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# The Seventeenth-Century Brewhouse and Bakery at Ferryland, Newfoundland

Arthur R. Clausnitzer, Jr. and Barry C. Gaulton

*In 2001 archaeologists working at the 17th-century English settlement at Ferryland, Newfoundland, uncovered evidence of an early structure beneath a mid-to-late century gentry dwelling. A preliminary analysis of the architectural features and material culture from related deposits tentatively identified the structure as a brewhouse and bakery, likely the same "brewhouse room" mentioned in a 1622 letter from the colony. Further analysis of this material in 2010 confirmed the identification and dating of this structure. Comparison of the Ferryland brewhouse to data from both documentary and archaeological sources revealed some unusual features. When analyzed within the context of the original Calvert period settlement, these features provide additional evidence for the interpretation of the initial settlement at Ferryland not as a corporate colony such as Jamestown or Cupids, but as a small country manor home for George Calvert and his family.*

*Lors de fouilles à l'établissement anglais de Ferryland à Terre-Neuve datant du XVII<sup>ème</sup> siècle, des archéologues ont fait la découverte d'éléments liés à une structure ancienne située sous une maison appartenant à une famille bourgeoise de la fin du XVII<sup>ème</sup> siècle. Des analyses préliminaires des éléments architecturaux et de la culture matérielle mise au jour dans des dépôts associés à cette structure suggèrent qu'il puisse s'agir des vestiges d'une maison utilisée comme brasserie et comme boulangerie. Il s'agit potentiellement de la même brasserie identifiée comme « brewhouse room » dans une lettre datant de 1622 et expédiée de cette colonie. En 2010, des analyses supplémentaires du matériel archéologique ont confirmé l'identité de la structure de même que sa date. Une comparaison des données de source archéologique aux données de source documentaire de la brasserie de Ferryland a révélé des éléments inusités. L'analyse de ces données dans le contexte de l'occupation de Ferryland par Calvert suggère que l'établissement initial de Ferryland ait été davantage le petit manoir de George Calvert et de sa famille et non une colonie corporative tel que les établissements de Jamestown ou Cupids.*

## Introduction

Since continuous excavations began in 1992, the archaeology project at Ferryland, Newfoundland, (FIG. 1) has uncovered substantial remains of the 17th-century occupation known 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. In 2001, excavations of what was later identified as the probable home of Sir David Kirke, the colony's second major proprietor, uncovered the remains of an earlier structure. The construction of the Kirke residence removed most physical traces of the building, but several relatively undisturbed middens dating to the earliest period of the colony were excavated, and several architectural features also were found to have survived.

Preliminary analysis of this earlier structure cautiously identified it as the "brewhouse room" mentioned in a letter written from the colony in 1622, and artifacts from the related middens were briefly discussed during the analysis of the Kirke residence (Gaulton and Tuck 2003: 197; Gaulton 2006). A more thorough

and in-depth analysis was conducted between 2010 and 2011 focusing on a number of research questions (Clausnitzer 2011).

The first step in this analysis was to establish the types of material culture present in the brewhouse-related deposits. The diagnostic pieces in this collection were examined with the goal of determining form, function, and general dating. This data would help to confirm the dating and function of the structure itself.

The second goal was an outgrowth of the first. The preliminary examination of the surviving structural features indicated that this building served as a combination brewhouse and bakery, but also raised a new question. Did this use and occupation change prior to the structure's removal? It was believed that a thorough analysis of the material culture would provide an answer to this question.

Brewhouses were built in many North American colonies as a source of dietary staples. A comparison of contemporaneous brewhouses in North America and England was conducted with the goal of understanding how the colonists in Newfoundland



Figure 1. Map of Newfoundland and the Avalon Peninsula. (Courtesy of the Department of Geography, Memorial University of Newfoundland, 2011.)

adapted traditional English lifeways to the local climate and resources.

The final objective related to the brewhouse's removal by Sir David Kirke. Despite the fact that beer and bread were the two staples of the 17th-century English diet, Kirke removed the brewhouse when he assumed control of the colony. Understanding and explaining this action required an historical approach rather than an archaeological one, and was deemed important for a complete understanding of the Ferryland brewhouse and its history.

The answers to the first four questions raised an additional question. How does the brewhouse's role in the colony help in understanding George Calvert's vision

for the settlement? Ultimately, comparing the Ferryland brewhouse to others helped address this question.

## Historical Background

English exploitation of the Newfoundland fisheries started comparatively late but by the early 17th century was well established, and colonization was seen as a means of controlling this lucrative trade (Cell 1982: 3). The first settlements on Newfoundland's shores were at Cupids and Renew's. Renew's was abandoned after a few years, and while Cupids persisted for several decades, it was never very successful (Cell 1982; Gilbert 2003). These two colonies were followed by Bristol's Hope, near modern-day Harbour Grace, which also eventually failed after a promising start (Cell 1969: 87–89).

The next colony was established by George Calvert, a secretary to James I and later the first Baron Baltimore. Building on his experiences in Ireland, he dispatched Edward Wynne and 11 tradesmen to Ferryland where they started construction of his colony of "Avalon" (Gaulton and Tuck 2003; Mannion 2004). Arriving in early August of 1621 and reinforced in May of 1622, they set themselves to this task. By August of 1622, Wynne reported that they had completed or were in the process of constructing a number of buildings and had embarked on agricultural projects. Among the buildings listed was a "brewhouse room" (Wynne 1982a).

Wynne departed the colony in 1625. In the same year Calvert resigned his position as

secretary of state and announced his conversion to Catholicism (Cell 1969: 93; Mannion 2004). Although he originally intended to visit Ferryland as early as 1625, political maneuvering delayed him, and it was not until 1627 that Calvert finally visited his fledgling colony (Cell 1982; Mannion 2004). The following year Calvert moved himself and his household to Newfoundland.

