South 1977). People choose what and what not to dispose and where to dispose it in accordance with these factors. This, combined with lateral cycling, is what creates much of the bias in the archaeological record (Henry 1991).

Because consumer behavior is linked directly to the archaeological deposits, consumption theory provides a bridge to understand the ambiguities in the archaeological and documentary records. Ideally the archaeological deposit being excavated will be directly correlated to the primary occupants or users of a site (Spencer-Wood 1987: 2). This means that the artifacts will reflect, in some way, the choices made by that group. Patterns which emerge from the analysis of the artifacts can then be seen in terms of choices and decisions made in the past.

Consumption theory provides a way to understand changes in the archaeological record over time. When looked at in terms of changing consumption patterns even abrupt changes in the archaeological deposit become less mystifying and more readily interpreted. On sites that have been repurposed at some point during their occupation, for example an industrial structure becoming a residential structure, needs would have changed and therefore the consumption patterns also would have changed, creating different patterns in the archaeological deposit.

In conclusion, by utilizing two separate but related sources of data and by looking at consumption patterns, the historical archaeologist can gain a fuller picture of the past activities at a particular site. This approach avoids the pitfalls of relying too much on one or the other source for data while maintaining the cultural aspect of the assemblage.

4.2 Research Questions

The purpose of this project is to conduct an analysis of the material culture and architectural remains of the structure believed to be the "brewhouse room" that Edward Wynne had started construction on around July 1622. In order to guide the project it was necessary to define a set of research goals in the form of questions that needed to be answered.

1. What kinds of material culture were recovered from contexts associated with the brewhouse?

A large number of artifacts were recovered from the various events associated with the brewhouse. An analysis of the diagnostic pieces within this collection will be conducted with the goals of determining form, function, and general dating. The goal will be to answer questions about the use and occupational history of the structure from the time of its completion to the time it was torn down during the early Kirke period.

2. What function did the building serve?

Though a cursory look at the surviving structural features indicates that this building served as a hybrid brewhouse and bakery, there remain questions about how long it actually served in this capacity. Growing out of question 1, then, is it possible to determine the function of the building and if/how it changed over its occupational history?

3. How does the information on the material culture and architecture compare to other brewhouse sites in England and North America?

The brewhouse in Ferryland is an example of an early non-fishing industry in North America, albeit one that was considered necessary to the men who first constructed it. Similar sites were built in North America as well as in England proper. A comparison to these sites may help us to understand how the colonists in Newfoundland adapted traditional English lifeways to the local climate and resources.

4. How did the changing social and economic realities of seventeenth-century Ferryland contribute to the dismantling of the brewhouse?

Beer and bread were two of the staple foods of the seventeenth-century English diet. Yet Sir David Kirke removed the source of these staples when he assumed control over the colony. What had changed during the time that Edward Wynne built the structure for Lord Baltimore to the time when Kirkes reorganized the colony into the Pool Plantation?

Chapter 5: The Brewhouse at Ferryland

5.1 Documentary References

Archaeologists working at Ferryland are fortunate to have a fairly large volume of documents, mostly in the form of correspondence, available for study. Many of these documents have been collected and transcribed by Peter E. Pope (1993), creating a useful reference volume. Unfortunately, a thorough review of this volume found only a few references to the brewhouse and brewing- and baking-related topics.

On 26 August 1621, Edward Wynne wrote a letter to George Calvert detailing their arrival and initial activities at Ferryland. Among his many requests, Wynne asks that meal and malt be sent instead of cattle, as it would be both cheaper and less wasteful and that he lacked the proper pasture to support the large animals. He also requests more personnel, including a blacksmith and someone who can brew and bake (Wynne 8/26/1621 in Pope 1993).

Just under a year later, on 28 July 1622, Edward Wynne wrote another progress report to Calvert. Among an impressive list of achievements Wynne states that they had "also broken much ground for a brewhouse room and other tenements" (Wynne 7/28/1622 in Pope 1993). This is the only time that the brewhouse is mentioned directly in any of the surviving documents. It seems that despite Wynne's earlier request for someone with brewing and baking skills, construction on the building itself did not start until sometime in mid-1622.

Three weeks later Wynne sent another letter which included a long list of wants and needs for the colony. Among the various personnel listed, Wynne specifically

requests a "couple of strong maids that (besides other work) can both brew and bake." He also requests a pair of Bridewell mills (for the grinding of grain and malt) and a new brewing copper (Wynne 8/17/1622 in Pope 1993). Besides revealing that Wynne's earlier request had gone unfulfilled, this letter also suggests that some sort of brewing activity had been going on at the colony already. Unfortunately, because he doesn't specify any details there is no way of knowing whether the new copper is being requested to replace an older, worn-out one or to increase the brewing capacity of the new brewhouse. Because of the wording of the request, however, it seems more likely to be the former rather than the latter reason.

On 9 April 1629 the ship *Saint Claude Regis* departed Southampton with a cargo of provisions due for Ferryland. Among her stores were one hundred quarters of wheat, another one hundred quarters of malt, and ten quarters of oatmeal (4/9/1629 in Pope 1993). Although the brewhouse is not directly referenced, this cargo does suggest that brewing was still going on at the colony. Furthermore, it also suggests that despite Wynne's earlier optimistic views about the colony's ability to grow its own food at this point Ferryland was still not self-sufficient.

These are the only references to the brewhouse or brewing and baking activities in the documentary record from Ferryland. Despite the amount of documentation that has survived there are noticeable gaps in 1625 to 1627 and after 1629 until Sir David Kirke assumed control of the colony. Most of the documentation from after 1650, which is after the brewhouse was dismantled anyway, is concerned with either the Calverts or the Kirkes and not with the day-to-day operations of the colony.

This is not to say that the brewhouse was unimportant to the colony, however. More likely, despite the importance of beer and bread in the English diet, the brewhouse was such a common feature of everyday life that it was not seen as being significant enough to discuss. This is similar to modern surveys of English country houses, which generally ignore brewhouses in favor of the more glamorous buildings (Pearson 1999: 24). Wynne's mentioning of the brewhouse in the July 1622 letter was likely to show George Calvert how much progress he had made in constructing the colony and that Calvert's capital investments had not gone to waste.

5.2 Excavation History

Although archaeological excavations had been conducted at Ferryland sporadically since the late nineteenth century, it was not until 1991 that the current ongoing project began. Much of the early effort was focused on Area B, the forge, and Area C, the waterfront. In 1996 work began in Area F, which contains the Kirke house and brewhouse remains (Tuck and Gaulton 2001). The brewhouse hearth was uncovered in 2001 (Gaulton and Tuck 2003: 197). Besides the hearth and the ovens, the associated features include a slate drain and catchbasin and a well. Barry Gaulton (2006) has analyzed the artifacts and architecture associated with the Kirke house, but conducted only a cursory examination of the brewhouse-related artifacts.

Further excavation was undertaken in July of 2010. The cobblestones were removed from the floor of the hearth, which was then excavated to subsoil. The purpose of this excavation was to recover more dating evidence so that the structural and use-

history of the hearth could be better understood. Soil samples were also collected at this time for later ethnobotanical analysis.

Excavations at Ferryland are conducted using a system of stratigraphic notations recorded by events, with each event representing a natural or cultural layer. This system allows for tight stratigraphic and chronological control. One by one meter excavations units are utilized for horizontal control. Dry screening and wet screening are both utilized when appropriate.

The combination of tight stratigraphic control and chronologically diagnostic artifacts allowed the identification of events associated with the brewhouse structure, which represent two large primary middens, a secondary midden, and several incidental deposits.

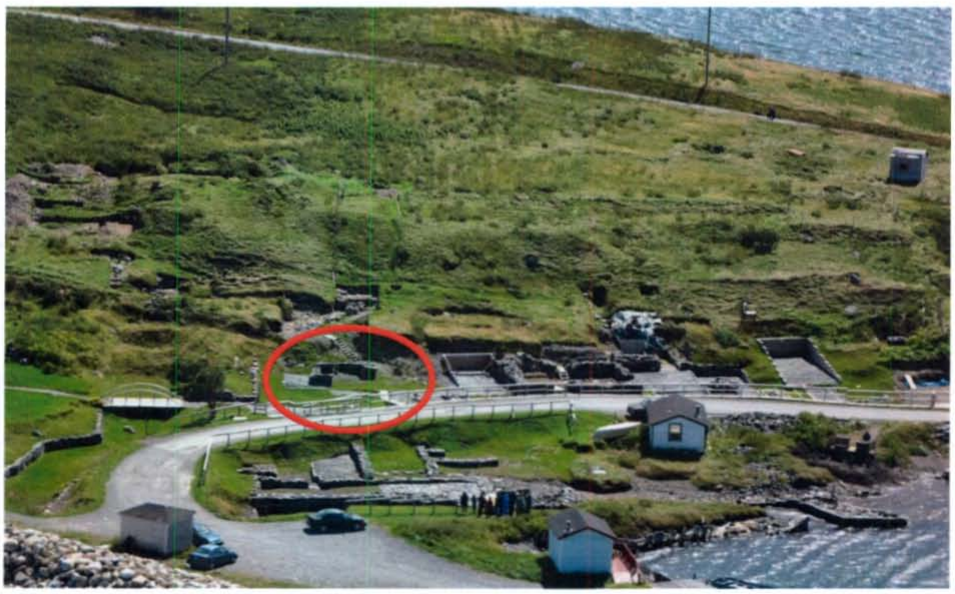

Figure 3: Aerial view of excavation looking south. The brewhouse/Kirke house site is circled. Photo taken 2009, courtesy of Craig Dobbin Jr.

5.3 Architecture

5.3.1 Features

As mentioned above, there are four features associated with the brewhouse: the slate drain and catchbasin (Features 93 and 137), a well (Feature 94), and the hearth (Feature 123, including North Devon oven Features 123a and 123b).

The slate drainage system was built by first digging directly into the subsoil. Slates, laid horizontally, were used for the floor and sides of the feature, which was then capped by large coverstones, while smaller slate fragments were used to fill the remaining gaps. The trench was then refilled. The drain extends from the catchbasin north until it disappears under the cobblestone road, and is tied in with a larger drainage system.

The catchbasin (Figure 4) consists of a roughly one meter square patch of cobblestones set almost directly into the subsoil. A large piece of slate borders the cobbles on the eastern edge. It is probable that a wooden grate or something similar capped this feature, which would allow liquids to escape in the event of a spill or during cleaning while preventing larger debris from entering. The lack of artifacts within the drain itself suggests that this was indeed the case.

Figure 4: Brewhouse catchbasin. The drain is extending northward towards the street. Image courtesy of Dr. Barry Gaulton.

Archaeology revealed that the well (Figure 5) had wooden cribwork consisting of an outer layer of logs and an interior box-framed lining. The bottom two-to-three feet and floor of the inner cribwork was preserved, and is formed from wide oak or beech planks. It is unknown if the entire shaft was lined in such a way. Additionally, the space between the dug shaft and the outer cribwork was lined with rocks and coarse gravel, which likely served to prevent silt from entering the well.

The well was probably covered, as the twelve foot deep shaft was nearly devoid of artifacts. The well shaft itself is surrounded by a roughly square pavement of cobbles, and there is also archaeological evidence for a wellhouse or lean-to structure that covered

the well, which would account for the surprising dearth of artifacts. Brewhouses need a constant source of freshwater for brewing and for cleaning utensils (Driver et al 2008: 122), which meant that many old brewhouses included a private well (Pearson 1999: 15).

Figure 5: Brewhouse well. The wooden crib-work is visible. Image courtesy of Dr. Barry Gaulton.

The hearth (Figure 6), including the apron, is large, approximately 4.5 meters wide and 3 meters deep, with the firebox being approximately 2.5 meters at its widest and 2 meters deep. Its most prominent features are the two large upright slates in the fireplace floor and the two North Devon bread ovens built into the corners. The ovens are incontrovertible proof that the structure served as a bakehouse, while the two upright slates likely served as supports for a brewing copper. Unfortunately, the archaeology does

not show if it was an exterior stone fireplace or if it was built into the building proper. The fact that it was later used as a lateral exterior fireplace on the Kirke house may support the notion that it was an exterior fireplace, but the archaeological evidence does not support one theory or the other.

The hearth is floored with cobblestones, but initial excavations suggested that this was not the original floor (Gaulton 2006: 69). Further excavations in the summer of 2010 also support this hypothesis. During the latter excavations six datable pipe bowls were recovered, all of which dated between 1620 and 1660. This suggests that they were deposited sometime during the second quarter of the seventeenth century (See Chapter 5.4 for pipe dating). It is likely that the current floor was installed when the Kirke house was built during the early 1640s, and that it replaced an older, worn-out floor. Charcoal deposits from the ovens and a layer of fire-reddened clay were found below the sand bedding of the cobbles, which is further evidence that the current floor was laid later in the structure's history.

The two North Devon ovens are of a style known as "cloamen" or "clome" ovens. Such ovens were usually domed, and came in a variety of sizes. Most were built into the back corners of fireplaces, such as at Ferryland, but could also be used in other ways. For example, an oven recovered from Jamestown, VA, appeared to have been used over an open hearth (Cotter and Hudson 1957), while engravings show others built into some form of wooden structure (Wiliam 1979).

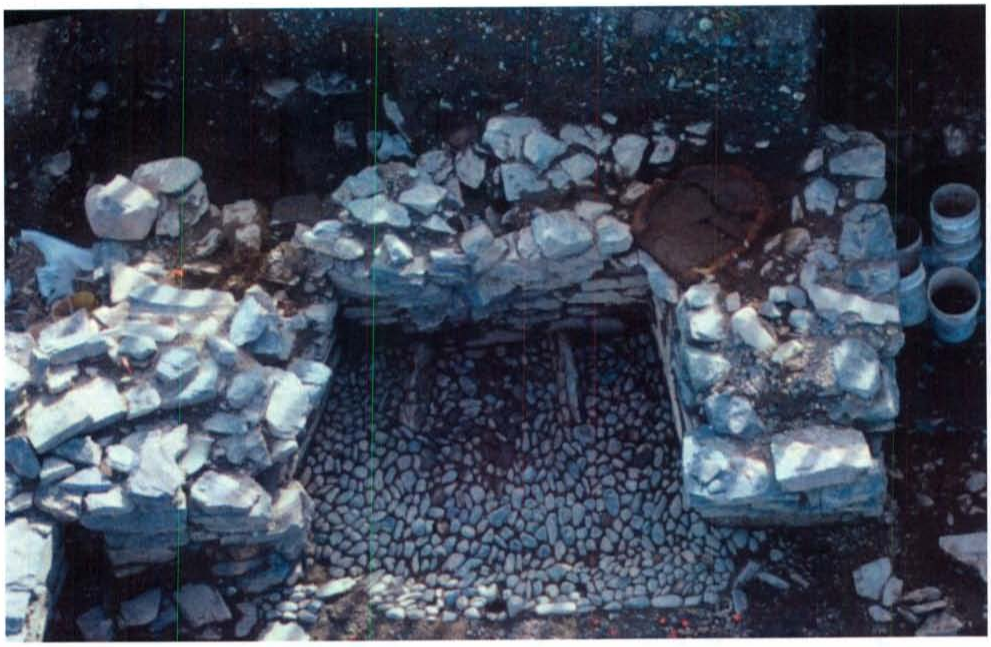

Figure 6: Brewhouse hearth. Visible are the remains of the two ovens and the slate uprights. Image courtesy of Dr. Barry Gaulton.

The typical use for these ovens was baking, though meat may also be prepared in them. To use, a fire was built within the oven. When the correct temperature had been reached the coals were brushed out and the bread put in. The opening was sealed with a door of clay, though other materials could also be used (Ibid.). The best preserved of the Ferryland ovens measures approximately 81x71cm, and it probably had a height of approximately 57cm. These measurements place these ovens on the larger side (Ibid. 33). The bottom of the ovens was just over two feet off of the ground, which is a fairly typical placement (Allan 2006: 261).

What is also interesting about the Ferryland brewhouse is what it lacks. Specifically, there is no evidence of furnaces for large brewing coppers. Seen in many brewhouses, furnaces were brick or stone structures which were large enough to hold a copper. Often built off the sides of the main fireplace, these furnaces would contain a fire for the boiling of liquor. After the widespread adoption of beer many brewhouses were built with two such furnaces, which allowed for different worts at different stages to be boiled simultaneously and streamlined the process (Ibid. 263). Such an arrangement is noted in the late-medieval/early modern brewhouse at Buckland Abbey (Ibid.), and in several architectural plans dating from the early seventeenth century (Girouard 1962: 116; 138, 170). In the Buckland Abbey brewhouse the two coppers were large enough to boil 200 and 100 gallons of liquor respectively (Allan 2006: 264).

This would seem to make the lack of such furnaces in the Ferryland brewhouse a somewhat archaic feature. In the same collection of drawings as those previously mentioned, however, is a plan for a townhouse dated 1622. One of the rooms is labeled "the bake house and brewhouse". The hearth in the plan is almost a perfect match for the hearth in Ferryland, and there is no indication of furnaces (Girouard 1962: 160).

The larger coppers and multiple furnaces are usually indicators of fairly large-scale beer production. For smaller-scale ventures, however, a single copper was often sufficient. The largest domestic coppers held around forty gallons of liquid; many country houses had coppers of eighty-five gallons and larger (Sambrook 1996: 32; Pearson 1999: 24). With this taken into consideration, it appears that the Ferryland

brewhouse was small in scale, with only a forty to eighty-five gallon copper. This would produce between 120 and 255 gallons of beer at each brewing.