They did not stay long. A combination of the cold climate, French aggression, and other factors convinced Calvert to quit Newfoundland and relocate farther south (Miller et al. 2011). This migration eventually led to the establishment of St. Mary's City in Maryland by his sons Cecil and Leonard. The Calverts still claimed possession of Ferryland, but both their interest and financial support decreased significantly (Gaulton and Tuck 2003: 211).

In 1637 Charles I, citing the Calvert's lack of interest, awarded control of Newfoundland, including Ferryland, to a coalition of court favorites (Kirke 1871: 160–162). This group included a soldier-of-fortune and merchant named Sir David Kirke, who elected to travel to Newfoundland to oversee the business. Kirke, who had made a name for himself fighting in Quebec in 1628 and 1629 and who was heavily involved in the transatlantic wine trade, arrived in Ferryland in 1638 and immediately dispossessed the Calverts' governor (Kirke 1871: 160–162; Pope 2004: 101).

In his reorganization of the colony, Kirke dismantled several buildings including the brewhouse. He levied taxes on foreign fishing vessels and sold licenses for tipping houses. He also charged rent on fishing rooms and stages and held a virtual monopoly on several commodities, including wine (Pope 2004: 140, 412). By 1651 these successful and lucrative practices had come to the attention of the Interregnum government. This success, combined with his known Royalist sympathies and a lawsuit launched by Cecil Calvert over possession of the colony, were enough to recall Kirke to England, where he died in 1654 (Cell 1969: 71).

The Kirke family retained practical control of Ferryland despite Calvert's lawsuit and were among the most wealthy and influential people in Newfoundland (Pope 2004). Ferryland

would soon suffer from the ongoing international wars, however. A Dutch attack in 1673 destroyed much of the waterfront and fishing infrastructure (Gaulton and Tuck 2003: 209–210). The residents of the colony recovered, rebuilding or replacing the damaged infrastructure. Another attack led by Jacques-François de Bruillon, the governor of the French colony of Plaisance, came in 1696. His forces destroyed the colony and deported the inhabitants. The English colonists returned to Ferryland by 1697 but generally settled in other parts of the harbor whereby much of the original settlement was preserved (Tuck 1996: 23).

### Brewing and Baking

Beer and bread were staples of the 17th-century English diet (Sambrook 1996: 2; Sim 1997: 72). Both were nutritious and comparatively cheap, since the prices for beer and bread rose more slowly than grain prices. Three pints of beer, for example, would provide a boy with a quarter of the daily calories he needed as well as all major nutrients except fat (Sim 1997: 57). As Gervase Markham states in *The English Housewife*, it was with beer that everyone "shall maintain his family the whole year" (Markham 1986: 205).

Beer, made with hops, was first produced domestically in the 15th century. By the 16th century it was firmly entrenched in England and by the 17th century it had supplanted traditional unhopped ale in most areas (Thirsk 1978: 93; Clark 1983: 96). Mass production of beer required specialized equipment and a great deal more time and attention than traditional ales (Sambrook 1996: 109; Sim 1997: 52). This led to commercial breweries replacing home brewing, though many wealthy families maintained a private brewhouse to supply themselves and their households (Clark 1983: 183; Sambrook 1996: 4).

Bread was the cheapest and easiest way to fill an empty stomach (Sim 1997: 72). 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). A typical meal for most of the population consisted of bread and pottage, and this meal even appeared, in more elaborate forms, on the tables of the wealthy (Anderson 1971: 89; Sim 1997: 7, 8). It

has been estimated that a family required, on average, one loaf of bread per person, per meal, regardless of social and economic standing (Sim 1997: 8). Similar to the production of beer, most baking was done either on the hearth or in a communal oven, but private estates often included a bakehouse (Thirsk 2007: 217, 234).

Since beer and bread required many of the same raw materials, it was not uncommon to find brewhouses and bakehouses located adjacent to each other or combined into a single structure (Sim 1997: 49). Often one of the first things colonists did when they arrived in North America was construct a brewhouse and bakehouse. Brewhouses are reported in

several colonial settlements including Jamestown (Cotter 1958; Mrozowski 1999: 159), Cupids (Gilbert 2003: 119), and Ferryland (Clausnitzer 2011), and a bakehouse is indicated on the 1607 John Hunt map of the Popham colony (Brain 2007).

### **Architectural Evidence for the Ferryland Brewhouse**

The construction of the later Kirke residence, which reused the brewhouse hearth, destroyed or obscured most of the architectural evidence of the brewhouse; however, four significant features survived. The preliminary analysis of these led to the initial identification of the structure as a



Figure 2. The brewhouse well. (Photo by Barry Gaulton, 2001.)

brewhouse and bakery. Further analysis was undertaken to confirm this interpretation.

The four features that comprise the remains of the brew-house are a slate drain and the associated catch basin, a 3.66 m deep wood-lined well, and the hearth. Of these features, the catch basin and drain were covered over during the construction of the later Kirke house, while the well and hearth were initially reused until being filled in and replaced in the 1660s (Gaulton 2006).

The well (FIG. 2) is an important clue to the function of the building. Captain Wynne's letters reveal that a 16 ft. deep well was dug to provision the colony with water (Wynne 1982a). This feature is not that well, as indicated by its depth of only 3.66 m (12 ft.) and by its construction. Excavations revealed the bottom 2–3 ft. of

wood lining, consisting of an outer cribwork of logs and an inner box frame of sawn boards. The space between the well liner and the surrounding earth is filled with rocks and coarse gravel, while the space between the inner box frame and outer cribwork is filled with finer material. This setup had a filtering effect that kept the water in the well clean. This filter extended at least 4 ft. up the well shaft, which was probably the depth of the water table. Surrounding the well shaft at the surface is a roughly 2.5 × 2.5 m square cobble pavement with post molds at each corner, suggesting that the well was enclosed. This



Figure 3. The brewhouse catch basin and drain. (Photo by Barry Gaulton, 2004.)

enclosure would explain the surprising lack of artifacts recovered from the well shaft.

Brewhouses required a constant supply of clean water both for brewing and for cleaning utensils and equipment. As a result many brewhouses were built with a private well (Pearson 1999: 15; Driver et al. 2008: 122). Furthermore, cleaner water makes a better beer. The effort put into the well's construction, especially the filtering liner and the well house enclosure, and the well's close proximity to the brewhouse support the idea that this well was intended for the sole use of the brewhouse.



Figure 4. The brewhouse hearth with slate supports for the brewing copper and remains of two bread ovens in the corners. (Photo by Barry Gaulton, 2004.)

The catch basin and subsurface drain (FIG. 3) were uncovered beneath the 1660s Kirke fireplace. The catch basin is formed by a  $1 \times 1$  m patch of cobbles set directly into subsoil, while the drain is constructed from horizontal and vertical slates set into a subsurface trench. This drain extends north toward and underneath the colony's main cobblestone street and like the well was almost completely devoid of artifacts. This latter fact suggests the presence of a grate or grill covering the catch basin to capture larger debris, as does the presence of two upright slates upon which a grate could be supported. Working in a brewhouse required handling large quantities of liquid as well as extensive cleaning of the building, utensils, and other equipment. A drainage system is therefore a necessary and common feature of brewhouses. In his letter of 28 July 1622, Captain Wynne spoke of having "broken much ground for a Brewhouse roome," a possible reference to the digging of the well and drain (Wynne 1982a).

The large and well-built brewhouse fireplace (FIG. 4) provides more evidence for the function of the structure. Nearly 4.5 m wide and 3 m deep, the fireplace has a large hearth that is 2.5 m at the widest point and 2 m deep. Centered

in the back of the hearth are two upright stones that served as supports for a brewing kettle, or *copper*. Built into each of the back corners of the hearth was a North Devon *clome* oven, used for baking bread and other foodstuffs. The hearth is floored with cobbles. Excavations found that the present floor is not the original but is most likely a replacement installed during the 1640s, probably at the same time the Kirke house was built (Gaulton 2006: 69; Clausnitzer 2011: 47).

Due to the disturbances caused by the Kirke residence, most other evidence of the brewhouse structure has been destroyed or muddled beyond recognition, making any attempt to discuss the construction and appearance of the building mostly informed speculation. The presence of roofing slates and cobbles in the destruction/construction layer between the brewhouse and Kirke residence indicates that the building was floored in cobbles and roofed in slate, which was not uncommon for early Calvert period structures (Gaulton and Tuck 2003: 205). The complete lack of evidence for a footing or foundation, while possibly a result of later disturbances, indicates that the brewhouse had either an insubstantial footing or (more likely) was built