5.3.2 Building Construction

The construction of the Kirke house destroyed or distorted most of the evidence for the brewhouse. What evidence remains, however, is enough to make informed estimations at the size and construction of the brewhouse. This is accomplished through a combination of archaeological data and historical documentation.

Dimensions

Archaeology provides the best evidence for the dimensions of the structure. As mentioned previously there are two main middens associated with the brewhouse. The first midden, composed of Event 480, is believed to represent objects that accumulated within the brewhouse. The second midden, which is composed of Events 360 and 367, represents the secondary refuse deposit from the brewhouse. By mapping the excavation units where each event is present a very distinct spatial relationship was revealed.

The Event 480 midden is primarily concentrated in a block extending north from the N0 line (roughly the middle of the hearth) to the N5 line and from the E79 to E83 lines. The 360/367 midden is primarily to the north and east of this midden, and covers a much larger area as well as overlapping the cobblestone road. Based on this evidence the approximate dimensions of the brewhouse appear to be seven meters long and four meters wide.

Another piece of evidence for the structure's width is the hearth. In seventeenth-century England many one-room cottages had a hearth which occupied the majority of one gable-end wall (Foster 2004: 8). Assuming a similar plan was adopted for the brewhouse, this makes the width of the building approximately five meters (16 feet). This is comparable to the width suggested by the plotted data.

Additional evidence for the northern limit of the brewhouse was uncovered in 2009. Excavations below the Kirke-period cobblestone pavement in E79-E81 N5 revealed that Event 386, which is associated with the destruction of the brewhouse and the construction of the Kirke residence, did not extend south of a line located approximately twenty to thirty centimeters north of the N5 line (Gaulton 2010: personal communication). Taken together with the plotted data, this suggests that the length of the brewhouse was approximately 7.3 meters (24 feet) from the back of the hearth to the north wall (Figure 7).

Determining the height of the structure is impossible from the limited surviving features. Informed estimates based on documentary evidence are the best that can be offered. Because of the requirements for cooling the worts brewhouses were usually around one-and-a-half to two stories in height (Pearson 1999: 24). In 1826, for example, architect John Pitt advised that a brewhouse should be 26ft x 22ft x 12ft (Sambrook 1996: 31). Besides allowing for steam to dissipate, it would also allow the various tubs and tuns to be situated to allow gravity to assist in the brewing process. The simple design and small-scale production of the Ferryland brewhouse makes it unlikely that such an

arrangement was used. It is likely, however, that the brewhouse was one and a half to two stories in height and that a loft was present for storage and possibly living space.

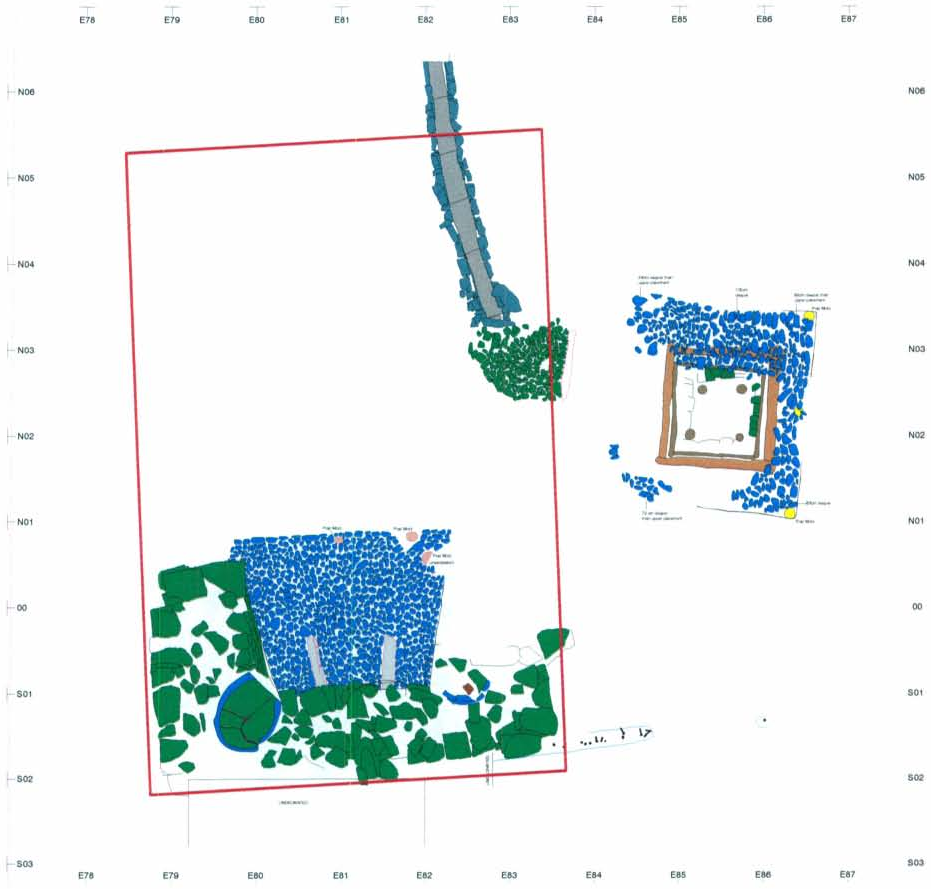

Figure 7: Plot of features from the brewhouse. The proposed outline of the structure is overlaid.

Construction Materials and Techniques

Evidence for how the building was constructed is present in the archaeological record. Over nine thousand identifiable iron nails were recovered from brewhouse-related deposits, which constitute a large percentage of the total assemblage. This high occurrence, though not uncommon on archaeological sites, suggests that wood was the primary construction material.

It is most likely that box-frame construction was used. In this method, two longer wood-framed walls were raised parallel to each other and tied together using a series of perpendicular beams. The wall themselves are composed of vertical posts and studs secured to horizontal plates and sills at the top and bottom, respectively, similar to modern framing techniques. Horizontal and diagonal bracing between studs reinforced the walls and added rigidity. Spacing the studs closer together reduced the need for bracing, but required more wood. With the easy availability of lumber in Ferryland, however, it is likely that close-stud framing was used. Such construction has been noted in England (Brunskill 1997: 175-178) and in New England (Deetz 1996: 142).

Close-stud framing also had the advantage of reducing the amount of in-filling necessary. In-filling could consist of staves, woven wattle, clay, mud, wood, or brick (Brunskill 1997: 177, 180). No evidence of what material was used survived in the archaeological record. In any event, with the dismantling of the building any surviving in-filling was either re-used or disposed of in another area of the site.

The exterior cladding of the brewhouse was most likely clapboards. Again, the ready availability of lumber in Newfoundland influenced this choice. The large number

of nails supports this supposition, as a majority of the building's framing would have been accomplished using mortise and tenon joins, while clapboards would have been affixed with nails. The documentary record also supports this, as Captain Wynne requested a supply of clapboards for the colony as well as mentioning the sawing of boards during the winter (Wynne 17/8/1622, 28/7/1622 in Pope 1993). The use of clapboards was common in coastal Essex during the seventeenth century, and this tradition is known to have been exported and adapted to the Chesapeake and New England (Cummings 1979: 128-130; Deetz 1996: 142) making its use in Newfoundland unsurprising.

Surprisingly, there is no evidence for the footing of this structure. Most buildings sat on a stonework footing, which was durable and long-lasting. Even if it had been removed during the demolition of the structure, there should be evidence– a filled in trench, displaced foundation stones, etc. Nothing of this sort was discovered during excavations, which is one of the reasons why the dimensions of the brewhouse are somewhat vague.

The other option is a variation of the "earthfast" method of construction. Earthfast structures are not built on a stone footing. Instead, as the term implies, they are built directly on the ground (Carson et al 1981). A variant especially common in the Chesapeake involved driving posts into the ground for wooden stills to sit upon (Deetz 1996: 20). In Ferryland, the Kirke house was built by laying the sill directly on the ground and nailing vertical wall planking directly to it (Gaulton 2006: 65, 72). The later Area D house was also constructed with earthfast techniques (Crompton 2001). This does

not suggest that the building was intended to be impermanent or was of a lesser quality than those with prepared footings (Moser et al 2003). Rather, earthfast construction was used because it was quicker and cheaper than more traditional and "permanent" structures (Gaulton 2006: 65).

Earthfast construction leaves very little evidence in the ground, often consisting only of soil stains, decomposed beams, and artifact deposits (Deetz 1996: 20; Gaulton 2006: 65, 67). The brewhouse did not even leave those behind. This is likely the result of it being dismantled after only approximately twenty years. This would not leave enough time for the structure to make much of an impression in the ground. This would be especially true if the sill had been laid directly on the ground with no posts to support it. When the Kirke house was built, the sills from the brewhouse would have been pulled up, leaving few traces of their presence. These would have further been obscured by any preparations made by the builders of the Kirke house.

This method of construction can be found at another non-domestic structure at Ferryland built during the early Calvert era. Although many of the early structures, such as the Mansion House and the waterfront storehouse, were built of stone and others, such as the stable, were built of wood with stone footings, the forge was also built using a form of earthfast construction. In this case, the structure was dug into the side of a hill (dirt from this activity was used to fill other areas) and upright boards set into the ground to support the roof and earthen walls (Carter 1997: 32). Like the brewhouse, the forge was a utilitarian structure, and the emphasis appeared to be on getting it operational (Ibid.

33). This was likely the case with the brewhouse, although the requirements of the structure meant that more detail had to be put into its construction.

Evidence for the roof's form and construction is sparse in the archaeological record. Based on the location of the hearth and orientation of the structure, it is most likely that the brewhouse had a gable roof. The roof itself was built with some variant of principal rafters tied together with purlins. This construction method had the advantage of being straightforward to construct, compared to other methods, as well as creating loft space (Nixon 1999: 73).

The archaeological record does not provide any evidence for the construction of the roof, but it does provide evidence of what material was used to roof the structure. Common roofing materials in seventeenth-century England included thatch, tile, and slate (Ibid. 143). The use of thatch in Newfoundland, however, was probably limited due to the lack of suitable materials (Mills 1996: 57), despite Wynne's initial use of it on the Mansion House (Wynne 7/28/1622 in Pope 1993). Wooden shingles or boards may have been used, as such roofing is documented in New England (Cummings 1979), the Chesapeake (Carson et al 1981, Upton 1976), and on tenant houses at the Londonderry Plantation in Ireland (Blades 1981: 48). The number of nails could be an indication of such roofing.

The artifact assemblage, however, offers evidence for another roofing material– slate. Many complete roof slates were recovered from the brewhouse dismantling/Kirke house construction events (Gaulton 2006: 54). As the Kirke house did not have a slate roof (Gaulton 2006: 74) it is very likely these are from the dismantling of the brewhouse.

Other Calvert-period structures, including the forge and storehouse, were also roofed in slate, and Wynne had specifically requested quarrymen and slaters in one of his 1622 letters to Calvert (Carter 1997: 34; Gaulton 1997; Wynne 17/8/1622 in Pope 1993). This evidence is strong support for the brewhouse having had a slate roof.

Archaeological evidence for the original flooring is minimal. The builders of the Kirke house probably tore up the original floor to prepare the site for construction, completely destroying most of the evidence. Additionally they dug holes for posts to support sleepers and dumped sand to fill between them (Gaulton 2006: 67), which further destroyed any evidence. Therefore it became necessary to turn to other sources for information on how the floor may have been constructed. Three options present themselves.

The first option is a simple packed earthen floor. Earthen floors were not unheard of in Ferryland, as this may have been the flooring used in the forge (Carter 1997: 34). This was not likely the case in the brewhouse, however. The brewhouse, by its basic function, used a large amount of liquid. An earthen floor would not be ideal in this situation as spills would create muddy conditions, and earthen floors would not be very clean. The presence of the drain is also evidence against such a floor. Such a feature would be redundant if the liquids were able to be absorbed into the floor. All together this makes the use of an earthen floor very unlikely.

The second option is a wooden floor. Depending on how the floor was constructed it would not leave much evidence behind, and it would create a flat working surface. Such a floor would be ideal in a kitchen or living area, but not in a brewhouse.

Brewhouse floors were often subjected to soakings and cleaning through swilling down and scrubbing (Allan 2006: 261). Wood constantly subjected to such treatment would degrade and rot, necessitating regular replacement.

The final option is a cobblestone floor. Cobblestone floors would withstand the constant soaking and scrubbing brewhouse floors were typically subjected to (Ibid.). The floor would drain easily and not become muddy if spilt upon. This flooring is found in other brewhouses, for example the one at Buckland Abbey in Devon, England (Allan 2006: 254). It is also likely that when the builders of the Kirke house removed the cobbles they raked the bedding smooth, leaving very little trace of it, which was then further obscured by the later construction. The cobbles in turn could have been re-used, possibly in the paving in the western half of the Kirke house or for the courtyard to the north of it.

There is limited archaeological evidence for such a floor. Most notably, the brewhouse well was surrounded by a cobblestone pavement, and the catchbasin was built from cobbles. It would stand to reason that if these features of the brewhouse were constructed in such a way, then the rest of the brewhouse would have been also. The presence of disturbed cobbles in the Kirke house construction event may also be evidence for the removal of a cobblestone floor (Gaulton 2010: personal communication). The use of a cobblestone floor therefore seems to be the most likely based on available evidence.

The Wellhouse

There is also archaeological evidence for a wellhouse. As mentioned previously, the well was surrounded by a cobblestone pavement roughly 2.5m x 2.5m (8ft x 8ft) in size. At the corners of this pavement were postmolds, which likely represent the original supports for the wellhouse (Gaulton 2006: 103). Unlike the brewhouse, the well and wellhouse seemed to have remained unmodified and in use until renovations to the Kirke house had the wellhouse removed, the well filled in, and a new fireplace and buttery built on top of them (Ibid.). The evidence suggests that the wellhouse might have been connected the brewhouse, but there is sufficient ambiguity to be unable to say for certain.

Doors and Windows

The presence of doors and windows is attested to in the archaeological assemblage. A number of iron hinges and other pieces of architectural hardware are found in the collection, as is a number of fragments of window glass and window caming.

The presence of window glass, while not unusual on an archaeological site is somewhat surprising in this context. It was mentioned before that brewhouses were designed with the need to cool worts in mind, hence the typical two-story height. For the same reason, as well as to deal with the odors associated with the brewing process, brewhouses were well-ventilated. This meant that brewhouses were usually constructed with unglazed, louvered windows (Pearson 1999: 24; Sim 1997: 54). Additionally, prior to the 1640s leaded windows were usually found only in houses of the well-off

(Cummings 1979: 146). This combination makes the presence of window glass and window caming surprising. There is an explanation for this apparent anomaly, however.

In 1742 the *London and Country Brewer* recommended that brewhouses have louvered windows on three sides (Pearson 1999: 28). If the Ferryland brewhouse, despite being built a century earlier, followed this rule and had glazed windows installed on three sides, one would expect to find a fair quantity of window glass. Instead, the total number of window glass is small (N=13), while the number of window caming fragments is larger (N=34). Compare this to the Kirke house, which had 2,055 window glass fragments and 122 fragments of caming (Gaulton 2006: 80). The Area D house, which belonged to a middling sort family, had 174 fragments of window glass (Crompton 2001: 188). This disparity in numbers suggests that the fragments in the brewhouse assemblage are intrusive from the Kirke house, and that the brewhouse did indeed have unglazed windows. The lack of glazed windows in the brewhouse unfortunately also means that determining the location of windows is impossible.

The artifacts related to doors are scattered through the middens, which is not surprising. Despite this, the location of the door can be approximated though other means. In the seventeenth century, the most common refuse disposal method was simply broadcasting it out a convenient door or window (Deetz 1996: 172). It was noted above that the large Event 360/367 midden is located primarily to the north and east of the brewhouse. This is strong evidence for the door being located on the northern wall. This also makes sense when looking at the orientation of the building, as the north wall faces the colony's main road, making access easier. Depending on the prevailing aesthetic, the

door could be located centrally in the wall, although it is just as likely it was off-centered to the east.

Brewhouse Location

It is worth noting the location of the brewhouse relative to the Mansion House complex. It was mentioned in Chapter 3.6 how brewhouse and bakehouses were often placed away from the main occupation to reduce the risk of fire and cut down on ambient odors, with one contemporary author recommending a distance of a quarter of a mile (Sim 1997: 25). In Ferryland the brewhouse was placed on the eastern edge of the colony, near the defensive ditch that enclosed the original site. At the other end of the colony is the forge, another structure that required fire and which produced a lot of smoke and odors. In between these two extremes is the Mansion House, located centrally in the colony's layout. This layout not only puts the Mansion House in a prominent position, but also places the two non-domestic structures on the fringes of the colony, where any risk of fire is minimized and where any activities were unlikely to disturb the occupants of the Mansion House.

5.3.3 Conclusion

Based on the available archaeological and documentary data, a reconstruction of the Ferryland brewhouse can be done (Figure 8). The building was approximately 24 feet by 15 feet (7.3 meters by 4.6 meters) in size and likely stood around twelve feet tall. It contained a massive hearth which spanned the width of the south wall and contained two

bread ovens as well as supports for a brewing copper. The rest of the building was wood-framed and built using earthfast techniques. The roof was slate, while the walls were clad in clapboards. The interior floor was most likely cobbled, and a grate and drain was located along the eastern wall in case of spills and for cleaning. A door was located on the north wall probably near the eastern corner, and unglazed, louvered windows were located on every wall but the south. Located just east of the main building, and possibly attached to it, was a twelve-foot deep well lined with wooden cribwork. The well itself was covered by an earthfast wellhouse and surrounded by an eight-foot square cobblestone pavement.