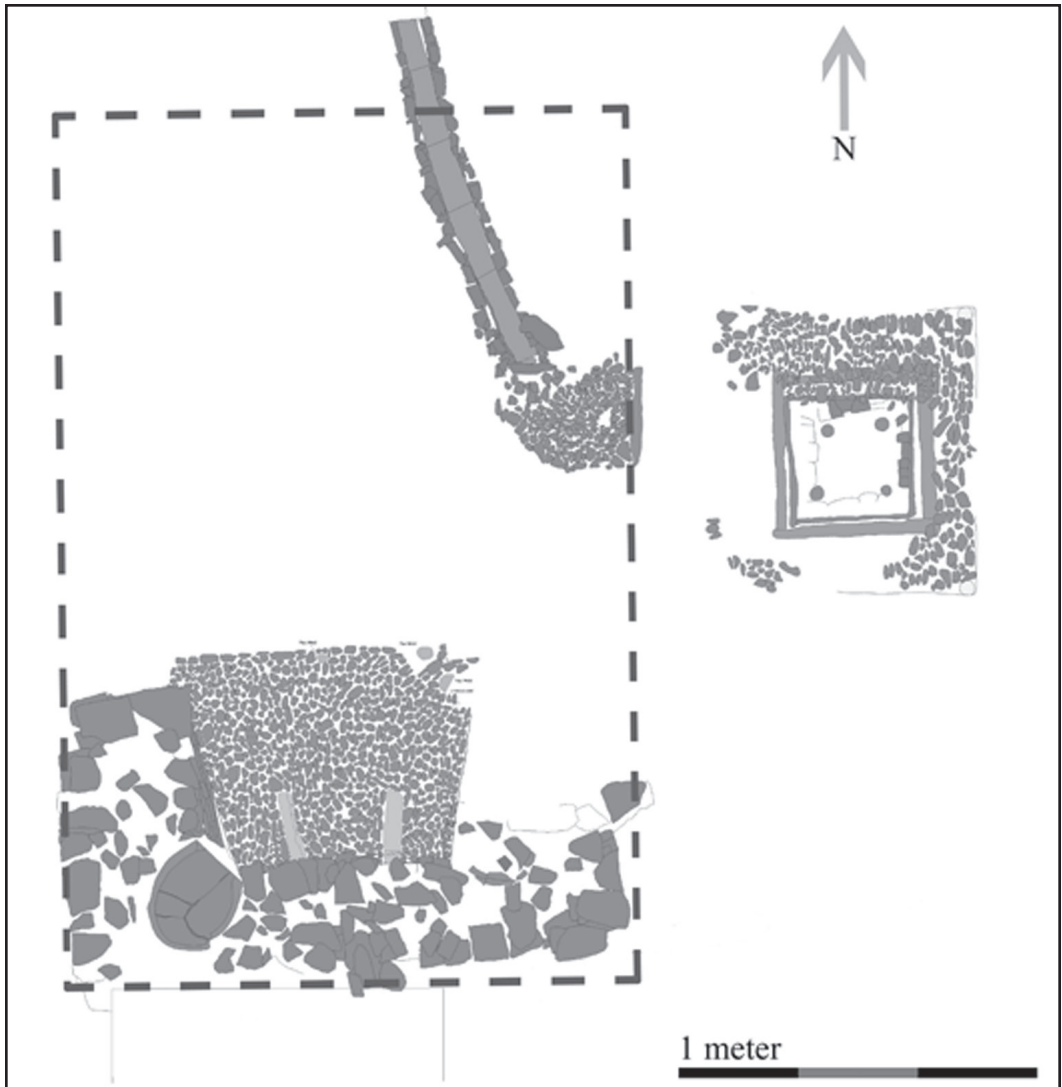


Figure 5. Map of major brewhouse-related features in relation to each other, with hypothetical outline of brewhouse structure overlaid. (Map by Charlie Conway with additions by Arthur R. Clausnitzer Jr, 2012.)

using some form of earthfast construction (Clausnitzer 2011). The large number of nails in the middens is a good indication that wood was the primary construction material.

It did prove possible to determine the rough footprint of the brewhouse based on the distribution of related artifacts. Most of the artifacts associated with the brewhouse were recovered from just two large middens. One of these middens is confined mostly to a  $6 \times 4$  m area extending north from and centered on the fireplace and represents items deposited in the

actual brewhouse. Furthermore, excavations in 2009 revealed that the destruction /construction layer did not extend south beyond a clear line approximately 20–30 cm north of the North 5 gridline, which matches up almost exactly with the northern limit of this interior midden and may in fact represent the northern extent of the structure. Measuring from the rear of the fireplace to this line gives a length of approximately 7.32 m. If the fireplace took up most of the south gable of the building, which was not an uncommon feature of the time, the



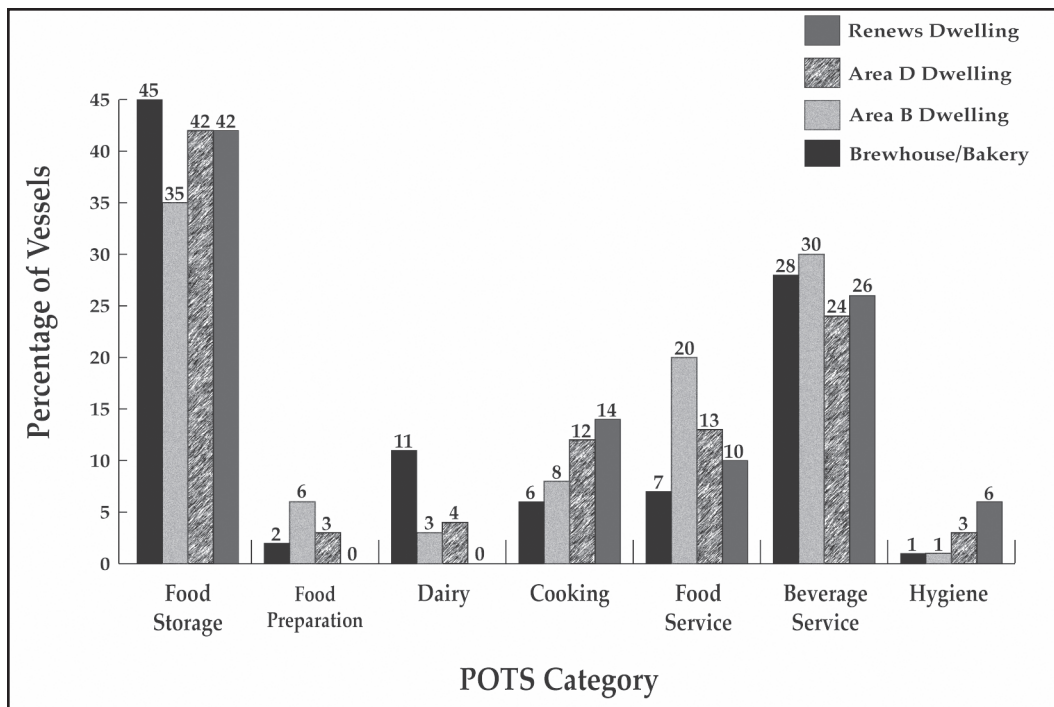


Figure 6. Histogram of the distribution of POTS categories. Information is derived from Clausnitzer (2011), Crompton (2001), Mills (2000), and Nixon (1999). (Graph by Arthur R. Clausnitzer Jr, 2012.)

footprint of the brewhouse is approximately  $7.32 \times 4.88$  m ( $24 \times 16$  ft.). This hypothetical outline is illustrated in relationship with the brewhouse features in Figure 5.

Evidence for windows and doors is scant. There is only a limited amount of window glass in the collection, and it is likely that this is from the Kirke house and is intrusive to the brewhouse assemblage. This is supported by other research that shows that brewhouses were usually constructed with unglazed, louvered windows, and that glazed and leaded windows were usually reserved for the homes of the well off (Cummings 1979: 146; Sim 1997: 54; Pearson 1999: 24). Although written a century after the Ferryland brewhouse was dismantled, the *London and Country Brewer* (1724) recommended that brewhouses have louvered windows on three sides (Pearson 1999: 24, 28). There is little reason not to assume that the Ferryland brewhouse followed a similar pattern, which would have provided the ventilation necessary for brewing and baking activities. The door to the brewhouse was likely located at the

northeast corner of the structure based on the location of the primary midden associated with the brewhouse and assuming that the brewhouse occupants used the broadcast method of refuse disposal that was typical on many 17th-century sites (Deetz 1996: 172).