The Ferryland brewhouse is a modest, utilitarian structure. The use of wood framing and earthfast construction suggests that the emphasis was getting the structure built, though the large, well built hearth shows that some thought and effort was put into construction. The distinct lack of furnaces for brewing coppers appears to be an unusual, but not unheard of, trait for brewhouses of the time period. What this demonstrates is that the brewhouse was not intended to be used for large-scale production. More likely, the brewhouse was able to produce enough beer to supply the full-time occupants of the colony, who numbered only 32 in 1622 and which probably never reached more than 100, and perhaps a little bit of surplus to trade to fishermen.

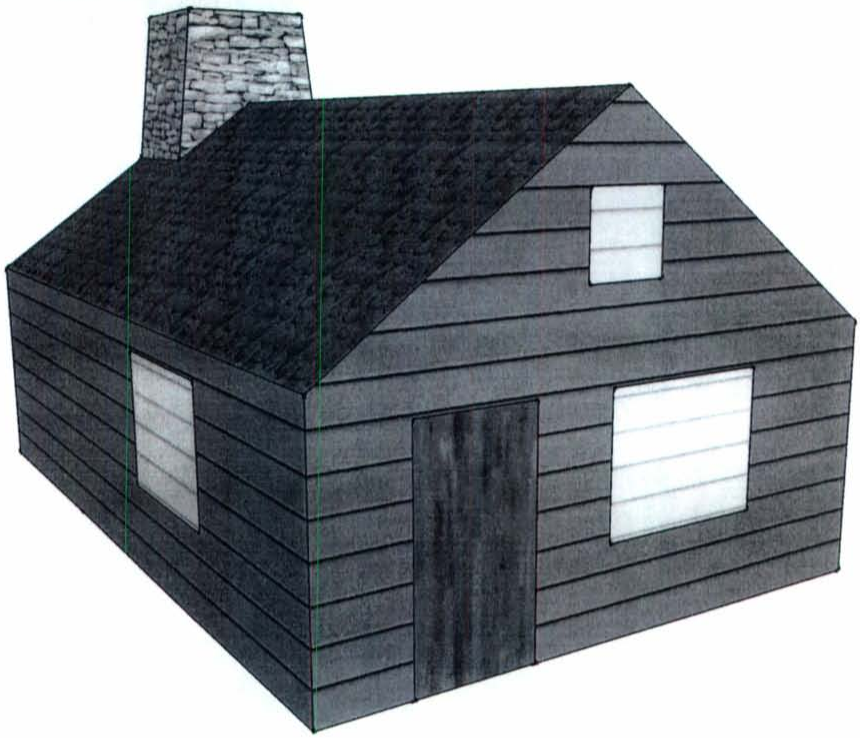

Figure 8: Hypothetical 3D image of the brewhouse. Image generated with Google SketchUp 8.

5.4 Material Culture

5.4.1 Ceramics

Ceramics are among the most commonly encountered artifacts on historical sites, and serve the archaeologist in a variety of ways. They can be useful dating tools, as the

production dates of different ware types and decorative patterns are well documented. They are useful indicators of social and economic position, based on the relative value of the various wares and the different vessel forms, and of trade patterns, since the source of many wares are well known. Ceramics are also a good indicator of site use patterns, as different vessel forms served different functions, and concentrations of different forms across the site are usually a direct result of the specific activities in each area. All together this makes ceramics a versatile class of artifact.

Ware Types

Coarse Earthenware

Coarse earthenware is a type of ceramic that is identified from a low-fired, fairly porous fabric. This porous body meant that the vessel was not watertight, which required that a glaze and/or slip be applied in order to make it so. This type of ceramic was cheap and utilitarian, and made in a wide variety of forms in a wide variety of places.

In Ferryland, most of the wares encountered originate in south-west England, which was a major trade hub during the seventeenth century. Merchants, especially those from Bideford, Barnstaple, and Exeter, were heavily involved in the trans-Atlantic trade networks, and it is wares from around these towns that are the most common in Newfoundland contexts. The following provides a brief description of the different wares encountered in the brewhouse assemblage and what vessel forms they occurred in.

North Devon Earthenware

Manufactured in and around Bideford, Barnstaple, and Great Torrington, North Devon ceramics were widely exported to the Irish and North American colonies (Grant 1983), and are the most common ware type in Ferryland assemblages (Crompton 2000: 30; Pope 1986: 101). Two types of North Devon ceramics are recognized: gravel-tempered and smooth. North Devon Gravel-Tempered wares (Figure 9) are readily identifiable by the presence of large quantities of grit or gravel in the fabric of the vessel (Pope 1986: 101; Watkins 1960). North Devon Smooth wares are of similar appearance, but lack the gravel temper (Pope 1986: 102). The fabric of both types is often a stratified red-orange and gray color. North Devon Smooth vessels are often slipped in a lighter color, and both types have a green-to-brown lead glaze applied (Grant 1983; Pope 1986; Watkins 1960). Additionally, smooth wares are sometimes found with sgraffito decoration, where a design is cut into the slip prior to glazing (Pope 1986: 102; Watkins 1960).

In the brewhouse contexts North Devon Gravel-Tempered wares include pots, milkpans, and the two large baking ovens. All of the North Devon Smooth wares identified are tallpots. No sgraffito-decorated vessels were found in association with the brewhouse.

Figure 9: North Devon gravel-tempered storage pot.

Exeter Coarse Sandy Earthenware

Uncommon on sites except those immediately surrounding Exeter (Allan 1984: 84), Exeter Coarse Sandy earthenware is distinguished by its sandy, coarse-grained fabric. It is usually unslipped and glazed in a dark green or brown (Pope 1986: 106). It has been suggested that its presence in Ferryland is the result of a direct connection between Exeter and the colony (Crompton 2000: 31). In the brewhouse assemblage, Coarse Sandy wares are limited in form to pots and milkpans.

Borderware

Borderware is the term used to describe pottery that originated in the border region between north-east Hampshire and western Surry during the sixteenth and

seventeenth centuries (Pearce 1992: 1). Three distinct types of borderware are recognized- whiteware, red border ware, and "Tudor Green" (Ibid. 4). However, only the white-bodied ware occurs in the brewhouse assemblage. The fabric actually ranges in color from light grey to a yellow- or pinkish-buff color while glazes can range from a yellow to a brown or olive color (Ibid. 5). Available in a variety of forms, in the brewhouse collection most of the borderwares have been identified as pipkins, although there is one borderware fragment that appears to be either a deep bowl or, more likely, a porringer.

Saintonge Earthenware

Originating in south-west France, Saintonge wares have an off-white fabric and white slip. They are often glazed in a yellow, brown, or green (Hurst et al 1986: 76-99). Vessel forms in Saintonge wares have been identified as milkpans, a costrel, and a chafing dish in the brewhouse assemblage.

Spanish Heavy Earthenware

Manufactured along the Mediterranean coast, Spanish Heavy earthenware has existed since the Roman period. It is heavy-bodied earthenware that was very durable and was therefore often reused (Pope 1986: 109). Wares of this type have a pinkish body, buff slip, and a green lead glaze (Hurst et al 1986: 63-67). A jar and a costrel have been identified as Spanish Heavy earthenware.

Totnes Earthenware

Totnes wares have only been recognized as a separate, distinct ware since the early 1980s. Originating from Bridgetown Pomeroy in southern Devon, archaeological evidence suggests that the distribution of this ware was very limited, occurring in a small area of south-west England and on several sites in Newfoundland, including Ferryland. Totnes wares have a red and gray, coarse sandy fabric with inclusions of white limestone, black mica, and iron ore. They are glazed dark green or brown with a heavy iron bleeding which gives the wares a mottled look (Allan and Pope 1990). Two Totnes vessels, a pipkin and a pot, have been identified in the brewhouse assemblage.

Portuguese Redware (or Merida-type)

Originating in Portugal, Merida-type earthenware is distinguished by a reddish-orange sandy micaceous fabric. Although incised, painted and green-glazed vessels were produced, it was most often found in an unglazed form, and a Roman-style burnishing was often applied (Hurst et al 1986: 70). In the brewhouse assemblage two jars and one costrel were identified as Merida-type earthenware.

South Somerset Earthenware

The ware known as South Somerset originated from the kilns in and around Donyatt in Somerset, England (Coleman-Smith and Pearson 1988; Temple 2004: 11). Its identification in Ferryland has been somewhat problematic, and "South Somerset" became a catch-all term for any pink-orange ceramic that could not be attributed to one of

the better-known types (Temple 2004: 1). Since its initial identification in Ferryland by Peter Pope (1986) there has been several studies of South Somerset ceramics (i.e. Coleman-Smith and Pearson 1988). Blair Temple (2004) has identified four distinct types of "South Somerset" ceramics- South Somerset-type, West Somerset-type, East Somerset-type, and Verwood-type. Two vessels, both storage jars and believed to be of the Verwood-type, were identified in the brewhouse.

Unidentified Earthenware

There are three earthenware vessels in the brewhouse assemblage that have not been identified. Three redware pipkin legs, representing two vessels, are possibly of Dutch origin based on the fabric and the presence of a brown lead glaze on one of the fragments (see Hurst et al 1986: 133-135; Schaefer 1998). However, there are not enough of the vessels to be sure.

The third vessel is represented by three joining fragments (Figure 10). The fabric is composed of poorly fired, micaceous clay, light gray on the exteriors and a dark gray in the middle. It is possibly of French origin, as it shares some traits with sixteenth-century Breton wares which have also been found at Ferryland. The particular form of this vessel is unknown due to a lack of diagnostic attributes, although the fragments do possess what could be an attachment point for a handle.

Figure 10: Unidentified coarse earthenware.

Tin-Glazed Earthenware

Tin-glazed earthenware is the technical term used to describe a low-fired ceramic that is coated with a lead glaze that contains tin oxide (Stoddart 2000: 23). They are easily recognizable by their relatively soft, chalky, and buff-colored fabric and the often thick coat of very white glaze. Manufactured in several different locations (Noel Hume 1969: 102, 140-141; Stoddart 2000: 37-44), tin-glazed vessels were mostly decorated in monochrome blue, though polychrome decoration is not uncommon. Tin-glazed wares were valued for the whiteness of their glaze, and many potters copied Chinese decorative patterns. Though costing nearly three times as much as other earthenwares, they are commonly found on archaeological sites around the globe and were obviously a highly valued and widely traded commodity (Stoddard 2000: 23).

Eleanor Stoddart (2000) has examined much of the collection of tin-glaze from Ferryland, including much of the material associated with the brewhouse, leaving only a few fragments from later excavations to be examined. An initial review of her work suggested that there was upward of sixty vessels from contexts associated with the brewhouse. Taking into account her methodology, looking at the dating of each vessel, and examining the distribution of fragments within the middens reduced this number to four. An additional two vessels were identified from later excavations. The remaining vessels proved to be associated with the Kirke house, and represent intrusive material.

Tin-glazed vessel forms associated with the brewhouse include plates, bowls, a galley pot, and a drink pot.

Porcelain

Porcelain in the seventeenth century was an uncommon and expensive commodity (Miller 2005: 132; Noel Hume 1969: 257). The demand for it was so great however, that by 1800 over seventy million imports are recorded (Miller 2005: 1). England had few direct trade connections with the Far East in the seventeenth century, so many of these vessels were being traded through intermediary sources, such as the Dutch (Ibid. 133). This contributed to the high cost of the wares. In seventeenth-century Exeter, for example, the cost for a porcelain piece ranged from six pence to a shilling, while tin-glazed vessels (noted above as costing up to three times as much as other earthenware) were valued between one and four pence (Allan 1984: 8).

Because porcelain was so rare and expensive, it served as much as an indication of status as it was a functional utensil. This was especially true in the earlier decades of the seventeenth century. Porcelain vessels represented wealth, luxury, and the exotic. By bringing these objects with them to the New World, the early colonists were transplanting the ideals of their society into a new land. It provided a source of comfort and familiarity among the hardships of the new colony (Miller 2005: 136).

Aaron Miller (2005) has done extensive work on the collection of porcelain from Ferryland. Unsurprisingly, more than a quarter of the early and mid seventeenth-century vessels can be attributed to the Kirke house (Ibid. 137). Porcelain was rare in contexts associated with the brewhouse, with only nine fragments recovered from the associated middens. Two vessels, a winecup and a bowl, were identified from these fragments. Both vessels were dated to the early seventeenth century (Ibid. 172, 199). It is possible that these vessels are from the brief period that George Calvert was in residence at Ferryland, but it is also possible that these vessels belonged to the Kirke family, perhaps an inheritance from Sir David Kirke's father.

Coarse Stonewares

Coarse stoneware is distinguished from earthenware by the partial vitrification of the fabric caused by a higher firing temperature. As a result, the fabric is harder and less porous, making stoneware a popular choice for containers intended for use with liquids, especially acidic ones such as vinegar and wine. Because only certain clays could

withstand the high temperatures necessary to cause vitrification, stoneware production centers were limited (Brandon 2006: 19; Schaefer 1998: 18).

In the seventeenth century the major stoneware centers were located in the Rhineland and in France (Ibid.). Especially dominant in the English trade were Frechen and the Westerwald, both centers of Rhenish stoneware production (Brandon 2006: 21). As a result, vessels from these areas are common finds on English archaeological sites, and Ferryland is no exception. Especially common is the Frechen *Bartmann* or *Bellarmine* bottle (Figure 11), so called because of the bearded man mask applied to the vessels (Brandon 2006: 23; Noel Hume 1969: 55). These vessels have a gray body and a mottled brown surface caused by the breaking down of an iron-oxide slip when the vessels were salt-glazed (Noel Hume 1969: 55).

Figure 11: Bellarmine bottle fragments.

Also fairly common on seventeenth-century sites is Westerwald salt-glazed stoneware. Noted for its blue-gray body and cobalt-blue decoration, Westerwald jugs gained popularity starting in the mid-seventeenth century, and were a dominant product by the early eighteenth century (Brandon 2006: 27-30).

Lesser quantities of stoneware were imported from France, in part due to the large number of Rhenish imports (Ibid. 32). The only notable examples in the brewhouse assemblage are fragments of three vessels of Martincamp stoneware. Martincamp, located between Dieppe and Beauvais, exported a fairly distinctive globular flask. Written records indicate that these flasks were shipped empty and covered in wicker (Hurst et al 1986: 102). The only other stoneware vessel of French origin is a Normandy butterpot (Brandon 2006).

Nicole Brandon (2006) undertook an extensive study of coarse stoneware recovered from Ferryland, including much of the material associated with the brewhouse. As with Stoddart's work, it was necessary to check the catalogue numbers and dating of each vessel and account for the methodology used, to determine which ones were actually associated with the brewhouse and which ones were not. This left a total of twelve vessels that are likely related to the brewhouse. Ten more vessels were identified from more recent excavations.

The assemblage is overwhelmingly dominated by Bellarmine bottles (n=15). As mentioned previously, three Martincamp flasks and one Normandy butterpot were recovered. The remaining three vessels are jugs, two of Frechen origin and one is from the Westerwald region.

Additional Ware Types

Like many archaeological sites, the brewhouse collection contains intrusive material from later occupations and time periods. As noted above, much of this intrusive material is almost identical to the material related to the brewhouse but dates from the Kirke period. Other material is much more easily recognized. This includes several fragments of refined earthenware, a ware type not manufactured until the eighteenth century.

One of the more notable intrusions, certainly linked to the later Kirke residence, are fragments of Portuguese *terra sigillata* in the 360/367 midden. Portuguese *terra sigillata* is a fine, orange-bodied earthenware noted for its incised and over-painted designs which was produced in Portugal for European elites (Gaulton and Mathias 1999; Gaulton 2006). Rare and expensive, and intended for display rather than practical purposes, it is unlikely that anyone who was occupying or utilizing the brewhouse structure would have owned these vessels. At least nine vessels of this type have been identified in association with the Kirke house (Tuck and Gaulton 2002), which confirms that these fragments are intrusive and therefore not related to the brewhouse.

Vessel Form and Function:

In order to understand the function of a ceramic vessel it is necessary to determine the vessel's form. Doing so first requires breaking down the ceramic assemblage into vessel lots. Vessel lots are preferred for analysis since sherd counts are often misleading

due to different vessel sizes and differential breakage, while vessel lots hypothetically represent one object (Sussman 2000).

The procedure is fairly simple, though it can be time consuming and a great deal of personal judgment is required. Fragments were grouped according to ware type, physical joins, fabric, glaze, and shape. In doing so, this researcher tended toward "lumping" as opposed to "splitting"; that is, two very similar fragments are more likely to be considered part of the same vessel rather than two different vessels. This has probably created an underestimate of vessel numbers, but is consistent with previous studies at Ferryland.

Reconstructing complete vessels is not necessary. Indeed, complete reconstruction would have likely proved to have been impractical as the brewhouse middens contained 4,850 ceramic finds, though the actual number of fragments is higher because catalogue numbers often contain more than one fragment. Instead, only the most diagnostic pieces (i.e. rim, base, and handle fragments) were studied. When possible, rim and base fragments were grouped together. However, due to the variability in glaze and fabric color, etc. it was often not possible to associate a base with a rim. When this occurred each was designated a separate vessel lot.

Once vessel lots were created it is possible to identify the form of each vessel. The standard tool for doing so is the Potomac Typological System (POTS) developed by Mary Beaudry and others (Beaudry et al 1983). POTS sought to establish a standardized terminology, based on historical records, for archaeologists to use when discussing

ceramics. At Ferryland a slightly modified form of POTS developed by Peter Pope (1986) is standard for the comparison and analysis of ceramic assemblages.

A total of 94 vessels lots were defined from the ceramic assemblage related to the brewhouse (see Appendix A). In order to get the most accurate estimate of the total number of vessels in the assemblage it was important to establish a Minimal Number of Vessels (MNV). The simplest method is to count each pairing of a rim section and base section as one vessel, even if there is no physical join. For example, in the brewhouse collection there are twenty-five vessel lots identified as tallpots. The MNV for this sample, however, is twenty.

The total MNV for the brewhouse is eighty-nine. Two of these vessels could not be identified with a particular vessel form, though the ware type was noted when possible. POTS divides the vessel forms into five general categories, based on the assumed primary function of that form. The following is adapted from Beaudry et al (1983) and Pope (1986).

The kitchen and dairy category contains forms presumed to be used in the storage and preparation of food. This category is often subdivided into food storage, food preparation, and dairy. Forms in this category include pots, tallpots, jars, bowls, and milkpans. It should be noted that "food storage" is something of a misnomer, since these vessels could be used to store a variety of materials. For example, it is not uncommon to find jars reused for the storage of liquids such as wine, beer, etc (Smith 2008: 7). Vessels in this category are most commonly found in a variety of coarse earthenware.

Cooking vessels can be quite varied, but only one form was identified in the brewhouse assemblage. These were pipkins, which were used in the preparation of semi-solid foods such as potages and porridges. The two North Devon baking ovens are also technically included in this category. However, as they are part of the structure itself they will be considered architectural in nature and not included in the MNV or the analysis that follows. All of the vessels from this category found in the brewhouse assemblage are made from coarse earthenware.

Beverage service vessels encompass all forms used in both the storage and consumption of liquids. In the brewhouse assemblage the identified forms in this category are cups, drink pots, jugs, flasks and costrels, and bottles. Food service vessels serve the same purposes for solid or semi-solid foods, and identified forms include dishes, plates, porringers, and chafing dishes. Vessels from both categories were found in coarse earthenwares, while several beverage service vessels were also identified in coarse stonewares and one was of porcelain.

The final category identified in the brewhouse assemblage was hygiene. Similar to cooking vessels, these can come in a variety of forms, but only one was found in the brewhouse. This was a tin-glazed galley pot, a form usually associated with the storage of ointments and medicines.

Discussion

An advantage of POTS is that it provides a means to facilitate intra- and inter-site comparisons of ceramic assemblages (Crompton 2001: 145). This in part grants the

archaeologist a glimpse of the cultural dynamics that formed the assemblage under study (Beaudry et al 1983: 11). In Ferryland comparative assemblages are available from three dwelling houses. An additional comparison to a similarly-dated dwelling in Renews is also included. Most of these assemblages post-date the brewhouse, but all share a common cultural background and nearly identical (in terms of ware types) ceramic assemblages, and all are seventeenth-century sites, so a comparison between these sites is valid. The results of this comparison are presented in Figure 12.

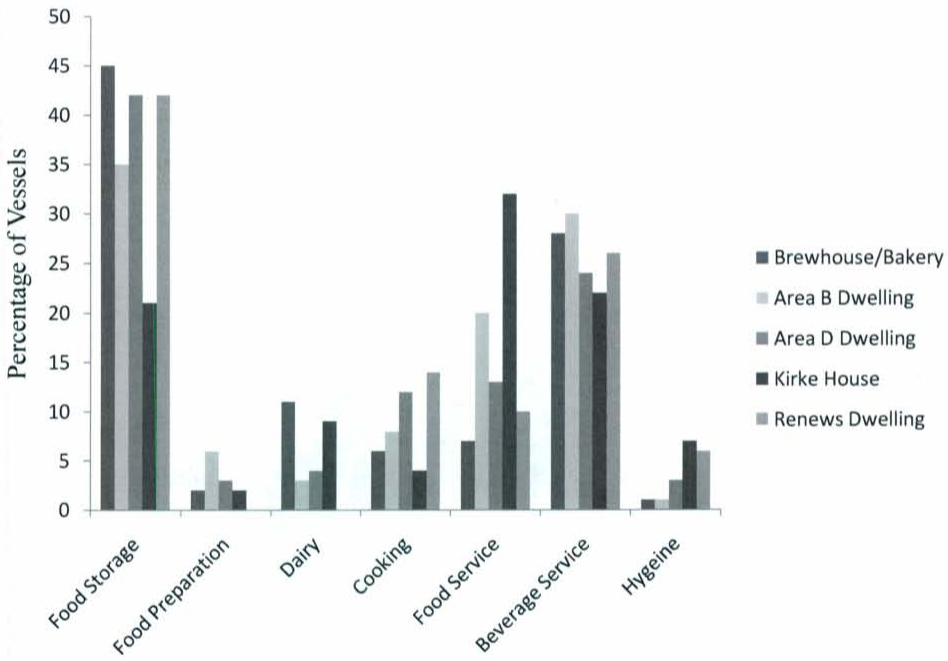

Figure 12: Comparison of POTS categories from different structures in Newfoundland.

What is quickly apparent is that, with the exception of the Kirke house, all of the assemblages contain a large percentage of kitchen and dairy forms. To understand why

this is, it is necessary to break the category into sub-categories of preparation, storage, and dairy vessels.

Storage vessels overwhelmingly dominate the assemblages. This in part emphasizes the extent to which settlers in Newfoundland were dependent on supplies of imported food, and the necessity of preserving food supplies for long periods. It has been noted that while agriculture and livestock keeping did occur in Newfoundland, they remained secondary to the fishery (Pope 1986: 39; 2004). This meant that the average planter devoted most of his time to the fishery, and therefore had very little time to manage livestock or tend to fields. Because of this, they would require a greater quantity of imported food. The exception is the gentry-class Kirke family. Their high level of wealth gave them the means with which to keep livestock, which would have reduced their need for imported food. For example, David Kirke Jr., in a census taken in 1677, is listed as owning eight cattle (Poole 10/07/1677 in Pope 1993). It is also known that the Kirkes received food supplies as tax payments (Gaulton 2006: 247; see also Cruse 1667 in Pope 1993).

Where the brewhouse assemblage stands out is the percentage of dairying-related vessels in the assemblage. Milkpans, as noted above, were used in the cooling and scalding of dairy products. Neither the Ferryland Area B or Area D dwellings, nor the Renews dwellings had large numbers of milkpans. This is related back to the issue of livestock. Furthermore, at Ferryland most of the dairying activities likely took place at the Area C cow byre (Crompton 2001: 152). At the Kirke house a number of milkpans

were found in association with a small dairy built circa 1660, again indicating that the Kirkes owned a number of cattle (Gaulton 2006: 152).

In the brewhouse, however, milkpans probably served another function. As mentioned in Chapter 3.3, the brewing process involved periods of cooling and fermenting. In larger operations specialized tuns were often used for this. In the small-scale, small yield Ferryland brewhouse, however, it is likely that milkpans were used for the same purpose. A 1796 treatise on the brewing of beer, written for the small-scale brewer, mentions that it was not uncommon for many smaller vessels to be used instead of one larger vessel (Hughes 1796). It is not inconceivable that this happened in the Ferryland brewhouse. After brewing, storage vessels such as tallpots and jugs would be used to store and age the finished product until it was ready and needed for consumption.

The percentage of cooking vessels is low in all instances, although it varies from four to fourteen percent of the assemblage. The brewhouse has the second lowest percentage (6%) among the five structures being compared, with the Kirke house having the lowest (4%). In the dwellings this lack of cooking vessels has generally been attributed to the use of alternative cooking methods and metal cooking utensils (Crompton 2001: 152; Gaulton 2006: 164). In the Kirke house especially, analysis of the food service vessels show that the occupants dined primarily upon foods that were roasted, braised, or baked, as well as soups and sauces (Gaulton 2006: 164).

None of the iron artifacts recovered from the brewhouse have been identified as a cooking utensil or container. It is very likely that any cooking beyond brewing and baking that occurred in the brewhouse structure was incidental, perhaps one of Wynne's

"strong maids" heating up pottage or stew for a midday meal while performing her duties.

The percentage of beverage service vessels remains remarkably consistent in all structures. The demand for alcohol in Newfoundland has been written about extensively (Pope 1986; 1989; 2004). The trade patterns associated with the fisheries and the merchant activities of Sir David Kirke and his family created ready access to, and therefore demand for, higher-quality wines and distilled drinks among the Newfoundland planters. It is also known that many planters also ran tippling houses in their own homes (Crompton 2001: 153; Pope 2004). As a result, ceramic assemblages from seventeenth-century domestic sites in Newfoundland possess large numbers of beverage service vessels.

The brewhouse has the second-highest percentage of beverage service vessels (28%) among the structures being compared. Most of these vessels are storage and serving vessels, such as bottles, jugs, flasks/costrels, and drink pots (composing 96% of all vessels in this category), as opposed to individual drinking vessels such as cups and mugs. In comparison, the Areas B, D, and F dwellings have much closer ratios, and the Renews dwelling actually inverses this ratio. This suggests that a significant amount of individual beverage consumption did not occur at the brewhouse. Instead larger communal vessels or vessels meant for long-term storage were being filled instead for use elsewhere in the colony. In contrast the dwellings, though certainly emphasizing the storage of beverages, had a greater need for individual servings either for the inhabitants or as a part-time tippling house.

With the notable exception of the affluent Kirke family, the percentage of food service vessels is surprisingly low. In the case of the middling-sort inhabitants of the Area B, Area D, and Renews dwellings, pewter and wood were likely used to supplement the ceramic serving vessels (Crompton 2001: 152; Nixon 1999: 140), while the gentry-level Kirkes seems to have preferred tin-glazed ceramics, which partially accounts for the high percentage in the Kirke house assemblage (Gaulton 2006: 208). Because the valuable pewter and silver could have been looted, and pewter and wood does not preserve well once in the ground, it is impossible to say if these materials were used with absolute certainty as they are often absent from the archaeological record. However, probate records from the seventeenth-century Chesapeake show that pewter was preferred by the middle-sorts and gentry (Beaudry et al 1983; Horn 1988; Martin 1989), and it is not unreasonable to presume that it was the same in Newfoundland.

This is not likely the case for the brewhouse. The brewhouse was not a middling-sort or gentry dwelling. As a service building it had no demand for food service vessels. Compounding this is that fact that half of the food service vessels from brewhouse contexts are tin-glazed, which may or may not be intrusive from the later Kirke residence, which was noted for the high frequency of tin-glazed vessels in its collection (Gaulton 2006: 207-208).

The remaining vessels of the food service group consist of one lobed dish, a porringer, and a chafing dish. The presence of the porringer is also likely evidence of incidental use of the structure for food consumption, probably by the maids who worked there. Chafing dishes were used to keep food warm during dinner, while lobed dishes

would be used for food service and presentation, or as vessels to wash ones hands prior to and following a meal (Gaulton 2006: 166; Stoddart 2000: 46). The use of these vessels in brewing or baking is possible, or there may have been another use for these vessels by those working in the brewhouse.

Hygiene vessels are limited to a single tin-glazed galley pot. As mentioned previously, galley pots were often used to hold medicines or ointments. Since galley pots were usually made in tin-glazed wares, their presence is not as surprising as the plates mentioned above. Additionally, those involved in brewing and baking were regularly exposed to open flame, burning embers, and scalding water. Accidents happen. It would therefore not be unexpected that such workers would occasionally require treatment for burns and other related injuries. In addition it is possible that galley pots were reused once the original contents were used up, such as for containers for excess alebarm or other material necessary for brewing and baking, including but not limited to salt, sugar, and spices.

5.4.2 Clay Smoking Pipes

Clay smoking pipes are one of the most ubiquitous artifacts found on historic sites. Smoking was a common leisure activity in the seventeenth century, and clay pipes were relatively cheap and considered disposable (Bradley 2000: 104). Pipe collections can be used as source of information on trade patterns, social and economic standing, and site use patterns (Bradley 2000; Cessford 2001). They are also invaluable to the archaeologist as a dating tool.

Figure 13: Selected bowl forms from the brewhouse. They are dated, counter-clockwise from top left, as follows: 1610-1640; 1620-1640; 1630-1660; 1660-1680.

Pipe bowls underwent a rapid morphological change during the seventeenth and eighteenth centuries, which means that it is possible to use bowl typologies to establish a range of dates through which a particular form was manufactured. Furthermore, pipes had a relatively short use-life, which means that they were often deposited into the archaeological record soon after initial use. More absolute dating is possible by examining maker's marks. If a particular mark can be attributed to a specific manufacturer it may be possible to reduce the date range from a couple of decades to a couple of years or less.

It has also been demonstrated that the bore size of smoking pipes decreased over time, so that in a given time span one bore size was more prevalent than the rest

(Harrington 1954). Later archaeologists working from this data would develop regression line formulas to calculate the mean occupation date of a site (i.e. Binford 1961). Though these were initially enthusiastically embraced, archaeologists have since become aware of the limitations of regression-line formulations as a dating tool (Gaulton 2006: 42).

The first issue is that pipe bore dating gives only a mean date of occupation, and does not tell anything about the overall temporal span that the site was occupied (Ibid.). The brewhouse especially was occupied only for a short time, roughly twenty years. Harrington's chronology uses 30 to 50 year blocks, which means that the entire occupation period of the brewhouse is less than the span of one of these divisions. This also makes establishing a mean date for the occupation somewhat redundant.

Another issue is related to bore sizes. It has been noted that smoking pipes manufactured in the West Country sometimes do not follow the "smaller is newer" pattern. The dominance of West Country pipes in Newfoundland collections means that pipe bore dates are often 15-20 years later for pre-1650 contexts and 15-20 years earlier for post-1650 sites (Gaulton 2006: 42). Finally, at Ferryland the large number of recovered bowls and maker's marks, plus the good documentary evidence, makes pipe bore dating unnecessary.

The entire collection of smoking pipe fragments is approximately 3,300 pieces, representing a minimum of 345 individual pipes. Intact or mostly intact bowls and any piece with a potentially diagnostic marking or decoration were separated out for further analysis. Though this immediately eliminated most of the collection it still left 186

datable bowls, a further thirteen fragments with identifiable maker's marks, and three stem fragments with potentially diagnostic decorations.

Pipe Dating

Typologies of bowl forms are available in several sources, including Atkinson and Oswald (1972), Walker (1977), Duco (1981), Grant and Jemmett (1985), and Fox and Barton (1986). Information on maker's marks is available in many of the same sources, as well as Oswald (1969, 1979). Furthermore, Barry Gaulton (1999, 2006) has done extensive work with the bowl forms and maker's marks in the Ferryland collection. There will always be some ambiguity in the dating, but by cross-referencing the various sources it is possible to reliably place the date of manufacture for a particular form. Manufacturing dates for pipe bowls are expressed via a *terminus post quem* and *terminus ante quem;* that is, the dates before and after which that form was manufactured.

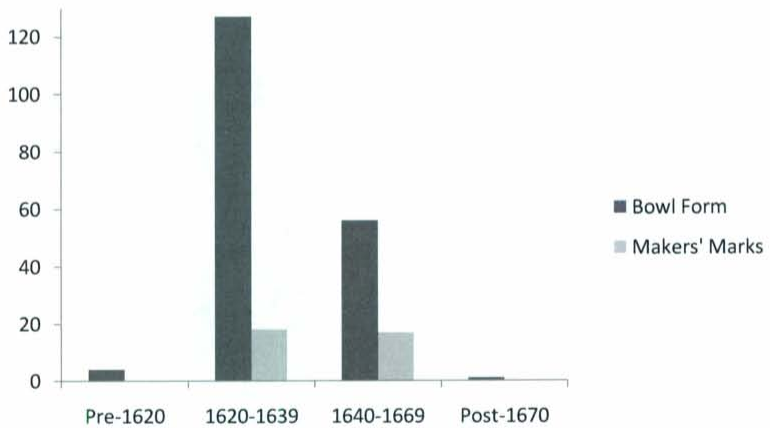

Figure 14: Distribution of *terminus post quem* dates for bowl forms and makers' marks from the brewhouse assemblage.

As Figure 14 illustrates, an overwhelming majority of the pipe bowls have a *terminus post quem* date between 1620 and 1640, which means that there were likely deposited during the 1620s and 1630s. A smaller number date from between 1640 and 1670, which represents material from the construction and early occupation of the Kirke house. A very small (N=4) number pre-date 1620, and are likely associated with the migratory fishermen or the very earliest settlers.

The makers' marks support the bowl form dating with an almost even split between the brewhouse occupation and the Kirke house occupation, with a slight bias towards the earlier occupation. In addition, the decorated fragments, although subjected to some ambiguity, all resemble pipes dating from the mid-1620s to the 1650s (Figure 15).

Figure 15: Decorated smoking pipe fragments from the brewhouse.

All of this suggests that the most intensive deposition of these middens was during the time period of 1620 to 1640, corresponding to the occupation of the brewhouse. A less intensive use of these middens occurred during the early Kirke period, and that prior to 1620 the area was either not utilized or Captain Wynne's landscaping endeavors destroyed most evidence of the migratory fishery's presence. Taken together, this confirms that these middens were deposited during the Calvert period, and therefore are related to the brewhouse and not another structure.

5.4.3 Glass

While not as ubiquitous as ceramics or smoking pipes, glass fragments are a common find on archaeological sites. Similar to those artifacts, glass can be used as an indicator of trade patterns, social and economic status, and consumption patterns. Certain types and forms of glassware also have utility as a dating tool. Compared to ceramics, however, seventeenth-century glass is rather limited in form and function.