It is worth noting the location of this structure relative to what is today known as the "Mansion House," a series of small buildings amalgamated into a single larger compound centered on a  $10.97 \times 7.01$  m ( $36 \times 18$  ft.) stone structure, believed to have been the home of George Calvert during his brief stay in Newfoundland (Tuck and Gaulton 2013). Brewhouses and bakehouses were often placed away from the main residence or community 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 structure believed to be the brewhouse was placed on the eastern edge of the colony, alongside the defensive ditch that enclosed the original settlement. At the other end of the colony, near the narrow beach connecting

Ferryland Head to the mainland, is the forge, which also required fire and which produced a lot of smoke and odors. In between these two extremes is the Mansion House. This layout not only places the Mansion House in a visually prominent location, but also places the two nondomestic 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. This placement provides additional support to the identification of this structure as the brewhouse and shows that Governor Wynne had taken care in the planning of the colony's layout.

### Material Culture of the Brewhouse

While tens of thousands of artifacts were recovered from the contexts associated with the brewhouse, much of this assemblage consisted of iron in the form of nail fragments. To address the research objectives fully, emphasis was placed on four categories of artifacts: ceramics, clay smoking pipes, glass, and coins. The remainder of the assemblage was surveyed to find any other potentially diagnostic or otherwise useful or interesting artifacts, and while there were some interesting pieces, nothing was found that would contribute to the final analysis of the brewhouse.

The ceramic assemblage was quite large, consisting of nearly 5,000 sherds and a minimum number of vessels (MNV) of 89. The vessels were identified and classified according to the Potomac Typological System (POTS), which is standard for Ferryland assemblages in order to facilitate intra- and intersite comparisons with other collections in Newfoundland and elsewhere (Beaudry et al. 1983; Crompton 2001: 145). Due to the fact that no exclusively Calvert era domestic assemblages have been found for use as a comparison, it was decided to compare this assemblage to two later domestic structures at Ferryland and another from nearby Renew's. When the data from these four sites were compared side-by-side, it became readily apparent that the gross distribution of the various POTS categories is almost identical for each structure. The brewhouse, however, has the highest percentage of storage and dairy vessels, the second highest for beverage service vessels, and the lowest for the remaining categories (FIG. 6).

The large percentage of food storage and beverage service vessels in all four assemblages is noteworthy and deserves further discussion, as it is often seen as a direct result of the conditions of the early Newfoundland fishing industry. Much of the settlement in Newfoundland occurred as an outgrowth of the fisheries, and as a result planters tended to be heavily focused on this lucrative and labor-intensive industry. This fact, combined with a lack of arable land and pasture around the most popular fishing harbors and the short growing season afforded by Newfoundland's climate, made agriculture and animal husbandry a secondary concern (Pope 2004). The large number of North Devon tallpots, designed for the storage and shipping of preserved foods, is strongly indicative that planters remained at least partially dependent on imported supplies of food. Their presence in the brewhouse, however, is most likely the result of these containers being reused for the storage of the brewhouse's products.

At the same time, the merchant activities of men such as Sir David Kirke and the high profits and wages obtained from participation in the fisheries created a demand for higher-quality drinks. The transatlantic wine or sack



Figure 7. Assorted pipe bowls from brewhouse-related contexts. These bowls date, clockwise from top left: 1610–1640, 1660–1680, 1630–1660, and 1620–1640. (Photo by Arthur R. Clausnitzer Jr, 2011.)

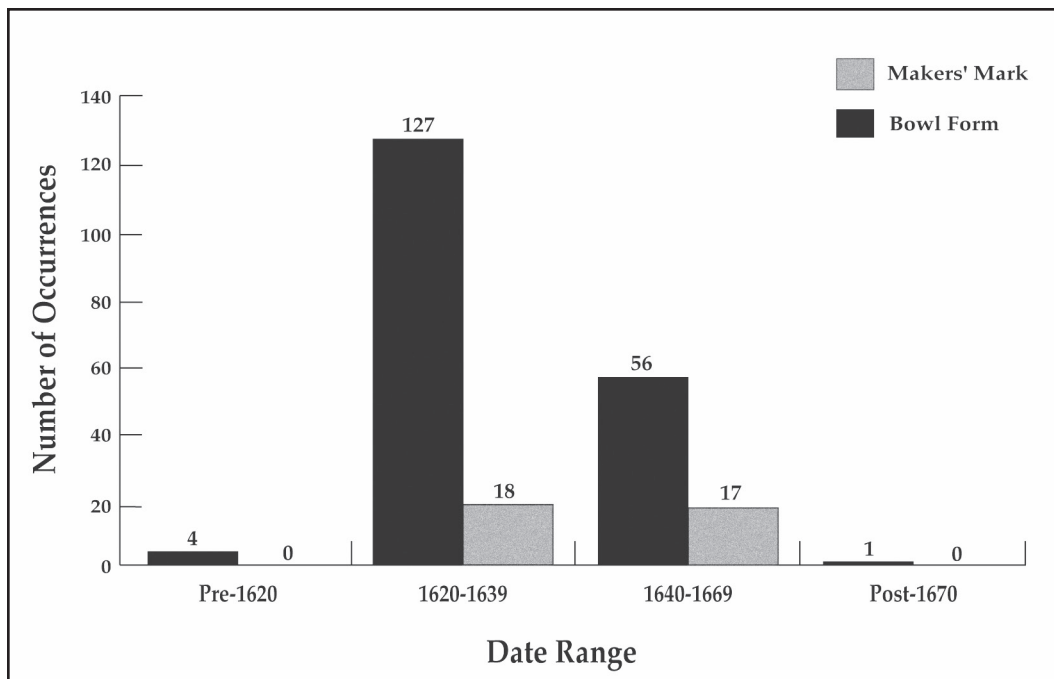


Figure 8. Histogram showing the distribution of *terminus post quem* dates of bowl forms and makers' marks. (Graph by Arthur R. Clausnitzer Jr, 2011.)

trade supplied this demand by transporting Newfoundland fish to the Iberian Peninsula and the Mediterranean in return for wine and other spirits. Wine was perceived to have a warming effect on the human body, an important consideration in the colder climate of Newfoundland. This perception, combined with the relatively large amount of disposable income available to fishermen, created a high demand for the beverage, which led many planters to run tippling houses to supplement their own incomes. This resulted in the typically large percentage of beverage service vessels on Newfoundland sites (Pope 1989).