The procedure used for analyzing glass vessels is similar to that used for ceramics. Approximately 1,470 fragments of glass were recovered from the brewhouse-related events. The entire collection was sorted through and any diagnostic elements, such as rims and bases, were removed for further examination. These pieces were then lumped into vessel lots. As a general rule, rims and bases from the same type of vessel were paired even though there was no actual mend. This has undoubtedly underestimated the number of vessels present, but it is most likely the more accurate assessment. Once vessels were defined the minimal vessel count (MNV) was established, and the vessel

form was identified. Where possible a relative date was established. Window glass was discussed in Chapter 5.3, and there is no need to repeat that information here.

Case Bottles

Case bottles are the most common form encountered in the brewhouse collection, composing 60 percent of the entire sample. These tall bottles are distinguished by a square cross-section, formed by blowing the glass into a mould of clay or wood. They have short necks, rounded shoulders, and a nearly flat base. Two styles of lip finish are encountered. The first style has the bottle sheared off the blowpipe, fire-polished, and fitted with a threaded pewter cap. The second style, which was cheaper to produce, is sheared off, and then a tool is used to form an everted lip (Noel Hume 1969: 62; Wicks 1999: 19-20).

Case bottles came in sizes ranging from a pint to two gallons, and, as their name suggests, were usually shipped in crates of six or twelve. They were most commonly used to ship distilled spirits such as gin or brandy, though they could be filled with a variety of liquids (Faulkner and Faulkner 1987: 232; McNulty 1971). Their presence in the brewhouse is likely the result of bottle reuse once the original contents had been emptied.

Wicks (1999) identified two types of case bottles in Ferryland assemblages. Type A bottles are distinguished by their thin, nearly straight walls and lightly-colored metal. Type B bottles are darker in color and have thicker, tapering walls. He attributes Type A bottles to Dutch manufacture and dates them to before 1670. Type B bottles date from about 1650 onwards and are attributed to English manufacture (Wicks 1999: 21-22).

Most of the case bottles identified in association with the brewhouse are the thin-walled Type A bottles, which further reinforces the early date of the structure.

Figure 16: Case bottle mouth and base fragment.

The only exception is a suspected French-made wide-mouth case-type bottle, represented by an incomplete rim fragment (illustrated in Figure 17). Such vessels typically have a blue to blue-green colored metal and are often riddled with seed bubbles, though the brewhouse fragment is olive-green in color and lacks the seed bubbles. Bottles of this type are usually found on eighteenth-century sites, but seventeenth-century examples exist (Hanrahan 1978; Harris 1975: 132), and two similar vessels were identified during the excavation of the Area D dwelling (Crompton 2001: 178).

Wine Bottles

In comparison to case bottles, wine bottles have been the subject of a tremendous amount of literature. This is because, similar to pipe bowls, the shape of English wine bottles changed over time. Furthermore, this change is well understood primarily due to the practice of affixing seals to bottles. These seals often included a date, and a large number have survived to the modern day, which allows a chronological comparison of wine bottle form.

In the brewhouse collection the only form of wine bottle identified is the "shaft and globe" style. Four vessels were identified from the collection, though unfortunately only base fragments were identified. None were sufficiently intact to allow the typing and dating of the individual bottles using Wicks (1999) metric criteria. The identification of these vessels as shaft and globe was based on easily observable characteristics, such as the shallow indents, narrow pontil marks, and general shape of the piece. Additionally, shaft and globe bottles were the only form in production during the short life of the structure, and these only started production around 1632 (Wicks 1999: 24, 41-42), suggesting that these vessels are from the later years of the brewhouse occupation.

Wine bottles are, naturally, associated with the storage, transport, and serving of wine and other spirits. Reuse of these bottles, however, is not unheard of, and archaeologically recovered bottles have been found to contain the remains of other products such as milk (Kelso 1984: 157). Wine bottles may have also been used in the storage and maturation of other alcoholic beverages, such as beer and cider (Jones 1986:

19-21). Reuse of these bottles in such a fashion would account for their presence in the brewhouse collection.

Pharmaceutical Bottles

Pharmaceutical bottles are typically smaller than other vessel types, and were used for medicine and other health and hygiene-related products (Crompton 2001: 184). There is a number of morphological differences between bottles during the seventeenth century, including multi-sided mould-blown vessels, free-blown globular vessels, and cylindrical vessels. Lip styles and finishes also varied (Noel Hume 1969: 74).

Only one pharmaceutical bottle was recovered from brewhouse-related contexts. It is represented by an intact rim fragment. The rim is everted and flattened, which suggests that it is from a conical "steeple" bottle. This form was apparently not in use until the second half of the seventeenth century (Ibid; Willmott 2002: 90), suggesting that this fragment is intrusive from the later Kirke house.

Drinking Vessels

More so than storage vessels, drinking vessels were subjected to the changing and evolving fashions of the late sixteenth and early seventeenth centuries, and these changes are well-dated (Crompton 2001: 178; Willmott 2002: 32). This is related to the concept of conspicuous consumption. Glass was cheaper than pewter or silver but was less durable and had little intrinsic value. Its fragility, combined with the lack of scrap value, meant that it often had a short use-life and was a non-recoverable investment. The changing fads

further meant that entire sets were often discarded once they were no longer fashionable. As a result, the only ones who could afford to purchase glass were those with significant amounts of disposable income (Willmott 2002: 32).

Not surprisingly then, only two glass drinking vessels were identified among the brewhouse assemblage. The first vessel is represented by fragments of the stem and bowl of a clear-colored goblet or wine glass, possibly a Dutch *a la façon de Venise* piece. The second vessel is represented by a single base fragment of a light blue-green pedestal beaker or flask. Neither vessel is sufficiently complete to date.

Figure 17: Other glass fragments from the brewhouse. Clockwise, starting from the top right: possible French-made wide-mouthed case bottle; rim fragment from a pharmaceutical bottle; stem fragment from a wine glass; fragments of unknown *a la façon de Venise* vessel.

Other Glass

Two fragments of a dark gray-tinted glass vessel were recovered from brewhouse contexts. These two fragments are from the same vessel, which is an example of a Dutch *a la façon de Venise* piece. Both fragments have applied ridged bands and are concave in form (see Figure 17). Precise identification of the vessel form is impossible due to the small size of the fragments. Possibilities include a bowl or *tafelbel* (see Henkes 1994: 205). Similar glass was recovered from Kirke house-related contexts (Gaulton 2006: 366), which would suggest that these two fragments are intrusive from the later structure. Certainly these fragments represent a higher level of consumption than one would expect to find in a brewhouse.

Discussion

As with the ceramic assemblage, the glass assemblage is overwhelmingly composed of storage and transport vessels. Unlike the ceramic assemblage, however, this is not unusual when compared to other sites in North America.

When this assemblage was assessed next to the comparative sites it became necessary to discount the Renews dwelling. This is due to the low number (N=5) of glass vessels recovered from that site and the limited forms present. This leaves the Area B dwelling, Area D dwelling and the Kirke house for comparative purposes. It also proved more appropriate to combine case and wine bottles into one category, rather than to keep them separate, as both have the same function despite the different form. The results are presented in Figure 18.

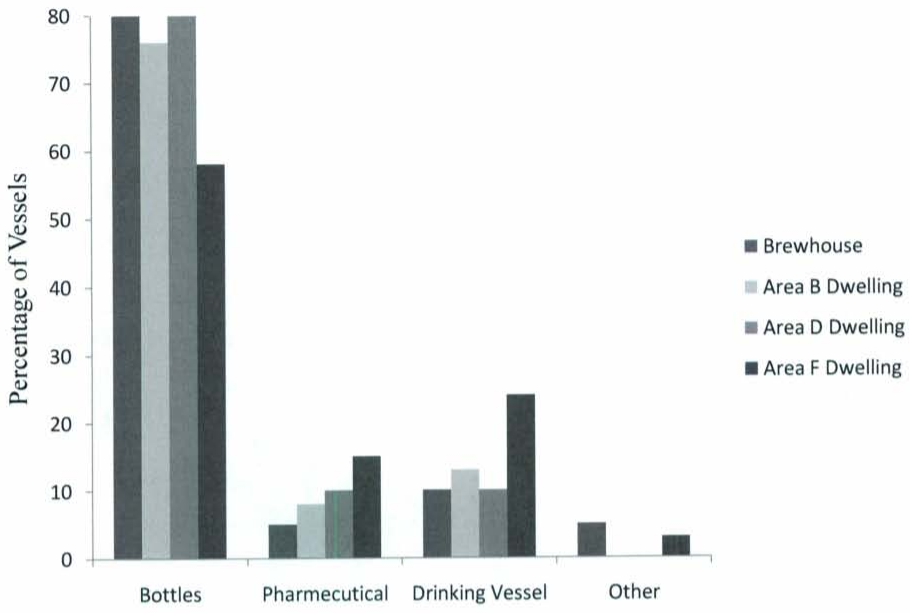

Figure 18: Distribution of glass vessels in Newfoundland sites.

The brewhouse has the lowest number of glass vessels present (N=20), but this is not much different from the Area B dwelling (N=24), although both have significantly less than the Area D dwelling (N=68) and Kirke house (N=89) (Nixon 1999; Crompton 2001; Gaulton 2006). Despite this, the relative percentage of each category remains remarkably consistent except for the Kirke house. This is a result of the significantly larger percentage of drinking vessels at the Kirke house. No other site has such a high portion or number of glass drinking vessels.

This is most likely due to a general preference for ceramic drinking vessels. As mentioned previously, the use of glass drinking vessels is a form of conspicuous consumption. It is a direct indicator of the percentage of disposable income a family has.

In Newfoundland this situation would have been exaggerated, as the glass would have had to be imported from across the Atlantic, increasing its cost even more. The significantly larger percentage of glass drinking vessels in the Kirke house assemblage is a testament to their wealth and social stature. Ceramic drinking vessels would have survived the trans-Atlantic crossing easier, and could be procured from local sources in England, making them cheaper and more efficient to acquire.

The low number of glass vessels in the brewhouse assemblage is also the result of a general preference for ceramic vessels during the early seventeenth century. Stoneware vessels, especially Bellarmine bottles, remained the preferred storage and transport vessels for liquids. It was not until around 1650 that the glass industry began to dominate, and it was not until the Restoration of Charles II that the glass bottle became the preferred storage medium (Wicks 1999: 24-25).

It is also worth noting the "other" category. The "other" category is everything that does not fit into the other three, including bowls and decorative pieces. The fact that the Kirke house overlays the brewhouse and that these are the only two sites that have vessels in this category is probably not a coincidence. This seems to support the idea that the unidentified *a la façon de Venise* vessel is in fact an intrusive object from the Kirke house, and not something original to the brewhouse.

5.4.4 Small Finds

The term "small finds" is generally used to refer to smaller, more personal artifacts such as coins, beads, iron artifacts besides nails, lead artifacts, etc. While these

artifacts are potentially very informative and interesting, their actual utility for the purposes of this study is limited. The only exceptions are the three coins recovered from brewhouse-related contexts, which help to date the site.

Coins

Coins recovered from archaeological contexts can be one of the most important dating tools for archaeologists. Most coinage is stamped with a date of manufacture, firmly establishing a *terminus post quem* for a particular context (Berry 2002: 1). Coins can also reveal the country and occasionally the province or town of origin, shedding light on trade patterns. Additionally, the material the coin is made from can be an indicator of social or economic status (Ibid. 2).

Despite these advantages, coins can also be misleading. Coins tended to be in circulation for long periods of time, which means that it may be years or decades before they are deposited. In the seventeenth century especially, coins were often in short supply and their value was based directly on the metallic content, and therefore people used whatever was available regardless of origin (Ibid.). Regardless, coins are an important class of artifacts, especially when used as part of a holistic approach to a site.

Three coins were recovered from contexts related to the brewhouse. A fourth coin, though not from a context directly related to the occupation of the brewhouse, is also important to understanding the length of occupation. Of these coins, one is silver and the rest are copper.

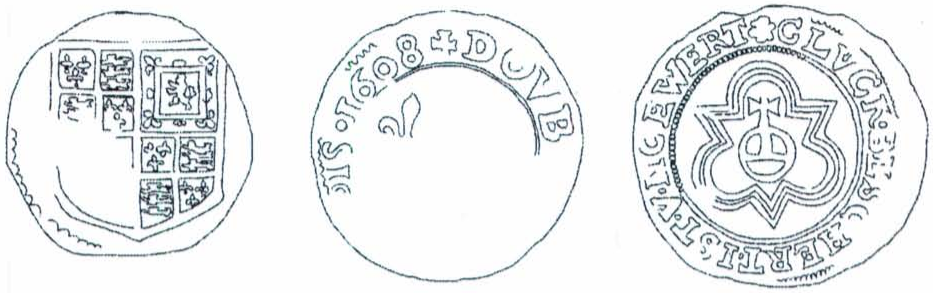

Figure 19: Coins and tokens from the brewhouse. Left to right: Silver penny (1603-1604); French *double* (1608); Krauwinkel *rechenpfening* (1586-1635). Images are not to scale. Courtesy of Paul Berry, Bank of Canada.

The first two coins are a silver penny dated 1603 to 1604 and a copper French *double* stamped with 1608 (Berry 2002: 28, 44). Both of these coins were recovered from the main middens associated with the brewhouse. The third coin is a Hans Krauwinkel II *rechenpfening* or token. Tokens such as these were used by merchants to keep track of debts and credit. This particular piece is dated 1586 to 1635 and was recovered from the smaller midden south of the brewhouse (Berry 2002: 22, 64). The dates of these coins help to confirm that the brewhouse is one of the earliest structures at Ferryland, fitting with the historical record.

The final coin is a French *double* that is of a style dated from 1636 to 1641. The numerals 63 are visible on the coin, which further narrows the mint date to 1636 to 1639. It was recovered from Event 370, which is associated with the dismantling of the brewhouse and construction of the Kirke house (Berry 2002: 47; Gaulton 2006: 84). The reason this is important is that it places the construction of the Kirke house to 1636 or later. With David Kirke not arriving in Ferryland until 1638, this supports the date of

construction for the Kirke house being sometime around between then and 1640, which means that the *terminus ante quem* for the brewhouse is roughly the same date.

5.5 Chronology

It has been mentioned previously that the brewhouse stood only for about two decades before it was torn down. This section will synthesize previously discussed evidence into a rough chronology of the structure's history.

While the archaeological evidence confirms that this structure is from the early years of the colony, it cannot provide a more specific date. The historical record fortunately can. In his letter of 28 July 1622, Captain Wynne spoke of breaking ground for a "brewhouse room". In the letter of 17 August 1622 Captain Wynne requested maids with brewing and baking skills and another brewing copper. These two letters suggest that the brewhouse started construction sometime during the early summer of 1622, and was approaching an operational status towards the end of that August.

Wynne also requested slaters in the 17 August letter, but there is no record of when or if this request was fulfilled. With the archaeological evidence that the brewhouse was roofed in slate, however, it seems that this request was, but also raises the possibility that the brewhouse was not fully completed until later in 1622 or 1623.

In contrast to the construction date, evidence for the date that the building was dismantled is almost all archaeological. It is known from the historical records that Sir David Kirke arrived in Ferryland in 1638. Dating evidence from the artifact assemblage associated with the Kirke house indicates a construction date around 1640. Most notable

is the aforementioned *double*, which is solid evidence of the earliest possible date being 1636. The number of Kirke-period pipe bowls in the brewhouse assemblage and the presence of identical makers' marks in both brewhouse- and Kirke house-related contexts further suggests that there was no appreciable break between the use/occupation of the brewhouse, its dismantling, and the construction of the Kirke house (Gaulton 2006: 55).

The combination of the above evidence suggests that the brewhouse stood from approximately from 1622-1623 to 1638-1640, or for an estimated 15-18 years before being dismantled.

5.6 Conclusion

Analysis of the material culture associated with a structure helps the archaeologist construct an image of the past. Material culture represents consumption patterns, serves as an indicator of wealth and social stature, provides evidence for the dating of a site, and can help to understand the minutia of everyday life.

Dating evidence from the smoking pipes and coins, and to a lesser extent the glass, confirmed that the structure was built during the early years of the colony. At the same time analysis of the surviving architectural features, several of which are unique to this structure, indicate that it was a combination of brewhouse and bakehouse. This makes it highly probable that this structure is indeed Captain Wynne's "brewhouse room".

The ceramic and glass assemblages provide evidence for the use of the structure. To facilitate this, the brewhouse assemblage, with a total of 109 ceramic and glass

vessels, was compared to the gentry Kirke house (N=620), and the middling Area B (N=206), Area D (N=351), and Renews dwellings (N=55). The brewhouse, Area D dwelling, and Renews dwelling were occupied for about two decades. The Area B dwelling was occupied thirty to forty years and the Kirke house for almost sixty. The structures varied in their eventual fate. The Kirke house, Area D house, and Area B house were destroyed in the 1696 French attack. The Renews dwelling was abandoned, and the brewhouse was dismantled.

Despite the differences between the sites, there is a surprising amount of homogeneity. All tend to have high percentages of food storage and beverage service vessels, and lower percentages of other types. All of the collections are dominated by coarse earthenwares and green glass bottles. This suggests that, despite the different functions and social status of the structures, there is a basic pattern that most Newfoundland sites follow.

As it is said, though, the devil is in the details. The brewhouse has the second-highest percentage of beverage service vessels of the sites compared, though it does not differ drastically from the other sites. It was briefly mentioned previously that the ratio of storage and group service vessels (bottles, jugs, costrels, etc) to individual consumption (glasses, cups, and mugs) vessels is very different from the other four structures. The three Ferryland dwellings have a ratio of between 1.7 to 2.3 service/storage vessels per individual vessel. Renews is much more drastic, with only .3 service/storage vessels per individual vessel.

The brewhouse, however, has 13.3 service/storage vessels per individual vessel. This is strong evidence that the individual service of beverages was not very important at the brewhouse. It is possible, naturally, that colonists were consuming beverages directly from jugs and bottles, or that alternative materials, such as wood or metal, were being used. It is most likely, however, that there was no long-term or intensive use of the brewhouse structure as anything more than a brewhouse and bakery, and that any activities outside of brewing and baking were incidental.

Another fact that has to be taken into account is the presence of intrusive material in the brewhouse middens. The smoking pipe assemblage clearly demonstrates that material from the Kirke residence was deposited in and on top of the brewhouse middens. It is hard to determine what may or may not be intrusive, especially for ceramics as ware types and forms did not change significantly during the seventeenth century (South 1978). Based on what is known about the structure and its likely inhabitants, some informed assumptions can be made.

One of the most recognizable seventeenth-century ceramics is tin-glazed earthenware. The relative expense of tin-glazed vessels when compared to the more utilitarian coarse earthenwares has led to their use as an indicator of economic status. This is based on the assumption that the more expensive ceramics are only purchased by those who could afford them (Gaulton 2006: 206). This assumption is complicated by the possible presence of wood, pewter, or silver vessels which did not survive in the archaeological record but whose use is attested to by probate inventories (Horn 1988;

Martin 2002). Regardless, it is a crude but somewhat effective means of comparing relative economic status between different sites.

Tin-glaze vessels form approximately six percent of the brewhouse assemblage. In contrast, 41 percent of the Kirke house ceramics are tin-glazed, which is among the highest percentage found on a Colonial English site (Gaulton 2006: 207). At Renews, which is probably a more typical example of a Newfoundland planter's house, only four percent of the identified vessels are tin-glazed, but a large, finely made pewter goblet and several sgraffito- decorated vessels attests to the middling-sort social status of its occupants (Mills 2000: 77-78, 130).

It is therefore probably safe to argue that most, if not all, of the tin-glazed vessels are associated with the Kirke house and therefore intrusive to the brewhouse collection. If the tin-glazed vessels are intrusive, it is also very likely that the even more expensive porcelain vessels are also intrusive or otherwise not related to the brewhouse directly. As a significant percentage of the porcelain vessels identified at Ferryland are associated with the Kirke house (Miller 2005: 137), and porcelain is not present at any of the other assemblages being compared, this is not an invalid assumption.

If these presumed intrusive vessels are discounted, the MNV drops to eighty-one. Surprisingly, this does not affect the overall distribution of vessel forms. What is most noticeable is that there are no longer any food preparation vessels or hygiene vessels, and the percentage of food service vessels dropped. This is slightly misleading, as removing the tin-glazed vessels actually reduced the number of food service vessels by half, and these were all plates. If those vessels are indeed intrusive, it means that there is no

evidence for the individual service of food within the structure. Furthermore, the number of individual drinking vessels drops from three to two, while the overall number of beverage service vessels, ceramic and glass, is reduced to forty-one. The ration of serving/storage vessels to individual vessels rises to 19.5:1, however.

Regardless of whether or not this possible intrusive material is included as part of the brewhouse assemblage, there is little evidence of an intense domestic occupation of the brewhouse structure. The low percentage of cooking, food preparation, and particularly food service vessels attest to this. Furthermore, there is no evidence for alternative means of food preparation asides from the small number of pipkins and the two ovens. There were no identifiable cooking utensils among the iron and other metal artifacts found. The low number of individual beverage serving vessels in the brewhouse collection is another sign that consumption was likely done at another area of the site.

There is a possibility that some of the supposed intrusive material, such as the food service vessels and tin-glazed ceramics, are the result of a short domestic occupation of the building in the time between Sir David Kirke's arrival and the brewhouse's demolition. If this occurred it is likely that those occupants were members of the Kirke household who arrived with him in 1638. The minimal amount of material that could be related to this theoretical occupation and the lack of documentary evidence make it impossible to argue persuasively for one case or another. Regardless, the analyses of the surviving material culture show that the structure was predominantly used as a brewhouse and bakery until its removal in favor the Kirke house.

5.7 A Day at the Brewhouse

The two maids whose job it is to brew and bake awaken early. Brewing is an all-day activity, and no baking is done on brewing days. While one fetches water from the well the other stokes up the fire. Unlike much of the water in England, the water from their well is mostly free of silt and garbage. The first liquor is set to boil, and the maids lay out the materials they need for brewing- malt, hops, and alebarm.

They spread the malt into the bottom of the wooden mash tun, and when the liquor is boiling the maids ladle it into the tun and stir it together with the malt. The copper is again filled and put it back to boil while waiting for the first mashing to finish. After about an hour the tun is emptied by running the first wort into several clay pots. The second liquor is added to the mash tun, adding a little extra mash to strengthen the second wort. The first wort is poured back into the copper and hops are added. This is brought to a boil again, and once it had boiled long enough the wort is ladled out into several milkpans. Alebarm is added to the wort and the pans are placed the farthest distance from the hearth as possible. Meanwhile, the second wort is put back into the copper and the whole process repeated. When this is finished the third wort is created. The maids are careful to note which pans contain the third wort so it is not mixed with the other two.

Now approaching noon, one of the maids leaves to fetch their midday meal while the other puts on yet another copper of water. The first maid returns with a porringer of stew and places it near the fire to keep it warm. The spent mash is removed from the mashing tun, and it and the spent hops are brought outside and dumped where the swine

can feed on it. Inside the brewhouse the maids dump the boiling water into the mash tun and proceed to scrub it down, pouring the dirty water down the drain.

After eating the maids skim off the excess yeast that has risen to the surface of the cooling worts. It will be used the next day when the maids do their regular baking. But until then there is still more work to be done today. The worts from the previous brewing are ready for consumption. While some of this batch is to remain in the storage pots where it had aged (indeed, several larger jars containing the first wort are already in the cellar, where it would continue to age until consumed at a feast day or holiday), the rest is to be poured into flasks and bottles for the men working outside. While doing so one of the maids drop a bottle, which shatters on the cobblestone floor. The larger pieces are swept up and thrown out the door, coming to rest amid the rest of the garbage, while the remaining pieces will eventually be trodden down in between the cobbles.

The last two things the maids do this day is clean the copper and floor. Another copper full of water is boiled, and the floor swilled down using brooms, with the liquid being pushed into the drain. A few smaller pieces of trash escape down the drain, but most are captured by the grate and thrown outside. The copper is then scrubbed until it is shiny again. The maid's work is now done for the day, which is good as it is now approaching nightfall. The next morning the worts will have cooled sufficiently to be poured into pots and jars for aging. The brewing would then be done for the week, but the maids will be baking until the next brewing day.

Chapter 6: Inter-Site Comparison

6.1 Introduction

One of the goals of this project was to compare the brewhouse at Ferryland to contemporaneous brewhouses from other English contexts. Unfortunately, a search of the published literature has found very few sites. This is because, as one author put it, "brewhouses are notoriously difficult to identify in the archaeological record" (Coppack 2006: 120, quoted in Allan 2006: 261), and there is precious little archaeological literature about such buildings (Allan 2006: 261).

Due to these circumstances only two potentially comparable sites were identified. The first is a late-Medieval to early-modern brewhouse at Buckland Abbey in Yelverton, Devon, England, which was excavated in 2005 (Allan 2006). The second site is a second quarter of the seventeenth-century structure at Jamestown, Virginia which was excavated in the 1950s and is tentatively identified as a brewhouse (Cotter 1958). While all three structures have some similarities, it is the differences that are more important.

6.2 Buckland Abbey Brewhouse

Residents of the Cider House at Buckland Abbey, having suffered from repeating flooding in recent years, commissioned a new landscaping scheme to help divert the flow of water. English Heritage mandated an archaeological excavation to recover any material that may be present in the proposed project area (Allan 2006: 241). This excavation uncovered the remains of a structure initially believed to be a kitchen, but a

later evaluation of the surviving features led the archaeologists to reclassify the structure as a brewhouse (Ibid. 261).

Almost no artifacts were uncovered during the excavation, and those that were post-dated the brewhouse (Ibid. 157). This lack of material culture from the site means that it cannot provide additional information on what can and cannot be expected to be found in a brewhouse context.

Due to the requirements of the evaluation, not all of the brewhouse was uncovered, nor was any excavation done below the floor of the brewhouse. As a result, the full dimensions of the brewhouse are unknown. The uncovered portion of the building measures approximately 7 by 8.5 meters (23 by 28 feet), with portions of three walls exposed. The hearth is built into the north-west wall, with a large boiler furnace built into each side. The floor is cobbled except for patches of flat stone replacing worn-out areas of cobbles. The brewhouse is tied into the main monastic drainage system via an opening in the north-west corner (Ibid. 252-253).

The presence of the two large boiler furnaces is solid evidence for large-scale production of beer. The estimated yield of this brewhouse per brewing is approximately 450 gallons, which is about enough for a household of sixty people for a week (Ibid. 264). Depending on how frequently brewing occurred, this brewhouse would have provided a substantial quantity of beer.

6.3 Jamestown, Virginia

First excavated in 1955, the building believed to have been a brewhouse is identified as Structure 110 in the reports. Approximately 6.6 meters by 6.2 meters (21.5 feet by 20.3 feet) in size, the building has a brick foundation and a floor covered in red earthenware tiles. The hearth area projects south from the southwest corner and measures approximately 2.4 meters wide and one meter deep (7.9 feet by 3.3 feet). At each of the four corners and midway on the north and south wall are notches, which are believed to represent wooden construction on top of the brickwork foundation (Cotter 1958: 102, 106). Artifact typology dated the site from the first half of the seventeenth century, and comparing the assemblage from other structures in the same area narrowed the date range to 1630-1650 (Ibid. 106, 109). Three furnaces are present in the structure. Two are located adjacent to the hearth, while the third is located along the east wall (Ibid. 105).

While a number of artifacts were found during the excavation of the site, most of the assemblage originated from the nearby glassworks and pottery kiln, likely deposited in the structure during filling. Furthermore, due to evidence that the furnaces were a retrofit into the structure, Cotter hypothesized that the building was originally a dwelling which was then converted into a brewhouse (Ibid. 106, 109). This would account for the lack of certain features such as a drain, which would have been hard to retrofit into an existing structure. The small size of the two hearth area furnaces (1.5 feet in diameter) compared to the Buckland Abbey furnaces (one is five feet and the other four feet in diameter) suggests that the relative yield of this brewhouse was quite small (Allen 2006:

264; Cotter 1958: 108). The combination of these issues may have contributed to the abandonment of the structure, possibly after a larger and as yet unexcavated or unidentified brewhouse was finished.

6.4 Comparison with the Ferryland Brewhouse

One of the main problems that becomes apparent when trying to compare these three brewhouses is that all were built for different purposes. The Buckland Abbey brewhouse had to supply the inhabitants of the monastery, and following its dissolution the brewhouse provided for a number of wealthy families who owned the property. The Jamestown brewhouse was built as a part of Governor John Harvey's attempt to diversify the industrial base of Jamestown (Mrozowski 1999: 159), and is one of at least two noted historically (Cotter 1958: 106), suggesting that it was part of a much larger industrialization process. The Ferryland brewhouse was built to provide for the population of that colony, which was 32 in 1622 (Wynne 8/17/1622 in Pope 1993), and apparently never rose to more than 100 during the Calvert period (Calvert 8/19/1629 in Pope 1993). It is quickly apparent that the Ferryland brewhouse was meant for production on a much smaller scale and for a much smaller population, and is not an industrial structure like the other two.

Further comparison becomes mostly conjectural and muddled. The primary reason for this is the lack of certain architectural remains (including footing, framing, and floor) from Ferryland and the lack of substantial material culture from the other two sites. Although the Ferryland brewhouse can be reconstructed, at least at the hypothetical level,

from what remains, comparing this hypothetical reconstruction to the other sites is not practical. Similarly, the other two sites lack substantial material culture that can be associated with the brewhouse or brewing activities, which makes a comparison with the Ferryland brewhouse impossible.

Chapter 7: Discussion and Conclusion

In Chapter 4.2, a set of four research questions, each representing a research goal, were asked. Briefly, these goals are: to examine the material culture associated with the brewhouse to answer questions about the use and occupational history of the structure; to use the material culture to determine whether the building's function changed over its history; to compare the Ferryland brewhouse with brewhouses from other, contemporaneous English sites; and to answer questions about the when and why the building was dismantled.

Chapter 5.3 discusses the surviving architectural features and proposes a hypothetical reconstruction of the brewhouse based on information from both archaeological and documentary sources. It was determined that the building was approximately twenty-four feet long and fifteen feet wide, though a substantial portion of this area was occupied by the hearth. A subsurface drain was incorporated into the structure, and a twelve-foot deep well was constructed in close proximity, likely for exclusive use of the brewhouse. This well was surrounded by a cobblestone pavement and was enclosed within a post-in-ground wellhouse.

The evidence, or the rather lack of evidence, indicates that the brewhouse was probably constructed as a timber-framed earthfast structure. Such construction was seen in several other structures in Ferryland, such as the contemporaneous forge and several later dwellings. There is no evidence for the height of the building, though documentary evidence suggests that a height of a story and a half would have been typical, and archaeological evidence shows that the building was roofed in slate. Windows are a

certainty, but the lack of window glass indicates that they were unglazed, which is also supported by documentary evidence. There is no evidence for a floor, although again the documentary record suggests the use of a cobblestone floor would have been typical for the period.

When compared to other structures from the Calvert era, it is apparent that the brewhouse's construction could be described as 'quick and dirty'. This is also true of the other service structure at Ferryland, the forge. In contrast, the archaeological evidence shows that the Mansion House complex and waterfront facilities were solidly built out of stone, and were imposing structures when completed. The original dwelling house built shortly after Wynne arrived in 1621 was described by one contemporary observer as being "strong and well contrived, [and] standeth very warm" (Powell 7/28/1622 in Pope 1993), a description that does not fit either brewhouse or the forge. The similar construction of the wharf facilities, especially the storehouse, may be more surprising. In *The British India or A Compendious Discourse tending to Advancement,* written circa 1630-1631, however, Edward Wynne makes it clear that he believes that a strong storehouse is vitally important to a new colony (Gaulton and Miller 2009).

All together, this indicates that the emphasis when constructing the brewhouse was to get it completed and functioning as quickly as possible. This emphasis would have served two purposes. First, completing the structure as quickly as possible would have allowed more time and effort could be put into the waterfront and Mansion House. Second, this would have had a local source of beer and bread available much quicker. The substantial hearth, drainage system, well, and the likely presence of a slate roof do

indicate that a fair bit of effort was invested in its construction, and that Wynne intended for the brewhouse to be a permanent fixture of the colony. Furthermore, the placement of both the brewhouse and the forge show that some forethought was put into the layout of the colony.

Chapter 5.4 analyses and interprets the material culture of the brewhouse, with a particular emphasis on the smoking pipes, ceramics, and glass. The smoking pipe evidence confirms that the brewhouses dated to the early years of the colony, making it almost certain that it is indeed Wynne's "brewhouse room". Furthermore, the distribution of the dates also shows that there was no significant break between the brewhouse occupation, its dismantling, and the construction of the Kirke house on the same site.

The ceramic assemblage answered many of the questions about the use and occupancy of the brewhouse. An analysis of the ceramic vessel forms showed that the brewhouse possesses the same general distribution as most seventeenth-century Newfoundland sites. This is a general emphasis on storage and beverage service vessels, while other categories are present in only limited quantities. The brewhouse differs in several noticeable ways, however. Its proportion of dairying vessels is the highest of any of the structures compared. This is interpreted as the operators of the brewhouse using milkpans as cooling and fermenting vessels. Its proportion of food service vessels is the lowest. In the other sites, the relative dearth of food service vessels has been attributed to the use of other materials such as wood and pewter. These other sites, however, either have archaeological evidence for these alternative materials or the artifact assemblage suggests a middling or gentry socio-economic level. The brewhouse has neither. Finally,

although the brewhouse shares the high proportion of beverage service vessels, in the comparative structures there is a large percentage of cups and mugs, while in the brewhouse this percentage is very small.

This evidence shows there was apparently little individual service and consumption of either food or beverage within the brewhouse. The only evidence for cooking activities, asides from baking, in the structure are pipkins, which are evidence for little more than the heating of a porridge or stew. Taken together, this is highly suggestive that there was no long-term domestic occupation of the structure and that its only use was for the production of beer and bread.

The glass assemblage is relatively limited when compared to the ceramic assemblage, and thus was of much less utility. It did provide more evidence for the earlier dating of the site due to the small number of wine bottles and the presence of thin-walled case bottles. Similar to the ceramic assemblage, only a couple of cups and mugs were recovered, strengthening the argument that individual service of beverages was not a common occurrence in the brewhouse.

The combination of architectural and archaeological evidence answers the first two questions. The brewhouse was used almost exclusively for its primary purposes of beer and bread production throughout its entire two decade occupation history. It was a utilitarian service structure, modest in its needs compared to the dwellings that it is compared to.