The construction of the brewhouse, however, predates most of these developments. The brewhouse has a low percentage of cups and mugs, representing only 4% of all beverage service vessels. In contrast, in the two Ferryland dwellings almost a third of the beverage service vessels are cups and mugs, while at the Renew's dwelling nearly 75% of the beverage-related vessels are cups. This is solid evidence that production activities at the brewhouse were geared towards dispensing beer in communal serving vessels and for short-term storage.

The brewhouse assemblage is unusual in the relatively high percentage of dairying vessels present, all milkpans. The only other two places in the entire site where such high percentages occur are a cow byre and a dairy house built by the Kirkes in the 1660s. Milkpans are traditionally associated with the cooling and scalding of milk but could have served a different function in the brewhouse. Making beer required periods of cooling and fermenting. In larger brewhouses specialized tuns were used for this purpose, while smaller operations sometimes made do with a number of small vessels. A treatise on the brewing of beer, published in 1796, notes this fact and laments on the lower quality of the beer produced in such a way (Hughes 1796). It is therefore likely that the milkpans in the brewhouse were used for cooling and fermenting beer.

The low percentages of food preparation, cooking, and food service vessels, combined with a lack of evidence for other activities, support the notion that the brewhouse served its original functions throughout its lifespan. Notably, the proportion of food service vessels is



Figure 9. Coins and tokens from brewhouse-related contexts. (Courtesy of Paul S. Berry, Chief Curator, National Currency Collection, Currency Museum, Bank of Canada, Ottawa, 2002.)

the lowest amongst all the structures compared. On 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 socioeconomic level. The brewhouse has neither.

Typical of most historical sites in North America, the brewhouse middens contained a large number of clay smoking pipes. Nearly 3,300 fragments were recovered, representing a minimum of 345 individual pipes. This assemblage proved useful in confirming the early date of the structure.

Though there are several formulas for establishing a mean date from stem-bore diameters, it was decided not to use any on the brewhouse assemblage. This was due to several factors, including the short lifespan of the building, limitations inherent in stem-bore dating techniques, and known issues with using such formulas on Newfoundland sites (Gaulton 2006: 42). Instead, this project relied on establishing *terminus post quem* and *terminus ante quem* dates for the large number (n=186) of intact or nearly intact bowls (FIG. 7) and the 35 legible makers' marks, representing ten individual makers, found in the collection.

Figure 8 illustrates the distribution of *terminus post quem* dates for both bowl form and makers' marks. A clear majority of these dates fall within the 1620–1639 time period, roughly corresponding to the life of the brewhouse structure. This confirms that the brewhouse was built during the early years of the colony, supporting its identification as Wynne's "brewhouse room." The significant number of dates in the early Kirke period is also clear evidence that there was no break in the continuity between the brewhouse occupation and the Kirke occupation. Similar bowl forms and makers' marks in both the late brewhouse deposits and the early Kirke deposits demonstrate that the brewhouse was torn down and the Kirke residence built within a short period of time around 1640.

An analysis of the approximately 1,470 fragments of glass did not provide any new insights but reinforced the identification of the structure as a brewhouse. Twelve of the twenty identified vessels are case bottles of

an early style (Wicks 1999). Four more vessels were identified as wine bottles of the shaft-and-globe type. Although generally identified with the shipping and consumption of wine and other spirits, such bottles were often reused for other purposes, including the storage of beer (Jones 1986; Faulkner and Faulkner 1987: 232–235). The early date of these 16 bottles further reinforced the association of the brewhouse with the colony's early years. The lack of drinking vessels, only two of which were identified, also supports the brewhouse having served as only a brewhouse/bakehouse throughout its approximately 18-year lifespan. The two remaining vessels are a pharmaceutical bottle and one of an unknown form.

Three coins were recovered from brewhouse-related contexts (FIG. 9), while a fourth coin, though not directly related to the brewhouse occupation, is important for establishing a *terminus ante quem* for the structure. Recovered from the primary middens are a 1603/1604 English silver penny and a 1608 French *double tournois*. Recovered from a smaller deposit immediately behind the brewhouse is a 1586–1635 Hans Krauwinkel II *Rechenpfennig*, or token (Berry 2002). The presence of these coins and token also points to the early date of the brewhouse, again supporting its identification as the 1622 brewhouse room.

The fourth coin, also a French *double*, was recovered from the destruction/construction layer between the brewhouse deposits and the Kirke deposits. Coins of this style are known to have been manufactured only between 1636 and 1641 (Berry 2002: 22). Furthermore, the numeral “63” is visible on the coin, which furthers narrows the date range to 1636–1639. As it was found in a construction layer related to the Kirke residence, and Sir David Kirke did not arrive in Ferryland until 1638, the coin could not have been deposited before then. Since the pipes show that there was no appreciable gap in occupation on the site, this means that the brewhouse was torn down at the same time construction on the Kirke residence started, or between 1638 and the early 1640s, providing a solid *terminus ante quem* date for the brewhouse (Gaulton 2006: 84; Clausnitzer 2011: 100). With the *terminus post quem* date provided by Captain Wynne's August 1622 letter, this establishes that the brewhouse stood for approximately 18 years.