Answering the third question proved much more difficult. As Chapter 6 mentions, there is little archaeological literature about brewhouses simply because these structures

appear to be difficult to both locate and to identify. The two structures that were found for comparative purposes proved to be somewhat incomparable, especially in terms of material culture. Neither the Jamestown nor the Buckland Abbey brewhouses had a significant amount of material culture that was directly associated with the brewhouse itself. Combined with the lack of literature on the subject, this leaves questions about the material culture assemblage unanswered. The large percentage of storage vessels and beverage service vessels, at least in the dwelling structures, has been interpreted as a result of the unique circumstances of the Newfoundland fishery and trade. The question is, would the same hold true for the brewhouse, or would this be more "typical" for such a structure?

What was most significant, though, was that both the Jamestown and Buckland Abbey brewhouses possess the boiler furnaces that are historically documented as a defining feature of brewhouses in this time period. In Chapter 5.3 it is shown that several seventeenth-century architectural plans also showed large furnaces in brewhouses. Only one example, an architectural plan of a London dwelling, showed a brewhouse and bakery similar to the one found at Ferryland. This suggests that the Ferryland structure, while not unique or unusual, is atypical.

When discussing this issue, it becomes important to look at the colony of Avalon as a whole. It was mentioned previously that Calvert likely founded the colony partially as a means of controlling and profiting from the cod fishery. Perhaps, then, it is inappropriate to look at Calvert's colony simply as an attempt to plant an English town in the New World, a strategy which had been successful in Ireland and which is what

Jamestown attempted, but more of an attempt to place an English *estate* in the New World, at least in its initial conception.

Most of the English colonies were meant as money-making ventures, and Ferryland is no exception. What is different is that other early colonies, such as Jamestown and Cupids, were established to profit a group of investors. Ferryland, on the other hand, was established as the proprietary property of one man, and was meant to profit him alone. Unfortunately there are no known records of the day-to-day activities of the colony, but it was mentioned in numerous depositions taken during the Baltimore-Kirke lawsuit that the Calverts had built and maintained fishing boats and stages, though these were apparently either gone or in a state of disrepair at the arrival of Sir David Kirke (Pope 1998).

At Jamestown a variety of industries were established, including smiths, potters, glass-blowers, and breweries. In Ferryland, however, both during and after the Calvert period, the only major industry was fishing. There was little attempt to diversify the industrial base, with the forge, brewhouse, and saltworks appearing to be the only secondary industries established during the Calvert period. All three of these industries supported the fisheries in some way, but none seemed to have lasted very long. Wynne's *The British India or A Compendious Discourse tending to Advancement* makes it clear that, despite his earlier enthusiasm for the saltworks in Ferryland, he felt that importing salt was a more convenient and practical solution (Gaulton and Miller 2009). Meanwhile, both the forge and the brewhouse were dismantled by Sir David Kirke, with the latter event discussed below.

Captain Wynne's letters also contain some indirect evidence that supports the idea of Ferryland as an estate rather than a town. First is his reference to the brewhouse. The exact term he uses is "brewhouse room". The connotation of this phrasing seems to be that he considered the brewhouse not as a separate structure, but as a single room of a larger complex. Further evidence is in his request for "a couple of maids who can both brew and bake." By this point in England brewing was becoming a centralized, professional industry, and therefore male-dominated. The request for maids would therefore suggest that this brewhouse was not intended for large-scale commercial production, but rather for domestic-scale production. This would also explain the atypical layout of the brewhouse. Domestic production, though made easier and more efficient with the use of boiler furnaces, does not require them.

Evidence for this is found in Gervase Markham's *The English Housewife.* Originally written in 1615, Markham's book is intended as a how-to guide for middling and gentry housewives on running their households and includes recipes, directions, and advice on a variety of topics, including brewing. The following are excerpts from his directions for the brewing of "ordinary" beer:

> "you may if you please heat more liquor in your lead for your second or small drink… put the second liquor to the malt and stir it well together; then your lead being emptied put your first liquor or wort therein…"(Best 1986: 205).

The wording of these directions indicates that multiple furnaces and coppers are not used, but instead a single copper is used repeatedly. It is reasonable to assume that a similar procedure was used in the Ferryland brewhouse.

This interpretation of Ferryland as an estate, at least in its original concept, rather than a town also explains why Sir David Kirke dismantled the structure shortly after assuming control of Ferryland. Chapter 2.2 briefly mentions Kirke's mercantile connections and activities as well as his involvement in the wine trade. The brewhouse simply did not fit into his capitalistic vision of the Pool Plantation, a colony closer to the Irish or Jamestown model, though still focused almost exclusively on the fishery. It was not set up to produce large quantities of beer to be sold, and furthermore this would undermine his profits from the control of the wine trade. Having no other purpose, then, the brewhouse was no longer needed and was dismantled.

Brewhouses, despite their seeming ubiquity in historical accounts, are difficult to identify in the archaeological record. Of the three brewhouses examined in this project, the Ferryland brewhouse is the least well preserved architecturally, but has the most substantial deposits of material culture directly associated with it. Despite this, the lack of information on brewhouses makes interpreting the site difficult. So while the brewhouse in Ferryland has an artifact assemblage that is both similar and different from other sites in Newfoundland, it is unknown if these differences are typical of brewhouses, or if the conditions of Newfoundland created something unique. What seems to be clear, however, is that the Ferryland brewhouse is atypical of its time period, and may prove to be an inadequate comparison with any future excavations. Only the excavation and comparison to another English colonial-period brewhouse will tell, however.

The brewhouse at Ferryland was constructed between 1622 and 1623, and torn down between 1638 and 1640. During this brief period of time it served its primary

function of supplying the residents of George Calvert's colony of Avalon with beer and bread, essential elements of their diet. Operated by a couple of strong maids, it appears to have remained in use until the 1638 arrival of Sir David Kirke and his retinue. Kirke reorganized the colony into the Pool Plantation, placing greater emphasis on his mercantile interests and earning money from the fishing industry. The brewhouse had no place in this new colony, and was dismantled. Kirke, perhaps to expedite construction, reused the hearth for his new home. The finale of the brewhouse's story occurred in the 1660s, when someone, probably Kirke's widow or one of his sons, had the hearth walled up and a new one constructed.

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Appendix A:
Ceramic Vessel Lots from the Brewhouse

Vessel Number: 1 Events: 367
Ware Type: North Devon Gravel Vessel Form: Pot
Catalogue #s:
660576 (87pcs), 300909, 299997, 302204, 293040, 300346, 283248, 203714, 312102, 313128a, 367860

Vessel Number: 2 Events: 480, 367
Ware Type: North Devon Gravel Vessel Form: Milkpan
Catalogue #s:
414152, 484945, 414348, 422064a-c, 481596a-c, 479226b, 299786

Vessel Number: 3 Events: 480, 360, 367
Ware Type: North Devon Gravel Vessel Form: Milkpan
Catalogue #s:
483315a-d, 484651a-e, 484944, 283009, 285018, 300133, 300200, 483071a-b, 486901, 414346

Vessel Number: 4 Events: 480, 367
Ware Type: North Devon Smooth Vessel Form: Tallpot
Catalogue #s:
481066, 400186, 484962a-b, 302131, 344144

Vessel Number: 5 Events: 480, 367
Ware Type: Totnes Vessel Form: Pot
Catalogue #s:
484648, 482378, 482380, 482379, 483900a-b, 302278

Vessel Number: 6 Events: 480
Ware Type: North Devon Smooth Vessel Form: Tallpot
Catalogue #s:
484873a-b, 397759a-d, 395143, 486745

Vessel Number: 7 Events: 480, 598
Ware Type: North Devon Smooth Vessel Form: Tallpot
Catalogue #s:
424856a, 484867, 484875a-b, 400186a, 422499a-b, 422128, 394879, 653585

Vessel Number: 8 Events: 480
Ware Type: North Devon Smooth Vessel Form: Tallpot
Catalogue #s:
413160a-c

Vessel Number: 9 Events: 360
Ware Type: North Devon Smooth Vessel Form: Tallpot
Catalogue #s:
256500a-e, 293502a
Notes: Same as Vessel 15?

Vessel Number: 10 Events: 367
Ware Type: North Devon Gravel Vessel Form: Pot
Catalogue #s:
259261a-c

Vessel Number: 11 Events: 480, 598
Ware Type: Exeter Coarse Sandy Vessel Form: Milkpan
Catalogue #s:
394859a-b, 395130, 487817, 653589

Vessel Number: 12 Events: 492
Ware Type: Exeter Coarse Sandy Vessel Form: Milkpan
Catalogue #s:
394860a-l

Vessel Number: 13 Events: 525, 367
Ware Type: Exeter Coarse Sandy Vessel Form: Milkpan
Catalogue #s:
434450, 433182, 302619, 281528, 334894

Vessel Number: 14 Events: 360
Ware Type: Saintonge Vessel Form: Milkpan
Catalogue #s:
265368a-d, 258853, 258667, 251646, 271616, 258755, 259310, 263706, 251880, 258629, 271652

Vessel Number: 15 Events: 367
Ware Type: North Devon Smooth Vessel Form: Tallpot
Catalogue #s:
281784a-c
Notes: Same as Vessel 9?

Vessel Number: 16 Events: 367
Ware Type: North Devon Smooth Vessel Form: Tallpot
Catalogue #s:
344035, 302735, 314686, 499602a-c

Vessel Number: 17 Events: 480
Ware Type: Merida-type Vessel Form: Jar
Catalogue #s:
398218a-f, 487979

Vessel Number: 18 Events: 367
Ware Type: Borderware Vessel Form: Pipkin
Catalogue #s:
331177a-k, 302961, 344471

Vessel Number: 19 Events: 367, 360
Ware Type: Borderware Vessel Form: Pipkin
Catalogue #s:
285922a-b, 302949, 322401a-b, 320186, 306442a, 300508, 300761, 302860, 303030, 314849, 312499, 312738, 310309, 302886, 3121282, 314238, 313198, 312129, 313440, 303657, 313894, 313958, 312522, 303318, 313197, 303192, 314058a-e, 325855a-c, 308569a-e, 306459a, 314814a,c, 314849a, 327154a-c, 312525, 319028, 306932, 322270, 313014, 313475, 306073, 308895, 319484, 306971, 308032

Vessel Number: 20 Events: 367
Ware Type: Exeter Coarse Sandy Vessel Form: Pot
Catalogue #s:
382910, 281517

Vessel Number: 21 Events: 367
Ware Type: Borderware Vessel Form: Lobed Dish
Catalogue #s:
281053, 313669, 300456, 300923, 303070a-b, 302755, 300401, 324291a-b, 302865, 314209
Notes: see Pearson 1992: 75

Vessel Number: 22 Events: 480
Ware Type: North Devon Smooth Vessel Form: Tallpot
Catalogue #s:
422697b

Vessel Number: 23 Events: 367
Ware Type: North Devon Smooth Vessel Form: Tallpot
Catalogue #s:
285127, 281762a, 338401

Vessel Number: 24 Events: 367
Ware Type: Martincamp Vessel Form: Flask
Catalogue #s:
308433, 308622, 313152, 319070, 308621a-b, 314959, 319642, 319817, 319069, 312410

Vessel Number: 25 Events: 480
Ware Type: Saintonge Vessel Form: Unknown
Catalogue #s:
486207, 422684

Vessel Number: 26 Events: 480
Ware Type: Spanish Heavy Vessel Form: Costrel
Catalogue #s:
483329, 492440

Vessel Number: 27 Events: 367
Ware Type: Exeter Coarse Sandy Vessel Form: Pot
Catalogue #s:
325141a-b,d, 286076, 338463, 300607

Vessel Number: 28 Events: 367
Vessel Form: Chafing Dish Ware Type: Saintonge
Catalogue #s:
303724, 329679, 310909a, 271610, 320525, 303447
Notes: Artifact # 271610 on display at Colony of Avalon

Vessel Number: 29 Events: 480, 596
Ware Type: North Devon Smooth Vessel Form: Tallpot
Catalogue #s:
482536, 400493, 484856b, 488045, 488024, 655262a-c

Vessel Number: 30 Events: 367
Ware Type: Merida-type Vessel Form: Costrel
Catalogue #s:
292931, 329592, 257064

Vessel Number: 31 Events: 525
Ware Type: Unknown coarse earthenware Vessel Form: Unknown
Catalogue #s:
407005a-c
Notes: fragments resemble Breton CEW

Vessel Number: 32 Events: 367
Ware Type: Totnes Vessel Form: Pipkin
Catalogue #s:
367516

Vessel Number: 33 Events: 367
Ware Type: Martincamp Vessel Form: Flask
Catalogue #s: 281546a

Vessel Number: 34
Ware Type: Exeter Coarse Sandy
Catalogue #s:
263600
Events: 360
Vessel Form: Milkpan

Vessel Number: 35
Ware Type: Exeter Coarse Sandy
Catalogue #s:
283018
Events: 360
Vessel Form: Milkpan

Vessel Number: 36
Ware Type: North Devon Smooth
Catalogue #s:
313881, 314873
Events: 367
Vessel Form: Tallpot

Vessel Number: 37
Ware Type: North Devon Smooth
Catalogue #s:
289885a, c
Events: 367
Vessel Form: Tallpot

Vessel Number: 38
Ware Type: North Devon Smooth
Catalogue #s:
324212, 322692c
Events: 367
Vessel Form: Tallpot

Vessel Number: 39
Ware Type: North Devon Gravel
Catalogue #s:
338526, 329264, 259149
Events: 367
Vessel Form: Pot

Vessel Number: 40
Ware Type: North Devon Smooth
Catalogue #s:
285352, 283855, 334741, 283001
Events: 367
Vessel Form: Tallpot

Vessel Number: 41 Events: 480
Ware Type: Merida-type Vessel Form: Jar
Catalogue #s:
387771

Vessel Number: 42 Events: 480
Ware Type: Martincamp Vessel Form: Flask
Catalogue #s:
483912

Vessel Number: 43 Events: 367
Ware Type: North Devon Smooth Vessel Form: Tallpot
Catalogue #s:
303423, 303118, 300904, 286906a-b

Vessel Number: 44 Events: 530
Ware Type: North Devon Smooth Vessel Form: Tallpot
Catalogue #s:
412050, 411548
Notes: Same as vessel 46?

Vessel Number: 45 Events: 492
Ware Type: North Devon Smooth Vessel Form: Tallpot
Catalogue #s:
394661
Notes: Same as vessel #52?

Vessel Number: 46 Events: 480
Ware Type: North Devon Smooth Vessel Form: Tallpot
Catalogue #s:
400184a
Notes: Same as vessel 44?

Vessel Number: 47 Events: 480
Ware Type: North Devon Gravel Vessel Form: Pot
Catalogue #s:
485084a-c
Notes: Same as vessel #51

Vessel Number: 48 Events: 367
Ware Type: North Devon Smooth
Vessel Form: Tallpot
Catalogue #s:
286363

Vessel Number: 49 Events: 360
Ware Type: North Devon Smooth Vessel Form: Tallpot
Catalogue #s: 320679, 316544

Vessel Number: 50 Events: 367
Ware Type: North Devon Gravel Vessel Form: Pot
Catalogue #s:
344312, 313617

Vessel Number: 51 Events: 480
Ware Type: North Devon Gravel Vessel Form: Pot
Catalogue #s:
480097
Notes: Same as vessel #47?

Vessel Number: 52 Events: 367
Ware Type: North Devon Smooth Vessel Form: Tallpot
Catalogue #s:
257514
Notes: Same as vessel #45?

Vessel Number: 53 Events: 519
Ware Type: North Devon Smooth Vessel Form: Tallpot
Catalogue #s:
407591

Vessel Number: 54 Events: 367
Ware Type: North Devon Smooth Vessel Form: Tallpot
Catalogue #s:
287007

Vessel Number: 55
Ware Type: North Devon Smooth
Catalogue #s:
329256

Events: 367
Vessel Form: Tallpot

Vessel Number: 56
Ware Type: Saintonge
Catalogue #s:
305018

Events: 367
Vessel Form: Milkpan

Vessel Number: 57
Ware Type: Unknown redware
Catalogue #s:
331058

Events: 367
Vessel Form: Pipkin

Vessel Number: 58
Ware Type: Unknown redware
Catalogue #s:
313937a, 382911

Events: 367
Vessel Form: Pipkin

Vessel Number: 59
Ware Type: South Somerset
Catalogue #s:
285505

Events: 367
Vessel Form: Jar

Vessel Number: 60
Ware Type: South Somerset
Catalogue #s:
484868, 484640, 484864a-b

Events: 480
Vessel Form: Jar

Vessel Number: 61
Ware Type: Borderware
Catalogue #s:
313369

Events: 367
Vessel Form: Porringer

Vessel Number: 62 Events: 367
Ware Type: Exeter Coarse Sandy Vessel Form: Pot
Catalogue #s:
289884a, 283348, 3133311

Vessel Number: 63 Events: 360, 367
Ware Type: Unknown earthenware Vessel Form: Pot
Catalogue #s:
302613, 325252

Vessel Number: 64 Events: 519
Ware Type: Spanish Heavy Vessel Form: Jar
Catalogue #s:
(none, 4 fragments)

Vessel Number: 65 Events: 480, 525, 530
Ware Type: Rhenish Brown Stoneware Vessel Form: Bottle
Catalogue #s: 414446, 388634, 406417, 566728, 406013, 429065, 411151, 407031, 429054, 412338, 411035, 409902, 411149, 409903, 412357, 409687, 409778

Vessel Number: 66 Events: 525, 530
Ware Type: Rhenish Brown Stoneware Vessel Form: Bottle
Catalogue #s: 414447, 428167

Vessel Number: 67 Events: 480, 520, 525
Ware Type: Rhenish Brown Stoneware Vessel Form: Bottle
Catalogue #s:
395983, 433270a-b

Vessel Number: 68 Events: 480, 598
Ware Type: Rhenish Brown Stoneware Vessel Form: Bottle
Catalogue #s:
492568, 488006, 487985, 422635a-b, 481604, 485174c, 424438, 491415, 484977, 492566, 414359, 6559a-b, 654306

Vessel Number: 69 Events: 525
Ware Type: Rhenish Brown Stoneware Vessel Form: Bottle
Catalogue #s:
406004

Vessel Number: 70 Events: 480
Ware Type: Rhenish Brown Stoneware Vessel Form: Bottle
Catalogue #s:
483270, 483016, 479428, 478356, 414298, 388802, 424288

Vessel Number: 71 Events: 480, 492, 596, 598
Ware Type: Rhenish Brown Stoneware Vessel Form: Bottle
Catalogue #s:
481605, 487835, 485174a-b,d, 491412, 492539, 484926, 484855, 491414, 424437, 392155, 491413, 40487, 483731, 487986, 487373, 492567, 402897, 655540, 655358, 655539

Vessel Number: 72 Events: 530
Ware Type: Tin-Glazed Vessel Form: Plate
Catalogue #s:
477580a-c, 447393, 409821, 436832

Vessel Number: 73 Events: 525
Ware Type: Tin-Glazed Vessel Form: Galley Pot
Catalogue #s:
4144000a-b, 487445a-d, 414363a-c

Vessel Number: 74 Events: 367
Ware Type: Saintonge Vessel Form: Milkpan
Catalogue #s:
302816

Vessel Number: 75 Events: 598
Ware Type: North Devon Smooth Vessel Form: Tallpot
Catalogue #s:
654219

Vessel Number: 76
Ware Type: Tin-Glazed Vessel Form: Plate
Notes: Stoddart (2000), Vessel 158

Vessel Number: 77
Ware Type: Tin-Glazed Vessel Form: Plate
Notes: Stoddart (2000), Vessel 300

Vessel Number: 78
Ware Type: Tin-Glazed Vessel Form: Drink Pot Lid
Notes: Stoddart (2000), Vessel 338

Vessel Number: 79
Ware Type: Tin-Glazed Vessel Form: Bowl
Notes: Stoddart (2000), Vessel 498

Vessel Number: 80
Ware Type: Porcelain Vessel Form: Wine Cup
Notes: Miller (2005) Vessel F2

Vessel Number: 81
Ware Type: Porcelain Vessel Form: Bowl
Notes: Miller (2005) Vessel F11

Vessel Number: 82
Ware Type: Rhenish Brown Stoneware Vessel Form: Jug
Notes: Brandon (2006) Vessel 41

Vessel Number: 83
Ware Type: Rhenish Brown Stoneware Vessel Form: Bottle
Notes: Brandon (2006) Vessel 58

Vessel Number: 84
Ware Type: Rhenish Brown Stoneware Vessel Form: Bottle
Notes: Brandon (2006) Vessel 105

Vessel Number: 85
Ware Type: Rhenish Brown Stoneware Vessel Form: Bottle
Notes: Brandon (2006) Vessel 106

Vessel Number: 86
Ware Type: Rhenish Brown Stoneware Vessel Form: Bottle
Notes: Brandon (2006) Vessel 107

Vessel Number: 87
Ware Type: Rhenish Brown Stoneware Vessel Form: Bottle
Notes: Brandon (2006) Vessel 108

Vessel Number: 88
Ware Type: Rhenish Brown Stoneware Vessel Form: Bottle
Notes: Brandon (2006) Vessel 109

Vessel Number: 89
Ware Type: Rhenish Brown Stoneware Vessel Form: Bottle
Notes: Brandon (2006) Vessel 110

Vessel Number: 90
Ware Type: Westerwald Vessel Form: Jug
Notes: Brandon (2006) Vessel 119

Vessel Number: 91
Ware Type: Rhenish Brown Stoneware Vessel Form: Bottle
Notes: Brandon (2006) Vessel 157

Vessel Number: 92
Ware Type: Rhenish Brown Stoneware Vessel Form: Jug
Notes: Brandon (2006) Vessel 164

Vessel Number: 93
Ware Type: Normandy Stoneware Vessel Form: Butterpot
Notes: Brandon (2006) Vessel 202

Vessel Number: 94
Ware Type: Saintonge
Catalogue #s:
306754

Events: 367
Vessel Form: Costrel

Appendix B (Part I):
Pipe Bowls and Makers Marks

Catalogue #s	Event	Description	Date	Notes
395862a	480	Bowl	1650-1680	IH Heel Mark, 1651-1653
481844	480	Bowl	1630-1660	
388419	480	Bowl	1630-1660	
394952	480	Bowl	1640-1670	
422222	480	Bowl	1660-1680	
388516	480	Bowl	1630-1655	
482157	480	Bowl	1610-1640	
482390	480	Bowl	1630-1655	
392707	480	Bowl	1630-1650	
478679	480	Bowl	1630-1660	
484179	480	Bowl	1630-1660	
394931	480	Bowl	1640-1660	
414563a-b	480	Bowl	1660-1680	
481845	480	Bowl	1630-1650	
480676	480	Bowl	1620-1650	
394812	480	Bowl	1630-1660	
480691	480	Bowl	1630-1660	
414394	480	Bowl	1620-1660	
414579	480	Bowl	1660-1680	
400298	480	Bowl	1620-1660	
481677	480	Bowl	1630-1660	
414032	480	Heel	1646-1670	PS Heel Mark
394912	480	Heel	1652	IT Heel Mark, Dutch
478078	480	Heel	1635-1660	IS Heel Mark
482159	480	Bowl	1630-1650	
482213	480	Bowl	1660-1680	
411000	480	Bowl	1630-1660	
414140	480	Bowl	1620-1650	
476501	480	Bowl	1620-1640	
482211	480	Bowl	1630-1660	
479736	480	Bowl	1610-1640	
424262	480	Bowl	1610-1630	
394044	480	Bowl	1630-1650	
388610	480	Bowl	1620-1640	Dutch?

394901	480	Bowl	1620-1650	
479846	480	Stem	1625-1650	Duco 1981: 249
478682	480	Bowl	1630-1650	Duco 1981: 253
422157	480	Bowl	??	Possibly Dutch
259335	360	Bowl	1640-1660	RC Heel Mark
259838	360	Heel	1640-1660	RC Heel Mark
282447	360	Heel	1651-1653	IH Heel Mark
306623	360	Bowl	1660-1680	
317499	360	Bowl	1640-1660	
254883	360	Bowl	1640-1660	
256906	360	Bowl	1670-1700	
258384a	360	Bowl	1660-1680	
306071	360	Bowl	1630-1660	
282447	360	Bowl	1640-1660	
254322	360	Bowl	1660-1680	
316590	360	Bowl	1640-1660	
306185	360	Bowl	1640-1660	
319074	360	Bowl	1640-1660	
251948	360	Bowl	1660-1680	
256907	360	Bowl	1630-1660	
271186	360	Bowl	1660-1680	
303426	360	Bowl	1660-1680	
303016	360	Bowl	1660-1680	
303002	360	Bowl	1600-1640	
300377	360	Bowl	1640-1660	
313163	360	Bowl	1630-1680	
256909	360	Bowl	1630-1660	
271787	360	Bowl	1630-1660	
302118	360	Bowl	1625-1640	Dutch
254887	360	Bowl	1660-1680	
254159	360	Bowl	1630-1655	
305273	360	Bowl	1630s	
256910	360	Bowl	1620-1650	
312221	360	Bowl	1640-1660	
256908	360	Bowl	1620-1650	
320845	360	Bowl	1620-1650	
306626	360	Bowl	1620-1650	
322438	360	Bowl	1630-1660	

319707	360	Bowl	1625-1658	Dutch
222194	360	Bowl	1620-1640	
277677	360	Bowl	1660s	
319793	360	Bowl	1620-1650	
279979	360	Bowl	1620-1660	
265991	360	Bowl	1630-1655	
320414	367	Bowl	1630-1650	IS Heel Mark, 1635-1660
300853	367	Bowl	1630-1650	IS Heel Mark, 1635-1660
254552	367	Bowl	1630-1650	IS Heel Mark, 1635-1660
257327	367	Bowl	1630-1650	IS Heel Mark, 1635-1660
320413	367	Heel	1635-1660	IS Heel Mark
286647	367	Heel	1640-1670	RC Heel Mark
282888c	367	Heel	1640-1670	RC Heel Mark
286510	367	Bowl	1640-1660	RC Heel Mark, 1640-1670
285798	367	Bowl	1640-1660	RC Heel Mark, 1640-1670
312145	367	Bowl	1630-1650	RC 1 Heel Mark, 1630-1670
303735	367	Bowl	1640-1660	RC 1 Heel Mark, 1630-1670
300798	367	Heel	1640-1670	RC Heel Mark
319561	367	Bowl	1640-1660	RC Heel Mark, 1640-1670
302452	367	Bowl	1630-1650	RC 1 Heel Mark, 1630-1670
282705	367	Heel	1640-1670	RC Heel Mark
279872	367	Heel	1640-1670	RC Heel Mark
424796	367	Heel	1620-1640	"Wheel" Heel Mark
310531	367	Heel	1630-1670	AR Heel Mark
284791	367	Heel	Unknown	Fleur-de-lys Heel Mark
533884	367	Bowl	1640-1660	RC 1 Heel Mark, 1640-1660
284719	367	Bowl	1640-1660	
256777	367	Bowl	1630-1660	
322407	367	Bowl	1630-1660	
372534	367	Bowl	1630-1660	
331368	367	Bowl	1650-1670	
363978	367	Bowl	1630-1660	
161543	367	Bowl	1630-1660	
286646	367	Bowl	1650-1670	
282848	367	Bowl	1630-1660	
310637	367	Bowl	1630-1660	
363961	367	Bowl	1630-1660	
303347	367	Bowl	1620-1650	

310097	367	Bowl	1620-1640	
333877	367	Bowl	1620-1650	
303349	367	Bowl	1620-1650	
329189	367	Bowl	1620-1650	
300704	367	Bowl	1630-1650	
294912	367	Bowl	1625-1650	
327661	367	Bowl	1625-1650	
256491	367	Bowl	1630-1660	
322627	367	Bowl	1640-1670	
300324	367	Bowl	1620-1650	
303328	367	Bowl	1630-1660	
312606	367	Bowl	1620-1650	
290219	367	Bowl	1620-1650	
305196	367	Bowl	1620-1650	
320478	367	Bowl	1660-1680	
299552	367	Bowl	1640-1660	
320484	367	Bowl	1640-1660	
279137	367	Bowl	1640-1660	
329702	367	Bowl	1620-1640	
284404	367	Bowl	1660-1680	
319106	367	Bowl	1640s	
290219	367	Bowl	1620-1640	
310101	367	Bowl	1650-1670	
310493	367	Bowl	1620-1650	
256201	367	Bowl	1650-1660	
332537	367	Bowl	1620-1630	
316897	367	Bowl	1620-1650	
299255	367	Bowl	1630-1650	
322139	367	Bowl	1620-1650	
279536	367	Bowl	1630s	
254547	367	Bowl	1620-1650	
333901	367	Bowl	1640-1660	Illegible Mark, Possibly RC 1
314734	367	Bowl	1630-1650	Illegible Heel Mark
256490	367	Bowl	1640-1670	
302458	367	Bowl	1620-1640	
271848	367	Bowl	1620-1640	
314327	367	Bowl	1650s	
327247	367	Bowl	1620-1640	

271380	367	Bowl	1630-1650	
212697	367	Bowl	1630-1650	
319711	367	Bowl	1630-1650	
322188	367	Bowl	1630-1660	
290647	367	Bowl	1630-1650	
329537	367	Bowl	1630-1650	
305000/284989	367	Bowl	1630-1650	
310635	367	Bowl	1620-1650	
256912	367	Bowl	1635?	Dutch
327490	367	Bowl	1630-1660	
317718	367	Stem	?	Decorated stem, unknown date
327491	367	Bowl	1620-1640	EL Heel Mark, 1631-1641
426580	530	Bowl	1630-1650	RC 1 Heel Mark
441972	530	Bowl	1630-1650	Illegible Heel Mark
428270	530	Bowl	1620-1640	EL Heel Mark, 1631-1641
441972	530	Bowl	1640-1660	
426580	530	Bowl	1640-1660	
426740	530	Bowl	1640-1670	
42661	530	Bowl	1660-1670	Dutch?
428298	530	Bowl	1640-1670	
426721	530	Bowl	1650s	Dutch?
426684	530	Bowl	1640-1660	Dutch
426722	530	Bowl	1630-1660	
428502	525	Bowl	1640-1670	RC 2 Heel Mark
428364	525	Bowl	1635-1655	RC 2 Heel Mark, 1640-1670
428357	525	Bowl	1620-1640	
430278	525	Bowl	1630-1660	
428358	525	Bowl	1630-1660	
428359	525	Bowl	1640-1670	
428348	525	Bowl	1620-1640	
565461	525	Bowl	1620-1650	
414438	525	Bowl	1640-1660	
429161	525	Bowl	1640-1680	
432771	525	Bowl	1620-1640	
436168	525	Bowl	1630-1650	
409518	525	Bowl	1630-1650	
436169	525	Bowl	1630-1650	
654392	596	Bowl	1620-1650	

654066	596	Bowl	1630-1660	
653140	596	Bowl	1630-?	
653505	596	Bowl	1625-1640	Dutch, see Duco 1981: 249
482563	596	Stem	1625-1655	See Duco 1981: 252, 459
461153	598	Bowl	1630-1650	RC 1 Heel Mark
653640	598	Bowl	1620-1630	
653641	598	Bowl	1630-1640	
402669	515	Bowl	1620-1650	
407868	519	Bowl	1630-1650	RC 1 Heel Mark, 1630-1650
409253	519	Bowl	1620-1650	
402584	492	Bowl	1630-1650	RC 1 Heel Mark
401306	492	Bowl	1620-1645	Dutch?
404538	492	Bowl	1630-1655	
397213	492	Bowl	1620-1650	
None	492	Bowl	1620-1650	
477886	600	Bowl	1620-1650	
263418, 263484, 261931	360	Bowl	1660-1680	

Appendix B (Part II)
Makers' Marks

AR Mark (1630-1670)
Marked possibly attributed to Barnstaple maker Anthony Roulstone

IH Mark (1651-1653)
Attributed to Bristol maker John Hunt

EL Mark (1631-1640/41)
Attributed to Bristol maker Edward Lewis

PS Mark (1646-1670?)
Attributed to Barnstaple maker Peter Stephens

IS Mark (1630-1650)
Possibly attributed to London makers John Smith (1615) or John Stevens (1644)

IT Mark (1652)
Possibly Dutch. See Duco 1981:326

RC Mark 1 (1630-1650)
Unattributed

RC Mark 2 (1640-1660)
Unattributed

Wheel Mark (1620-1640)
Unattributed, possibly London or Bristol in origin

Fleur-de-lys Mark (1640-1660)
Unattributed, possibly Dutch

Appendix C:
Glass Vessel Lots from the Brewhouse

Vessel Number: 1 Events: 530, 480
Vessel Form: Case Bottle
Catalogue #s:
435443, 395474

Vessel Number: 2 Events: 600, 480
Vessel Form: Case Bottle
Catalogue #s:
478410, 388212a-b

Vessel Number: 3 Events: 367
Vessel Form: Case Bottle
Catalogue #s:
292119, 300361

Vessel Number: 4 Events: 480
Vessel Form: Case Bottle
Catalogue #s:
395473a-b, 482274a

Vessel Number: 5 Events: 525
Vessel Form: Case Bottle
Catalogue #s:
486360, 407203

Vessel Number: 6 Events: 367
Vessel Form: Case Bottle
Catalogue #s:
292568, 303085

Vessel Number: 7 Events: 525, 480
Vessel Form: Case Bottle
Catalogue #s:
429052, 429018, 424523

Vessel Number: 8 Events: 367, 480
Vessel Form: Case Bottle
Catalogue #s:
312628, 313496, 293972, 303276, 395915a

Vessel Number: 9 Events: 360
Vessel Form: Case Bottle
Catalogue #s:
317999, 302787

Vessel Number: 10 Events: 367
Vessel Form: Case Bottle
Catalogue #s:
313216, 334466, 338875

Vessel Number: 11 Events: 360
Vessel Form: Shaft and Globe
Catalogue #s:
265024

Vessel Number: 12 Events: 530, 367
Vessel Form: Case Bottle
Catalogue #s:
411832, 320357, 341038

Vessel Number: 13 Events: 367
Vessel Form: Shaft and Globe
Catalogue #s:
322322

Vessel Number: 14 Events: 525
Vessel Form: Shaft and Globe
Catalogue #s:
414135

Vessel Number: 15 Events: 598
Vessel Form: Shaft and Globe
Catalogue #s:
654217

Vessel Number: 16 Events: 367
Vessel Form: Case Bottle
Catalogue #s:
303255

Vessel Number: 17 Events: 480
Vessel Form: Unknown Drinking Vessel
Catalogue #s:
488517

Vessel Number: 18 Events: 525
Vessel Form: Pharmaceutical Bottle
Catalogue #s:
436574

Vessel Number: 19 Events: 360, 367
Vessel Form: Wine Glass
Catalogue #s:
257797, 327036

Vessel Number: 20 Events: 360
Vessel Form: unknown *façon de la Venise*
Catalogue #s:
3051856a-b
Notes: Resembles a *tafelbel* or bowl. See Henkes 1994: 205, 468