## Inter-Site Comparison

Two sites for comparison were identified during research. The first is a late medieval to early modern brewhouse located at Buckland Abbey in Yelverton, Devon, England, and the second is a ca. 1630 structure at Jamestown, Virginia (Cotter 1958; Allan 2006). The goal of this comparison was to understand how the colonists in Newfoundland adapted traditional English lifeways to the local climate and resources. Unfortunately, neither site proved to be a very effective comparison with the Ferryland brewhouse. The major reason was a lack of artifacts. At Buckland Abbey almost no artifacts were recovered, and in Jamestown most of the artifacts proved to be fill from the nearby glassworks and pottery kiln (Cotter 1958: 109; Allan 2006: 157). Also, in the case of the Jamestown brewhouse there is evidence that the building was constructed for a different purpose and was only later converted to a brewhouse with the addition of three boiler furnaces (Cotter 1958: 106).

These limitations meant that comparison between the sites failed to address the third research question. They did, however, prompt the formulation of the fifth research goal focused on the role of the brewhouse in the settlement. Both the Buckland Abbey and Jamestown brewhouses possessed boiler furnaces. The Buckland Abbey brewhouse was constructed to supply the needs of a monastery, which included the monks and the members of the surrounding community. After the monastery was dissolved the brewhouse continued supplying a number of wealthy families who owned the property (Allan 2006). The Jamestown brewhouse was built as part of a diversification of industry in Jamestown and was one of two noted in historical records (Cotter 1958: 106; Mrozowski 1999: 159). In both cases these brewhouses were meant to supply a larger community than Ferryland and provide a surplus for trade. This is important when attempting to understand the role of the brewhouse in the colony.

## Role in the Settlement

While asking what role the brewhouse played in the larger settlement may seem redundant, this question proved to be the most fruitful line of research. Certainly the brewhouse served an important role in supplying beer and

bread to the colony, but examining the brewhouse as just one part of a larger community answers questions that otherwise might be overlooked.

In the case of the brewhouse, answering the question about its role in the settlement at Ferryland requires reexamining the architectural features of the structure. More specifically, it requires looking at what is not present. As previously mentioned one of the drawbacks of beer brewing was the requirement for specialized equipment for efficient mass production. The largest of these were furnaces, large structures designed to allow two coppers to be used simultaneously. This greatly streamlines the production of beer, which requires two separate boiling stages. A collection of 17th-century architectural drawings by the Smythson family contains several brewhouse designs, and each one includes a pair of furnaces (Girouard 1962: 116, 138, 170). The only two excavated

brewhouses, at Jamestown, Virginia, and at Buckland Abbey in Yelverton, Devon, England, both possessed furnaces as well (Cotter 1958; Allan 2006).

The Ferryland brewhouse, however, does not possess furnaces, nor is there any evidence that there may have been a set that was removed when the building was dismantled and reused. This apparently archaic design feature caused some confusion early in the analysis of the structure, until another plan in

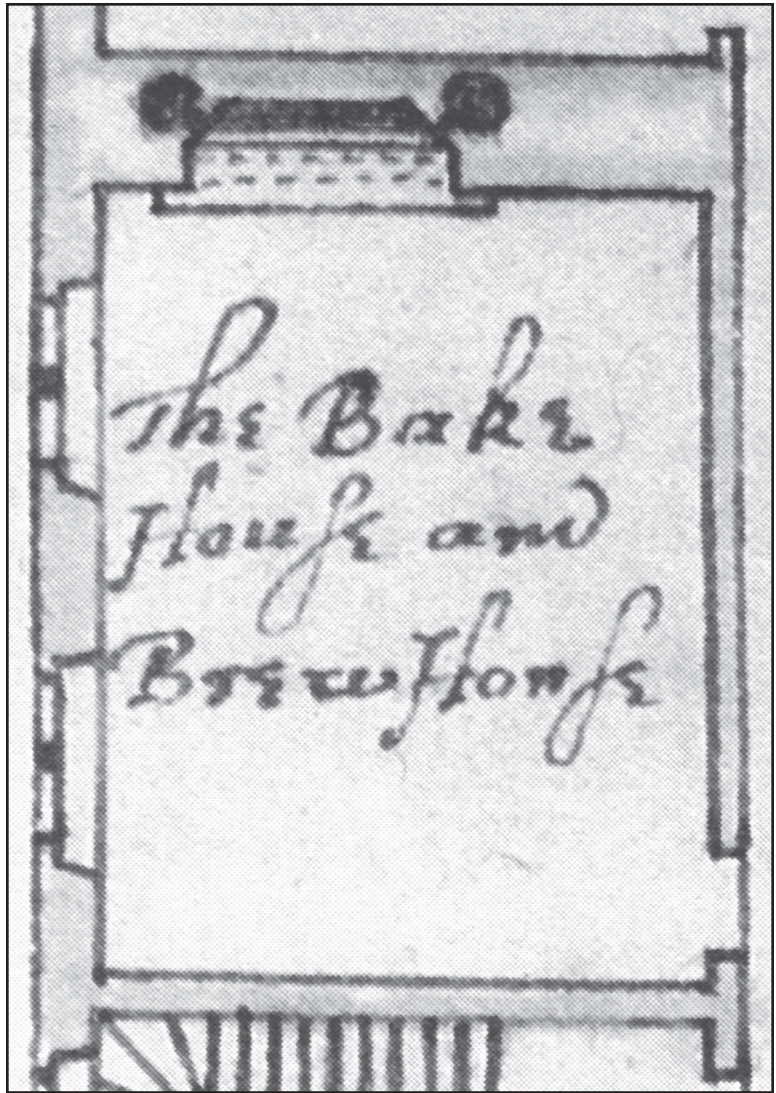


Figure 10. Detail from a 1622 drawing of a London townhouse showing the "bakehouse and brewhouse." (Courtesy of Royal Institute of British Architects Library Drawings and Archives Collections, London.)

the Smythson Collection was examined. This 1622 plan for a London townhouse depicts a room clearly labeled "the bakehouse and brewhouse" (FIG. 10) in which the hearth structure illustrated is almost identical to the one in Ferryland (Girouard 1962: 160).

This information brings the role of the brewhouse within the larger settlement at Ferryland into focus. Instead of being seen as a town, Ferryland is best viewed instead as a manor house or small country estate centered

around a cluster of domestic structures built for the Calvert family and their retinue (Tuck and Gaulton 2013). The brewhouse was designed and built to provide a small population with a measure of self-sufficiency, not to support a large permanent population or produce export-level quantities.

The historical evidence supports this interpretation. Traditionally, brewing ale was part of a woman's household duties. The introduction of beer, which required more time and attention than the average housewife possessed, led to a decline in homebrewing and an increase in centralized production. As a result, by the beginning of the 17th century brewing had become an organized, professional, male-dominated trade, though many private estates maintained brewhouses to supply their own needs.

The Ferryland brewhouse was not intended for commercial-level production. First, the layout of the brewhouse is clearly designed for small-scale subsistence production. Second, Captain Wynne makes a request in 1622 for a couple of "strong maids, that (besides other worke) can both brew and bake" (Wynne 1982b). Third, Wynne describes the structure as a "brewhouse room." This statement is subject to the changes in word use and definition over time, but the connotation is that the brewhouse was perceived as a single "room" in a larger structure. This description fits with the rest of the early settlement, which is dominated by the Mansion House complex. Typical for the period, the brewhouse is set away from the main living area, but is located close enough to be convenient.

A final piece of evidence comes from Gervase Markham's 1615 book, *The English Housewife*. In this guide to running the household, Markham advises middling and gentry housewives 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 [copper] 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" (Markham 1986: 205–206). The wording of these directions makes it clear that multiple furnaces and coppers are not used, but rather

that a single copper is used repeatedly. It is reasonable to assume that a similar procedure was used in the Ferryland brewhouse.

Interpreting the domestic core of Ferryland as a small estate rather than a town also answers the fourth research question; specifically, why Sir David Kirke dismantled the structure shortly after assuming control of Ferryland. Kirke's mercantile connections and activities as well as his involvement in the wine trade were discussed previously. Kirke sought to establish an entrepôt in Ferryland for the triangular trade in fish and wine. Records indicate that Kirke imported Iberian wine into Ferryland and reexported it to the other British American colonies (Pope 1989).

The brewhouse simply did not fit into this capitalistic vision of the Pool Plantation. It was not set up to produce large quantities of beer to be sold, and furthermore this operation would undermine his profits from the control of the wine trade. Having no other purpose then, and with level land upon which to build at a premium, the brewhouse was no longer needed and was dismantled. Kirke took advantage of this to reuse the existing and well-built brewhouse fireplace in the construction of his own home, saving time and (perhaps more importantly to Sir David) expense.

## Conclusion

The brewhouse at Ferryland was constructed between 1622 and 1623 and torn down between 1638 and the early 1640s. 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 diet. Operated by a couple of "strong maids," it remained in use until the 1638 arrival of Sir David Kirke and his retinue. Kirke reorganized the colony, which later became known as the Pool Plantation, turning it into an entrepôt for the triangular trade and emphasizing profits from the fishing industry. The brewhouse had no place in this new mercantile scheme and was dismantled. Kirke, to save time and money, reused the fireplace for his new house. The finale of the brewhouse story occurred in the 1660s when someone, probably Kirke's widow or one of his sons, walled up the hearth and filled in the well so that a new fireplace could be built on top.

The Ferryland brewhouse offered a unique opportunity to study a structure that, while common in historical accounts, has proven difficult to study archaeologically (Allan 2006: 261). Brewhouses and bakehouses are mentioned in many historical accounts of the early colonial period, leading one author to claim that construction of a brewery ranked along with food and shelter as a priority of new colonists (Smith 1998: 8). In addition to Ferryland, brewhouses or bakehouses are known to have been constructed or planned in Jamestown, Virginia (Cotter 1958); Popham, Maine (Brain 2007); and Cupids, Newfoundland (Gilbert 2003: 119), among others. Both brewhouses and bakehouses are mentioned in several 17th-century probate inventories from New England (Essex Institute 1916; New Hampshire Probate Court 1989). A notable mention of brewing and baking is John Winter's 1634 statement that the hearth of the great house at Richmond Island was large enough to "brew & bake and boyle our Cyttell [kettle]" (Winter 1884). As late as the 1750s Samuel Haley constructed both a brewhouse and bakehouse to support his fishing operation on Smuttynose Island, one of the Isles of Shoals, Maine (Rutledge 1965).

Despite these repeated appearances in the documentary accounts, only the Ferryland brewhouse and one of the Jamestown brewhouses have been excavated, and the Jamestown example lacked a significant artifact assemblage. This makes the Ferryland brewhouse unique in North American archaeology. By the same token, the lack of comparative information makes interpreting the site difficult. Vernacular adaption to the peculiarities of Newfoundland created a unique pattern in the quantity of certain artifact types in domestic assemblages. This same pattern is also found in the Ferryland brewhouse but with several significant differences. The unanswered question is whether the brewhouse assemblage is a result of the same vernacular adaption with the differences reflective solely of its different function, or if the assemblage is representative of colonial brewhouses as a whole. Only the excavation and comparison to other English colonial period brewhouses will tell. What is clear, however, is that the Ferryland brewhouse appears to be architecturally atypical of its time

period. Regardless of any differences that may be encountered, the brewhouse at Ferryland provides an excellent starting point for future studies of this type of structure.

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